

# SAR TEST REPORT



The following samples were submitted and identified on behalf of the client as:

<b>Equipment Under Test</b>	Notebook Computer
<b>Brand Name</b>	HP
<b>Model No.</b>	HSN-I20C
<b>Company Name</b>	HP Inc.
<b>Company Address</b>	3390 East Harmony Road, Fort Collins Colorado, 80528 United States
<b>Standards</b>	IEEE/ANSI C95.1-1992, IEEE 1528-2013, KDB616217D04v01r02, KDB865664D01v01r04, KDB865664D02v01r02, KDB941225D01v03r01, KDB941225D05v02r05, KDB941225D05Av01r02, KDB447498D01v06, KDB248227D01v02r02
<b>FCC ID (for WWAN)</b>	B94HNI20CPK
<b>FCC ID (for WLAN)</b>	B948265D2WM
<b>Date of Receipt</b>	Jul. 09, 2018
<b>Date of Test(s)</b>	Jul. 28, 2018 ~ Sep. 07, 2018
<b>Date of Issue</b>	Sep. 19, 2018

In the configuration tested, the EUT complied with the standards specified above.

## Remarks:

This report details the results of the testing carried out on one sample, the results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

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## Signed on behalf of SGS

Clerk / Ruby Ou	Asst. Supervisor / Afu Chen	Asst. Manager / John Yeh
Ruby Ou	afu Chen	John Teh

**Date: Sep. 19, 2018**

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## Revision History

Report Number	Revision	Description	Issue Date
E5/2018/70014	Rev.00	Initial creation of document	Sep. 10, 2018
E5/2018/70014	Rev.01	1 <sup>st</sup> modification	Sep. 18, 2018
E5/2018/70014	Rev.02	2 <sup>nd</sup> modification	Sep. 19, 2018

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# 1. General Information

## 1.1 Testing Laboratory

SGS Taiwan Ltd. Electronics & Communication Laboratory	
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Fax	+886-2-2298-0488
Internet	<a href="http://www.tw.sgs.com/">http://www.tw.sgs.com/</a>

## 1.2 Details of Applicant

Company Name	HP Inc.
Company Address	3390 East Harmony Road, Fort Collins Colorado, 80528 United States

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### 1.3 Description of EUT

Equipment Under Test	Notebook Computer			
Brand Name	HP			
Model No.	HSN-I20C			
FCC ID(for WWAN)	B94HNI20CPK			
FCC ID(for WLAN)	B948265D2WM			
Integrated Module	WLAN	Brand Name : Intel Model Name : 8265D2W		
	WWAN	Brand Name : Fibocom Model Name : L860-GL		
Mode of Operation	<input checked="" type="checkbox"/> WCDMA <input checked="" type="checkbox"/> HSDPA <input checked="" type="checkbox"/> HSUPA <input checked="" type="checkbox"/> HSPA+ <input checked="" type="checkbox"/> DC-HSDPA <input checked="" type="checkbox"/> LTE FDD <input checked="" type="checkbox"/> LTE TDD <input checked="" type="checkbox"/> WLAN802.11 a/b/g/n(20M/40M)/ac(20M/40M/80M) <input checked="" type="checkbox"/> Bluetooth			
Duty Cycle	WCDMA	1		
	LTE FDD	1		
	LTE TDD	0.633		
	WLAN802.11 a/b/g/n(20M/40M)/ac(20M/40M/80M)	1		
	Bluetooth	1		
TX Frequency Range (MHz)	WCDMA Band II	1850	—	1910
	WCDMA Band IV	1710	—	1755
	WCDMA Band V	824	—	849
	LTE FDD Band 2	1850	—	1910
	LTE FDD Band 4	1710	—	1755
	LTE FDD Band 5	824	—	849
	LTE FDD Band 7	2500	—	2570
	LTE FDD Band 12	699	—	716

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TX Frequency Range (MHz)	LTE FDD Band 13	777	—	787
	LTE FDD Band 14	788	—	798
	LTE FDD Band 17	704	—	716
	LTE FDD Band 25	1850	—	1915
	LTE FDD Band 26	814	—	849
	LTE FDD Band 30	2305	—	2315
	LTE TDD Band 38	2570	—	2620
	LTE TDD Band 41	2496	—	2690
	LTE FDD Band 66	1710	—	1780
	WLAN802.11 b/g/n(20M)	2412	—	2472
	WLAN802.11 n(40M)	2422	—	2462
	WLAN802.11 a/n(20M)/ac(20M) 5.2G	5180	—	5240
	WLAN802.11 n(40M)/ac(40M) 5.2G	5190	—	5230
	WLAN802.11 ac(80M) 5.2G			5210
	WLAN802.11 a/n(20M)/ac(20M) 5.3G	5260	—	5320
	WLAN802.11 n(40M)/ac(40M) 5.3G	5270	—	5310
	WLAN802.11 ac(80M) 5.3G			5290
	WLAN802.11 a/n/ac(20M) 5.6G	5500	—	5720
	WLAN802.11 n/ac(40M) 5.6G	5510	—	5710
	WLAN802.11 ac(80M) 5.6G	5530	—	5690
WLAN802.11 a/n(20M)/ac(20M) 5.8G	5745	—	5825	
WLAN802.11 n(40M)/ac(40M) 5.8G	5710	—	5795	
WLAN802.11 ac(80M) 5.8G			5775	
Bluetooth	2402	—	2480	
Channel Number (ARFCN)	WCDMA Band II	9262	—	9538
	WCDMA Band IV	1312	—	1513
	WCDMA Band V	4132	—	4233
	LTE FDD Band 2	18607	—	19193

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Channel Number (ARFCN)	LTE FDD Band 4	19957	—	20393
	LTE FDD Band 5	20407	—	20643
	LTE FDD Band 7	20775	—	21425
	LTE FDD Band 12	23017	—	23173
	LTE FDD Band 13	23205	—	23255
	LTE FDD Band 14	23305	—	23355
	LTE FDD Band 17	23755	—	23825
	LTE FDD Band 25	26047	—	26683
	LTE FDD Band 26	26697	—	27033
	LTE FDD Band 30	27685	—	27735
	LTE TDD Band 38	37775	—	38225
	LTE TDD Band 41	39675	—	41565
	LTE FDD Band 66	131979	—	132665
	WLAN802.11 b/g/n(20M)	1	—	13
	WLAN802.11 n(40M)	3	—	11
	WLAN802.11 a/n(20M)/ac(20M) 5.2G	36	—	48
	WLAN802.11 n(40M)/ac(40M) 5.2G	38	—	46
	WLAN802.11 ac(80M) 5.2G		42	
	WLAN802.11 a/n(20M)/ac(20M) 5.3G	52	—	64
	WLAN802.11 n(40M)/ac(40M) 5.3G	54	—	62
	WLAN802.11 ac(80M) 5.3G		58	
	WLAN802.11 a/n/ac(20M) 5.6G	100	—	144
	WLAN802.11 n/ac(40M) 5.6G	102	—	142
WLAN802.11 ac(80M) 5.6G	106	—	138	
WLAN802.11 a/n(20M)/ac(20M) 5.8G	149	—	165	
WLAN802.11 n(40M)/ac(40M) 5.8G	151	—	159	
WLAN802.11 ac(80M) 5.8G		155		
Bluetooth	0	—	78	

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Max. SAR (1 g) (Unit: W/Kg)				
Band	Measured	Reported	Channel	Position
WCDMA Band II	1.20	1.21	9538	Left side
WCDMA Band IV	1.23	1.30	1412	Left side
WCDMA Band V	0.79	1.00	4132	Left side
LTE FDD Band 2	1.02	1.04	19100	Left side
LTE FDD Band 4	1.12	1.18	20050	Left side
LTE FDD Band 5	0.82	0.84	20525	Left side
LTE FDD Band 7	0.66	0.67	20850	Top side
LTE FDD Band 12	0.69	0.70	23095	Left side
LTE FDD Band 13	0.88	0.88	23230	Left side
LTE FDD Band 14	0.85	0.87	23330	Left side
LTE FDD Band 17	0.70	0.74	23800	Left side
LTE FDD Band 25	0.97	1.09	26365	Left side
LTE FDD Band 26	0.85	0.88	26965	Left side
LTE FDD Band 30	0.71	0.71	27710	Left side
LTE TDD Band 38	0.10	0.10	38150	Top side
LTE TDD Band 41	0.58	0.59	41055	Top side
LTE FDD Band 66	1.09	1.14	132572	Left side

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Max. SAR (1g) (Unit: W/Kg)					
Antenna	Band	Measured	Reported	Channel	Position
Main	WLAN802.11 b	0.69	0.70	1	Top side
	WLAN802.11 n(40M) 5.2G	0.66	0.68	46	Top side
	WLAN802.11 n(40M) 5.3G	0.52	0.53	54	Top side
	WLAN802.11 ac(80M) 5.6G	0.62	0.64	138	Top side
	WLAN802.11 ac(80M) 5.8G	0.66	0.68	155	Top side
Aux	WLAN802.11 b	0.54	0.54	1	Top side
	Bluetooth(GFSK)	0.11	0.12	39	Top side
	WLAN802.11 n(40M) 5.2G	0.76	0.77	38	Top side
	WLAN802.11 n(40M) 5.3G	0.65	0.68	54	Top side
	WLAN802.11 ac(80M) 5.6G	0.77	0.80	138	Top side
	WLAN802.11 ac(80M) 5.8G	0.65	0.65	155	Top side

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## Antenna Information

### WLAN

Tablet mode								
Vendor	INPAQ				INPAQ			
Antenna	Main (PIFA)				Aux (PIFA)			
Part Number	6036B0216001 (WA-P-LB-02-496)				6036B0215901 (WA-P-LB-02-495)			
Frequency	2.4G	5.2G	5.5G	5.8G	2.4G	5.2G	5.5G	5.8G
Gain (dBi)	-2.41	-0.54	0.75	2.12	-2.37	-1.93	-1.96	1.62
NB mode								
Vendor	INPAQ				INPAQ			
Antenna	Main (PIFA)				Aux (PIFA)			
Part Number	6036B0216001 (WA-P-LB-02-496)				6036B0215901 (WA-P-LB-02-495)			
Frequency	2.4G	5.2G	5.5G	5.8G	2.4G	5.2G	5.5G	5.8G
Gain (dBi)	-1.38	-0.65	-0.17	0.39	-1.13	-1.47	0.20	0.58

### WWAN

Vendor	INPAQ					
Antenna	Couple					
Part Number	6036B0215701(WA-P-LTE12-02-008)					
Frequency	750	835	1750	1900	2300	2600
Gain (dBi)	-5.09	-3.61	-4.69	-5.17	-4.11	-4.57

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### WCDMA Band II / Band IV / Band V - HSDPA / HSUPA / HSPA+ / DC-HSDPA conducted power table (Full power):

Unit: dBm

Band		WCDMA II		
TX Channel		9262	9400	9538
Frequency (MHz)		1852.4	1880	1907.6
Max. Rated Avg. Power+Max. Tolerance (dBm)		<b>24.50</b>		
3GPP Rel 99	RMC 12.2Kbps	23.73	23.69	23.80
3GPP Rel 5	HSDPA Subtest-1	22.82	23.13	22.92
	HSDPA Subtest-2	21.77	22.03	21.92
	HSDPA Subtest-3	21.52	21.52	21.59
	HSDPA Subtest-4	21.52	21.57	21.55
3GPP Rel 6	HSUPA Subtest-1	22.26	22.58	22.43
	HSUPA Subtest-2	22.83	23.12	22.93
	HSUPA Subtest-3	21.52	21.52	21.53
	HSUPA Subtest-4	22.84	23.11	23.01
	HSUPA Subtest-5	21.74	22.04	21.91
3GPP Rel 7	HSPA+ Subtest-1	21.55	21.79	21.63
3GPP Rel 8	DC-HSDPA Subtest-1	21.16	21.54	21.35
	DC-HSDPA Subtest-2	20.87	21.29	21.07
	DC-HSDPA Subtest-3	20.58	21.04	20.79
	DC-HSDPA Subtest-4	20.59	20.79	20.51

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Band		WCDMA IV		
TX Channel		1312	1412	1513
Frequency (MHz)		1712.4	1732.4	1752.6
Max. Rated Avg. Power+Max. Tolerance (dBm)		24.50		
3GPP Rel 99	RMC 12.2Kbps	23.27	23.50	23.21
3GPP Rel 5	HSDPA Subtest-1	22.73	23.06	22.82
	HSDPA Subtest-2	21.76	22.01	21.82
	HSDPA Subtest-3	21.58	21.59	21.52
	HSDPA Subtest-4	21.56	21.54	21.51
3GPP Rel 6	HSUPA Subtest-1	22.18	22.53	22.31
	HSUPA Subtest-2	22.69	23.02	22.84
	HSUPA Subtest-3	21.52	21.53	21.53
	HSUPA Subtest-4	22.74	23.03	22.83
	HSUPA Subtest-5	21.71	22.01	21.85
3GPP Rel 7	HSPA+ Subtest-1	22.86	23.02	22.83
3GPP Rel 8	DC-HSDPA Subtest-1	22.45	22.44	22.45
	DC-HSDPA Subtest-2	22.04	22.06	22.07
	DC-HSDPA Subtest-3	21.63	21.58	21.69
	DC-HSDPA Subtest-4	21.22	21.10	21.31
Band		WCDMA V		
TX Channel		4132	4183	4233
Frequency (MHz)		826.4	836.6	846.6
Max. Rated Avg. Power+Max. Tolerance (dBm)		24.50		
3GPP Rel 99	RMC 12.2Kbps	23.98	23.90	23.93
3GPP Rel 5	HSDPA Subtest-1	23.43	23.46	23.45
	HSDPA Subtest-2	22.69	22.64	22.55
	HSDPA Subtest-3	22.14	22.05	21.90
	HSDPA Subtest-4	21.87	21.98	21.82
3GPP Rel 6	HSUPA Subtest-1	22.65	22.65	22.59
	HSUPA Subtest-2	22.36	22.28	22.25
	HSUPA Subtest-3	21.58	21.98	21.96
	HSUPA Subtest-4	21.61	21.59	21.57
	HSUPA Subtest-5	22.73	22.67	22.52
3GPP Rel 7	HSPA+ Subtest-1	23.47	23.40	23.45
3GPP Rel 8	DC-HSDPA Subtest-1	21.76	21.70	21.77
	DC-HSDPA Subtest-2	21.65	21.60	21.69
	DC-HSDPA Subtest-3	22.44	22.50	22.41
	DC-HSDPA Subtest-4	22.43	22.40	22.43

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**WCDMA Band II / Band IV / Band V - HSDPA / HSUPA / HSPA+ / DC-HSDPA  
conducted power table(Reduced power):**

**Unit: dBm**

Band		WCDMA II		
TX Channel		9262	9400	9538
Frequency (MHz)		1852.4	1880	1907.6
Max. Rated Avg. Power+Max. Tolerance (dBm)		<b>16.50</b>		
3GPP Rel 99	RMC 12.2Kbps	16.41	16.39	16.42
3GPP Rel 5	HSDPA Subtest-1	16.20	16.06	16.16
	HSDPA Subtest-2	16.12	16.12	16.12
	HSDPA Subtest-3	16.07	16.03	16.08
	HSDPA Subtest-4	16.09	16.12	16.12
3GPP Rel 6	HSUPA Subtest-1	16.09	16.20	16.04
	HSUPA Subtest-2	16.14	16.17	16.04
	HSUPA Subtest-3	16.04	16.17	16.19
	HSUPA Subtest-4	16.09	16.12	16.03
	HSUPA Subtest-5	16.13	16.13	16.05
3GPP Rel 7	HSPA+ Subtest-1	16.01	16.04	16.03
3GPP Rel 8	DC-HSDPA Subtest-1	16.01	16.06	16.08
	DC-HSDPA Subtest-2	16.03	16.14	16.20
	DC-HSDPA Subtest-3	16.15	16.05	16.02
	DC-HSDPA Subtest-4	16.19	16.07	16.02

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Band		WCDMA IV		
TX Channel		1312	1412	1513
Frequency (MHz)		1712.4	1732.4	1752.6
Max. Rated Avg. Power+Max. Tolerance (dBm)		<b>18.50</b>		
3GPP Rel 99	RMC 12.2Kbps	18.21	18.27	18.26
3GPP Rel 5	HSDPA Subtest-1	18.07	18.15	18.12
	HSDPA Subtest-2	18.03	18.05	18.12
	HSDPA Subtest-3	18.06	18.16	18.01
	HSDPA Subtest-4	18.08	18.11	18.03
3GPP Rel 6	HSUPA Subtest-1	18.15	18.02	18.03
	HSUPA Subtest-2	18.04	18.16	18.06
	HSUPA Subtest-3	18.09	18.10	18.20
	HSUPA Subtest-4	18.16	18.01	18.17
	HSUPA Subtest-5	18.19	18.05	18.18
3GPP Rel 7	HSPA+ Subtest-1	18.03	18.15	18.12
3GPP Rel 8	DC-HSDPA Subtest-1	18.01	18.18	18.20
	DC-HSDPA Subtest-2	18.15	18.01	18.17
	DC-HSDPA Subtest-3	18.06	18.11	18.03
	DC-HSDPA Subtest-4	18.16	18.12	18.16
Band		WCDMA V		
TX Channel		4132	4183	4233
Frequency (MHz)		826.4	836.6	846.6
Max. Rated Avg. Power+Max. Tolerance (dBm)		<b>22.50</b>		
3GPP Rel 99	RMC 12.2Kbps	21.48	21.44	21.46
3GPP Rel 5	HSDPA Subtest-1	21.39	21.30	21.16
	HSDPA Subtest-2	21.16	21.31	21.21
	HSDPA Subtest-3	21.10	21.33	21.16
	HSDPA Subtest-4	21.15	21.17	21.33
3GPP Rel 6	HSUPA Subtest-1	21.24	21.16	21.36
	HSUPA Subtest-2	21.24	21.17	21.29
	HSUPA Subtest-3	21.18	21.13	21.12
	HSUPA Subtest-4	21.17	21.35	21.16
	HSUPA Subtest-5	21.40	21.21	21.17
3GPP Rel 7	HSPA+ Subtest-1	21.32	21.22	21.21
3GPP Rel 8	DC-HSDPA Subtest-1	21.35	21.16	21.31
	DC-HSDPA Subtest-2	21.28	21.36	21.11
	DC-HSDPA Subtest-3	21.37	21.22	21.37
	DC-HSDPA Subtest-4	21.21	21.32	21.40

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## Sub-Test for HSDPA

SUB-TEST	$\beta_c$	$\beta_d$	$\beta_d$ (SF)	$\beta_c/\beta_d$	$\beta_{HS}$ (Note 1, Note 2)	CM (dB) (Note 3)	MPR (dB) (Note 3)
1	2/15	15/15	64	2/15	4/15	0.0	0.0
2	12/15	15/15	64	12/15	24/15	1.0	0.0
3	15/15	8/15	64	15/8	30/15	1.5	0.5
4	15/15	4/15	64	15/4	30/15	1.5	0.5

## Sub-Test for HSUPA

SUB-TEST	$\beta_c$	$\beta_d$	$\beta_d$ (SF)	$\beta_c/\beta_d$	$\beta_{HS}$ (Note 1)	$\beta_{ec}$	$\beta_{ed}$ (Note 5) (Note 6)	$\beta_{ed}$ (SF)	$\beta_{ed}$ (Codes)	CM (dB) (Note 2)	MPR (dB) (Note 2)	AG Index (Note 6)	E-TFCI
1	11/15	15/15	64	11/15	22/15	209/225	1309/225	4	1	1.0	0.0	20	75
2	6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67
3	15/15	9/15	64	15/9	30/15	30/15	$\beta_{ed1}$ : 47/15 $\beta_{ed2}$ : 47/15	4 4	2	2.0	1.0	15	92
4	2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71
5	15/15	15/15	64	15/15	30/15	24/15	134/15	4	1	1.0	0.0	21	81

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**LTE FDD Band 2 / Band 4 / Band 5 / Band 7 / Band 12 / Band 13 / Band 14 / Band 17 / Band 25 / Band 26 / Band 30 / Band 66 power table (Full power):**

FDD Band 2									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
20	QPSK	1 RB	0	1860	18700	23.70	24	0	
				1880	18900	23.66	24	0	
				1900	19100	23.50	24	0	
			50	1860	18700	23.40	24	0	
				1880	18900	23.45	24	0	
				1900	19100	23.86	24	0	
			99	1860	18700	23.56	24	0	
				1880	18900	23.54	24	0	
				1900	19100	23.34	24	0	
		50 RB	0	1860	18700	22.55	23	0-1	
				1880	18900	22.60	23	0-1	
				1900	19100	22.46	23	0-1	
			25	1860	18700	22.47	23	0-1	
				1880	18900	22.56	23	0-1	
				1900	19100	22.57	23	0-1	
			50	1860	18700	22.36	23	0-1	
				1880	18900	22.62	23	0-1	
				1900	19100	22.66	23	0-1	
		100RB	1860	18700	22.52	23	0-1		
			1880	18900	22.60	23	0-1		
			1900	19100	22.71	23	0-1		
		16-QAM	1 RB	0	1860	18700	22.47	23	0-1
					1880	18900	22.67	23	0-1
					1900	19100	22.51	23	0-1
	50			1860	18700	22.97	23	0-1	
				1880	18900	22.91	23	0-1	
				1900	19100	22.85	23	0-1	
	99			1860	18700	22.75	23	0-1	
				1880	18900	22.45	23	0-1	
				1900	19100	22.40	23	0-1	
	50 RB			0	1860	18700	21.54	22	0-2
					1880	18900	21.59	22	0-2
					1900	19100	21.49	22	0-2
			25	1860	18700	21.50	22	0-2	
				1880	18900	21.48	22	0-2	
				1900	19100	21.59	22	0-2	
			50	1860	18700	21.37	22	0-2	
				1880	18900	21.53	22	0-2	
				1900	19100	21.52	22	0-2	
	100RB		1860	18700	21.42	22	0-2		
			1880	18900	21.62	22	0-2		
			1900	19100	21.66	22	0-2		

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FDD Band 2									
BW(MHz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
15	QPSK	1 RB	0	1857.5	18675	23.46	24	0	
				1880	18900	23.38	24	0	
				1902.5	19125	23.49	24	0	
			36	1857.5	18675	23.38	24	0	
				1880	18900	23.79	24	0	
				1902.5	19125	23.68	24	0	
		74	1857.5	18675	23.49	24	0		
			1880	18900	23.42	24	0		
			1902.5	19125	23.22	24	0		
		36 RB	0	1857.5	18675	22.45	23	0-1	
				1880	18900	22.51	23	0-1	
				1902.5	19125	22.58	23	0-1	
			18	1857.5	18675	22.47	23	0-1	
				1880	18900	22.54	23	0-1	
				1902.5	19125	22.62	23	0-1	
			37	1857.5	18675	22.34	23	0-1	
				1880	18900	22.59	23	0-1	
				1902.5	19125	22.58	23	0-1	
			75RB	1857.5	18675	22.48	23	0-1	
				1880	18900	22.51	23	0-1	
				1902.5	19125	22.64	23	0-1	
		16-QAM	1 RB	0	1857.5	18675	22.81	23	0-1
					1880	18900	22.59	23	0-1
					1902.5	19125	22.50	23	0-1
	36			1857.5	18675	22.48	23	0-1	
				1880	18900	22.82	23	0-1	
				1902.5	19125	22.43	23	0-1	
	74			1857.5	18675	22.85	23	0-1	
				1880	18900	22.90	23	0-1	
				1902.5	19125	22.83	23	0-1	
	36 RB			0	1857.5	18675	21.51	22	0-2
					1880	18900	21.47	22	0-2
					1902.5	19125	21.63	22	0-2
			18	1857.5	18675	21.58	22	0-2	
				1880	18900	21.50	22	0-2	
				1902.5	19125	21.64	22	0-2	
			37	1857.5	18675	21.45	22	0-2	
				1880	18900	21.54	22	0-2	
				1902.5	19125	21.71	22	0-2	
			75RB	1857.5	18675	21.59	22	0-2	
				1880	18900	21.38	22	0-2	
				1902.5	19125	21.72	22	0-2	

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FDD Band 2									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
10	QPSK	1 RB	0	1855	18650	23.53	24	0	
				1880	18900	23.71	24	0	
				1905	19150	23.49	24	0	
			25	1855	18650	23.33	24	0	
				1880	18900	23.48	24	0	
				1905	19150	23.54	24	0	
			49	1855	18650	23.43	24	0	
				1880	18900	23.45	24	0	
				1905	19150	22.95	24	0	
		25 RB	0	1855	18650	22.42	23	0-1	
				1880	18900	22.57	23	0-1	
				1905	19150	22.63	23	0-1	
			12	1855	18650	22.39	23	0-1	
				1880	18900	22.56	23	0-1	
				1905	19150	22.55	23	0-1	
			25	1855	18650	22.44	23	0-1	
				1880	18900	22.46	23	0-1	
				1905	19150	22.47	23	0-1	
		50RB	1855	18650	22.45	23	0-1		
			1880	18900	22.41	23	0-1		
			1905	19150	22.54	23	0-1		
		16-QAM	1 RB	0	1855	18650	22.95	23	0-1
					1880	18900	22.66	23	0-1
					1905	19150	22.76	23	0-1
	25			1855	18650	22.76	23	0-1	
				1880	18900	22.61	23	0-1	
				1905	19150	22.74	23	0-1	
	49			1855	18650	22.63	23	0-1	
				1880	18900	22.66	23	0-1	
				1905	19150	22.39	23	0-1	
	25 RB			0	1855	18650	21.52	22	0-2
					1880	18900	21.58	22	0-2
					1905	19150	21.70	22	0-2
			12	1855	18650	21.49	22	0-2	
				1880	18900	21.71	22	0-2	
				1905	19150	21.69	22	0-2	
			25	1855	18650	21.55	22	0-2	
				1880	18900	21.57	22	0-2	
				1905	19150	21.60	22	0-2	
			50RB	1855	18650	21.44	22	0-2	
				1880	18900	21.57	22	0-2	
				1905	19150	21.58	22	0-2	

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FDD Band 2									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
5	QPSK	1 RB	0	1852.5	18625	23.40	24	0	
				1880	18900	23.56	24	0	
				1907.5	19175	23.50	24	0	
			12	1852.5	18625	23.35	24	0	
				1880	18900	23.55	24	0	
				1907.5	19175	23.42	24	0	
		24	1852.5	18625	23.27	24	0		
			1880	18900	23.41	24	0		
			1907.5	19175	23.34	24	0		
		12 RB	0	1852.5	18625	22.54	23	0-1	
				1880	18900	22.73	23	0-1	
				1907.5	19175	22.69	23	0-1	
			6	1852.5	18625	22.48	23	0-1	
				1880	18900	22.67	23	0-1	
				1907.5	19175	22.65	23	0-1	
			13	1852.5	18625	22.47	23	0-1	
				1880	18900	22.53	23	0-1	
				1907.5	19175	22.60	23	0-1	
			25RB	1852.5	18625	22.44	23	0-1	
				1880	18900	22.52	23	0-1	
				1907.5	19175	22.66	23	0-1	
		16-QAM	1 RB	0	1852.5	18625	22.21	23	0-1
					1880	18900	22.69	23	0-1
					1907.5	19175	22.92	23	0-1
	12			1852.5	18625	22.38	23	0-1	
				1880	18900	22.75	23	0-1	
				1907.5	19175	22.78	23	0-1	
	24			1852.5	18625	22.63	23	0-1	
				1880	18900	22.64	23	0-1	
				1907.5	19175	22.40	23	0-1	
	12 RB			0	1852.5	18625	21.76	22	0-2
					1880	18900	21.65	22	0-2
					1907.5	19175	21.59	22	0-2
			6	1852.5	18625	21.78	22	0-2	
				1880	18900	21.63	22	0-2	
				1907.5	19175	21.56	22	0-2	
			13	1852.5	18625	21.75	22	0-2	
				1880	18900	21.65	22	0-2	
				1907.5	19175	21.62	22	0-2	
			25RB	1852.5	18625	21.75	22	0-2	
				1880	18900	21.58	22	0-2	
				1907.5	19175	21.63	22	0-2	

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FDD Band 2									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
3	QPSK	1 RB	0	1851.5	18615	23.24	24	0	
				1880	18900	23.33	24	0	
				1908.5	19185	23.53	24	0	
			7	1851.5	18615	23.34	24	0	
				1880	18900	23.51	24	0	
				1908.5	19185	23.35	24	0	
		14	1851.5	18615	23.37	24	0		
			1880	18900	23.34	24	0		
			1908.5	19185	23.11	24	0		
		8 RB	0	1851.5	18615	22.53	23	0-1	
				1880	18900	22.53	23	0-1	
				1908.5	19185	22.34	23	0-1	
			4	1851.5	18615	22.56	23	0-1	
				1880	18900	22.39	23	0-1	
				1908.5	19185	22.38	23	0-1	
			7	1851.5	18615	22.51	23	0-1	
				1880	18900	22.44	23	0-1	
				1908.5	19185	22.25	23	0-1	
			15RB	1851.5	18615	22.52	23	0-1	
				1880	18900	22.47	23	0-1	
				1908.5	19185	22.42	23	0-1	
		16-QAM	1 RB	0	1851.5	18615	22.73	23	0-1
					1880	18900	22.51	23	0-1
					1908.5	19185	22.61	23	0-1
	7			1851.5	18615	22.87	23	0-1	
				1880	18900	22.69	23	0-1	
				1908.5	19185	22.55	23	0-1	
	14			1851.5	18615	22.54	23	0-1	
				1880	18900	22.83	23	0-1	
				1908.5	19185	22.30	23	0-1	
	8 RB			0	1851.5	18615	21.46	22	0-2
					1880	18900	21.57	22	0-2
					1908.5	19185	21.50	22	0-2
			4	1851.5	18615	21.52	22	0-2	
				1880	18900	21.49	22	0-2	
				1908.5	19185	21.32	22	0-2	
			7	1851.5	18615	21.45	22	0-2	
				1880	18900	21.52	22	0-2	
				1908.5	19185	21.25	22	0-2	
	15RB		1851.5	18615	21.44	22	0-2		
			1880	18900	21.54	22	0-2		
			1908.5	19185	21.34	22	0-2		

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FDD Band 2									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
1.4	QPSK	1 RB	0	1850.7	18607	23.41	24	0	
				1880	18900	23.49	24	0	
				1909.3	19193	23.41	24	0	
			2	1850.7	18607	23.41	24	0	
				1880	18900	23.45	24	0	
				1909.3	19193	23.34	24	0	
		5	1850.7	18607	23.43	24	0		
			1880	18900	23.54	24	0		
			1909.3	19193	23.34	24	0		
		3 RB	0	1850.7	18607	23.38	24	0	
				1880	18900	23.46	24	0	
				1909.3	19193	23.08	24	0	
			2	1850.7	18607	23.33	24	0	
				1880	18900	23.34	24	0	
				1909.3	19193	23.14	24	0	
			3	1850.7	18607	23.16	24	0	
				1880	18900	23.46	24	0	
				1909.3	19193	22.92	24	0	
		6RB	1850.7	18607	22.39	23	0-1		
			1880	18900	22.50	23	0-1		
			1909.3	19193	22.28	23	0-1		
		16-QAM	1 RB	0	1850.7	18607	22.17	23	0-1
					1880	18900	22.21	23	0-1
					1909.3	19193	22.10	23	0-1
	2			1850.7	18607	22.45	23	0-1	
				1880	18900	22.23	23	0-1	
				1909.3	19193	22.03	23	0-1	
	5			1850.7	18607	22.53	23	0-1	
				1880	18900	22.30	23	0-1	
				1909.3	19193	22.43	23	0-1	
	3 RB			0	1850.7	18607	22.22	23	0-1
					1880	18900	22.44	23	0-1
					1909.3	19193	21.96	23	0-1
			2	1850.7	18607	22.34	23	0-1	
				1880	18900	22.55	23	0-1	
				1909.3	19193	22.19	23	0-1	
			3	1850.7	18607	22.46	23	0-1	
				1880	18900	22.41	23	0-1	
				1909.3	19193	21.99	23	0-1	
	6RB		1850.7	18607	21.28	22	0-2		
			1880	18900	21.40	22	0-2		
			1909.3	19193	21.29	22	0-2		

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FDD Band 4										
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)		
20	QPSK	1 RB	0	1720	20050	23.34	24	0		
				1732.5	20175	23.17	24	0		
				1745	20300	23.50	24	0		
			50	1720	20050	23.51	24	0		
					1732.5	20175	23.44	24	0	
					1745	20300	23.45	24	0	
				99	1720	20050	23.22	24	0	
						1732.5	20175	23.65	24	0
						1745	20300	23.56	24	0
		50 RB	0	1720	20050	22.32	23	0-1		
				1732.5	20175	22.42	23	0-1		
				1745	20300	22.52	23	0-1		
			25	1720	20050	22.31	23	0-1		
					1732.5	20175	22.38	23	0-1	
					1745	20300	22.46	23	0-1	
				50	1720	20050	22.26	23	0-1	
						1732.5	20175	22.48	23	0-1
						1745	20300	22.53	23	0-1
		100RB	1720	20050	22.30	23	0-1			
				1732.5	20175	22.39	23	0-1		
				1745	20300	22.49	23	0-1		
		16-QAM	1 RB	0	1720	20050	22.61	23	0-1	
					1732.5	20175	22.74	23	0-1	
					1745	20300	22.78	23	0-1	
	50			1720	20050	22.58	23	0-1		
					1732.5	20175	22.84	23	0-1	
					1745	20300	22.62	23	0-1	
				99	1720	20050	22.57	23	0-1	
						1732.5	20175	22.54	23	0-1
						1745	20300	22.61	23	0-1
	50 RB			0	1720	20050	21.28	22	0-2	
					1732.5	20175	21.49	22	0-2	
					1745	20300	21.59	22	0-2	
			25	1720	20050	21.29	22	0-2		
					1732.5	20175	21.39	22	0-2	
					1745	20300	21.55	22	0-2	
				50	1720	20050	21.40	22	0-2	
						1732.5	20175	21.56	22	0-2
						1745	20300	21.68	22	0-2
			100RB	1720	20050	21.32	22	0-2		
					1732.5	20175	21.50	22	0-2	
					1745	20300	21.56	22	0-2	

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FDD Band 4									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
15	QPSK	1 RB	0	1717.5	20025	23.36	24	0	
				1732.5	20175	23.45	24	0	
				1747.5	20325	23.44	24	0	
			36	1717.5	20025	23.39	24	0	
				1732.5	20175	23.38	24	0	
				1747.5	20325	23.48	24	0	
		74	1717.5	20025	23.49	24	0		
			1732.5	20175	23.41	24	0		
			1747.5	20325	23.52	24	0		
		36 RB	0	1717.5	20025	22.41	23	0-1	
				1732.5	20175	22.44	23	0-1	
				1747.5	20325	22.57	23	0-1	
			18	1717.5	20025	22.42	23	0-1	
				1732.5	20175	22.39	23	0-1	
				1747.5	20325	22.62	23	0-1	
			37	1717.5	20025	22.44	23	0-1	
				1732.5	20175	22.49	23	0-1	
				1747.5	20325	22.65	23	0-1	
			75RB	1717.5	20025	22.46	23	0-1	
				1732.5	20175	22.43	23	0-1	
				1747.5	20325	22.59	23	0-1	
		16-QAM	1 RB	0	1717.5	20025	22.42	23	0-1
					1732.5	20175	22.80	23	0-1
					1747.5	20325	22.95	23	0-1
	36			1717.5	20025	22.83	23	0-1	
				1732.5	20175	22.69	23	0-1	
				1747.5	20325	22.90	23	0-1	
	74			1717.5	20025	22.69	23	0-1	
				1732.5	20175	22.81	23	0-1	
				1747.5	20325	22.66	23	0-1	
	36 RB			0	1717.5	20025	21.60	22	0-2
					1732.5	20175	21.53	22	0-2
					1747.5	20325	21.65	22	0-2
			18	1717.5	20025	21.50	22	0-2	
				1732.5	20175	21.55	22	0-2	
				1747.5	20325	21.60	22	0-2	
			37	1717.5	20025	21.45	22	0-2	
				1732.5	20175	21.52	22	0-2	
				1747.5	20325	21.77	22	0-2	
	75RB		1717.5	20025	21.53	22	0-2		
			1732.5	20175	21.55	22	0-2		
			1747.5	20325	21.60	22	0-2		

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FDD Band 4									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
10	QPSK	1 RB	0	1715	20000	23.32	24	0	
				1732.5	20175	23.51	24	0	
				1750	20350	23.57	24	0	
			25	1715	20000	23.37	24	0	
				1732.5	20175	23.44	24	0	
				1750	20350	23.57	24	0	
			49	1715	20000	23.42	24	0	
				1732.5	20175	23.53	24	0	
				1750	20350	23.52	24	0	
		25 RB	0	1715	20000	22.46	23	0-1	
				1732.5	20175	22.42	23	0-1	
				1750	20350	22.56	23	0-1	
			12	1715	20000	22.45	23	0-1	
				1732.5	20175	22.43	23	0-1	
				1750	20350	22.60	23	0-1	
			25	1715	20000	22.43	23	0-1	
				1732.5	20175	22.48	23	0-1	
				1750	20350	22.58	23	0-1	
		50RB	1715	20000	22.48	23	0-1		
			1732.5	20175	22.42	23	0-1		
			1750	20350	22.59	23	0-1		
		16-QAM	1 RB	0	1715	20000	22.94	23	0-1
					1732.5	20175	22.64	23	0-1
					1750	20350	22.89	23	0-1
	25			1715	20000	22.58	23	0-1	
				1732.5	20175	22.60	23	0-1	
				1750	20350	22.80	23	0-1	
	49			1715	20000	22.73	23	0-1	
				1732.5	20175	22.46	23	0-1	
				1750	20350	22.75	23	0-1	
	25 RB			0	1715	20000	21.58	22	0-2
					1732.5	20175	21.50	22	0-2
					1750	20350	21.71	22	0-2
			12	1715	20000	21.53	22	0-2	
				1732.5	20175	21.55	22	0-2	
				1750	20350	21.81	22	0-2	
			25	1715	20000	21.49	22	0-2	
				1732.5	20175	21.57	22	0-2	
				1750	20350	21.76	22	0-2	
			50RB	1715	20000	21.52	22	0-2	
				1732.5	20175	21.46	22	0-2	
				1750	20350	21.64	22	0-2	

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FDD Band 4										
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)		
5	QPSK	1 RB	0	1712.5	19975	23.42	24	0		
				1732.5	20175	23.46	24	0		
				1752.5	20375	23.49	24	0		
			12	1712.5	19975	23.59	24	0		
				1732.5	20175	23.39	24	0		
				1752.5	20375	23.50	24	0		
		24	1712.5	19975	23.47	24	0			
			1732.5	20175	23.54	24	0			
			1752.5	20375	23.53	24	0			
		12 RB	0	1712.5	19975	22.48	19975	22.48	23	0-1
				1732.5	20175	22.53	20175	22.53	23	0-1
				1752.5	20375	22.58	20375	22.58	23	0-1
			6	1712.5	19975	22.45	19975	22.45	23	0-1
				1732.5	20175	22.44	20175	22.44	23	0-1
				1752.5	20375	22.63	20375	22.63	23	0-1
			13	1712.5	19975	22.47	19975	22.47	23	0-1
				1732.5	20175	22.57	20175	22.57	23	0-1
				1752.5	20375	22.56	20375	22.56	23	0-1
		25RB	1712.5	19975	22.51	19975	22.51	23	0-1	
			1732.5	20175	22.50	20175	22.50	23	0-1	
			1752.5	20375	22.57	20375	22.57	23	0-1	
		16-QAM	1 RB	0	1712.5	19975	22.68	19975	23	0-1
					1732.5	20175	22.58	20175	23	0-1
					1752.5	20375	22.53	20375	23	0-1
	12			1712.5	19975	22.93	19975	23	0-1	
				1732.5	20175	22.97	20175	23	0-1	
				1752.5	20375	22.79	20375	23	0-1	
	24			1712.5	19975	22.95	19975	23	0-1	
				1732.5	20175	22.69	20175	23	0-1	
				1752.5	20375	22.70	20375	23	0-1	
	12 RB		0	1712.5	19975	21.67	19975	21.67	22	0-2
				1732.5	20175	21.60	20175	21.60	22	0-2
				1752.5	20375	21.77	20375	21.77	22	0-2
			6	1712.5	19975	21.71	19975	21.71	22	0-2
				1732.5	20175	21.55	20175	21.55	22	0-2
				1752.5	20375	21.73	20375	21.73	22	0-2
			13	1712.5	19975	21.74	19975	21.74	22	0-2
				1732.5	20175	21.57	20175	21.57	22	0-2
				1752.5	20375	21.85	20375	21.85	22	0-2
	25RB		1712.5	19975	21.67	19975	21.67	22	0-2	
			1732.5	20175	21.49	20175	21.49	22	0-2	
			1752.5	20375	21.67	20375	21.67	22	0-2	

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FDD Band 4									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
3	QPSK	1 RB	0	1711.5	19965	23.19	24	0	
				1732.5	20175	23.26	24	0	
				1753.5	20385	23.47	24	0	
			7	1711.5	19965	23.15	24	0	
				1732.5	20175	23.31	24	0	
				1753.5	20385	23.50	24	0	
		14	1711.5	19965	23.25	24	0		
			1732.5	20175	23.34	24	0		
			1753.5	20385	23.44	24	0		
		8 RB	0	1711.5	19965	22.24	23	0-1	
				1732.5	20175	22.29	23	0-1	
				1753.5	20385	22.59	23	0-1	
			4	1711.5	19965	22.17	23	0-1	
				1732.5	20175	22.26	23	0-1	
				1753.5	20385	22.56	23	0-1	
			7	1711.5	19965	22.37	23	0-1	
				1732.5	20175	22.33	23	0-1	
				1753.5	20385	22.54	23	0-1	
		15RB	1711.5	19965	22.25	23	0-1		
			1732.5	20175	22.25	23	0-1		
			1753.5	20385	22.48	23	0-1		
		16-QAM	1 RB	0	1711.5	19965	22.32	23	0-1
					1732.5	20175	22.86	23	0-1
					1753.5	20385	22.83	23	0-1
	7			1711.5	19965	22.64	23	0-1	
				1732.5	20175	22.80	23	0-1	
				1753.5	20385	22.62	23	0-1	
	14			1711.5	19965	22.87	23	0-1	
				1732.5	20175	22.48	23	0-1	
				1753.5	20385	22.88	23	0-1	
	8 RB		0	1711.5	19965	21.49	22	0-2	
				1732.5	20175	21.28	22	0-2	
				1753.5	20385	21.67	22	0-2	
			4	1711.5	19965	21.29	22	0-2	
				1732.5	20175	21.29	22	0-2	
				1753.5	20385	21.68	22	0-2	
			7	1711.5	19965	21.42	22	0-2	
				1732.5	20175	21.30	22	0-2	
				1753.5	20385	21.62	22	0-2	
	15RB		1711.5	19965	21.25	22	0-2		
			1732.5	20175	21.34	22	0-2		
			1753.5	20385	21.58	22	0-2		

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FDD Band 4									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
1.4	QPSK	1 RB	0	1710.7	19957	23.41	24	0	
				1732.5	20175	23.34	24	0	
				1754.3	20393	23.60	24	0	
			2	1710.7	19957	23.16	24	0	
				1732.5	20175	23.33	24	0	
				1754.3	20393	23.50	24	0	
		5	1710.7	19957	23.31	24	0		
			1732.5	20175	23.51	24	0		
			1754.3	20393	23.64	24	0		
		3 RB	0	1710.7	19957	23.24	24	0	
				1732.5	20175	23.37	24	0	
				1754.3	20393	23.63	24	0	
			2	1710.7	19957	23.21	24	0	
				1732.5	20175	23.34	24	0	
				1754.3	20393	23.64	24	0	
			3	1710.7	19957	23.28	24	0	
				1732.5	20175	23.41	24	0	
				1754.3	20393	23.46	24	0	
		6RB	1710.7	19957	22.29	23	0-1		
			1732.5	20175	22.39	23	0-1		
			1754.3	20393	22.64	23	0-1		
		16-QAM	1 RB	0	1710.7	19957	22.94	23	0-1
					1732.5	20175	22.32	23	0-1
					1754.3	20393	22.53	23	0-1
	2			1710.7	19957	22.66	23	0-1	
				1732.5	20175	22.38	23	0-1	
				1754.3	20393	22.59	23	0-1	
	5			1710.7	19957	22.53	23	0-1	
				1732.5	20175	22.30	23	0-1	
				1754.3	20393	22.51	23	0-1	
	3 RB		0	1710.7	19957	22.38	23	0-1	
				1732.5	20175	22.47	23	0-1	
				1754.3	20393	22.70	23	0-1	
			2	1710.7	19957	22.33	23	0-1	
				1732.5	20175	22.49	23	0-1	
				1754.3	20393	22.81	23	0-1	
			3	1710.7	19957	22.47	23	0-1	
				1732.5	20175	22.25	23	0-1	
				1754.3	20393	22.55	23	0-1	
	6RB		1710.7	19957	21.55	22	0-2		
			1732.5	20175	21.43	22	0-2		
			1754.3	20393	21.72	22	0-2		

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FDD Band 5									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
10	QPSK	1 RB	0	829	20450	24.67	25	0	
				836.5	20525	24.62	25	0	
				844	20600	24.35	25	0	
			25	829	20450	24.64	25	0	
				836.5	20525	24.93	25	0	
				844	20600	24.71	25	0	
		49	829	20450	24.69	25	0		
			836.5	20525	24.66	25	0		
			844	20600	24.57	25	0		
		25 RB	0	829	20450	23.67	24	0-1	
				836.5	20525	23.70	24	0-1	
				844	20600	23.60	24	0-1	
			12	829	20450	23.71	24	0-1	
				836.5	20525	23.78	24	0-1	
				844	20600	23.57	24	0-1	
		25	829	20450	23.67	24	0-1		
			836.5	20525	23.73	24	0-1		
			844	20600	23.70	24	0-1		
		50RB	829	20450	23.70	24	0-1		
			836.5	20525	23.78	24	0-1		
			844	20600	23.63	24	0-1		
		16-QAM	1 RB	0	829	20450	23.99	24	0-1
					836.5	20525	23.94	24	0-1
					844	20600	23.42	24	0-1
	25			829	20450	23.96	24	0-1	
				836.5	20525	23.92	24	0-1	
				844	20600	23.88	24	0-1	
	49			829	20450	23.73	24	0-1	
				836.5	20525	23.89	24	0-1	
				844	20600	23.88	24	0-1	
	25 RB			0	829	20450	22.74	23	0-2
					836.5	20525	22.77	23	0-2
					844	20600	22.51	23	0-2
			12	829	20450	22.86	23	0-2	
				836.5	20525	22.73	23	0-2	
				844	20600	22.61	23	0-2	
	25		829	20450	22.82	23	0-2		
			836.5	20525	22.78	23	0-2		
			844	20600	22.70	23	0-2		
	500RB		829	20450	22.69	23	0-2		
			836.5	20525	22.73	23	0-2		
			844	20600	22.68	23	0-2		

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FDD Band 5									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
5	QPSK	1 RB	0	826.5	20425	24.73	25	0	
				836.5	20525	24.57	25	0	
				846.5	20625	24.34	25	0	
			12	826.5	20425	24.60	25	0	
				836.5	20525	24.69	25	0	
				846.5	20625	24.49	25	0	
		24	826.5	20425	24.92	25	0		
			836.5	20525	24.61	25	0		
			846.5	20625	24.32	25	0		
		12 RB	0	826.5	20425	23.79	24	0-1	
				836.5	20525	23.83	24	0-1	
				846.5	20625	23.66	24	0-1	
			6	826.5	20425	23.78	24	0-1	
				836.5	20525	23.83	24	0-1	
				846.5	20625	23.57	24	0-1	
		13	826.5	20425	23.77	24	0-1		
			836.5	20525	23.83	24	0-1		
			846.5	20625	23.53	24	0-1		
		25RB	826.5	20425	23.80	24	0-1		
			836.5	20525	23.83	24	0-1		
			846.5	20625	23.59	24	0-1		
		16-QAM	1 RB	0	826.5	20425	23.76	24	0-1
					836.5	20525	23.33	24	0-1
					846.5	20625	23.64	24	0-1
	12			826.5	20425	23.92	24	0-1	
				836.5	20525	23.17	24	0-1	
				846.5	20625	23.98	24	0-1	
	24		826.5	20425	23.18	24	0-1		
			836.5	20525	23.94	24	0-1		
			846.5	20625	23.52	24	0-1		
	12 RB		0	826.5	20425	22.81	23	0-2	
				836.5	20525	22.90	23	0-2	
				846.5	20625	22.58	23	0-2	
			6	826.5	20425	22.79	23	0-2	
				836.5	20525	22.94	23	0-2	
				846.5	20625	22.73	23	0-2	
	13		826.5	20425	22.82	23	0-2		
			836.5	20525	22.90	23	0-2		
			846.5	20625	22.66	23	0-2		
	25RB		826.5	20425	22.71	23	0-2		
			836.5	20525	22.85	23	0-2		
			846.5	20625	22.69	23	0-2		

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FDD Band 5									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
3	QPSK	1 RB	0	825.5	20415	24.57	25	0	
				836.5	20525	24.63	25	0	
				847.5	20635	24.38	25	0	
			7	825.5	20415	24.53	25	0	
				836.5	20525	24.61	25	0	
				847.5	20635	24.40	25	0	
		14	825.5	20415	24.54	25	0		
			836.5	20525	24.63	25	0		
			847.5	20635	24.42	25	0		
		8 RB	0	825.5	20415	23.73	24	0-1	
				836.5	20525	23.70	24	0-1	
				847.5	20635	23.46	24	0-1	
			4	825.5	20415	23.67	24	0-1	
				836.5	20525	23.72	24	0-1	
				847.5	20635	23.36	24	0-1	
		7	825.5	20415	23.63	24	0-1		
			836.5	20525	23.65	24	0-1		
			847.5	20635	23.44	24	0-1		
		15RB	825.5	20415	23.61	24	0-1		
			836.5	20525	23.64	24	0-1		
			847.5	20635	23.52	24	0-1		
		16-QAM	1 RB	0	825.5	20415	23.80	24	0-1
					836.5	20525	23.76	24	0-1
					847.5	20635	23.52	24	0-1
	7			825.5	20415	23.62	24	0-1	
				836.5	20525	23.97	24	0-1	
				847.5	20635	23.30	24	0-1	
	14		825.5	20415	23.81	24	0-1		
			836.5	20525	23.54	24	0-1		
			847.5	20635	23.39	24	0-1		
	8 RB		0	825.5	20415	22.55	23	0-2	
				836.5	20525	22.62	23	0-2	
				847.5	20635	22.48	23	0-2	
			4	825.5	20415	22.67	23	0-2	
				836.5	20525	22.54	23	0-2	
				847.5	20635	22.36	23	0-2	
	7		825.5	20415	22.74	23	0-2		
			836.5	20525	22.68	23	0-2		
			847.5	20635	22.29	23	0-2		
	15RB		825.5	20415	22.71	23	0-2		
			836.5	20525	22.68	23	0-2		
			847.5	20635	22.41	23	0-2		

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FDD Band 5									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
1.4	QPSK	1 RB	0	824.7	20407	24.62	25	0	
				836.5	20525	24.66	25	0	
				848.3	20643	24.33	25	0	
			2	824.7	20407	24.59	25	0	
				836.5	20525	24.56	25	0	
				848.3	20643	24.35	25	0	
			5	824.7	20407	24.54	25	0	
				836.5	20525	24.50	25	0	
				848.3	20643	24.05	25	0	
		3 RB	0	824.7	20407	24.60	25	0	
				836.5	20525	24.59	25	0	
				848.3	20643	24.36	25	0	
			2	824.7	20407	24.61	25	0	
				836.5	20525	24.60	25	0	
				848.3	20643	24.22	25	0	
			3	824.7	20407	24.65	25	0	
				836.5	20525	24.56	25	0	
				848.3	20643	24.23	25	0	
		6RB	824.7	20407	23.65	24	0-1		
			836.5	20525	23.57	24	0-1		
			848.3	20643	23.36	24	0-1		
		16-QAM	1 RB	0	824.7	20407	23.56	24	0-1
					836.5	20525	23.59	24	0-1
					848.3	20643	23.56	24	0-1
	2			824.7	20407	23.80	24	0-1	
				836.5	20525	23.91	24	0-1	
				848.3	20643	23.27	24	0-1	
	5			824.7	20407	23.81	24	0-1	
				836.5	20525	23.64	24	0-1	
				848.3	20643	23.84	24	0-1	
	3 RB			0	824.7	20407	23.48	24	0-1
					836.5	20525	23.49	24	0-1
					848.3	20643	23.17	24	0-1
			2	824.7	20407	23.76	24	0-1	
				836.5	20525	23.64	24	0-1	
				848.3	20643	23.47	24	0-1	
			3	824.7	20407	23.65	24	0-1	
				836.5	20525	23.61	24	0-1	
				848.3	20643	23.25	24	0-1	
	6RB		824.7	20407	22.67	23	0-2		
			836.5	20525	22.62	23	0-2		
			848.3	20643	22.17	23	0-2		

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FDD Band 7									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
20	QPSK	1 RB	0	2510	20850	23.79	24	0	
				2535	21100	23.14	24	0	
				2560	21350	23.98	24	0	
			50	2510	20850	23.86	24	0	
				2535	21100	23.22	24	0	
				2560	21350	23.70	24	0	
			99	2510	20850	23.36	24	0	
				2535	21100	23.42	24	0	
				2560	21350	23.85	24	0	
		50 RB	0	2510	20850	22.50	23	0-1	
				2535	21100	22.40	23	0-1	
				2560	21350	22.84	23	0-1	
			25	2510	20850	22.95	23	0-1	
				2535	21100	22.45	23	0-1	
				2560	21350	22.95	23	0-1	
			50	2510	20850	22.91	23	0-1	
				2535	21100	22.39	23	0-1	
				2560	21350	22.93	23	0-1	
		100RB	2510	20850	22.52	23	0-1		
			2535	21100	22.48	23	0-1		
			2560	21350	22.56	23	0-1		
		16-QAM	1 RB	0	2510	20850	22.95	23	0-1
					2535	21100	22.50	23	0-1
					2560	21350	22.02	23	0-1
	50			2510	20850	22.52	23	0-1	
				2535	21100	22.68	23	0-1	
				2560	21350	22.97	23	0-1	
	99			2510	20850	22.36	23	0-1	
				2535	21100	22.95	23	0-1	
				2560	21350	22.73	23	0-1	
	50 RB			0	2510	20850	21.16	22	0-2
					2535	21100	21.49	22	0-2
					2560	21350	21.05	22	0-2
			25	2510	20850	21.97	22	0-2	
				2535	21100	21.53	22	0-2	
				2560	21350	21.94	22	0-2	
			50	2510	20850	21.88	22	0-2	
				2535	21100	21.43	22	0-2	
				2560	21350	21.85	22	0-2	
			100RB	2510	20850	21.12	22	0-2	
				2535	21100	21.57	22	0-2	
				2560	21350	21.01	22	0-2	

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FDD Band 7									
BW(MHz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
15	QPSK	1 RB	0	2507.5	20825	23.97	24	0	
				2535	21100	23.22	24	0	
				2562.5	21375	23.87	24	0	
			36	2507.5	20825	23.78	24	0	
				2535	21100	23.35	24	0	
				2562.5	21375	23.76	24	0	
		74	2507.5	20825	23.70	24	0		
			2535	21100	23.50	24	0		
			2562.5	21375	23.61	24	0		
		36 RB	0	2507.5	20825	22.20	23	0-1	
				2535	21100	22.43	23	0-1	
				2562.5	21375	22.91	23	0-1	
			18	2507.5	20825	22.21	23	0-1	
				2535	21100	22.45	23	0-1	
				2562.5	21375	22.84	23	0-1	
			37	2507.5	20825	22.11	23	0-1	
				2535	21100	22.33	23	0-1	
				2562.5	21375	22.84	23	0-1	
			75RB	2507.5	20825	22.25	23	0-1	
				2535	21100	22.43	23	0-1	
				2562.5	21375	22.88	23	0-1	
		16-QAM	1 RB	0	2507.5	20825	22.82	23	0-1
					2535	21100	22.30	23	0-1
					2562.5	21375	22.20	23	0-1
	36			2507.5	20825	22.68	23	0-1	
				2535	21100	22.67	23	0-1	
				2562.5	21375	22.18	23	0-1	
	74			2507.5	20825	22.46	23	0-1	
				2535	21100	22.71	23	0-1	
				2562.5	21375	22.22	23	0-1	
	36 RB			0	2507.5	20825	21.18	22	0-2
					2535	21100	21.38	22	0-2
					2562.5	21375	21.96	22	0-2
			18	2507.5	20825	21.19	22	0-2	
				2535	21100	21.54	22	0-2	
				2562.5	21375	21.80	22	0-2	
			37	2507.5	20825	21.08	22	0-2	
				2535	21100	21.43	22	0-2	
				2562.5	21375	21.85	22	0-2	
	75RB		2507.5	20825	21.22	22	0-2		
			2535	21100	21.44	22	0-2		
			2562.5	21375	21.83	22	0-2		

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FDD Band 7									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
10	QPSK	1 RB	0	2505	20800	23.67	24	0	
				2535	21100	23.22	24	0	
				2565	21400	23.47	24	0	
			25	2505	20800	23.79	24	0	
				2535	21100	23.22	24	0	
				2565	21400	23.65	24	0	
		49	2505	20800	23.69	24	0		
			2535	21100	23.24	24	0		
			2565	21400	23.52	24	0		
		25 RB	0	2505	20800	22.15	23	0-1	
				2535	21100	22.34	23	0-1	
				2565	21400	22.76	23	0-1	
			12	2505	20800	22.14	23	0-1	
				2535	21100	22.37	23	0-1	
				2565	21400	22.76	23	0-1	
		25	2505	20800	22.13	23	0-1		
			2535	21100	22.39	23	0-1		
			2565	21400	22.77	23	0-1		
		50RB	2505	20800	22.18	23	0-1		
			2535	21100	22.34	23	0-1		
			2565	21400	22.75	23	0-1		
		16-QAM	1 RB	0	2505	20800	22.81	23	0-1
					2535	21100	22.55	23	0-1
					2565	21400	22.96	23	0-1
	25			2505	20800	22.15	23	0-1	
				2535	21100	22.60	23	0-1	
				2565	21400	22.65	23	0-1	
	49			2505	20800	22.33	23	0-1	
				2535	21100	22.66	23	0-1	
				2565	21400	22.86	23	0-1	
	25 RB			0	2505	20800	21.20	22	0-2
					2535	21100	21.42	22	0-2
					2565	21400	21.85	22	0-2
			12	2505	20800	21.25	22	0-2	
				2535	21100	21.43	22	0-2	
				2565	21400	21.78	22	0-2	
	25		2505	20800	21.03	22	0-2		
			2535	21100	21.44	22	0-2		
			2565	21400	21.87	22	0-2		
	50RB		2505	20800	21.10	22	0-2		
			2535	21100	21.44	22	0-2		
			2565	21400	21.74	22	0-2		

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FDD Band 7									
BW(MHz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
5	QPSK	1 RB	0	2502.5	20775	23.88	24	0	
				2535	21100	23.31	24	0	
				2567.5	21425	23.69	24	0	
			12	2502.5	20775	23.72	24	0	
				2535	21100	23.20	24	0	
				2567.5	21425	23.62	24	0	
		24	2502.5	20775	23.80	24	0		
			2535	21100	23.16	24	0		
			2567.5	21425	23.49	24	0		
		12 RB	0	2502.5	20775	22.94	23	0-1	
				2535	21100	22.16	23	0-1	
				2567.5	21425	22.58	23	0-1	
			6	2502.5	20775	22.96	23	0-1	
				2535	21100	22.16	23	0-1	
				2567.5	21425	22.55	23	0-1	
			13	2502.5	20775	22.96	23	0-1	
				2535	21100	22.09	23	0-1	
				2567.5	21425	22.59	23	0-1	
			25RB	2502.5	20775	22.73	23	0-1	
				2535	21100	22.15	23	0-1	
				2567.5	21425	22.57	23	0-1	
		16-QAM	1 RB	0	2502.5	20775	22.70	23	0-1
					2535	21100	22.19	23	0-1
					2567.5	21425	22.84	23	0-1
	12			2502.5	20775	22.77	23	0-1	
				2535	21100	22.35	23	0-1	
				2567.5	21425	22.97	23	0-1	
	24			2502.5	20775	22.28	23	0-1	
				2535	21100	22.63	23	0-1	
				2567.5	21425	22.02	23	0-1	
	12 RB			0	2502.5	20775	21.86	22	0-2
					2535	21100	21.18	22	0-2
					2567.5	21425	21.57	22	0-2
			6	2502.5	20775	21.96	22	0-2	
				2535	21100	21.11	22	0-2	
				2567.5	21425	21.61	22	0-2	
			13	2502.5	20775	21.97	22	0-2	
				2535	21100	21.17	22	0-2	
				2567.5	21425	21.52	22	0-2	
			25RB	2502.5	20775	21.91	22	0-2	
				2535	21100	21.18	22	0-2	
				2567.5	21425	21.53	22	0-2	

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FDD Band 12									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
10	QPSK	1 RB	0	704	23060	23.58	24	0	
				707.5	23095	23.59	24	0	
				711	23130	23.68	24	0	
			25	704	23060	23.86	24	0	
				707.5	23095	23.98	24	0	
				711	23130	23.72	24	0	
		49	704	23060	23.83	24	0		
			707.5	23095	23.61	24	0		
			711	23130	23.42	24	0		
		25 RB	0	704	23060	22.68	23	0-1	
				707.5	23095	22.80	23	0-1	
				711	23130	22.97	23	0-1	
			12	704	23060	22.87	23	0-1	
				707.5	23095	22.87	23	0-1	
				711	23130	22.75	23	0-1	
			25	704	23060	22.91	23	0-1	
				707.5	23095	22.87	23	0-1	
				711	23130	22.31	23	0-1	
			50RB	704	23060	22.90	23	0-1	
				707.5	23095	22.85	23	0-1	
				711	23130	22.62	23	0-1	
		16-QAM	1 RB	0	704	23060	22.80	23	0-1
					707.5	23095	22.73	23	0-1
					711	23130	22.75	23	0-1
	25			704	23060	22.69	23	0-1	
				707.5	23095	22.54	23	0-1	
				711	23130	22.34	23	0-1	
	49			704	23060	22.46	23	0-1	
				707.5	23095	22.99	23	0-1	
				711	23130	22.61	23	0-1	
	25 RB			0	704	23060	21.74	22	0-2
					707.5	23095	21.83	22	0-2
					711	23130	21.64	22	0-2
			12	704	23060	21.81	22	0-2	
				707.5	23095	21.92	22	0-2	
				711	23130	21.22	22	0-2	
			25	704	23060	21.57	22	0-2	
				707.5	23095	21.42	22	0-2	
				711	23130	21.30	22	0-2	
			50RB	704	23060	21.85	22	0-2	
				707.5	23095	21.94	22	0-2	
				711	23130	21.72	22	0-2	

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FDD Band 12									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
5	QPSK	1 RB	0	701.5	23035	23.21	24	0	
				707.5	23095	23.72	24	0	
				713.5	23155	23.96	24	0	
			12	701.5	23035	23.56	24	0	
				707.5	23095	23.73	24	0	
				713.5	23155	23.93	24	0	
		24	701.5	23035	23.72	24	0		
			707.5	23095	23.85	24	0		
			713.5	23155	23.54	24	0		
		12 RB	0	701.5	23035	22.50	23	0-1	
				707.5	23095	22.83	23	0-1	
				713.5	23155	22.54	23	0-1	
			6	701.5	23035	22.61	23	0-1	
				707.5	23095	22.89	23	0-1	
				713.5	23155	22.86	23	0-1	
		13	701.5	23035	22.67	23	0-1		
			707.5	23095	22.94	23	0-1		
			713.5	23155	22.76	23	0-1		
		25RB	701.5	23035	22.70	23	0-1		
			707.5	23095	22.89	23	0-1		
			713.5	23155	22.65	23	0-1		
		16-QAM	1 RB	0	701.5	23035	22.37	23	0-1
					707.5	23095	22.61	23	0-1
					713.5	23155	22.45	23	0-1
	12			701.5	23035	22.71	23	0-1	
				707.5	23095	22.84	23	0-1	
				713.5	23155	22.74	23	0-1	
	24		701.5	23035	22.90	23	0-1		
			707.5	23095	22.97	23	0-1		
			713.5	23155	22.31	23	0-1		
	12 RB		0	701.5	23035	21.67	22	0-2	
				707.5	23095	21.90	22	0-2	
				713.5	23155	21.49	22	0-2	
			6	701.5	23035	21.75	22	0-2	
				707.5	23095	22.00	22	0-2	
				713.5	23155	21.53	22	0-2	
	13		701.5	23035	21.87	22	0-2		
			707.5	23095	21.67	22	0-2		
			713.5	23155	21.78	22	0-2		
	25RB		701.5	23035	21.73	22	0-2		
			707.5	23095	21.88	22	0-2		
			713.5	23155	21.68	22	0-2		

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FDD Band 12									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
3	QPSK	1 RB	0	700.5	23025	23.24	24	0	
				707.5	23095	23.60	24	0	
				714.5	23165	23.67	24	0	
			7	700.5	23025	23.33	24	0	
				707.5	23095	23.70	24	0	
				714.5	23165	23.42	24	0	
		14	700.5	23025	23.41	24	0		
			707.5	23095	23.70	24	0		
			714.5	23165	23.71	24	0		
		8 RB	0	700.5	23025	22.28	23	0-1	
				707.5	23095	22.70	23	0-1	
				714.5	23165	22.43	23	0-1	
			4	700.5	23025	22.38	23	0-1	
				707.5	23095	22.68	23	0-1	
				714.5	23165	22.52	23	0-1	
		7	700.5	23025	22.48	23	0-1		
			707.5	23095	22.75	23	0-1		
			714.5	23165	22.43	23	0-1		
		15RB	700.5	23025	22.37	23	0-1		
			707.5	23095	22.80	23	0-1		
			714.5	23165	22.57	23	0-1		
		16-QAM	1 RB	0	700.5	23025	22.45	23	0-1
					707.5	23095	22.73	23	0-1
					714.5	23165	22.41	23	0-1
	7			700.5	23025	22.40	23	0-1	
				707.5	23095	22.51	23	0-1	
				714.5	23165	22.40	23	0-1	
	14		700.5	23025	22.36	23	0-1		
			707.5	23095	22.47	23	0-1		
			714.5	23165	22.34	23	0-1		
	8 RB		0	700.5	23025	21.29	22	0-2	
				707.5	23095	21.78	22	0-2	
				714.5	23165	21.63	22	0-2	
			4	700.5	23025	21.49	22	0-2	
				707.5	23095	21.82	22	0-2	
				714.5	23165	21.42	22	0-2	
	7		700.5	23025	21.57	22	0-2		
			707.5	23095	21.57	22	0-2		
			714.5	23165	21.21	22	0-2		
	15RB		700.5	23025	21.40	22	0-2		
			707.5	23095	21.86	22	0-2		
			714.5	23165	21.96	22	0-2		

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FDD Band 12									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
1.4	QPSK	1 RB	0	699.7	23017	23.31	24	0	
				707.5	23095	23.92	24	0	
				715.3	23173	23.92	24	0	
			2	699.7	23017	23.31	24	0	
				707.5	23095	23.81	24	0	
				715.3	23173	23.53	24	0	
		5	699.7	23017	23.43	24	0		
			707.5	23095	23.75	24	0		
			715.3	23173	23.65	24	0		
		3 RB	0	699.7	23017	23.29	24	0	
				707.5	23095	23.74	24	0	
				715.3	23173	23.93	24	0	
			2	699.7	23017	23.32	24	0	
				707.5	23095	23.73	24	0	
				715.3	23173	24.00	24	0	
			3	699.7	23017	23.28	24	0	
				707.5	23095	23.76	24	0	
				715.3	23173	23.99	24	0	
		6RB	699.7	23017	22.35	23	0-1		
			707.5	23095	22.78	23	0-1		
			715.3	23173	22.64	23	0-1		
		16-QAM	1 RB	0	699.7	23017	22.56	23	0-1
					707.5	23095	22.89	23	0-1
					715.3	23173	22.83	23	0-1
	2			699.7	23017	22.94	23	0-1	
				707.5	23095	22.54	23	0-1	
				715.3	23173	22.47	23	0-1	
	5			699.7	23017	22.63	23	0-1	
				707.5	23095	22.95	23	0-1	
				715.3	23173	22.41	23	0-1	
	3 RB			0	699.7	23017	22.16	23	0-1
					707.5	23095	22.66	23	0-1
					715.3	23173	22.88	23	0-1
			2	699.7	23017	22.31	23	0-1	
				707.5	23095	22.77	23	0-1	
				715.3	23173	22.92	23	0-1	
			3	699.7	23017	22.47	23	0-1	
				707.5	23095	22.75	23	0-1	
				715.3	23173	22.89	23	0-1	
	6RB		699.7	23017	21.32	22	0-2		
			707.5	23095	21.70	22	0-2		
			715.3	23173	21.43	22	0-2		

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FDD Band 13									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
10	QPSK	1 RB	0	782	23230	23.77	24	0	
			25	782	23230	23.95	24	0	
			49	782	23230	23.45	24	0	
		25 RB	0	782	23230	22.74	23	0-1	
			12	782	23230	22.95	23	0-1	
			25	782	23230	22.77	23	0-1	
	50RB			782	23230	22.97	23	0-1	
	16-QAM	1 RB	0	782	23230	22.45	23	0-1	
			25	782	23230	22.67	23	0-1	
			49	782	23230	22.70	23	0-1	
		25 RB	0	782	23230	21.96	22	0-2	
			12	782	23230	21.52	22	0-2	
			25	782	23230	21.46	22	0-2	
		50RB			782	23230	21.99	22	0-2

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FDD Band 13									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
5	QPSK	1 RB	0	779.5	23205	23.61	24	0	
				782	23230	23.58	24	0	
				784.5	23255	23.81	24	0	
			12	779.5	23205	23.60	24	0	
				782	23230	23.63	24	0	
				784.5	23255	23.70	24	0	
			24	779.5	23205	23.83	24	0	
				782	23230	23.71	24	0	
				784.5	23255	23.88	24	0	
		12 RB	0	779.5	23205	22.60	23	0-1	
				782	23230	22.55	23	0-1	
				784.5	23255	22.84	23	0-1	
			6	779.5	23205	22.60	23	0-1	
				782	23230	22.68	23	0-1	
				784.5	23255	22.82	23	0-1	
			13	779.5	23205	22.69	23	0-1	
				782	23230	22.85	23	0-1	
				784.5	23255	22.92	23	0-1	
		25RB	779.5	23205	22.66	23	0-1		
			782	23230	22.71	23	0-1		
			784.5	23255	22.82	23	0-1		
		16-QAM	1 RB	0	779.5	23205	22.97	23	0-1
					782	23230	22.81	23	0-1
					784.5	23255	22.82	23	0-1
	12			779.5	23205	22.76	23	0-1	
				782	23230	22.62	23	0-1	
				784.5	23255	22.78	23	0-1	
	24			779.5	23205	22.93	23	0-1	
				782	23230	22.36	23	0-1	
				784.5	23255	22.42	23	0-1	
	12 RB		0	779.5	23205	21.65	22	0-2	
				782	23230	21.67	22	0-2	
				784.5	23255	21.82	22	0-2	
			6	779.5	23205	21.69	22	0-2	
				782	23230	21.67	22	0-2	
				784.5	23255	21.89	22	0-2	
			13	779.5	23205	21.64	22	0-2	
				782	23230	21.91	22	0-2	
				784.5	23255	21.99	22	0-2	
	25RB		779.5	23205	21.63	22	0-2		
			782	23230	21.76	22	0-2		
			784.5	23255	21.89	22	0-2		

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FDD Band 14									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
10	QPSK	1 RB	0	793	23330	23.97	24	0	
			25	793	23330	23.69	24	0	
			49	793	23330	23.61	24	0	
		25 RB	0	793	23330	22.82	23	0-1	
			12	793	23330	22.76	23	0-1	
			25	793	23330	22.84	23	0-1	
	50RB			793	23330	22.77	23	0-1	
	16-QAM	1 RB	0	793	23330	22.98	23	0-1	
			25	793	23330	22.82	23	0-1	
			49	793	23330	22.49	23	0-1	
		25 RB	0	793	23330	21.84	22	0-2	
			12	793	23330	21.75	22	0-2	
			25	793	23330	21.83	22	0-2	
		50RB			793	23330	21.73	22	0-2

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FDD Band 14									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
5	QPSK	1 RB	0	790.5	23305	23.62	24	0	
				793	23330	23.52	24	0	
				795.5	23355	23.47	24	0	
			12	790.5	23305	23.36	24	0	
				793	23330	23.61	24	0	
				795.5	23355	23.57	24	0	
		24	790.5	23305	23.66	24	0		
			793	23330	23.51	24	0		
			795.5	23355	22.58	24	0		
		12 RB	0	790.5	23305	22.65	23	0-1	
				793	23330	22.64	23	0-1	
				795.5	23355	22.56	23	0-1	
			6	790.5	23305	22.52	23	0-1	
				793	23330	22.63	23	0-1	
				795.5	23355	22.60	23	0-1	
			13	790.5	23305	22.62	23	0-1	
				793	23330	22.57	23	0-1	
				795.5	23355	22.67	23	0-1	
			25RB	790.5	23305	22.69	23	0-1	
				793	23330	22.72	23	0-1	
				795.5	23355	22.81	23	0-1	
		16-QAM	1 RB	0	790.5	23305	22.72	23	0-1
					793	23330	22.92	23	0-1
					795.5	23355	22.64	23	0-1
	12			790.5	23305	22.83	23	0-1	
				793	23330	22.84	23	0-1	
				795.5	23355	22.62	23	0-1	
	24			790.5	23305	22.84	23	0-1	
				793	23330	22.81	23	0-1	
				795.5	23355	21.61	23	0-1	
	12 RB			0	790.5	23305	21.56	22	0-2
					793	23330	21.77	22	0-2
					795.5	23355	21.56	22	0-2
			6	790.5	23305	21.54	22	0-2	
				793	23330	21.83	22	0-2	
				795.5	23355	21.54	22	0-2	
			13	790.5	23305	21.63	22	0-2	
				793	23330	21.67	22	0-2	
				795.5	23355	21.64	22	0-2	
			25RB	790.5	23305	21.65	22	0-2	
				793	23330	21.69	22	0-2	
				795.5	23355	21.73	22	0-2	

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FDD Band 17									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
10	QPSK	1 RB	0	709	23780	23.69	24	0	
				710	23790	23.66	24	0	
				711	23800	23.98	24	0	
			25	709	23780	23.77	24	0	
				710	23790	23.12	24	0	
				711	23800	23.88	24	0	
		49	709	23780	23.84	24	0		
			710	23790	23.77	24	0		
			711	23800	22.84	24	0		
		25 RB	0	709	23780	22.84	23	0-1	
				710	23790	22.93	23	0-1	
				711	23800	22.89	23	0-1	
			12	709	23780	22.90	23	0-1	
				710	23790	22.38	23	0-1	
				711	23800	22.47	23	0-1	
			25	709	23780	22.59	23	0-1	
				710	23790	22.21	23	0-1	
				711	23800	22.94	23	0-1	
			50RB	709	23780	22.75	23	0-1	
				710	23790	22.85	23	0-1	
				711	23800	22.97	23	0-1	
		16-QAM	1 RB	0	709	23780	22.80	23	0-1
					710	23790	22.84	23	0-1
					711	23800	22.90	23	0-1
	25			709	23780	22.75	23	0-1	
				710	23790	22.77	23	0-1	
				711	23800	22.77	23	0-1	
	49			709	23780	22.58	23	0-1	
				710	23790	22.64	23	0-1	
				711	23800	21.86	23	0-1	
	25 RB			0	709	23780	21.97	22	0-2
					710	23790	21.91	22	0-2
					711	23800	21.98	22	0-2
			12	709	23780	21.83	22	0-2	
				710	23790	21.77	22	0-2	
				711	23800	21.56	22	0-2	
			25	709	23780	21.63	22	0-2	
				710	23790	21.75	22	0-2	
				711	23800	21.91	22	0-2	
			50RB	709	23780	21.75	22	0-2	
				710	23790	21.42	22	0-2	
				711	23800	21.64	22	0-2	

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FDD Band 17									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
5	QPSK	1 RB	0	706.5	23755	23.57	24	0	
				710	23790	23.96	24	0	
				713.5	23825	23.69	24	0	
			12	706.5	23755	23.80	24	0	
				710	23790	23.93	24	0	
				713.5	23825	23.92	24	0	
		24	706.5	23755	23.74	24	0		
			710	23790	23.81	24	0		
			713.5	23825	22.91	24	0		
		12 RB	0	706.5	23755	22.81	23	0-1	
				710	23790	22.93	23	0-1	
				713.5	23825	22.86	23	0-1	
			6	706.5	23755	22.73	23	0-1	
				710	23790	22.70	23	0-1	
				713.5	23825	22.87	23	0-1	
			13	706.5	23755	22.88	23	0-1	
				710	23790	22.68	23	0-1	
				713.5	23825	22.78	23	0-1	
		25RB	706.5	23755	22.82	23	0-1		
			710	23790	22.41	23	0-1		
			713.5	23825	22.67	23	0-1		
		16-QAM	1 RB	0	706.5	23755	22.54	23	0-1
					710	23790	22.37	23	0-1
					713.5	23825	22.84	23	0-1
	12			706.5	23755	22.68	23	0-1	
				710	23790	22.82	23	0-1	
				713.5	23825	22.85	23	0-1	
	24			706.5	23755	22.97	23	0-1	
				710	23790	22.43	23	0-1	
				713.5	23825	21.78	23	0-1	
	12 RB			0	706.5	23755	21.74	22	0-2
					710	23790	21.96	22	0-2
					713.5	23825	21.84	22	0-2
			6	706.5	23755	21.99	22	0-2	
				710	23790	21.52	22	0-2	
				713.5	23825	21.84	22	0-2	
			13	706.5	23755	21.49	22	0-2	
				710	23790	21.75	22	0-2	
				713.5	23825	21.86	22	0-2	
	25RB		706.5	23755	21.63	22	0-2		
			710	23790	21.77	22	0-2		
			713.5	23825	21.45	22	0-2		

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FDD Band 25											
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)			
20	QPSK	1 RB	0	1860	26140	23.95	24	0			
				1882.5	26365	23.96	24	0			
				1905	26590	23.79	24	0			
			50	1860	26140	23.97	24	0			
						1882.5	26365	23.92	24	0	
				1905	26590	23.92	24	0			
						1860	26140	23.84	24	0	
				1882.5	26365	23.83	24	0			
						1905	26590	23.83	24	0	
		50 RB	0	1860	26140	22.95	23	0-1			
						1882.5	26365	22.83	23	0-1	
						1905	26590	22.82	23	0-1	
			25	1860	26140	22.87	23	0-1			
						1882.5	26365	22.94	23	0-1	
				1905	26590	22.93	23	0-1			
						1860	26140	22.88	23	0-1	
				1882.5	26365	22.97	23	0-1			
						1905	26590	22.82	23	0-1	
		100RB	1860	26140	22.96	23	0-1				
					1882.5	26365	22.92	23	0-1		
					1905	26590	22.80	23	0-1		
		16-QAM	1 RB	0	1860	26140	22.88	23	0-1		
							1882.5	26365	22.87	23	0-1
							1905	26590	22.83	23	0-1
	50			1860	26140	22.97	23	0-1			
						1882.5	26365	22.80	23	0-1	
				1905	26590	22.85	23	0-1			
						1860	26140	22.87	23	0-1	
				1882.5	26365	22.80	23	0-1			
						1905	26590	22.80	23	0-1	
	50 RB			0	1860	26140	21.90	22	0-2		
							1882.5	26365	21.92	22	0-2
							1905	26590	21.93	22	0-2
			25	1860	26140	21.93	22	0-2			
						1882.5	26365	21.93	22	0-2	
				1905	26590	21.81	22	0-2			
						1860	26140	21.82	22	0-2	
				1882.5	26365	21.95	22	0-2			
						1905	26590	21.81	22	0-2	
			100RB	1860	26140	21.80	22	0-2			
						1882.5	26365	21.80	22	0-2	
						1905	26590	21.81	22	0-2	

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FDD Band 25									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
15	QPSK	1 RB	0	1857.5	26115	23.83	24	0	
				1882.5	26365	23.93	24	0	
				1907.5	26615	23.88	24	0	
			36	1857.5	26115	23.81	24	0	
				1882.5	26365	23.92	24	0	
				1907.5	26615	23.94	24	0	
		74	1857.5	26115	23.94	24	0		
			1882.5	26365	23.92	24	0		
			1907.5	26615	23.93	24	0		
		36 RB	0	1857.5	26115	22.80	23	0-1	
				1882.5	26365	22.85	23	0-1	
				1907.5	26615	22.97	23	0-1	
			18	1857.5	26115	22.96	23	0-1	
				1882.5	26365	22.94	23	0-1	
				1907.5	26615	22.83	23	0-1	
		37	1857.5	26115	22.97	23	0-1		
			1882.5	26365	22.87	23	0-1		
			1907.5	26615	22.94	23	0-1		
		75RB	1857.5	26115	22.88	23	0-1		
			1882.5	26365	22.87	23	0-1		
			1907.5	26615	22.79	23	0-1		
		16-QAM	1 RB	0	1857.5	26115	22.93	23	0-1
					1882.5	26365	22.89	23	0-1
					1907.5	26615	22.92	23	0-1
	36			1857.5	26115	22.93	23	0-1	
				1882.5	26365	22.86	23	0-1	
				1907.5	26615	22.87	23	0-1	
	74			1857.5	26115	22.88	23	0-1	
				1882.5	26365	22.92	23	0-1	
				1907.5	26615	22.95	23	0-1	
	36 RB			0	1857.5	26115	21.86	22	0-2
					1882.5	26365	21.99	22	0-2
					1907.5	26615	21.98	22	0-2
			18	1857.5	26115	21.97	22	0-2	
				1882.5	26365	21.98	22	0-2	
				1907.5	26615	21.80	22	0-2	
	37		1857.5	26115	21.98	22	0-2		
			1882.5	26365	21.80	22	0-2		
			1907.5	26615	21.97	22	0-2		
	75RB		1857.5	26115	21.89	22	0-2		
			1882.5	26365	21.82	22	0-2		
			1907.5	26615	21.92	22	0-2		

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FDD Band 25									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
10	QPSK	1 RB	0	1855	26090	23.84	24	0	
				1882.5	26365	23.84	24	0	
				1910	26640	23.84	24	0	
			25	1855	26090	23.87	24	0	
				1882.5	26365	23.94	24	0	
				1910	26640	23.82	24	0	
		49	1855	26090	23.84	24	0		
			1882.5	26365	23.90	24	0		
			1910	26640	23.90	24	0		
		25 RB	0	1855	26090	22.82	23	0-1	
				1882.5	26365	22.89	23	0-1	
				1910	26640	22.99	23	0-1	
			12	1855	26090	22.94	23	0-1	
				1882.5	26365	22.93	23	0-1	
				1910	26640	22.97	23	0-1	
		25	1855	26090	22.95	23	0-1		
			1882.5	26365	22.97	23	0-1		
			1910	26640	22.98	23	0-1		
		50RB	1855	26090	22.89	23	0-1		
			1882.5	26365	22.83	23	0-1		
			1910	26640	22.94	23	0-1		
		16-QAM	1 RB	0	1855	26090	22.81	23	0-1
					1882.5	26365	22.83	23	0-1
					1910	26640	22.83	23	0-1
	25			1855	26090	22.84	23	0-1	
				1882.5	26365	22.91	23	0-1	
				1910	26640	22.95	23	0-1	
	49		1855	26090	22.84	23	0-1		
			1882.5	26365	22.98	23	0-1		
			1910	26640	22.90	23	0-1		
	25 RB		0	1855	26090	21.99	22	0-2	
				1882.5	26365	21.92	22	0-2	
				1910	26640	21.81	22	0-2	
			12	1855	26090	21.80	22	0-2	
				1882.5	26365	21.83	22	0-2	
				1910	26640	21.88	22	0-2	
	25		1855	26090	21.79	22	0-2		
			1882.5	26365	21.82	22	0-2		
			1910	26640	21.80	22	0-2		
	50RB		1855	26090	21.84	22	0-2		
			1882.5	26365	21.87	22	0-2		
			1910	26640	21.95	22	0-2		

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FDD Band 25									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
5	QPSK	1 RB	0	1852.5	26065	23.95	24	0	
				1882.5	26365	23.91	24	0	
				1912.5	26665	23.90	24	0	
			12	1852.5	26065	23.83	24	0	
				1882.5	26365	23.91	24	0	
				1912.5	26665	23.95	24	0	
		24	1852.5	26065	23.90	24	0		
			1882.5	26365	23.92	24	0		
			1912.5	26665	23.87	24	0		
		12 RB	0	1852.5	26065	22.90	23	0-1	
				1882.5	26365	22.91	23	0-1	
				1912.5	26665	22.90	23	0-1	
			6	1852.5	26065	22.92	23	0-1	
				1882.5	26365	22.98	23	0-1	
				1912.5	26665	22.89	23	0-1	
			13	1852.5	26065	22.81	23	0-1	
				1882.5	26365	22.99	23	0-1	
				1912.5	26665	22.92	23	0-1	
			25RB	1852.5	26065	22.90	23	0-1	
				1882.5	26365	22.84	23	0-1	
				1912.5	26665	22.79	23	0-1	
		16-QAM	1 RB	0	1852.5	26065	22.89	23	0-1
					1882.5	26365	22.92	23	0-1
					1912.5	26665	22.80	23	0-1
	12			1852.5	26065	22.82	23	0-1	
				1882.5	26365	22.90	23	0-1	
				1912.5	26665	22.84	23	0-1	
	24			1852.5	26065	22.99	23	0-1	
				1882.5	26365	22.80	23	0-1	
				1912.5	26665	22.94	23	0-1	
	12 RB			0	1852.5	26065	21.92	22	0-2
					1882.5	26365	21.88	22	0-2
					1912.5	26665	21.95	22	0-2
			6	1852.5	26065	21.88	22	0-2	
				1882.5	26365	21.91	22	0-2	
				1912.5	26665	21.92	22	0-2	
			13	1852.5	26065	21.98	22	0-2	
				1882.5	26365	21.85	22	0-2	
				1912.5	26665	21.94	22	0-2	
	25RB		1852.5	26065	21.88	22	0-2		
			1882.5	26365	21.92	22	0-2		
			1912.5	26665	21.95	22	0-2		

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FDD Band 25									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
3	QPSK	1 RB	0	1851.5	26055	23.83	24	0	
				1882.5	26365	23.94	24	0	
				1913.5	26675	23.87	24	0	
			7	1851.5	26055	23.92	24	0	
				1882.5	26365	23.91	24	0	
				1913.5	26675	23.89	24	0	
		14	1851.5	26055	23.87	24	0		
			1882.5	26365	23.90	24	0		
			1913.5	26675	23.88	24	0		
		8 RB	0	1851.5	26055	22.96	23	0-1	
				1882.5	26365	22.98	23	0-1	
				1913.5	26675	22.86	23	0-1	
			4	1851.5	26055	22.90	23	0-1	
				1882.5	26365	22.80	23	0-1	
				1913.5	26675	22.85	23	0-1	
		7	1851.5	26055	22.82	23	0-1		
			1882.5	26365	22.79	23	0-1		
			1913.5	26675	22.80	23	0-1		
		15RB	1851.5	26055	22.96	23	0-1		
			1882.5	26365	22.85	23	0-1		
			1913.5	26675	22.84	23	0-1		
		16-QAM	1 RB	0	1851.5	26055	22.79	23	0-1
					1882.5	26365	22.92	23	0-1
					1913.5	26675	22.91	23	0-1
	7			1851.5	26055	22.97	23	0-1	
				1882.5	26365	22.81	23	0-1	
				1913.5	26675	22.99	23	0-1	
	14		1851.5	26055	22.92	23	0-1		
			1882.5	26365	22.85	23	0-1		
			1913.5	26675	22.85	23	0-1		
	8 RB		0	1851.5	26055	21.95	22	0-2	
				1882.5	26365	21.91	22	0-2	
				1913.5	26675	21.92	22	0-2	
			4	1851.5	26055	21.85	22	0-2	
				1882.5	26365	21.94	22	0-2	
				1913.5	26675	21.81	22	0-2	
	7		1851.5	26055	21.83	22	0-2		
			1882.5	26365	21.93	22	0-2		
			1913.5	26675	21.94	22	0-2		
	15RB		1851.5	26055	21.85	22	0-2		
			1882.5	26365	21.90	22	0-2		
			1913.5	26675	21.99	22	0-2		

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FDD Band 25									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
1.4	QPSK	1 RB	0	1850.7	26047	23.85	24	0	
				1882.5	26365	23.95	24	0	
				1914.3	26683	23.83	24	0	
			2	1850.7	26047	23.88	24	0	
				1882.5	26365	23.83	24	0	
				1914.3	26683	23.80	24	0	
		5	1850.7	26047	23.83	24	0		
			1882.5	26365	23.95	24	0		
			1914.3	26683	23.87	24	0		
		3 RB	0	1850.7	26047	23.93	24	0	
				1882.5	26365	23.86	24	0	
				1914.3	26683	23.98	24	0	
			2	1850.7	26047	23.90	24	0	
				1882.5	26365	23.92	24	0	
				1914.3	26683	23.79	24	0	
			3	1850.7	26047	23.97	24	0	
				1882.5	26365	23.98	24	0	
				1914.3	26683	23.91	24	0	
		6RB	1850.7	26047	22.94	23	0-1		
			1882.5	26365	22.96	23	0-1		
			1914.3	26683	22.92	23	0-1		
		16-QAM	1 RB	0	1850.7	26047	22.93	23	0-1
					1882.5	26365	22.81	23	0-1
					1914.3	26683	22.94	23	0-1
	2			1850.7	26047	22.82	23	0-1	
				1882.5	26365	22.88	23	0-1	
				1914.3	26683	22.85	23	0-1	
	5			1850.7	26047	22.88	23	0-1	
				1882.5	26365	22.87	23	0-1	
				1914.3	26683	22.91	23	0-1	
	3 RB			0	1850.7	26047	22.97	23	0-1
					1882.5	26365	22.91	23	0-1
					1914.3	26683	22.90	23	0-1
			2	1850.7	26047	22.93	23	0-1	
				1882.5	26365	22.83	23	0-1	
				1914.3	26683	22.98	23	0-1	
			3	1850.7	26047	22.98	23	0-1	
				1882.5	26365	22.84	23	0-1	
				1914.3	26683	22.86	23	0-1	
	6RB		1850.7	26047	21.89	22	0-2		
			1882.5	26365	21.81	22	0-2		
			1914.3	26683	21.84	22	0-2		

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FDD Band 26									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
15	QPSK	1 RB	0	822.5	26825	24.16	25	0	
				831.5	26865	24.02	25	0	
				841.5	26965	24.44	25	0	
			36	822.5	26825	24.29	25	0	
				831.5	26865	24.26	25	0	
				841.5	26965	24.17	25	0	
		74	822.5	26825	24.41	25	0		
			831.5	26865	24.02	25	0		
			841.5	26965	24.04	25	0		
		36 RB	0	822.5	26825	23.16	24	0-1	
				831.5	26865	23.12	24	0-1	
				841.5	26965	23.06	24	0-1	
			18	822.5	26825	23.21	24	0-1	
				831.5	26865	23.16	24	0-1	
				841.5	26965	23.13	24	0-1	
			37	822.5	26825	23.22	24	0-1	
				831.5	26865	23.31	24	0-1	
				841.5	26965	23.14	24	0-1	
			75RB	822.5	26825	23.26	24	0-1	
				831.5	26865	23.21	24	0-1	
				841.5	26965	23.24	24	0-1	
		16-QAM	1 RB	0	822.5	26825	23.21	24	0-1
					831.5	26865	23.30	24	0-1
					841.5	26965	23.42	24	0-1
	36			822.5	26825	23.53	24	0-1	
				831.5	26865	23.49	24	0-1	
				841.5	26965	23.60	24	0-1	
	74			822.5	26825	23.73	24	0-1	
				831.5	26865	23.30	24	0-1	
				841.5	26965	23.56	24	0-1	
	36 RB			0	822.5	26825	22.20	23	0-2
					831.5	26865	22.18	23	0-2
					841.5	26965	22.07	23	0-2
			18	822.5	26825	22.27	23	0-2	
				831.5	26865	22.17	23	0-2	
				841.5	26965	22.20	23	0-2	
			37	822.5	26825	22.28	23	0-2	
				831.5	26865	22.23	23	0-2	
				841.5	26965	22.21	23	0-2	
			75RB	822.5	26825	22.31	23	0-2	
				831.5	26865	22.16	23	0-2	
				841.5	26965	22.21	23	0-2	

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FDD Band 26									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
10	QPSK	1 RB	0	820	26800	23.90	25	0	
				831.5	26865	23.86	25	0	
				844	26990	24.33	25	0	
			25	820	26800	24.04	25	0	
				831.5	26865	24.21	25	0	
				844	26990	24.14	25	0	
			49	820	26800	24.06	25	0	
				831.5	26865	24.28	25	0	
				844	26990	24.33	25	0	
		25 RB	0	820	26800	22.96	24	0-1	
				831.5	26865	23.12	24	0-1	
				844	26990	23.17	24	0-1	
			12	820	26800	23.08	24	0-1	
				831.5	26865	23.13	24	0-1	
				844	26990	23.15	24	0-1	
			25	820	26800	23.07	24	0-1	
				831.5	26865	23.18	24	0-1	
				844	26990	23.10	24	0-1	
		50RB	820	26800	23.07	24	0-1		
			831.5	26865	23.12	24	0-1		
			844	26990	23.18	24	0-1		
		16-QAM	1 RB	0	820	26800	23.09	24	0-1
					831.5	26865	23.48	24	0-1
					844	26990	23.34	24	0-1
	25			820	26800	23.08	24	0-1	
				831.5	26865	23.33	24	0-1	
				844	26990	23.38	24	0-1	
	49			820	26800	23.43	24	0-1	
				831.5	26865	23.51	24	0-1	
				844	26990	23.42	24	0-1	
	25 RB			0	820	26800	22.08	23	0-2
					831.5	26865	22.24	23	0-2
					844	26990	22.32	23	0-2
			12	820	26800	22.02	23	0-2	
				831.5	26865	22.23	23	0-2	
				844	26990	22.20	23	0-2	
			25	820	26800	22.18	23	0-2	
				831.5	26865	22.23	23	0-2	
				844	26990	22.17	23	0-2	
			50RB	820	26800	22.19	23	0-2	
				831.5	26865	22.16	23	0-2	
				844	26990	22.15	23	0-2	

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FDD Band 26									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
5	QPSK	1 RB	0	816.5	26715	23.86	25	0	
				831.5	26865	23.97	25	0	
				846.5	27015	24.15	25	0	
			12	816.5	26715	23.74	25	0	
				831.5	26865	24.08	25	0	
				846.5	27015	24.02	25	0	
			24	816.5	26715	23.84	25	0	
				831.5	26865	24.17	25	0	
				846.5	27015	23.77	25	0	
		12 RB	0	816.5	26715	22.87	24	0-1	
				831.5	26865	23.16	24	0-1	
				846.5	27015	23.02	24	0-1	
			6	816.5	26715	22.81	24	0-1	
				831.5	26865	23.12	24	0-1	
				846.5	27015	23.15	24	0-1	
			13	816.5	26715	22.86	24	0-1	
				831.5	26865	23.18	24	0-1	
				846.5	27015	23.06	24	0-1	
			25RB	816.5	26715	23.03	24	0-1	
				831.5	26865	23.11	24	0-1	
				846.5	27015	23.12	24	0-1	
		16-QAM	1 RB	0	816.5	26715	23.41	24	0-1
					831.5	26865	23.62	24	0-1
					846.5	27015	23.14	24	0-1
				12	816.5	26715	23.26	24	0-1
					831.5	26865	23.41	24	0-1
					846.5	27015	23.57	24	0-1
	24			816.5	26715	23.76	24	0-1	
				831.5	26865	23.57	24	0-1	
				846.5	27015	23.21	24	0-1	
	12 RB		0	816.5	26715	22.21	23	0-2	
				831.5	26865	22.35	23	0-2	
				846.5	27015	21.92	23	0-2	
			6	816.5	26715	21.99	23	0-2	
				831.5	26865	22.36	23	0-2	
				846.5	27015	22.09	23	0-2	
			13	816.5	26715	22.15	23	0-2	
				831.5	26865	22.42	23	0-2	
				846.5	27015	22.31	23	0-2	
			25RB	816.5	26715	22.14	23	0-2	
				831.5	26865	22.23	23	0-2	
				846.5	27015	22.34	23	0-2	

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FDD Band 26									
BW(MHz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
3	QPSK	1 RB	0	815.5	26705	24.05	25	0	
				831.5	26865	24.18	25	0	
				847.5	27025	23.93	25	0	
			7	815.5	26705	24.04	25	0	
				831.5	26865	24.11	25	0	
				847.5	27025	23.84	25	0	
		14	815.5	26705	23.88	25	0		
			831.5	26865	24.06	25	0		
			847.5	27025	23.72	25	0		
		8 RB	0	815.5	26705	23.10	24	0-1	
				831.5	26865	23.18	24	0-1	
				847.5	27025	23.13	24	0-1	
			4	815.5	26705	23.08	24	0-1	
				831.5	26865	23.15	24	0-1	
				847.5	27025	23.06	24	0-1	
		7	815.5	26705	22.98	24	0-1		
			831.5	26865	23.18	24	0-1		
			847.5	27025	23.12	24	0-1		
		15RB	815.5	26705	23.08	24	0-1		
			831.5	26865	23.13	24	0-1		
			847.5	27025	23.14	24	0-1		
		16-QAM	1 RB	0	815.5	26705	23.41	24	0-1
					831.5	26865	23.24	24	0-1
					847.5	27025	23.44	24	0-1
	7			815.5	26705	23.23	24	0-1	
				831.5	26865	23.29	24	0-1	
				847.5	27025	23.29	24	0-1	
	14		815.5	26705	23.11	24	0-1		
			831.5	26865	23.64	24	0-1		
			847.5	27025	23.01	24	0-1		
	8 RB		0	815.5	26705	22.22	23	0-2	
				831.5	26865	22.09	23	0-2	
				847.5	27025	22.18	23	0-2	
			4	815.5	26705	22.10	23	0-2	
				831.5	26865	22.10	23	0-2	
				847.5	27025	22.26	23	0-2	
	7		815.5	26705	22.06	23	0-2		
			831.5	26865	22.05	23	0-2		
			847.5	27025	22.07	23	0-2		
	15RB		815.5	26705	22.05	23	0-2		
			831.5	26865	21.95	23	0-2		
			847.5	27025	22.14	23	0-2		

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FDD Band 26									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
1.4	QPSK	1 RB	0	814.7	26697	23.89	25	0	
				831.5	26865	24.14	25	0	
				848.3	27033	24.04	25	0	
			2	814.7	26697	23.86	25	0	
				831.5	26865	24.02	25	0	
				848.3	27033	24.19	25	0	
		5	814.7	26697	23.95	25	0		
			831.5	26865	24.08	25	0		
			848.3	27033	23.88	25	0		
		3 RB	0	814.7	26697	23.83	25	0	
				831.5	26865	24.04	25	0	
				848.3	27033	24.07	25	0	
			2	814.7	26697	23.86	25	0	
				831.5	26865	24.03	25	0	
				848.3	27033	24.04	25	0	
			3	814.7	26697	23.73	25	0	
				831.5	26865	24.05	25	0	
				848.3	27033	23.99	25	0	
		6RB	814.7	26697	22.80	24	0-1		
			831.5	26865	23.06	24	0-1		
			848.3	27033	23.12	24	0-1		
		16-QAM	1 RB	0	814.7	26697	23.10	24	0-1
					831.5	26865	23.52	24	0-1
					848.3	27033	23.28	24	0-1
	2			814.7	26697	23.41	24	0-1	
				831.5	26865	23.53	24	0-1	
				848.3	27033	23.40	24	0-1	
	5			814.7	26697	23.26	24	0-1	
				831.5	26865	23.33	24	0-1	
				848.3	27033	23.12	24	0-1	
	3 RB			0	814.7	26697	22.80	24	0-1
					831.5	26865	23.04	24	0-1
					848.3	27033	23.13	24	0-1
			2	814.7	26697	23.04	24	0-1	
				831.5	26865	23.26	24	0-1	
				848.3	27033	23.01	24	0-1	
			3	814.7	26697	22.83	24	0-1	
				831.5	26865	23.02	24	0-1	
				848.3	27033	22.88	24	0-1	
	6RB		814.7	26697	21.99	23	0-2		
			831.5	26865	22.25	23	0-2		
			848.3	27033	22.11	23	0-2		

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FDD Band 30									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
10	QPSK	1 RB	0	2310	27710	23.11	24	0	
			25	2310	27710	23.33	24	0	
			49	2310	27710	23.54	24	0	
		25 RB	0	2310	27710	22.20	23	0-1	
			12	2310	27710	22.24	23	0-1	
			25	2310	27710	22.28	23	0-1	
	50RB			2310	27710	22.25	23	0-1	
	16-QAM	1 RB	0	2310	27710	22.54	23	0-1	
			25	2310	27710	22.76	23	0-1	
			49	2310	27710	22.80	23	0-1	
		25 RB	0	2310	27710	21.29	22	0-2	
			12	2310	27710	21.26	22	0-2	
			25	2310	27710	21.31	22	0-2	
		50RB			2310	27710	21.34	22	0-2

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FDD Band 30									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
5	QPSK	1 RB	0	2307.5	27685	23.05	24	0	
				2310	27710	23.07	24	0	
				2312.5	27735	23.18	24	0	
			12	2307.5	27685	23.01	24	0	
				2310	27710	23.18	24	0	
				2312.5	27735	23.24	24	0	
		24	2307.5	27685	23.04	24	0		
			2310	27710	23.23	24	0		
			2312.5	27735	23.42	24	0		
		12 RB	0	2307.5	27685	22.02	23	0-1	
				2310	27710	22.00	23	0-1	
				2312.5	27735	22.11	23	0-1	
			6	2307.5	27685	22.03	23	0-1	
				2310	27710	22.05	23	0-1	
				2312.5	27735	22.11	23	0-1	
			13	2307.5	27685	22.02	23	0-1	
				2310	27710	22.11	23	0-1	
				2312.5	27735	22.26	23	0-1	
			25RB	2307.5	27685	22.04	23	0-1	
				2310	27710	22.08	23	0-1	
				2312.5	27735	22.20	23	0-1	
		16-QAM	1 RB	0	2307.5	27685	22.21	23	0-1
					2310	27710	22.25	23	0-1
					2312.5	27735	22.04	23	0-1
	12			2307.5	27685	22.16	23	0-1	
				2310	27710	22.43	23	0-1	
				2312.5	27735	22.38	23	0-1	
	24			2307.5	27685	22.21	23	0-1	
				2310	27710	22.27	23	0-1	
				2312.5	27735	22.05	23	0-1	
	12 RB			0	2307.5	27685	21.97	22	0-2
					2310	27710	21.85	22	0-2
					2312.5	27735	21.76	22	0-2
			6	2307.5	27685	21.81	22	0-2	
				2310	27710	21.74	22	0-2	
				2312.5	27735	21.53	22	0-2	
			13	2307.5	27685	21.67	22	0-2	
				2310	27710	21.41	22	0-2	
				2312.5	27735	21.38	22	0-2	
			25RB	2307.5	27685	21.73	22	0-2	
				2310	27710	21.68	22	0-2	
				2312.5	27735	21.17	22	0-2	

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FDD Band 66									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
20	QPSK	1 RB	0	1720	132072	23.36	24	0	
				1745	132322	23.57	24	0	
				1770	132572	23.63	24	0	
			50	1720	132072	23.23	24	0	
				1745	132322	23.40	24	0	
				1770	132572	23.45	24	0	
			99	1720	132072	23.18	24	0	
				1745	132322	23.58	24	0	
				1770	132572	23.17	24	0	
		50 RB	0	1720	132072	22.21	23	0-1	
				1745	132322	22.38	23	0-1	
				1770	132572	22.40	23	0-1	
			25	1720	132072	22.21	23	0-1	
				1745	132322	22.31	23	0-1	
				1770	132572	22.33	23	0-1	
			50	1720	132072	22.24	23	0-1	
				1745	132322	22.39	23	0-1	
				1770	132572	22.21	23	0-1	
		100RB	1720	132072	22.30	23	0-1		
			1745	132322	22.35	23	0-1		
			1770	132572	22.47	23	0-1		
		16-QAM	1 RB	0	1720	132072	22.44	23	0-1
					1745	132322	22.87	23	0-1
					1770	132572	22.60	23	0-1
	50			1720	132072	22.52	23	0-1	
				1745	132322	22.41	23	0-1	
				1770	132572	22.73	23	0-1	
	99			1720	132072	22.52	23	0-1	
				1745	132322	22.79	23	0-1	
				1770	132572	22.51	23	0-1	
	50 RB		0	1720	132072	21.25	22	0-2	
				1745	132322	21.42	22	0-2	
				1770	132572	21.49	22	0-2	
			25	1720	132072	21.26	22	0-2	
				1745	132322	21.37	22	0-2	
				1770	132572	21.53	22	0-2	
			50	1720	132072	21.32	22	0-2	
				1745	132322	21.37	22	0-2	
				1770	132572	21.32	22	0-2	
	100RB		1720	132072	21.28	22	0-2		
			1745	132322	21.37	22	0-2		
			1770	132572	21.57	22	0-2		

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FDD Band 66									
BW(MHz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
15	QPSK	1 RB	0	1717.5	132047	23.15	24	0	
				1745	132322	23.39	24	0	
				1772.5	132597	23.30	24	0	
			36	1717.5	132047	23.44	24	0	
				1745	132322	23.31	24	0	
				1772.5	132597	23.48	24	0	
			74	1717.5	132047	23.45	24	0	
				1745	132322	23.36	24	0	
				1772.5	132597	23.10	24	0	
			36 RB	0	1717.5	132047	22.09	23	0-1
					1745	132322	22.43	23	0-1
					1772.5	132597	22.39	23	0-1
		18		1717.5	132047	22.05	23	0-1	
				1745	132322	22.37	23	0-1	
				1772.5	132597	22.40	23	0-1	
		37		1717.5	132047	22.13	23	0-1	
				1745	132322	22.41	23	0-1	
				1772.5	132597	22.26	23	0-1	
		75RB		1717.5	132047	22.08	23	0-1	
				1745	132322	22.42	23	0-1	
				1772.5	132597	22.43	23	0-1	
		16-QAM	1 RB	0	1717.5	132047	22.42	23	0-1
					1745	132322	22.81	23	0-1
					1772.5	132597	22.70	23	0-1
	36			1717.5	132047	22.41	23	0-1	
				1745	132322	22.65	23	0-1	
				1772.5	132597	22.54	23	0-1	
	74			1717.5	132047	22.56	23	0-1	
				1745	132322	22.66	23	0-1	
				1772.5	132597	22.25	23	0-1	
	36 RB			0	1717.5	132047	21.16	22	0-2
					1745	132322	21.54	22	0-2
					1772.5	132597	21.49	22	0-2
			18	1717.5	132047	21.24	22	0-2	
				1745	132322	21.42	22	0-2	
				1772.5	132597	21.39	22	0-2	
			37	1717.5	132047	21.30	22	0-2	
				1745	132322	21.55	22	0-2	
				1772.5	132597	21.30	22	0-2	
			75RB	1717.5	132047	21.32	22	0-2	
				1745	132322	21.51	22	0-2	
				1772.5	132597	21.41	22	0-2	

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FDD Band 66									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
10	QPSK	1 RB	0	1715	132022	23.46	24	0	
				1745	132322	23.24	24	0	
				1775	132622	23.54	24	0	
			25	1715	132022	23.23	24	0	
				1745	132322	23.38	24	0	
				1775	132622	23.29	24	0	
		49	1715	132022	23.09	24	0		
			1745	132322	23.40	24	0		
			1775	132622	23.19	24	0		
		25 RB	0	1715	132022	22.04	23	0-1	
				1745	132322	22.42	23	0-1	
				1775	132622	22.37	23	0-1	
			12	1715	132022	22.00	23	0-1	
				1745	132322	22.38	23	0-1	
				1775	132622	22.28	23	0-1	
		25	1715	132022	22.14	23	0-1		
			1745	132322	22.39	23	0-1		
			1775	132622	22.19	23	0-1		
		50RB	1715	132022	22.22	23	0-1		
			1745	132322	22.40	23	0-1		
			1775	132622	22.26	23	0-1		
		16-QAM	1 RB	0	1715	132022	22.66	23	0-1
					1745	132322	22.75	23	0-1
					1775	132622	22.79	23	0-1
	25			1715	132022	22.54	23	0-1	
				1745	132322	22.88	23	0-1	
				1775	132622	22.45	23	0-1	
	49		1715	132022	22.75	23	0-1		
			1745	132322	22.79	23	0-1		
			1775	132622	22.52	23	0-1		
	25 RB		0	1715	132022	21.34	22	0-2	
				1745	132322	21.53	22	0-2	
				1775	132622	21.44	22	0-2	
			12	1715	132022	21.25	22	0-2	
				1745	132322	21.46	22	0-2	
				1775	132622	21.35	22	0-2	
	25		1715	132022	21.38	22	0-2		
			1745	132322	21.51	22	0-2		
			1775	132622	21.20	22	0-2		
	50RB		1715	132022	21.26	22	0-2		
			1745	132322	21.41	22	0-2		
			1775	132622	21.27	22	0-2		

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FDD Band 66									
BW(MHz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
5	QPSK	1 RB	0	1712.5	131997	23.36	24	0	
				1745	132322	23.24	24	0	
				1777.5	132647	23.25	24	0	
			12	1712.5	131997	23.48	24	0	
				1745	132322	23.60	24	0	
				1777.5	132647	23.30	24	0	
		24	1712.5	131997	23.22	24	0		
			1745	132322	23.50	24	0		
			1777.5	132647	22.97	24	0		
		12 RB	0	1712.5	131997	22.33	23	0-1	
				1745	132322	22.34	23	0-1	
				1777.5	132647	22.22	23	0-1	
			6	1712.5	131997	22.37	23	0-1	
				1745	132322	22.38	23	0-1	
				1777.5	132647	22.13	23	0-1	
			13	1712.5	131997	22.30	23	0-1	
				1745	132322	22.43	23	0-1	
				1777.5	132647	22.04	23	0-1	
			25RB	1712.5	131997	22.31	23	0-1	
				1745	132322	22.33	23	0-1	
				1777.5	132647	22.18	23	0-1	
		16-QAM	1 RB	0	1712.5	131997	22.10	23	0-1
					1745	132322	22.65	23	0-1
					1777.5	132647	22.71	23	0-1
	12			1712.5	131997	22.82	23	0-1	
				1745	132322	22.39	23	0-1	
				1777.5	132647	22.46	23	0-1	
	24		1712.5	131997	22.73	23	0-1		
			1745	132322	22.97	23	0-1		
			1777.5	132647	22.39	23	0-1		
	12 RB		0	1712.5	131997	21.46	22	0-2	
				1745	132322	21.39	22	0-2	
				1777.5	132647	21.33	22	0-2	
			6	1712.5	131997	21.41	22	0-2	
				1745	132322	21.54	22	0-2	
				1777.5	132647	21.33	22	0-2	
	13		1712.5	131997	21.45	22	0-2		
			1745	132322	21.47	22	0-2		
			1777.5	132647	21.26	22	0-2		
	25RB		1712.5	131997	21.38	22	0-2		
			1745	132322	21.38	22	0-2		
			1777.5	132647	21.28	22	0-2		

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FDD Band 66									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
3	QPSK	1 RB	0	1711.5	131987	23.17	24	0	
				1745	132322	23.26	24	0	
				1778.5	132657	22.98	24	0	
			7	1711.5	131987	23.33	24	0	
				1745	132322	23.37	24	0	
				1778.5	132657	23.13	24	0	
		14	1711.5	131987	23.30	24	0		
			1745	132322	23.30	24	0		
			1778.5	132657	23.08	24	0		
		8 RB	0	1711.5	131987	22.32	23	0-1	
				1745	132322	22.40	23	0-1	
				1778.5	132657	22.16	23	0-1	
			4	1711.5	131987	22.32	23	0-1	
				1745	132322	22.43	23	0-1	
				1778.5	132657	22.14	23	0-1	
		7	1711.5	131987	22.46	23	0-1		
			1745	132322	22.42	23	0-1		
			1778.5	132657	22.13	23	0-1		
		15RB	1711.5	131987	22.37	23	0-1		
			1745	132322	22.40	23	0-1		
			1778.5	132657	22.18	23	0-1		
		16-QAM	1 RB	0	1711.5	131987	22.60	23	0-1
					1745	132322	22.44	23	0-1
					1778.5	132657	22.47	23	0-1
	7			1711.5	131987	22.66	23	0-1	
				1745	132322	22.46	23	0-1	
				1778.5	132657	22.39	23	0-1	
	14		1711.5	131987	22.42	23	0-1		
			1745	132322	22.62	23	0-1		
			1778.5	132657	22.19	23	0-1		
	8 RB		0	1711.5	131987	21.27	22	0-2	
				1745	132322	21.38	22	0-2	
				1778.5	132657	21.18	22	0-2	
			4	1711.5	131987	21.43	22	0-2	
				1745	132322	21.48	22	0-2	
				1778.5	132657	21.33	22	0-2	
	7		1711.5	131987	21.46	22	0-2		
			1745	132322	21.31	22	0-2		
			1778.5	132657	21.23	22	0-2		
	15RB		1711.5	131987	21.32	22	0-2		
			1745	132322	21.45	22	0-2		
			1778.5	132657	21.22	22	0-2		

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FDD Band 66									
BW(MHz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
1.4	QPSK	1 RB	0	1710.7	131979	23.11	24	0	
				1745	132322	23.21	24	0	
				1779.3	132665	22.92	24	0	
			2	1710.7	131979	23.10	24	0	
				1745	132322	23.18	24	0	
				1779.3	132665	22.80	24	0	
		5	1710.7	131979	22.99	24	0		
			1745	132322	23.30	24	0		
			1779.3	132665	22.94	24	0		
		3 RB	0	1710.7	131979	23.03	24	0	
				1745	132322	23.16	24	0	
				1779.3	132665	22.92	24	0	
			2	1710.7	131979	22.96	24	0	
				1745	132322	23.20	24	0	
				1779.3	132665	22.88	24	0	
			3	1710.7	131979	23.04	24	0	
				1745	132322	23.21	24	0	
				1779.3	132665	22.85	24	0	
		6RB	1710.7	131979	22.09	23	0-1		
			1745	132322	22.31	23	0-1		
			1779.3	132665	21.98	23	0-1		
		16-QAM	1 RB	0	1710.7	131979	22.27	23	0-1
					1745	132322	22.72	23	0-1
					1779.3	132665	22.56	23	0-1
	2			1710.7	131979	22.56	23	0-1	
				1745	132322	22.58	23	0-1	
				1779.3	132665	22.07	23	0-1	
	5			1710.7	131979	22.74	23	0-1	
				1745	132322	22.31	23	0-1	
				1779.3	132665	22.43	23	0-1	
	3 RB		0	1710.7	131979	22.20	23	0-1	
				1745	132322	22.38	23	0-1	
				1779.3	132665	22.03	23	0-1	
			2	1710.7	131979	22.24	23	0-1	
				1745	132322	22.31	23	0-1	
				1779.3	132665	22.39	23	0-1	
			3	1710.7	131979	22.28	23	0-1	
				1745	132322	22.15	23	0-1	
				1779.3	132665	22.15	23	0-1	
	6RB		1710.7	131979	21.31	22	0-2		
			1745	132322	21.35	22	0-2		
			1779.3	132665	21.08	22	0-2		

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**LTE TDD Band 38 / Band 41 power table (Full power):**

TDD Band 38									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
20	QPSK	1 RB	0	2580	37850	24.95	25	0	
				2595	38000	24.98	25	0	
				2610	38150	24.94	25	0	
			50	2580	37850	24.96	25	0	
				2595	38000	24.92	25	0	
				2610	38150	24.90	25	0	
			99	2580	37850	24.77	25	0	
				2595	38000	24.87	25	0	
				2610	38150	24.79	25	0	
		50 RB	0	2580	37850	23.79	24	0-1	
				2595	38000	23.99	24	0-1	
				2610	38150	23.82	24	0-1	
			25	2580	37850	23.92	24	0-1	
				2595	38000	23.86	24	0-1	
				2610	38150	23.82	24	0-1	
			50	2580	37850	23.82	24	0-1	
				2595	38000	23.91	24	0-1	
				2610	38150	23.85	24	0-1	
		100RB	2580	37850	23.78	24	0-1		
			2595	38000	23.89	24	0-1		
			2610	38150	23.83	24	0-1		
		16-QAM	1 RB	0	2580	37850	23.93	24	0-1
					2595	38000	23.86	24	0-1
					2610	38150	23.94	24	0-1
	50			2580	37850	23.91	24	0-1	
				2595	38000	23.79	24	0-1	
				2610	38150	23.83	24	0-1	
	99			2580	37850	23.78	24	0-1	
				2595	38000	23.84	24	0-1	
				2610	38150	23.85	24	0-1	
	50 RB			0	2580	37850	22.86	23	0-2
					2595	38000	22.92	23	0-2
					2610	38150	22.85	23	0-2
			25	2580	37850	22.90	23	0-2	
				2595	38000	22.84	23	0-2	
				2610	38150	22.94	23	0-2	
			50	2580	37850	22.85	23	0-2	
				2595	38000	22.91	23	0-2	
				2610	38150	22.77	23	0-2	
			100RB	2580	37850	22.79	23	0-2	
				2595	38000	22.83	23	0-2	
				2610	38150	22.78	23	0-2	

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TDD Band 38									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
15	QPSK	1 RB	0	2577.5	37825	24.97	25	0	
				2595	38000	24.86	25	0	
				2612.5	38175	24.81	25	0	
			36	2577.5	37825	24.80	25	0	
				2595	38000	24.88	25	0	
				2612.5	38175	24.95	25	0	
		74	2577.5	37825	24.87	25	0		
			2595	38000	24.82	25	0		
			2612.5	38175	24.96	25	0		
		36 RB	0	2577.5	37825	23.81	24	0-1	
				2595	38000	23.90	24	0-1	
				2612.5	38175	23.79	24	0-1	
			18	2577.5	37825	23.82	24	0-1	
				2595	38000	23.92	24	0-1	
				2612.5	38175	23.88	24	0-1	
			37	2577.5	37825	23.88	24	0-1	
				2595	38000	23.96	24	0-1	
				2612.5	38175	23.87	24	0-1	
			75RB	2577.5	37825	23.78	24	0-1	
				2595	38000	23.93	24	0-1	
				2612.5	38175	23.78	24	0-1	
		16-QAM	1 RB	0	2577.5	37825	23.85	24	0-1
					2595	38000	23.77	24	0-1
					2612.5	38175	23.85	24	0-1
	36			2577.5	37825	23.82	24	0-1	
				2595	38000	23.95	24	0-1	
				2612.5	38175	23.81	24	0-1	
	74			2577.5	37825	23.85	24	0-1	
				2595	38000	23.85	24	0-1	
				2612.5	38175	23.83	24	0-1	
	36 RB			0	2577.5	37825	22.80	23	0-2
					2595	38000	22.81	23	0-2
					2612.5	38175	22.93	23	0-2
			18	2577.5	37825	22.85	23	0-2	
				2595	38000	22.95	23	0-2	
				2612.5	38175	22.93	23	0-2	
			37	2577.5	37825	22.89	23	0-2	
				2595	38000	22.79	23	0-2	
				2612.5	38175	22.84	23	0-2	
	75RB		2577.5	37825	22.80	23	0-2		
			2595	38000	22.91	23	0-2		
			2612.5	38175	22.81	23	0-2		

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TDD Band 38									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
10	QPSK	1 RB	0	2575	37800	24.95	25	0	
				2595	38000	24.94	25	0	
				2615	38200	24.91	25	0	
			25	2575	37800	24.78	25	0	
				2595	38000	24.78	25	0	
				2615	38200	24.78	25	0	
		49	2575	37800	24.92	25	0		
			2595	38000	24.92	25	0		
			2615	38200	24.95	25	0		
		25 RB	0	2575	37800	23.95	24	0-1	
				2595	38000	23.85	24	0-1	
				2615	38200	23.85	24	0-1	
			12	2575	37800	23.84	24	0-1	
				2595	38000	23.90	24	0-1	
				2615	38200	23.89	24	0-1	
		25	2575	37800	23.82	24	0-1		
			2595	38000	23.92	24	0-1		
			2615	38200	23.92	24	0-1		
		50RB	2575	37800	23.78	24	0-1		
			2595	38000	23.83	24	0-1		
			2615	38200	23.93	24	0-1		
		16-QAM	1 RB	0	2575	37800	23.93	24	0-1
					2595	38000	23.79	24	0-1
					2615	38200	23.88	24	0-1
	25			2575	37800	23.77	24	0-1	
				2595	38000	23.90	24	0-1	
				2615	38200	23.88	24	0-1	
	49			2575	37800	23.93	24	0-1	
				2595	38000	23.85	24	0-1	
				2615	38200	23.79	24	0-1	
	25 RB			0	2575	37800	22.92	23	0-2
					2595	38000	22.84	23	0-2
					2615	38200	22.80	23	0-2
			12	2575	37800	22.89	23	0-2	
				2595	38000	22.95	23	0-2	
				2615	38200	22.90	23	0-2	
	25		2575	37800	22.84	23	0-2		
			2595	38000	22.77	23	0-2		
			2615	38200	22.87	23	0-2		
	50RB		2575	37800	22.83	23	0-2		
			2595	38000	22.87	23	0-2		
			2615	38200	22.85	23	0-2		

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TDD Band 38									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
5	QPSK	1 RB	0	2572.5	37775	24.90	25	0	
				2595	38000	24.80	25	0	
				2617.5	38225	24.81	25	0	
			12	2572.5	37775	24.96	25	0	
				2595	38000	24.86	25	0	
				2617.5	38225	24.93	25	0	
		24	2572.5	37775	24.82	25	0		
			2595	38000	24.89	25	0		
			2617.5	38225	24.91	25	0		
		12 RB	0	2572.5	37775	23.83	24	0-1	
				2595	38000	23.86	24	0-1	
				2617.5	38225	23.83	24	0-1	
			6	2572.5	37775	23.88	24	0-1	
				2595	38000	23.79	24	0-1	
				2617.5	38225	23.85	24	0-1	
			13	2572.5	37775	23.80	24	0-1	
				2595	38000	23.95	24	0-1	
				2617.5	38225	23.81	24	0-1	
			25RB	2572.5	37775	23.86	24	0-1	
				2595	38000	23.80	24	0-1	
				2617.5	38225	23.86	24	0-1	
		16-QAM	1 RB	0	2572.5	37775	23.78	24	0-1
					2595	38000	23.87	24	0-1
					2617.5	38225	23.81	24	0-1
	12			2572.5	37775	23.80	24	0-1	
				2595	38000	23.82	24	0-1	
				2617.5	38225	23.78	24	0-1	
	24			2572.5	37775	23.94	24	0-1	
				2595	38000	23.86	24	0-1	
				2617.5	38225	23.83	24	0-1	
	12 RB			0	2572.5	37775	22.96	23	0-2
					2595	38000	22.79	23	0-2
					2617.5	38225	22.92	23	0-2
			6	2572.5	37775	22.83	23	0-2	
				2595	38000	22.80	23	0-2	
				2617.5	38225	22.86	23	0-2	
			13	2572.5	37775	22.89	23	0-2	
				2595	38000	22.79	23	0-2	
				2617.5	38225	22.83	23	0-2	
			25RB	2572.5	37775	22.87	23	0-2	
				2595	38000	22.87	23	0-2	
				2617.5	38225	22.94	23	0-2	

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TDD Band 41									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
20	QPSK	1 RB	0	2506	39750	24.09	25	0	
				2549.5	40185	23.78	25	0	
				2593	40620	24.00	25	0	
				2636.5	41055	24.91	25	0	
				2680	41490	24.84	25	0	
			50	2506	39750	23.74	25	0	
				2549.5	40185	23.64	25	0	
				2593	40620	23.95	25	0	
				2636.5	41055	24.72	25	0	
				2680	41490	24.84	25	0	
				99	2506	39750	23.68	25	0
					2549.5	40185	23.76	25	0
		2593	40620		24.07	25	0		
		2636.5	41055		24.88	25	0		
		2680	41490		24.82	25	0		
		50 RB	0	2506	39750	22.92	24	0-1	
				2549.5	40185	22.64	24	0-1	
				2593	40620	22.94	24	0-1	
				2636.5	41055	23.68	24	0-1	
				2680	41490	23.36	24	0-1	
			25	2506	39750	22.86	24	0-1	
				2549.5	40185	22.71	24	0-1	
				2593	40620	22.98	24	0-1	
				2636.5	41055	23.65	24	0-1	
				2680	41490	23.39	24	0-1	
			50	2506	39750	22.73	24	0-1	
				2549.5	40185	22.69	24	0-1	
				2593	40620	23.03	24	0-1	
				2636.5	41055	23.62	24	0-1	
				2680	41490	23.35	24	0-1	
			100RB	2506	39750	22.88	24	0-1	
		2549.5		40185	22.70	24	0-1		
2593	40620	22.97		24	0-1				
2636.5	41055	23.62		24	0-1				
2680	41490	23.32		24	0-1				

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TDD Band 41									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
20	16-QAM	1 RB	0	2506	39750	23.71	24	0-1	
				2549.5	40185	23.68	24	0-1	
				2593	40620	23.91	24	0-1	
				2636.5	41055	23.79	24	0-1	
				2680	41490	23.52	24	0-1	
			50	2506	39750	23.52	24	0-1	
				2549.5	40185	23.55	24	0-1	
				2593	40620	23.85	24	0-1	
				2636.5	41055	23.68	24	0-1	
				2680	41490	23.68	24	0-1	
				99	2506	39750	23.95	24	0-1
					2549.5	40185	23.66	24	0-1
		2593	40620		23.81	24	0-1		
		2636.5	41055		23.56	24	0-1		
		2680	41490		23.76	24	0-1		
		50 RB	0	2506	39750	22.57	23	0-2	
				2549.5	40185	22.82	23	0-2	
				2593	40620	22.56	23	0-2	
				2636.5	41055	22.55	23	0-2	
				2680	41490	22.57	23	0-2	
			25	2506	39750	22.59	23	0-2	
				2549.5	40185	22.74	23	0-2	
				2593	40620	22.54	23	0-2	
				2636.5	41055	22.37	23	0-2	
				2680	41490	22.57	23	0-2	
			50	2506	39750	22.61	23	0-2	
				2549.5	40185	22.73	23	0-2	
				2593	40620	22.64	23	0-2	
				2636.5	41055	22.42	23	0-2	
				2680	41490	22.51	23	0-2	
				100RB	2506	39750	22.57	23	0-2
		2549.5	40185		22.70	23	0-2		
2593	40620	22.49	23		0-2				
2636.5	41055	22.39	23		0-2				
2680	41490	22.45	23		0-2				

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TDD Band 41								
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
15	QPSK	1 RB	0	2503.5	39725	24.78	25	0
				2548.3	40173	24.77	25	0
				2593	40620	24.54	25	0
				2637.8	41068	24.89	25	0
				2682.5	41515	24.44	25	0
			36	2503.5	39725	24.52	25	0
				2548.3	40173	24.71	25	0
				2593	40620	24.65	25	0
				2637.8	41068	24.71	25	0
				2682.5	41515	24.37	25	0
			74	2503.5	39725	24.48	25	0
				2548.3	40173	24.68	25	0
				2593	40620	24.58	25	0
				2637.8	41068	24.71	25	0
				2682.5	41515	24.47	25	0
		36 RB	0	2503.5	39725	23.58	24	0-1
				2548.3	40173	23.81	24	0-1
				2593	40620	23.55	24	0-1
				2637.8	41068	23.50	24	0-1
				2682.5	41515	23.57	24	0-1
			18	2503.5	39725	23.61	24	0-1
				2548.3	40173	23.82	24	0-1
				2593	40620	23.57	24	0-1
				2637.8	41068	23.59	24	0-1
				2682.5	41515	23.53	24	0-1
			37	2503.5	39725	23.60	24	0-1
				2548.3	40173	23.74	24	0-1
				2593	40620	23.58	24	0-1
				2637.8	41068	23.59	24	0-1
				2682.5	41515	23.50	24	0-1
75RB	2503.5	39725	23.56	24	0-1			
	2548.3	40173	23.78	24	0-1			
	2593	40620	23.76	24	0-1			
	2637.8	41068	23.44	24	0-1			
	2682.5	41515	23.50	24	0-1			

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TDD Band 41								
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
15	16-QAM	1 RB	0	2503.5	39725	23.76	24	0-1
				2548.3	40173	23.99	24	0-1
				2593	40620	23.84	24	0-1
				2637.8	41068	23.63	24	0-1
				2682.5	41515	23.41	24	0-1
			36	2503.5	39725	23.72	24	0-1
				2548.3	40173	23.58	24	0-1
				2593	40620	23.70	24	0-1
				2637.8	41068	23.57	24	0-1
				2682.5	41515	23.65	24	0-1
			74	2503.5	39725	23.95	24	0-1
				2548.3	40173	24.00	24	0-1
				2593	40620	23.58	24	0-1
				2637.8	41068	23.47	24	0-1
				2682.5	41515	23.68	24	0-1
		36 RB	0	2503.5	39725	22.64	23	0-2
				2548.3	40173	22.87	23	0-2
				2593	40620	22.64	23	0-2
				2637.8	41068	22.62	23	0-2
				2682.5	41515	22.56	23	0-2
			18	2503.5	39725	22.67	23	0-2
				2548.3	40173	22.80	23	0-2
				2593	40620	22.69	23	0-2
				2637.8	41068	22.49	23	0-2
				2682.5	41515	22.58	23	0-2
			37	2503.5	39725	22.65	23	0-2
				2548.3	40173	22.81	23	0-2
				2593	40620	22.70	23	0-2
				2637.8	41068	22.38	23	0-2
				2682.5	41515	22.58	23	0-2
75RB	2503.5	39725	22.64	23	0-2			
	2548.3	40173	22.80	23	0-2			
	2593	40620	22.63	23	0-2			
	2637.8	41068	22.45	23	0-2			
	2682.5	41515	22.48	23	0-2			

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TDD Band 41									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
10	QPSK	1 RB	0	2501	39700	24.46	25	0	
				2547	40160	24.83	25	0	
				2593	40620	24.43	25	0	
				2639	41080	24.78	25	0	
				2685	41540	24.52	25	0	
			25	2501	39700	24.47	25	0	
				2547	40160	24.83	25	0	
				2593	40620	24.57	25	0	
				2639	41080	24.59	25	0	
				2685	41540	24.38	25	0	
				49	2501	39700	24.56	25	0
					2547	40160	24.73	25	0
		2593	40620		24.68	25	0		
		2639	41080		24.81	25	0		
		25 RB	0	2501	39700	23.62	24	0-1	
				2547	40160	23.85	24	0-1	
				2593	40620	23.46	24	0-1	
				2639	41080	23.54	24	0-1	
				2685	41540	23.56	24	0-1	
			12	2501	39700	23.62	24	0-1	
				2547	40160	23.84	24	0-1	
				2593	40620	23.48	24	0-1	
				2639	41080	23.79	24	0-1	
				2685	41540	23.58	24	0-1	
				25	2501	39700	23.64	24	0-1
					2547	40160	23.78	24	0-1
			2593		40620	23.51	24	0-1	
			2639		41080	23.59	24	0-1	
			2685		41540	23.56	24	0-1	
			50RB		2501	39700	23.61	24	0-1
					2547	40160	23.82	24	0-1
					2593	40620	23.45	24	0-1
2639	41080			23.58	24	0-1			
2685	41540			23.52	24	0-1			

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TDD Band 41									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
10	16-QAM	1 RB	0	2501	39700	23.89	24	0-1	
				2547	40160	23.58	24	0-1	
				2593	40620	23.66	24	0-1	
				2639	41080	23.65	24	0-1	
				2685	41540	23.44	24	0-1	
			25	2501	39700	23.79	24	0-1	
				2547	40160	23.73	24	0-1	
				2593	40620	23.78	24	0-1	
				2639	41080	23.65	24	0-1	
				2685	41540	23.51	24	0-1	
				49	2501	39700	23.66	24	0-1
					2547	40160	23.99	24	0-1
		2593	40620		23.93	24	0-1		
		2639	41080		23.67	24	0-1		
		25 RB	0	2501	39700	22.81	23	0-2	
				2547	40160	22.89	23	0-2	
				2593	40620	22.61	23	0-2	
				2639	41080	22.62	23	0-2	
				2685	41540	22.61	23	0-2	
			12	2501	39700	22.72	23	0-2	
				2547	40160	22.91	23	0-2	
				2593	40620	22.48	23	0-2	
				2639	41080	22.60	23	0-2	
				2685	41540	22.69	23	0-2	
				25	2501	39700	22.73	23	0-2
					2547	40160	22.89	23	0-2
			2593		40620	22.59	23	0-2	
			2639		41080	22.32	23	0-2	
			2685		41540	22.65	23	0-2	
			50RB		2501	39700	22.65	23	0-2
					2547	40160	22.85	23	0-2
					2593	40620	22.55	23	0-2
2639	41080			22.43	23	0-2			
2685	41540			22.56	23	0-2			

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TDD Band 41									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
5	QPSK	1 RB	0	2498.5	39675	24.44	25	0	
				2547.8	40148	24.86	25	0	
				2593	40620	24.78	25	0	
				2640.3	41093	24.90	25	0	
				2687.5	41565	24.47	25	0	
			12	2498.5	39675	24.53	25	0	
				2547.8	40148	24.68	25	0	
				2593	40620	24.54	25	0	
				2640.3	41093	24.86	25	0	
				2687.5	41565	24.42	25	0	
				24	2498.5	39675	24.47	25	0
					2547.8	40148	24.61	25	0
		2593	40620		24.66	25	0		
		2640.3	41093		24.83	25	0		
		2687.5	41565		24.52	25	0		
		12 RB	0	2498.5	39675	23.55	24	0-1	
				2547.8	40148	23.76	24	0-1	
				2593	40620	23.47	24	0-1	
				2640.3	41093	23.54	24	0-1	
				2687.5	41565	23.56	24	0-1	
			6	2498.5	39675	23.54	24	0-1	
				2547.8	40148	23.78	24	0-1	
				2593	40620	23.43	24	0-1	
				2640.3	41093	23.54	24	0-1	
				2687.5	41565	23.55	24	0-1	
				13	2498.5	39675	23.56	24	0-1
					2547.8	40148	23.77	24	0-1
			2593		40620	23.45	24	0-1	
			2640.3		41093	23.60	24	0-1	
			2687.5		41565	23.56	24	0-1	
25RB	2498.5		39675		23.55	24	0-1		
	2547.8		40148	23.79	24	0-1			
	2593		40620	23.46	24	0-1			
	2640.3	41093	23.41	24	0-1				
	2687.5	41565	23.57	24	0-1				

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TDD Band 41									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
5	16-QAM	1 RB	0	2498.5	39675	23.71	24	0-1	
				2547.8	40148	23.80	24	0-1	
				2593	40620	23.70	24	0-1	
				2640.3	41093	23.56	24	0-1	
				2687.5	41565	23.47	24	0-1	
			12	2498.5	39675	23.24	24	0-1	
				2547.8	40148	23.85	24	0-1	
				2593	40620	23.41	24	0-1	
				2640.3	41093	23.52	24	0-1	
				2687.5	41565	23.83	24	0-1	
				24	2498.5	39675	23.69	24	0-1
					2547.8	40148	23.78	24	0-1
		2593	40620		23.81	24	0-1		
		2640.3	41093		23.61	24	0-1		
		2687.5	41565		23.63	24	0-1		
		12 RB	0	2498.5	39675	22.66	23	0-2	
				2547.8	40148	22.82	23	0-2	
				2593	40620	22.47	23	0-2	
				2640.3	41093	22.32	23	0-2	
				2687.5	41565	22.58	23	0-2	
			6	2498.5	39675	22.68	23	0-2	
				2547.8	40148	22.81	23	0-2	
				2593	40620	22.54	23	0-2	
				2640.3	41093	22.45	23	0-2	
				2687.5	41565	22.64	23	0-2	
				13	2498.5	39675	22.60	23	0-2
					2547.8	40148	22.82	23	0-2
			2593		40620	22.53	23	0-2	
			2640.3		41093	22.34	23	0-2	
			2687.5		41565	22.48	23	0-2	
			25RB		2498.5	39675	22.66	23	0-2
				2547.8	40148	22.85	23	0-2	
				2593	40620	22.45	23	0-2	
		2640.3		41093	22.49	23	0-2		
		2687.5		41565	22.56	23	0-2		

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**LTE FDD Band 2 / Band 4 / Band 5 / Band 7/ Band 12 / Band 13 / Band 14 / Band 17 / Band 25 / Band 26 / Band 30 / Band 66 power table (Reduced power):**

FDD Band 2									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
20	QPSK	1 RB	0	1860	18700	16.29	16.5	0	
				1880	18900	16.31	16.5	0	
				1900	19100	16.33	16.5	0	
			50	1860	18700	16.21	16.5	0	
				1880	18900	16.28	16.5	0	
				1900	19100	16.41	16.5	0	
			99	1860	18700	16.26	16.5	0	
				1880	18900	16.32	16.5	0	
				1900	19100	16.20	16.5	0	
		50 RB	0	1860	18700	16.34	16.5	0	
				1880	18900	16.25	16.5	0	
				1900	19100	16.23	16.5	0	
			25	1860	18700	16.38	16.5	0	
				1880	18900	16.11	16.5	0	
				1900	19100	16.37	16.5	0	
			50	1860	18700	16.24	16.5	0	
				1880	18900	16.18	16.5	0	
				1900	19100	16.34	16.5	0	
		100RB	1860	18700	16.39	16.5	0		
			1880	18900	16.29	16.5	0		
			1900	19100	16.13	16.5	0		
		16-QAM	1 RB	0	1860	18700	16.17	16.5	0
					1880	18900	16.22	16.5	0
					1900	19100	16.32	16.5	0
	50			1860	18700	16.22	16.5	0	
				1880	18900	16.33	16.5	0	
				1900	19100	16.21	16.5	0	
	99			1860	18700	16.21	16.5	0	
				1880	18900	16.34	16.5	0	
				1900	19100	16.18	16.5	0	
	50 RB			0	1860	18700	16.32	16.5	0
					1880	18900	16.37	16.5	0
					1900	19100	16.23	16.5	0
			25	1860	18700	16.23	16.5	0	
				1880	18900	16.18	16.5	0	
				1900	19100	16.19	16.5	0	
			50	1860	18700	16.40	16.5	0	
				1880	18900	16.22	16.5	0	
				1900	19100	16.33	16.5	0	
			100RB	1860	18700	16.22	16.5	0	
				1880	18900	16.37	16.5	0	
				1900	19100	16.21	16.5	0	

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FDD Band 2									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
15	QPSK	1 RB	0	1857.5	18675	16.16	16.5	0	
				1880	18900	16.37	16.5	0	
				1902.5	19125	16.37	16.5	0	
			36	1857.5	18675	16.14	16.5	0	
				1880	18900	16.34	16.5	0	
				1902.5	19125	16.20	16.5	0	
		74	1857.5	18675	16.13	16.5	0		
			1880	18900	16.26	16.5	0		
			1902.5	19125	16.28	16.5	0		
		36 RB	0	1857.5	18675	16.32	16.5	0	
				1880	18900	16.33	16.5	0	
				1902.5	19125	16.16	16.5	0	
			18	1857.5	18675	16.22	16.5	0	
				1880	18900	16.33	16.5	0	
				1902.5	19125	16.29	16.5	0	
			37	1857.5	18675	16.32	16.5	0	
				1880	18900	16.37	16.5	0	
				1902.5	19125	16.11	16.5	0	
			75RB	1857.5	18675	16.20	16.5	0	
				1880	18900	16.22	16.5	0	
				1902.5	19125	16.39	16.5	0	
		16-QAM	1 RB	0	1857.5	18675	16.38	16.5	0
					1880	18900	16.15	16.5	0
					1902.5	19125	16.20	16.5	0
	36			1857.5	18675	16.36	16.5	0	
				1880	18900	16.27	16.5	0	
				1902.5	19125	16.36	16.5	0	
	74			1857.5	18675	16.31	16.5	0	
				1880	18900	16.17	16.5	0	
				1902.5	19125	16.30	16.5	0	
	36 RB			0	1857.5	18675	16.18	16.5	0
					1880	18900	16.19	16.5	0
					1902.5	19125	16.32	16.5	0
			18	1857.5	18675	16.13	16.5	0	
				1880	18900	16.21	16.5	0	
				1902.5	19125	16.39	16.5	0	
			37	1857.5	18675	16.23	16.5	0	
				1880	18900	16.32	16.5	0	
				1902.5	19125	16.16	16.5	0	
			75RB	1857.5	18675	16.23	16.5	0	
				1880	18900	16.10	16.5	0	
				1902.5	19125	16.21	16.5	0	

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FDD Band 2									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
10	QPSK	1 RB	0	1855	18650	16.25	16.5	0	
				1880	18900	16.30	16.5	0	
				1905	19150	16.15	16.5	0	
			25	1855	18650	16.30	16.5	0	
				1880	18900	16.14	16.5	0	
				1905	19150	16.25	16.5	0	
			49	1855	18650	16.31	16.5	0	
				1880	18900	16.37	16.5	0	
				1905	19150	16.29	16.5	0	
		25 RB	0	1855	18650	16.14	16.5	0	
				1880	18900	16.16	16.5	0	
				1905	19150	16.11	16.5	0	
			12	1855	18650	16.37	16.5	0	
				1880	18900	16.10	16.5	0	
				1905	19150	16.30	16.5	0	
			25	1855	18650	16.11	16.5	0	
				1880	18900	16.17	16.5	0	
				1905	19150	16.38	16.5	0	
		50RB	1855	18650	16.13	16.5	0		
			1880	18900	16.24	16.5	0		
			1905	19150	16.29	16.5	0		
		16-QAM	1 RB	0	1855	18650	16.28	16.5	0
					1880	18900	16.26	16.5	0
					1905	19150	16.35	16.5	0
	25			1855	18650	16.12	16.5	0	
				1880	18900	16.16	16.5	0	
				1905	19150	16.29	16.5	0	
	49			1855	18650	16.16	16.5	0	
				1880	18900	16.25	16.5	0	
				1905	19150	16.17	16.5	0	
	25 RB		0	1855	18650	16.39	16.5	0	
				1880	18900	16.11	16.5	0	
				1905	19150	16.19	16.5	0	
			12	1855	18650	16.35	16.5	0	
				1880	18900	16.24	16.5	0	
				1905	19150	16.34	16.5	0	
			25	1855	18650	16.27	16.5	0	
				1880	18900	16.12	16.5	0	
				1905	19150	16.23	16.5	0	
	50RB		1855	18650	16.10	16.5	0		
			1880	18900	16.19	16.5	0		
			1905	19150	16.37	16.5	0		

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FDD Band 2									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
5	QPSK	1 RB	0	1852.5	18625	16.23	16.5	0	
				1880	18900	16.14	16.5	0	
				1907.5	19175	16.21	16.5	0	
			12	1852.5	18625	16.23	16.5	0	
				1880	18900	16.14	16.5	0	
				1907.5	19175	16.28	16.5	0	
		24	1852.5	18625	16.40	16.5	0		
			1880	18900	16.11	16.5	0		
			1907.5	19175	16.34	16.5	0		
		12 RB	0	1852.5	18625	16.29	16.5	0	
				1880	18900	16.37	16.5	0	
				1907.5	19175	16.26	16.5	0	
			6	1852.5	18625	16.40	16.5	0	
				1880	18900	16.14	16.5	0	
				1907.5	19175	16.19	16.5	0	
		13	1852.5	18625	16.29	16.5	0		
			1880	18900	16.22	16.5	0		
			1907.5	19175	16.40	16.5	0		
		25RB	1852.5	18625	16.22	16.5	0		
			1880	18900	16.17	16.5	0		
			1907.5	19175	16.40	16.5	0		
		16-QAM	1 RB	0	1852.5	18625	16.31	16.5	0
					1880	18900	16.15	16.5	0
					1907.5	19175	16.33	16.5	0
	12			1852.5	18625	16.27	16.5	0	
				1880	18900	16.28	16.5	0	
				1907.5	19175	16.20	16.5	0	
	24		1852.5	18625	16.30	16.5	0		
			1880	18900	16.19	16.5	0		
			1907.5	19175	16.18	16.5	0		
	12 RB		0	1852.5	18625	16.30	16.5	0	
				1880	18900	16.10	16.5	0	
				1907.5	19175	16.35	16.5	0	
			6	1852.5	18625	16.40	16.5	0	
				1880	18900	16.40	16.5	0	
				1907.5	19175	16.34	16.5	0	
	13		1852.5	18625	16.24	16.5	0		
			1880	18900	16.33	16.5	0		
			1907.5	19175	16.13	16.5	0		
	25RB		1852.5	18625	16.15	16.5	0		
			1880	18900	16.18	16.5	0		
			1907.5	19175	16.13	16.5	0		

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FDD Band 2									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
3	QPSK	1 RB	0	1851.5	18615	16.12	16.5	0	
				1880	18900	16.37	16.5	0	
				1908.5	19185	16.36	16.5	0	
			7	1851.5	18615	16.19	16.5	0	
				1880	18900	16.40	16.5	0	
				1908.5	19185	16.30	16.5	0	
		14	1851.5	18615	16.34	16.5	0		
			1880	18900	16.36	16.5	0		
			1908.5	19185	16.22	16.5	0		
		8 RB	0	1851.5	18615	16.40	16.5	0	
				1880	18900	16.11	16.5	0	
				1908.5	19185	16.27	16.5	0	
			4	1851.5	18615	16.14	16.5	0	
				1880	18900	16.34	16.5	0	
				1908.5	19185	16.36	16.5	0	
		7	1851.5	18615	16.34	16.5	0		
			1880	18900	16.37	16.5	0		
			1908.5	19185	16.28	16.5	0		
		15RB	1851.5	18615	16.16	16.5	0		
			1880	18900	16.19	16.5	0		
			1908.5	19185	16.15	16.5	0		
		16-QAM	1 RB	0	1851.5	18615	16.12	16.5	0
					1880	18900	16.18	16.5	0
					1908.5	19185	16.28	16.5	0
	7			1851.5	18615	16.33	16.5	0	
				1880	18900	16.23	16.5	0	
				1908.5	19185	16.31	16.5	0	
	14		1851.5	18615	16.18	16.5	0		
			1880	18900	16.39	16.5	0		
			1908.5	19185	16.14	16.5	0		
	8 RB		0	1851.5	18615	16.13	16.5	0	
				1880	18900	16.19	16.5	0	
				1908.5	19185	16.33	16.5	0	
			4	1851.5	18615	16.28	16.5	0	
				1880	18900	16.16	16.5	0	
				1908.5	19185	16.24	16.5	0	
	7		1851.5	18615	16.21	16.5	0		
			1880	18900	16.39	16.5	0		
			1908.5	19185	16.18	16.5	0		
	15RB		1851.5	18615	16.13	16.5	0		
			1880	18900	16.17	16.5	0		
			1908.5	19185	16.32	16.5	0		

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FDD Band 2									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
1.4	QPSK	1 RB	0	1850.7	18607	16.38	16.5	0	
				1880	18900	16.20	16.5	0	
				1909.3	19193	16.39	16.5	0	
			2	1850.7	18607	16.14	16.5	0	
				1880	18900	16.24	16.5	0	
				1909.3	19193	16.36	16.5	0	
		5	1850.7	18607	16.22	16.5	0		
			1880	18900	16.35	16.5	0		
			1909.3	19193	16.29	16.5	0		
		3 RB	0	1850.7	18607	16.18	16.5	0	
				1880	18900	16.15	16.5	0	
				1909.3	19193	16.37	16.5	0	
			2	1850.7	18607	16.40	16.5	0	
				1880	18900	16.12	16.5	0	
				1909.3	19193	16.26	16.5	0	
			3	1850.7	18607	16.11	16.5	0	
				1880	18900	16.14	16.5	0	
				1909.3	19193	16.29	16.5	0	
		6RB	1850.7	18607	16.37	16.5	0		
			1880	18900	16.35	16.5	0		
			1909.3	19193	16.29	16.5	0		
		16-QAM	1 RB	0	1850.7	18607	16.23	16.5	0
					1880	18900	16.21	16.5	0
					1909.3	19193	16.32	16.5	0
	2			1850.7	18607	16.19	16.5	0	
				1880	18900	16.11	16.5	0	
				1909.3	19193	16.36	16.5	0	
	5			1850.7	18607	16.30	16.5	0	
				1880	18900	16.26	16.5	0	
				1909.3	19193	16.37	16.5	0	
	3 RB			0	1850.7	18607	16.33	16.5	0
					1880	18900	16.31	16.5	0
					1909.3	19193	16.30	16.5	0
			2	1850.7	18607	16.37	16.5	0	
				1880	18900	16.24	16.5	0	
				1909.3	19193	16.19	16.5	0	
			3	1850.7	18607	16.16	16.5	0	
				1880	18900	16.18	16.5	0	
				1909.3	19193	16.37	16.5	0	
	6RB		1850.7	18607	16.15	16.5	0		
			1880	18900	16.17	16.5	0		
			1909.3	19193	16.16	16.5	0		

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FDD Band 4									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
20	QPSK	1 RB	0	1720	20050	18.18	18.5	0	
				1732.5	20175	17.97	18.5	0	
				1745	20300	18.13	18.5	0	
			50	1720	20050	18.27	18.5	0	
					1732.5	20175	18.17	18.5	0
					1745	20300	18.16	18.5	0
				1720	20050	18.23	18.5	0	
					1732.5	20175	18.19	18.5	0
					1745	20300	18.17	18.5	0
		99	1720	20050	18.23	18.5	0		
				1732.5	20175	18.19	18.5	0	
				1745	20300	18.17	18.5	0	
		50 RB	0	1720	20050	18.12	18.5	0	
					1732.5	20175	18.21	18.5	0
					1745	20300	18.07	18.5	0
				1720	20050	18.23	18.5	0	
					1732.5	20175	18.08	18.5	0
					1745	20300	18.06	18.5	0
			25	1720	20050	18.16	18.5	0	
					1732.5	20175	18.13	18.5	0
					1745	20300	18.09	18.5	0
				1720	20050	18.04	18.5	0	
					1732.5	20175	18.11	18.5	0
					1745	20300	17.98	18.5	0
	100RB	1 RB	0	1720	20050	18.08	18.5	0	
				1732.5	20175	18.22	18.5	0	
				1745	20300	18.00	18.5	0	
			50	1720	20050	18.23	18.5	0	
					1732.5	20175	18.14	18.5	0
					1745	20300	18.25	18.5	0
				1720	20050	18.21	18.5	0	
					1732.5	20175	18.14	18.5	0
					1745	20300	18.00	18.5	0
		50 RB	0	1720	20050	18.20	18.5	0	
					1732.5	20175	18.02	18.5	0
					1745	20300	18.11	18.5	0
	1720			20050	18.06	18.5	0		
				1732.5	20175	18.07	18.5	0	
				1745	20300	18.14	18.5	0	
	25		1720	20050	18.25	18.5	0		
				1732.5	20175	18.10	18.5	0	
				1745	20300	18.00	18.5	0	
	50	1720	20050	18.13	18.5	0			
			1732.5	20175	18.05	18.5	0		
			1745	20300	18.15	18.5	0		
		1720	20050	18.13	18.5	0			
			1732.5	20175	18.05	18.5	0		
			1745	20300	18.15	18.5	0		

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FDD Band 4									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
15	QPSK	1 RB	0	1717.5	20025	18.19	18.5	0	
				1732.5	20175	18.08	18.5	0	
				1747.5	20325	18.10	18.5	0	
			36	1717.5	20025	18.12	18.5	0	
					1732.5	20175	18.23	18.5	0
					1747.5	20325	18.23	18.5	0
				1717.5	20025	18.18	18.5	0	
					1732.5	20175	18.07	18.5	0
					1747.5	20325	18.04	18.5	0
		36 RB	0	1717.5	20025	18.25	18.5	0	
				1732.5	20175	18.14	18.5	0	
				1747.5	20325	18.24	18.5	0	
			18	1717.5	20025	17.98	18.5	0	
					1732.5	20175	17.97	18.5	0
					1747.5	20325	18.03	18.5	0
				1717.5	20025	18.08	18.5	0	
					1732.5	20175	18.13	18.5	0
					1747.5	20325	18.09	18.5	0
		75RB	1717.5	20025	18.08	18.5	0		
			1732.5	20175	18.03	18.5	0		
			1747.5	20325	18.09	18.5	0		
		16-QAM	1 RB	0	1717.5	20025	18.19	18.5	0
					1732.5	20175	18.21	18.5	0
					1747.5	20325	17.96	18.5	0
	36			1717.5	20025	18.02	18.5	0	
					1732.5	20175	18.04	18.5	0
					1747.5	20325	18.08	18.5	0
				1717.5	20025	17.99	18.5	0	
					1732.5	20175	18.25	18.5	0
					1747.5	20325	18.25	18.5	0
	36 RB			0	1717.5	20025	18.09	18.5	0
					1732.5	20175	18.22	18.5	0
					1747.5	20325	18.25	18.5	0
			18	1717.5	20025	17.99	18.5	0	
					1732.5	20175	17.96	18.5	0
					1747.5	20325	18.20	18.5	0
				1717.5	20025	18.12	18.5	0	
					1732.5	20175	18.04	18.5	0
					1747.5	20325	18.09	18.5	0
	75RB		1717.5	20025	18.25	18.5	0		
			1732.5	20175	18.04	18.5	0		
			1747.5	20325	17.98	18.5	0		

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FDD Band 4									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
10	QPSK	1 RB	0	1715	20000	18.25	18.5	0	
				1732.5	20175	18.21	18.5	0	
				1750	20350	18.05	18.5	0	
			25	1715	20000	18.05	18.5	0	
				1732.5	20175	18.01	18.5	0	
				1750	20350	18.20	18.5	0	
			49	1715	20000	18.05	18.5	0	
				1732.5	20175	18.18	18.5	0	
				1750	20350	18.11	18.5	0	
		25 RB	0	1715	20000	18.25	18.5	0	
				1732.5	20175	17.99	18.5	0	
				1750	20350	18.16	18.5	0	
			12	1715	20000	18.03	18.5	0	
				1732.5	20175	18.03	18.5	0	
				1750	20350	18.08	18.5	0	
			25	1715	20000	18.08	18.5	0	
				1732.5	20175	18.25	18.5	0	
				1750	20350	18.24	18.5	0	
		50RB	1715	20000	18.15	18.5	0		
			1732.5	20175	18.20	18.5	0		
			1750	20350	18.11	18.5	0		
		16-QAM	1 RB	0	1715	20000	17.96	18.5	0
					1732.5	20175	17.97	18.5	0
					1750	20350	18.11	18.5	0
	25			1715	20000	18.10	18.5	0	
				1732.5	20175	18.01	18.5	0	
				1750	20350	17.99	18.5	0	
	49			1715	20000	18.14	18.5	0	
				1732.5	20175	18.02	18.5	0	
				1750	20350	18.15	18.5	0	
	25 RB		0	1715	20000	18.00	18.5	0	
				1732.5	20175	18.24	18.5	0	
				1750	20350	18.05	18.5	0	
			12	1715	20000	18.26	18.5	0	
				1732.5	20175	18.03	18.5	0	
				1750	20350	18.12	18.5	0	
			25	1715	20000	18.17	18.5	0	
				1732.5	20175	18.02	18.5	0	
				1750	20350	18.07	18.5	0	
	50RB		1715	20000	18.04	18.5	0		
			1732.5	20175	18.01	18.5	0		
			1750	20350	18.03	18.5	0		

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FDD Band 4									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
5	QPSK	1 RB	0	1712.5	19975	18.01	18.5	0	
				1732.5	20175	18.10	18.5	0	
				1752.5	20375	18.06	18.5	0	
			12	1712.5	19975	17.99	18.5	0	
				1732.5	20175	18.07	18.5	0	
				1752.5	20375	18.08	18.5	0	
		24	1712.5	19975	18.06	18.5	0		
			1732.5	20175	18.13	18.5	0		
			1752.5	20375	17.97	18.5	0		
		12 RB	0	1712.5	19975	18.25	18.5	0	
				1732.5	20175	18.04	18.5	0	
				1752.5	20375	18.10	18.5	0	
			6	1712.5	19975	18.14	18.5	0	
				1732.5	20175	18.06	18.5	0	
				1752.5	20375	18.11	18.5	0	
			13	1712.5	19975	18.21	18.5	0	
				1732.5	20175	18.10	18.5	0	
				1752.5	20375	18.05	18.5	0	
		25RB	1712.5	19975	18.05	18.5	0		
			1732.5	20175	17.97	18.5	0		
			1752.5	20375	18.14	18.5	0		
		16-QAM	1 RB	0	1712.5	19975	18.16	18.5	0
					1732.5	20175	18.09	18.5	0
					1752.5	20375	18.02	18.5	0
	12			1712.5	19975	18.03	18.5	0	
				1732.5	20175	18.02	18.5	0	
				1752.5	20375	18.19	18.5	0	
	24		1712.5	19975	18.23	18.5	0		
			1732.5	20175	18.00	18.5	0		
			1752.5	20375	17.97	18.5	0		
	12 RB		0	1712.5	19975	18.05	18.5	0	
				1732.5	20175	18.18	18.5	0	
				1752.5	20375	18.22	18.5	0	
			6	1712.5	19975	17.97	18.5	0	
				1732.5	20175	18.01	18.5	0	
				1752.5	20375	17.98	18.5	0	
			13	1712.5	19975	18.18	18.5	0	
				1732.5	20175	18.19	18.5	0	
				1752.5	20375	18.15	18.5	0	
	25RB		1712.5	19975	18.09	18.5	0		
			1732.5	20175	18.15	18.5	0		
			1752.5	20375	18.05	18.5	0		

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FDD Band 4									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
3	QPSK	1 RB	0	1711.5	19965	18.09	18.5	0	
				1732.5	20175	18.17	18.5	0	
				1753.5	20385	18.16	18.5	0	
			7	1711.5	19965	18.16	18.5	0	
				1732.5	20175	18.09	18.5	0	
				1753.5	20385	18.25	18.5	0	
		14	1711.5	19965	18.10	18.5	0		
			1732.5	20175	18.20	18.5	0		
			1753.5	20385	18.10	18.5	0		
		8 RB	0	1711.5	19965	17.98	18.5	0	
				1732.5	20175	18.21	18.5	0	
				1753.5	20385	18.15	18.5	0	
			4	1711.5	19965	18.15	18.5	0	
				1732.5	20175	18.19	18.5	0	
				1753.5	20385	18.09	18.5	0	
		7	1711.5	19965	18.09	18.5	0		
			1732.5	20175	17.98	18.5	0		
			1753.5	20385	18.05	18.5	0		
		15RB	1711.5	19965	18.16	18.5	0		
			1732.5	20175	18.18	18.5	0		
			1753.5	20385	18.24	18.5	0		
		16-QAM	1 RB	0	1711.5	19965	18.06	18.5	0
					1732.5	20175	18.15	18.5	0
					1753.5	20385	18.07	18.5	0
	7			1711.5	19965	17.99	18.5	0	
				1732.5	20175	18.06	18.5	0	
				1753.5	20385	18.13	18.5	0	
	14		1711.5	19965	18.24	18.5	0		
			1732.5	20175	18.12	18.5	0		
			1753.5	20385	18.23	18.5	0		
	8 RB		0	1711.5	19965	18.09	18.5	0	
				1732.5	20175	18.26	18.5	0	
				1753.5	20385	17.98	18.5	0	
			4	1711.5	19965	18.20	18.5	0	
				1732.5	20175	18.16	18.5	0	
				1753.5	20385	18.11	18.5	0	
	7		1711.5	19965	18.09	18.5	0		
			1732.5	20175	18.23	18.5	0		
			1753.5	20385	18.14	18.5	0		
	15RB		1711.5	19965	18.12	18.5	0		
			1732.5	20175	18.21	18.5	0		
			1753.5	20385	18.25	18.5	0		

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FDD Band 4									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
1.4	QPSK	1 RB	0	1710.7	19957	18.26	18.5	0	
				1732.5	20175	18.17	18.5	0	
				1754.3	20393	18.07	18.5	0	
			2	1710.7	19957	18.08	18.5	0	
				1732.5	20175	18.24	18.5	0	
				1754.3	20393	18.10	18.5	0	
		5	1710.7	19957	18.17	18.5	0		
			1732.5	20175	18.11	18.5	0		
			1754.3	20393	18.06	18.5	0		
		3 RB	0	1710.7	19957	18.00	18.5	0	
				1732.5	20175	18.09	18.5	0	
				1754.3	20393	18.14	18.5	0	
			2	1710.7	19957	18.18	18.5	0	
				1732.5	20175	18.03	18.5	0	
				1754.3	20393	18.03	18.5	0	
			3	1710.7	19957	18.00	18.5	0	
				1732.5	20175	18.16	18.5	0	
				1754.3	20393	18.00	18.5	0	
		6RB	1710.7	19957	18.07	18.5	0		
			1732.5	20175	18.15	18.5	0		
			1754.3	20393	18.05	18.5	0		
		16-QAM	1 RB	0	1710.7	19957	17.97	18.5	0
					1732.5	20175	18.12	18.5	0
					1754.3	20393	18.25	18.5	0
	2			1710.7	19957	18.04	18.5	0	
				1732.5	20175	18.09	18.5	0	
				1754.3	20393	18.22	18.5	0	
	5			1710.7	19957	18.03	18.5	0	
				1732.5	20175	18.18	18.5	0	
				1754.3	20393	18.14	18.5	0	
	3 RB		0	1710.7	19957	18.05	18.5	0	
				1732.5	20175	18.23	18.5	0	
				1754.3	20393	18.24	18.5	0	
			2	1710.7	19957	18.14	18.5	0	
				1732.5	20175	18.03	18.5	0	
				1754.3	20393	18.06	18.5	0	
			3	1710.7	19957	18.22	18.5	0	
				1732.5	20175	18.00	18.5	0	
				1754.3	20393	18.18	18.5	0	
	6RB		1710.7	19957	18.20	18.5	0		
			1732.5	20175	18.18	18.5	0		
			1754.3	20393	17.98	18.5	0		

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FDD Band 5									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
10	QPSK	1 RB	0	829	20450	22.20	22.5	0	
				836.5	20525	22.13	22.5	0	
				844	20600	22.32	22.5	0	
			25	829	20450	22.13	22.5	0	
				836.5	20525	22.43	22.5	0	
				844	20600	22.40	22.5	0	
		49	829	20450	22.20	22.5	0		
			836.5	20525	22.38	22.5	0		
			844	20600	22.32	22.5	0		
		25 RB	0	829	20450	22.14	22.5	0	
				836.5	20525	22.17	22.5	0	
				844	20600	22.32	22.5	0	
			12	829	20450	22.38	22.5	0	
				836.5	20525	22.39	22.5	0	
				844	20600	22.30	22.5	0	
		25	829	20450	22.20	22.5	0		
			836.5	20525	22.40	22.5	0		
			844	20600	22.13	22.5	0		
		50RB	829	20450	22.18	22.5	0		
			836.5	20525	22.30	22.5	0		
			844	20600	22.13	22.5	0		
		16-QAM	1 RB	0	829	20450	22.15	22.5	0
					836.5	20525	22.32	22.5	0
					844	20600	22.17	22.5	0
	25			829	20450	22.16	22.5	0	
				836.5	20525	22.40	22.5	0	
				844	20600	22.12	22.5	0	
	49			829	20450	22.26	22.5	0	
				836.5	20525	22.36	22.5	0	
				844	20600	22.13	22.5	0	
	25 RB			0	829	20450	22.26	22.5	0
					836.5	20525	22.30	22.5	0
					844	20600	22.24	22.5	0
			12	829	20450	22.23	22.5	0	
				836.5	20525	22.25	22.5	0	
				844	20600	22.26	22.5	0	
	25		829	20450	22.23	22.5	0		
			836.5	20525	22.17	22.5	0		
			844	20600	22.35	22.5	0		
	500RB		829	20450	22.39	22.5	0		
			836.5	20525	22.20	22.5	0		
			844	20600	22.35	22.5	0		

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FDD Band 5									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
5	QPSK	1 RB	0	826.5	20425	22.29	22.5	0	
				836.5	20525	22.28	22.5	0	
				846.5	20625	22.42	22.5	0	
			12	826.5	20425	22.36	22.5	0	
				836.5	20525	22.33	22.5	0	
				846.5	20625	22.17	22.5	0	
		24	826.5	20425	22.30	22.5	0		
			836.5	20525	22.39	22.5	0		
			846.5	20625	22.33	22.5	0		
		12 RB	0	826.5	20425	22.27	22.5	0	
				836.5	20525	22.32	22.5	0	
				846.5	20625	22.35	22.5	0	
			6	826.5	20425	22.34	22.5	0	
				836.5	20525	22.41	22.5	0	
				846.5	20625	22.37	22.5	0	
		13	826.5	20425	22.40	22.5	0		
			836.5	20525	22.42	22.5	0		
			846.5	20625	22.13	22.5	0		
		25RB	826.5	20425	22.17	22.5	0		
			836.5	20525	22.32	22.5	0		
			846.5	20625	22.28	22.5	0		
		16-QAM	1 RB	0	826.5	20425	22.29	22.5	0
					836.5	20525	22.38	22.5	0
					846.5	20625	22.33	22.5	0
	12			826.5	20425	22.42	22.5	0	
				836.5	20525	22.25	22.5	0	
				846.5	20625	22.38	22.5	0	
	24		826.5	20425	22.36	22.5	0		
			836.5	20525	22.19	22.5	0		
			846.5	20625	22.35	22.5	0		
	12 RB		0	826.5	20425	22.13	22.5	0	
				836.5	20525	22.33	22.5	0	
				846.5	20625	22.39	22.5	0	
			6	826.5	20425	22.41	22.5	0	
				836.5	20525	22.24	22.5	0	
				846.5	20625	22.37	22.5	0	
	13		826.5	20425	22.40	22.5	0		
			836.5	20525	22.13	22.5	0		
			846.5	20625	22.19	22.5	0		
	25RB		826.5	20425	22.34	22.5	0		
			836.5	20525	22.23	22.5	0		
			846.5	20625	22.13	22.5	0		

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FDD Band 5									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
3	QPSK	1 RB	0	825.5	20415	22.32	22.5	0	
				836.5	20525	22.32	22.5	0	
				847.5	20635	22.27	22.5	0	
			7	825.5	20415	22.15	22.5	0	
				836.5	20525	22.40	22.5	0	
				847.5	20635	22.26	22.5	0	
		14	825.5	20415	22.38	22.5	0		
			836.5	20525	22.40	22.5	0		
			847.5	20635	22.26	22.5	0		
		8 RB	0	825.5	20415	22.16	22.5	0	
				836.5	20525	22.15	22.5	0	
				847.5	20635	22.15	22.5	0	
			4	825.5	20415	22.22	22.5	0	
				836.5	20525	22.28	22.5	0	
				847.5	20635	22.15	22.5	0	
		7	825.5	20415	22.23	22.5	0		
			836.5	20525	22.42	22.5	0		
			847.5	20635	22.39	22.5	0		
		15RB	825.5	20415	22.36	22.5	0		
			836.5	20525	22.32	22.5	0		
			847.5	20635	22.24	22.5	0		
		16-QAM	1 RB	0	825.5	20415	22.24	22.5	0
					836.5	20525	22.38	22.5	0
					847.5	20635	22.14	22.5	0
	7			825.5	20415	22.13	22.5	0	
				836.5	20525	22.14	22.5	0	
				847.5	20635	22.23	22.5	0	
	14		825.5	20415	22.33	22.5	0		
			836.5	20525	22.13	22.5	0		
			847.5	20635	22.15	22.5	0		
	8 RB		0	825.5	20415	22.26	22.5	0	
				836.5	20525	22.38	22.5	0	
				847.5	20635	22.30	22.5	0	
			4	825.5	20415	22.22	22.5	0	
				836.5	20525	22.21	22.5	0	
				847.5	20635	22.18	22.5	0	
	7		825.5	20415	22.34	22.5	0		
			836.5	20525	22.27	22.5	0		
			847.5	20635	22.31	22.5	0		
	15RB		825.5	20415	22.14	22.5	0		
			836.5	20525	22.27	22.5	0		
			847.5	20635	22.17	22.5	0		

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FDD Band 5									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
1.4	QPSK	1 RB	0	824.7	20407	22.18	22.5	0	
				836.5	20525	22.17	22.5	0	
				848.3	20643	22.25	22.5	0	
			2	824.7	20407	22.38	22.5	0	
				836.5	20525	22.22	22.5	0	
				848.3	20643	22.42	22.5	0	
		5	824.7	20407	22.40	22.5	0		
			836.5	20525	22.24	22.5	0		
			848.3	20643	22.14	22.5	0		
		3 RB	0	824.7	20407	22.25	22.5	0	
				836.5	20525	22.24	22.5	0	
				848.3	20643	22.21	22.5	0	
			2	824.7	20407	22.20	22.5	0	
				836.5	20525	22.19	22.5	0	
				848.3	20643	22.15	22.5	0	
			3	824.7	20407	22.28	22.5	0	
				836.5	20525	22.39	22.5	0	
				848.3	20643	22.32	22.5	0	
		6RB	824.7	20407	22.37	22.5	0		
			836.5	20525	22.28	22.5	0		
			848.3	20643	22.26	22.5	0		
		16-QAM	1 RB	0	824.7	20407	22.41	22.5	0
					836.5	20525	22.15	22.5	0
					848.3	20643	22.33	22.5	0
	2			824.7	20407	22.25	22.5	0	
				836.5	20525	22.30	22.5	0	
				848.3	20643	22.38	22.5	0	
	5			824.7	20407	22.24	22.5	0	
				836.5	20525	22.23	22.5	0	
				848.3	20643	22.34	22.5	0	
	3 RB		0	824.7	20407	22.25	22.5	0	
				836.5	20525	22.23	22.5	0	
				848.3	20643	22.15	22.5	0	
			2	824.7	20407	22.34	22.5	0	
				836.5	20525	22.29	22.5	0	
				848.3	20643	22.14	22.5	0	
			3	824.7	20407	22.17	22.5	0	
				836.5	20525	22.32	22.5	0	
				848.3	20643	22.36	22.5	0	
	6RB		824.7	20407	22.37	22.5	0		
			836.5	20525	22.23	22.5	0		
			848.3	20643	22.39	22.5	0		

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FDD Band 7									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
20	QPSK	1 RB	0	2510	20850	16.86	17	0	
				2535	21100	16.88	17	0	
				2560	21350	16.91	17	0	
			50	2510	20850	16.94	17	0	
				2535	21100	16.92	17	0	
				2560	21350	16.79	17	0	
			99	2510	20850	16.73	17	0	
				2535	21100	16.89	17	0	
				2560	21350	16.77	17	0	
		50 RB	0	2510	20850	16.92	17	0	
				2535	21100	16.92	17	0	
				2560	21350	16.88	17	0	
			25	2510	20850	16.81	17	0	
				2535	21100	16.75	17	0	
				2560	21350	16.82	17	0	
			50	2510	20850	16.87	17	0	
				2535	21100	16.93	17	0	
				2560	21350	16.78	17	0	
		100RB	2510	20850	16.84	17	0		
			2535	21100	16.86	17	0		
			2560	21350	16.78	17	0		
		16-QAM	1 RB	0	2510	20850	16.80	17	0
					2535	21100	16.83	17	0
					2560	21350	16.76	17	0
	50			2510	20850	16.91	17	0	
				2535	21100	16.79	17	0	
				2560	21350	16.88	17	0	
	99			2510	20850	16.81	17	0	
				2535	21100	16.87	17	0	
				2560	21350	16.79	17	0	
	50 RB		0	2510	20850	16.83	17	0	
				2535	21100	16.81	17	0	
				2560	21350	16.77	17	0	
			25	2510	20850	16.85	17	0	
				2535	21100	16.90	17	0	
				2560	21350	16.90	17	0	
			50	2510	20850	16.81	17	0	
				2535	21100	16.75	17	0	
				2560	21350	16.84	17	0	
	100RB		2510	20850	16.76	17	0		
			2535	21100	16.85	17	0		
			2560	21350	16.82	17	0		

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FDD Band 7									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
15	QPSK	1 RB	0	2507.5	20825	16.76	17	0	
				2535	21100	16.88	17	0	
				2562.5	21375	16.90	17	0	
			36	2507.5	20825	16.83	17	0	
				2535	21100	16.92	17	0	
				2562.5	21375	16.76	17	0	
		74	2507.5	20825	16.81	17	0		
			2535	21100	16.77	17	0		
			2562.5	21375	16.84	17	0		
		36 RB	0	2507.5	20825	16.84	17	0	
				2535	21100	16.74	17	0	
			18	2562.5	21375	16.85	17	0	
				2507.5	20825	16.83	17	0	
			37	2535	21100	16.83	17	0	
				2562.5	21375	16.75	17	0	
		75RB	2507.5	20825	16.75	17	0		
			2535	21100	16.90	17	0		
			2562.5	21375	16.89	17	0		
		16-QAM	1 RB	0	2507.5	20825	16.73	17	0
					2535	21100	16.80	17	0
					2562.5	21375	16.87	17	0
				36	2507.5	20825	16.77	17	0
					2535	21100	16.75	17	0
					2562.5	21375	16.91	17	0
	74			2507.5	20825	16.89	17	0	
				2535	21100	16.86	17	0	
				2562.5	21375	16.79	17	0	
	36 RB			0	2507.5	20825	16.85	17	0
					2535	21100	16.79	17	0
				18	2562.5	21375	16.82	17	0
			2507.5		20825	16.74	17	0	
			37	2535	21100	16.79	17	0	
				2562.5	21375	16.91	17	0	
	75RB		2507.5	20825	16.86	17	0		
			2535	21100	16.81	17	0		
			2562.5	21375	16.91	17	0		
	75RB		2507.5	20825	16.84	17	0		
			2535	21100	16.78	17	0		
			2562.5	21375	16.93	17	0		

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FDD Band 7									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
10	QPSK	1 RB	0	2505	20800	16.83	17	0	
				2535	21100	16.74	17	0	
				2565	21400	16.82	17	0	
			25	2505	20800	16.89	17	0	
				2535	21100	16.87	17	0	
				2565	21400	16.80	17	0	
			49	2505	20800	16.77	17	0	
				2535	21100	16.78	17	0	
				2565	21400	16.77	17	0	
		25 RB	0	2505	20800	16.89	17	0	
				2535	21100	16.85	17	0	
				2565	21400	16.84	17	0	
			12	2505	20800	16.84	17	0	
				2535	21100	16.83	17	0	
				2565	21400	16.83	17	0	
			25	2505	20800	16.79	17	0	
				2535	21100	16.79	17	0	
				2565	21400	16.74	17	0	
		50RB	2505	20800	16.91	17	0		
			2535	21100	16.91	17	0		
			2565	21400	16.83	17	0		
		16-QAM	1 RB	0	2505	20800	16.83	17	0
					2535	21100	16.77	17	0
					2565	21400	16.85	17	0
	25			2505	20800	16.81	17	0	
				2535	21100	16.79	17	0	
				2565	21400	16.89	17	0	
	49			2505	20800	16.86	17	0	
				2535	21100	16.79	17	0	
				2565	21400	16.76	17	0	
	25 RB		0	2505	20800	16.79	17	0	
				2535	21100	16.79	17	0	
				2565	21400	16.91	17	0	
			12	2505	20800	16.75	17	0	
				2535	21100	16.82	17	0	
				2565	21400	16.78	17	0	
			25	2505	20800	16.86	17	0	
				2535	21100	16.87	17	0	
				2565	21400	16.88	17	0	
	50RB		2505	20800	16.83	17	0		
			2535	21100	16.73	17	0		
			2565	21400	16.90	17	0		

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FDD Band 7									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
5	QPSK	1 RB	0	2502.5	20775	16.91	17	0	
				2535	21100	16.84	17	0	
				2567.5	21425	16.90	17	0	
			12	2502.5	20775	16.74	17	0	
				2535	21100	16.76	17	0	
				2567.5	21425	16.90	17	0	
		24	2502.5	20775	16.86	17	0		
			2535	21100	16.86	17	0		
			2567.5	21425	16.74	17	0		
		12 RB	0	2502.5	20775	16.90	17	0	
				2535	21100	16.92	17	0	
				2567.5	21425	16.78	17	0	
			6	2502.5	20775	16.84	17	0	
				2535	21100	16.85	17	0	
				2567.5	21425	16.84	17	0	
			13	2502.5	20775	16.90	17	0	
				2535	21100	16.86	17	0	
				2567.5	21425	16.80	17	0	
		25RB	2502.5	20775	16.81	17	0		
			2535	21100	16.75	17	0		
			2567.5	21425	16.83	17	0		
		16-QAM	1 RB	0	2502.5	20775	16.85	17	0
					2535	21100	16.90	17	0
					2567.5	21425	16.87	17	0
	12			2502.5	20775	16.83	17	0	
				2535	21100	16.86	17	0	
				2567.5	21425	16.78	17	0	
	24			2502.5	20775	16.88	17	0	
				2535	21100	16.81	17	0	
				2567.5	21425	16.87	17	0	
	12 RB			0	2502.5	20775	16.84	17	0
					2535	21100	16.84	17	0
					2567.5	21425	16.86	17	0
			6	2502.5	20775	16.79	17	0	
				2535	21100	16.83	17	0	
				2567.5	21425	16.80	17	0	
			13	2502.5	20775	16.92	17	0	
				2535	21100	16.80	17	0	
				2567.5	21425	16.77	17	0	
			25RB	2502.5	20775	16.83	17	0	
				2535	21100	16.87	17	0	
				2567.5	21425	16.77	17	0	

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FDD Band 12									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
10	QPSK	1 RB	0	704	23060	20.30	20.5	0	
				707.5	23095	20.36	20.5	0	
				711	23130	20.29	20.5	0	
			25	704	23060	20.29	20.5	0	
				707.5	23095	20.46	20.5	0	
				711	23130	20.43	20.5	0	
			49	704	23060	20.30	20.5	0	
				707.5	23095	20.36	20.5	0	
				711	23130	20.32	20.5	0	
		25 RB	0	704	23060	20.29	20.5	0	
				707.5	23095	20.36	20.5	0	
				711	23130	20.43	20.5	0	
			12	704	23060	20.32	20.5	0	
				707.5	23095	20.30	20.5	0	
				711	23130	20.25	20.5	0	
			25	704	23060	20.32	20.5	0	
				707.5	23095	20.39	20.5	0	
				711	23130	20.44	20.5	0	
		50RB	704	23060	20.35	20.5	0		
			707.5	23095	20.38	20.5	0		
			711	23130	20.33	20.5	0		
		16-QAM	1 RB	0	704	23060	20.39	20.5	0
					707.5	23095	20.29	20.5	0
					711	23130	20.29	20.5	0
	25			704	23060	20.31	20.5	0	
				707.5	23095	20.36	20.5	0	
				711	23130	20.25	20.5	0	
	49			704	23060	20.32	20.5	0	
				707.5	23095	20.31	20.5	0	
				711	23130	20.45	20.5	0	
	25 RB		0	704	23060	20.36	20.5	0	
				707.5	23095	20.29	20.5	0	
				711	23130	20.30	20.5	0	
			12	704	23060	20.29	20.5	0	
				707.5	23095	20.39	20.5	0	
				711	23130	20.36	20.5	0	
			25	704	23060	20.30	20.5	0	
				707.5	23095	20.27	20.5	0	
				711	23130	20.38	20.5	0	
	50RB		704	23060	20.27	20.5	0		
			707.5	23095	20.38	20.5	0		
			711	23130	20.45	20.5	0		

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FDD Band 12									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
5	QPSK	1 RB	0	701.5	23035	20.33	20.5	0	
				707.5	23095	20.35	20.5	0	
				713.5	23155	20.26	20.5	0	
			12	701.5	23035	20.29	20.5	0	
				707.5	23095	20.43	20.5	0	
				713.5	23155	20.39	20.5	0	
		24	701.5	23035	20.39	20.5	0		
			707.5	23095	20.28	20.5	0		
			713.5	23155	20.36	20.5	0		
		12 RB	0	701.5	23035	20.38	20.5	0	
				707.5	23095	20.29	20.5	0	
				713.5	23155	20.39	20.5	0	
			6	701.5	23035	20.32	20.5	0	
				707.5	23095	20.42	20.5	0	
				713.5	23155	20.37	20.5	0	
		13	701.5	23035	20.30	20.5	0		
			707.5	23095	20.37	20.5	0		
			713.5	23155	20.28	20.5	0		
		25RB	701.5	23035	20.31	20.5	0		
			707.5	23095	20.30	20.5	0		
			713.5	23155	20.26	20.5	0		
		16-QAM	1 RB	0	701.5	23035	20.41	20.5	0
					707.5	23095	20.29	20.5	0
					713.5	23155	20.42	20.5	0
	12			701.5	23035	20.32	20.5	0	
				707.5	23095	20.29	20.5	0	
				713.5	23155	20.41	20.5	0	
	24		701.5	23035	20.25	20.5	0		
			707.5	23095	20.38	20.5	0		
			713.5	23155	20.43	20.5	0		
	12 RB		0	701.5	23035	20.38	20.5	0	
				707.5	23095	20.30	20.5	0	
				713.5	23155	20.27	20.5	0	
			6	701.5	23035	20.31	20.5	0	
				707.5	23095	20.36	20.5	0	
				713.5	23155	20.41	20.5	0	
	13		701.5	23035	20.40	20.5	0		
			707.5	23095	20.41	20.5	0		
			713.5	23155	20.38	20.5	0		
	25RB		701.5	23035	20.33	20.5	0		
			707.5	23095	20.37	20.5	0		
			713.5	23155	20.34	20.5	0		

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FDD Band 12									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
3	QPSK	1 RB	0	700.5	23025	20.44	20.5	0	
				707.5	23095	20.27	20.5	0	
				714.5	23165	20.40	20.5	0	
			7	700.5	23025	20.40	20.5	0	
				707.5	23095	20.36	20.5	0	
				714.5	23165	20.36	20.5	0	
		14	700.5	23025	20.43	20.5	0		
			707.5	23095	20.44	20.5	0		
			714.5	23165	20.32	20.5	0		
		8 RB	0	700.5	23025	20.32	20.5	0	
				707.5	23095	20.36	20.5	0	
				714.5	23165	20.40	20.5	0	
			4	700.5	23025	20.40	20.5	0	
				707.5	23095	20.26	20.5	0	
				714.5	23165	20.35	20.5	0	
		7	700.5	23025	20.40	20.5	0		
			707.5	23095	20.39	20.5	0		
			714.5	23165	20.34	20.5	0		
		15RB	700.5	23025	20.29	20.5	0		
			707.5	23095	20.28	20.5	0		
			714.5	23165	20.33	20.5	0		
		16-QAM	1 RB	0	700.5	23025	20.33	20.5	0
					707.5	23095	20.42	20.5	0
					714.5	23165	20.29	20.5	0
	7			700.5	23025	20.40	20.5	0	
				707.5	23095	20.36	20.5	0	
				714.5	23165	20.31	20.5	0	
	14		700.5	23025	20.42	20.5	0		
			707.5	23095	20.34	20.5	0		
			714.5	23165	20.30	20.5	0		
	8 RB		0	700.5	23025	20.42	20.5	0	
				707.5	23095	20.34	20.5	0	
				714.5	23165	20.44	20.5	0	
			4	700.5	23025	20.40	20.5	0	
				707.5	23095	20.44	20.5	0	
				714.5	23165	20.36	20.5	0	
	7		700.5	23025	20.43	20.5	0		
			707.5	23095	20.26	20.5	0		
			714.5	23165	20.37	20.5	0		
	15RB		700.5	23025	20.37	20.5	0		
			707.5	23095	20.44	20.5	0		
			714.5	23165	20.33	20.5	0		

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FDD Band 12									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
1.4	QPSK	1 RB	0	699.7	23017	20.42	20.5	0	
				707.5	23095	20.34	20.5	0	
				715.3	23173	20.28	20.5	0	
			2	699.7	23017	20.34	20.5	0	
				707.5	23095	20.43	20.5	0	
				715.3	23173	20.29	20.5	0	
		5	699.7	23017	20.30	20.5	0		
			707.5	23095	20.27	20.5	0		
			715.3	23173	20.43	20.5	0		
		3 RB	0	699.7	23017	20.34	20.5	0	
				707.5	23095	20.45	20.5	0	
				715.3	23173	20.36	20.5	0	
			2	699.7	23017	20.27	20.5	0	
				707.5	23095	20.41	20.5	0	
				715.3	23173	20.30	20.5	0	
			3	699.7	23017	20.42	20.5	0	
				707.5	23095	20.39	20.5	0	
				715.3	23173	20.34	20.5	0	
		6RB	699.7	23017	20.39	20.5	0		
			707.5	23095	20.28	20.5	0		
			715.3	23173	20.45	20.5	0		
		16-QAM	1 RB	0	699.7	23017	20.30	20.5	0
					707.5	23095	20.28	20.5	0
					715.3	23173	20.40	20.5	0
	2			699.7	23017	20.36	20.5	0	
				707.5	23095	20.45	20.5	0	
				715.3	23173	20.42	20.5	0	
	5			699.7	23017	20.42	20.5	0	
				707.5	23095	20.35	20.5	0	
				715.3	23173	20.27	20.5	0	
	3 RB		0	699.7	23017	20.26	20.5	0	
				707.5	23095	20.36	20.5	0	
				715.3	23173	20.30	20.5	0	
			2	699.7	23017	20.25	20.5	0	
				707.5	23095	20.26	20.5	0	
				715.3	23173	20.37	20.5	0	
			3	699.7	23017	20.40	20.5	0	
				707.5	23095	20.26	20.5	0	
				715.3	23173	20.27	20.5	0	
	6RB		699.7	23017	20.31	20.5	0		
			707.5	23095	20.35	20.5	0		
			715.3	23173	20.29	20.5	0		

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FDD Band 13								
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
10	QPSK	1 RB	0	782	23230	20.90	21	0
			25	782	23230	20.98	21	0
			49	782	23230	20.79	21	0
		25 RB	0	782	23230	20.88	21	0
			12	782	23230	20.78	21	0
			25	782	23230	20.83	21	0
	50RB			782	23230	20.92	21	0
	16-QAM	1 RB	0	782	23230	20.89	21	0
			25	782	23230	20.90	21	0
			49	782	23230	20.93	21	0
		25 RB	0	782	23230	20.86	21	0
			12	782	23230	20.86	21	0
			25	782	23230	20.94	21	0
	50RB			782	23230	20.82	21	0

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FDD Band 13									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
5	QPSK	1 RB	0	779.5	23205	20.97	21	0	
				782	23230	20.87	21	0	
				784.5	23255	20.91	21	0	
			12	779.5	23205	20.97	21	0	
				782	23230	20.85	21	0	
				784.5	23255	20.90	21	0	
			24	779.5	23205	20.85	21	0	
				782	23230	20.81	21	0	
				784.5	23255	20.95	21	0	
		12 RB	0	779.5	23205	20.86	21	0	
				782	23230	20.87	21	0	
				784.5	23255	20.82	21	0	
			6	779.5	23205	20.80	21	0	
				782	23230	20.79	21	0	
				784.5	23255	20.80	21	0	
			13	779.5	23205	20.80	21	0	
				782	23230	20.82	21	0	
				784.5	23255	20.83	21	0	
		25RB	779.5	23205	20.81	21	0		
			782	23230	20.81	21	0		
			784.5	23255	20.88	21	0		
		16-QAM	1 RB	0	779.5	23205	20.79	21	0
					782	23230	20.93	21	0
					784.5	23255	20.83	21	0
	12			779.5	23205	20.95	21	0	
				782	23230	20.82	21	0	
				784.5	23255	20.96	21	0	
	24			779.5	23205	20.93	21	0	
				782	23230	20.81	21	0	
				784.5	23255	20.95	21	0	
	12 RB		0	779.5	23205	20.85	21	0	
				782	23230	20.87	21	0	
				784.5	23255	20.87	21	0	
			6	779.5	23205	20.90	21	0	
				782	23230	20.95	21	0	
				784.5	23255	20.96	21	0	
			13	779.5	23205	20.82	21	0	
				782	23230	20.90	21	0	
				784.5	23255	20.95	21	0	
	25RB		779.5	23205	20.78	21	0		
			782	23230	20.90	21	0		
			784.5	23255	20.80	21	0		

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FDD Band 14								
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
10	QPSK	1 RB	0	793	23330	20.92	21	0
			25	793	23330	20.63	21	0
			49	793	23330	20.71	21	0
		25 RB	0	793	23330	20.77	21	0
			12	793	23330	20.63	21	0
			25	793	23330	20.68	21	0
	50RB			793	23330	20.62	21	0
	16-QAM	1 RB	0	793	23330	20.71	21	0
			25	793	23330	20.72	21	0
			49	793	23330	20.75	21	0
		25 RB	0	793	23330	20.64	21	0
			12	793	23330	20.89	21	0
			25	793	23330	20.73	21	0
	50RB			793	23330	20.71	21	0

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FDD Band 14									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
5	QPSK	1 RB	0	790.5	23305	20.73	21	0	
				793	23330	20.85	21	0	
				795.5	23355	20.85	21	0	
			12	790.5	23305	20.81	21	0	
				793	23330	20.83	21	0	
				795.5	23355	20.90	21	0	
		24	790.5	23305	20.71	21	0		
			793	23330	20.77	21	0		
			795.5	23355	20.62	21	0		
		12 RB	0	790.5	23305	20.78	21	0	
				793	23330	20.87	21	0	
				795.5	23355	20.81	21	0	
			6	790.5	23305	20.91	21	0	
				793	23330	20.64	21	0	
				795.5	23355	20.84	21	0	
		13	790.5	23305	20.65	21	0		
			793	23330	20.75	21	0		
			795.5	23355	20.62	21	0		
		25RB	790.5	23305	20.83	21	0		
			793	23330	20.74	21	0		
			795.5	23355	20.88	21	0		
		16-QAM	1 RB	0	790.5	23305	20.85	21	0
					793	23330	20.80	21	0
					795.5	23355	20.70	21	0
	12			790.5	23305	20.64	21	0	
				793	23330	20.85	21	0	
				795.5	23355	20.81	21	0	
	24		790.5	23305	20.75	21	0		
			793	23330	20.89	21	0		
			795.5	23355	20.76	21	0		
	12 RB		0	790.5	23305	20.75	21	0	
				793	23330	20.82	21	0	
				795.5	23355	20.81	21	0	
			6	790.5	23305	20.85	21	0	
				793	23330	20.71	21	0	
				795.5	23355	20.74	21	0	
	13		790.5	23305	20.69	21	0		
			793	23330	20.91	21	0		
			795.5	23355	20.68	21	0		
	25RB		790.5	23305	20.62	21	0		
			793	23330	20.63	21	0		
			795.5	23355	20.71	21	0		

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FDD Band 17									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
10	QPSK	1 RB	0	709	23780	20.23	20.5	0	
				710	23790	20.17	20.5	0	
				711	23800	20.29	20.5	0	
			25	709	23780	20.09	20.5	0	
				710	23790	20.25	20.5	0	
				711	23800	20.16	20.5	0	
			49	709	23780	20.20	20.5	0	
				710	23790	20.16	20.5	0	
				711	23800	20.14	20.5	0	
		25 RB	0	709	23780	20.27	20.5	0	
				710	23790	20.22	20.5	0	
				711	23800	20.08	20.5	0	
			12	709	23780	20.28	20.5	0	
				710	23790	20.17	20.5	0	
				711	23800	20.13	20.5	0	
			25	709	23780	20.12	20.5	0	
				710	23790	20.25	20.5	0	
				711	23800	20.18	20.5	0	
		50RB	709	23780	20.15	20.5	0		
			710	23790	20.21	20.5	0		
			711	23800	20.19	20.5	0		
		16-QAM	1 RB	0	709	23780	20.20	20.5	0
					710	23790	20.20	20.5	0
					711	23800	20.14	20.5	0
	25			709	23780	20.17	20.5	0	
				710	23790	20.23	20.5	0	
				711	23800	20.18	20.5	0	
	49			709	23780	20.26	20.5	0	
				710	23790	20.10	20.5	0	
				711	23800	20.27	20.5	0	
	25 RB			0	709	23780	20.26	20.5	0
					710	23790	20.12	20.5	0
					711	23800	20.19	20.5	0
			12	709	23780	20.24	20.5	0	
				710	23790	20.21	20.5	0	
				711	23800	20.12	20.5	0	
			25	709	23780	20.11	20.5	0	
				710	23790	20.09	20.5	0	
				711	23800	20.25	20.5	0	
	50RB		709	23780	20.17	20.5	0		
			710	23790	20.11	20.5	0		
			711	23800	20.18	20.5	0		

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FDD Band 17									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
5	QPSK	1 RB	0	706.5	23755	20.24	20.5	0	
				710	23790	20.14	20.5	0	
				713.5	23825	20.08	20.5	0	
			12	706.5	23755	20.14	20.5	0	
				710	23790	20.26	20.5	0	
				713.5	23825	20.24	20.5	0	
		24	706.5	23755	20.09	20.5	0		
			710	23790	20.17	20.5	0		
			713.5	23825	20.23	20.5	0		
		12 RB	0	706.5	23755	20.22	20.5	0	
				710	23790	20.16	20.5	0	
				713.5	23825	20.25	20.5	0	
			6	706.5	23755	20.14	20.5	0	
				710	23790	20.25	20.5	0	
				713.5	23825	20.17	20.5	0	
		13	706.5	23755	20.11	20.5	0		
			710	23790	20.26	20.5	0		
			713.5	23825	20.10	20.5	0		
		25RB	706.5	23755	20.28	20.5	0		
			710	23790	20.23	20.5	0		
			713.5	23825	20.21	20.5	0		
		16-QAM	1 RB	0	706.5	23755	20.08	20.5	0
					710	23790	20.25	20.5	0
					713.5	23825	20.11	20.5	0
	12			706.5	23755	20.08	20.5	0	
				710	23790	20.21	20.5	0	
				713.5	23825	20.25	20.5	0	
	24		706.5	23755	20.26	20.5	0		
			710	23790	20.19	20.5	0		
			713.5	23825	20.12	20.5	0		
	12 RB		0	706.5	23755	20.14	20.5	0	
				710	23790	20.19	20.5	0	
				713.5	23825	20.12	20.5	0	
			6	706.5	23755	20.23	20.5	0	
				710	23790	20.23	20.5	0	
				713.5	23825	20.18	20.5	0	
	13		706.5	23755	20.10	20.5	0		
			710	23790	20.14	20.5	0		
			713.5	23825	20.24	20.5	0		
	25RB		706.5	23755	20.22	20.5	0		
			710	23790	20.18	20.5	0		
			713.5	23825	20.13	20.5	0		

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FDD Band 25									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
20	QPSK	1 RB	0	1860	26140	16.40	17	0	
				1882.5	26365	16.48	17	0	
				1905	26590	16.27	17	0	
			50	1860	26140	16.42	17	0	
					1882.5	26365	16.41	17	0
				1905	26590	16.41	17	0	
					1860	26140	16.30	17	0
				1882.5	26365	16.42	17	0	
					1905	26590	16.32	17	0
		50 RB	0	1860	26140	16.36	17	0	
				1882.5	26365	16.47	17	0	
				1905	26590	16.37	17	0	
			25	1860	26140	16.34	17	0	
					1882.5	26365	16.46	17	0
				1905	26590	16.43	17	0	
					1860	26140	16.28	17	0
				1882.5	26365	16.46	17	0	
					1905	26590	16.42	17	0
		50	1860	26140	16.28	17	0		
			1882.5	26365	16.46	17	0		
			1905	26590	16.42	17	0		
		100RB	1860	26140	16.28	17	0		
			1882.5	26365	16.35	17	0		
			1905	26590	16.32	17	0		
	16-QAM	1 RB	0	1860	26140	16.44	17	0	
				1882.5	26365	16.30	17	0	
				1905	26590	16.39	17	0	
			50	1860	26140	16.46	17	0	
					1882.5	26365	16.31	17	0
				1905	26590	16.36	17	0	
					1860	26140	16.30	17	0
				1882.5	26365	16.40	17	0	
					1905	26590	16.47	17	0
			50 RB	0	1860	26140	16.45	17	0
					1882.5	26365	16.41	17	0
					1905	26590	16.30	17	0
		25		1860	26140	16.34	17	0	
					1882.5	26365	16.31	17	0
				1905	26590	16.38	17	0	
					1860	26140	16.46	17	0
				1882.5	26365	16.36	17	0	
					1905	26590	16.39	17	0
		50	1860	26140	16.46	17	0		
			1882.5	26365	16.36	17	0		
			1905	26590	16.39	17	0		
		100RB	1860	26140	16.45	17	0		
			1882.5	26365	16.28	17	0		
			1905	26590	16.43	17	0		

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FDD Band 25									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
15	QPSK	1 RB	0	1857.5	26115	16.40	17	0	
				1882.5	26365	16.43	17	0	
				1907.5	26615	16.32	17	0	
			36	1857.5	26115	16.31	17	0	
				1882.5	26365	16.47	17	0	
				1907.5	26615	16.45	17	0	
		74	1857.5	26115	16.30	17	0		
			1882.5	26365	16.37	17	0		
			1907.5	26615	16.46	17	0		
		36 RB	0	1857.5	26115	16.29	17	0	
				1882.5	26365	16.29	17	0	
				1907.5	26615	16.40	17	0	
			18	1857.5	26115	16.47	17	0	
				1882.5	26365	16.41	17	0	
				1907.5	26615	16.28	17	0	
		37	1857.5	26115	16.36	17	0		
			1882.5	26365	16.45	17	0		
			1907.5	26615	16.33	17	0		
		75RB	1857.5	26115	16.31	17	0		
			1882.5	26365	16.31	17	0		
			1907.5	26615	16.44	17	0		
		16-QAM	1 RB	0	1857.5	26115	16.43	17	0
					1882.5	26365	16.41	17	0
					1907.5	26615	16.29	17	0
	36			1857.5	26115	16.29	17	0	
				1882.5	26365	16.30	17	0	
				1907.5	26615	16.46	17	0	
	74		1857.5	26115	16.29	17	0		
			1882.5	26365	16.30	17	0		
			1907.5	26615	16.46	17	0		
	36 RB		0	1857.5	26115	16.38	17	0	
				1882.5	26365	16.28	17	0	
				1907.5	26615	16.29	17	0	
			18	1857.5	26115	16.46	17	0	
				1882.5	26365	16.39	17	0	
				1907.5	26615	16.41	17	0	
	37		1857.5	26115	16.31	17	0		
			1882.5	26365	16.34	17	0		
			1907.5	26615	16.44	17	0		
	75RB		1857.5	26115	16.39	17	0		
			1882.5	26365	16.43	17	0		
			1907.5	26615	16.37	17	0		

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FDD Band 25									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
10	QPSK	1 RB	0	1855	26090	16.36	17	0	
				1882.5	26365	16.29	17	0	
				1910	26640	16.45	17	0	
			25	1855	26090	16.37	17	0	
				1882.5	26365	16.35	17	0	
				1910	26640	16.44	17	0	
		49	1855	26090	16.36	17	0		
			1882.5	26365	16.30	17	0		
			1910	26640	16.30	17	0		
		25 RB	0	1855	26090	16.33	17	0	
				1882.5	26365	16.41	17	0	
				1910	26640	16.42	17	0	
			12	1855	26090	16.34	17	0	
				1882.5	26365	16.39	17	0	
				1910	26640	16.44	17	0	
		25	1855	26090	16.37	17	0		
			1882.5	26365	16.44	17	0		
			1910	26640	16.35	17	0		
		50RB	1855	26090	16.41	17	0		
			1882.5	26365	16.40	17	0		
			1910	26640	16.32	17	0		
		16-QAM	1 RB	0	1855	26090	16.33	17	0
					1882.5	26365	16.40	17	0
					1910	26640	16.47	17	0
	25			1855	26090	16.46	17	0	
				1882.5	26365	16.32	17	0	
				1910	26640	16.34	17	0	
	49		1855	26090	16.30	17	0		
			1882.5	26365	16.37	17	0		
			1910	26640	16.27	17	0		
	25 RB		0	1855	26090	16.32	17	0	
				1882.5	26365	16.39	17	0	
				1910	26640	16.30	17	0	
			12	1855	26090	16.42	17	0	
				1882.5	26365	16.31	17	0	
				1910	26640	16.39	17	0	
	25		1855	26090	16.36	17	0		
			1882.5	26365	16.42	17	0		
			1910	26640	16.44	17	0		
	50RB		1855	26090	16.38	17	0		
			1882.5	26365	16.44	17	0		
			1910	26640	16.31	17	0		

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FDD Band 25									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
5	QPSK	1 RB	0	1852.5	26065	16.40	17	0	
				1882.5	26365	16.43	17	0	
				1912.5	26665	16.38	17	0	
			12	1852.5	26065	16.32	17	0	
				1882.5	26365	16.34	17	0	
				1912.5	26665	16.37	17	0	
		24	1852.5	26065	16.42	17	0		
			1882.5	26365	16.34	17	0		
			1912.5	26665	16.27	17	0		
		12 RB	0	1852.5	26065	16.37	17	0	
				1882.5	26365	16.28	17	0	
				1912.5	26665	16.42	17	0	
			6	1852.5	26065	16.33	17	0	
				1882.5	26365	16.41	17	0	
				1912.5	26665	16.41	17	0	
		13	1852.5	26065	16.39	17	0		
			1882.5	26365	16.28	17	0		
			1912.5	26665	16.30	17	0		
		25RB	1852.5	26065	16.34	17	0		
			1882.5	26365	16.37	17	0		
			1912.5	26665	16.37	17	0		
		16-QAM	1 RB	0	1852.5	26065	16.27	17	0
					1882.5	26365	16.40	17	0
					1912.5	26665	16.46	17	0
	12			1852.5	26065	16.41	17	0	
				1882.5	26365	16.34	17	0	
				1912.5	26665	16.28	17	0	
	24		1852.5	26065	16.35	17	0		
			1882.5	26365	16.31	17	0		
			1912.5	26665	16.40	17	0		
	12 RB		0	1852.5	26065	16.41	17	0	
				1882.5	26365	16.37	17	0	
				1912.5	26665	16.34	17	0	
			6	1852.5	26065	16.29	17	0	
				1882.5	26365	16.44	17	0	
				1912.5	26665	16.33	17	0	
	13		1852.5	26065	16.34	17	0		
			1882.5	26365	16.46	17	0		
			1912.5	26665	16.39	17	0		
	25RB		1852.5	26065	16.33	17	0		
			1882.5	26365	16.34	17	0		
			1912.5	26665	16.44	17	0		

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FDD Band 25									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
3	QPSK	1 RB	0	1851.5	26055	16.45	17	0	
				1882.5	26365	16.27	17	0	
				1913.5	26675	16.34	17	0	
			7	1851.5	26055	16.43	17	0	
				1882.5	26365	16.41	17	0	
				1913.5	26675	16.45	17	0	
			14	1851.5	26055	16.28	17	0	
				1882.5	26365	16.41	17	0	
				1913.5	26675	16.46	17	0	
		8 RB	0	1851.5	26055	16.42	17	0	
				1882.5	26365	16.33	17	0	
				1913.5	26675	16.32	17	0	
			4	1851.5	26055	16.40	17	0	
				1882.5	26365	16.35	17	0	
				1913.5	26675	16.39	17	0	
			7	1851.5	26055	16.30	17	0	
				1882.5	26365	16.29	17	0	
				1913.5	26675	16.35	17	0	
		15RB	1851.5	26055	16.41	17	0		
			1882.5	26365	16.43	17	0		
			1913.5	26675	16.44	17	0		
		16-QAM	1 RB	0	1851.5	26055	16.31	17	0
					1882.5	26365	16.28	17	0
					1913.5	26675	16.37	17	0
	7			1851.5	26055	16.46	17	0	
				1882.5	26365	16.42	17	0	
				1913.5	26675	16.41	17	0	
	14			1851.5	26055	16.29	17	0	
				1882.5	26365	16.35	17	0	
				1913.5	26675	16.34	17	0	
	8 RB		0	1851.5	26055	16.34	17	0	
				1882.5	26365	16.44	17	0	
				1913.5	26675	16.30	17	0	
			4	1851.5	26055	16.42	17	0	
				1882.5	26365	16.35	17	0	
				1913.5	26675	16.38	17	0	
			7	1851.5	26055	16.27	17	0	
				1882.5	26365	16.32	17	0	
				1913.5	26675	16.41	17	0	
	15RB		1851.5	26055	16.41	17	0		
			1882.5	26365	16.43	17	0		
			1913.5	26675	16.47	17	0		

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FDD Band 25									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
1.4	QPSK	1 RB	0	1850.7	26047	16.34	17	0	
				1882.5	26365	16.44	17	0	
				1914.3	26683	16.42	17	0	
			2	1850.7	26047	16.43	17	0	
				1882.5	26365	16.37	17	0	
				1914.3	26683	16.28	17	0	
		5	1850.7	26047	16.38	17	0		
			1882.5	26365	16.46	17	0		
			1914.3	26683	16.36	17	0		
		3 RB	0	1850.7	26047	16.40	17	0	
				1882.5	26365	16.39	17	0	
				1914.3	26683	16.42	17	0	
			2	1850.7	26047	16.41	17	0	
				1882.5	26365	16.27	17	0	
				1914.3	26683	16.45	17	0	
			3	1850.7	26047	16.37	17	0	
				1882.5	26365	16.47	17	0	
				1914.3	26683	16.31	17	0	
		6RB	1850.7	26047	16.41	17	0		
			1882.5	26365	16.28	17	0		
			1914.3	26683	16.44	17	0		
		16-QAM	1 RB	0	1850.7	26047	16.29	17	0
					1882.5	26365	16.43	17	0
					1914.3	26683	16.31	17	0
	2			1850.7	26047	16.36	17	0	
				1882.5	26365	16.29	17	0	
				1914.3	26683	16.32	17	0	
	5			1850.7	26047	16.34	17	0	
				1882.5	26365	16.28	17	0	
				1914.3	26683	16.44	17	0	
	3 RB			0	1850.7	26047	16.30	17	0
					1882.5	26365	16.30	17	0
					1914.3	26683	16.43	17	0
			2	1850.7	26047	16.34	17	0	
				1882.5	26365	16.44	17	0	
				1914.3	26683	16.33	17	0	
			3	1850.7	26047	16.46	17	0	
				1882.5	26365	16.43	17	0	
				1914.3	26683	16.28	17	0	
	6RB		1850.7	26047	16.29	17	0		
			1882.5	26365	16.44	17	0		
			1914.3	26683	16.43	17	0		

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FDD Band 26									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
15	QPSK	1 RB	0	822.5	26825	22.19	22.5	0	
				831.5	26865	22.3	22.5	0	
				841.5	26965	22.35	22.5	0	
			36	822.5	26825	22.24	22.5	0	
				831.5	26865	22.18	22.5	0	
				841.5	26965	22.28	22.5	0	
		74	822.5	26825	22.2	22.5	0		
			831.5	26865	22.14	22.5	0		
			841.5	26965	22.31	22.5	0		
		36 RB	0	822.5	26825	22.31	22.5	0	
				831.5	26865	22.32	22.5	0	
				841.5	26965	22.19	22.5	0	
			18	822.5	26825	22.18	22.5	0	
				831.5	26865	22.27	22.5	0	
				841.5	26965	22.3	22.5	0	
			37	822.5	26825	22.23	22.5	0	
				831.5	26865	22.34	22.5	0	
				841.5	26965	22.26	22.5	0	
			75RB	822.5	26825	22.28	22.5	0	
				831.5	26865	22.2	22.5	0	
				841.5	26965	22.27	22.5	0	
		16-QAM	1 RB	0	822.5	26825	22.33	22.5	0
					831.5	26865	22.24	22.5	0
					841.5	26965	22.19	22.5	0
	36			822.5	26825	22.21	22.5	0	
				831.5	26865	22.21	22.5	0	
				841.5	26965	22.31	22.5	0	
	74			822.5	26825	22.14	22.5	0	
				831.5	26865	22.17	22.5	0	
				841.5	26965	22.23	22.5	0	
	36 RB			0	822.5	26825	22.3	22.5	0
					831.5	26865	22.33	22.5	0
					841.5	26965	22.26	22.5	0
			18	822.5	26825	22.32	22.5	0	
				831.5	26865	22.16	22.5	0	
				841.5	26965	22.3	22.5	0	
			37	822.5	26825	22.29	22.5	0	
				831.5	26865	22.3	22.5	0	
				841.5	26965	22.22	22.5	0	
	75RB		822.5	26825	22.15	22.5	0		
			831.5	26865	22.16	22.5	0		
			841.5	26965	22.27	22.5	0		

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FDD Band 26									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
10	QPSK	1 RB	0	820	26800	22.30	22.5	0	
				831.5	26865	22.31	22.5	0	
				844	26990	22.29	22.5	0	
			25	820	26800	22.27	22.5	0	
				831.5	26865	22.23	22.5	0	
				844	26990	22.28	22.5	0	
			49	820	26800	22.18	22.5	0	
				831.5	26865	22.17	22.5	0	
				844	26990	22.20	22.5	0	
		25 RB	0	820	26800	22.21	22.5	0	
				831.5	26865	22.16	22.5	0	
				844	26990	22.33	22.5	0	
			12	820	26800	22.17	22.5	0	
				831.5	26865	22.19	22.5	0	
				844	26990	22.20	22.5	0	
			25	820	26800	22.18	22.5	0	
				831.5	26865	22.28	22.5	0	
				844	26990	22.14	22.5	0	
		50RB	820	26800	22.33	22.5	0		
			831.5	26865	22.29	22.5	0		
			844	26990	22.20	22.5	0		
		16-QAM	1 RB	0	820	26800	22.24	22.5	0
					831.5	26865	22.33	22.5	0
					844	26990	22.27	22.5	0
	25			820	26800	22.29	22.5	0	
				831.5	26865	22.17	22.5	0	
				844	26990	22.30	22.5	0	
	49			820	26800	22.23	22.5	0	
				831.5	26865	22.25	22.5	0	
				844	26990	22.28	22.5	0	
	25 RB			0	820	26800	22.23	22.5	0
					831.5	26865	22.27	22.5	0
					844	26990	22.25	22.5	0
			12	820	26800	22.30	22.5	0	
				831.5	26865	22.28	22.5	0	
				844	26990	22.26	22.5	0	
			25	820	26800	22.32	22.5	0	
				831.5	26865	22.16	22.5	0	
				844	26990	22.15	22.5	0	
	50RB		820	26800	22.22	22.5	0		
			831.5	26865	22.27	22.5	0		
			844	26990	22.15	22.5	0		

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FDD Band 26									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
5	QPSK	1 RB	0	816.5	26715	22.32	22.5	0	
				831.5	26865	22.32	22.5	0	
				846.5	27015	22.17	22.5	0	
			12	816.5	26715	22.33	22.5	0	
				831.5	26865	22.16	22.5	0	
				846.5	27015	22.21	22.5	0	
		24	816.5	26715	22.23	22.5	0		
			831.5	26865	22.14	22.5	0		
			846.5	27015	22.34	22.5	0		
		12 RB	0	816.5	26715	22.21	22.5	0	
				831.5	26865	22.20	22.5	0	
				846.5	27015	22.21	22.5	0	
			6	816.5	26715	22.15	22.5	0	
				831.5	26865	22.32	22.5	0	
				846.5	27015	22.19	22.5	0	
		13	816.5	26715	22.15	22.5	0		
			831.5	26865	22.31	22.5	0		
			846.5	27015	22.18	22.5	0		
		25RB	816.5	26715	22.26	22.5	0		
			831.5	26865	22.18	22.5	0		
			846.5	27015	22.17	22.5	0		
		16-QAM	1 RB	0	816.5	26715	22.17	22.5	0
					831.5	26865	22.29	22.5	0
					846.5	27015	22.20	22.5	0
	12			816.5	26715	22.26	22.5	0	
				831.5	26865	22.34	22.5	0	
				846.5	27015	22.22	22.5	0	
	24		816.5	26715	22.14	22.5	0		
			831.5	26865	22.26	22.5	0		
			846.5	27015	22.23	22.5	0		
	12 RB		0	816.5	26715	22.28	22.5	0	
				831.5	26865	22.28	22.5	0	
				846.5	27015	22.21	22.5	0	
			6	816.5	26715	22.30	22.5	0	
				831.5	26865	22.19	22.5	0	
				846.5	27015	22.14	22.5	0	
	13		816.5	26715	22.31	22.5	0		
			831.5	26865	22.29	22.5	0		
			846.5	27015	22.31	22.5	0		
	25RB		816.5	26715	22.31	22.5	0		
			831.5	26865	22.19	22.5	0		
			846.5	27015	22.20	22.5	0		

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FDD Band 26									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
3	QPSK	1 RB	0	815.5	26705	22.14	22.5	0	
				831.5	26865	22.30	22.5	0	
				847.5	27025	22.28	22.5	0	
			7	815.5	26705	22.25	22.5	0	
				831.5	26865	22.16	22.5	0	
				847.5	27025	22.19	22.5	0	
		14	815.5	26705	22.28	22.5	0		
			831.5	26865	22.27	22.5	0		
			847.5	27025	22.25	22.5	0		
		8 RB	0	815.5	26705	22.20	22.5	0	
				831.5	26865	22.33	22.5	0	
				847.5	27025	22.27	22.5	0	
			4	815.5	26705	22.18	22.5	0	
				831.5	26865	22.25	22.5	0	
				847.5	27025	22.33	22.5	0	
		7	815.5	26705	22.32	22.5	0		
			831.5	26865	22.24	22.5	0		
			847.5	27025	22.16	22.5	0		
		15RB	815.5	26705	22.29	22.5	0		
			831.5	26865	22.29	22.5	0		
			847.5	27025	22.21	22.5	0		
		16-QAM	1 RB	0	815.5	26705	22.24	22.5	0
					831.5	26865	22.18	22.5	0
					847.5	27025	22.30	22.5	0
	7			815.5	26705	22.14	22.5	0	
				831.5	26865	22.22	22.5	0	
				847.5	27025	22.24	22.5	0	
	14		815.5	26705	22.23	22.5	0		
			831.5	26865	22.21	22.5	0		
			847.5	27025	22.31	22.5	0		
	8 RB		0	815.5	26705	22.24	22.5	0	
				831.5	26865	22.14	22.5	0	
				847.5	27025	22.24	22.5	0	
			4	815.5	26705	22.33	22.5	0	
				831.5	26865	22.29	22.5	0	
				847.5	27025	22.33	22.5	0	
	7		815.5	26705	22.29	22.5	0		
			831.5	26865	22.33	22.5	0		
			847.5	27025	22.22	22.5	0		
	15RB		815.5	26705	22.30	22.5	0		
			831.5	26865	22.34	22.5	0		
			847.5	27025	22.20	22.5	0		

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FDD Band 26									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
1.4	QPSK	1 RB	0	814.7	26697	22.31	22.5	0	
				831.5	26865	22.29	22.5	0	
				848.3	27033	22.34	22.5	0	
			2	814.7	26697	22.16	22.5	0	
				831.5	26865	22.24	22.5	0	
				848.3	27033	22.27	22.5	0	
		5	814.7	26697	22.27	22.5	0		
			831.5	26865	22.26	22.5	0		
			848.3	27033	22.28	22.5	0		
		3 RB	0	814.7	26697	22.34	22.5	0	
				831.5	26865	22.18	22.5	0	
				848.3	27033	22.32	22.5	0	
			2	814.7	26697	22.17	22.5	0	
				831.5	26865	22.14	22.5	0	
				848.3	27033	22.31	22.5	0	
			3	814.7	26697	22.28	22.5	0	
				831.5	26865	22.16	22.5	0	
				848.3	27033	22.19	22.5	0	
		6RB	814.7	26697	22.27	22.5	0		
			831.5	26865	22.18	22.5	0		
			848.3	27033	22.24	22.5	0		
		16-QAM	1 RB	0	814.7	26697	22.21	22.5	0
					831.5	26865	22.25	22.5	0
					848.3	27033	22.34	22.5	0
	2			814.7	26697	22.19	22.5	0	
				831.5	26865	22.26	22.5	0	
				848.3	27033	22.29	22.5	0	
	5			814.7	26697	22.26	22.5	0	
				831.5	26865	22.15	22.5	0	
				848.3	27033	22.19	22.5	0	
	3 RB		0	814.7	26697	22.31	22.5	0	
				831.5	26865	22.24	22.5	0	
				848.3	27033	22.21	22.5	0	
			2	814.7	26697	22.19	22.5	0	
				831.5	26865	22.18	22.5	0	
				848.3	27033	22.25	22.5	0	
			3	814.7	26697	22.34	22.5	0	
				831.5	26865	22.26	22.5	0	
				848.3	27033	22.21	22.5	0	
	6RB		814.7	26697	22.20	22.5	0		
			831.5	26865	22.25	22.5	0		
			848.3	27033	22.19	22.5	0		

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FDD Band 30								
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
10	QPSK	1 RB	0	2310	27710	16.42	16.5	0
			25	2310	27710	16.37	16.5	0
			49	2310	27710	16.48	16.5	0
		25 RB	0	2310	27710	16.31	16.5	0
			12	2310	27710	16.32	16.5	0
			25	2310	27710	16.42	16.5	0
	50RB			2310	27710	16.30	16.5	0
	16-QAM	1 RB	0	2310	27710	16.41	16.5	0
			25	2310	27710	16.40	16.5	0
			49	2310	27710	16.37	16.5	0
		25 RB	0	2310	27710	16.34	16.5	0
			12	2310	27710	16.29	16.5	0
			25	2310	27710	16.43	16.5	0
	50RB			2310	27710	16.37	16.5	0

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FDD Band 30									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
5	QPSK	1 RB	0	2307.5	27685	16.40	16.5	0	
				2310	27710	16.41	16.5	0	
				2312.5	27735	16.40	16.5	0	
			12	2307.5	27685	16.31	16.5	0	
				2310	27710	16.29	16.5	0	
				2312.5	27735	16.45	16.5	0	
		24	2307.5	27685	16.39	16.5	0		
			2310	27710	16.40	16.5	0		
			2312.5	27735	16.46	16.5	0		
		12 RB	0	2307.5	27685	16.38	16.5	0	
				2310	27710	16.31	16.5	0	
				2312.5	27735	16.30	16.5	0	
			6	2307.5	27685	16.42	16.5	0	
				2310	27710	16.47	16.5	0	
				2312.5	27735	16.41	16.5	0	
		13	2307.5	27685	16.27	16.5	0		
			2310	27710	16.40	16.5	0		
			2312.5	27735	16.31	16.5	0		
		25RB	2307.5	27685	16.32	16.5	0		
			2310	27710	16.31	16.5	0		
			2312.5	27735	16.44	16.5	0		
		16-QAM	1 RB	0	2307.5	27685	16.35	16.5	0
					2310	27710	16.31	16.5	0
					2312.5	27735	16.38	16.5	0
	12			2307.5	27685	16.36	16.5	0	
				2310	27710	16.42	16.5	0	
				2312.5	27735	16.45	16.5	0	
	24		2307.5	27685	16.38	16.5	0		
			2310	27710	16.42	16.5	0		
			2312.5	27735	16.38	16.5	0		
	12 RB		0	2307.5	27685	16.46	16.5	0	
				2310	27710	16.44	16.5	0	
				2312.5	27735	16.35	16.5	0	
			6	2307.5	27685	16.35	16.5	0	
				2310	27710	16.38	16.5	0	
				2312.5	27735	16.41	16.5	0	
	13		2307.5	27685	16.45	16.5	0		
			2310	27710	16.29	16.5	0		
			2312.5	27735	16.30	16.5	0		
	25RB		2307.5	27685	16.37	16.5	0		
			2310	27710	16.28	16.5	0		
			2312.5	27735	16.36	16.5	0		

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FDD Band 66									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
20	QPSK	1 RB	0	1720	132072	18.23	18.5	0	
				1745	132322	18.11	18.5	0	
				1770	132572	18.30	18.5	0	
			50	1720	132072	18.18	18.5	0	
				1745	132322	18.14	18.5	0	
				1770	132572	18.22	18.5	0	
			99	1720	132072	18.17	18.5	0	
				1745	132322	18.20	18.5	0	
				1770	132572	18.21	18.5	0	
		50 RB	0	1720	132072	18.18	18.5	0	
				1745	132322	18.28	18.5	0	
				1770	132572	18.15	18.5	0	
			25	1720	132072	18.28	18.5	0	
				1745	132322	18.23	18.5	0	
				1770	132572	18.15	18.5	0	
			50	1720	132072	18.20	18.5	0	
				1745	132322	18.18	18.5	0	
				1770	132572	18.18	18.5	0	
		100RB	1720	132072	18.18	18.5	0		
			1745	132322	18.12	18.5	0		
			1770	132572	18.28	18.5	0		
		16-QAM	1 RB	0	1720	132072	18.16	18.5	0
					1745	132322	18.19	18.5	0
					1770	132572	18.27	18.5	0
	50			1720	132072	18.25	18.5	0	
				1745	132322	18.25	18.5	0	
				1770	132572	18.13	18.5	0	
	99			1720	132072	18.13	18.5	0	
				1745	132322	18.16	18.5	0	
				1770	132572	18.21	18.5	0	
	50 RB		0	1720	132072	18.15	18.5	0	
				1745	132322	18.21	18.5	0	
				1770	132572	18.16	18.5	0	
			25	1720	132072	18.23	18.5	0	
				1745	132322	18.26	18.5	0	
				1770	132572	18.25	18.5	0	
			50	1720	132072	18.24	18.5	0	
				1745	132322	18.24	18.5	0	
				1770	132572	18.13	18.5	0	
	100RB		1720	132072	18.09	18.5	0		
			1745	132322	18.25	18.5	0		
			1770	132572	18.25	18.5	0		

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FDD Band 66									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
15	QPSK	1 RB	0	1717.5	132047	18.15	18.5	0	
				1745	132322	18.12	18.5	0	
				1772.5	132597	18.25	18.5	0	
			36	1717.5	132047	18.19	18.5	0	
				1745	132322	18.16	18.5	0	
				1772.5	132597	18.26	18.5	0	
			74	1717.5	132047	18.27	18.5	0	
				1745	132322	18.17	18.5	0	
				1772.5	132597	18.26	18.5	0	
			36 RB	0	1717.5	132047	18.24	18.5	0
					1745	132322	18.22	18.5	0
					1772.5	132597	18.18	18.5	0
		18		1717.5	132047	18.28	18.5	0	
				1745	132322	18.15	18.5	0	
				1772.5	132597	18.11	18.5	0	
		37		1717.5	132047	18.15	18.5	0	
				1745	132322	18.22	18.5	0	
				1772.5	132597	18.13	18.5	0	
		75RB		1717.5	132047	18.25	18.5	0	
				1745	132322	18.20	18.5	0	
				1772.5	132597	18.14	18.5	0	
		16-QAM	1 RB	0	1717.5	132047	18.17	18.5	0
					1745	132322	18.24	18.5	0
					1772.5	132597	18.11	18.5	0
	36			1717.5	132047	18.13	18.5	0	
				1745	132322	18.23	18.5	0	
				1772.5	132597	18.26	18.5	0	
	74			1717.5	132047	18.21	18.5	0	
				1745	132322	18.20	18.5	0	
				1772.5	132597	18.18	18.5	0	
	36 RB			0	1717.5	132047	18.27	18.5	0
					1745	132322	18.26	18.5	0
					1772.5	132597	18.21	18.5	0
			18	1717.5	132047	18.24	18.5	0	
				1745	132322	18.17	18.5	0	
				1772.5	132597	18.17	18.5	0	
			37	1717.5	132047	18.13	18.5	0	
				1745	132322	18.16	18.5	0	
				1772.5	132597	18.16	18.5	0	
			75RB	1717.5	132047	18.12	18.5	0	
				1745	132322	18.22	18.5	0	
				1772.5	132597	18.15	18.5	0	

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FDD Band 66									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
10	QPSK	1 RB	0	1715	132022	18.19	18.5	0	
				1745	132322	18.19	18.5	0	
				1775	132622	18.16	18.5	0	
			25	1715	132022	18.11	18.5	0	
				1745	132322	18.13	18.5	0	
				1775	132622	18.12	18.5	0	
			49	1715	132022	18.12	18.5	0	
				1745	132322	18.25	18.5	0	
				1775	132622	18.16	18.5	0	
		25 RB	0	1715	132022	18.23	18.5	0	
				1745	132322	18.10	18.5	0	
				1775	132622	18.26	18.5	0	
			12	1715	132022	18.25	18.5	0	
				1745	132322	18.19	18.5	0	
				1775	132622	18.29	18.5	0	
			25	1715	132022	18.10	18.5	0	
				1745	132322	18.22	18.5	0	
				1775	132622	18.24	18.5	0	
		50RB	1715	132022	18.29	18.5	0		
			1745	132322	18.09	18.5	0		
			1775	132622	18.23	18.5	0		
		16-QAM	1 RB	0	1715	132022	18.26	18.5	0
					1745	132322	18.10	18.5	0
					1775	132622	18.19	18.5	0
	25			1715	132022	18.27	18.5	0	
				1745	132322	18.12	18.5	0	
				1775	132622	18.14	18.5	0	
	49			1715	132022	18.25	18.5	0	
				1745	132322	18.27	18.5	0	
				1775	132622	18.21	18.5	0	
	25 RB		0	1715	132022	18.25	18.5	0	
				1745	132322	18.20	18.5	0	
				1775	132622	18.28	18.5	0	
			12	1715	132022	18.20	18.5	0	
				1745	132322	18.12	18.5	0	
				1775	132622	18.16	18.5	0	
			25	1715	132022	18.18	18.5	0	
				1745	132322	18.25	18.5	0	
				1775	132622	18.12	18.5	0	
	50RB		1715	132022	18.21	18.5	0		
			1745	132322	18.28	18.5	0		
			1775	132622	18.11	18.5	0		

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FDD Band 66									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
5	QPSK	1 RB	0	1712.5	131997	18.10	18.5	0	
				1745	132322	18.22	18.5	0	
				1777.5	132647	18.28	18.5	0	
			12	1712.5	131997	18.24	18.5	0	
				1745	132322	18.27	18.5	0	
				1777.5	132647	18.11	18.5	0	
		24	1712.5	131997	18.17	18.5	0		
			1745	132322	18.21	18.5	0		
			1777.5	132647	18.21	18.5	0		
		12 RB	0	1712.5	131997	18.13	18.5	0	
				1745	132322	18.11	18.5	0	
				1777.5	132647	18.27	18.5	0	
			6	1712.5	131997	18.23	18.5	0	
				1745	132322	18.24	18.5	0	
				1777.5	132647	18.09	18.5	0	
			13	1712.5	131997	18.15	18.5	0	
				1745	132322	18.23	18.5	0	
				1777.5	132647	18.14	18.5	0	
		25RB	1712.5	131997	18.24	18.5	0		
			1745	132322	18.19	18.5	0		
			1777.5	132647	18.23	18.5	0		
		16-QAM	1 RB	0	1712.5	131997	18.28	18.5	0
					1745	132322	18.13	18.5	0
					1777.5	132647	18.11	18.5	0
	12			1712.5	131997	18.21	18.5	0	
				1745	132322	18.14	18.5	0	
				1777.5	132647	18.11	18.5	0	
	24		1712.5	131997	18.26	18.5	0		
			1745	132322	18.24	18.5	0		
			1777.5	132647	18.26	18.5	0		
	12 RB		0	1712.5	131997	18.09	18.5	0	
				1745	132322	18.14	18.5	0	
				1777.5	132647	18.22	18.5	0	
			6	1712.5	131997	18.23	18.5	0	
				1745	132322	18.18	18.5	0	
				1777.5	132647	18.24	18.5	0	
			13	1712.5	131997	18.18	18.5	0	
				1745	132322	18.26	18.5	0	
				1777.5	132647	18.19	18.5	0	
	25RB		1712.5	131997	18.14	18.5	0		
			1745	132322	18.26	18.5	0		
			1777.5	132647	18.23	18.5	0		

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FDD Band 66									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
3	QPSK	1 RB	0	1711.5	131987	18.23	18.5	0	
				1745	132322	18.20	18.5	0	
				1778.5	132657	18.24	18.5	0	
			7	1711.5	131987	18.17	18.5	0	
				1745	132322	18.20	18.5	0	
				1778.5	132657	18.28	18.5	0	
		14	1711.5	131987	18.28	18.5	0		
			1745	132322	18.13	18.5	0		
			1778.5	132657	18.22	18.5	0		
		8 RB	0	1711.5	131987	18.20	18.5	0	
				1745	132322	18.20	18.5	0	
				1778.5	132657	18.28	18.5	0	
			4	1711.5	131987	18.20	18.5	0	
				1745	132322	18.25	18.5	0	
				1778.5	132657	18.11	18.5	0	
		7	1711.5	131987	18.11	18.5	0		
			1745	132322	18.22	18.5	0		
			1778.5	132657	18.20	18.5	0		
		15RB	1711.5	131987	18.13	18.5	0		
			1745	132322	18.21	18.5	0		
			1778.5	132657	18.27	18.5	0		
		16-QAM	1 RB	0	1711.5	131987	18.24	18.5	0
					1745	132322	18.15	18.5	0
					1778.5	132657	18.14	18.5	0
	7			1711.5	131987	18.28	18.5	0	
				1745	132322	18.25	18.5	0	
				1778.5	132657	18.12	18.5	0	
	14		1711.5	131987	18.17	18.5	0		
			1745	132322	18.25	18.5	0		
			1778.5	132657	18.24	18.5	0		
	8 RB		0	1711.5	131987	18.12	18.5	0	
				1745	132322	18.12	18.5	0	
				1778.5	132657	18.25	18.5	0	
			4	1711.5	131987	18.15	18.5	0	
				1745	132322	18.24	18.5	0	
				1778.5	132657	18.13	18.5	0	
	7		1711.5	131987	18.12	18.5	0		
			1745	132322	18.10	18.5	0		
			1778.5	132657	18.28	18.5	0		
	15RB		1711.5	131987	18.23	18.5	0		
			1745	132322	18.19	18.5	0		
			1778.5	132657	18.27	18.5	0		

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FDD Band 66									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
1.4	QPSK	1 RB	0	1710.7	131979	18.15	18.5	0	
				1745	132322	18.12	18.5	0	
				1779.3	132665	18.19	18.5	0	
			2	1710.7	131979	18.25	18.5	0	
				1745	132322	18.26	18.5	0	
				1779.3	132665	18.20	18.5	0	
		5	1710.7	131979	18.12	18.5	0		
			1745	132322	18.20	18.5	0		
			1779.3	132665	18.22	18.5	0		
		3 RB	0	1710.7	131979	18.20	18.5	0	
				1745	132322	18.12	18.5	0	
				1779.3	132665	18.13	18.5	0	
			2	1710.7	131979	18.13	18.5	0	
				1745	132322	18.12	18.5	0	
				1779.3	132665	18.18	18.5	0	
			3	1710.7	131979	18.21	18.5	0	
				1745	132322	18.23	18.5	0	
				1779.3	132665	18.18	18.5	0	
		6RB	1710.7	131979	18.25	18.5	0		
			1745	132322	18.12	18.5	0		
			1779.3	132665	18.15	18.5	0		
		16-QAM	1 RB	0	1710.7	131979	18.25	18.5	0
					1745	132322	18.18	18.5	0
					1779.3	132665	18.13	18.5	0
	2			1710.7	131979	18.15	18.5	0	
				1745	132322	18.18	18.5	0	
				1779.3	132665	18.25	18.5	0	
	5			1710.7	131979	18.28	18.5	0	
				1745	132322	18.20	18.5	0	
				1779.3	132665	18.16	18.5	0	
	3 RB		0	1710.7	131979	18.19	18.5	0	
				1745	132322	18.26	18.5	0	
				1779.3	132665	18.22	18.5	0	
			2	1710.7	131979	18.18	18.5	0	
				1745	132322	18.19	18.5	0	
				1779.3	132665	18.11	18.5	0	
			3	1710.7	131979	18.18	18.5	0	
				1745	132322	18.21	18.5	0	
				1779.3	132665	18.21	18.5	0	
	6RB		1710.7	131979	18.20	18.5	0		
			1745	132322	18.23	18.5	0		
			1779.3	132665	18.22	18.5	0		

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**LTE TDD Band 38 (Reduced power):**

TDD Band 38											
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)			
20	QPSK	1 RB	0	2580	37850	16.35	16.5	0			
				2595	38000	16.32	16.5	0			
				2610	38150	16.32	16.5	0			
			50	2580	37850	16.42	16.5	0			
						2595	38000	16.34	16.5	0	
						2610	38150	16.48	16.5	0	
				99	2580	37850	16.30	16.5	0		
							2595	38000	16.39	16.5	0
							2610	38150	16.32	16.5	0
		50 RB	0	2580	37850	16.29	16.5	0			
						2595	38000	16.34	16.5	0	
						2610	38150	16.36	16.5	0	
			25	2580	37850	16.21	16.5	0			
						2595	38000	16.31	16.5	0	
						2610	38150	16.25	16.5	0	
				50	2580	37850	16.28	16.5	0		
							2595	38000	16.39	16.5	0
							2610	38150	16.23	16.5	0
		100RB		2580	37850	16.27	16.5	0			
		100RB		2595	38000	16.34	16.5	0			
		100RB		2610	38150	16.32	16.5	0			
		16-QAM	1 RB	0	2580	37850	16.36	16.5	0		
					2595	38000	16.35	16.5	0		
					2610	38150	16.25	16.5	0		
	50				2580	37850	16.28	16.5	0		
							2595	38000	16.23	16.5	0
							2610	38150	16.32	16.5	0
	99			2580	37850	16.31	16.5	0			
						2595	38000	16.36	16.5	0	
						2610	38150	16.26	16.5	0	
	50 RB			0	2580	37850	16.31	16.5	0		
							2595	38000	16.31	16.5	0
							2610	38150	16.34	16.5	0
			25		2580	37850	16.26	16.5	0		
							2595	38000	16.32	16.5	0
							2610	38150	16.22	16.5	0
			50	2580	37850	16.38	16.5	0			
						2595	38000	16.38	16.5	0	
						2610	38150	16.37	16.5	0	
			100RB		2580	37850	16.31	16.5	0		
			100RB		2595	38000	16.29	16.5	0		
			100RB		2610	38150	16.35	16.5	0		

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TDD Band 38									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
15	QPSK	1 RB	0	2577.5	37825	16.22	16.5	0	
				2595	38000	16.40	16.5	0	
				2612.5	38175	16.25	16.5	0	
			36	2577.5	37825	16.33	16.5	0	
				2595	38000	16.25	16.5	0	
				2612.5	38175	16.37	16.5	0	
		74	2577.5	37825	16.37	16.5	0		
			2595	38000	16.22	16.5	0		
			2612.5	38175	16.28	16.5	0		
		36 RB	0	2577.5	37825	16.26	16.5	0	
				2595	38000	16.36	16.5	0	
				2612.5	38175	16.38	16.5	0	
			18	2577.5	37825	16.29	16.5	0	
				2595	38000	16.22	16.5	0	
				2612.5	38175	16.34	16.5	0	
			37	2577.5	37825	16.28	16.5	0	
				2595	38000	16.30	16.5	0	
				2612.5	38175	16.21	16.5	0	
			75RB	2577.5	37825	16.33	16.5	0	
				2595	38000	16.24	16.5	0	
				2612.5	38175	16.27	16.5	0	
		16-QAM	1 RB	0	2577.5	37825	16.28	16.5	0
					2595	38000	16.29	16.5	0
					2612.5	38175	16.32	16.5	0
	36			2577.5	37825	16.24	16.5	0	
				2595	38000	16.21	16.5	0	
				2612.5	38175	16.26	16.5	0	
	74			2577.5	37825	16.32	16.5	0	
				2595	38000	16.38	16.5	0	
				2612.5	38175	16.33	16.5	0	
	36 RB			0	2577.5	37825	16.23	16.5	0
					2595	38000	16.31	16.5	0
					2612.5	38175	16.36	16.5	0
			18	2577.5	37825	16.31	16.5	0	
				2595	38000	16.29	16.5	0	
				2612.5	38175	16.21	16.5	0	
			37	2577.5	37825	16.34	16.5	0	
				2595	38000	16.24	16.5	0	
				2612.5	38175	16.29	16.5	0	
	75RB		2577.5	37825	16.20	16.5	0		
			2595	38000	16.20	16.5	0		
			2612.5	38175	16.35	16.5	0		

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TDD Band 38										
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)		
10	QPSK	1 RB	0	2575	37800	16.36	16.5	0		
				2595	38000	16.28	16.5	0		
				2615	38200	16.32	16.5	0		
			25	2575	37800	16.37	16.5	0		
				2595	38000	16.21	16.5	0		
				2615	38200	16.34	16.5	0		
			49	2575	37800	16.23	16.5	0		
				2595	38000	16.20	16.5	0		
				2615	38200	16.32	16.5	0		
		25 RB	0	2575	37800	16.21	38000	16.28	16.5	0
				2615	38200	16.32	16.5	0		
				2575	37800	16.25	16.5	0		
			12	2595	38000	16.27	16.5	0		
				2615	38200	16.23	16.5	0		
				2575	37800	16.21	16.5	0		
			25	2595	38000	16.35	16.5	0		
				2615	38200	16.28	16.5	0		
				2575	37800	16.33	16.5	0		
		50RB	2595	38000	16.24	16.5	0			
			2615	38200	16.22	16.5	0			
			2575	37800	16.30	16.5	0			
		16-QAM	1 RB	0	2595	38000	16.36	16.5	0	
					2615	38200	16.40	16.5	0	
					2575	37800	16.22	16.5	0	
	25			2595	38000	16.34	16.5	0		
				2615	38200	16.35	16.5	0		
				2575	37800	16.22	16.5	0		
	49			2595	38000	16.21	16.5	0		
				2615	38200	16.32	16.5	0		
				2575	37800	16.22	16.5	0		
	25 RB		0	2595	38000	16.31	38000	16.27	16.5	0
				2615	38200	16.27	16.5	0		
				2575	37800	16.22	16.5	0		
			12	2595	38000	16.38	16.5	0		
				2615	38200	16.20	16.5	0		
				2575	37800	16.22	16.5	0		
			25	2595	38000	16.22	16.5	0		
				2615	38200	16.35	16.5	0		
				2575	37800	16.22	16.5	0		
	50RB		2595	38000	16.25	16.5	0			
			2615	38200	16.35	16.5	0			
			2575	37800	16.28	16.5	0			

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TDD Band 38									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
5	QPSK	1 RB	0	2572.5	37775	16.40	16.5	0	
				2595	38000	16.35	16.5	0	
				2617.5	38225	16.24	16.5	0	
			12	2572.5	37775	16.37	16.5	0	
				2595	38000	16.29	16.5	0	
				2617.5	38225	16.35	16.5	0	
		24	2572.5	37775	16.21	16.5	0		
			2595	38000	16.25	16.5	0		
			2617.5	38225	16.27	16.5	0		
		12 RB	0	2572.5	37775	16.28	16.5	0	
				2595	38000	16.32	16.5	0	
				2617.5	38225	16.28	16.5	0	
			6	2572.5	37775	16.21	16.5	0	
				2595	38000	16.26	16.5	0	
				2617.5	38225	16.25	16.5	0	
		13	2572.5	37775	16.21	16.5	0		
			2595	38000	16.39	16.5	0		
			2617.5	38225	16.31	16.5	0		
		25RB	2572.5	37775	16.38	16.5	0		
			2595	38000	16.40	16.5	0		
			2617.5	38225	16.27	16.5	0		
		16-QAM	1 RB	0	2572.5	37775	16.39	16.5	0
					2595	38000	16.25	16.5	0
					2617.5	38225	16.29	16.5	0
	12			2572.5	37775	16.37	16.5	0	
				2595	38000	16.34	16.5	0	
				2617.5	38225	16.22	16.5	0	
	24		2572.5	37775	16.20	16.5	0		
			2595	38000	16.30	16.5	0		
			2617.5	38225	16.34	16.5	0		
	12 RB		0	2572.5	37775	16.34	16.5	0	
				2595	38000	16.36	16.5	0	
				2617.5	38225	16.25	16.5	0	
			6	2572.5	37775	16.28	16.5	0	
				2595	38000	16.38	16.5	0	
				2617.5	38225	16.25	16.5	0	
	13		2572.5	37775	16.21	16.5	0		
			2595	38000	16.35	16.5	0		
			2617.5	38225	16.33	16.5	0		
	25RB		2572.5	37775	16.31	16.5	0		
			2595	38000	16.26	16.5	0		
			2617.5	38225	16.37	16.5	0		

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**WLAN802.11 a/b/g/n(20M/40M)/ac(20M/40M/80M) conducted power table:**

Band	Antenna	SISO		MIMO
		Chain 0	Chain 1	Chain0+1
WLAN802.11b		V	V	-
WLAN802.11g		V	V	-
WLAN802.11n(20M)		V	V	V
WLAN802.11n(40M)		V	V	V
WLAN802.11a		V	V	-
WLAN802.11n(20M) 5G		V	V	V
WLAN802.11n(40M) 5G		V	V	V
WLAN802.11ac(20M) 5G		V	V	V
WLAN802.11ac(40M) 5G		V	V	V
WLAN802.11ac(80M) 5G		V	V	V

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**Full power (Laptop mode)**
**Main (Chain 0)**

Main Antenna						
Band	Mode	Channel	Frequency (MHz)	Data Rate	Max. Rated Avg. Power + Max. Tolerance (dBm)	Average power (dBm)
2450 MHz	802.11b	1	2412	1Mbps	20.00	19.84
		2	2417		20.00	19.92
		6	2437		20.00	19.93
		10	2457		20.00	19.98
		11	2462		20.00	19.81
		12	2467		16.50	16.40
		13	2472		8.50	8.37
	802.11g	1	2412	6Mbps	18.00	17.94
		2	2417		20.00	19.95
		6	2437		20.00	19.86
		10	2457		17.50	17.39
		11	2462		17.50	17.44
		12	2467		11.50	11.43
	802.11n20-HT0	1	2412	MCS0	18.00	17.97
		2	2417		20.00	19.89
		6	2437		20.00	19.88
		10	2457		17.50	17.39
		11	2462		17.50	17.37
		12	2467		11.50	11.36
	802.11n40-HT0	3	2422	MCS0	-2.50	-2.63
		4	2427		18.00	17.85
		6	2437		18.50	18.40
		8	2447		19.00	18.96
		9	2452		17.00	16.90
10		2457	16.00		15.90	
		10	2457		12.50	12.41
		11	2462		-2.50	-2.76

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Main Antenna						
Band	Mode	Channel	Frequency (MHz)	Data Rate	Max. Rated Avg. Power + Max. Tolerance (dBm)	Average power (dBm)
5.15-5.25 GHz	802.11a	36	5180	6Mbps	18.00	17.97
		40	5200		20.00	19.95
		44	5220		20.00	19.98
		48	5240		19.50	19.46
	802.11n20-HT0	36	5180	MCS0	18.00	17.96
		40	5200		20.00	19.87
		44	5220		20.00	19.93
		48	5240		19.50	19.41
	802.11ac20-VHT0	36	5180	MCS0	18.00	17.81
		40	5200		20.00	19.86
		44	5220		20.00	19.90
		48	5240		19.50	19.45
	802.11n40-HT0	38	5190	MCS0	18.00	17.91
		46	5230		20.00	19.93
	802.11ac40-VHT0	38	5190	MCS0	18.00	17.83
		46	5230		20.00	19.80
802.11ac80-VHT0	42	5210	MCS0	14.00	13.92	

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Main Antenna						
Band	Mode	Channel	Frequency (MHz)	Data Rate	Max. Rated Avg. Power + Max. Tolerance (dBm)	Average power (dBm)
5.25-5.35 GHz	802.11a	52	5260	6Mbps	20.00	19.97
		56	5280		20.00	19.89
		60	5300		20.00	19.95
		64	5320		16.00	15.89
	802.11n20-HT0	52	5260	MCS0	20.00	19.96
		56	5280		20.00	19.85
		60	5300		20.00	19.91
		64	5320		16.00	15.95
	802.11ac20-VHT0	52	5260	MCS0	20.00	19.85
		56	5280		20.00	19.82
		60	5300		20.00	19.89
		64	5320		16.00	15.90
	802.11n40-HT0	54	5270	MCS0	20.00	19.92
		62	5310		14.50	14.36
	802.11ac40-VHT0	54	5270	MCS0	20.00	19.92
		62	5310		14.50	14.35
802.11ac80-VHT0	58	5290	MCS0	12.00	11.84	

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Main Antenna							
Band	Mode	Channel	Frequency (MHz)	Data Rate	Max. Rated Avg. Power + Max. Tolerance (dBm)	Average power (dBm)	
5600 MHz	802.11a	100	5500	6Mbps	16.50	16.33	
		104	5520		20.00	19.88	
		116	5580		20.00	19.82	
		120	5600		20.00	19.78	
		124	5620		20.00	19.77	
		128	5640		20.00	19.83	
		136	5680		20.00	19.81	
		140	5700		16.00	15.84	
	802.11n20-HT0	100	5500	MCS0	16.50	16.39	
		104	5520		20.00	19.92	
		116	5580		20.00	19.84	
		120	5600		20.00	19.80	
		124	5620		20.00	19.86	
		128	5640		20.00	19.76	
		136	5680		20.00	19.77	
		140	5700		16.00	15.91	
	802.11ac20-VHT0	100	5500	MCS0	16.50	16.30	
		104	5520		20.00	19.88	
		116	5580		20.00	19.81	
		120	5600		20.00	19.77	
		124	5620		20.00	19.87	
		128	5640		20.00	19.93	
		136	5680		20.00	19.80	
		140	5700		16.00	15.80	
	802.11ac20-VHT0	144	5720	MCS0	20.00	19.88	
		102	5510		MCS0	16.50	16.34
		110	5550			20.00	19.88
		118	5590			20.00	19.73
		126	5630			20.00	19.87
		134	5670			17.00	16.90
	142	5710	20.00	19.87			
	802.11ac40-VHT0	102	5510	MCS0	16.50	16.40	
		110	5550		20.00	19.90	
		118	5590		20.00	19.85	
		126	5630		20.00	19.89	
		134	5670		17.00	16.88	
		142	5710		20.00	19.93	
	802.11ac80-VHT0	106	5530	MCS0	13.50	13.42	
		122	5610		17.50	17.37	
		138	5690		20.00	19.94	

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Main Antenna						
Mode	Mode	Channel	Frequency (MHz)	Data Rate	Max. Rated Avg. Power + Max. Tolerance (dBm)	Average power (dBm)
5800 MHz	802.11a	149	5745	6Mbps	20.00	19.88
		157	5785		20.00	19.94
		165	5825		20.00	19.81
	802.11n20-HT0	149	5745	MCS0	20.00	19.88
		157	5785		20.00	19.86
		165	5825		20.00	19.97
	802.11ac20-VHT0	149	5745	MCS0	20.00	19.84
		157	5785		20.00	19.88
		165	5825		20.00	19.81
	802.11n40-HT0	151	5755	MCS0	20.00	19.89
		159	5795		20.00	19.90
	802.11ac40-VHT0	151	5755	MCS0	20.00	19.91
		159	5795		20.00	19.87
	802.11ac80-VHT0	155	5775	MCS0	17.50	17.40

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**Full power (Laptop mode)**
**Aux (Chain 1)**

Aux Antenna						
Band	Mode	Channel	Frequency (MHz)	Data Rate	Max. Rated Avg. Power + Max. Tolerance (dBm)	Average power (dBm)
2450 MHz	802.11b	1	2412	1Mbps	18.00	17.89
		2	2417		20.00	19.93
		6	2437		20.00	19.90
		10	2457		20.00	19.91
		11	2462		18.50	18.46
		12	2467		16.00	15.87
		13	2472		8.50	8.46
	802.11g	1	2412	6Mbps	18.00	17.88
		2	2417		20.00	19.89
		6	2437		20.00	19.98
		10	2457		17.50	17.43
		11	2462		17.00	16.91
		12	2467		10.50	10.38
		13	2472		-2.50	-2.52
	802.11n20-HT0	1	2412	MCS0	18.00	17.86
		2	2417		20.00	19.97
		6	2437		20.00	19.89
		10	2457		17.50	17.36
		11	2462		17.00	16.90
		12	2467		10.50	10.44
		13	2472		-2.50	-2.71
	802.11n40-HT0	3	2422	MCS0	17.00	16.86
		4	2427		17.50	17.34
		6	2437		19.00	18.78
8		2447	16.50		16.36	
9		2452	16.00		15.91	
10		2457	12.50		12.40	
11		2462	-2.50		-2.69	

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Aux Antenna						
Band	Mode	Channel	Frequency (MHz)	Data Rate	Max. Rated Avg. Power + Max. Tolerance (dBm)	Average power (dBm)
5.15-5.25 GHz	802.11a	36	5180	6Mbps	17.50	17.44
		40	5200		19.50	19.41
		44	5220		20.00	19.98
		48	5240		19.50	19.46
	802.11n20-HT0	36	5180	MCS0	17.50	17.36
		40	5200		19.50	19.40
		44	5220		20.00	19.89
		48	5240		19.50	19.45
	802.11ac20-VHT0	36	5180	MCS0	17.50	17.29
		40	5200		19.50	19.34
		44	5220		20.00	19.88
		48	5240		19.50	19.41
	802.11n40-HT0	38	5190	MCS0	18.00	17.93
		46	5230		20.00	19.93
	802.11ac40-VHT0	38	5190	MCS0	18.00	17.97
		46	5230		20.00	19.93
802.11ac80-VHT0	42	5210	MCS0	14.00	13.86	

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Aux Antenna						
Band	Mode	Channel	Frequency (MHz)	Data Rate	Max. Rated Avg. Power + Max. Tolerance (dBm)	Average power (dBm)
5.25-5.35 GHz	802.11a	52	5260	6Mbps	20.00	19.98
		56	5280		20.00	19.92
		60	5300		20.00	19.89
		64	5320		16.50	16.47
	802.11n20-HT0	52	5260	MCS0	20.00	19.89
		56	5280		20.00	19.89
		60	5300		20.00	19.81
		64	5320		16.50	16.33
	802.11ac20-VHT0	52	5260	MCS0	20.00	19.85
		56	5280		20.00	19.85
		60	5300		20.00	19.89
		64	5320		16.50	16.42
	802.11n40-HT0	54	5270	MCS0	20.00	19.94
		62	5310		15.00	14.93
	802.11ac40-VHT0	54	5270	MCS0	20.00	19.95
		62	5310		15.00	14.88
802.11ac80-VHT0	58	5290	MCS0	12.00	11.88	

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Aux Antenna						
Band	Mode	Channel	Frequency (MHz)	Data Rate	Max. Rated Avg. Power + Max. Tolerance (dBm)	Average power (dBm)
5600 MHz	802.11a	100	5500	6Mbps	17.50	17.43
		104	5520		20.00	19.91
		116	5580		20.00	19.80
		120	5600		20.00	19.91
		124	5620		20.00	19.84
		128	5640		20.00	19.83
		136	5680		20.00	19.86
		140	5700		16.00	15.91
	802.11n20-HT0	100	5500	MCS0	17.50	17.36
		104	5520		20.00	19.90
		116	5580		20.00	19.89
		120	5600		20.00	19.87
		124	5620		20.00	19.84
		128	5640		20.00	19.92
		136	5680		20.00	19.91
	140	5700	16.00	15.89		
	802.11ac20-VHT0	100	5500	MCS0	17.50	17.45
		104	5520		20.00	19.95
		116	5580		20.00	19.92
		120	5600		20.00	19.86
		124	5620		20.00	19.87
		128	5640		20.00	19.91
		136	5680		20.00	19.89
		140	5700		16.00	15.86
	144	5720	20.00	19.91		
	802.11n40-HT0	102	5510	MCS0	16.50	16.48
		110	5550		20.00	19.90
		118	5590		20.00	19.82
		126	5630		20.00	19.83
		134	5670		17.00	16.98
		142	5710		20.00	19.96
	802.11ac40-VHT0	102	5510	MCS0	16.50	16.37
		110	5550		20.00	19.96
		118	5590		20.00	19.94
		126	5630		20.00	19.92
		134	5670		17.00	16.92
		142	5710		20.00	19.90
	802.11ac80-VHT0	106	5530	MCS0	14.00	13.89
		122	5610		18.50	18.36
		138	5690		20.00	19.96

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Aux Antenna						
Mode	Mode	Channel	Frequency (MHz)	Data Rate	Max. Rated Avg. Power + Max. Tolerance (dBm)	Average power (dBm)
5800 MHz	802.11a	149	5745	6Mbps	20.00	19.83
		157	5785		20.00	19.92
		165	5825		20.00	19.80
	802.11n20-HT0	149	5745	MCS0	20.00	19.81
		157	5785		20.00	19.93
		165	5825		20.00	19.85
	802.11ac20-VHT0	149	5745	MCS0	20.00	19.82
		157	5785		20.00	19.84
		165	5825		20.00	19.94
	802.11n40-HT0	151	5755	MCS0	20.00	19.90
		159	5795		20.00	19.94
	802.11ac40-VHT0	151	5755	MCS0	20.00	19.90
		159	5795		20.00	19.86
	802.11ac80-VHT0	155	5775	MCS0	17.50	17.40

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**Reduced power (Tablet mode)**
**Main (Chain 0)**

Main Antenna						
Band	Mode	Channel	Frequency (MHz)	Data Rate	Max. Rated Avg. Power + Max. Tolerance (dBm)	Average power (dBm)
2450 MHz	802.11b	1	2412	1Mbps	18.00	17.93
		6	2437		18.00	17.92
		11	2462		18.00	17.87
		12	2467		16.50	16.42
		13	2472		8.50	8.22
	802.11g	1	2412	6Mbps	18.00	17.84
		2	2417		18.00	17.88
		6	2437		18.00	17.90
		10	2457		17.50	17.38
		11	2462		17.50	17.39
		12	2467		11.50	11.33
	802.11n20-HT0	1	2412	MCS0	18.00	17.84
		2	2417		18.00	17.86
		6	2437		18.00	17.89
		10	2457		17.50	17.38
		11	2462		17.50	17.38
		12	2467		11.50	11.21
	802.11n40-HT0	3	2422	MCS0	18.00	17.98
		4	2427		18.00	17.87
		6	2437		18.00	17.84
		8	2447		17.00	16.86
		9	2452		16.00	15.83
		10	2457		12.50	12.26
		11	2462		-2.50	-2.56

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Main Antenna						
Band	Mode	Channel	Frequency (MHz)	Data Rate	Max. Rated Avg. Power + Max. Tolerance (dBm)	Average power (dBm)
5.15-5.25 GHz	802.11a	36	5180	6Mbps	16.00	15.88
		40	5200		16.00	15.75
		44	5220		16.00	15.84
		48	5240		16.00	15.91
	802.11n20-HT0	36	5180	MCS0	16.00	15.87
		40	5200		16.00	15.70
		44	5220		16.00	15.92
		48	5240		16.00	15.78
	802.11ac20-VHT0	36	5180	MCS0	16.00	15.78
		40	5200		16.00	15.89
		44	5220		16.00	15.82
		48	5240		16.00	15.83
	802.11n40-HT0	38	5190	MCS0	16.00	15.94
		46	5230		16.00	15.88
	802.11ac40-VHT0	38	5190	MCS0	16.00	15.87
		46	5230		16.00	15.92
802.11ac80-VHT0	42	5210	MCS0	14.00	13.84	

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Main Antenna						
Band	Mode	Channel	Frequency (MHz)	Data Rate	Max. Rated Avg. Power + Max. Tolerance (dBm)	Average power (dBm)
5.25-5.35 GHz	802.11a	52	5260	6Mbps	16.00	15.93
		56	5280		16.00	15.90
		60	5300		16.00	15.92
		64	5320		16.00	15.89
	802.11n20-HT0	52	5260	MCS0	16.00	15.90
		56	5280		16.00	15.86
		60	5300		16.00	15.82
		64	5320		16.00	15.88
	802.11ac20-VHT0	52	5260	MCS0	16.00	15.89
		56	5280		16.00	15.88
		60	5300		16.00	15.89
		64	5320		16.00	15.93
	802.11n40-HT0	54	5270	MCS0	16.00	15.93
		62	5310		14.50	14.40
	802.11ac40-VHT0	54	5270	MCS0	16.00	15.85
		62	5310		14.50	14.39
802.11ac80-VHT0	58	5290	MCS0	12.00	11.95	

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Main Antenna						
Band	Mode	Channel	Frequency (MHz)	Data Rate	Max. Rated Avg. Power + Max. Tolerance (dBm)	Average power (dBm)
5600 MHz	802.11a	100	5500	6Mbps	16.00	15.83
		116	5580		16.00	15.74
		120	5600		16.00	15.81
		124	5620		16.00	15.75
		128	5640		16.00	15.83
		136	5680		16.00	15.87
		140	5700		16.00	15.91
	802.11n20-HT0	100	5500	MCS0	16.00	15.87
		116	5580		16.00	15.91
		120	5600		16.00	15.84
		124	5620		16.00	15.75
		128	5640		16.00	15.88
		136	5680		16.00	15.83
	802.11ac20-VHT0	100	5500	MCS0	16.00	15.82
		116	5580		16.00	15.95
		120	5600		16.00	15.83
		124	5620		16.00	15.85
		128	5640		16.00	15.84
		136	5680		16.00	15.84
		140	5700		16.00	15.82
	802.11n40-HT0	102	5510	MCS0	16.00	15.80
		110	5550		16.00	15.84
		118	5590		16.00	15.88
		126	5630		16.00	15.77
		134	5670		16.00	15.85
	802.11ac40-VHT0	102	5510	MCS0	16.00	15.83
		110	5550		16.00	15.83
		118	5590		16.00	15.87
		126	5630		16.00	15.92
		134	5670		16.00	15.89
	802.11ac80-VHT0	106	5530	MCS0	13.50	13.37
		122	5610		16.00	15.91
		138	5690		16.00	15.86

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Main Antenna						
Mode	Mode	Channel	Frequency (MHz)	Data Rate	Max. Rated Avg. Power + Max. Tolerance (dBm)	Average power (dBm)
5800 MHz	802.11a	149	5745	6Mbps	16.00	15.80
		157	5785		16.00	15.83
		165	5825		16.00	15.90
	802.11n20-HT0	149	5745	MCS0	16.00	15.75
		157	5785		16.00	15.80
		165	5825		16.00	15.90
	802.11ac20-VHT0	149	5745	MCS0	16.00	15.98
		157	5785		16.00	15.93
		165	5825		16.00	15.79
	802.11n40-HT0	151	5755	MCS0	16.00	15.79
		159	5795		16.00	15.81
	802.11ac40-VHT0	151	5755	MCS0	16.00	15.81
		159	5795		16.00	15.83
	802.11ac80-VHT0	155	5775	MCS0	16.00	15.86

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**Reduced power (Tablet mode)**
**Aux (Chain 1)**

Aux Antenna						
Band	Mode	Channel	Frequency (MHz)	Data Rate	Max. Rated Avg. Power + Max. Tolerance (dBm)	Average power (dBm)
2450 MHz	802.11b	1	2412	1Mbps	18.00	17.97
		6	2437		18.00	17.89
		11	2462		18.00	17.94
		12	2467		16.00	15.80
		13	2472		8.50	8.26
	802.11g	1	2412	6Mbps	18.00	17.81
		2	2417		18.00	17.89
		6	2437		18.00	17.90
		10	2457		17.50	17.26
		11	2462		17.00	16.93
		12	2467		10.50	10.29
	802.11n20-HT0	1	2412	MCS0	18.00	17.88
		2	2417		18.00	17.96
		6	2437		18.00	17.92
		10	2457		17.50	17.43
		11	2462		17.00	16.88
		12	2467		10.50	10.41
	802.11n40-HT0	13	2472	MCS0	-2.50	-2.58
		3	2422		17.00	16.92
		4	2427		17.50	17.40
		6	2437		18.00	17.85
		8	2447		16.50	16.34
		9	2452		16.00	15.90
		10	2457		12.50	12.37
	11	2462	-2.50	-2.71		

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Aux Antenna						
Band	Mode	Channel	Frequency (MHz)	Data Rate	Max. Rated Avg. Power + Max. Tolerance (dBm)	Average power (dBm)
5.15-5.25 GHz	802.11a	36	5180	6Mbps	16.50	16.33
		40	5200		16.50	16.27
		44	5220		16.50	16.36
		48	5240		16.50	16.37
	802.11n20-HT0	36	5180	MCS0	16.50	16.28
		40	5200		16.50	16.35
		44	5220		16.50	16.39
		48	5240		16.50	16.41
	802.11ac20-VHT0	36	5180	MCS0	16.50	16.31
		40	5200		16.50	16.39
		44	5220		16.50	16.30
		48	5240		16.50	16.24
	802.11n40-HT0	38	5190	MCS0	16.50	16.48
		46	5230		16.50	16.40
	802.11ac40-VHT0	38	5190	MCS0	16.50	16.40
		46	5230		16.50	16.34
802.11ac80-VHT0	42	5210	MCS0	14.00	13.94	

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Aux Antenna						
Band	Mode	Channel	Frequency (MHz)	Data Rate	Max. Rated Avg. Power + Max. Tolerance (dBm)	Average power (dBm)
5.25-5.35 GHz	802.11a	52	5260	6Mbps	16.50	16.41
		56	5280		16.50	16.37
		60	5300		16.50	16.33
		64	5320		16.50	16.49
	802.11n20-HT0	52	5260	MCS0	16.50	16.36
		56	5280		16.50	16.40
		60	5300		16.50	16.37
		64	5320		16.50	16.37
	802.11ac20-VHT0	52	5260	MCS0	16.50	16.34
		56	5280		16.50	16.25
		60	5300		16.50	16.41
		64	5320		16.50	16.40
	802.11n40-HT0	54	5270	MCS0	16.50	16.36
		62	5310		15.00	14.92
	802.11ac40-VHT0	54	5270	MCS0	16.50	16.44
		62	5310		15.00	14.88
802.11ac80-VHT0	58	5290	MCS0	12.00	11.85	

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Aux Antenna							
Band	Mode	Channel	Frequency (MHz)	Data Rate	Max. Rated Avg. Power + Max. Tolerance (dBm)	Average power (dBm)	
5600 MHz	802.11a	100	5500	6Mbps	16.50	16.36	
		116	5580		16.50	16.37	
		120	5600		16.50	16.42	
		124	5620		16.50	16.32	
		128	5640		16.50	16.32	
		136	5680		16.50	16.33	
		140	5700		16.00	15.90	
	802.11n20-HT0	100	5500	MCS0	16.50	16.31	
		116	5580		16.50	16.39	
		120	5600		16.50	16.29	
		124	5620		16.50	16.29	
		128	5640		16.50	16.26	
		136	5680		16.50	16.38	
		140	5700		16.00	15.94	
	802.11ac20-VHT0	100	5500	MCS0	16.50	16.44	
		116	5580		16.50	16.34	
		120	5600		16.50	16.35	
		124	5620		16.50	16.37	
		128	5640		16.50	16.39	
		136	5680		16.50	16.35	
		140	5700		16.00	15.93	
	802.11ac20-VHT0	144	5720	16.50	16.20		
		802.11n40-HT0	102	5510	MCS0	16.50	16.37
			110	5550		16.50	16.38
			118	5590		16.50	16.36
			126	5630		16.50	16.30
	134		5670	16.50		16.45	
	802.11ac40-VHT0	102	5510	MCS0	16.50	16.38	
		110	5550		16.50	16.37	
		118	5590		16.50	16.31	
		126	5630		16.50	16.23	
		134	5670		16.50	16.37	
		142	5710		16.50	16.33	
	802.11ac80-VHT0	106	5530	MCS0	14.00	13.90	
		122	5610		16.50	16.34	
		138	5690		16.50	16.33	

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Aux Antenna						
Mode	Mode	Channel	Frequency (MHz)	Data Rate	Max. Rated Avg. Power + Max. Tolerance (dBm)	Average power (dBm)
5800 MHz	802.11a	149	5745	6Mbps	16.50	16.32
		157	5785		16.50	16.35
		165	5825		16.50	16.28
	802.11n20-HT0	149	5745	MCS0	16.50	16.32
		157	5785		16.50	16.36
		165	5825		16.50	16.31
	802.11ac20-VHT0	149	5745	MCS0	16.50	16.41
		157	5785		16.50	16.28
		165	5825		16.50	16.29
	802.11n40-HT0	151	5755	MCS0	16.50	16.40
		159	5795		16.50	16.37
	802.11ac40-VHT0	151	5755	MCS0	16.50	16.44
		159	5795		16.50	16.45
	802.11ac80-VHT0	155	5775	MCS0	16.50	16.42

### Bluetooth conducted power table:

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)			Max. Rated Avg. Power + Max. Tolerance (dBm)
			1Mbps	2Mbps	3Mbps	
BR/EDR	CH 00	2402	9.80	8.21	7.52	11.5
	CH 39	2441	11.15	9.27	8.59	
	CH 78	2480	9.72	8.03	7.05	

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)	Max. Rated Avg. Power + Max. Tolerance (dBm)
			GFSK	
LE	CH 00	2402	6.41	7
	CH 20	2442	6.93	
	CH 39	2480	5.69	

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

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### 1.3.1 LTE Downlink CA specification

#### LTE Downlink 2CA conducted power table

Two Component Carrier Maximum Conducted Power															
PCC									SCC				Full Power		Configurations
PCC Band	PCC Bandwidth [MHz]	Modulation	PCC (UL) RB	PCC (UL) RB Offset	PCC (UL) Channel	PCC (UL) Frequency [MHz]	PCC (DL) Channel	PCC (DL) Frequency [MHz]	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	LTE Tx.Power with DL CA active (dBm)	LTE Tx.Power with DL CA inactive (dBm)	
LTE B2	20	QPSK	1	50	19100	1900	1100	1980	LTE B17	10	5790	740	23.80	23.86	CA_2A-17A
LTE B17	10	QPSK	1	0	23800	711	5800	741	LTE B2	20	900	1960	23.88	23.98	CA_2A-17A
LTE B4	20	QPSK	1	99	20175	1732.5	2175	2132.5	LTE B17	10	5790	740	23.55	23.65	CA_4A-17A
LTE B17	10	QPSK	1	0	23800	711	5800	741	LTE B4	20	2175	2132.5	23.75	23.98	CA_4A-17A
LTE B5	10	QPSK	1	25	20525	836.5	2525	881.5	LTE B7	20	3100	2655	24.78	24.93	CA_5A-7A
LTE B7	20	QPSK	1	0	21350	2560	3350	2680	LTE B5	10	2525	881.5	23.92	23.98	CA_5A-7A
LTE B5	10	QPSK	1	25	20525	836.5	2525	881.5	LTE B66	20	66786	2145	24.90	24.93	CA_5A-66A
LTE B66	20	QPSK	1	0	132572	1770	67036	2170	LTE B5	10	2525	881.5	23.55	23.63	CA_5A-66A
LTE B7	20	QPSK	1	0	21350	2560	3350	2680	LTE B7	20	3100	2655	23.85	23.98	CA_7A-7A
LTE B7	20	QPSK	1	0	21350	2560	3350	2680	LTE B7	20	3100	2655	23.84	23.98	CA_7B
LTE B7	20	QPSK	1	0	21350	2560	3350	2680	LTE B7	20	3100	2655	23.87	23.98	CA_7C
LTE B25	20	QPSK	1	50	26140	1860	8140	1940	LTE B26	15	8865	876.5	23.92	23.97	CA_25A-26A
LTE B26	15	QPSK	1	0	26965	841.5	8965	886.5	LTE B25	20	8365	1962.5	24.21	24.44	CA_25A-26A
LTE B25	20	QPSK	1	50	26140	1860	8140	1940	LTE B41	20	40620	2593	23.91	23.97	CA_25A-41A
LTE B41	20	QPSK	1	0	41005	2636.5	41005	2636.5	LTE B25	20	8365	1962.5	24.74	24.91	CA_25A-41A
LTE B25	20	QPSK	1	99	26140	1860	8140	1940	LTE B25	20	8590	1985	23.78	23.97	CA_25A-25A
LTE B26	15	QPSK	1	0	26965	841.5	8965	886.5	LTE B41	20	40620	2593	24.38	24.44	CA_26A-41A
LTE B41	20	QPSK	1	0	41005	2636.5	41005	2636.5	LTE B26	15	8865	876.5	24.85	24.91	CA_26A-41A
LTE B41	20	QPSK	1	0	39750	2506	39750	2506	LTE B41	20	41490	2680	24.00	24.09	CA_41A-41A

Two Component Carrier Maximum Conducted Power															
PCC									SCC				Reduced Power		Configurations
PCC Band	PCC Bandwidth [MHz]	Modulation	PCC (UL) RB	PCC (UL) RB Offset	PCC (UL) Channel	PCC (UL) Frequency [MHz]	PCC (DL) Channel	PCC (DL) Frequency [MHz]	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	LTE Tx.Power with DL CA active (dBm)	LTE Tx.Power with DL CA inactive (dBm)	
LTE B2	20	QPSK	1	50	19100	1900	1100	1980	LTE B17	10	5790	740	16.25	16.41	CA_2A-17A
LTE B17	10	QPSK	1	0	23800	711	5800	741	LTE B2	20	900	1960	20.15	20.29	CA_2A-17A
LTE B4	20	QPSK	1	50	20050	1720	2050	2120	LTE B17	10	5790	740	18.21	18.27	CA_4A-17A
LTE B17	10	QPSK	1	0	23800	711	5800	741	LTE B4	20	2175	2132.5	20.15	20.29	CA_4A-17A
LTE B5	10	QPSK	1	25	20525	836.5	2525	881.5	LTE B7	20	3100	2655	21.40	22.43	CA_5A-7A
LTE B7	20	QPSK	1	50	20850	2510	2850	2630	LTE B5	10	2525	881.5	19.20	19.44	CA_5A-7A
LTE B5	10	QPSK	1	25	20525	836.5	2525	881.5	LTE B66	20	66786	2145	22.34	22.43	CA_5A-66A
LTE B66	20	QPSK	1	0	132572	1770	67036	2170	LTE B5	10	2525	881.5	18.10	18.30	CA_5A-66A
LTE B7	20	QPSK	1	50	20850	2510	2850	2630	LTE B7	20	3100	2655	19.31	19.44	CA_7A-7A
LTE B7	20	QPSK	1	50	20850	2510	2850	2630	LTE B7	20	3100	2655	19.32	19.44	CA_7B
LTE B7	20	QPSK	1	50	20850	2510	2850	2630	LTE B7	20	3100	2655	19.35	19.44	CA_7C
LTE B25	20	QPSK	1	0	26365	1882.5	8365	1962.5	LTE B26	15	8865	876.5	16.31	16.48	CA_25A-26A
LTE B26	15	QPSK	1	0	26965	841.5	8965	886.5	LTE B25	20	8365	1962.5	22.30	22.35	CA_25A-26A
LTE B25	20	QPSK	1	0	26365	1882.5	8365	1962.5	LTE B41	20	40620	2593	16.42	16.48	CA_25A-41A
LTE B25	20	QPSK	1	99	26140	1860	8140	1940	LTE B25	20	8590	1985	16.25	16.30	CA_25A-25A
LTE B26	15	QPSK	1	0	26965	841.5	8965	886.5	LTE B41	20	40620	2593	22.30	22.35	CA_26A-41A

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

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## LTE Downlink 3CA conducted power table

Three Component Carrier Maximum Conducted Power																					
PCC									SCC 1					SCC 2				Full Power		Configurations	
PCC Band	PCC Bandwidth [MHz]	Modulation	PCC (UL) RB	PCC (UL) RB Offset	PCC (UL) Channel	PCC (UL) Frequency [MHz]	PCC (DL) Channel	PCC (DL) Frequency [MHz]	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	LTE Tx Power with DL CA active (dBm)	LTE Tx Power with DL CA inactive (dBm)			
LTE B2	20	QPSK	1	50	19100	1900	1100	1980	LTE B4	20	2175	2132.5	LTE B13	10	5230	751	23.77	23.86	CA_2A-4A-13A		
LTE B4	20	QPSK	1	99	20175	1732.5	2175	2132.5	LTE B2	20	900	1960	LTE B13	10	5230	751	23.55	23.65	CA_2A-4A-13A		
LTE B13	10	QPSK	1	25	23230	782	5230	751	LTE B2	20	900	1960	LTE B4	20	2175	2132.5	23.89	23.95	CA_2A-4A-13A		
LTE B2	20	QPSK	1	50	19100	1900	1100	1980	LTE B29	10	9715	722.5	LTE B30	10	9820	2355	23.80	23.86	CA_2A-29A-30A		
LTE B30	10	QPSK	1	49	27710	2310	9820	2355	LTE B2	20	900	1960	LTE B29	10	9715	722.5	23.45	23.54	CA_2A-29A-30A		
LTE B2	20	QPSK	1	50	19100	1900	1100	1980	LTE B9	10	2525	881.5	LTE B66	20	66786	2145	23.76	23.86	CA_2A-5A-66A		
LTE B5	10	QPSK	1	25	20625	836.5	2525	881.5	LTE B2	20	900	1960	LTE B66	20	66786	2145	24.68	24.93	CA_2A-5A-66A		
LTE B66	20	QPSK	1	0	132572	1770	67036	2170	LTE B2	20	900	1960	LTE B5	10	2525	881.5	23.42	23.63	CA_2A-5A-66A		
LTE B2	20	QPSK	1	50	19100	1900	1100	1980	LTE B13	10	5230	751	LTE B66	20	66786	2145	23.65	23.86	CA_2A-13A-66A		
LTE B13	10	QPSK	1	25	23230	782	5230	751	LTE B2	20	900	1960	LTE B66	20	66786	2145	23.82	23.95	CA_2A-13A-66A		
LTE B66	20	QPSK	1	0	132572	1770	67036	2170	LTE B2	20	900	1960	LTE B13	10	5230	751	23.61	23.63	CA_2A-13A-66A		
LTE B2	20	QPSK	1	0	18700	1860	700	1940	LTE B2	20	898	1959.8	LTE B29	10	9715	722.5	23.65	23.70	CA_2C-29A		
LTE B2	20	QPSK	1	50	19100	1900	1100	1980	LTE B66	20	66536	2120	LTE B66	20	66734	2139.8	23.78	23.86	CA_2A-66B		
LTE B66	10	QPSK	1	49	132622	1775	67086	2175	LTE B66	10	66987	2165.1	LTE B2	20	900	1960	23.10	23.19	CA_2A-66B		
LTE B2	20	QPSK	1	50	19100	1900	1100	1980	LTE B66	20	66536	2120	LTE B66	20	66734	2139.8	23.69	23.86	CA_2A-66C		
LTE B66	20	QPSK	1	0	132572	1770	67036	2170	LTE B66	20	66734	2139.8	LTE B2	20	900	1960	23.55	23.63	CA_2A-66C		
LTE B2	20	QPSK	1	0	18700	1860	700	1940	LTE B2	20	1100	1980	LTE B5	10	2525	881.5	23.61	23.70	CA_2A-2A-5A		
LTE B5	10	QPSK	1	25	20625	836.5	2525	881.5	LTE B2	20	700	1940	LTE B2	20	1100	1980	24.79	24.93	CA_2A-2A-5A		
LTE B2	20	QPSK	1	0	18700	1860	700	1940	LTE B2	20	1100	1980	LTE B13	10	5230	751	23.60	23.70	CA_2A-2A-13A		
LTE B13	10	QPSK	1	25	23230	782	5230	751	LTE B2	20	700	1940	LTE B2	20	1100	1980	23.84	23.95	CA_2A-2A-13A		
LTE B2	20	QPSK	1	0	18700	1860	700	1940	LTE B2	20	1100	1980	LTE B66	20	66734	2139.8	23.60	23.70	CA_2A-2A-66A		
LTE B66	20	QPSK	1	0	132572	1770	67036	2170	LTE B2	20	700	1940	LTE B2	20	1100	1980	23.61	23.63	CA_2A-2A-66A		
LTE B2	20	QPSK	1	50	19100	1900	1100	1980	LTE B66	20	66536	2120	LTE B66	20	67036	2170	23.79	23.86	CA_2A-66A-66A		
LTE B66	20	QPSK	1	0	132572	1770	67036	2170	LTE B66	20	66536	2120	LTE B2	20	900	1960	23.49	23.63	CA_2A-66A-66A		
LTE B4	20	QPSK	1	99	20175	1732.5	2175	2132.5	LTE B20	10	9715	722.5	LTE B30	10	9820	2355	23.45	23.65	CA_4A-29A-30A		
LTE B30	10	QPSK	1	49	27710	2310	9820	2355	LTE B4	20	2175	2132.5	LTE B29	10	9715	722.5	23.42	23.54	CA_4A-29A-30A		
LTE B4	20	QPSK	1	0	20950	1720	2050	2120	LTE B4	20	2300	2145	LTE B5	10	2525	881.5	23.30	23.34	CA_4A-4A-5A		
LTE B5	10	QPSK	1	25	20625	836.5	2525	881.5	LTE B4	20	2050	2120	LTE B4	20	2300	2145	24.78	24.93	CA_4A-4A-5A		
LTE B4	20	QPSK	1	0	20950	1720	2050	2120	LTE B4	20	2300	2145	LTE B13	10	5230	751	23.22	23.34	CA_4A-4A-13A		
LTE B13	10	QPSK	1	25	23230	782	5230	751	LTE B4	20	2050	2120	LTE B4	20	2300	2145	23.69	23.95	CA_4A-4A-13A		
LTE B5	10	QPSK	1	25	20625	836.5	2525	881.5	LTE B66	20	66536	2120	LTE B66	20	67036	2170	24.63	24.93	CA_5A-66A-66A		
LTE B66	20	QPSK	1	0	132572	1770	67036	2170	LTE B66	20	66536	2120	LTE B5	10	2525	881.5	23.50	23.63	CA_5A-66A-66A		
LTE B13	10	QPSK	1	25	23230	782	5230	751	LTE B66	20	66536	2120	LTE B66	20	67036	2170	23.87	23.95	CA_13A-66A-66A		
LTE B66	20	QPSK	1	0	132572	1770	67036	2170	LTE B66	20	66536	2120	LTE B13	10	5230	751	23.54	23.63	CA_13A-66A-66A		
LTE B41	20	QPSK	1	0	41005	2636.5	41005	2636.5	LTE B41	20	39750	2506	LTE B41	20	39948	2525.8	24.78	24.91	CA_41A-41C		
LTE B41	20	QPSK	1	0	39750	2506	39750	2506	LTE B41	20	39948	2525.8	LTE B41	20	41490	2680	24.01	24.09	CA_41A-41C		
LTE B66	20	QPSK	1	0	132572	1770	67036	2170	LTE B66	15	67213	2187.7	LTE B66	5	67306	2197	23.55	23.63	CA_66A-66B		
LTE B66	20	QPSK	1	99	132072	1720	66536	2120	LTE B66	20	67038	2170.2	LTE B66	20	67236	2190	23.11	23.18	CA_66A-66C		
LTE B66	20	QPSK	1	99	132072	1720	66536	2120	LTE B66	20	66734	2139.8	LTE B66	20	66932	2159.6	23.14	23.18	CA_66D		

Three Component Carrier Maximum Conducted Power																					
PCC									SCC 1					SCC 2				Reduced Power		Configurations	
PCC Band	PCC Bandwidth [MHz]	Modulation	PCC (UL) RB	PCC (UL) RB Offset	PCC (UL) Channel	PCC (UL) Frequency [MHz]	PCC (DL) Channel	PCC (DL) Frequency [MHz]	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	LTE Tx Power with DL CA active (dBm)	LTE Tx Power with DL CA inactive (dBm)			
LTE B2	20	QPSK	1	50	19100	1900	1100	1980	LTE B4	20	2175	2132.5	LTE B13	10	5230	751	16.32	16.41	CA_2A-4A-13A		
LTE B4	20	QPSK	1	50	20050	1720	2050	2120	LTE B2	20	900	1960	LTE B13	10	5230	751	18.11	18.27	CA_2A-4A-13A		
LTE B13	10	QPSK	1	25	23230	782	5230	751	LTE B2	20	900	1960	LTE B4	20	2175	2132.5	20.87	20.98	CA_2A-4A-13A		
LTE B2	20	QPSK	1	50	19100	1900	1100	1980	LTE B29	10	9715	722.5	LTE B30	10	9820	2355	16.32	16.41	CA_2A-29A-30A		
LTE B30	10	QPSK	1	49	27710	2310	9820	2355	LTE B2	20	900	1960	LTE B29	10	9715	722.5	16.37	16.48	CA_2A-29A-30A		
LTE B2	20	QPSK	1	50	19100	1900	1100	1980	LTE B5	10	2525	881.5	LTE B66	20	66786	2145	16.40	16.41	CA_2A-5A-66A		
LTE B5	10	QPSK	1	25	20625	836.5	2525	881.5	LTE B2	20	900	1960	LTE B66	20	66786	2145	22.39	22.43	CA_2A-5A-66A		
LTE B66	20	QPSK	1	0	132572	1770	67036	2170	LTE B2	20	900	1960	LTE B5	10	2525	881.5	18.25	18.30	CA_2A-5A-66A		
LTE B2	20	QPSK	1	50	19100	1900	1100	1980	LTE B13	10	5230	751	LTE B66	20	66786	2145	16.40	16.41	CA_2A-13A-66A		
LTE B13	10	QPSK	1	25	23230	782	5230	751	LTE B2	20	900	1960	LTE B66	20	66786	2145	20.88	20.98	CA_2A-13A-66A		
LTE B66	20	QPSK	1	0	132572	1770	67036	2170	LTE B2	20	900	1960	LTE B13	10	5230	751	18.25	18.30	CA_2A-13A-66A		
LTE B2	20	QPSK	1	0	18700	1860	700	1940	LTE B2	20	898	1959.8	LTE B29	10	9715	722.5	16.27	16.29	CA_2C-29A		
LTE B2	20	QPSK	1	50	19100	1900	1100	1980	LTE B66	20	66536	2120	LTE B66	20	66734	2139.8	16.40	16.41	CA_2A-66B		
LTE B66	10	QPSK	1	49	132622	1775	67086	2175	LTE B66	10	66987	2165.1	LTE B2	20	900	1960	18.11	18.16	CA_2A-66B		
LTE B2	20	QPSK	1	50	19100	1900	1100	1980	LTE B66	20	66536	2120	LTE B66	20	66734	2139.8	16.24	16.41	CA_2A-66C		
LTE B66	20	QPSK	1	0	132572	1770	67036	2170	LTE B66	20	66734	2139.8	LTE B2	20	900	1960	18.23	18.30	CA_2A-66C		
LTE B2	20	QPSK	1	0	18700	1860	700	1940	LTE B2	20	1100	1980	LTE B5	10	2525	881.5	16.29	16.29	CA_2A-2A-5A		
LTE B5	10	QPSK	1	25	20625	836.5	2525	881.5	LTE B2	20	700	1940	LTE B2	20	1100	1980	22.23	22.43	CA_2A-2A-5A		
LTE B2	20	QPSK	1	0	18700	1860	700	1940	LTE B2	20	1100	1980	LTE B13	10	5230	751	16.29	16.29	CA_2A-2A-13A		
LTE B13	10	QPSK	1	25	23230	782	5230	751	LTE B2	20	700	1940	LTE B2	20	1100	1980	20.92	20.98	CA_2A-2A-13A		
LTE B2	20	QPSK	1	0	18700	1860	700	1940	LTE B2	20	1100	1980	LTE B66	20	66734	2139.8	16.21	16.29	CA_2A-2A-66A		
LTE B66	20	QPSK	1	0	132572	1770	67036	2170	LTE B2	20	700	1940	LTE B2	20	1100	1980	18.20	18.30	CA_2A-2A-66A		
LTE B2	20	QPSK	1	50	19100	1900	1100	1980	LTE B66	20	66536	2120	LTE B66	20	67036	2170	16.20	16.41	CA_2A-66A-66A		
LTE B66	20	QPSK	1	0	132572	1770	67036	2170	LTE B66	20	66536	2120	LTE B2	20	900	1960	18.25	18.30	CA_2A-66A-66A		
LTE B4	20	QPSK	1	50	20050	1720	2050	2120	LTE B29	10	9715	722.5	LTE B30	10	9820	2355</					



**LTE Downlink 4CA conducted power table**

Four Component Carrier Maximum Conducted Power									
PCC Band	PCC Bandwidth [MHz]	Modulation	PCC						Configurations
			PCC (UL) RB	PCC (UL) RB Offset	PCC (UL) Channel	PCC (UL) Frequency [MHz]	PCC (DL) Channel	PCC (DL) Frequency [MHz]	
LTE B2	20	QPSK	1	50	19100	1900	1100	1980	CA_2A-4A-5A-30A
LTE B4	20	QPSK	1	99	20175	1732.5	2175	2132.5	CA_2A-4A-5A-30A
LTE B5	10	QPSK	1	25	20525	836.5	2525	881.5	CA_2A-4A-5A-30A
LTE B30	10	QPSK	1	49	27710	2310	9820	2355	CA_2A-4A-5A-30A
LTE B2	20	QPSK	1	50	19100	1900	1100	1980	CA_2A-4A-12A-30A
LTE B4	20	QPSK	1	99	20175	1732.5	2175	2132.5	CA_2A-4A-12A-30A
LTE B12	10	QPSK	1	25	23095	707.5	5095	737.5	CA_2A-4A-12A-30A
LTE B30	10	QPSK	1	49	27710	2310	9820	2355	CA_2A-4A-12A-30A
LTE B2	20	QPSK	1	50	19100	1900	1100	1980	CA_2A-14A-30A-66A
LTE B14	10	QPSK	1	0	23330	793	5330	763	CA_2A-14A-30A-66A
LTE B30	10	QPSK	1	49	27710	2310	9820	2355	CA_2A-14A-30A-66A
LTE B66	20	QPSK	1	0	132572	1770	67036	2170	CA_2A-14A-30A-66A
LTE B2	20	QPSK	1	0	18700	1860	700	1940	CA_2A-2A-12A-30A
LTE B12	10	QPSK	1	25	23095	707.5	5095	737.5	CA_2A-2A-12A-30A
LTE B30	10	QPSK	1	49	27710	2310	9820	2355	CA_2A-2A-12A-30A
LTE B5	10	QPSK	1	49	20450	829	2450	874	CA_5A-5A-66B
LTE B66	20	QPSK	1	0	132572	1770	67036	2170	CA_5A-5A-66B
LTE B5	10	QPSK	1	49	20450	829	2450	874	CA_5A-5A-66C
LTE B66	20	QPSK	1	99	132072	1720	66536	2120	CA_5A-5A-66C
LTE B5	10	QPSK	1	49	20450	829	2450	874	CA 5B-66A-66A
LTE B66	20	QPSK	1	0	132572	1770	67036	2170	CA 5B-66A-66A
LTE B25	20	QPSK	1	50	26140	1860	8140	1940	CA 25A-41D
LTE B41	20	QPSK	1	0	39750	2506	39750	2506	CA 25A-41D
LTE B41	20	QPSK	1	0	39750	2506	39750	2506	CA 41A-41D
LTE B41	20	QPSK	1	0	39750	2506	39750	2506	CA 41C-41C

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Four Component Carrier Maximum Conducted Power														
SCC 1				SCC 2				SCC 3				Full Power		Configurations
SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	LTE Tx.Power with DL CA active (dBm)	LTE Tx.Power with DL CA inactive (dBm)	
LTE B4	20	2175	2132.5	LTE B5	10	2525	881.5	LTE B30	10	9820	2355	23.72	23.86	CA_2A-4A-5A-30A
LTE B2	20	900	1960	LTE B5	10	2525	881.5	LTE B30	10	9820	2355	23.55	23.65	CA_2A-4A-5A-30A
LTE B2	20	900	1960	LTE B4	20	2175	2132.5	LTE B30	10	9820	2355	24.81	24.93	CA_2A-4A-5A-30A
LTE B2	20	900	1960	LTE B4	20	2175	2132.5	LTE B5	10	2525	881.5	23.45	23.54	CA_2A-4A-5A-30A
LTE B4	20	2175	2132.5	LTE B12	10	5095	737.5	LTE B30	10	9820	2355	23.78	23.86	CA_2A-4A-12A-30A
LTE B2	20	900	1960	LTE B12	10	5095	737.5	LTE B30	10	9820	2355	23.56	23.65	CA_2A-4A-12A-30A
LTE B2	20	900	1960	LTE B4	20	2175	2132.5	LTE B30	10	9820	2355	23.78	23.98	CA_2A-4A-12A-30A
LTE B2	20	900	1960	LTE B4	20	2175	2132.5	LTE B12	10	5095	737.5	23.45	23.54	CA_2A-4A-12A-30A
LTE B14	10	5330	763	LTE B30	10	9820	2355	LTE B66	20	66734	2139.8	23.77	23.86	CA_2A-14A-30A-66A
LTE B2	20	900	1960	LTE B30	10	9820	2355	LTE B66	20	66734	2139.8	23.82	23.97	CA_2A-14A-30A-66A
LTE B2	20	900	1960	LTE B14	10	5330	763	LTE B66	20	66734	2139.8	23.44	23.54	CA_2A-14A-30A-66A
LTE B2	20	900	1960	LTE B14	10	5330	763	LTE B30	10	9820	2355	23.55	23.63	CA_2A-14A-30A-66A
LTE B2	20	1100	1980	LTE B12	10	5095	737.5	LTE B30	10	9820	2355	23.56	23.70	CA_2A-2A-12A-30A
LTE B2	20	700	1940	LTE B2	20	1100	1980	LTE B30	10	9820	2355	23.77	23.98	CA_2A-2A-12A-30A
LTE B2	20	700	1940	LTE B2	20	1100	1980	LTE B12	10	5095	737.5	23.45	23.54	CA_2A-2A-12A-30A
LTE B5	10	2600	889	LTE B66	15	67213	2187.7	LTE B66	5	67306	2197	24.62	24.69	CA_5A-5A-66B
LTE B66	10	66987	2165.1	LTE B5	10	2450	874	LTE B5	10	2600	889	23.59	23.63	CA_5A-5A-66B
LTE B5	10	2600	889	LTE B66	20	66536	2120	LTE B66	20	66734	2139.8	24.62	24.69	CA_5A-5A-66C
LTE B66	20	66734	2139.8	LTE B5	10	2450	874	LTE B5	10	2600	889	23.12	23.18	CA_5A-5A-66C
LTE B5	10	2549	883.9	LTE B66	20	66536	2120	LTE B66	20	67036	2170	24.54	24.69	CA5B-66A-66A
LTE B66	20	66536	2120	LTE B5	10	2450	874	LTE B5	10	2549	883.9	23.60	23.63	CA5B-66A-66A
LTE B41	20	39750	2506	LTE B41	20	39948	2525.8	LTE B41	20	40146	2545.6	23.82	23.97	CA25A-41D
LTE B41	20	39948	2525.8	LTE B41	20	40146	2545.6	LTE B25	20	8365	1962.5	24.00	24.09	CA25A-41D
LTE B41	20	41094	2640.4	LTE B41	20	41292	2660.2	LTE B41	20	41490	2680	24.02	24.09	CA41A-41D
LTE B41	20	39948	2525.8	LTE B41	20	41292	2660.2	LTE B41	20	41490	2680	23.96	24.09	CA41C-41C

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Four Component Carrier Maximum Conducted Power									
PCC									Configurations
PCC Band	PCC Bandwidth [MHz]	Modulation	PCC (UL) RB	PCC (UL) RB Offset	PCC (UL) Channel	PCC (UL) Frequency [MHz]	PCC (DL) Channel	PCC (DL) Frequency [MHz]	
LTE B2	20	QPSK	1	50	19100	1900	1100	1980	CA_2A-4A-5A-30A
LTE B4	20	QPSK	1	50	20050	1720	2050	2120	CA_2A-4A-5A-30A
LTE B5	10	QPSK	1	25	20525	836.5	2525	881.5	CA_2A-4A-5A-30A
LTE B30	10	QPSK	1	49	27710	2310	9820	2355	CA_2A-4A-5A-30A
LTE B2	20	QPSK	1	50	19100	1900	1100	1980	CA_2A-4A-12A-30A
LTE B4	20	QPSK	1	50	20050	1720	2050	2120	CA_2A-4A-12A-30A
LTE B12	10	QPSK	1	25	23095	707.5	5095	737.5	CA_2A-4A-12A-30A
LTE B30	10	QPSK	1	49	27710	2310	9820	2355	CA_2A-4A-12A-30A
LTE B2	20	QPSK	1	50	19100	1900	1100	1980	CA_2A-14A-30A-66A
LTE B14	10	QPSK	1	0	23330	793	5330	763	CA_2A-14A-30A-66A
LTE B30	10	QPSK	1	49	27710	2310	9820	2355	CA_2A-14A-30A-66A
LTE B66	20	QPSK	1	0	132572	1770	67036	2170	CA_2A-14A-30A-66A
LTE B2	20	QPSK	1	0	18700	1860	700	1940	CA_2A-2A-12A-30A
LTE B12	10	QPSK	1	25	23095	707.5	5095	737.5	CA_2A-2A-12A-30A
LTE B30	10	QPSK	1	49	27710	2310	9820	2355	CA_2A-2A-12A-30A
LTE B5	10	QPSK	1	25	20450	829	2450	874	CA_5A-5A-66B
LTE B66	20	QPSK	1	0	132572	1770	67036	2170	CA_5A-5A-66B
LTE B5	10	QPSK	1	49	20450	829	2450	874	CA_5A-5A-66C
LTE B66	20	QPSK	1	99	132072	1720	66536	2120	CA_5A-5A-66C
LTE B5	10	QPSK	1	49	20450	829	2450	874	CA 5B-66A-66A
LTE B66	20	QPSK	1	0	132572	1770	67036	2170	CA 5B-66A-66A
LTE B25	20	QPSK	1	0	26365	1882.5	8140	1940	CA 25A-41D

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Four Component Carrier Maximum Conducted Power														
SCC 1				SCC 2				SCC 3				Reduced Power		Configurations
SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	LTE Tx.Power with DL CA active	LTE Tx.Power with DL CA inactive	
LTE B4	20	2175	2132.5	LTE B5	10	2525	881.5	LTE B30	10	9820	2355	16.40	16.41	CA_2A-4A-5A-30A
LTE B2	20	900	1960	LTE B5	10	2525	881.5	LTE B30	10	9820	2355	18.10	18.27	CA_2A-4A-5A-30A
LTE B2	20	900	1960	LTE B4	20	2175	2132.5	LTE B30	10	9820	2355	22.40	22.43	CA_2A-4A-5A-30A
LTE B2	20	900	1960	LTE B4	20	2175	2132.5	LTE B5	10	2525	881.5	16.30	16.48	CA_2A-4A-5A-30A
LTE B4	20	2175	2132.5	LTE B12	10	5095	737.5	LTE B30	10	9820	2355	16.32	16.41	CA_2A-4A-12A-30A
LTE B2	20	900	1960	LTE B12	10	5095	737.5	LTE B30	10	9820	2355	18.18	18.27	CA_2A-4A-12A-30A
LTE B2	20	900	1960	LTE B4	20	2175	2132.5	LTE B30	10	9820	2355	20.40	20.46	CA_2A-4A-12A-30A
LTE B2	20	900	1960	LTE B4	20	2175	2132.5	LTE B12	10	5095	737.5	16.34	16.48	CA_2A-4A-12A-30A
LTE B14	10	5330	763	LTE B30	10	9820	2355	LTE B66	20	66734	2139.8	16.25	16.41	CA_2A-14A-30A-66A
LTE B2	20	900	1960	LTE B30	10	9820	2355	LTE B66	20	66734	2139.8	20.80	20.92	CA_2A-14A-30A-66A
LTE B2	20	900	1960	LTE B14	10	5330	763	LTE B66	20	66734	2139.8	16.40	16.48	CA_2A-14A-30A-66A
LTE B2	20	900	1960	LTE B14	10	5330	763	LTE B30	10	9820	2355	18.25	18.30	CA_2A-14A-30A-66A
LTE B2	20	1100	1980	LTE B12	10	5095	737.5	LTE B30	10	9820	2355	16.21	16.29	CA_2A-2A-12A-30A
LTE B2	20	700	1940	LTE B2	20	1100	1980	LTE B30	10	9820	2355	20.32	20.46	CA_2A-2A-12A-30A
LTE B2	20	700	1940	LTE B2	20	1100	1980	LTE B12	10	5095	737.5	16.38	16.48	CA_2A-2A-12A-30A
LTE B5	10	2600	889	LTE B66	15	67213	2187.7	LTE B66	5	67306	2197	22.10	22.13	CA_5A-5A-66B
LTE B66	10	66987	2165.1	LTE B5	10	2450	874	LTE B5	10	2600	889	18.20	18.30	CA_5A-5A-66B
LTE B5	10	2600	889	LTE B66	20	66536	2120	LTE B66	20	66734	2139.8	22.00	22.13	CA_5A-5A-66C
LTE B66	20	66734	2139.8	LTE B5	10	2450	874	LTE B5	10	2600	889	18.04	18.17	CA_5A-5A-66C
LTE B5	10	2549	883.9	LTE B66	20	66536	2120	LTE B66	20	67036	2170	22.00	22.13	CA 5B-66A-66A
LTE B66	20	66536	2120	LTE B5	10	2450	874	LTE B5	10	2549	883.9	18.29	18.30	CA 5B-66A-66A
LTE B41	20	39750	2506	LTE B41	20	39948	2525.8	LTE B41	20	40146	2545.6	16.34	16.48	CA 25A-41D

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### LTE Downlink 5CA conducted power table

Five Component Carrier Maximum Conducted Power															
PCC									SCC 1				Full Power		Configurations
PCC Band	PCC Bandwidth [MHz]	Modulation	PCC (UL) RB	PCC (UL) RB Offset	PCC (UL) Channel	PCC (UL) Frequency [MHz]	PCC (DL) Channel	PCC (DL) Frequency [MHz]	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	LTE Tx.Power with DL CA active (dBm)	LTE Tx.Power with DL CA inactive (dBm)	
LTE B2	20	QPSK	1	50	19100	1900	1100	1980	LTE B5	10	2450	874	23.77	23.86	CA 2A-5B-30A-66A
LTE B5	10	QPSK	1	25	20525	836.5	2525	881.5	LTE B5	10	2549	883.9	24.68	24.93	CA 2A-5B-30A-66A
LTE B30	10	QPSK	1	49	27710	2310	9820	2355	LTE B2	20	900	1960	23.50	23.54	CA 2A-5B-30A-66A
LTE B66	20	QPSK	1	0	132572	1770	67036	2170	LTE B2	20	900	1960	23.55	23.63	CA 2A-5B-30A-66A
LTE B2	20	QPSK	1	50	19100	1900	1100	1980	LTE B5	10	2450	874	23.69	23.86	CA 2A-5B-66A-66A
LTE B5	10	QPSK	1	25	20525	836.5	2525	881.5	LTE B5	10	2450	874	24.90	24.93	CA 2A-5B-66A-66A
LTE B66	20	QPSK	1	0	132572	1770	67036	2170	LTE B66	20	66536	2120	23.60	23.63	CA 2A-5B-66A-66A
LTE B41	20	QPSK	1	0	39750	2506	39750	2506	LTE B41	20	39948	2525.8	24.05	24.09	CA 41C-41D
LTE B41	20	QPSK	1	0	39750	2506	39750	2506	LTE B41	20	39948	2525.8	24.01	24.09	CA 41C-41D

Five Component Carrier Maximum Conducted Power														
SCC 2				SCC 4				SCC 3				Full Power		Configurations
SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	LTE Tx.Power with DL CA active (dBm)	LTE Tx.Power with DL CA inactive (dBm)	
LTE B5	10	2549	883.9	LTE B30	10	9820	2355	LTE B66	20	66734	2139.8	23.77	23.86	CA 2A-5B-30A-66A
LTE B2	20	900	1960	LTE B30	10	9820	2355	LTE B66	20	66734	2139.8	24.68	24.93	CA 2A-5B-30A-66A
LTE B5	10	2450	874	LTE B5	10	2549	883.9	LTE B66	20	66734	2139.8	23.50	23.54	CA 2A-5B-30A-66A
LTE B5	10	2450	874	LTE B5	10	2549	883.9	LTE B30	10	9820	2355	23.55	23.63	CA 2A-5B-30A-66A
LTE B5	10	2549	883.9	LTE B66	20	67036	2170	LTE B66	20	66536	2120	23.69	23.86	CA 2A-5B-66A-66A
LTE B66	20	67036	2170	LTE B66	20	66536	2120	LTE B2	20	900	1960	24.90	24.93	CA 2A-5B-66A-66A
LTE B5	10	2450	874	LTE B5	10	2549	883.9	LTE B2	20	900	1960	23.60	23.63	CA 2A-5B-66A-66A
LTE B41	20	41094	2640.4	LTE B41	20	41292	2660.2	LTE B41	20	41490	2680	24.05	24.09	CA 41C-41D
LTE B41	20	40146	2545.6	LTE B41	20	39750	2506	LTE B41	20	39948	2525.8	24.01	24.09	CA 41C-41D

Five Component Carrier Maximum Conducted Power															
PCC									SCC 1				Reduced Power		Configurations
PCC Band	PCC Bandwidth [MHz]	Modulation	PCC (UL) RB	PCC (UL) RB Offset	PCC (UL) Channel	PCC (UL) Frequency [MHz]	PCC (DL) Channel	PCC (DL) Frequency [MHz]	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	LTE Tx.Power with DL CA active	LTE Tx.Power with DL CA inactive	
LTE B2	20	QPSK	1	50	19100	1900	1100	1980	LTE B5	10	2450	874	16.32	16.41	CA 2A-5B-30A-66A
LTE B5	10	QPSK	1	25	20525	836.5	2525	881.5	LTE B5	10	2549	883.9	22.23	22.43	CA 2A-5B-30A-66A
LTE B30	10	QPSK	1	49	27710	2310	9820	2355	LTE B2	20	900	1960	16.41	16.48	CA 2A-5B-30A-66A
LTE B66	20	QPSK	1	0	132572	1770	67036	2170	LTE B2	20	900	1960	18.25	18.30	CA 2A-5B-30A-66A
LTE B2	20	QPSK	1	50	19100	1900	1100	1980	LTE B5	10	2450	874	16.35	16.41	CA 2A-5B-66A-66A
LTE B5	10	QPSK	1	25	20525	836.5	2525	881.5	LTE B5	10	2450	874	22.25	22.43	CA 2A-5B-66A-66A
LTE B66	20	QPSK	1	0	132572	1770	67036	2170	LTE B66	20	66536	2120	18.14	18.30	CA 2A-5B-66A-66A

Five Component Carrier Maximum Conducted Power														
SCC 2				SCC 4				SCC 3				Reduced Power		Configurations
SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	LTE Tx.Power with DL CA active	LTE Tx.Power with DL CA inactive	
LTE B5	10	2549	883.9	LTE B30	10	9820	2355	LTE B66	20	66734	2139.8	16.32	16.41	CA 2A-5B-30A-66A
LTE B2	20	900	1960	LTE B30	10	9820	2355	LTE B66	20	66734	2139.8	22.23	22.43	CA 2A-5B-30A-66A
LTE B5	10	2450	874	LTE B5	10	2549	883.9	LTE B66	20	66734	2139.8	16.41	16.48	CA 2A-5B-30A-66A
LTE B5	10	2450	874	LTE B5	10	2549	883.9	LTE B30	10	9820	2355	18.25	18.30	CA 2A-5B-30A-66A
LTE B5	10	2549	883.9	LTE B66	20	67036	2170	LTE B66	20	66536	2120	16.35	16.41	CA 2A-5B-66A-66A
LTE B66	20	67036	2170	LTE B66	20	66536	2120	LTE B2	20	900	1960	22.25	22.43	CA 2A-5B-66A-66A
LTE B5	10	2450	874	LTE B5	10	2549	883.9	LTE B2	20	900	1960	18.14	18.30	CA 2A-5B-66A-66A

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### LTE CA information

#### A)

The device supports downlink LTE Carrier Aggregation (CA) only. It supports a maximum of 5 carriers in the downlink. Other Release 10 features or higher features are not supported, including Uplink Carrier Aggregation, Enhanced SC-FDMA and Uplink MIMO or other antenna diversity configurations etc. All uplink communications are identical to the Release 8 Specifications.

The possible downlink LTE CA combinations supported by this device are as below tables per 3GPP TS 36.521-1 V14.3.0. The conducted power measurement results of downlink LTE CA are provided as above per 3GPP TS 36.521-1 V14.3.0. According to KDB 941225 D05A and RF exposure procedures in TCB workshop April 2018, the downlink LTE CA SAR test is not required.

#### B)

#### CA combination table

Index	2CC	Restriction	Completely Covered by Measurement	Index	3CC	Restriction	Completely Covered by Measurement	Index	4CC	Restriction	Completely Covered by Measurement	Index	5CC	Restriction	Completely Covered by Measurement
2CC #1	CA 2A-4A			3CC #1	CA 2A-4A-5A			4CC #1	CA 2A-4A-5A-30A			5CC #1	CA 2A-5B-30A-66A		No
2CC #2	CA 2A-5A			3CC #3	CA 2A-4A-13A		No	4CC #2	CA 2A-4A-12A-30A		No	5CC #2	CA 2A-5B-66A-66A		No
2CC #3	CA 2A-12A			3CC #4	CA 2A-5A-30A			4CC #3	CA 2A-14A-30A-66A		No	5CC #3	CA 41C-41D		No
2CC #4	CA 2A-13A			3CC #7	CA 2A-12A-30A			4CC #4	CA 2A-2A-12A-30A		No				
2CC #5	CA 2A-14A			3CC #5	CA 2A-14A-30A			4CC #5	CA 2A-5B-30A		SCC #1				
2CC #6	CA 2A-17A		No	3CC #6	CA 2A-14A-66A			4CC #6	CA 2A-5B-66A		SCC #1				
2CC #7	CA 2A-29A	B29 SCC only	3CC #7	3CC #7	CA 2A-29A-30A	B29 SCC only		4CC #7	CA 5B-30A-66A		SCC #1				
2CC #8	CA 2A-30A		3CC #7	3CC #8	CA 2A-5A-66A		No	4CC #8	CA 5A-5A-66B		No				
2CC #9	CA 2A-66A		3CC #6	3CC #9	CA 2A-13A-66A		No	4CC #9	CA 5A-5A-66C		No				
2CC #10	CA 2C		3CC #11	3CC #10	CA 2A-30A-66A		5CC #1	4CC #10	CA 5B-66A-66A		SCC #2				
2CC #11	CA 2A-2A		3CC #15	3CC #11	CA 2C-29A	B29 SCC only	No	4CC #11	CA 25A-41D		No				
2CC #12	CA 4A-5A		3CC #21	3CC #12	CA 2A-5B			4CC #5	CA 41A-41D		No				
2CC #13	CA 4A-12A		3CC #22	3CC #13	CA 2A-66B		No	4CC #12	CA 41A-41D		No				
2CC #14	CA 4A-13A		3CC #2	3CC #14	CA 2A-66C		No	4CC #13	CA 41C-41C		No				
2CC #15	CA 4A-17A		No	3CC #15	CA 2A-2A-5A		No								
2CC #16	CA 4A-29A		3CC #23	3CC #16	CA 2A-2A-12A			4CC #4							
2CC #17	CA 4A-30A		3CC #21	3CC #17	CA 2A-2A-13A		No								
2CC #18	CA 4A-4A		3CC #24	3CC #18	CA 2A-2A-30A			4CC #4							
2CC #19	CA 5A-7A		No	3CC #19	CA 2A-2A-66A		No								
2CC #20	CA 5A-30A		4CC #1	3CC #20	CA 2A-66A-66A		No								
2CC #21	CA 5A-66A		No	3CC #21	CA 4A-5A-30A			4CC #1							
2CC #22	CA 5A-5A		4CC #8	3CC #22	CA 4A-12A-30A			4CC #2							
2CC #23	CA 5B		3CC #27	3CC #23	CA 4A-29A-30A	B29 SCC only									
2CC #24	CA 7A-7A		No	3CC #24	CA 4A-4A-5A										
2CC #25	CA 7B		No	3CC #25	CA 4A-4A-13A		No								
2CC #26	CA 7C		No	3CC #26	CA 5A-66A-66A		No								
2CC #27	CA 12A-30A		3CC #4	3CC #27	CA 5B-30A			4CC #5							
2CC #28	CA 13A-66A		3CC #9	3CC #28	CA 5B-66A			4CC #6							
2CC #29	CA 14A-30A		3CC #5	3CC #29	CA 5A-66B			4CC #8							
2CC #30	CA 14A-66A		3CC #6	3CC #30	CA 5A-66C			4CC #9							
2CC #31	CA 25A-26A		No	3CC #31	CA 13A-66A-66A										
2CC #32	CA 25A-41A		No	3CC #32	CA 14A-30A-66A			4CC #3							
2CC #33	CA 25A-25A		No	3CC #33	CA 41A-41C			No							
2CC #33	CA 26A-41A		No	3CC #34	CA 41D			4CC #11							
2CC #34	CA 29A-30A	B29 SCC only	3CC #7	3CC #35	CA 66A-66B		No								
2CC #35	CA 30A-66A		3CC #10	3CC #36	CA 66A-66C		No								
2CC #36	CA 41C		3CC #33	3CC #37	CA 66D		No								
2CC #37	CA 41A-41A		No												
2CC #38	CA 66A-66A		3CC #20												
2CC #38	CA 66B		3CC #29												
2CC #40	CA 66C		3CC #30												

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**Note:**

- 1) For the inter-band CA combinations, except B29 can't be PCC, all the listed bands above can be used as PCC or SCC.
- 2) The channel spacing and aggregated channel bandwidth for CA are identical to the associated specification in 3GPP TS 36.521-1 V14.3.0.
- 3) The reference test frequencies for CA refers to 3GPP TS 36.508 V14.2.0
- 4) Testing is not required in bands or modes not intended/allowed for US operation
- 5) Based on TCB workshop April 2018, only indicate "No" in CA combination table need power measurement

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### 1.3.2 SAR test exclusion for LTE DL MIMO

SAR test exclusion for LTE DL MIMO was determined by UL power measurements with and without DL MIMO. SAR for DL MIMO was not needed since the maximum output power with DL MIMO active was not > 0.25dB higher than the maximum output power with DL MIMO inactive.

DL MIMO maximum power verification									
PCC							Power		Maximum power
PCC Band	PCC Bandwidth [MHz]	PCC (UL) Channel	PCC (UL) Frequency [MHz]	Modulation	PCC (UL) RB	PCC (UL) RB Offset	LTE Tx.Power with DL MIMO (dBm)	LTE Tx.Power without DL MIMO (dBm)	
LTE B2	20	19100	1900	QPSK	1	50	23.66	23.86	Full power
LTE B2	20	19100	1900	QPSK	1	50	16.30	16.41	Reduced power
LTE B4	20	20175	1732.5	QPSK	1	99	23.54	23.65	Full power
LTE B4	20	20050	1720	QPSK	1	50	18.15	18.27	Reduced power
LTE B5	10	20525	836.5	QPSK	1	25	24.77	24.93	Full power
LTE B5	10	20525	836.5	QPSK	1	25	22.25	22.43	Reduced power
LTE B7	20	21350	2560	QPSK	1	0	23.80	23.98	Full power
LTE B7	20	20850	2510	QPSK	1	50	16.84	16.94	Reduced power
LTE B12	10	23095	707.5	QPSK	1	25	23.85	23.98	Full power
LTE B12	10	23095	707.5	QPSK	1	25	20.33	20.46	Reduced power
LTE B13	10	23230	782	QPSK	1	25	23.83	23.95	Full power
LTE B13	10	23230	782	QPSK	1	25	20.88	20.98	Reduced power
LTE B14	10	23330	793	QPSK	1	0	23.81	23.97	Full power
LTE B14	10	23330	793	QPSK	1	0	20.82	20.92	Reduced power
LTE B17	10	23800	711	QPSK	1	0	23.83	23.98	Full power
LTE B17	10	23800	711	QPSK	1	0	20.15	20.29	Reduced power
LTE B25	20	26140	1860	QPSK	1	50	23.82	23.97	Full power
LTE B25	20	26365	1882.5	QPSK	1	0	16.38	16.48	Reduced power
LTE B26	15	26965	841.5	QPSK	1	0	24.41	24.44	Full power
LTE B26	15	26965	841.5	QPSK	1	0	22.18	22.35	Reduced power
LTE B30	10	27710	2310	QPSK	1	49	23.39	23.54	Full power
LTE B30	10	27710	2310	QPSK	1	49	16.38	16.48	Reduced power
LTE B66	20	132572	1770	QPSK	1	0	23.52	23.63	Full power
LTE B66	20	132572	1770	QPSK	1	0	18.18	18.30	Reduced power
LTE B38	20	38000	2595	QPSK	1	0	24.85	24.98	Full power
LTE B38	20	38150	2610	QPSK	1	50	16.29	16.48	Reduced power
LTE B41	20	41055	2636.5	QPSK	1	0	24.81	24.91	Full power

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## 1.4 Test Environment

Ambient Temperature:  $22\pm 2^{\circ}\text{C}$   
Tissue Simulating Liquid:  $22\pm 2^{\circ}\text{C}$

## 1.5 Operation Description

For WWAN, the EUT is controlled by using a Radio Communication Tester, and the communication between the EUT and the tester is established by air link.

For WLAN, using chipset specific software to control the EUT, and makes it transmit in maximum power. The EUT is set to maximum power level during all tests, and at the beginning of each test the battery is fully charged.

EUT was tested as below based on KDB inquiry.

### WWAN / WLAN

#### Tablet mode

Back/top/bottom/right/left sides\_0mm with reduced power

#### Laptop mode

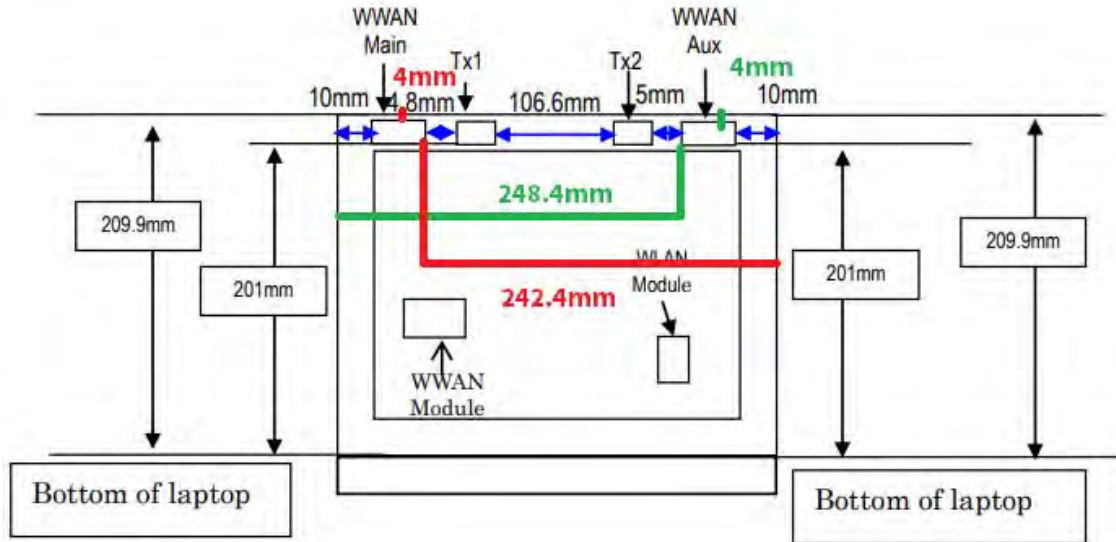
SAR measurement for Laptop SAR with full power is not required since the distance between antenna and user is  $> 20\text{cm}$

SAR measurement for stand/tent mode is not required since the device will be operated away from user in these modes based on KDB inquiry.

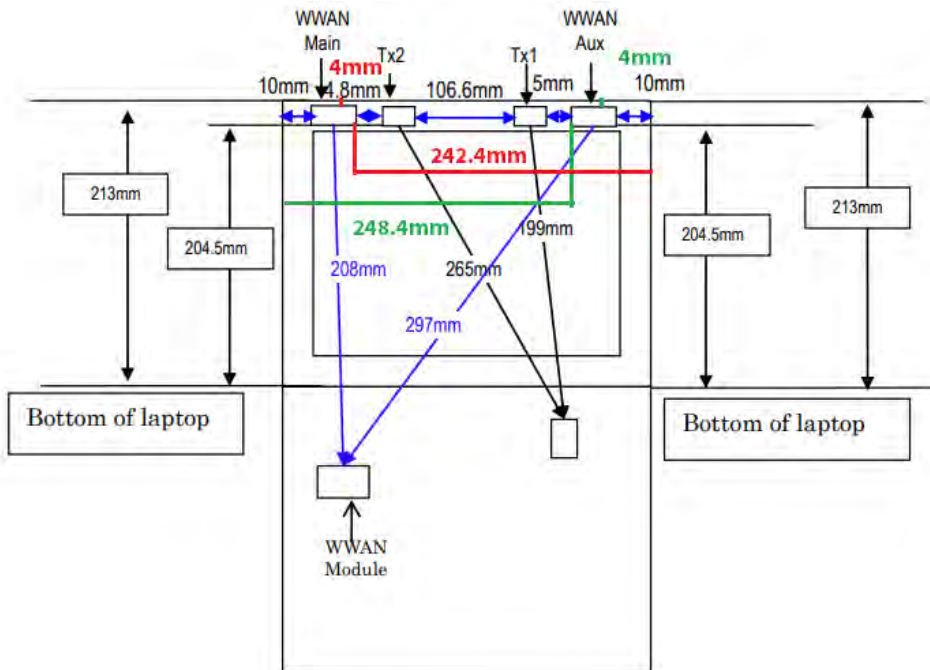
SAR measurement for flat condition is not required since the display content will not rotate when operating in flat condition based in KDB inquiry.

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**Antenna location (Tablet mode)**

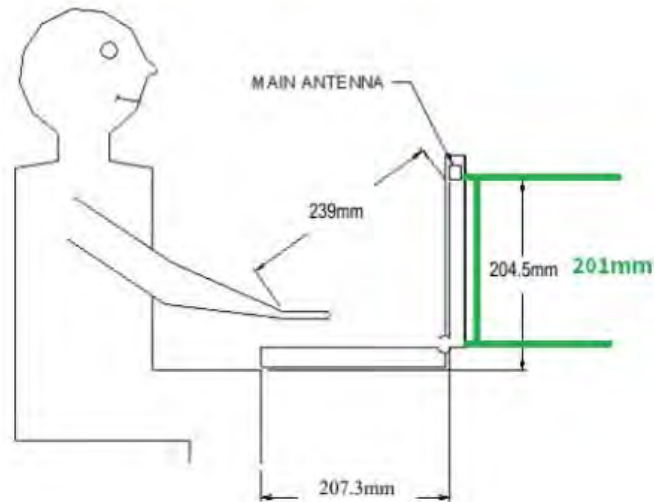


**Antenna location (Notebook mode)**

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**Antenna location of EUT (laptop mode)**

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**Note:**

1. During the SAR testing, the DASY 5 system checks power drift by comparing the e-field strength of one specific location measured at the beginning with that measured at the end of the SAR testing.
2. The 3G SAR test reduction procedure is applied to HSDPA with 12.2 kbps RMC as the primary mode. Since the maximum output power in a secondary mode (HSDPA) is  $\leq \frac{1}{4}$  dB higher than the primary mode (WCDMA), SAR measurement is not required for the secondary mode (HSDPA). The following 4 sub-tests were completed according to Release 5 procedures in section 5.2 of 3GPP TS 34.121. A summary of these setting are illustrated below:

Sub-test	$\beta_c$	$\beta_d$	$\beta_d$ (SF)	$\beta_d/\beta_d$	$\beta_{HS}^{(1)(2)}$	CM <sup>(3)</sup> (dB)	MPR <sup>(3)</sup> (dB)
1	2/15	15/15	64	2/15	4/15	0.0	0.0
2	12/15 <sup>(4)</sup>	15/15 <sup>(4)</sup>	64	12/15 <sup>(4)</sup>	24/15	1.0	0.0
3	15/15	8/15	64	15/8	30/15	1.5	0.5
4	15/15	4/15	64	15/4	30/15	1.5	0.5

Note 1:  $\Delta_{ACK}$ ,  $\Delta_{NACK}$  and  $\Delta_{CQI} = 30/15$  with  $\beta_{HS} = 30/15 * \beta_c$ .

Note 2: For the HS-DPCCH power mask requirement test in clause 5.2C, 5.7A, and the Error Vector Magnitude (EVM) with HS-DPCCH test in clause 5.13.1A, and HSDPA EVM with phase discontinuity in clause 5.13.1AA,  $\Delta_{ACK}$  and  $\Delta_{NACK} = 30/15$  with  $\beta_{HS} = 30/15 * \beta_c$ , and  $\Delta_{CQI} = 24/15$  with  $\beta_{HS} = 24/15 * \beta_c$ .

Note 3: CM = 1 for  $\beta_d/\beta_d = 12/15$ ,  $\beta_{HS}/\beta_c = 24/15$ . For all other combinations of DPDCCH, DPCCH and HS-DPCCH the MPR is based on the relative CM difference. This is applicable for only UEs that support HSDPA in release 6 and later releases.

Note 4: For subtest 2 the  $\beta_d/\beta_d$  ratio of 12/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to  $\beta_c = 11/15$  and  $\beta_d = 15/15$ .

3. The 3G SAR test reduction procedure is applied to HSPA (HSUPA/HSDPA with RMC) with 12.2 kbps RMC as the primary mode. Since the maximum output power in a secondary mode (HSPA) is  $\leq \frac{1}{4}$  dB higher than the primary mode (WCDMA), SAR measurement is not required for the secondary mode (HSPA). The following 5 sub-tests were completed according to Release 6 procedures in section 5.2 of 3GPP TS 34.121. A summary of these setting are illustrated below:

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Sub-test	$\beta_c$	$\beta_d$	$\beta_d$ (SF)	$\beta_c / \beta_d$	$\beta_{HS}^{(1)}$	$\beta_{ec}$	$\beta_{ed}^{(4)(5)}$	$\beta_{ed}$ (SF)	$\beta_{ed}$ (Codes)	CM <sup>(2)</sup> (dB)	MPR <sup>(2)(5)</sup> (dB)	AG <sup>(6)</sup> Index	E-TFCI
1	11/15 <sup>(3)</sup>	15/15 <sup>(3)</sup>	64	11/15 <sup>(3)</sup>	22/15	209/225	1309/225	4	1	1.0	0.0	20	75
2	6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67
3	15/15	9/15	64	15/9	30/15	30/15	$\beta_{ed1}$ : 47/15 $\beta_{ed2}$ : 47/15	4	2	2.0	1.0	15	92
4	2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71
5	15/15	0	-	-	5/15	5/15	47/15	4	1	1.0	0.0	12	67

Note 1: For sub-test 1 to 4,  $\Delta_{ACK}$ ,  $\Delta_{NACK}$  and  $\Delta_{CQI} = 30/15$  with  $\beta_{HS} = 30/15 * \beta_c$ . For sub-test 5,  $\Delta_{ACK}$ ,  $\Delta_{NACK}$  and  $\Delta_{CQI} = 5/15$  with  $\beta_{HS} = 5/15 * \beta_c$ .  
 Note 2: CM = 1 for  $\beta_c/\beta_d = 12/15$ ,  $\beta_{HS}/\beta_c = 24/15$ . For all other combinations of DPDCCH, DPCCCH, HS-DPCCCH, E-DPDCCH and E-DPCCCH the MPR is based on the relative CM difference.  
 Note 3: For subtest 1 the  $\beta_c/\beta_d$  ratio of 11/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF0) to  $\beta_c = 10/15$  and  $\beta_d = 15/15$ .  
 Note 4: In case of testing by UE using E-DPDCCH Physical Layer category 1, Sub-test 3 is omitted according to TS25.306 Table 5.1g.  
 Note 5:  $\beta_{ed}$  can not be set directly; it is set by Absolute Grant Value.  
 Note 6: For subtests 2, 3 and 4, UE may perform E-DPDCCH power scaling at max power which could result in slightly smaller MPR values.

4. The 3G SAR test reduction procedure is applied to HSPA+ with 12.2 kbps RMC as the primary mode. Since the maximum output power in a secondary mode (HSPA+) is  $\leq 1/4$  dB higher than the primary mode (WCDMA), SAR measurement is not required for the secondary mode (HSPA+). The following 1 sub-test was completed according to Release 7 procedures in section 5.2 of 3GPP TS34.121. A summary of these settings are illustrated below:

Table C.11.1.4:  $\beta$  values for transmitter characteristics tests with HS-DPCCCH and E-DCH with 16QAM

Sub-test	$\beta_c$ (Note 3)	$\beta_d$	$\beta_{HS}$ (Note 1)	$\beta_{ec}$	$\beta_{ed}$ (2xSF2) (Note 4)	$\beta_{ed}$ (2xSF4) (Note 4)	CM (dB) (Note 2)	MPR (dB) (Note 2)	AG Index (Note 4)	E-TFCI (Note 5)	E-TFCI (boost)
1	1	0	30/15	30/15	$\beta_{ed1}$ : 30/15 $\beta_{ed2}$ : 30/15	$\beta_{ed3}$ : 24/15 $\beta_{ed4}$ : 24/15	3.5	2.5	14	105	105

Note 1:  $\Delta_{ACK}$ ,  $\Delta_{NACK}$  and  $\Delta_{CQI} = 30/15$  with  $\beta_{HS} = 30/15 * \beta_c$ .  
 Note 2: CM = 3.5 and the MPR is based on the relative CM difference, MPR = MAX(CM-1,0).  
 Note 3: DPDCCH is not configured, therefore the  $\beta_c$  is set to 1 and  $\beta_d = 0$  by default.  
 Note 4:  $\beta_{ed}$  can not be set directly; it is set by Absolute Grant Value.  
 Note 5: All the sub-tests require the UE to transmit 2SF2+2SF4 16QAM EDCH and they apply for UE using E-DPDCCH category 7. E-DCH TTI is set to 2ms TTI and E-DCH table index = 2. To support these E-DCH configurations DPDCCH is not allocated. The UE is signalled to use the extrapolation algorithm.

5. The 3G SAR test reduction procedure is applied to DC-HSDPA with 12.2 kbps RMC as the primary mode. Power is measured for DC-HSDPA according to the H-Set 12, FRC configuration in Table C.8.1.12 of 3GPP TS 34.121-1 to determine SAR test reduction. A primary and a secondary serving HS-DSCH Cell are required to perform the power measurement and for the results to be acceptable. Since the maximum output power in a secondary mode (DC-HSDPA) is  $\leq 1/4$  dB higher than the primary mode (WCDMA), SAR measurement is not required for the secondary mode (DC-HSDPA). The following tests were

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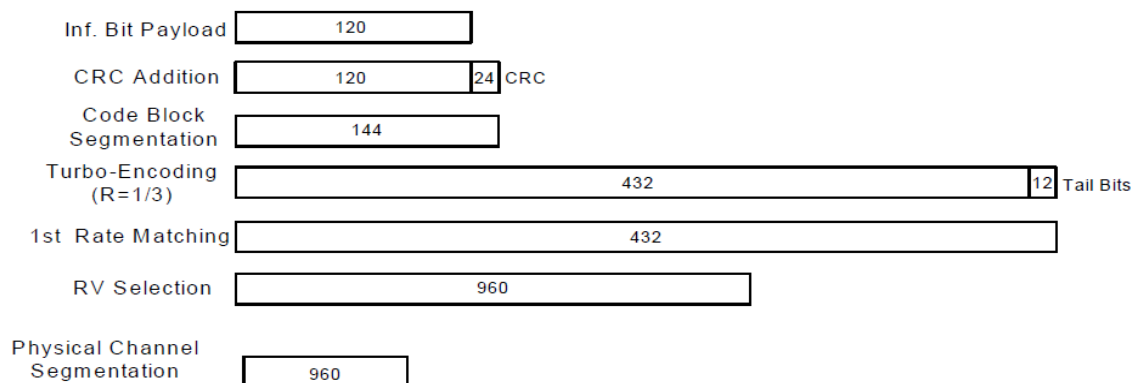


completed according to procedures in section 7.3.13 of 3GPP TS 34.108 v9.5.0. A summary of these setting are illustrated below:

The configurations of the fixed reference channels for HSDPA RF tests are described in 3GPP TS 34.121, annex C for FDD and 3GPP TS 34.122

**Table C.8.1.12: Fixed Reference Channel H-Set 12**

Parameter	Unit	Value
Nominal Avg. Inf. Bit Rate	kbps	60
Inter-TTI Distance	TTI's	1
Number of HARQ Processes	Processes	6
Information Bit Payload ( $N_{INF}$ )	Bits	120
Number Code Blocks	Blocks	1
Binary Channel Bits Per TTI	Bits	960
Total Available SML's in UE	SML's	19200
Number of SML's per HARQ Proc.	SML's	3200
Coding Rate		0.15
Number of Physical Channel Codes	Codes	1
Modulation		QPSK
Note 1: The RMC is intended to be used for DC-HSDPA mode and both cells shall transmit with identical parameters as listed in the table. Note 2: Maximum number of transmission is limited to 1, i.e., retransmission is not allowed. The redundancy and constellation version 0 shall be used.		



**Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)**

The following 4 sub-tests for HSDPA were completed according to Release 8 procedures in section 5.2 of 3GPP TS34.121. A summary of subtest settings are illustrated below:

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Sub-test	$\beta_c$	$\beta_a$	$\beta_d$ (SF)	$\beta_e/\beta_d$	$\beta_{HS}^{(1)/(2)}$	CM <sup>(3)</sup> (dB)	MPR <sup>(3)</sup> (dB)
1	2/15	15/15	64	2/15	4/15	0.0	0.0
2	12/15 <sup>(4)</sup>	15/15 <sup>(4)</sup>	64	12/15 <sup>(4)</sup>	24/15	1.0	0.0
3	15/15	8/15	64	15/8	30/15	1.5	0.5
4	15/15	4/15	64	15/4	30/15	1.5	0.5

Note 1:  $\Delta_{ACK}$ ,  $\Delta_{NACK}$  and  $\Delta_{OQI} = 30/15$  with  $\beta_{HS} = 30/15 * \beta_c$ .

Note 2: For the HS-DPCCH power mask requirement test in clause 5.2C, 5.7A, and the Error Vector Magnitude (EVM) with HS-DPCCH test in clause 5.13.1A, and HSDPA EVM with phase discontinuity in clause 5.13.1AA,  $\Delta_{ACK}$  and  $\Delta_{NACK} = 30/15$  with  $\beta_{HS} = 30/15 * \beta_c$ , and  $\Delta_{OQI} = 24/15$  with  $\beta_{HS} = 24/15 * \beta_c$ .

Note 3: CM = 1 for  $\beta_e/\beta_d = 12/15$ ,  $\beta_{HS}/\beta_c = 24/15$ . For all other combinations of DPDCCH, DPCCH and HS-DPCCH the MPR is based on the relative CM difference. This is applicable for only UEs that support HSDPA in release 6 and later releases.

Note 4: For subtest 2 the  $\beta_e/\beta_d$  ratio of 12/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to  $\beta_c = 11/15$  and  $\beta_d = 15/15$ .

## 6. LTE modes test according to **KDB 941225D05v02r05**.

a. Per Section 5.2.1, the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation.

- Using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.

- When the reported SAR is  $\leq 0.8$  W/kg, testing of the remaining RB offset configurations and required test channels is not required for 1 RB allocation; otherwise, SAR is required for the remaining required test channels and only for the RB offset configuration with the highest output power for that channel.

- When the reported SAR of a required test channel is  $> 1.45$  W/kg, SAR is required for all three RB offset configurations for that required test channel.

b. Per Section 5.2.2, the largest channel bandwidth and measure SAR for QPSK with 50% RB allocation

- The procedures required for 1 RB allocation in 5.2.1 are applied to measure the SAR for QPSK with 50% RB allocation.

c. Per Section 5.2.3, the largest channel bandwidth and measure SAR for QPSK with 100% RB allocation

- For QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation in 5.2.1 and 5.2.2 are  $\leq 0.8$  W/kg.

- Otherwise, SAR is measured for the highest output power channel and if the reported SAR is  $> 1.45$  W/kg, the remaining required test channels must also be

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tested.

d. Per Section 5.2.4, Higher order modulations

- For each modulation besides QPSK; e.g., 16-QAM, 64-QAM, apply the QPSK procedures in sections 5.2.1, 5.2.2 and 5.2.3 to determine the QAM configurations that may need SAR measurement. For each configuration identified as required for testing, SAR is required only when the highest maximum output power for the configuration in the higher order modulation is  $> \frac{1}{2}$  dB higher than the same configuration in QPSK or when the reported SAR for the QPSK configuration is  $> 1.45$  W/kg.

e. Per Section 5.3, other channel bandwidth standalone SAR test requirements

- For the other channel bandwidths used by the device in a frequency band, apply all the procedures required for the largest channel bandwidth in section 5.2 to determine the channels and RB configurations that need SAR testing and only measure SAR when the highest maximum output power of a configuration requiring testing in the smaller channel bandwidth is  $> \frac{1}{2}$  dB higher than the equivalent channel configurations in the largest channel bandwidth configuration or the reported SAR of a configuration for the largest channel bandwidth is  $> 1.45$  W/kg. The equivalent channel configuration for the RB allocation, RB offset and modulation etc. is determined for the smaller channel bandwidth according to the same number of RB allocated in the largest channel bandwidth.

- TDD LTE was tested at highest duty factor using UL-DL configuration 0 with 6 UL subframes and 2 S subframes using extended cyclic prefix only and special subframe configuration 7. SAR tests were performed at maximum output power and worst-case transmission duty factor in extended cyclic prefix. Per 3GPP 36.211 Section 4, the duty factor for special subframe configuration 6 using extended cyclic prefix is 0.633.

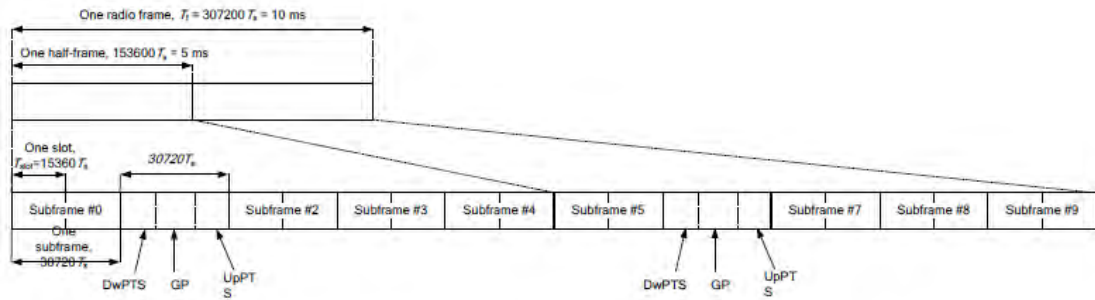
According to KDB 941225 D05, SAR testing for TDD LTE must be tested using a fixed periodic duty factor according to the highest transmission duty factor implemented for the device and supported by the defined 3GPP TDD LTE configurations. The TDD-LTE of this device supports frame structure type 2 defined in 3GPP TS 36.211 section 4.2, and the frame structure configuration can be tabulated as below.

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3GPP TS 36.211 Figure 4.2-1: Frame Structure Type 2

Special Subframe Configuration	Normal Cyclic Prefix in Downlink				Extended Cyclic Prefix in Downlink				
	DwPTS	UpPTS		DwPTS	UpPTS		DwPTS	UpPTS	
		Normal Cyclic Prefix in Uplink	Extended Cyclic Prefix in Uplink		Normal Cyclic Prefix in Uplink	Extended Cyclic Prefix in Uplink			
0	6592 · Ts	2192 · Ts	2560 · Ts	7680 · Ts	2192 · Ts	2560 · Ts	7680 · Ts	4384 · Ts	5120 · Ts
1	19760 · Ts			20480 · Ts					
2	21952 · Ts			23040 · Ts					
3	24144 · Ts			25600 · Ts					
4	26336 · Ts	4384 · Ts	5120 · Ts	7680 · Ts	2192 · Ts	2560 · Ts	7680 · Ts	4384 · Ts	5120 · Ts
5	6592 · Ts			20480 · Ts					
6	19760 · Ts			23040 · Ts					
7	21952 · Ts			12800 · Ts					
8	24144 · Ts	-	-	-	-	-	-	-	-
9	13168 · Ts	-	-	-	-	-	-	-	-

3GPP TS 36.211 Table 4.2-1: Configuration of Special Subframe

Uplink-Downlink Configuration	Downlink-to-Uplink Switch-Point Periodicity	Subframe Number									
		0	1	2	3	4	5	6	7	8	9
0	5 ms	D	S	U	U	U	D	S	U	U	U
1	5 ms	D	S	U	U	D	D	S	U	U	D
2	5 ms	D	S	U	D	D	D	S	U	D	D
3	10 ms	D	S	U	U	U	D	D	D	D	D
4	10 ms	D	S	U	U	D	D	D	D	D	D
5	10 ms	D	S	U	D	D	D	D	D	D	D
6	5 ms	D	S	U	U	U	D	S	U	U	D

3GPP TS 36.211 Table 4.2-2: Uplink-Downlink Configurations

The uplink duty cycle of these seven configurations can be computed as below.

UL-DL Configuration	0	1	2	3	4	5	6
Highest Duty-Cycle	63.33%	43.33%	23.33%	31.67%	21.67%	11.67%	53.33%

Considering the highest transmission duty cycle, TDD LTE was tested using Uplink-Downlink configuration 0 with 6 uplink subframe and 2 special subframe. The special subframe was set to special subframe configuration 7 using extended cyclic prefix uplink. Therefore, SAR testing for TDD LTE was measured at the maximum output power with highest transmission duty cycle of 63.33%.

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## LTE downlink CA (KDB942225 D05A)

7. The device supports a maximum of 3 carriers in the downlink. All uplink communications are identical to the Release 8 specifications. Uplink maximum output power is measured with downlink carrier aggregation active, only for the channel with highest measured maximum output power when downlink carrier aggregation is inactive, to confirm that when downlink carrier aggregation is active uplink maximum output power remains within the specified tune-up tolerance limits and not more than  $\frac{1}{4}$  dB higher than the maximum output power measured when downlink carrier aggregation inactive.
8. The downlink channels selected to perform the uplink power measurement must satisfy 3GPP channel spacing (5.4.1A of 3GPP TS 36.521 or equivalent) and channel bandwidth (5.4.2A) requirements. The nominal channel spacing is determined by  $[BW1 + BW2 - 0.1 * |BW1 - BW2|] / 2$  MHz, where BW1 and BW2 are the channel bandwidths of the CC in a 2-CC aggregation configuration.
9. The downlink PCC channel should be paired with the uplink channel according to normal configurations, as if there is no carrier aggregation. The downlink SCC should be adjacent to the PCC and remain within the downlink transmission band for contiguous intra-band CA. For non-contiguous intra-band CA, the SCC should be selected to provide maximum separation from the PCC and must remain fully within the downlink transmission band. For inter-band CA, the SCC should be near the middle of its transmission band.
10. When downlink carrier aggregation is active uplink maximum output power remains within the specified tune-up tolerance limits and not more than  $\frac{1}{4}$  dB higher than the maximum output power measured when downlink carrier aggregation inactive, so SAR evaluation is not required for downlink carrier aggregation.
11. According to KDB447498D01v06, SAR test exclusion evaluation for

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surfaces/edges of tablet mode is not required since SAR measurements for all the surfaces/edges were performed.

12. According to KDB447498D01v06, testing of other required channels is not required when the reported 1-g SAR for the highest output channel is  $\leq 0.8$  W/kg, when the transmission band is  $\leq 100$  MHz.
13. According to KDB865664D01v01r04, SAR measurement variability must be assessed for each frequency band. When the original highest measured SAR is  $\geq 0.8$  W/kg, repeated that measurement once. Perform a second repeated measurement only if the ratio of largest to smallest SAR for the original and first repeated measurements is  $> 1.20$  or when the original or repeated measurement is  $\geq 1.45$  W/kg (~ 10% from the 1-g SAR limit)

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## 1.6 Operating modes validation by power measurement

The device is a convertible laptop computer with WWAN/WLAN/BT feature.

Based on KDB inquiry, there are the G-sensor in the device, and the sensor can detect the operation mode transformation and then adjust the maximum output power accordingly.

For the operating modes validation, the measured conducted output power is monitored qualitatively to identify the triggering characteristics and recorded quantitatively.

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### 1.6.1 Results and conclusion

The measured output power versus lid angle is tabulated in the following table, and the triggering verification complies with the device mode / power level declared by the manufacturer.

#### Operating mode validation by power measurement

Antenna	Operation mode	Lid angle	802.11b	802.11g	802.11n(20)	802.11n(40)
WLAN Main (2.4GHz)	Lid close	0°	n/a	n/a	n/a	n/a
		10°	n/a	n/a	n/a	n/a
		20°	n/a	n/a	n/a	n/a
		30°	n/a	n/a	n/a	n/a
		34°	n/a	n/a	n/a	n/a
	Notebook	35°	19.93	19.78	19.83	18.87
		40°	19.85	19.80	19.79	18.96
		50°	19.84	19.79	19.82	18.94
		60°	19.90	19.86	19.88	18.93
		70°	19.92	19.77	19.82	18.87
		80°	19.88	19.77	19.85	18.89
		90°	19.91	19.83	19.81	18.92
		100°	19.85	19.79	19.85	18.91
		110°	19.85	19.79	19.84	18.93
		120°	19.93	19.80	19.82	18.90
		129°	19.87	19.77	19.83	18.90
		Non-Notebook	130°	17.90	17.84	17.87
	140°		17.84	17.84	17.85	17.77
	150°		17.89	17.81	17.87	17.80
	160°		17.86	17.83	17.86	17.77
	170°		17.90	17.88	17.81	17.84
	180°		17.91	17.88	17.84	17.80
	190°		17.85	17.89	17.85	17.77
	200°		17.85	17.82	17.83	17.83
	210°		17.87	17.89	17.89	17.82
	220°		17.83	17.86	17.82	17.77
	230°		17.92	17.86	17.87	17.78
	240°		17.83	17.90	17.88	17.78
	250°		17.84	17.90	17.88	17.76
	260°		17.90	17.90	17.80	17.75
	270°		17.90	17.88	17.87	17.81
	280°		17.83	17.85	17.82	17.81
	290°		17.91	17.86	17.87	17.79
	300°		17.90	17.89	17.81	17.83
	310°		17.86	17.86	17.88	17.77
	320°	17.86	17.85	17.89	17.83	
330°	17.85	17.81	17.84	17.79		
340°	17.90	17.86	17.80	17.84		
350°	17.83	17.86	17.82	17.76		
360°	17.91	17.87	17.87	17.77		

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Antenna	Operation mode	Lid angle	802.11b	802.11g	802.11n(20)	802.11n(40)
WLAN Main (2.4GHz)	Stand	201°	19.87	19.85	19.82	18.89
		210°	19.91	19.81	19.81	18.93
		220°	19.86	19.80	19.80	18.94
		230°	19.86	19.84	19.87	18.90
		240°	19.85	19.79	19.83	18.88
		250°	19.91	19.77	19.82	18.92
		260°	19.87	19.82	19.88	18.87
		270°	19.89	19.84	19.83	18.87
		280°	19.88	19.84	19.79	18.87
		290°	19.88	19.86	19.81	18.95
		300°	19.84	19.81	19.87	18.91
		310°	19.87	19.78	19.85	18.90
		320°	19.90	19.80	19.80	18.92
		330°	19.85	19.81	19.86	18.87
		340°	19.89	19.80	19.80	18.88
		345°	19.92	19.79	19.83	18.87

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Antenna	Operation mode	Lid angle	802.11b	802.11g	802.11n(20)	802.11n(40)
WLAN Aux (2.4GHz)	Lid close	0°	n/a	n/a	n/a	n/a
		10°	n/a	n/a	n/a	n/a
		20°	n/a	n/a	n/a	n/a
		30°	n/a	n/a	n/a	n/a
		34°	n/a	n/a	n/a	n/a
	Notebook	35°	19.86	19.89	19.85	18.78
		40°	19.83	19.96	19.82	18.74
		50°	19.90	19.92	19.85	18.77
		60°	19.84	19.90	19.88	18.70
		70°	19.85	19.91	19.88	18.72
		80°	19.81	19.93	19.84	18.73
		90°	19.81	19.98	19.88	18.72
		100°	19.90	19.93	19.80	18.78
		110°	19.87	19.92	19.83	18.69
		120°	19.88	19.95	19.86	18.73
		129°	19.87	19.96	19.88	18.74
		Non-Notebook	130°	17.82	17.90	17.83
	140°		17.82	17.84	17.83	17.76
	150°		17.80	17.82	17.89	17.76
	160°		17.80	17.81	17.91	17.76
	170°		17.86	17.87	17.92	17.77
	180°		17.82	17.83	17.90	17.85
	190°		17.82	17.87	17.86	17.82
	200°		17.86	17.86	17.83	17.82
	210°		17.85	17.86	17.92	17.82
	220°		17.81	17.84	17.87	17.76
	230°		17.81	17.86	17.89	17.79
	240°		17.82	17.83	17.87	17.82
	250°		17.83	17.88	17.86	17.79
	260°		17.81	17.89	17.88	17.81
	270°		17.83	17.86	17.85	17.82
	280°		17.85	17.81	17.90	17.82
	290°		17.89	17.90	17.89	17.80
	300°		17.86	17.89	17.88	17.76
	310°		17.86	17.87	17.88	17.77
	320°	17.88	17.83	17.91	17.84	
330°	17.84	17.84	17.90	17.82		
340°	17.82	17.86	17.84	17.85		
350°	17.80	17.85	17.92	17.77		
360°	17.85	17.88	17.87	17.84		

Antenna	Operation mode	Lid angle	802.11b	802.11g	802.11n(20)	802.11n(40)
WLAN Aux (2.4GHz)	Stand	201°	19.84	19.91	19.84	18.73
		210°	19.86	19.98	19.82	18.75
		220°	19.84	19.93	19.89	18.78
		230°	19.86	19.92	19.83	18.74
		240°	19.89	19.94	19.80	18.73
		250°	19.89	19.91	19.80	18.74
		260°	19.90	19.97	19.89	18.77
		270°	19.82	19.90	19.86	18.71
		280°	19.81	19.97	19.88	18.71
		290°	19.85	19.94	19.89	18.73
		300°	19.81	19.97	19.86	18.77
		310°	19.90	19.95	19.86	18.71
		320°	19.85	19.96	19.82	18.77
		330°	19.86	19.97	19.89	18.70
		340°	19.81	19.91	19.85	18.74
345°	19.86	19.93	19.89	18.77		

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Antenna	Operation mode	Lid angle	802.11b	802.11g	802.11n(20)	802.11n(40)	802.11ac(40)	802.11ac(80)
WLAN Main (5.2GHz)	Lid close	0°	n/a	n/a	n/a	n/a	n/a	n/a
		10°	n/a	n/a	n/a	n/a	n/a	n/a
		20°	n/a	n/a	n/a	n/a	n/a	n/a
		30°	n/a	n/a	n/a	n/a	n/a	n/a
		34°	n/a	n/a	n/a	n/a	n/a	n/a
	Notebook	35°	19.94	19.86	19.82	19.88	19.71	13.86
		40°	19.94	19.82	19.83	19.85	19.75	13.88
		50°	19.90	19.85	19.84	19.85	19.80	13.88
		60°	19.91	19.83	19.80	19.86	19.74	13.84
		70°	19.89	19.81	19.86	19.90	19.71	13.84
		80°	19.89	19.78	19.86	19.85	19.76	13.89
		90°	19.88	19.80	19.85	19.91	19.75	13.92
		100°	19.94	19.84	19.80	19.92	19.71	13.92
		110°	19.89	19.81	19.81	19.85	19.74	13.90
		120°	19.95	19.79	19.81	19.90	19.77	13.85
		129°	19.86	19.84	19.78	19.86	19.71	13.86
	Non-Notebook	130°	15.72	15.61	15.80	15.87	15.87	13.80
		140°	15.71	15.65	15.84	15.86	15.79	13.81
		150°	15.72	15.69	15.80	15.91	15.86	13.78
		160°	15.68	15.62	15.83	15.87	15.82	13.84
		170°	15.73	15.68	15.83	15.90	15.87	13.75
		180°	15.75	15.62	15.89	15.93	15.81	13.83
		190°	15.74	15.67	15.84	15.87	15.78	13.81
		200°	15.70	15.61	15.81	15.90	15.81	13.76
		210°	15.75	15.63	15.86	15.92	15.83	13.83
		220°	15.72	15.68	15.86	15.85	15.79	13.83
		230°	15.69	15.62	15.88	15.86	15.80	13.82
		240°	15.67	15.64	15.81	15.86	15.82	13.81
		250°	15.68	15.67	15.80	15.91	15.85	13.79
		260°	15.66	15.70	15.80	15.92	15.83	13.76
		270°	15.70	15.69	15.85	15.88	15.80	13.77
		280°	15.66	15.63	15.87	15.91	15.87	13.76
		290°	15.74	15.62	15.85	15.85	15.83	13.77
		300°	15.67	15.67	15.85	15.88	15.82	13.82
		310°	15.66	15.63	15.85	15.87	15.86	13.80
	320°	15.71	15.63	15.84	15.90	15.85	13.76	
330°	15.74	15.67	15.80	15.93	15.82	13.80		
340°	15.74	15.68	15.85	15.88	15.85	13.78		
350°	15.74	15.65	15.84	15.85	15.79	13.78		
360°	15.67	15.64	15.84	15.90	15.78	13.78		

Antenna	Operation mode	Lid angle	802.11a	802.11n(20)	802.11n(40)	802.11ac(20)	802.11ac(40)	802.11ac(80)
WLAN Main (5.2GHz)	Stand	201°	19.93	19.82	19.77	19.91	19.77	13.87
		210°	19.95	19.83	19.82	19.88	19.79	13.87
		220°	19.91	19.81	19.77	19.84	19.80	13.91
		230°	19.92	19.82	19.82	19.91	19.80	13.86
		240°	19.87	19.78	19.78	19.91	19.80	13.83
		250°	19.88	19.86	19.77	19.85	19.80	13.89
		260°	19.95	19.79	19.77	19.89	19.78	13.87
		270°	19.93	19.79	19.77	19.85	19.71	13.86
		280°	19.94	19.87	19.83	19.89	19.71	13.88
		290°	19.89	19.81	19.78	19.89	19.76	13.87
		300°	19.89	19.87	19.84	19.92	19.72	13.87
		310°	19.90	19.83	19.85	19.92	19.78	13.87
		320°	19.87	19.83	19.83	19.90	19.72	13.83
		330°	19.91	19.79	19.81	19.85	19.75	13.84
		340°	19.93	19.81	19.79	19.92	19.79	13.92
		345°	19.87	19.83	19.78	19.92	19.78	13.85

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Antenna	Operation mode	Lid angle	802.11b	802.11g	802.11n(20)	802.11n(40)	802.11ac(40)	802.11ac(80)	
WLAN Aux (5.2GHz)	Lid close	0°	n/a	n/a	n/a	n/a	n/a	n/a	
		10°	n/a	n/a	n/a	n/a	n/a	n/a	
		20°	n/a	n/a	n/a	n/a	n/a	n/a	
		30°	n/a	n/a	n/a	n/a	n/a	n/a	
		34°	n/a	n/a	n/a	n/a	n/a	n/a	
	Notebook	35°	19.92	19.88	19.79	19.91	19.92	13.85	
		40°	19.97	19.80	19.84	19.85	19.84	13.82	
		50°	19.91	19.84	19.79	19.93	19.90	13.85	
		60°	19.90	19.87	19.82	19.86	19.93	13.84	
		70°	19.98	19.83	19.79	19.91	19.85	13.81	
		80°	19.92	19.81	19.82	19.93	19.90	13.85	
		90°	19.94	19.80	19.87	19.92	19.92	13.80	
		100°	19.94	19.87	19.82	19.92	19.89	13.85	
		110°	19.93	19.80	19.87	19.91	19.88	13.85	
		120°	19.89	19.86	19.81	19.84	19.88	13.80	
		129°	19.89	19.85	19.82	19.89	19.91	13.85	
		Non-Notebook	130°	16.20	16.27	16.32	16.47	16.39	13.87
			140°	16.27	16.26	16.36	16.46	16.35	13.91
	150°		16.24	16.31	16.37	16.40	16.37	13.90	
	160°		16.26	16.35	16.37	16.46	16.34	13.91	
	170°		16.23	16.26	16.30	16.47	16.34	13.87	
	180°		16.18	16.35	16.33	16.43	16.31	13.91	
	190°		16.23	16.26	16.38	16.45	16.37	13.91	
	200°		16.18	16.31	16.34	16.43	16.37	13.93	
	210°		16.25	16.26	16.35	16.46	16.37	13.91	
	220°		16.20	16.35	16.38	16.41	16.33	13.90	
	230°		16.20	16.30	16.39	16.43	16.33	13.89	
	240°		16.26	16.32	16.39	16.41	16.34	13.88	
	250°		16.23	16.31	16.32	16.45	16.38	13.85	
	260°		16.21	16.35	16.33	16.43	16.34	13.92	
	270°		16.19	16.29	16.30	16.47	16.40	13.90	
	280°		16.24	16.34	16.37	16.45	16.31	13.90	
	290°		16.23	16.26	16.31	16.46	16.33	13.86	
	300°		16.18	16.32	16.37	16.46	16.35	13.86	
	310°	16.21	16.34	16.30	16.47	16.31	13.94		
	320°	16.23	16.27	16.38	16.48	16.38	13.85		
330°	16.20	16.34	16.32	16.41	16.36	13.89			
340°	16.25	16.31	16.32	16.47	16.33	13.91			
350°	16.21	16.34	16.34	16.47	16.40	13.85			
360°	16.26	16.33	16.30	16.40	16.38	13.89			
Antenna	Operation mode	Lid angle	802.11a	802.11n(20)	802.11n(40)	802.11ac(20)	802.11ac(40)	802.11ac(80)	
WLAN Aux (5.2GHz)	Stand	201°	19.98	19.81	19.88	19.87	19.93	13.85	
		210°	19.93	19.80	19.83	19.85	19.91	13.85	
		220°	19.92	19.82	19.79	19.87	19.93	13.78	
		230°	19.94	19.83	19.87	19.89	19.93	13.83	
		240°	19.95	19.88	19.79	19.87	19.87	13.84	
		250°	19.93	19.87	19.84	19.92	19.84	13.80	
		260°	19.90	19.82	19.88	19.92	19.93	13.77	
		270°	19.89	19.82	19.84	19.88	19.92	13.81	
		280°	19.90	19.87	19.85	19.92	19.92	13.77	
		290°	19.91	19.80	19.86	19.92	19.85	13.85	
		300°	19.96	19.83	19.88	19.84	19.88	13.86	
		310°	19.98	19.84	19.82	19.91	19.89	13.86	
		320°	19.98	19.86	19.82	19.91	19.87	13.83	
		330°	19.91	19.82	19.86	19.84	19.85	13.79	
		340°	19.92	19.88	19.87	19.87	19.88	13.82	
		345°	19.97	19.81	19.88	19.87	19.86	13.78	

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Antenna	Operation mode	Lid angle	802.11a	802.11n(20)	802.11n(40)	802.11ac(20)	802.11ac(40)	802.11ac(80)	
WLAN Main (5.3GHz)	Lid close	0°	n/a	n/a	n/a	n/a	n/a	n/a	
		10°	n/a	n/a	n/a	n/a	n/a	n/a	
		20°	n/a	n/a	n/a	n/a	n/a	n/a	
		30°	n/a	n/a	n/a	n/a	n/a	n/a	
		34°	n/a	n/a	n/a	n/a	n/a	n/a	
	Notebook	35°	19.85	19.59	19.66	19.74	19.81	11.78	
		40°	19.80	19.75	19.72	19.81	19.83	11.62	
		50°	19.72	19.84	19.73	19.76	19.72	11.66	
		60°	19.65	19.67	19.81	19.69	19.82	11.63	
		70°	19.78	19.72	19.77	19.82	19.77	11.75	
		80°	19.76	19.67	19.57	19.71	19.79	11.65	
		90°	19.74	19.67	19.77	19.69	19.75	11.78	
		100°	19.68	19.60	19.72	19.77	19.86	11.74	
		110°	19.71	19.73	19.66	19.78	19.80	11.64	
		120°	19.76	19.64	19.72	19.86	19.86	11.72	
		129°	19.74	19.67	19.64	19.69	19.76	11.68	
		Non-Notebook	130°	15.69	15.67	15.77	15.79	15.79	11.84
			140°	15.68	15.62	15.67	15.84	15.77	11.85
	150°		15.71	15.69	15.78	15.73	15.60	11.71	
	160°		15.81	15.81	15.80	15.86	15.65	11.78	
	170°		15.78	15.67	15.72	15.78	15.70	11.78	
	180°		15.79	15.71	15.85	15.79	15.72	11.83	
	190°		15.79	15.78	15.74	15.85	15.66	11.81	
	200°		15.79	15.64	15.63	15.78	15.67	11.81	
	210°		15.68	15.65	15.84	15.77	15.67	11.83	
	220°		15.77	15.71	15.69	15.77	15.79	11.86	
	230°		15.63	15.81	15.70	15.79	15.76	11.71	
	240°		15.78	15.67	15.70	15.81	15.59	11.82	
	250°		15.75	15.78	15.74	15.73	15.78	11.81	
	260°		15.80	15.78	15.63	15.79	15.79	11.90	
	270°		15.77	15.77	15.84	15.86	15.84	11.86	
	280°		15.79	15.77	15.75	15.84	15.69	11.85	
	290°		15.71	15.77	15.75	15.82	15.71	11.74	
	300°		15.73	15.66	15.75	15.82	15.70	11.78	
	310°	15.76	15.68	15.82	15.74	15.75	11.71		
	320°	15.77	15.62	15.79	15.84	15.56	11.72		
330°	15.75	15.81	15.76	15.86	15.70	11.82			
340°	15.86	15.62	15.66	15.82	15.71	11.77			
350°	15.76	15.71	15.63	15.71	15.60	11.76			
360°	15.63	15.76	15.85	15.71	15.63	11.79			
Antenna	Operation mode	Lid angle	802.11a	802.11n(20)	802.11n(40)	802.11ac(20)	802.11ac(40)	802.11ac(80)	
WLAN Main (5.3GHz)	Stand	201°	19.81	19.83	19.78	19.88	19.87	11.75	
		210°	19.84	19.79	19.78	19.83	19.84	11.84	
		220°	19.83	19.77	19.77	19.88	19.87	11.81	
		230°	19.85	19.84	19.75	19.89	19.90	11.75	
		240°	19.88	19.77	19.78	19.89	19.84	11.80	
		250°	19.80	19.78	19.74	19.86	19.92	11.79	
		260°	19.83	19.84	19.80	19.91	19.88	11.77	
		270°	19.82	19.77	19.80	19.91	19.92	11.77	
		280°	19.81	19.76	19.79	19.88	19.90	11.83	
		290°	19.88	19.79	19.78	19.84	19.90	11.82	
		300°	19.84	19.84	19.82	19.83	19.86	11.83	
		310°	19.87	19.77	19.77	19.84	19.89	11.83	
		320°	19.82	19.79	19.77	19.92	19.86	11.75	
		330°	19.84	19.76	19.74	19.91	19.91	11.78	
		340°	19.83	19.77	19.78	19.90	19.84	11.77	
		345°	19.80	19.84	19.77	19.85	19.88	11.80	

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Antenna	Operation mode	Lid angle	802.11a	802.11n(20)	802.11n(40)	802.11ac(20)	802.11ac(40)	802.11ac(80)	
WLAN Aux (5.3GHz)	Lid close	0°	n/a	n/a	n/a	n/a	n/a	n/a	
		10°	n/a	n/a	n/a	n/a	n/a	n/a	
		20°	n/a	n/a	n/a	n/a	n/a	n/a	
		30°	n/a	n/a	n/a	n/a	n/a	n/a	
		34°	n/a	n/a	n/a	n/a	n/a	n/a	
	Notebook	35°	19.91	19.85	19.85	19.85	19.89	19.93	11.83
		40°	19.90	19.87	19.85	19.85	19.91	19.93	11.83
		50°	19.89	19.83	19.77	19.86	19.95	11.86	
		60°	19.91	19.85	19.77	19.94	19.92	11.80	
		70°	19.87	19.87	19.83	19.94	19.89	11.84	
		80°	19.90	19.80	19.77	19.88	19.87	11.83	
		90°	19.91	19.84	19.82	19.85	19.92	11.82	
		100°	19.84	19.87	19.84	19.90	19.95	11.83	
		110°	19.90	19.83	19.83	19.94	19.94	11.83	
		120°	19.83	19.88	19.78	19.88	19.89	11.79	
		129°	19.85	19.82	19.83	19.90	19.90	11.80	
		Non-Notebook	130°	16.34	16.40	16.18	16.33	16.44	11.85
			140°	16.29	16.36	16.21	16.27	16.35	11.84
	150°		16.34	16.35	16.21	16.35	16.40	11.82	
	160°		16.34	16.37	16.23	16.33	16.38	11.81	
	170°		16.28	16.32	16.16	16.29	16.36	11.83	
	180°		16.31	16.37	16.19	16.33	16.36	11.81	
	190°		16.29	16.33	16.24	16.36	16.39	11.82	
	200°		16.33	16.35	16.19	16.28	16.41	11.84	
	210°		16.29	16.36	16.24	16.28	16.43	11.83	
	220°		16.31	16.39	16.25	16.30	16.41	11.85	
	230°		16.29	16.31	16.20	16.36	16.40	11.77	
	240°		16.28	16.31	16.21	16.29	16.40	11.78	
	250°		16.32	16.33	16.17	16.33	16.41	11.85	
	260°		16.35	16.34	16.22	16.29	16.43	11.79	
	270°		16.28	16.36	16.25	16.29	16.42	11.82	
	280°		16.30	16.34	16.19	16.30	16.44	11.84	
	290°		16.32	16.40	16.25	16.27	16.39	11.79	
	300°		16.34	16.33	16.17	16.28	16.38	11.80	
	310°	16.30	16.32	16.20	16.35	16.36	11.78		
	320°	16.29	16.38	16.21	16.35	16.44	11.80		
330°	16.32	16.31	16.24	16.31	16.39	11.84			
340°	16.34	16.35	16.23	16.35	16.42	11.80			
350°	16.35	16.35	16.24	16.27	16.38	11.82			
360°	16.28	16.36	16.16	16.28	16.42	11.79			
Antenna	Operation mode	Lid angle	802.11a	802.11n(20)	802.11n(40)	802.11ac(20)	802.11ac(40)	802.11ac(80)	
WLAN Aux (5.3GHz)	Stand	201°	19.83	19.80	19.81	19.90	19.91	11.87	
		210°	19.86	19.88	19.80	19.91	19.86	11.88	
		220°	19.89	19.84	19.84	19.90	19.94	11.86	
		230°	19.89	19.86	19.78	19.89	19.89	11.85	
		240°	19.89	19.86	19.83	19.91	19.93	11.80	
		250°	19.83	19.81	19.85	19.87	19.87	11.81	
		260°	19.84	19.81	19.82	19.85	19.93	11.86	
		270°	19.89	19.85	19.84	19.92	19.86	11.80	
		280°	19.92	19.81	19.76	19.88	19.94	11.85	
		290°	19.89	19.86	19.81	19.89	19.86	11.85	
		300°	19.83	19.89	19.78	19.90	19.89	11.80	
		310°	19.86	19.85	19.84	19.93	19.92	11.80	
		320°	19.87	19.83	19.78	19.93	19.89	11.80	
		330°	19.83	19.89	19.78	19.93	19.90	11.87	
		340°	19.91	19.80	19.84	19.91	19.86	11.85	
		345°	19.91	19.83	19.78	19.93	19.91	11.79	

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Antenna	Operation mode	Lid angle	802.11a	802.11n(20)	802.11n(40)	802.11ac(20)	802.11ac(40)	802.11ac(80)
WLAN Main (5.6GHz)	Lid close	0°	n/a	n/a	n/a	n/a	n/a	n/a
		10°	n/a	n/a	n/a	n/a	n/a	n/a
		20°	n/a	n/a	n/a	n/a	n/a	n/a
		30°	n/a	n/a	n/a	n/a	n/a	n/a
		34°	n/a	n/a	n/a	n/a	n/a	n/a
	Notebook	35°	19.70	19.80	19.71	19.69	19.85	19.91
		40°	19.75	19.73	19.74	19.71	19.82	19.92
		50°	19.76	19.74	19.74	19.68	19.79	19.90
		60°	19.72	19.75	19.69	19.64	19.79	19.89
		70°	19.72	19.71	19.71	19.72	19.85	19.86
		80°	19.69	19.80	19.69	19.69	19.84	19.90
		90°	19.78	19.74	19.73	19.73	19.76	19.93
		100°	19.73	19.74	19.70	19.69	19.81	19.90
		110°	19.73	19.77	19.71	19.72	19.76	19.87
		120°	19.76	19.76	19.73	19.69	19.81	19.86
		129°	19.75	19.73	19.77	19.64	19.77	19.89
	Non-Notebook	130°	15.78	15.78	15.82	15.83	15.78	15.85
		140°	15.80	15.75	15.81	15.83	15.82	15.83
		150°	15.79	15.78	15.74	15.88	15.81	15.89
		160°	15.81	15.76	15.75	15.84	15.82	15.85
		170°	15.75	15.84	15.74	15.86	15.85	15.87
		180°	15.72	15.78	15.77	15.87	15.80	15.82
		190°	15.73	15.78	15.83	15.79	15.85	15.84
		200°	15.72	15.76	15.78	15.83	15.79	15.87
		210°	15.79	15.77	15.76	15.80	15.83	15.82
		220°	15.75	15.81	15.75	15.86	15.85	15.88
		230°	15.75	15.75	15.78	15.80	15.82	15.91
		240°	15.79	15.78	15.81	15.79	15.85	15.83
		250°	15.77	15.79	15.77	15.87	15.84	15.91
		260°	15.73	15.84	15.78	15.84	15.86	15.82
		270°	15.78	15.84	15.82	15.79	15.86	15.91
		280°	15.74	15.81	15.78	15.84	15.80	15.82
		290°	15.74	15.80	15.78	15.80	15.78	15.88
		300°	15.73	15.82	15.80	15.80	15.83	15.89
		310°	15.80	15.84	15.77	15.81	15.79	15.88
	320°	15.81	15.76	15.76	15.86	15.85	15.87	
330°	15.75	15.75	15.78	15.88	15.83	15.91		
340°	15.76	15.76	15.79	15.79	15.82	15.83		
350°	15.72	15.77	15.81	15.87	15.78	15.82		
360°	15.80	15.76	15.74	15.81	15.83	15.91		
Antenna	Operation mode	Lid angle	802.11a	802.11n(20)	802.11n(40)	802.11ac(20)	802.11ac(40)	802.11ac(80)
WLAN Main (5.6GHz)	Stand	201°	19.77	19.74	19.72	19.73	19.80	19.92
		210°	19.76	19.80	19.72	19.72	19.76	19.89
		220°	19.74	19.78	19.70	19.71	19.80	19.90
		230°	19.72	19.80	19.72	19.69	19.79	19.86
		240°	19.71	19.78	19.71	19.66	19.83	19.92
		250°	19.76	19.75	19.71	19.67	19.79	19.93
		260°	19.78	19.75	19.69	19.71	19.81	19.94
		270°	19.70	19.78	19.77	19.69	19.81	19.88
		280°	19.78	19.80	19.77	19.72	19.84	19.90
		290°	19.74	19.72	19.77	19.73	19.76	19.92
		300°	19.72	19.71	19.68	19.64	19.84	19.86
		310°	19.78	19.74	19.75	19.67	19.85	19.86
		320°	19.76	19.72	19.77	19.65	19.85	19.94
		330°	19.74	19.75	19.71	19.68	19.84	19.92
		340°	19.72	19.71	19.76	19.68	19.82	19.91
		345°	19.76	19.76	19.75	19.72	19.77	19.88

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Antenna	Operation mode	Lid angle	802.11a	802.11n(20)	802.11n(40)	802.11ac(20)	802.11ac(40)	802.11ac(80)	
WLAN Aux (5.6GHz)	Lid close	0°	n/a	n/a	n/a	n/a	n/a	n/a	
		10°	n/a	n/a	n/a	n/a	n/a	n/a	
		20°	n/a	n/a	n/a	n/a	n/a	n/a	
		30°	n/a	n/a	n/a	n/a	n/a	n/a	
		34°	n/a	n/a	n/a	n/a	n/a	n/a	
	Notebook	35°	19.86	19.85	19.79	19.74	19.87	19.88	
		40°	19.82	19.80	19.77	19.78	19.89	19.88	
		50°	19.88	19.86	19.86	19.82	19.89	19.96	
		60°	19.90	19.87	19.77	19.77	19.93	19.90	
		70°	19.83	19.78	19.83	19.80	19.92	19.90	
		80°	19.83	19.78	19.83	19.78	19.86	19.94	
		90°	19.86	19.78	19.82	19.80	19.87	19.87	
		100°	19.86	19.81	19.85	19.80	19.85	19.90	
		110°	19.86	19.85	19.79	19.79	19.86	19.95	
		120°	19.82	19.79	19.77	19.79	19.85	19.92	
		129°	19.86	19.82	19.83	19.73	19.91	19.88	
		Non-Notebook	130°	16.38	16.26	16.33	16.27	16.23	16.25
			140°	16.39	16.29	16.30	16.33	16.26	16.31
	150°		16.42	16.28	16.28	16.32	16.27	16.30	
	160°		16.33	16.28	16.32	16.33	16.31	16.25	
	170°		16.37	16.23	16.34	16.28	16.30	16.34	
	180°		16.36	16.27	16.35	16.33	16.24	16.26	
	190°		16.41	16.26	16.26	16.27	16.23	16.28	
	200°		16.38	16.26	16.35	16.35	16.31	16.32	
	210°		16.42	16.28	16.27	16.33	16.22	16.26	
	220°		16.42	16.23	16.31	16.27	16.23	16.33	
	230°		16.39	16.24	16.28	16.30	16.27	16.33	
	240°		16.34	16.27	16.26	16.33	16.24	16.29	
	250°		16.34	16.23	16.34	16.30	16.26	16.27	
	260°		16.37	16.24	16.28	16.31	16.25	16.32	
	270°		16.37	16.22	16.35	16.32	16.28	16.32	
	280°		16.39	16.27	16.26	16.34	16.30	16.31	
	290°		16.38	16.21	16.31	16.34	16.24	16.33	
	300°		16.39	16.27	16.30	16.29	16.25	16.27	
	310°		16.38	16.20	16.34	16.36	16.28	16.34	
	320°		16.37	16.21	16.26	16.33	16.25	16.34	
330°	16.34	16.25	16.35	16.33	16.31	16.30			
340°	16.36	16.24	16.34	16.31	16.31	16.25			
350°	16.39	16.26	16.27	16.31	16.31	16.29			
360°	16.42	16.22	16.26	16.30	16.23	16.25			
Antenna	Operation mode	Lid angle	802.11a	802.11n(20)	802.11n(40)	802.11ac(20)	802.11ac(40)	802.11ac(80)	
WLAN Aux (5.6GHz)	Stand	201°	19.85	19.79	19.86	19.76	19.91	19.96	
		210°	19.87	19.85	19.83	19.73	19.88	19.95	
		220°	19.85	19.86	19.80	19.82	19.93	19.90	
		230°	19.88	19.78	19.82	19.81	19.93	19.96	
		240°	19.85	19.86	19.79	19.75	19.90	19.95	
		250°	19.83	19.81	19.85	19.82	19.92	19.88	
		260°	19.88	19.79	19.83	19.81	19.87	19.96	
		270°	19.90	19.86	19.84	19.73	19.92	19.87	
		280°	19.85	19.78	19.82	19.77	19.86	19.88	
		290°	19.83	19.84	19.86	19.78	19.93	19.87	
		300°	19.87	19.84	19.85	19.79	19.85	19.88	
		310°	19.87	19.84	19.77	19.82	19.85	19.89	
		320°	19.86	19.83	19.79	19.75	19.93	19.88	
		330°	19.88	19.82	19.85	19.82	19.93	19.88	
		340°	19.89	19.86	19.82	19.80	19.87	19.94	
		345°	19.82	19.87	19.86	19.74	19.94	19.91	

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Antenna	Operation mode	Lid angle	802.11a	802.11n(20)	802.11n(40)	802.11ac(20)	802.11ac(40)	802.11ac(80)	
WLAN Main (5.8GHz)	Lid close	0°	n/a	n/a	n/a	n/a	n/a	n/a	
		10°	n/a	n/a	n/a	n/a	n/a	n/a	
		20°	n/a	n/a	n/a	n/a	n/a	n/a	
		30°	n/a	n/a	n/a	n/a	n/a	n/a	
		34°	n/a	n/a	n/a	n/a	n/a	n/a	
	Notebook	35°	19.93	19.79	19.85	19.88	19.82	17.40	
		40°	19.92	19.83	19.82	19.83	19.87	17.35	
		50°	19.92	19.85	19.87	19.87	19.80	17.34	
		60°	19.88	19.80	19.79	19.90	19.87	17.36	
		70°	19.86	19.84	19.86	19.89	19.85	17.34	
		80°	19.92	19.78	19.80	19.84	19.87	17.32	
		90°	19.87	19.77	19.84	19.83	19.80	17.35	
		100°	19.94	19.77	19.80	19.87	19.87	17.32	
		110°	19.94	19.84	19.88	19.83	19.81	17.40	
		120°	19.89	19.81	19.82	19.90	19.81	17.37	
		129°	19.88	19.82	19.85	19.86	19.80	17.33	
		Non-Notebook	130°	15.83	15.76	15.91	15.77	15.75	15.79
			140°	15.79	15.80	15.84	15.76	15.76	15.77
	150°		15.83	15.74	15.92	15.77	15.77	15.86	
	160°		15.77	15.76	15.87	15.76	15.78	15.83	
	170°		15.79	15.76	15.85	15.72	15.81	15.77	
	180°		15.82	15.73	15.92	15.74	15.75	15.80	
	190°		15.82	15.80	15.93	15.77	15.72	15.83	
	200°		15.78	15.75	15.92	15.78	15.75	15.82	
	210°		15.82	15.72	15.84	15.79	15.78	15.82	
	220°		15.83	15.71	15.92	15.77	15.73	15.77	
	230°		15.80	15.71	15.84	15.79	15.74	15.84	
	240°		15.79	15.76	15.93	15.76	15.72	15.81	
	250°		15.77	15.76	15.89	15.73	15.73	15.78	
	260°		15.76	15.73	15.89	15.73	15.78	15.85	
	270°		15.78	15.74	15.93	15.81	15.79	15.79	
	280°		15.79	15.75	15.84	15.76	15.74	15.81	
	290°		15.82	15.75	15.84	15.80	15.72	15.82	
	300°		15.77	15.74	15.84	15.77	15.80	15.85	
	310°	15.80	15.77	15.84	15.74	15.73	15.85		
	320°	15.77	15.78	15.86	15.72	15.80	15.84		
330°	15.74	15.80	15.86	15.77	15.78	15.85			
340°	15.77	15.79	15.84	15.75	15.74	15.82			
350°	15.76	15.78	15.85	15.72	15.80	15.79			
360°	15.79	15.80	15.87	15.74	15.72	15.86			
Antenna	Operation mode	Lid angle	802.11a	802.11n(20)	802.11n(40)	802.11ac(20)	802.11ac(40)	802.11ac(80)	
WLAN Main (5.8GHz)	Stand	201°	19.85	19.86	19.88	19.82	19.83	17.31	
		210°	19.85	19.86	19.87	19.82	19.82	17.38	
		220°	19.92	19.83	19.87	19.89	19.79	17.40	
		230°	19.85	19.81	19.80	19.84	19.78	17.32	
		240°	19.87	19.80	19.82	19.82	19.79	17.38	
		250°	19.86	19.80	19.79	19.81	19.83	17.39	
		260°	19.91	19.82	19.87	19.87	19.82	17.39	
		270°	19.91	19.84	19.79	19.81	19.87	17.37	
		280°	19.93	19.81	19.79	19.84	19.85	17.33	
		290°	19.91	19.79	19.84	19.82	19.78	17.32	
		300°	19.88	19.77	19.82	19.90	19.83	17.32	
		310°	19.85	19.80	19.85	19.87	19.79	17.32	
		320°	19.94	19.82	19.86	19.89	19.86	17.35	
		330°	19.90	19.86	19.81	19.88	19.78	17.38	
		340°	19.90	19.85	19.80	19.83	19.78	17.34	
		345°	19.90	19.86	19.83	19.82	19.78	17.36	

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Antenna	Operation mode	Lid angle	802.11a	802.11n(20)	802.11n(40)	802.11ac(20)	802.11ac(40)	802.11ac(80)	
WLAN Aux (5.8GHz)	Lid close	0°	n/a	n/a	n/a	n/a	n/a	n/a	
		10°	n/a	n/a	n/a	n/a	n/a	n/a	
		20°	n/a	n/a	n/a	n/a	n/a	n/a	
		30°	n/a	n/a	n/a	n/a	n/a	n/a	
		34°	n/a	n/a	n/a	n/a	n/a	n/a	
	Notebook	35°	19.87	19.90	19.83	19.87	19.80	17.33	
		40°	19.83	19.86	19.81	19.91	19.82	17.38	
		50°	19.88	19.86	19.75	19.87	19.79	17.34	
		60°	19.89	19.93	19.77	19.90	19.78	17.39	
		70°	19.92	19.91	19.78	19.86	19.86	17.38	
		80°	19.85	19.85	19.77	19.93	19.81	17.31	
		90°	19.83	19.92	19.79	19.94	19.79	17.39	
		100°	19.87	19.93	19.75	19.92	19.80	17.34	
		110°	19.85	19.92	19.76	19.89	19.84	17.31	
		120°	19.92	19.88	19.78	19.94	19.86	17.40	
		129°	19.83	19.93	19.80	19.89	19.82	17.32	
		Non-Notebook	130°	16.26	16.35	16.26	16.40	16.41	16.39
			140°	16.32	16.28	16.24	16.32	16.41	16.33
	150°		16.32	16.36	16.21	16.36	16.43	16.38	
	160°		16.33	16.33	16.23	16.32	16.35	16.38	
	170°		16.29	16.32	16.23	16.39	16.35	16.41	
	180°		16.31	16.30	16.28	16.33	16.36	16.34	
	190°		16.30	16.35	16.25	16.36	16.35	16.37	
	200°		16.29	16.29	16.19	16.35	16.36	16.39	
	210°		16.35	16.34	16.21	16.32	16.37	16.34	
	220°		16.26	16.30	16.19	16.35	16.35	16.36	
	230°		16.28	16.31	16.25	16.33	16.40	16.34	
	240°		16.30	16.36	16.24	16.39	16.43	16.38	
	250°		16.28	16.34	16.28	16.37	16.43	16.42	
	260°		16.35	16.28	16.25	16.33	16.35	16.35	
	270°		16.35	16.33	16.24	16.36	16.39	16.38	
	280°		16.32	16.32	16.26	16.35	16.44	16.34	
	290°		16.28	16.30	16.27	16.37	16.38	16.40	
	300°		16.35	16.35	16.21	16.39	16.38	16.41	
	310°	16.27	16.31	16.19	16.32	16.39	16.33		
	320°	16.34	16.28	16.27	16.40	16.41	16.35		
330°	16.27	16.32	16.19	16.39	16.44	16.35			
340°	16.34	16.33	16.26	16.36	16.35	16.40			
350°	16.27	16.32	16.19	16.36	16.44	16.35			
360°	16.30	16.33	16.27	16.32	16.39	16.34			
Antenna	Operation mode	Lid angle	802.11a	802.11n(20)	802.11n(40)	802.11ac(20)	802.11ac(40)	802.11ac(80)	
WLAN Aux (5.8GHz)	Stand	201°	19.88	19.84	19.80	19.94	19.84	17.36	
		210°	19.83	19.93	19.83	19.87	19.78	17.32	
		220°	19.89	19.91	19.82	19.86	19.78	17.38	
		230°	19.88	19.93	19.75	19.87	19.86	17.39	
		240°	19.89	19.92	19.83	19.87	19.85	17.32	
		250°	19.91	19.87	19.82	19.86	19.83	17.40	
		260°	19.86	19.90	19.82	19.85	19.86	17.31	
		270°	19.89	19.85	19.75	19.89	19.78	17.36	
		280°	19.86	19.90	19.83	19.86	19.83	17.31	
		290°	19.83	19.85	19.82	19.92	19.79	17.38	
		300°	19.87	19.85	19.80	19.94	19.77	17.34	
		310°	19.83	19.90	19.80	19.87	19.80	17.32	
		320°	19.88	19.92	19.75	19.87	19.77	17.40	
		330°	19.87	19.85	19.80	19.91	19.85	17.36	
		340°	19.83	19.84	19.75	19.94	19.78	17.31	
		345°	19.92	19.87	19.82	19.85	19.83	17.32	

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Antenna	Operation mode	Lid angle	WCDMA	HSDPA	HSPA	HSPA+	DC-HSDPA
WWAN TX (WCDMA Band II)	Lid close	0°	n/a	n/a	n/a	n/a	n/a
		10°	n/a	n/a	n/a	n/a	n/a
		20°	n/a	n/a	n/a	n/a	n/a
		30°	n/a	n/a	n/a	n/a	n/a
		34°	n/a	n/a	n/a	n/a	n/a
	Notebook	35°	23.80	23.05	23.08	21.68	21.45
		40°	23.62	23.11	23.07	21.69	21.53
		50°	23.67	22.96	23.00	21.76	21.52
		60°	23.80	23.10	23.07	21.63	21.49
		70°	23.69	22.95	23.09	21.60	21.49
		80°	23.66	23.01	23.02	21.66	21.35
		90°	23.72	23.11	23.12	21.77	21.40
		100°	23.72	23.03	23.07	21.67	21.48
		110°	23.80	23.08	23.02	21.73	21.40
		120°	23.70	23.02	23.05	21.60	21.52
		129°	23.71	23.06	23.10	21.61	21.54
	Non-Notebook	130°	16.23	15.69	15.74	14.63	14.63
		140°	16.29	15.84	15.81	14.65	14.49
		150°	16.41	15.76	15.80	14.69	14.66
		160°	16.24	15.80	15.75	14.65	14.61
		170°	16.28	15.68	15.84	14.56	14.54
		180°	16.40	15.76	15.73	14.66	14.57
		190°	16.26	15.67	15.71	14.61	14.51
		200°	16.32	15.74	15.80	14.69	14.58
		210°	16.42	15.69	15.84	14.68	14.55
		220°	16.26	15.81	15.87	14.56	14.58
		230°	16.25	15.68	15.76	14.58	14.48
		240°	16.27	15.82	15.81	14.65	14.63
		250°	16.25	15.78	15.85	14.62	14.48
		260°	16.28	15.75	15.77	14.59	14.52
		270°	16.28	15.71	15.70	14.72	14.49
		280°	16.32	15.69	15.85	14.70	14.60
		290°	16.36	15.74	15.87	14.63	14.61
		300°	16.35	15.81	15.75	14.62	14.48
		310°	16.37	15.69	15.77	14.61	14.54
	320°	16.25	15.85	15.76	14.64	14.54	
330°	16.32	15.66	15.77	14.56	14.54		
340°	16.33	15.78	15.80	14.57	14.53		
350°	16.26	15.82	15.69	14.56	14.54		
360°	16.28	15.78	15.69	14.71	14.62		

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Antenna	Operation mode	Lid angle	WCDMA	HSDPA	HSPA	HSPA+	DC-HSDPA
WWAN TX (WCDMA Band II)	Stand	201°	23.66	22.97	23.00	21.63	21.38
		210°	23.80	23.06	23.05	21.68	21.45
		220°	23.69	23.01	23.06	21.75	21.36
		230°	23.75	22.98	22.95	21.65	21.52
		240°	23.70	23.06	22.94	21.78	21.54
		250°	23.77	23.02	23.10	21.62	21.49
		260°	23.79	23.12	23.10	21.66	21.36
		270°	23.75	22.99	22.99	21.72	21.46
		280°	23.64	23.09	23.03	21.68	21.53
		290°	23.63	23.04	23.04	21.62	21.41
		300°	23.73	23.12	23.12	21.68	21.52
		310°	23.69	22.97	23.07	21.68	21.50
		320°	23.70	22.94	23.03	21.77	21.48
		330°	23.73	23.06	23.08	21.74	21.53
		340°	23.75	23.03	22.93	21.69	21.50
		345°	23.66	22.96	23.05	21.60	21.53

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Antenna	Operation mode	Lid angle	WCDMA	HSDPA	HSPA	HSPA+	DC-HSDPA
WWAN TX (WCDMA Band IV)	Lid close	0°	n/a	n/a	n/a	n/a	n/a
		10°	n/a	n/a	n/a	n/a	n/a
		20°	n/a	n/a	n/a	n/a	n/a
		30°	n/a	n/a	n/a	n/a	n/a
		34°	n/a	n/a	n/a	n/a	n/a
	Notebook	35°	23.39	22.98	23.02	22.92	22.47
		40°	23.49	22.91	22.94	22.95	22.48
		50°	23.42	22.99	22.85	22.96	22.37
		60°	23.39	23.01	22.86	22.98	22.36
		70°	23.32	23.03	23.03	22.85	22.42
		80°	23.36	23.06	23.00	22.87	22.44
		90°	23.34	23.02	22.98	22.91	22.38
		100°	23.40	23.03	22.88	22.86	22.42
		110°	23.44	22.91	22.91	22.90	22.36
		120°	23.38	23.04	22.92	22.86	22.36
		129°	23.32	22.89	22.91	22.85	22.38
	Non-Notebook	130°	18.13	17.86	17.91	18.11	18.02
		140°	18.14	18.02	17.99	18.03	17.93
		150°	18.09	18.03	17.91	18.13	18.06
		160°	18.23	17.87	18.06	18.11	18.02
		170°	18.27	18.03	18.06	18.10	18.05
		180°	18.14	17.99	17.88	18.15	18.07
		190°	18.13	18.00	17.96	17.99	18.10
		200°	18.14	17.90	17.98	18.06	18.06
		210°	18.26	18.04	17.91	18.06	18.03
		220°	18.13	17.87	18.07	18.06	17.95
		230°	18.20	17.95	17.92	18.00	18.10
		240°	18.25	18.03	17.96	18.10	18.07
		250°	18.09	17.88	18.03	18.11	18.03
		260°	18.21	18.04	18.02	18.10	18.06
		270°	18.18	17.98	18.07	18.12	18.07
		280°	18.21	18.05	18.04	18.15	18.01
		290°	18.19	17.95	17.99	18.11	18.09
		300°	18.21	18.00	18.00	1.00	18.10
		310°	18.21	18.00	17.91	18.03	18.03
	320°	18.24	17.86	17.99	18.00	18.04	
330°	18.22	17.93	18.05	18.17	18.03		
340°	18.17	17.98	18.04	17.99	18.10		
350°	18.23	17.98	17.92	18.14	17.92		
360°	18.25	17.98	17.93	18.09	18.03		

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Antenna	Operation mode	Lid angle	WCDMA	HSDPA	HSPA	HSPA+	DC-HSDPA
WWAN TX (WCDMA Band IV)	Stand	201°	23.43	22.91	23.02	22.91	22.44
		210°	23.40	22.96	22.88	22.97	22.47
		220°	23.41	22.93	22.91	23.00	22.44
		230°	23.42	22.97	23.01	22.99	22.49
		240°	23.33	22.89	22.92	22.93	22.42
		250°	23.35	22.89	22.84	23.01	22.47
		260°	23.43	23.03	23.01	22.93	22.36
		270°	23.50	22.88	22.85	22.84	22.45
		280°	23.43	23.00	22.91	22.86	22.35
		290°	23.48	22.99	22.88	22.97	22.49
		300°	23.41	23.04	22.88	22.90	22.46
		310°	23.38	23.00	22.92	22.96	22.39
		320°	23.50	22.92	22.97	22.91	22.40
		330°	23.38	23.01	22.96	22.84	22.35
		340°	23.41	22.90	22.92	22.97	22.47
		345°	23.37	22.94	22.89	22.93	22.41

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Antenna	Operation mode	Lid angle	WCDMA	HSDPA	HSPA	HSPA+	DC-HSDPA
WWAN TX (WCDMA Band V)	Lid close	0°	n/a	n/a	n/a	n/a	n/a
		10°	n/a	n/a	n/a	n/a	n/a
		20°	n/a	n/a	n/a	n/a	n/a
		30°	n/a	n/a	n/a	n/a	n/a
		34°	n/a	n/a	n/a	n/a	n/a
	Notebook	35°	23.85	23.29	22.66	23.41	22.33
		40°	23.86	23.31	22.58	23.41	22.38
		50°	23.95	23.4	22.59	23.30	22.39
		60°	23.97	23.43	22.73	23.36	22.33
		70°	23.81	23.44	22.63	23.32	22.43
		80°	23.88	23.34	22.56	23.35	22.43
		90°	23.96	23.27	22.62	23.28	22.41
		100°	23.92	23.41	22.57	23.31	22.37
		110°	23.82	23.41	22.54	23.38	22.42
		120°	23.92	23.46	22.57	23.41	22.31
		129°	23.9	23.29	22.71	23.36	22.32
	Non-Notebook	130°	21.31	21.39	21.36	21.31	21.26
		140°	21.3	21.23	21.32	21.14	21.25
		150°	21.39	21.23	21.39	21.17	21.28
		160°	21.31	21.38	21.37	21.13	21.30
		170°	21.4	21.27	21.27	21.29	21.31
		180°	21.32	21.31	21.38	21.27	21.39
		190°	21.3	21.23	21.24	21.19	21.23
		200°	21.39	21.21	21.21	21.29	21.33
		210°	21.46	21.27	21.24	21.14	21.27
		220°	21.48	21.33	21.3	21.28	21.30
		230°	21.36	21.32	21.35	21.27	21.26
		240°	21.42	21.23	21.35	21.20	21.31
		250°	21.42	21.34	21.39	21.27	21.29
		260°	21.36	21.29	21.32	21.17	21.29
		270°	21.45	21.28	21.21	21.13	21.34
		280°	21.29	21.22	21.38	21.14	21.37
		290°	21.42	21.27	21.39	21.26	21.33
		300°	21.31	21.27	21.22	21.26	21.36
		310°	21.35	21.28	21.34	21.14	21.24
	320°	21.47	21.29	21.34	21.23	21.21	
330°	21.29	21.34	21.33	21.13	21.23		
340°	21.29	21.32	21.31	21.14	21.36		
350°	21.29	21.3	21.28	21.24	21.33		
360°	21.35	21.22	21.32	21.26	21.37		

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Antenna	Operation mode	Lid angle	WCDMA	HSDPA	HSPA	HSPA+	DC-HSDPA
WWAN TX (WCDMA Band V)	Stand	201°	23.93	23.32	22.56	23.37	22.47
		210°	23.82	23.44	22.58	23.31	22.49
		220°	23.97	23.37	22.64	23.39	22.47
		230°	23.95	23.28	22.66	23.38	22.49
		240°	23.88	23.32	22.56	23.34	22.40
		250°	23.95	23.4	22.54	23.35	22.39
		260°	23.95	23.43	22.64	23.29	22.37
		270°	23.86	23.39	22.72	23.31	22.45
		280°	23.96	23.31	22.71	23.40	22.48
		290°	23.87	23.38	22.69	23.33	22.47
		300°	23.97	23.33	22.72	23.36	22.41
		310°	23.79	23.43	22.57	23.45	22.42
		320°	23.95	23.45	22.57	23.44	22.49
		330°	23.91	23.27	22.67	23.29	22.46
		340°	23.84	23.38	22.68	23.37	22.37
345°	23.88	23.35	22.69	23.43	22.35		

Antenna	Operation mode	Lid angle	20MHz		15MHz		10MHz		5MHz		3MHz		1.4MHz	
			QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
WWAN TX (LTE B2)	Lid close	0°	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
		10°	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
		20°	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
		30°	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
		34°	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	Notebook	35°	23.75	22.90	23.75	22.89	23.55	22.95	23.37	16.36	23.43	22.75	23.23	22.45
		40°	23.75	22.94	23.66	22.73	23.69	22.94	23.37	16.40	23.36	22.77	23.18	22.55
		50°	23.78	22.82	23.74	22.77	23.68	22.80	23.53	16.28	23.43	22.76	23.20	22.42
		60°	23.86	22.79	23.67	22.78	23.71	22.88	23.55	16.24	23.34	22.77	23.18	22.52
		70°	23.72	22.82	23.64	22.77	23.61	22.89	23.52	16.30	23.43	22.76	23.20	22.48
		80°	23.77	22.80	23.66	22.74	23.66	22.82	23.47	16.40	23.52	22.70	23.25	22.55
		90°	23.75	22.88	23.76	22.79	23.53	22.83	23.43	16.38	23.53	22.87	23.19	22.41
		100°	23.74	22.94	23.68	22.88	23.54	22.83	23.39	16.38	23.38	22.73	23.24	22.52
		110°	23.73	22.86	23.74	22.84	23.60	22.91	23.39	16.26	23.36	22.78	23.31	22.44
		120°	23.79	22.81	23.72	22.85	23.71	22.83	23.56	16.23	23.49	22.76	23.18	22.37
		129°	23.73	22.82	23.63	22.71	23.57	22.85	23.51	16.28	23.43	22.78	23.22	22.37
		130°	16.23	16.31	16.23	16.26	16.28	16.24	22.88	16.37	16.23	16.24	16.29	16.19
		140°	16.34	16.23	16.28	16.20	16.38	16.28	22.77	16.24	16.37	16.34	16.25	16.21
		150°	16.30	16.38	16.26	16.24	16.25	16.31	22.92	16.25	16.38	16.39	16.38	16.24
		160°	16.39	16.36	16.22	16.33	16.37	16.23	22.75	16.31	16.39	16.24	16.26	16.27
	170°	16.27	16.25	16.22	16.34	16.22	16.38	22.76	16.38	16.39	16.22	16.37	16.29	
	180°	16.29	16.38	16.38	16.24	16.28	16.35	22.75	16.24	16.24	16.31	16.36	16.20	
	190°	16.28	16.39	16.27	16.35	16.27	16.31	22.79	16.33	16.23	16.22	16.29	16.37	
	200°	16.40	16.26	16.28	16.33	16.28	16.31	22.80	16.31	16.21	16.31	16.27	16.24	
	210°	16.30	16.27	16.38	16.33	16.26	16.29	22.80	16.22	16.33	16.24	16.33	16.19	
	220°	16.32	16.35	16.27	16.24	16.35	16.38	22.78	16.27	16.40	16.39	16.32	16.35	
	230°	16.22	16.21	16.34	16.29	16.32	16.39	22.80	16.32	16.24	16.25	16.23	16.23	
	240°	16.26	16.38	16.35	16.38	16.26	16.22	22.80	16.33	16.40	16.31	16.23	16.24	
	250°	16.41	16.23	16.33	16.25	16.31	16.36	22.89	16.22	16.37	16.26	16.31	16.36	
	260°	16.39	16.32	16.29	16.39	16.20	16.36	22.87	16.27	16.38	16.25	16.32	16.29	
	270°	16.27	16.36	16.28	16.21	16.28	16.20	22.81	16.25	16.29	16.32	16.34	16.22	
	280°	16.34	16.35	16.22	16.36	16.32	16.30	22.86	16.37	16.29	16.32	16.30	16.29	
	290°	16.38	16.31	16.25	16.30	16.29	16.25	22.87	16.21	16.28	16.27	16.34	16.24	
	300°	16.41	16.38	16.27	16.23	16.34	16.30	22.75	16.35	16.23	16.32	16.28	16.27	
	310°	16.31	16.34	16.23	16.22	16.20	16.28	22.76	16.28	16.39	16.22	16.23	16.20	
	320°	16.30	16.26	16.28	16.28	16.23	16.30	22.77	16.26	16.38	16.36	16.32	16.35	
330°	16.41	16.30	16.39	16.25	16.33	16.36	22.83	16.22	16.37	16.26	16.22	16.36		
340°	16.37	16.38	16.34	16.38	16.34	16.34	22.77	16.24	16.22	16.29	16.40	16.34		
350°	16.38	16.35	16.34	16.28	16.19	16.26	22.74	16.23	16.34	16.37	16.37	16.32		
360°	16.33	16.33	16.37	16.20	16.26	16.24	22.82	16.34	16.40	16.22	16.32	16.26		

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Antenna	Operation mode	Lid angle	20MHz		15MHz		10MHz		5MHz		3MHz		1.4MHz	
			QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
WWAN TX (LTE B2)	Stand	201°	23.79	22.83	23.65	22.78	23.58	22.84	23.53	16.34	23.39	22.87	23.34	22.45
		210°	23.78	22.95	23.63	22.80	23.54	22.85	23.40	16.29	23.35	22.72	23.33	22.44
		220°	23.70	22.96	23.70	22.73	23.52	22.88	23.50	16.29	23.39	22.77	23.31	22.39
		230°	23.78	22.84	23.77	22.74	23.66	22.93	23.41	16.27	23.46	22.68	23.15	22.48
		240°	23.69	22.80	23.62	22.85	23.61	22.77	23.37	16.26	23.42	22.69	23.29	22.38
		250°	23.81	22.92	23.77	22.79	23.55	22.87	23.47	16.39	23.53	22.78	23.18	22.42
		260°	23.68	22.93	23.64	22.88	23.57	22.78	23.56	16.40	23.37	22.72	23.33	22.45
		270°	23.85	22.92	23.75	22.72	23.59	22.95	23.53	16.29	23.43	22.77	23.15	22.51
		280°	23.70	22.90	23.65	22.82	23.70	22.89	23.49	16.37	23.53	22.77	23.32	22.49
		290°	23.82	22.95	23.64	22.80	23.65	22.85	23.40	16.39	23.41	22.85	23.16	22.54
		300°	23.83	22.80	23.67	22.75	23.67	22.77	23.56	16.33	23.51	22.86	23.20	22.36
		310°	23.84	22.87	23.79	22.78	23.66	22.76	23.50	16.29	23.42	22.87	23.30	22.44
		320°	23.69	22.81	23.65	22.80	23.63	22.81	23.37	16.37	23.51	22.83	23.34	22.45
		330°	23.73	22.84	23.60	22.82	23.70	22.86	23.49	16.34	23.50	22.81	23.26	22.45
		340°	23.78	22.86	23.79	22.75	23.61	22.76	23.53	16.39	23.49	22.77	23.28	22.51
		345°	23.84	22.88	23.70	22.85	23.57	22.95	23.46	16.31	23.53	22.86	23.26	22.47

Antenna	Operation mode	Lid angle	20MHz		15MHz		10MHz		5MHz		3MHz		1.4MHz	
			QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
WWAN TX (LTE B4)	Lid close	0°	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
		10°	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
		20°	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
		30°	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
		34°	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
		35°	23.53	22.78	23.52	22.79	23.55	22.89	23.47	22.78	23.46	22.72	23.62	22.75
		40°	23.57	22.77	23.49	22.78	23.55	22.78	23.48	22.94	23.38	22.83	23.60	22.79
		50°	23.65	22.65	23.46	22.83	23.45	22.90	23.45	22.96	23.49	22.85	23.47	22.80
		60°	23.63	22.73	23.48	22.77	23.46	22.87	23.45	22.86	23.39	22.81	23.59	22.93
		70°	23.58	22.68	23.51	22.92	23.41	22.82	23.47	22.94	23.41	22.70	23.60	22.84
		80°	23.56	22.69	23.46	22.81	23.40	22.78	23.55	22.89	23.35	22.87	23.60	22.94
		90°	23.56	22.74	23.50	22.77	23.56	22.92	23.43	22.89	23.41	22.81	23.47	22.78
	100°	23.61	22.67	23.50	22.92	23.44	22.77	23.43	22.93	23.36	22.69	23.64	22.88	
	110°	23.57	22.77	23.41	22.85	23.56	22.87	23.50	22.85	23.43	22.75	23.54	22.89	
	120°	23.58	22.70	23.39	22.91	23.46	22.93	23.57	22.79	23.50	22.81	23.64	22.90	
	129°	23.64	22.78	23.52	22.95	23.56	22.83	23.45	22.91	23.48	22.86	23.50	22.90	
	130°	18.14	18.18	18.10	18.20	18.19	18.11	18.08	18.09	18.10	18.21	18.14	18.19	
	140°	18.09	18.19	18.06	18.12	18.19	18.11	18.08	18.19	18.25	18.19	18.24	18.13	
	150°	18.19	18.15	18.25	18.14	18.12	18.15	18.08	18.22	18.11	18.19	18.10	18.13	
	160°	18.13	18.24	18.14	18.25	18.13	18.07	18.11	18.17	18.06	18.26	18.12	18.07	
	170°	18.18	18.16	18.18	18.23	18.22	18.17	18.20	18.12	18.22	18.11	18.17	18.06	
	180°	18.13	18.18	18.14	18.08	18.23	18.13	18.19	18.19	18.05	18.22	18.07	18.24	
	190°	18.17	18.14	18.11	18.25	18.13	18.19	18.20	18.09	18.11	18.25	18.26	18.20	
	200°	18.09	18.14	18.22	18.17	18.16	18.13	18.18	18.17	18.18	18.21	18.23	18.07	
	210°	18.27	18.12	18.24	18.18	18.14	18.21	18.24	18.23	18.19	18.07	18.22	18.20	
	220°	18.23	18.15	18.24	18.13	18.09	18.11	18.23	18.11	18.06	18.08	18.22	18.07	
	230°	18.20	18.12	18.17	18.22	18.15	18.08	18.08	18.06	18.23	18.17	18.24	18.20	
	240°	18.19	18.08	18.12	18.10	18.21	18.15	18.08	18.20	18.11	18.24	18.16	18.12	
	250°	18.10	18.12	18.10	18.15	18.10	18.24	18.12	18.09	18.15	18.08	18.13	18.18	
	260°	18.21	18.14	18.20	18.07	18.15	18.23	18.17	18.15	18.15	18.26	18.08	18.06	
	270°	18.08	18.06	18.14	18.11	18.17	18.18	18.10	18.17	18.10	18.10	18.11	18.17	
	280°	18.12	18.23	18.14	18.14	18.13	18.09	18.25	18.20	18.16	18.12	18.19	18.10	
	290°	18.19	18.15	18.17	18.07	18.11	18.07	18.08	18.18	18.10	18.16	18.26	18.14	
	300°	18.26	18.25	18.22	18.23	18.23	18.14	18.12	18.21	18.25	18.21	18.10	18.17	
	310°	18.08	18.22	18.10	18.25	18.08	18.15	18.07	18.12	18.25	18.15	18.09	18.20	
	320°	18.10	18.06	18.25	18.15	18.06	18.22	18.06	18.07	18.21	18.08	18.24	18.10	
330°	18.22	18.23	18.06	18.08	18.23	18.12	18.07	18.08	18.14	18.10	18.09	18.13		
340°	18.25	18.07	18.14	18.24	18.16	18.11	18.09	18.15	18.09	18.26	18.15	18.21		
350°	18.15	18.22	18.12	18.24	18.25	18.22	18.21	18.07	18.11	18.15	18.16	18.07		
360°	18.14	18.15	18.08	18.20	18.18	18.22	18.10	18.04	18.24	18.14	18.09	18.23		

Antenna	Operation mode	Lid angle	20MHz		15MHz		10MHz		5MHz		3MHz		1.4MHz	
			QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
WWAN TX (LTE B4)	Stand	201°	23.61	22.68	23.42	22.95	23.39	22.79	23.44	22.81	23.38	22.74	23.64	22.76
		210°	23.61	22.69	23.39	22.84	23.41	22.88	23.55	22.94	23.45	22.79	23.46	22.82
		220°	23.57	22.77	23.43	22.76	23.55	22.90	23.56	22.85	23.36	22.82	23.52	22.90
		230°	23.54	22.80	23.40	22.85	23.50	22.78	23.58	22.79	23.44	22.88	23.49	22.92
		240°	23.60	22.72	23.40	22.84	23.55	22.76	23.57	22.83	23.34	22.70	23.56	22.93
		250°	23.85	22.74	23.47	22.89	23.55	22.78	23.54	22.97	23.48	22.76	23.64	22.90
		260°	23.46	22.66	23.47	22.87	23.39	22.77	23.53	22.87	23.48	22.70	23.64	22.84
		270°	23.62	22.82	23.36	22.78	23.50	22.92	23.42	22.85	23.48	22.74	23.64	22.81
		280°	23.64	22.75	23.48	22.80	23.54	22.77	23.46	22.78	23.42	22.83	23.56	22.77
		290°	23.47	22.70	23.39	22.91	23.43	22.76	23.44	22.88	23.49	22.84	23.42	22.84
		300°	23.61	22.83	23.47	22.85	23.44	22.94	23.55	22.97	23.34	22.82	23.55	22.78
		310°	23.59	22.69	23.49	22.87	23.48	22.84	23.58	22.80	23.38	22.88	23.48	22.87
		320°	23.62	22.75	23.40	22.76	23.50	22.92	23.51	22.83	23.42	22.84	23.58	22.91
		330°	23.58	22.83	23.33	22.95	23.57	22.79	23.52	22.86	23.44	22.80	23.60	22.84
		340°	23.51	22.67	23.44	22.89	23.38	22.85	23.48	22.95	23.46	22.69	23.63	22.79
		345°	23.51	22.72	23.48	22.76	23.45	22.77	23.42	22.95	23.42	22.73	23.47	22.91

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Antenna	Operation mode	Lid angle	10MHz		5MHz		3MHz		1.4MHz		
			QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	
WWAN TX (LTE B5)	Lid close	0°	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
		10°	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
		20°	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
		30°	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
		34°	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	Notebook	35°	24.77	23.80	24.86	23.87	24.55	23.83	24.61	23.85	
		40°	24.87	23.84	24.75	23.86	24.52	23.90	24.65	23.72	
		50°	24.74	23.83	24.73	23.94	24.54	23.86	24.55	23.77	
		60°	24.90	23.93	24.82	23.93	24.62	23.92	24.63	23.71	
		70°	24.86	23.91	24.85	23.86	24.57	23.96	24.65	23.71	
		80°	24.89	23.83	24.76	23.93	24.58	23.91	24.54	23.79	
		90°	24.82	23.86	24.90	23.95	24.51	23.83	24.50	23.85	
		100°	24.74	23.97	24.86	23.98	24.48	23.90	24.53	23.89	
		110°	24.86	23.97	24.73	23.95	24.47	23.89	24.55	23.85	
		120°	24.89	23.83	24.77	23.82	24.48	23.79	24.62	23.82	
		129°	24.80	23.97	24.73	23.91	24.61	23.96	24.55	23.80	
	Non-Notebook	130°	22.35	22.21	22.42	22.31	22.30	22.28	22.37	22.27	
		140°	22.31	22.28	22.34	22.24	22.26	22.27	22.34	22.25	
		150°	22.30	22.34	22.33	22.37	22.40	22.30	22.40	22.36	
		160°	22.28	22.28	22.29	22.36	22.24	22.24	22.36	22.30	
		170°	22.36	22.31	22.26	22.26	22.32	22.26	22.26	22.33	
		180°	22.26	22.37	22.36	22.29	22.29	22.22	22.40	22.31	
		190°	22.27	22.25	22.37	22.42	22.41	22.31	22.41	22.24	
		200°	22.27	22.26	22.36	22.23	22.23	22.23	22.36	22.36	
		210°	22.35	22.35	22.33	22.28	22.41	22.27	22.27	22.39	
		220°	22.40	22.22	22.37	22.41	22.25	22.28	22.37	22.31	
		230°	22.41	22.30	22.30	22.32	22.29	22.33	22.41	22.36	
		240°	22.33	22.39	22.36	22.24	22.40	22.36	22.31	22.40	
		250°	22.26	22.33	22.39	22.27	22.41	22.36	22.34	22.26	
		260°	22.33	22.27	22.23	22.23	22.25	22.22	22.27	22.29	
		270°	22.35	22.27	22.26	22.33	22.29	22.21	22.31	22.30	
		280°	22.39	22.34	22.34	22.36	22.36	22.20	22.36	22.38	
		290°	22.41	22.25	22.26	22.29	22.34	22.35	22.28	22.38	
		300°	22.34	22.24	22.24	22.25	22.27	22.20	22.31	22.23	
		310°	22.38	22.29	22.29	22.39	22.28	22.27	22.28	22.35	
	320°	22.25	22.40	22.42	22.35	22.40	22.23	22.28	22.37		
330°	22.30	22.21	22.24	22.25	22.40	22.28	22.42	22.39			
340°	22.42	22.23	22.31	22.26	22.41	22.30	22.24	22.22			
350°	22.27	22.24	22.24	22.32	22.33	22.26	22.23	22.41			
360°	22.24	22.26	22.25	22.42	22.28	22.19	22.31	22.41			

Antenna	Operation mode	Lid angle	10MHz		5MHz		3MHz		1.4MHz		
			QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	
WWAN TX (LTE B5)	Stand	201°	24.79	23.86	24.90	23.83	24.56	23.93	24.49	23.85	
		210°	24.76	23.87	24.74	23.80	24.56	23.97	24.62	23.76	
		220°	24.84	23.89	24.73	23.86	24.60	23.85	24.60	23.83	
		230°	24.90	23.87	24.76	23.93	24.58	23.94	24.63	23.85	
		240°	24.81	23.90	24.89	23.92	24.55	23.97	24.65	23.84	
		250°	24.86	23.94	24.85	23.90	24.53	23.88	24.66	23.74	
		260°	24.80	23.84	24.74	23.79	24.53	23.88	24.63	23.74	
		270°	24.92	23.93	24.82	23.94	24.52	23.95	24.48	23.78	
		280°	24.92	23.88	24.80	23.90	24.47	23.89	24.59	23.80	
		290°	24.75	23.83	24.87	23.98	24.56	23.94	24.61	23.88	
		300°	24.89	23.86	24.89	23.92	24.59	23.86	24.53	23.82	
		310°	24.91	23.82	24.79	23.90	24.54	23.97	24.65	23.83	
		320°	24.82	23.86	24.91	23.81	24.58	23.92	24.63	23.76	
		330°	24.82	23.88	24.78	23.80	24.46	23.96	24.64	23.86	
		340°	24.83	23.94	24.78	23.91	24.51	23.87	24.54	23.80	
		345°	24.80	23.81	24.89	23.91	24.46	23.83	24.60	23.71	

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Antenna	Operation mode	Lid angle	20MHz		15MHz		10MHz		5MHz	
			QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
WWAN TX (LTE B7)	Lid close	0°	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
		10°	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
		20°	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
		30°	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
		34°	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	Notebook	35°	23.97	22.88	23.91	22.78	23.68	22.89	23.83	22.97
		40°	23.86	22.78	23.92	22.81	23.74	22.80	23.70	22.87
		50°	23.89	22.80	23.84	22.70	23.64	22.88	23.77	22.90
		60°	23.81	22.81	23.96	22.73	23.62	22.87	23.85	22.86
		70°	23.86	22.90	23.83	22.67	23.74	22.80	23.79	22.82
		80°	23.88	22.90	23.92	22.75	23.78	22.88	23.86	22.86
		90°	23.94	22.86	23.82	22.69	23.64	22.78	23.76	22.78
		100°	23.92	22.81	23.97	22.78	23.70	22.92	23.76	22.84
		110°	23.82	22.83	23.83	22.70	23.77	22.88	23.76	22.92
		120°	23.80	22.81	23.79	22.68	23.63	22.90	23.86	22.93
		129°	23.95	22.86	23.96	22.76	23.75	22.92	23.84	22.81
		Non-Notebook	130°	16.87	16.90	16.90	16.77	16.83	16.90	16.92
	140°		16.93	16.77	16.90	16.81	16.81	16.82	16.87	16.88
	150°		16.82	16.81	16.86	16.74	16.75	16.90	16.79	16.77
	160°		16.79	16.81	16.87	16.89	16.84	16.79	16.89	16.86
	170°		16.85	16.91	16.89	16.87	16.76	16.74	16.75	16.86
	180°		16.86	16.75	16.89	16.80	16.75	16.78	16.79	16.80
	190°		16.77	16.73	16.83	16.92	16.75	16.89	16.88	16.77
	200°		16.79	16.78	16.86	16.93	16.91	16.73	16.91	16.86
	210°		16.87	16.78	16.89	16.91	16.84	16.74	16.90	16.78
	220°		16.81	16.91	16.77	16.80	16.88	16.79	16.89	16.77
	230°		16.82	16.75	16.74	16.76	16.76	16.72	16.74	16.75
	240°		16.82	16.87	16.82	16.79	16.73	16.83	16.89	16.82
	250°		16.91	16.86	16.75	16.88	16.83	16.76	16.88	16.80
	260°		16.85	16.75	16.87	16.93	16.81	16.80	16.91	16.83
	270°		16.87	16.88	16.80	16.75	16.74	16.91	16.91	16.78
	280°		16.78	16.82	16.90	16.92	16.77	16.78	16.74	16.75
	290°		16.81	16.80	16.82	16.88	16.73	16.74	16.87	16.74
	300°		16.87	16.78	16.88	16.75	16.78	16.73	16.91	16.82
	310°		16.85	16.80	16.75	16.79	16.87	16.90	16.92	16.84
	320°	16.87	16.88	16.74	16.86	16.81	16.78	16.89	16.81	
330°	16.75	16.78	16.89	16.84	16.88	16.84	16.82	16.81		
340°	16.90	16.91	16.79	16.92	16.85	16.80	16.81	16.87		
350°	16.82	16.75	16.81	16.80	16.81	16.90	16.85	16.78		
360°	16.81	16.74	16.88	16.78	16.81	16.79	16.86	16.79		

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Antenna	Operation mode	Lid angle	20MHz		15MHz		10MHz		5MHz	
			QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
WWAN TX (LTE B7)	Stand	201°	23.98	22.87	23.93	22.64	23.76	22.87	23.72	22.82
		210°	23.80	22.96	23.84	22.71	23.65	22.83	23.80	22.78
		220°	23.80	22.92	23.90	22.67	23.72	22.81	23.85	22.86
		230°	23.96	22.91	23.90	22.74	23.64	22.83	23.79	22.97
		240°	23.83	22.91	23.82	22.80	23.61	22.91	23.78	22.85
		250°	23.98	22.92	23.92	22.74	23.68	22.91	23.76	22.88
		260°	23.81	22.86	23.97	22.76	23.62	22.90	23.84	22.89
		270°	23.87	22.84	23.96	22.74	23.79	22.89	23.84	22.96
		280°	23.85	22.95	23.87	22.68	23.75	22.85	23.85	22.92
		290°	23.91	22.94	23.91	22.78	23.67	22.83	23.76	22.78
		300°	23.95	22.88	23.91	22.82	23.72	22.82	23.87	22.96
		310°	23.88	22.83	23.91	22.64	23.75	22.77	23.77	22.92
		320°	23.91	22.97	23.89	22.75	23.60	22.89	23.77	22.97
		330°	23.98	22.93	23.78	22.65	23.72	22.89	23.76	22.79
		340°	23.92	22.81	23.84	22.79	23.68	22.82	23.75	22.81
345°	23.89	22.96	23.89	22.66	23.64	22.87	23.75	22.91		

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Antenna	Operation mode	Lid angle	10MHz		5MHz		3MHz		1.4MHz	
			QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
WWAN TX (LTE B12)	Lid close	0°	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
		10°	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
		20°	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
		30°	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
		34°	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	Notebook	35°	23.98	22.97	23.96	22.84	23.59	22.66	24.00	22.88
		40°	23.84	22.93	23.87	22.88	23.52	22.58	23.86	22.78
		50°	23.90	22.87	23.89	22.87	23.62	22.70	23.96	22.79
		60°	23.84	22.81	23.94	22.78	23.58	22.56	23.91	22.76
		70°	23.98	22.85	23.77	22.97	23.59	22.72	23.82	22.86
		80°	23.93	22.95	23.93	22.82	23.65	22.67	24.00	22.92
		90°	23.88	22.92	23.82	22.88	23.58	22.65	23.88	22.76
		100°	23.79	22.82	23.87	22.88	23.54	22.56	23.82	22.81
		110°	23.88	22.89	23.95	22.81	23.61	22.55	23.83	22.84
		120°	23.95	22.85	23.81	22.97	23.55	22.57	23.85	22.86
		129°	23.92	22.89	23.90	22.81	23.59	22.63	23.85	22.82
		Non-Notebook	130°	20.42	20.35	20.30	20.26	20.36	20.44	20.30
	140°		20.32	20.36	20.24	20.35	20.30	20.42	20.34	20.37
	150°		20.40	20.41	20.34	20.24	20.42	20.30	20.26	20.37
	160°		20.31	20.43	20.34	20.39	20.39	20.44	20.30	20.37
	170°		20.41	20.40	20.31	20.30	20.40	20.42	20.41	20.41
	180°		20.38	20.43	20.26	20.28	20.39	20.35	20.34	20.29
	190°		20.36	20.35	20.39	20.25	20.28	20.41	20.40	20.32
	200°		20.45	20.30	20.35	20.43	20.35	20.27	20.42	20.27
	210°		20.27	20.35	20.32	20.28	20.26	20.41	20.45	20.31
	220°		20.46	20.33	20.24	20.39	20.42	20.33	20.28	20.34
	230°		20.31	20.40	20.36	20.36	20.42	20.44	20.28	20.27
	240°		20.38	20.28	20.36	20.36	20.27	20.29	20.34	20.38
	250°		20.37	20.38	20.25	20.42	20.41	20.29	20.30	20.41
	260°		20.31	20.32	20.31	20.34	20.32	20.37	20.44	20.45
	270°		20.44	20.41	20.28	20.31	20.25	20.31	20.34	20.27
	280°		20.38	20.30	20.34	20.33	20.41	20.34	20.40	20.40
	290°		20.41	20.29	20.27	20.38	20.38	20.29	20.45	20.36
	300°		20.31	20.37	20.24	20.43	20.31	20.41	20.45	20.44
	310°		20.29	20.38	20.31	20.26	20.26	20.40	20.33	20.37
	320°	20.43	20.36	20.28	20.43	20.44	20.29	20.45	20.37	
330°	20.35	20.40	20.39	20.42	20.32	20.34	20.35	20.41		
340°	20.28	20.41	20.32	20.40	20.26	20.42	20.35	20.27		
350°	20.43	20.29	20.39	20.39	20.36	20.30	20.45	20.45		
360°	20.32	20.45	20.35	20.26	20.30	20.41	20.29	20.34		

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Antenna	Operation mode	Lid angle	10MHz		5MHz		3MHz		1.4MHz	
			QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
WWAN TX (LTE B12)	Stand	201°	23.81	22.81	23.95	22.90	23.61	22.73	23.97	22.88
		210°	23.82	22.91	23.86	22.78	23.62	22.69	23.82	22.83
		220°	23.82	22.99	23.81	22.93	23.69	22.58	24.00	22.83
		230°	23.92	22.89	23.94	22.82	23.61	22.63	23.96	22.82
		240°	23.96	22.89	23.79	22.83	23.57	22.55	23.84	22.76
		250°	23.80	22.92	23.95	22.78	23.59	22.58	23.94	22.80
		260°	23.97	22.89	23.88	22.92	23.52	22.68	23.90	22.84
		270°	23.97	22.82	23.94	22.93	23.57	22.55	23.83	22.85
		280°	23.94	22.85	23.81	22.91	23.66	22.56	23.98	22.79
		290°	23.98	22.81	23.79	22.84	23.66	22.72	24.00	22.95
		300°	23.87	22.99	23.82	22.88	23.57	22.56	23.90	22.85
		310°	23.91	22.82	23.94	22.80	23.61	22.72	23.96	22.93
		320°	23.97	22.86	23.79	22.84	23.59	22.70	23.85	22.76
		330°	23.85	22.85	23.79	22.92	23.54	22.58	23.87	22.79
		340°	23.98	22.99	23.81	22.80	23.60	22.62	23.91	22.95
		345°	23.82	22.81	23.90	22.78	23.53	22.69	23.95	22.76

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Antenna	Operation mode	Lid angle	10MHz		5MHz	
			QPSK	16QAM	QPSK	16QAM
WWAN TX (LTE B13)	Lid close	0°	n/a	n/a	n/a	n/a
		10°	n/a	n/a	n/a	n/a
		20°	n/a	n/a	n/a	n/a
		30°	n/a	n/a	n/a	n/a
		34°	n/a	n/a	n/a	n/a
	Notebook	35°	23.93	22.68	23.85	22.89
		40°	23.95	22.67	23.75	22.91
		50°	23.84	22.55	23.83	22.78
		60°	23.90	22.54	23.86	22.83
		70°	23.93	22.63	23.75	22.92
		80°	23.83	22.63	23.71	22.82
		90°	23.84	22.68	23.73	22.87
		100°	23.76	22.61	23.76	22.96
		110°	23.88	22.66	23.73	22.86
		120°	23.95	22.63	23.76	22.88
		129°	23.92	22.61	23.73	22.83
	Non-Notebook	130°	20.83	20.89	20.90	20.82
		140°	20.92	20.86	20.93	20.85
		150°	20.84	20.88	20.92	20.92
		160°	20.91	20.89	20.86	20.89
		170°	20.95	20.90	20.85	20.90
		180°	20.87	20.91	20.78	20.80
		190°	20.90	20.82	20.86	20.84
		200°	20.92	20.77	20.82	20.87
		210°	20.81	20.86	20.96	20.94
		220°	20.82	20.84	20.86	20.77
		230°	20.92	20.75	20.83	20.91
		240°	20.90	20.87	20.87	20.84
		250°	20.91	20.93	20.79	20.81
		260°	20.82	20.81	20.94	20.91
		270°	20.95	20.94	20.97	20.82
		280°	20.79	20.78	20.78	20.84
		290°	20.95	20.91	20.93	20.82
		300°	20.82	20.89	20.84	20.93
		310°	20.84	20.75	20.97	20.95
	320°	20.97	20.80	20.90	20.93	
330°	20.91	20.79	20.80	20.77		
340°	20.96	20.83	20.94	20.83		
350°	20.83	20.76	20.86	20.88		
360°	20.89	20.93	20.92	20.83		

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Antenna	Operation mode	Lid angle	10MHz		5MHz	
			QPSK	16QAM	QPSK	16QAM
WWAN TX (LTE B13)	Stand	201°	23.89	22.51	23.76	22.95
		210°	23.94	22.63	23.85	22.93
		220°	23.89	22.56	23.75	22.90
		230°	23.86	22.55	23.87	22.88
		240°	23.87	22.60	23.76	22.85
		250°	23.76	22.66	23.87	22.88
		260°	23.76	22.54	23.73	22.82
		270°	23.78	22.59	23.87	22.87
		280°	23.92	22.61	23.72	22.81
		290°	23.92	22.64	23.78	22.79
		300°	23.88	22.59	23.74	22.91
		310°	23.79	22.69	23.82	22.82
		320°	23.81	22.68	23.74	22.94
		330°	23.95	22.51	23.70	22.79
		340°	23.82	22.70	23.75	22.90
		345°	23.76	22.69	23.88	22.81

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Antenna	Operation mode	Lid angle	10MHz		5MHz		
			QPSK	16QAM	QPSK	16QAM	
WWAN TX (LTE B14)	Lid close	0°	n/a	n/a	n/a	n/a	
		10°	n/a	n/a	n/a	n/a	
		20°	n/a	n/a	n/a	n/a	
		30°	n/a	n/a	n/a	n/a	
		34°	n/a	n/a	n/a	n/a	
	Notebook	35°	23.95	22.92	23.59	22.88	
		40°	23.78	22.91	23.65	22.86	
		50°	23.79	22.90	23.62	22.85	
		60°	23.89	22.91	23.50	22.74	
		70°	23.93	22.80	23.63	22.80	
		80°	23.83	22.88	23.49	22.82	
		90°	23.93	22.91	23.55	22.74	
		100°	23.93	22.83	23.55	22.87	
		110°	23.78	22.81	23.60	22.92	
		120°	23.89	22.94	23.57	22.79	
		129°	23.93	22.96	23.66	22.86	
		Non-Notebook	130°	20.81	20.72	20.82	20.76
			140°	20.87	20.78	20.75	20.85
	150°		20.81	20.70	20.88	20.89	
	160°		20.88	20.75	20.73	20.87	
	170°		20.86	20.76	20.91	20.86	
	180°		20.78	20.84	20.82	20.86	
	190°		20.85	20.84	20.84	20.82	
	200°		20.86	20.86	20.76	20.72	
	210°		20.86	20.75	20.87	20.90	
	220°		20.91	20.88	20.86	20.80	
	230°		20.85	20.73	20.87	20.90	
	240°		20.90	20.75	20.72	20.83	
	250°		20.89	20.76	20.85	20.87	
	260°		20.79	20.83	20.90	20.89	
	270°		20.74	20.85	20.90	20.79	
	280°		20.86	20.73	20.74	20.84	
	290°		20.77	20.74	20.77	20.85	
	300°		20.81	20.73	20.88	20.87	
	310°	20.84	20.88	20.89	20.91		
	320°	20.74	20.82	20.89	20.87		
330°	20.81	20.87	20.77	20.82			
340°	20.91	20.70	20.80	20.85			
350°	20.74	20.71	20.77	20.72			
360°	20.87	20.81	20.78	20.74			

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Antenna	Operation mode	Lid angle	10MHz		5MHz	
			QPSK	16QAM	QPSK	16QAM
WWAN TX (LTE B14)	Stand	201°	23.79	22.94	23.57	22.84
		210°	23.89	22.82	23.58	22.83
		220°	23.95	22.90	23.57	22.75
		230°	23.80	22.94	23.61	22.86
		240°	23.84	22.92	23.51	22.86
		250°	23.94	22.80	23.48	22.82
		260°	23.91	22.80	23.54	22.73
		270°	23.84	22.79	23.64	22.82
		280°	23.91	22.97	23.64	22.78
		290°	23.88	22.96	23.55	22.83
		300°	23.81	22.95	23.49	22.77
		310°	23.89	22.83	23.54	22.79
		320°	23.79	22.97	23.59	22.78
		330°	23.92	22.85	23.48	22.83
		340°	23.81	22.81	23.54	22.73
		345°	23.82	22.87	23.52	22.82

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Antenna	Operation mode	Lid angle	10MHz		5MHz	
			QPSK	16QAM	QPSK	16QAM
WWAN TX (LTE B17)	Lid close	0°	n/a	n/a	n/a	n/a
		10°	n/a	n/a	n/a	n/a
		20°	n/a	n/a	n/a	n/a
		30°	n/a	n/a	n/a	n/a
		34°	n/a	n/a	n/a	n/a
	Notebook	35°	23.90	22.71	23.79	22.84
		40°	23.97	22.90	23.90	22.91
		50°	23.90	22.71	23.93	22.91
		60°	23.81	22.75	23.85	22.84
		70°	23.89	22.87	23.84	22.79
		80°	23.80	22.79	23.81	22.95
		90°	23.84	22.82	23.92	22.90
		100°	23.83	22.82	23.94	22.87
		110°	23.84	22.86	23.88	22.90
		120°	23.95	22.80	23.82	22.96
		129°	23.80	22.80	23.78	22.80
	Non-Notebook	130°	20.20	20.24	20.22	20.12
		140°	20.14	20.23	20.27	20.26
		150°	20.13	20.08	20.13	20.21
		160°	20.26	20.20	20.14	20.14
		170°	20.17	20.09	20.18	20.21
		180°	20.10	20.15	20.19	20.11
		190°	20.27	20.14	20.22	20.12
		200°	20.12	20.22	20.16	20.26
		210°	20.12	20.11	20.19	20.15
		220°	20.24	20.26	20.09	20.24
		230°	20.17	20.26	20.09	20.22
		240°	20.15	20.27	20.16	20.14
		250°	20.15	20.24	20.21	20.13
		260°	20.27	20.14	20.27	20.08
		270°	20.22	20.09	20.10	20.09
		280°	20.27	20.20	20.23	20.11
		290°	20.13	20.16	20.13	20.22
		300°	20.14	20.12	20.09	20.20
		310°	20.27	20.17	20.20	20.23
	320°	20.15	20.11	20.13	20.11	
330°	20.27	20.21	20.20	20.12		
340°	20.19	20.10	20.21	20.21		
350°	20.13	20.13	20.20	20.22		
360°	20.26	20.21	20.26	20.12		

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Antenna	Operation mode	Lid angle	10MHz		5MHz	
			QPSK	16QAM	QPSK	16QAM
WWAN TX (LTE B17)	Stand	201°	23.94	22.88	23.88	22.78
		210°	23.94	22.71	23.79	22.86
		220°	23.88	22.80	23.95	22.90
		230°	23.93	22.75	23.96	22.96
		240°	23.83	22.81	23.77	22.78
		250°	23.86	22.75	23.94	22.93
		260°	23.88	22.86	23.95	22.89
		270°	23.98	22.77	23.95	22.88
		280°	23.91	22.85	23.91	22.81
		290°	23.96	22.83	23.88	22.91
		300°	23.97	22.72	23.83	22.84
		310°	23.97	22.77	23.88	22.89
		320°	23.81	22.85	23.82	22.82
		330°	23.91	22.76	23.83	22.88
		340°	23.88	22.76	23.87	22.80
345°	23.98	22.71	23.82	22.85		

Antenna	Operation mode	Lid angle	20MHz		15MHz		10MHz		5MHz		3MHz		1.4MHz		
			QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	
WWAN TX (LTE B25)	Lid close	0°	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
		10°	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
		20°	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
		30°	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
		34°	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
	Notebook	35°	23.82	22.82	23.87	22.89	23.82	22.85	23.87	22.80	23.85	22.93	23.86	22.88	
		40°	23.89	22.83	23.77	22.94	23.93	22.93	23.86	22.86	23.83	22.83	23.90	22.87	
		50°	23.93	22.89	23.81	22.93	23.93	22.91	23.94	22.98	23.81	22.83	23.96	22.97	
		60°	23.78	22.94	23.77	22.76	23.94	22.91	23.94	22.85	23.93	22.80	23.84	22.96	
		70°	23.95	22.80	23.93	22.78	23.79	22.89	23.90	22.81	23.85	22.80	23.93	22.84	
		80°	23.88	22.95	23.94	22.84	23.93	22.86	23.91	22.80	23.86	22.90	23.92	22.95	
		90°	23.85	22.91	23.88	22.82	23.88	22.92	23.89	22.96	23.78	22.94	23.83	22.96	
		100°	23.93	22.83	23.82	22.82	23.91	22.93	23.83	22.87	23.78	22.86	23.97	22.84	
		110°	23.97	22.80	23.90	22.94	23.82	22.95	23.87	22.90	23.93	22.95	23.82	22.84	
		120°	23.82	22.89	23.75	22.83	23.87	22.85	23.86	22.81	23.91	22.89	23.94	22.81	
		129°	23.92	22.91	23.92	22.79	23.84	22.93	23.88	22.82	23.90	22.94	23.80	22.93	
		Non-Notebook	130°	16.37	16.47	16.32	16.41	16.40	16.41	16.22	16.29	16.35	16.37	16.39	16.34
			140°	16.46	16.41	16.44	16.44	16.32	16.42	16.28	16.28	16.31	16.42	16.29	16.44
			150°	16.44	16.46	16.42	16.28	16.45	16.43	16.33	16.31	16.31	16.47	16.35	16.40
			160°	16.30	16.31	16.45	16.31	16.37	16.45	16.30	16.36	16.39	16.32	16.36	16.33
	170°		16.38	16.40	16.46	16.42	16.30	16.35	16.28	16.42	16.35	16.31	16.36	16.41	
	180°		16.33	16.44	16.38	16.45	16.28	16.28	16.31	16.43	16.41	16.28	16.35	16.29	
	190°		16.30	16.35	16.43	16.34	16.40	16.44	16.35	16.44	16.46	16.30	16.31	16.41	
	200°		16.42	16.37	16.35	16.29	16.41	16.40	16.21	16.30	16.42	16.43	16.41	16.29	
	210°		16.40	16.40	16.31	16.29	16.30	16.43	16.24	16.43	16.32	16.43	16.43	16.36	
	220°		16.30	16.38	16.34	16.30	16.44	16.32	16.22	16.41	16.30	16.28	16.29	16.32	
	230°		16.36	16.34	16.39	16.42	16.28	16.42	16.22	16.33	16.35	16.36	16.46	16.29	
	240°		16.35	16.44	16.39	16.36	16.36	16.45	16.30	16.36	16.46	16.36	16.40	16.41	
	250°		16.41	16.46	16.39	16.36	16.39	16.38	16.30	16.42	16.40	16.43	16.30	16.31	
	260°		16.35	16.40	16.47	16.40	16.40	16.38	16.31	16.41	16.29	16.32	16.42	16.43	
	270°		16.36	16.45	16.33	16.33	16.38	16.44	16.37	16.27	16.32	16.31	16.41	16.44	
	280°		16.40	16.40	16.29	16.46	16.34	16.34	16.21	16.36	16.42	16.33	16.42	16.27	
	290°		16.31	16.30	16.44	16.37	16.36	16.36	16.21	16.30	16.42	16.30	16.31	16.31	
	300°		16.35	16.47	16.29	16.34	16.36	16.46	16.21	16.34	16.30	16.39	16.42	16.30	
	310°		16.43	16.39	16.36	16.40	16.28	16.46	16.25	16.28	16.45	16.44	16.29	16.42	
	320°		16.34	16.36	16.46	16.32	16.42	16.45	16.33	16.34	16.28	16.42	16.43	16.36	
330°	16.46		16.43	16.41	16.38	16.35	16.34	16.24	16.35	16.44	16.36	16.37	16.44		
340°	16.42	16.28	16.45	16.42	16.38	16.40	16.38	16.39	16.32	16.38	16.35	16.28			
350°	16.39	16.28	16.29	16.33	16.31	16.47	16.22	16.29	16.41	16.46	16.32	16.43			
360°	16.46	16.31	16.45	16.35	16.32	16.45	16.23	16.36	16.42	16.44	16.29	16.37			

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Antenna	Operation mode	Lid angle	20MHz		15MHz		10MHz		5MHz		3MHz		1.4MHz	
			QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
WWAN TX (LTE B25)	Stand	201°	23.85	22.94	23.79	22.94	23.92	22.90	23.94	22.94	23.88	22.98	23.85	22.85
		210°	23.78	22.89	23.75	22.92	23.94	22.96	23.90	22.88	23.90	22.91	23.97	22.87
		220°	23.94	22.92	23.78	22.92	23.77	22.83	23.86	22.99	23.92	22.82	23.87	22.89
		230°	23.80	22.84	23.81	22.82	23.83	22.79	23.89	22.95	23.89	22.96	23.91	22.95
		240°	23.90	22.78	23.87	22.93	23.87	22.86	23.92	22.98	23.93	22.95	23.86	22.83
		250°	23.81	22.87	23.94	22.94	23.88	22.79	23.93	22.91	23.81	22.92	23.87	22.97
		260°	23.81	22.79	23.79	22.95	23.85	22.91	23.84	22.89	23.84	22.86	23.83	22.92
		270°	23.80	22.79	23.93	22.85	23.82	22.96	23.83	22.96	23.88	22.90	23.93	22.97
		280°	23.84	22.90	23.81	22.79	23.87	22.79	23.82	22.86	23.91	22.98	23.86	22.93
		290°	23.93	22.79	23.81	22.81	23.92	22.79	23.88	22.81	23.76	22.85	23.87	22.92
		300°	23.82	22.96	23.80	22.85	23.82	22.94	23.84	22.93	23.91	22.81	23.79	22.91
		310°	23.85	22.79	23.90	22.90	23.80	22.89	23.82	22.91	23.75	22.88	23.79	22.92
		320°	23.94	22.91	23.90	22.95	23.77	22.97	23.81	22.80	23.82	22.91	23.94	22.84
		330°	23.95	22.90	23.78	22.90	23.92	22.83	23.80	22.94	23.93	22.84	23.96	22.85
		340°	23.94	22.85	23.76	22.89	23.92	22.84	23.76	22.86	23.76	22.95	23.80	22.94
		345°	23.88	22.86	23.82	22.85	23.91	22.98	23.82	22.89	23.80	22.87	23.97	22.95

Antenna	Operation mode	Lid angle	15MHz		10MHz		5MHz		3MHz		1.4MHz	
			QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
WWAN TX (LTE B26)	Lid close	0°	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
		10°	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
		20°	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
		30°	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
		34°	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	Notebook	35°	24.35	23.62	24.27	23.34	24.05	23.59	24.09	23.56	24.00	23.35
		40°	24.35	23.73	24.27	23.47	24.05	23.73	24.06	23.46	24.16	23.44
		50°	24.31	23.68	24.15	23.50	24.02	23.75	24.10	23.48	24.05	23.43
		60°	24.27	23.62	24.28	23.50	23.99	23.57	24.15	23.51	24.18	23.41
		70°	24.25	23.63	24.19	23.38	24.16	23.72	24.12	23.60	24.17	23.37
		80°	24.44	23.56	24.22	23.39	24.16	23.71	24.08	23.61	24.19	23.46
		90°	24.35	23.61	24.24	23.33	24.08	23.76	24.02	23.61	24.09	23.53
		100°	24.44	23.65	24.22	23.37	24.03	23.74	24.10	23.62	24.15	23.37
		110°	24.32	23.54	24.15	23.37	24.03	23.75	24.04	23.64	24.19	23.37
		120°	24.42	23.57	24.26	23.48	24.08	23.68	24.13	23.62	24.12	23.39
		129°	24.30	23.72	24.23	23.43	24.03	23.58	24.18	23.49	24.08	23.36
	Non-Notebook	130°	22.33	22.24	22.18	22.25	22.34	22.18	22.22	22.19	22.17	22.22
		140°	22.32	22.29	22.30	22.27	22.25	22.26	22.31	22.22	22.30	22.33
		150°	22.33	22.23	22.20	22.23	22.15	22.27	22.29	22.23	22.33	22.25
		160°	22.28	22.16	22.33	22.27	22.15	22.20	22.32	22.22	22.27	22.27
		170°	22.25	22.33	22.33	22.25	22.27	22.23	22.24	22.28	22.23	22.29
		180°	22.34	22.19	22.27	22.24	22.31	22.26	22.23	22.33	22.23	22.24
		190°	22.20	22.26	22.18	22.32	22.27	22.20	22.27	22.15	22.21	22.29
		200°	22.19	22.28	22.28	22.28	22.15	22.22	22.20	22.33	22.19	22.17
		210°	22.23	22.20	22.23	22.18	22.17	22.34	22.33	22.34	22.26	22.28
		220°	22.21	22.14	22.18	22.18	22.27	22.34	22.18	22.27	22.34	22.33
		230°	22.16	22.25	22.23	22.18	22.27	22.26	22.23	22.17	22.22	22.19
		240°	22.30	22.15	22.30	22.32	22.21	22.30	22.19	22.15	22.18	22.16
		250°	22.22	22.17	22.22	22.27	22.19	22.32	22.30	22.16	22.34	22.23
		260°	22.22	22.15	22.27	22.14	22.30	22.21	22.24	22.21	22.17	22.16
		270°	22.20	22.14	22.25	22.19	22.24	22.19	22.30	22.16	22.27	22.20
		280°	22.20	22.32	22.31	22.23	22.17	22.29	22.16	22.21	22.24	22.31
		290°	22.22	22.27	22.23	22.22	22.16	22.23	22.26	22.21	22.29	22.26
		300°	22.26	22.29	22.31	22.21	22.21	22.24	22.22	22.29	22.16	22.23
		310°	22.17	22.20	22.33	22.27	22.18	22.15	22.25	22.24	22.34	22.15
	320°	22.27	22.17	22.18	22.32	22.25	22.34	22.21	22.28	22.32	22.34	
330°	22.17	22.30	22.32	22.15	22.19	22.26	22.26	22.18	22.34	22.27		
340°	22.35	22.33	22.23	22.17	22.18	22.31	22.24	22.20	22.28	22.24		
350°	22.18	22.26	22.28	22.18	22.32	22.26	22.30	22.21	22.20	22.20		
360°	22.22	22.19	22.17	22.27	22.26	22.23	22.19	22.31	22.23	22.22		

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Antenna	Operation mode	Lid angle	15MHz		10MHz		5MHz		3MHz		1.4MHz	
			QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
WWAN TX (LTE B26)	Stand	201°	24.33	23.62	24.32	23.33	24.11	23.71	24.18	23.47	24.19	23.42
		210°	24.33	23.63	24.30	23.33	23.98	23.67	24.07	23.60	24.18	23.46
		220°	24.39	23.58	24.19	23.41	24.00	23.70	24.08	23.60	24.16	23.43
		230°	24.29	23.66	24.28	23.35	24.01	23.74	24.02	23.47	24.01	23.39
		240°	24.28	23.54	24.33	23.42	24.09	23.76	24.02	23.47	24.06	23.41
		250°	24.36	23.54	24.22	23.41	23.99	23.75	24.06	23.61	24.01	23.38
		260°	24.44	23.70	24.28	23.46	24.15	23.70	24.10	23.62	24.13	23.43
		270°	24.25	23.57	24.14	23.34	24.05	23.58	24.12	23.63	24.00	23.38
		280°	24.38	23.54	24.22	23.48	24.01	23.64	24.11	23.60	24.03	23.46
		290°	24.27	23.54	24.23	23.43	24.13	23.61	24.06	23.64	24.04	23.35
		300°	24.34	23.59	24.21	23.47	24.09	23.59	24.18	23.48	24.00	23.42
		310°	24.27	23.70	24.24	23.43	24.03	23.69	24.08	23.45	24.15	23.39
		320°	24.25	23.69	24.31	23.39	24.14	23.73	24.16	23.61	24.08	23.51
		330°	24.26	23.68	24.21	23.33	24.03	23.72	24.01	23.57	24.05	23.45
		340°	24.33	23.55	24.27	23.33	24.06	23.74	24.15	23.45	24.03	23.50
		345°	24.39	23.71	24.30	23.50	23.99	23.57	24.18	23.54	24.11	23.51

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Antenna	Operation mode	Lid angle	10MHz		5MHz	
			QPSK	16QAM	QPSK	16QAM
WWAN TX (LTE B30)	Lid close	0°	n/a	n/a	n/a	n/a
		10°	n/a	n/a	n/a	n/a
		20°	n/a	n/a	n/a	n/a
		30°	n/a	n/a	n/a	n/a
		34°	n/a	n/a	n/a	n/a
	Notebook	35°	23.54	22.71	23.32	22.37
		40°	23.41	22.77	23.40	22.28
		50°	23.54	22.79	23.37	22.30
		60°	23.42	22.67	23.30	22.33
		70°	23.37	22.78	23.27	22.38
		80°	23.44	22.77	23.41	22.39
		90°	23.46	22.61	23.27	22.31
		100°	23.54	22.73	23.34	22.32
		110°	23.35	22.66	23.27	22.33
		120°	23.39	22.80	23.39	22.43
		129°	23.36	22.65	23.23	22.25
	Non-Notebook	130°	16.34	16.34	16.43	16.41
		140°	16.41	16.38	16.30	16.30
		150°	16.37	16.25	16.34	16.29
		160°	16.33	16.24	16.46	16.46
		170°	16.46	16.38	16.37	16.45
		180°	16.32	16.27	16.31	16.31
		190°	16.33	16.24	16.29	16.27
		200°	16.29	16.25	16.32	16.31
		210°	16.32	16.27	16.39	16.37
		220°	16.45	16.24	16.44	16.36
		230°	16.31	16.40	16.40	16.36
		240°	16.42	16.37	16.38	16.31
		250°	16.30	16.42	16.33	16.40
		260°	16.43	16.42	16.47	16.31
		270°	16.33	16.34	16.35	16.30
		280°	16.35	16.26	16.31	16.35
		290°	16.40	16.37	16.39	16.29
		300°	16.38	16.30	16.33	16.36
		310°	16.36	16.39	16.28	16.33
	320°	16.32	16.35	16.40	16.31	
330°	16.35	16.34	16.34	16.40		
340°	16.40	16.29	16.32	16.33		
350°	16.30	16.24	16.40	16.36		
360°	16.38	16.37	16.28	16.28		

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Antenna	Operation mode	Lid angle	10MHz		5MHz	
			QPSK	16QAM	QPSK	16QAM
WWAN TX (LTE B30)	Stand	201°	23.48	22.75	23.23	22.34
		210°	23.38	22.71	23.36	22.31
		220°	23.46	22.70	23.25	22.32
		230°	23.50	22.72	23.29	22.26
		240°	23.51	22.65	23.37	22.29
		250°	23.43	22.78	23.30	22.40
		260°	23.49	22.71	23.33	22.40
		270°	23.44	22.79	23.23	22.25
		280°	23.47	22.76	23.39	22.40
		290°	23.50	22.64	23.24	22.39
		300°	23.47	22.70	23.29	22.29
		310°	23.39	22.77	23.42	22.27
		320°	23.53	22.76	23.32	22.34
		330°	23.39	22.76	23.41	22.31
		340°	23.38	22.67	23.23	22.39
		345°	23.52	22.74	23.23	22.30

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Antenna	Operation mode	Lid angle	20MHz		15MHz		10MHz		5MHz	
			QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
WWAN TX (LTE B38)	Lid close	0°	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
		10°	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
		20°	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
		30°	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
		34°	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	Notebook	35°	23.82	22.82	23.87	22.89	23.82	22.85	23.87	22.80
		40°	23.89	22.83	23.77	22.94	23.93	22.93	23.86	22.86
		50°	23.93	22.89	23.81	22.93	23.93	22.91	23.94	22.98
		60°	23.78	22.94	23.77	22.76	23.94	22.91	23.94	22.85
		70°	23.95	22.80	23.93	22.78	23.79	22.89	23.90	22.81
		80°	23.88	22.95	23.94	22.84	23.93	22.86	23.91	22.80
		90°	23.85	22.91	23.88	22.82	23.88	22.92	23.89	22.96
		100°	23.93	22.83	23.82	22.82	23.91	22.93	23.83	22.87
		110°	23.97	22.80	23.90	22.94	23.82	22.95	23.87	22.90
		120°	23.82	22.89	23.75	22.83	23.87	22.85	23.86	22.81
		129°	23.92	22.91	23.92	22.79	23.84	22.93	23.88	22.82
	Non-Notebook	130°	16.37	16.47	16.32	16.41	16.40	16.41	16.22	16.29
		140°	16.46	16.41	16.44	16.44	16.32	16.42	16.28	16.28
		150°	16.44	16.46	16.42	16.28	16.45	16.43	16.33	16.31
		160°	16.30	16.31	16.45	16.31	16.37	16.45	16.30	16.36
		170°	16.38	16.40	16.46	16.42	16.30	16.35	16.28	16.42
		180°	16.33	16.44	16.38	16.45	16.28	16.28	16.31	16.43
		190°	16.30	16.35	16.43	16.34	16.40	16.44	16.35	16.44
		200°	16.42	16.37	16.35	16.29	16.41	16.40	16.21	16.30
		210°	16.40	16.40	16.31	16.29	16.30	16.43	16.24	16.43
		220°	16.30	16.38	16.34	16.30	16.44	16.32	16.22	16.41
		230°	16.36	16.34	16.39	16.42	16.28	16.42	16.22	16.33
		240°	16.35	16.44	16.39	16.36	16.36	16.45	16.30	16.36
		250°	16.41	16.46	16.39	16.36	16.39	16.38	16.30	16.42
		260°	16.35	16.40	16.47	16.40	16.40	16.40	16.38	16.41
		270°	16.36	16.45	16.33	16.33	16.38	16.44	16.37	16.27
		280°	16.40	16.40	16.29	16.46	16.34	16.34	16.21	16.36
		290°	16.31	16.30	16.44	16.37	16.36	16.36	16.21	16.30
		300°	16.35	16.47	16.29	16.34	16.36	16.46	16.21	16.34
		310°	16.43	16.39	16.36	16.40	16.28	16.46	16.25	16.28
	320°	16.34	16.36	16.46	16.32	16.42	16.45	16.33	16.34	
330°	16.46	16.43	16.41	16.38	16.35	16.34	16.24	16.35		
340°	16.42	16.28	16.45	16.42	16.38	16.40	16.38	16.39		
350°	16.39	16.28	16.29	16.33	16.31	16.47	16.22	16.29		
360°	16.46	16.31	16.45	16.35	16.32	16.45	16.23	16.36		

Antenna	Operation mode	Lid angle	20MHz		15MHz		10MHz		5MHz	
			QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
WWAN TX (LTE B38)	Stand	201°	23.85	22.94	23.79	22.94	23.92	22.90	23.94	22.94
		210°	23.78	22.89	23.75	22.92	23.94	22.96	23.90	22.88
		220°	23.94	22.92	23.78	22.92	23.77	22.83	23.86	22.99
		230°	23.80	22.84	23.81	22.82	23.83	22.79	23.89	22.95
		240°	23.90	22.78	23.87	22.93	23.87	22.86	23.92	22.98
		250°	23.81	22.87	23.94	22.94	23.88	22.79	23.93	22.91
		260°	23.81	22.79	23.79	22.95	23.85	22.91	23.84	22.89
		270°	23.80	22.79	23.93	22.85	23.82	22.96	23.83	22.96
		280°	23.84	22.90	23.81	22.79	23.87	22.79	23.82	22.86
		290°	23.93	22.79	23.81	22.81	23.92	22.79	23.88	22.81
		300°	23.82	22.96	23.80	22.85	23.82	22.94	23.84	22.93
		310°	23.85	22.79	23.90	22.90	23.80	22.89	23.82	22.91
		320°	23.94	22.91	23.90	22.95	23.77	22.97	23.81	22.80
		330°	23.95	22.90	23.78	22.90	23.92	22.83	23.80	22.94
		340°	23.94	22.85	23.76	22.89	23.92	22.84	23.76	22.86
		345°	23.88	22.86	23.82	22.85	23.91	22.98	23.82	22.89

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Antenna	Operation mode	Lid angle	20MHz		15MHz		10MHz		5MHz	
			QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
WWAN TX (LTE B41)	Lid close	0°	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
		10°	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
		20°	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
		30°	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
		34°	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	Notebook	35°	24.90	23.92	24.73	23.88	24.79	23.81	24.88	23.67
		40°	24.77	23.87	24.76	24.00	24.82	23.80	24.85	23.71
		50°	24.83	23.94	24.87	23.84	24.64	23.81	24.80	23.66
		60°	24.72	23.81	24.74	23.81	24.76	23.89	24.78	23.74
		70°	24.75	23.90	24.87	23.94	24.83	23.92	24.75	23.81
		80°	24.87	23.93	24.83	23.98	24.75	23.97	24.78	23.68
		90°	24.83	23.80	24.78	23.95	24.67	23.85	24.81	23.77
		100°	24.82	23.82	24.88	23.94	24.72	23.84	24.86	23.68
		110°	24.89	23.89	24.76	23.85	24.83	23.93	24.87	23.69
		120°	24.86	23.92	24.87	23.96	24.64	23.90	24.90	23.82
		129°	24.83	23.78	24.71	23.83	24.69	23.95	24.76	23.80
		Non-Notebook	130°	24.78	23.78	24.83	23.95	24.64	23.96	24.74
	140°		24.82	23.78	24.75	24.00	24.64	23.94	24.75	23.75
	150°		24.74	23.88	24.75	23.97	24.83	23.87	24.89	23.70
	160°		24.91	23.84	24.79	23.87	24.69	23.90	24.77	23.71
	170°		24.81	23.78	24.76	23.99	24.65	23.92	24.76	23.68
	180°		24.73	23.91	24.85	23.85	24.78	23.82	24.71	23.70
	190°		24.77	23.80	24.73	23.99	24.68	23.83	24.82	23.67
	200°		24.76	23.95	24.73	23.97	24.79	23.87	24.81	23.66
	210°		24.85	23.95	24.80	23.89	24.66	23.99	24.86	23.79
	220°		24.73	23.94	24.73	23.87	24.71	23.95	24.75	23.69
	230°		24.81	23.87	24.75	23.88	24.78	23.86	24.76	23.68
	240°		24.72	23.82	24.84	23.84	24.72	23.86	24.90	23.70
	250°		24.75	23.81	24.89	23.85	24.70	23.80	24.74	23.68
	260°		24.74	23.94	24.88	23.84	24.68	23.81	24.79	23.67
	270°		24.86	23.81	24.77	23.84	24.65	23.91	24.88	23.83
	280°		24.86	23.79	24.76	23.88	24.79	23.81	24.79	23.75
	290°		24.79	23.85	24.83	23.97	24.64	23.87	24.88	23.81
	300°		24.73	23.88	24.87	23.91	24.72	23.84	24.75	23.70
	310°		24.73	23.86	24.76	23.97	24.81	23.97	24.73	23.79
	320°	24.88	23.89	24.77	23.91	24.73	23.87	24.80	23.73	
330°	24.74	23.89	24.79	23.86	24.67	23.88	24.87	23.73		
340°	24.87	23.89	24.88	23.93	24.77	23.95	24.77	23.77		
350°	24.87	23.88	24.84	23.97	24.80	23.80	24.71	23.78		
360°	24.76	23.87	24.80	23.86	24.67	23.98	24.72	23.75		

Antenna	Operation mode	Lid angle	20MHz		15MHz		10MHz		5MHz	
			QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
WWAN TX (LTE B41)	Stand	201°	24.84	23.93	24.79	23.85	24.64	23.94	24.75	23.71
		210°	24.72	23.77	24.83	23.98	24.66	23.89	24.84	23.74
		220°	24.85	23.94	24.72	23.94	24.69	23.89	24.76	23.68
		230°	24.81	23.78	24.88	23.88	24.73	23.82	24.80	23.77
		240°	24.80	23.83	24.82	23.82	24.74	23.95	24.71	23.71
		250°	24.82	23.86	24.84	23.85	24.78	23.89	24.79	23.82
		260°	24.83	23.95	24.84	23.94	24.72	23.95	24.72	23.78
		270°	24.74	23.78	24.84	23.88	24.82	23.92	24.76	23.73
		280°	24.82	23.93	24.79	23.91	24.79	23.83	24.84	23.72
		290°	24.86	23.92	24.86	24.00	24.66	23.92	24.76	23.69
		300°	24.75	23.89	24.79	23.85	24.75	23.80	24.77	23.70
		310°	24.84	23.95	24.72	23.96	24.83	23.89	24.73	23.85
		320°	24.89	23.95	24.88	23.98	24.73	23.90	24.85	23.81
		330°	24.88	23.86	24.75	24.00	24.74	23.97	24.82	23.72
		340°	24.87	23.95	24.76	23.91	24.64	23.91	24.85	23.80
		345°	24.81	23.87	24.88	23.88	24.76	23.86	24.73	23.77

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Antenna	Operation mode	Lid angle	20MHz		15MHz		10MHz		5MHz		3MHz		1.4MHz		
			QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	
WWAN TX (LTE B66)	Lid close	0°	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
		10°	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
		20°	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
		30°	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
		34°	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
		35°	23.61	22.82	23.38	22.79	23.36	22.70	23.50	22.87	23.22	22.57	23.26	22.55	
	Notebook	40°	23.63	22.85	23.47	22.81	23.49	22.83	23.59	22.88	23.32	22.66	23.26	22.66	
		50°	23.56	22.81	23.33	22.71	23.39	22.79	23.49	22.91	23.27	22.48	23.12	22.58	
		60°	23.58	22.73	23.43	22.78	23.54	22.83	23.45	22.82	23.22	22.57	23.12	22.67	
		70°	23.46	22.68	23.48	22.76	23.46	22.72	23.49	22.84	23.31	22.48	23.23	22.61	
		80°	23.61	22.72	23.48	22.67	23.49	22.76	23.46	22.86	23.19	22.52	23.22	22.60	
		90°	23.56	22.73	23.32	22.63	23.39	22.74	23.60	22.81	23.28	22.59	23.17	22.66	
		100°	23.63	22.83	23.43	22.76	23.47	22.74	23.53	22.81	23.34	22.60	23.13	22.61	
		110°	23.62	22.71	23.34	22.64	23.35	22.76	23.42	22.85	23.30	22.50	23.28	22.70	
		120°	23.55	22.84	23.43	22.70	23.54	22.78	23.54	22.93	23.36	22.52	23.23	22.57	
		129°	23.56	22.81	23.34	22.72	23.39	22.73	23.50	22.86	23.27	22.62	23.30	22.55	
		Non-Notebook	130°	18.22	18.11	18.14	18.08	18.29	18.21	18.15	18.20	18.24	18.20	18.14	18.23
			140°	18.24	18.18	18.22	18.14	18.26	18.16	18.22	18.12	18.13	18.25	18.12	18.26
			150°	18.27	18.24	18.09	18.18	18.10	18.17	18.21	18.26	18.24	18.20	18.24	18.16
			160°	18.24	18.10	18.13	18.10	18.21	18.20	18.24	18.26	18.28	18.18	18.20	18.25
			170°	18.11	18.13	18.18	18.21	18.21	18.15	18.25	18.21	18.19	18.12	18.11	18.16
	180°		18.12	18.16	18.09	18.13	18.14	18.18	18.25	18.09	18.17	18.15	18.20	18.17	
	190°		18.19	18.17	18.22	18.25	18.22	18.10	18.17	18.16	18.27	18.12	18.10	18.21	
	200°		18.21	18.15	18.12	18.19	18.24	18.22	18.22	18.18	18.10	18.25	18.18	18.22	
	210°		18.24	18.16	18.18	18.15	18.16	18.23	18.27	18.20	18.26	18.10	18.25	18.23	
	220°		18.18	18.26	18.21	18.27	18.16	18.17	18.15	18.17	18.19	18.28	18.11	18.12	
	230°		18.11	18.08	18.15	18.25	18.25	18.12	18.26	18.16	18.21	18.28	18.17	18.19	
	240°		18.12	18.19	18.09	18.20	18.24	18.21	18.23	18.11	18.25	18.15	18.09	18.23	
	250°		18.12	18.10	18.16	18.10	18.13	18.11	18.19	18.27	18.13	18.22	18.10	18.13	
	260°		18.27	18.21	18.09	18.19	18.11	18.10	18.12	18.25	18.21	18.11	18.14	18.14	
	270°		18.14	18.22	18.22	18.16	18.11	18.28	18.22	18.16	18.24	18.11	18.16	18.09	
	280°	18.13	18.15	18.26	18.23	18.16	18.19	18.13	18.26	18.17	18.09	18.16	18.24		
	290°	18.23	18.20	18.11	18.23	18.25	18.23	18.13	18.22	18.21	18.28	18.15	18.23		
	300°	18.16	18.21	18.27	18.19	18.10	18.16	18.16	18.18	18.20	18.13	18.25	18.28		
	310°	18.16	18.11	18.17	18.13	18.25	18.16	18.24	18.09	18.24	18.26	18.13	18.27		
	320°	18.27	18.12	18.22	18.16	18.27	18.11	18.28	18.16	18.19	18.25	18.19	18.18		
330°	18.25	18.14	18.17	18.15	18.21	18.27	18.16	18.15	18.27	18.22	18.17	18.10			
340°	18.30	18.25	18.16	18.10	18.26	18.13	18.20	18.26	18.25	18.10	18.22	18.17			
350°	18.23	18.11	18.10	18.25	18.15	18.22	18.09	18.20	18.19	18.28	18.15	18.24			
360°	18.11	18.09	18.16	18.11	18.29	18.14	18.28	18.26	18.19	18.14	18.22	18.17			

Antenna	Operation mode	Lid angle	20MHz		15MHz		10MHz		5MHz		3MHz		1.4MHz	
			QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
WWAN TX (LTE B66)	Stand	201°	23.44	22.71	23.35	22.75	23.43	22.69	23.46	22.83	23.35	22.47	23.14	22.57
		210°	23.53	22.86	23.47	22.77	23.51	22.72	23.55	22.84	23.35	22.61	23.12	22.65
		220°	23.56	22.72	23.36	22.71	23.45	22.72	23.60	22.83	23.24	22.49	23.11	22.64
		230°	23.60	22.78	23.33	22.68	23.40	22.69	23.41	22.95	23.20	22.54	23.14	22.69
		240°	23.51	22.74	23.35	22.63	23.45	22.79	23.44	22.81	23.31	22.65	23.26	22.68
		250°	23.58	22.86	23.35	22.81	23.50	22.85	23.41	22.85	23.22	22.54	23.25	22.57
		260°	23.44	22.79	23.36	22.77	23.35	22.76	23.50	22.86	23.20	22.63	23.28	22.72
		270°	23.56	22.79	23.33	22.64	23.46	22.71	23.55	22.83	23.30	22.62	23.17	22.70
		280°	23.50	22.75	23.34	22.64	23.53	22.73	23.49	22.78	23.25	22.60	23.15	22.59
		290°	23.61	22.73	23.37	22.77	23.49	22.75	23.55	22.90	23.29	22.65	23.21	22.60
		300°	23.58	22.77	23.37	22.70	23.50	22.72	23.41	22.94	23.37	22.56	23.13	22.64
		310°	23.58	22.83	23.44	22.74	23.42	22.76	23.50	22.93	23.23	22.54	23.20	22.72
		320°	23.53	22.74	23.37	22.65	23.49	22.85	23.49	22.93	23.19	22.65	23.13	22.60
		330°	23.63	22.70	23.47	22.63	23.53	22.78	23.45	22.84	23.36	22.51	23.27	22.62
		340°	23.44	22.68	23.40	22.79	23.40	22.78	23.49	22.95	23.27	22.53	23.24	22.62
		345°	23.47	22.78	23.48	22.69	23.46	22.69	23.50	22.83	23.36	22.58	23.13	22.69

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## 1.7 The SAR Measurement System

A block diagram of the SAR measurement System is given in Fig. a. This SAR Measurement System uses a Computer-controlled 3-D stepper motor system (SPEAG DASY 5 professional system). The model EX3DV4 field probe is used to determine the internal electric fields. The SAR can be obtained from the equation  $SAR = \sigma (|E|)^2 / \rho$  where  $\sigma$  and  $\rho$  are the conductivity and mass density of the tissue-simulant.

The DASY 5 system for performing compliance tests consists of the following items:

1. A standard high precision 6-axis robot (Staubli RX family) with controller, teach pendant and software. An arm extension is for accommodating the data acquisition electronics (DAE).
2. A dosimetric probe, i.e., an isotropic E-field probe optimized and calibrated for usage in tissue simulating liquid. The probe is equipped with an optical surface detector system.
3. A data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.

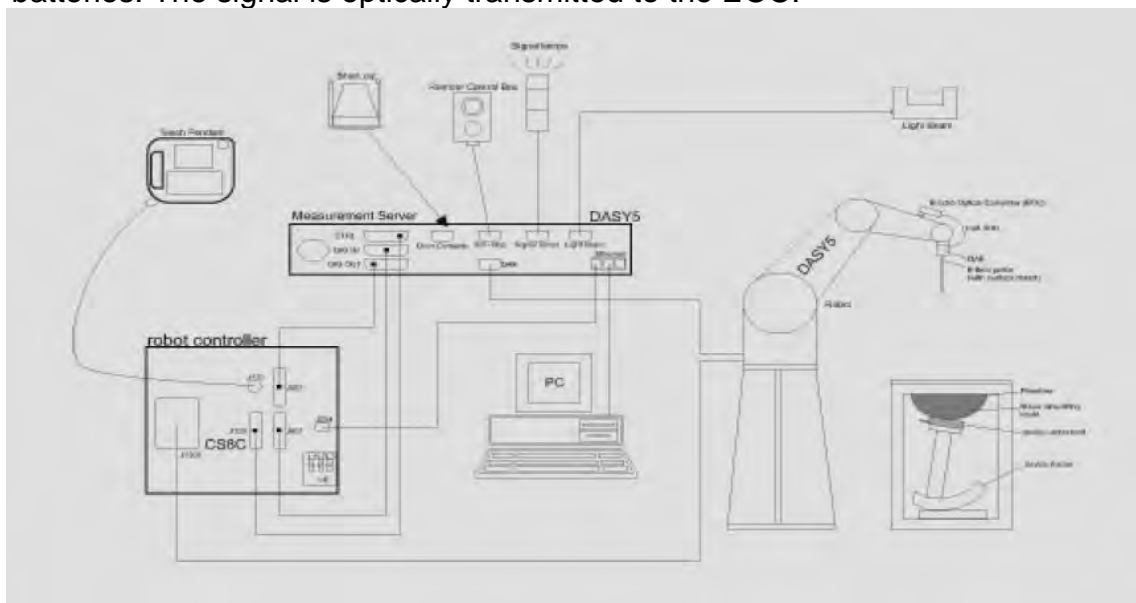


Fig. a The block diagram of SAR system

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4. The Electro-optical converter (EOC) performs the conversion between optical and electrical of the signals for the digital communication to the DAE and for the analog signal from the optical surface detection. The EOC is connected to the measurement server.
5. The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
6. A probe alignment unit which improves the (absolute) accuracy of the probe positioning.
7. A computer operating Windows 7.
8. DASY 5 software.
9. Remote control with teach pendant and additional circuitry for robot safety such as warning lamps, etc.
10. Tissue simulating liquid mixed according to the given recipes.
11. Validation dipole kits allowing to validate the proper functioning of the system.

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## 1.8 System Components


### EX3DV4 E-Field Probe

Construction	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)	
Calibration	Basic Broad Band Calibration in air Conversion Factors (CF) for HSL 750/835/1750/1900/2300/2450/2600/ 5200/5300/5600/5800MHz Additional CF for other liquids and frequencies upon request	
Frequency	10 MHz to > 6 GHz	
Directivity	± 0.3 dB in HSL (rotation around probe axis) ± 0.5 dB in tissue material (rotation normal to probe axis)	
Dynamic Range	10 µW/g to > 100 mW/g Linearity: ± 0.2 dB (noise: typically < 1 µW/g)	
Dimensions	Tip diameter: 2.5 mm	
Application	High precision dosimetric measurements in any exposure scenario (e.g., very strong gradient fields). Only probe which enables compliance testing for frequencies up to 6 GHz with precision of better 30%.	


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## PHANTOM

Model	ELI	
Construction	The ELI phantom is used for compliance testing of handheld and body-mounted wireless devices in the frequency range of 30 MHz to 6 GHz. ELI is fully compatible with the IEC 62209-2 standard and all known tissue simulating liquids. ELI has been optimized regarding its performance and can be integrated into our standard phantom tables. A cover prevents evaporation of the liquid. Reference markings on the phantom allow installation of the complete setup, including all predefined phantom positions and measurement grids, by teaching three points. The phantom is compatible with all SPEAG dosimetric probes and dipoles.	
Shell Thickness	2 ± 0.2 mm	
Filling Volume	Approx. 30 liters	
Dimensions	Major axis: 600 mm Minor axis: 400 mm	

## DEVICE HOLDER

Construction	The device holder (Supporter) for Notebook is made by POM (polyoxymethylene resin) , which is non-metal and non-conductive. The height can be adjusted to fit varies kind of notebooks.	
		Device Holder

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### 1.9 SAR System Verification

The microwave circuit arrangement for system verification is sketched in Fig. b. The daily system accuracy verification occurs within the flat section of the SAM phantom. A SAR measurement was performed to see if the measured SAR was within +/- 10% from the target SAR values. These tests were done at 750/835/1750/1900/2300/2450/2600/5200/5300/5600/5800MHz. The tests were conducted on the same days as the measurement of the DUT. The obtained results from the system accuracy verification are displayed in the table 1 (SAR values are normalized to 1W forward power delivered to the dipole). During the tests, the liquid depth above the ear reference points was  $\geq 15 \text{ cm} \pm 5 \text{ mm}$  (frequency  $\leq 3 \text{ GHz}$ ) or  $\geq 10 \text{ cm} \pm 5 \text{ mm}$  (frequency  $> 3 \text{ GHz}$ ) in all the cases. It is seen that the system is operating within its specification, as the results are within acceptable tolerance of the reference values.

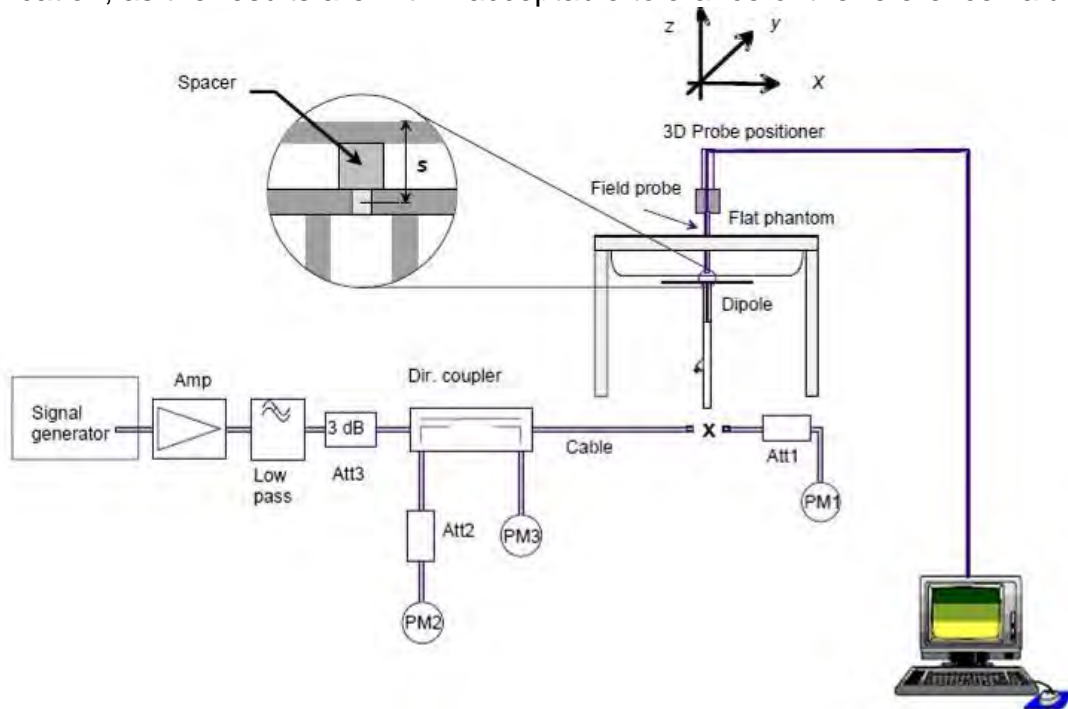


Fig. b The block diagram of system verification

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Validation Kit	S/N	Frequency (MHz)		1W Target SAR-1g (mW/g)	Measured SAR-1g (mW/g)	Measured SAR-1g normalized to 1W (mW/g)	Deviation (%)	Measured Date
D750V3	1078	750	Body	8.25	2.12	8.48	2.79%	Aug. 28, 2018
D835V2	4d120	835	Body	9.68	2.35	9.40	-2.89%	Aug. 29, 2018
D1750V2	1023	1750	Body	36.8	9.07	36.28	-1.41%	Aug. 30, 2018
D1900V2	5d173	1900	Body	40.9	9.83	39.32	-3.86%	Aug. 31, 2018
D2300V2	1006	2300	Body	47.3	11.9	47.60	0.63%	Sep. 03, 2018
D2450V2	727	2450	Body	50.8	13.1	52.4	3.15%	Jul. 28, 2018
D2600V2	1005	2600	Body	54.4	14.5	58.00	6.62%	Sep. 04, 2018
			Body	54.4	14.3	57.20	5.15%	Sep. 07, 2018
D5GHzV2	1023	5200	Body	70.9	7.24	72.4	2.12%	Jul. 30, 2018
		5300	Body	72.9	7.41	74.1	1.65%	Jul. 30, 2018
		5600	Body	77.6	7.88	78.8	1.55%	Jul. 31, 2018
		5800	Body	74.1	7.45	74.5	0.54%	Jul. 31, 2018

Table 1. Results of system verification

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### 1.10 Tissue Simulant Fluid for the Frequency Band

The dielectric properties for this Head-simulant fluid were measured by using the Agilent Model 85070E Dielectric Probe (rates frequency band 200 MHz to 20 GHz) in conjunction with Network Analyzer.

All dielectric parameters of tissue simulates were measured within 24 hours of SAR measurements. The measured conductivity and permittivity are all within  $\pm 5\%$  of the target values.

The depth of the tissue simulant in the flat section of the phantom was  $\geq 15 \text{ cm} \pm 5 \text{ mm}$  (Frequency  $\leq 3\text{G}$ ) or  $\geq 10 \text{ cm} \pm 5 \text{ mm}$  (Frequency  $>3\text{G}$ ) during all tests. (Fig. 2)

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Tissue Type	Measurement Date	Measured Frequency (MHz)	Target Dielectric Constant, $\epsilon_r$	Target Conductivity, $\sigma$ (S/m)	Measured Dielectric Constant, $\epsilon_r$	Measured Conductivity, $\sigma$ (S/m)	% dev $\epsilon_r$	% dev $\sigma$
Body	Aug, 28. 2018	704	55.710	0.960	56.965	0.925	-2.25%	3.62%
		707.5	55.697	0.960	56.962	0.927	-2.27%	3.44%
		709	55.691	0.960	56.947	0.929	-2.26%	3.25%
		710	55.687	0.960	56.972	0.933	-2.31%	2.84%
		711	55.683	0.960	56.901	0.936	-2.19%	2.53%
		750	55.531	0.963	56.658	0.971	-2.03%	-0.79%
		782	55.406	0.966	56.342	1.002	-1.69%	-3.74%
	793	55.301	0.967	56.312	1.001	-1.83%	-3.52%	
	Aug, 29. 2018	822.5	55.249	0.969	57.161	0.976	-3.46%	-0.72%
		826.4	55.226	0.959	57.152	0.978	-3.49%	-1.94%
		829	55.218	0.963	57.141	0.979	-3.48%	-1.70%
		831.5	55.214	0.970	57.138	0.986	-3.49%	-1.68%
		835	55.200	0.970	57.137	0.987	-3.51%	-1.75%
		836.5	55.195	0.972	57.084	0.989	-3.42%	-1.77%
		836.6	55.194	0.970	57.081	0.991	-3.42%	-2.15%
		841.5	55.180	0.978	57.063	0.994	-3.41%	-1.64%
	844	55.172	0.981	57.058	0.998	-3.42%	-1.72%	
	846.6	55.164	0.984	56.991	0.999	-3.31%	-1.50%	
	Aug, 30. 2018	1712.4	53.531	1.465	51.286	1.418	4.19%	3.19%
		1720	53.511	1.469	51.240	1.429	4.24%	2.75%
		1732.4	53.478	1.477	51.205	1.441	4.25%	2.46%
		1732.5	53.478	1.477	51.194	1.442	4.27%	2.39%
		1745	53.445	1.485	51.178	1.453	4.24%	2.17%
		1750	53.432	1.488	51.161	1.462	4.25%	1.78%
		1752.6	53.425	1.490	51.154	1.464	4.25%	1.75%
	1770	53.379	1.501	51.095	1.482	4.28%	1.27%	
	Aug, 31. 2018	1852.4	53.162	1.553	50.802	1.568	4.44%	-0.96%
		1860	53.142	1.558	50.772	1.575	4.46%	-1.10%
		1880	53.089	1.571	50.719	1.598	4.47%	-1.75%
		1883	53.055	1.575	51.243	1.602	3.42%	-1.71%
		1900	53.037	1.583	50.642	1.619	4.52%	-2.26%
		1905.0	53.027	1.585	50.621	1.622	4.54%	-2.33%
	1907.6	53.017	1.588	50.607	1.629	4.55%	-2.58%	
	Sep, 03. 2018	2300	52.900	1.807	53.343	1.836	-0.84%	-1.62%
		2310	52.887	1.816	53.300	1.845	-0.78%	-1.58%
	Sep, 04. 2018	2506	52.629	2.029	52.623	2.106	0.01%	-3.77%
		2510	52.624	2.035	52.602	2.116	0.04%	-3.98%
		2535	52.592	2.071	52.521	2.152	0.13%	-3.93%
		2549.5	52.573	2.091	52.497	2.170	0.15%	-3.77%
		2560	52.560	2.106	52.438	2.185	0.23%	-3.75%
		2580	52.535	2.134	52.384	2.213	0.29%	-3.68%
		2593	52.518	2.153	52.327	2.229	0.36%	-3.54%
		2595	52.515	2.156	52.330	2.232	0.35%	-3.54%
		2600	52.509	2.163	52.314	2.240	0.37%	-3.57%
		2610	52.496	2.177	52.263	2.252	0.44%	-3.45%
	2636.5	52.463	2.214	52.191	2.295	0.52%	-3.64%	
	2680	52.407	2.276	52.052	2.353	0.68%	-3.37%	
Sep, 07. 2018	2580	52.535	2.134	52.907	2.225	-0.71%	-4.25%	
	2595	52.515	2.156	52.853	2.227	-0.64%	-3.31%	
	2600	52.509	2.163	52.837	2.231	-0.62%	-3.16%	
	2610	52.496	2.177	52.785	2.241	-0.55%	-2.94%	

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Measurement Date	Measured Frequency (MHz)	Target Dielectric Constant, $\epsilon_r$	Target Conductivity, $\sigma$ (S/m)	Measured Dielectric Constant, $\epsilon_r$	Measured Conductivity, $\sigma$ (S/m)	% dev $\epsilon_r$	% dev $\sigma$
Jul. 28. 2018	2412	52.751	1.914	53.000	1.882	-0.47%	1.66%
	2417	52.744	1.918	52.956	1.889	-0.40%	1.54%
	2437	52.717	1.938	52.882	1.914	-0.31%	1.22%
	2441	52.712	1.941	52.875	1.920	-0.31%	1.10%
	2450	52.700	1.950	52.827	1.932	-0.24%	0.92%
	2457	52.691	1.960	52.808	1.941	-0.22%	0.97%
	2462	52.685	1.967	52.786	1.950	-0.19%	0.87%
Jul. 30. 2018	5190	49.028	5.288	49.677	5.253	-1.32%	0.65%
	5200	49.014	5.299	49.628	5.264	-1.25%	0.67%
	5230	48.974	5.334	49.609	5.299	-1.30%	0.66%
	5270	48.919	5.381	49.340	5.382	-0.86%	-0.02%
	5300	48.879	5.416	49.301	5.376	-0.86%	0.74%
Jul. 31. 2018	5600	48.471	5.766	48.510	5.768	-0.08%	-0.03%
	5690	48.349	5.872	48.303	5.838	0.10%	0.57%
	5775	48.234	5.971	47.951	6.004	0.59%	-0.56%
	5795	48.207	5.994	47.762	6.055	0.92%	-1.01%
	5800	48.200	6.000	47.847	6.039	0.73%	-0.65%

Table 2. Dielectric Parameters of Tissue Simulant Fluid

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The composition of the body tissue simulating liquid:

Frequency (MHz)	Mode	Ingredient						Total amount
		DGMBE	Water	Salt	Preventol D-7	Cellulose	Sugar	
750	Body	—	631.68 g	11.72 g	1.2 g	—	600 g	1.0L(Kg)
835	Body	—	631.68 g	11.72 g	1.2 g	—	600 g	1.0L(Kg)
1750	Body	300.67 g	716.56 g	4.0 g	—	—	—	1.0L(Kg)
1900	Body	300.67 g	716.56 g	4.0 g	—	—	—	1.0L(Kg)
2300	Body	301.7ml	698.3ml	—	—	—	—	1.0L(Kg)
2450	Body	301.7ml	698.3ml	—	—	—	—	1.0L(Kg)
2600	Body	301.7ml	698.3ml	—	—	—	—	1.0L(Kg)

Body Simulating Liquids for 5 GHz, Manufactured by SPEAG:

Ingredients	Water	Esters, Emulsifiers, Inhibitors	Sodium and Salt
(% by weight)	60-80	20-40	0-1.5

Table 3. Recipes for Tissue Simulating Liquid

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## 1.11 Evaluation Procedures

The entire evaluation of the spatial peak values is performed within the Post-processing engine (SEMCAD). The system always gives the maximum values for the 1 g and 10 g cubes. The algorithm to find the cube with highest averaged SAR is divided into the following stages:

1. The extraction of the measured data (grid and values) from the Zoom Scan.
2. The calculation of the SAR value at every measurement point based on all stored data (A/D values and measurement parameters)
3. The generation of a high-resolution mesh within the measured volume
4. The interpolation of all measured values from the measurement grid to the high-resolution grid
5. The extrapolation of the entire 3-D field distribution to the phantom surface over the distance from sensor to surface
6. The calculation of the averaged SAR within masses of 1g and 10g.

The probe is calibrated at the center of the dipole sensors that is located 1 to 2.7mm away from the probe tip. During measurements, the probe stops shortly above the phantom surface, depending on the probe and the surface detecting system. Both distances are included as parameters in the probe configuration file. The software always knows exactly how far away the measured point is from the surface. As the probe cannot directly measure at the surface, the values between the deepest measured point and the surface must be extrapolated. The angle between the probe axis and the surface normal line is less than 30 degree.

In the Area Scan, the gradient of the interpolation function is evaluated to find all the extreme of the SAR distribution. The uncertainty on the locations of the extreme is less than 1/20 of the grid size. Only local maximum within -2 dB of the global maximum are searched and passed for the Cube Scan measurement. In the Cube Scan, the interpolation function is used to extrapolate the Peak SAR from the lowest measurement points to the inner phantom surface (the extrapolation distance). The uncertainty increases with the extrapolation distance. To keep the uncertainty within 1% for the 1 g and 10 g cubes, the extrapolation distance should not be larger than 5mm.

The maximum search is automatically performed after each area scan measurement. It is based on splines in two or three dimensions. The procedure can find the maximum for most SAR distributions even with relatively large grid spacing. After the area scanning measurement, the probe is automatically moved to a position at the interpolated maximum. The following scan can directly use this position for reference, e.g., for a finer resolution grid or the cube evaluations. The 1g and 10g peak evaluations are only available for the predefined cube 7x7x7 scans. The routines are verified and optimized for the grid dimensions used in

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these cube measurements.

The measured volume of 30x30x30mm contains about 30g of tissue.

The first procedure is an extrapolation (incl. Boundary correction) to get the points between the lowest measured plane and the surface. The next step uses 3D interpolation to get all points within the measured volume. In the last step, a 1g cube is placed numerically into the volume and its averaged SAR is calculated. This cube is moved around until the highest averaged SAR is found. If the highest SAR is found at the edge of the measured volume, the system will issue a warning: higher SAR values might be found outside of the measured volume. In that case the cube measurement can be repeated, using the new interpolated maximum as the center.

## 1.12 Probe Calibration Procedures

For the calibration of E-field probes in lossy liquids, an electric field with an accurately known field strength must be produced within the measured liquid. For standardization purposes it would be desirable if all measurements which are necessary to assess the correct field strength would be traceable to standardized measurement procedures. In the following two different calibration techniques are summarized:

### 1.12.1 Transfer Calibration with Temperature Probes

In lossy liquids the specific absorption rate (SAR) is related both to the electric field ( $E$ ) and the temperature gradient ( $\delta T / \delta t$ ) in the liquid.

$$SAR = \frac{\sigma}{\rho} |E|^2 = c \frac{\delta T}{\delta t}$$

whereby  $\sigma$  is the conductivity,  $\rho$  the density and  $c$  the heat capacity of the liquid.

Hence, the electric field in lossy liquid can be measured indirectly by measuring the temperature gradient in the liquid. Non-disturbing temperature probes (optical probes or thermistor probes with resistive lines) with high spatial resolution (<1-2 mm) and fast reaction time (<1 s) are available and can be easily calibrated with high precision [1]. The setup and the exciting source have no influence on the calibration; only the relative positioning uncertainties of the standard temperature probe and the E-field probe to be calibrated must be considered. However, several problems limit the available accuracy of probe calibrations with temperature probes:

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1. The temperature gradient is not directly measurable but must be evaluated from temperature measurements at different time steps. Special precaution is necessary to avoid measurement errors caused by temperature gradients due to energy equalizing effects or convection currents in the liquid. Such effects cannot be completely avoided, as the measured field itself destroys the thermal equilibrium in the liquid. With a careful setup these errors can be kept small.
2. The measured volume around the temperature probe is not well defined. It is difficult to calculate the energy transfer from a surrounding gradient temperature field into the probe. These effects must be considered, since temperature probes are calibrated in liquid with homogeneous temperatures. There is no traceable standard for temperature rise measurements.
3. The calibration depends on the assessment of the specific density, the heat capacity and the conductivity of the medium. While the specific density and heat capacity can be measured accurately with standardized procedures ( $\sim 2\%$  for  $c$ ; much better for  $\rho$ ), there is no standard for the measurement of the conductivity. Depending on the method and liquid, the error can well exceed  $\pm 5\%$ .
4. Temperature rise measurements are not very sensitive and therefore are often performed at a higher power level than the E-field measurements. The nonlinearities in the system (e.g., power measurements, different components, etc.) must be considered.

Considering these problems, the possible accuracy of the calibration of E-field probes with temperature gradient measurements in a carefully designed setup is about  $\pm 10\%$  (RSS) [2]. Recently, a setup which is a combination of the waveguide techniques and the thermal measurements was presented in [3]. The estimated uncertainty of the setup is  $\pm 5\%$  (RSS) when the same liquid is used for the calibration and for actual measurements and  $\pm 7-9\%$  (RSS) when not, which is in good agreement with the estimates given in [2].

### 1.12.2 Calibration with Analytical Fields

In this method a technical setup is used in which the field can be calculated analytically from measurements of other physical magnitudes (e.g., input power). This corresponds to the standard field method for probe calibration in air; however, there is no standard defined for fields in lossy liquids.

When using calculated fields in lossy liquids for probe calibration, several points must be considered in the assessment of the uncertainty:

1. The setup must enable accurate determination of the incident power.

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2. The accuracy of the calculated field strength will depend on the assessment of the dielectric parameters of the liquid.
3. Due to the small wavelength in liquids with high permittivity, even small setups might be above the resonant cutoff frequencies. The field distribution in the setup must be carefully checked for conformity with the theoretical field distribution.

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### 1.13 Test Standards and Limits

According to FCC 47CFR §2.1093(d) The limits to be used for evaluation are based generally on criteria published by the American National Standards Institute (ANSI) for localized specific absorption rate (“SAR”) in Section 4.2 of “IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz,” ANSI/IEEE C95.1, By the Institute of Electrical and Electronics Engineers, Inc., New York, New York 10017. These criteria for SAR evaluation are similar to those recommended by the National Council on Radiation Protection and Measurements (NCRP) in “Biological Effects and Exposure Criteria for Radio frequency Electromagnetic Fields,” NCRP Report No. 86, Section 17.4.5. Copyright NCRP, 1986, Bethesda, Maryland 20814. SAR is a measure of the rate of energy absorption due to exposure to an RF transmitting source. SAR values have been related to threshold levels for potential biological hazards. The criteria to be used are specified in paragraphs (d)(1) and (d)(2) of this section and shall apply for portable devices transmitting in the frequency range from 100 kHz to 6 GHz. Portable devices that transmit at frequencies above 6 GHz are to be evaluated in terms of the MPE limits specified in § 1.1310 of this chapter. Measurements and calculations to demonstrate compliance with MPE field strength or power density limits for devices operating above 6 GHz should be made at a minimum distance of 5 cm from the radiating source.

1. Limits for Occupational/Controlled exposure: 0.4 W/kg as averaged over the whole-body and spatial peak SAR not exceeding 8 W/kg as averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube). Exceptions are the hands, wrists, feet and ankles where the spatial peak SAR shall not exceed 20 W/kg, as averaged over an 10 grams of tissue (defined as a tissue volume in the shape of a cube).
2. Occupational/Controlled limits apply when persons are exposed as a consequence of their employment provided these persons are fully aware of and exercise control over their exposure. Awareness of exposure can be accomplished by use of warning labels or by specific training or education through appropriate means, such as an RF safety program in a work environment.
3. Limits for General Population/Uncontrolled exposure: 0.08 W/kg as averaged over the whole-body and spatial peak SAR not exceeding 1.6 W/kg as averaged over any 1 gram of tissue (defined as a tissue volume in the shape

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of a cube). Exceptions are the hands, wrists, feet and ankles where the spatial peak SAR shall not exceed 4 W/kg, as averaged over any 10 grams of tissue (defined as a tissue volume in the shape of a cube). General Population/Uncontrolled limits apply when the general public may be exposed, or when persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or do not exercise control over their exposure. Warning labels placed on consumer devices such as cellular telephones will not be sufficient reason to allow these devices to be evaluated subject to limits for occupational/controlled exposure in paragraph (d)(1) of this section. (Table 4.)

Human Exposure	Uncontrolled Environment General Population	Controlled Environment Occupational
Spatial Peak SAR (Brain)	1.60 W/Kg	8.00 W/Kg
Spatial Average SAR (Whole Body)	0.08 W/Kg	0.40 W/Kg
Spatial Peak SAR (Hands/Feet/Ankle/Wrist)	4.00 W/Kg	20.00 W/Kg

Table 4. RF exposure limits

Notes:

1. Uncontrolled environments are defined as locations where there is potential exposure of individuals who have no knowledge or control of their potential exposure.
2. Controlled environments are defined as locations where there is potential exposure of individuals who have knowledge of their potential exposure and can exercise control over their exposure.

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## 2. Summary of Results

### WCDMA Band II

Mode	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page
								Measured	Reported	
WCDMA Band II	Back side	0	9538	1907.6	16.50	16.42	1.86%	0.078	0.079	-
	Top side	0	9538	1907.6	16.50	16.42	1.86%	0.426	0.434	-
	Bottom side	0	9538	1907.6	16.50	16.42	1.86%	0.009	0.009	-
	Right side	0	9538	1907.6	16.50	16.42	1.86%	0.011	0.011	-
	Left side	0	9262	1852.4	16.50	16.41	2.09%	1.090	1.113	-
	Left side	0	9400	1880	16.50	16.39	2.57%	1.110	1.138	-
	Left side	0	9538	1907.6	16.50	16.42	1.86%	1.190	1.212	280

### WCDMA Band IV

Mode	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page
								Measured	Reported	
WCDMA Band IV	Back side	0	1412	1732.4	18.5	18.27	5.44%	0.081	0.085	-
	Top side	0	1412	1732.4	18.5	18.27	5.44%	0.525	0.554	-
	Bottom side	0	1412	1732.4	18.5	18.27	5.44%	0.011	0.012	-
	Right side	0	1412	1732.4	18.5	18.27	5.44%	0.012	0.013	-
	Left side	0	1312	1712.4	18.5	18.21	6.91%	1.160	1.240	-
	Left side	0	1412	1732.4	18.5	18.27	5.44%	1.230	1.297	281
	Left side	0	1513	1752.6	18.5	18.26	5.68%	1.180	1.247	-

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### WCDMA Band V

Mode	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page
								Measured	Reported	
WCDMA Band V	Back side	0	4132	826.4	22.5	21.48	26.47%	0.159	0.201	-
	Top side	0	4132	826.4	22.5	21.48	26.47%	0.614	0.777	-
	Bottom side	0	4132	826.4	22.5	21.48	26.47%	0.026	0.033	-
	Right side	0	4132	826.4	22.5	21.48	26.47%	0.005	0.006	-
	Left side	0	4132	826.4	22.5	21.48	26.47%	0.788	0.997	282
	Left side	0	4183	836.6	22.5	21.44	27.64%	0.763	0.974	-
	Left side	0	4233	846.6	22.5	21.46	27.06%	0.754	0.958	-

### LTE FDD Band 2

Mode	Bandwidth (MHz)	Modulation	RB Size	RB start	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page		
												Measured	Reported			
LTE Band 2	20MHz	QPSK	1 RB	50	0	Left side	0	18700	1860	16.5	16.29	4.95%	0.967	1.015	-	
					Back side	0	19100	1900	16.5	16.41	2.09%	0.068	0.069	-		
					Top side	0	19100	1900	16.5	16.41	2.09%	0.377	0.385	-		
					Bottom side	0	19100	1900	16.5	16.41	2.09%	0.008	0.008	-		
					Right side	0	19100	1900	16.5	16.41	2.09%	0.010	0.010	-		
					Left side	0	19100	1900	16.5	16.41	2.09%	1.020	1.041	283		
					Left side*	0	19100	1900	16.5	16.41	2.09%	0.994	1.015	-		
					99	Left side	0	18900	1880	16.5	16.32	4.23%	0.971	1.012	-	
					25	0	Left side	0	18900	1880	16.5	16.25	5.93%	0.951	1.007	-
						Back side	0	18700	1860	16.5	16.38	2.80%	0.058	0.060	-	
						Top side	0	18700	1860	16.5	16.38	2.80%	0.363	0.373	-	
						Bottom side	0	18700	1860	16.5	16.38	2.80%	0.007	0.008	-	
				Right side		0	18700	1860	16.5	16.38	2.80%	0.009	0.010	-		
				Left side		0	18700	1860	16.5	16.38	2.80%	0.983	1.011	-		
				100 RB	0	Left side	0	19100	1900	16.5	16.37	3.04%	0.966	0.995	-	
					Back side	0	18700	1860	16.5	16.39	2.57%	0.055	0.056	-		
					Top side	0	18700	1860	16.5	16.39	2.57%	0.351	0.360	-		
					Bottom side	0	18700	1860	16.5	16.39	2.57%	0.006	0.007	-		
					Right side	0	18700	1860	16.5	16.39	2.57%	0.009	0.009	-		
					Left side	0	18700	1860	16.5	16.39	2.57%	0.974	0.999	-		
				Left side	0	18900	1880	16.5	16.29	4.95%	0.943	0.990	-			
				Left side	0	19100	1900	16.5	16.13	8.89%	0.912	0.993	-			

\* - repeated at the highest SAR measurement according to the KDB 865664 D01

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**LTE FDD Band 4**

Mode	Bandwidth (MHz)	Modulation	RB Size	RB start	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page	
												Measured	Reported		
LTE Band 4	20MHz	QPSK	1 RB	0	Back side	0	20050	1720	18.5	18.27	5.44%	0.075	0.079	-	
					Top side	0	20050	1720	18.5	18.27	5.44%	0.496	0.523	-	
					Bottom side	0	20050	1720	18.5	18.27	5.44%	0.009	0.009	-	
					Right side	0	20050	1720	18.5	18.27	5.44%	0.011	0.012	-	
					Left side	0	20050	1720	18.5	18.27	5.44%	1.120	1.181	284	
					Left side*	0	20050	1720	18.5	18.27	5.44%	1.090	1.149	-	
				99	Left side	0	20175	1732.5	18.5	18.19	7.40%	1.040	1.117	-	
					Left side	0	20300	1745	18.5	18.17	7.89%	1.010	1.090	-	
					0	Left side	0	20175	1732.5	18.5	18.21	6.91%	0.984	1.052	-
						Back side	0	20050	1720	18.5	18.23	6.41%	0.071	0.076	-
						Top side	0	20050	1720	18.5	18.23	6.41%	0.473	0.503	-
					25	Bottom side	0	20050	1720	18.5	18.23	6.41%	0.008	0.009	-
			Right side	0		20050	1720	18.5	18.23	6.41%	0.009	0.010	-		
			Left side	0		20050	1720	18.5	18.23	6.41%	1.030	1.096	-		
			50	Left side		0	20300	1745	18.5	18.09	9.90%	0.992	1.090	-	
				Back side		0	20175	1732.5	18.5	18.11	9.40%	0.068	0.074	-	
				Top side		0	20175	1732.5	18.5	18.11	9.40%	0.466	0.510	-	
			100 RB	Bottom side	0	20175	1732.5	18.5	18.11	9.40%	0.008	0.009	-		
				Right side	0	20175	1732.5	18.5	18.11	9.40%	0.009	0.010	-		
				Left side	0	20050	1720	18.5	18.04	11.17%	0.955	1.062	-		
				Left side	0	20175	1732.5	18.5	18.11	9.40%	1.010	1.105	-		
				Left side	0	20300	1745	18.5	17.98	12.72%	0.974	1.098	-		

\* - repeated at the highest SAR measurement according to the KDB 865664 D01

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### LTE FDD Band 5

Mode	Bandwidth (MHz)	Modulation	RB Size	RB start	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page
												Measured	Reported	
LTE Band 5	10MHz	QPSK	1 RB	25	Back side	0	20525	836.5	22.5	22.43	1.62%	0.167	0.170	-
					Top side	0	20525	836.5	22.5	22.43	1.62%	0.670	0.681	-
					Bottom side	0	20525	836.5	22.5	22.43	1.62%	0.027	0.027	-
					Right side	0	20525	836.5	22.5	22.43	1.62%	0.005	0.006	-
					Left side	0	20525	836.5	22.5	22.43	1.62%	0.824	0.837	285
					Left side*	0	20525	836.5	22.5	22.43	1.62%	0.810	0.823	-
			Left side	0	20600	844	22.5	22.40	2.33%	0.761	0.779	-		
			Left side	0	20450	829	22.5	22.21	6.91%	0.753	0.805	-		
			25 RB	25	Back side	0	20525	836.5	22.5	22.40	2.33%	0.153	0.157	-
					Top side	0	20525	836.5	22.5	22.40	2.33%	0.663	0.678	-
					Bottom side	0	20525	836.5	22.5	22.40	2.33%	0.021	0.021	-
					Right side	0	20525	836.5	22.5	22.40	2.33%	0.005	0.005	-
					Left side	0	20525	836.5	22.5	22.40	2.33%	0.753	0.771	-
					Left side	0	20525	836.5	22.5	22.40	2.33%	0.753	0.771	-
			50 RB	25	Back side	0	20525	836.5	22.5	22.30	4.71%	0.148	0.155	-
					Top side	0	20525	836.5	22.5	22.30	4.71%	0.638	0.668	-
					Bottom side	0	20525	836.5	22.5	22.30	4.71%	0.019	0.020	-
					Right side	0	20525	836.5	22.5	22.30	4.71%	0.004	0.005	-
					Left side	0	20525	836.5	22.5	22.30	4.71%	0.731	0.765	-
					Left side	0	20525	836.5	22.5	22.30	4.71%	0.731	0.765	-

\* - repeated at the highest SAR measurement according to the KDB 865664 D01

### LTE FDD Band 7

Mode	Bandwidth (MHz)	Modulation	RB Size	RB start	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page	
												Measured	Reported		
LTE Band 7	20MHz	QPSK	1 RB	50	0	Top side	0	21350	2560	17	16.91	2.09%	0.641	0.654	-
					Back side	0	20850	2510	17	16.94	1.39%	0.233	0.236	-	
					Top side	0	20850	2510	17	16.94	1.39%	0.661	0.670	286	
					Top side	0	21100	2535	17	16.92	1.86%	0.654	0.666	-	
					Bottom side	0	20850	2510	17	16.94	1.39%	0.034	0.034	-	
					Right side	0	20850	2510	17	16.94	1.39%	0.006	0.006	-	
			50 RB	50	Left side	0	20850	2510	17	16.94	1.39%	0.301	0.305	-	
					Back side	0	21100	2535	17	16.93	1.62%	0.212	0.215	-	
					Top side	0	21100	2535	17	16.93	1.62%	0.578	0.587	-	
					Bottom side	0	21100	2535	17	16.93	1.62%	0.029	0.029	-	
					Right side	0	21100	2535	17	16.93	1.62%	0.005	0.006	-	
					Left side	0	21100	2535	17	16.93	1.62%	0.283	0.288	-	
			100 RB	50	Back side	0	21100	2535	17	16.86	3.28%	0.209	0.216	-	
					Top side	0	21100	2535	17	16.86	3.28%	0.568	0.587	-	
					Bottom side	0	21100	2535	17	16.86	3.28%	0.027	0.028	-	
					Right side	0	21100	2535	17	16.86	3.28%	0.006	0.006	-	
					Right side	0	21100	2535	17	16.86	3.28%	0.006	0.006	-	
					Left side	0	21100	2535	17	16.86	3.28%	0.277	0.286	-	

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**LTE FDD Band 12**

Mode	Bandwidth (MHz)	Modulation	RB Size	RB start	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page
												Measured	Reported	
LTE Band 12	10MHz	QPSK	1 RB	0	Left side	0	23060	704	20.5	20.31	4.47%	0.654	0.683	-
					Back side	0	23095	707.5	20.5	20.46	0.93%	0.141	0.142	-
				25	Top side	0	23095	707.5	20.5	20.46	0.93%	0.654	0.660	-
					Bottom side	0	23095	707.5	20.5	20.46	0.93%	0.022	0.022	-
					Right side	0	23095	707.5	20.5	20.46	0.93%	0.004	0.004	-
					Left side	0	23095	707.5	20.5	20.46	0.93%	0.692	0.698	287
			25 RB	25	Left side	0	23130	711	20.5	20.43	1.62%	0.643	0.653	-
					Back side	0	23130	711	20.5	20.44	1.39%	0.133	0.135	-
				25	Top side	0	23130	711	20.5	20.44	1.39%	0.641	0.650	-
					Bottom side	0	23130	711	20.5	20.44	1.39%	0.019	0.019	-
					Right side	0	23130	711	20.5	20.44	1.39%	0.003	0.003	-
					Left side	0	23130	711	20.5	20.44	1.39%	0.651	0.660	-
			50 RB	25	Back side	0	23095	707.5	20.5	20.38	2.80%	0.128	0.132	-
					Top side	0	23095	707.5	20.5	20.38	2.80%	0.633	0.651	-
				50	Bottom side	0	23095	707.5	20.5	20.38	2.80%	0.017	0.017	-
					Right side	0	23095	707.5	20.5	20.38	2.80%	0.003	0.003	-
					Right side	0	23095	707.5	20.5	20.38	2.80%	0.003	0.003	-
					Left side	0	23095	707.5	20.5	20.38	2.80%	0.642	0.660	-

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### LTE FDD Band 13

Mode	Bandwidth (MHz)	Modulation	RB Size	RB start	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page		
												Measured	Reported			
LTE Band 13	10MHz	QPSK	1 RB	0	Left side	0	23230	782	21	20.90	2.33%	0.857	0.877	-		
					Back side	0	23230	782	21	20.98	0.46%	0.187	0.188	-		
					Top side	0	23230	782	21	20.98	0.46%	0.677	0.680	-		
				25	Bottom side	0	23230	782	21	20.98	0.46%	0.031	0.031	-		
					Right side	0	23230	782	21	20.98	0.46%	0.006	0.006	-		
					Left side	0	23230	782	21	20.98	0.46%	0.876	0.880	288		
					Left side	0	23230	782	21	20.78	5.20%	0.743	0.782	-		
					Left side	0	23230	782	21	20.83	3.99%	0.751	0.781	-		
					Left side*	0	23230	782	21	20.98	0.46%	0.866	0.870	-		
					49	Left side	0	23230	782	21	20.79	4.95%	0.823	0.864	-	
					25 RB	0	Back side	0	23230	782	21	20.88	2.80%	0.172	0.177	-
						0	Top side	0	23230	782	21	20.88	2.80%	0.651	0.669	-
			0	Bottom side		0	23230	782	21	20.88	2.80%	0.029	0.030	-		
			0	Right side		0	23230	782	21	20.88	2.80%	0.005	0.006	-		
			0	Left side		0	23230	782	21	20.88	2.80%	0.781	0.803	-		
			50 RB	0		Back side	0	23230	782	21	20.92	1.86%	0.169	0.172	-	
				0	Top side	0	23230	782	21	20.92	1.86%	0.643	0.655	-		
				0	Bottom side	0	23230	782	21	20.92	1.86%	0.028	0.029	-		
				0	Right side	0	23230	782	21	20.92	1.86%	0.005	0.005	-		
				0	Left side	0	23230	782	21	20.92	1.86%	0.774	0.788	-		

\* - repeated at the highest SAR measurement according to the KDB 865664 D01

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### LTE FDD Band 14

Mode	Bandwidth (MHz)	Modulation	RB Size	RB start	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page
												Measured	Reported	
LTE Band 14	10MHz	QPSK	1 RB	0	Back side	0	23330	793	21	20.92	1.86%	0.182	0.185	-
					Top side	0	23330	793	21	20.92	1.86%	0.641	0.653	-
					Bottom side	0	23330	793	21	20.92	1.86%	0.029	0.030	-
					Right side	0	23330	793	21	20.92	1.86%	0.006	0.006	-
					Left side	0	23330	793	21	20.92	1.86%	0.852	0.868	289
					Left side*	0	23330	793	21	20.92	1.86%	0.821	0.836	-
			25 RB	0	25 Left side	0	23330	793	21	20.63	8.89%	0.797	0.868	-
					49 Left side	0	23330	793	21	20.71	6.91%	0.804	0.860	-
					Back side	0	23330	793	21	20.77	5.44%	0.174	0.183	-
					Top side	0	23330	793	21	20.77	5.44%	0.611	0.644	-
					Bottom side	0	23330	793	21	20.77	5.44%	0.025	0.026	-
					Right side	0	23330	793	21	20.77	5.44%	0.005	0.006	-
			50 RB	0	12 Left side	0	23330	793	21	20.63	8.89%	0.794	0.865	-
					25 Left side	0	23330	793	21	20.68	7.65%	0.784	0.844	-
					Back side	0	23330	793	21	20.62	9.14%	0.163	0.178	-
					Top side	0	23330	793	21	20.62	9.14%	0.592	0.646	-
					Bottom side	0	23330	793	21	20.62	9.14%	0.024	0.026	-
					Right side	0	23330	793	21	20.62	9.14%	0.005	0.006	-
			50 RB	0	Left side	0	23330	793	21	20.62	9.14%	0.788	0.860	-
					Left side	0	23330	793	21	20.62	9.14%	0.788	0.860	-

\* - repeated at the highest SAR measurement according to the KDB 865664 D01

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### LTE FDD Band 17

Mode	Bandwidth (MHz)	Modulation	RB Size	RB start	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page
												Measured	Reported	
LTE Band 17	10MHz	QPSK	1 RB	0	Back side	0	23800	711	20.5	20.29	4.95%	0.153	0.161	-
					Top side	0	23800	711	20.5	20.29	4.95%	0.641	0.673	-
					Bottom side	0	23800	711	20.5	20.29	4.95%	0.022	0.023	-
					Right side	0	23800	711	20.5	20.29	4.95%	0.004	0.004	-
					Left side	0	23780	709	20.5	20.23	6.41%	0.689	0.733	-
					Left side	0	23800	711	20.5	20.29	4.95%	0.704	0.739	290
			25 RB	12	Left side	0	23790	710	20.5	20.25	5.93%	0.672	0.712	-
					Back side	0	23780	709	20.5	20.28	5.20%	0.133	0.140	-
					Top side	0	23780	709	20.5	20.28	5.20%	0.621	0.653	-
					Bottom side	0	23780	709	20.5	20.28	5.20%	0.021	0.022	-
					Right side	0	23780	709	20.5	20.28	5.20%	0.003	0.004	-
					Left side	0	23780	709	20.5	20.28	5.20%	0.653	0.687	-
			50 RB	12	Back side	0	23790	710	20.5	20.21	6.91%	0.128	0.137	-
					Top side	0	23790	710	20.5	20.21	6.91%	0.604	0.646	-
					Bottom side	0	23790	710	20.5	20.21	6.91%	0.020	0.021	-
					Right side	0	23790	710	20.5	20.21	6.91%	0.003	0.004	-
					Left side	0	23790	710	20.5	20.21	6.91%	0.632	0.676	-
					Left side	0	23790	710	20.5	20.21	6.91%	0.632	0.676	-

### LTE FDD Band 25

Mode	Bandwidth (MHz)	Modulation	RB Size	RB start	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page
												Measured	Reported	
LTE Band 25	20MHz	QPSK	1 RB	0	Back side	0	26365	1882.5	17	16.48	12.72%	0.065	0.073	-
					Top side	0	26365	1882.5	17	16.48	12.72%	0.358	0.404	-
					Bottom side	0	26365	1882.5	17	16.48	12.72%	0.008	0.009	-
					Right side	0	26365	1882.5	17	16.48	12.72%	0.010	0.011	-
					Left side	0	26365	1882.5	17	16.48	12.72%	0.969	1.092	291
				50	Left side	0	26140	1860	17	16.42	14.29%	0.901	1.030	-
					Left side	0	26590	1905	17	16.41	14.55%	0.922	1.056	-
					Back side	0	26365	1882.5	17	16.47	12.98%	0.058	0.066	-
					Top side	0	26365	1882.5	17	16.47	12.98%	0.320	0.362	-
					Bottom side	0	26365	1882.5	17	16.47	12.98%	0.008	0.009	-
			50 RB	0	Right side	0	26365	1882.5	17	16.47	12.98%	0.009	0.010	-
					Left side	0	26140	1860	17	16.36	15.88%	0.844	0.978	-
					Left side	0	26365	1882.5	17	16.47	12.98%	0.867	0.980	-
					Left side	0	26590	1905	17	16.43	14.02%	0.831	0.948	-
					Left side	0	26365	1882.5	17	16.35	16.14%	0.051	0.059	-
			100 RB	0	Top side	0	26365	1882.5	17	16.35	16.14%	0.283	0.328	-
					Bottom side	0	26365	1882.5	17	16.35	16.14%	0.006	0.007	-
					Right side	0	26365	1882.5	17	16.35	16.14%	0.008	0.009	-
					Left side	0	26140	1860	17	16.28	18.03%	0.006	0.742	-
					Left side	0	26365	1882.5	17	16.35	16.14%	0.008	0.765	-
					Left side	0	26590	1905	17	16.32	16.95%	0.765	0.744	-
					Left side	0	26590	1905	17	16.32	16.95%	0.765	0.744	-
					Left side	0	26590	1905	17	16.32	16.95%	0.765	0.744	-
					Left side	0	26590	1905	17	16.32	16.95%	0.765	0.744	-

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**LTE FDD Band 26**

Mode	Bandwidth (MHz)	Modulation	RB Size	RB start	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page		
												Measured	Reported			
LTE Band 26	15MHz	QPSK	1 RB	0	Back side	0	26965	841.5	22.5	22.35	3.51%	0.172	0.178	-		
					Top side	0	26965	841.5	22.5	22.35	3.51%	0.631	0.653	-		
					Bottom side	0	26965	841.5	22.5	22.35	3.51%	0.027	0.028	-		
					Right side	0	26965	841.5	22.5	22.35	3.51%	0.006	0.006	-		
					Left side	0	26865	831.5	22.5	22.30	4.71%	0.827	0.866	-		
					Left side*	0	26965	841.5	22.5	22.35	3.51%	0.852	0.882	292		
				Left side*	0	26965	841.5	22.5	22.35	3.51%	0.812	0.841	-			
				36	Left side	0	26825	822.5	22.5	22.24	6.17%	0.813	0.863	-		
				36 RB	0	Left side	0	26825	822.5	22.5	22.31	4.47%	0.768	0.802	-	
						18	Left side	0	26965	841.5	22.5	22.30	4.71%	0.772	0.808	-
						37	Back side	0	26865	831.5	22.5	22.34	3.75%	0.152	0.158	-
							Top side	0	26865	831.5	22.5	22.34	3.75%	0.601	0.624	-
			Bottom side				0	26865	831.5	22.5	22.34	3.75%	0.025	0.026	-	
			Right side				0	26865	831.5	22.5	22.34	3.75%	0.004	0.005	-	
			Left side		0		26865	831.5	22.5	22.34	3.75%	0.781	0.810	-		
			Left side		0		26825	822.5	22.5	22.28	5.20%	0.144	0.151	-		
			75 RB		Top side	0	26825	822.5	22.5	22.28	5.20%	0.584	0.614	-		
					Bottom side	0	26825	822.5	22.5	22.28	5.20%	0.023	0.024	-		
					Right side	0	26825	822.5	22.5	22.28	5.20%	0.004	0.004	-		
					Left side	0	26825	822.5	22.5	22.28	5.20%	0.774	0.814	-		
				Left side	0	26865	831.5	22.5	22.20	7.15%	0.745	0.798	-			
				Left side	0	26965	841.5	22.5	22.27	5.44%	0.751	0.792	-			

\* - repeated at the highest SAR measurement according to the KDB 865664 D01

**LTE FDD Band 30**

Mode	Bandwidth (MHz)	Modulation	RB Size	RB start	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page	
												Measured	Reported		
LTE Band 30	10MHz	QPSK	1 RB	0	Left side	0	27710	2310	16.5	16.42	1.86%	0.674	0.687	-	
					25	Left side	0	27710	2310	16.5	16.37	3.04%	0.689	0.710	-
					49	Back side	0	27710	2310	16.5	16.48	0.46%	0.548	0.551	-
						Top side	0	27710	2310	16.5	16.48	0.46%	0.671	0.674	-
						Bottom side	0	27710	2310	16.5	16.48	0.46%	0.080	0.080	-
						Right side	0	27710	2310	16.5	16.48	0.46%	0.013	0.013	-
				Left side		0	27710	2310	16.5	16.48	0.46%	0.708	0.711	293	
				Left side		0	27710	2310	17	16.42	1.86%	0.438	0.446	-	
				25 RB	25	Top side	0	27710	2310	17	16.42	1.86%	0.537	0.547	-
						Bottom side	0	27710	2310	17	16.42	1.86%	0.064	0.065	-
						Right side	0	27710	2310	17	16.42	1.86%	0.010	0.010	-
						Left side	0	27710	2310	17	16.42	1.86%	0.566	0.577	-
			Back side			0	27710	2310	17	16.30	4.71%	0.411	0.430	-	
			Top side			0	27710	2310	17	16.30	4.71%	0.503	0.527	-	
			50 RB		Bottom side	0	27710	2310	17	16.30	4.71%	0.060	0.063	-	
					Right side	0	27710	2310	17	16.30	4.71%	0.011	0.012	-	
					Left side	0	27710	2310	17	16.30	4.71%	0.531	0.556	-	

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**LTE TDD Band 38**

Mode	Bandwidth (MHz)	Modulation	RB Size	RB start	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page
												Measured	Reported	
LTE Band 38	20MHz	QPSK	1 RB	50	Back side	0	38150	2610	16.5	16.48	0.46%	0.016	0.016	-
					Top side	0	37850	2580	16.5	16.42	1.86%	0.095	0.097	-
					Top side	0	38150	2610	16.5	16.48	0.46%	0.101	0.101	294
					Bottom side	0	38150	2610	16.5	16.48	0.46%	0.003	0.003	-
					Right side	0	38150	2610	16.5	16.48	0.46%	0.003	0.003	-
					Left side	0	38150	2610	16.5	16.48	0.46%	0.031	0.031	-
			50 RB	50	Top side	0	38000	2595	16.5	16.39	2.57%	0.091	0.093	-
					Back side	0	38000	2595	16.5	16.39	2.57%	0.018	0.018	-
					Top side	0	38000	2595	16.5	16.39	2.57%	0.094	0.096	-
					Bottom side	0	38000	2595	16.5	16.39	2.57%	0.003	0.003	-
					Right side	0	38000	2595	16.5	16.39	2.57%	0.002	0.003	-
					Left side	0	38000	2595	16.5	16.39	2.57%	0.024	0.025	-
			100 RB	50	Back side	0	38000	2595	16.5	16.34	3.75%	0.015	0.016	-
					Top side	0	38000	2595	16.5	16.34	3.75%	0.092	0.095	-
					Bottom side	0	38000	2595	16.5	16.34	3.75%	0.002	0.003	-
					Right side	0	38000	2595	16.5	16.34	3.75%	0.005	0.005	-
					Right side	0	38000	2595	16.5	16.34	3.75%	0.005	0.005	-
					Left side	0	38000	2595	16.5	16.34	3.75%	0.024	0.025	-

**LTE TDD Band 41**

Mode	Bandwidth (MHz)	Modulation	RB Size	RB start	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page		
												Measured	Reported			
LTE Band 41	20MHz	QPSK	1 RB	0	Back side	0	41055	2636.5	25	24.91	2.09%	0.093	0.095	-		
					Top side	0	39750	2506	25	24.09	23.31%	0.454	0.560	-		
					Top side	0	40185	2549.5	25	23.78	32.43%	0.421	0.558	-		
					Top side	0	41055	2636.5	25	24.91	2.09%	0.577	0.589	295		
					Top side	0	41490	2680	25	24.85	3.51%	0.554	0.573	-		
					Bottom side	0	41055	2636.5	25	24.91	2.09%	0.012	0.012	-		
					Right side	0	41055	2636.5	25	24.91	2.09%	0.014	0.014	-		
					Left side	0	41055	2636.5	25	24.91	2.09%	0.158	0.161	-		
					Top side	0	40620	2593	25	24.07	23.88%	0.419	0.519	-		
					50 RB	0	Back side	0	41055	2636.5	24	23.68	7.65%	0.074	0.080	-
							Top side	0	41055	2636.5	24	23.68	7.65%	0.462	0.497	-
							Bottom side	0	41055	2636.5	24	23.68	7.65%	0.010	0.011	-
			Right side	0			41055	2636.5	24	23.68	7.65%	0.011	0.012	-		
			100 RB	0	Left side	0	41055	2636.5	24	23.68	7.65%	0.126	0.136	-		
					Back side	0	41055	2636.5	24	23.62	9.14%	0.071	0.077	-		
					Top side	0	41055	2636.5	24	23.62	9.14%	0.432	0.472	-		
					Bottom side	0	41055	2636.5	24	23.62	9.14%	0.009	0.010	-		
					Right side	0	41055	2636.5	24	23.62	9.14%	0.010	0.011	-		
			100 RB	0	Left side	0	41055	2636.5	24	23.62	9.14%	0.118	0.129	-		

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**LTE FDD Band 66**

Mode	Bandwidth (MHz)	Modulation	RB Size	RB start	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page
												Measured	Reported	
LTE Band 66	20MHz	QPSK	1 RB	0	Back side	0	132572	1770	18.5	18.30	4.71%	0.073	0.076	-
					Top side	0	132572	1770	18.5	18.30	4.71%	0.490	0.513	-
					Bottom side	0	132572	1770	18.5	18.30	4.71%	0.007	0.008	-
					Right side	0	132572	1770	18.5	18.30	4.71%	0.013	0.014	-
					Left side	0	132072	1720	18.5	18.23	6.41%	1.030	1.096	-
					Left side	0	132572	1770	18.5	18.30	4.71%	1.090	1.141	296
				99	Left side	0	132572	1770	18.5	18.30	4.71%	1.020	1.068	-
					Left side	0	132322	1745	18.5	18.20	7.15%	0.995	1.066	-
					Back side	0	132322	1745	18.5	18.28	5.20%	0.058	0.061	-
					Top side	0	132322	1745	18.5	18.28	5.20%	0.392	0.412	-
					Bottom side	0	132322	1745	18.5	18.28	5.20%	0.006	0.007	-
					Right side	0	132322	1745	18.5	18.28	5.20%	0.012	0.013	-
			50 RB	0	Left side	0	132322	1745	18.5	18.28	5.20%	0.872	0.917	-
					Left side	0	132072	1720	18.5	18.28	5.20%	0.854	0.898	-
					Left side	0	132572	1770	18.5	18.18	7.65%	0.845	0.910	-
				25	Back side	0	132572	1770	18.5	18.28	5.20%	0.055	0.058	-
					Top side	0	132572	1770	18.5	18.28	5.20%	0.368	0.387	-
					Bottom side	0	132572	1770	18.5	18.28	5.20%	0.006	0.006	-
			100 RB	0	Right side	0	132572	1770	18.5	18.28	5.20%	0.011	0.012	-
					Left side	0	132072	1720	18.5	18.18	7.65%	0.801	0.862	-
					Left side	0	132322	1745	18.5	18.12	9.14%	0.792	0.864	-
				50	Left side	0	132572	1770	18.5	18.28	5.20%	0.818	0.861	-

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**WLAN Antenna (Tablet mode)**

Antenna	Mode	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page
									Measured	Reported	
Main	WLAN802.11 b	Back side	0	1	2412	18.00	17.93	101.62%	0.196	0.199	-
		Top side	0	1	2412	18.00	17.93	101.62%	0.688	0.699	297
		Top side	0	6	2437	18.00	17.92	101.86%	0.615	0.626	-
		Top side	0	11	2462	18.00	17.87	103.04%	0.599	0.617	-
		Bottom side	0	1	2412	18.00	17.93	101.62%	0.005	0.005	-
		Right side	0	1	2412	18.00	17.93	101.62%	0.010	0.010	-
	WLAN802.11 n(40M) 5.2G	Left side	0	1	2412	18.00	17.93	101.62%	0.146	0.148	-
		Back side	0	46	5230	16.00	15.88	102.80%	0.219	0.225	-
		Top side	0	46	5230	16.00	15.88	102.80%	0.664	0.683	298
		Bottom side	0	46	5230	16.00	15.88	102.80%	0.095	0.098	-
		Right side	0	46	5230	16.00	15.88	102.80%	0.034	0.035	-
	WLAN802.11 n(40M) 5.3G	Left side	0	46	5230	16.00	15.88	102.80%	0.069	0.071	-
		Back side	0	54	5270	16.00	15.93	101.62%	0.171	0.174	-
		Top side	0	54	5270	16.00	15.93	101.62%	0.520	0.528	299
		Bottom side	0	54	5270	16.00	15.93	101.62%	0.074	0.075	-
		Right side	0	54	5270	16.00	15.93	101.62%	0.025	0.025	-
	WLAN802.11 ac(80M) 5.6G	Left side	0	54	5270	16.00	15.93	101.62%	0.090	0.091	-
		Back side	0	138	5690	16.00	15.86	103.28%	0.180	0.186	-
		Top side	0	138	5690	16.00	15.86	103.28%	0.622	0.642	300
		Bottom side	0	138	5690	16.00	15.86	103.28%	0.081	0.084	-
	WLAN802.11 ac(80M) 5.8G	Right side	0	138	5690	16.00	15.86	103.28%	0.030	0.031	-
		Left side	0	138	5690	16.00	15.86	103.28%	0.078	0.080	-
		Back side	0	155	5775	16.00	15.86	103.28%	0.183	0.189	-
		Top side	0	155	5775	16.00	15.86	103.28%	0.661	0.683	301
Bottom side		0	155	5775	16.00	15.86	103.28%	0.093	0.096	-	
WLAN802.11 ac(80M) 5.8G	Right side	0	155	5775	16.00	15.86	103.28%	0.039	0.040	-	
	Left side	0	155	5775	16.00	15.86	103.28%	0.099	0.102	-	

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**WLAN Aux Antenna (Tablet mode)**

Antenna	Mode	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page
									Measured	Reported	
Aux	WLAN802.11 b	Back side	0	1	2412	18.00	17.97	100.69%	0.181	0.182	-
		Top side	0	1	2412	18.00	17.97	100.69%	0.540	0.544	302
		Bottom side	0	1	2412	18.00	17.97	100.69%	0.013	0.013	-
		Right side	0	1	2412	18.00	17.97	100.69%	0.070	0.070	-
		Left side	0	1	2412	18.00	17.97	100.69%	0.003	0.003	-
	Bluetooth(GFSK)	Back side	0	39	2441	11.50	11.15	108.39%	0.037	0.040	-
		Top side	0	39	2441	11.50	11.15	108.39%	0.106	0.115	303
		Bottom side	0	39	2441	11.50	11.15	108.39%	0.003	0.003	-
		Right side	0	39	2441	11.50	11.15	108.39%	0.014	0.015	-
		Left side	0	39	2441	11.50	11.15	108.39%	0.001	0.001	-
	WLAN802.11 n(40M) 5.2G	Back side	0	38	5190	16.50	16.48	100.46%	0.218	0.219	-
		Top side	0	38	5190	16.50	16.48	100.46%	0.761	0.765	304
		Bottom side	0	38	5190	16.50	16.48	100.46%	0.044	0.044	-
		Right side	0	38	5190	16.50	16.48	100.46%	0.067	0.067	-
		Left side	0	38	5190	16.50	16.48	100.46%	0.050	0.050	-
	WLAN802.11 n(40M) 5.3G	Back side	0	54	5270	16.50	16.36	103.28%	0.193	0.199	-
		Top side	0	54	5270	16.50	16.36	103.28%	0.654	0.675	305
		Bottom side	0	54	5270	16.50	16.36	103.28%	0.058	0.060	-
		Right side	0	54	5270	16.50	16.36	103.28%	0.091	0.094	-
		Left side	0	54	5270	16.50	16.36	103.28%	0.061	0.063	-
	WLAN802.11 ac(80M) 5.6G	Back side	0	138	5690	16.50	16.33	103.99%	0.262	0.272	-
		Top side	0	106	5530	14.00	13.90	102.33%	0.745	0.762	-
		Top side	0	138	5690	16.50	16.33	103.99%	0.766	0.797	306
		Bottom side	0	138	5690	16.50	16.33	103.99%	0.041	0.043	-
Right side		0	138	5690	16.50	16.33	103.99%	0.034	0.035	-	
WLAN802.11 ac(80M) 5.8G	Left side	0	138	5690	16.50	16.33	103.99%	0.042	0.043	-	
	Back side	0	155	5775	16.50	16.50	100.00%	0.157	0.157	-	
	Top side	0	155	5775	16.50	16.50	100.00%	0.647	0.647	307	
	Bottom side	0	155	5775	16.50	16.50	100.00%	0.031	0.031	-	
	Right side	0	155	5775	16.50	16.50	100.00%	0.015	0.015	-	
Left side	0	155	5775	16.50	16.50	100.00%	0.033	0.033	-		

Note:

$$\text{Scaling} = \frac{\text{reported SAR}}{\text{measured SAR}} = \frac{P_2(\text{mW})}{P_1(\text{mW})} = 10^{\frac{(P_2 - P_1)}{10}} (\text{dBm})$$

Reported SAR = measured SAR \* (scaling)

Where P2 is maximum specified power, P1 is measured conducted power

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### 3. Simultaneous Transmission Analysis

#### Simultaneous Transmission Scenarios:

NO.	Simultaneous Transmit Configurations	Body
1	UMTS + 2.4GHz WLAN Main / 2.4GHz WLAN Aux / 2.4GHz MIMO	YES
2	UMTS + 5GHz WLAN Main / 5GHz WLAN Aux / 5GHz MIMO	YES
3	UMTS + BT	YES
4	UMTS + 2.4/5GHz WLAN Main + BT	YES
5	LTE + 2.4GHz WLAN Main / 2.4GHz WLAN Aux / 2.4GHz MIMO	YES
6	LTE + 5GHz WLAN Main / 5GHz WLAN Aux / 5GHz MIMO	YES
7	LTE + BT	YES
8	LTE + 2.4/5GHz WLAN Main + BT	YES

Note :

- 1) WWAN and WLAN may transmit simultaneously.
- 2) Bluetooth and WLAN Aux share the same antenna path.
- 3) Bluetooth can transmit with WLAN Main simultaneously.

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### 3.1 Estimated SAR calculation

According to KDB447498 D01v06 – When standalone SAR test exclusion applies to an antenna that transmits simultaneously with other antennas, the standalone SAR must be estimated according to following to determine simultaneous transmission SAR test exclusion:

$$\text{Estimated SAR} = \frac{\text{Max. tune up power (mW)}}{\text{Min. test separation distance (mm)}} \times \frac{\sqrt{f(\text{GHz})}}{7.5}$$

If the minimum test separation distance is < 5mm, a distance of 5mm is used for estimated SAR calculation. When the test separation distance is >50mm, the 0.4W/kg is used for SAR-1g.

### 3.2 SPLSR evaluation and analysis

Per KDB447498D01, when the sum of SAR is larger than the limit, SAR test exclusion is determined by the SAR sum to peak location separation ratio(SPLSR).

The simultaneous transmitting antennas in each operating mode and exposure condition combination must be considered one pair at a time to determine the SAR to peak location separation ratio to qualify for test exclusion.

The ratio is determined by  $(\text{SAR1} + \text{SAR2})^{1.5}/R_i$ , rounded to two decimal digits, and must be  $\leq 0.04$  for all antenna pairs in the configuration to qualify for 1-g SAR test exclusion.

SAR1 and SAR2 are the highest reported or estimated SAR for each antenna in the pair, and  $R_i$  is the separation distance between the peak SAR locations for the antenna pair in mm.

When standalone test exclusion applies, SAR is estimated; the peak location is assumed to be at the feed-point or geometric center of the antenna.

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## Back side WWAN + 2.4G WLAN

No.	Position	Conditions	Distance (mm)	Max. WWAN	Max. WLAN	Max. WLAN Aux	SAR Sum	SPLSR
1	Back side	WCDMA Band II	0	0.079	0.199	0.182	0.460	$\Sigma$ SAR<1.6, Not required
		WCDMA Band IV	0	0.085	0.199	0.182	0.466	$\Sigma$ SAR<1.6, Not required
		WCDMA Band V	0	0.201	0.199	0.182	0.582	$\Sigma$ SAR<1.6, Not required
		LTE Band 2	0	0.069	0.199	0.182	0.450	$\Sigma$ SAR<1.6, Not required
		LTE Band 4	0	0.079	0.199	0.182	0.460	$\Sigma$ SAR<1.6, Not required
		LTE Band 5	0	0.170	0.199	0.182	0.551	$\Sigma$ SAR<1.6, Not required
		LTE Band 7	0	0.236	0.199	0.182	0.617	$\Sigma$ SAR<1.6, Not required
		LTE Band 12	0	0.142	0.199	0.182	0.523	$\Sigma$ SAR<1.6, Not required
		LTE Band 13	0	0.188	0.199	0.182	0.569	$\Sigma$ SAR<1.6, Not required
		LTE Band 14	0	0.185	0.199	0.182	0.566	$\Sigma$ SAR<1.6, Not required
		LTE Band 17	0	0.161	0.199	0.182	0.542	$\Sigma$ SAR<1.6, Not required
		LTE Band 25	0	0.073	0.199	0.182	0.454	$\Sigma$ SAR<1.6, Not required
		LTE Band 26	0	0.178	0.199	0.182	0.559	$\Sigma$ SAR<1.6, Not required
		LTE Band 30	0	0.551	0.199	0.182	0.932	$\Sigma$ SAR<1.6, Not required
		LTE Band 38	0	0.018	0.199	0.182	0.399	$\Sigma$ SAR<1.6, Not required
		LTE Band 41	0	0.095	0.199	0.182	0.476	$\Sigma$ SAR<1.6, Not required
LTE Band 66	0	0.076	0.199	0.182	0.457	$\Sigma$ SAR<1.6, Not required		

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## Back side WWAN + 5G WLAN

No.	Position	Conditions	Distance (mm)	Max. WWAN	Max. WLAN	Max. WLAN Aux	SAR Sum	SPLSR
2	Back side	WCDMA Band II	0	0.079	0.225	0.272	0.576	$\Sigma$ SAR<1.6, Not required
		WCDMA Band IV	0	0.085	0.225	0.272	0.582	$\Sigma$ SAR<1.6, Not required
		WCDMA Band V	0	0.201	0.225	0.272	0.698	$\Sigma$ SAR<1.6, Not required
		LTE Band 2	0	0.069	0.225	0.272	0.566	$\Sigma$ SAR<1.6, Not required
		LTE Band 4	0	0.079	0.225	0.272	0.576	$\Sigma$ SAR<1.6, Not required
		LTE Band 5	0	0.170	0.225	0.272	0.667	$\Sigma$ SAR<1.6, Not required
		LTE Band 7	0	0.236	0.225	0.272	0.733	$\Sigma$ SAR<1.6, Not required
		LTE Band 12	0	0.142	0.225	0.272	0.639	$\Sigma$ SAR<1.6, Not required
		LTE Band 13	0	0.188	0.225	0.272	0.685	$\Sigma$ SAR<1.6, Not required
		LTE Band 14	0	0.185	0.225	0.272	0.682	$\Sigma$ SAR<1.6, Not required
		LTE Band 17	0	0.161	0.225	0.272	0.658	$\Sigma$ SAR<1.6, Not required
		LTE Band 25	0	0.073	0.225	0.272	0.570	$\Sigma$ SAR<1.6, Not required
		LTE Band 26	0	0.178	0.225	0.272	0.675	$\Sigma$ SAR<1.6, Not required
		LTE Band 30	0	0.551	0.225	0.272	1.048	$\Sigma$ SAR<1.6, Not required
		LTE Band 38	0	0.018	0.225	0.272	0.515	$\Sigma$ SAR<1.6, Not required
		LTE Band 41	0	0.095	0.225	0.272	0.592	$\Sigma$ SAR<1.6, Not required
LTE Band 66	0	0.076	0.225	0.272	0.573	$\Sigma$ SAR<1.6, Not required		

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## Back side WWAN + 2.4G WLAN Main + BT

No.	Position	Conditions	Distance (mm)	Max. WWAN	Max. WLAN	Bluetooth	SAR Sum	SPLSR
3	Back side	WCDMA Band II	0	0.079	0.199	0.040	0.318	$\Sigma$ SAR<1.6, Not required
		WCDMA Band IV	0	0.085	0.199	0.040	0.324	$\Sigma$ SAR<1.6, Not required
		WCDMA Band V	0	0.201	0.199	0.040	0.440	$\Sigma$ SAR<1.6, Not required
		LTE Band 2	0	0.069	0.199	0.040	0.308	$\Sigma$ SAR<1.6, Not required
		LTE Band 4	0	0.079	0.199	0.040	0.318	$\Sigma$ SAR<1.6, Not required
		LTE Band 5	0	0.170	0.199	0.040	0.409	$\Sigma$ SAR<1.6, Not required
		LTE Band 7	0	0.236	0.199	0.040	0.475	$\Sigma$ SAR<1.6, Not required
		LTE Band 12	0	0.142	0.199	0.040	0.381	$\Sigma$ SAR<1.6, Not required
		LTE Band 13	0	0.188	0.199	0.040	0.427	$\Sigma$ SAR<1.6, Not required
		LTE Band 14	0	0.185	0.199	0.040	0.424	$\Sigma$ SAR<1.6, Not required
		LTE Band 17	0	0.161	0.199	0.040	0.400	$\Sigma$ SAR<1.6, Not required
		LTE Band 25	0	0.073	0.199	0.040	0.312	$\Sigma$ SAR<1.6, Not required
		LTE Band 26	0	0.178	0.199	0.040	0.417	$\Sigma$ SAR<1.6, Not required
		LTE Band 30	0	0.551	0.199	0.040	0.790	$\Sigma$ SAR<1.6, Not required
		LTE Band 38	0	0.018	0.199	0.040	0.257	$\Sigma$ SAR<1.6, Not required
		LTE Band 41	0	0.095	0.199	0.040	0.334	$\Sigma$ SAR<1.6, Not required
LTE Band 66	0	0.076	0.199	0.040	0.315	$\Sigma$ SAR<1.6, Not required		

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## Back side WWAN + 5G WLAN Main + BT

No.	Position	Conditions	Distance (mm)	Max. WWAN	Max. WLAN	Bluetooth	SAR Sum	SPLSR
4	Back side	WCDMA Band II	0	0.079	0.225	0.040	0.344	$\Sigma$ SAR<1.6, Not required
		WCDMA Band IV	0	0.085	0.225	0.040	0.350	$\Sigma$ SAR<1.6, Not required
		WCDMA Band V	0	0.201	0.225	0.040	0.466	$\Sigma$ SAR<1.6, Not required
		LTE Band 2	0	0.069	0.225	0.040	0.334	$\Sigma$ SAR<1.6, Not required
		LTE Band 4	0	0.079	0.225	0.040	0.344	$\Sigma$ SAR<1.6, Not required
		LTE Band 5	0	0.170	0.225	0.040	0.435	$\Sigma$ SAR<1.6, Not required
		LTE Band 7	0	0.236	0.225	0.040	0.501	$\Sigma$ SAR<1.6, Not required
		LTE Band 12	0	0.142	0.225	0.040	0.407	$\Sigma$ SAR<1.6, Not required
		LTE Band 13	0	0.188	0.225	0.040	0.453	$\Sigma$ SAR<1.6, Not required
		LTE Band 14	0	0.185	0.225	0.040	0.450	$\Sigma$ SAR<1.6, Not required
		LTE Band 17	0	0.161	0.225	0.040	0.426	$\Sigma$ SAR<1.6, Not required
		LTE Band 25	0	0.073	0.225	0.040	0.338	$\Sigma$ SAR<1.6, Not required
		LTE Band 26	0	0.178	0.225	0.040	0.443	$\Sigma$ SAR<1.6, Not required
		LTE Band 30	0	0.551	0.225	0.040	0.816	$\Sigma$ SAR<1.6, Not required
		LTE Band 38	0	0.018	0.225	0.040	0.283	$\Sigma$ SAR<1.6, Not required
		LTE Band 41	0	0.095	0.225	0.040	0.360	$\Sigma$ SAR<1.6, Not required
LTE Band 66	0	0.076	0.225	0.040	0.341	$\Sigma$ SAR<1.6, Not required		

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## Top side WWAN + 2.4G WLAN

No.	Position	Conditions	Distance (mm)	Max. WWAN	Max. WLAN	Max. WLAN Aux	SAR Sum	SPLSR
5	Top side	WCDMA Band II	0	0.434	0.699	0.544	<b>1.677</b>	Analyzed as below
		WCDMA Band IV	0	0.554	0.699	0.544	<b>1.797</b>	Analyzed as below
		WCDMA Band V	0	0.777	0.699	0.544	<b>2.020</b>	Analyzed as below
		LTE Band 2	0	0.385	0.699	0.544	<b>1.628</b>	Analyzed as below
		LTE Band 4	0	0.523	0.699	0.544	<b>1.766</b>	Analyzed as below
		LTE Band 5	0	0.681	0.699	0.544	<b>1.924</b>	Analyzed as below
		LTE Band 7	0	0.670	0.699	0.544	<b>1.913</b>	Analyzed as below
		LTE Band 12	0	0.660	0.699	0.544	<b>1.903</b>	Analyzed as below
		LTE Band 13	0	0.680	0.699	0.544	<b>1.923</b>	Analyzed as below
		LTE Band 14	0	0.653	0.699	0.544	<b>1.896</b>	Analyzed as below
		LTE Band 17	0	0.673	0.699	0.544	<b>1.916</b>	Analyzed as below
		LTE Band 25	0	0.404	0.699	0.544	<b>1.647</b>	Analyzed as below
		LTE Band 26	0	0.653	0.699	0.544	<b>1.896</b>	Analyzed as below
		LTE Band 30	0	0.674	0.699	0.544	<b>1.917</b>	Analyzed as below
		LTE Band 38	0	0.101	0.699	0.544	1.344	$\Sigma$ SAR<1.6, Not required
		LTE Band 41	0	0.589	0.699	0.544	<b>1.832</b>	Analyzed as below
LTE Band 66	0	0.513	0.699	0.544	<b>1.756</b>	Analyzed as below		

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## Top side WWAN + 5G WLAN

No.	Position	Conditions	Distance (mm)	Max. WWAN	Max. WLAN	Max. WLAN Aux	SAR Sum	SPLSR
6	Top side	WCDMA Band II	0	0.434	0.683	0.797	<b>1.914</b>	Analyzed as below
		WCDMA Band IV	0	0.554	0.683	0.797	<b>2.034</b>	Analyzed as below
		WCDMA Band V	0	0.777	0.683	0.797	<b>2.257</b>	Analyzed as below
		LTE Band 2	0	0.385	0.683	0.797	<b>1.865</b>	Analyzed as below
		LTE Band 4	0	0.523	0.683	0.797	<b>2.003</b>	Analyzed as below
		LTE Band 5	0	0.681	0.683	0.797	<b>2.161</b>	Analyzed as below
		LTE Band 7	0	0.670	0.683	0.797	<b>2.150</b>	Analyzed as below
		LTE Band 12	0	0.660	0.683	0.797	<b>2.140</b>	Analyzed as below
		LTE Band 13	0	0.680	0.683	0.797	<b>2.160</b>	Analyzed as below
		LTE Band 14	0	0.653	0.683	0.797	<b>2.133</b>	Analyzed as below
		LTE Band 17	0	0.673	0.683	0.797	<b>2.153</b>	Analyzed as below
		LTE Band 25	0	0.404	0.683	0.797	<b>1.884</b>	Analyzed as below
		LTE Band 26	0	0.653	0.683	0.797	<b>2.133</b>	Analyzed as below
		LTE Band 30	0	0.674	0.683	0.797	<b>2.154</b>	Analyzed as below
		LTE Band 38	0	0.101	0.683	0.797	1.581	ΣSAR<1.6, Not required
		LTE Band 41	0	0.589	0.683	0.797	<b>2.069</b>	Analyzed as below
LTE Band 66	0	0.513	0.683	0.797	<b>1.993</b>	Analyzed as below		

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## Top side WWAN + 2.4G WLAN Main + BT

No.	Position	Conditions	Distance (mm)	Max. WWAN	Max. WLAN	Bluetooth	SAR Sum	SPLSR
7	Top side	WCDMA Band II	0	0.434	0.699	0.115	1.248	$\Sigma$ SAR<1.6, Not required
		WCDMA Band IV	0	0.554	0.699	0.115	1.368	$\Sigma$ SAR<1.6, Not required
		WCDMA Band V	0	0.777	0.699	0.115	1.591	$\Sigma$ SAR<1.6, Not required
		LTE Band 2	0	0.385	0.699	0.115	1.199	$\Sigma$ SAR<1.6, Not required
		LTE Band 4	0	0.523	0.699	0.115	1.337	$\Sigma$ SAR<1.6, Not required
		LTE Band 5	0	0.681	0.699	0.115	1.495	$\Sigma$ SAR<1.6, Not required
		LTE Band 7	0	0.670	0.699	0.115	1.484	$\Sigma$ SAR<1.6, Not required
		LTE Band 12	0	0.660	0.699	0.115	1.474	$\Sigma$ SAR<1.6, Not required
		LTE Band 13	0	0.680	0.699	0.115	1.494	$\Sigma$ SAR<1.6, Not required
		LTE Band 14	0	0.653	0.699	0.115	1.467	$\Sigma$ SAR<1.6, Not required
		LTE Band 17	0	0.673	0.699	0.115	1.487	$\Sigma$ SAR<1.6, Not required
		LTE Band 25	0	0.404	0.699	0.115	1.218	$\Sigma$ SAR<1.6, Not required
		LTE Band 26	0	0.653	0.699	0.115	1.467	$\Sigma$ SAR<1.6, Not required
		LTE Band 30	0	0.674	0.699	0.115	1.488	$\Sigma$ SAR<1.6, Not required
		LTE Band 38	0	0.101	0.699	0.115	0.915	$\Sigma$ SAR<1.6, Not required
		LTE Band 41	0	0.589	0.699	0.115	1.403	$\Sigma$ SAR<1.6, Not required
LTE Band 66	0	0.513	0.699	0.115	1.327	$\Sigma$ SAR<1.6, Not required		

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## Top side WWAN + 5G WLAN Main + BT

No.	Position	Conditions	Distance (mm)	Max. WWAN	Max. WLAN	Bluetooth	SAR Sum	SPLSR
8	Top side	WCDMA Band II	0	0.434	0.683	0.115	1.232	$\Sigma$ SAR<1.6, Not required
		WCDMA Band IV	0	0.554	0.683	0.115	1.352	$\Sigma$ SAR<1.6, Not required
		WCDMA Band V	0	0.777	0.683	0.115	1.575	$\Sigma$ SAR<1.6, Not required
		LTE Band 2	0	0.385	0.683	0.115	1.183	$\Sigma$ SAR<1.6, Not required
		LTE Band 4	0	0.523	0.683	0.115	1.321	$\Sigma$ SAR<1.6, Not required
		LTE Band 5	0	0.681	0.683	0.115	1.479	$\Sigma$ SAR<1.6, Not required
		LTE Band 7	0	0.670	0.683	0.115	1.468	$\Sigma$ SAR<1.6, Not required
		LTE Band 12	0	0.660	0.683	0.115	1.458	$\Sigma$ SAR<1.6, Not required
		LTE Band 13	0	0.680	0.683	0.115	1.478	$\Sigma$ SAR<1.6, Not required
		LTE Band 14	0	0.653	0.683	0.115	1.451	$\Sigma$ SAR<1.6, Not required
		LTE Band 17	0	0.673	0.683	0.115	1.471	$\Sigma$ SAR<1.6, Not required
		LTE Band 25	0	0.404	0.683	0.115	1.202	$\Sigma$ SAR<1.6, Not required
		LTE Band 26	0	0.653	0.683	0.115	1.451	$\Sigma$ SAR<1.6, Not required
		LTE Band 30	0	0.674	0.683	0.115	1.472	$\Sigma$ SAR<1.6, Not required
		LTE Band 38	0	0.101	0.683	0.115	0.899	$\Sigma$ SAR<1.6, Not required
		LTE Band 41	0	0.589	0.683	0.115	1.387	$\Sigma$ SAR<1.6, Not required
LTE Band 66	0	0.513	0.683	0.115	1.311	$\Sigma$ SAR<1.6, Not required		

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## Top side WWAN + 2.4G WLAN

Position	Conditions	SAR Value (W/kg)	Coordinates (cm)			$\Sigma$ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
			x	y	z				
Top side	WLAN Main	0.544	-0.66	-6.68	-0.44	-	-	-	-
	WLAN Aux	0.699	-0.56	8.74	-0.44	1.243	154.20	0.009	SPLSR $\leq$ 0.04, Not required
	WCDMA Band II	0.434	-0.32	-13.81	-0.37	0.978	71.38	0.014	SPLSR $\leq$ 0.04, Not required
	WCDMA Band IV	0.554	-0.31	-13.65	-0.37	1.098	69.79	0.016	SPLSR $\leq$ 0.04, Not required
	WCDMA Band V	0.777	-0.15	-11.85	-0.46	1.321	51.95	0.029	SPLSR $\leq$ 0.04, Not required
	LTE Band 2	0.385	-0.32	-13.81	-0.37	0.929	71.38	0.013	SPLSR $\leq$ 0.04, Not required
	LTE Band 4	0.523	-0.31	-13.65	-0.37	1.067	69.79	0.016	SPLSR $\leq$ 0.04, Not required
	LTE Band 5	0.681	-0.15	-11.85	-0.46	1.225	51.95	0.026	SPLSR $\leq$ 0.04, Not required
	LTE Band 7	0.670	-0.24	-12.74	-0.35	1.214	60.75	0.022	SPLSR $\leq$ 0.04, Not required
	LTE Band 12	0.660	-0.15	-1.16	-0.46	1.204	55.46	0.024	SPLSR $\leq$ 0.04, Not required
	LTE Band 13	0.680	-0.15	-11.85	-0.46	1.224	51.95	0.026	SPLSR $\leq$ 0.04, Not required
	LTE Band 14	0.653	-0.15	-11.80	-0.46	1.197	51.45	0.025	SPLSR $\leq$ 0.04, Not required
	LTE Band 17	0.673	-0.15	-11.85	-0.46	1.217	51.95	0.026	SPLSR $\leq$ 0.04, Not required
	LTE Band 25	0.404	-0.32	-13.81	-0.67	0.948	71.42	0.013	SPLSR $\leq$ 0.04, Not required
	LTE Band 26	0.653	-0.15	-11.85	-0.46	1.197	51.95	0.025	SPLSR $\leq$ 0.04, Not required
	LTE Band 30	0.674	-0.34	-13.24	-0.38	1.218	65.68	0.020	SPLSR $\leq$ 0.04, Not required
	LTE Band 41	0.589	-0.38	-9.94	-0.42	1.133	32.72	0.037	SPLSR $\leq$ 0.04, Not required
LTE Band 66	0.513	-0.31	-13.65	-0.37	1.057	69.79	0.016	SPLSR $\leq$ 0.04, Not required	

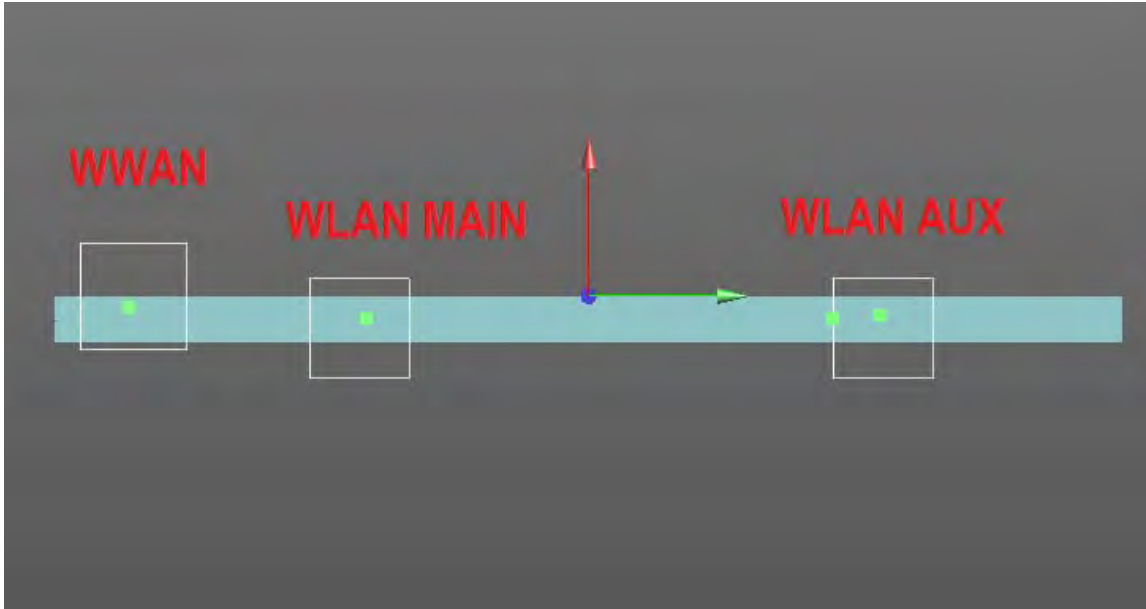
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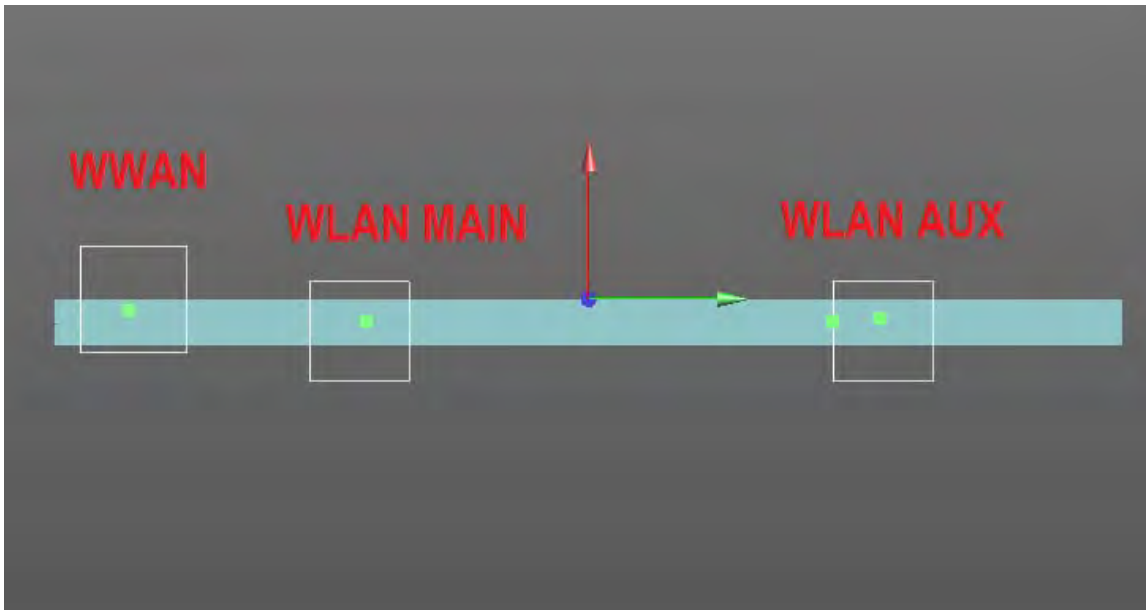
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WCDMA Band II



WCDMA Band IV

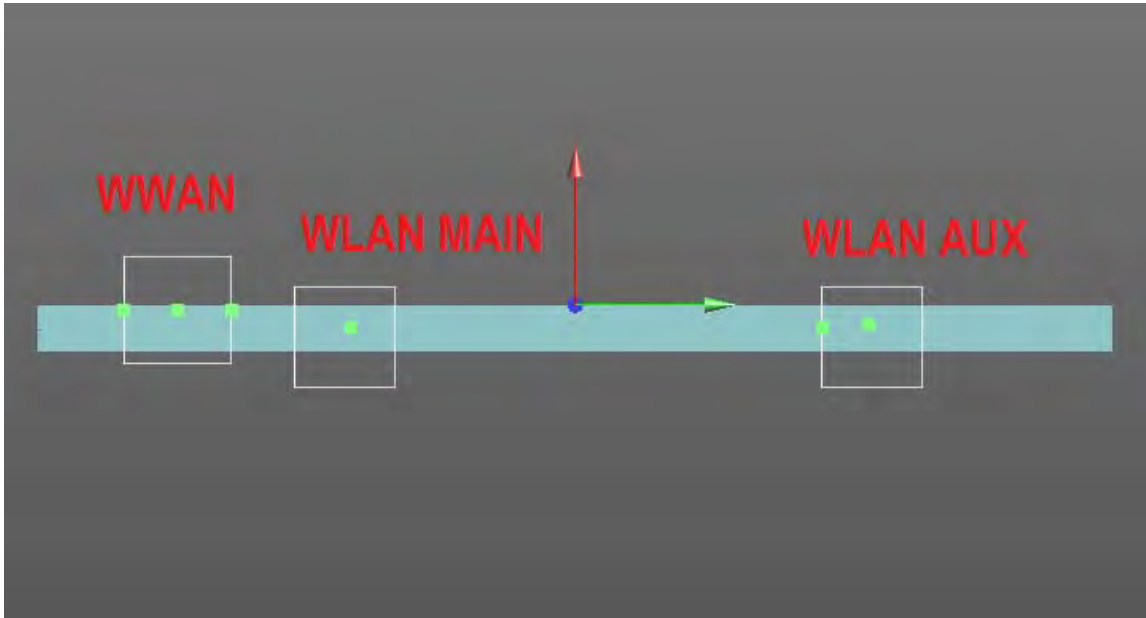


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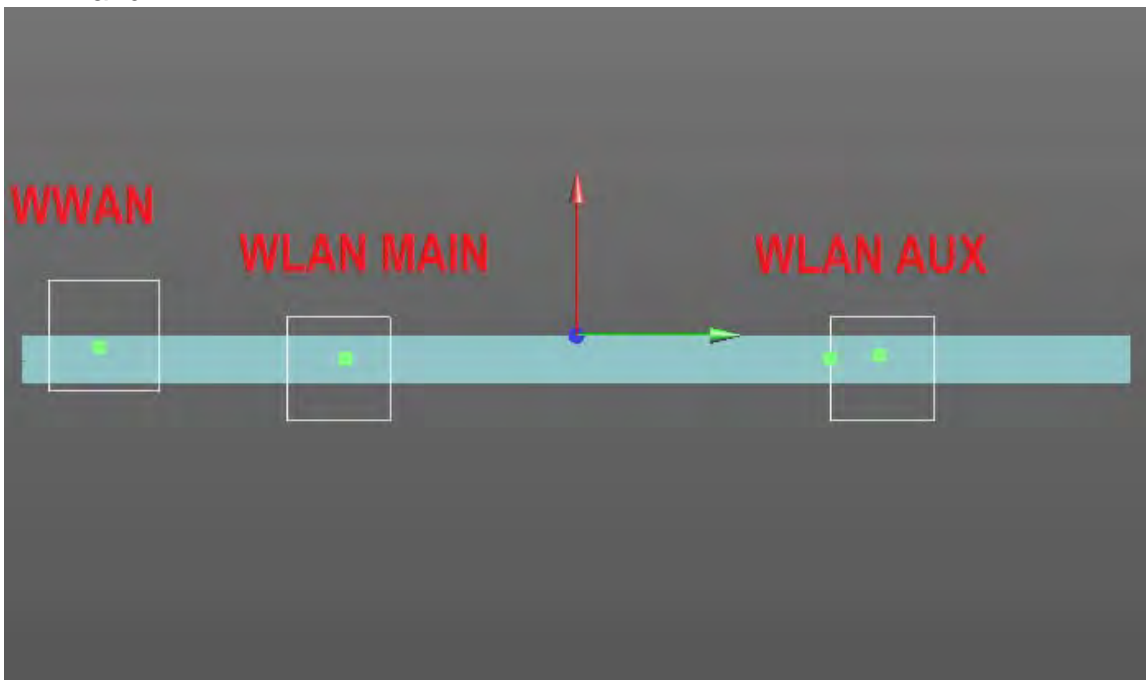
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WCDMA Band V



LTE Band 2

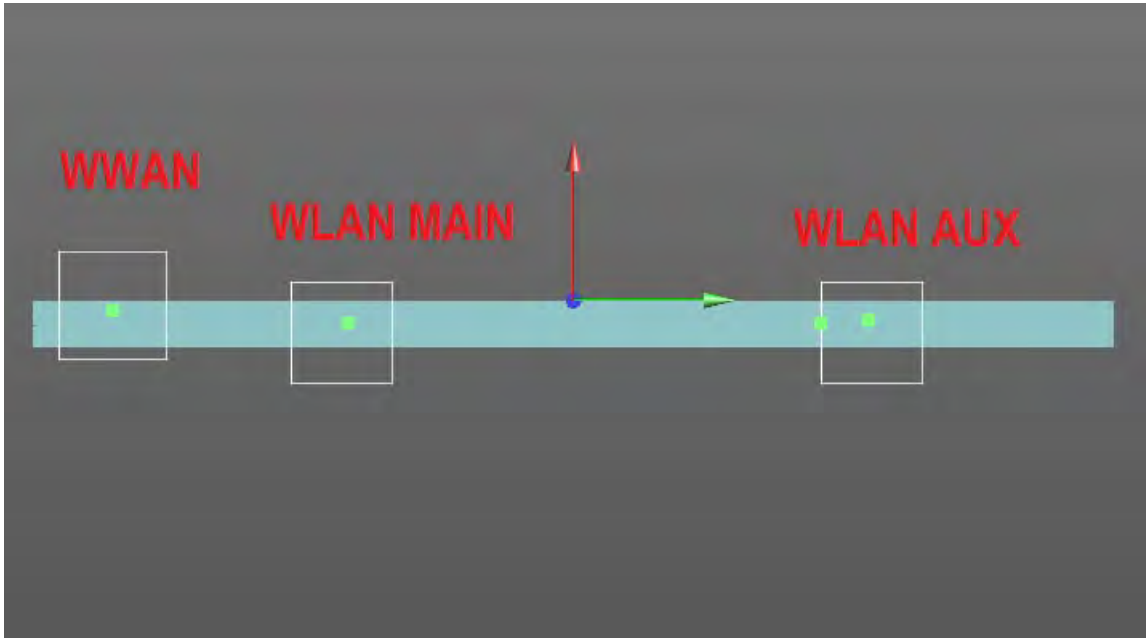


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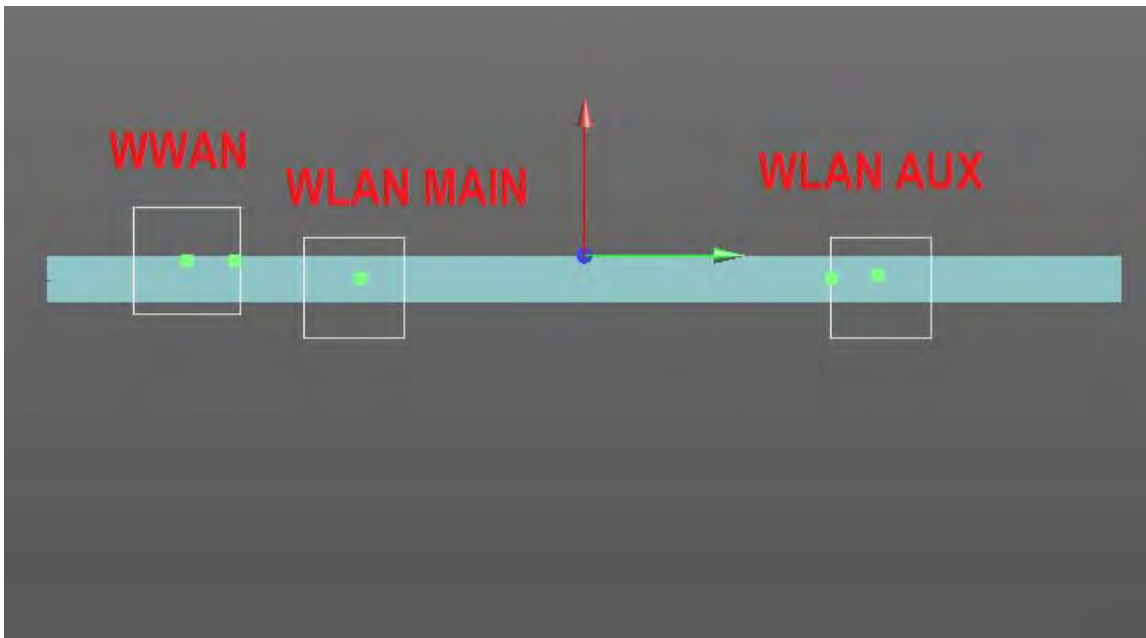
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LTE Band 4



LTE Band 5

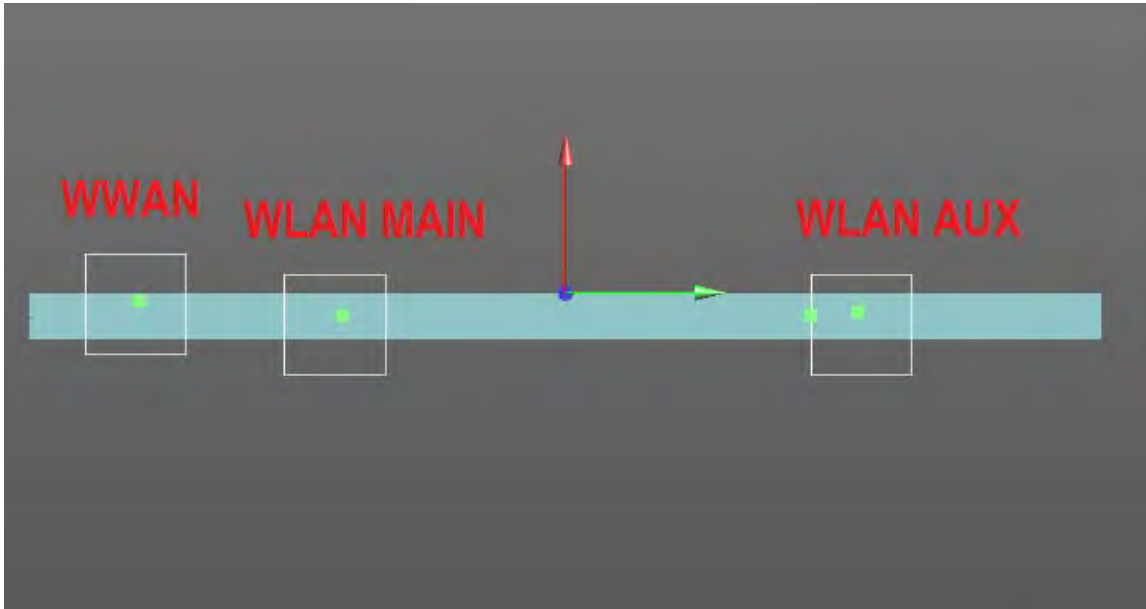


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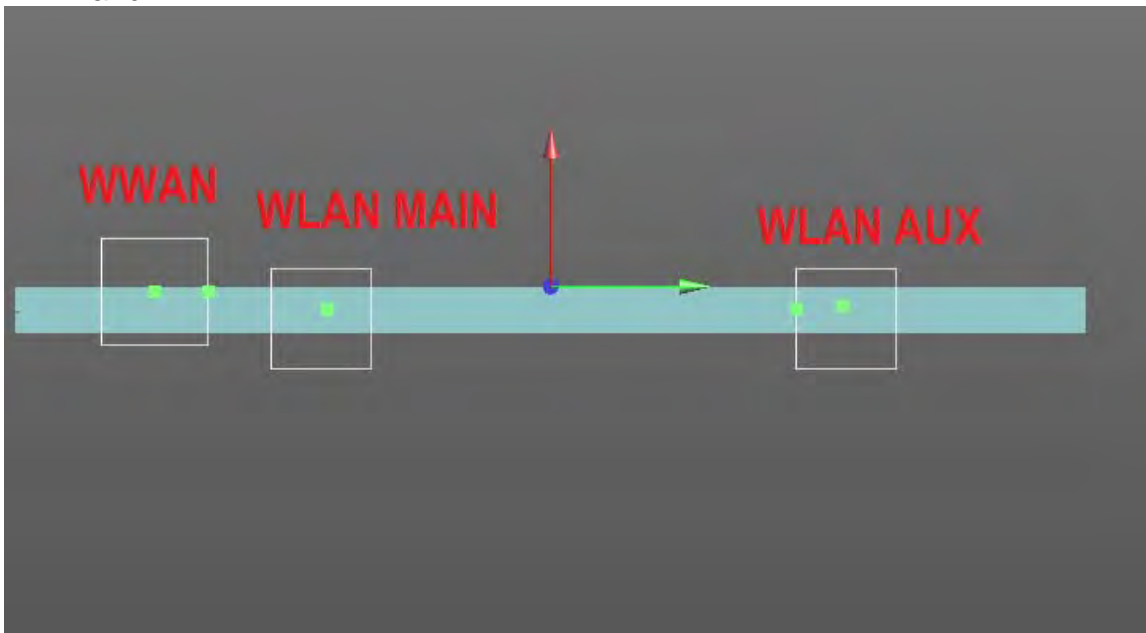
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LTE Band 7



LTE Band 12

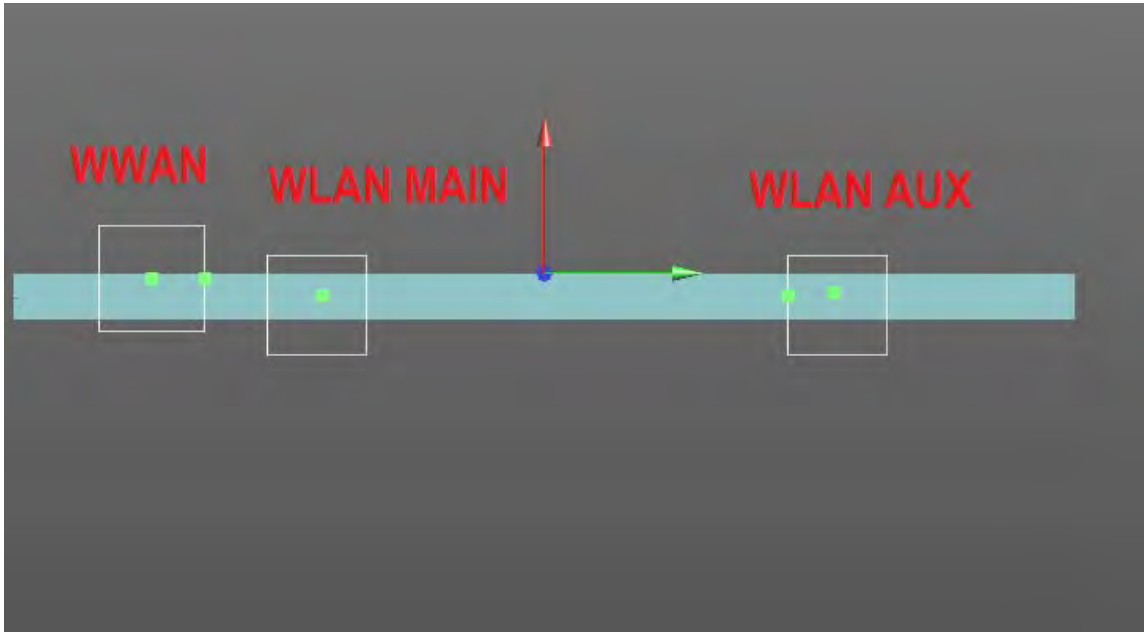


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LTE Band 13



LTE Band 14

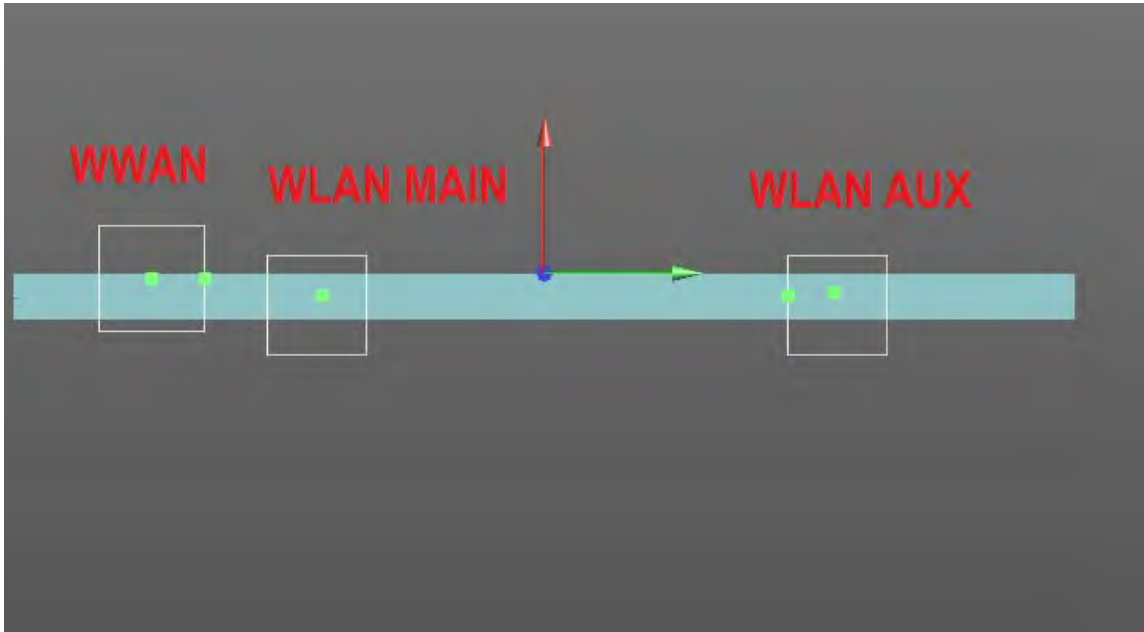


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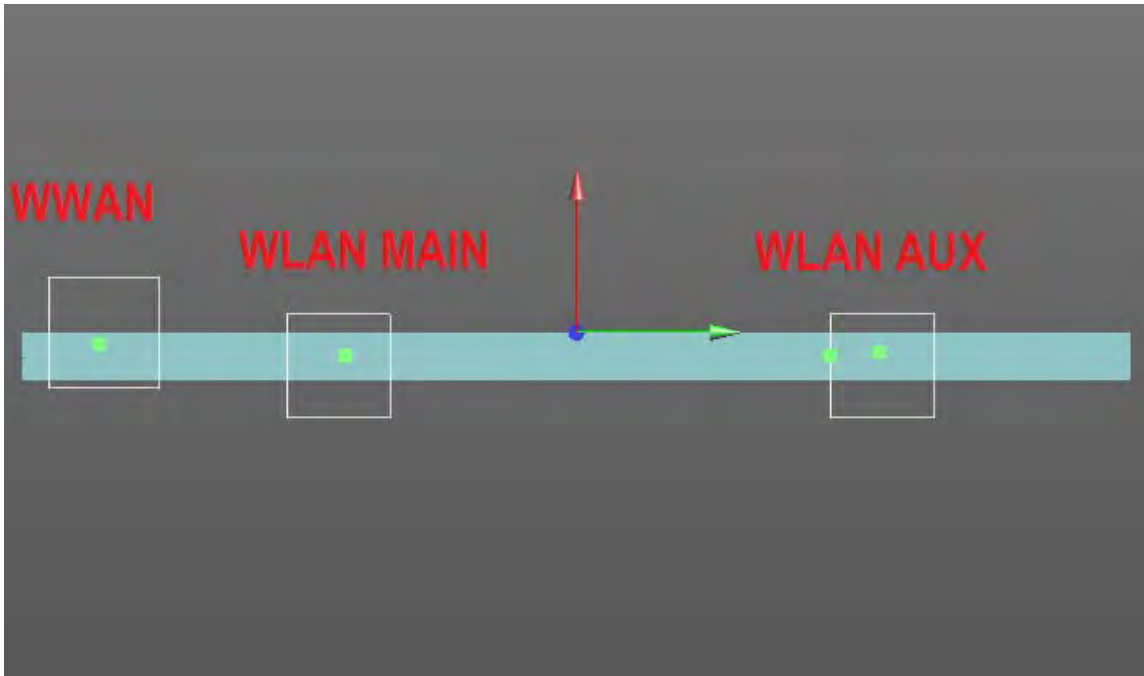
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LTE Band 17



LTE Band 25

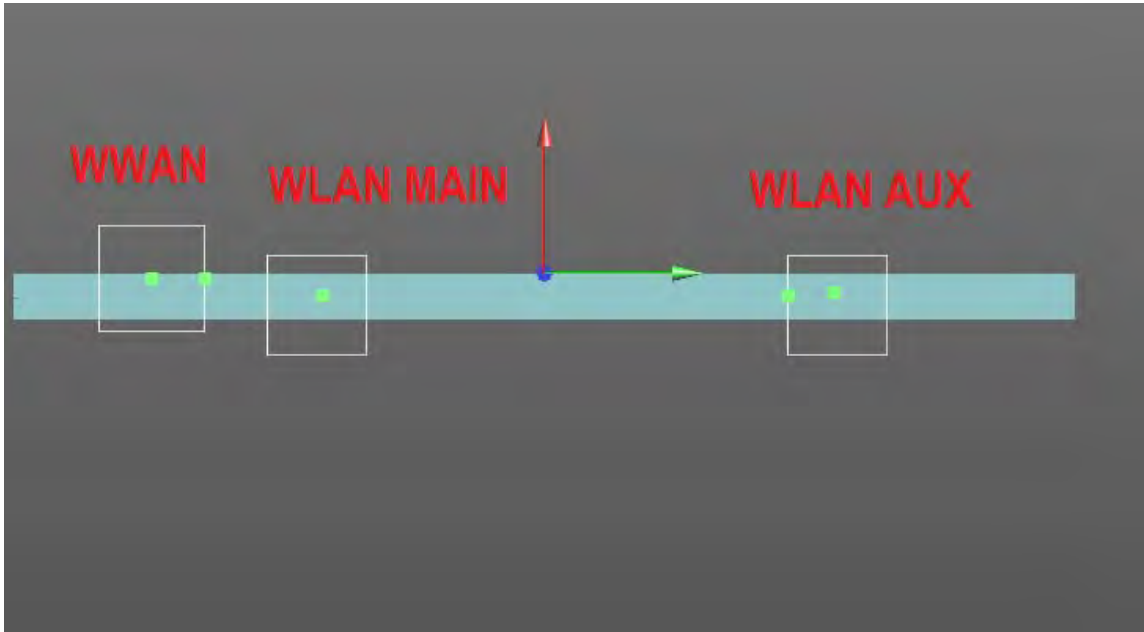


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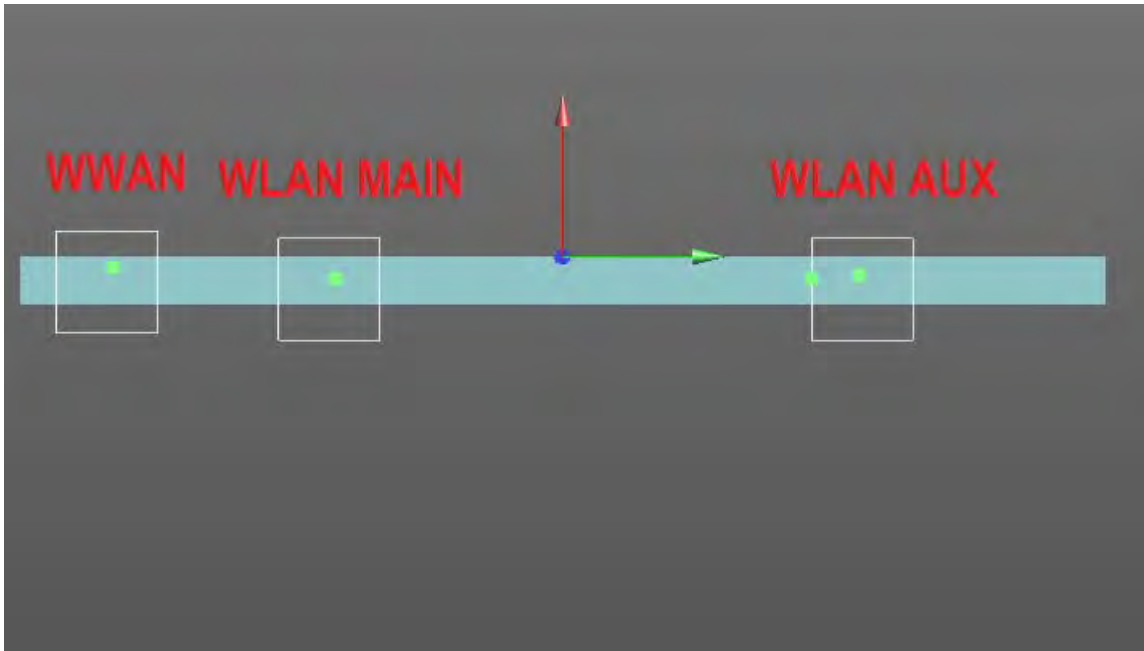
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LTE Band 26



LTE Band 30



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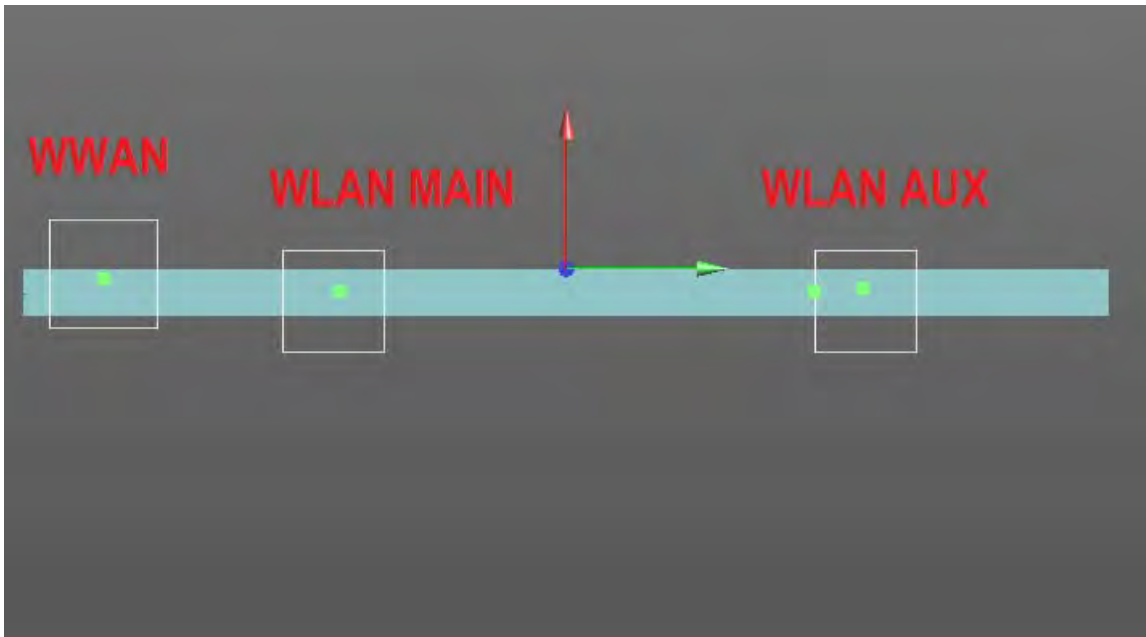
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LTE Band 41



LTE Band 66



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## Top side WWAN + 5G WLAN

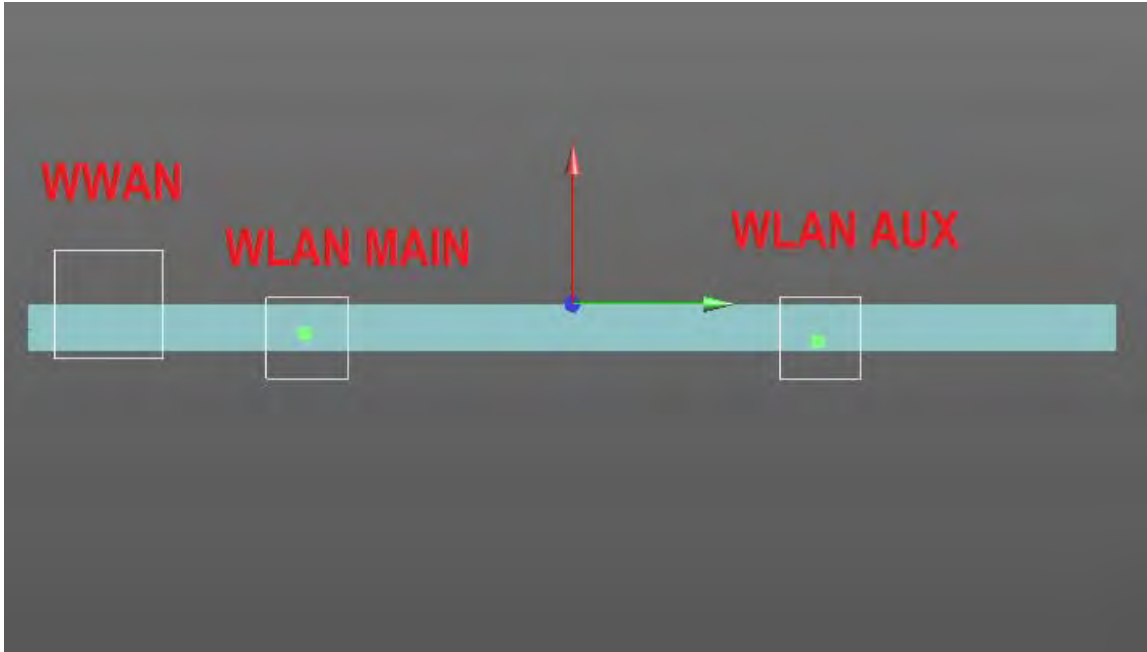
Position	Conditions	SAR Value (W/kg)	Coordinates (cm)			$\Sigma$ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
			x	y	z				
Top side	WLAN Aux	0.797	-1.08	7.22	-0.69	-	-	-	-
	WLAN Main	0.683	-0.84	-7.88	-0.68	1.480	151.02	0.012	SPLSR $\leq$ 0.04, Not required
	WCDMA Band II	0.434	-0.32	-13.81	-0.37	1.231	210.46	0.006	SPLSR $\leq$ 0.04, Not required
	WCDMA Band IV	0.554	-0.31	-13.65	-0.37	1.351	208.87	0.008	SPLSR $\leq$ 0.04, Not required
	WCDMA Band V	0.777	-0.15	-11.85	-0.46	1.574	190.94	0.010	SPLSR $\leq$ 0.04, Not required
	LTE Band 2	0.385	-0.32	-13.81	-0.37	1.182	210.46	0.006	SPLSR $\leq$ 0.04, Not required
	LTE Band 4	0.523	-0.31	-13.65	-0.37	1.320	208.87	0.007	SPLSR $\leq$ 0.04, Not required
	LTE Band 5	0.681	-0.15	-11.85	-0.46	1.478	190.94	0.009	SPLSR $\leq$ 0.04, Not required
	LTE Band 7	0.670	-0.24	-12.74	-0.35	1.467	199.80	0.009	SPLSR $\leq$ 0.04, Not required
	LTE Band 12	0.660	-0.15	-1.16	-0.46	1.457	84.32	0.021	SPLSR $\leq$ 0.04, Not required
	LTE Band 13	0.680	-0.15	-11.85	-0.46	1.477	190.94	0.009	SPLSR $\leq$ 0.04, Not required
	LTE Band 14	0.653	-0.15	-11.80	-0.46	1.450	190.44	0.009	SPLSR $\leq$ 0.04, Not required
	LTE Band 17	0.673	-0.15	-11.85	-0.46	1.470	190.94	0.009	SPLSR $\leq$ 0.04, Not required
	LTE Band 25	0.404	-0.32	-13.81	-0.67	1.201	210.44	0.006	SPLSR $\leq$ 0.04, Not required
	LTE Band 26	0.653	-0.15	-11.85	-0.46	1.450	190.94	0.009	SPLSR $\leq$ 0.04, Not required
	LTE Band 30	0.674	-0.34	-13.24	-0.38	1.471	204.76	0.009	SPLSR $\leq$ 0.04, Not required
	LTE Band 41	0.589	-0.38	-9.94	-0.42	1.386	171.76	0.009	SPLSR $\leq$ 0.04, Not required
LTE Band 66	0.513	-0.31	-13.65	-0.37	1.310	208.87	0.007	SPLSR $\leq$ 0.04, Not required	

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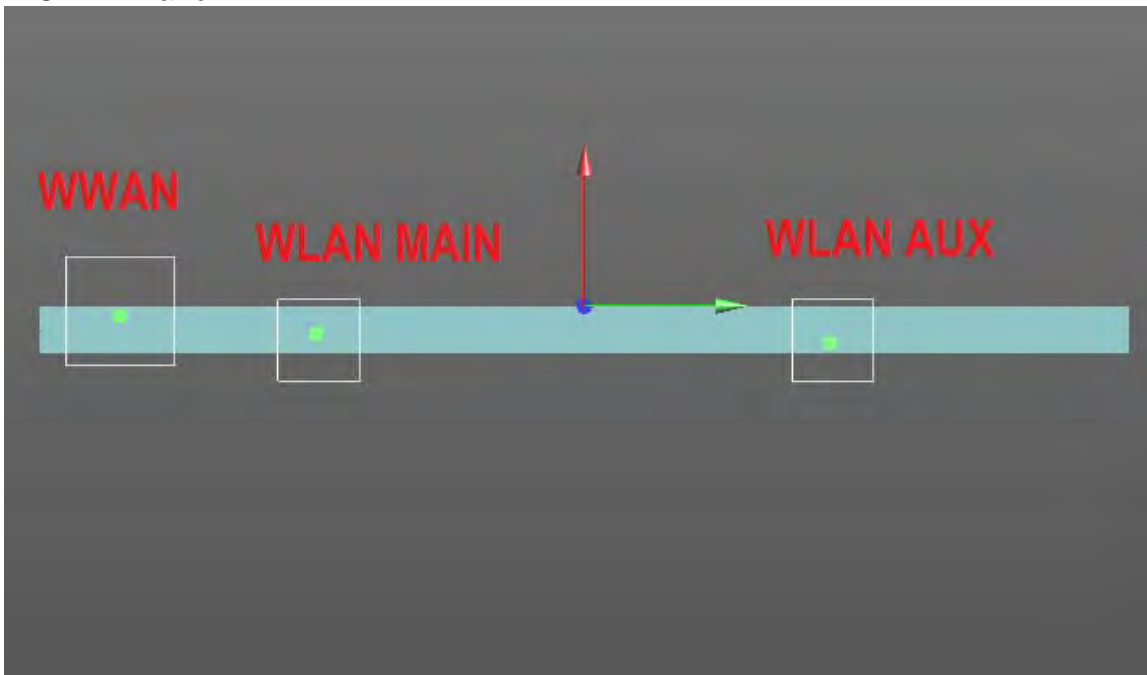
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WCDMA Band II



WCDMA Band IV

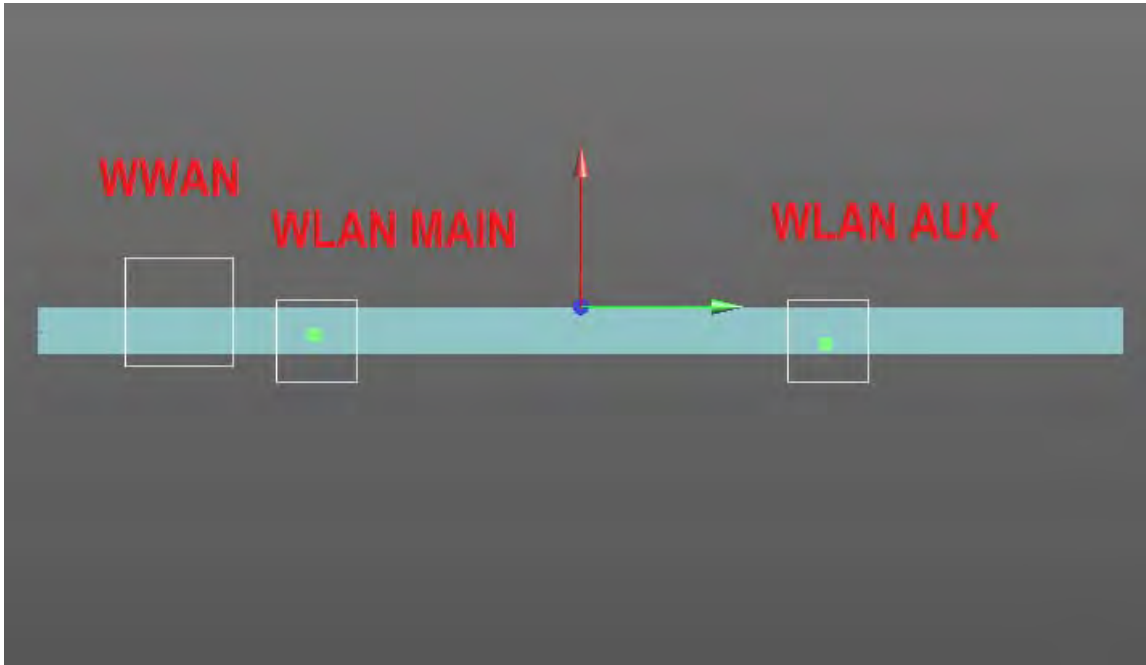


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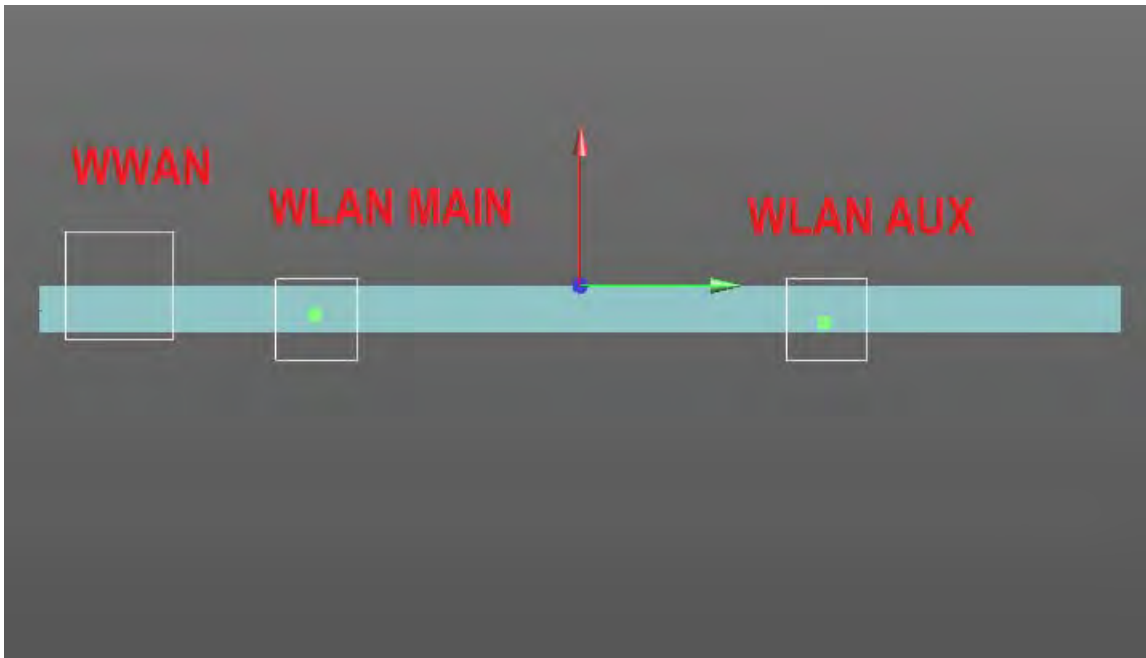
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WCDMA Band V



LTE Band 2

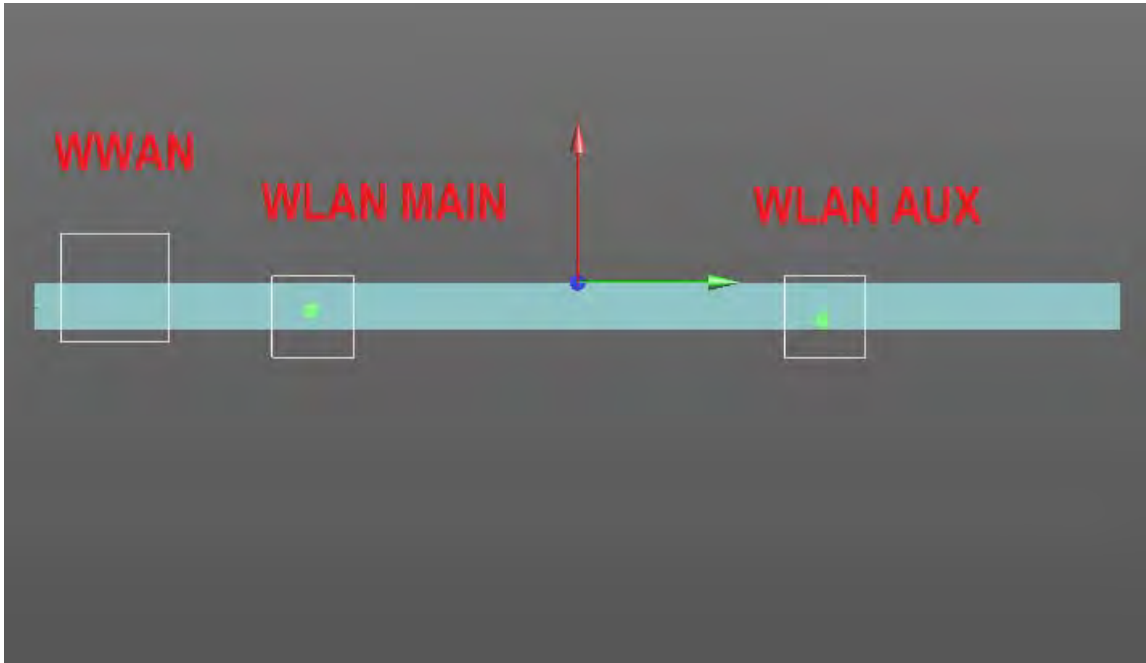


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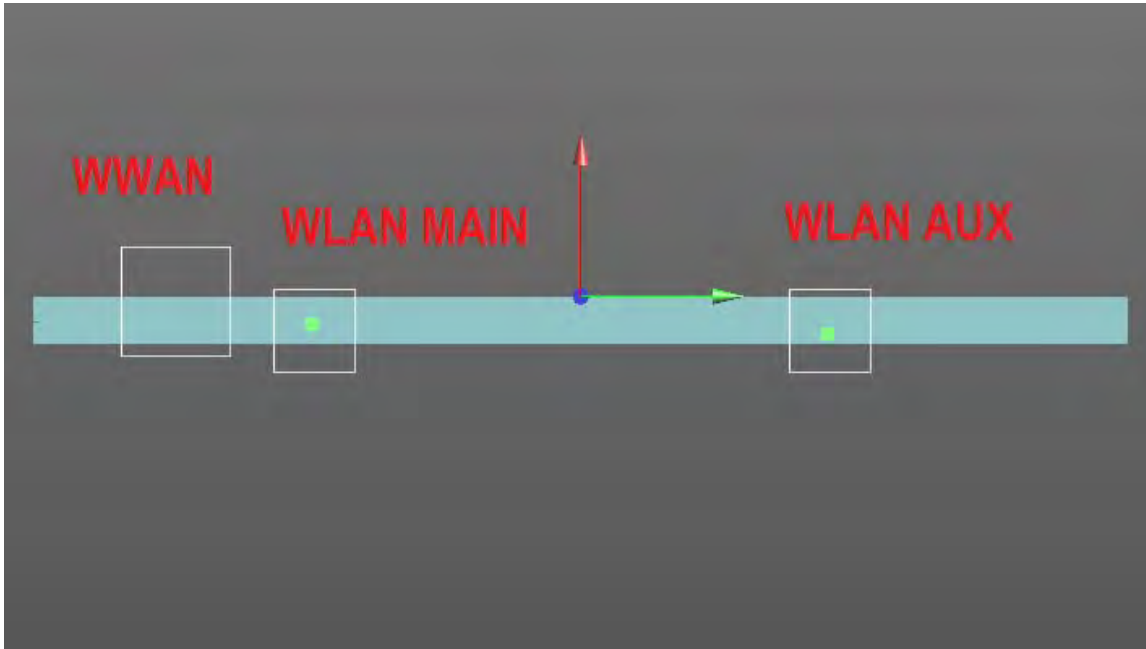
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LTE Band 4



LTE Band 5

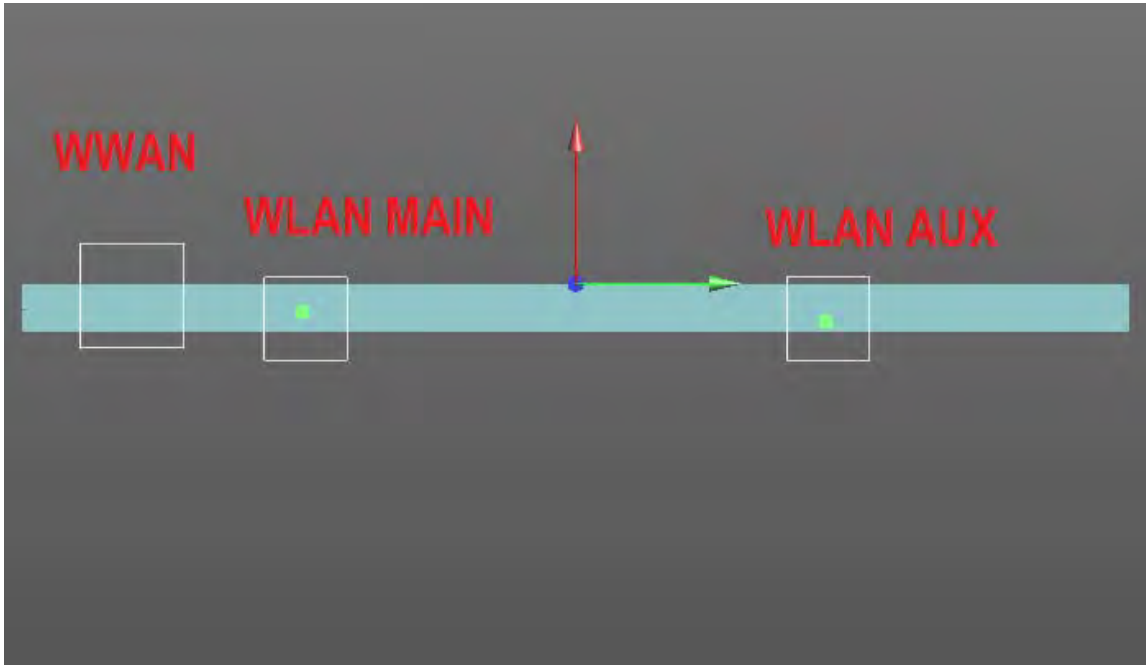


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LTE Band 7



LTE Band 12

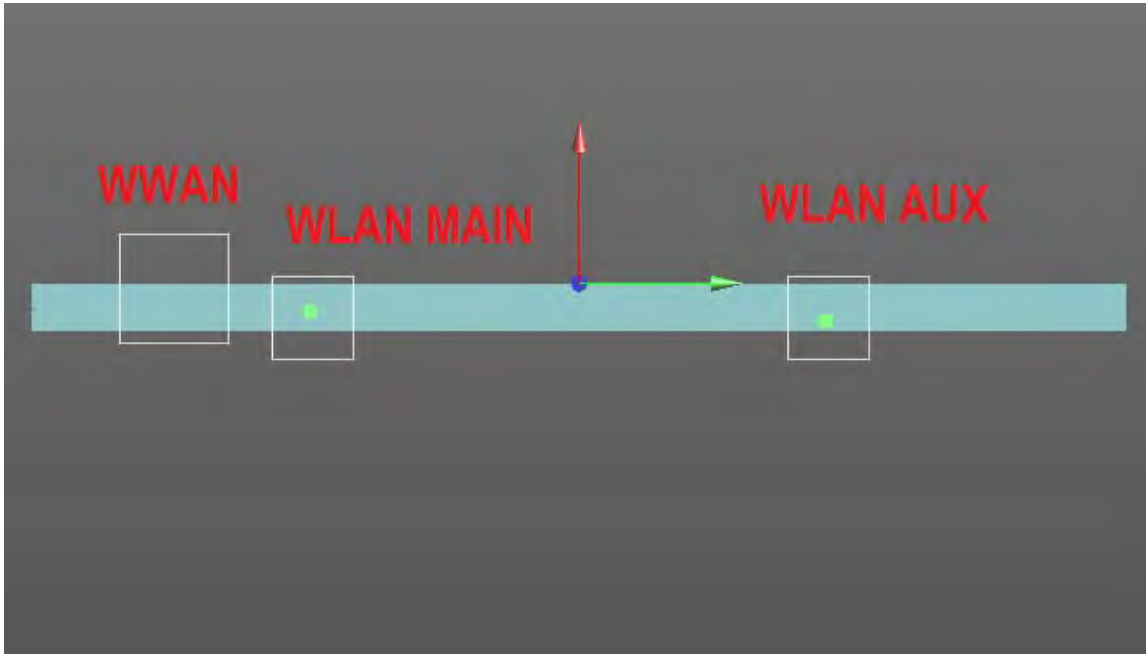


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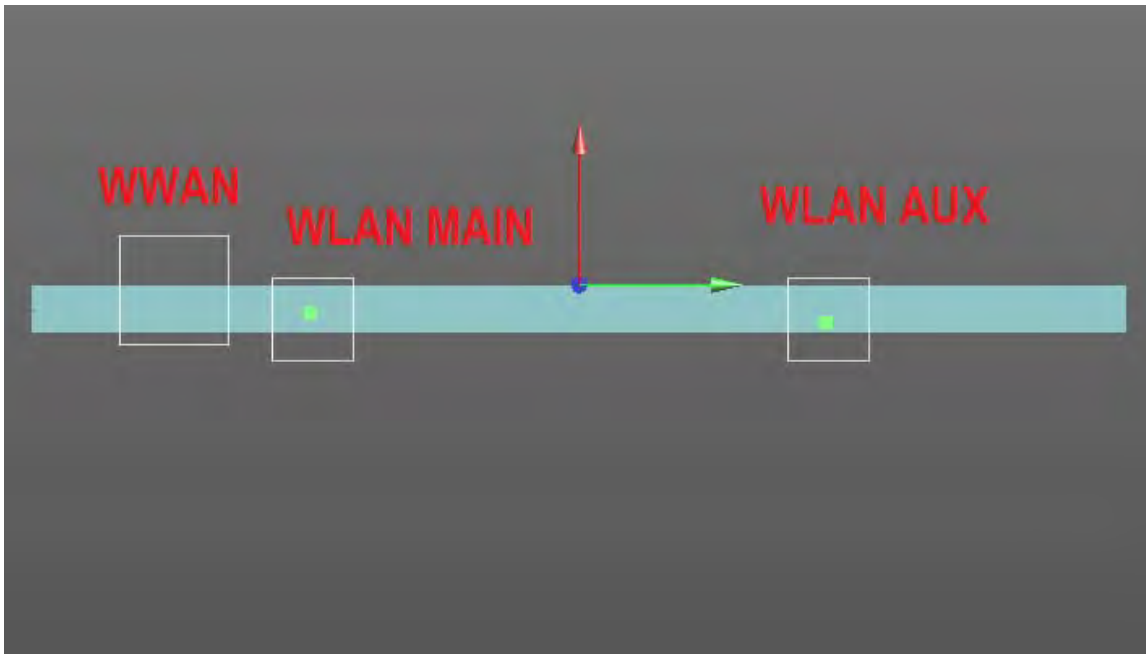
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LTE Band 13



LTE Band 14

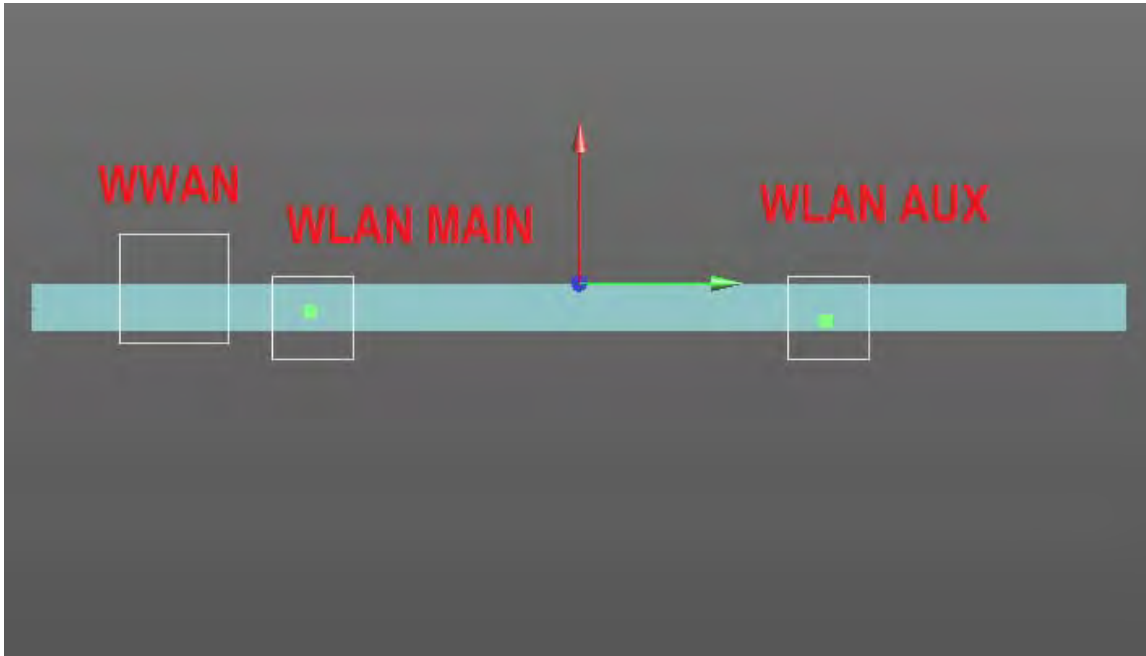


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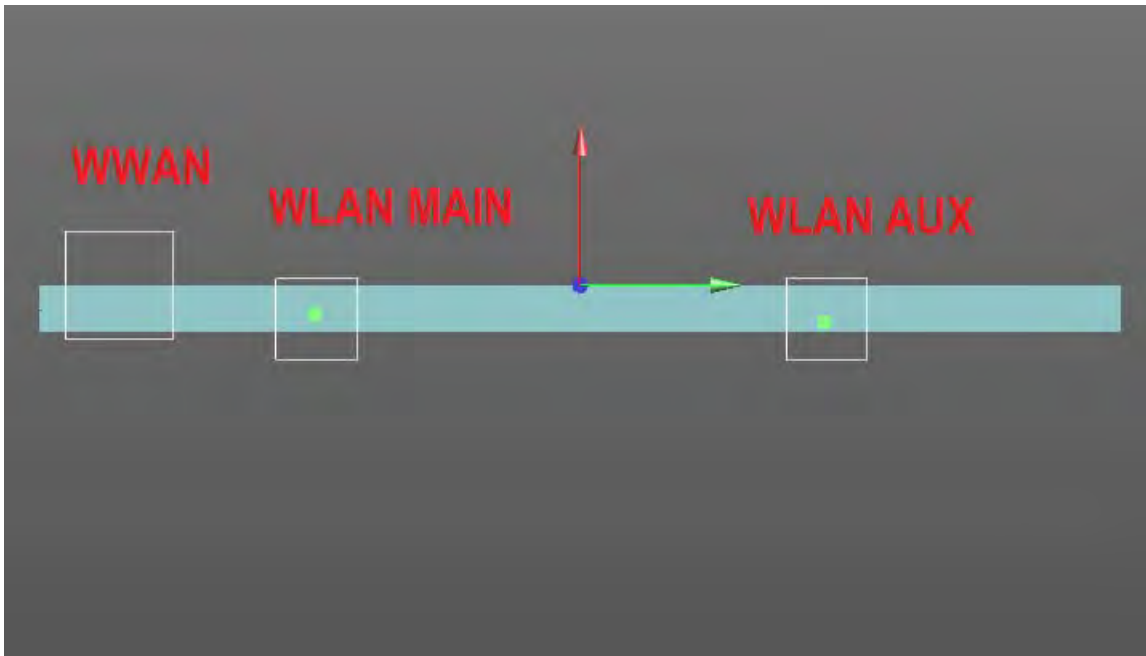
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LTE Band 17



LTE Band 25



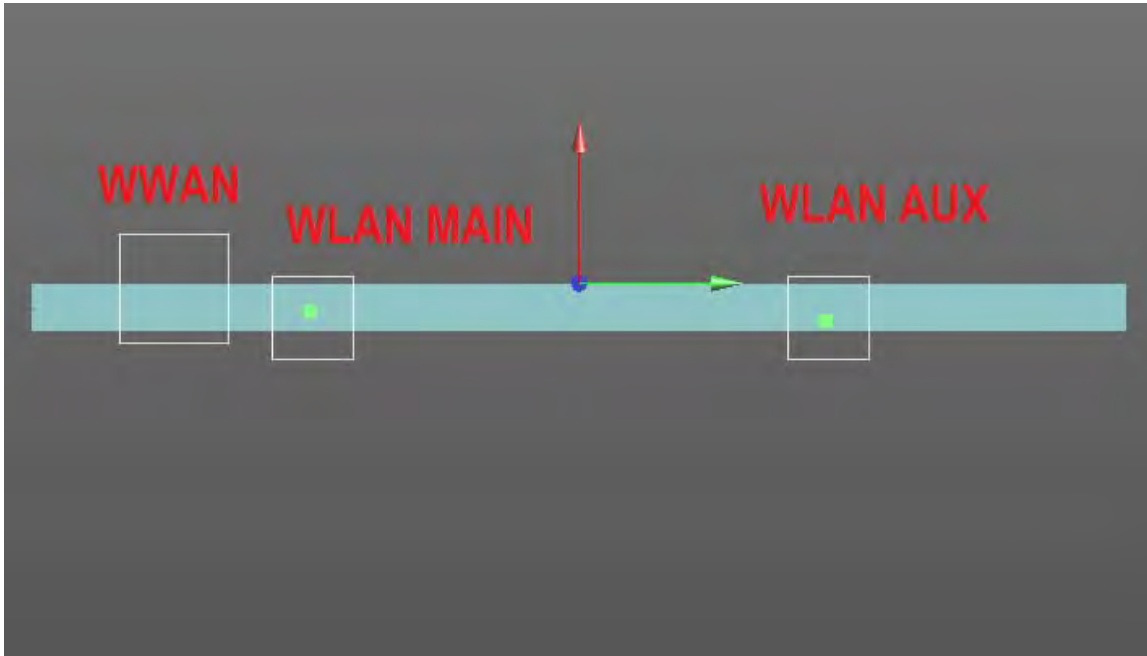
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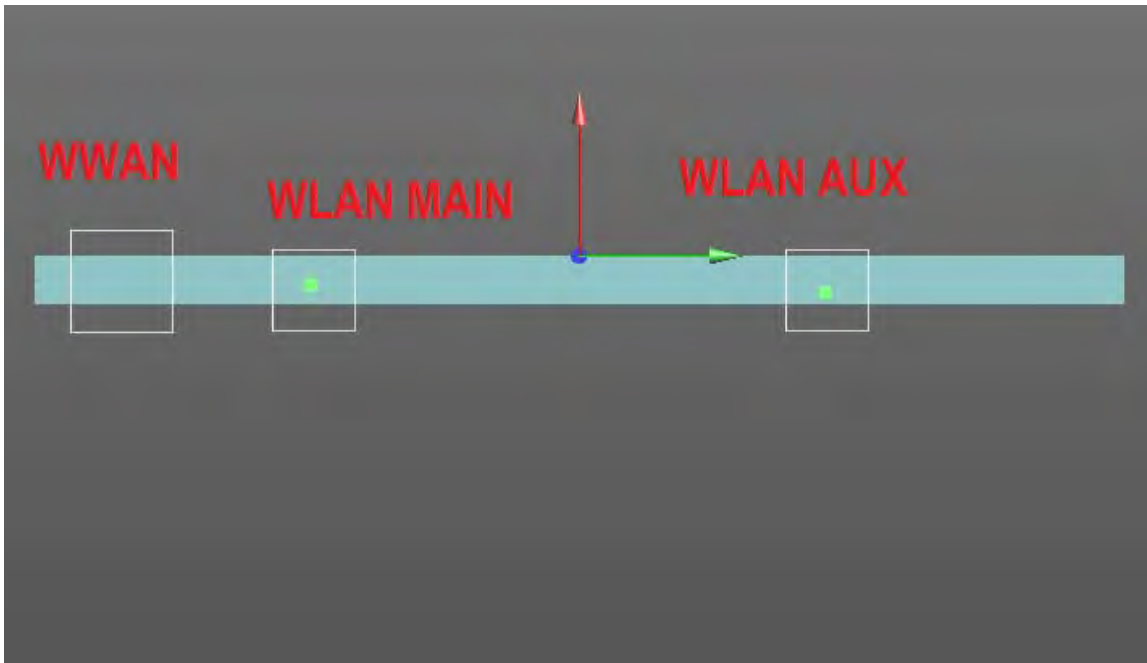
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LTE Band 26



LTE Band 30



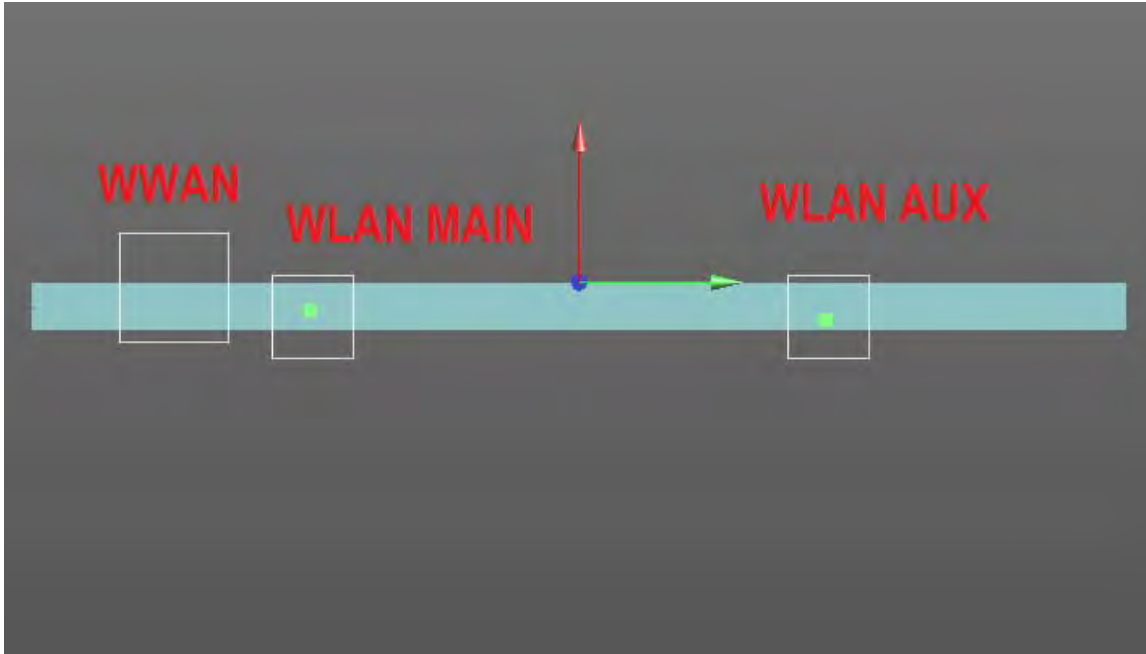
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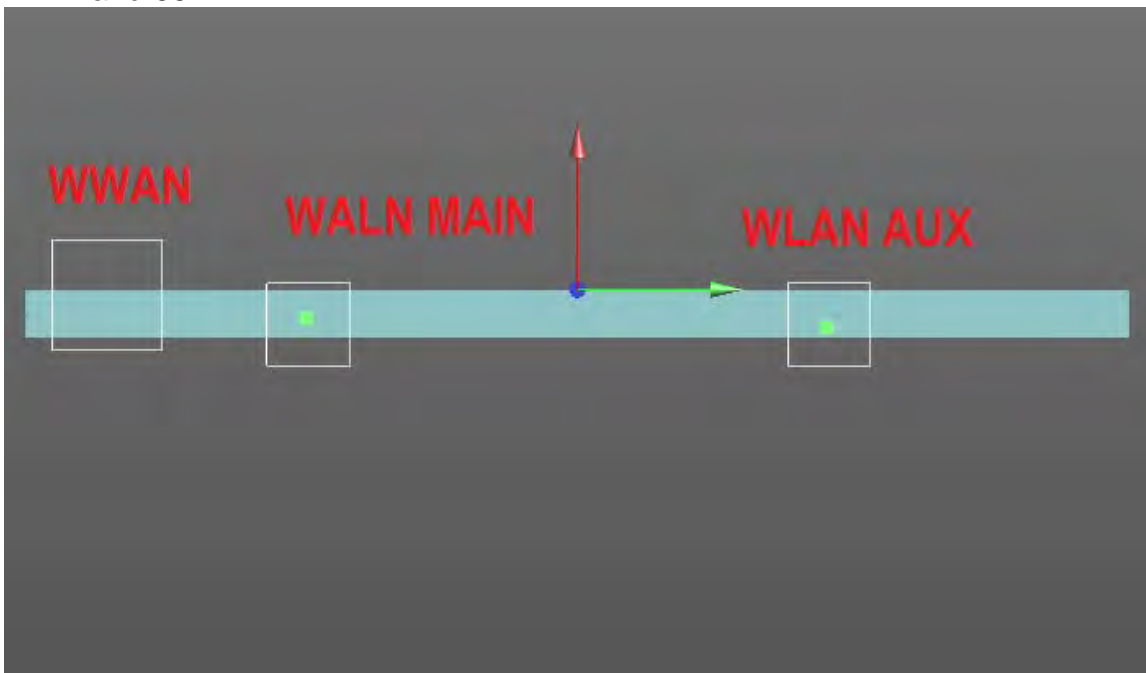
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LTE Band 41



LTE Band 66



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## Bottom side WWAN + 2.4G WLAN

No.	Position	Conditions	Distance (mm)	Max. WWAN	Max. WLAN	Max. WLAN Aux	SAR Sum	SPLSR
9	Bottom side	WCDMA Band II	0	0.009	0.005	0.013	0.027	$\Sigma$ SAR<1.6, Not required
		WCDMA Band IV	0	0.012	0.005	0.013	0.030	$\Sigma$ SAR<1.6, Not required
		WCDMA Band V	0	0.033	0.005	0.013	0.051	$\Sigma$ SAR<1.6, Not required
		LTE Band 2	0	0.008	0.005	0.013	0.026	$\Sigma$ SAR<1.6, Not required
		LTE Band 4	0	0.009	0.005	0.013	0.027	$\Sigma$ SAR<1.6, Not required
		LTE Band 5	0	0.027	0.005	0.013	0.045	$\Sigma$ SAR<1.6, Not required
		LTE Band 7	0	0.034	0.005	0.013	0.052	$\Sigma$ SAR<1.6, Not required
		LTE Band 12	0	0.022	0.005	0.013	0.040	$\Sigma$ SAR<1.6, Not required
		LTE Band 13	0	0.031	0.005	0.013	0.049	$\Sigma$ SAR<1.6, Not required
		LTE Band 14	0	0.030	0.005	0.013	0.048	$\Sigma$ SAR<1.6, Not required
		LTE Band 17	0	0.023	0.005	0.013	0.041	$\Sigma$ SAR<1.6, Not required
		LTE Band 25	0	0.009	0.005	0.013	0.027	$\Sigma$ SAR<1.6, Not required
		LTE Band 26	0	0.028	0.005	0.013	0.046	$\Sigma$ SAR<1.6, Not required
		LTE Band 30	0	0.080	0.005	0.013	0.098	$\Sigma$ SAR<1.6, Not required
		LTE Band 38	0	0.003	0.005	0.013	0.021	$\Sigma$ SAR<1.6, Not required
		LTE Band 41	0	0.012	0.005	0.013	0.030	$\Sigma$ SAR<1.6, Not required
LTE Band 66	0	0.008	0.005	0.013	0.026	$\Sigma$ SAR<1.6, Not required		

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## Bottom side WWAN + 5G WLAN

No.	Position	Conditions	Distance (mm)	Max. WWAN	Max. WLAN	Max. WLAN Aux	SAR Sum	SPLSR
10	Bottom side	WCDMA Band II	0	0.009	0.098	0.060	0.167	$\Sigma$ SAR<1.6, Not required
		WCDMA Band IV	0	0.012	0.098	0.060	0.170	$\Sigma$ SAR<1.6, Not required
		WCDMA Band V	0	0.033	0.098	0.060	0.191	$\Sigma$ SAR<1.6, Not required
		LTE Band 2	0	0.008	0.098	0.060	0.166	$\Sigma$ SAR<1.6, Not required
		LTE Band 4	0	0.009	0.098	0.060	0.167	$\Sigma$ SAR<1.6, Not required
		LTE Band 5	0	0.027	0.098	0.060	0.185	$\Sigma$ SAR<1.6, Not required
		LTE Band 7	0	0.034	0.098	0.060	0.192	$\Sigma$ SAR<1.6, Not required
		LTE Band 12	0	0.022	0.098	0.060	0.180	$\Sigma$ SAR<1.6, Not required
		LTE Band 13	0	0.031	0.098	0.060	0.189	$\Sigma$ SAR<1.6, Not required
		LTE Band 14	0	0.030	0.098	0.060	0.188	$\Sigma$ SAR<1.6, Not required
		LTE Band 17	0	0.023	0.098	0.060	0.181	$\Sigma$ SAR<1.6, Not required
		LTE Band 25	0	0.009	0.098	0.060	0.167	$\Sigma$ SAR<1.6, Not required
		LTE Band 26	0	0.028	0.098	0.060	0.186	$\Sigma$ SAR<1.6, Not required
		LTE Band 30	0	0.080	0.098	0.060	0.238	$\Sigma$ SAR<1.6, Not required
		LTE Band 38	0	0.003	0.098	0.060	0.161	$\Sigma$ SAR<1.6, Not required
		LTE Band 41	0	0.012	0.098	0.060	0.170	$\Sigma$ SAR<1.6, Not required
LTE Band 66	0	0.008	0.098	0.060	0.166	$\Sigma$ SAR<1.6, Not required		

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## Bottom side WWAN + 2.4G WLAN Main + BT

No.	Position	Conditions	Distance (mm)	Max. WWAN	Max. WLAN	Bluetooth	SAR Sum	SPLSR
11	Bottom side	WCDMA Band II	0	0.009	0.005	0.003	0.017	$\Sigma$ SAR<1.6, Not required
		WCDMA Band IV	0	0.012	0.005	0.003	0.020	$\Sigma$ SAR<1.6, Not required
		WCDMA Band V	0	0.033	0.005	0.003	0.041	$\Sigma$ SAR<1.6, Not required
		LTE Band 2	0	0.008	0.005	0.003	0.016	$\Sigma$ SAR<1.6, Not required
		LTE Band 4	0	0.009	0.005	0.003	0.017	$\Sigma$ SAR<1.6, Not required
		LTE Band 5	0	0.027	0.005	0.003	0.035	$\Sigma$ SAR<1.6, Not required
		LTE Band 7	0	0.034	0.005	0.003	0.042	$\Sigma$ SAR<1.6, Not required
		LTE Band 12	0	0.022	0.005	0.003	0.030	$\Sigma$ SAR<1.6, Not required
		LTE Band 13	0	0.031	0.005	0.003	0.039	$\Sigma$ SAR<1.6, Not required
		LTE Band 14	0	0.030	0.005	0.003	0.038	$\Sigma$ SAR<1.6, Not required
		LTE Band 17	0	0.023	0.005	0.003	0.031	$\Sigma$ SAR<1.6, Not required
		LTE Band 25	0	0.009	0.005	0.003	0.017	$\Sigma$ SAR<1.6, Not required
		LTE Band 26	0	0.028	0.005	0.003	0.036	$\Sigma$ SAR<1.6, Not required
		LTE Band 30	0	0.080	0.005	0.003	0.088	$\Sigma$ SAR<1.6, Not required
		LTE Band 38	0	0.003	0.005	0.003	0.011	$\Sigma$ SAR<1.6, Not required
		LTE Band 41	0	0.012	0.005	0.003	0.020	$\Sigma$ SAR<1.6, Not required
LTE Band 66	0	0.008	0.005	0.003	0.016	$\Sigma$ SAR<1.6, Not required		

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## Bottom side WWAN + 5G WLAN Main + BT

No.	Position	Conditions	Distance (mm)	Max. WWAN	Max. WLAN	Bluetooth	SAR Sum	SPLSR
12	Bottom side	WCDMA Band II	0	0.009	0.098	0.003	0.110	$\Sigma$ SAR<1.6, Not required
		WCDMA Band IV	0	0.012	0.098	0.003	0.113	$\Sigma$ SAR<1.6, Not required
		WCDMA Band V	0	0.033	0.098	0.003	0.134	$\Sigma$ SAR<1.6, Not required
		LTE Band 2	0	0.008	0.098	0.003	0.109	$\Sigma$ SAR<1.6, Not required
		LTE Band 4	0	0.009	0.098	0.003	0.110	$\Sigma$ SAR<1.6, Not required
		LTE Band 5	0	0.027	0.098	0.003	0.128	$\Sigma$ SAR<1.6, Not required
		LTE Band 7	0	0.034	0.098	0.003	0.135	$\Sigma$ SAR<1.6, Not required
		LTE Band 12	0	0.022	0.098	0.003	0.123	$\Sigma$ SAR<1.6, Not required
		LTE Band 13	0	0.031	0.098	0.003	0.132	$\Sigma$ SAR<1.6, Not required
		LTE Band 14	0	0.030	0.098	0.003	0.131	$\Sigma$ SAR<1.6, Not required
		LTE Band 17	0	0.023	0.098	0.003	0.124	$\Sigma$ SAR<1.6, Not required
		LTE Band 25	0	0.009	0.098	0.003	0.110	$\Sigma$ SAR<1.6, Not required
		LTE Band 26	0	0.028	0.098	0.003	0.129	$\Sigma$ SAR<1.6, Not required
		LTE Band 30	0	0.080	0.098	0.003	0.181	$\Sigma$ SAR<1.6, Not required
		LTE Band 38	0	0.003	0.098	0.003	0.104	$\Sigma$ SAR<1.6, Not required
		LTE Band 41	0	0.012	0.098	0.003	0.113	$\Sigma$ SAR<1.6, Not required
LTE Band 66	0	0.008	0.098	0.003	0.109	$\Sigma$ SAR<1.6, Not required		

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## Right side WWAN + 2.4G WLAN

No.	Position	Conditions	Distance (mm)	Max. WWAN	Max. WLAN	Max. WLAN Aux	SAR Sum	SPLSR
13	Right side	WCDMA Band II	0	0.011	0.010	0.070	0.091	ΣSAR<1.6, Not required
		WCDMA Band IV	0	0.013	0.010	0.070	0.093	ΣSAR<1.6, Not required
		WCDMA Band V	0	0.006	0.010	0.070	0.086	ΣSAR<1.6, Not required
		LTE Band 2	0	0.010	0.010	0.070	0.090	ΣSAR<1.6, Not required
		LTE Band 4	0	0.012	0.010	0.070	0.092	ΣSAR<1.6, Not required
		LTE Band 5	0	0.006	0.010	0.070	0.086	ΣSAR<1.6, Not required
		LTE Band 7	0	0.006	0.010	0.070	0.086	ΣSAR<1.6, Not required
		LTE Band 12	0	0.004	0.010	0.070	0.084	ΣSAR<1.6, Not required
		LTE Band 13	0	0.006	0.010	0.070	0.086	ΣSAR<1.6, Not required
		LTE Band 14	0	0.006	0.010	0.070	0.086	ΣSAR<1.6, Not required
		LTE Band 17	0	0.004	0.010	0.070	0.084	ΣSAR<1.6, Not required
		LTE Band 25	0	0.011	0.010	0.070	0.091	ΣSAR<1.6, Not required
		LTE Band 26	0	0.006	0.010	0.070	0.086	ΣSAR<1.6, Not required
		LTE Band 30	0	0.013	0.010	0.070	0.093	ΣSAR<1.6, Not required
		LTE Band 38	0	0.005	0.010	0.070	0.085	ΣSAR<1.6, Not required
		LTE Band 41	0	0.014	0.010	0.070	0.094	ΣSAR<1.6, Not required
LTE Band 66	0	0.014	0.010	0.070	0.094	ΣSAR<1.6, Not required		

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## Right side WWAN + 5G WLAN

No.	Position	Conditions	Distance (mm)	Max. WWAN	Max. WLAN	Max. WLAN Aux	SAR Sum	SPLSR
14	Right side	WCDMA Band II	0	0.011	0.040	0.094	0.145	$\Sigma$ SAR<1.6, Not required
		WCDMA Band IV	0	0.013	0.040	0.094	0.147	$\Sigma$ SAR<1.6, Not required
		WCDMA Band V	0	0.006	0.040	0.094	0.140	$\Sigma$ SAR<1.6, Not required
		LTE Band 2	0	0.010	0.040	0.094	0.144	$\Sigma$ SAR<1.6, Not required
		LTE Band 4	0	0.012	0.040	0.094	0.146	$\Sigma$ SAR<1.6, Not required
		LTE Band 5	0	0.006	0.040	0.094	0.140	$\Sigma$ SAR<1.6, Not required
		LTE Band 7	0	0.006	0.040	0.094	0.140	$\Sigma$ SAR<1.6, Not required
		LTE Band 12	0	0.004	0.040	0.094	0.138	$\Sigma$ SAR<1.6, Not required
		LTE Band 13	0	0.006	0.040	0.094	0.140	$\Sigma$ SAR<1.6, Not required
		LTE Band 14	0	0.006	0.040	0.094	0.140	$\Sigma$ SAR<1.6, Not required
		LTE Band 17	0	0.004	0.040	0.094	0.138	$\Sigma$ SAR<1.6, Not required
		LTE Band 25	0	0.011	0.040	0.094	0.145	$\Sigma$ SAR<1.6, Not required
		LTE Band 26	0	0.006	0.040	0.094	0.140	$\Sigma$ SAR<1.6, Not required
		LTE Band 30	0	0.013	0.040	0.094	0.147	$\Sigma$ SAR<1.6, Not required
		LTE Band 38	0	0.005	0.040	0.094	0.139	$\Sigma$ SAR<1.6, Not required
		LTE Band 41	0	0.014	0.040	0.094	0.148	$\Sigma$ SAR<1.6, Not required
LTE Band 66	0	0.014	0.040	0.094	0.148	$\Sigma$ SAR<1.6, Not required		

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## Right side WWAN + 2.4G WLAN Main + BT

No.	Position	Conditions	Distance (mm)	Max. WWAN	Max. WLAN	Bluetooth	SAR Sum	SPLSR
15	Right side	WCDMA Band II	0	0.011	0.010	0.015	0.036	ΣSAR<1.6, Not required
		WCDMA Band IV	0	0.013	0.010	0.015	0.038	ΣSAR<1.6, Not required
		WCDMA Band V	0	0.006	0.010	0.015	0.031	ΣSAR<1.6, Not required
		LTE Band 2	0	0.010	0.010	0.015	0.035	ΣSAR<1.6, Not required
		LTE Band 4	0	0.012	0.010	0.015	0.037	ΣSAR<1.6, Not required
		LTE Band 5	0	0.006	0.010	0.015	0.031	ΣSAR<1.6, Not required
		LTE Band 7	0	0.006	0.010	0.015	0.031	ΣSAR<1.6, Not required
		LTE Band 12	0	0.004	0.010	0.015	0.029	ΣSAR<1.6, Not required
		LTE Band 13	0	0.006	0.010	0.015	0.031	ΣSAR<1.6, Not required
		LTE Band 14	0	0.006	0.010	0.015	0.031	ΣSAR<1.6, Not required
		LTE Band 17	0	0.004	0.010	0.015	0.029	ΣSAR<1.6, Not required
		LTE Band 25	0	0.011	0.010	0.015	0.036	ΣSAR<1.6, Not required
		LTE Band 26	0	0.006	0.010	0.015	0.031	ΣSAR<1.6, Not required
		LTE Band 30	0	0.013	0.010	0.015	0.038	ΣSAR<1.6, Not required
		LTE Band 38	0	0.005	0.010	0.015	0.030	ΣSAR<1.6, Not required
		LTE Band 41	0	0.014	0.010	0.015	0.039	ΣSAR<1.6, Not required
LTE Band 66	0	0.014	0.010	0.015	0.039	ΣSAR<1.6, Not required		

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## Right side WWAN + 5G WLAN Main + BT

No.	Position	Conditions	Distance (mm)	Max. WWAN	Max. WLAN	Bluetooth	SAR Sum	SPLSR
16	Right side	WCDMA Band II	0	0.011	0.040	0.015	0.066	$\Sigma$ SAR<1.6, Not required
		WCDMA Band IV	0	0.013	0.040	0.015	0.068	$\Sigma$ SAR<1.6, Not required
		WCDMA Band V	0	0.006	0.040	0.015	0.061	$\Sigma$ SAR<1.6, Not required
		LTE Band 2	0	0.010	0.040	0.015	0.065	$\Sigma$ SAR<1.6, Not required
		LTE Band 4	0	0.012	0.040	0.015	0.067	$\Sigma$ SAR<1.6, Not required
		LTE Band 5	0	0.006	0.040	0.015	0.061	$\Sigma$ SAR<1.6, Not required
		LTE Band 7	0	0.006	0.040	0.015	0.061	$\Sigma$ SAR<1.6, Not required
		LTE Band 12	0	0.004	0.040	0.015	0.059	$\Sigma$ SAR<1.6, Not required
		LTE Band 13	0	0.006	0.040	0.015	0.061	$\Sigma$ SAR<1.6, Not required
		LTE Band 14	0	0.006	0.040	0.015	0.061	$\Sigma$ SAR<1.6, Not required
		LTE Band 17	0	0.004	0.040	0.015	0.059	$\Sigma$ SAR<1.6, Not required
		LTE Band 25	0	0.011	0.040	0.015	0.066	$\Sigma$ SAR<1.6, Not required
		LTE Band 26	0	0.006	0.040	0.015	0.061	$\Sigma$ SAR<1.6, Not required
		LTE Band 30	0	0.013	0.040	0.015	0.068	$\Sigma$ SAR<1.6, Not required
		LTE Band 38	0	0.005	0.040	0.015	0.060	$\Sigma$ SAR<1.6, Not required
		LTE Band 41	0	0.014	0.040	0.015	0.069	$\Sigma$ SAR<1.6, Not required
LTE Band 66	0	0.014	0.040	0.015	0.069	$\Sigma$ SAR<1.6, Not required		

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## Left side WWAN + 2.4G WLAN

No.	Position	Conditions	Distance (mm)	Max. WWAN	Max. WLAN	Max. WLAN Aux	SAR Sum	SPLSR
17	Left side	WCDMA Band II	0	1.138	0.148	0.003	1.289	ΣSAR<1.6, Not required
		WCDMA Band IV	0	1.297	0.148	0.003	1.448	ΣSAR<1.6, Not required
		WCDMA Band V	0	0.997	0.148	0.003	1.148	ΣSAR<1.6, Not required
		LTE Band 2	0	1.041	0.148	0.003	1.192	ΣSAR<1.6, Not required
		LTE Band 4	0	1.181	0.148	0.003	1.332	ΣSAR<1.6, Not required
		LTE Band 5	0	0.837	0.148	0.003	0.988	ΣSAR<1.6, Not required
		LTE Band 7	0	0.305	0.148	0.003	0.456	ΣSAR<1.6, Not required
		LTE Band 12	0	0.698	0.148	0.003	0.849	ΣSAR<1.6, Not required
		LTE Band 13	0	0.880	0.148	0.003	1.031	ΣSAR<1.6, Not required
		LTE Band 14	0	0.868	0.148	0.003	1.019	ΣSAR<1.6, Not required
		LTE Band 17	0	0.739	0.148	0.003	0.890	ΣSAR<1.6, Not required
		LTE Band 25	0	1.092	0.148	0.003	1.243	ΣSAR<1.6, Not required
		LTE Band 26	0	0.882	0.148	0.003	1.033	ΣSAR<1.6, Not required
		LTE Band 30	0	0.711	0.148	0.003	0.862	ΣSAR<1.6, Not required
		LTE Band 38	0	0.031	0.148	0.003	0.182	ΣSAR<1.6, Not required
		LTE Band 41	0	0.161	0.148	0.003	0.312	ΣSAR<1.6, Not required
LTE Band 66	0	1.141	0.148	0.003	1.292	ΣSAR<1.6, Not required		

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## Left side WWAN + 5G WLAN

No.	Position	Conditions	Distance (mm)	Max. WWAN	Max. WLAN	Max. WLAN Aux	SAR Sum	SPLSR
18	Left side	WCDMA Band II	0	1.138	0.102	0.063	1.303	ΣSAR<1.6, Not required
		WCDMA Band IV	0	1.297	0.102	0.063	1.462	ΣSAR<1.6, Not required
		WCDMA Band V	0	0.997	0.102	0.063	1.162	ΣSAR<1.6, Not required
		LTE Band 2	0	1.041	0.102	0.063	1.206	ΣSAR<1.6, Not required
		LTE Band 4	0	1.181	0.102	0.063	1.346	ΣSAR<1.6, Not required
		LTE Band 5	0	0.837	0.102	0.063	1.002	ΣSAR<1.6, Not required
		LTE Band 7	0	0.305	0.102	0.063	0.470	ΣSAR<1.6, Not required
		LTE Band 12	0	0.698	0.102	0.063	0.863	ΣSAR<1.6, Not required
		LTE Band 13	0	0.880	0.102	0.063	1.045	ΣSAR<1.6, Not required
		LTE Band 14	0	0.868	0.102	0.063	1.033	ΣSAR<1.6, Not required
		LTE Band 17	0	0.739	0.102	0.063	0.904	ΣSAR<1.6, Not required
		LTE Band 25	0	1.092	0.102	0.063	1.257	ΣSAR<1.6, Not required
		LTE Band 26	0	0.882	0.102	0.063	1.047	ΣSAR<1.6, Not required
		LTE Band 30	0	0.711	0.102	0.063	0.876	ΣSAR<1.6, Not required
		LTE Band 38	0	0.031	0.102	0.063	0.196	ΣSAR<1.6, Not required
		LTE Band 41	0	0.161	0.102	0.063	0.326	ΣSAR<1.6, Not required
LTE Band 66	0	1.141	0.102	0.063	1.306	ΣSAR<1.6, Not required		

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## Left side WWAN + 2.4G WLAN Main + BT

No.	Position	Conditions	Distance (mm)	Max. WWAN	Max. WLAN	Bluetooth	SAR Sum	SPLSR
19	Left side	WCDMA Band II	0	1.138	0.148	0.001	1.287	ΣSAR<1.6, Not required
		WCDMA Band IV	0	1.297	0.148	0.001	1.446	ΣSAR<1.6, Not required
		WCDMA Band V	0	0.997	0.148	0.001	1.146	ΣSAR<1.6, Not required
		LTE Band 2	0	1.041	0.148	0.001	1.190	ΣSAR<1.6, Not required
		LTE Band 4	0	1.181	0.148	0.001	1.330	ΣSAR<1.6, Not required
		LTE Band 5	0	0.837	0.148	0.001	0.986	ΣSAR<1.6, Not required
		LTE Band 7	0	0.305	0.148	0.001	0.454	ΣSAR<1.6, Not required
		LTE Band 12	0	0.698	0.148	0.001	0.847	ΣSAR<1.6, Not required
		LTE Band 13	0	0.880	0.148	0.001	1.029	ΣSAR<1.6, Not required
		LTE Band 14	0	0.868	0.148	0.001	1.017	ΣSAR<1.6, Not required
		LTE Band 17	0	0.739	0.148	0.001	0.888	ΣSAR<1.6, Not required
		LTE Band 25	0	1.092	0.148	0.001	1.241	ΣSAR<1.6, Not required
		LTE Band 26	0	0.882	0.148	0.001	1.031	ΣSAR<1.6, Not required
		LTE Band 30	0	0.711	0.148	0.001	0.860	ΣSAR<1.6, Not required
		LTE Band 38	0	0.031	0.148	0.001	0.180	ΣSAR<1.6, Not required
		LTE Band 41	0	0.161	0.148	0.001	0.310	ΣSAR<1.6, Not required
LTE Band 66	0	1.141	0.148	0.001	1.290	ΣSAR<1.6, Not required		

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## Left side WWAN + 5G WLAN Main + BT

No.	Position	Conditions	Distance (mm)	Max. WWAN	Max. WLAN	Bluetooth	SAR Sum	SPLSR
20	Left side	WCDMA Band II	0	1.138	0.102	0.001	1.241	ΣSAR<1.6, Not required
		WCDMA Band IV	0	1.297	0.102	0.001	1.400	ΣSAR<1.6, Not required
		WCDMA Band V	0	0.997	0.102	0.001	1.100	ΣSAR<1.6, Not required
		LTE Band 2	0	1.041	0.102	0.001	1.144	ΣSAR<1.6, Not required
		LTE Band 4	0	1.181	0.102	0.001	1.284	ΣSAR<1.6, Not required
		LTE Band 5	0	0.837	0.102	0.001	0.940	ΣSAR<1.6, Not required
		LTE Band 7	0	0.305	0.102	0.001	0.408	ΣSAR<1.6, Not required
		LTE Band 12	0	0.698	0.102	0.001	0.801	ΣSAR<1.6, Not required
		LTE Band 13	0	0.880	0.102	0.001	0.983	ΣSAR<1.6, Not required
		LTE Band 14	0	0.868	0.102	0.001	0.971	ΣSAR<1.6, Not required
		LTE Band 17	0	0.739	0.102	0.001	0.842	ΣSAR<1.6, Not required
		LTE Band 25	0	1.092	0.102	0.001	1.195	ΣSAR<1.6, Not required
		LTE Band 26	0	0.882	0.102	0.001	0.985	ΣSAR<1.6, Not required
		LTE Band 30	0	0.711	0.102	0.001	0.814	ΣSAR<1.6, Not required
		LTE Band 38	0	0.031	0.102	0.001	0.134	ΣSAR<1.6, Not required
		LTE Band 41	0	0.161	0.102	0.001	0.264	ΣSAR<1.6, Not required
LTE Band 66	0	1.141	0.102	0.001	1.244	ΣSAR<1.6, Not required		

**Conclusion:**

Simultaneous transmission SAR measurement (Volume Scan) is not required because either the sum of the 1-g SAR is < 1.6 W/kg or the SPLSR is  $\leq 0.04$  for all circumstances that require SPLSR calculation.

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## 4. Instruments List

Manufacturer	Device	Type	Serial number	Date of last calibration	Date of next calibration	
SPEAG	Dosimetric E-Field Probe	EX3DV4	7351	Dec.21,2017	Dec.20,2018	
			3831	Jan.23,2018	Jan.22,2019	
SPEAG	System Validation Dipole		D750V3	1078	Jun.20,2018	Jun.19,2019
			D835V2	4d120	Jun.20,2018	Jun.19,2019
			D1750V2	1023	Jun.11,2018	Jun.10,2019
			D1900V2	5d173	Apr.25,2018	Apr.24,2019
			D2300V2	1006	Jan.17,2018	Jan.16,2019
			D2450V2	727	Apr.24,2018	Apr.23,2019
			D2600V2	1005	Jan.17,2018	Jan.16,2019
			D5GHzV2	1023	Jan.25,2018	Jan.24,2019
SPEAG	Data acquisition Electronics	DAE4	1336	Aug.06,2018	Aug.05,2019	
			547	Mar.16,2018	Mar.15,2019	
SPEAG	Software	DASY 52 V52.10.1	N/A	Calibration not required	Calibration not required	
SPEAG	Phantom	ELI	N/A	Calibration not required	Calibration not required	
Agilent	Network Analyzer	E5071C	MY46315263	Sep.08,2017	Sep.07,2018	
Agilent	Dielectric Probe Kit	85070E	MY44300677	Calibration not required	Calibration not required	
Agilent	Dual-directional coupler	772D	MY52180142	Jul.04,2018	Jul.03,2019	
		778D	MY52180302	Jul.05,2018	Jul.04,2019	
Agilent	RF Signal Generator	N5181A	MY50144143	Mar.15,2018	Mar.14,2019	
Agilent	Power Meter	E4417A	MY52240003	Dec.21,2017	Dec.20,2018	

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Manufacturer	Device	Type	Serial number	Date of last calibration	Date of next calibration
Agilent	Power Sensor	E9301H	MY52200003	Dec.21,2017	Dec.20,2018
			MY52200004	Dec.21,2017	Dec.20,2018
TECPEL	Digital thermometer	DTM-303A	TP130075	Mar.09,2018	Mar.08,2019
Anritsu	Radio Communication Test	MT8820C	6201061014	Mar.14,2018	Mar.13,2019

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## 5. Measurements

Date: 2018/8/31

### WCDMA Band II\_Body\_Left side\_CH 9538\_0mm

Communication System: WCDMA; Frequency: 1907.6 MHz; Duty Cycle: 1:1

 Medium parameters used:  $f = 1908$  MHz;  $\sigma = 1.629$  S/m;  $\epsilon_r = 50.607$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Ambient temperature: 22.1°C; Liquid temperature: 21.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7351; ConvF(8.22, 8.22, 8.22) @ 1907.6 MHz; Calibrated: 2017/12/21
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2018/8/6
- Phantom: ELI
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

**Area Scan (51x81x1):** Interpolated grid: dx=15 mm, dy=15 mm

Maximum value of SAR (interpolated) = 2.09 W/kg

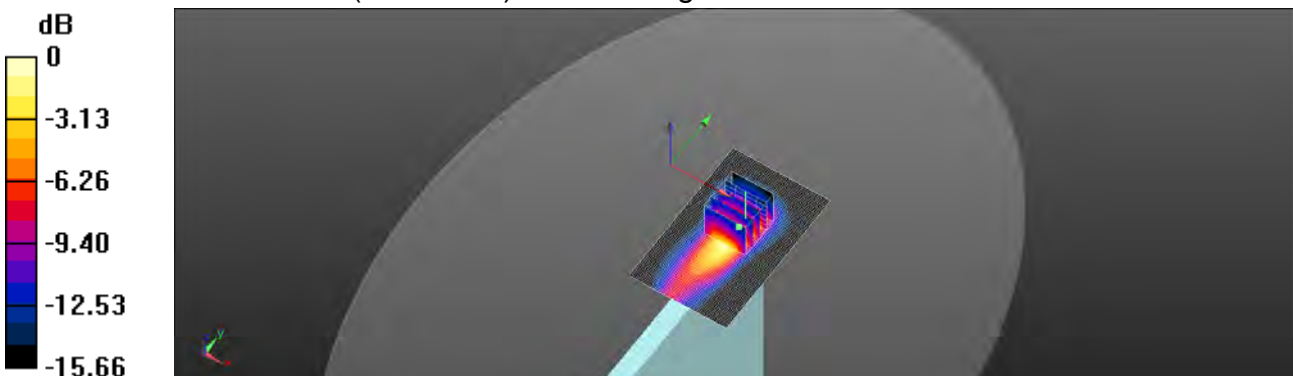
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 6.311 V/m; Power Drift = 0.08 dB

Peak SAR (extrapolated) = 2.31 W/kg

**SAR(1 g) = 1.19 W/kg; SAR(10 g) = 0.593 W/kg**

Maximum value of SAR (measured) = 1.77 W/kg



0 dB = 1.77 W/kg = 2.47 dBW/kg

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Date: 2018/8/30

**WCDMA Band IV\_Body\_Left side\_CH 1412\_0mm**

Communication System: WCDMA; Frequency: 1732.4 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 1732.4$  MHz;  $\sigma = 1.441$  S/m;  $\epsilon_r = 51.205$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Ambient temperature: 22.4°C; Liquid temperature: 21.5°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7351; ConvF(8.58, 8.58, 8.58) @ 1732.4 MHz; Calibrated: 2017/12/21
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2018/8/6
- Phantom: ELI
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

**Area Scan (51x81x1):** Interpolated grid: dx=15 mm, dy=15 mm

Maximum value of SAR (interpolated) = 2.18 W/kg

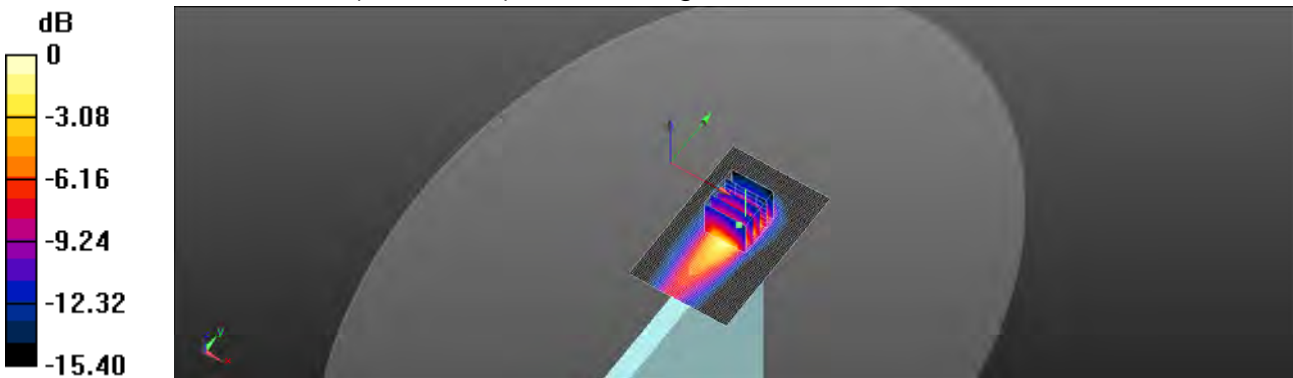
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 6.897 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 2.29 W/kg

**SAR(1 g) = 1.23 W/kg; SAR(10 g) = 0.635 W/kg**

Maximum value of SAR (measured) = 1.78 W/kg



0 dB = 1.78 W/kg = 2.50 dBW/kg

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Date: 2018/8/29

### WCDMA Band V\_Body\_Left side\_CH 4132\_0mm

Communication System: WCDMA; Frequency: 826.4 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 826.4$  MHz;  $\sigma = 0.978$  S/m;  $\epsilon_r = 57.152$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Ambient temperature: 22.2°C; Liquid temperature: 21.7°C

#### DASY5 Configuration:

- Probe: EX3DV4 - SN7351; ConvF(10.39, 10.39, 10.39) @ 826.4 MHz; Calibrated: 2017/12/21
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2018/8/6
- Phantom: ELI
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

**Area Scan (51x81x1):** Interpolated grid: dx=15 mm, dy=15 mm

Maximum value of SAR (interpolated) = 1.03 W/kg

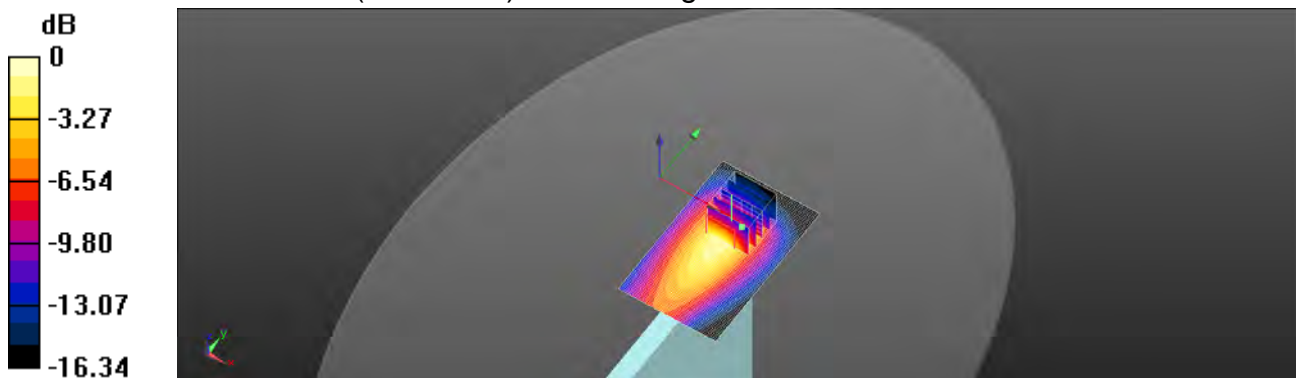
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 12.63 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 1.95 W/kg

**SAR(1 g) = 0.788 W/kg; SAR(10 g) = 0.429 W/kg**

Maximum value of SAR (measured) = 1.13 W/kg



0 dB = 1.13 W/kg = 0.52 dBW/kg

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Date: 2018/8/31

**LTE Band 2 (20MHz)\_Body\_Left side\_CH 19100\_QPSK\_1-50\_0mm**

Communication System: LTE; Frequency: 1900 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 1900$  MHz;  $\sigma = 1.619$  S/m;  $\epsilon_r = 50.642$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Ambient temperature: 22.1°C; Liquid temperature: 21.8°C

**DASY5 Configuration:**

- Probe: EX3DV4 - SN7351; ConvF(8.22, 8.22, 8.22) @ 1900 MHz; Calibrated: 2017/12/21
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2018/8/6
- Phantom: ELI
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

**Area Scan (51x81x1):** Interpolated grid: dx=15 mm, dy=15 mm

Maximum value of SAR (interpolated) = 1.77 W/kg

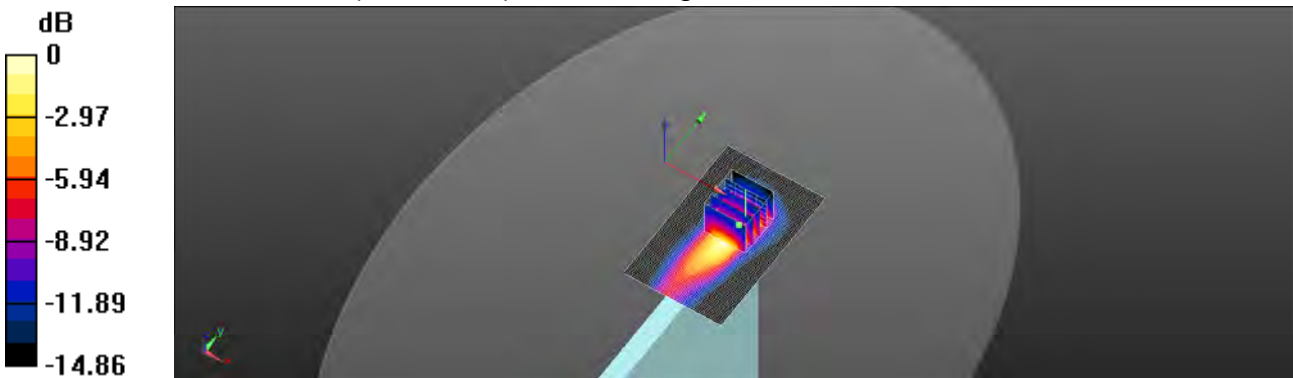
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 6.376 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 1.92 W/kg

**SAR(1 g) = 1.02 W/kg; SAR(10 g) = 0.512 W/kg**

Maximum value of SAR (measured) = 1.46 W/kg



0 dB = 1.46 W/kg = 1.65 dBW/kg

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Date: 2018/8/30

**LTE Band 4 (20MHz)\_Body\_Left side\_CH 20050\_QPSK\_1-50\_0mm**

Communication System: LTE; Frequency: 1720 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 1720 \text{ MHz}$ ;  $\sigma = 1.429 \text{ S/m}$ ;  $\epsilon_r = 51.24$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Ambient temperature: 22.4°C; Liquid temperature: 21.5°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7351; ConvF(8.58, 8.58, 8.58) @ 1720 MHz; Calibrated: 2017/12/21
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2018/8/6
- Phantom: ELI
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

**Area Scan (51x81x1):** Interpolated grid: dx=15 mm, dy=15 mm

Maximum value of SAR (interpolated) = 2.01 W/kg

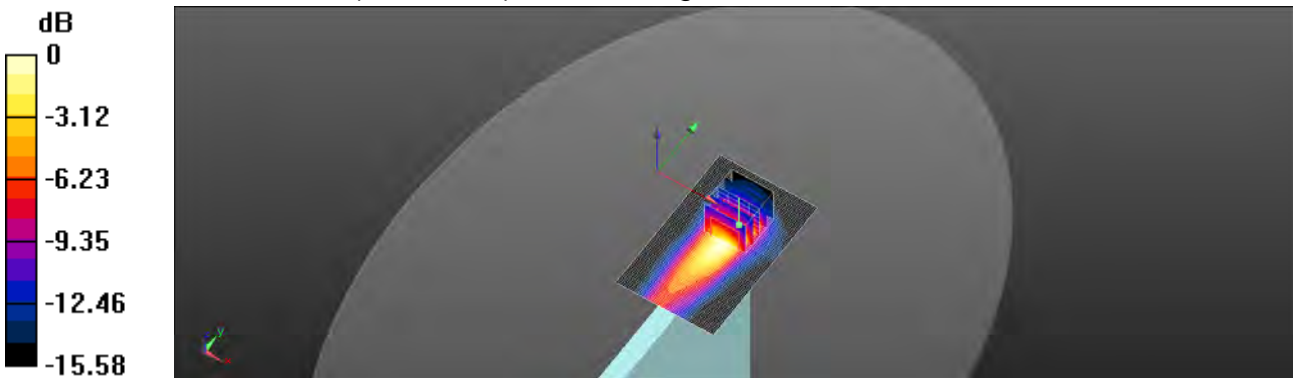
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 7.035 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 2.08 W/kg

**SAR(1 g) = 1.12 W/kg; SAR(10 g) = 0.581 W/kg**

Maximum value of SAR (measured) = 1.55 W/kg



0 dB = 1.55 W/kg = 1.91 dBW/kg

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Date: 2018/8/29

**LTE Band 5 (10MHz)\_Body\_Left side\_CH 20525\_QPSK\_1-25\_0mm**

Communication System: LTE; Frequency: 836.5 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 836.5 \text{ MHz}$ ;  $\sigma = 0.989 \text{ S/m}$ ;  $\epsilon_r = 57.084$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Ambient temperature: 22.2°C; Liquid temperature: 21.7°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7351; ConvF(10.39, 10.39, 10.39) @ 836.5 MHz; Calibrated: 2017/12/21
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2018/8/6
- Phantom: ELI
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

**Area Scan (51x81x1):** Interpolated grid: dx=15 mm, dy=15 mm

Maximum value of SAR (interpolated) = 2.21 W/kg

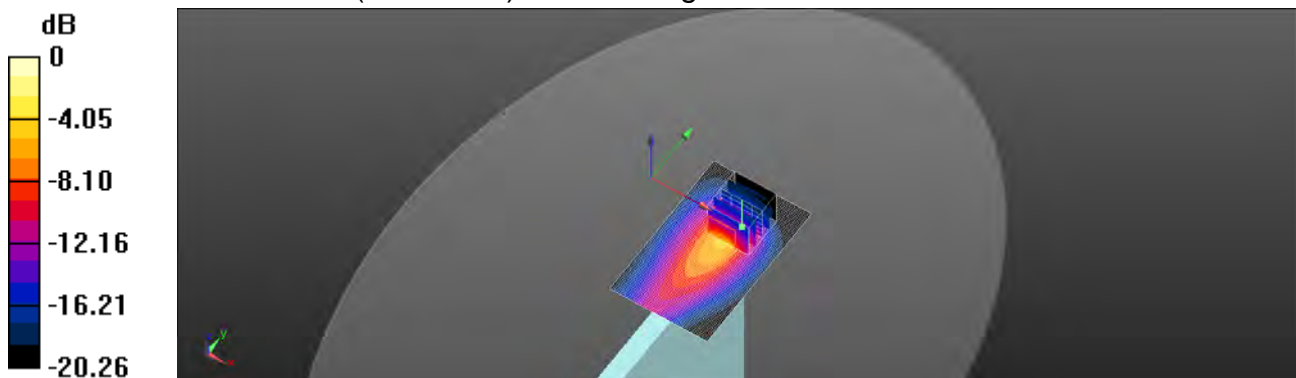
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 7.790 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 3.83 W/kg

**SAR(1 g) = 0.824 W/kg; SAR(10 g) = 0.342 W/kg**

Maximum value of SAR (measured) = 2.34 W/kg



0 dB = 2.34 W/kg = 3.69 dBW/kg

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Date: 2018/9/4

**LTE Band 7 (20MHz)\_Body\_Top side\_CH 20850\_QPSK\_1-50\_0mm**

Communication System: LTE; Frequency: 2510 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 2510 \text{ MHz}$ ;  $\sigma = 2.116 \text{ S/m}$ ;  $\epsilon_r = 52.602$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Ambient temperature:  $22.1^\circ\text{C}$ ; Liquid temperature:  $21.8^\circ\text{C}$

DASY5 Configuration:

- Probe: EX3DV4 - SN7351; ConvF(7.56, 7.56, 7.56) @ 2510 MHz; Calibrated: 2017/12/21
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2018/8/6
- Phantom: ELI
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

**Area Scan (71x101x1):** Interpolated grid:  $dx=12 \text{ mm}$ ,  $dy=12 \text{ mm}$

Maximum value of SAR (interpolated) =  $1.29 \text{ W/kg}$

**Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value =  $7.744 \text{ V/m}$ ; Power Drift =  $0.03 \text{ dB}$

Peak SAR (extrapolated) =  $2.32 \text{ W/kg}$

**SAR(1 g) =  $0.641 \text{ W/kg}$ ; SAR(10 g) =  $0.285 \text{ W/kg}$**

Maximum value of SAR (measured) =  $1.30 \text{ W/kg}$

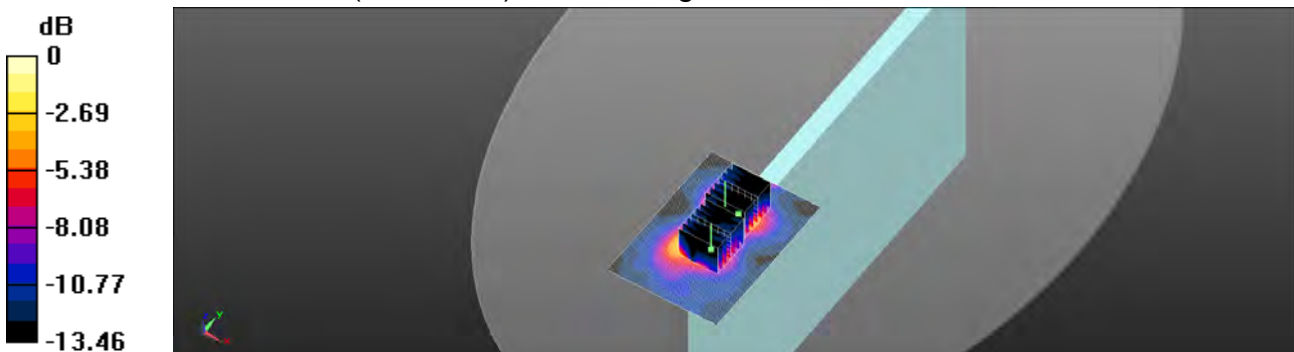
**Zoom Scan (7x7x7)/Cube 1:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value =  $7.744 \text{ V/m}$ ; Power Drift =  $0.03 \text{ dB}$

Peak SAR (extrapolated) =  $1.81 \text{ W/kg}$

**SAR(1 g) =  $0.661 \text{ W/kg}$ ; SAR(10 g) =  $0.291 \text{ W/kg}$**

Maximum value of SAR (measured) =  $1.12 \text{ W/kg}$



0 dB =  $1.12 \text{ W/kg}$  =  $0.49 \text{ dBW/kg}$

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Date: 2018/8/28

**LTE Band 12 (10MHz)\_Body\_Left side\_CH 23095\_QPSK\_1-25\_0mm**

Communication System: LTE; Frequency: 707.5 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 707.5 \text{ MHz}$ ;  $\sigma = 0.927 \text{ S/m}$ ;  $\epsilon_r = 56.962$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Ambient temperature:  $22.1^\circ\text{C}$ ; Liquid temperature:  $21.8^\circ\text{C}$

DASY5 Configuration:

- Probe: EX3DV4 - SN7351; ConvF(10.81, 10.81, 10.81) @ 707.5 MHz; Calibrated: 2017/12/21
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2018/8/6
- Phantom: ELI
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

**Area Scan (51x81x1):** Interpolated grid:  $dx=15 \text{ mm}$ ,  $dy=15 \text{ mm}$

Maximum value of SAR (interpolated) =  $2.03 \text{ W/kg}$

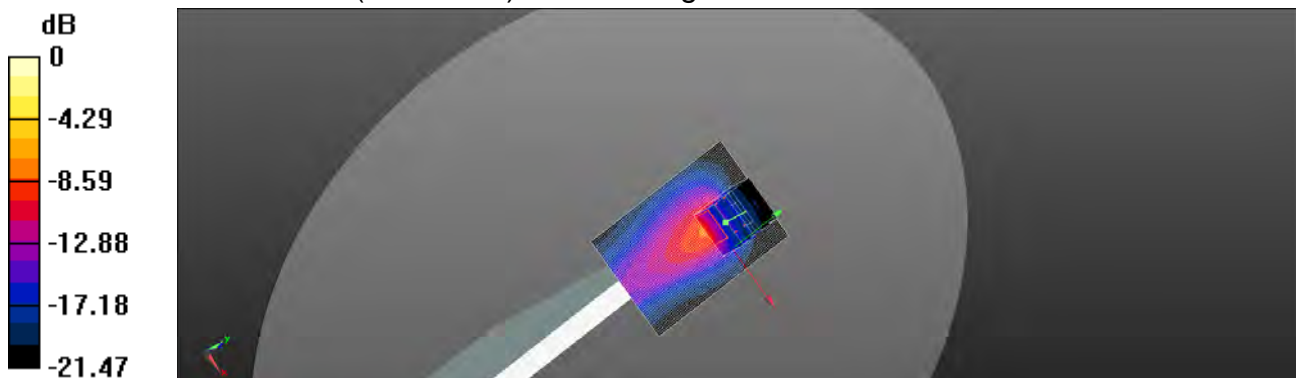
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

Reference Value =  $9.804 \text{ V/m}$ ; Power Drift =  $0.04 \text{ dB}$

Peak SAR (extrapolated) =  $4.50 \text{ W/kg}$

**SAR(1 g) =  $0.692 \text{ W/kg}$ ; SAR(10 g) =  $0.237 \text{ W/kg}$**

Maximum value of SAR (measured) =  $2.81 \text{ W/kg}$



0 dB =  $2.81 \text{ W/kg}$  =  $4.49 \text{ dBW/kg}$

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Date: 2018/8/28

**LTE Band 13 (10MHz)\_Body\_Left side\_CH 23230\_QPSK\_1-25\_0mm**

Communication System: LTE; Frequency: 782 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 782 \text{ MHz}$ ;  $\sigma = 1.002 \text{ S/m}$ ;  $\epsilon_r = 56.342$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Ambient temperature:  $22.1^\circ\text{C}$ ; Liquid temperature:  $21.8^\circ\text{C}$

DASY5 Configuration:

- Probe: EX3DV4 - SN7351; ConvF(10.81, 10.81, 10.81) @ 782 MHz; Calibrated: 2017/12/21
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2018/8/6
- Phantom: ELI
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

**Area Scan (51x81x1):** Interpolated grid:  $dx=15 \text{ mm}$ ,  $dy=15 \text{ mm}$

Maximum value of SAR (interpolated) =  $2.50 \text{ W/kg}$

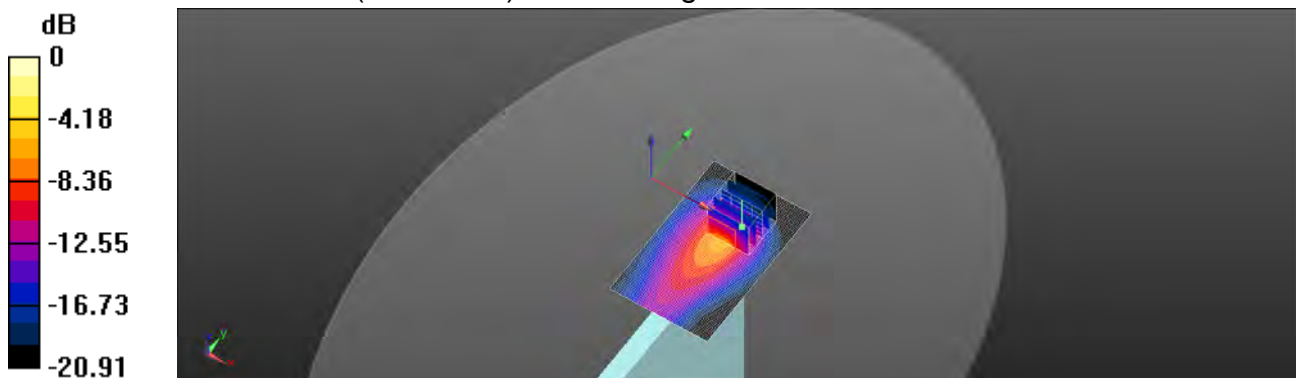
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

Reference Value =  $9.621 \text{ V/m}$ ; Power Drift =  $0.07 \text{ dB}$

Peak SAR (extrapolated) =  $4.42 \text{ W/kg}$

**SAR(1 g) =  $0.876 \text{ W/kg}$ ; SAR(10 g) =  $0.342 \text{ W/kg}$**

Maximum value of SAR (measured) =  $2.71 \text{ W/kg}$



0 dB =  $2.71 \text{ W/kg} = 4.33 \text{ dBW/kg}$

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Date: 2018/8/28

**LTE Band 14 (10MHz)\_Body\_Left side\_CH 23330\_QPSK\_1-0\_0mm**

Communication System: LTE; Frequency: 793 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 793 \text{ MHz}$ ;  $\sigma = 1.001 \text{ S/m}$ ;  $\epsilon_r = 56.312$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Ambient temperature: 22.1°C; Liquid temperature: 21.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7351; ConvF(10.81, 10.81, 10.81) @ 793 MHz; Calibrated: 2017/12/21
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2018/8/6
- Phantom: ELI
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

**Area Scan (51x81x1):** Interpolated grid: dx=15 mm, dy=15 mm

Maximum value of SAR (interpolated) = 2.42 W/kg

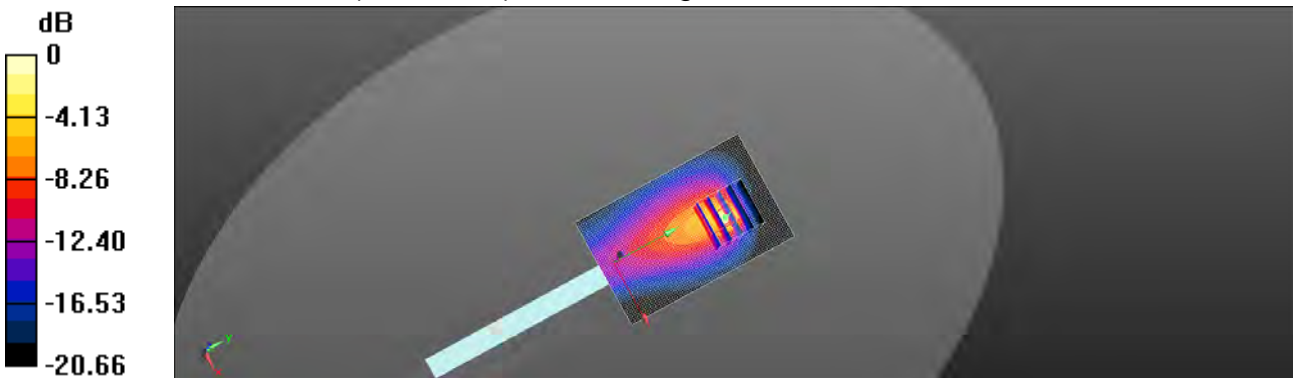
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 9.436 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 4.28 W/kg

**SAR(1 g) = 0.852 W/kg; SAR(10 g) = 0.337 W/kg**

Maximum value of SAR (measured) = 2.63 W/kg



0 dB = 2.63 W/kg = 4.20 dBW/kg

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Date: 2018/8/28

**LTE Band 17 (10MHz)\_Body\_Left side\_CH 23800\_QPSK\_1-0\_0mm**

Communication System: LTE; Frequency: 711 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 711 \text{ MHz}$ ;  $\sigma = 0.936 \text{ S/m}$ ;  $\epsilon_r = 56.901$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Ambient temperature: 22.1°C; Liquid temperature: 21.8°C

**DASY5 Configuration:**

- Probe: EX3DV4 - SN7351; ConvF(10.81, 10.81, 10.81) @ 711 MHz; Calibrated: 2017/12/21
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2018/8/6
- Phantom: ELI
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

**Area Scan (51x81x1):** Interpolated grid: dx=15 mm, dy=15 mm

Maximum value of SAR (interpolated) = 2.01 W/kg

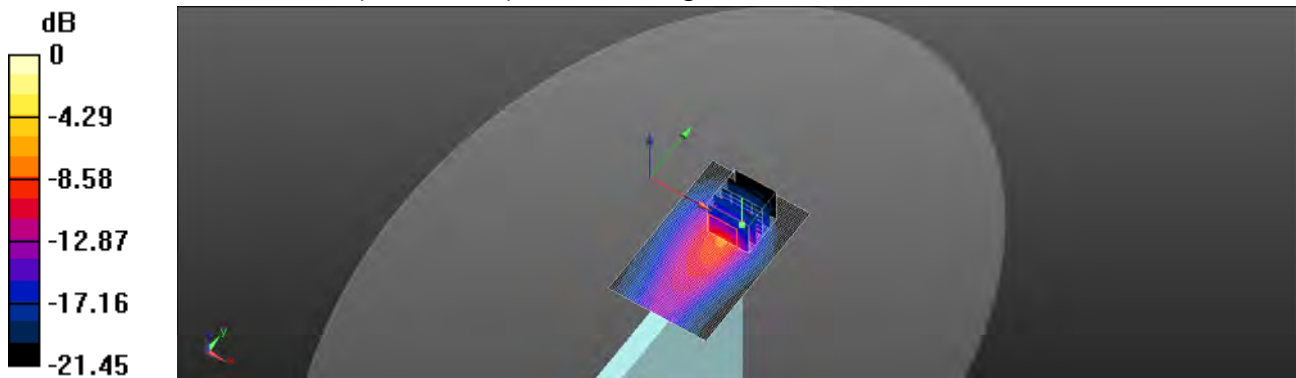
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 9.884 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 4.55 W/kg

**SAR(1 g) = 0.704 W/kg; SAR(10 g) = 0.243 W/kg**

Maximum value of SAR (measured) = 2.84 W/kg



0 dB = 2.84 W/kg = 4.53 dBW/kg

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Date: 2018/8/31

**LTE Band 25 (20MHz)\_Body\_Left side\_CH 26365\_QPSK\_1-0\_0mm**

Communication System: LTE; Frequency: 1882.5 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 1883 \text{ MHz}$ ;  $\sigma = 1.602 \text{ S/m}$ ;  $\epsilon_r = 51.243$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Ambient temperature:  $22.1^\circ\text{C}$ ; Liquid temperature:  $21.8^\circ\text{C}$

DASY5 Configuration:

- Probe: EX3DV4 - SN7351; ConvF(8.22, 8.22, 8.22) @ 1900 MHz; Calibrated: 2017/12/21
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2018/8/6
- Phantom: ELI
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

**Area Scan (51x81x1):** Interpolated grid:  $dx=15 \text{ mm}$ ,  $dy=15 \text{ mm}$

Maximum value of SAR (interpolated) =  $1.67 \text{ W/kg}$

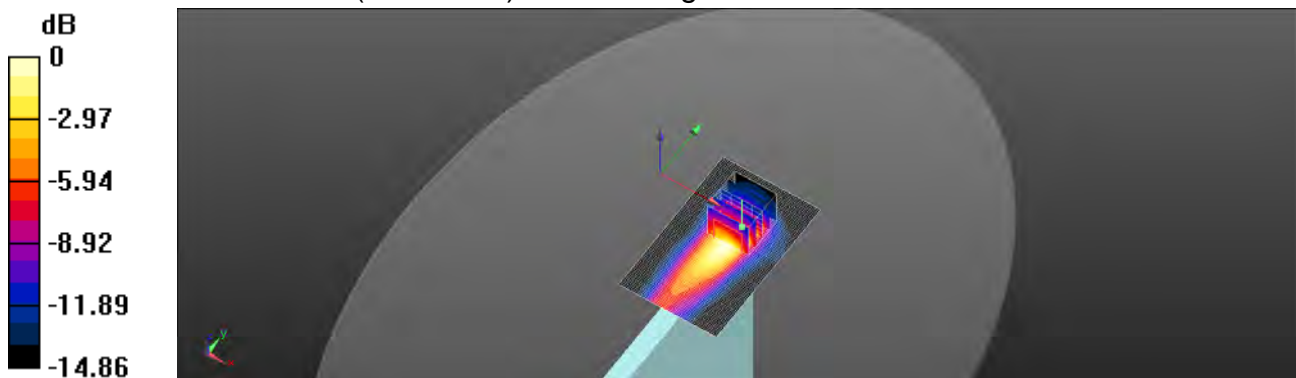
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

Reference Value =  $6.006 \text{ V/m}$ ; Power Drift =  $-0.04 \text{ dB}$

Peak SAR (extrapolated) =  $1.82 \text{ W/kg}$

**SAR(1 g) =  $0.969 \text{ W/kg}$ ; SAR(10 g) =  $0.501 \text{ W/kg}$**

Maximum value of SAR (measured) =  $1.35 \text{ W/kg}$



0 dB =  $1.35 \text{ W/kg} = 1.61 \text{ dBW/kg}$

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Date: 2018/8/29

**LTE Band 26 (15MHz)\_Body\_Left side\_CH 26965\_QPSK\_1-0\_0mm**

Communication System: LTE; Frequency: 841.5 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 841.5 \text{ MHz}$ ;  $\sigma = 0.994 \text{ S/m}$ ;  $\epsilon_r = 57.063$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Ambient temperature: 22.2°C; Liquid temperature: 21.7°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7351; ConvF(10.39, 10.39, 10.39) @ 841.5 MHz; Calibrated: 2017/12/21
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2018/8/6
- Phantom: ELI
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

**Area Scan (51x81x1):** Interpolated grid: dx=15 mm, dy=15 mm

Maximum value of SAR (interpolated) = 2.30 W/kg

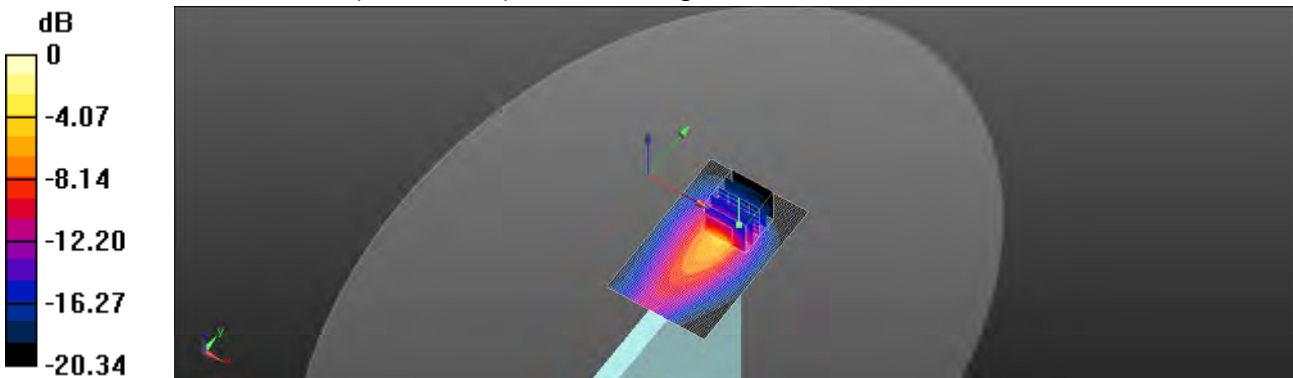
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 7.194 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 4.01 W/kg

**SAR(1 g) = 0.852 W/kg; SAR(10 g) = 0.353 W/kg**

Maximum value of SAR (measured) = 2.46 W/kg



0 dB = 2.46 W/kg = 3.90 dBW/kg

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Date: 2018/9/3

**LTE Band 30 (10MHz)\_Body\_Left side\_CH 27710\_QPSK\_1-49\_0mm**

Communication System: LTE; Frequency: 2310 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 2310$  MHz;  $\sigma = 1.845$  S/m;  $\epsilon_r = 53.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Ambient temperature: 22.6°C; Liquid temperature: 21.3°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7351; ConvF(7.98, 7.98, 7.98) @ 2310 MHz; Calibrated: 2017/12/21
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2018/8/6
- Phantom: ELI
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

**Area Scan (61x101x1):** Interpolated grid: dx=12 mm, dy=12 mm

Maximum value of SAR (interpolated) = 1.47 W/kg

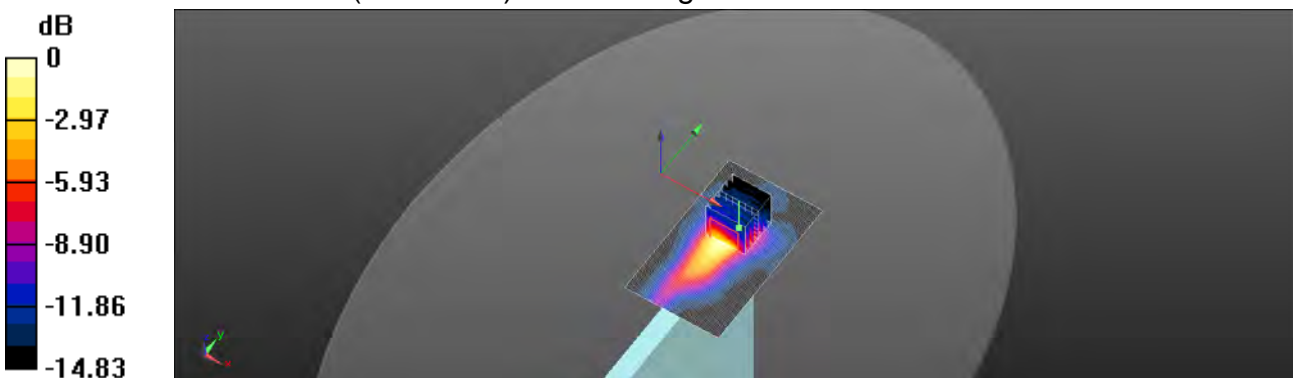
**Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.024 V/m; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 1.76 W/kg

**SAR(1 g) = 0.708 W/kg; SAR(10 g) = 0.339 W/kg**

Maximum value of SAR (measured) = 1.11 W/kg



0 dB = 1.11 W/kg = 0.44 dBW/kg

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Date: 2018/9/7

**LTE Band 38 (20MHz)\_Body\_Top side\_CH 38150\_QPSK\_1-0\_0mm**

Communication System: LTE; Frequency: 2610 MHz; Duty Cycle: 1:1.59956

Medium parameters used:  $f = 2610$  MHz;  $\sigma = 2.241$  S/m;  $\epsilon_r = 52.785$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Ambient temperature: 22.1°C; Liquid temperature: 21.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7351; ConvF(7.98, 7.98, 7.98) @ 2310 MHz; Calibrated: 2017/12/21
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2018/8/6
- Phantom: ELI
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

**Area Scan (71x101x1):** Interpolated grid: dx=12 mm, dy=12 mm

Maximum value of SAR (interpolated) = 0.173 W/kg

**Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 1.019 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 0.273 W/kg

**SAR(1 g) = 0.101 W/kg; SAR(10 g) = 0.043 W/kg**

Maximum value of SAR (measured) = 0.173 W/kg

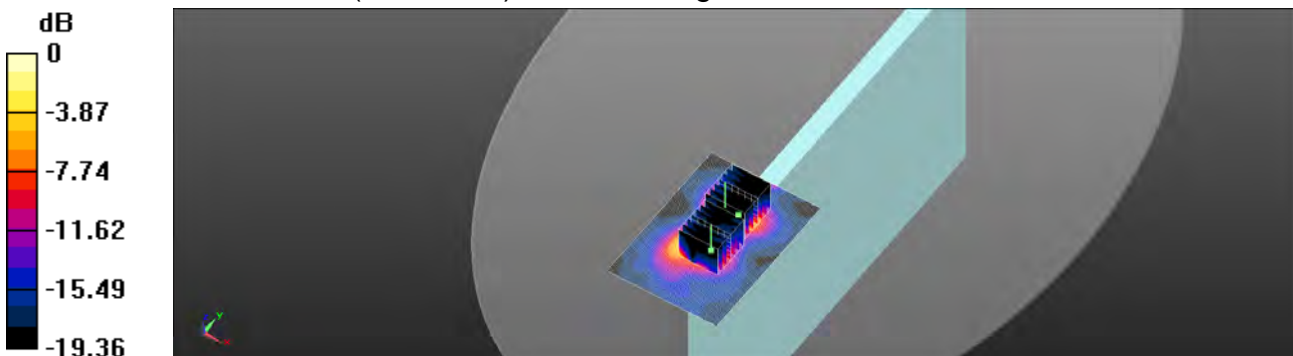
**Zoom Scan (7x7x7)/Cube 1:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 1.019 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 0.214 W/kg

**SAR(1 g) = 0.077 W/kg; SAR(10 g) = 0.035 W/kg**

Maximum value of SAR (measured) = 0.165 W/kg



0 dB = 0.173 W/kg = -8.11 dBW/kg

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Date: 2018/9/4

**LTE Band 41 (20MHz)\_Body\_Top side\_CH 41055\_QPSK\_1-0\_0mm**

Communication System: LTE; Frequency: 2636.5 MHz; Duty Cycle: 1:1.59956

Medium parameters used:  $f = 2636.5$  MHz;  $\sigma = 2.295$  S/m;  $\epsilon_r = 52.191$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Ambient temperature: 22.1°C; Liquid temperature: 21.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7351; ConvF(7.98, 7.98, 7.98) @ 2310 MHz; Calibrated: 2017/12/21
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2018/8/6
- Phantom: ELI
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

**Area Scan (71x101x1):** Interpolated grid: dx=12 mm, dy=12 mm

Maximum value of SAR (interpolated) = 0.962 W/kg

**Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 6.239 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 1.50 W/kg

**SAR(1 g) = 0.577 W/kg; SAR(10 g) = 0.274 W/kg**

Maximum value of SAR (measured) = 0.997 W/kg

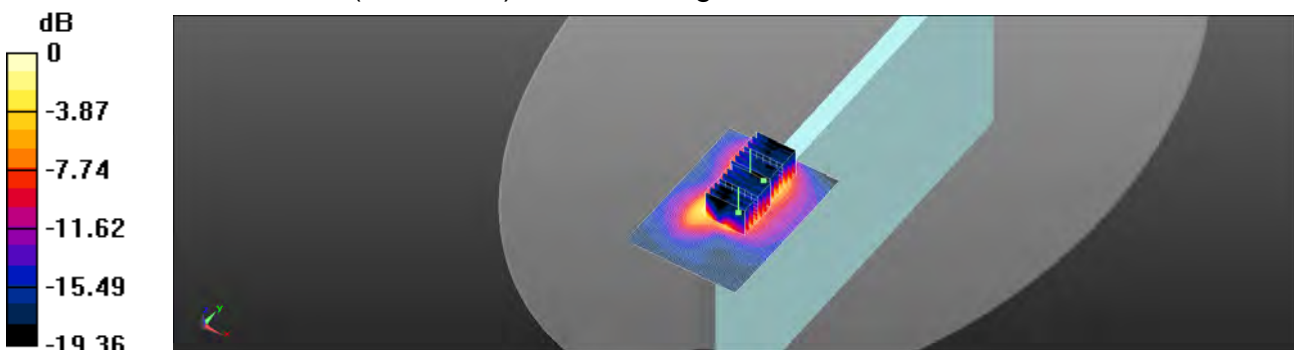
**Zoom Scan (7x7x7)/Cube 1:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 6.239 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 1.47 W/kg

**SAR(1 g) = 0.461 W/kg; SAR(10 g) = 0.216 W/kg**

Maximum value of SAR (measured) = 0.948 W/kg



0 dB = 0.997 W/kg = -0.01 dBW/kg

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Date: 2018/8/30

**LTE Band 66 (20MHz)\_Body\_Left side\_CH 132572\_QPSK\_1-0\_0mm**

Communication System: LTE; Frequency: 1770 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 1770$  MHz;  $\sigma = 1.482$  S/m;  $\epsilon_r = 51.095$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Ambient temperature: 22.4°C; Liquid temperature: 21.5°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7351; ConvF(8.58, 8.58, 8.58) @ 1770 MHz; Calibrated: 2017/12/21
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2018/8/6
- Phantom: ELI
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

**Area Scan (51x81x1):** Interpolated grid: dx=15 mm, dy=15 mm

Maximum value of SAR (interpolated) = 1.97 W/kg

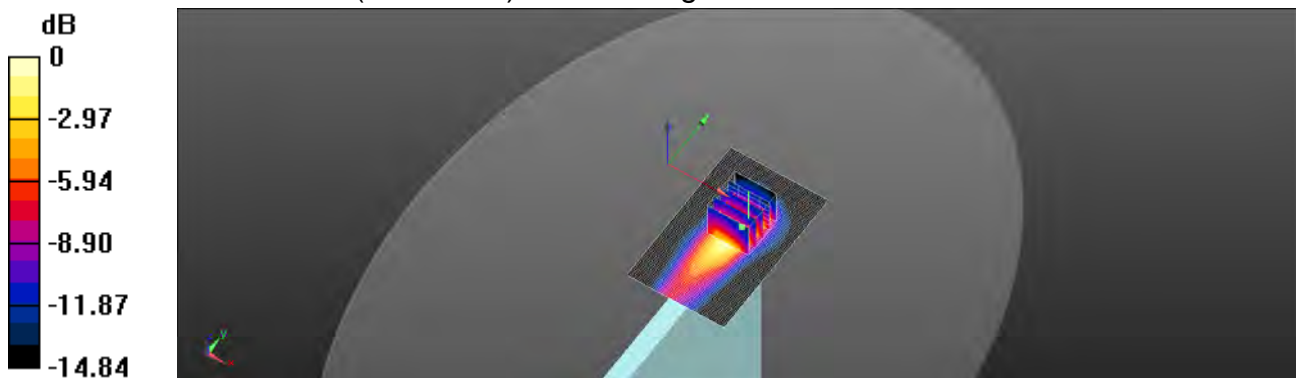
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 6.490 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 2.01 W/kg

**SAR(1 g) = 1.09 W/kg; SAR(10 g) = 0.565 W/kg**

Maximum value of SAR (measured) = 1.53 W/kg



0 dB = 1.53 W/kg = 1.86 dBW/kg

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Date: 2018/7/28

### WLAN 802.11b\_Body\_Top side\_CH 1\_Main\_0mm

Communication System: WLAN 2.45G; Frequency: 2412 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 2412 \text{ MHz}$ ;  $\sigma = 1.882 \text{ S/m}$ ;  $\epsilon_r = 53$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Ambient temperature:  $22.1^\circ\text{C}$ ; Liquid temperature:  $21.8^\circ\text{C}$

DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(7.26, 7.26, 7.26); Calibrated: 2018/1/23
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2018/3/16
- Phantom: ELI
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

**Area Scan (61x91x1):** Interpolated grid:  $dx=12 \text{ mm}$ ,  $dy=12 \text{ mm}$

Maximum value of SAR (interpolated) =  $1.07 \text{ W/kg}$

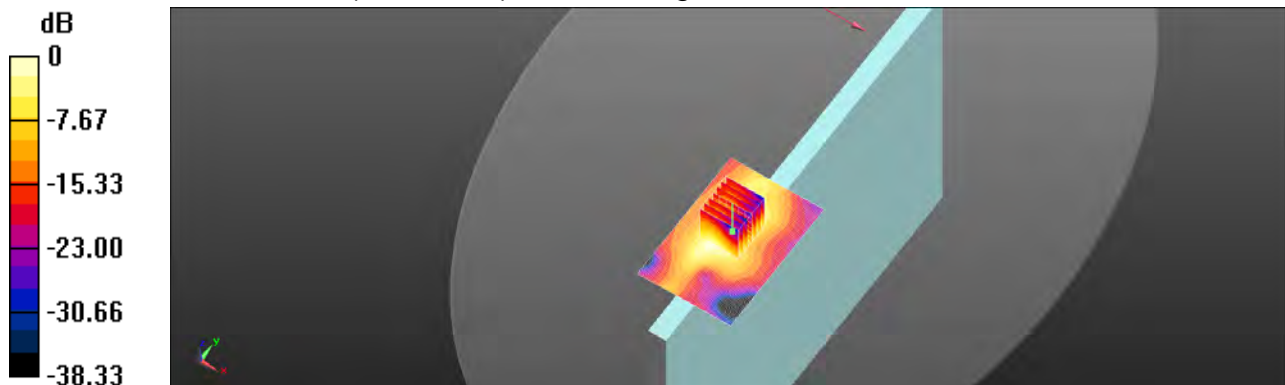
**Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value =  $6.229 \text{ V/m}$ ; Power Drift =  $0.02 \text{ dB}$

Peak SAR (extrapolated) =  $1.57 \text{ W/kg}$

**SAR(1 g) =  $0.688 \text{ W/kg}$ ; SAR(10 g) =  $0.297 \text{ W/kg}$**

Maximum value of SAR (measured) =  $1.04 \text{ W/kg}$



0 dB =  $1.04 \text{ W/kg}$  =  $0.16 \text{ dBW/kg}$

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Date: 2018/7/30

### WLAN 802.11n(40M) 5.2G\_Body\_Top side\_CH 46\_Main\_0mm

Communication System: WLAN 5G; Frequency: 5230 MHz; Duty Cycle: 1:1

 Medium parameters used:  $f = 5230$  MHz;  $\sigma = 5.299$  S/m;  $\epsilon_r = 49.609$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Ambient temperature: 22.3°C; Liquid temperature: 21.8°C

#### DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(4.56, 4.56, 4.56); Calibrated: 2018/1/23
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2018/3/16
- Phantom: ELI
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

**Area Scan (71x101x1):** Interpolated grid: dx=10 mm, dy=10 mm

Maximum value of SAR (interpolated) = 1.35 W/kg

**Zoom Scan (7x7x12)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 3.115 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 2.80 W/kg

**SAR(1 g) = 0.664 W/kg; SAR(10 g) = 0.200 W/kg**

Maximum value of SAR (measured) = 1.34 W/kg



0 dB = 1.34 W/kg = 1.26 dBW/kg

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Date: 2018/7/30

**WLAN 802.11n(40M) 5.3G\_Body\_Top side\_CH 54\_Main\_0mm**

Communication System: WLAN 5G; Frequency: 5270 MHz; Duty Cycle: 1:1\

Medium parameters used:  $f = 5270 \text{ MHz}$ ;  $\sigma = 5.382 \text{ S/m}$ ;  $\epsilon_r = 49.34$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Ambient temperature:  $22.2^\circ\text{C}$ ; Liquid temperature:  $21.8^\circ\text{C}$

DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(4.39, 4.39, 4.39); Calibrated: 2018/1/23
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2018/3/16
- Phantom: ELI
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

**Area Scan (71x101x1):** Interpolated grid:  $dx=10 \text{ mm}$ ,  $dy=10 \text{ mm}$

Maximum value of SAR (interpolated) = 1.05 W/kg

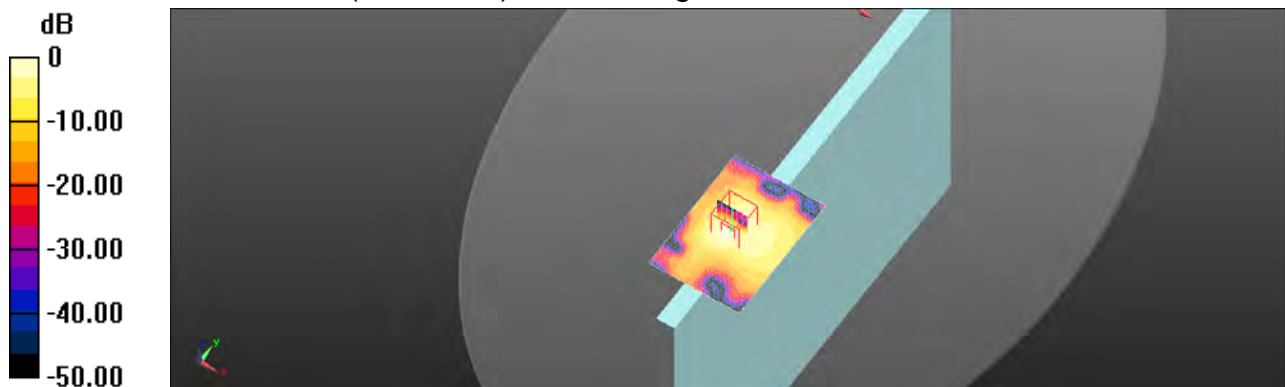
**Zoom Scan (7x7x12)/Cube 0:** Measurement grid:  $dx=4\text{mm}$ ,  $dy=4\text{mm}$ ,  $dz=2\text{mm}$

Reference Value = 2.545 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 2.25 W/kg

**SAR(1 g) = 0.520 W/kg; SAR(10 g) = 0.156 W/kg**

Maximum value of SAR (measured) = 1.06 W/kg



0 dB = 1.06 W/kg = 0.24 dBW/kg

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Date: 2018/7/31

**WLAN 802.11ac(80M) 5.6G\_Body\_Top side\_CH 138\_Main\_0mm**

Communication System: WLAN 5G; Frequency: 5690 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 5690 \text{ MHz}$ ;  $\sigma = 5.838 \text{ S/m}$ ;  $\epsilon_r = 48.303$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Ambient temperature:  $22.1^\circ\text{C}$ ; Liquid temperature:  $21.8^\circ\text{C}$

DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(3.92, 3.92, 3.92); Calibrated: 2018/1/23
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2018/3/16
- Phantom: ELI
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

**Area Scan (71x101x1):** Interpolated grid:  $dx=10 \text{ mm}$ ,  $dy=10 \text{ mm}$

Maximum value of SAR (interpolated) = 1.38 W/kg

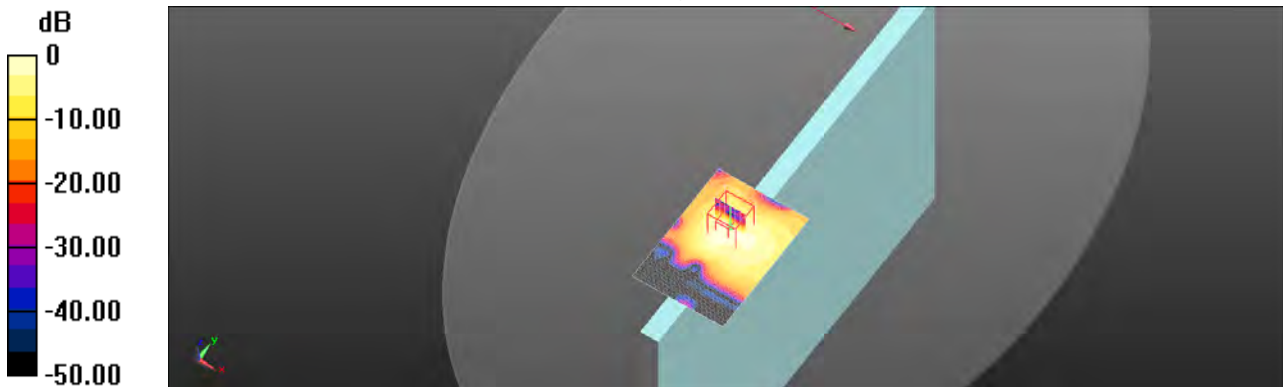
**Zoom Scan (7x7x12)/Cube 0:** Measurement grid:  $dx=4\text{mm}$ ,  $dy=4\text{mm}$ ,  $dz=2\text{mm}$

Reference Value = 2.967 V/m; Power Drift = 0.08 dB

Peak SAR (extrapolated) = 3.09 W/kg

**SAR(1 g) = 0.622 W/kg; SAR(10 g) = 0.194 W/kg**

Maximum value of SAR (measured) = 1.27 W/kg



0 dB = 1.27 W/kg = 1.04 dBW/kg

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Date: 2018/7/31

**WLAN 802.11ac(80M) 5.8G\_Body\_Top side\_CH 155\_Main\_0mm**

Communication System: WLAN 5G; Frequency: 5775 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 5775 \text{ MHz}$ ;  $\sigma = 6.004 \text{ S/m}$ ;  $\epsilon_r = 47.951$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Ambient temperature:  $22.1^\circ\text{C}$ ; Liquid temperature:  $21.7^\circ\text{C}$

DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(4.17, 4.17, 4.17); Calibrated: 2018/1/23
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2018/3/16
- Phantom: ELI
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

**Area Scan (71x101x1):** Interpolated grid:  $dx=10 \text{ mm}$ ,  $dy=10 \text{ mm}$

Maximum value of SAR (interpolated) = 1.37 W/kg

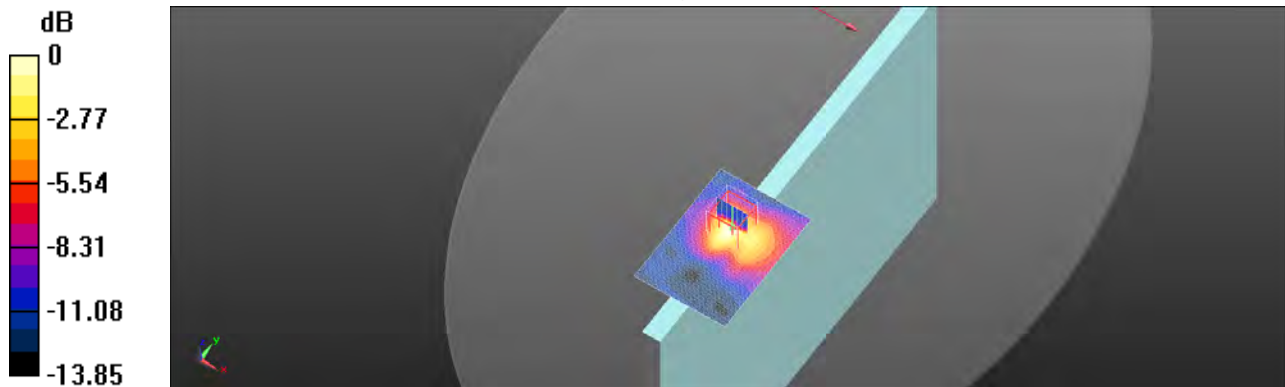
**Zoom Scan (7x7x12)/Cube 0:** Measurement grid:  $dx=4\text{mm}$ ,  $dy=4\text{mm}$ ,  $dz=2\text{mm}$

Reference Value = 3.429 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 3.28 W/kg

**SAR(1 g) = 0.661 W/kg; SAR(10 g) = 0.277 W/kg**

Maximum value of SAR (measured) = 1.24 W/kg



0 dB = 1.24 W/kg = 0.95 dBW/kg

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Date: 2018/7/28

**WLAN 802.11b\_Body\_Top side\_CH 1\_Aux\_0mm**

Communication System: WLAN 2.45G; Frequency: 2412 MHz; Duty Cycle: 1:1  
 Medium parameters used:  $f = 2412 \text{ MHz}$ ;  $\sigma = 1.882 \text{ S/m}$ ;  $\epsilon_r = 53$ ;  $\rho = 1000 \text{ kg/m}^3$   
 Phantom section: Flat Section  
 Ambient temperature:  $22.1^\circ\text{C}$ ; Liquid temperature:  $21.8^\circ\text{C}$

DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(7.26, 7.26, 7.26); Calibrated: 2018/1/23
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2018/3/16
- Phantom: ELI
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

**Area Scan (61x91x1):** Interpolated grid:  $dx=12 \text{ mm}$ ,  $dy=12 \text{ mm}$

Maximum value of SAR (interpolated) =  $0.939 \text{ W/kg}$

**Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value =  $3.539 \text{ V/m}$ ; Power Drift =  $0.06 \text{ dB}$

Peak SAR (extrapolated) =  $1.25 \text{ W/kg}$

**SAR(1 g) =  $0.540 \text{ W/kg}$ ; SAR(10 g) =  $0.248 \text{ W/kg}$**

Maximum value of SAR (measured) =  $0.790 \text{ W/kg}$

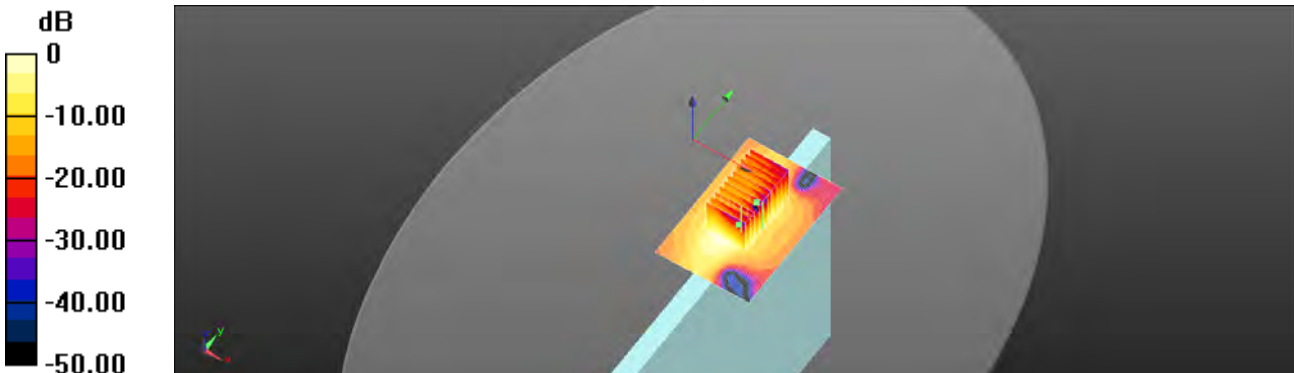
**Zoom Scan (7x7x7)/Cube 1:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value =  $3.539 \text{ V/m}$ ; Power Drift =  $0.06 \text{ dB}$

Peak SAR (extrapolated) =  $1.36 \text{ W/kg}$

**SAR(1 g) =  $0.518 \text{ W/kg}$ ; SAR(10 g) =  $0.245 \text{ W/kg}$**

Maximum value of SAR (measured) =  $0.861 \text{ W/kg}$



0 dB =  $0.861 \text{ W/kg} = -0.65 \text{ dBW/kg}$

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Date: 2018/7/28

### Bluetooth(GFSK)\_Body\_Top side\_CH 39\_0mm

Communication System: Bluetooth; Frequency: 2441 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 2441 \text{ MHz}$ ;  $\sigma = 1.92 \text{ S/m}$ ;  $\epsilon_r = 52.875$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Ambient temperature: 22.1°C; Liquid temperature: 21.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(7.26, 7.26, 7.26); Calibrated: 2018/1/23
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2018/3/16
- Phantom: ELI
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

**Area Scan (61x91x1):** Interpolated grid:  $dx=12 \text{ mm}$ ,  $dy=12 \text{ mm}$

Maximum value of SAR (interpolated) = 0.188 W/kg

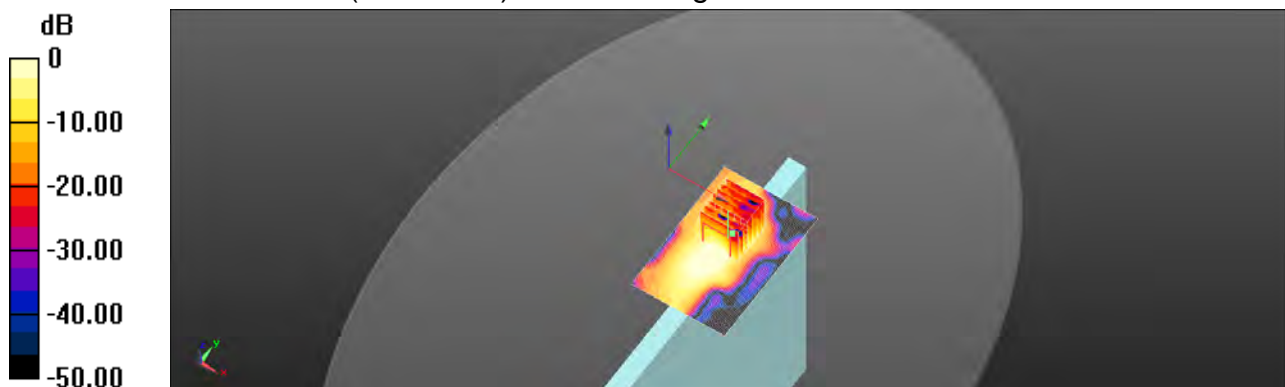
**Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 0.8740 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.244 W/kg

**SAR(1 g) = 0.106 W/kg; SAR(10 g) = 0.046 W/kg**

Maximum value of SAR (measured) = 0.158 W/kg



0 dB = 0.158 W/kg = -8.03 dBW/kg

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Date: 2018/7/30

**WLAN 802.11n(40M) 5.2G\_Body\_Top side\_CH 38\_Aux\_0mm**

Communication System: WLAN 5G; Frequency: 5190 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 5190 \text{ MHz}$ ;  $\sigma = 5.253 \text{ S/m}$ ;  $\epsilon_r = 49.677$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Ambient temperature: 22.3°C; Liquid temperature: 21.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(4.56, 4.56, 4.56); Calibrated: 2018/1/23
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2018/3/16
- Phantom: ELI
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

**Area Scan (71x101x1):** Interpolated grid: dx=10 mm, dy=10 mm

Maximum value of SAR (interpolated) = 1.43 W/kg

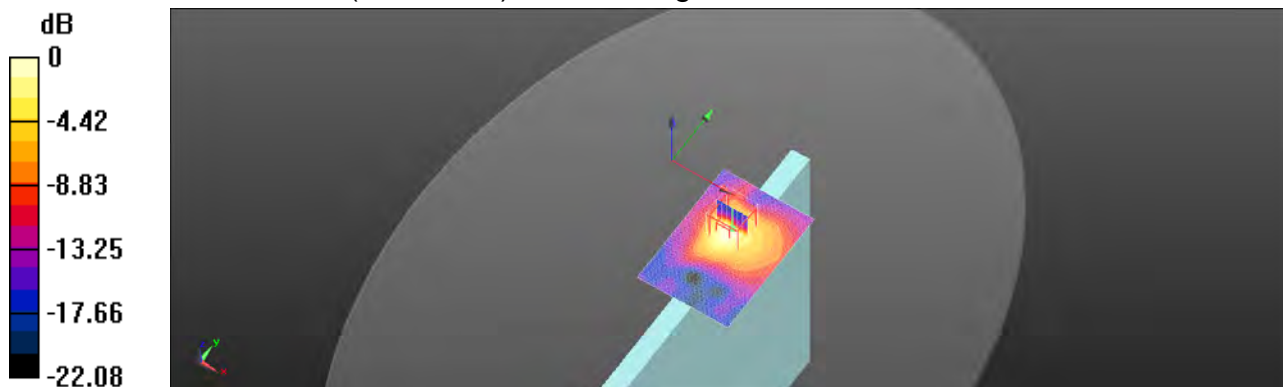
**Zoom Scan (7x7x12)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 1.473 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 3.21 W/kg

**SAR(1 g) = 0.761 W/kg; SAR(10 g) = 0.264 W/kg**

Maximum value of SAR (measured) = 1.45 W/kg



0 dB = 1.45 W/kg = 1.61 dBW/kg

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Date: 2018/7/30

**WLAN 802.11n(40M) 5.3G\_Body\_Top side\_CH 54\_Aux\_0mm**

Communication System: WLAN 5G; Frequency: 5270 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 5270 \text{ MHz}$ ;  $\sigma = 5.382 \text{ S/m}$ ;  $\epsilon_r = 49.34$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Ambient temperature:  $22.2^\circ\text{C}$ ; Liquid temperature:  $21.8^\circ\text{C}$

DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(4.39, 4.39, 4.39); Calibrated: 2018/1/23
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2018/3/16
- Phantom: ELI
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

**Area Scan (71x101x1):** Interpolated grid:  $dx=10 \text{ mm}$ ,  $dy=10 \text{ mm}$

Maximum value of SAR (interpolated) =  $1.22 \text{ W/kg}$

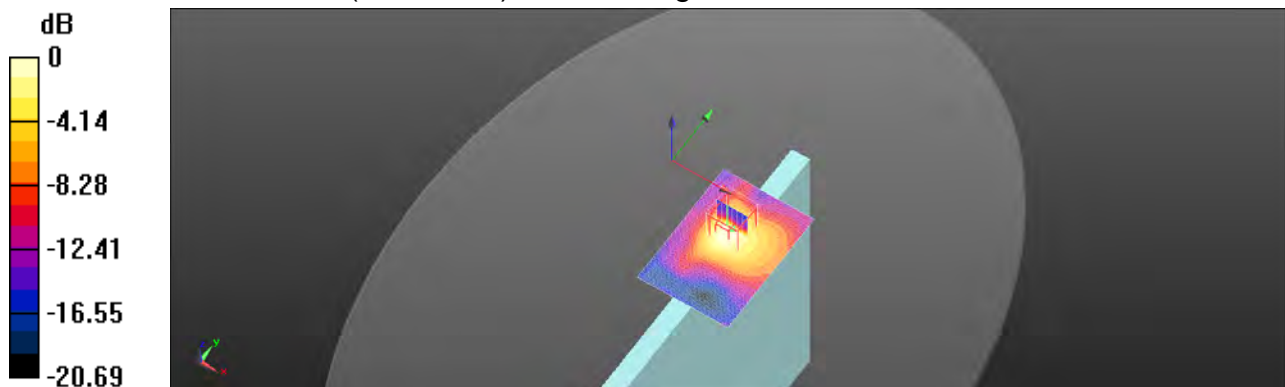
**Zoom Scan (7x7x12)/Cube 0:** Measurement grid:  $dx=4\text{mm}$ ,  $dy=4\text{mm}$ ,  $dz=2\text{mm}$

Reference Value =  $1.503 \text{ V/m}$ ; Power Drift =  $0.03 \text{ dB}$

Peak SAR (extrapolated) =  $2.85 \text{ W/kg}$

**SAR(1 g) =  $0.654 \text{ W/kg}$ ; SAR(10 g) =  $0.241 \text{ W/kg}$**

Maximum value of SAR (measured) =  $1.18 \text{ W/kg}$



0 dB =  $1.18 \text{ W/kg}$  =  $0.72 \text{ dBW/kg}$

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Date: 2018/7/31

**WLAN 802.11ac(80M) 5.6G\_Body\_Top side\_CH 138\_Aux\_0mm**

Communication System: WLAN 5G; Frequency: 5690 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 5690 \text{ MHz}$ ;  $\sigma = 5.838 \text{ S/m}$ ;  $\epsilon_r = 48.303$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Ambient temperature:  $22.1^\circ\text{C}$ ; Liquid temperature:  $21.8^\circ\text{C}$

DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(3.92, 3.92, 3.92); Calibrated: 2018/1/23
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2018/3/16
- Phantom: ELI
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

**Area Scan (71x101x1):** Interpolated grid:  $dx=10 \text{ mm}$ ,  $dy=10 \text{ mm}$

Maximum value of SAR (interpolated) = 1.45 W/kg

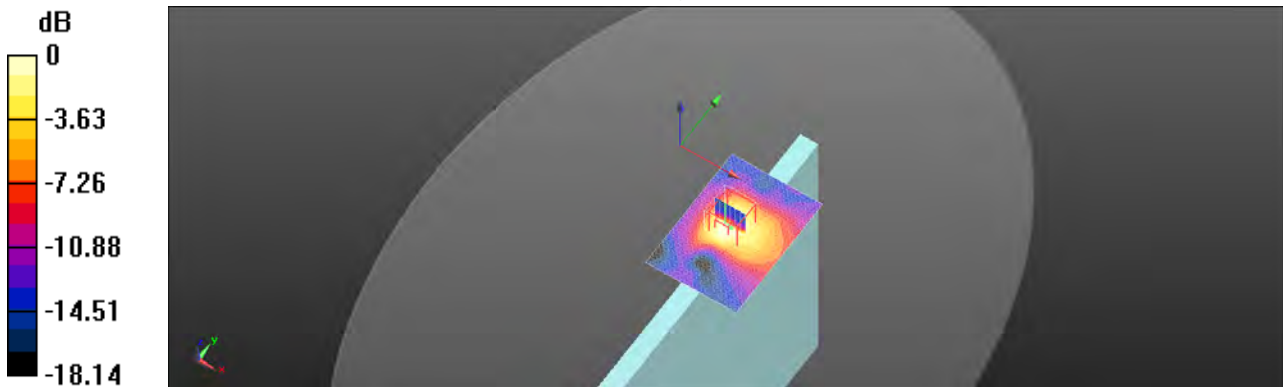
**Zoom Scan (7x7x12)/Cube 0:** Measurement grid:  $dx=4\text{mm}$ ,  $dy=4\text{mm}$ ,  $dz=2\text{mm}$

Reference Value = 2.445 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 3.44 W/kg

**SAR(1 g) = 0.766 W/kg; SAR(10 g) = 0.287 W/kg**

Maximum value of SAR (measured) = 1.43 W/kg



0 dB = 1.43 W/kg = 1.54 dBW/kg

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Date: 2018/7/31

**WLAN 802.11ac(80M) 5.8G\_Body\_Top side\_CH 155\_Aux\_0mm**

Communication System: WLAN 5G; Frequency: 5775 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 5775 \text{ MHz}$ ;  $\sigma = 6.004 \text{ S/m}$ ;  $\epsilon_r = 47.951$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Ambient temperature:  $22.1^\circ\text{C}$ ; Liquid temperature:  $21.7^\circ\text{C}$

DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(4.17, 4.17, 4.17); Calibrated: 2018/1/23
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2018/3/16
- Phantom: ELI
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

**Area Scan (71x101x1):** Interpolated grid:  $dx=10 \text{ mm}$ ,  $dy=10 \text{ mm}$

Maximum value of SAR (interpolated) =  $1.23 \text{ W/kg}$

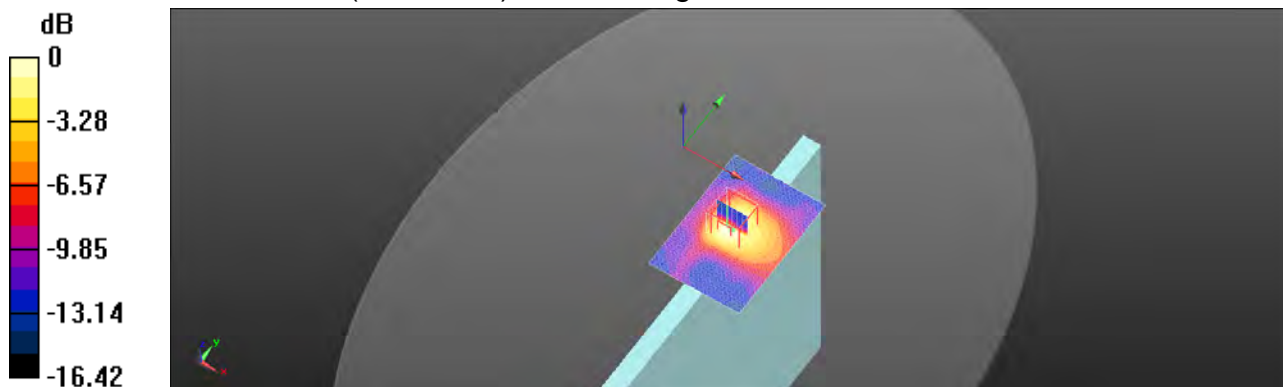
**Zoom Scan (7x7x12)/Cube 0:** Measurement grid:  $dx=4\text{mm}$ ,  $dy=4\text{mm}$ ,  $dz=2\text{mm}$

Reference Value =  $1.936 \text{ V/m}$ ; Power Drift =  $0.06 \text{ dB}$

Peak SAR (extrapolated) =  $2.97 \text{ W/kg}$

**SAR(1 g) =  $0.647 \text{ W/kg}$ ; SAR(10 g) =  $0.254 \text{ W/kg}$**

Maximum value of SAR (measured) =  $1.20 \text{ W/kg}$



0 dB =  $1.20 \text{ W/kg}$  =  $0.78 \text{ dBW/kg}$

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## 6. SAR System Performance Verification

Date: 2018/8/28

### Dipole 750 MHz\_SN:1078

Communication System: CW; Frequency: 750 MHz; Duty Cycle: 1:1

 Medium parameters used:  $f = 750 \text{ MHz}$ ;  $\sigma = 0.971 \text{ S/m}$ ;  $\epsilon_r = 56.658$ ;  $\rho = 1000 \text{ kg/m}^3$ 

Phantom section: Flat Section

 Ambient temperature:  $21.1^\circ\text{C}$ ; Liquid temperature:  $21.8^\circ\text{C}$ 

DASY5 Configuration:

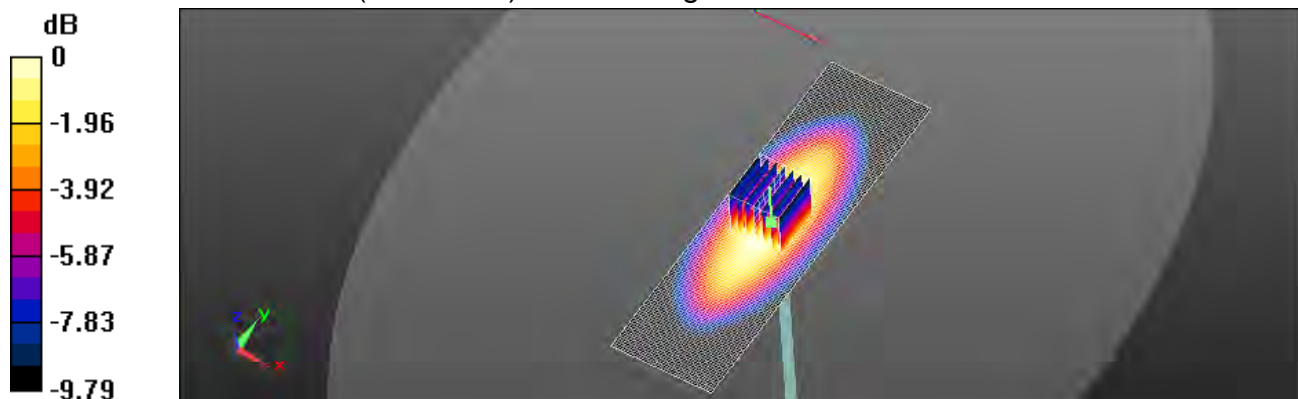
- Probe: EX3DV4 - SN7351; ConvF(10.81, 10.81, 10.81) @ 711 MHz; Calibrated: 2017/12/21
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2018/8/6
- Phantom: ELI
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

**Area Scan (41x141x1):** Interpolated grid:  $dx=15 \text{ mm}$ ,  $dy=15 \text{ mm}$ 

 Maximum value of SAR (interpolated) =  $2.57 \text{ W/kg}$ 
**Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$ 

 Reference Value =  $52.21 \text{ V/m}$ ; Power Drift =  $-0.01 \text{ dB}$ 

 Peak SAR (extrapolated) =  $3.03 \text{ W/kg}$ 
**SAR(1 g) =  $2.12 \text{ W/kg}$ ; SAR(10 g) =  $1.38 \text{ W/kg}$** 

 Maximum value of SAR (measured) =  $2.58 \text{ W/kg}$ 

 $0 \text{ dB} = 2.58 \text{ W/kg} = 4.12 \text{ dBW/kg}$ 

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Date: 2018/8/29

### Dipole 835 MHz\_SN:4d120

Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 835 \text{ MHz}$ ;  $\sigma = 0.987 \text{ S/m}$ ;  $\epsilon_r = 57.137$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Ambient temperature:  $21.2^\circ\text{C}$ ; Liquid temperature:  $22.7^\circ\text{C}$

#### DASY5 Configuration:

- Probe: EX3DV4 - SN7351; ConvF(10.39, 10.39, 10.39) @ 841.5 MHz; Calibrated: 2017/12/21
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2018/8/6
- Phantom: ELI
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

**Area Scan (41x121x1):** Interpolated grid:  $dx=15 \text{ mm}$ ,  $dy=15 \text{ mm}$

Maximum value of SAR (interpolated) =  $2.77 \text{ W/kg}$

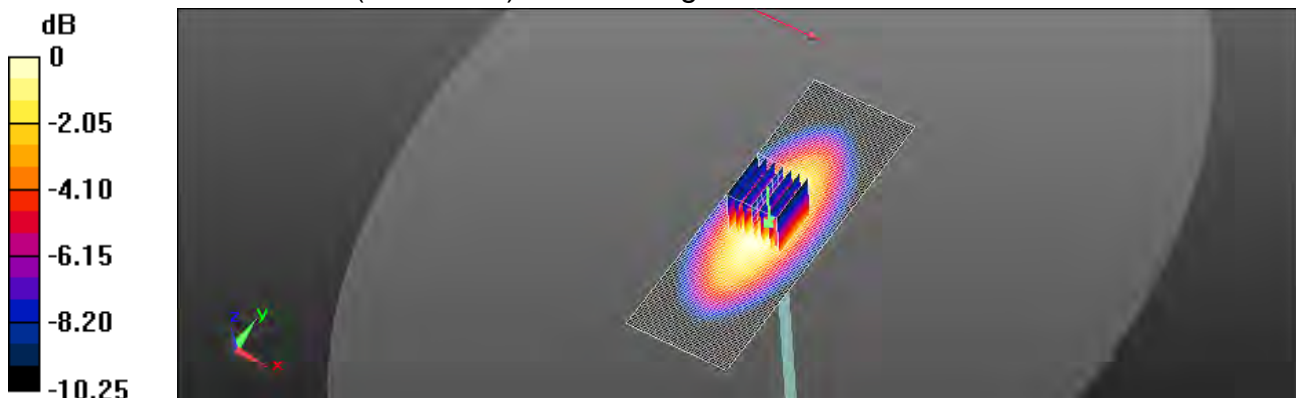
**Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value =  $54.22 \text{ V/m}$ ; Power Drift =  $0.01 \text{ dB}$

Peak SAR (extrapolated) =  $3.29 \text{ W/kg}$

**SAR(1 g) =  $2.35 \text{ W/kg}$ ; SAR(10 g) =  $1.52 \text{ W/kg}$**

Maximum value of SAR (measured) =  $2.79 \text{ W/kg}$



0 dB =  $2.79 \text{ W/kg} = 4.46 \text{ dBW/kg}$

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Date: 2018/8/30

**Dipole 1750 MHz\_SN:1023**

Communication System: CW; Frequency: 1750 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 1750 \text{ MHz}$ ;  $\sigma = 1.462 \text{ S/m}$ ;  $\epsilon_r = 51.161$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Ambient temperature:  $22.4^\circ\text{C}$ ; Liquid temperature:  $21.5^\circ\text{C}$

DASY5 Configuration:

- Probe: EX3DV4 - SN7351; ConvF(8.58, 8.58, 8.58) @ 1720 MHz; Calibrated: 2017/12/21
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2018/8/6
- Phantom: ELI
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

**Area Scan (61x61x1):** Interpolated grid:  $dx=15 \text{ mm}$ ,  $dy=15 \text{ mm}$

Maximum value of SAR (interpolated) =  $12.9 \text{ W/kg}$

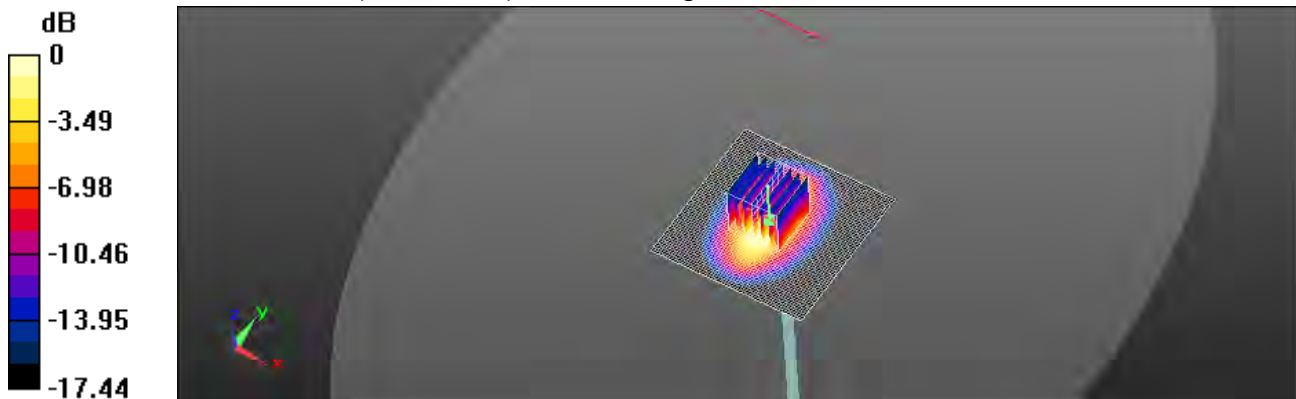
**Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value =  $93.80 \text{ V/m}$ ; Power Drift =  $0.08 \text{ dB}$

Peak SAR (extrapolated) =  $16.7 \text{ W/kg}$

**SAR(1 g) =  $9.07 \text{ W/kg}$ ; SAR(10 g) =  $4.86 \text{ W/kg}$**

Maximum value of SAR (measured) =  $13.0 \text{ W/kg}$



0 dB =  $13.0 \text{ W/kg} = 11.14 \text{ dBW/kg}$

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Date: 2018/8/31

### Dipole 1900 MHz\_SN:5d173

Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 1900$  MHz;  $\sigma = 1.619$  S/m;  $\epsilon_r = 50.642$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Ambient temperature: 21.1°C; Liquid temperature: 21.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7351; ConvF(8.22, 8.22, 8.22) @ 1900 MHz; Calibrated: 2017/12/21
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2018/8/6
- Phantom: ELI
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

**Area Scan (61x61x1):** Interpolated grid: dx=15 mm, dy=15 mm

Maximum value of SAR (interpolated) = 14.9 W/kg

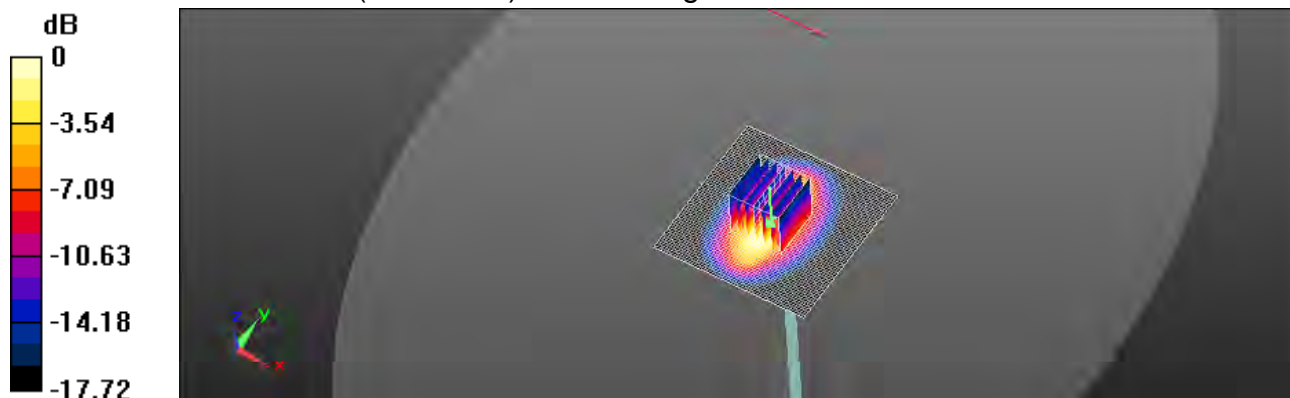
**Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 96.56 V/m; Power Drift = -0.00 dB

Peak SAR (extrapolated) = 19.2 W/kg

**SAR(1 g) = 9.83 W/kg; SAR(10 g) = 5.13 W/kg**

Maximum value of SAR (measured) = 15.0 W/kg



0 dB = 15.0 W/kg = 11.76 dBW/kg

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Date: 2018/9/3

**Dipole 2300 MHz\_SN:1006**

Communication System: CW; Frequency: 2300 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 2300 \text{ MHz}$ ;  $\sigma = 1.836 \text{ S/m}$ ;  $\epsilon_r = 53.343$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Ambient temperature: 21.6°C; Liquid temperature: 22.3°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7351; ConvF(7.98, 7.98, 7.98) @ 2310 MHz; Calibrated: 2017/12/21
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2018/8/6
- Phantom: ELI
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

**Area Scan (51x51x1):** Interpolated grid: dx=12 mm, dy=12 mm

Maximum value of SAR (interpolated) = 18.8 W/kg

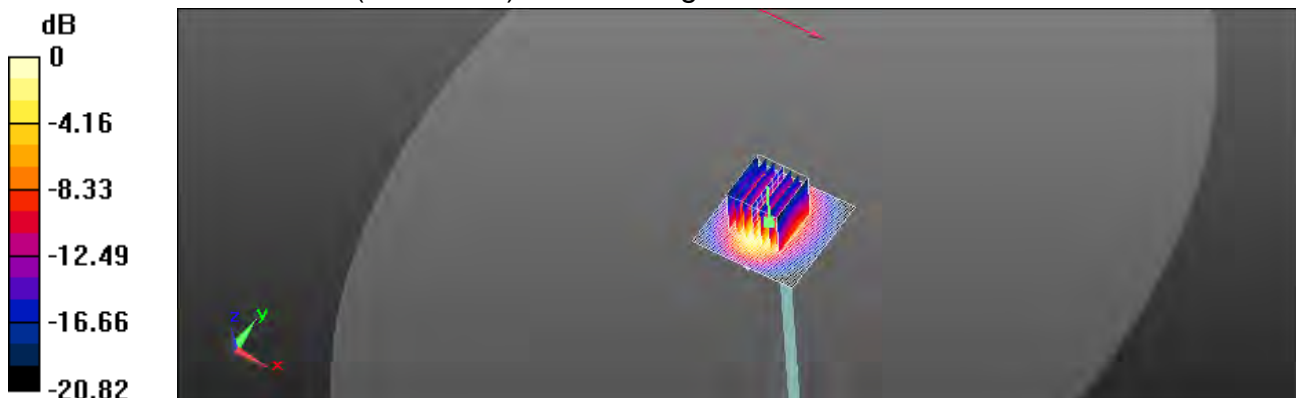
**Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 95.45 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 23.7 W/kg

**SAR(1 g) = 11.9 W/kg; SAR(10 g) = 5.69 W/kg**

Maximum value of SAR (measured) = 17.9 W/kg



0 dB = 17.9 W/kg = 12.53 dBW/kg

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Date: 2018/7/28

**Dipole 2450 MHz\_SN:727**

Communication System: CW; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 2450 \text{ MHz}$ ;  $\sigma = 1.932 \text{ S/m}$ ;  $\epsilon_r = 52.827$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Ambient temperature:  $22.1^\circ\text{C}$ ; Liquid temperature:  $21.8^\circ\text{C}$

**DASY5 Configuration:**

- Probe: EX3DV4 - SN3831; ConvF(7.26, 7.26, 7.26); Calibrated: 2018/1/23
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2018/3/16
- Phantom: ELI
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

**Pin=250mW/Area Scan (61x131x1):** Interpolated grid:  $dx=12 \text{ mm}$ ,  $dy=12 \text{ mm}$

Maximum value of SAR (interpolated) =  $22.3 \text{ W/kg}$

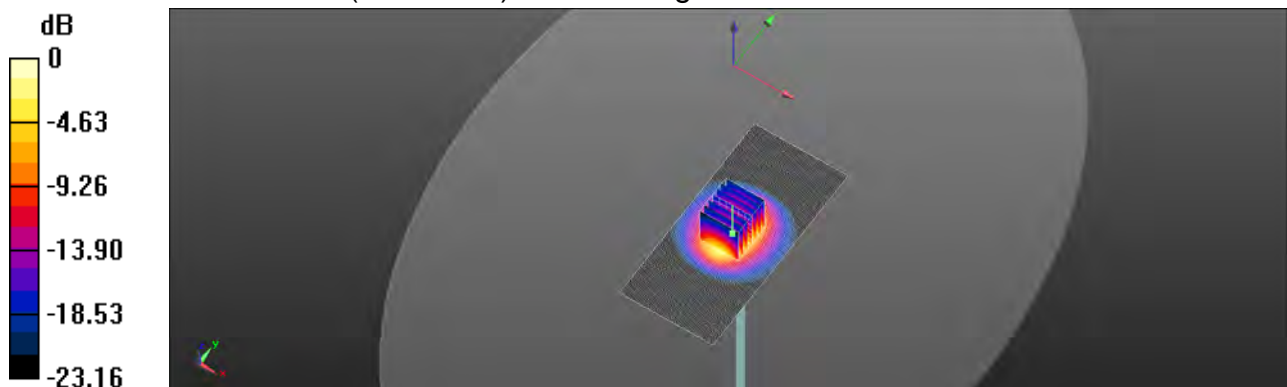
**Pin=250mW/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value =  $102.0 \text{ V/m}$ ; Power Drift =  $0.02 \text{ dB}$

Peak SAR (extrapolated) =  $29.2 \text{ W/kg}$

**SAR(1 g) =  $13.1 \text{ W/kg}$ ; SAR(10 g) =  $6.13 \text{ W/kg}$**

Maximum value of SAR (measured) =  $21.1 \text{ W/kg}$



0 dB =  $21.1 \text{ W/kg} = 13.23 \text{ dBW/kg}$

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Date: 2018/9/4

### Dipole 2600 MHz\_SN:1005

Communication System: CW; Frequency: 2600 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 2600$  MHz;  $\sigma = 2.24$  S/m;  $\epsilon_r = 52.314$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Ambient temperature: 22.1°C; Liquid temperature: 21.8°C

#### DASY5 Configuration:

- Probe: EX3DV4 - SN7466; ConvF(7.66, 7.66, 7.66) @ 2636.5 MHz; Calibrated: 2017/7/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2018/8/6
- Phantom: ELI
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

**Area Scan (61x61x1):** Interpolated grid: dx=12 mm, dy=12 mm

Maximum value of SAR (interpolated) = 22.5 W/kg

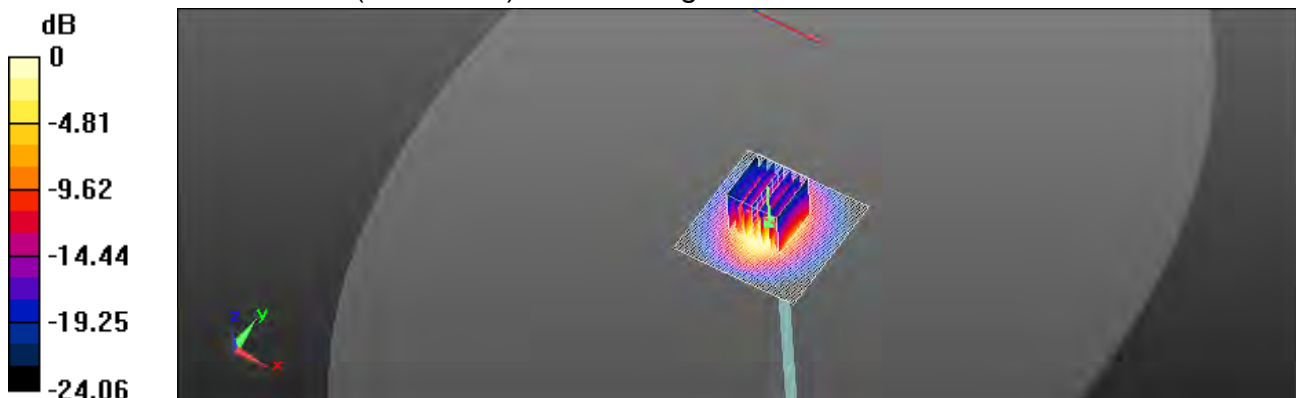
**Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 96.83 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 31.6 W/kg

**SAR(1 g) = 14.5 W/kg; SAR(10 g) = 6.42 W/kg**

Maximum value of SAR (measured) = 22.4 W/kg



0 dB = 22.4 W/kg = 13.50 dBW/kg

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Date: 2018/9/7

**Dipole 2600 MHz\_SN:1005**

Communication System: CW; Frequency: 2600 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 2600$  MHz;  $\sigma = 2.231$  S/m;  $\epsilon_r = 52.837$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Ambient temperature: 22.1°C; Liquid temperature: 21.7°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7466; ConvF(7.66, 7.66, 7.66) @ 2636.5 MHz; Calibrated: 2017/7/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2018/8/6
- Phantom: ELI
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

**Area Scan (61x61x1):** Interpolated grid: dx=12 mm, dy=12 mm

Maximum value of SAR (interpolated) = 22.3 W/kg

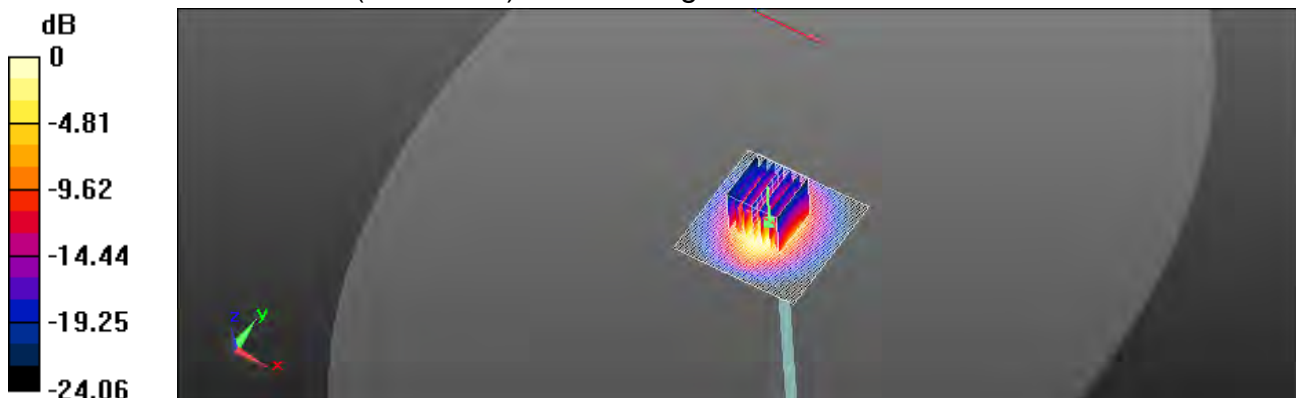
**Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 96.13 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 31.2 W/kg

**SAR(1 g) = 14.3 W/kg; SAR(10 g) = 6.38 W/kg**

Maximum value of SAR (measured) = 22.1 W/kg



0 dB = 22.1 W/kg = 13.36 dBW/kg

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Date: 2018/7/30

**Dipole 5200 MHz\_SN:1023**

Communication System: CW; Frequency: 5200 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 5200$  MHz;  $\sigma = 5.264$  S/m;  $\epsilon_r = 49.628$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Ambient temperature: 22.3°C; Liquid temperature: 21.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(4.56, 4.56, 4.56); Calibrated: 2018/1/23
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2018/3/16
- Phantom: ELI
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

**Pin=100mW/Area Scan (61x91x1):** Interpolated grid: dx=10 mm, dy=10 mm

Maximum value of SAR (interpolated) = 15.6 W/kg

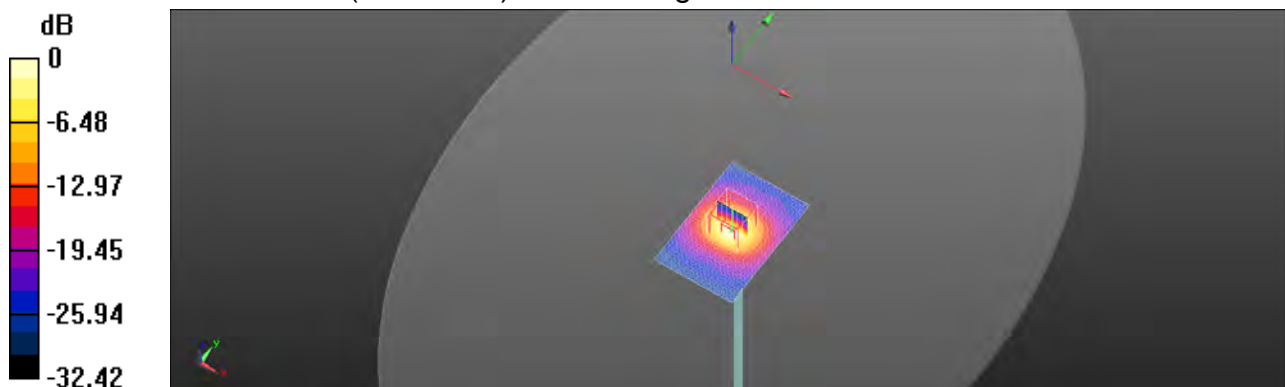
**Pin=100mW/Zoom Scan (7x7x12)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 56.19 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 29.9 W/kg

**SAR(1 g) = 7.24 W/kg; SAR(10 g) = 2.03 W/kg**

Maximum value of SAR (measured) = 15.7 W/kg



0 dB = 15.7 W/kg = 11.95 dBW/kg

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Date: 2018/7/30

**Dipole 5300 MHz\_SN:1023**

Communication System: CW; Frequency: 5300 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 5300 \text{ MHz}$ ;  $\sigma = 5.376 \text{ S/m}$ ;  $\epsilon_r = 49.301$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Ambient temperature:  $22.2^\circ\text{C}$ ; Liquid temperature:  $21.8^\circ\text{C}$

DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(4.39, 4.39, 4.39); Calibrated: 2018/1/23
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2018/3/16
- Phantom: ELI
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

**Pin=100mW/Area Scan (61x91x1):** Interpolated grid:  $dx=10 \text{ mm}$ ,  $dy=10 \text{ mm}$

Maximum value of SAR (interpolated) =  $16.2 \text{ W/kg}$

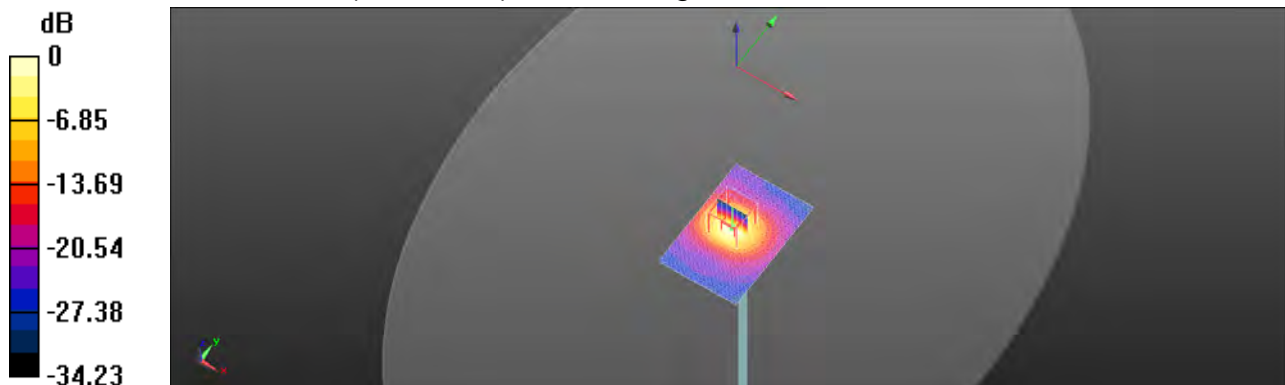
**Pin=100mW/Zoom Scan (7x7x12)/Cube 0:** Measurement grid:  $dx=4\text{mm}$ ,  $dy=4\text{mm}$ ,  $dz=2\text{mm}$

Reference Value =  $47.62 \text{ V/m}$ ; Power Drift =  $-0.02 \text{ dB}$

Peak SAR (extrapolated) =  $32.4 \text{ W/kg}$

**SAR(1 g) =  $7.41 \text{ W/kg}$ ; SAR(10 g) =  $2.08 \text{ W/kg}$**

Maximum value of SAR (measured) =  $16.6 \text{ W/kg}$



0 dB =  $16.6 \text{ W/kg} = 12.21 \text{ dBW/kg}$

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Date: 2018/7/31

### Dipole 5600 MHz\_SN:1023

Communication System: CW; Frequency: 5600 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 5600$  MHz;  $\sigma = 5.768$  S/m;  $\epsilon_r = 48.51$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Ambient temperature: 22.1°C; Liquid temperature: 21.8°C

#### DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(3.92, 3.92, 3.92); Calibrated: 2018/1/23
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2018/3/16
- Phantom: ELI
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

**Pin=250mW/Area Scan (61x81x1):** Interpolated grid: dx=10 mm, dy=10 mm

Maximum value of SAR (interpolated) = 17.2 W/kg

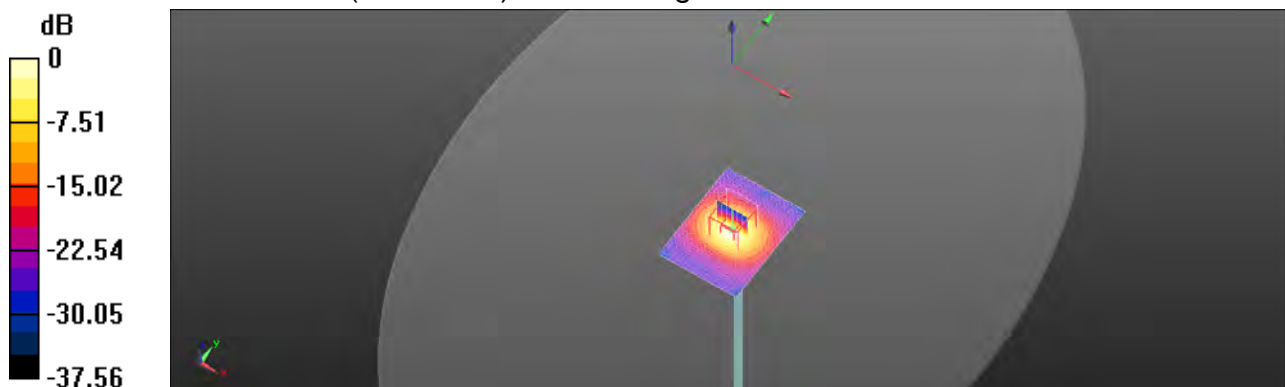
**Pin=250mW/Zoom Scan (7x7x12)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 58.66 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 33.7 W/kg

**SAR(1 g) = 7.88 W/kg; SAR(10 g) = 2.2 W/kg**

Maximum value of SAR (measured) = 17.1 W/kg



0 dB = 17.1 W/kg = 12.33 dBW/kg

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Date: 2018/7/31

**Dipole 5800 MHz\_SN:1023**

Communication System: CW; Frequency: 5800 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 5800 \text{ MHz}$ ;  $\sigma = 6.039 \text{ S/m}$ ;  $\epsilon_r = 47.847$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Ambient temperature:  $22.1^\circ\text{C}$ ; Liquid temperature:  $21.7^\circ\text{C}$

DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(4.17, 4.17, 4.17); Calibrated: 2018/1/23
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2018/3/16
- Phantom: ELI
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

**Pin=100mW/Area Scan (61x91x1):** Interpolated grid:  $dx=10 \text{ mm}$ ,  $dy=10 \text{ mm}$

Maximum value of SAR (interpolated) =  $16.0 \text{ W/kg}$

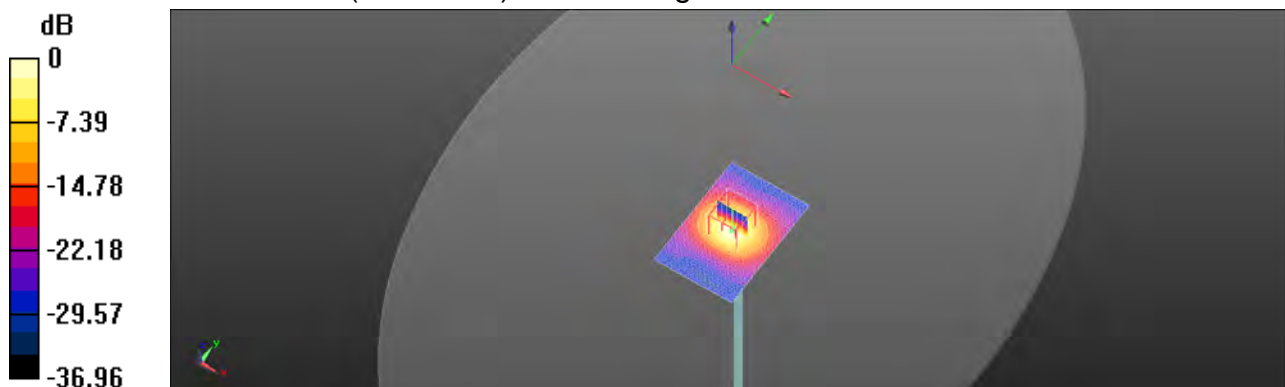
**Pin=100mW/Zoom Scan (7x7x12)/Cube 0:** Measurement grid:  $dx=4\text{mm}$ ,  $dy=4\text{mm}$ ,  $dz=2\text{mm}$

Reference Value =  $54.00 \text{ V/m}$ ; Power Drift =  $-0.02 \text{ dB}$

Peak SAR (extrapolated) =  $32.9 \text{ W/kg}$

**SAR(1 g) =  $7.45 \text{ W/kg}$ ; SAR(10 g) =  $2.09 \text{ W/kg}$**

Maximum value of SAR (measured) =  $16.0 \text{ W/kg}$



0 dB =  $16.0 \text{ W/kg} = 12.05 \text{ dBW/kg}$

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## 7.DAE & Probe Calibration Certificate

Calibration Laboratory of  
Schmid & Partner  
Engineering AG  
Zeughausstrasse 43, 8004 Zurich, Switzerland



S Schweizerischer Kalibrierdienst  
S Service suisse d'étalonnage  
S Servizio svizzero di taratura  
S Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)  
The Swiss Accreditation Service is one of the signatories to the EA  
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 0108

Client SGS-TW (Auden)

Certificate No.: DAE4-1336\_Aug18

CALIBRATION CERTIFICATE			
Object	DAE4 - SD 000 D04 BM - SN: 1336		
Calibration procedure(s)	QA CAL-06.v29 Calibration procedure for the data acquisition electronics (DAE)		
Calibration date:	August 06, 2018		
This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI). The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.			
All calibrations have been conducted in the closed laboratory facility, environmental temperature (22 ± 3)°C and humidity < 70%.			
Calibration Equipment used (M&PE critical for calibration)			
Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Kentley Multimeter Type 2001	SN: 0810278	31-Aug-17 (No:21092)	Aug-18
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Auto DAE Calibration Unit	SE UWS 053 AA 1001	04-Jan-18 (in house check)	In house check: Jan-19
Calibrator Box V2.1	SE UMS 006 AA 1002	04-Jan-18 (in house check)	In house check: Jan-19
Calibrated by:	Name Dominique Stettin	Function Laboratory Technician	Signature 
Approved by:	Name Sven Kühn	Function Deputy Manager	Signature 
			Issued: August 6, 2018
This calibration certificate shall not be reproduced except in full without written approval of the laboratory.			

Certificate No: DAE4-1336\_Aug18

Page 1 of 5

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Schmid & Partner  
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Zeughausstrasse 43, 8004 Zurich, Switzerland



**S** Schweizerischer Kalibrierdienst  
**C** Service suisse d'étalonnage  
**S** Servizio svizzero di taratura  
**S** Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)  
The Swiss Accreditation Service is one of the signatories to the EA  
Multilateral Agreement for the recognition of calibration certificates.

Accreditation No.: SCS 0108

## Glossary

**DAE** data acquisition electronics  
**Connector angle** information used in DASY system to align probe sensor X to the robot coordinate system.

## Methods Applied and Interpretation of Parameters

- **DC Voltage Measurement:** Calibration Factor assessed for use in DASY system by comparison with a calibrated instrument traceable to national standards. The figure given corresponds to the full scale range of the voltmeter in the respective range.
- **Connector angle:** The angle of the connector is assessed measuring the angle mechanically by a tool inserted. Uncertainty is not required.
- The following parameters as documented in the Appendix contain technical information as a result from the performance test and require no uncertainty.
  - **DC Voltage Measurement Linearity:** Verification of the Linearity at +10% and -10% of the nominal calibration voltage. Influence of offset voltage is included in this measurement.
  - **Common mode sensitivity:** Influence of a positive or negative common mode voltage on the differential measurement.
  - **Channel separation:** Influence of a voltage on the neighbor channels not subject to an input voltage.
  - **AD Converter Values with inputs shorted:** Values on the internal AD converter corresponding to zero input voltage
  - **Input Offset Measurement:** Output voltage and statistical results over a large number of zero voltage measurements.
  - **Input Offset Current:** Typical value for information; Maximum channel input offset current, not considering the input resistance.
  - **Input resistance:** Typical value for information; DAE input resistance at the connector, during internal auto-zeroing and during measurement.
  - **Low Battery Alarm Voltage:** Typical value for information. Below this voltage, a battery alarm signal is generated.
  - **Power consumption:** Typical value for information. Supply currents in various operating modes.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

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**DC Voltage Measurement**

A/D Converter Resolution nominal

 High Range: 1LSB = 6.1 $\mu$ V full range = -100...+300 mV

Low Range: 1LSB = 61nV full range = -1...+3mV

DASY measurement parameters; Auto Zero Time: 3 sec; Measuring time: 3 sec

Calibration Factors	X	Y	Z
High Range	403.344 $\pm$ 0.02% (k=2)	403.624 $\pm$ 0.02% (k=2)	403.107 $\pm$ 0.02% (k=2)
Low Range	3.95102 $\pm$ 1.50% (k=2)	3.98703 $\pm$ 1.50% (k=2)	3.99683 $\pm$ 1.50% (k=2)

**Connector Angle**

Connector Angle to be used in DASY system	287.0 $^{\circ}$ $\pm$ 1 $^{\circ}$
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**Appendix (Additional assessments outside the scope of SCS0108)**
**1. DC Voltage Linearity**

High Range	Reading ( $\mu\text{V}$ )	Difference ( $\mu\text{V}$ )	Error (%)
Channel X + Input	200042.98	8.65	0.00
Channel X + Input	20006.34	1.11	0.01
Channel X - Input	-20005.65	-0.58	0.00
Channel Y + Input	200034.32	0.12	0.00
Channel Y + Input	20003.47	-1.57	-0.01
Channel Y - Input	-20005.39	-1.21	0.01
Channel Z + Input	200032.22	-2.05	-0.00
Channel Z + Input	20002.78	-2.14	-0.01
Channel Z - Input	-20007.34	-2.09	0.01

Low Range	Reading ( $\mu\text{V}$ )	Difference ( $\mu\text{V}$ )	Error (%)
Channel X + Input	2001.47	0.30	0.01
Channel X + Input	201.92	0.79	0.39
Channel X - Input	-198.26	0.59	-0.30
Channel Y + Input	2001.56	0.37	0.02
Channel Y + Input	200.87	-0.11	-0.05
Channel Y - Input	-199.34	-0.43	0.22
Channel Z + Input	2001.12	0.04	0.00
Channel Z + Input	200.15	-0.88	-0.44
Channel Z - Input	-200.14	-1.15	0.58

**2. Common mode sensitivity**

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	Common mode Input Voltage (mV)	High Range Average Reading ( $\mu\text{V}$ )	Low Range Average Reading ( $\mu\text{V}$ )
Channel X	200	6.04	4.72
	-200	-4.13	-4.79
Channel Y	200	-3.65	-3.78
	200	2.68	2.85
Channel Z	200	22.40	22.16
	-200	-24.83	-25.10

**3. Channel separation**

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	Input Voltage (mV)	Channel X ( $\mu\text{V}$ )	Channel Y ( $\mu\text{V}$ )	Channel Z ( $\mu\text{V}$ )
Channel X	200	-	6.12	-1.64
Channel Y	200	9.19	-	6.46
Channel Z	200	8.44	6.31	-

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#### 4. AD-Converter Values with inputs shorted

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	High Range (LSB)	Low Range (LSB)
Channel X	15666	16509
Channel Y	15907	15587
Channel Z	15855	15507

#### 5. Input Offset Measurement

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

Input 10MΩ

	Average (μV)	min. Offset (μV)	max. Offset (μV)	Std. Deviation (μV)
Channel X	0.87	-0.00	2.62	0.36
Channel Y	3.53	2.87	4.59	0.34
Channel Z	-0.18	-1.34	1.53	0.54

#### 6. Input Offset Current

Nominal Input circuitry offset current on all channels: <math>-25\mu A</math>

#### 7. Input Resistance (Typical values for information)

	Zeroing (kΩ)	Measuring (MΩ)
Channel X	200	200
Channel Y	200	200
Channel Z	200	200

#### 8. Low Battery Alarm Voltage (Typical values for information)

Typical values	Alarm Level (VDC)
Supply (+ Vcc)	+7.9
Supply (- Vcc)	-7.6

#### 9. Power Consumption (Typical values for information)

Typical values	Switched off (mA)	Stand by (mA)	Transmitting (mA)
Supply (+ Vcc)	+0.01	+8	+14
Supply (- Vcc)	-0.01	-8	-8

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Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

Client **SGS (Auden)**

Certificate No: **DAE4-547\_Mar18**

## CALIBRATION CERTIFICATE

Object: **DAE4 - SD 000 D04 BM - SN: 547**

Calibration procedure(s): **QA CAL-06.v29  
Calibration procedure for the data acquisition electronics (DAE)**

Calibration date: **March 16, 2018**

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).  
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility; environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Katholy Multimeter Type 2001	SN: 0810278	31-Aug-17 (No:21082)	Aug-18
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Auto DAE Calibration Unit	SE UWS 053 AA 1001	04-Jan-18 (in house check)	In house check: Jan-18
Calibrator Box V2.1	SE UMS 006 AA 1002	04-Jan-18 (in house check)	In house check: Jan-18

Calibrated by:	Name <b>Eric Heimfeld</b>	Function Laboratory Technician	Signature 
Approved by:	Name <b>Evan Kühn</b>	Deputy Manager	

Issued: March 16, 2018

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Accreditation No.: SCS 0108

## Glossary

**DAE** data acquisition electronics  
**Connector angle** information used in DASY system to align probe sensor X to the robot coordinate system.

## Methods Applied and Interpretation of Parameters

- **DC Voltage Measurement:** Calibration Factor assessed for use in DASY system by comparison with a calibrated instrument traceable to national standards. The figure given corresponds to the full scale range of the voltmeter in the respective range.
- **Connector angle:** The angle of the connector is assessed measuring the angle mechanically by a tool inserted. Uncertainty is not required.
- The following parameters as documented in the Appendix contain technical information as a result from the performance test and require no uncertainty.
  - **DC Voltage Measurement Linearity:** Verification of the Linearity at +10% and -10% of the nominal calibration voltage. Influence of offset voltage is included in this measurement.
  - **Common mode sensitivity:** Influence of a positive or negative common mode voltage on the differential measurement.
  - **Channel separation:** Influence of a voltage on the neighbor channels not subject to an input voltage.
  - **AD Converter Values with inputs shorted:** Values on the internal AD converter corresponding to zero input voltage.
  - **Input Offset Measurement:** Output voltage and statistical results over a large number of zero voltage measurements.
  - **Input Offset Current:** Typical value for information; Maximum channel input offset current; not considering the input resistance.
  - **Input resistance:** Typical value for information; DAE input resistance at the connector, during internal auto-zeroing and during measurement.
  - **Low Battery Alarm Voltage:** Typical value for information. Below this voltage, a battery alarm signal is generated.
  - **Power consumption:** Typical value for information. Supply currents in various operating modes.

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**DC Voltage Measurement**

A/D - Converter Resolution nominal

 High Range: 1LSB = 5.1 $\mu$ V, full range = -100...+300 mV  
 Low Range: 1LSB = 61nV, full range = -1...+3mV

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

Calibration Factors	X	Y	Z
High Range	403.254 $\pm$ 0.02% (k=2)	403.158 $\pm$ 0.02% (k=2)	402.803 $\pm$ 0.02% (k=2)
Low Range	3.85439 $\pm$ 1.50% (k=2)	3.90484 $\pm$ 1.50% (k=2)	3.96300 $\pm$ 1.50% (k=2)

**Connector Angle**

Connector Angle to be used in DASY system	90.5° $\pm$ 1°
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**Appendix (Additional assessments outside the scope of SCS0108)**
**1. DC Voltage Linearity**

High Range	Reading ( $\mu\text{V}$ )	Difference ( $\mu\text{V}$ )	Error (%)
Channel X + Input	200032.85	-2.13	-0.00
Channel X + Input	20008.76	3.21	0.02
Channel X - Input	-20000.88	4.51	-0.02
Channel Y + Input	200033.65	-4.13	-0.00
Channel Y + Input	20003.79	-1.78	-0.01
Channel Y - Input	-20006.44	-1.22	0.01
Channel Z + Input	200031.86	-3.06	-0.00
Channel Z + Input	20006.10	0.58	0.00
Channel Z - Input	-20003.99	1.29	-0.01

Low Range	Reading ( $\mu\text{V}$ )	Difference ( $\mu\text{V}$ )	Error (%)
Channel X + Input	2001.72	0.18	0.01
Channel X + Input	201.65	0.01	0.01
Channel X - Input	-198.51	-0.28	0.14
Channel Y + Input	2001.34	-0.08	-0.00
Channel Y + Input	200.96	-0.70	-0.35
Channel Y - Input	-199.61	-1.33	0.67
Channel Z + Input	2001.33	-0.06	-0.00
Channel Z + Input	200.06	-1.46	-0.74
Channel Z - Input	-200.26	-1.91	0.96

**2. Common mode sensitivity**

DASY measurement parameters: Auto Zero Time: 3 sec, Measuring time: 3 sec

	Common mode Input Voltage (mV)	High Range Average Reading ( $\mu\text{V}$ )	Low Range Average Reading ( $\mu\text{V}$ )
Channel X	200	-3.69	-5.17
	-200	5.60	4.08
Channel Y	200	-0.50	-1.15
	-200	0.25	-0.51
Channel Z	200	5.51	5.17
	-200	-7.92	-8.28

**3. Channel separation**

DASY measurement parameters: Auto Zero Time: 3 sec, Measuring time: 3 sec

	Input Voltage (mV)	Channel X ( $\mu\text{V}$ )	Channel Y ( $\mu\text{V}$ )	Channel Z ( $\mu\text{V}$ )
Channel X	200	-	-3.20	-2.58
Channel Y	200	9.59	-	3.91
Channel Z	200	5.09	7.98	-

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#### 4. AD-Converter Values with Inputs shorted

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	High Range (LSB)	Low Range (LSB)
Channel X	16363	15273
Channel Y	16469	16100
Channel Z	16083	17048

#### 5. Input Offset Measurement

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec  
Input 10M $\Omega$

	Average ( $\mu$ V)	min. Offset ( $\mu$ V)	max. Offset ( $\mu$ V)	Std. Deviation ( $\mu$ V)
Channel X	-1.57	-2.25	-0.71	0.35
Channel Y	0.27	-0.91	1.98	0.42
Channel Z	0.12	-1.25	1.42	0.47

#### 6. Input Offset Current

Nominal input circuitry offset current on all channels: <251A

#### 7. Input Resistance (Typical values for information)

	Zeroing (k $\Omega$ m)	Measuring (M $\Omega$ m)
Channel X	200	200
Channel Y	200	200
Channel Z	200	200

#### 8. Low Battery Alarm Voltage (Typical values for information)

Typical values	Alarm Level (VDC)
Supply (+ Vcc)	+7.9
Supply (- Vcc)	-7.6

#### 9. Power Consumption (Typical values for information)

Typical values	Switched off (mA)	Stand by (mA)	Transmitting (mA)
Supply (+ Vcc)	+0.01	+6	+14
Supply (- Vcc)	-0.01	-8	-9

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Accreditation No.: **SCS 0108**

Client **Auden**

Certificate No: **EX3-7351\_Dec17**

## CALIBRATION CERTIFICATE

Client: **EX3DV4 - SN:7351**

Calibration procedure(s): **QA CAL-01.v9, QA CAL-14.v4, QA CAL-23.v5, QA CAL-25.v6**  
Calibration procedure for dosimetric E-field probes

Calibration date: **December 21, 2017**

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI). The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the client laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&PE critical for calibration)

Primary Standards	ID	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	04-Apr-17 (No. 217-07521/02522)	Apr-18
Power sensor NRP-Z91	SN: 103244	04-Apr-17 (No. 217-02521)	Apr-18
Power sensor NRP-Z91	SN: 103245	04-Apr-17 (No. 217-02525)	Apr-18
Reference 20 dB Attenuator	SN: S5277 (20x)	07-Apr-17 (No. 217-02528)	Apr-18
Reference Probe ES3DV2	SN: 3013	31-Dec-16 (No. ES3-3013, Dec16)	Dec-17
DAIE4	SN: 654	24-Jul-17 (No. DAE4-354, Jul17)	Jul-18
Secondary Standards	ID	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: G941293874	05-Apr-16 (in house check Jun-16)	In house check Jun-18
Power sensor E4412A	SN: MY41495057	05-Apr-16 (in house check Jun-16)	In house check Jun-18
Power sensor E4412A	SN: 000110210	05-Apr-16 (in house check Jun-16)	In house check Jun-18
RF generator HP 8648C	SN: US3642UG1700	04-Aug-99 (in house check Jun-18)	In house check Jun-18
Network Analyzer HP 6753E	SN: U007390285	18-Oct-01 (in house check Oct-17)	In house check Oct-18

Calibrated by: **Jeton Kastrel** (Name), **Laboratory Technician** (Function), [Signature]

Approved by: **Kelly Pokorny** (Name), **Technical Manager** (Function), [Signature]

Issued: December 21, 2017

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Certificate No: EX3-7351\_Dec17

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**Calibration Laboratory of  
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**Glossary:**

TSL	issue simulating liquid
NORM <sub>x,y,z</sub>	sensitivity in free space
ConvF	sensitivity in TSL / NORM <sub>x,y,z</sub>
DCP	diode compression point
CF	crest factor (1/duty cycle) of the RF signal
A, B, C, D	modulation dependent linearization parameters
Polarization $\psi$	$\psi$ rotation around probe axis
Polarization $\theta$	$\theta$ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., $\theta = 0$ is normal to probe axis
Connector Angle	information used in DASY system to align probe sensor X to the robot coordinate system

**Calibration is Performed According to the Following Standards:**

- a) IEEE Std. 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
- b) IEC 62209-1, "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
- c) IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
- d) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

**Methods Applied and Interpretation of Parameters:**

- NORM<sub>x,y,z</sub>: Assessed for E-field polarization  $\theta = 0$  ( $f \leq 900$  MHz in TEM-cell) /  $f > 1800$  MHz: R22 waveguide). NORM<sub>x,y,z</sub> are only intermediate values, i.e., the uncertainties of NORM<sub>x,y,z</sub> does not affect the E<sub>1</sub>-field uncertainty inside TSL (see below ConvF).
- NORM( $f$ )<sub>x,y,z</sub> = NORM<sub>x,y,z</sub> \* frequency response (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of ConvF.
- DCP<sub>x,y,z</sub>: DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal (no uncertainty required). DCP does not depend on frequency nor media.
- PAR: PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics
- A<sub>x,y,z</sub>; B<sub>x,y,z</sub>; C<sub>x,y,z</sub>; D<sub>x,y,z</sub>; VR<sub>x,y,z</sub>; A, B, C, D are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. VR is the maximum calibration range expressed in RMS voltage across the diode.
- ConvF and Boundary Effect Parameters: Assessed in flat phantom using E-field (or Temperature Transfer Standard for  $f < 800$  MHz) and inside waveguide using analytical field distributions based on power measurements for  $f > 800$  MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to NORM<sub>x,y,z</sub> \* ConvF whereby the uncertainty corresponds to that given for ConvF. A frequency dependent ConvF is used in DASY version 4.4 and higher which allows extending the validity from  $\pm 50$  MHz to  $\pm 100$  MHz.
- Spherical isotropy (3D deviation from isotropy): in a field of low gradients realized using a flat phantom exposed by a patch antenna
- Sensor Offset: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.
- Connector Angle: The angle is assessed using the information gained by determining the NORM<sub>x</sub> (no uncertainty required).

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EX3DV4 – SN:7351

December 21, 2017

# Probe EX3DV4

## SN:7351

Manufactured: October 13, 2014  
Calibrated: December 21, 2017

Calibrated for DASY/EASY Systems  
(Note: non-compatible with DASY2 system!)

Certificate No: EX3-7351\_Dec17

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EX3DV4- SN:7351

December 21, 2017

### DASY/EASY - Parameters of Probe: EX3DV4 - SN:7351

#### Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ( $\mu\text{V}/(\text{V}/\text{m})^2$ ) <sup>A</sup>	0.47	0.44	0.45	$\pm 10.1\%$
DCP (mV) <sup>B</sup>	97.9	104.3	97.1	

#### Modulation Calibration Parameters

UID	Communication System Name		A dB	B dB $\sqrt{\mu\text{V}}$	C	D dB	VR mV	Unc <sup>C</sup> (k=2)
0	CW	X	0.0	0.0	1.0	0.00	136.5	$\pm 3.8\%$
		Y	0.0	0.0	1.0		136.4	
		Z	0.0	0.0	1.0		147.3	

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

<sup>A</sup> The uncertainties of Norm X,Y,Z do not affect the E<sup>2</sup>-field uncertainty inside TSL (see Pages 5 and 6).

<sup>B</sup> Numerical linearization parameter: uncertainty not required.

<sup>C</sup> Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

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## DASY/EASY - Parameters of Probe: EX3DV4 - SN:7351

### Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) <sup>C</sup>	Relative Permittivity <sup>F</sup>	Conductivity (S/m) <sup>F</sup>	ConvF X	ConvF Y	ConvF Z	Alpha <sup>G</sup>	Depth (mm) <sup>G</sup>	Unc (k=2)
750	41.9	0.89	10.92	10.92	10.92	0.55	0.80	± 12.0 %
835	41.5	0.90	10.60	10.60	10.60	0.55	0.80	± 12.0 %
900	41.5	0.97	10.31	10.31	10.31	0.40	0.95	± 12.0 %
1750	40.1	1.37	8.78	8.78	8.78	0.28	0.80	± 12.0 %
1900	40.0	1.40	8.50	8.50	8.50	0.29	0.80	± 12.0 %
2000	40.0	1.40	8.41	8.41	8.41	0.30	0.80	± 12.0 %
2300	39.5	1.67	8.03	8.03	8.03	0.31	0.84	± 12.0 %
2450	39.2	1.80	7.74	7.74	7.74	0.34	0.85	± 12.0 %
2600	39.0	1.96	7.51	7.51	7.51	0.36	0.81	± 12.0 %
5200	36.0	4.66	5.49	5.49	5.49	0.35	1.80	± 13.1 %
5300	35.9	4.76	5.15	5.15	5.15	0.40	1.80	± 13.1 %
5500	35.6	4.96	5.04	5.04	5.04	0.40	1.80	± 13.1 %
5600	35.5	5.07	4.81	4.81	4.81	0.40	1.80	± 13.1 %
5800	35.3	5.27	4.90	4.90	4.90	0.40	1.80	± 13.1 %

<sup>C</sup> Frequency validity above 300 MHz of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ± 10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Above 5 GHz frequency validity can be extended to ± 110 MHz.

<sup>F</sup> At frequencies below 3 GHz, the validity of tissue parameters ( $\epsilon$  and  $\sigma$ ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters ( $\epsilon$  and  $\sigma$ ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

<sup>G</sup> Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ± 1% for frequencies below 3 GHz and below ± 2% for frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

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EX3DV4- SN:7351

December 21, 2017

## DASY/EASY - Parameters of Probe: EX3DV4 - SN:7351

### Calibration Parameter Determined in Body Tissue Simulating Media

f (MHz) <sup>c</sup>	Relative Permittivity <sup>f</sup>	Conductivity (S/m) <sup>f</sup>	ConvF X	ConvF Y	ConvF Z	Alpha <sup>g</sup>	Depth (mm) <sup>g</sup>	Unc (k=2)
750	55.5	0.96	10.81	10.81	10.81	0.40	0.91	± 12.0 %
835	55.2	0.97	10.39	10.39	10.39	0.47	0.87	± 12.0 %
900	55.0	1.05	10.18	10.18	10.18	0.48	0.85	± 12.0 %
1750	53.4	1.49	8.58	8.58	8.58	0.37	0.85	± 12.0 %
1900	53.3	1.52	8.22	8.22	8.22	0.43	0.80	± 12.0 %
2000	53.3	1.52	8.40	8.40	8.40	0.31	0.99	± 12.0 %
2300	52.9	1.81	7.98	7.98	7.98	0.40	0.87	± 12.0 %
2450	52.7	1.95	7.82	7.82	7.82	0.37	0.88	± 12.0 %
2600	52.5	2.16	7.56	7.56	7.56	0.32	0.93	± 12.0 %
5200	49.0	5.30	4.60	4.60	4.60	0.40	1.90	± 13.1 %
5300	48.9	5.42	4.56	4.56	4.56	0.40	1.90	± 13.1 %
5500	48.6	5.65	4.09	4.09	4.09	0.45	1.90	± 13.1 %
5600	48.5	5.77	3.98	3.98	3.98	0.45	1.90	± 13.1 %
5800	48.2	6.00	4.21	4.21	4.21	0.45	1.90	± 13.1 %

<sup>c</sup> Frequency validity above 300 MHz of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ± 10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Above 5 GHz frequency validity can be extended to ± 110 MHz.

<sup>f</sup> At frequencies below 3 GHz, the validity of tissue parameters ( $\epsilon$  and  $\sigma$ ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters ( $\epsilon$  and  $\sigma$ ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

<sup>g</sup> Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ± 1% for frequencies below 3 GHz and below ± 2% for frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

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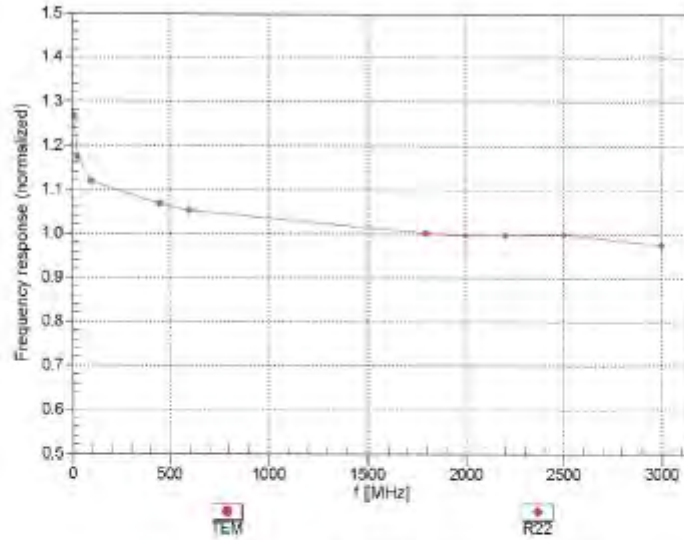
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EX0094- SN7351

December 21, 2017

## Frequency Response of E-Field (TEM-Cell: ifi110 EXX, Waveguide: R22)



Uncertainty of Frequency Response of E-field:  $\pm 6.3\%$  (k=2)

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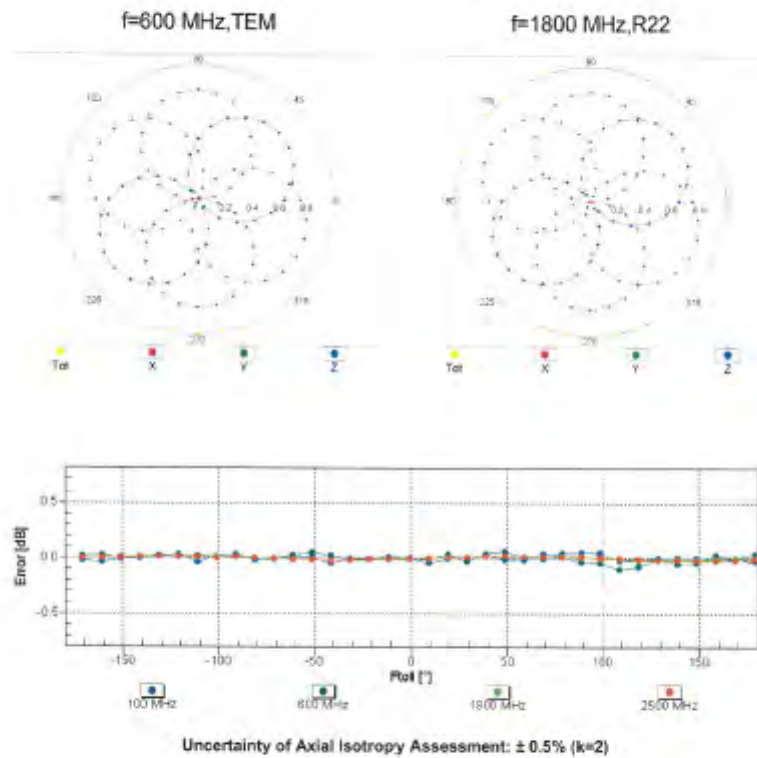
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EX3DV4-SN:7351

December 21, 2017

## Receiving Pattern ( $\phi$ ), $\theta = 0^\circ$



Uncertainty of Axial Isotropy Assessment:  $\pm 0.5\%$  ( $k=2$ )

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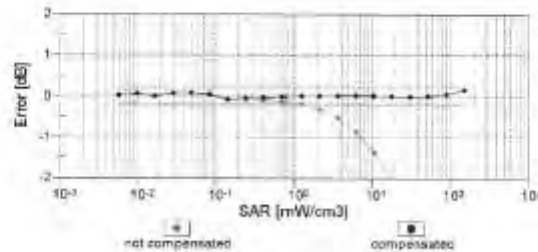
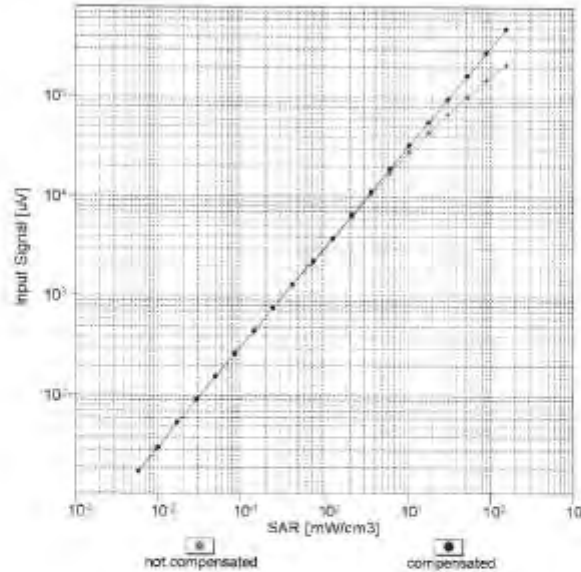
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December 21, 2017

### Dynamic Range f(SAR<sub>head</sub>) (TEM cell, f<sub>eval</sub> = 1900 MHz)



Uncertainty of Linearity Assessment: ± 0.6% (k=2)

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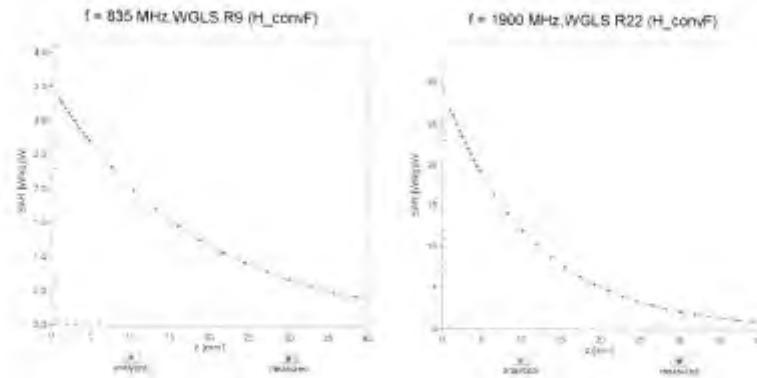
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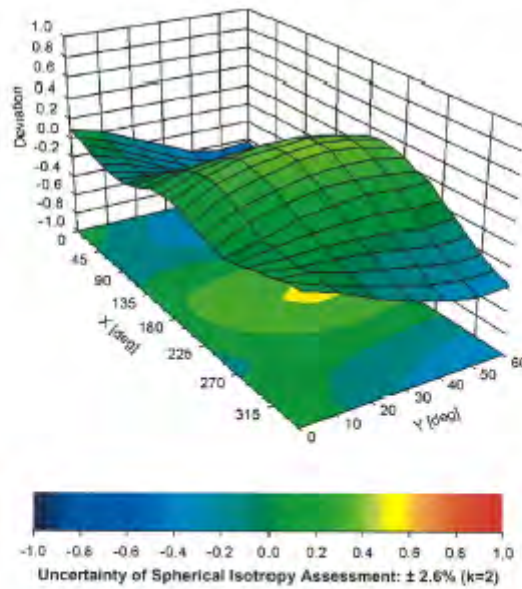
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December 21, 2017

### Conversion Factor Assessment



### Deviation from Isotropy in Liquid Error (θ, φ), f = 900 MHz



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EX3DV4- SN:7351

December 21, 2017

### DASY/EASY - Parameters of Probe: EX3DV4 - SN:7351

#### Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	88.6
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	9 mm
Tip Diameter	2.5 mm
Probe Tip to Sensor X Calibration Point	1 mm
Probe Tip to Sensor Y Calibration Point	1 mm
Probe Tip to Sensor Z Calibration Point	1 mm
Recommended Measurement Distance from Surface	1.4 mm

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**Calibration Laboratory of  
Schmid & Partner  
Engineering AG**  
Zeughausstrasse 43, 8004 Zurich, Switzerland



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**C** Service suisse d'étalonnage  
**S** Servizio svizzero di taratura  
**S** Swiss Calibration Service

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The Swiss Accreditation Service is one of the signatories to the EA  
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

Client **SGS-TW (Auden)**

Certificate No: **EX3-3831\_Jan18**

## CALIBRATION CERTIFICATE

Object: **EX3DV4 - SN:3831**

Calibration procedure(s): **QA CAL-01.v9, QA CAL-14.v4, QA CAL-23.v5, QA CAL-25.v8**  
Calibration procedure for dosimetric E-field probes

Calibration date: **January 23, 2018**

This calibration certificate documents the traceability to national standards, which realize the physical units of measurement (SI).  
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature ( $22 \pm 3$ )°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	04-Apr-17 (No. 217-02521/02522)	Apr-18
Power sensor NRP-Z91	SN: 103244	04-Apr-17 (No. 217-02521)	Apr-18
Power sensor NRP-Z91	SN: 103245	04-Apr-17 (No. 217-02525)	Apr-18
Reference 20 dB Attenuator	SN: S5277 (20x)	07-Apr-17 (No. 217-02528)	Apr-18
Reference Probe ES3DV2	SN: 3013	30-Dec-17 (No. ES3-3013_Dec17)	Dec-18
DAE4	SN: 660	21-Dec-17 (No. DAE4-660_Dec17)	Dec-18
Secondary Standards	ID	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: GB41293874	06-Apr-16 (in house check Jun-16)	in house check: Jun-18
Power sensor E4412A	SN: MY41499087	06-Apr-16 (in house check Jun-16)	in house check: Jun-18
Power sensor E4412A	SN: 000110210	06-Apr-16 (in house check Jun-16)	in house check: Jun-18
RF generator HP 85940C	SN: US3642U01790	04-Aug-99 (in house check Jun-16)	in house check: Jun-18
Network Analyzer HP 8759E	SN: US37300585	18-Dec-01 (in house check Dec-17)	in house check: Dec-18

Calibrated by:	Name	Function	Signature
	Michael Weller	Laboratory Technician	
Approved by:	Name	Technical Manager	Signature
	Kaja Pokovic		

Issued: January 25, 2018

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Certificate No: EX3-3831\_Jan18

Page 1 of 11

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Accreditation No.: **SCS 0108**

**Glossary:**

TSL	tissue simulating liquid
NORM <sub>x,y,z</sub>	sensitivity in free space
ConvF	sensitivity in TSL / NORM <sub>x,y,z</sub>
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A, B, C, D	modulation dependent linearization parameters
Polarization $\varphi$	$\varphi$ rotation around probe axis
Polarization $\theta$	$\theta$ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e. $\theta = 0$ is normal to probe axis
Connector Angle	Information used in DASY system to align probe sensor X to the robot coordinate system

**Calibration is Performed According to the Following Standards:**

- IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
- IEC 62209-1, "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
- IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
- KDS 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

**Methods Applied and Interpretation of Parameters:**

- NORM<sub>x,y,z</sub>**: Assessed for E-field polarization  $\theta = 0$  ( $f \leq 900$  MHz in TEM-cell;  $f > 1800$  MHz: R22 waveguide). NORM<sub>x,y,z</sub> are only intermediate values, i.e., the uncertainties of NORM<sub>x,y,z</sub> does not affect the E<sup>2</sup>-field uncertainty inside TSL (see below ConvF).
- NORM(f)<sub>x,y,z</sub>** = NORM<sub>x,y,z</sub> \* frequency\_response (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of ConvF.
- DCP<sub>x,y,z</sub>**: DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal (no uncertainty required). DCP does not depend on frequency nor media.
- PAR**: PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics
- A<sub>x,y,z</sub>; B<sub>x,y,z</sub>; C<sub>x,y,z</sub>; D<sub>x,y,z</sub>; VR<sub>x,y,z</sub>**: A, B, C, D are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. VR is the maximum calibration range expressed in RMS voltage across the diode.
- ConvF and Boundary Effect Parameters**: Assessed in flat phantom using E-field (or Temperature Transfer Standard for  $f \leq 800$  MHz) and inside waveguide using analytical field distributions based on power measurements for  $f > 800$  MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to NORM<sub>x,y,z</sub> \* ConvF whereby the uncertainty corresponds to that given for ConvF. A frequency dependent ConvF is used in DASY version 4.4 and higher which allows extending the validity from  $\pm 50$  MHz to  $\pm 100$  MHz.
- Spherical isotropy (3D deviation from isotropy)**: in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- Sensor Offset**: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.
- Connector Angle**: The angle is assessed using the information gained by determining the NORM<sub>x</sub> (no uncertainty required).

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EX3DV4 – SN:3831

January 23, 2018

# Probe EX3DV4

## SN:3831

Manufactured: September 6, 2011

Calibrated: January 23, 2018

Calibrated for DASY/EASY Systems

(Note: non-compatible with DASY2 systems!)

Certificate No: EX3-3831\_Jan18

Page 3 of 11

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EX3DV4 - SN:3831

January 23, 2018

### DASY/EASY - Parameters of Probe: EX3DV4 - SN:3831

#### Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm $(\mu V/(V/m)^2)^{1/2}$	0.43	0.41	0.42	$\pm 10.1\%$
DCP $(mV)^{1/2}$	100.3	106.6	101.4	

#### Modulation Calibration Parameters

UID	Communication System Name		A	B	C	D	VR	Unc <sup>c</sup>
			dB	dB $\sqrt{\mu V}$		dB	mV	(k=2)
D	CW	X	0.0	0.0	1.0	0.00	175.5	$\pm 3.5\%$
		Y	0.0	0.0	1.0		196.9	
		Z	0.0	0.0	1.0		196.8	

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

<sup>a</sup> The uncertainties of Norm X,Y,Z do not affect the E<sup>2</sup>-field uncertainty inside TSL (see Pages 5 and 6).

<sup>b</sup> Numerical linearization parameter: uncertainty not required.

<sup>c</sup> Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

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EX3DV4- SN:3831

January 23, 2018

## DASY/EASY - Parameters of Probe: EX3DV4 - SN:3831

### Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) <sup>1</sup>	Relative Permittivity <sup>2</sup>	Conductivity (S/m) <sup>2</sup>	ConvF X	ConvF Y	ConvF Z	Alpha <sup>3</sup>	Depth (mm)	Unc (k=2)
750	41.9	0.89	9.55	9.55	9.55	0.32	1.00	± 12.0 %
835	41.5	0.90	9.10	9.10	9.10	0.29	1.04	± 12.0 %
900	41.5	0.97	9.00	9.00	9.00	0.40	0.85	± 12.0 %
1750	40.1	1.37	8.09	8.09	8.09	0.37	0.80	± 12.0 %
1900	40.0	1.40	7.78	7.78	7.78	0.34	0.84	± 12.0 %
2000	40.0	1.40	7.79	7.79	7.79	0.27	0.84	± 12.0 %
2300	39.5	1.67	7.50	7.50	7.50	0.32	0.80	± 12.0 %
2450	39.2	1.80	7.16	7.16	7.16	0.38	0.84	± 12.0 %
2600	39.0	1.95	6.95	6.95	6.95	0.38	0.82	± 12.0 %
3500	37.9	2.91	6.64	6.64	6.64	0.30	1.20	± 13.1 %
5200	36.0	4.66	4.86	4.86	4.86	0.35	1.60	± 13.1 %
5300	35.9	4.76	4.65	4.65	4.65	0.35	1.80	± 13.1 %
5600	35.5	5.07	4.49	4.49	4.49	0.40	1.80	± 13.1 %
5800	35.3	5.27	4.50	4.50	4.50	0.40	1.80	± 13.1 %

<sup>1</sup> Frequency validity above 300 MHz of ± 100 MHz only applies for DASY v4 4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ± 10, 25, 40, 60 and 70 MHz for ConvF assessments at 30, 64, 125, 150 and 200 MHz respectively. Above 5 GHz frequency validity can be extended to ± 110 MHz.

<sup>2</sup> At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

<sup>3</sup> Alpha/Depth are determined during calibration. SPEAG asserts that the remaining deviation due to the boundary effect after compensation is always less than ± 1% for frequencies below 3 GHz and below ± 2% for frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

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EX3DV4- SN:3831

January 23, 2018

**DASY/EASY - Parameters of Probe: EX3DV4 - SN:3831**
**Calibration Parameter Determined in Body Tissue Simulating Media**

f (MHz) <sup>c</sup>	Relative Permittivity <sup>f</sup>	Conductivity (S/m) <sup>f</sup>	ConvF X	ConvF Y	ConvF Z	Alpha <sup>g</sup>	Depth (mm) <sup>h</sup>	Unc (k=2)
750	55.5	0.96	9.39	9.39	9.39	0.34	1.00	± 12.0 %
835	55.2	0.97	9.18	9.18	9.18	0.39	0.85	± 12.0 %
900	55.0	1.05	9.13	9.13	9.13	0.32	0.96	± 12.0 %
1750	53.4	1.49	7.65	7.65	7.65	0.32	0.85	± 12.0 %
1900	53.3	1.52	7.35	7.35	7.35	0.38	0.81	± 12.0 %
2000	53.3	1.52	7.51	7.51	7.51	0.36	0.80	± 12.0 %
2300	52.9	1.81	7.29	7.29	7.29	0.36	0.88	± 12.0 %
2450	52.7	1.95	7.26	7.26	7.26	0.34	0.88	± 12.0 %
2600	52.5	2.16	6.95	6.95	6.95	0.25	0.99	± 12.0 %
3500	51.3	3.31	6.60	6.60	6.60	0.30	1.20	± 13.1 %
5200	49.0	5.30	4.56	4.56	4.56	0.35	1.90	± 13.1 %
5300	48.9	5.42	4.39	4.39	4.39	0.35	1.90	± 13.1 %
5600	48.6	5.77	3.92	3.92	3.92	0.40	1.90	± 13.1 %
5600	48.2	6.00	4.17	4.17	4.17	0.40	1.90	± 13.1 %

<sup>c</sup> Frequency validity above 300 MHz of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2); else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ± 10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Above 5 GHz frequency validity can be extended to ± 110 MHz.

<sup>f</sup> At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

<sup>g</sup> Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ± 1% for frequencies below 3 GHz and below ± 2% for frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

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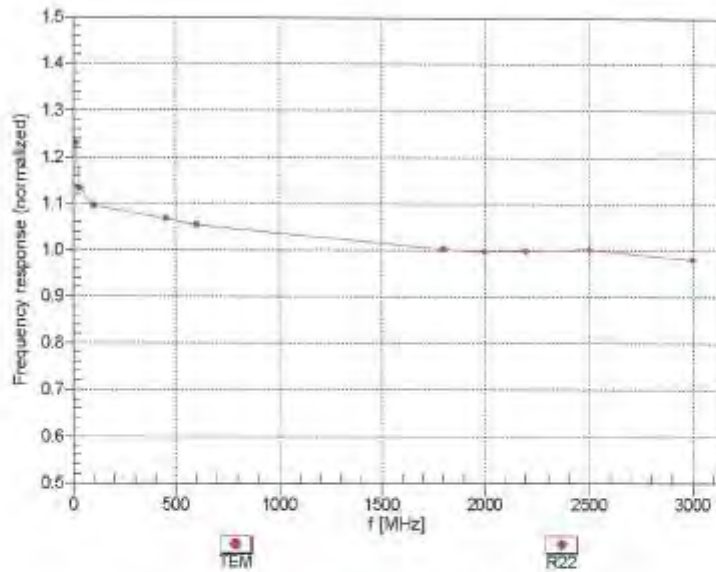
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EX3DV4- SN:3831

January 23, 2018

## Frequency Response of E-Field (TEM-Cell:ifl110 EXX, Waveguide: R22)



Uncertainty of Frequency Response of E-field:  $\pm 6.3\%$  ( $k=2$ )

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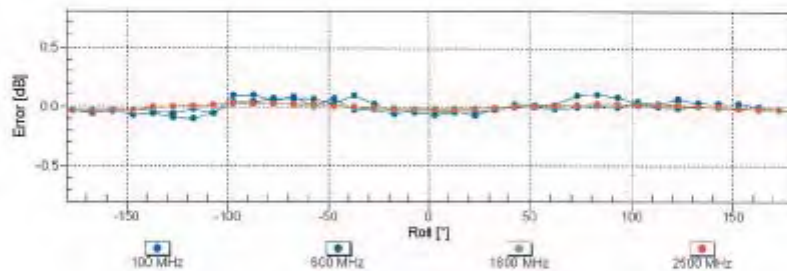
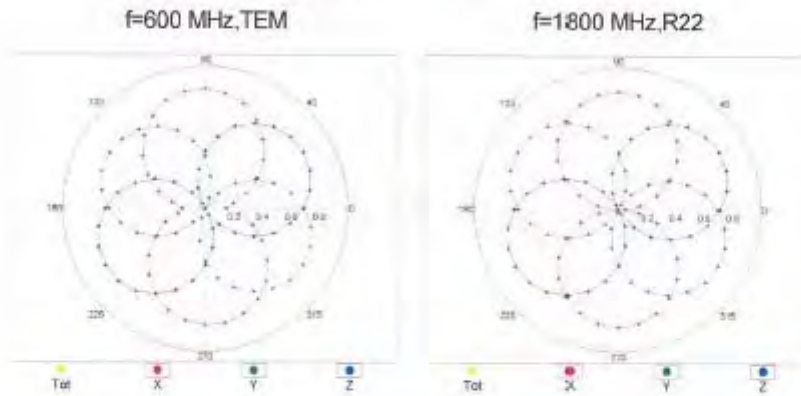
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EX3DV4- SN:3831

January 23, 2018

## Receiving Pattern ( $\phi$ ), $\theta = 0^\circ$



Uncertainty of Axial Isotropy Assessment:  $\pm 0.5\%$  ( $k=2$ )

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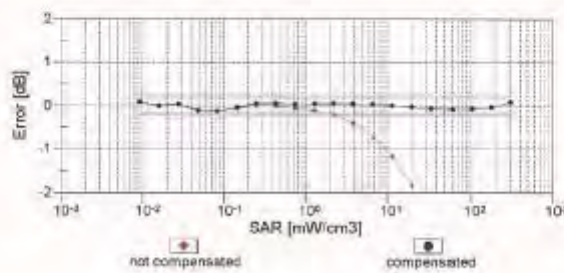
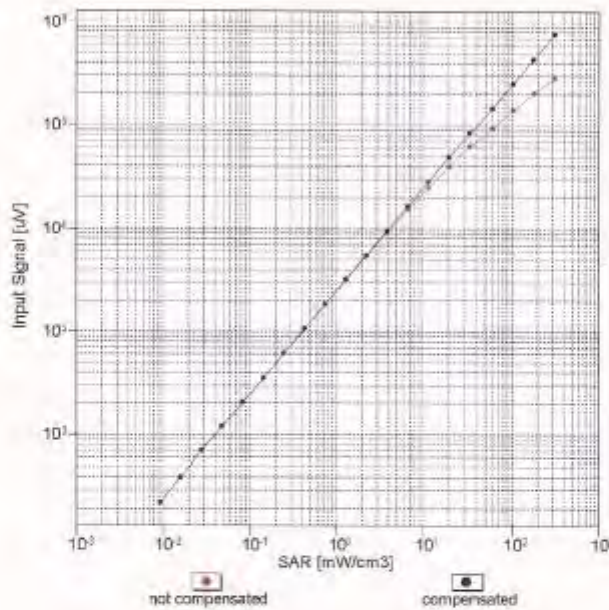
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EX30V4-SN:3831

January 23, 2018

### Dynamic Range $f(\text{SAR}_{\text{head}})$ (TEM cell, $f_{\text{eval}} = 1900 \text{ MHz}$ )



Uncertainty of Linearity Assessment:  $\pm 0.6\%$  (k=2)

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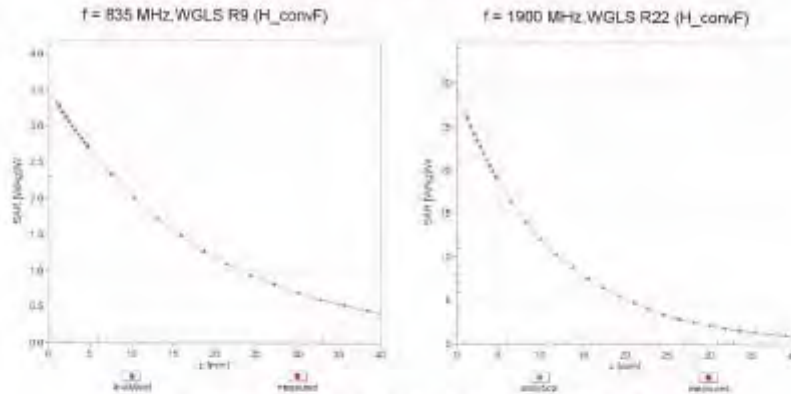
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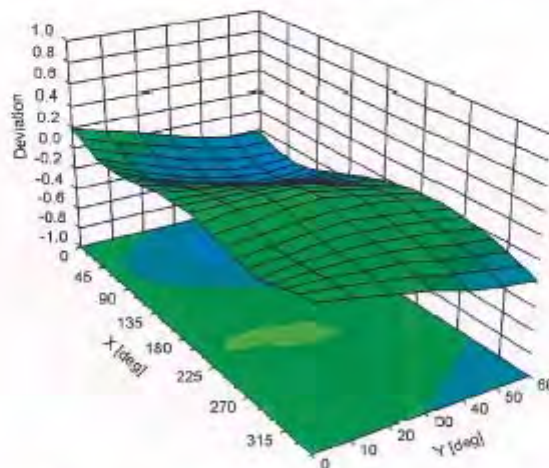
EX3DV4- SN:3831

January 23, 2018

## Conversion Factor Assessment



## Deviation from Isotropy in Liquid Error ( $\phi$ , $\theta$ ), f = 900 MHz



Certificate No: EX3-3831\_Jan18

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EX3DV4- SN:3831

January 23, 2018

### DASY/EASY - Parameters of Probe: EX3DV4 - SN:3831

#### Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	-17.1
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	9 mm
Tip Diameter	2.5 mm
Probe Tip to Sensor X Calibration Point	1 mm
Probe Tip to Sensor Y Calibration Point	1 mm
Probe Tip to Sensor Z Calibration Point	1 mm
Recommended Measurement Distance from Surface	1.4 mm

Certificate No: EX3-3831\_Jan18

Page 11 of 11

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## 8. Uncertainty Budget

Measurement Uncertainty evaluation template for DUT SAR test (3-6G)

A	c	D	e		f	g	h=c * f / e	i=c * g / e	k
Source of Uncertainty	Tolerance/ Uncertainty	Probability Distributio	Div	Div Value	ci (1g)	ci (10g)	Standard uncertainty	Standard uncertainty	vi, or Veff
<b>Measurement system</b>									
Probe calibration	6.55%	N	1	1	1	1	6.55%	6.55%	∞
<i>Isotropy, Axial</i>	3.50%	R	√3	1.732	1	1	2.02%	2.02%	∞
<i>Isotropy, Hemispherical</i>	9.60%	R	√3	1.732	1	1	5.54%	5.54%	∞
Modulation Response	2.40%	R	√3	1.732	1	1	1.40%	1.40%	∞
Boundary Effect	1.00%	R	√3	1.732	1	1	0.58%	0.58%	∞
Linearity	4.70%	R	√3	1.732	1	1	2.71%	2.71%	∞
Detection Limits	1.00%	R	√3	1.732	1	1	0.58%	0.58%	∞
Readout Electronics	0.30%	N	1	1	1	1	0.30%	0.30%	∞
Response time	0.80%	R	√3	1.732	1	1	0.46%	0.46%	∞
Integration Time	2.60%	R	√3	1.732	1	1	1.50%	1.50%	∞
<b>Measurement drift (class A evaluation)</b>									
RF ambient condition - noise	3.00%	R	√3	1.732	1	1	1.73%	1.73%	∞
RF ambient conditions - reflections	3.00%	R	√3	1.732	1	1	1.73%	1.73%	∞
Probe positioner Mechanical restrictions	0.40%	R	√3	1.732	1	1	0.23%	0.23%	∞
Probe Positioning with respect to phantom shell	2.90%	R	√3	1.732	1	1	1.67%	1.67%	∞
Post-processing	1.00%	R	√3	1.732	1	1	0.58%	0.58%	∞
Max SAR Eval	1.00%	R	√3	1.732	1	1	0.58%	0.58%	∞
<b>Test Sample related</b>									
Test sample positioning	2.90%	N	1	1	1	1	2.90%	2.90%	M-1
Device Holder Uncertainty	3.60%	N	1	1	1	1	3.60%	3.60%	M-1
Drift of output power	5.00%	R	√3	1.732	1	1	2.89%	2.89%	∞
<b>Phantom and Setup</b>									
Phantom Uncertainty	4.00%	R	√3	1.732	1	1	2.31%	2.31%	∞
Liquid permittivity (mea.)	1.32%	N	1	1	0.64	0.43	0.84%	0.57%	M
Liquid Conductivity (mea.)	1.01%	N	1	1	0.6	0.49	0.61%	0.49%	M
Combined standard uncertainty		RSS					11.76%	11.73%	
Expan uncertainty (95% confidence interval), K=2							23.52%	23.46%	

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Measurement Uncertainty evaluation template for DUT SAR test (0.3-3G)

A	c	D	e		f	g	h=c * f / e	i=c * g / e	k
Source of Uncertainty	Tolerance/ Uncertainty	Probability Distributio	Div	Div Value	ci (1g)	ci (10g)	Standard uncertainty	Standard uncertainty	vi, or Veff
<b>Measurement system</b>									
Probe calibration	6.00%	N	1	1	1	1	6.00%	6.00%	∞
<i>Isotropy , Axial</i>	3.50%	R	√3	1.732	1	1	2.02%	2.02%	∞
<i>Isotropy, Hemispherical</i>	9.60%	R	√3	1.732	1	1	5.54%	5.54%	∞
Modulation Response	2.40%	R	√3	1.732	1	1	1.40%	1.40%	∞
Boundary Effect	1.00%	R	√3	1.732	1	1	0.58%	0.58%	∞
Linearity	4.70%	R	√3	1.732	1	1	2.71%	2.71%	∞
Detection Limits	1.00%	R	√3	1.732	1	1	0.58%	0.58%	∞
Readout Electronics	0.30%	N	1	1	1	1	0.30%	0.30%	∞
Response time	0.80%	R	√3	1.732	1	1	0.46%	0.46%	∞
Integration Time	2.60%	R	√3	1.732	1	1	1.50%	1.50%	∞
<b>Measurement drift (class A evaluation)</b>	1.75%	R	√3	1.732	1	1	1.01%	1.01%	∞
RF ambient condition - noise	3.00%	R	√3	1.732	1	1	1.73%	1.73%	∞
RF ambient conditions - reflections	3.00%	R	√3	1.732	1	1	1.73%	1.73%	∞
Probe positioner Mechanical restrictions	0.40%	R	√3	1.732	1	1	0.23%	0.23%	∞
Probe Positioning with respect to phantom shell	2.90%	R	√3	1.732	1	1	1.67%	1.67%	∞
Post-processing	1.00%	R	√3	1.732	1	1	0.58%	0.58%	∞
Max SAR Eval	1.00%	R	√3	1.732	1	1	0.58%	0.58%	∞
<b>Test Sample related</b>									
Test sample positioning	2.90%	N	1	1	1	1	2.90%	2.90%	M-1
Device Holder Uncertainty	3.60%	N	1	1	1	1	3.60%	3.60%	M-1
Drift of output power	5.00%	R	√3	1.732	1	1	2.89%	2.89%	∞
<b>Phantom and Setup</b>									
Phantom Uncertainty	4.00%	R	√3	1.732	1	1	2.31%	2.31%	∞
Liquid permittivity (mea.)	4.55%	N	1	1	0.64	0.43	2.91%	1.96%	M
Liquid Conductivity (mea.)	3.98%	N	1	1	0.6	0.49	2.39%	1.95%	M
Combined standard uncertainty		RSS					12.02%	11.74%	
Expant uncertainty (95% confidence interval), K=2							24.05%	23.48%	

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## 9.Phantom Description

Schmid & Partner Engineering AG

**s p e a g**

Zeughausstrasse 43, 8004 Zurich, Switzerland  
 Phone +41 44 245 9700, Fax +41 44 245 9779  
 info@speg.com, http://www.speg.com

### Certificate of Conformity / First Article Inspection

Item	Oval Flat Phantom ELI 5.0
Type No	QD OVA 002 A
Series No	1108 and higher
Manufacturer	Untersee Composites Knebelstrasse 8, CH-8268 Mannenbach, Switzerland

#### Tests

Complete tests were made on the prototype units QD OVA 001 A, pre-series units QD OVA 001 B as well as on some series units QD OVA 001 B. Some tests are made on all series units QD OVA 002 A.

Test	Requirement	Details	Units tested
Shape	Internal dimensions, depth and sagging are compatible with standards	Bottom elliptical 600 x 400 mm, Depth 190 mm, dimension compliant with [1] for f > 375 MHz	Prototypes
Material thickness	Bottom: 2.0mm +/- 0.2mm	dimension compliant with [3] for f > 800 MHz	all
Material parameters	rel. permittivity 2 – 5, loss tangent ≤ 0.05, at f ≤ 6 GHz	rel. permittivity 3.5 +/- 0.5 loss tangent ≤ 0.05	Material samples
Material resistivity	Compatibility with tissue simulating liquids .	Compatible with SPEAG liquids. **	Phantoms, Material sample
Sagging	Sagging of the flat section in tolerance when filled with tissue simulating liquid.	within tolerance for filling height up to 155 mm	Prototypes, samples

\*\* Note: Compatibility restrictions apply certain liquid components mentioned in the standard, containing e.g. DGBE, DGMHE or Triton X-100. Observe technical note on material compatibility.

#### Standards

- [1] OET Bulletin 65, Supplement C, "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields", Edition 01-01
- [2] IEEE 1528-2003, "Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques, December 2003
- [3] IEC 62209-1 ed1.0, "Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices - Human models, instrumentation, and procedures - Part 1: Procedure to determine the specific absorption rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", 2005-02-18
- [4] IEC 62209-2 ed1.0, "Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices - Human models, instrumentation, and procedures - Part 2: Procedure to determine the specific absorption rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", 2010-03-30

#### Conformity

Based on the sample tests above, we certify that this item is in compliance with the uncertainty requirements of body-worn SAR measurements and system performance checks as specified in [1 – 4] and further standards.

Date 25.7.2011

Signature / Stamp

**s p e a g**

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 Zeughausstrasse 43, 8004 Zurich, Switzerland  
 Phone +41 44 245 9700, Fax +41 44 245 9779  
 info@speg.com, http://www.speg.com

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## 10. System Validation from Original Equipment Supplier

**Calibration Laboratory of Schmid & Partner Engineering AG**  
Zeughausstrasse 43, 8004 Zurich, Switzerland




S Schweizerischer Kalibrierdienst  
C Service suisse d'étalonnage  
S Servizio svizzero di taratura  
S Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)  
The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates.

Accreditation No.: SCS 0108

Client: **Auden** Certificate No.: **D750V3-1078\_Jun18**

CALIBRATION CERTIFICATE			
Object	D750V3 - SN:1078		
Calibration procedure(s)	QA CAL-05.v10 Calibration procedure for dipole validation kits above 700 MHz		
Calibration date(s)	June 20, 2018		
This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI). The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.			
All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.			
Calibration Equipment used (M8TE critical for calibration)			
Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	04-Apr-18 (No. 217-02672/09673)	Apr-18
Power sensor NRP-Z91	SN: 103244	04-Apr-18 (No. 217-02672)	Apr-18
Power sensor NRP-Z91	SN: 103245	04-Apr-18 (No. 217-02673)	Apr-18
Reference 20 dB Attenuator	SN: 5058 (20k)	04-Apr-18 (No. 217-02682)	Apr-18
Type-N mismatch combination	SN: 5047.2 / 06327	04-Apr-18 (No. 217-02683)	Apr-18
Reference Probe EX3DV4	SN: 7349	30-Dec-17 (No. EX3-7349_Dec17)	Dec-18
DAE4	SN: 601	26-Oct-17 (No. DAE4-601_Oct17)	Oct-18
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter EPM-442A	SN: GB37480704	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
Power sensor HP 9481A	SN: US37292783	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
Power sensor HP 9481A	SN: MY41092317	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
RF generator R&S SMT-05	SN: 100972	15-Jun-15 (in house check Oct-16)	In house check: Oct-18
Network Analyzer HP 8753E	SN: US37386585	16-Oct-01 (in house check Oct-17)	In house check: Oct-18
Calibrated by:	Name: <b>Claudio Leubin</b>	Function: <b>Laboratory Technician</b>	
Approved by:	Name: <b>Krista Pokovic</b>	Function: <b>Technical Manager</b>	
This calibration certificate shall not be reproduced except in full without written approval of the laboratory.			Issued: June 21, 2018

Certificate No. D750V3-1078\_Jun18

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**Calibration Laboratory of**  
**Schmid & Partner**  
**Engineering AG**  
 Zeughausstrasse 43, 8904 Zurich, Switzerland



**S** Schweizerischer Kalibrierdienst  
**C** Service suisse d'étalonnage  
**S** Servizio svizzero di taratura  
**S** Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)  
 The Swiss Accreditation Service is one of the signatories to the EA  
 Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

**Glossary:**

TSL tissue simulating liquid  
 ConvF sensitivity in TSL / NORM x,y,z  
 N/A not applicable or not measured

**Calibration is Performed According to the Following Standards:**

- IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
- IEC 62209-1, "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
- IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
- KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

**Additional Documentation:**

- DASY4/5 System Handbook

**Methods Applied and Interpretation of Parameters:**

- Measurement Conditions:** Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL:** The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- Feed Point Impedance and Return Loss:** These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- Electrical Delay:** One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- SAR measured:** SAR measured at the stated antenna input power.
- SAR normalized:** SAR as measured, normalized to an input power of 1 W at the antenna connector.
- SAR for nominal TSL parameters:** The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor  $k=2$ , which for a normal distribution corresponds to a coverage probability of approximately 95%.

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**Measurement Conditions**

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.10.1
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	15 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	750 MHz ± 1 MHz	

**Head TSL parameters**

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	41.9	0.89 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	40.9 ± 6 %	0.90 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

**SAR result with Head TSL**

SAR averaged over 1 cm <sup>3</sup> (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.09 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	<b>8.25 W/kg ± 17.0 % (k=2)</b>

SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.36 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	<b>5.38 W/kg ± 16.5 % (k=2)</b>

**Body TSL parameters**

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	55.5	0.96 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	55.2 ± 6 %	0.96 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

**SAR result with Body TSL**

SAR averaged over 1 cm <sup>3</sup> (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	2.16 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	<b>8.63 W/kg ± 17.0 % (k=2)</b>

SAR averaged over 10 cm <sup>3</sup> (10 g) of Body TSL	condition	
SAR measured	250 mW input power	1.43 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	<b>5.72 W/kg ± 16.5 % (k=2)</b>

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**Appendix (Additional assessments outside the scope of SCS 0108)**
**Antenna Parameters with Head TSL**

Impedance, transformed to feed point	55.8 $\Omega$ + 0.8 j $\Omega$
Return Loss	- 25.3 dB

**Antenna Parameters with Body TSL**

Impedance, transformed to feed point	50.5 $\Omega$ - 3.3 j $\Omega$
Return Loss	- 29.5 dB

**General Antenna Parameters and Design**

Electrical Delay (one direction)	1.036 ns
----------------------------------	----------

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

**Additional EUT Data**

Manufactured by	SPEAG
Manufactured on	November 15, 2012

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## DASY5 Validation Report for Head TSL

Date: 14.06.2018

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 750 MHz; Type: D750V3; Serial: D750V3 - SN:1078**

Communication System: UID 0 - CW; Frequency: 750 MHz

Medium parameters used:  $f = 750 \text{ MHz}$ ;  $\sigma = 0.9 \text{ S/m}$ ;  $\epsilon_r = 40.9$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EK3DV4 - SN7349; ConvF(10.22, 10.22, 10.22) @ 750 MHz; Calibrated: 30.12.2017
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 26.10.2017
- Phantom; Flat Phantom 4.9 (front); Type: QD 00L P49 AA; Serial: 1001
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

### Dipole Calibration for Head Tissue/Pin=250 mW, d=15mm/Zoom Scan (7x7x7)/Cube 0:

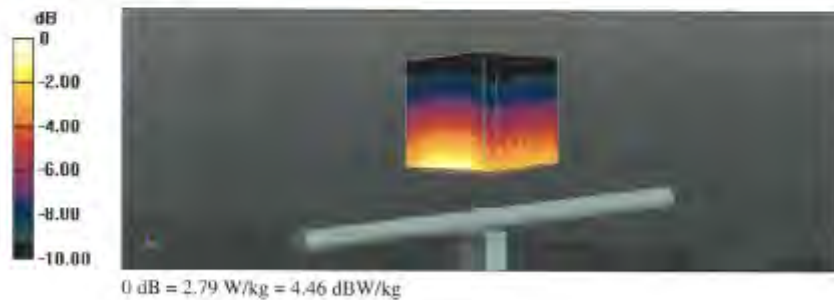
Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 59.18 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 3.13 W/kg

**SAR(1 g) = 2.09 W/kg; SAR(10 g) = 1.36 W/kg**

Maximum value of SAR (measured) = 2.79 W/kg



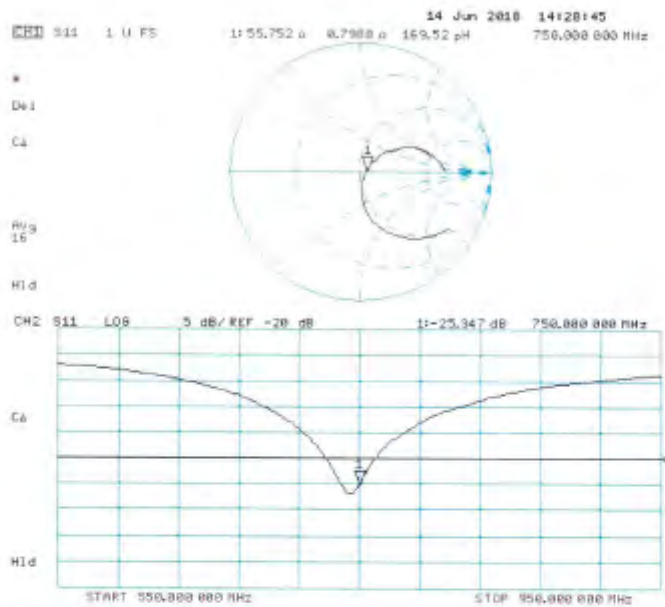
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### Impedance Measurement Plot for Head TSL



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**DASY5 Validation Report for Body TSL**

Date: 20.06.2018

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 750 MHz; Type: D750V3; Serial: D750V3 - SN:1078**

Communication System: UID 0 - CW; Frequency: 750 MHz  
 Medium parameters used:  $f = 750 \text{ MHz}$ ;  $\sigma = 0.96 \text{ S/m}$ ;  $\epsilon_r = 55.2$ ;  $\rho = 1000 \text{ kg/m}^3$   
 Phantom section: Flat Section  
 Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

**DASY52 Configuration:**

- Probe: EX3DV4 - SN7349; ConvF(10.19, 10.19, 10.19) @ 750 MHz; Calibrated: 30.12.2017
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 26.10.2017
- Phantom: Flat Phantom 4.9 (Back); Type: QD 00R P49 AA; Serial: 1005
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

**Dipole Calibration for Body Tissue/Pin=250 mW, d=15mm/Zoom Scan (7x7x7)/Cube 0:**

Measurement grid: dx=5mm, dy=5mm, dz=5mm  
 Reference Value = 57.54 V/m; Power Drift = -0.01 dB  
 Peak SAR (extrapolated) = 3.18 W/kg  
**SAR(1 g) = 2.16 W/kg; SAR(10 g) = 1.43 W/kg**  
 Maximum value of SAR (measured) = 2.85 W/kg

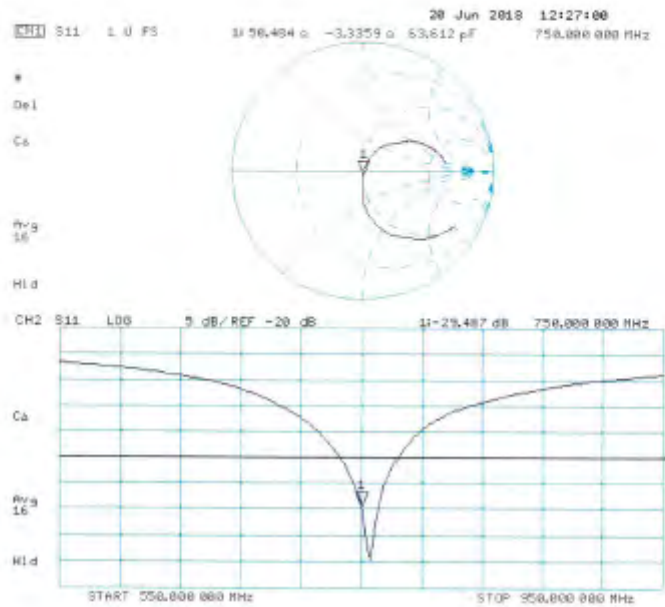


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### Impedance Measurement Plot for Body TSL



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Engineering AG**  
Zeughausstrasse 43, 8004 Zurich, Switzerland



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**C** Service suisse d'étalonnage  
**S** Servizio svizzero di taratura  
**S** Swiss Calibration Service

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Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

Client **Auden**

Certificate No: **D835V2-4d120\_Jun18**

## CALIBRATION CERTIFICATE

Object: **D835V2 - SN:4d120**

Calibration procedure(s): **QA CAL-05.v10  
Calibration procedure for dipole validation kits above 700 MHz**

Calibration date: **June 20, 2018**

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).  
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	04-Apr-18 (No. 217-02672/02673)	Apr-18
Power sensor NRP-Z91	SN: 103244	04-Apr-18 (No. 217-02672)	Apr-18
Power sensor NRP-Z91	SN: 103245	04-Apr-18 (No. 217-02673)	Apr-18
Reference 20 dB Attenuator	SN: 5058 (20x)	04-Apr-18 (No. 217-02682)	Apr-18
Type-N mismatch combination	SN: 5047.2 / 06327	04-Apr-18 (No. 217-02683)	Apr-18
Reference Probe EK3DV4-DAE4	SN: 7349	30-Dec-17 (No. EX3-7349_Dec17)	Dec-18
	SN: e01	26-Oct-17 (No. DAE4-601_Oct17)	Oct-18
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter EPM-442A	SN: GB37460704	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
Power sensor HP 8481A	SN: US37292783	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
Power sensor HP 8481A	SN: MY41092317	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
RF generator R&S SMY-08	SN: 100972	15-Jun-15 (in house check Oct-16)	In house check: Oct-18
Network Analyzer HP 8753E	SN: US37390585	18-Oct-01 (in house check Oct-17)	In house check: Oct-18

Calibrated by: **Claudio Leubler**      Name: **Claudio Leubler**      Function: **Laboratory Technician**

Approved by: **Kolja Pokovic**      Name: **Kolja Pokovic**      Function: **Technical Manager**

Signature

Issued: June 21, 2018

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.

Certificate No: D835V2-4d120\_Jun18

Page 1 of 5

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Accreditation No.: **SCS 0108**

**Glossary:**

TSL tissue simulating liquid  
ConvF sensitivity in TSL / NORM x,y,z  
N/A not applicable or not measured

**Calibration is Performed According to the Following Standards:**

- IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
- IEC 62209-1, "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
- IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
- KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

**Additional Documentation:**

- DASY4/5 System Handbook

**Methods Applied and Interpretation of Parameters:**

- Measurement Conditions:** Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL:** The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- Feed Point Impedance and Return Loss:** These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- Electrical Delay:** One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- SAR measured:** SAR measured at the stated antenna input power.
- SAR normalized:** SAR as measured, normalized to an input power of 1 W at the antenna connector.
- SAR for nominal TSL parameters:** The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor  $k=2$ , which for a normal distribution corresponds to a coverage probability of approximately 95%.

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### Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.10.1
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	15 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	835 MHz $\pm$ 1 MHz	

### Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	41.5	0.90 mho/m
Measured Head TSL parameters	(22.0 $\pm$ 0.2) °C	40.7 $\pm$ 6 %	0.93 mho/m $\pm$ 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

### SAR result with Head TSL

SAR averaged over 1 cm <sup>3</sup> (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.41 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	<b>9.37 W/kg <math>\pm</math> 17.0 % (k=2)</b>

SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.55 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	<b>6.06 W/kg <math>\pm</math> 16.5 % (k=2)</b>

### Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	55.2	0.97 mho/m
Measured Body TSL parameters	(22.0 $\pm$ 0.2) °C	55.0 $\pm$ 6 %	0.99 mho/m $\pm$ 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

### SAR result with Body TSL

SAR averaged over 1 cm <sup>3</sup> (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	2.46 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	<b>9.68 W/kg <math>\pm</math> 17.0 % (k=2)</b>

SAR averaged over 10 cm <sup>3</sup> (10 g) of Body TSL	condition	
SAR measured	250 mW input power	1.61 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	<b>6.36 W/kg <math>\pm</math> 16.5 % (k=2)</b>

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**Appendix (Additional assessments outside the scope of SCS 0108)**
**Antenna Parameters with Head TSL**

Impedance, transformed to feed point	51.5 $\Omega$ - 3.1 j $\Omega$
Return Loss	- 29.3 dB

**Antenna Parameters with Body TSL**

Impedance, transformed to feed point	48.3 $\Omega$ - 5.8 j $\Omega$
Return Loss	- 24.3 dB

**General Antenna Parameters and Design**

Electrical Delay (one direction)	1.396 ns
----------------------------------	----------

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

**Additional EUT Data**

Manufactured by	SPEAG
Manufactured on	June 29, 2010

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**DASY5 Validation Report for Head TSL**

Date: 20.06.2018

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:4d120**

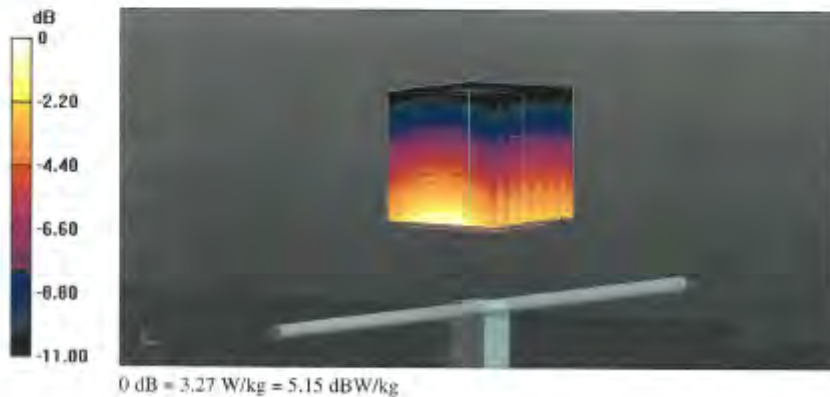
Communication System: UID 0 - CW; Frequency: 835 MHz  
 Medium parameters used:  $f = 835 \text{ MHz}$ ;  $\sigma = 0.93 \text{ S/m}$ ;  $v_r = 40.7$ ;  $\rho = 1000 \text{ kg/m}^3$   
 Phantom section: Flat Section  
 Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

**DASY52 Configuration:**

- Probe: EX3DV4 - SN7349; ConvF(9.9, 9.9, 9.9) @ 835 MHz; Calibrated: 30.12.2017
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 26.10.2017
- Phantom: Flat Phantom 4.9 (front); Type: QD 00L P49 AA; Serial: 1001
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

**Dipole Calibration for Head Tissue/Pin=250 mW, d=15mm/Zoom Scan (7x7x7)/Cube 0:**

Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$   
 Reference Value = 62.60 V/m; Power Drift = -0.02 dB  
 Peak SAR (extrapolated) = 3.71 W/kg  
**SAR(1 g) = 2.41 W/kg; SAR(10 g) = 1.55 W/kg**  
 Maximum value of SAR (measured) = 3.27 W/kg

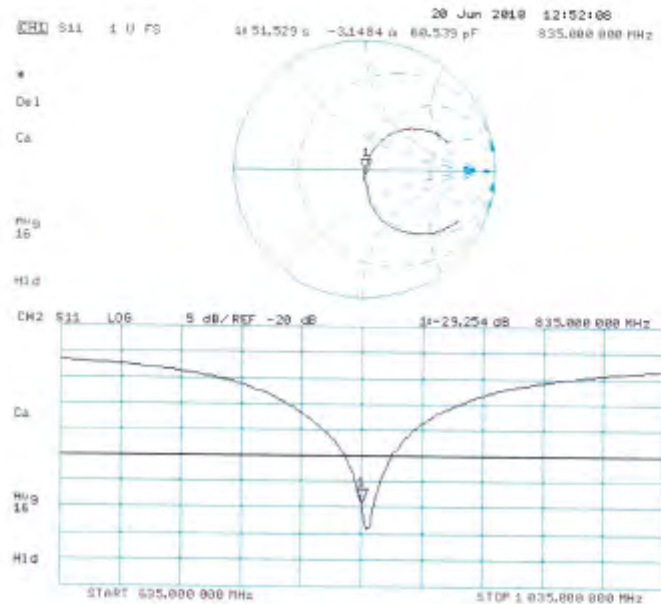


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### Impedance Measurement Plot for Head TSL



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## DASY5 Validation Report for Body TSL

Date: 20.06.2018

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:4d120**

Communication System: UID 0 - CW; Frequency: 835 MHz

Medium parameters used:  $f = 835$  MHz;  $\sigma = 0.99$  S/m;  $\epsilon_r = 55$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(10.05, 10.05, 10.05) @ 835 MHz; Calibrated: 30.12.2017
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 26.10.2017
- Phantom: Flat Phantom 4.9 (Back); Type: QD 00R P49 AA; Serial: 1005
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

### Dipole Calibration for Body Tissue/Pin=250 mW, d=15mm/Zoom Scan (7x7x7)/Cube 0:

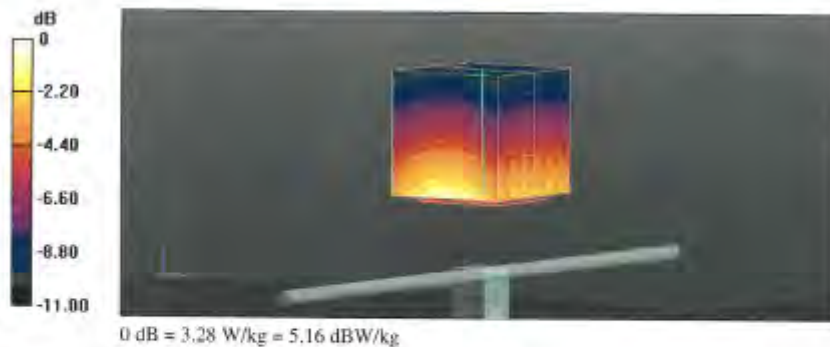
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 61.00 V/m, Power Drift = -0.02 dB

Peak SAR (extrapolated) = 3.66 W/kg

**SAR(1 g) = 2.46 W/kg; SAR(10 g) = 1.61 W/kg**

Maximum value of SAR (measured) = 3.28 W/kg

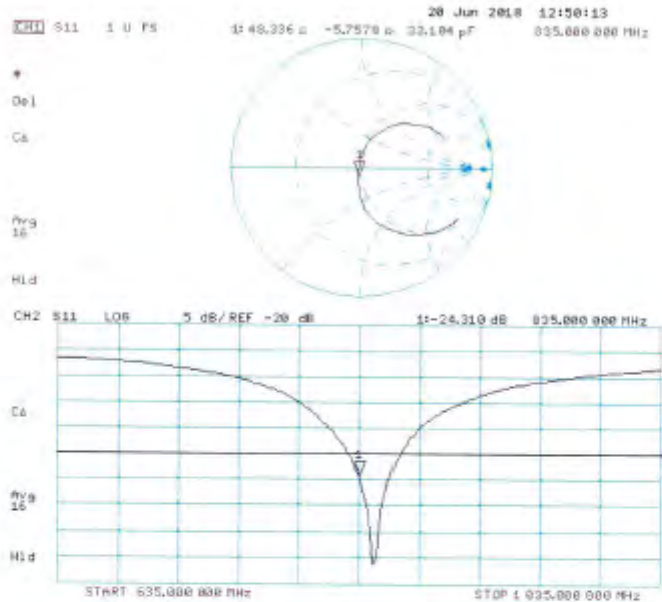


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### Impedance Measurement Plot for Body TSL



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**Calibration Laboratory of  
Schmid & Partner  
Engineering AG**  
Zeughausstrasse 43, 8004 Zurich, Switzerland



**S** Schweizerischer Kalibrierdienst  
**C** Service suisse d'étalonnage  
**S** Servizio svizzero di taratura  
**S** Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)  
The Swiss Accreditation Service is one of the signatories to the EA  
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

Client: **Auden**

Certificate No: **D1750V2-1023\_Jun18**

## CALIBRATION CERTIFICATE

Object: **D1750V2 - SN:1023**

Calibration procedure(s): **QA CAL-05.v10  
Calibration procedure for dipole validation kits above 700 MHz**

Calibration date: **June 11, 2018**

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI). The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility; environment temperature (22 ± 3) °C and humidity < 70%.

Calibration Equipment used (M&PE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	04-Apr-18 (No. 217-02673/02673)	Apr-19
Power sensor NRP-Z91	SN: 103244	04-Apr-18 (No. 217-02672)	Apr-19
Power sensor NRP-Z91	SN: 103245	04-Apr-18 (No. 217-02673)	Apr-19
Reference 20 dB Attenuator	SN: 5058 (20K)	04-Apr-18 (No. 217-02682)	Apr-19
Type-N mismatch combination	SN: 5047.2 / 06327	04-Apr-18 (No. 217-02683)	Apr-19
Reference Probe EX3DV4	SN: 7349	30-Dec-17 (No. EX3-7349_Dec17)	Dec-18
DAE4	SN: 601	26-Oct-17 (No. DAE4-601_Oct17)	Oct-18
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter EPM-442A	SN: GB37480704	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
Power sensor HP 8481A	SN: US37292763	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
Power sensor HP 8481A	SN: MY#1092317	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
RF generator R&S SMT-08	SN: 100872	15-Jun-15 (in house check Oct-16)	In house check: Oct-18
Network Analyzer HP 8753E	SN: US37390585	18-Oct-01 (in house check Oct-17)	In house check: Oct-18

Calibrated by: **Jelani Kastori** (Name) / **Laboratory Technician** (Function) / *[Signature]* (Signature)

Approved by: **Katja Pokovic** (Name) / **Technical Manager** (Function) / *[Signature]* (Signature)

Issued: **June 11, 2018**

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**Calibration Laboratory of  
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Zeughausstrasse 43, 8004 Zurich, Switzerland



**S** Schweizerischer Kalibrierdienst  
**C** Service suisse d'Etalonnage  
**S** Servizio svizzero di taratura  
**S** Swiss Calibration Service

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Multilateral Agreement for the recognition of calibration certificates.

Accreditation No.: **SCS 0108**

**Glossary:**

TSL tissue simulating liquid  
ConvF sensitivity in TSL / NORM x,y,z  
N/A not applicable or not measured

**Calibration is Performed According to the Following Standards:**

- a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
- b) IEC 62209-1, "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
- c) IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
- d) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

**Additional Documentation:**

- e) DASY4/5 System Handbook

**Methods Applied and Interpretation of Parameters:**

- **Measurement Conditions:** Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- **Antenna Parameters with TSL:** The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- **Feed Point Impedance and Return Loss:** These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- **Electrical Delay:** One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- **SAR measured:** SAR measured at the stated antenna input power.
- **SAR normalized:** SAR as measured, normalized to an input power of 1 W at the antenna connector.
- **SAR for nominal TSL parameters:** The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor  $k=2$ , which for a normal distribution corresponds to a coverage probability of approximately 95%.

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### Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.10.1
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	1750 MHz $\pm$ 1 MHz	

### Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	40.1	1.37 mho/m
Measured Head TSL parameters	(22.0 $\pm$ 0.2) °C	39.0 $\pm$ 6 %	1.36 mho/m $\pm$ 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

### SAR result with Head TSL

SAR averaged over 1 cm <sup>3</sup> (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	9.10 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	36.3 W/kg $\pm$ 17.0 % (k=2)

SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL	condition	
SAR measured	250 mW input power	4.82 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	19.3 W/kg $\pm$ 16.5 % (k=2)

### Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	53.4	1.49 mho/m
Measured Body TSL parameters	(22.0 $\pm$ 0.2) °C	53.6 $\pm$ 6 %	1.47 mho/m $\pm$ 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

### SAR result with Body TSL

SAR averaged over 1 cm <sup>3</sup> (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	9.12 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	36.8 W/kg $\pm$ 17.0 % (k=2)

SAR averaged over 10 cm <sup>3</sup> (10 g) of Body TSL	condition	
SAR measured	250 mW input power	4.90 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	19.7 W/kg $\pm$ 16.5 % (k=2)

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**Appendix (Additional assessments outside the scope of SCS 0108)**
**Antenna Parameters with Head TSL**

Impedance, transformed to feed point	51.0 $\Omega$ - 0.5 $\mu\Omega$
Return Loss	- 39.1 dB

**Antenna Parameters with Body TSL**

Impedance, transformed to feed point	46.0 $\Omega$ + 0.3 $\mu\Omega$
Return Loss	- 27.5 dB

**General Antenna Parameters and Design**

Electrical Delay (one direction)	1.217 ns
----------------------------------	----------

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

**Additional EUT Data**

Manufactured by	SPEAG
Manufactured on	August 20, 2009

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**DASY5 Validation Report for Head TSL**

Date: 11.06.2018

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 1750 MHz; Type: D1750V2; Serial: D1750V2 - SN:1023**

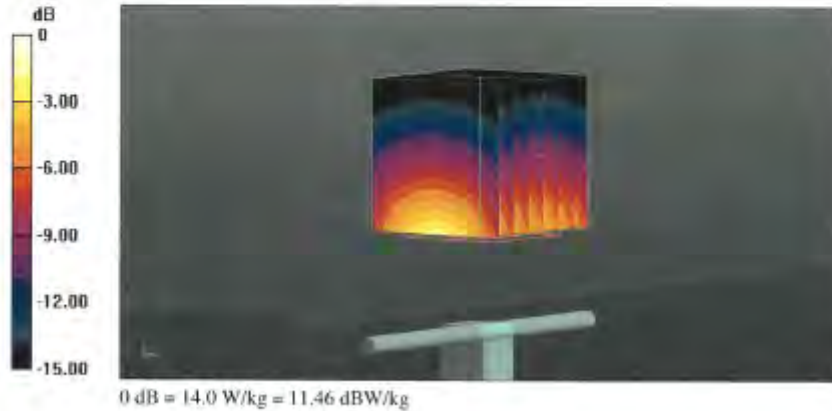
Communication System: UID 0 - CW; Frequency: 1750 MHz  
 Medium parameters used:  $f = 1750 \text{ MHz}$ ;  $\sigma = 1.36 \text{ S/m}$ ;  $\epsilon_r = 39$ ;  $\rho = 1000 \text{ kg/m}^3$   
 Phantom section: Flat Section  
 Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

**DASY52 Configuration:**

- Probe: EX3DV4 - SN7349; ConvF(8.5, 8.5, 8.5) @ 1750 MHz; Calibrated: 30.12.2017
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 26.10.2017
- Phantom: Flat Phantom 5.0 (front); Type: QD 000 P50 AA; Serial: 1001
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

**Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:**

Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$   
 Reference Value = 106.5 V/m; Power Drift = -0.05 dB  
 Peak SAR (extrapolated) = 16.5 W/kg  
**SAR(1 g) = 9.1 W/kg; SAR(10 g) = 4.82 W/kg**  
 Maximum value of SAR (measured) = 14.0 W/kg

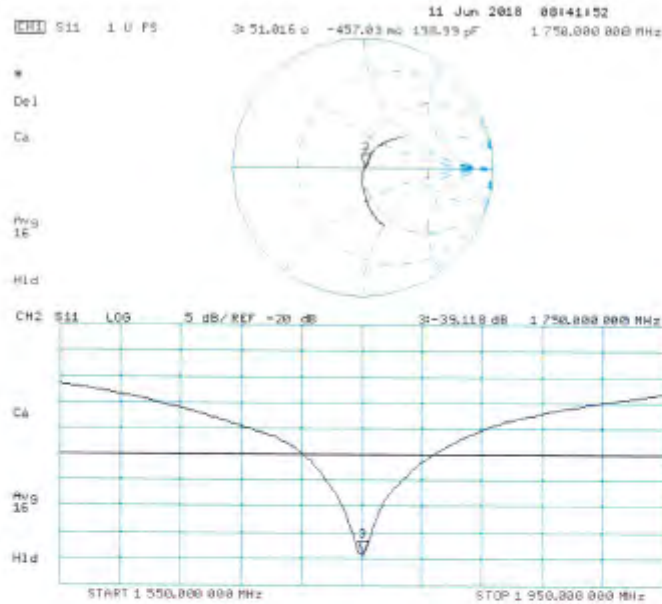


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### Impedance Measurement Plot for Head TSL



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**DASY5 Validation Report for Body TSL**

Date: 11.06.2018

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 1750 MHz; Type: D1750V2; Serial: D1750V2 - SN:1023**

Communication System: UID 0 - CW; Frequency: 1750 MHz

Medium parameters used:  $f = 1750$  MHz;  $\sigma = 1.47$  S/m;  $\epsilon_r = 53.6$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(8.35, 8.35, 8.35) @ 1750 MHz; Calibrated: 30.12.2017
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 26.10.2017
- Phantom: Flat Phantom 5.0 (back); Type: QD 000 P50 AA; Serial: 1002
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

**Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:**

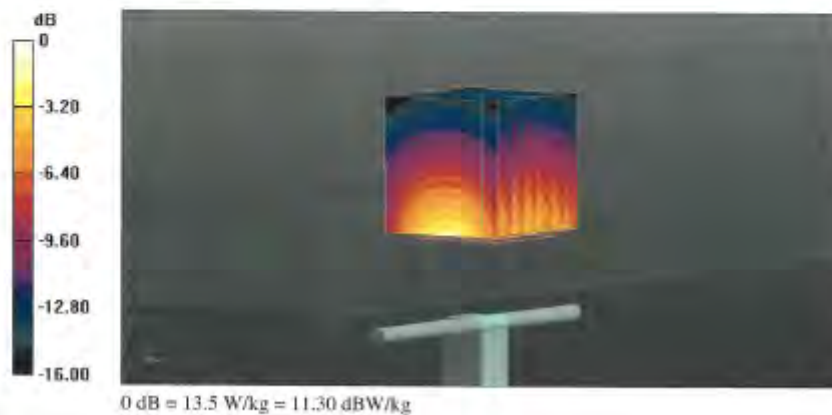
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 102.3 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 15.8 W/kg

**SAR(1 g) = 9.12 W/kg; SAR(10 g) = 4.9 W/kg**

Maximum value of SAR (measured) = 13.5 W/kg

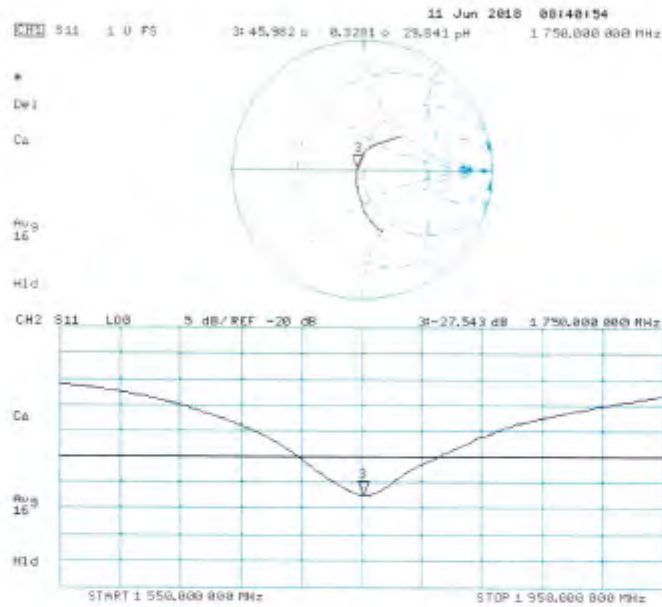


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### Impedance Measurement Plot for Body TSL



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**Calibration Laboratory of  
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Engineering AG**  
Zeughausstrasse 43, 8004 Zurich, Switzerland



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Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 0108

Client: **SGS-TW (Auden)**

Certificate No.: **D1900V2-5d173\_Apr18**

## CALIBRATION CERTIFICATE

Object: **D1900V2 - SN:5d173**

Calibration procedure(s): **QA CAL-05.v10  
Calibration procedure for dipole validation kits above 700 MHz**

Calibration date: **April 25, 2018**

This calibration certificate documents the traceability to national standards, which require the physical units of measurements (SI).  
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	04-Apr-18 (No. 217-02672/02673)	Apr-19
Power sensor NRP-Z91	SN: 103244	04-Apr-18 (No. 217-02672)	Apr-19
Power sensor NRP-Z91	SN: 103245	04-Apr-18 (No. 217-02673)	Apr-19
Reference 20 dB Attenuator	SN: 5058 (20k)	04-Apr-18 (No. 217-02682)	Apr-19
Type-N mismatch combination	SN: 5047.2 / 06927	04-Apr-18 (No. 217-02683)	Apr-19
Reference Probe EX3DV4	SN: 7349	30-Dec-17 (No. EXS-7349_Dec17)	Dec-18
DAE4	SN: 601	28-Oct-17 (No. DAE4-601_Oct17)	Oct-18
Secondary Standards	ID #	Check Date (In house)	Scheduled Check
Power meter EPM-442A	SN: GB37460704	07-Oct-15 (In house check Oct-16)	In house check: Oct-18
Power sensor HP 8481A	SN: US37292783	07-Oct-15 (In house check Oct-16)	In house check: Oct-18
Power sensor HP 8461A	SN: MY41092317	07-Oct-15 (In house check Oct-16)	In house check: Oct-18
RF generator P&S SMT-06	SN: 100972	15-Jun-15 (In house check Oct-16)	In house check: Oct-18
Network Analyzer HP 8733E	SN: US37390585	18-Oct-01 (In house check Oct-17)	In house check: Oct-18

Calibrated by: **Claudio Leubler** (Name) / **Laboratory Technician** (Function) / *[Signature]* (Signature)

Approved by: **Katja Pokovic** (Name) / **Technical Manager** (Function) / *[Signature]* (Signature)

Issued: April 25, 2018

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**Calibration Laboratory of  
Schmid & Partner  
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Zeughausstrasse 43, 8664 Zurich, Switzerland



**S** Schweizerischer Kalibrierdienst  
**C** Service suisse d'étalonnage  
**S** Servizio svizzero di taratura  
**S** Swiss Calibration Service

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Multilateral Agreement for the recognition of calibration certificates.

Accreditation No.: **SCS 0108**

**Glossary:**

TSL                    issue simulating liquid  
ConvF                sensitivity in TSL / NORM x,y,z  
N/A                   not applicable or not measured

**Calibration is Performed According to the Following Standards:**

- a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
- b) IEC 62209-1, "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
- c) IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
- d) KDB 885664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

**Additional Documentation:**

- e) DAS4/5 System Handbook

**Methods Applied and Interpretation of Parameters:**

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

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**Measurement Conditions**

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.10.0
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	1900 MHz ± 1 MHz	

**Head TSL parameters**

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	40.0	1.40 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	41.1 ± 6 %	1.35 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	---	---

**SAR result with Head TSL**

SAR averaged over 1 cm <sup>3</sup> (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	9.89 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	40.7 W/kg ± 17.0 % (k=2)

SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL	condition	
SAR measured	250 mW input power	5.21 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	21.2 W/kg ± 16.5 % (k=2)

**Body TSL parameters**

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	53.3	1.52 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	55.9 ± 6 %	1.47 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	---	---

**SAR result with Body TSL**

SAR averaged over 1 cm <sup>3</sup> (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	9.93 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	40.9 W/kg ± 17.0 % (k=2)

SAR averaged over 10 cm <sup>3</sup> (10 g) of Body TSL	condition	
SAR measured	250 mW input power	5.30 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	21.6 W/kg ± 16.5 % (k=2)

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**Appendix (Additional assessments outside the scope of SCS 0108)**
**Antenna Parameters with Head TSL**

Impedance, transformed to feed point	$51.4 \Omega + 5.1 j\Omega$
Return Loss	-25.6 dB

**Antenna Parameters with Body TSL**

Impedance, transformed to feed point	$47.3 \Omega + 7.2 j\Omega$
Return Loss	-22.1 dB

**General Antenna Parameters and Design**

Electrical Delay (one direction)	1.195 ns
----------------------------------	----------

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

**Additional EUT Data**

Manufactured by	SPEAG
Manufactured on	June 08, 2012

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**DASY5 Validation Report for Head TSL**

Date: 25.04.2018

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d173**

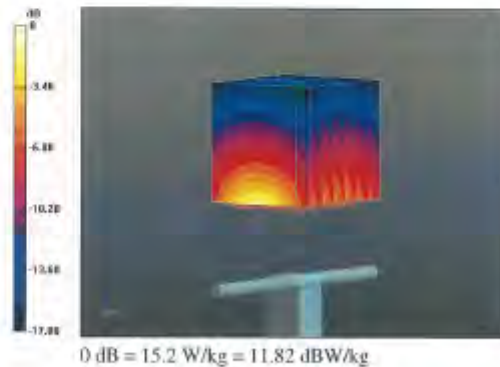
Communication System: UID 0 - CW; Frequency: 1900 MHz  
 Medium parameters used:  $f = 1900$  MHz;  $\sigma = 1.35$  S/m;  $\epsilon_r = 41.1$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
 Phantom section: Flat Section  
 Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

**DASY52 Configuration:**

- Probe: EX3DV4 - SN7349; ConvF(8.18, 8.18, 8.18); Calibrated: 30.12.2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 26.10.2017
- Phantom: Flat Phantom 5.0 (front); Type: QD 000 P50 AA; Serial: 1001
- DASY52 52.10.0(1446); SEMCAD X 14.6.10(7417)

**Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:**

Measurement grid: dx=5mm, dy=5mm, dz=5mm  
 Reference Value = 110.9 V/m; Power Drift = -0.01 dB  
 Peak SAR (extrapolated) = 18.3 W/kg  
**SAR(1 g) = 9.89 W/kg; SAR(10 g) = 5.21 W/kg**  
 Maximum value of SAR (measured) = 15.2 W/kg

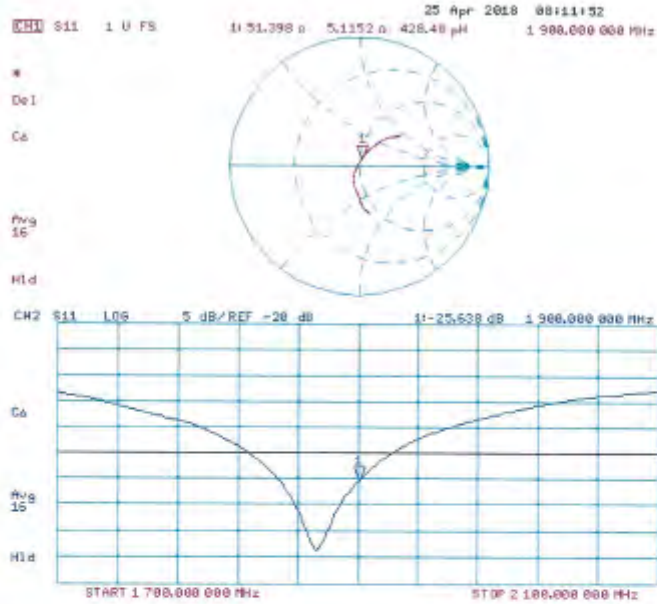


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### Impedance Measurement Plot for Head TSL



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**DASY5 Validation Report for Body TSL**

Date: 25.04.2018

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d173**

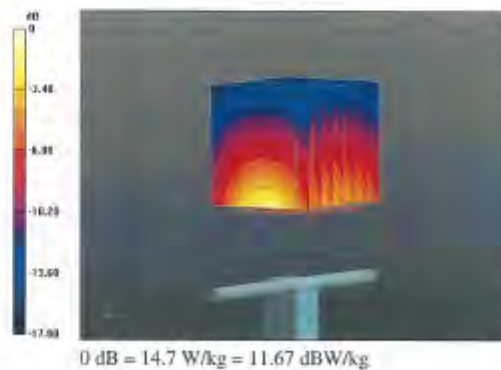
Communication System: UID 0 - CW; Frequency: 1900 MHz  
 Medium parameters used:  $f = 1900$  MHz;  $\sigma = 1.47$  S/m;  $\epsilon_r = 55.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
 Phantom section: Flat Section  
 Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(8.15, 8.15, 8.15); Calibrated: 30.12.2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 26.10.2017
- Phantom: Flat Phantom 5.0 (back); Type: QD 000 P50 AA; Serial: 1002
- DASY52 52.10.0(1446); SEMCAD X 14.6.10(7417)

**Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:**

Measurement grid: dx=5mm, dy=5mm, dz=5mm  
 Reference Value = 104.6 V/m; Power Drift = -0.09 dB  
 Peak SAR (extrapolated) = 17.7 W/kg  
**SAR(1 g) = 9.93 W/kg; SAR(10 g) = 5.3 W/kg**  
 Maximum value of SAR (measured) = 14.7 W/kg

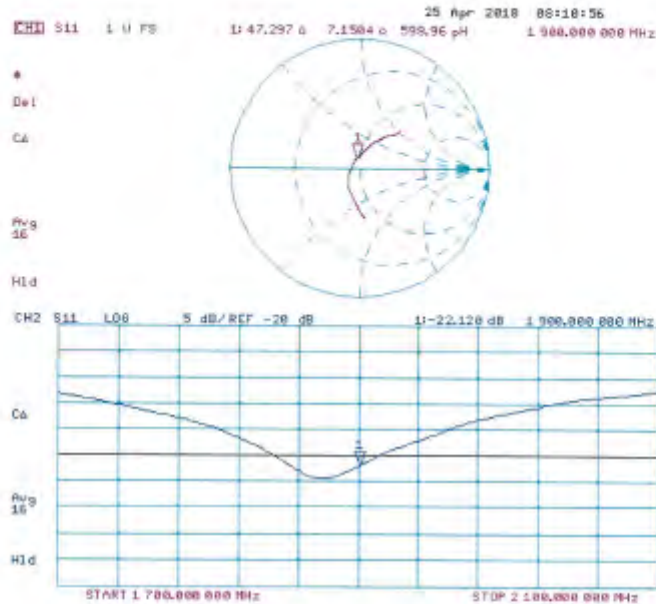


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### Impedance Measurement Plot for Body TSL



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Engineering AG**  
Zeughausstrasse 43, 8004 Zurich, Switzerland



**S** Schweizerischer Kalibrierdienst  
**C** Service suisse d'étalonnage  
**S** Servizio svizzero di taratura  
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The Swiss Accreditation Service is one of the signatories to the EA  
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

Client **Sporton (Auden)**

Certificate No: **D2300V2-1006\_Jan18**

## CALIBRATION CERTIFICATE

Object **D2300V2 - SN:1006**

Calibration procedure(s) **QA CAL-05.v9  
Calibration procedure for dipole validation kits above 700 MHz.**

Calibration date: **January 17, 2018**

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).  
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in this closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	04-Apr-17 (No. 217-02521/02522)	Apr-18
Power sensor NRP-Z91	SN: 103244	04-Apr-17 (No. 217-02521)	Apr-18
Power sensor NRP-Z91	SN: 103245	04-Apr-17 (No. 217-02522)	Apr-18
Reference 20 dB Attenuator	SN: 5058 (20k)	07-Apr-17 (No. 217-02526)	Apr-18
Type-N mismatch combination	SN: 5047.2 / 06327	07-Apr-17 (No. 217-02529)	Apr-18
Reference Probe EX3DV4	SN: 7349	30-Dec-17 (No. EX3-7349_Dec17)	Dec-18
DAE4	SN: 601	26-Oct-17 (No. DAE4-601_Oct17)	Oct-18
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter EPM-442A	SN: GB37490704	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
Power sensor HP 8481A	SN: US37232783	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
Power sensor LP 0491A	SN: MY41092317	01-Oct-15 (in house check Oct-16)	In house check: Oct-18
RF generator R&S SMT-06	SN: 100972	15-Jun-15 (in house check Oct-16)	In house check: Oct-18
Network Analyzer HP 8753E	SN: US37390585	19-Oct-01 (in house check Oct-17)	In house check: Oct-18

Calibrated by:	Name <b>Jeton Kastari</b>	Function Laboratory Technician	Signature 
Approved by:	Name <b>Katja Pokovic</b>	Technical Manager	Signature 

Issued: January 17, 2018

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Certificate No: D2300V2-1006\_Jan18

Page 1 of 8

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**Glossary:**

TSL tissue simulating liquid  
ConvF sensitivity in TSL / NORM x,y,z  
N/A not applicable or not measured

**Calibration is Performed According to the Following Standards:**

- a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices; Measurement Techniques", June 2013
- b) IEC 62209-1, "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
- c) IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
- d) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

**Additional Documentation:**

- e) DASY4/5 System Handbook

**Methods Applied and Interpretation of Parameters:**

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

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**Measurement Conditions**

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.10.0
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	2300 MHz ± 1 MHz	

**Head TSL parameters**

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	39.5	1.67 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	38.4 ± 6 %	1.71 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	---	---

**SAR result with Head TSL**

SAR averaged over 1 cm <sup>3</sup> (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	12.4 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	48.7 W/kg ± 17.0 % (k=2)

SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL	condition	
SAR measured	250 mW input power	5.90 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	23.3 W/kg ± 16.5 % (k=2)

**Body TSL parameters**

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	52.9	1.81 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	52.0 ± 6 %	1.85 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	---	---

**SAR result with Body TSL**

SAR averaged over 1 cm <sup>3</sup> (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	12.0 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	47.3 W/kg ± 17.0 % (k=2)

SAR averaged over 10 cm <sup>3</sup> (10 g) of Body TSL	condition	
SAR measured	250 mW input power	5.74 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	22.8 W/kg ± 16.5 % (k=2)

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**Appendix (Additional assessments outside the scope of SCS 0108)**
**Antenna Parameters with Head TSL**

Impedance, transformed to feed point	49.0 $\Omega$ - 4.0 j $\Omega$
Return Loss	- 27.5 dB

**Antenna Parameters with Body TSL**

Impedance, transformed to feed point	44.8 $\Omega$ - 2.6 j $\Omega$
Return Loss	- 24.2 dB

**General Antenna Parameters and Design**

Electrical Delay (one direction)	1.167 ns
----------------------------------	----------

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

**Additional EUT Data**

Manufactured by	SPEAG
Manufactured on	December 23, 2006

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## DASY5 Validation Report for Head TSL

Date: 17.01.2018

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 2300 MHz; Type: D2300V2; Serial: D2300V2 - SN:1006**

Communication System: UID 0 - CW; Frequency: 2300 MHz

Medium parameters used:  $f = 2300$  MHz;  $\sigma = 1,71$  S/m;  $\epsilon_r = 38,4$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(8.08, 8.08, 8.08); Calibrated: 30.12.2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 26.10.2017
- Phantom: Flat Phantom 5.0 (front); Type: QD 000 P50 AA; Serial: 1001
- DASY52 52.10.0(1446); SEMCAD X 14.6.10(7417)

### Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 113.7 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 24.5 W/kg

**SAR(1 g) = 12.4 W/kg; SAR(10 g) = 5.9 W/kg**

Maximum value of SAR (measured) = 19.6 W/kg

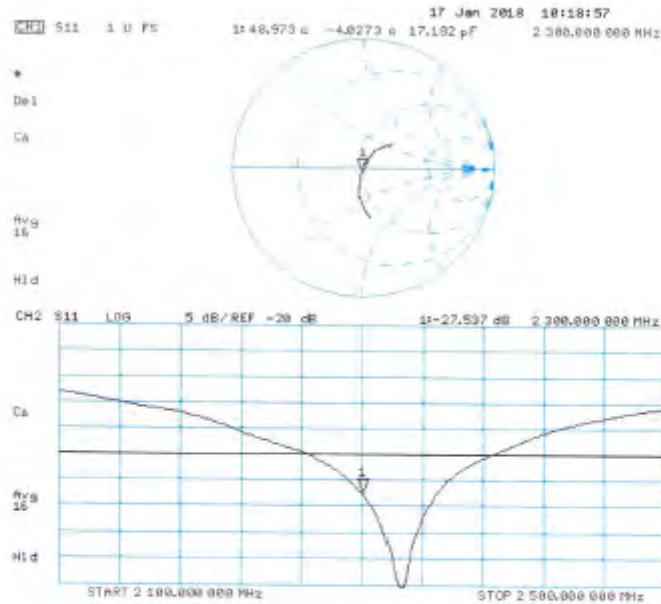


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### Impedance Measurement Plot for Head TSL



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## DASY5 Validation Report for Body TSL

Date: 17.01.2018

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2300 MHz; Type: D2300V2; Serial: D2300V2 - SN:1006

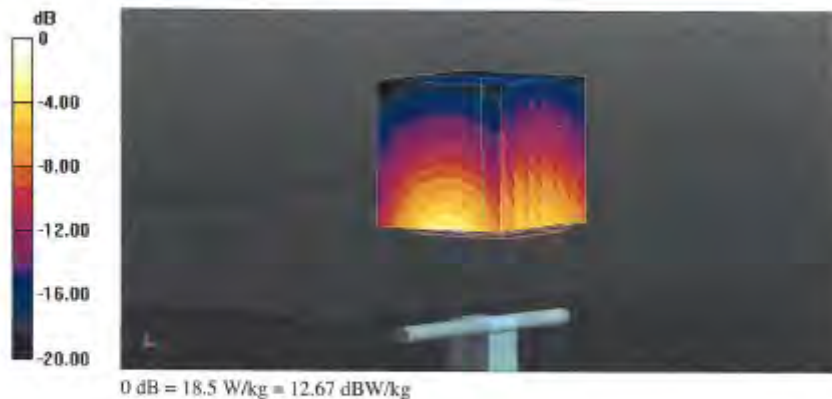
Communication System: UID 0 - CW; Frequency: 2300 MHz  
 Medium parameters used:  $f = 2300$  MHz;  $\sigma = 1.85$  S/m;  $\epsilon_r = 52$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
 Phantom section: Flat Section  
 Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(8.08, 8.08, 8.08); Calibrated: 30.12.2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 26.10.2017
- Phantom: Flat Phantom 5.0 (back); Type: QD 000 P50 AA; Serial: 1002
- DASY52 52.10.0(1446); SEMCAD X 14.6.10(7417)

### Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0;

Measurement grid: dx=5mm, dy=5mm, dz=5mm  
 Reference Value = 105.6 V/m; Power Drift = -0.06 dB  
 Peak SAR (extrapolated) = 23.0 W/kg  
**SAR(1 g) = 12 W/kg; SAR(10 g) = 5.74 W/kg**  
 Maximum value of SAR (measured) = 18.5 W/kg

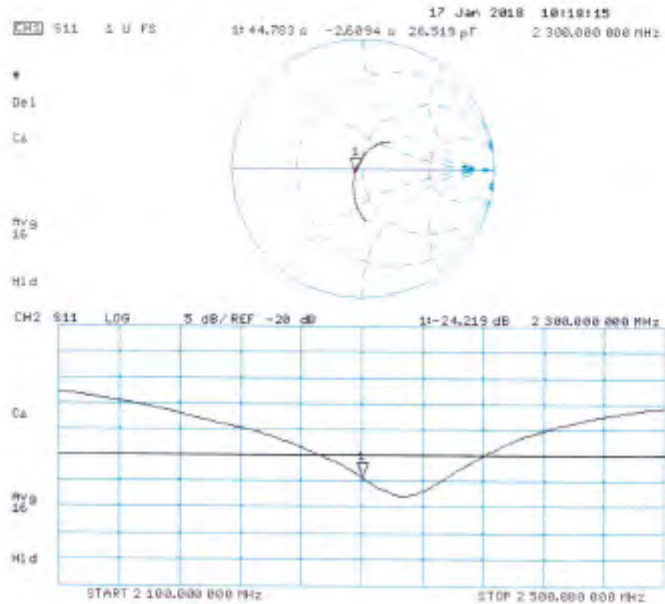


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### Impedance Measurement Plot for Body TSL



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Accreditation No.: **SCS 0108**

Client **SGS-TW (Auden)**

Certificate No: **D2450V2-727\_Apr18**

## CALIBRATION CERTIFICATE

Object:	D2450V2 - SN:727		
Calibration procedure(s):	QA.CAL-05.v10 Calibration procedure for dipole validation kits above 700 MHz		
Calibration date:	April 24, 2018		
This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI). The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.			
All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.			
Calibration Equipment used (M&TE critical for calibration)			
<b>Primary Standards</b>	<b>ID #</b>	<b>Cal Date (Certificate No.)</b>	<b>Scheduled Calibration</b>
Power meter NRP	SN: 104778	04-Apr-18 (No. 217-02672/02673)	Apr-19
Power sensor NRP-Z91	SN: 103244	04-Apr-18 (No. 217-02672)	Apr-19
Power sensor NRP-Z91	SN: 103245	04-Apr-18 (No. 217-02673)	Apr-19
Reference 20 dB Attenuator	SN: 5058 (20k)	04-Apr-18 (No. 217-02682)	Apr-19
Type-N mismatch combination	SN: 5047.2 / 06327	04-Apr-18 (No. 217-02883)	Apr-19
Reference Probe EX3DV4	SN: 7349	30-Dec-17 (No. EX3-7349_Dac17)	Dec-18
DAE4	SN: 601	26-Oct-17 (No. DAE4-601_Oct17)	Oct-18
<b>Secondary Standards</b>	<b>ID #</b>	<b>Check Date (in house)</b>	<b>Scheduled Check</b>
Power meter EPM-442A	SN: GB37490704	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
Power sensor HP 8481A	SN: US37292783	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
Power sensor HP 8481A	SN: MY41002517	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
RF generator R&S SMT-06	SN: 400972	15-Jun-15 (in house check Oct-16)	In house check: Oct-18
Network Analyzer HP 8753E	SN: US37380585	18-Oct-01 (in house check Oct-17)	In house check: Oct-18
Calibrated by:	Name: Jozsef Kaszai	Function: Laboratory Technician	Signature:
Approved by:	Name: Katja Pokovic	Function: Technical Manager	Signature:
			Issued: April 25, 2018
This calibration certificate shall not be reproduced except in full without written approval of the laboratory.			

Certificate No: D2450V2-727\_Apr18

Page 1 of 8

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**Calibration Laboratory of  
Schmid & Partner  
Engineering AG**  
Zeughausstrasse 43, 8004 Zurich, Switzerland



**S** Schweizerischer Kalibrierdienst  
**C** Service suisse d'étalonnage  
**S** Servizio svizzero di taratura  
**S** Swiss Calibration Service

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Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

**Glossary:**

TSL tissue simulating liquid  
ConvF sensitivity in TSL / NORM x,y,z  
N/A not applicable or not measured

**Calibration is Performed According to the Following Standards:**

- a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
- b) IEC 62209-1, "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
- c) IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
- d) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

**Additional Documentation:**

- e) DASY4/5 System Handbook

**Methods Applied and Interpretation of Parameters:**

- **Measurement Conditions:** Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- **Antenna Parameters with TSL:** The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- **Feed Point Impedance and Return Loss:** These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- **Electrical Delay:** One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- **SAR measured:** SAR measured at the stated antenna input power.
- **SAR normalized:** SAR as measured, normalized to an input power of 1 W at the antenna connector.
- **SAR for nominal TSL parameters:** The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

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**Measurement Conditions**

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.10.0
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	2450 MHz ± 1 MHz	

**Head TSL parameters**

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	39.2	1.80 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	38.3 ± 6 %	1.86 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	—	—

**SAR result with Head TSL**

SAR averaged over 1 cm <sup>3</sup> (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	13.3 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	52.1 W/kg ± 17.0 % (k=2)

SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL	condition	
SAR measured	250 mW input power	8.16 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	24.3 W/kg ± 16.5 % (k=2)

**Body TSL parameters**

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	52.7	1.95 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	52.5 ± 6 %	2.01 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	—	—

**SAR result with Body TSL**

SAR averaged over 1 cm <sup>3</sup> (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	12.9 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	50.8 W/kg ± 17.0 % (k=2)

SAR averaged over 10 cm <sup>3</sup> (10 g) of Body TSL	condition	
SAR measured	250 mW input power	8.00 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	23.8 W/kg ± 16.5 % (k=2)

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**Appendix (Additional assessments outside the scope of SCS 0108)**
**Antenna Parameters with Head TSL**

Impedance, transformed to feed point	55.2 $\Omega$ + 2.7 $j\Omega$
Return Loss	- 25.1 dB

**Antenna Parameters with Body TSL**

Impedance, transformed to lead point	51.2 $\Omega$ + 5.6 $j\Omega$
Return Loss	- 25.0 dB

**General Antenna Parameters and Design**

Electrical Delay (one direction)	1.148 ns
----------------------------------	----------

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

**Additional EUT Data**

Manufactured by	SPEAG
Manufactured on	January 09, 2003

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**DASY5 Validation Report for Head TSL**

Date: 24.04.2018

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:727**

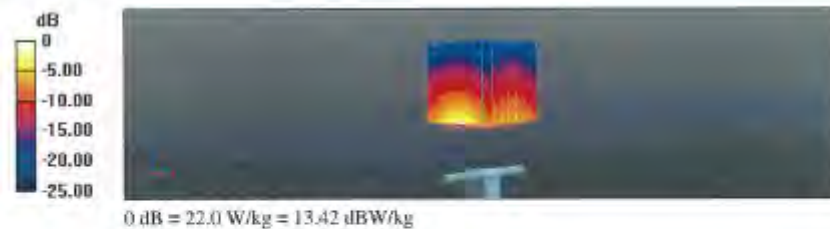
Communication System: UID 0 - CW; Frequency: 2450 MHz  
 Medium parameters used:  $f = 2450$  MHz;  $\sigma = 1.86$  S/m;  $\epsilon_r = 38.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
 Phantom section: Flat Section  
 Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

**DASY52 Configuration:**

- Probe: EX3DV4 - SN7349; ConvF(7.88, 7.88, 7.88); Calibrated: 30.12.2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 26.10.2017
- Phantom: Flat Phantom 5.0 (front); Type: QD 000 P50 AA; Serial: 1001
- DASY52 52.10.0(1446); SEMCAD X 14.6.10(7417)

**Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:**

Measurement grid:  $dx=5$ mm,  $dy=5$ mm,  $dz=5$ mm  
 Reference Value = 116.0 V/m; Power Drift = -0.06 dB  
 Peak SAR (extrapolated) = 26.7 W/kg  
**SAR(1 g) = 13.3 W/kg; SAR(10 g) = 6.16 W/kg**  
 Maximum value of SAR (measured) = 22.0 W/kg

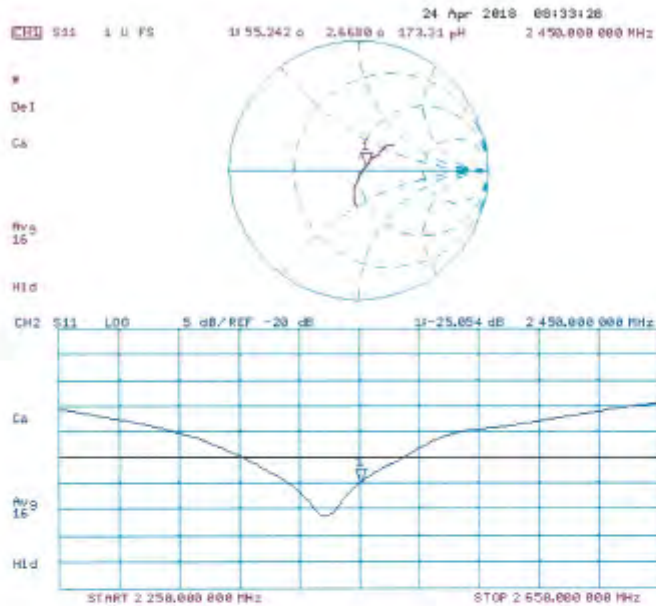


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**Impedance Measurement Plot for Head TSL**



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**DASY5 Validation Report for Body TSL**

Date: 24.04.2018

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:727**

Communication System: UID 0 - CW; Frequency: 2450 MHz

Medium parameters used:  $f = 2450$  MHz;  $\sigma = 2.01$  S/m;  $v_r = 52.5$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(8.01, 8.01, 8.01); Calibrated: 30.12.2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 26.10.2017
- Phantom: Flat Phantom 5.0 (back); Type: QD 000 P50 AA; Serial: 1002
- DASY52 52.10.0(1446); SEMCAD X 14.6.10(7417)

**Dipole Calibration for Body Tissue/ $P_{in}=250$  mW,  $d=10$ mm/Zoom Scan (7x7x7)/Cube 0:**

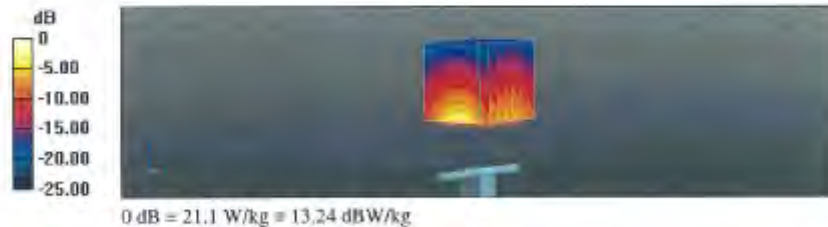
Measurement grid:  $dx=5$ mm,  $dy=5$ mm,  $dz=5$ mm

Reference Value = 108.4 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 25.5 W/kg

**SAR(1 g) = 12.9 W/kg; SAR(10 g) = 6 W/kg**

Maximum value of SAR (measured) = 21.1 W/kg



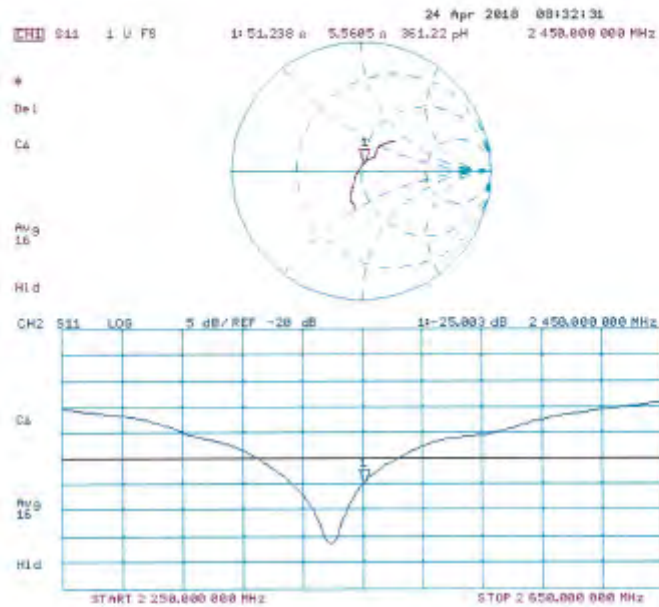
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### Impedance Measurement Plot for Body TSL



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Accreditation No.: **SCS 0108**

Client **SGS-TW (Auden)**

Certificate No: **D2600V2-1005\_Jan18**

## CALIBRATION CERTIFICATE

Object: **D2600V2 - SN:1005**

Calibration procedure(s): **QA CAL-05.v9  
Calibration procedure for dipole validation kits above 700 MHz**

Calibration date: **January 17, 2018**

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).  
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility, environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	04-Apr-17 (No. 217-02521/02522)	Apr-18
Power sensor NRP-Z91	SN: 103244	04-Apr-17 (No. 217-02521)	Apr-18
Power sensor NRP-Z91	SN: 103245	04-Apr-17 (No. 217-02522)	Apr-18
Reference 20 dB Attenuator	SN: 5058 (20k)	07-Apr-17 (No. 217-02528)	Apr-18
Type-N mismatch combination	SN: 5047.2 / 06327	07-Apr-17 (No. 217-02529)	Apr-18
Reference Probe EX3DV4	SN: 7349	30-Dec-17 (No. EX3-7349_Dec17)	Dec-18
DAE4	SN: 601	26-Oct-17 (No. DAE4-601_Oct17)	Oct-18

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter EPM-442A	SN: GB37480704	07-Oct-15 (in house check Oct-15)	In house check: Oct-18
Power sensor HP 8461A	SN: US37292783	07-Oct-15 (in house check Oct-15)	In house check: Oct-18
Power sensor HP 8461A	SN: MY41092317	07-Oct-15 (in house check Oct-15)	In house check: Oct-18
RF generator R&S SMT-05	SN: 100972	15-Jun-15 (in house check Oct-15)	In house check: Oct-18
Network Analyzer HP 8753E	SN: US37390585	18-Oct-01 (in house check Oct-17)	In house check: Oct-18

Calibrated by:	Name	Function	Signature
	Jaton Kasrati	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: January 17, 2018

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Accreditation No.: **SCS 0108**

**Glossary:**

TSL tissue simulating liquid  
ConvF sensitivity in TSL / NORM x,y,z  
N/A not applicable or not measured

**Calibration is Performed According to the Following Standards:**

- a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
- b) IEC 62209-1, "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
- c) IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
- d) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

**Additional Documentation:**

- e) DASY4/5 System Handbook

**Methods Applied and Interpretation of Parameters:**

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor  $k=2$ , which for a normal distribution corresponds to a coverage probability of approximately 95%.

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### Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.10.0
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	2600 MHz $\pm$ 1 MHz	

### Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	39.0	1.96 mho/m
Measured Head TSL parameters	(22.0 $\pm$ 0.2) °C	37.2 $\pm$ 6 %	2.04 mho/m $\pm$ 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

### SAR result with Head TSL

SAR averaged over 1 cm <sup>3</sup> (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	14.6 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	56.8 W/kg $\pm$ 17.0 % (k=2)

SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL	condition	
SAR measured	250 mW input power	6.49 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	25.5 W/kg $\pm$ 16.5 % (k=2)

### Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	52.5	2.16 mho/m
Measured Body TSL parameters	(22.0 $\pm$ 0.2) °C	51.1 $\pm$ 6 %	2.20 mho/m $\pm$ 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

### SAR result with Body TSL

SAR averaged over 1 cm <sup>3</sup> (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	13.8 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	54.4 W/kg $\pm$ 17.0 % (k=2)

SAR averaged over 10 cm <sup>3</sup> (10 g) of Body TSL	condition	
SAR measured	250 mW input power	6.13 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	24.3 W/kg $\pm$ 16.5 % (k=2)

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**Appendix (Additional assessments outside the scope of SCS 0108)**
**Antenna Parameters with Head TSL**

Impedance, transformed to feed point	48.4 $\Omega$ - 4.7 j $\Omega$
Return Loss	- 26.0 dB

**Antenna Parameters with Body TSL**

Impedance, transformed to feed point	46.2 $\Omega$ - 3.0 j $\Omega$
Return Loss	- 25.9 dB

**General Antenna Parameters and Design**

Electrical Delay (one direction)	1.155 ns
----------------------------------	----------

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

**Additional EUT Data**

Manufactured by	SPEAG
Manufactured on	December 23, 2006

## DASY5 Validation Report for Head TSL

Date: 17.01.2018

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 2600 MHz; Type: D2600V2; Serial: D2600V2 - SN:1005**

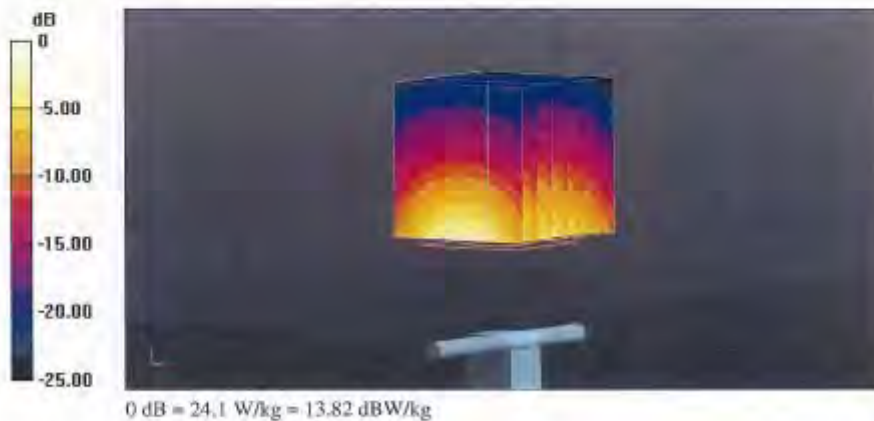
Communication System: UID 0 - CW; Frequency: 2600 MHz  
 Medium parameters used:  $f = 2600$  MHz;  $\sigma = 2.04$  S/m;  $\epsilon_r = 37.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
 Phantom section: Flat Section  
 Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

### DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(7.7, 7.7, 7.7); Calibrated: 30.12.2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 S0601; Calibrated: 26.10.2017
- Phantom: Flat Phantom 5.0 (front); Type: QD 000 P50 AA; Serial: 1001
- DASY52 52.10.0(1446); SEMCAD X 14.6.10(7417)

### Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm  
 Reference Value = 118.8 V/m; Power Drift = -0.08 dB  
 Peak SAR (extrapolated) = 29.8 W/kg  
**SAR(1 g) = 14.6 W/kg; SAR(10 g) = 6.49 W/kg**  
 Maximum value of SAR (measured) = 24.1 W/kg

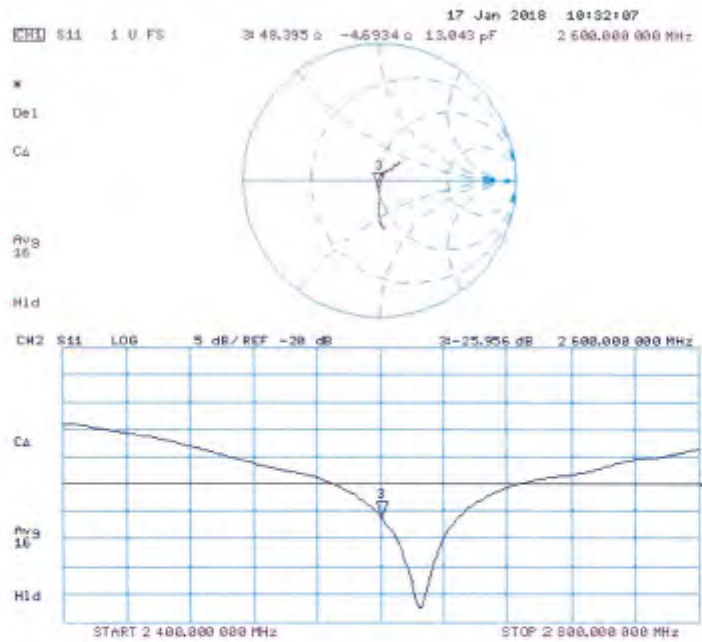


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### Impedance Measurement Plot for Head TSL



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## DASY5 Validation Report for Body TSL

Date: 17.01.2018

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 2600 MHz; Type: D2600V2; Serial: D2600V2 - SN:1005**

Communication System: UID 0 - CW; Frequency: 2600 MHz

Medium parameters used:  $f = 2600$  MHz;  $\sigma = 2.2$  S/m;  $\epsilon_r = 51.1$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(7.81, 7.81, 7.81); Calibrated: 30.12.2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 26.10.2017
- Phantom: Flat Phantom 5.0 (back); Type: QD 000 P50 AA; Serial: 1002
- DASY52 52.10.0(1446); SEMCAD X 14.6.10(7417)

### Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

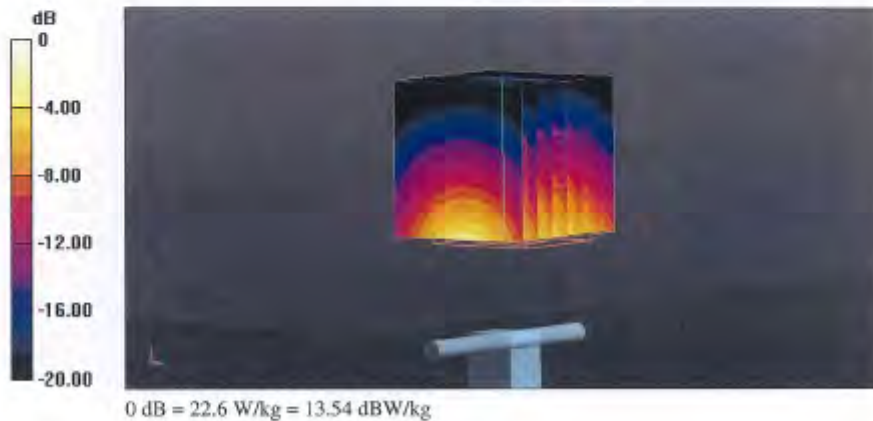
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 108.0 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 28.6 W/kg

**SAR(1 g) = 13.8 W/kg; SAR(10 g) = 6.13 W/kg**

Maximum value of SAR (measured) = 22.6 W/kg

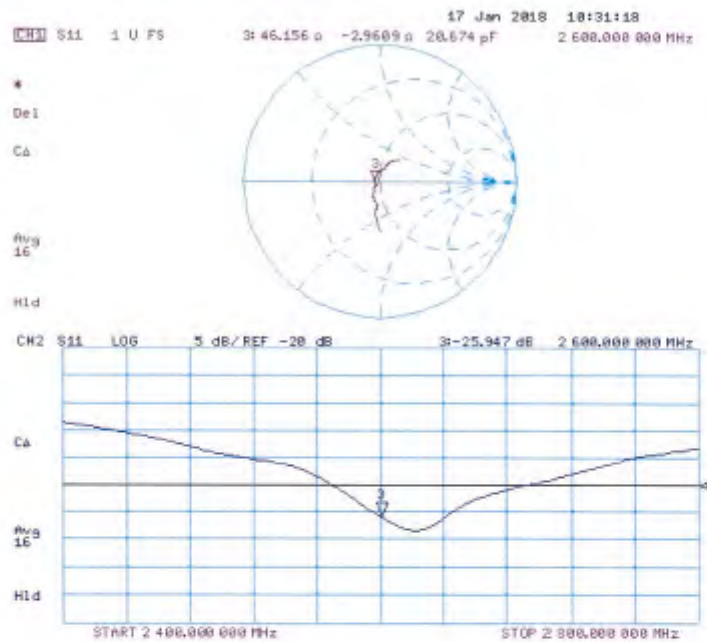


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### Impedance Measurement Plot for Body TSL



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Engineering AG**  
Zeughausstrasse 43, 8004 Zurich, Switzerland



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**S** Service suisse d'étalonnage  
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Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

Client **SGS-TW (Auden)**

Certificate No: **D5GHzV2-1023\_Jan18**

## CALIBRATION CERTIFICATE

**Object** D5GHzV2 - SN:1023

**Calibration procedure(s)** QA CAL-22.v2  
Calibration procedure for dipole validation kits between 3-6 GHz

**Calibration date:** January 25, 2018

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).  
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility, environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	04-Apr-17 (No. 217-02521/02522)	Apr-18
Power sensor NRP-Z91	SN: 103284	04-Apr-17 (No. 217-02521)	Apr-18
Power sensor NRP-Z91	SN: 103246	04-Apr-17 (No. 217-02522)	Apr-18
Reference 20 dB Attenuator	SN: 5058 (20k)	07-Apr-17 (No. 217-02528)	Apr-18
Type-N mismatch combination	SN: 5047.2 / 06327	07-Apr-17 (No. 217-02529)	Apr-18
Reference Probe EX3DV4	SN: 3503	30-Dec-17 (No. EX3-3503_Dec17)	Dec-18
DAE4	SN: 601	26-Oct-17 (No. DAE4-601_Oct17)	Oct-18

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter EPM-442A	SN: GS37480704	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
Power sensor HP 8481A	SN: US37282783	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
Power sensor HP 8461A	SN: NY41092317	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
RF generator R&S SMT-06	SN: 100972	15-Jun-15 (in house check Oct-16)	In house check: Oct-18
Network Analyzer HP-8753E	SN: US37360685	18-Oct-01 (in house check Oct-17)	In house check: Oct-18

**Calibrated by:** Jelon Kasirali, Laboratory Technician, [Signature]

**Approved by:** Katja Petrovic, Technical Manager, [Signature]

Issued January 25, 2018

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**S** Schweizerischer Kalibrierdienst  
**C** Service suisse d'étalonnage  
**S** Servizio svizzero di taratura  
**S** Swiss Calibration Service

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The Swiss Accreditation Service is one of the signatories to the EA  
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

**Glossary:**

TSL tissue simulating liquid  
ConvF sensitivity in TSL / NORM x,y,z  
N/A not applicable or not measured

**Calibration is Performed According to the Following Standards:**

- IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
- IEC 62209-1, "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
- IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
- KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

**Additional Documentation:**

- DASY4/5 System Handbook

**Methods Applied and Interpretation of Parameters:**

- Measurement Conditions:** Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL:** The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- Feed Point Impedance and Return Loss:** These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- Electrical Delay:** One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- SAR measured:** SAR measured at the stated antenna input power.
- SAR normalized:** SAR as measured, normalized to an input power of 1 W at the antenna connector.
- SAR for nominal TSL parameters:** The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor  $k=2$ , which for a normal distribution corresponds to a coverage probability of approximately 95%.

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**Measurement Conditions**

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52,10.0
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom V5.0	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy = 4.0 mm, dz = 1.4 mm	Graded Ratio = 1.4 (Z direction)
Frequency	5200 MHz ± 1 MHz 5300 MHz ± 1 MHz 5600 MHz ± 1 MHz 5800 MHz ± 1 MHz	

**Head TSL parameters at 5200 MHz**

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	36.0	4.60 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	36.3 ± 6 %	4.50 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	---	---

**SAR result with Head TSL at 5200 MHz**

SAR averaged over 1 cm <sup>3</sup> (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	7.72 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	77.3 W/kg ± 19.9 % (k=2)

SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.22 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	22.2 W/kg ± 19.5 % (k=2)

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**Head TSL parameters at 5300 MHz**

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.9	4.76 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	35.2 ± 6 %	4.60 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	—	—

**SAR result with Head TSL at 5300 MHz**

SAR averaged over 1 cm <sup>3</sup> (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	8.09 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	<b>80.9 W / kg ± 19.9 % (k=2)</b>

SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.32 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	<b>23.2 W/kg ± 19.5 % (k=2)</b>

**Head TSL parameters at 5600 MHz**

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.5	5.07 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	35.8 ± 6 %	4.90 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	—	—

**SAR result with Head TSL at 5600 MHz**

SAR averaged over 1 cm <sup>3</sup> (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	8.19 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	<b>81.9 W/kg ± 19.9 % (k=2)</b>

SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.34 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	<b>23.4 W/kg ± 19.5 % (k=2)</b>

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**Head TSL parameters at 5800 MHz**

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.3	5.27 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	35.5 ± 6 %	5.11 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	—	—

**SAR result with Head TSL at 5800 MHz**

SAR averaged over 1 cm <sup>3</sup> (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	7.90 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	79.0 W/kg ± 19.9 % (k=2)

SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.25 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	22.5 W/kg ± 19.5 % (k=2)

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**Body TSL parameters at 5200 MHz**

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	49.0	5.30 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	47.3 ± 6 %	5.41 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	—	—

**SAR result with Body TSL at 5200 MHz**

SAR averaged over 1 cm <sup>3</sup> (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	7.14 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	<b>70.5 W/kg ± 19.9 % (k=2)</b>

SAR averaged over 10 cm <sup>3</sup> (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.00 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	<b>19.8 W/kg ± 19.5 % (k=2)</b>

**Body TSL parameters at 5300 MHz**

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	48.9	5.42 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	47.1 ± 6 %	5.54 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	—	—

**SAR result with Body TSL at 5300 MHz**

SAR averaged over 1 cm <sup>3</sup> (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	7.34 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	<b>72.9 W/kg ± 19.9 % (k=2)</b>

SAR averaged over 10 cm <sup>3</sup> (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.06 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	<b>20.4 W/kg ± 19.5 % (k=2)</b>

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**Body TSL parameters at 5600 MHz**

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	48.5	5.77 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	46.6 ± 6 %	5.94 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	---	---

**SAR result with Body TSL at 5600 MHz**

SAR averaged over 1 cm <sup>3</sup> (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	7.81 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	77.6 W/kg ± 19.9 % (k=2)

SAR averaged over 10 cm <sup>3</sup> (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.19 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	21.7 W/kg ± 19.5 % (k=2)

**Body TSL parameters at 5800 MHz**

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	48.2	6.00 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	46.2 ± 6 %	6.22 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	---	---

**SAR result with Body TSL at 5800 MHz**

SAR averaged over 1 cm <sup>3</sup> (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	7.46 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	74.1 W/kg ± 19.9 % (k=2)

SAR averaged over 10 cm <sup>3</sup> (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.07 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	20.5 W/kg ± 19.5 % (k=2)

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**Appendix (Additional assessments outside the scope of SCS 0108)**
**Antenna Parameters with Head TSL at 5200 MHz**

Impedance, transformed to feed point	50.1 $\Omega$ - 8.1 $\mu\Omega$
Return Loss	- 21.9 dB

**Antenna Parameters with Head TSL at 5300 MHz**

Impedance, transformed to feed point	50.5 $\Omega$ - 2.3 $\mu\Omega$
Return Loss	- 32.7 dB

**Antenna Parameters with Head TSL at 5600 MHz**

Impedance, transformed to feed point	53.9 $\Omega$ + 0.7 $\mu\Omega$
Return Loss	- 28.4 dB

**Antenna Parameters with Head TSL at 5800 MHz**

Impedance, transformed to feed point	55.3 $\Omega$ + 2.6 $\mu\Omega$
Return Loss	- 25.1 dB

**Antenna Parameters with Body TSL at 5200 MHz**

Impedance, transformed to feed point	49.8 $\Omega$ - 6.9 $\mu\Omega$
Return Loss	- 23.2 dB

**Antenna Parameters with Body TSL at 5300 MHz**

Impedance, transformed to feed point	50.9 $\Omega$ - 0.9 $\mu\Omega$
Return Loss	- 37.9 dB

**Antenna Parameters with Body TSL at 5600 MHz**

Impedance, transformed to feed point	56.0 $\Omega$ + 0.5 $\mu\Omega$
Return Loss	- 24.9 dB

**Antenna Parameters with Body TSL at 5800 MHz**

Impedance, transformed to feed point	56.6 $\Omega$ + 2.3 $\mu\Omega$
Return Loss	- 23.7 dB

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**General Antenna Parameters and Design**

Electrical Delay (one direction)	1.199 ns
----------------------------------	----------

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

**Additional EUT Data**

Manufactured by	SPEAG
Manufactured on	February 05, 2004

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**DASY5 Validation Report for Head TSL**

Date: 25.01.2018

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN:1023**

Communication System: UID () - CW; Frequency: 5200 MHz, Frequency: 5300 MHz, Frequency: 5600 MHz, Frequency: 5800 MHz

Medium parameters used:  $f = 5200$  MHz;  $\sigma = 4.5$  S/m;  $\epsilon_r = 36.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>,  
 Medium parameters used:  $f = 5300$  MHz;  $\sigma = 4.6$  S/m;  $\epsilon_r = 36.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>,  
 Medium parameters used:  $f = 5600$  MHz;  $\sigma = 4.9$  S/m;  $\epsilon_r = 35.8$ ;  $\rho = 1000$  kg/m<sup>3</sup>,  
 Medium parameters used:  $f = 5800$  MHz;  $\sigma = 5.11$  S/m;  $\epsilon_r = 35.5$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
 Phantom section: Flat Section  
 Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN3503; ConvF(5.75, 5.75, 5.75); Calibrated: 30.12.2017, ConvF(5.5, 5.5, 5.5); Calibrated: 30.12.2017, ConvF(5.05, 5.05, 5.05); Calibrated: 30.12.2017, ConvF(4.96, 4.96, 4.96); Calibrated: 30.12.2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 26.10.2017
- Phantom: Flat Phantom 3.0 (front); Type: QD (00) P50 AA; Serial: 1001
- DASY52 52.10.0(1446); SEMCAD X 14.6.10(7417)

**Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5200 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm  
 Reference Value = 70.47 V/m; Power Drift = -0.04 dB  
 Peak SAR (extrapolated) = 27.5 W/kg  
**SAR(1 g) = 7.72 W/kg; SAR(10 g) = 2.22 W/kg**  
 Maximum value of SAR (measured) = 17.7 W/kg

**Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5300 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm  
 Reference Value = 74.63 V/m; Power Drift = -0.06 dB  
 Peak SAR (extrapolated) = 29.6 W/kg  
**SAR(1 g) = 8.09 W/kg; SAR(10 g) = 2.32 W/kg**  
 Maximum value of SAR (measured) = 18.6 W/kg

**Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5600 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm  
 Reference Value = 70.79 V/m; Power Drift = -0.05 dB  
 Peak SAR (extrapolated) = 31.5 W/kg  
**SAR(1 g) = 8.19 W/kg; SAR(10 g) = 2.34 W/kg**  
 Maximum value of SAR (measured) = 19.6 W/kg

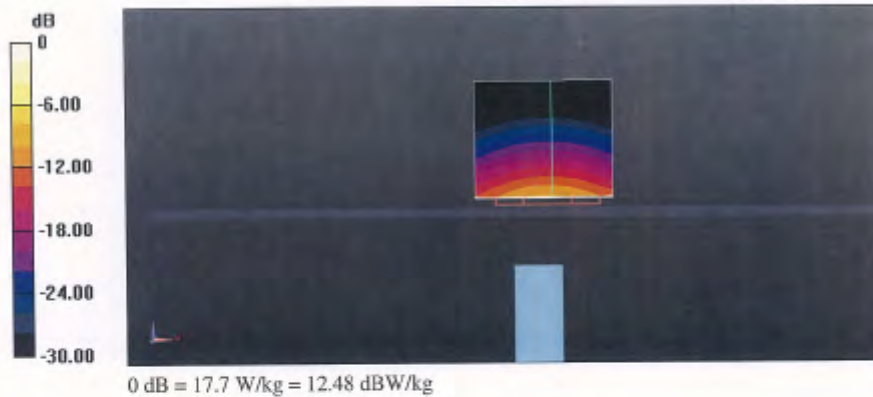
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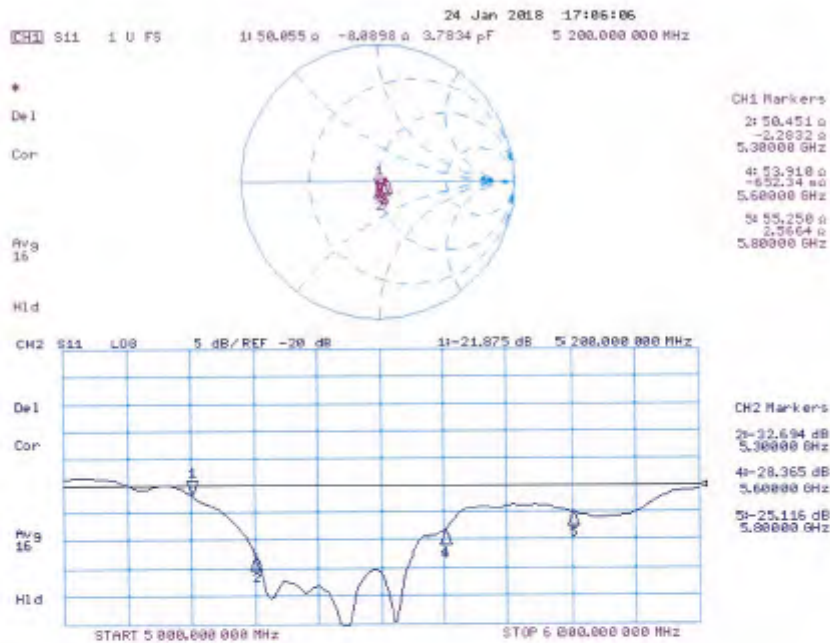
**Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5800 MHz/Zoom Scan, dist=1.4mm**  
**(8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm  
 Reference Value = 69.22 V/m; Power Drift = -0.05 dB  
 Peak SAR (extrapolated) = 31.2 W/kg  
**SAR(1 g) = 7.9 W/kg; SAR(10 g) = 2.25 W/kg**  
 Maximum value of SAR (measured) = 19.0 W/kg



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### Impedance Measurement Plot for Head TSL



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**DASY5 Validation Report for Body TSL**

Date: 23.01.2018

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN:1023**

Communication System: UID 0 - CW; Frequency: 5200 MHz, Frequency: 5300 MHz, Frequency: 5600 MHz, Frequency: 5800 MHz

 Medium parameters used:  $f = 5200$  MHz;  $\sigma = 5.41$  S/m;  $\epsilon_r = 47.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>

 Medium parameters used:  $f = 5300$  MHz;  $\sigma = 5.54$  S/m;  $\epsilon_r = 47.1$ ;  $\rho = 1000$  kg/m<sup>3</sup>

 Medium parameters used:  $f = 5600$  MHz;  $\sigma = 5.94$  S/m;  $\epsilon_r = 46.6$ ;  $\rho = 1000$  kg/m<sup>3</sup>

 Medium parameters used:  $f = 5800$  MHz;  $\sigma = 6.22$  S/m;  $\epsilon_r = 46.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

**DASY52 Configuration:**

- Probe: EX3DV4 - SN3503; ConvF(5.35, 5.35, 5.35); Calibrated: 30.12.2017, ConvF(5.15, 5.15, 5.15); Calibrated: 30.12.2017, ConvF(4.65, 4.65, 4.65); Calibrated: 30.12.2017, ConvF(4.53, 4.53, 4.53); Calibrated: 30.12.2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DA54 Sn601; Calibrated: 26.10.2017
- Phantom: Flat Phantom 5.0 (back); Type: QD 000 P50 AA; Serial: 1002
- DASY52 52, 10, 0 (1446); SEMCAD X 14.6.10(7417)

**Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5200 MHz/Zoom Scan, dist=1.4mm**

(8x8x7)/Cube 0; Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 66.00 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 26.4 W/kg

**SAR(1 g) = 7.14 W/kg; SAR(10 g) = 2 W/kg**

Maximum value of SAR (measured) = 16.8 W/kg

**Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5300 MHz/Zoom Scan, dist=1.4mm**

(8x8x7)/Cube 0; Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 65.19 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 28.4 W/kg

**SAR(1 g) = 7.34 W/kg; SAR(10 g) = 2.06 W/kg**

Maximum value of SAR (measured) = 17.6 W/kg

**Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5600 MHz/Zoom Scan, dist=1.4mm**

(8x8x7)/Cube 0; Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 66.21 V/m; Power Drift = -0.09 dB

Peak SAR (extrapolated) = 32.8 W/kg

**SAR(1 g) = 7.81 W/kg; SAR(10 g) = 2.19 W/kg**

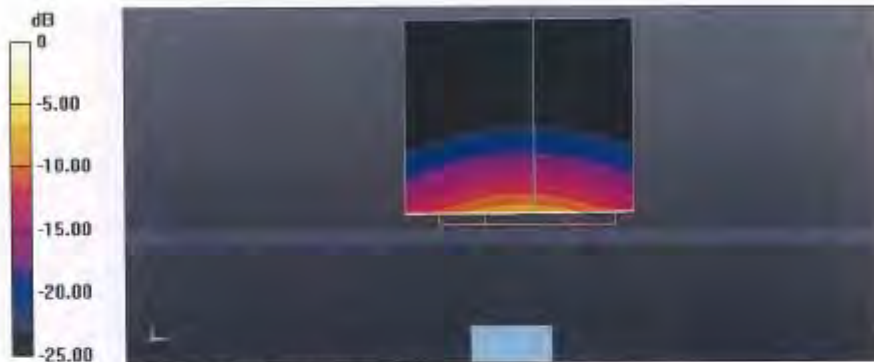
Maximum value of SAR (measured) = 19.1 W/kg

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**Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5800 MHz/Zoom Scan, dist=1.4mm**  
**(8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm  
 Reference Value = 64.05 V/m; Power Drift = -0.05 dB  
 Peak SAR (extrapolated) = 32.3 W/kg  
**SAR(1 g) = 7.46 W/kg; SAR(10 g) = 2.07 W/kg**  
 Maximum value of SAR (measured) = 18.8 W/kg

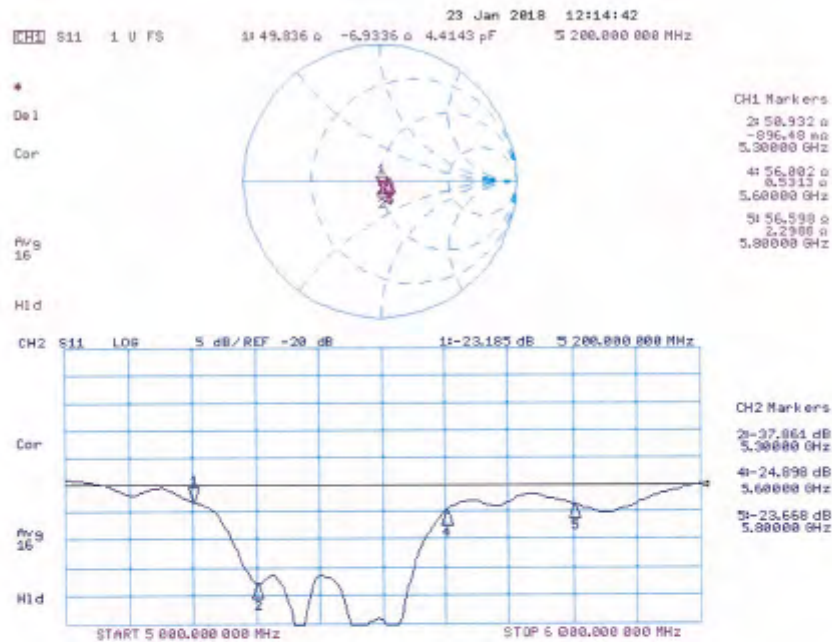


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## Impedance Measurement Plot for Body TSL



**- End of report -**

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