

SAR TEST REPORT



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

Equipment Under Test	Tablet
Brand Name	HP
Model No.	HSN-I07C
Company Name	HP Inc.
Company Address	3390 East Harmony Road Fort Collins, Colorado 80528 United States
Standards	IEEE/ANSI C95.1-1992, IEEE 1528-2013, KDB616217D04v01r02, KDB865664D01v01r04, KDB865664D02v01r02, KDB941225D01v03r01, KDB941225D05v02r05, KDB447498D01v06, KDB248227D01v02r02
FCC ID	B94HNI07CAM
Date of Receipt	Nov. 17, 2016
Date of Test(s)	Dec. 05, 2016 ~ Feb. 08, 2017
Date of Issue	Feb. 16, 2017

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.

This report may only be reproduced and distributed in full. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS Taiwan Electronic & Communication Laboratory or testing done by SGS Taiwan Electronic & Communication Laboratory in connection with distribution or use of the product described in this report must be approved by SGS Taiwan Electronic & Communication Laboratory in writing.

Signed on behalf of SGS

Sr. Engineer

Afu Chen

Afu Chen

Date: Feb. 16, 2017

Supervisor

John Teh

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Date: Feb. 16, 2017



Revision History

Report Number	Revision	Description	Issue Date
EN/2016/B0004	Rev.00	Initial creation of document	Feb. 16, 2017

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.
除非另有說明，此報告結果僅對測試之樣品負責，同時此樣品僅保留90天。本報告未經本公司書面許可，不可部份複製。

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1. General Information

1.1 Testing Laboratory

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1.2 Details of Applicant

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

1.3 Description of EUT

Equipment Under Test	Tablet	
Brand Name	HP	
Model No.	HSN-I07C	
Integrated Module	WWAN	Brand Name : FOXCONN Model Name : T77W595
	WLAN/BT	Brand Name : Intel Model Name : 8265NGW
Antenna type	PIFA	
Antenna Gain	-2.12dBi (for LTE B12/LTE B17) -3.08dBi (for LTE B13) -3.50dBi (for GPRS850/EDGE850/WCDMA B5/CDMA BC0/LTE B5) -3.29dBi (for WCDMA B4/LTE B4) 0.17dBi (for GPRS1900/EDGE1900/WCDMA B2/CDMA BC1/LTE B2) -1.70dBi (for LTE B7)	
FCC ID	B94HNI07CAM	
Mode of Operation	<input checked="" type="checkbox"/> GPRS <input checked="" type="checkbox"/> EDGE <input checked="" type="checkbox"/> WCDMA <input checked="" type="checkbox"/> HSDPA <input checked="" type="checkbox"/> HSUPA <input checked="" type="checkbox"/> LTE <input checked="" type="checkbox"/> CDMA 1xRTT <input checked="" type="checkbox"/> CDMA 1x EVDO Rev.0/ Rev.A	
Duty Cycle	GPRS	1/2 (1Dn4UP) 1/2.76 (1Dn3UP) 1/4.1 (1Dn2UP) 1/8.3 (1Dn1UP)
	EDGE	1/2 (1Dn4UP) 1/2.76 (1Dn3UP) 1/4.1 (1Dn2UP) 1/8.3 (1Dn1UP)
	WCDMA	1
	LTE	1
	CDMA 1xRTT/ EVDO Rev.0/ Rev. A	1

TX Frequency Range (MHz)	GPRS850	824	—	849
	GPRS1900	1850	—	1910
	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
	LTE FDD Band 13	777	—	787
	LTE FDD Band 17	704	—	716
	CDMA (BC0)	824	—	849
	CDMA (BC1)	1850	—	1910
Channel Number (ARFCN)	GPRS850	128	—	251
	GPRS1900	512	—	810
	WCDMA Band II	9262	—	9538
	WCDMA Band IV	1312	—	1513
	WCDMA Band V	4132	—	4233
	LTE FDD Band 2	18607	—	19193
	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 17	23755	—	23825
	CDMA (BC0)	1013	—	777
	CDMA (BC1)	25	—	1175

Max. SAR (1 g) (Unit: W/Kg)				
Band	Measured	Reported	Channel	Position
GPRS 850	1.220	1.301	190	Back side
GRPS 1900	1.290	1.296	810	Back side
WCDMA Band II	1.270	1.309	9538	Back side
WCDMA Band IV	1.330	1.333	1412	Back side
WCDMA Band V	1.330	1.339	4233	Back side
LTE FDD Band 2	1.160	1.220	19100	Back side
LTE FDD Band 4	1.270	1.306	20050	Back side
LTE FDD Band 5	1.160	1.217	20525	Back side
LTE FDD Band 7	1.260	1.329	20850	Back side
LTE FDD Band 12	1.070	1.203	23130	Back side
LTE FDD Band 13	1.150	1.330	23230	Back side
LTE FDD Band 17	1.060	1.223	23790	Back side
CDMA (BC0)	1.250	1.282	384	Back side
CDMA (BC1)	0.983	1.066	1175	Back side

GPRS/EDGE conducted power table (Full power):

Burst average power						
Max. Rated Avg. Power + Max. Tolerance (dBm)			33.5	33	31	29
			1Dn1UP	1Dn2UP	1Dn3UP	1Dn4UP
EUT mode	Frequency (MHz)	CH	Avg. (dBm)	Avg. (dBm)	Avg. (dBm)	Avg. (dBm)
GPRS 850	824.2	128	33.03	32.86	30.65	28.64
	836.6	190	33.00	32.99	30.99	28.99
	848.8	251	33.04	32.85	30.96	28.85
Source-based time average power						
GPRS 850	824.2	128	24.00	26.84	26.39	25.63
	836.6	190	23.97	26.97	26.73	25.98
	848.8	251	24.01	26.83	26.70	25.84
The division factor compared to the number of TX time slot						
Division factor			1 TX time slot	2 TX time slot	3 TX time slot	4 TX time slot
			-9.03	-6.02	-4.26	-3.01

Burst average power						
Max. Rated Avg. Power + Max. Tolerance (dBm)			27.5	26.5	26.5	24.5
			1Dn1UP	1Dn2UP	1Dn3UP	1Dn4UP
EUT mode	Frequency (MHz)	CH	Avg. (dBm)	Avg. (dBm)	Avg. (dBm)	Avg. (dBm)
EDGE 850 (MCS5)	824.2	128	27.11	24.45	26.24	24.17
	836.6	190	27.12	26.38	26.29	24.22
	848.8	251	27.17	24.44	26.33	24.12
Source-based time average power						
EDGE 850 (MCS5)	824.2	128	18.08	18.43	21.98	21.16
	836.6	190	18.09	20.36	22.03	21.21
	848.8	251	18.14	18.42	22.07	21.11
The division factor compared to the number of TX time slot						
Division factor			1 TX time slot	2 TX time slot	3 TX time slot	4 TX time slot
			-9.03	-6.02	-4.26	-3.01

Burst average power						
Max. Rated Avg. Power + Max. Tolerance (dBm)			31	30	28	26
			1Dn1UP	1Dn2UP	1Dn3UP	1Dn4UP
EUT mode	Frequency (MHz)	CH	Avg. (dBm)	Avg. (dBm)	Avg. (dBm)	Avg. (dBm)
GPRS 1900	1850.2	512	30.90	29.84	27.98	25.87
	1880	661	30.31	29.37	27.49	25.50
	1909.8	810	30.50	29.82	27.85	25.81
Source-based time average power						
GPRS 1900	1850.2	512	21.87	23.82	23.72	22.86
	1880	661	21.28	23.35	23.23	22.49
	1909.8	810	21.47	23.80	23.59	22.80
The division factor compared to the number of TX time slot						
Division factor			1 TX time slot	2 TX time slot	3 TX time slot	4 TX time slot
			-9.03	-6.02	-4.26	-3.01

Burst average power						
Max. Rated Avg. Power + Max. Tolerance (dBm)			26.5	25.5	25.5	23.5
			1Dn1UP	1Dn2UP	1Dn3UP	1Dn4UP
EUT mode	Frequency (MHz)	CH	Avg. (dBm)	Avg. (dBm)	Avg. (dBm)	Avg. (dBm)
EDGE 1900 (MCS5)	1850.2	512	26.45	25.39	25.39	23.27
	1880	661	26.00	25.00	24.96	22.88
	1909.8	810	26.35	25.34	25.30	23.26
Source-based time average power						
EDGE 1900 (MCS5)	1850.2	512	17.42	19.37	21.13	20.26
	1880	661	16.97	18.98	20.70	19.87
	1909.8	810	17.32	19.32	21.04	20.25
The division factor compared to the number of TX time slot						
Division factor			1 TX time slot	2 TX time slot	3 TX time slot	4 TX time slot
			-9.03	-6.02	-4.26	-3.01

GPRS/EDGE conducted power table (Reduced power):

Burst average power						
Max. Rated Avg. Power + Max. Tolerance (dBm)			28.5	27.5	25	23
			1Dn1UP	1Dn2UP	1Dn3UP	1Dn4UP
EUT mode	Frequency (MHz)	CH	Avg. (dBm)	Avg. (dBm)	Avg. (dBm)	Avg. (dBm)
GPRS 850	824.2	128	28.27	27.26	24.20	22.72
	836.6	190	28.21	27.22	24.48	22.78
	848.8	251	28.43	27.46	24.44	22.98
Source-based time average power						
GPRS 850	824.2	128	19.24	21.24	19.94	19.71
	836.6	190	19.18	21.20	20.22	19.77
	848.8	251	19.40	21.44	20.18	19.97
The division factor compared to the number of TX time slot						
Division factor			1 TX time slot	2 TX time slot	3 TX time slot	4 TX time slot
			-9.03	-6.02	-4.26	-3.01

Burst average power						
Max. Rated Avg. Power + Max. Tolerance (dBm)			26.5	24.5	24.5	22
			1Dn1UP	1Dn2UP	1Dn3UP	1Dn4UP
EUT mode	Frequency (MHz)	CH	Avg. (dBm)	Avg. (dBm)	Avg. (dBm)	Avg. (dBm)
EDGE 850 (MCS5)	824.2	128	26.24	24.07	23.95	21.71
	836.6	190	26.22	24.10	23.91	21.83
	848.8	251	26.25	24.13	23.97	21.92
Source-based time average power						
EDGE 850 (MCS5)	824.2	128	17.21	18.05	19.69	18.70
	836.6	190	17.19	18.08	19.65	18.82
	848.8	251	17.22	18.11	19.71	18.91
The division factor compared to the number of TX time slot						
Division factor			1 TX time slot	2 TX time slot	3 TX time slot	4 TX time slot
			-9.03	-6.02	-4.26	-3.01

Burst average power						
Max. Rated Avg. Power + Max. Tolerance (dBm)			27	25.5	23.5	21.5
			1Dn1UP	1Dn2UP	1Dn3UP	1Dn4UP
EUT mode	Frequency (MHz)	CH	Avg. (dBm)	Avg. (dBm)	Avg. (dBm)	Avg. (dBm)
GPRS 1900	1850.2	512	26.99	25.37	23.41	21.15
	1880	661	26.57	25.00	22.92	20.78
	1909.8	810	26.98	25.48	23.30	21.10
Source-based time average power						
GPRS 1900	1850.2	512	17.96	19.35	19.15	18.14
	1880	661	17.54	18.98	18.66	17.77
	1909.8	810	17.95	19.46	19.04	18.09
The division factor compared to the number of TX time slot						
Division factor			1 TX time slot	2 TX time slot	3 TX time slot	4 TX time slot
			-9.03	-6.02	-4.26	-3.01

Burst average power						
Max. Rated Avg. Power + Max. Tolerance (dBm)			24.5	23	23	21
			1Dn1UP	1Dn2UP	1Dn3UP	1Dn4UP
EUT mode	Frequency (MHz)	CH	Avg. (dBm)	Avg. (dBm)	Avg. (dBm)	Avg. (dBm)
EDGE 1900 (MCS5)	1850.2	512	24.40	22.88	22.81	20.85
	1880	661	24.08	22.47	22.42	20.50
	1909.8	810	24.42	22.81	22.80	20.83
Source-based time average power						
EDGE 1900 (MCS5)	1850.2	512	15.37	16.86	18.55	17.84
	1880	661	15.05	16.45	18.16	17.49
	1909.8	810	15.39	16.79	18.54	17.82
The division factor compared to the number of TX time slot						
Division factor			1 TX time slot	2 TX time slot	3 TX time slot	4 TX time slot
			-9.03	-6.02	-4.26	-3.01

**WCDMA Band II / Band IV / Band V - HSDPA / HSUPA 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)		24.50		
3GPP Rel 99	RMC 12.2Kbps	24.49	24.04	24.25
Max. Rated Avg. Power+Max. Tolerance (dBm)		23.50		
3GPP Rel 5	HSDPA Subtest-1	23.28	23.04	23.26
	HSDPA Subtest-2	23.30	23.10	23.30
	HSDPA Subtest-3	22.83	22.57	22.97
	HSDPA Subtest-4	22.81	22.58	22.91
3GPP Rel 6	HSUPA Subtest-1	23.38	23.02	23.45
	HSUPA Subtest-2	22.87	22.57	22.91
	HSUPA Subtest-3	23.32	23.15	23.40
	HSUPA Subtest-4	23.34	23.05	23.38
	HSUPA Subtest-5	23.26	23.11	23.40

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	24.47	24.41	24.45
Max. Rated Avg. Power+Max. Tolerance (dBm)		23.50		
3GPP Rel 5	HSDPA Subtest-1	23.09	23.13	23.13
	HSDPA Subtest-2	23.34	23.16	23.33
	HSDPA Subtest-3	22.85	22.74	22.83
	HSDPA Subtest-4	22.91	22.65	22.88
3GPP Rel 6	HSUPA Subtest-1	23.45	23.20	23.32
	HSUPA Subtest-2	22.82	22.71	22.82
	HSUPA Subtest-3	23.42	23.14	23.25
	HSUPA Subtest-4	23.39	23.10	23.09
	HSUPA Subtest-5	23.48	23.15	23.28

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	24.11	24.28	24.40
Max. Rated Avg. Power+Max. Tolerance (dBm)		23.50		
3GPP Rel 5	HSDPA Subtest-1	23.10	23.15	23.35
	HSDPA Subtest-2	23.02	23.35	23.49
	HSDPA Subtest-3	22.46	22.82	22.84
	HSDPA Subtest-4	22.48	22.85	22.86
3GPP Rel 6	HSUPA Subtest-1	22.99	23.29	23.33
	HSUPA Subtest-2	22.66	22.85	22.94
	HSUPA Subtest-3	22.90	23.36	23.38
	HSUPA Subtest-4	23.05	23.25	23.37
	HSUPA Subtest-5	22.99	23.30	23.35

**WCDMA Band II / Band IV / Band V - HSDPA / HSUPA 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)		18.50		
3GPP Rel 99	RMC 12.2Kbps	18.47	18.10	18.37
Max. Rated Avg. Power+Max. Tolerance (dBm)		17.50		
3GPP Rel 5	HSDPA Subtest-1	17.15	16.90	17.22
	HSDPA Subtest-2	17.13	16.94	17.26
	HSDPA Subtest-3	16.66	16.46	16.69
	HSDPA Subtest-4	16.67	17.47	16.70
3GPP Rel 6	HSUPA Subtest-1	17.17	16.87	17.21
	HSUPA Subtest-2	16.62	16.35	16.70
	HSUPA Subtest-3	17.06	16.89	17.22
	HSUPA Subtest-4	17.12	16.83	17.13
	HSUPA Subtest-5	17.07	16.88	17.17

Band		WCDMA IV		
TX Channel		1312	1412	1513
Frequency (MHz)		1712.4	1732.4	1752.6
Max. Rated Avg. Power+Max. Tolerance (dBm)		18.50		
3GPP Rel 99	RMC 12.2Kbps	18.46	18.49	18.47
Max. Rated Avg. Power+Max. Tolerance (dBm)		17.50		
3GPP Rel 5	HSDPA Subtest-1	17.29	17.42	17.41
	HSDPA Subtest-2	17.29	17.43	17.38
	HSDPA Subtest-3	16.81	16.99	16.88
	HSDPA Subtest-4	16.83	17.00	16.91
3GPP Rel 6	HSUPA Subtest-1	17.31	17.45	17.41
	HSUPA Subtest-2	16.77	16.90	16.89
	HSUPA Subtest-3	17.33	17.47	17.43
	HSUPA Subtest-4	17.27	17.42	17.40
	HSUPA Subtest-5	17.27	17.40	17.40

Band		WCDMA V		
TX Channel		4132	4183	4233
Frequency (MHz)		826.4	836.6	846.6
Max. Rated Avg. Power+Max. Tolerance (dBm)		20.50		
3GPP Rel 99	RMC 12.2Kbps	20.06	20.33	20.47
Max. Rated Avg. Power+Max. Tolerance (dBm)		19.50		
3GPP Rel 5	HSDPA Subtest-1	19.18	19.29	19.43
	HSDPA Subtest-2	19.16	19.30	19.49
	HSDPA Subtest-3	18.72	18.81	19.02
	HSDPA Subtest-4	18.71	18.83	19.00
3GPP Rel 6	HSUPA Subtest-1	19.14	19.28	19.45
	HSUPA Subtest-2	18.70	18.83	18.89
	HSUPA Subtest-3	19.20	19.40	19.49
	HSUPA Subtest-4	19.21	19.32	19.47
	HSUPA Subtest-5	19.13	19.35	19.45

Sub-Test for HSDPA

SUB-TEST	β_c	β_d	β_d (SF)	β_c/β_d	β_{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	β_c	β_d	β_d (SF)	β_c/β_d	β_{HS} (Note 1)	β_{ec}	β_{ed} (Note 5) (Note 6)	β_{ed} (SF)	β_{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

LTE FDD Band 2/ Band 4/ Band 5/ Band 7/ Band 12/ Band 13/ Band 17 power table:

FDD Band 2 (Full Power)									
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	23.89	24	0	
				1880	18900	23.98	24	0	
				1900	19100	23.82	24	0	
			50	1860	18700	23.85	24	0	
				1880	18900	23.54	24	0	
				1900	19100	23.57	24	0	
			99	1860	18700	23.72	24	0	
				1880	18900	23.87	24	0	
				1900	19100	23.66	24	0	
		50 RB	0	1860	18700	22.78	23	0-1	
				1880	18900	22.62	23	0-1	
				1900	19100	22.46	23	0-1	
			25	1860	18700	22.79	23	0-1	
				1880	18900	22.77	23	0-1	
				1900	19100	22.60	23	0-1	
			50	1860	18700	22.65	23	0-1	
				1880	18900	22.70	23	0-1	
				1900	19100	22.63	23	0-1	
		100RB	1860	18700	22.61	23	0-1		
			1880	18900	22.68	23	0-1		
			1900	19100	22.66	23	0-1		
		16-QAM	1 RB	0	1860	18700	22.70	23	0-1
					1880	18900	22.89	23	0-1
					1900	19100	22.61	23	0-1
	50			1860	18700	22.93	23	0-1	
				1880	18900	22.35	23	0-1	
				1900	19100	22.91	23	0-1	
	99			1860	18700	22.72	23	0-1	
				1880	18900	22.39	23	0-1	
				1900	19100	22.91	23	0-1	
	50 RB			0	1860	18700	21.80	22	0-2
					1880	18900	21.48	22	0-2
					1900	19100	21.82	22	0-2
			25	1860	18700	21.75	22	0-2	
				1880	18900	21.52	22	0-2	
				1900	19100	21.56	22	0-2	
			50	1860	18700	21.72	22	0-2	
				1880	18900	21.74	22	0-2	
				1900	19100	21.55	22	0-2	
			100RB	1860	18700	21.61	22	0-2	
				1880	18900	21.57	22	0-2	
				1900	19100	21.69	22	0-2	

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FDD Band 2 (Full Power)									
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	23.90	24	0	
				1880	18900	23.60	24	0	
				1902.5	19125	23.71	24	0	
			36	1857.5	18675	23.80	24	0	
				1880	18900	23.39	24	0	
				1902.5	19125	23.49	24	0	
		74	1857.5	18675	23.67	24	0		
			1880	18900	23.71	24	0		
			1902.5	19125	23.85	24	0		
		36 RB	0	1857.5	18675	22.75	23	0-1	
				1880	18900	22.55	23	0-1	
				1902.5	19125	22.59	23	0-1	
			18	1857.5	18675	22.70	23	0-1	
				1880	18900	22.50	23	0-1	
				1902.5	19125	22.62	23	0-1	
			37	1857.5	18675	22.71	23	0-1	
				1880	18900	22.68	23	0-1	
				1902.5	19125	22.65	23	0-1	
			75RB	1857.5	18675	22.73	23	0-1	
				1880	18900	22.61	23	0-1	
				1902.5	19125	22.51	23	0-1	
		16-QAM	1 RB	0	1857.5	18675	22.88	23	0-1
					1880	18900	22.18	23	0-1
					1902.5	19125	22.28	23	0-1
	36			1857.5	18675	22.83	23	0-1	
				1880	18900	22.26	23	0-1	
				1902.5	19125	22.37	23	0-1	
	74			1857.5	18675	22.61	23	0-1	
				1880	18900	22.55	23	0-1	
				1902.5	19125	22.30	23	0-1	
	36 RB			0	1857.5	18675	21.84	22	0-2
					1880	18900	21.21	22	0-2
					1902.5	19125	21.65	22	0-2
			18	1857.5	18675	21.67	22	0-2	
				1880	18900	21.52	22	0-2	
				1902.5	19125	21.56	22	0-2	
			37	1857.5	18675	21.68	22	0-2	
				1880	18900	21.61	22	0-2	
				1902.5	19125	21.43	22	0-2	
	75RB		1857.5	18675	21.91	22	0-2		
			1880	18900	21.39	22	0-2		
			1902.5	19125	21.54	22	0-2		

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FDD Band 2 (Full Power)									
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	23.97	24	0	
				1880	18900	23.53	24	0	
				1905	19150	23.64	24	0	
			25	1855	18650	23.71	24	0	
				1880	18900	23.44	24	0	
				1905	19150	23.47	24	0	
			49	1855	18650	23.83	24	0	
				1880	18900	23.68	24	0	
				1905	19150	23.83	24	0	
		25 RB	0	1855	18650	22.72	23	0-1	
				1880	18900	22.53	23	0-1	
				1905	19150	22.58	23	0-1	
			12	1855	18650	22.70	23	0-1	
				1880	18900	22.47	23	0-1	
				1905	19150	22.60	23	0-1	
			25	1855	18650	22.68	23	0-1	
				1880	18900	22.64	23	0-1	
				1905	19150	22.73	23	0-1	
		50RB	1855	18650	22.83	23	0-1		
			1880	18900	22.59	23	0-1		
			1905	19150	22.67	23	0-1		
		16-QAM	1 RB	0	1855	18650	22.71	23	0-1
					1880	18900	22.13	23	0-1
					1905	19150	22.27	23	0-1
	25			1855	18650	22.53	23	0-1	
				1880	18900	22.63	23	0-1	
				1905	19150	22.70	23	0-1	
	49			1855	18650	22.58	23	0-1	
				1880	18900	22.65	23	0-1	
				1905	19150	22.55	23	0-1	
	25 RB			0	1855	18650	21.96	22	0-2
					1880	18900	21.61	22	0-2
					1905	19150	21.57	22	0-2
			12	1855	18650	21.59	22	0-2	
				1880	18900	21.43	22	0-2	
				1905	19150	21.56	22	0-2	
			25	1855	18650	21.57	22	0-2	
				1880	18900	21.61	22	0-2	
				1905	19150	21.74	22	0-2	
	50RB		1855	18650	21.83	22	0-2		
			1880	18900	21.39	22	0-2		
			1905	19150	21.75	22	0-2		

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FDD Band 2 (Full Power)									
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	23.66	24	0	
				1880	18900	23.38	24	0	
				1907.5	19175	23.63	24	0	
			12	1852.5	18625	23.67	24	0	
				1880	18900	23.49	24	0	
				1907.5	19175	23.68	24	0	
		24	1852.5	18625	23.68	24	0		
			1880	18900	23.89	24	0		
			1907.5	19175	23.62	24	0		
		12 RB	0	1852.5	18625	22.67	23	0-1	
				1880	18900	22.39	23	0-1	
				1907.5	19175	22.66	23	0-1	
			6	1852.5	18625	22.72	23	0-1	
				1880	18900	22.45	23	0-1	
				1907.5	19175	22.68	23	0-1	
			13	1852.5	18625	22.80	23	0-1	
				1880	18900	22.49	23	0-1	
				1907.5	19175	22.72	23	0-1	
		25RB	1852.5	18625	22.71	23	0-1		
			1880	18900	22.43	23	0-1		
			1907.5	19175	22.73	23	0-1		
		16-QAM	1 RB	0	1852.5	18625	22.81	23	0-1
					1880	18900	22.35	23	0-1
					1907.5	19175	22.38	23	0-1
	12			1852.5	18625	22.28	23	0-1	
				1880	18900	22.50	23	0-1	
				1907.5	19175	22.45	23	0-1	
	24			1852.5	18625	22.57	23	0-1	
				1880	18900	22.26	23	0-1	
				1907.5	19175	22.81	23	0-1	
	12 RB			0	1852.5	18625	21.61	22	0-2
					1880	18900	21.35	22	0-2
					1907.5	19175	21.72	22	0-2
			6	1852.5	18625	21.95	22	0-2	
				1880	18900	21.48	22	0-2	
				1907.5	19175	21.36	22	0-2	
			13	1852.5	18625	21.91	22	0-2	
				1880	18900	21.24	22	0-2	
				1907.5	19175	21.62	22	0-2	
	25RB		1852.5	18625	21.68	22	0-2		
			1880	18900	21.41	22	0-2		
			1907.5	19175	21.77	22	0-2		

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FDD Band 2 (Full Power)									
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	23.73	24	0	
				1880	18900	23.48	24	0	
				1908.5	19185	23.64	24	0	
			7	1851.5	18615	23.56	24	0	
				1880	18900	23.42	24	0	
				1908.5	19185	23.59	24	0	
		14	1851.5	18615	23.67	24	0		
			1880	18900	23.64	24	0		
			1908.5	19185	23.78	24	0		
		8 RB	0	1851.5	18615	22.67	23	0-1	
				1880	18900	22.46	23	0-1	
				1908.5	19185	22.53	23	0-1	
			4	1851.5	18615	22.64	23	0-1	
				1880	18900	22.50	23	0-1	
				1908.5	19185	22.53	23	0-1	
			7	1851.5	18615	22.64	23	0-1	
				1880	18900	22.59	23	0-1	
				1908.5	19185	22.72	23	0-1	
		15RB	1851.5	18615	22.68	23	0-1		
			1880	18900	22.44	23	0-1		
			1908.5	19185	22.72	23	0-1		
		16-QAM	1 RB	0	1851.5	18615	22.35	23	0-1
					1880	18900	22.22	23	0-1
					1908.5	19185	22.38	23	0-1
	7			1851.5	18615	22.88	23	0-1	
				1880	18900	22.36	23	0-1	
				1908.5	19185	22.71	23	0-1	
	14			1851.5	18615	22.89	23	0-1	
				1880	18900	22.44	23	0-1	
				1908.5	19185	22.78	23	0-1	
	8 RB			0	1851.5	18615	21.61	22	0-2
					1880	18900	21.43	22	0-2
					1908.5	19185	21.53	22	0-2
			4	1851.5	18615	21.74	22	0-2	
				1880	18900	21.39	22	0-2	
				1908.5	19185	21.57	22	0-2	
			7	1851.5	18615	21.81	22	0-2	
				1880	18900	21.52	22	0-2	
				1908.5	19185	21.53	22	0-2	
	15RB		1851.5	18615	21.57	22	0-2		
			1880	18900	21.34	22	0-2		
			1908.5	19185	21.51	22	0-2		

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FDD Band 2 (Full Power)									
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	23.67	24	0	
				1880	18900	23.39	24	0	
				1909.3	19193	23.78	24	0	
			2	1850.7	18607	23.73	24	0	
				1880	18900	23.47	24	0	
				1909.3	19193	23.78	24	0	
		5	1850.7	18607	23.76	24	0		
			1880	18900	23.51	24	0		
			1909.3	19193	23.71	24	0		
		3 RB	0	1850.7	18607	23.77	24	0	
				1880	18900	23.48	24	0	
				1909.3	19193	23.78	24	0	
			2	1850.7	18607	23.84	24	0	
				1880	18900	23.45	24	0	
				1909.3	19193	23.67	24	0	
			3	1850.7	18607	23.76	24	0	
				1880	18900	23.43	24	0	
				1909.3	19193	23.75	24	0	
		6RB	1850.7	18607	22.70	23	0-1		
			1880	18900	22.43	23	0-1		
			1909.3	19193	22.73	23	0-1		
		16-QAM	1 RB	0	1850.7	18607	22.55	23	0-1
					1880	18900	22.44	23	0-1
					1909.3	19193	23.00	23	0-1
	2			1850.7	18607	22.56	23	0-1	
				1880	18900	22.29	23	0-1	
				1909.3	19193	22.27	23	0-1	
	5			1850.7	18607	22.89	23	0-1	
				1880	18900	22.07	23	0-1	
				1909.3	19193	22.68	23	0-1	
	3 RB			0	1850.7	18607	22.62	23	0-1
					1880	18900	22.49	23	0-1
					1909.3	19193	22.72	23	0-1
			2	1850.7	18607	22.72	23	0-1	
				1880	18900	22.46	23	0-1	
				1909.3	19193	22.71	23	0-1	
			3	1850.7	18607	22.70	23	0-1	
				1880	18900	22.48	23	0-1	
				1909.3	19193	22.52	23	0-1	
	6RB		1850.7	18607	21.55	22	0-2		
			1880	18900	21.11	22	0-2		
			1909.3	19193	21.54	22	0-2		

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FDD Band 2 (Reduced Power)										
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	18.38	18.5	0		
				1880	18900	18.15	18.5	0		
				1900	19100	18.27	18.5	0		
			50	1860	18700	18.20	18.5	0		
					1880	18900	17.96	18.5	0	
					1900	19100	18.28	18.5	0	
				99	1860	18700	18.03	18.5	0	
						1880	18900	18.24	18.5	0
						1900	19100	18.13	18.5	0
		50 RB	0	1860	18700	18.33	18.5	0-1		
					1880	18900	18.09	18.5	0-1	
					1900	19100	18.25	18.5	0-1	
			25	1860	18700	18.39	18.5	0-1		
					1880	18900	18.22	18.5	0-1	
					1900	19100	18.36	18.5	0-1	
				50	1860	18700	18.04	18.5	0-1	
						1880	18900	18.26	18.5	0-1
						1900	19100	18.09	18.5	0-1
		100RB	1860	18700	18.30	18.5	0-1			
				1880	18900	18.06	18.5	0-1		
				1900	19100	18.17	18.5	0-1		
		16-QAM	1 RB	0	1860	18700	18.16	18.5	0-1	
					1880	18900	18.36	18.5	0-1	
					1900	19100	18.28	18.5	0-1	
	50			1860	18700	18.09	18.5	0-1		
					1880	18900	18.07	18.5	0-1	
					1900	19100	18.14	18.5	0-1	
				99	1860	18700	17.71	18.5	0-1	
						1880	18900	18.45	18.5	0-1
						1900	19100	18.41	18.5	0-1
	50 RB			0	1860	18700	18.23	18.5	0-2	
						1880	18900	18.07	18.5	0-2
						1900	19100	18.26	18.5	0-2
			25	1860	18700	18.39	18.5	0-2		
					1880	18900	18.10	18.5	0-2	
					1900	19100	18.10	18.5	0-2	
				50	1860	18700	18.19	18.5	0-2	
						1880	18900	18.13	18.5	0-2
						1900	19100	18.17	18.5	0-2
	100RB		1860	18700	18.24	18.5	0-2			
				1880	18900	18.27	18.5	0-2		
				1900	19100	18.14	18.5	0-2		

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FDD Band 2 (Reduced Power)									
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	18.35	18.5	0	
				1880	18900	18.12	18.5	0	
				1902.5	19125	18.30	18.5	0	
			36	1857.5	18675	18.42	18.5	0	
				1880	18900	17.97	18.5	0	
				1902.5	19125	18.19	18.5	0	
		74	1857.5	18675	18.23	18.5	0		
			1880	18900	18.28	18.5	0		
			1902.5	19125	18.24	18.5	0		
		36 RB	0	1857.5	18675	18.15	18.5	0-1	
				1880	18900	18.02	18.5	0-1	
				1902.5	19125	18.22	18.5	0-1	
			18	1857.5	18675	18.22	18.5	0-1	
				1880	18900	18.27	18.5	0-1	
				1902.5	19125	18.16	18.5	0-1	
			37	1857.5	18675	18.31	18.5	0-1	
				1880	18900	18.27	18.5	0-1	
				1902.5	19125	18.09	18.5	0-1	
		75RB	1857.5	18675	18.19	18.5	0-1		
			1880	18900	18.28	18.5	0-1		
			1902.5	19125	18.25	18.5	0-1		
		16-QAM	1 RB	0	1857.5	18675	18.48	18.5	0-1
					1880	18900	17.81	18.5	0-1
					1902.5	19125	18.40	18.5	0-1
	36			1857.5	18675	18.43	18.5	0-1	
				1880	18900	17.80	18.5	0-1	
				1902.5	19125	18.41	18.5	0-1	
	74			1857.5	18675	18.06	18.5	0-1	
				1880	18900	18.43	18.5	0-1	
				1902.5	19125	17.89	18.5	0-1	
	36 RB			0	1857.5	18675	18.29	18.5	0-2
					1880	18900	18.06	18.5	0-2
					1902.5	19125	18.13	18.5	0-2
			18	1857.5	18675	18.25	18.5	0-2	
				1880	18900	18.27	18.5	0-2	
				1902.5	19125	18.10	18.5	0-2	
			37	1857.5	18675	18.22	18.5	0-2	
				1880	18900	18.43	18.5	0-2	
				1902.5	19125	18.14	18.5	0-2	
	75RB		1857.5	18675	18.30	18.5	0-2		
			1880	18900	18.17	18.5	0-2		
			1902.5	19125	18.20	18.5	0-2		

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FDD Band 2 (Reduced Power)									
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	18.30	18.5	0	
				1880	18900	18.02	18.5	0	
				1905	19150	18.19	18.5	0	
			25	1855	18650	18.31	18.5	0	
				1880	18900	17.99	18.5	0	
				1905	19150	18.08	18.5	0	
		49	1855	18650	18.29	18.5	0		
			1880	18900	18.20	18.5	0		
			1905	19150	18.25	18.5	0		
		25 RB	0	1855	18650	18.24	18.5	0-1	
				1880	18900	18.01	18.5	0-1	
				1905	19150	18.19	18.5	0-1	
			12	1855	18650	18.43	18.5	0-1	
				1880	18900	17.96	18.5	0-1	
				1905	19150	18.12	18.5	0-1	
			25	1855	18650	18.20	18.5	0-1	
				1880	18900	18.25	18.5	0-1	
				1905	19150	17.97	18.5	0-1	
		50RB	1855	18650	18.42	18.5	0-1		
			1880	18900	18.00	18.5	0-1		
			1905	19150	18.11	18.5	0-1		
		16-QAM	1 RB	0	1855	18650	18.41	18.5	0-1
					1880	18900	18.46	18.5	0-1
					1905	19150	18.38	18.5	0-1
	25			1855	18650	18.32	18.5	0-1	
				1880	18900	17.85	18.5	0-1	
				1905	19150	17.69	18.5	0-1	
	49			1855	18650	18.22	18.5	0-1	
				1880	18900	17.88	18.5	0-1	
				1905	19150	18.39	18.5	0-1	
	25 RB		0	1855	18650	18.40	18.5	0-2	
				1880	18900	17.99	18.5	0-2	
				1905	19150	18.20	18.5	0-2	
			12	1855	18650	18.02	18.5	0-2	
				1880	18900	17.98	18.5	0-2	
				1905	19150	18.16	18.5	0-2	
			25	1855	18650	18.32	18.5	0-2	
				1880	18900	18.09	18.5	0-2	
				1905	19150	18.29	18.5	0-2	
	50RB		1855	18650	18.28	18.5	0-2		
			1880	18900	18.21	18.5	0-2		
			1905	19150	18.19	18.5	0-2		

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FDD Band 2 (Reduced Power)									
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	18.40	18.5	0	
				1880	18900	18.03	18.5	0	
				1907.5	19175	17.93	18.5	0	
			12	1852.5	18625	18.21	18.5	0	
				1880	18900	18.09	18.5	0	
				1907.5	19175	18.02	18.5	0	
		24	1852.5	18625	18.15	18.5	0		
			1880	18900	18.36	18.5	0		
			1907.5	19175	18.18	18.5	0		
		12 RB	0	1852.5	18625	18.18	18.5	0-1	
				1880	18900	17.90	18.5	0-1	
				1907.5	19175	18.35	18.5	0-1	
			6	1852.5	18625	18.23	18.5	0-1	
				1880	18900	17.99	18.5	0-1	
				1907.5	19175	18.41	18.5	0-1	
			13	1852.5	18625	18.41	18.5	0-1	
				1880	18900	18.38	18.5	0-1	
				1907.5	19175	18.29	18.5	0-1	
		25RB	1852.5	18625	18.27	18.5	0-1		
			1880	18900	17.93	18.5	0-1		
			1907.5	19175	18.11	18.5	0-1		
		16-QAM	1 RB	0	1852.5	18625	18.14	18.5	0-1
					1880	18900	17.77	18.5	0-1
					1907.5	19175	18.23	18.5	0-1
	12			1852.5	18625	18.44	18.5	0-1	
				1880	18900	18.20	18.5	0-1	
				1907.5	19175	18.31	18.5	0-1	
	24			1852.5	18625	18.30	18.5	0-1	
				1880	18900	18.20	18.5	0-1	
				1907.5	19175	18.47	18.5	0-1	
	12 RB		0	1852.5	18625	18.34	18.5	0-2	
				1880	18900	17.91	18.5	0-2	
				1907.5	19175	18.29	18.5	0-2	
			6	1852.5	18625	18.35	18.5	0-2	
				1880	18900	17.92	18.5	0-2	
				1907.5	19175	18.17	18.5	0-2	
			13	1852.5	18625	18.35	18.5	0-2	
				1880	18900	18.34	18.5	0-2	
				1907.5	19175	18.28	18.5	0-2	
	25RB		1852.5	18625	18.42	18.5	0-2		
			1880	18900	18.22	18.5	0-2		
			1907.5	19175	18.27	18.5	0-2		

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FDD Band 2 (Reduced Power)									
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	18.23	18.5	0	
				1880	18900	18.02	18.5	0	
				1908.5	19185	18.15	18.5	0	
			7	1851.5	18615	18.17	18.5	0	
				1880	18900	18.00	18.5	0	
				1908.5	19185	18.35	18.5	0	
		14	1851.5	18615	18.19	18.5	0		
			1880	18900	18.22	18.5	0		
			1908.5	19185	18.33	18.5	0		
		8 RB	0	1851.5	18615	18.48	18.5	0-1	
				1880	18900	18.02	18.5	0-1	
				1908.5	19185	18.33	18.5	0-1	
			4	1851.5	18615	18.23	18.5	0-1	
				1880	18900	17.96	18.5	0-1	
				1908.5	19185	18.33	18.5	0-1	
			7	1851.5	18615	18.25	18.5	0-1	
				1880	18900	18.14	18.5	0-1	
				1908.5	19185	18.24	18.5	0-1	
		15RB	1851.5	18615	18.26	18.5	0-1		
			1880	18900	18.02	18.5	0-1		
			1908.5	19185	18.27	18.5	0-1		
		16-QAM	1 RB	0	1851.5	18615	18.39	18.5	0-1
					1880	18900	17.68	18.5	0-1
					1908.5	19185	18.48	18.5	0-1
	7			1851.5	18615	18.17	18.5	0-1	
				1880	18900	17.56	18.5	0-1	
				1908.5	19185	17.75	18.5	0-1	
	14			1851.5	18615	18.05	18.5	0-1	
				1880	18900	18.12	18.5	0-1	
				1908.5	19185	17.99	18.5	0-1	
	8 RB		0	1851.5	18615	18.38	18.5	0-2	
				1880	18900	18.03	18.5	0-2	
				1908.5	19185	18.23	18.5	0-2	
			4	1851.5	18615	18.29	18.5	0-2	
				1880	18900	18.15	18.5	0-2	
				1908.5	19185	18.29	18.5	0-2	
			7	1851.5	18615	18.25	18.5	0-2	
				1880	18900	18.08	18.5	0-2	
				1908.5	19185	18.18	18.5	0-2	
	15RB		1851.5	18615	18.39	18.5	0-2		
			1880	18900	17.96	18.5	0-2		
			1908.5	19185	18.34	18.5	0-2		

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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	18.25	18.5	0	
				1880	18900	17.97	18.5	0	
				1909.3	19193	18.11	18.5	0	
			2	1850.7	18607	18.45	18.5	0	
				1880	18900	17.98	18.5	0	
				1909.3	19193	18.28	18.5	0	
		5	1850.7	18607	18.38	18.5	0		
			1880	18900	18.19	18.5	0		
			1909.3	19193	18.19	18.5	0		
		3 RB	0	1850.7	18607	18.33	18.5	0	
				1880	18900	18.11	18.5	0	
				1909.3	19193	18.21	18.5	0	
			2	1850.7	18607	18.48	18.5	0	
				1880	18900	18.00	18.5	0	
				1909.3	19193	18.27	18.5	0	
			3	1850.7	18607	18.19	18.5	0	
				1880	18900	18.00	18.5	0	
				1909.3	19193	18.21	18.5	0	
		6RB	1850.7	18607	18.39	18.5	0-1		
			1880	18900	18.02	18.5	0-1		
			1909.3	19193	18.20	18.5	0-1		
		16-QAM	1 RB	0	1850.7	18607	18.46	18.5	0-1
					1880	18900	17.89	18.5	0-1
					1909.3	19193	18.33	18.5	0-1
	2			1850.7	18607	18.41	18.5	0-1	
				1880	18900	18.14	18.5	0-1	
				1909.3	19193	18.25	18.5	0-1	
	5			1850.7	18607	17.85	18.5	0-1	
				1880	18900	18.27	18.5	0-1	
				1909.3	19193	18.05	18.5	0-1	
	3 RB		0	1850.7	18607	18.31	18.5	0-1	
				1880	18900	18.00	18.5	0-1	
				1909.3	19193	18.20	18.5	0-1	
			2	1850.7	18607	18.22	18.5	0-1	
				1880	18900	17.93	18.5	0-1	
				1909.3	19193	18.06	18.5	0-1	
			3	1850.7	18607	18.28	18.5	0-1	
				1880	18900	18.02	18.5	0-1	
				1909.3	19193	18.09	18.5	0-1	
	6RB		1850.7	18607	18.18	18.5	0-2		
			1880	18900	17.89	18.5	0-2		
			1909.3	19193	18.24	18.5	0-2		

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FDD Band 4 (Full Power)									
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	23.61	24	0	
				1732.5	20175	23.89	24	0	
				1745	20300	23.68	24	0	
			50	1720	20050	23.63	24	0	
				1732.5	20175	23.39	24	0	
				1745	20300	23.31	24	0	
			99	1720	20050	23.61	24	0	
				1732.5	20175	23.43	24	0	
				1745	20300	23.41	24	0	
		50 RB	0	1720	20050	22.78	23	0-1	
				1732.5	20175	22.71	23	0-1	
				1745	20300	22.56	23	0-1	
			25	1720	20050	22.69	23	0-1	
				1732.5	20175	22.61	23	0-1	
				1745	20300	22.88	23	0-1	
			50	1720	20050	22.81	23	0-1	
				1732.5	20175	22.65	23	0-1	
				1745	20300	22.56	23	0-1	
		100RB	1720	20050	22.73	23	0-1		
			1732.5	20175	22.74	23	0-1		
			1745	20300	22.64	23	0-1		
		16-QAM	1 RB	0	1720	20050	22.90	23	0-1
					1732.5	20175	22.45	23	0-1
					1745	20300	22.27	23	0-1
	50			1720	20050	23.00	23	0-1	
				1732.5	20175	22.28	23	0-1	
				1745	20300	22.38	23	0-1	
	99			1720	20050	22.87	23	0-1	
				1732.5	20175	22.17	23	0-1	
				1745	20300	22.16	23	0-1	
	50 RB			0	1720	20050	21.73	22	0-2
					1732.5	20175	21.66	22	0-2
					1745	20300	21.62	22	0-2
			25	1720	20050	21.67	22	0-2	
				1732.5	20175	21.51	22	0-2	
				1745	20300	21.54	22	0-2	
			50	1720	20050	21.46	22	0-2	
				1732.5	20175	21.53	22	0-2	
				1745	20300	21.55	22	0-2	
	100RB		1720	20050	21.69	22	0-2		
			1732.5	20175	21.76	22	0-2		
			1745	20300	21.70	22	0-2		

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FDD Band 4 (Full Power)									
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	23.53	24	0	
				1732.5	20175	23.75	24	0	
				1747.5	20325	23.68	24	0	
			36	1717.5	20025	23.84	24	0	
				1732.5	20175	23.48	24	0	
				1747.5	20325	23.51	24	0	
			74	1717.5	20025	23.56	24	0	
				1732.5	20175	23.46	24	0	
				1747.5	20325	23.63	24	0	
		36 RB	0	1717.5	20025	22.63	23	0-1	
				1732.5	20175	22.66	23	0-1	
				1747.5	20325	22.63	23	0-1	
			18	1717.5	20025	22.50	23	0-1	
				1732.5	20175	22.55	23	0-1	
				1747.5	20325	22.30	23	0-1	
			37	1717.5	20025	22.55	23	0-1	
				1732.5	20175	22.59	23	0-1	
				1747.5	20325	22.50	23	0-1	
			75RB	1717.5	20025	22.83	23	0-1	
				1732.5	20175	22.55	23	0-1	
				1747.5	20325	22.62	23	0-1	
		16-QAM	1 RB	0	1717.5	20025	22.03	23	0-1
					1732.5	20175	22.45	23	0-1
					1747.5	20325	22.05	23	0-1
	36			1717.5	20025	22.11	23	0-1	
				1732.5	20175	22.06	23	0-1	
				1747.5	20325	22.26	23	0-1	
	74			1717.5	20025	22.85	23	0-1	
				1732.5	20175	22.66	23	0-1	
				1747.5	20325	22.31	23	0-1	
	36 RB			0	1717.5	20025	21.62	22	0-2
					1732.5	20175	21.57	22	0-2
					1747.5	20325	21.66	22	0-2
			18	1717.5	20025	21.47	22	0-2	
				1732.5	20175	21.48	22	0-2	
				1747.5	20325	21.32	22	0-2	
			37	1717.5	20025	21.51	22	0-2	
				1732.5	20175	21.36	22	0-2	
				1747.5	20325	21.50	22	0-2	
	75RB		1717.5	20025	21.43	22	0-2		
			1732.5	20175	21.65	22	0-2		
			1747.5	20325	21.53	22	0-2		

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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	23.46	24	0	
				1732.5	20175	23.72	24	0	
				1750	20350	23.49	24	0	
			25	1715	20000	23.71	24	0	
				1732.5	20175	23.49	24	0	
				1750	20350	23.61	24	0	
			49	1715	20000	23.58	24	0	
				1732.5	20175	23.64	24	0	
				1750	20350	23.57	24	0	
		25 RB	0	1715	20000	22.41	23	0-1	
				1732.5	20175	22.56	23	0-1	
				1750	20350	22.52	23	0-1	
			12	1715	20000	22.61	23	0-1	
				1732.5	20175	22.56	23	0-1	
				1750	20350	22.58	23	0-1	
			25	1715	20000	22.59	23	0-1	
				1732.5	20175	22.58	23	0-1	
				1750	20350	22.51	23	0-1	
		50RB	1715	20000	22.72	23	0-1		
			1732.5	20175	22.56	23	0-1		
			1750	20350	22.59	23	0-1		
		16-QAM	1 RB	0	1715	20000	22.58	23	0-1
					1732.5	20175	22.34	23	0-1
					1750	20350	22.12	23	0-1
	25			1715	20000	22.17	23	0-1	
				1732.5	20175	22.66	23	0-1	
				1750	20350	22.59	23	0-1	
	49			1715	20000	22.99	23	0-1	
				1732.5	20175	22.57	23	0-1	
				1750	20350	22.33	23	0-1	
	25 RB			0	1715	20000	21.45	22	0-2
					1732.5	20175	21.53	22	0-2
					1750	20350	21.63	22	0-2
			12	1715	20000	21.67	22	0-2	
				1732.5	20175	21.60	22	0-2	
				1750	20350	21.25	22	0-2	
			25	1715	20000	21.55	22	0-2	
				1732.5	20175	21.35	22	0-2	
				1750	20350	21.43	22	0-2	
	50RB		1715	20000	21.61	22	0-2		
			1732.5	20175	21.53	22	0-2		
			1750	20350	21.58	22	0-2		

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FDD Band 4 (Full Power)									
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	23.57	24	0	
				1732.5	20175	23.56	24	0	
				1752.5	20375	23.51	24	0	
			12	1712.5	19975	23.36	24	0	
				1732.5	20175	23.52	24	0	
				1752.5	20375	23.52	24	0	
		24	1712.5	19975	23.45	24	0		
			1732.5	20175	23.48	24	0		
			1752.5	20375	23.36	24	0		
		12 RB	0	1712.5	19975	22.81	23	0-1	
				1732.5	20175	22.57	23	0-1	
				1752.5	20375	22.57	23	0-1	
			6	1712.5	19975	22.52	23	0-1	
				1732.5	20175	22.59	23	0-1	
				1752.5	20375	22.50	23	0-1	
			13	1712.5	19975	22.60	23	0-1	
				1732.5	20175	22.54	23	0-1	
				1752.5	20375	22.52	23	0-1	
		25RB	1712.5	19975	22.46	23	0-1		
			1732.5	20175	22.60	23	0-1		
			1752.5	20375	22.50	23	0-1		
		16-QAM	1 RB	0	1712.5	19975	22.03	23	0-1
					1732.5	20175	22.66	23	0-1
					1752.5	20375	22.57	23	0-1
	12			1712.5	19975	22.47	23	0-1	
				1732.5	20175	22.32	23	0-1	
				1752.5	20375	22.95	23	0-1	
	24			1712.5	19975	22.78	23	0-1	
				1732.5	20175	22.37	23	0-1	
				1752.5	20375	22.21	23	0-1	
	12 RB		0	1712.5	19975	21.41	22	0-2	
				1732.5	20175	21.62	22	0-2	
				1752.5	20375	21.49	22	0-2	
			6	1712.5	19975	21.58	22	0-2	
				1732.5	20175	21.54	22	0-2	
				1752.5	20375	21.59	22	0-2	
			13	1712.5	19975	21.70	22	0-2	
				1732.5	20175	21.54	22	0-2	
				1752.5	20375	21.48	22	0-2	
	25RB		1712.5	19975	21.47	22	0-2		
			1732.5	20175	21.40	22	0-2		
			1752.5	20375	21.47	22	0-2		

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FDD Band 4 (Full Power)									
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	23.10	24	0	
				1732.5	20175	23.47	24	0	
				1753.5	20385	23.54	24	0	
			7	1711.5	19965	23.37	24	0	
				1732.5	20175	23.57	24	0	
				1753.5	20385	23.37	24	0	
		14	1711.5	19965	23.82	24	0		
			1732.5	20175	23.73	24	0		
			1753.5	20385	23.52	24	0		
		8 RB	0	1711.5	19965	22.34	23	0-1	
				1732.5	20175	22.58	23	0-1	
				1753.5	20385	22.51	23	0-1	
			4	1711.5	19965	22.43	23	0-1	
				1732.5	20175	22.60	23	0-1	
				1753.5	20385	22.51	23	0-1	
			7	1711.5	19965	22.43	23	0-1	
				1732.5	20175	22.56	23	0-1	
				1753.5	20385	22.52	23	0-1	
		15RB	1711.5	19965	22.39	23	0-1		
			1732.5	20175	22.63	23	0-1		
			1753.5	20385	22.56	23	0-1		
		16-QAM	1 RB	0	1711.5	19965	22.49	23	0-1
					1732.5	20175	22.77	23	0-1
					1753.5	20385	22.43	23	0-1
	7			1711.5	19965	22.74	23	0-1	
				1732.5	20175	22.20	23	0-1	
				1753.5	20385	22.16	23	0-1	
	14			1711.5	19965	22.26	23	0-1	
				1732.5	20175	22.44	23	0-1	
				1753.5	20385	22.20	23	0-1	
	8 RB			0	1711.5	19965	21.44	22	0-2
					1732.5	20175	21.61	22	0-2
					1753.5	20385	21.52	22	0-2
			4	1711.5	19965	21.99	22	0-2	
				1732.5	20175	21.67	22	0-2	
				1753.5	20385	21.64	22	0-2	
			7	1711.5	19965	21.54	22	0-2	
				1732.5	20175	21.54	22	0-2	
				1753.5	20385	21.52	22	0-2	
	15RB		1711.5	19965	21.36	22	0-2		
			1732.5	20175	21.55	22	0-2		
			1753.5	20385	21.45	22	0-2		

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FDD Band 4 (Full Power)									
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	23.75	24	0	
				1732.5	20175	23.51	24	0	
				1754.3	20393	23.49	24	0	
			2	1710.7	19957	23.55	24	0	
				1732.5	20175	23.53	24	0	
				1754.3	20393	23.47	24	0	
		5	1710.7	19957	23.80	24	0		
			1732.5	20175	23.77	24	0		
			1754.3	20393	23.44	24	0		
		3 RB	0	1710.7	19957	23.17	24	0	
				1732.5	20175	23.56	24	0	
				1754.3	20393	23.58	24	0	
			2	1710.7	19957	23.77	24	0	
				1732.5	20175	23.54	24	0	
				1754.3	20393	23.49	24	0	
			3	1710.7	19957	23.21	24	0	
				1732.5	20175	23.53	24	0	
				1754.3	20393	23.45	24	0	
		6RB	1710.7	19957	22.72	23	0-1		
			1732.5	20175	22.63	23	0-1		
			1754.3	20393	22.53	23	0-1		
		16-QAM	1 RB	0	1710.7	19957	22.46	23	0-1
					1732.5	20175	22.30	23	0-1
					1754.3	20393	22.59	23	0-1
	2			1710.7	19957	22.39	23	0-1	
				1732.5	20175	22.56	23	0-1	
				1754.3	20393	22.43	23	0-1	
	5			1710.7	19957	22.77	23	0-1	
				1732.5	20175	22.76	23	0-1	
				1754.3	20393	22.75	23	0-1	
	3 RB		0	1710.7	19957	22.19	23	0-1	
				1732.5	20175	22.53	23	0-1	
				1754.3	20393	22.49	23	0-1	
			2	1710.7	19957	22.19	23	0-1	
				1732.5	20175	22.58	23	0-1	
				1754.3	20393	22.52	23	0-1	
			3	1710.7	19957	22.25	23	0-1	
				1732.5	20175	22.54	23	0-1	
				1754.3	20393	22.57	23	0-1	
	6RB		1710.7	19957	21.54	22	0-2		
			1732.5	20175	21.43	22	0-2		
			1754.3	20393	21.39	22	0-2		

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FDD Band 4 (Reduced Power)									
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	18.36	18.5	0	
				1732.5	20175	18.33	18.5	0	
				1745	20300	18.30	18.5	0	
			50	1720	20050	18.27	18.5	0	
					1732.5	20175	18.17	18.5	0
					1745	20300	18.24	18.5	0
				1720	20050	18.21	18.5	0	
					1732.5	20175	18.14	18.5	0
					1745	20300	18.14	18.5	0
		50 RB	0	1720	20050	18.42	18.5	0-1	
				1732.5	20175	18.31	18.5	0-1	
				1745	20300	18.34	18.5	0-1	
			25	1720	20050	18.32	18.5	0-1	
					1732.5	20175	18.19	18.5	0-1
					1745	20300	18.27	18.5	0-1
				1720	20050	18.28	18.5	0-1	
					1732.5	20175	18.18	18.5	0-1
					1745	20300	18.20	18.5	0-1
		100RB	1720	20050	18.38	18.5	0-1		
			1732.5	20175	18.25	18.5	0-1		
			1745	20300	18.28	18.5	0-1		
		16-QAM	1 RB	0	1720	20050	18.49	18.5	0-1
					1732.5	20175	18.50	18.5	0-1
					1745	20300	17.93	18.5	0-1
	50			1720	20050	18.12	18.5	0-1	
					1732.5	20175	18.48	18.5	0-1
					1745	20300	17.86	18.5	0-1
				1720	20050	18.23	18.5	0-1	
					1732.5	20175	18.12	18.5	0-1
					1745	20300	17.84	18.5	0-1
	50 RB			0	1720	20050	18.42	18.5	0-2
					1732.5	20175	18.20	18.5	0-2
					1745	20300	18.40	18.5	0-2
			25	1720	20050	18.32	18.5	0-2	
					1732.5	20175	18.27	18.5	0-2
					1745	20300	18.27	18.5	0-2
				1720	20050	18.28	18.5	0-2	
					1732.5	20175	18.23	18.5	0-2
					1745	20300	18.23	18.5	0-2
	100RB		1720	20050	18.40	18.5	0-2		
			1732.5	20175	18.27	18.5	0-2		
			1745	20300	18.31	18.5	0-2		

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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	18.42	18.5	0		
				1732.5	20175	18.31	18.5	0		
				1747.5	20325	18.46	18.5	0		
			36	1717.5	20025	18.22	18.5	0		
					1732.5	20175	18.23	18.5	0	
					1747.5	20325	18.24	18.5	0	
				1717.5	20025	18.27	18.5	0		
					1732.5	20175	18.27	18.5	0	
					1747.5	20325	18.16	18.5	0	
		74	1717.5	20025	18.34	18.5	0-1			
				1732.5	20175	18.25	18.5	0-1		
				1747.5	20325	18.25	18.5	0-1		
			18	1717.5	20025	18.23	18.5	0-1		
					1732.5	20175	18.21	18.5	0-1	
					1747.5	20325	18.27	18.5	0-1	
		37	1717.5	20025	18.20	18.5	0-1			
				1732.5	20175	18.20	18.5	0-1		
				1747.5	20325	18.24	18.5	0-1		
		75RB	1717.5	20025	18.30	18.5	0-1			
				1732.5	20175	18.21	18.5	0-1		
				1747.5	20325	18.23	18.5	0-1		
		16-QAM	1 RB	0	1717.5	20025	18.50	18.5	0-1	
					1732.5	20175	18.46	18.5	0-1	
					1747.5	20325	17.94	18.5	0-1	
	36			1717.5	20025	18.12	18.5	0-1		
					1732.5	20175	17.83	18.5	0-1	
					1747.5	20325	18.13	18.5	0-1	
				1717.5	20025	18.17	18.5	0-1		
					1732.5	20175	18.01	18.5	0-1	
					1747.5	20325	17.89	18.5	0-1	
	36 RB			0	1717.5	20025	18.34	18.5	0-2	
						1732.5	20175	18.23	18.5	0-2
						1747.5	20325	18.27	18.5	0-2
				18	1717.5	20025	18.25	18.5	0-2	
						1732.5	20175	18.21	18.5	0-2
						1747.5	20325	18.18	18.5	0-2
				37	1717.5	20025	18.25	18.5	0-2	
						1732.5	20175	18.17	18.5	0-2
						1747.5	20325	18.13	18.5	0-2
	75RB		1717.5	20025	18.37	18.5	0-2			
				1732.5	20175	18.29	18.5	0-2		
				1747.5	20325	18.24	18.5	0-2		

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10	QPSK	1 RB	0	1715	20000	18.24	18.5	0	
				1732.5	20175	18.45	18.5	0	
				1750	20350	18.38	18.5	0	
			25	1715	20000	18.29	18.5	0	
				1732.5	20175	18.23	18.5	0	
				1750	20350	18.21	18.5	0	
			49	1715	20000	18.26	18.5	0	
				1732.5	20175	18.24	18.5	0	
				1750	20350	18.15	18.5	0	
		25 RB	0	1715	20000	18.36	18.5	0-1	
				1732.5	20175	18.27	18.5	0-1	
				1750	20350	18.26	18.5	0-1	
			12	1715	20000	18.23	18.5	0-1	
				1732.5	20175	18.17	18.5	0-1	
				1750	20350	18.21	18.5	0-1	
			25	1715	20000	18.27	18.5	0-1	
				1732.5	20175	18.20	18.5	0-1	
				1750	20350	18.23	18.5	0-1	
		50RB	1715	20000	18.32	18.5	0-1		
			1732.5	20175	18.29	18.5	0-1		
			1750	20350	18.24	18.5	0-1		
		16-QAM	1 RB	0	1715	20000	17.87	18.5	0-1
					1732.5	20175	18.45	18.5	0-1
					1750	20350	18.48	18.5	0-1
	25			1715	20000	18.45	18.5	0-1	
				1732.5	20175	18.21	18.5	0-1	
				1750	20350	18.14	18.5	0-1	
	49			1715	20000	18.14	18.5	0-1	
				1732.5	20175	18.03	18.5	0-1	
				1750	20350	18.00	18.5	0-1	
	25 RB			0	1715	20000	18.38	18.5	0-2
					1732.5	20175	18.24	18.5	0-2
					1750	20350	18.24	18.5	0-2
			12	1715	20000	18.40	18.5	0-2	
				1732.5	20175	18.30	18.5	0-2	
				1750	20350	18.23	18.5	0-2	
			25	1715	20000	18.25	18.5	0-2	
				1732.5	20175	18.32	18.5	0-2	
				1750	20350	18.33	18.5	0-2	
	50RB		1715	20000	18.33	18.5	0-2		
			1732.5	20175	18.23	18.5	0-2		
			1750	20350	18.26	18.5	0-2		

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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	18.25	18.5	0	
				1732.5	20175	18.18	18.5	0	
				1752.5	20375	18.25	18.5	0	
			12	1712.5	19975	18.33	18.5	0	
				1732.5	20175	18.30	18.5	0	
				1752.5	20375	18.12	18.5	0	
		24	1712.5	19975	18.24	18.5	0		
			1732.5	20175	18.19	18.5	0		
			1752.5	20375	18.11	18.5	0		
		12 RB	0	1712.5	19975	18.27	18.5	0-1	
				1732.5	20175	18.24	18.5	0-1	
				1752.5	20375	18.19	18.5	0-1	
			6	1712.5	19975	18.32	18.5	0-1	
				1732.5	20175	18.21	18.5	0-1	
				1752.5	20375	18.16	18.5	0-1	
			13	1712.5	19975	18.32	18.5	0-1	
				1732.5	20175	18.21	18.5	0-1	
				1752.5	20375	18.12	18.5	0-1	
		25RB	1712.5	19975	18.36	18.5	0-1		
			1732.5	20175	18.25	18.5	0-1		
			1752.5	20375	18.16	18.5	0-1		
		16-QAM	1 RB	0	1712.5	19975	18.00	18.5	0-1
					1732.5	20175	17.85	18.5	0-1
					1752.5	20375	18.39	18.5	0-1
	12			1712.5	19975	18.50	18.5	0-1	
				1732.5	20175	17.84	18.5	0-1	
				1752.5	20375	18.02	18.5	0-1	
	24			1712.5	19975	18.11	18.5	0-1	
				1732.5	20175	18.41	18.5	0-1	
				1752.5	20375	18.01	18.5	0-1	
	12 RB		0	1712.5	19975	18.27	18.5	0-2	
				1732.5	20175	18.36	18.5	0-2	
				1752.5	20375	18.25	18.5	0-2	
			6	1712.5	19975	18.33	18.5	0-2	
				1732.5	20175	18.21	18.5	0-2	
				1752.5	20375	18.23	18.5	0-2	
			13	1712.5	19975	18.36	18.5	0-2	
				1732.5	20175	18.26	18.5	0-2	
				1752.5	20375	18.22	18.5	0-2	
	25RB		1712.5	19975	18.46	18.5	0-2		
			1732.5	20175	18.21	18.5	0-2		
			1752.5	20375	18.19	18.5	0-2		

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FDD Band 4 (Reduced Power)								
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	18.17	18.5	0
				1732.5	20175	18.20	18.5	0
				1753.5	20385	18.26	18.5	0
			7	1711.5	19965	18.25	18.5	0
				1732.5	20175	18.21	18.5	0
				1753.5	20385	18.21	18.5	0
		14	1711.5	19965	18.35	18.5	0	
			1732.5	20175	18.17	18.5	0	
			1753.5	20385	18.15	18.5	0	
		8 RB	0	1711.5	19965	18.14	18.5	0-1
				1732.5	20175	18.23	18.5	0-1
				1753.5	20385	18.16	18.5	0-1
			4	1711.5	19965	18.36	18.5	0-1
				1732.5	20175	18.18	18.5	0-1
				1753.5	20385	18.19	18.5	0-1
			7	1711.5	19965	18.35	18.5	0-1
				1732.5	20175	18.19	18.5	0-1
				1753.5	20385	18.13	18.5	0-1
		15RB	1711.5	19965	18.27	18.5	0-1	
			1732.5	20175	18.26	18.5	0-1	
			1753.5	20385	18.14	18.5	0-1	
	16-QAM	1 RB	0	1711.5	19965	18.37	18.5	0-1
				1732.5	20175	18.41	18.5	0-1
				1753.5	20385	18.45	18.5	0-1
			7	1711.5	19965	18.18	18.5	0-1
				1732.5	20175	18.13	18.5	0-1
				1753.5	20385	17.71	18.5	0-1
			14	1711.5	19965	18.16	18.5	0-1
				1732.5	20175	18.31	18.5	0-1
				1753.5	20385	18.23	18.5	0-1
		8 RB	0	1711.5	19965	18.26	18.5	0-2
				1732.5	20175	18.35	18.5	0-2
				1753.5	20385	18.25	18.5	0-2
			4	1711.5	19965	18.40	18.5	0-2
				1732.5	20175	18.38	18.5	0-2
				1753.5	20385	18.29	18.5	0-2
			7	1711.5	19965	18.40	18.5	0-2
				1732.5	20175	18.22	18.5	0-2
				1753.5	20385	18.08	18.5	0-2
		15RB	1711.5	19965	18.33	18.5	0-2	
			1732.5	20175	18.26	18.5	0-2	
			1753.5	20385	18.17	18.5	0-2	

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1.4	QPSK	1 RB	0	1710.7	19957	18.07	18.5	0	
				1732.5	20175	18.14	18.5	0	
				1754.3	20393	18.09	18.5	0	
			2	1710.7	19957	18.29	18.5	0	
				1732.5	20175	18.20	18.5	0	
				1754.3	20393	18.24	18.5	0	
		5	1710.7	19957	18.28	18.5	0		
			1732.5	20175	18.19	18.5	0		
			1754.3	20393	18.25	18.5	0		
		3 RB	0	1710.7	19957	18.27	18.5	0	
				1732.5	20175	18.19	18.5	0	
				1754.3	20393	18.18	18.5	0	
			2	1710.7	19957	18.19	18.5	0	
				1732.5	20175	18.22	18.5	0	
				1754.3	20393	18.22	18.5	0	
			3	1710.7	19957	18.18	18.5	0	
				1732.5	20175	18.26	18.5	0	
				1754.3	20393	18.17	18.5	0	
		6RB	1710.7	19957	18.23	18.5	0-1		
			1732.5	20175	18.30	18.5	0-1		
			1754.3	20393	18.17	18.5	0-1		
		16-QAM	1 RB	0	1710.7	19957	18.32	18.5	0-1
					1732.5	20175	18.46	18.5	0-1
					1754.3	20393	17.97	18.5	0-1
	2			1710.7	19957	18.43	18.5	0-1	
				1732.5	20175	17.96	18.5	0-1	
				1754.3	20393	18.10	18.5	0-1	
	5			1710.7	19957	17.77	18.5	0-1	
				1732.5	20175	18.29	18.5	0-1	
				1754.3	20393	17.97	18.5	0-1	
	3 RB		0	1710.7	19957	18.21	18.5	0-1	
				1732.5	20175	18.26	18.5	0-1	
				1754.3	20393	18.15	18.5	0-1	
			2	1710.7	19957	18.20	18.5	0-1	
				1732.5	20175	18.26	18.5	0-1	
				1754.3	20393	18.13	18.5	0-1	
			3	1710.7	19957	18.23	18.5	0-1	
				1732.5	20175	18.16	18.5	0-1	
				1754.3	20393	18.16	18.5	0-1	
	6RB		1710.7	19957	18.10	18.5	0-2		
			1732.5	20175	18.16	18.5	0-2		
			1754.3	20393	18.11	18.5	0-2		

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FDD Band 5 (Full Power)									
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	22.94	24	0	
				836.5	20525	23.16	24	0	
				844	20600	23.22	24	0	
			25	829	20450	22.91	24	0	
				836.5	20525	23.02	24	0	
				844	20600	23.11	24	0	
		49	829	20450	23.19	24	0		
			836.5	20525	23.20	24	0		
			844	20600	22.93	24	0		
		25 RB	0	829	20450	21.73	23	0-1	
				836.5	20525	22.03	23	0-1	
				844	20600	22.13	23	0-1	
			12	829	20450	22.05	23	0-1	
				836.5	20525	22.09	23	0-1	
				844	20600	22.26	23	0-1	
			25	829	20450	22.15	23	0-1	
				836.5	20525	22.03	23	0-1	
				844	20600	22.10	23	0-1	
			50RB	829	20450	22.11	23	0-1	
				836.5	20525	22.17	23	0-1	
				844	20600	22.16	23	0-1	
		16-QAM	1 RB	0	829	20450	22.11	23	0-1
					836.5	20525	22.12	23	0-1
					844	20600	22.33	23	0-1
	25			829	20450	21.89	23	0-1	
				836.5	20525	22.33	23	0-1	
				844	20600	22.00	23	0-1	
	49			829	20450	21.72	23	0-1	
				836.5	20525	22.14	23	0-1	
				844	20600	21.91	23	0-1	
	25 RB			0	829	20450	20.82	22	0-2
					836.5	20525	21.20	22	0-2
					844	20600	21.30	22	0-2
			12	829	20450	21.02	22	0-2	
				836.5	20525	21.13	22	0-2	
				844	20600	21.26	22	0-2	
			25	829	20450	21.24	22	0-2	
				836.5	20525	21.09	22	0-2	
				844	20600	21.05	22	0-2	
			50RB	829	20450	21.07	22	0-2	
				836.5	20525	21.23	22	0-2	
				844	20600	21.26	22	0-2	

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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	22.83	24	0	
				836.5	20525	23.05	24	0	
				846.5	20625	23.25	24	0	
			12	826.5	20425	22.78	24	0	
				836.5	20525	23.10	24	0	
				846.5	20625	23.26	24	0	
		24	826.5	20425	22.86	24	0		
			836.5	20525	22.92	24	0		
			846.5	20625	22.80	24	0		
		12 RB	0	826.5	20425	21.87	23	0-1	
				836.5	20525	22.17	23	0-1	
				846.5	20625	22.27	23	0-1	
			6	826.5	20425	21.84	23	0-1	
				836.5	20525	22.07	23	0-1	
				846.5	20625	22.16	23	0-1	
			13	826.5	20425	21.95	23	0-1	
				836.5	20525	22.18	23	0-1	
				846.5	20625	21.95	23	0-1	
		25RB	826.5	20425	21.85	23	0-1		
			836.5	20525	22.08	23	0-1		
			846.5	20625	22.18	23	0-1		
		16-QAM	1 RB	0	826.5	20425	21.83	23	0-1
					836.5	20525	21.76	23	0-1
					846.5	20625	22.46	23	0-1
	12			826.5	20425	21.87	23	0-1	
				836.5	20525	21.75	23	0-1	
				846.5	20625	22.02	23	0-1	
	24			826.5	20425	21.66	23	0-1	
				836.5	20525	22.34	23	0-1	
				846.5	20625	21.91	23	0-1	
	12 RB		0	826.5	20425	20.95	22	0-2	
				836.5	20525	21.36	22	0-2	
				846.5	20625	21.31	22	0-2	
			6	826.5	20425	20.98	22	0-2	
				836.5	20525	21.14	22	0-2	
				846.5	20625	21.29	22	0-2	
			13	826.5	20425	20.95	22	0-2	
				836.5	20525	21.17	22	0-2	
				846.5	20625	21.04	22	0-2	
	25RB		826.5	20425	20.89	22	0-2		
			836.5	20525	21.13	22	0-2		
			846.5	20625	21.24	22	0-2		

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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	22.92	24	0	
				836.5	20525	23.14	24	0	
				847.5	20635	23.21	24	0	
			7	825.5	20415	22.79	24	0	
				836.5	20525	23.15	24	0	
				847.5	20635	23.01	24	0	
		14	825.5	20415	23.00	24	0		
			836.5	20525	23.07	24	0		
			847.5	20635	22.85	24	0		
		8 RB	0	825.5	20415	21.91	23	0-1	
				836.5	20525	22.14	23	0-1	
				847.5	20635	22.12	23	0-1	
			4	825.5	20415	21.90	23	0-1	
				836.5	20525	22.14	23	0-1	
				847.5	20635	21.90	23	0-1	
			7	825.5	20415	21.93	23	0-1	
				836.5	20525	22.08	23	0-1	
				847.5	20635	21.93	23	0-1	
		15RB	825.5	20415	21.90	23	0-1		
			836.5	20525	22.09	23	0-1		
			847.5	20635	22.05	23	0-1		
		16-QAM	1 RB	0	825.5	20415	22.11	23	0-1
					836.5	20525	22.45	23	0-1
					847.5	20635	22.13	23	0-1
	7			825.5	20415	21.34	23	0-1	
				836.5	20525	22.02	23	0-1	
				847.5	20635	21.70	23	0-1	
	14			825.5	20415	21.70	23	0-1	
				836.5	20525	21.81	23	0-1	
				847.5	20635	21.73	23	0-1	
	8 RB			0	825.5	20415	20.91	22	0-2
					836.5	20525	21.13	22	0-2
					847.5	20635	21.19	22	0-2
			4	825.5	20415	20.99	22	0-2	
				836.5	20525	21.15	22	0-2	
				847.5	20635	20.92	22	0-2	
			7	825.5	20415	21.06	22	0-2	
				836.5	20525	21.22	22	0-2	
				847.5	20635	21.04	22	0-2	
	15RB		825.5	20415	20.92	22	0-2		
			836.5	20525	21.01	22	0-2		
			847.5	20635	20.99	22	0-2		

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1.4	QPSK	1 RB	0	824.7	20407	22.86	24	0	
				836.5	20525	22.91	24	0	
				848.3	20643	22.98	24	0	
			2	824.7	20407	22.94	24	0	
				836.5	20525	23.02	24	0	
				848.3	20643	22.94	24	0	
		5	824.7	20407	22.83	24	0		
			836.5	20525	23.19	24	0		
			848.3	20643	22.96	24	0		
		3 RB	0	824.7	20407	22.99	24	0	
				836.5	20525	23.14	24	0	
				848.3	20643	22.92	24	0	
			2	824.7	20407	23.01	24	0	
				836.5	20525	23.13	24	0	
				848.3	20643	22.88	24	0	
			3	824.7	20407	22.80	24	0	
				836.5	20525	23.28	24	0	
				848.3	20643	22.89	24	0	
		6RB	824.7	20407	21.92	23	0-1		
			836.5	20525	22.13	23	0-1		
			848.3	20643	22.03	23	0-1		
		16-QAM	1 RB	0	824.7	20407	22.09	23	0-1
					836.5	20525	21.70	23	0-1
					848.3	20643	21.85	23	0-1
	2			824.7	20407	21.72	23	0-1	
				836.5	20525	22.28	23	0-1	
				848.3	20643	21.76	23	0-1	
	5			824.7	20407	21.82	23	0-1	
				836.5	20525	21.95	23	0-1	
				848.3	20643	21.83	23	0-1	
	3 RB			0	824.7	20407	22.10	23	0-1
					836.5	20525	22.14	23	0-1
					848.3	20643	21.96	23	0-1
			2	824.7	20407	21.86	23	0-1	
				836.5	20525	22.12	23	0-1	
				848.3	20643	21.85	23	0-1	
			3	824.7	20407	21.84	23	0-1	
				836.5	20525	21.92	23	0-1	
				848.3	20643	21.98	23	0-1	
	6RB		824.7	20407	20.80	22	0-2		
			836.5	20525	21.11	22	0-2		
			848.3	20643	20.90	22	0-2		

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10	QPSK	1 RB	0	829	20450	20.06	20.5	0	
				836.5	20525	20.31	20.5	0	
				844	20600	20.16	20.5	0	
			25	829	20450	19.86	20.5	0	
				836.5	20525	20.13	20.5	0	
				844	20600	20.30	20.5	0	
		49	829	20450	20.29	20.5	0		
			836.5	20525	20.26	20.5	0		
			844	20600	19.87	20.5	0		
		25 RB	0	829	20450	19.89	20.5	0-1	
				836.5	20525	20.29	20.5	0-1	
				844	20600	20.16	20.5	0-1	
			12	829	20450	19.88	20.5	0-1	
				836.5	20525	20.17	20.5	0-1	
				844	20600	20.31	20.5	0-1	
			25	829	20450	20.15	20.5	0-1	
				836.5	20525	20.16	20.5	0-1	
				844	20600	20.30	20.5	0-1	
			50RB	829	20450	19.93	20.5	0-1	
				836.5	20525	20.16	20.5	0-1	
				844	20600	20.39	20.5	0-1	
		16-QAM	1 RB	0	829	20450	20.11	20.5	0-1
					836.5	20525	20.30	20.5	0-1
					844	20600	19.96	20.5	0-1
	25			829	20450	19.76	20.5	0-1	
				836.5	20525	19.94	20.5	0-1	
				844	20600	20.37	20.5	0-1	
	49			829	20450	20.03	20.5	0-1	
				836.5	20525	20.38	20.5	0-1	
				844	20600	20.03	20.5	0-1	
	25 RB			0	829	20450	19.80	20.5	0-2
					836.5	20525	20.06	20.5	0-2
					844	20600	20.26	20.5	0-2
			12	829	20450	20.05	20.5	0-2	
				836.5	20525	20.28	20.5	0-2	
				844	20600	20.38	20.5	0-2	
			25	829	20450	20.19	20.5	0-2	
				836.5	20525	20.14	20.5	0-2	
				844	20600	20.26	20.5	0-2	
	50RB		829	20450	20.06	20.5	0-2		
			836.5	20525	20.16	20.5	0-2		
			844	20600	20.19	20.5	0-2		

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FDD Band 5 (Reduced Power)									
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	19.96	20.5	0	
				836.5	20525	20.21	20.5	0	
				846.5	20625	20.25	20.5	0	
			12	826.5	20425	20.01	20.5	0	
				836.5	20525	20.10	20.5	0	
				846.5	20625	20.37	20.5	0	
		24	826.5	20425	19.97	20.5	0		
			836.5	20525	20.18	20.5	0		
			846.5	20625	19.92	20.5	0		
		12 RB	0	826.5	20425	19.84	20.5	0-1	
				836.5	20525	20.13	20.5	0-1	
				846.5	20625	20.33	20.5	0-1	
			6	826.5	20425	19.86	20.5	0-1	
				836.5	20525	20.16	20.5	0-1	
				846.5	20625	20.19	20.5	0-1	
			13	826.5	20425	19.91	20.5	0-1	
				836.5	20525	20.16	20.5	0-1	
				846.5	20625	19.96	20.5	0-1	
		25RB	826.5	20425	19.83	20.5	0-1		
			836.5	20525	20.11	20.5	0-1		
			846.5	20625	20.21	20.5	0-1		
		16-QAM	1 RB	0	826.5	20425	19.72	20.5	0-1
					836.5	20525	20.16	20.5	0-1
					846.5	20625	20.43	20.5	0-1
	12			826.5	20425	20.06	20.5	0-1	
				836.5	20525	20.00	20.5	0-1	
				846.5	20625	20.07	20.5	0-1	
	24			826.5	20425	19.78	20.5	0-1	
				836.5	20525	19.99	20.5	0-1	
				846.5	20625	19.92	20.5	0-1	
	12 RB		0	826.5	20425	19.89	20.5	0-2	
				836.5	20525	20.27	20.5	0-2	
				846.5	20625	20.32	20.5	0-2	
			6	826.5	20425	19.96	20.5	0-2	
				836.5	20525	20.14	20.5	0-2	
				846.5	20625	20.44	20.5	0-2	
			13	826.5	20425	20.01	20.5	0-2	
				836.5	20525	20.12	20.5	0-2	
				846.5	20625	20.05	20.5	0-2	
	25RB		826.5	20425	19.95	20.5	0-2		
			836.5	20525	20.16	20.5	0-2		
			846.5	20625	20.39	20.5	0-2		

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3	QPSK	1 RB	0	825.5	20415	20.07	20.5	0	
				836.5	20525	20.20	20.5	0	
				847.5	20635	20.32	20.5	0	
			7	825.5	20415	19.73	20.5	0	
				836.5	20525	20.12	20.5	0	
				847.5	20635	20.07	20.5	0	
		14	825.5	20415	20.02	20.5	0		
			836.5	20525	20.18	20.5	0		
			847.5	20635	19.96	20.5	0		
		8 RB	0	825.5	20415	19.86	20.5	0-1	
				836.5	20525	20.14	20.5	0-1	
				847.5	20635	20.19	20.5	0-1	
			4	825.5	20415	19.83	20.5	0-1	
				836.5	20525	19.97	20.5	0-1	
				847.5	20635	19.92	20.5	0-1	
			7	825.5	20415	19.83	20.5	0-1	
				836.5	20525	20.18	20.5	0-1	
				847.5	20635	19.98	20.5	0-1	
			15RB	825.5	20415	19.87	20.5	0-1	
				836.5	20525	20.17	20.5	0-1	
				847.5	20635	20.02	20.5	0-1	
		16-QAM	1 RB	0	825.5	20415	19.80	20.5	0-1
					836.5	20525	19.56	20.5	0-1
					847.5	20635	20.42	20.5	0-1
	7			825.5	20415	19.56	20.5	0-1	
				836.5	20525	20.03	20.5	0-1	
				847.5	20635	19.85	20.5	0-1	
	14			825.5	20415	19.85	20.5	0-1	
				836.5	20525	20.40	20.5	0-1	
				847.5	20635	19.67	20.5	0-1	
	8 RB		0	825.5	20415	19.84	20.5	0-2	
				836.5	20525	20.28	20.5	0-2	
				847.5	20635	20.41	20.5	0-2	
			4	825.5	20415	19.86	20.5	0-2	
				836.5	20525	20.22	20.5	0-2	
				847.5	20635	20.09	20.5	0-2	
			7	825.5	20415	20.00	20.5	0-2	
				836.5	20525	20.23	20.5	0-2	
				847.5	20635	19.92	20.5	0-2	
	15RB		825.5	20415	19.97	20.5	0-2		
			836.5	20525	20.12	20.5	0-2		
			847.5	20635	20.05	20.5	0-2		

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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	19.95	20.5	0	
				836.5	20525	20.01	20.5	0	
				848.3	20643	19.90	20.5	0	
			2	824.7	20407	20.04	20.5	0	
				836.5	20525	20.05	20.5	0	
				848.3	20643	19.89	20.5	0	
		5	824.7	20407	19.81	20.5	0		
			836.5	20525	20.15	20.5	0		
			848.3	20643	19.90	20.5	0		
		3 RB	0	824.7	20407	19.99	20.5	0	
				836.5	20525	20.20	20.5	0	
				848.3	20643	20.01	20.5	0	
			2	824.7	20407	19.72	20.5	0	
				836.5	20525	20.00	20.5	0	
				848.3	20643	19.99	20.5	0	
			3	824.7	20407	19.90	20.5	0	
				836.5	20525	20.30	20.5	0	
				848.3	20643	19.82	20.5	0	
		6RB	824.7	20407	19.91	20.5	0-1		
			836.5	20525	20.23	20.5	0-1		
			848.3	20643	20.01	20.5	0-1		
		16-QAM	1 RB	0	824.7	20407	19.79	20.5	0-1
					836.5	20525	20.13	20.5	0-1
					848.3	20643	19.84	20.5	0-1
	2			824.7	20407	19.64	20.5	0-1	
				836.5	20525	19.90	20.5	0-1	
				848.3	20643	20.14	20.5	0-1	
	5			824.7	20407	19.70	20.5	0-1	
				836.5	20525	20.37	20.5	0-1	
				848.3	20643	20.13	20.5	0-1	
	3 RB			0	824.7	20407	19.74	20.5	0-1
					836.5	20525	20.05	20.5	0-1
					848.3	20643	19.97	20.5	0-1
			2	824.7	20407	19.84	20.5	0-1	
				836.5	20525	20.13	20.5	0-1	
				848.3	20643	19.92	20.5	0-1	
			3	824.7	20407	19.72	20.5	0-1	
				836.5	20525	20.23	20.5	0-1	
				848.3	20643	19.98	20.5	0-1	
	6RB		824.7	20407	19.69	20.5	0-2		
			836.5	20525	20.23	20.5	0-2		
			848.3	20643	19.89	20.5	0-2		

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FDD Band 7 (Full Power)									
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	23.52	24	0	
				2535	21100	23.76	24	0	
				2560	21350	23.37	24	0	
			50	2510	20850	23.12	24	0	
				2535	21100	23.40	24	0	
				2560	21350	23.35	24	0	
			99	2510	20850	23.37	24	0	
				2535	21100	23.52	24	0	
				2560	21350	23.32	24	0	
		50 RB	0	2510	20850	22.28	23	0-1	
				2535	21100	22.69	23	0-1	
				2560	21350	22.66	23	0-1	
			25	2510	20850	22.37	23	0-1	
				2535	21100	22.67	23	0-1	
				2560	21350	22.40	23	0-1	
			50	2510	20850	22.34	23	0-1	
				2535	21100	22.66	23	0-1	
				2560	21350	22.29	23	0-1	
		100RB	2510	20850	22.31	23	0-1		
			2535	21100	22.70	23	0-1		
			2560	21350	22.42	23	0-1		
		16-QAM	1 RB	0	2510	20850	22.00	23	0-1
					2535	21100	22.72	23	0-1
					2560	21350	22.50	23	0-1
	50			2510	20850	22.19	23	0-1	
				2535	21100	22.87	23	0-1	
				2560	21350	22.68	23	0-1	
	99			2510	20850	22.30	23	0-1	
				2535	21100	22.58	23	0-1	
				2560	21350	22.41	23	0-1	
	50 RB			0	2510	20850	21.34	22	0-2
					2535	21100	21.64	22	0-2
					2560	21350	21.35	22	0-2
			25	2510	20850	21.31	22	0-2	
				2535	21100	21.71	22	0-2	
				2560	21350	21.43	22	0-2	
			50	2510	20850	21.27	22	0-2	
				2535	21100	21.69	22	0-2	
				2560	21350	21.26	22	0-2	
	100RB		2510	20850	21.35	22	0-2		
			2535	21100	21.70	22	0-2		
			2560	21350	21.45	22	0-2		

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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	23.14	24	0	
				2535	21100	23.47	24	0	
				2562.5	21375	23.44	24	0	
			36	2507.5	20825	23.39	24	0	
				2535	21100	23.44	24	0	
				2562.5	21375	23.19	24	0	
		74	2507.5	20825	23.32	24	0		
			2535	21100	23.35	24	0		
			2562.5	21375	23.22	24	0		
		36 RB	0	2507.5	20825	22.32	23	0-1	
				2535	21100	22.64	23	0-1	
				2562.5	21375	22.28	23	0-1	
			18	2507.5	20825	22.30	23	0-1	
				2535	21100	22.57	23	0-1	
				2562.5	21375	22.32	23	0-1	
			37	2507.5	20825	22.30	23	0-1	
				2535	21100	22.59	23	0-1	
				2562.5	21375	22.31	23	0-1	
			75RB	2507.5	20825	22.24	23	0-1	
				2535	21100	22.60	23	0-1	
				2562.5	21375	22.37	23	0-1	
		16-QAM	1 RB	0	2507.5	20825	22.18	23	0-1
					2535	21100	22.12	23	0-1
					2562.5	21375	21.85	23	0-1
	36			2507.5	20825	22.23	23	0-1	
				2535	21100	22.65	23	0-1	
				2562.5	21375	22.60	23	0-1	
	74			2507.5	20825	21.97	23	0-1	
				2535	21100	22.66	23	0-1	
				2562.5	21375	22.33	23	0-1	
	36 RB			0	2507.5	20825	21.26	22	0-2
					2535	21100	21.55	22	0-2
					2562.5	21375	21.33	22	0-2
			18	2507.5	20825	21.23	22	0-2	
				2535	21100	21.60	22	0-2	
				2562.5	21375	21.25	22	0-2	
			37	2507.5	20825	21.35	22	0-2	
				2535	21100	21.55	22	0-2	
				2562.5	21375	21.20	22	0-2	
	75RB		2507.5	20825	21.23	22	0-2		
			2535	21100	21.59	22	0-2		
			2562.5	21375	21.29	22	0-2		

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10	QPSK	1 RB	0	2505	20800	23.34	24	0	
				2535	21100	23.50	24	0	
				2565	21400	23.43	24	0	
			25	2505	20800	23.13	24	0	
				2535	21100	23.54	24	0	
				2565	21400	23.14	24	0	
			49	2505	20800	23.18	24	0	
				2535	21100	23.23	24	0	
				2565	21400	23.24	24	0	
		25 RB	0	2505	20800	22.16	23	0-1	
				2535	21100	22.68	23	0-1	
				2565	21400	22.38	23	0-1	
			12	2505	20800	22.25	23	0-1	
				2535	21100	22.64	23	0-1	
				2565	21400	22.23	23	0-1	
			25	2505	20800	22.23	23	0-1	
				2535	21100	22.65	23	0-1	
				2565	21400	22.21	23	0-1	
		50RB	2505	20800	22.27	23	0-1		
			2535	21100	22.66	23	0-1		
			2565	21400	22.31	23	0-1		
		16-QAM	1 RB	0	2505	20800	22.41	23	0-1
					2535	21100	22.90	23	0-1
					2565	21400	22.54	23	0-1
	25			2505	20800	22.06	23	0-1	
				2535	21100	22.54	23	0-1	
				2565	21400	22.15	23	0-1	
	49			2505	20800	22.00	23	0-1	
				2535	21100	22.44	23	0-1	
				2565	21400	21.76	23	0-1	
	25 RB			0	2505	20800	21.23	22	0-2
					2535	21100	21.58	22	0-2
					2565	21400	21.37	22	0-2
			12	2505	20800	21.26	22	0-2	
				2535	21100	21.58	22	0-2	
				2565	21400	21.26	22	0-2	
			25	2505	20800	21.23	22	0-2	
				2535	21100	21.61	22	0-2	
				2565	21400	21.24	22	0-2	
	50RB		2505	20800	21.27	22	0-2		
			2535	21100	21.68	22	0-2		
			2565	21400	21.29	22	0-2		

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5	QPSK	1 RB	0	2502.5	20775	23.12	24	0	
				2535	21100	23.58	24	0	
				2567.5	21425	23.18	24	0	
			12	2502.5	20775	23.02	24	0	
				2535	21100	23.55	24	0	
				2567.5	21425	23.14	24	0	
		24	2502.5	20775	23.13	24	0		
			2535	21100	23.60	24	0		
			2567.5	21425	23.28	24	0		
		12 RB	0	2502.5	20775	22.22	23	0-1	
				2535	21100	22.64	23	0-1	
				2567.5	21425	22.23	23	0-1	
			6	2502.5	20775	22.22	23	0-1	
				2535	21100	22.63	23	0-1	
				2567.5	21425	22.24	23	0-1	
			13	2502.5	20775	22.19	23	0-1	
				2535	21100	22.63	23	0-1	
				2567.5	21425	22.20	23	0-1	
			25RB	2502.5	20775	22.15	23	0-1	
				2535	21100	22.63	23	0-1	
				2567.5	21425	22.23	23	0-1	
		16-QAM	1 RB	0	2502.5	20775	21.85	23	0-1
					2535	21100	22.35	23	0-1
					2567.5	21425	22.27	23	0-1
	12			2502.5	20775	22.12	23	0-1	
				2535	21100	21.98	23	0-1	
				2567.5	21425	21.92	23	0-1	
	24			2502.5	20775	22.47	23	0-1	
				2535	21100	22.36	23	0-1	
				2567.5	21425	21.92	23	0-1	
	12 RB			0	2502.5	20775	21.25	22	0-2
					2535	21100	21.76	22	0-2
					2567.5	21425	21.28	22	0-2
			6	2502.5	20775	21.25	22	0-2	
				2535	21100	21.64	22	0-2	
				2567.5	21425	21.34	22	0-2	
			13	2502.5	20775	21.26	22	0-2	
				2535	21100	21.63	22	0-2	
				2567.5	21425	21.18	22	0-2	
			25RB	2502.5	20775	21.26	22	0-2	
				2535	21100	21.65	22	0-2	
				2567.5	21425	21.19	22	0-2	

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FDD Band 7 (Reduced Power)									
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	17.90	18.5	0	
				2535	21100	18.32	18.5	0	
				2560	21350	18.48	18.5	0	
			50	2510	20850	18.21	18.5	0	
				2535	21100	18.40	18.5	0	
				2560	21350	18.09	18.5	0	
			99	2510	20850	18.27	18.5	0	
				2535	21100	18.41	18.5	0	
				2560	21350	18.05	18.5	0	
		50 RB	0	2510	20850	18.28	18.5	0-1	
				2535	21100	18.41	18.5	0-1	
				2560	21350	18.19	18.5	0-1	
			25	2510	20850	18.21	18.5	0-1	
				2535	21100	18.48	18.5	0-1	
				2560	21350	18.18	18.5	0-1	
			50	2510	20850	18.21	18.5	0-1	
				2535	21100	18.45	18.5	0-1	
				2560	21350	18.17	18.5	0-1	
		100RB	2510	20850	18.23	18.5	0-1		
			2535	21100	18.50	18.5	0-1		
			2560	21350	18.09	18.5	0-1		
		16-QAM	1 RB	0	2510	20850	18.27	18.5	0-1
					2535	21100	18.47	18.5	0-1
					2560	21350	18.36	18.5	0-1
	50			2510	20850	18.43	18.5	0-1	
				2535	21100	18.43	18.5	0-1	
				2560	21350	18.09	18.5	0-1	
	99			2510	20850	18.50	18.5	0-1	
				2535	21100	18.44	18.5	0-1	
				2560	21350	17.65	18.5	0-1	
	50 RB		0	2510	20850	18.05	18.5	0-2	
				2535	21100	18.40	18.5	0-2	
				2560	21350	18.31	18.5	0-2	
			25	2510	20850	18.23	18.5	0-2	
				2535	21100	18.50	18.5	0-2	
				2560	21350	18.27	18.5	0-2	
			50	2510	20850	18.30	18.5	0-2	
				2535	21100	18.39	18.5	0-2	
				2560	21350	18.20	18.5	0-2	
	100RB		2510	20850	18.12	18.5	0-2		
			2535	21100	18.44	18.5	0-2		
			2560	21350	18.22	18.5	0-2		

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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	17.82	18.5	0	
				2535	21100	18.33	18.5	0	
				2562.5	21375	18.27	18.5	0	
			36	2507.5	20825	18.21	18.5	0	
				2535	21100	18.44	18.5	0	
				2562.5	21375	18.10	18.5	0	
		74	2507.5	20825	18.28	18.5	0		
			2535	21100	18.42	18.5	0		
			2562.5	21375	18.08	18.5	0		
		36 RB	0	2507.5	20825	18.06	18.5	0-1	
				2535	21100	18.44	18.5	0-1	
				2562.5	21375	18.15	18.5	0-1	
			18	2507.5	20825	18.14	18.5	0-1	
				2535	21100	18.43	18.5	0-1	
				2562.5	21375	18.14	18.5	0-1	
			37	2507.5	20825	18.27	18.5	0-1	
				2535	21100	18.44	18.5	0-1	
				2562.5	21375	18.12	18.5	0-1	
		75RB	2507.5	20825	18.18	18.5	0-1		
			2535	21100	18.44	18.5	0-1		
			2562.5	21375	18.09	18.5	0-1		
		16-QAM	1 RB	0	2507.5	20825	18.09	18.5	0-1
					2535	21100	18.43	18.5	0-1
					2562.5	21375	18.32	18.5	0-1
	36			2507.5	20825	18.07	18.5	0-1	
				2535	21100	18.36	18.5	0-1	
				2562.5	21375	17.77	18.5	0-1	
	74			2507.5	20825	18.23	18.5	0-1	
				2535	21100	18.49	18.5	0-1	
				2562.5	21375	18.36	18.5	0-1	
	36 RB			0	2507.5	20825	18.05	18.5	0-2
					2535	21100	18.41	18.5	0-2
					2562.5	21375	18.26	18.5	0-2
			18	2507.5	20825	18.15	18.5	0-2	
				2535	21100	18.47	18.5	0-2	
				2562.5	21375	18.20	18.5	0-2	
			37	2507.5	20825	18.18	18.5	0-2	
				2535	21100	18.38	18.5	0-2	
				2562.5	21375	18.16	18.5	0-2	
	75RB		2507.5	20825	18.08	18.5	0-2		
			2535	21100	18.40	18.5	0-2		
			2562.5	21375	18.11	18.5	0-2		

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FDD Band 7 (Reduced Power)											
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	17.93	18.5	0			
				2535	21100	18.39	18.5	0			
				2565	21400	18.17	18.5	0			
			25	2505	20800	18.17	18.5	0			
						2535	21100	18.43	18.5	0	
						2565	21400	18.10	18.5	0	
				49	2505	20800	18.33	18.5	0		
							2535	21100	18.36	18.5	0
							2565	21400	18.12	18.5	0
		25 RB	0	2505	20800	18.14	18.5	0-1			
						2535	21100	18.43	18.5	0-1	
						2565	21400	18.17	18.5	0-1	
			12	2505	20800	18.25	18.5	0-1			
						2535	21100	18.44	18.5	0-1	
						2565	21400	18.12	18.5	0-1	
				25	2505	20800	18.24	18.5	0-1		
							2535	21100	18.46	18.5	0-1
							2565	21400	18.09	18.5	0-1
		50RB	2505	20800	18.23	18.5	0-1				
					2535	21100	18.47	18.5	0-1		
					2565	21400	18.08	18.5	0-1		
		16-QAM	1 RB	0	2505	20800	17.73	18.5	0-1		
					2535	21100	18.12	18.5	0-1		
					2565	21400	18.41	18.5	0-1		
	25			2505	20800	17.97	18.5	0-1			
						2535	21100	18.47	18.5	0-1	
						2565	21400	18.37	18.5	0-1	
				49	2505	20800	18.18	18.5	0-1		
							2535	21100	18.42	18.5	0-1
							2565	21400	17.74	18.5	0-1
	25 RB			0	2505	20800	18.03	18.5	0-2		
							2535	21100	18.48	18.5	0-2
							2565	21400	18.17	18.5	0-2
			12	2505	20800	17.96	18.5	0-2			
						2535	21100	18.49	18.5	0-2	
						2565	21400	18.11	18.5	0-2	
				25	2505	20800	18.00	18.5	0-2		
							2535	21100	18.49	18.5	0-2
							2565	21400	18.13	18.5	0-2
			50RB	2505	20800	18.09	18.5	0-2			
						2535	21100	18.40	18.5	0-2	
						2565	21400	18.17	18.5	0-2	

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FDD Band 7 (Reduced Power)									
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	18.10	18.5	0	
				2535	21100	18.47	18.5	0	
				2567.5	21425	18.08	18.5	0	
			12	2502.5	20775	18.21	18.5	0	
				2535	21100	18.34	18.5	0	
				2567.5	21425	18.00	18.5	0	
		24	2502.5	20775	18.16	18.5	0		
			2535	21100	18.50	18.5	0		
			2567.5	21425	18.08	18.5	0		
		12 RB	0	2502.5	20775	18.25	18.5	0-1	
				2535	21100	18.45	18.5	0-1	
				2567.5	21425	18.09	18.5	0-1	
			6	2502.5	20775	18.24	18.5	0-1	
				2535	21100	18.41	18.5	0-1	
				2567.5	21425	18.13	18.5	0-1	
			13	2502.5	20775	18.15	18.5	0-1	
				2535	21100	18.42	18.5	0-1	
				2567.5	21425	18.17	18.5	0-1	
		25RB	2502.5	20775	18.25	18.5	0-1		
			2535	21100	18.41	18.5	0-1		
			2567.5	21425	18.07	18.5	0-1		
		16-QAM	1 RB	0	2502.5	20775	17.87	18.5	0-1
					2535	21100	18.24	18.5	0-1
					2567.5	21425	17.92	18.5	0-1
	12			2502.5	20775	18.09	18.5	0-1	
				2535	21100	18.05	18.5	0-1	
				2567.5	21425	17.78	18.5	0-1	
	24			2502.5	20775	17.78	18.5	0-1	
				2535	21100	18.13	18.5	0-1	
				2567.5	21425	17.94	18.5	0-1	
	12 RB			0	2502.5	20775	17.96	18.5	0-2
					2535	21100	18.47	18.5	0-2
					2567.5	21425	18.11	18.5	0-2
			6	2502.5	20775	17.95	18.5	0-2	
				2535	21100	18.43	18.5	0-2	
				2567.5	21425	18.17	18.5	0-2	
			13	2502.5	20775	18.00	18.5	0-2	
				2535	21100	18.44	18.5	0-2	
				2567.5	21425	18.07	18.5	0-2	
	25RB		2502.5	20775	18.05	18.5	0-2		
			2535	21100	18.46	18.5	0-2		
			2567.5	21425	18.15	18.5	0-2		

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FDD Band 12 (Full Power)									
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	23.07	24	0	
				707.5	23095	23.33	24	0	
				711	23130	23.10	24	0	
			25	704	23060	22.87	24	0	
				707.5	23095	23.04	24	0	
				711	23130	22.68	24	0	
			49	704	23060	23.05	24	0	
				707.5	23095	22.79	24	0	
				711	23130	23.03	24	0	
		25 RB	0	704	23060	21.91	23	0-1	
				707.5	23095	22.01	23	0-1	
				711	23130	21.97	23	0-1	
			12	704	23060	22.00	23	0-1	
				707.5	23095	22.04	23	0-1	
				711	23130	21.92	23	0-1	
			25	704	23060	22.02	23	0-1	
				707.5	23095	22.00	23	0-1	
				711	23130	21.87	23	0-1	
		50RB	704	23060	21.98	23	0-1		
			707.5	23095	22.05	23	0-1		
			711	23130	22.04	23	0-1		
		16-QAM	1 RB	0	704	23060	22.07	23	0-1
					707.5	23095	22.01	23	0-1
					711	23130	21.91	23	0-1
	25			704	23060	22.11	23	0-1	
				707.5	23095	22.03	23	0-1	
				711	23130	21.67	23	0-1	
	49			704	23060	21.66	23	0-1	
				707.5	23095	21.61	23	0-1	
				711	23130	21.56	23	0-1	
	25 RB			0	704	23060	20.89	22	0-2
					707.5	23095	20.99	22	0-2
					711	23130	20.89	22	0-2
			12	704	23060	21.03	22	0-2	
				707.5	23095	20.95	22	0-2	
				711	23130	20.79	22	0-2	
			25	704	23060	21.02	22	0-2	
				707.5	23095	20.97	22	0-2	
				711	23130	20.90	22	0-2	
	50RB		704	23060	20.91	22	0-2		
			707.5	23095	21.05	22	0-2		
			711	23130	20.90	22	0-2		

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5	QPSK	1 RB	0	701.5	23035	22.90	24	0	
				707.5	23095	22.45	24	0	
				713.5	23155	22.95	24	0	
			12	701.5	23035	22.63	24	0	
				707.5	23095	22.79	24	0	
				713.5	23155	22.76	24	0	
			24	701.5	23035	23.21	24	0	
				707.5	23095	23.09	24	0	
				713.5	23155	23.18	24	0	
		12 RB	0	701.5	23035	21.94	23	0-1	
				707.5	23095	21.73	23	0-1	
				713.5	23155	21.93	23	0-1	
			6	701.5	23035	21.86	23	0-1	
				707.5	23095	22.04	23	0-1	
				713.5	23155	21.90	23	0-1	
			13	701.5	23035	22.07	23	0-1	
				707.5	23095	21.97	23	0-1	
				713.5	23155	21.91	23	0-1	
		25RB	701.5	23035	21.86	23	0-1		
			707.5	23095	22.03	23	0-1		
			713.5	23155	21.89	23	0-1		
		16-QAM	1 RB	0	701.5	23035	21.86	23	0-1
					707.5	23095	22.49	23	0-1
					713.5	23155	21.75	23	0-1
	12			701.5	23035	21.83	23	0-1	
				707.5	23095	21.94	23	0-1	
				713.5	23155	21.96	23	0-1	
	24			701.5	23035	22.06	23	0-1	
				707.5	23095	22.01	23	0-1	
				713.5	23155	21.77	23	0-1	
	12 RB			0	701.5	23035	20.94	22	0-2
					707.5	23095	20.87	22	0-2
					713.5	23155	20.89	22	0-2
			6	701.5	23035	20.97	22	0-2	
				707.5	23095	20.94	22	0-2	
				713.5	23155	20.85	22	0-2	
			13	701.5	23035	20.82	22	0-2	
				707.5	23095	20.98	22	0-2	
				713.5	23155	20.91	22	0-2	
	25RB		701.5	23035	20.87	22	0-2		
			707.5	23095	21.03	22	0-2		
			713.5	23155	20.85	22	0-2		

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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	22.96	24	0	
				707.5	23095	22.83	24	0	
				714.5	23165	22.76	24	0	
			7	700.5	23025	22.84	24	0	
				707.5	23095	23.05	24	0	
				714.5	23165	22.87	24	0	
		14	700.5	23025	22.94	24	0		
			707.5	23095	22.93	24	0		
			714.5	23165	23.19	24	0		
		8 RB	0	700.5	23025	21.91	23	0-1	
				707.5	23095	22.04	23	0-1	
				714.5	23165	21.80	23	0-1	
			4	700.5	23025	21.86	23	0-1	
				707.5	23095	22.08	23	0-1	
				714.5	23165	21.96	23	0-1	
			7	700.5	23025	22.01	23	0-1	
				707.5	23095	22.09	23	0-1	
				714.5	23165	21.91	23	0-1	
		15RB	700.5	23025	21.92	23	0-1		
			707.5	23095	22.10	23	0-1		
			714.5	23165	21.91	23	0-1		
		16-QAM	1 RB	0	700.5	23025	22.09	23	0-1
					707.5	23095	22.19	23	0-1
					714.5	23165	21.76	23	0-1
	7			700.5	23025	21.65	23	0-1	
				707.5	23095	22.18	23	0-1	
				714.5	23165	21.77	23	0-1	
	14			700.5	23025	21.63	23	0-1	
				707.5	23095	21.46	23	0-1	
				714.5	23165	21.80	23	0-1	
	8 RB			0	700.5	23025	20.88	22	0-2
					707.5	23095	20.94	22	0-2
					714.5	23165	20.76	22	0-2
			4	700.5	23025	20.89	22	0-2	
				707.5	23095	21.18	22	0-2	
				714.5	23165	21.02	22	0-2	
			7	700.5	23025	20.96	22	0-2	
				707.5	23095	21.16	22	0-2	
				714.5	23165	21.01	22	0-2	
	15RB		700.5	23025	20.78	22	0-2		
			707.5	23095	20.98	22	0-2		
			714.5	23165	20.84	22	0-2		

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FDD Band 12 (Full Power)									
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	22.57	24	0	
				707.5	23095	23.00	24	0	
				715.3	23173	22.64	24	0	
			2	699.7	23017	22.89	24	0	
				707.5	23095	23.09	24	0	
				715.3	23173	22.77	24	0	
		5	699.7	23017	22.96	24	0		
			707.5	23095	23.03	24	0		
			715.3	23173	22.42	24	0		
		3 RB	0	699.7	23017	22.92	24	0	
				707.5	23095	22.99	24	0	
				715.3	23173	22.81	24	0	
			2	699.7	23017	22.96	24	0	
				707.5	23095	23.04	24	0	
				715.3	23173	23.25	24	0	
			3	699.7	23017	22.89	24	0	
				707.5	23095	23.08	24	0	
				715.3	23173	23.09	24	0	
		6RB	699.7	23017	22.02	23	0-1		
			707.5	23095	22.14	23	0-1		
			715.3	23173	22.25	23	0-1		
		16-QAM	1 RB	0	699.7	23017	21.72	23	0-1
					707.5	23095	22.18	23	0-1
					715.3	23173	21.72	23	0-1
	2			699.7	23017	21.57	23	0-1	
				707.5	23095	21.65	23	0-1	
				715.3	23173	21.76	23	0-1	
	5			699.7	23017	22.29	23	0-1	
				707.5	23095	21.94	23	0-1	
				715.3	23173	21.92	23	0-1	
	3 RB			0	699.7	23017	21.96	23	0-1
					707.5	23095	22.01	23	0-1
					715.3	23173	21.91	23	0-1
			2	699.7	23017	21.60	23	0-1	
				707.5	23095	22.02	23	0-1	
				715.3	23173	21.80	23	0-1	
			3	699.7	23017	21.85	23	0-1	
				707.5	23095	21.90	23	0-1	
				715.3	23173	22.35	23	0-1	
	6RB		699.7	23017	20.74	22	0-2		
			707.5	23095	20.93	22	0-2		
			715.3	23173	20.82	22	0-2		

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FDD Band 12 (Reduced Power)									
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	19.94	20.5	0	
				707.5	23095	20.15	20.5	0	
				711	23130	20.14	20.5	0	
			25	704	23060	19.96	20.5	0	
				707.5	23095	20.08	20.5	0	
				711	23130	19.93	20.5	0	
			49	704	23060	20.03	20.5	0	
				707.5	23095	19.90	20.5	0	
				711	23130	20.02	20.5	0	
		25 RB	0	704	23060	19.93	20.5	0-1	
				707.5	23095	20.04	20.5	0-1	
				711	23130	19.99	20.5	0-1	
			12	704	23060	20.07	20.5	0-1	
				707.5	23095	20.12	20.5	0-1	
				711	23130	19.93	20.5	0-1	
			25	704	23060	19.97	20.5	0-1	
				707.5	23095	19.94	20.5	0-1	
				711	23130	19.94	20.5	0-1	
		50RB	704	23060	19.99	20.5	0-1		
			707.5	23095	20.09	20.5	0-1		
			711	23130	20.02	20.5	0-1		
		16-QAM	1 RB	0	704	23060	20.07	20.5	0-1
					707.5	23095	19.81	20.5	0-1
					711	23130	20.27	20.5	0-1
	25			704	23060	19.66	20.5	0-1	
				707.5	23095	19.87	20.5	0-1	
				711	23130	19.81	20.5	0-1	
	49			704	23060	20.31	20.5	0-1	
				707.5	23095	20.13	20.5	0-1	
				711	23130	19.60	20.5	0-1	
	25 RB			0	704	23060	20.00	20.5	0-2
					707.5	23095	20.16	20.5	0-2
					711	23130	20.05	20.5	0-2
			12	704	23060	20.13	20.5	0-2	
				707.5	23095	20.10	20.5	0-2	
				711	23130	19.93	20.5	0-2	
			25	704	23060	20.04	20.5	0-2	
				707.5	23095	19.98	20.5	0-2	
				711	23130	19.98	20.5	0-2	
	50RB		704	23060	20.07	20.5	0-2		
			707.5	23095	20.04	20.5	0-2		
			711	23130	20.11	20.5	0-2		

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FDD Band 12 (Reduced Power)									
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	19.94	20.5	0	
				707.5	23095	20.15	20.5	0	
				713.5	23155	20.14	20.5	0	
			12	701.5	23035	19.96	20.5	0	
				707.5	23095	20.08	20.5	0	
				713.5	23155	19.93	20.5	0	
			24	701.5	23035	20.03	20.5	0	
				707.5	23095	19.90	20.5	0	
				713.5	23155	20.02	20.5	0	
		12 RB	0	701.5	23035	19.93	20.5	0-1	
				707.5	23095	20.04	20.5	0-1	
				713.5	23155	19.99	20.5	0-1	
			6	701.5	23035	20.07	20.5	0-1	
				707.5	23095	20.12	20.5	0-1	
				713.5	23155	19.93	20.5	0-1	
			13	701.5	23035	19.97	20.5	0-1	
				707.5	23095	19.94	20.5	0-1	
				713.5	23155	19.94	20.5	0-1	
		25RB	701.5	23035	19.99	20.5	0-1		
			707.5	23095	20.09	20.5	0-1		
			713.5	23155	20.02	20.5	0-1		
		16-QAM	1 RB	0	701.5	23035	19.65	20.5	0-1
					707.5	23095	19.62	20.5	0-1
					713.5	23155	19.98	20.5	0-1
	12			701.5	23035	19.54	20.5	0-1	
				707.5	23095	19.79	20.5	0-1	
				713.5	23155	19.53	20.5	0-1	
	24			701.5	23035	19.97	20.5	0-1	
				707.5	23095	20.02	20.5	0-1	
				713.5	23155	19.82	20.5	0-1	
	12 RB		0	701.5	23035	20.04	20.5	0-2	
				707.5	23095	19.78	20.5	0-2	
				713.5	23155	20.03	20.5	0-2	
			6	701.5	23035	19.96	20.5	0-2	
				707.5	23095	20.09	20.5	0-2	
				713.5	23155	19.83	20.5	0-2	
			13	701.5	23035	20.10	20.5	0-2	
				707.5	23095	20.06	20.5	0-2	
				713.5	23155	20.07	20.5	0-2	
	25RB		701.5	23035	19.90	20.5	0-2		
			707.5	23095	20.06	20.5	0-2		
			713.5	23155	20.00	20.5	0-2		

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FDD Band 12 (Reduced Power)									
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	19.93	20.5	0	
				707.5	23095	20.06	20.5	0	
				714.5	23165	19.96	20.5	0	
			7	700.5	23025	19.85	20.5	0	
				707.5	23095	19.90	20.5	0	
				714.5	23165	20.01	20.5	0	
		14	700.5	23025	20.06	20.5	0		
			707.5	23095	19.91	20.5	0		
			714.5	23165	19.97	20.5	0		
		8 RB	0	700.5	23025	19.98	20.5	0-1	
				707.5	23095	20.05	20.5	0-1	
				714.5	23165	19.83	20.5	0-1	
			4	700.5	23025	19.89	20.5	0-1	
				707.5	23095	20.13	20.5	0-1	
				714.5	23165	19.78	20.5	0-1	
			7	700.5	23025	20.02	20.5	0-1	
				707.5	23095	20.11	20.5	0-1	
				714.5	23165	19.99	20.5	0-1	
		15RB	700.5	23025	19.91	20.5	0-1		
			707.5	23095	20.07	20.5	0-1		
			714.5	23165	19.85	20.5	0-1		
		16-QAM	1 RB	0	700.5	23025	19.70	20.5	0-1
					707.5	23095	20.18	20.5	0-1
					714.5	23165	19.92	20.5	0-1
	7			700.5	23025	19.60	20.5	0-1	
				707.5	23095	20.34	20.5	0-1	
				714.5	23165	19.74	20.5	0-1	
	14			700.5	23025	20.06	20.5	0-1	
				707.5	23095	19.55	20.5	0-1	
				714.5	23165	19.87	20.5	0-1	
	8 RB		0	700.5	23025	20.04	20.5	0-2	
				707.5	23095	19.97	20.5	0-2	
				714.5	23165	20.01	20.5	0-2	
			4	700.5	23025	20.02	20.5	0-2	
				707.5	23095	20.20	20.5	0-2	
				714.5	23165	20.14	20.5	0-2	
			7	700.5	23025	20.16	20.5	0-2	
				707.5	23095	20.24	20.5	0-2	
				714.5	23165	19.95	20.5	0-2	
	15RB		700.5	23025	20.10	20.5	0-2		
			707.5	23095	19.98	20.5	0-2		
			714.5	23165	19.86	20.5	0-2		

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FDD Band 12 (Reduced Power)									
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	19.75	20.5	0	
				707.5	23095	20.00	20.5	0	
				715.3	23173	19.82	20.5	0	
			2	699.7	23017	19.89	20.5	0	
				707.5	23095	20.06	20.5	0	
				715.3	23173	19.96	20.5	0	
		5	699.7	23017	19.94	20.5	0		
			707.5	23095	20.15	20.5	0		
			715.3	23173	20.04	20.5	0		
		3 RB	0	699.7	23017	20.00	20.5	0	
				707.5	23095	20.16	20.5	0	
				715.3	23173	20.03	20.5	0	
			2	699.7	23017	19.95	20.5	0	
				707.5	23095	20.14	20.5	0	
				715.3	23173	19.96	20.5	0	
			3	699.7	23017	19.96	20.5	0	
				707.5	23095	20.06	20.5	0	
				715.3	23173	20.06	20.5	0	
		6RB	699.7	23017	20.02	20.5	0-1		
			707.5	23095	20.19	20.5	0-1		
			715.3	23173	20.04	20.5	0-1		
		16-QAM	1 RB	0	699.7	23017	19.72	20.5	0-1
					707.5	23095	20.17	20.5	0-1
					715.3	23173	19.76	20.5	0-1
	2			699.7	23017	20.17	20.5	0-1	
				707.5	23095	20.07	20.5	0-1	
				715.3	23173	20.06	20.5	0-1	
	5			699.7	23017	19.68	20.5	0-1	
				707.5	23095	19.97	20.5	0-1	
				715.3	23173	20.09	20.5	0-1	
	3 RB			0	699.7	23017	20.00	20.5	0-1
					707.5	23095	19.85	20.5	0-1
					715.3	23173	19.99	20.5	0-1
			2	699.7	23017	19.96	20.5	0-1	
				707.5	23095	20.04	20.5	0-1	
				715.3	23173	20.00	20.5	0-1	
			3	699.7	23017	19.92	20.5	0-1	
				707.5	23095	20.07	20.5	0-1	
				715.3	23173	20.04	20.5	0-1	
	6RB		699.7	23017	19.67	20.5	0-2		
			707.5	23095	20.05	20.5	0-2		
			715.3	23173	19.89	20.5	0-2		

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FDD Band 13 (Full Power)									
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	22.97	24	0	
			25	782	23230	22.92	24	0	
			49	782	23230	23.00	24	0	
		25 RB	0	782	23230	22.12	23	0-1	
			12	782	23230	22.10	23	0-1	
			25	782	23230	22.08	23	0-1	
		50RB			782	23230	22.19	23	0-1
		16-QAM	1 RB	0	782	23230	21.91	23	0-1
				25	782	23230	22.18	23	0-1
	49			782	23230	21.83	23	0-1	
	25 RB		0	782	23230	21.08	22	0-2	
			12	782	23230	21.05	22	0-2	
			25	782	23230	21.15	22	0-2	
	50RB			782	23230	21.13	22	0-2	

FDD Band 13 (Full Power)									
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	22.84	24	0	
				782	23230	23.00	24	0	
				784.5	23255	22.90	24	0	
			12	779.5	23205	23.17	24	0	
				782	23230	22.91	24	0	
				784.5	23255	23.10	24	0	
		24	779.5	23205	23.12	24	0		
			782	23230	22.82	24	0		
			784.5	23255	22.84	24	0		
		12 RB	0	779.5	23205	22.06	23	0-1	
				782	23230	22.09	23	0-1	
				784.5	23255	22.10	23	0-1	
			6	779.5	23205	22.14	23	0-1	
				782	23230	22.00	23	0-1	
				784.5	23255	22.12	23	0-1	
			13	779.5	23205	22.09	23	0-1	
				782	23230	22.02	23	0-1	
				784.5	23255	22.17	23	0-1	
		25RB	779.5	23205	22.15	23	0-1		
			782	23230	22.26	23	0-1		
			784.5	23255	22.14	23	0-1		
		16-QAM	1 RB	0	779.5	23205	22.11	23	0-1
					782	23230	22.00	23	0-1
					784.5	23255	22.00	23	0-1
	12			779.5	23205	22.07	23	0-1	
				782	23230	21.92	23	0-1	
				784.5	23255	21.91	23	0-1	
	24			779.5	23205	21.99	23	0-1	
				782	23230	21.64	23	0-1	
				784.5	23255	21.68	23	0-1	
	12 RB			0	779.5	23205	21.12	22	0-2
					782	23230	21.13	22	0-2
					784.5	23255	21.15	22	0-2
			6	779.5	23205	21.20	22	0-2	
				782	23230	21.13	22	0-2	
				784.5	23255	21.18	22	0-2	
			13	779.5	23205	20.91	22	0-2	
				782	23230	21.00	22	0-2	
				784.5	23255	21.20	22	0-2	
	25RB		779.5	23205	21.21	22	0-2		
			782	23230	21.10	22	0-2		
			784.5	23255	21.20	22	0-2		

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FDD Band 13 (Reduced Power)									
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	19.87	20.5	0	
			25	782	23230	20.07	20.5	0	
			49	782	23230	20.04	20.5	0	
		25 RB	0	782	23230	20.13	20.5	0-1	
			12	782	23230	20.15	20.5	0-1	
			25	782	23230	20.19	20.5	0-1	
		50RB			782	23230	20.17	20.5	0-1
		16-QAM	1 RB	0	782	23230	20.02	20.5	0-1
				25	782	23230	19.72	20.5	0-1
	49			782	23230	19.79	20.5	0-1	
	25 RB		0	782	23230	20.35	20.5	0-2	
			12	782	23230	20.15	20.5	0-2	
			25	782	23230	20.19	20.5	0-2	
	50RB			782	23230	20.13	20.5	0-2	

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FDD Band 13 (Reduced Power)									
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	19.82	20.5	0	
				782	23230	20.36	20.5	0	
				784.5	23255	20.07	20.5	0	
			12	779.5	23205	20.11	20.5	0	
				782	23230	20.14	20.5	0	
				784.5	23255	20.20	20.5	0	
			24	779.5	23205	20.16	20.5	0	
				782	23230	20.09	20.5	0	
				784.5	23255	20.11	20.5	0	
		12 RB	0	779.5	23205	19.98	20.5	0-1	
				782	23230	20.14	20.5	0-1	
				784.5	23255	20.13	20.5	0-1	
			6	779.5	23205	20.22	20.5	0-1	
				782	23230	20.13	20.5	0-1	
				784.5	23255	20.17	20.5	0-1	
			13	779.5	23205	20.27	20.5	0-1	
				782	23230	20.06	20.5	0-1	
				784.5	23255	20.11	20.5	0-1	
		25RB	779.5	23205	20.17	20.5	0-1		
			782	23230	20.17	20.5	0-1		
			784.5	23255	20.14	20.5	0-1		
		16-QAM	1 RB	0	779.5	23205	20.12	20.5	0-1
					782	23230	20.14	20.5	0-1
					784.5	23255	20.19	20.5	0-1
	12			779.5	23205	19.98	20.5	0-1	
				782	23230	19.91	20.5	0-1	
				784.5	23255	19.98	20.5	0-1	
	24			779.5	23205	19.87	20.5	0-1	
				782	23230	19.98	20.5	0-1	
				784.5	23255	19.92	20.5	0-1	
	12 RB		0	779.5	23205	20.30	20.5	0-2	
				782	23230	20.13	20.5	0-2	
				784.5	23255	20.20	20.5	0-2	
			6	779.5	23205	20.00	20.5	0-2	
				782	23230	20.05	20.5	0-2	
				784.5	23255	20.28	20.5	0-2	
			13	779.5	23205	20.10	20.5	0-2	
				782	23230	20.15	20.5	0-2	
				784.5	23255	20.40	20.5	0-2	
	25RB		779.5	23205	20.20	20.5	0-2		
			782	23230	20.26	20.5	0-2		
			784.5	23255	20.26	20.5	0-2		

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FDD Band 17 (Full Power)									
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	23.12	24	0	
				710	23790	23.10	24	0	
				711	23800	23.15	24	0	
			25	709	23780	22.83	24	0	
				710	23790	22.78	24	0	
				711	23800	22.73	24	0	
			49	709	23780	22.87	24	0	
				710	23790	22.82	24	0	
				711	23800	22.92	24	0	
		25 RB	0	709	23780	22.08	23	0-1	
				710	23790	22.02	23	0-1	
				711	23800	22.04	23	0-1	
			12	709	23780	21.80	23	0-1	
				710	23790	21.83	23	0-1	
				711	23800	21.87	23	0-1	
			25	709	23780	21.80	23	0-1	
				710	23790	21.84	23	0-1	
				711	23800	21.92	23	0-1	
		50RB	709	23780	22.09	23	0-1		
			710	23790	21.94	23	0-1		
			711	23800	21.91	23	0-1		
		16-QAM	1 RB	0	709	23780	21.88	23	0-1
					710	23790	21.85	23	0-1
					711	23800	22.30	23	0-1
	25			709	23780	22.11	23	0-1	
				710	23790	22.04	23	0-1	
				711	23800	21.86	23	0-1	
	49			709	23780	21.52	23	0-1	
				710	23790	21.64	23	0-1	
				711	23800	21.19	23	0-1	
	25 RB			0	709	23780	21.07	22	0-2
					710	23790	20.98	22	0-2
					711	23800	20.93	22	0-2
			12	709	23780	21.10	22	0-2	
				710	23790	20.83	22	0-2	
				711	23800	20.82	22	0-2	
			25	709	23780	20.75	22	0-2	
				710	23790	20.90	22	0-2	
				711	23800	20.91	22	0-2	
	50RB		709	23780	20.71	22	0-2		
			710	23790	20.69	22	0-2		
			711	23800	20.93	22	0-2		

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FDD Band 17 (Full Power)									
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	22.43	24	0	
				710	23790	23.13	24	0	
				713.5	23825	22.77	24	0	
			12	706.5	23755	22.58	24	0	
				710	23790	22.71	24	0	
				713.5	23825	22.72	24	0	
		24	706.5	23755	22.85	24	0		
			710	23790	22.72	24	0		
			713.5	23825	23.18	24	0		
		12 RB	0	706.5	23755	21.93	23	0-1	
				710	23790	21.92	23	0-1	
				713.5	23825	21.85	23	0-1	
			6	706.5	23755	22.14	23	0-1	
				710	23790	22.04	23	0-1	
				713.5	23825	21.98	23	0-1	
			13	706.5	23755	22.12	23	0-1	
				710	23790	21.84	23	0-1	
				713.5	23825	21.93	23	0-1	
		25RB	706.5	23755	22.22	23	0-1		
			710	23790	21.71	23	0-1		
			713.5	23825	21.90	23	0-1		
		16-QAM	1 RB	0	706.5	23755	21.92	23	0-1
					710	23790	21.89	23	0-1
					713.5	23825	21.54	23	0-1
	12			706.5	23755	22.10	23	0-1	
				710	23790	21.92	23	0-1	
				713.5	23825	21.73	23	0-1	
	24			706.5	23755	21.64	23	0-1	
				710	23790	21.76	23	0-1	
				713.5	23825	21.82	23	0-1	
	12 RB			0	706.5	23755	21.06	22	0-2
					710	23790	20.89	22	0-2
					713.5	23825	20.91	22	0-2
			6	706.5	23755	21.28	22	0-2	
				710	23790	20.85	22	0-2	
				713.5	23825	20.91	22	0-2	
			13	706.5	23755	21.02	22	0-2	
				710	23790	20.70	22	0-2	
				713.5	23825	21.02	22	0-2	
	25RB		706.5	23755	20.97	22	0-2		
			710	23790	20.89	22	0-2		
			713.5	23825	20.89	22	0-2		

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FDD Band 17 (Reduced Power)									
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	19.90	20.5	0	
				710	23790	20.02	20.5	0	
				711	23800	20.05	20.5	0	
			25	709	23780	19.83	20.5	0	
				710	23790	19.85	20.5	0	
				711	23800	19.80	20.5	0	
			49	709	23780	19.92	20.5	0	
				710	23790	19.90	20.5	0	
				711	23800	19.93	20.5	0	
		25 RB	0	709	23780	20.08	20.5	0-1	
				710	23790	19.95	20.5	0-1	
				711	23800	20.00	20.5	0-1	
			12	709	23780	19.94	20.5	0-1	
				710	23790	19.79	20.5	0-1	
				711	23800	19.84	20.5	0-1	
			25	709	23780	19.82	20.5	0-1	
				710	23790	19.82	20.5	0-1	
				711	23800	19.96	20.5	0-1	
		50RB	709	23780	19.88	20.5	0-1		
			710	23790	19.88	20.5	0-1		
			711	23800	19.93	20.5	0-1		
		16-QAM	1 RB	0	709	23780	19.78	20.5	0-1
					710	23790	19.71	20.5	0-1
					711	23800	19.80	20.5	0-1
	25			709	23780	19.77	20.5	0-1	
				710	23790	19.69	20.5	0-1	
				711	23800	19.81	20.5	0-1	
	49			709	23780	19.99	20.5	0-1	
				710	23790	20.15	20.5	0-1	
				711	23800	20.31	20.5	0-1	
	25 RB			0	709	23780	20.10	20.5	0-2
					710	23790	19.99	20.5	0-2
					711	23800	20.05	20.5	0-2
			12	709	23780	20.07	20.5	0-2	
				710	23790	19.84	20.5	0-2	
				711	23800	19.83	20.5	0-2	
			25	709	23780	19.84	20.5	0-2	
				710	23790	19.88	20.5	0-2	
				711	23800	19.93	20.5	0-2	
	50RB		709	23780	19.76	20.5	0-2		
			710	23790	20.01	20.5	0-2		
			711	23800	19.94	20.5	0-2		

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FDD Band 17 (Reduced Power)									
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	19.90	20.5	0	
				710	23790	20.08	20.5	0	
				713.5	23825	19.89	20.5	0	
			12	706.5	23755	19.95	20.5	0	
				710	23790	19.92	20.5	0	
				713.5	23825	19.97	20.5	0	
		24	706.5	23755	19.96	20.5	0		
			710	23790	19.85	20.5	0		
			713.5	23825	19.79	20.5	0		
		12 RB	0	706.5	23755	19.98	20.5	0-1	
				710	23790	19.90	20.5	0-1	
				713.5	23825	20.06	20.5	0-1	
			6	706.5	23755	20.04	20.5	0-1	
				710	23790	19.79	20.5	0-1	
				713.5	23825	20.01	20.5	0-1	
			13	706.5	23755	20.14	20.5	0-1	
				710	23790	19.80	20.5	0-1	
				713.5	23825	20.01	20.5	0-1	
		25RB	706.5	23755	20.08	20.5	0-1		
			710	23790	19.84	20.5	0-1		
			713.5	23825	19.91	20.5	0-1		
		16-QAM	1 RB	0	706.5	23755	19.24	20.5	0-1
					710	23790	20.19	20.5	0-1
					713.5	23825	19.68	20.5	0-1
	12			706.5	23755	19.67	20.5	0-1	
				710	23790	19.94	20.5	0-1	
				713.5	23825	20.01	20.5	0-1	
	24			706.5	23755	19.98	20.5	0-1	
				710	23790	19.47	20.5	0-1	
				713.5	23825	19.70	20.5	0-1	
	12 RB			0	706.5	23755	20.14	20.5	0-2
					710	23790	20.00	20.5	0-2
					713.5	23825	19.92	20.5	0-2
			6	706.5	23755	19.75	20.5	0-2	
				710	23790	19.88	20.5	0-2	
				713.5	23825	20.01	20.5	0-2	
			13	706.5	23755	20.16	20.5	0-2	
				710	23790	19.80	20.5	0-2	
				713.5	23825	20.04	20.5	0-2	
	25RB		706.5	23755	20.47	20.5	0-2		
			710	23790	19.91	20.5	0-2		
			713.5	23825	20.03	20.5	0-2		

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CDMA conducted power table (Full power):

Band	Channel	Frequency (MHz)	Target Power + Max. Tolerance (dBm)	1xRTT				EVDO	
				SO55	SO55	TDSO/SO32	TDSO/SO32	1x EvDO Rev. 0, FTAP/RTAP	1x EvDO Rev. A, FETAP/RETAP
				RC1	RC3	FCH+SCH	FCH	Subtype 0/1	Subtype 2
Cellular (BC0)	1013	824.7	25.00	23.65	23.63	23.64	23.63	23.56	23.52
	384	836.52	25.00	24.05	24.04	23.84	24.05	23.95	23.94
	777	848.31	25.00	23.65	23.79	23.77	23.78	23.92	23.88
PCS (BC1)	25	1851.25	25.00	24.05	24.05	24.04	24.04	24.15	24.10
	600	1880	25.00	23.83	23.82	23.81	23.82	23.97	23.96
	1175	1908.75	25.00	24.08	24.11	24.09	24.11	24.19	24.18

CDMA conducted power table (Reduced power):

Band	Channel	Frequency (MHz)	Target Power + Max. Tolerance (dBm)	1xRTT				EVDO	
				SO55	SO55	TDSO/SO32	TDSO/SO32	1x EvDO Rev. 0, FTAP/RTAP	1x EvDO Rev. A, FETAP/RETAP
				RC1	RC3	FCH+SCH	FCH	Subtype 0/1	Subtype 2
CDMA (BC0)	1013	824.7	20.50	20.03	20.02	20.01	20.02	20.02	20.01
	384	836.52	20.50	20.46	20.45	20.44	20.46	20.47	20.46
	777	848.31	20.50	20.38	20.36	20.36	20.37	20.39	20.37
CDMA (BC1)	25	1851.25	18.50	18.10	18.10	18.11	18.10	18.10	18.09
	600	1880	18.50	17.85	17.83	17.84	17.86	17.87	17.86
	1175	1908.75	18.50	18.15	18.14	18.15	18.13	18.15	18.14

1.4 Test Environment

Ambient Temperature: 22±2° C
 Tissue Simulating Liquid: 22±2° C

1.5 Operation Description

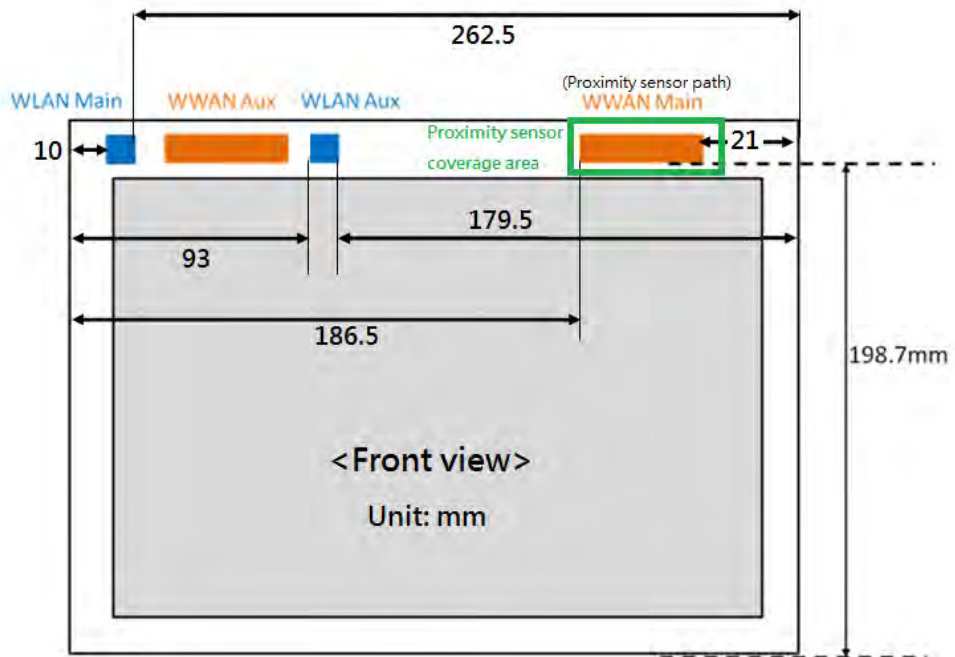
1. WWAN:

SAR is measured in the following configurations:

Configuration 1: back/top side_0mm with power reduction

Configuration 2: back/top side_10mm without power reduction

Configuration 3: right/left sides_0mm without power reduction



Antenna location

(The p-sensor is colocated with WWAN antenna)

2. WLAN

For WLAN, since the RF hardware/software of FCC ID: B94HNI07CAM is the same with that of FCC ID: PD98265NG, so the WLAN is refer to the WLAN SAR report of FCC ID: PD98265NG after verifying the worst cases of the WLAN SAR report.

Note:

1. The EUT is controlled by using a Radio Communication Tester (Anritsu MT8820C), and the communication between the EUT and the tester is established by air link.
2. Measurements are performed respectively on the lowest, middle and highest channels of the operating band(s). The EUT is set to maximum power level during all tests, and at the beginning of each test the battery is fully charged.
3. 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.
4. SAR test reduction for GPRS and EDGE modes is determined by the source-based time-averaged output power. The data mode with highest specified time-averaged output power should be tested for SAR compliance. The GMSK EDGE configurations are grouped with GPRS and considered with respect to time-averaged maximum output power to determine compliance. The 3G SAR test reduction procedure is applied to 8-PSK EDGE with GMSK GPRS/EDGE as the primary mode. Since the maximum output power in a secondary mode (8-PSK EDGE) is $\leq 1/4$ dB higher than the primary mode (GMSK GPRS/EDGE), SAR measurement is not required for the secondary mode (8-PSK EDGE).
5. 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 $\leq 1/4$ dB higher than the primary mode (WCDMA), SAR measurement is not required for the secondary mode (HSDPA).
6. 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 $\leq 1/4$ dB higher than the primary mode (WCDMA), SAR measurement is not required for the secondary mode (HSPA).
7. Body SAR is measured using Subtype 0/1 Physical Layer configurations for Rev. 0. The 3G SAR test reduction procedure is applied to Rev. A, Subtype 2 Physical

layer configuration, with Rev. 0 as the primary mode since the maximum output power in a secondary mode is $\leq 1/4$ dB higher than the primary mode. For Ev-Do data devices that also support 1x RTT voice and/or data operations, the 3G SAR test reduction procedure is applied to 1x RTT RC3 and RC1 with Ev-Do Rev. 0, Rev. A and Rev. B as the respective primary modes.

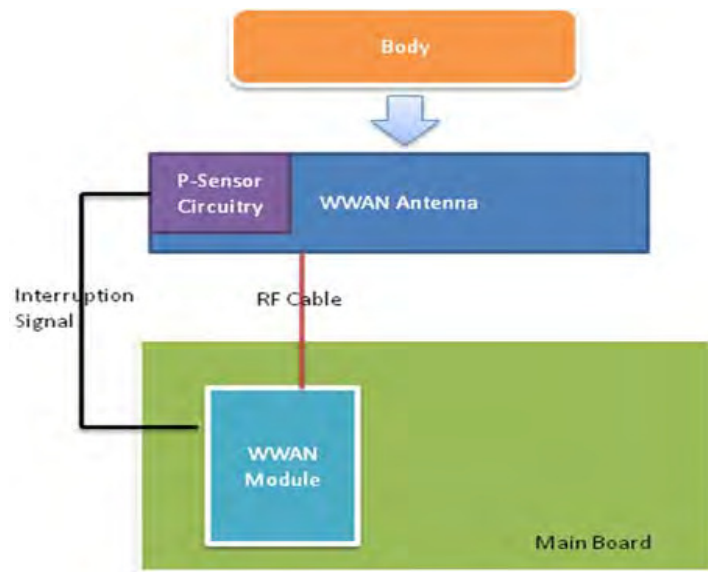
8. LTE modes test according to **KDB 941225D05v02r05**.
 - a. Per Section 5.2.1, the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation.
 - Using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
 - When the reported SAR is ≤ 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 ≤ 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 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 $> 1/2$ 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.

9. According to **KDB447498D01v06**, testing of other required channels is not required when the reported 1-g SAR for the highest output channel is ≤ 0.8 W/kg, when the transmission band is ≤ 100 MHz.
10. According to **KDB865664D01v01r04**, SAR measurement variability must be assessed for each frequency band. When the original highest measured SAR is ≥ 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 ≥ 1.45 W/kg ($\sim 10\%$ from the 1-g SAR limit)

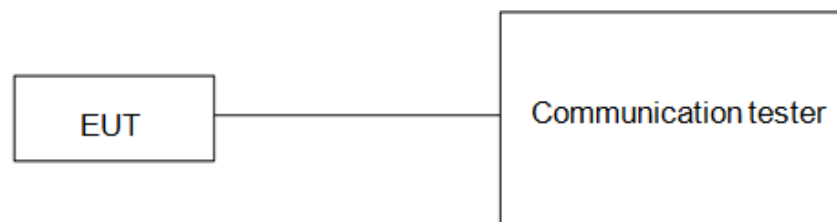
1.6 Proximity sensor operation description

The P-sensor being used to reduce output power is capacitive in which when the object such as human body, metal or plastic is being approached, the sensing capacitance would be increased with the antenna pad. Once the capacitance is accumulated, and reached over the threshold as set in MCU of the microchip, the interruption signal is pulled low (High state without trigger) and further inform modem module of the transmitter to make power reduction.



1.6.1 Proximity sensor measurement procedure

1. The proximity sensor is collocated with WWAN antenna.
2. Output power is measured, and monitored by using the communication tester. A RF cables with sufficient length was being attached from the antenna port of the module, and used for the measurement. The appropriate loss attenuated from cable is compensated in the communication tester.



1.6.2 Trigger distances for back/top side

Test procedure:

1. The entire back surface or edge of the tablet is positioned below a flat phantom filled with the required tissue equivalent medium and positioned at least 20 mm further than the distance that triggers power reduction.
2. The back surface or edge is moved toward the phantom in 3 mm steps until the sensor triggers.
3. The back surface or edge is then moved back (further away) from the phantom until maximum output power is returned to the normal maximum level.
4. The back surface or edge is again moved toward the phantom, but in 1 mm steps, until it is at least 5 mm past the triggering point or touching the phantom
5. If the tablet is not touching the phantom, it is moved in 3 mm steps until it touches the phantom to confirm that the sensor remains triggered and the maximum power stays reduced.
6. The process is then reversed by moving the tablet away from the phantom to determine triggering release, until it is at least 10 mm beyond the point that triggers the return of normal maximum power.
7. The measured output power within ± 5 mm of the triggering points, or until the tablet is touching the phantom, for movements to and from the phantom should be tabulated.
8. To ensure all production units are compliant, it is generally necessary to reduce the triggering distance determined from the triggering tests by 1 mm, or more if it is necessary, and use the smallest distance for movements to and from the phantom, minus 1 mm, as the sensor triggering distance for determining the SAR measurement distance.
9. For back side, the trigger distance of proximity sensor is 11mm.
10. For top side, the trigger distance of proximity sensor is 12mm, and we perform the 1.6.3 tilt angle testing in next step.

1.6.3 Tilt angle testing

Test procedure:

1. The influence of table tilt angles to proximity sensor triggering is determined by positioning each tablet edge that contains a transmitting antenna, perpendicular to the flat phantom, at the smallest sensor triggering test distance determined in sections 1.6.2 by rotating the tablet around the edge next to the phantom in ≤ 10 deg increments until the tablet is ± 45 deg or more from the vertical position at 0 deg.
2. If sensor triggering is released and normal maximum output power is restored within the ± 45 deg range, the procedures in step 1) should be repeated by reducing the tablet to phantom separation distance by 1 mm until the proximity sensor no longer releases triggering, and maximum output power remains in the reduced mode.
3. The smallest separation distance determined in steps 1) and 2), minus 1 mm, is the sensor triggering distance for tablet tilt coverage. The smallest separation distance determined in sections 1.6.2, 1.6.3 minus 1 mm should be used in the SAR measurements.
4. The influence of tablet tilt angles to proximity sensor triggering is determined by positioning top and right sides, please refer to table 1.6.5 and 1.6.6.
5. After the tilt angle testing for top side, the sensor is not released during ± 45 deg, so $12-1=11$ mm, is the sensor triggering distance for tablet tilt coverage. The smallest separation distance minus 1 mm ($11-1=10$ mm) should be used in the SAR measurements.

1.6.4 Proximity sensor coverage

The following procedures do not apply and are not required for configurations where the antenna and sensor are collocated and the peak SAR location is overlapping with the sensor.

Test procedure:

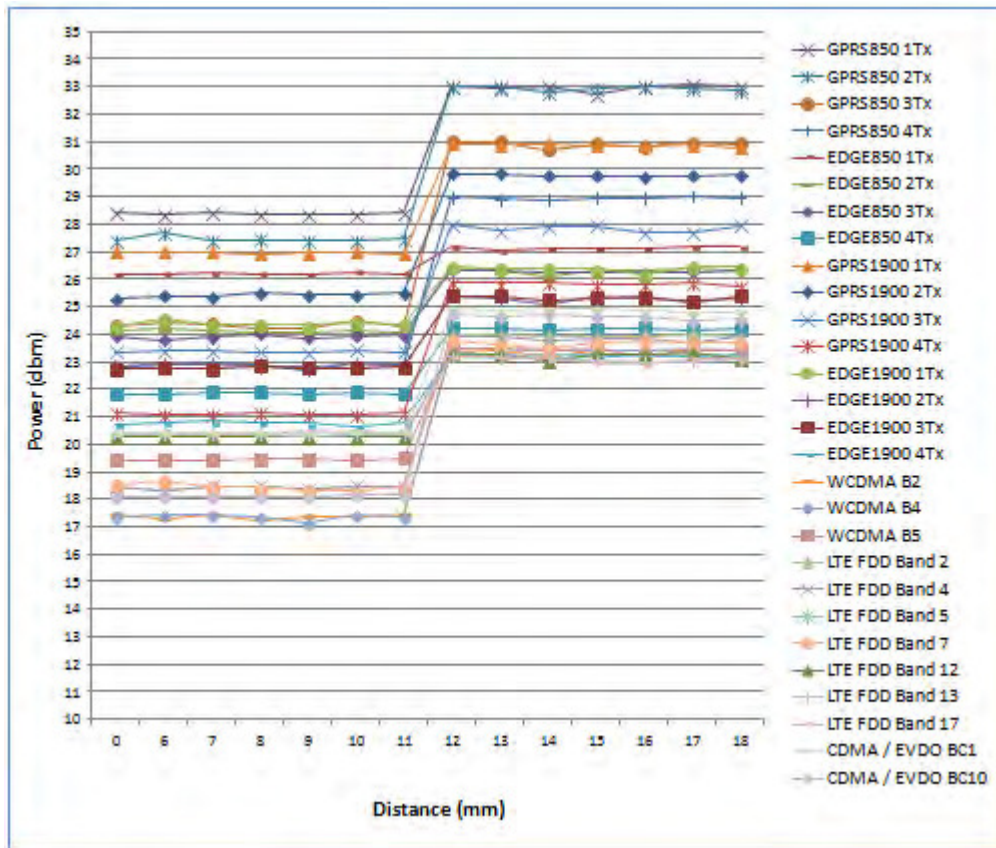
1. The back surface or edges of the tablet is positioned at a test separation distance less than or equal to the distance required for back surface or edge triggering, with both the antenna and sensor pad located at least 20 mm laterally outside the edge (boundary) of the phantom, along the direction of maximum antenna and sensor offset.
2. The similar sequence of steps applied to determine sensor triggering distance in section 1.6.2 are used to verify back surface and edge sensor coverage by moving the tablet (sensor and antenna) horizontally toward the phantom while maintaining the same vertical separation between the back surface or edge and the phantom.
3. After the exact location where triggering of power reduction is determined, with respect to the sensor and antenna, the tablet movement should be continued, in 3 mm increments, until both the sensor and antenna(s) are fully under the phantom and at least 20 mm inside the phantom edge.
4. The process is then repeated from the other direction, at the opposite end of maximum antenna and sensor offset, by rotating the tablet 180 degrees.

1.6.5 Results

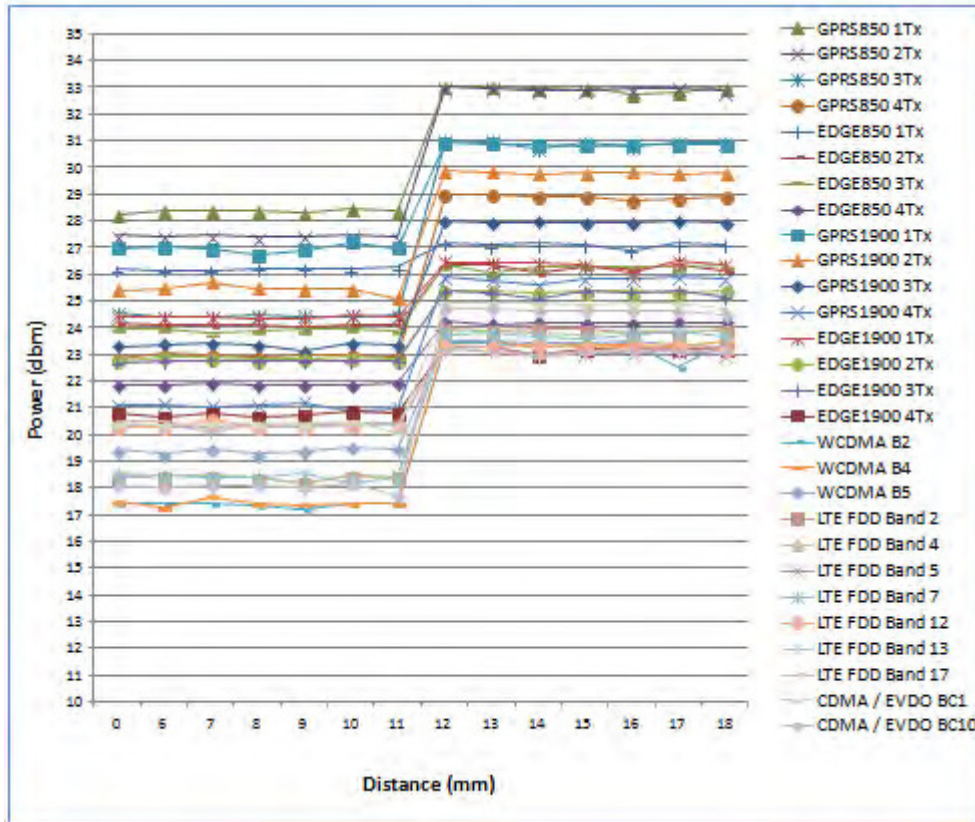
The measured output power within ± 5 mm of the triggering points, or until the tablet is touching the phantom, for movements to and from the phantom is tabulated in the following.

Back side

Moving device toward the phantom



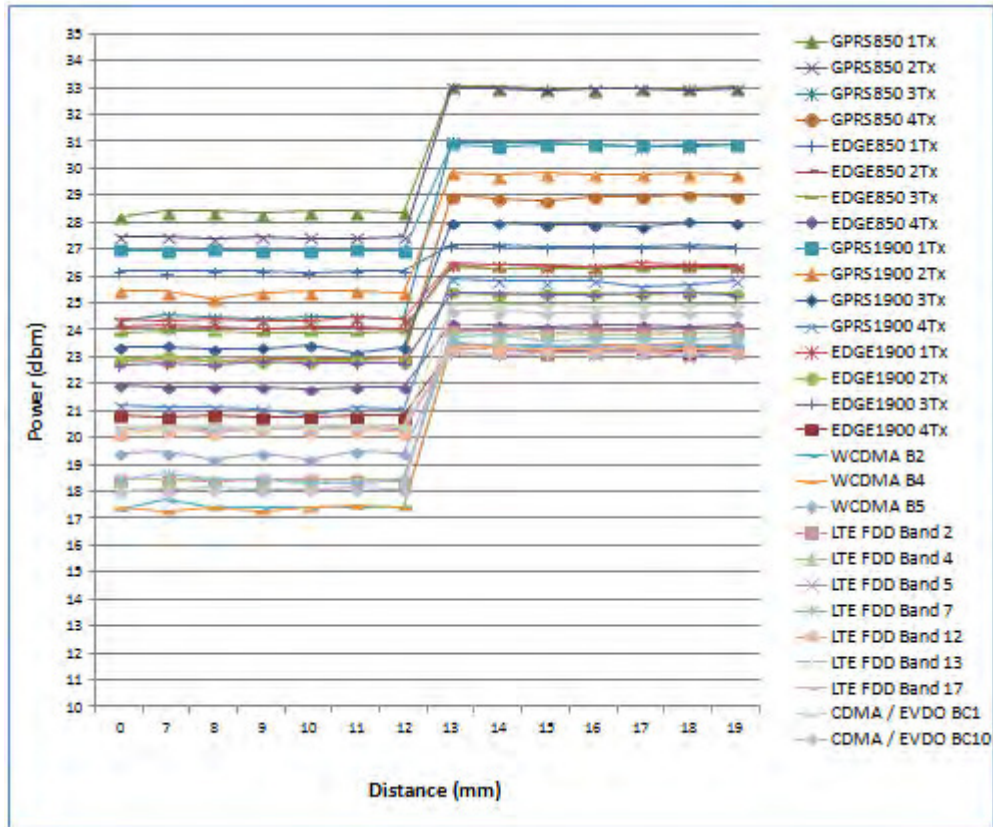
Moving device away from the phantom



For back side, the worst trigger distance of proximity sensor is 11mm, thus we test back side SAR in 10mm without power reduction and 0mm with power reduction.

Top side

Moving device toward the phantom



Moving device away from the phantom

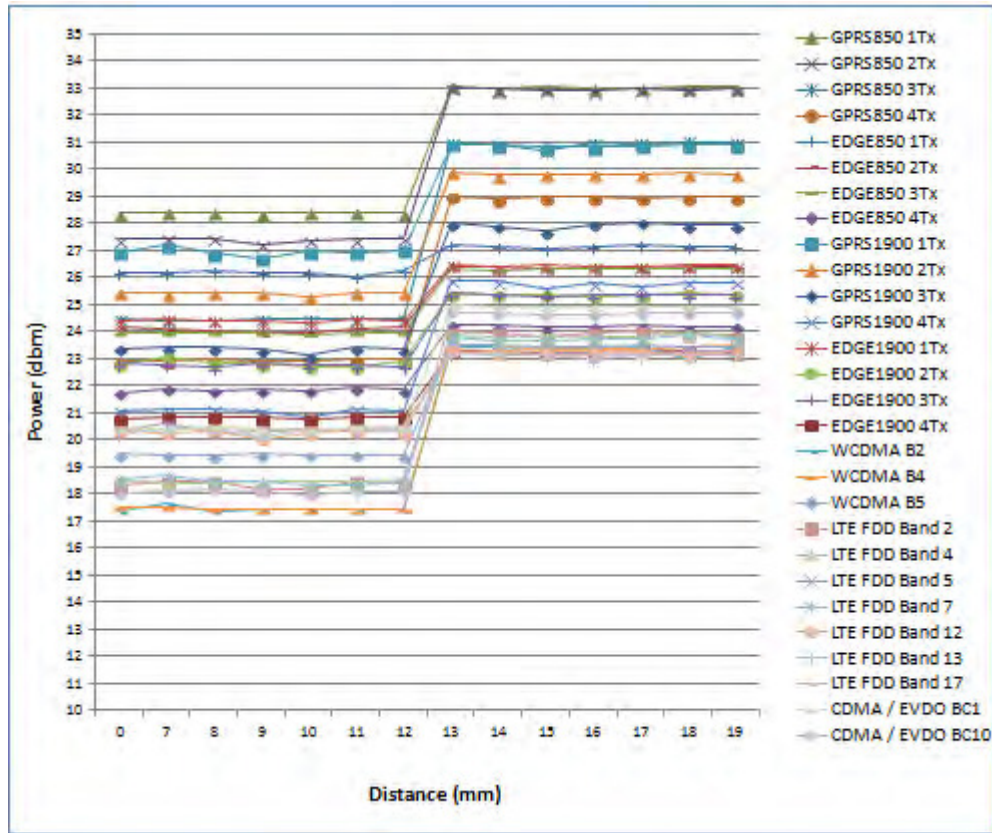


Table 1.6.5 Tilt angle test results for top side

P-sensor ON/OFF	-50 deg	-45 deg	-40 deg	-30 deg	-20 deg	-10 deg	0 deg	10 deg	20 deg	30 deg	40 deg	45 deg	50 deg
12mm	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON

During the tilt angle testing for top side, the sensor is not released in 12mm, so 12-1=11mm, is the sensor triggering distance for tablet tilt coverage. The smallest separation distance minus 1 mm(11-1=10mm) should be used in the SAR measurements for top side.

Note:

1. The triggering variations and hysteresis effect has been evaluated separately according to the tissue-equivalent medium required for each frequency band, and sensor triggering does not change with different tissue-equivalent media.
2. The default power level for sensor failure and malfunctioning, including all compliance concerns, has been addressed in the client's operation description (1.6.6) for the proximity sensor implementation to be acceptable.
3. Conducted power is monitored qualitatively to identify the general triggering characteristics and recorded quantitatively, versus spacing.

1.6.6 Operation description for P-sensor

Power Reduction Design Specification (for P-sensor)

The mechanism of power reduction is used only for WWAN, not for Wi-Fi and Bluetooth. The reduced power for each technology/band is defined in Table1-1. With P-sensor mechanism, the GPRS/WCDMA/CDMA/LTE default power when P-sensor failure or malfunction are show in Table1-2 as below.

Table1-1 : The power reduction scenario table

Band	Power Reduction
GPRS850	YES
EDGE850	YES
GPRS1900	YES
EDGE1900	YES
WCDMA B2	YES
WCDMA B4	YES
WCDMA B5	YES
CDMA BC0	YES
CDMA BC1	YES
LTE B2/4/5/7/12/13/17	YES
WLAN	NO
BT	NO

Table1-2 : The default maximum power when p-sensor failure or malfunction

Technology / Band	Mode	Default Maximum Power (dBm)
GPRS 850	Class 8	28.5
	Class 10	27.5
	Class 11	25
	Class 12	23
EDGE 850	Class 8	26.5
	Class 10	24.5
	Class 11	24.5
	Class 12	22
GPRS 1900	Class 8	27
	Class 10	25.5
	Class 11	23.5
	Class 12	21.5
EDGE 1900	Class 8	24.5
	Class 10	23
	Class 11	23
	Class 12	21

Technology / Band	Mode	Default Maximum Power (dBm)
UMTS B2	RMC 12.2K data	18.5
	HSDPA case 1	17.5
	HSDPA case 2	17.5
	HSDPA case 3	17.5
	HSDPA case 4	17.5
	HSUPA case 1	17.5
	HSUPA case 2	17.5
	HSUPA case 3	17.5
	HSUPA case 4	17.5
	HSUPA case 5	17.5
UMTS B4	RMC 12.2K data	18.5
	HSDPA case 1	17.5
	HSDPA case 2	17.5
	HSDPA case 3	17.5
	HSDPA case 4	17.5
	HSUPA case 1	17.5
	HSUPA case 2	17.5
	HSUPA case 3	17.5
	HSUPA case 4	17.5
	HSUPA case 5	17.5

Technology / Band	Mode	Default Maximum Power (dBm)
UMTS B5	RMC 12.2K data	20.5
	HSDPA case 1	19.5
	HSDPA case 2	19.5
	HSDPA case 3	19.5
	HSDPA case 4	19.5
	HSUPA case 1	19.5
	HSUPA case 2	19.5
	HSUPA case 3	19.5
	HSUPA case 4	19.5
	HSUPA case 5	19.5

Technology / Band	Mode	Default Maximum Power (dBm)
CDMA BC0	All	20.5
CDMA BC1	All	18.5
LTE B2	All	18.5
LTE B4	All	18.5
LTE B5	All	20.5
LTE B7	All	18.5
LTE B12	All	20.5
LTE B13	All	20.5
LTE B17	All	20.5

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 $SAR = \sigma (|E_i|^2) / \rho$ where σ and ρ 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 intissue 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.

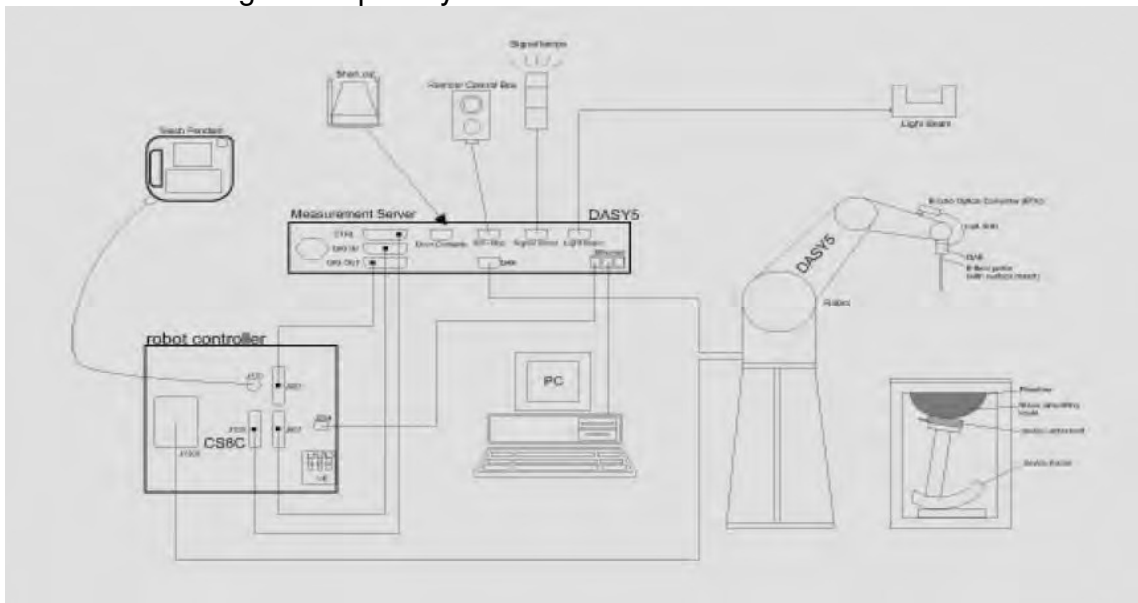



Fig. a The block diagram of SAR system


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. The SAM twin phantom enabling testing left-hand and right-hand usage.
11. The device holder for handheld mobile phones.
12. Tissue simulating liquid mixed according to the given recipes.
13. Validation dipole kits allowing to validate the proper functioning of the system.

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 750/835/1750/1900/2450/2600/5300 /5600MHz 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%.	

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

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 750/835/1750/1900/2450/2600/5300/5600MHz. 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 ambient temperature of the laboratory was 21.7°C, the relative humidity was 62% and 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.

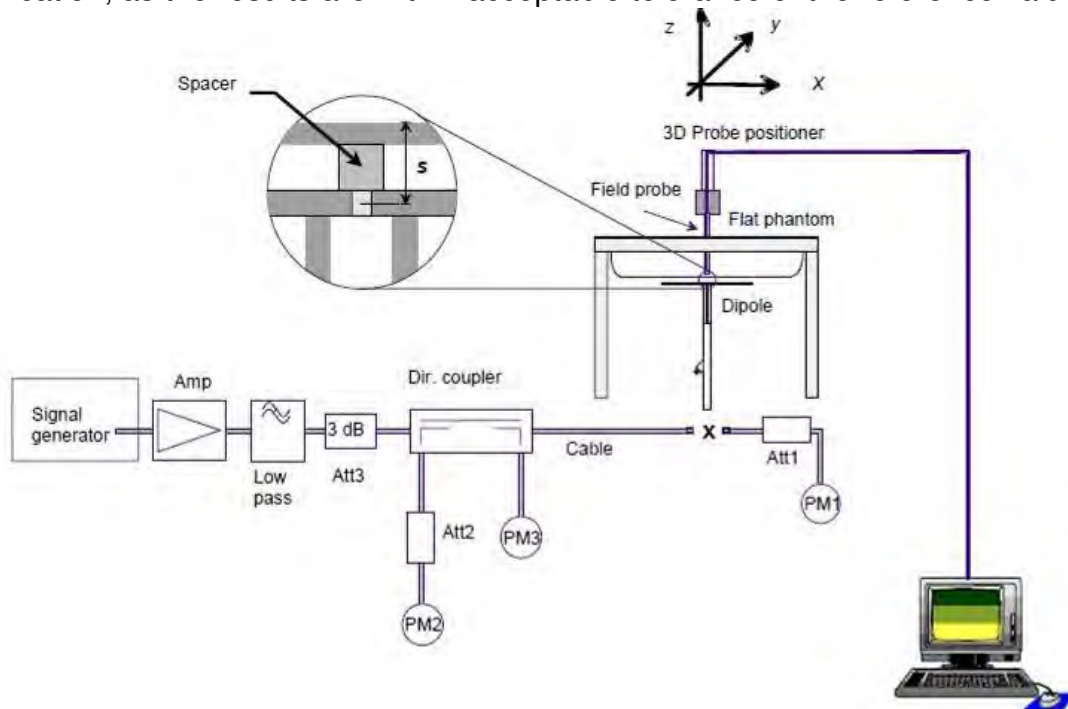


Fig. b The block diagram of system verification

Validation Kit	S/N	Frequency (MHz)		1W Target SAR-1g (mW/g)	Measured SAR-1g (mW/g)	Measured SAR-1g normalized to 1W	Deviation (%)	Measured Date
D750V3	1015	750	Body	8.77	2.21	8.84	0.80%	Dec. 08, 2016
D835V2	4d063	835	Body	9.57	2.4	9.6	0.31%	Dec. 09, 2016
D1750V2	1008	1750	Body	37.3	9.65	38.6	3.49%	Dec. 05, 2016
D1900V2	5d027	1900	Body	39.7	10.1	40.4	1.76%	Dec. 06, 2016
D2450V2	727	2450	Body	49.6	13	52	4.84%	Feb. 08, 2017
D2600V2	1005	2600	Body	53.9	13.6	54.4	0.93%	Dec. 07, 2016
D5GHzV2	1040	5300	Body	76.4	7.89	78.9	3.27%	Feb. 08, 2017
		5600	Body	78.4	8.14	81.4	3.83%	Feb. 08, 2017

Table 1. Results of system verification

1.10 Tissue Simulant Fluid for the Frequency Band

The dielectric properties for this body-simulant fluid were measured by using the Schmid & Partner Engineering AG Model DAKS-3.5 Dielectric Probe Kit in conjunction with Network Analyzer (30 KHz-6000 MHz).

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.

Tissue Type	Measured Frequency (MHz)	Target Dielectric Constant, ϵ_r	Target Conductivity, σ (S/m)	Measured Dielectric Constant, ϵ_r	Measured Conductivity, σ (S/m)	% dev ϵ_r	% dev σ	Measurement Date	
Body	704	55.710	0.960	57.792	0.927	-3.74%	3.42%	Dec. 08, 2016	
	707.5	55.697	0.960	57.662	0.932	-3.53%	2.92%		
	709	55.691	0.960	57.715	0.934	-3.63%	2.73%		
	710	55.687	0.960	57.683	0.932	-3.58%	2.94%		
	711	55.683	0.960	57.585	0.931	-3.42%	3.05%		
	750	55.531	0.963	57.337	0.976	-3.25%	-1.31%		
	782	55.406	0.966	57.069	1.006	-3.00%	-4.15%		
	824.2	55.242	0.969	57.585	0.988	-4.24%	-1.94%	Dec. 09, 2016	
	824.7	55.240	0.969	57.582	0.989	-4.24%	-2.04%		
	826.4	55.234	0.969	57.485	0.991	-4.08%	-2.24%		
	829	55.223	0.970	57.412	0.992	-3.96%	-2.32%		
	835	55.200	0.970	57.392	1.000	-3.97%	-3.09%		
	836.5	55.195	0.972	57.378	1.002	-3.95%	-3.10%		
	836.52	55.195	0.972	57.376	1.002	-3.95%	-3.10%		
	836.6	55.195	0.972	57.367	1.002	-3.93%	-3.09%		
	844	55.172	0.981	57.354	1.006	-3.95%	-2.54%		
	846.6	55.164	0.984	57.301	1.012	-3.87%	-2.82%		
	848.31	55.159	0.986	57.309	1.011	-3.90%	-2.50%		
	848.8	55.158	0.987	57.254	1.011	-3.80%	-2.43%		
	1712.4	53.531	1.465	53.705	1.402	-0.33%	4.28%		Dec. 05, 2016
	1720	53.511	1.469	53.632	1.416	-0.23%	3.64%		
1732.4	53.478	1.477	53.630	1.419	-0.28%	3.95%			
1732.5	53.478	1.477	53.631	1.419	-0.29%	3.95%			
1745	53.445	1.485	53.603	1.435	-0.30%	3.38%			
1750	53.432	1.488	53.590	1.439	-0.30%	3.32%			
1752.6	53.425	1.490	53.552	1.442	-0.24%	3.23%			

Tissue Type	Measured Frequency (MHz)	Target Dielectric Constant, ϵ_r	Target Conductivity, σ (S/m)	Measured Dielectric Constant, ϵ_r	Measured Conductivity, σ (S/m)	% dev ϵ_r	% dev σ	Measurement Date
Body	1850.2	53.300	1.520	53.309	1.536	-0.02%	-1.05%	Dec. 06, 2016
	1851.25	53.300	1.520	53.293	1.537	0.01%	-1.12%	
	1852.4	53.300	1.520	53.305	1.542	-0.01%	-1.45%	
	1860	53.300	1.520	53.271	1.554	0.05%	-2.24%	
	1880	53.300	1.520	53.212	1.566	0.17%	-3.03%	
	1900	53.300	1.520	53.166	1.584	0.25%	-4.21%	
	1907.6	53.300	1.520	53.140	1.594	0.30%	-4.87%	
	1908.75	53.300	1.520	53.108	1.595	0.36%	-4.93%	
	1909.8	53.300	1.520	53.135	1.593	0.31%	-4.80%	Dec. 07, 2016
	2510	52.624	2.035	52.002	2.124	1.18%	-4.37%	
	2535	52.592	2.071	51.916	2.156	1.29%	-4.13%	
	2560	52.560	2.106	51.832	2.189	1.39%	-3.94%	
	2600	52.509	2.163	51.701	2.240	1.54%	-3.57%	
	2437	52.717	1.938	51.637	1.988	2.05%	-2.60%	
	2450	52.700	1.950	51.614	2.003	2.06%	-2.72%	
	2480	52.662	1.993	51.545	2.040	2.12%	-2.36%	
	5270	48.919	5.381	47.592	5.585	2.71%	-3.79%	
	5300	48.879	5.416	47.577	5.607	2.66%	-3.53%	
5600	48.471	5.766	46.582	6.002	3.90%	-4.09%		
5610	48.458	5.778	46.572	6.010	3.89%	-4.01%		

Table 2. Dielectric Parameters of Tissue Simulant Fluid

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)
850	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)
2450	Body	301.7ml	698.3ml	—	—	—	—	1.0L(Kg)
2600	Body	301.7ml	698.3ml	—	—	—	—	1.0L(Kg)

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

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 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 σ is the conductivity, ρ 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:

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 ρ), 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.
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.

References

1. N. Kuster, Q. Balzano, and J.C. Lin, Eds., *Mobile Communications Safety*, Chapman & Hall, London, 1997.
2. K. Meier, M. Burkhardt, T. Schmid, and N. Kuster, "Broadband calibration of E-field probes in lossy media", *IEEE Transactions on Microwave Theory and Techniques*, vol. 44, no. 10, pp. 1954-1962, Oct. 1996.
3. K. Jokela, P. Hyysalo, and L. Puranen, "Calibration of specific absorption rate (SAR) probes in waveguide at 900 MHz", *IEEE Transactions on Instrumentation and Measurements*, vol. 47, no. 2, pp. 432-438, Apr. 1998.

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 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.

2. Summary of Results

GPRS 850 MHz (without power reduction)

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	
GPRS 850 (1Dn2UP)	Back side	10	128	824.2	33	32.86	3.28%	1.120	1.157	-
	Back side	10	190	836.6	33	32.99	0.23%	1.160	1.163	-
	Back side	10	251	848.8	33	32.85	3.51%	1.110	1.149	-
	Top side	10	190	836.6	33	32.99	0.23%	0.435	0.436	-
	Right side	0	190	836.6	33	32.99	0.23%	0.313	0.314	-
	Left side	0	190	836.6	33	32.99	0.23%	0.014	0.014	-

GPRS 850 MHz (with power reduction)

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	
GPRS 850 (1Dn2UP)	Back side	0	128	824.2	27.5	27.26	5.68%	1.070	1.131	-
	Back side	0	190	836.6	27.5	27.22	6.66%	1.220	1.301	169
	Back side*	0	190	836.6	27.5	27.22	6.66%	1.200	1.280	-
	Back side	0	251	848.8	27.5	27.46	0.93%	1.170	1.181	-
	Top side	0	251	848.8	27.5	27.46	0.93%	0.488	0.493	-

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

GPRS 1900 MHz (without power reduction)

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	
GPRS 1900 (1Dn2UP)	Back side	10	512	1850.2	30	29.84	3.75%	0.364	0.378	-
	Top side	10	512	1850.2	30	29.84	3.75%	0.208	0.216	-
	Right side	0	512	1850.2	30	29.84	3.75%	0.054	0.056	-
	Left side	0	512	1850.2	30	29.84	3.75%	0.001	0.001	-

GPRS 1900 MHz (with power reduction)

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	
GPRS 1900 (1Dn2UP)	Back side	0	512	1850.2	25.5	25.37	3.04%	1.190	1.226	-
	Back side	0	661	1880	25.5	25.00	12.20%	1.130	1.268	-
	Back side	0	810	1909.8	25.5	25.48	0.46%	1.290	1.296	170
	Back side*	0	810	1909.8	25.5	25.48	0.46%	1.250	1.256	-
	Top side	0	810	1909.8	25.5	25.48	0.46%	0.480	0.482	-

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

WCDMA Band II (without power reduction)

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	10	9262	1852.4	24.5	24.49	0.23%	0.453	0.454	-
	Top side	10	9262	1852.4	24.5	24.49	0.23%	0.316	0.317	-
	Right side	0	9262	1852.4	24.5	24.49	0.23%	0.052	0.052	-
	Left side	0	9262	1852.4	24.5	24.49	0.23%	0.00114	0.001	-

WCDMA Band II (with power reduction)

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	9262	1852.4	18.5	18.47	0.69%	1.090	1.098	-
	Back side	0	9400	1880	18.5	18.1	9.65%	1.090	1.195	-
	Back side	0	9538	1907.6	18.5	18.37	3.04%	1.270	1.309	171
	Back side*	0	9538	1907.6	18.5	18.37	3.04%	1.250	1.288	-
	Top side	0	9262	1852.4	18.5	18.47	0.69%	0.238	0.240	-

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

WCDMA Band IV (without power reduction)

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	10	1312	1712.4	24.5	24.47	0.69%	0.585	0.589	-
	Top side	10	1312	1712.4	24.5	24.47	0.69%	0.105	0.106	-
	Right side	0	1312	1712.4	24.5	24.47	0.69%	0.331	0.333	-
	Left side	0	1312	1712.4	24.5	24.47	0.69%	0.001	0.001	-

WCDMA Band IV (with power reduction)

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	1312	1712.4	18.5	18.46	0.93%	1.320	1.332	-
	Back side	0	1412	1732.4	18.5	18.49	0.23%	1.330	1.333	172
	Back side*	0	1412	1732.4	18.5	18.49	0.23%	1.300	1.303	-
	Back side	0	1513	1752.6	18.5	18.47	0.69%	1.310	1.319	-
	Top side	0	1412	1732.4	18.5	18.49	0.23%	0.358	0.359	-

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

WCDMA Band V (without power reduction)

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	10	4132	826.4	24.5	24.11	9.40%	0.762	0.834	-
	Back side	10	4183	836.6	24.5	24.28	5.20%	0.772	0.812	-
	Back side	10	4233	846.6	24.5	24.4	2.33%	0.789	0.807	-
	Top side	10	4233	846.6	24.5	24.4	2.33%	0.350	0.358	-
	Right side	0	4233	846.6	24.5	24.4	2.33%	0.313	0.320	-
	Left side	0	4233	846.6	24.5	24.4	2.33%	0.005	0.005	-

WCDMA Band V (with power reduction)

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	20.5	20.06	10.66%	1.180	1.306	-
	Back side	0	4183	836.6	20.5	20.33	3.99%	1.270	1.321	-
	Back side	0	4233	846.6	20.5	20.47	0.69%	1.330	1.339	173
	Back side*	0	4233	846.6	20.5	20.47	0.69%	1.290	1.299	-
	Top side	0	4233	846.6	20.5	20.47	0.69%	0.270	0.272	-

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

CDMA / EVDO (BC0) (without power reduction)

Mode		Service	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	
CDMA BC 0	EVDO	Rev. 0 Subtype 0/1	Back side	10	1013	824.7	25	23.56	39.32%	0.614	0.855	-
			Back side	10	384	836.52	25	23.95	27.35%	0.633	0.806	-
			Back side	10	777	848.31	25	23.92	28.23%	0.645	0.827	-
			Top side	10	384	836.52	25	23.95	27.35%	0.303	0.386	-
			Right side	0	384	836.52	25	23.95	27.35%	0.294	0.374	-
			Left side	0	384	836.52	25	23.95	27.35%	0.006	0.008	-

CDMA / EVDO (BC0) (with power reduction)

	Service	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	
EVDO	Rev. 0 Subtype 0/1	Back side	0	1013	824.7	20.5	20.02	11.69%	1.100	1.229	-
		Back side	0	384	836.52	20.5	20.47	0.69%	1.270	1.279	174
		Back side*	0	384	836.52	20.5	20.39	2.57%	1.250	1.282	-
		Back side	0	777	848.31	20.5	20.39	2.57%	1.230	1.262	-
		Top side	0	384	836.52	20.5	20.47	0.69%	0.291	0.293	-

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

CDMA / EVDO (BC1) (without power reduction)

Mode		Service	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	
CDMA BC 1	EVDO	Rev. 0 Subtype 0/1	Back side	10	25	1851.25	25	24.15	21.62%	0.735	0.894	-
			Back side	10	600	1880	25	23.97	26.77%	0.756	0.958	-
			Back side	10	1175	1908.75	25	24.19	20.50%	0.799	0.963	-
			Top side	10	1175	1908.75	25	24.19	20.50%	0.658	0.793	-
			Right side	0	1175	1908.75	25	24.19	20.50%	0.089	0.107	-
			Left side	0	1175	1908.75	25	24.19	20.50%	0.002	0.002	-

CDMA / EVDO (BC1) (with power reduction)

Mode		Service	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	
CDMA BC 1	EVDO	Rev. 0 Subtype 0/1	Back side	0	25	1851.25	18.5	18.1	9.65%	0.805	0.883	-
			Back side	0	600	1880	18.5	17.87	15.61%	0.795	0.919	-
			Back side	0	1175	1908.75	18.5	18.15	8.39%	0.983	1.066	175
			Back side*	0	1175	1908.75	18.5	18.15	8.39%	0.977	1.059	-
			Top side	0	1175	1908.75	18.5	18.15	8.39%	0.174	0.189	-

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

LTE FDD Band II (without power reduction)

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	0	Back side	10	18900	1880	24	23.98	0.46%	0.144	0.145	-
					Top side	10	18900	1880	24	23.98	0.46%	0.203	0.204	-
					Right side	0	18900	1880	24	23.98	0.46%	0.025	0.025	-
					Left side	0	18900	1880	24	23.98	0.46%	0.004	0.004	-
			50 RB	25	Back side	10	18700	1860	23	22.79	4.95%	0.135	0.142	-
					Top side	10	18700	1860	23	22.79	4.95%	0.135	0.142	-
					Right side	0	18700	1860	23	22.79	4.95%	0.021	0.022	-
					Left side	0	18700	1860	23	22.79	4.95%	0.003	0.003	-
			100 RB		Back side	10	18900	1880	23	22.68	7.65%	0.134	0.144	-
					Top side	10	18900	1880	23	22.68	7.65%	0.179	0.193	-
					Right side	0	18900	1880	23	22.68	7.65%	0.021	0.023	-
					Left side	0	18900	1880	23	22.68	7.65%	0.003	0.003	-

LTE FDD Band II (with power reduction)

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	0	Back side	0	18700	1860	18.5	18.38	2.80%	0.996	1.024	-
					Top side	0	18700	1860	18.5	18.38	2.80%	0.181	0.186	-
					Back side	0	19100	1900	18.5	18.28	5.20%	1.160	1.220	176
					Back side*	0	19100	1900	18.5	18.28	5.20%	1.140	1.199	-
			50 RB	25	Back side	0	18900	1880	18.5	18.24	6.17%	0.965	1.025	-
					Back side	0	18700	1860	18.5	18.39	2.57%	0.984	1.009	-
					Back side	0	19100	1900	18.5	18.36	3.28%	1.140	1.177	-
					Top side	0	18700	1860	18.5	18.39	2.57%	0.172	0.176	-
			100 RB	50	Back side	0	18900	1880	18.5	18.26	5.68%	1.030	1.089	-
					Back side	0	18700	1860	18.5	18.30	4.71%	0.972	1.018	-
					Back side	0	18900	1880	18.5	18.06	10.66%	1.020	1.129	-
					Back side	0	19100	1900	18.5	18.17	7.89%	1.090	1.176	-
		Top side	0	18700	1860	18.5	18.30	4.71%	0.176	0.184	-			

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

LTE FDD Band IV (without power reduction)

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	10	20175	1732.5	24	23.89	2.57%	0.448	0.459	-
					Top side	10	20175	1732.5	24	23.89	2.57%	0.106	0.109	-
					Right side	0	20175	1732.5	24	23.89	2.57%	0.270	0.277	-
					Left side	0	20175	1732.5	24	23.89	2.57%	0.005	0.005	-
			50 RB	25	Back side	10	20300	1745	23	22.88	2.80%	0.347	0.357	-
					Top side	10	20300	1745	23	22.88	2.80%	0.092	0.095	-
					Right side	0	20300	1745	23	22.88	2.80%	0.212	0.218	-
					Left side	0	20300	1745	23	22.88	2.80%	0.004	0.004	-
			100 RB		Back side	10	20175	1732.5	23	22.74	6.17%	0.347	0.368	-
					Top side	10	20175	1732.5	23	22.74	6.17%	0.093	0.099	-
					Right side	0	20175	1732.5	23	22.74	6.17%	0.215	0.228	-
					Left side	0	20175	1732.5	23	22.74	6.17%	0.004	0.004	-

LTE FDD Band IV (with power reduction)

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	18.36	3.28%	1.240	1.281	-
					Back side	0	20175	1732.5	18.5	18.33	3.99%	1.220	1.269	-
					Back side	0	20300	1745	18.5	18.30	4.71%	1.200	1.257	-
					Top side	0	20050	1720	18.5	18.36	3.28%	0.308	0.318	-
			50 RB	0	Back side	0	20050	1720	18.5	18.42	1.86%	1.280	1.304	177
					Back side*	0	20050	1720	18.5	18.42	1.86%	1.260	1.283	-
					Back side	0	20175	1732.5	18.5	18.31	4.47%	1.200	1.254	-
					Back side	0	20300	1745	18.5	18.34	3.75%	1.220	1.266	-
			100 RB		Top side	0	20050	1720	18.5	18.42	1.86%	0.281	0.286	-
					Back side	0	20050	1720	18.5	18.38	2.80%	1.270	1.306	-
					Back side	0	20175	1732.5	18.5	18.25	5.93%	1.200	1.271	-
					Back side	0	20300	1745	18.5	18.28	5.20%	1.220	1.283	-
		Top side	0	20050	1720	18.5	18.38	2.80%	0.268	0.276	-			

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

LTE FDD Band V (without power reduction)

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	0	Back side	10	20600	844	24	23.22	19.67%	0.646	0.773	-
					Top side	10	20600	844	24	23.22	19.67%	0.225	0.269	-
					Right side	0	20600	844	24	23.22	19.67%	0.238	0.285	-
					Left side	0	20600	844	24	23.22	19.67%	0.005	0.006	-
			25 RB	12	Back side	10	20600	844	23	22.26	18.58%	0.606	0.719	-
					Top side	10	20600	844	23	22.26	18.58%	0.213	0.253	-
					Right side	0	20600	844	23	22.26	18.58%	0.206	0.244	-
					Left side	0	20600	844	23	22.26	18.58%	0.004	0.005	-
			50 RB		Back side	10	20525	836.5	23	22.17	21.06%	0.607	0.735	-
					Top side	10	20525	836.5	23	22.17	21.06%	0.212	0.257	-
					Right side	0	20525	836.5	23	22.17	21.06%	0.202	0.245	-
					Left side	0	20525	836.5	23	22.17	21.06%	0.004	0.005	-

LTE FDD Band V (with power reduction)

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	0	Back side	0	20600	844	20.5	20.30	4.71%	1.090	1.141	-	
					Top side	0	20525	836.5	20.5	20.31	4.47%	0.287	0.300	-	
				25	49	Back side	0	20525	836.5	20.5	20.31	4.47%	1.120	1.170	-
						Back side	0	20450	829	20.5	20.29	4.95%	1.120	1.175	-
			25 RB	0	Back side	0	20525	836.5	20.5	20.29	4.95%	1.160	1.217	178	
					Back side*	0	20525	836.5	20.5	20.29	4.95%	1.140	1.196	-	
				12	Back side	0	20525	836.5	20.5	20.31	4.47%	1.110	1.160	-	
					Top side	0	20525	836.5	20.5	20.31	4.47%	0.262	0.274	-	
			50 RB	25	Back side	0	20450	829	20.5	20.15	8.39%	1.120	1.214	-	
					Back side	0	20450	829	20.5	19.93	14.02%	1.020	1.163	-	
					Back side	0	20525	836.5	20.5	20.16	8.14%	1.040	1.125	-	
					Back side	0	20600	844	20.5	20.39	2.57%	1.000	1.026	-	
					Top side	0	20525	836.5	20.5	20.39	2.57%	0.274	0.281	-	

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

LTE FDD Band VII (without power reduction)

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	0	Back side	10	21100	2535	24	23.76	5.68%	0.703	0.743	-
					Top side	10	21100	2535	24	23.76	5.68%	0.429	0.453	-
					Right side	0	21100	2535	24	23.76	5.68%	0.251	0.265	-
					Left side	0	21100	2535	24	23.76	5.68%	0.002	0.002	-
			50 RB	0	Back side	10	21100	2535	23	22.69	7.40%	0.588	0.632	-
					Top side	10	21100	2535	23	22.69	7.40%	0.331	0.355	-
					Right side	0	21100	2535	23	22.69	7.40%	0.158	0.170	-
					Left side	0	21100	2535	23	22.69	7.40%	0.001	0.001	-
			100 RB	0	Back side	10	21100	2535	23	22.70	7.15%	0.548	0.587	-
					Top side	10	21100	2535	23	22.70	7.15%	0.340	0.364	-
					Right side	0	21100	2535	23	22.70	7.15%	0.129	0.138	-
					Left side	0	21100	2535	23	22.70	7.15%	0.001	0.001	-

LTE FDD Band VII (with power reduction)

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	0	Back side	0	21350	2560	18.5	18.48	0.46%	1.060	1.065	-
					Top side	0	21100	2535	18.5	18.48	0.46%	0.345	0.347	-
					Back side	0	20850	2510	18.5	18.27	5.44%	1.260	1.329	-
					Back side	0	21100	2535	18.5	18.41	2.09%	1.300	1.327	179
			50 RB	0	Back side*	0	21100	2535	18.5	18.41	2.09%	1.260	1.286	-
					Back side	0	20850	2510	18.5	18.28	5.20%	1.230	1.294	-
					Back side	0	21350	2560	18.5	18.19	7.40%	1.170	1.257	-
					Back side	0	21100	2535	18.5	18.48	0.46%	1.120	1.125	-
			100 RB	0	Top side	0	21100	2535	18.5	18.48	0.46%	0.352	0.354	-
					Back side	0	20850	2510	18.5	18.23	6.41%	1.120	1.192	-
					Back side	0	21100	2535	18.5	18.50	0.00%	1.180	1.180	-
					Back side	0	21350	2560	18.5	18.09	9.90%	1.050	1.154	-
					0	21100	2535	18.5	18.50	0.00%	0.364	0.364	-	

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

LTE FDD Band XII (without power reduction)

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	Back side	10	23060	704	24	23.33	16.68%	0.426	0.497	-
					Top side	10	23060	704	24	23.33	16.68%	0.154	0.180	-
					Right side	0	23060	704	24	23.33	16.68%	0.161	0.188	-
					Left side	0	23060	704	24	23.33	16.68%	0.015	0.018	-
			25 RB	12	Back side	10	23060	704	23	22.04	24.74%	0.311	0.388	-
					Top side	10	23060	704	23	22.04	24.74%	0.122	0.152	-
					Right side	0	23060	704	23	22.04	24.74%	0.134	0.167	-
					Left side	0	23060	704	23	22.04	24.74%	0.012	0.015	-
			50 RB		Back side	10	23060	704	23	22.05	24.45%	0.318	0.396	-
					Top side	10	23060	704	23	22.05	24.45%	0.124	0.154	-
					Right side	0	23060	704	23	22.05	24.45%	0.138	0.172	-
					Left side	0	23060	704	23	22.05	24.45%	0.012	0.015	-

LTE FDD Band XII (with power reduction)

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	Back side	0	23095	707.5	20.5	20.15	8.39%	1.060	1.149	-
					Back side	0	23130	711	20.5	20.14	8.64%	1.020	1.108	-
					Top side	0	23095	707.5	20.5	20.15	8.39%	0.354	0.384	-
					Back side	0	23060	704	20.5	20.03	11.43%	1.010	1.125	-
			25 RB	0	Back side	0	23130	711	20.5	19.99	12.46%	1.070	1.203	180
					Back side*	0	23130	711	20.5	19.99	12.46%	1.060	1.192	-
					Back side	0	23060	704	20.5	20.07	10.41%	1.010	1.115	-
					Back side	0	23095	707.5	20.5	20.12	9.14%	1.040	1.135	-
			50 RB	0	Top side	0	23095	707.5	20.5	20.12	9.14%	0.254	0.277	-
					Back side	0	23060	704	20.5	19.99	12.46%	1.060	1.192	-
					Back side	0	23095	707.5	20.5	20.09	9.90%	1.010	1.110	-
					Back side	0	23130	711	20.5	20.02	11.69%	1.020	1.139	-
					Back side	0	23095	707.5	20.5	20.09	9.90%	0.337	0.370	-
					Top side	0	23095	707.5	20.5	20.09	9.90%	0.337	0.370	-

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

LTE FDD Band XIII (without power reduction)

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	49	Back side	10	23230	782	24	23.00	25.89%	0.531	0.668	-
					Top side	10	23230	782	24	23.00	25.89%	0.229	0.288	-
					Right side	0	23230	782	24	23.00	25.89%	0.283	0.356	-
					Left side	0	23230	782	24	23.00	25.89%	0.015	0.019	-
			25 RB	0	Back side	10	23230	782	23	22.12	22.46%	0.423	0.518	-
					Top side	10	23230	782	23	22.12	22.46%	0.135	0.165	-
					Right side	0	23230	782	23	22.12	22.46%	0.225	0.276	-
					Left side	0	23230	782	23	22.12	22.46%	0.012	0.015	-
			50 RB	0	Back side	10	23230	782	23	22.19	20.50%	0.408	0.492	-
					Top side	10	23230	782	23	22.19	20.50%	0.131	0.158	-
					Right side	0	23230	782	23	22.19	20.50%	0.222	0.268	-
					Left side	0	23230	782	23	22.19	20.50%	0.012	0.014	-

LTE FDD Band XIII (with power reduction)

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	Back side	0	23230	782	20.5	19.87	15.61%	1.150	1.330	-
					Back side	0	23230	782	20.5	20.07	10.41%	1.170	1.292	-
					Top side	0	23230	782	20.5	20.07	10.41%	0.438	0.484	-
					Back side	0	23230	782	20.5	20.04	11.17%	1.170	1.301	-
			25 RB	0	Back side	0	23230	782	20.5	20.13	8.89%	1.180	1.285	-
					Back side	0	23230	782	20.5	20.15	8.39%	1.190	1.290	181
					Back side*	0	23230	782	20.5	20.15	8.39%	1.180	1.279	-
					Back side	0	23230	782	20.5	20.19	7.40%	1.170	1.257	-
			50 RB	0	Top side	0	23230	782	20.5	20.19	7.40%	0.412	0.442	-
					Back side	0	23230	782	20.5	20.17	7.89%	1.180	1.273	-
					Back side	0	23230	782	20.5	20.17	7.89%	0.423	0.456	-
					Top side	0	23230	782	20.5	20.17	7.89%	0.423	0.456	-

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

LTE FDD Band XVII (without power reduction)

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	10	23800	711	24	23.15	21.62%	0.421	0.512	-
					Top side	10	23800	711	24	23.15	21.62%	0.181	0.220	-
					Right side	0	23800	711	24	23.15	21.62%	0.174	0.212	-
					Left side	0	23800	711	24	23.15	21.62%	0.015	0.018	-
			25 RB	0	Back side	10	23780	709	23	22.08	23.59%	0.346	0.428	-
					Top side	10	23780	709	23	22.08	23.59%	0.122	0.151	-
					Right side	0	23780	709	23	22.08	23.59%	0.104	0.129	-
					Left side	0	23780	709	23	22.08	23.59%	0.013	0.016	-
			50 RB	0	Back side	10	23780	709	23	22.09	23.31%	0.348	0.429	-
					Top side	10	23780	709	23	22.09	23.31%	0.129	0.159	-
					Right side	0	23780	709	23	22.09	23.31%	0.102	0.126	-
					Left side	0	23800	709	23	22.09	23.31%	0.012	0.014	-

LTE FDD Band XVII (with power reduction)

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	23790	710	20.5	20.02	11.69%	1.050	1.173	-
					Back side	0	23800	711	20.5	20.05	10.92%	1.040	1.154	-
					Top side	0	23800	711	20.5	20.05	10.92%	0.334	0.370	-
					Back side	0	23780	709	20.5	19.92	14.29%	1.030	1.177	-
			25 RB	0	Back side	0	23780	709	20.5	20.08	10.15%	1.100	1.212	182
					Back side*	0	23780	709	20.5	20.08	10.15%	1.080	1.190	-
					Back side	0	23790	710	20.5	19.95	13.50%	1.050	1.192	-
					Back side	0	23800	711	20.5	20.00	12.20%	1.080	1.212	-
			50 RB	0	Top side	0	23790	710	20.5	20.08	10.15%	0.276	0.304	-
					Back side	0	23780	709	20.5	19.88	15.35%	1.050	1.211	-
					Back side	0	23790	710	20.5	19.88	15.35%	1.060	1.223	-
					Back side	0	23800	711	20.5	19.93	14.02%	1.040	1.186	-
					Top side	0	23790	710	20.5	19.93	14.02%	0.323	0.368	-
					Top side	0	23790	710	20.5	19.93	14.02%	0.323	0.368	-

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

In order to evaluate the simultaneous transmission SAR analysis based on the SAR data from both SAR reports(FCC ID: B94HNI07CAM & FCC ID: PD98265NG), we check the worst cases of WLAN SAR report in 2.4G and 5G respectively, such as the following shown.

WLAN SISO

Mode	Antenna	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	
WLAN802.11b	Main	Back side	0	6	2437	17.50	17.48	0.46%	0.229	0.230	183
	Main	Top side	0	6	2437	17.50	17.48	0.46%	0.108	0.108	184
	Main	Left side	0	6	2437	17.50	17.48	0.46%	0.047	0.047	185
	Aux	Back side	0	6	2437	15.00	14.99	0.23%	0.599	0.600	-
	Aux	Top side	0	6	2437	15.00	14.99	0.23%	0.221	0.222	186
Bluetooth (GFSK)	Aux	Back side	0	78	2480	11.50	10.50	25.89%	0.185	0.233	-
	Aux	Top side	0	39	2480	11.50	10.50	25.89%	0.033	0.041	-
WLAN802.11n(40M)5.3G	Main	Back side	0	54	5270	13.50	13.48	0.46%	0.676	0.679	-
WLAN802.11ac(80M)5.6G	Main	Top side	0	122	5610	13.50	13.47	0.69%	1.150	1.158	-
WLAN802.11n(40M)5.3G	Main	Left side	0	54	5270	13.50	13.48	0.46%	0.030	0.030	-
WLAN802.11ac(80M)5.6G	Aux	Back side	0	122	5610	14.50	14.47	0.69%	0.556	0.560	-
	Aux	Top side	0	124	5620	14.50	14.47	0.69%	0.783	0.788	-

3. Simultaneous Transmission Analysis

Simultaneous Transmission Scenarios:

NO.	Simultaneous Transmit Configurations	Body
1	GPRS/EDGE + 2.4GHz WLAN Main / 2.4GHz WLAN Aux / 2.4GHz MIMO	YES
2	GPRS/EDGE + 5GHz WLAN Main / 5GHz WLAN Aux / 5GHz MIMO	YES
3	GPRS/EDGE + BT	YES
4	GPRS/EDGE + 2.4/5GHz WLAN Main + BT	YES
5	GPRS/EDGE + 5GHz MIMO + BT	YES
6	UMTS + 2.4GHz WLAN Main / 2.4GHz WLAN Aux / 2.4GHz MIMO	YES
7	UMTS + 5GHz WLAN Main / 5GHz WLAN Aux / 5GHz MIMO	YES
8	UMTS + BT	YES
9	UMTS + 2.4/5GHz WLAN Main + BT	YES
10	UMTS + 5GHz MIMO + BT	YES
11	CDMA + 2.4GHz WLAN Main / 2.4GHz WLAN Aux / 2.4GHz MIMO	YES
12	CDMA + 5GHz WLAN Main / 5GHz WLAN Aux / 5GHz MIMO	YES
13	CDMA + BT	YES
14	CDMA + 2.4/5GHz WLAN Main + BT	YES
15	CDMA + 5GHz MIMO + BT	YES
16	LTE + 2.4GHz WLAN Main / 2.4GHz WLAN Aux / 2.4GHz MIMO	YES
17	LTE + 5GHz WLAN Main / 5GHz WLAN Aux / 5GHz MIMO	YES
18	LTE + BT	YES
19	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.
- 4) Bluetooth can transmit with 5GHz WLAN Main and 5GHz WLAN Aux simultaneously.

3.1 Estimated SAR calculation

According to KDB447498 D01 – 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.

Mode / Band	Test position	test separation distance(mm)	Estimated SAR(W/kg)
WLAN Aux 2.4 / 5G	right / left	> 50mm	0.4
WLAN Main 2.4 / 5G	right	> 50mm	0.4
BT	right / left	> 50mm	0.4

Max highest reported 1-g SAR (0mm) and estimated SAR for WWAN & WLAN

Antenna	Band	Highest Reported 1-g SAR (0mm) [W/kg]			
		Back	Top	Right	Left
WLAN Main	2.4GHz	0.230	0.108	0.400	0.047
	5GHz	0.690	1.200	0.400	0.080
WLAN Aux	2.4GHz	0.730	0.222	0.400	0.400
	5GHz	1.160	0.940	0.400	0.400
	BT	0.290	0.060	0.400	0.400
WWAN	GPRS 850	1.301	0.493	0.314	0.014
	GPRS 1900	1.296	0.482	0.056	0.001
	WCDMA Band II	1.309	0.240	0.052	0.001
	WCDMA Band IV	1.333	0.359	0.333	0.001
	WCDMA Band V	1.339	0.272	0.320	0.005
	LTE Band 2	1.220	0.186	0.025	0.004
	LTE Band 4	1.306	0.318	0.277	0.005
	LTE Band 5	1.217	0.300	0.285	0.006
	LTE Band 7	1.329	0.364	0.265	0.002
	LTE Band 12	1.203	0.384	0.188	0.018
	LTE Band 13	1.330	0.484	0.356	0.019
	LTE Band 17	1.223	0.370	0.212	0.018
	CDMA BC0	1.282	0.293	0.374	0.008
	CDMA BC1	1.066	0.189	0.107	0.002

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 $(SAR1 + SAR2)^{1.5}/R_i$, rounded to two decimal digits, and must be ≤ 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.

Sum of the SAR for GPRS 850 + WLAN + Bluetooth

No.	Test Position	Simultaneous Transmission Scenario						Σ SAR 1g (W/kg)	SPLSR (Yes/No)	Figure
		GPRS 850	2.4GHz		5GHz		Bluetooth			
			Main	Aux	Main	Aux				
1~5	Back side	1.301	0.230	0.730	-	-	-	2.261	Yes	1
		1.301	0.230	-	-	-	0.290	1.821	Yes	2
		1.301	-	-	0.690	-	0.290	2.281	Yes	3
		1.301	-	-	0.690	1.160	0.290	3.441	Yes	4
	Top side	0.493	0.108	0.222	-	-	-	0.823	No	-
		0.493	0.108	-	-	-	0.060	0.661	No	-
		0.493	-	-	1.200	-	0.060	1.753	Yes	5
		0.493	-	-	1.200	0.940	0.060	2.693	Yes	6
	Right side	0.314	0.400	0.400	-	-	-	1.114	No	-
		0.314	0.400	-	-	-	0.400	1.114	No	-
		0.314	-	-	0.400	-	0.400	1.114	No	-
		0.314	-	-	0.400	0.400	0.400	1.514	No	-
	Left side	0.014	0.047	0.400	-	-	-	0.461	No	-
		0.014	0.047	-	-	-	0.400	0.461	No	-
		0.014	-	-	0.080	-	0.400	0.494	No	-
0.014		-	-	0.400	0.400	0.400	1.214	No	-	

Sum of the SAR for GPRS 1900 + WLAN + Bluetooth

No.	Test Position	Simultaneous Transmission Scenario						Σ SAR 1g (W/kg)	SPLSR (Yes/No)	Figure
		GPRS 1900	2.4GHz		5GHz		Bluetooth			
			Main	Aux	Main	Aux				
1~5	Back side	1.296	0.230	0.730	-	-	-	2.256	Yes	7
		1.296	0.230	-	-	-	0.290	1.816	Yes	8
		1.296	-	-	0.690	-	0.290	2.276	Yes	9
		1.296	-	-	0.690	1.160	0.290	3.436	Yes	10
	Top side	0.482	0.108	0.222	-	-	-	0.812	No	-
		0.482	0.108	-	-	-	0.060	0.650	No	-
		0.482	-	-	1.200	-	0.060	1.742	Yes	11
		0.482	-	-	1.200	0.940	0.060	2.682	Yes	12
	Right side	0.056	0.400	0.400	-	-	-	0.856	No	-
		0.056	0.400	-	-	-	0.400	0.856	No	-
		0.056	-	-	0.400	-	0.400	0.856	No	-
		0.056	-	-	0.400	0.400	0.400	1.256	No	-
	Left side	0.001	0.047	0.400	-	-	-	0.448	No	-
		0.001	0.047	-	-	-	0.400	0.448	No	-
		0.001	-	-	0.080	-	0.400	0.481	No	-
0.001		-	-	0.400	0.400	0.400	1.201	No	-	

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Sum of the SAR for WCDMA Band II + WLAN + Bluetooth

No.	Test Position	Simultaneous Transmission Scenario						Σ SAR 1g (W/kg)	SPLSR (Yes/No)	Figure
		WCDMA Band II	2.4GHz		5GHz		Bluetooth			
			Main	Aux	Main	Aux				
6~10	Back side	1.309	0.230	0.730	-	-	-	2.269	Yes	13
		1.309	0.230	-	-	-	0.290	1.829	Yes	14
		1.309	-	-	0.690	-	0.290	2.289	Yes	15
		1.309	-	-	0.690	1.160	0.290	3.449	Yes	16
	Top side	0.240	0.108	0.222	-	-	-	0.570	No	-
		0.240	0.108	-	-	-	0.060	0.408	No	-
		0.240	-	-	1.200	-	0.060	1.500	No	-
		0.240	-	-	1.200	0.940	0.060	2.440	Yes	17
	Right side	0.052	0.400	0.400	-	-	-	0.852	No	-
		0.052	0.400	-	-	-	0.400	0.852	No	-
		0.052	-	-	0.400	-	0.400	0.852	No	-
		0.052	-	-	0.400	0.400	0.400	1.252	No	-
	Left side	0.001	0.047	0.400	-	-	-	0.448	No	-
		0.001	0.047	-	-	-	0.400	0.448	No	-
		0.001	-	-	0.080	-	0.400	0.481	No	-
		0.001	-	-	0.400	0.400	0.400	1.201	No	-

Sum of the SAR for WCDMA Band IV + WLAN + Bluetooth

No.	Test Position	Simultaneous Transmission Scenario						Σ SAR 1g (W/kg)	SPLSR (Yes/No)	Figure
		WCDMA Band IV	2.4GHz		5GHz		Bluetooth			
			Main	Aux	Main	Aux				
6~10	Back side	1.333	0.230	0.730	-	-	-	2.293	Yes	18
		1.333	0.230	-	-	-	0.290	1.853	Yes	19
		1.333	-	-	0.690	-	0.290	2.313	Yes	20
		1.333	-	-	0.690	1.160	0.290	3.473	Yes	21
	Top side	0.359	0.108	0.222	-	-	-	0.689	No	-
		0.359	0.108	-	-	-	0.060	0.527	No	-
		0.359	-	-	1.200	-	0.060	1.619	No	22
		0.359	-	-	1.200	0.940	0.060	2.559	Yes	23
	Right side	0.333	0.400	0.400	-	-	-	1.133	No	-
		0.333	0.400	-	-	-	0.400	1.133	No	-
		0.333	-	-	0.400	-	0.400	1.133	No	-
		0.333	-	-	0.400	0.400	0.400	1.533	No	-
	Left side	0.001	0.047	0.400	-	-	-	0.448	No	-
		0.001	0.047	-	-	-	0.400	0.448	No	-
		0.001	-	-	0.080	-	0.400	0.481	No	-
		0.001	-	-	0.400	0.400	0.400	1.201	No	-

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Sum of the SAR for WCDMA Band V + WLAN + Bluetooth

No.	Test Position	Simultaneous Transmission Scenario						Σ SAR 1g (W/kg)	SPLSR (Yes/No)	Figure
		WCDMA Band V	2.4GHz		5GHz		Bluetooth			
			Main	Aux	Main	Aux				
6~10	Back side	1.339	0.230	0.730	-	-	-	2.299	Yes	24
		1.339	0.230	-	-	-	0.290	1.859	Yes	25
		1.339	-	-	0.690	-	0.290	2.319	Yes	26
		1.339	-	-	0.690	1.160	0.290	3.479	Yes	27
	Top side	0.272	0.108	0.222	-	-	-	0.602	No	-
		0.272	0.108	-	-	-	0.060	0.440	No	-
		0.272	-	-	1.200	-	0.060	1.532	No	-
		0.272	-	-	1.200	0.940	0.060	2.472	Yes	28
	Right side	0.320	0.400	0.400	-	-	-	1.120	No	-
		0.320	0.400	-	-	-	0.400	1.120	No	-
		0.320	-	-	0.400	-	0.400	1.120	No	-
		0.320	-	-	0.400	0.400	0.400	1.520	No	-
	Left side	0.005	0.047	0.400	-	-	-	0.452	No	-
		0.005	0.047	-	-	-	0.400	0.452	No	-
		0.005	-	-	0.080	-	0.400	0.485	No	-
		0.005	-	-	0.400	0.400	0.400	1.205	No	-

Sum of the SAR for CDMA BC0 + WLAN + Bluetooth

No.	Test Position	Simultaneous Transmission Scenario						Σ SAR 1g (W/kg)	SPLSR (Yes/No)	Figure
		CDMA BC0	2.4GHz		5GHz		Bluetooth			
			Main	Aux	Main	Aux				
11~15	Back side	1.282	0.230	0.730	-	-	-	2.242	Yes	29
		1.282	0.230	-	-	-	0.290	1.802	Yes	30
		1.282	-	-	0.690	-	0.290	2.262	Yes	31
		1.282	-	-	0.690	1.160	0.290	3.422	Yes	32
	Top side	0.293	0.108	0.222	-	-	-	0.623	No	-
		0.293	0.108	-	-	-	0.060	0.461	No	-
		0.293	-	-	1.200	-	0.060	1.553	No	-
		0.293	-	-	1.200	0.940	0.060	2.493	Yes	33
	Right side	0.374	0.400	0.400	-	-	-	1.174	No	-
		0.374	0.400	-	-	-	0.400	1.174	No	-
		0.374	-	-	0.400	-	0.400	1.174	No	-
		0.374	-	-	0.400	0.400	0.400	1.574	No	-
	Left side	0.008	0.047	0.400	-	-	-	0.455	No	-
		0.008	0.047	-	-	-	0.400	0.455	No	-
		0.008	-	-	0.080	-	0.400	0.488	No	-
		0.008	-	-	0.400	0.400	0.400	1.208	No	-

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Sum of the SAR for CDMA BC1 + WLAN + Bluetooth

No.	Test Position	Simultaneous Transmission Scenario						Σ SAR 1g (W/kg)	SPLSR (Yes/No)	Figure
		CDMA BC1	2.4GHz		5GHz		Bluetooth			
			Main	Aux	Main	Aux				
11~15	Back side	1.066	0.230	0.730	-	-	-	2.026	Yes	34
		1.066	0.230	-	-	-	0.290	1.586	No	-
		1.066	-	-	0.690	-	0.290	2.046	Yes	35
		1.066	-	-	0.690	1.160	0.290	3.206	Yes	36
	Top side	0.189	0.108	0.222	-	-	-	0.519	No	-
		0.189	0.108	-	-	-	0.060	0.357	No	-
		0.189	-	-	1.200	-	0.060	1.449	No	-
		0.189	-	-	1.200	0.940	0.060	2.389	Yes	37
	Right side	0.107	0.400	0.400	-	-	-	0.907	No	-
		0.107	0.400	-	-	-	0.400	0.907	No	-
		0.107	-	-	0.400	-	0.400	0.907	No	-
		0.107	-	-	0.400	0.400	0.400	1.307	No	-
	Left side	0.002	0.047	0.400	-	-	-	0.449	No	-
		0.002	0.047	-	-	-	0.400	0.449	No	-
		0.002	-	-	0.080	-	0.400	0.482	No	-
		0.002	-	-	0.400	0.400	0.400	1.202	No	-

Sum of the SAR for LTE Band 2 + WLAN + Bluetooth

No.	Test Position	Simultaneous Transmission Scenario						Σ SAR 1g (W/kg)	SPLSR (Yes/No)	Figure
		LTE Band 2	2.4GHz		5GHz		Bluetooth			
			Main	Aux	Main	Aux				
16~19	Back side	1.220	0.230	0.730	-	-	-	2.180	Yes	38
		1.220	0.230	-	-	-	0.290	1.740	Yes	39
		1.220	-	-	0.690	-	0.290	2.200	Yes	40
		1.220	-	-	0.690	1.160	0.290	3.360	Yes	41
	Top side	0.186	0.108	0.222	-	-	-	0.516	No	-
		0.186	0.108	-	-	-	0.060	0.354	No	-
		0.186	-	-	1.200	-	0.060	1.446	No	-
		0.186	-	-	1.200	0.940	0.060	2.386	Yes	42
	Right side	0.025	0.400	0.400	-	-	-	0.825	No	-
		0.025	0.400	-	-	-	0.400	0.825	No	-
		0.025	-	-	0.400	-	0.400	0.825	No	-
		0.025	-	-	0.400	0.400	0.400	1.225	No	-
	Left side	0.004	0.047	0.400	-	-	-	0.451	No	-
		0.004	0.047	-	-	-	0.400	0.451	No	-
		0.004	-	-	0.080	-	0.400	0.484	No	-
		0.004	-	-	0.400	0.400	0.400	1.204	No	-

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Sum of the SAR for LTE FDD Band 4 + WLAN + Bluetooth

No.	Test Position	Simultaneous Transmission Scenario						Σ SAR 1g (W/kg)	SPLSR (Yes/No)	Figure
		LTE Band 4	2.4GHz		5GHz		Bluetooth			
			Main	Aux	Main	Aux				
16~19	Back side	1.306	0.230	0.730	-	-	-	2.266	Yes	43
		1.306	0.230	-	-	-	0.290	1.826	Yes	44
		1.306	-	-	0.690	-	0.290	2.286	Yes	45
		1.306	-	-	0.690	1.160	0.290	3.446	Yes	46
	Top side	0.318	0.108	0.222	-	-	-	0.648	No	-
		0.318	0.108	-	-	-	0.060	0.486	No	-
		0.318	-	-	1.200	-	0.060	1.578	No	-
		0.318	-	-	1.200	0.940	0.060	2.518	Yes	47
	Right side	0.277	0.400	0.400	-	-	-	1.077	No	-
		0.277	0.400	-	-	-	0.400	1.077	No	-
		0.277	-	-	0.400	-	0.400	1.077	No	-
		0.277	-	-	0.400	0.400	0.400	1.477	No	-
	Left side	0.005	0.047	0.400	-	-	-	0.452	No	-
		0.005	0.047	-	-	-	0.400	0.452	No	-
		0.005	-	-	0.080	-	0.400	0.485	No	-
		0.005	-	-	0.400	0.400	0.400	1.205	No	-

Sum of the SAR for LTE FDD Band 5 + WLAN + Bluetooth

No.	Test Position	Simultaneous Transmission Scenario						Σ SAR 1g (W/kg)	SPLSR (Yes/No)	Figure
		LTE Band 5	2.4GHz		5GHz		Bluetooth			
			Main	Aux	Main	Aux				
16~19	Back side	1.217	0.230	0.730	-	-	-	2.177	Yes	48
		1.217	0.230	-	-	-	0.290	1.737	Yes	49
		1.217	-	-	0.690	-	0.290	2.197	Yes	50
		1.217	-	-	0.690	1.160	0.290	3.357	Yes	51
	Top side	0.300	0.108	0.222	-	-	-	0.630	No	-
		0.300	0.108	-	-	-	0.060	0.468	No	-
		0.300	-	-	1.200	-	0.060	1.560	No	-
		0.300	-	-	1.200	0.940	0.060	2.500	Yes	52
	Right side	0.285	0.400	0.400	-	-	-	1.085	No	-
		0.285	0.400	-	-	-	0.400	1.085	No	-
		0.285	-	-	0.400	-	0.400	1.085	No	-
		0.285	-	-	0.400	0.400	0.400	1.485	No	-
	Left side	0.006	0.047	0.400	-	-	-	0.453	No	-
		0.006	0.047	-	-	-	0.400	0.453	No	-
		0.006	-	-	0.080	-	0.400	0.486	No	-
		0.006	-	-	0.400	0.400	0.400	1.206	No	-

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Sum of the SAR for LTE FDD Band 7 + WLAN + Bluetooth

No.	Test Position	Simultaneous Transmission Scenario						Σ SAR 1g (W/kg)	SPLSR (Yes/No)	Figure
		LTE Band 7	2.4GHz		5GHz		Bluetooth			
			Main	Aux	Main	Aux				
16~19	Back side	1.329	0.230	0.730	-	-	-	2.289	Yes	53
		1.329	0.230	-	-	-	0.290	1.849	Yes	54
		1.329	-	-	0.690	-	0.290	2.309	Yes	55
		1.329	-	-	0.690	1.160	0.290	3.469	Yes	56
	Top side	0.364	0.108	0.222	-	-	-	0.694	No	-
		0.364	0.108	-	-	-	0.060	0.532	No	-
		0.364	-	-	1.200	-	0.060	1.624	Yes	57
		0.364	-	-	1.200	0.940	0.060	2.564	Yes	58
	Right side	0.265	0.400	0.400	-	-	-	1.065	No	-
		0.265	0.400	-	-	-	0.400	1.065	No	-
		0.265	-	-	0.400	-	0.400	1.065	No	-
		0.265	-	-	0.400	0.400	0.400	1.465	No	-
	Left side	0.002	0.047	0.400	-	-	-	0.449	No	-
		0.002	0.047	-	-	-	0.400	0.449	No	-
		0.002	-	-	0.080	-	0.400	0.482	No	-
		0.002	-	-	0.400	0.400	0.400	1.202	No	-

Sum of the SAR for LTE FDD Band 12 + WLAN + Bluetooth

No.	Test Position	Simultaneous Transmission Scenario						Σ SAR 1g (W/kg)	SPLSR (Yes/No)	Figure
		LTE Band 12	2.4GHz		5GHz		Bluetooth			
			Main	Aux	Main	Aux				
16~19	Back side	1.203	0.230	0.730	-	-	-	2.163	Yes	59
		1.203	0.230	-	-	-	0.290	1.723	Yes	60
		1.203	-	-	0.690	-	0.290	2.183	Yes	61
		1.203	-	-	0.690	1.160	0.290	3.343	Yes	62
	Top side	0.384	0.108	0.222	-	-	-	0.714	No	-
		0.384	0.108	-	-	-	0.060	0.552	No	-
		0.384	-	-	1.200	-	0.060	1.644	Yes	63
		0.384	-	-	1.200	0.940	0.060	2.584	Yes	64
	Right side	0.188	0.400	0.400	-	-	-	0.988	No	-
		0.188	0.400	-	-	-	0.400	0.988	No	-
		0.188	-	-	0.400	-	0.400	0.988	No	-
		0.188	-	-	0.400	0.400	0.400	1.388	No	-
	Left side	0.018	0.047	0.400	-	-	-	0.465	No	-
		0.018	0.047	-	-	-	0.400	0.465	No	-
		0.018	-	-	0.080	-	0.400	0.498	No	-
		0.018	-	-	0.400	0.400	0.400	1.218	No	-

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Sum of the SAR for LTE FDD Band 13 + WLAN + Bluetooth

No.	Test Position	Simultaneous Transmission Scenario						Σ SAR 1g (W/kg)	SPLSR (Yes/No)	Figure
		LTE Band 13	2.4GHz		5GHz		Bluetooth			
			Main	Aux	Main	Aux				
16~19	Back side	1.330	0.230	0.730	-	-	-	2.290	Yes	65
		1.330	0.230	-	-	-	0.290	1.850	Yes	66
		1.330	-	-	0.690	-	0.290	2.310	Yes	67
		1.330	-	-	0.690	1.160	0.290	3.470	Yes	68
	Top side	0.484	0.108	0.222	-	-	-	0.814	No	-
		0.484	0.108	-	-	-	0.060	0.652	No	-
		0.484	-	-	1.200	-	0.060	1.744	Yes	69
		0.484	-	-	1.200	0.940	0.060	2.684	Yes	70
	Right side	0.356	0.400	0.400	-	-	-	1.156	No	-
		0.356	0.400	-	-	-	0.400	1.156	No	-
		0.356	-	-	0.400	-	0.400	1.156	No	-
		0.356	-	-	0.400	0.400	0.400	1.556	No	-
	Left side	0.019	0.047	0.400	-	-	-	0.466	No	-
		0.019	0.047	-	-	-	0.400	0.466	No	-
		0.019	-	-	0.080	-	0.400	0.499	No	-
		0.019	-	-	0.400	0.400	0.400	1.219	No	-

Sum of the SAR for LTE FDD Band 17 + WLAN + Bluetooth

No.	Test Position	Simultaneous Transmission Scenario						Σ SAR 1g (W/kg)	SPLSR (Yes/No)	Figure
		LTE Band 17	2.4GHz		5GHz		Bluetooth			
			Main	Aux	Main	Aux				
16~19	Back side	1.223	0.230	0.730	-	-	-	2.183	Yes	71
		1.223	0.230	-	-	-	0.290	1.743	Yes	72
		1.223	-	-	0.690	-	0.290	2.203	Yes	73
		1.223	-	-	0.690	1.160	0.290	3.363	Yes	74
	Top side	0.370	0.108	0.222	-	-	-	0.700	No	-
		0.370	0.108	-	-	-	0.060	0.538	No	-
		0.370	-	-	1.200	-	0.060	1.630	Yes	75
		0.370	-	-	1.200	0.940	0.060	2.570	Yes	76
	Right side	0.212	0.400	0.400	-	-	-	1.012	No	-
		0.212	0.400	-	-	-	0.400	1.012	No	-
		0.212	-	-	0.400	-	0.400	1.012	No	-
		0.212	-	-	0.400	0.400	0.400	1.412	No	-
	Left side	0.018	0.047	0.400	-	-	-	0.465	No	-
		0.018	0.047	-	-	-	0.400	0.465	No	-
		0.018	-	-	0.080	-	0.400	0.498	No	-
		0.018	-	-	0.400	0.400	0.400	1.218	No	-

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Figures

Simultaneous Transmission Scenario				WWAN+Main+Aux							
Figure	Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (cm)	SPLSR	Result	
				x	y	z					
1	GPRS 850	Back side	1.301	9.2	8.13	-0.245	1.531	19.59	0.010	SPLSR<0.04, Not required	
	2.4GHz Main		0.230	9.38	-11.46	-0.092					
	GPRS 850	Back side	1.301	9.2	8.13	-0.245	2.031	11.73	0.025	SPLSR<0.04, Not required	
2.4GHz Aux	0.730		9.24	-3.6	-0.11						

Simultaneous Transmission Scenario				WWAN+Main+BT							
Figure	Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (cm)	SPLSR	Result	
				x	y	z					
2	GPRS 850	Back side	1.301	9.2	8.13	-0.245	1.531	19.59	0.010	SPLSR<0.04, Not required	
	2.4GHz Main		0.230	9.38	-11.46	-0.092					
	GPRS 850	Back side	1.301	9.2	8.13	-0.245	1.591	11.59	0.017	SPLSR<0.04, Not required	
Bluetooth	0.290		9.48	-3.46	-0.085						

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Simultaneous Transmission Scenario				WWAN+Main+Aux							
Figure	Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (cm)	SPLSR	Result	
				x	y	z					
3	GPRS 850	Back side	1.301	9.2	8.13	-0.245	1.991	19.97	0.014	SPLSR<0.04, Not required	
	5GHz Main		0.690	9.6	-11.84	-0.069					
	GPRS 850	Back side	1.301	9.2	8.13	-0.245	1.591	11.59	0.017	SPLSR<0.04, Not required	
Bluetooth	0.290		9.48	-3.46	-0.085						

Simultaneous Transmission Scenario				WWAN+Main+Aux+BT							
Figure	Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (cm)	SPLSR	Result	
				x	y	z					
4	GPRS 850	Back side	1.301	9.2	8.13	-0.245	1.991	19.97	0.014	SPLSR<0.04, Not required	
	5GHz Main		0.690	9.6	-11.84	-0.069					
	GPRS 850	Back side	1.301	9.2	8.13	-0.245	2.751	11.59	0.039	SPLSR<0.04, Not required	
5GHz Aux + Bluetooth	1.450		9.48	-3.46	-0.085						

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Simultaneous Transmission Scenario				WWAN+Main+BT							
Figure	Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (cm)	SPLSR	Result	
				x	y	z					
5	GPRS 850	Top side	0.493	-0.55	8.69	-0.406	1.693	21.17	0.010	SPLSR<0.04, Not required	
	5GHz Main		1.200	-0.26	-12.48	-0.244					
	GPRS 850	Top side	0.493	-0.55	8.69	-0.406	0.553	11.82	0.003	SPLSR<0.04, Not required	
Bluetooth	0.060		-0.98	-3.12	-0.242						

Simultaneous Transmission Scenario				WWAN+Main+Aux+BT							
Figure	Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (cm)	SPLSR	Result	
				x	y	z					
6	GPRS 850	Top side	0.493	-0.55	8.69	-0.406	1.693	21.17	0.010	SPLSR<0.04, Not required	
	5GHz Main		1.200	-0.26	-12.48	-0.244					
	GPRS 850	Top side	0.493	-0.55	8.69	-0.406	1.493	11.82	0.015	SPLSR<0.04, Not required	
5GHz Aux + Bluetooth	1.000		-0.98	-3.12	-0.242						

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Simultaneous Transmission Scenario				WWAN+Main+Aux							
Figure	Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (cm)	SPLSR	Result	
				x	y	z					
7	GPRS 1900	Back side	1.296	9.05	8.6	-0.17	1.526	20.06	0.009	SPLSR<0.04, Not required	
	2.4GHz Main		0.230	9.38	-11.46	-0.092					
	GPRS 1900	Back side	1.296	9.05	8.6	-0.17	2.026	12.20	0.024	SPLSR<0.04, Not required	
2.4GHz Aux	0.730		9.24	-3.6	-0.11						

Simultaneous Transmission Scenario				WWAN+Main+BT							
Figure	Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (cm)	SPLSR	Result	
				x	y	z					
8	GPRS 1900	Back side	1.296	9.05	8.6	-0.17	1.526	20.06	0.009	SPLSR<0.04, Not required	
	2.4GHz Main		0.230	9.38	-11.46	-0.092					
	GPRS 1900	Back side	1.296	9.05	8.6	-0.17	1.586	12.07	0.017	SPLSR<0.04, Not required	
Bluetooth	0.290		9.48	-3.46	-0.085						

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Simultaneous Transmission Scenario				WWAN+Main+BT							
Figure	Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (cm)	SPLSR	Result	
				x	y	z					
9	GPRS 1900	Back side	1.296	9.05	8.6	-0.17	1.986	20.45	0.014	SPLSR<0.04, Not required	
	5GHz Main		0.690	9.6	-11.84	-0.069					
	GPRS 1900	Back side	1.296	9.05	8.6	-0.17	1.586	12.07	0.017	SPLSR<0.04, Not required	
Bluetooth	0.290		9.48	-3.46	-0.085						

Simultaneous Transmission Scenario				WWAN+Main+Aux+BT							
Figure	Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (cm)	SPLSR	Result	
				x	y	z					
10	GPRS 1900	Back side	1.296	9.05	8.6	-0.17	1.986	20.45	0.014	SPLSR<0.04, Not required	
	5GHz Main		0.690	9.6	-11.84	-0.069					
	GPRS 1900	Back side	1.296	9.05	8.6	-0.17	2.746	12.07	0.038	SPLSR<0.04, Not required	
5GHz Aux + Bluetooth	1.450		9.48	-3.46	-0.085						

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Simultaneous Transmission Scenario				WWAN+Main+BT							
Figure	Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (cm)	SPLSR	Result	
				x	y	z					
11	GPRS 1900	Top side	0.482	-0.86	12.65	-0.61	1.682	25.14	0.009	SPLSR<0.04, Not required	
	5GHz Main		1.200	-0.26	-12.48	-0.244					
	GPRS 1900 Bluetooth	Top side	0.482	-0.86	12.65	-0.61	0.542	15.77	0.003	SPLSR<0.04, Not required	
		0.060	-0.98	-3.12	-0.242						

Simultaneous Transmission Scenario				WWAN+Main+Aux+BT							
Figure	Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (cm)	SPLSR	Result	
				x	y	z					
12	GPRS 1900	Top side	0.482	-0.86	12.65	-0.61	1.682	25.14	0.009	SPLSR<0.04, Not required	
	5GHz Main		1.200	-0.26	-12.48	-0.244					
	GPRS 1900 5GHz Aux + Bluetooth	Top side	0.482	-0.86	12.65	-0.61	1.482	15.77	0.011	SPLSR<0.04, Not required	
		1.000	-0.98	-3.12	-0.242						

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Simultaneous Transmission Scenario				WWAN+Main+Aux							
Figure	Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (cm)	SPLSR	Result	
				x	y	z					
13	WCDMA Band II	Back side	1.309	8.74	8.33	-0.118	1.539	19.80	0.010	SPLSR<0.04, Not required	
	2.4GHz Main		0.230	9.38	-11.46	-0.092					
	WCDMA Band II	Back side	1.309	8.74	8.33	-0.118	2.039	11.94	0.024	SPLSR<0.04, Not required	
2.4GHz Aux	0.730		9.24	-3.6	-0.11						

Simultaneous Transmission Scenario				WWAN+Main+BT							
Figure	Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (cm)	SPLSR	Result	
				x	y	z					
14	WCDMA Band II	Back side	1.309	8.74	8.33	-0.118	1.539	19.80	0.010	SPLSR<0.04, Not required	
	2.4GHz Main		0.230	9.38	-11.46	-0.092					
	WCDMA Band II	Back side	1.309	8.74	8.33	-0.118	1.599	11.81	0.017	SPLSR<0.04, Not required	
Bluetooth	0.290		9.48	-3.46	-0.085						

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Simultaneous Transmission Scenario				WWAN+Main+BT							
Figure	Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (cm)	SPLSR	Result	
				x	y	z					
15	WCDMA Band II	Back side	1.309	8.74	8.33	-0.118	1.999	20.19	0.014	SPLSR<0.04, Not required	
	5GHz Main		0.690	9.6	-11.84	-0.069					
	WCDMA Band II	Back side	1.309	8.74	8.33	-0.118	1.599	11.81	0.017	SPLSR<0.04, Not required	
Bluetooth	0.290		9.48	-3.46	-0.085						

Simultaneous Transmission Scenario				WWAN+Main+Aux+BT							
Figure	Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (cm)	SPLSR	Result	
				x	y	z					
16	WCDMA Band II	Back side	1.309	8.74	8.33	-0.118	1.999	20.19	0.014	SPLSR<0.04, Not required	
	5GHz Main		0.690	9.6	-11.84	-0.069					
	WCDMA Band II	Back side	1.309	8.74	8.33	-0.118	2.759	11.81	0.039	SPLSR<0.04, Not required	
5GHz Aux + Bluetooth	1.450		9.48	-3.46	-0.085						

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Simultaneous Transmission Scenario				WWAN+Main+Aux+BT							
Figure	Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (cm)	SPLSR	Result	
				x	y	z					
17	WCDMA Band II	Top side	0.240	-0.76	12.87	-0.201	1.440	25.35	0.007	SPLSR<0.04, Not required	
	5GHz Main		1.200	-0.26	-12.48	-0.244					
	WCDMA Band II	Top side	0.240	-0.76	12.87	-0.201	1.240	15.99	0.009	SPLSR<0.04, Not required	
5GHz Aux + Bluetooth	1.000		-0.98	-3.12	-0.242						

Simultaneous Transmission Scenario				WWAN+Main+Aux							
Figure	Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (cm)	SPLSR	Result	
				x	y	z					
18	WCDMA Band IV	Back side	1.333	9.04	8.37	-0.148	1.563	19.83	0.010	SPLSR<0.04, Not required	
	2.4GHz Main		0.230	9.38	-11.46	-0.092					
	WCDMA Band IV	Back side	1.333	9.04	8.37	-0.148	2.063	11.97	0.025	SPLSR<0.04, Not required	
2.4GHz Aux	0.730		9.24	-3.6	-0.11						

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Simultaneous Transmission Scenario				WWAN+Main+BT							
Figure	Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (cm)	SPLSR	Result	
				x	y	z					
19	WCDMA Band IV	Back side	1.333	9.04	8.37	-0.148	1.563	19.83	0.010	SPLSR<0.04, Not required	
	2.4GHz Main		0.230	9.38	-11.46	-0.092					
	WCDMA Band IV	Back side	1.333	9.04	8.37	-0.148	1.623	11.84	0.017	SPLSR<0.04, Not required	
Bluetooth	0.290		9.48	-3.46	-0.085						

Simultaneous Transmission Scenario				WWAN+Main+Aux							
Figure	Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (cm)	SPLSR	Result	
				x	y	z					
20	WCDMA Band IV	Back side	1.333	9.04	8.37	-0.148	2.023	20.22	0.014	SPLSR<0.04, Not required	
	5GHz Main		0.690	9.6	-11.84	-0.069					
	WCDMA Band IV	Back side	1.333	9.04	8.37	-0.148	1.623	11.84	0.017	SPLSR<0.04, Not required	
Bluetooth	0.290		9.48	-3.46	-0.085						

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Simultaneous Transmission Scenario				WWAN+Main+Aux+BT							
Figure	Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (cm)	SPLSR	Result	
				x	y	z					
21	WCDMA Band IV	Back side	1.333	9.04	8.37	-0.148	2.023	20.22	0.014	SPLSR<0.04, Not required	
	5GHz Main		0.690	9.6	-11.84	-0.069					
											
	WCDMA Band IV	Back side	1.333	9.04	8.37	-0.148	2.783	11.84	0.039	SPLSR<0.04, Not required	
5GHz Aux + Bluetooth	1.450		9.48	-3.46	-0.085						
											

Simultaneous Transmission Scenario				WWAN+Main+BT							
Figure	Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (cm)	SPLSR	Result	
				x	y	z					
22	WCDMA Band IV	Top side	0.359	-0.46	7.6	-0.206	1.559	20.08	0.010	SPLSR<0.04, Not required	
	5GHz Main		1.200	-0.26	-12.48	-0.244					
											
	WCDMA Band IV	Top side	0.359	-0.46	7.6	-0.206	0.419	10.73	0.003	SPLSR<0.04, Not required	
Bluetooth	0.060		-0.98	-3.12	-0.242						
											

Simultaneous Transmission Scenario				WWAN+Main+Aux+BT							
Figure	Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (cm)	SPLSR	Result	
				x	y	z					
23	WCDMA Band IV	Top side	0.359	-0.46	7.6	-0.206	1.559	20.08	0.010	SPLSR<0.04, Not required	
	5GHz Main		1.200	-0.26	-12.48	-0.244					
	WCDMA Band IV	Top side	0.359	-0.46	7.6	-0.206	1.359	10.73	0.015	SPLSR<0.04, Not required	
5GHz Aux + Bluetooth	1.000		-0.98	-3.12	-0.242						

Simultaneous Transmission Scenario				WWAN+Main+Aux							
Figure	Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (cm)	SPLSR	Result	
				x	y	z					
24	WCDMA Band V	Back side	1.339	9.37	8.82	-0.255	1.569	20.28	0.010	SPLSR<0.04, Not required	
	2.4GHz Main		0.230	9.38	-11.46	-0.092					
	WCDMA Band V	Back side	1.339	9.37	8.82	-0.255	2.069	12.42	0.024	SPLSR<0.04, Not required	
2.4GHz Aux	0.730		9.24	-3.6	-0.11						

Simultaneous Transmission Scenario				WWAN+Main+BT							
Figure	Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (cm)	SPLSR	Result	
				x	y	z					
25	WCDMA Band V	Back side	1.339	9.37	8.82	-0.255	1.569	20.28	0.010	SPLSR<0.04, Not required	
	2.4GHz Main		0.230	9.38	-11.46	-0.092					
	WCDMA Band V	Back side	1.339	9.37	8.82	-0.255	1.629	12.28	0.017	SPLSR<0.04, Not required	
Bluetooth	0.290		9.48	-3.46	-0.085						

Simultaneous Transmission Scenario				WWAN+Main+BT							
Figure	Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (cm)	SPLSR	Result	
				x	y	z					
26	WCDMA Band V	Back side	1.339	9.37	8.82	-0.255	2.029	20.66	0.014	SPLSR<0.04, Not required	
	5GHz Main		0.690	9.6	-11.84	-0.069					
	WCDMA Band V	Back side	1.339	9.37	8.82	-0.255	1.629	12.28	0.017	SPLSR<0.04, Not required	
Bluetooth	0.290		9.48	-3.46	-0.085						

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Simultaneous Transmission Scenario				WWAN+Main+Aux+BT							
Figure	Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (cm)	SPLSR	Result	
				x	y	z					
27	WCDMA Band V	Back side	1.339	9.37	8.82	-0.255	2.029	20.66	0.014	SPLSR<0.04, Not required	
	5GHz Main		0.690	9.6	-11.84	-0.069					
	WCDMA Band V	Back side	1.339	9.37	8.82	-0.255	2.789	12.28	0.038	SPLSR<0.04, Not required	
5GHz Aux + Bluetooth	1.450		9.48	-3.46	-0.085						

Simultaneous Transmission Scenario				WWAN+Main+Aux+BT							
Figure	Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (cm)	SPLSR	Result	
				x	y	z					
28	WCDMA Band V	Top side	0.272	-0.48	8.7	-0.26	1.472	21.18	0.008	SPLSR<0.04, Not required	
	5GHz Main		1.200	-0.26	-12.48	-0.244					
	WCDMA Band V	Top side	0.272	-0.48	8.7	-0.26	1.272	11.83	0.012	SPLSR<0.04, Not required	
5GHz Aux + Bluetooth	1.000		-0.98	-3.12	-0.242						

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Simultaneous Transmission Scenario				WWAN+Main+Aux							
Figure	Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (cm)	SPLSR	Result	
				x	y	z					
29	CDMA BC0	Back side	1.282	9.05	7.83	-0.252	1.512	19.29	0.010	SPLSR<0.04, Not required	
	2.4GHz Main		0.230	9.38	-11.46	-0.092					
	CDMA BC0	Back side	1.282	9.05	7.83	-0.252	2.012	11.43	0.025	SPLSR<0.04, Not required	
2.4GHz Aux	0.730		9.24	-3.6	-0.11						

Simultaneous Transmission Scenario				WWAN+Main+BT							
Figure	Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (cm)	SPLSR	Result	
				x	y	z					
30	CDMA BC0	Back side	1.282	9.05	7.83	-0.252	1.512	19.29	0.010	SPLSR<0.04, Not required	
	2.4GHz Main		0.230	9.38	-11.46	-0.092					
	CDMA BC0	Back side	1.282	9.05	7.83	-0.252	1.572	11.30	0.017	SPLSR<0.04, Not required	
Bluetooth	0.290		9.48	-3.46	-0.085						

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Simultaneous Transmission Scenario				WWAN+Main+BT							
Figure	Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (cm)	SPLSR	Result	
				x	y	z					
31	CDMA BC0	Back side	1.282	9.05	7.83	-0.252	1.972	19.68	0.014	SPLSR<0.04, Not required	
	5GHz Main		0.690	9.6	-11.84	-0.069					
	CDMA BC0	Back side	1.282	9.05	7.83	-0.252	1.572	11.30	0.017	SPLSR<0.04, Not required	
Bluetooth	0.290		9.48	-3.46	-0.085						

Simultaneous Transmission Scenario				WWAN+Main+Aux+BT							
Figure	Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (cm)	SPLSR	Result	
				x	y	z					
32	CDMA BC0	Back side	1.282	9.05	7.83	-0.252	1.972	19.68	0.014	SPLSR<0.04, Not required	
	5GHz Main		0.690	9.6	-11.84	-0.069					
	CDMA BC0	Back side	1.282	9.05	7.83	-0.252	2.732	11.30	0.040	SPLSR<0.04, Not required	
5GHz Aux + Bluetooth	1.450		9.48	-3.46	-0.085						

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Simultaneous Transmission Scenario				WWAN+Main+Aux+BT							
Figure	Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (cm)	SPLSR	Result	
				x	y	z					
33	CDMA BC0	Top side	0.293	-0.65	8.7	-0.347	1.493	21.18	0.009	SPLSR<0.04, Not required	
	5GHz Main		1.200	-0.26	-12.48	-0.244					
	CDMA BC0	Top side	0.293	-0.65	8.7	-0.347	1.293	11.83	0.012	SPLSR<0.04, Not required	
5GHz Aux + Bluetooth	1.000		-0.98	-3.12	-0.242						

Simultaneous Transmission Scenario				WWAN+Main+Aux							
Figure	Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (cm)	SPLSR	Result	
				x	y	z					
34	CDMA BC1	Back side	1.066	8.7	8.25	-0.141	1.296	19.72	0.007	SPLSR<0.04, Not required	
	2.4GHz Main		0.230	9.38	-11.46	-0.092					
	CDMA BC1	Back side	1.066	8.7	8.25	-0.141	1.796	11.86	0.020	SPLSR<0.04, Not required	
2.4GHz Aux	0.730		9.24	-3.6	-0.11						

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Simultaneous Transmission Scenario				WWAN+Main+BT							
Figure	Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (cm)	SPLSR	Result	
				x	y	z					
35	CDMA BC1	Back side	1.066	8.7	8.25	-0.141	1.756	20.11	0.012	SPLSR<0.04, Not required	
	5GHz Main		0.690	9.6	-11.84	-0.069					
	CDMA BC1	Back side	1.066	8.7	8.25	-0.141	1.356	11.74	0.013	SPLSR<0.04, Not required	
Bluetooth	0.290		9.48	-3.46	-0.085						

Simultaneous Transmission Scenario				WWAN+Main+Aux+BT							
Figure	Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (cm)	SPLSR	Result	
				x	y	z					
36	CDMA BC1	Back side	1.066	8.7	8.25	-0.141	1.756	20.11	0.012	SPLSR<0.04, Not required	
	5GHz Main		0.690	9.6	-11.84	-0.069					
	CDMA BC1	Back side	1.066	8.7	8.25	-0.141	2.516	11.74	0.034	SPLSR<0.04, Not required	
5GHz Aux + Bluetooth	1.450		9.48	-3.46	-0.085						

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Simultaneous Transmission Scenario				WWAN+Main+Aux+BT							
Figure	Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (cm)	SPLSR	Result	
				x	y	z					
37	CDMA BC1	Top side	0.189	-0.5	9.23	-0.238	1.389	21.71	0.008	SPLSR<0.04, Not required	
	5GHz Main		1.200	-0.26	-12.48	-0.244					
	CDMA BC1	Top side	0.189	-0.5	9.23	-0.238	1.189	12.36	0.010	SPLSR<0.04, Not required	
5GHz Aux + Bluetooth	1.000		-0.98	-3.12	-0.242						

Simultaneous Transmission Scenario				WWAN+Main+Aux							
Figure	Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (cm)	SPLSR	Result	
				x	y	z					
38	LTE Band 2	Back side	1.220	8.9	8.49	-0.04	1.450	19.96	0.009	SPLSR<0.04, Not required	
	2.4GHz Main		0.230	9.38	-11.46	-0.092					
	LTE Band 2	Back side	1.220	8.9	8.49	-0.04	1.950	12.09	0.023	SPLSR<0.04, Not required	
2.4GHz Aux	0.730		9.24	-3.6	-0.11						

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Simultaneous Transmission Scenario				WWAN+Main+BT							
Figure	Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (cm)	SPLSR	Result	
				x	y	z					
39	LTE Band 2	Back side	1.220	8.9	8.49	-0.04	1.450	19.96	0.009	SPLSR<0.04, Not required	
	2.4GHz Main		0.230	9.38	-11.46	-0.092					
	LTE Band 2	Back side	1.220	8.9	8.49	-0.04	1.510	11.96	0.016	SPLSR<0.04, Not required	
Bluetooth	0.290		9.48	-3.46	-0.085						

Simultaneous Transmission Scenario				WWAN+Main+BT							
Figure	Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (cm)	SPLSR	Result	
				x	y	z					
40	LTE Band 2	Back side	1.220	8.9	8.49	-0.04	1.910	20.34	0.013	SPLSR<0.04, Not required	
	5GHz Main		0.690	9.6	-11.84	-0.069					
	LTE Band 2	Back side	1.220	8.9	8.49	-0.04	1.510	11.96	0.016	SPLSR<0.04, Not required	
Bluetooth	0.290		9.48	-3.46	-0.085						

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Simultaneous Transmission Scenario				WWAN+Main+Aux+BT							
Figure	Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (cm)	SPLSR	Result	
				x	y	z					
41	LTE Band 2	Back side	1.220	8.9	8.49	-0.04	1.910	20.34	0.013	SPLSR<0.04, Not required	
	5GHz Main		0.690	9.6	-11.84	-0.069					
	LTE Band 2	Back side	1.220	8.9	8.49	-0.04	2.670	11.96	0.036	SPLSR<0.04, Not required	
5GHz Aux + Bluetooth	1.450		9.48	-3.46	-0.085						

Simultaneous Transmission Scenario				WWAN+Main+Aux+BT							
Figure	Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (cm)	SPLSR	Result	
				x	y	z					
42	LTE Band 2	Top side	0.186	-0.65	12.55	-0.27	1.386	25.03	0.007	SPLSR<0.04, Not required	
	5GHz Main		1.200	-0.26	-12.48	-0.244					
	LTE Band 2	Top side	0.186	-0.65	12.55	-0.27	1.186	15.67	0.008	SPLSR<0.04, Not required	
5GHz Aux + Bluetooth	1.000		-0.98	-3.12	-0.242						

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Simultaneous Transmission Scenario				WWAN+Main+Aux							
Figure	Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (cm)	SPLSR	Result	
				x	y	z					
43	LTE Band 4	Back side	1.306	9.04	8.37	-0.148	1.536	19.83	0.010	SPLSR<0.04, Not required	
	2.4GHz Main		0.230	9.38	-11.46	-0.092					
	LTE Band 4	Back side	1.306	9.04	8.37	-0.148	2.036	11.97	0.024	SPLSR<0.04, Not required	
2.4GHz Aux	0.730		9.24	-3.6	-0.11						

Simultaneous Transmission Scenario				WWAN+Main+BT							
Figure	Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (cm)	SPLSR	Result	
				x	y	z					
44	LTE Band 4	Back side	1.306	9.04	8.37	-0.148	1.536	19.83	0.010	SPLSR<0.04, Not required	
	2.4GHz Main		0.230	9.38	-11.46	-0.092					
	LTE Band 4	Back side	1.306	9.04	8.37	-0.148	1.596	11.84	0.017	SPLSR<0.04, Not required	
Bluetooth	0.290		9.48	-3.46	-0.085						

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Simultaneous Transmission Scenario				WWAN+Main+BT							
Figure	Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (cm)	SPLSR	Result	
				x	y	z					
45	LTE Band 4	Back side	1.306	9.04	8.37	-0.148	1.996	20.22	0.014	SPLSR<0.04, Not required	
	5GHz Main		0.690	9.6	-11.84	-0.069					
	LTE Band 4	Back side	1.306	9.04	8.37	-0.148	1.596	11.84	0.017	SPLSR<0.04, Not required	
Bluetooth	0.290		9.48	-3.46	-0.085						

Simultaneous Transmission Scenario				WWAN+Main+Aux+BT							
Figure	Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (cm)	SPLSR	Result	
				x	y	z					
46	LTE Band 4	Back side	1.306	9.04	8.37	-0.148	1.996	20.22	0.014	SPLSR<0.04, Not required	
	5GHz Main		0.690	9.6	-11.84	-0.069					
	LTE Band 4	Back side	1.306	9.04	8.37	-0.148	2.756	11.84	0.039	SPLSR<0.04, Not required	
5GHz Aux + Bluetooth	1.450		9.48	-3.46	-0.085						

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Simultaneous Transmission Scenario				WWAN+Main+Aux+BT							
Figure	Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (cm)	SPLSR	Result	
				x	y	z					
47	LTE Band 4	Top side	0.318	-0.35	7.9	-0.29	1.518	20.38	0.009	SPLSR<0.04, Not required	
	5GHz Main		1.200	-0.26	-12.48	-0.244					
	LTE Band 4	Top side	0.318	-0.35	7.9	-0.29	1.318	11.04	0.014	SPLSR<0.04, Not required	
5GHz Aux + Bluetooth	1.000		-0.98	-3.12	-0.242						

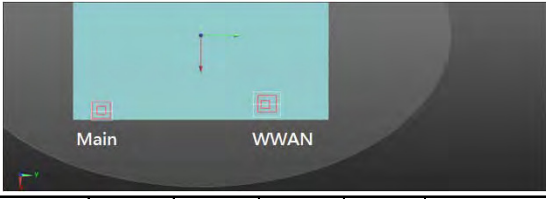
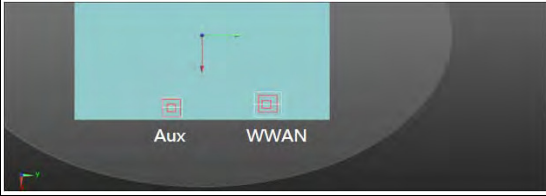
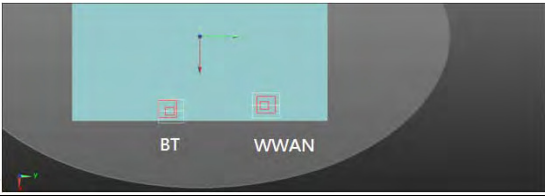
Simultaneous Transmission Scenario				WWAN+Main+Aux							
Figure	Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (cm)	SPLSR	Result	
				x	y	z					
48	LTE Band 5	Back side	1.217	8.89	7.61	-0.253	1.447	19.08	0.009	SPLSR<0.04, Not required	
	2.4GHz Main		0.230	9.38	-11.46	-0.092					
	LTE Band 5	Back side	1.217	8.89	7.61	-0.253	1.947	11.22	0.024	SPLSR<0.04, Not required	
2.4GHz Aux	0.730		9.24	-3.6	-0.11						

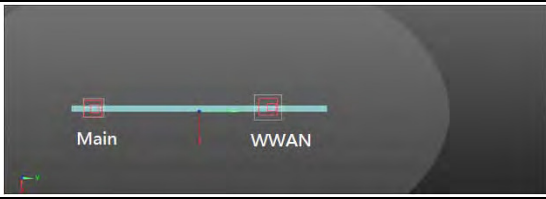
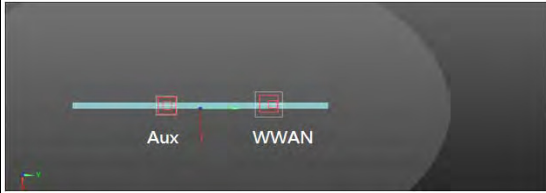
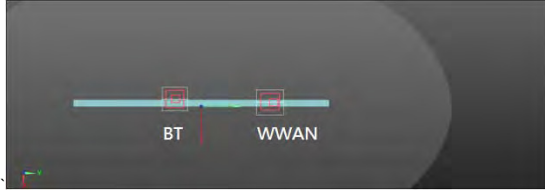
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Simultaneous Transmission Scenario				WWAN+Main+BT							
Figure	Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (cm)	SPLSR	Result	
				x	y	z					
49	LTE Band 5	Back side	1.217	8.89	7.61	-0.253	1.447	19.08	0.009	SPLSR<0.04, Not required	
	2.4GHz Main		0.230	9.38	-11.46	-0.092					
	LTE Band 5	Back side	1.217	8.89	7.61	-0.253	1.507	11.09	0.017	SPLSR<0.04, Not required	
Bluetooth	0.290		9.48	-3.46	-0.085						

Simultaneous Transmission Scenario				WWAN+Main+BT							
Figure	Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (cm)	SPLSR	Result	
				x	y	z					
50	LTE Band 5	Back side	1.217	8.89	7.61	-0.253	1.907	19.46	0.014	SPLSR<0.04, Not required	
	5GHz Main		0.690	9.6	-11.84	-0.069					
	LTE Band 5	Back side	1.217	8.89	7.61	-0.253	1.507	11.09	0.017	SPLSR<0.04, Not required	
Bluetooth	0.290		9.48	-3.46	-0.085						

Simultaneous Transmission Scenario				WWAN+Main+Aux+BT							
Figure	Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (cm)	SPLSR	Result	
				x	y	z					
51	LTE Band 5	Back side	1.217	8.89	7.61	-0.253	1.907	19.46	0.014	SPLSR<0.04, Not required	
	5GHz Main		0.690	9.6	-11.84	-0.069					
											
	LTE Band 5	Back side	1.217	8.89	7.61	-0.253	2.667	11.09	0.039	SPLSR<0.04, Not required	
5GHz Aux + Bluetooth	1.450		9.48	-3.46	-0.085						
 											

Simultaneous Transmission Scenario				WWAN+Main+Aux+BT							
Figure	Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (cm)	SPLSR	Result	
				x	y	z					
52	LTE Band 5	Top side	0.300	-0.55	8.69	-0.4	1.500	21.17	0.009	SPLSR<0.04, Not required	
	5GHz Main		1.200	-0.26	-12.48	-0.244					
											
	LTE Band 5	Top side	0.300	-0.55	8.69	-0.4	1.300	11.82	0.013	SPLSR<0.04, Not required	
5GHz Aux + Bluetooth	1.000		-0.98	-3.12	-0.242						
 											

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Simultaneous Transmission Scenario				WWAN+Main+Aux							
Figure	Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (cm)	SPLSR	Result	
				x	y	z					
53	LTE Band 7	Back side	1.329	8.66	8.24	-0.1	1.559	19.71	0.010	SPLSR<0.04, Not required	
	2.4GHz Main		0.230	9.38	-11.46	-0.092					
	<p>Main WWAN</p>										
	LTE Band 7	Back side	1.329	8.66	8.24	-0.1	2.059	11.85	0.025	SPLSR<0.04, Not required	
2.4GHz Aux	0.730		9.24	-3.6	-0.11						
<p>Aux WWAN</p>											

Simultaneous Transmission Scenario				WWAN+Main+BT							
Figure	Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (cm)	SPLSR	Result	
				x	y	z					
54	LTE Band 7	Back side	1.329	8.66	8.24	-0.1	1.559	19.71	0.010	SPLSR<0.04, Not required	
	2.4GHz Main		0.230	9.38	-11.46	-0.092					
	<p>Main WWAN</p>										
	LTE Band 7	Back side	1.329	8.66	8.24	-0.1	1.619	11.73	0.018	SPLSR<0.04, Not required	
Bluetooth	0.290		9.48	-3.46	-0.085						
<p>BT WWAN</p>											

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Simultaneous Transmission Scenario				WWAN+Main+Aux							
Figure	Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (cm)	SPLSR	Result	
				x	y	z					
55	LTE Band 7	Back side	1.329	8.66	8.24	-0.1	2.019	20.10	0.014	SPLSR<0.04, Not required	
	5GHz Main		0.690	9.6	-11.84	-0.069					
	LTE Band 7	Back side	1.329	8.66	8.24	-0.1	1.619	11.73	0.018	SPLSR<0.04, Not required	
Bluetooth	0.290		9.48	-3.46	-0.085						

Simultaneous Transmission Scenario				WWAN+Main+Aux+BT							
Figure	Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (cm)	SPLSR	Result	
				x	y	z					
56	LTE Band 7	Back side	1.329	8.66	8.24	-0.1	2.019	20.10	0.014	SPLSR<0.04, Not required	
	5GHz Main		0.690	9.6	-11.84	-0.069					
	LTE Band 7	Back side	1.329	8.66	8.24	-0.1	2.779	11.73	0.039	SPLSR<0.04, Not required	
5GHz Aux + Bluetooth	1.450		9.48	-3.46	-0.085						

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Simultaneous Transmission Scenario				WWAN+Main+BT							
Figure	Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (cm)	SPLSR	Result	
				x	y	z					
57	LTE Band 7	Top side	0.364	-0.5	7.26	-0.15	1.564	19.74	0.010	SPLSR<0.04, Not required	
	5GHz Main		1.200	-0.26	-12.48	-0.244					
	LTE Band 7 Bluetooth	Top side	0.364 0.060	-0.5 -0.98	7.26 -3.12	-0.15 -0.242	0.424	10.39	0.003	SPLSR<0.04, Not required	

Simultaneous Transmission Scenario				WWAN+Main+Aux+BT							
Figure	Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (cm)	SPLSR	Result	
				x	y	z					
58	LTE Band 7	Top side	0.364	-0.5	7.26	-0.15	1.564	19.74	0.010	SPLSR<0.04, Not required	
	5GHz Main		1.200	-0.26	-12.48	-0.244					
	LTE Band 7 5GHz Aux + Bluetooth	Top side	0.364 1.000	-0.5 -0.98	7.26 -3.12	-0.15 -0.242	1.364	10.39	0.015	SPLSR<0.04, Not required	

Simultaneous Transmission Scenario				WWAN+Main+Aux							
Figure	Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (cm)	SPLSR	Result	
				x	y	z					
59	LTE Band 12	Back side	1.203	9.97	8.94	-0.11	1.433	20.41	0.008	SPLSR<0.04, Not required	
	2.4GHz Main		0.230	9.38	-11.46	-0.092					
	<p>Main WWAN</p>										
	LTE Band 12	Back side	1.203	9.97	8.94	-0.11	1.933	12.56	0.021	SPLSR<0.04, Not required	
2.4GHz Aux	0.730		9.24	-3.6	-0.11						
<p>Aux WWAN</p>											

Simultaneous Transmission Scenario				WWAN+Main+BT							
Figure	Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (cm)	SPLSR	Result	
				x	y	z					
60	LTE Band 12	Back side	1.203	9.97	8.94	-0.11	1.433	20.41	0.008	SPLSR<0.04, Not required	
	2.4GHz Main		0.230	9.38	-11.46	-0.092					
	<p>Main WWAN</p>										
	LTE Band 12	Back side	1.203	9.97	8.94	-0.11	1.493	12.41	0.015	SPLSR<0.04, Not required	
Bluetooth	0.290		9.48	-3.46	-0.085						
<p>BT WWAN</p>											

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Simultaneous Transmission Scenario				WWAN+Main+Aux							
Figure	Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (cm)	SPLSR	Result	
				x	y	z					
61	LTE Band 12	Back side	1.203	9.97	8.94	-0.11	1.893	20.78	0.013	SPLSR<0.04, Not required	
	5GHz Main		0.690	9.6	-11.84	-0.069					
	LTE Band 12	Back side	1.203	9.97	8.94	-0.11	1.493	12.41	0.015	SPLSR<0.04, Not required	
Bluetooth	0.290		9.48	-3.46	-0.085						

Simultaneous Transmission Scenario				WWAN+Main+Aux+BT							
Figure	Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (cm)	SPLSR	Result	
				x	y	z					
62	LTE Band 12	Back side	1.203	9.97	8.94	-0.11	1.893	20.78	0.013	SPLSR<0.04, Not required	
	5GHz Main		0.690	9.6	-11.84	-0.069					
	LTE Band 12	Back side	1.203	9.97	8.94	-0.11	2.653	12.41	0.035	SPLSR<0.04, Not required	
5GHz Aux + Bluetooth	1.450		9.48	-3.46	-0.085						

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Simultaneous Transmission Scenario				WWAN+Main+BT							
Figure	Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (cm)	SPLSR	Result	
				x	y	z					
63	LTE Band 12	Top side	0.384	-0.45	8.95	-0.26	1.584	21.43	0.009	SPLSR<0.04, Not required	
	5GHz Main		1.200	-0.26	-12.48	-0.244					
	LTE Band 12	Top side	0.384	-0.45	8.95	-0.26	0.444	12.08	0.002	SPLSR<0.04, Not required	
Bluetooth	0.060		-0.98	-3.12	-0.242						

Simultaneous Transmission Scenario				WWAN+Main+Aux+BT							
Figure	Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (cm)	SPLSR	Result	
				x	y	z					
64	LTE Band 12	Top side	0.384	-0.45	8.95	-0.26	1.584	21.43	0.009	SPLSR<0.04, Not required	
	5GHz Main		1.200	-0.26	-12.48	-0.244					
	LTE Band 12	Top side	0.384	-0.45	8.95	-0.26	1.384	12.08	0.013	SPLSR<0.04, Not required	
5GHz Aux + Bluetooth	1.000		-0.98	-3.12	-0.242						

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Simultaneous Transmission Scenario				WWAN+Main+Aux							
Figure	Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (cm)	SPLSR	Result	
				x	y	z					
65	LTE Band 13	Back side	1.330	9.69	9	-0.12	1.560	20.46	0.010	SPLSR<0.04, Not required	
	2.4GHz Main		0.230	9.38	-11.46	-0.092					
	<p>Main WWAN</p>										
	LTE Band 13	Back side	1.330	9.69	9	-0.12	2.060	12.61	0.023	SPLSR<0.04, Not required	
2.4GHz Aux	0.730		9.24	-3.6	-0.11						
<p>Aux WWAN</p>											

Simultaneous Transmission Scenario				WWAN+Main+BT							
Figure	Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (cm)	SPLSR	Result	
				x	y	z					
66	LTE Band 13	Back side	1.330	9.69	9	-0.12	1.560	20.46	0.010	SPLSR<0.04, Not required	
	2.4GHz Main		0.230	9.38	-11.46	-0.092					
	<p>Main WWAN</p>										
	LTE Band 13	Back side	1.330	9.69	9	-0.12	1.620	12.46	0.017	SPLSR<0.04, Not required	
Bluetooth	0.290		9.48	-3.46	-0.085						
<p>BT WWAN</p>											

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Simultaneous Transmission Scenario				WWAN+Main+Aux							
Figure	Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (cm)	SPLSR	Result	
				x	y	z					
67	LTE Band 13	Back side	1.330	9.69	9	-0.12	2.020	20.84	0.014	SPLSR<0.04, Not required	
	5GHz Main		0.690	9.6	-11.84	-0.069					
	LTE Band 13	Back side	1.330	9.69	9	-0.12	1.620	12.46	0.017	SPLSR<0.04, Not required	
Bluetooth	0.290		9.48	-3.46	-0.085						

Simultaneous Transmission Scenario				WWAN+Main+Aux+BT							
Figure	Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (cm)	SPLSR	Result	
				x	y	z					
68	LTE Band 13	Back side	1.330	9.69	9	-0.12	2.020	20.84	0.014	SPLSR<0.04, Not required	
	5GHz Main		0.690	9.6	-11.84	-0.069					
	LTE Band 13	Back side	1.330	9.69	9	-0.12	2.780	12.46	0.037	SPLSR<0.04, Not required	
5GHz Aux + Bluetooth	1.450		9.48	-3.46	-0.085						

Simultaneous Transmission Scenario				WWAN+Main+BT							
Figure	Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (cm)	SPLSR	Result	
				x	y	z					
69	LTE Band 13	Top side	0.484	-0.45	8.8	-0.26	1.684	21.28	0.010	SPLSR<0.04, Not required	
	5GHz Main		1.200	-0.26	-12.48	-0.244					
	LTE Band 13	Top side	0.484	-0.45	8.8	-0.26	0.544	11.93	0.003	SPLSR<0.04, Not required	
Bluetooth	0.060		-0.98	-3.12	-0.242						

Simultaneous Transmission Scenario				WWAN+Main+Aux+BT							
Figure	Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (cm)	SPLSR	Result	
				x	y	z					
70	LTE Band 13	Top side	0.484	-0.45	8.8	-0.26	1.684	21.28	0.010	SPLSR<0.04, Not required	
	5GHz Main		1.200	-0.26	-12.48	-0.244					
	LTE Band 13	Top side	0.484	-0.45	8.8	-0.26	1.484	11.93	0.015	SPLSR<0.04, Not required	
5GHz Aux + Bluetooth	1.000		-0.98	-3.12	-0.242						

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Simultaneous Transmission Scenario				WWAN+Main+Aux							
Figure	Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (cm)	SPLSR	Result	
				x	y	z					
71	LTE Band 17	Back side	1.223	9.97	9.09	-0.12	1.453	20.56	0.009	SPLSR<0.04, Not required	
	2.4GHz Main		0.230	9.38	-11.46	-0.092					
	LTE Band 17	Back side	1.223	9.97	9.09	-0.12	1.953	12.71	0.021	SPLSR<0.04, Not required	
2.4GHz Aux	0.730		9.24	-3.6	-0.11						

Simultaneous Transmission Scenario				WWAN+Main+Aux							
Figure	Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (cm)	SPLSR	Result	
				x	y	z					
71	LTE Band 17	Back side	1.223	9.97	9.09	-0.12	1.453	20.56	0.009	SPLSR<0.04, Not required	
	2.4GHz Main		0.230	9.38	-11.46	-0.092					
	LTE Band 17	Back side	1.223	9.97	9.09	-0.12	1.953	12.71	0.021	SPLSR<0.04, Not required	
2.4GHz Aux	0.730		9.24	-3.6	-0.11						

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Simultaneous Transmission Scenario				WWAN+Main+Aux							
Figure	Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (cm)	SPLSR	Result	
				x	y	z					
73	LTE Band 17	Back side	1.223	9.97	9.09	-0.12	1.913	20.93	0.013	SPLSR<0.04, Not required	
	5GHz Main		0.690	9.6	-11.84	-0.069					
	LTE Band 17	Back side	1.223	9.97	9.09	-0.12	1.513	12.56	0.015	SPLSR<0.04, Not required	
Bluetooth	0.290		9.48	-3.46	-0.085						

Simultaneous Transmission Scenario				WWAN+Main+Aux+BT							
Figure	Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (cm)	SPLSR	Result	
				x	y	z					
74	LTE Band 17	Back side	1.223	9.97	9.09	-0.12	1.913	20.93	0.013	SPLSR<0.04, Not required	
	5GHz Main		0.690	9.6	-11.84	-0.069					
	LTE Band 17	Back side	1.223	9.97	9.09	-0.12	2.673	12.56	0.035	SPLSR<0.04, Not required	
5GHz Aux + Bluetooth	1.450		9.48	-3.46	-0.085						

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Simultaneous Transmission Scenario				WWAN+Main+BT							
Figure	Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (cm)	SPLSR	Result	
				x	y	z					
75	LTE Band 17	Top side	0.370	-0.45	8.95	-0.27	1.570	21.43	0.009	SPLSR<0.04, Not required	
	5GHz Main		1.200	-0.26	-12.48	-0.244					
	LTE Band 17	Top side	0.370	-0.45	8.95	-0.27	0.430	12.08	0.002	SPLSR<0.04, Not required	
Bluetooth	0.060		-0.98	-3.12	-0.242						

Simultaneous Transmission Scenario				WWAN+Main+Aux+BT							
Figure	Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (cm)	SPLSR	Result	
				x	y	z					
76	LTE Band 17	Top side	0.370	-0.45	8.95	-0.27	1.570	21.43	0.009	SPLSR<0.04, Not required	
	5GHz Main		1.200	-0.26	-12.48	-0.244					
	LTE Band 17	Top side	0.370	-0.45	8.95	-0.27	1.370	12.08	0.013	SPLSR<0.04, Not required	
5GHz Aux + Bluetooth	1.000		-0.98	-3.12	-0.242						

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 ≤ 0.04 for all circumstances that require SPLSR calculation.

4. Instruments List

Manufacturer	Device	Type	Serial number	Date of last calibration	Date of next calibration
Schmid & Partner Engineering AG	Dosimetric E-Field Probe	EX3DV4	3770	Apr.27,2016	Apr.26,2017
Schmid & Partner Engineering AG	System Validation Dipole	D750V2	1015	Aug.30,2016	Aug.29,2017
		D835V2	4d063	Aug.25,2016	Aug.24,2017
		D1750V2	1008	Aug.31,2016	Aug.30,2017
		D1900V2	5d027	Apr.25,2016	Apr.24,2017
		D2450V2	727	Apr.19,2016	Apr.18,2017
		D2600V2	1005	Jan.21,2016	Jan.20,2017
		D5GHzV2	1040	Jun.17,2016	Jun.16,2017
Schmid & Partner Engineering AG	Data acquisition Electronics	DAE4	856	Apr.21,2016	Apr.20,2017
Schmid & Partner Engineering AG	Software	DASY 52 V52.8.8	N/A	Calibration not required	Calibration not required
Schmid & Partner Engineering AG	Phantom	ELI	N/A	Calibration not required	Calibration not required
Schmid & Partner Engineering AG	Vector Network Analyzer and Vector Reflect meter	DAKS VNA R140	0170813	Mar.23,2016	Mar.22,2017
Schmid & Partner Engineering AG	Dielectric Probe Kit	DAKS-3.5	0004	Mar.23,2016	Mar.22,2017

Manufacturer	Device	Type	Serial number	Date of last calibration	Date of next calibration
Agilent	Dual-directional coupler	772D	MY46151242	Jul.11,2016	Jul.10,2017
		778D	MY48220468	Jul.06,2016	Jul.05,2017
Agilent	RF Signal Generator	N5181A	MY50145142	Feb.19,2016	Feb.18,2017
Agilent	Power Meter	E4417A	MY52240003	Oct.17,2016	Oct.16,2017
Agilent	Power Sensor	E9301H	MY52200003	Oct.17,2016	Oct.16,2017
			MY52200004	Oct.17,2016	Oct.16,2017
TECPEL	Digital thermometer	DTM-303A	TP130073	Feb.26,2016	Feb.25,2017
Anritsu	Radio Communication Test	MT8820C	6201061049	Apr.08,2016	Apr.07,2017

5. Measurements

Date: 2016/12/9

GPRS 850_Body_Back side_CH 190_0mm

Communication System: GPRS (1Dn2Up); Frequency: 836.6 MHz; Duty Cycle: 1:4.15
Medium parameters used: $f = 837$ MHz; $\sigma = 1.002$ S/m; $\epsilon_r = 57.367$; $\rho = 1000$ kg/m³
Phantom section: Flat Section
Ambient temperature: 22.2°C; Liquid temperature: 21.9°C

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.3, 9.3, 9.3); Calibrated: 2016/4/27;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2016/4/21
- Phantom: Body
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Body/Area Scan (51x91x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 1.70 W/kg

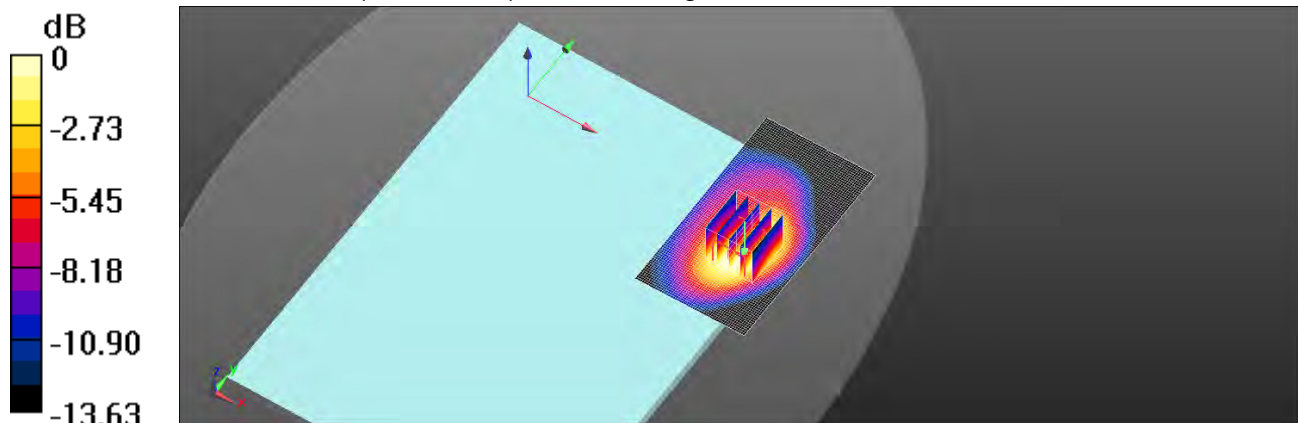
Configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 0 V/m; Power Drift = 0.12 dB

Peak SAR (extrapolated) = 1.98 W/kg

SAR(1 g) = 1.22 W/kg; SAR(10 g) = 0.721 W/kg

Maximum value of SAR (measured) = 1.57 W/kg



0 dB = 1.57 W/kg = 1.96 dBW/kg

Date: 2016/12/6

GPRS 1900_Body_Back side_CH 810_0mm

Communication System: GPRS (1Dn2Up); Frequency: 1909.8 MHz; Duty Cycle: 1:4.15
Medium parameters used: $f = 1910$ MHz; $\sigma = 1.593$ S/m; $\epsilon_r = 53.135$; $\rho = 1000$ kg/m³
Phantom section: Flat Section
Ambient temperature: 22.1°C; Liquid temperature: 21.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.71, 7.71, 7.71); Calibrated: 2016/4/27;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2016/4/21
- Phantom: Body
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Body/Area Scan (51x91x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 1.86 W/kg

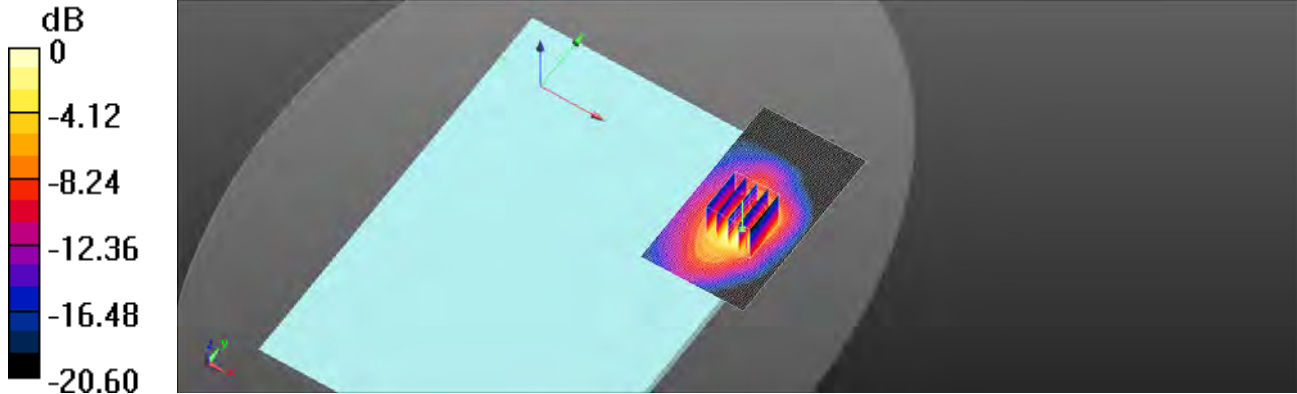
Configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 2.348 V/m; Power Drift = 0.14 dB

Peak SAR (extrapolated) = 2.69 W/kg

SAR(1 g) = 1.29 W/kg; SAR(10 g) = 0.611 W/kg

Maximum value of SAR (measured) = 2.03 W/kg



0 dB = 2.03 W/kg = 3.07 dBW/kg

Date: 2016/12/6

WCDMA Band II_Body_Back side_CH 9538_0mm

Communication System: WCDMA; Frequency: 1907.6 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 1908 \text{ MHz}$; $\sigma = 1.594 \text{ S/m}$; $\epsilon_r = 53.14$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section
Ambient temperature: 22.1°C ; Liquid temperature: 21.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.71, 7.71, 7.71); Calibrated: 2016/4/27;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2016/4/21
- Phantom: Body
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Body/Area Scan (51x91x1): Interpolated grid: $dx=15 \text{ mm}$, $dy=15 \text{ mm}$
Maximum value of SAR (interpolated) = 1.95 W/kg

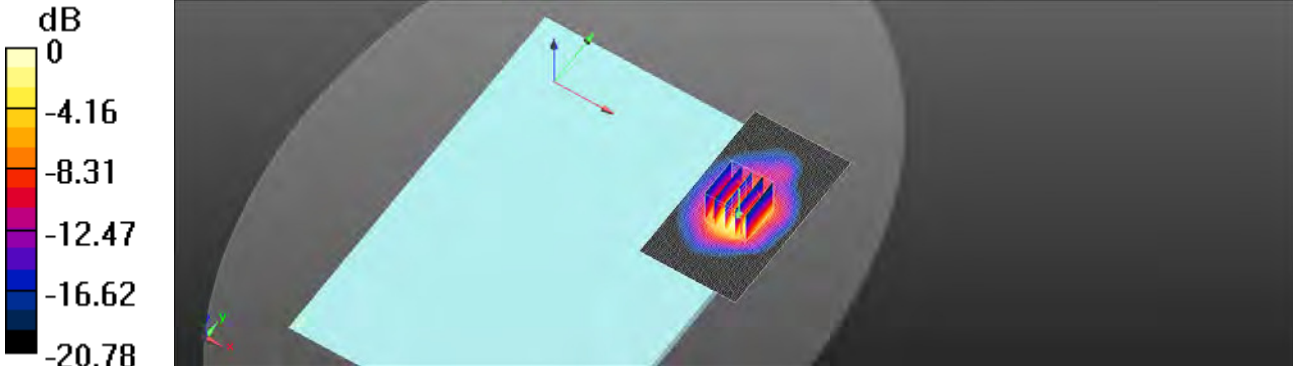
Configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 3.107 V/m ; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 2.67 W/kg

SAR(1 g) = 1.27 W/kg ; SAR(10 g) = 0.571 W/kg

Maximum value of SAR (measured) = 2.02 W/kg



0 dB = 2.02 W/kg = 3.05 dBW/kg

Date: 2016/12/5

WCDMA Band IV_Body_Back side_CH 1412_0mm

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

Medium parameters used: $f = 1732.4$ MHz; $\sigma = 1.419$ S/m; $\epsilon_r = 53.63$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Ambient temperature: 21.8°C; Liquid temperature: 21.7°C

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.88, 7.88, 7.88); Calibrated: 2016/4/27;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2016/4/21
- Phantom: Body
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Body/Area Scan (51x91x1): Interpolated grid: dx=15 mm, dy=15 mm

Maximum value of SAR (interpolated) = 2.03 W/kg

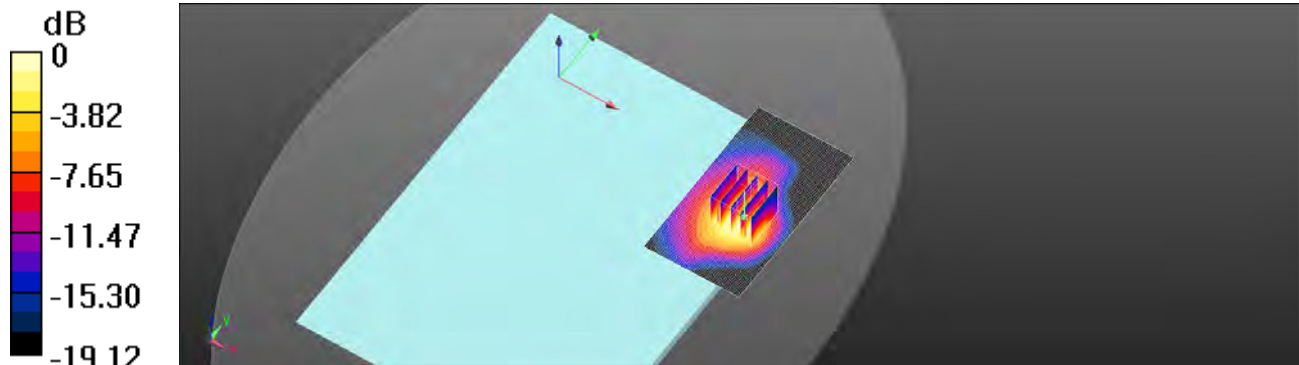
Configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 3.486 V/m; Power Drift = 0.19 dB

Peak SAR (extrapolated) = 2.37 W/kg

SAR(1 g) = 1.33 W/kg; SAR(10 g) = 0.717 W/kg

Maximum value of SAR (measured) = 1.85 W/kg



0 dB = 1.85 W/kg = 2.67 dBW/kg

Date: 2016/12/9

WCDMA Band V_Body_Back side_CH 4233_0mm

Communication System: WCDMA; Frequency: 846.6 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 847$ MHz; $\sigma = 1.012$ S/m; $\epsilon_r = 57.301$; $\rho = 1000$ kg/m³
Phantom section: Flat Section
Ambient temperature: 22.2°C; Liquid temperature: 21.9°C

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.3, 9.3, 9.3); Calibrated: 2016/4/27;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2016/4/21
- Phantom: Body
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Body/Area Scan (51x91x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 1.79 W/kg

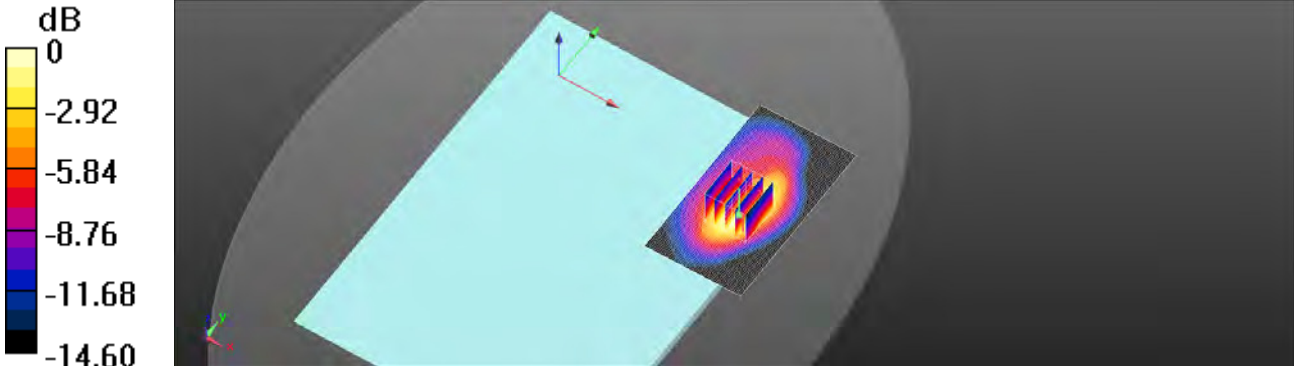
Configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 2.997 V/m; Power Drift = 0.10 dB

Peak SAR (extrapolated) = 2.24 W/kg

SAR(1 g) = 1.33 W/kg; SAR(10 g) = 0.774 W/kg

Maximum value of SAR (measured) = 1.82 W/kg



0 dB = 1.82 W/kg = 2.60 dBW/kg

Date: 2016/12/9

1xEVDO BC0_Body_Back side_CH 384_0mm

Communication System: 1xEvDO; Frequency: 836.52 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 837$ MHz; $\sigma = 1.002$ S/m; $\epsilon_r = 57.367$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Ambient temperature: 22.2°C; Liquid temperature: 21.9°C

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.3, 9.3, 9.3); Calibrated: 2016/4/27;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2016/4/21
- Phantom: Body
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Body/Area Scan (51x111x1): Interpolated grid: dx=15 mm, dy=15 mm

Maximum value of SAR (interpolated) = 1.56 W/kg

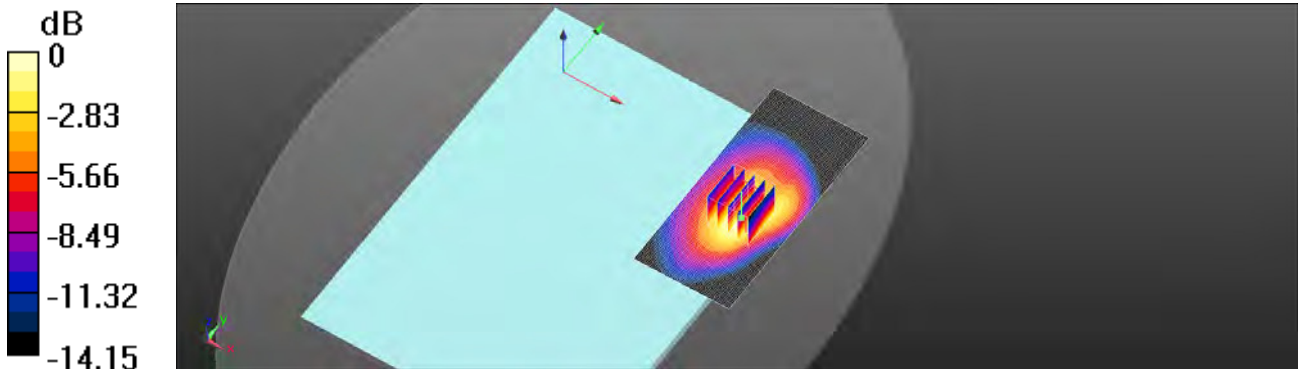
Configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 1.177 V/m; Power Drift = 0.18 dB

Peak SAR (extrapolated) = 2.05 W/kg

SAR(1 g) = 1.27 W/kg; SAR(10 g) = 0.769 W/kg

Maximum value of SAR (measured) = 1.68 W/kg



0 dB = 1.68 W/kg = 2.25 dBW/kg

Date: 2016/12/6

1xEVDO BC1_Body_Back side_CH 1175_0mm

Communication System: 1xEvDO; Frequency: 1908.75 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 1909$ MHz; $\sigma = 1.595$ S/m; $\epsilon_r = 53.108$; $\rho = 1000$ kg/m³
Phantom section: Flat Section
Ambient temperature: 22.1°C; Liquid temperature: 21.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.71, 7.71, 7.71); Calibrated: 2016/4/27;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2016/4/21
- Phantom: Body
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Body/Area Scan (51x101x1): Interpolated grid: dx=15 mm, dy=15 mm

Maximum value of SAR (interpolated) = 1.25 W/kg

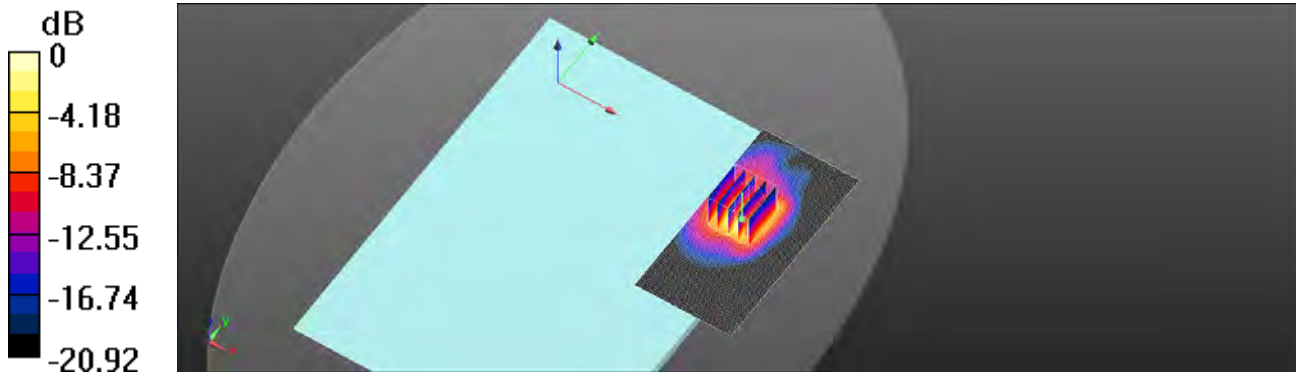
Configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 4.262 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 2.09 W/kg

SAR(1 g) = 0.983 W/kg; SAR(10 g) = 0.456 W/kg

Maximum value of SAR (measured) = 1.58 W/kg



0 dB = 1.58 W/kg = 1.99 dBW/kg

Date: 2016/12/6

LTE Band 2 (20MHz)_Body_Back side_CH 19100_QPSK_1-50_0mm

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

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.584$ S/m; $\epsilon_r = 53.166$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.71, 7.71, 7.71); Calibrated: 2016/4/27;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2016/4/21
- Phantom: Body
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Body/Area Scan (51x91x1): Interpolated grid: dx=15 mm, dy=15 mm

Maximum value of SAR (interpolated) = 1.68 W/kg

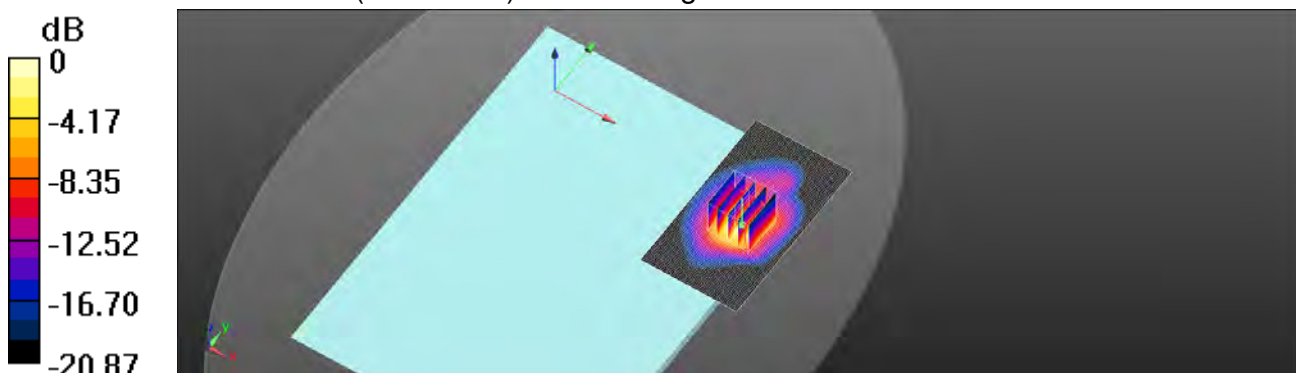
Configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 3.864 V/m; Power Drift = 0.10 dB

Peak SAR (extrapolated) = 2.48 W/kg

SAR(1 g) = 1.16 W/kg; SAR(10 g) = 0.521 W/kg

Maximum value of SAR (measured) = 1.89 W/kg



0 dB = 1.89 W/kg = 2.76 dBW/kg

Date: 2016/12/5

LTE Band 4 (20MHz)_Body_Back side_CH 20050_50-0_0mm

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

Medium parameters used: $f = 1720 \text{ MHz}$; $\sigma = 1.416 \text{ S/m}$; $\epsilon_r = 53.632$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Ambient temperature: 21.8°C; Liquid temperature: 21.7°C

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.88, 7.88, 7.88); Calibrated: 2016/4/27;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2016/4/21
- Phantom: Body
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Body/Area Scan (51x91x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 1.98 W/kg

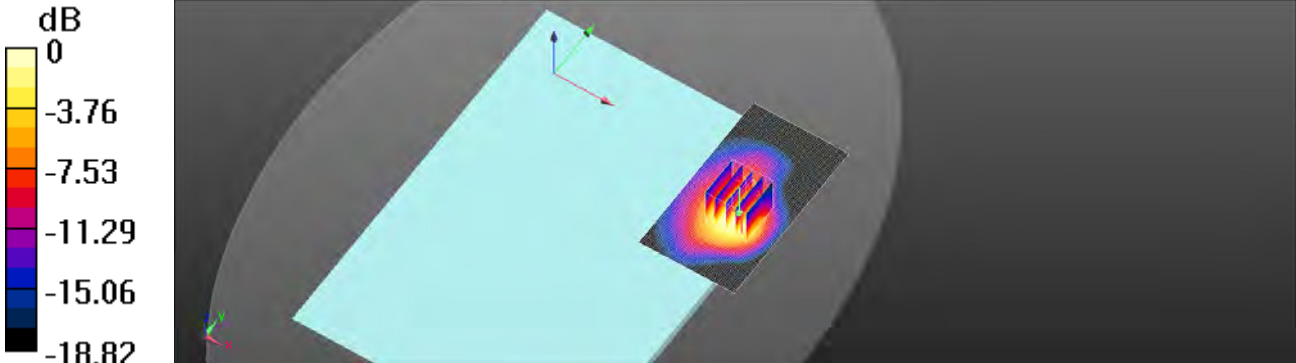
Configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 2.424 V/m; Power Drift = 0.10 dB

Peak SAR (extrapolated) = 2.24 W/kg

SAR(1 g) = 1.28 W/kg; SAR(10 g) = 0.691 W/kg

Maximum value of SAR (measured) = 1.76 W/kg



0 dB = 1.76 W/kg = 2.46 dBW/kg

Date: 2016/12/9

LTE Band 5 (10MHz)_Body_Back side_CH 20525_QPSK_25-0_0mm

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

Medium parameters used: $f = 836.5$ MHz; $\sigma = 1.002$ S/m; $\epsilon_r = 57.378$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Ambient temperature: 22.2°C; Liquid temperature: 21.9°C

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.3, 9.3, 9.3); Calibrated: 2016/4/27;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2016/4/21
- Phantom: Body
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Body/Area Scan (51x91x1): Interpolated grid: dx=15 mm, dy=15 mm

Maximum value of SAR (interpolated) = 1.41 W/kg

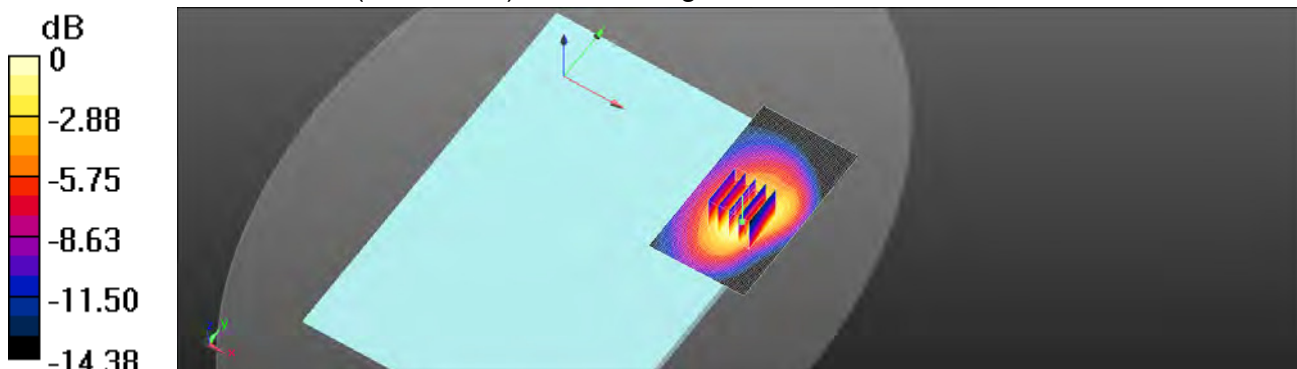
Configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 3.903 V/m; Power Drift = 0.17 dB

Peak SAR (extrapolated) = 1.89 W/kg

SAR(1 g) = 1.16 W/kg; SAR(10 g) = 0.705 W/kg

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



0 dB = 1.53 W/kg = 1.85 dBW/kg

Date: 2016/12/7

LTE Band 7 (20MHz)_Body_Back side_CH 21100_QPSK_1-99_0mm

Communication System: LTE; Frequency: 2535 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2535 \text{ MHz}$; $\sigma = 2.156 \text{ S/m}$; $\epsilon_r = 51.916$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Ambient temperature: 22.0°C; Liquid temperature: 21.7°C

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.12, 7.12, 7.12); Calibrated: 2016/4/27;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2016/4/21
- Phantom: Body
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Body/Area Scan (61x121x1): Interpolated grid: dx=12 mm, dy=12 mm

Maximum value of SAR (interpolated) = 2.06 W/kg

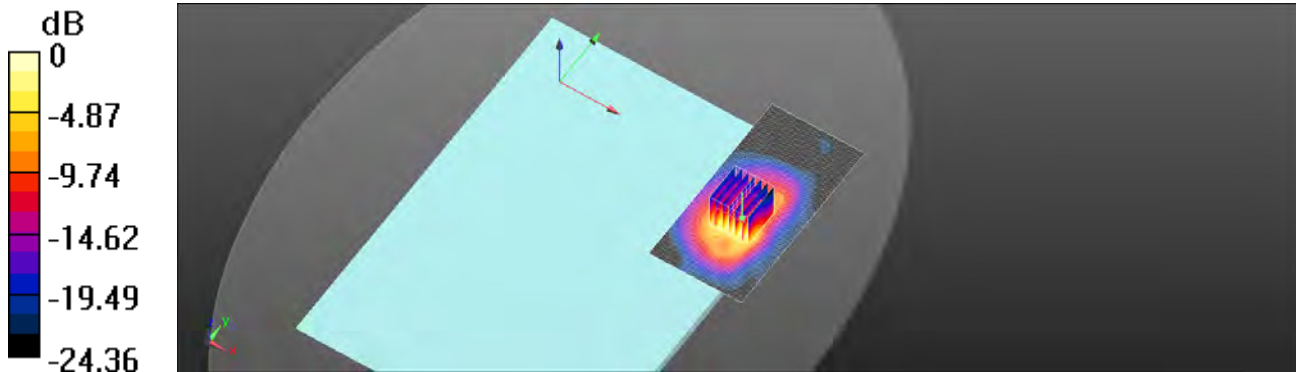
Configuration/Body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 1.129 V/m; Power Drift = 0.15 dB

Peak SAR (extrapolated) = 3.07 W/kg

SAR(1 g) = 1.3 W/kg; SAR(10 g) = 0.572 W/kg

Maximum value of SAR (measured) = 2.10 W/kg



0 dB = 2.10 W/kg = 3.22 dBW/kg

Date: 2016/12/8

LTE Band 12 (10MHz)_Body_Back side_CH 23130_QPSK_25-0_0mm

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

Medium parameters used: $f = 711 \text{ MHz}$; $\sigma = 0.931 \text{ S/m}$; $\epsilon_r = 57.585$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Ambient temperature: 22.0°C; Liquid temperature: 21.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.43, 9.43, 9.43); Calibrated: 2016/4/27;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2016/4/21
- Phantom: Body
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Body/Area Scan (51x91x1): Interpolated grid: dx=15 mm, dy=15 mm

Maximum value of SAR (interpolated) = 1.29 W/kg

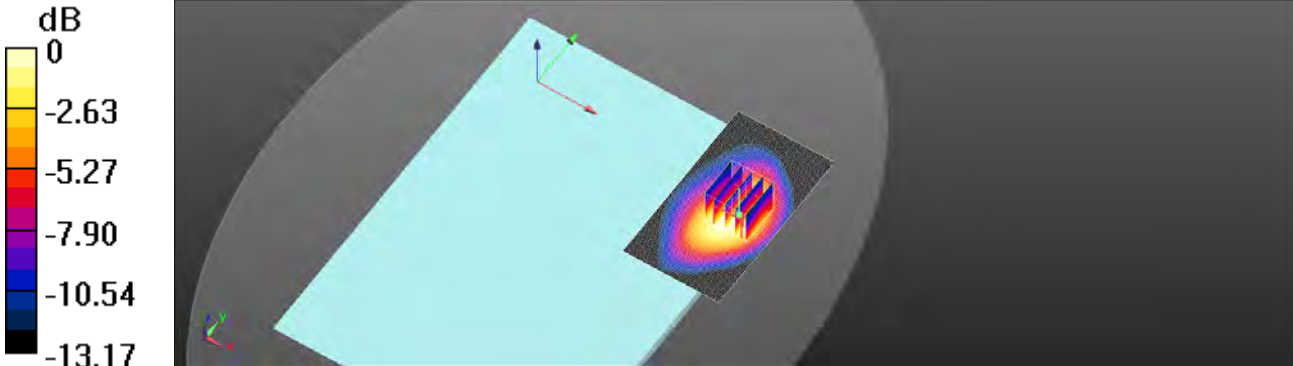
Configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 1.137 V/m; Power Drift = 0.12 dB

Peak SAR (extrapolated) = 1.83 W/kg

SAR(1 g) = 1.07 W/kg; SAR(10 g) = 0.640 W/kg

Maximum value of SAR (measured) = 1.42 W/kg



0 dB = 1.42 W/kg = 1.52 dBW/kg

Date: 2016/12/8

LTE Band 13 (10MHz)_Body_Back side_CH 23230_QPSK_25-12_0mm

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

Medium parameters used: $f = 782 \text{ MHz}$; $\sigma = 1.006 \text{ S/m}$; $\epsilon_r = 57.069$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Ambient temperature: 22.0°C; Liquid temperature: 21.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.43, 9.43, 9.43); Calibrated: 2016/4/27;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2016/4/21
- Phantom: Body
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Body/Area Scan (51x91x1): Interpolated grid: dx=15 mm, dy=15 mm

Maximum value of SAR (interpolated) = 1.63 W/kg

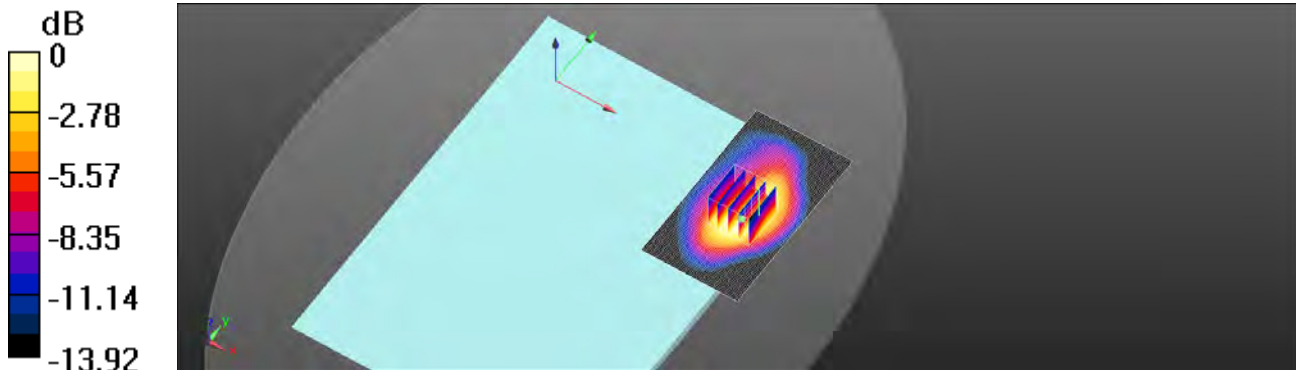
Configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 3.624 V/m; Power Drift = 0.15 dB

Peak SAR (extrapolated) = 1.98 W/kg

SAR(1 g) = 1.19 W/kg; SAR(10 g) = 0.723 W/kg

Maximum value of SAR (measured) = 1.54 W/kg



0 dB = 1.54 W/kg = 1.88 dBW/kg

Date: 2016/12/8

LTE Band 17 (10MHz)_Body_Back side_CH 23780_QPSK_25-0_0mm

Communication System: LTE; Frequency: 709 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 709$ MHz; $\sigma = 0.934$ S/m; $\epsilon_r = 57.715$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Ambient temperature: 22.0°C; Liquid temperature: 21.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.43, 9.43, 9.43); Calibrated: 2016/4/27;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2016/4/21
- Phantom: Body
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Body/Area Scan (51x91x1): Interpolated grid: dx=15 mm, dy=15 mm

Maximum value of SAR (interpolated) = 1.36 W/kg

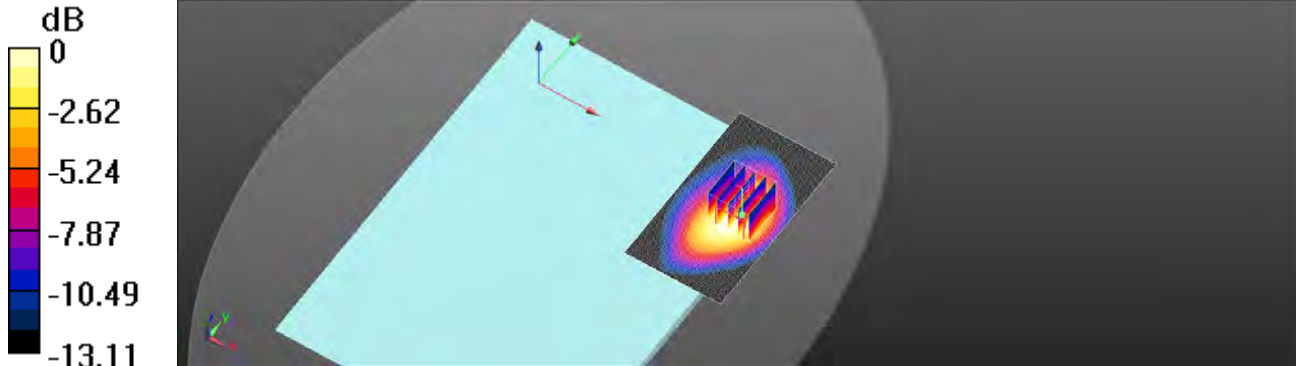
Configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 3.781 V/m; Power Drift = -0.05dB

Peak SAR (extrapolated) = 1.88 W/kg

SAR(1 g) = 1.1 W/kg; SAR(10 g) = 0.655 W/kg

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



0 dB = 1.47 W/kg = 1.67 dBW/kg

Date: 2017/2/8

WLAN 802.11b_Body_Back side_CH 6_Main_0mm

Communication System: WLAN 2.4G; Frequency: 2437 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 2437$ MHz; $\sigma = 1.988$ S/m; $\epsilon_r = 51.637$; $\rho = 1000$ kg/m³
Phantom section: Flat Section
Ambient temperature: 21.9°C; Liquid temperature: 22.2°C

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.37, 7.37, 7.37); Calibrated: 2016/4/27;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2016/4/21
- Phantom: Body
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Body/Area Scan (51x111x1): Interpolated grid: dx=12 mm, dy=12 mm

Maximum value of SAR (interpolated) = 0.387 W/kg

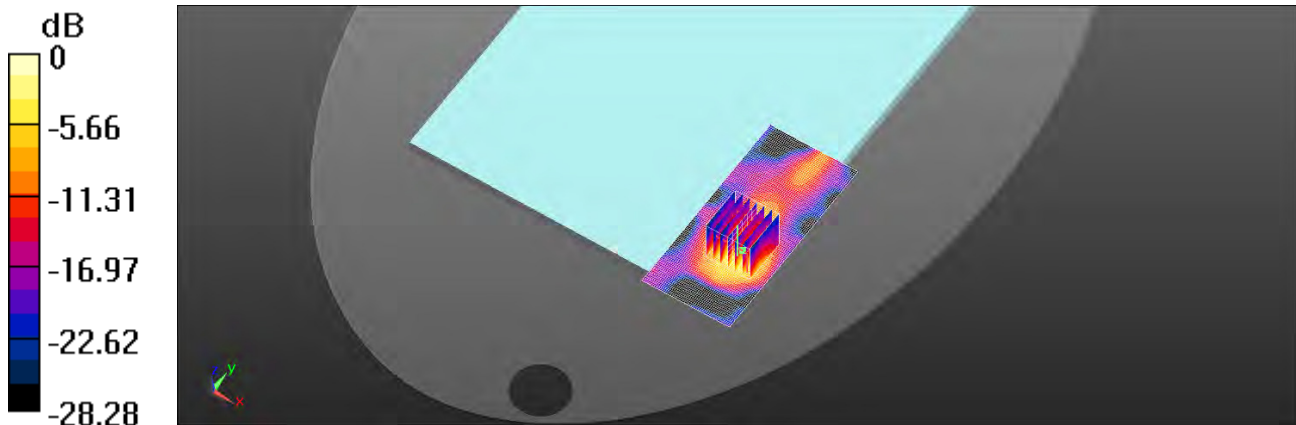
Configuration/Body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 1.895 V/m; Power Drift = 0.16 dB

Peak SAR (extrapolated) = 0.595 W/kg

SAR(1 g) = 0.229 W/kg; SAR(10 g) = 0.088 W/kg

Maximum value of SAR (measured) = 0.364 W/kg



0 dB = 0.364 W/kg = -4.39 dBW/kg

Date: 2017/2/8

WLAN 802.11b_Body_Top side_CH 6_Main_0mm

Communication System: WLAN 2.4G; Frequency: 2437 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 2437$ MHz; $\sigma = 1.988$ S/m; $\epsilon_r = 51.637$; $\rho = 1000$ kg/m³
Phantom section: Flat Section
Ambient temperature: 21.9°C; Liquid temperature: 22.2°C

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.37, 7.37, 7.37); Calibrated: 2016/4/27;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2016/4/21
- Phantom: Body
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Body/Area Scan (51x131x1): Interpolated grid: dx=12 mm, dy=12 mm

Maximum value of SAR (interpolated) = 0.187 W/kg

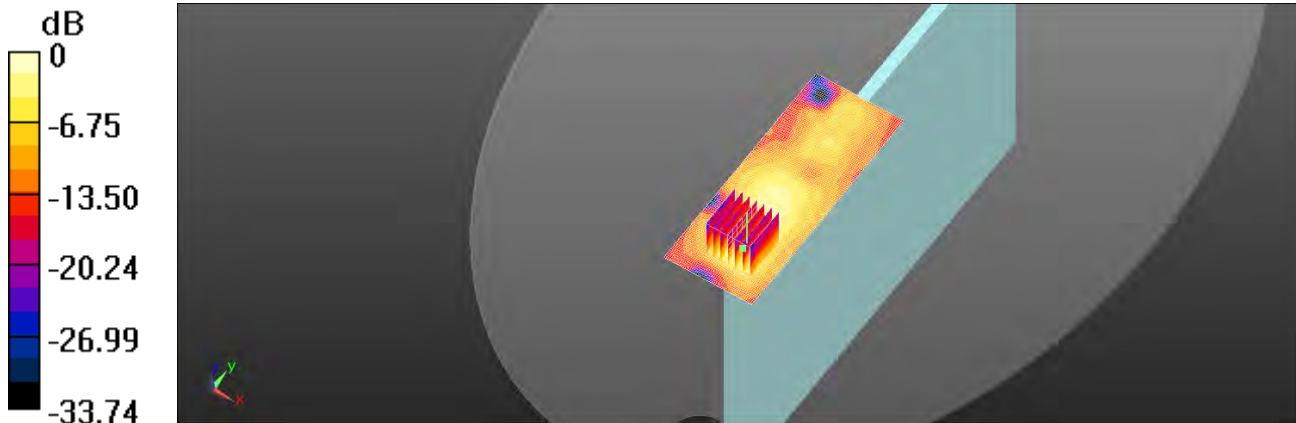
Configuration/Body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 2.225 V/m; Power Drift = -0.14 dB

Peak SAR (extrapolated) = 0.240 W/kg

SAR(1 g) = 0.108 W/kg; SAR(10 g) = 0.047 W/kg

Maximum value of SAR (measured) = 0.179 W/kg



0 dB = 0.179 W/kg = -7.47 dBW/kg

Date: 2017/2/8

WLAN 802.11b_Body_Left side_CH 6_Main_0mm

Communication System: WLAN 2.4G; Frequency: 2437 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 2437$ MHz; $\sigma = 1.988$ S/m; $\epsilon_r = 51.637$; $\rho = 1000$ kg/m³
Phantom section: Flat Section
Ambient temperature: 21.9°C; Liquid temperature: 22.2°C

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.37, 7.37, 7.37); Calibrated: 2016/4/27;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2016/4/21
- Phantom: Body
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Body/Area Scan (51x111x1): Interpolated grid: dx=12 mm, dy=12 mm

Maximum value of SAR (interpolated) = 0.0745 W/kg

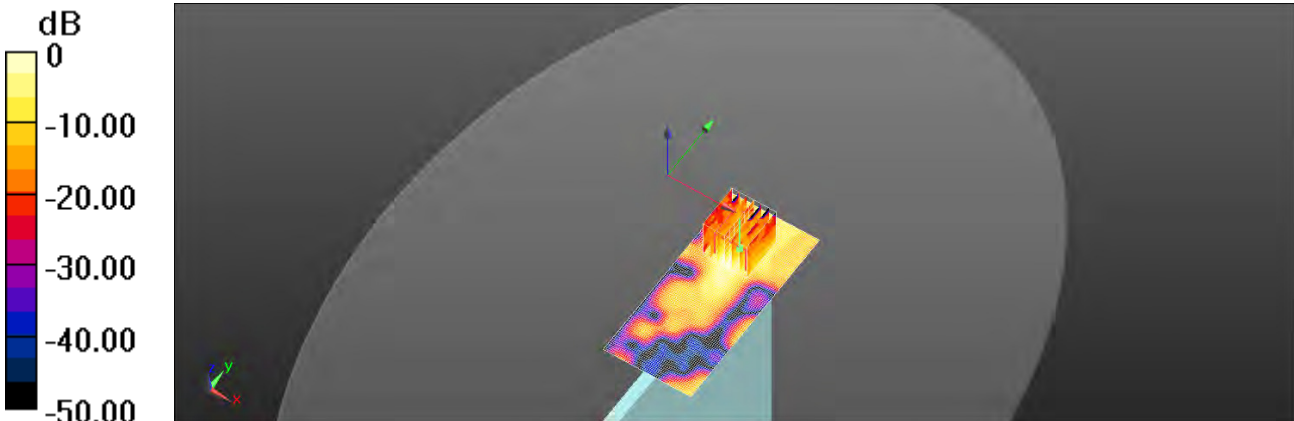
Configuration/Body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 2.824 V/m; Power Drift = 0.12 dB

Peak SAR (extrapolated) = 0.124 W/kg

SAR(1 g) = 0.047 W/kg; SAR(10 g) = 0.017 W/kg

Maximum value of SAR (measured) = 0.0797 W/kg



0 dB = 0.0797 W/kg = -10.99 dBW/kg

Date: 2017/2/8

WLAN 802.11b_Body_Top side_CH 6_Aux_0mm

Communication System: WLAN 2.4G; Frequency: 2437 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 2437$ MHz; $\sigma = 1.988$ S/m; $\epsilon_r = 51.637$; $\rho = 1000$ kg/m³
Phantom section: Flat Section
Ambient temperature: 21.9°C; Liquid temperature: 22.2°C

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.37, 7.37, 7.37); Calibrated: 2016/4/27;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2016/4/21
- Phantom: Body
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Body/Area Scan (51x111x1): Interpolated grid: dx=12 mm, dy=12 mm

Maximum value of SAR (interpolated) = 0.380 W/kg

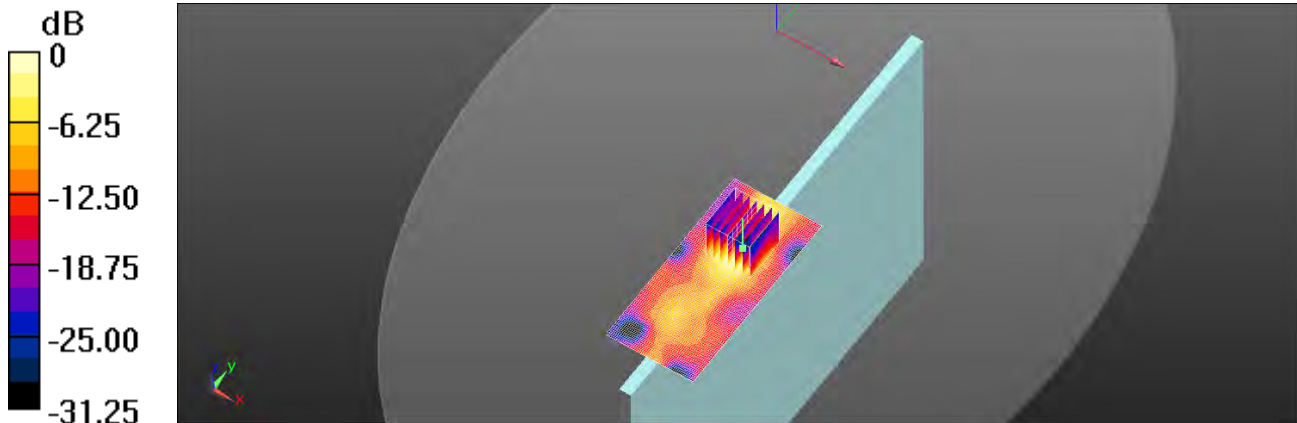
Configuration/Body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.362 V/m; Power Drift = 0.16 dB

Peak SAR (extrapolated) = 0.586 W/kg

SAR(1 g) = 0.221 W/kg; SAR(10 g) = 0.082 W/kg

Maximum value of SAR (measured) = 0.402 W/kg



0 dB = 0.402 W/kg = -3.96 dBW/kg

6. SAR System Performance Verification

Date: 2016/12/8

Dipole 750 MHz_SN:1015

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

Medium parameters used: $f = 750 \text{ MHz}$; $\sigma = 0.976 \text{ S/m}$; $\epsilon_r = 57.337$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Ambient temperature: 22.0°C ; Liquid temperature: 21.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.43, 9.43, 9.43); Calibrated: 2016/4/27;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2016/4/21
- Phantom: Body
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Pin=250mW/Area Scan (41x141x1): Interpolated grid: $dx=15 \text{ mm}$, $dy=15 \text{ mm}$

Maximum value of SAR (interpolated) = 2.77 W/kg

Configuration/Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid:

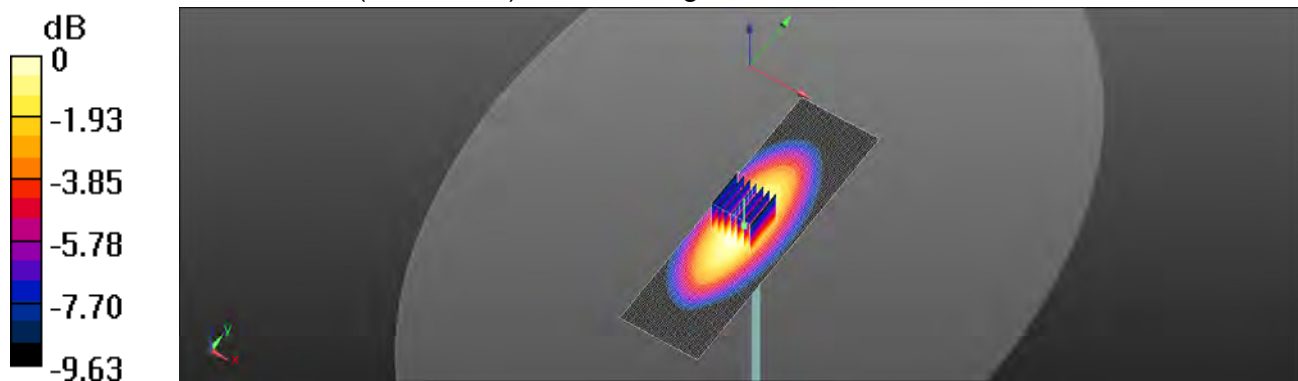
$dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 54.05 V/m ; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 3.23 W/kg

SAR(1 g) = 2.21 W/kg ; SAR(10 g) = 1.47 W/kg

Maximum value of SAR (measured) = 2.77 W/kg



0 dB = 2.77 W/kg = 4.42 dBW/kg

Date: 2016/12/9

Dipole 835 MHz_SN:4d063

Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 1 \text{ S/m}$; $\epsilon_r = 57.392$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section
Ambient temperature: 22.2°C ; Liquid temperature: 21.9°C

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.3, 9.3, 9.3); Calibrated: 2016/4/27;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2016/4/21
- Phantom: Body
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Pin=250mW/Area Scan (41x121x1): Interpolated grid: $dx=15 \text{ mm}$, $dy=15 \text{ mm}$

Maximum value of SAR (interpolated) = 3.02 W/kg

Configuration/Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid:

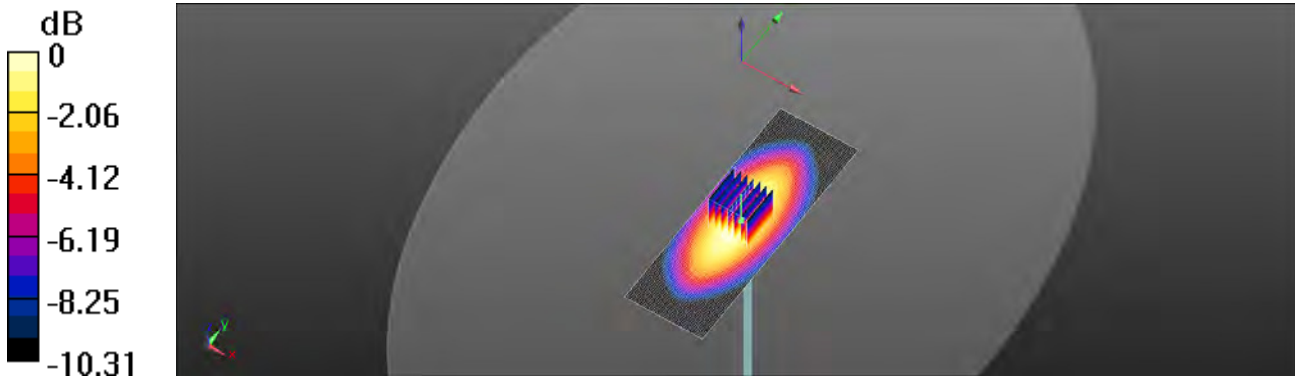
$dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 56.06 V/m ; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 3.55 W/kg

SAR(1 g) = 2.4 W/kg ; SAR(10 g) = 1.58 W/kg

Maximum value of SAR (measured) = 3.02 W/kg



0 dB = 3.02 W/kg = 4.80 dBW/kg

Date: 2016/12/5

Dipole 1750 MHz_SN:1008

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

Medium parameters used: $f = 1750$ MHz; $\sigma = 1.439$ S/m; $\epsilon_r = 53.59$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Ambient temperature: 21.8°C; Liquid temperature: 21.7°C

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.88, 7.88, 7.88); Calibrated: 2016/4/27;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2016/4/21
- Phantom: Body
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=15 mm, dy=15 mm

Maximum value of SAR (interpolated) = 13.7 W/kg

Configuration/Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid:

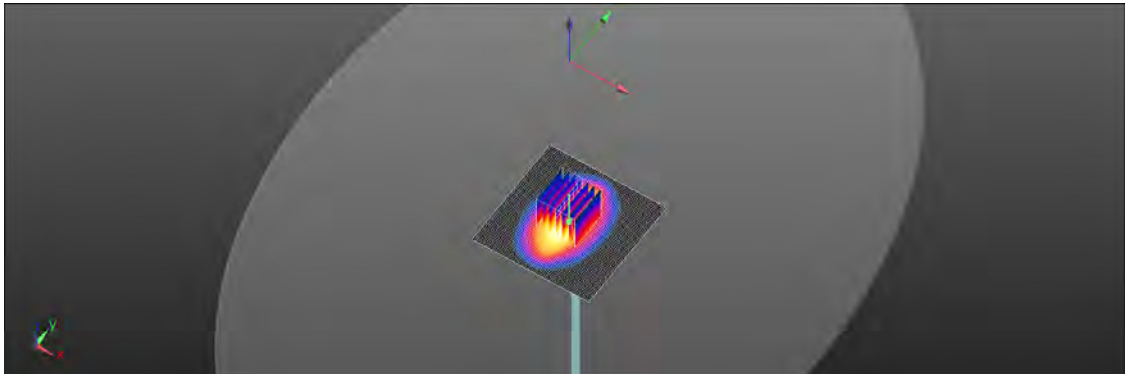
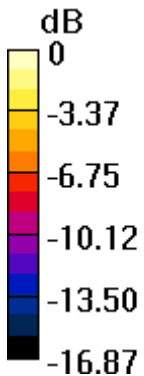
dx=5mm, dy=5mm, dz=5mm

Reference Value = 98.54 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 17.3 W/kg

SAR(1 g) = 9.65 W/kg; SAR(10 g) = 5.06 W/kg

Maximum value of SAR (measured) = 13.7 W/kg



0 dB = 13.7 W/kg = 11.37 dBW/kg

Date: 2016/12/6

Dipole 1900 MHz_SN:5d027

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

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.584$ S/m; $\epsilon_r = 53.166$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.71, 7.71, 7.71); Calibrated: 2016/4/27;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2016/4/21
- Phantom: Body
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=15 mm, dy=15 mm

Maximum value of SAR (interpolated) = 14.6 W/kg

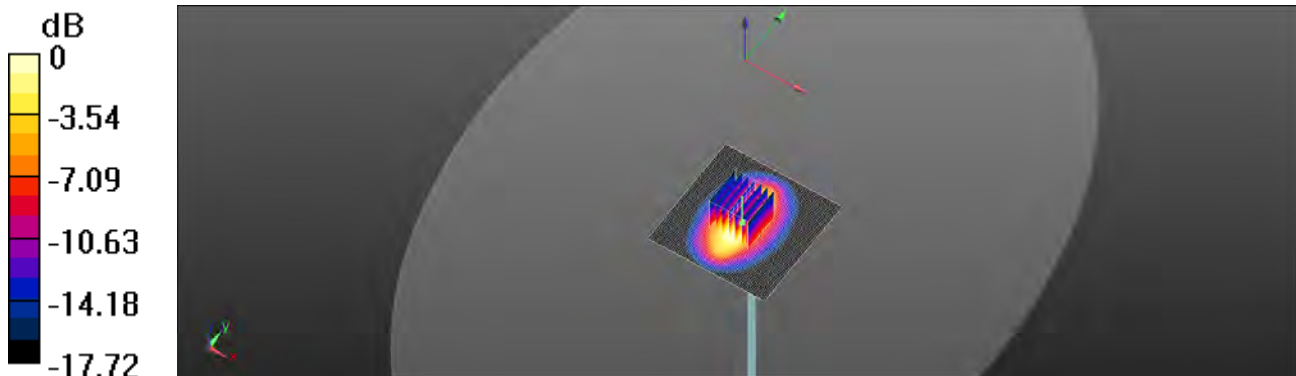
Configuration/Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 97.09 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 18.6 W/kg

SAR(1 g) = 10.1 W/kg; SAR(10 g) = 5.21 W/kg

Maximum value of SAR (measured) = 14.6 W/kg



0 dB = 14.6 W/kg = 11.64 dBW/kg

Date: 2017/2/8

Dipole 2450 MHz_SN:727

Communication System: CW; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2450$ MHz; $\sigma = 2.003$ S/m; $\epsilon_r = 51.614$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Ambient temperature: 21.9°C; Liquid temperature: 22.2°C

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.37, 7.37, 7.37); Calibrated: 2016/4/27;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2016/4/21
- Phantom: Body
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Pin=250mW/Area Scan (51x51x1): Interpolated grid: dx=12 mm, dy=12 mm

Maximum value of SAR (interpolated) = 21.6 W/kg

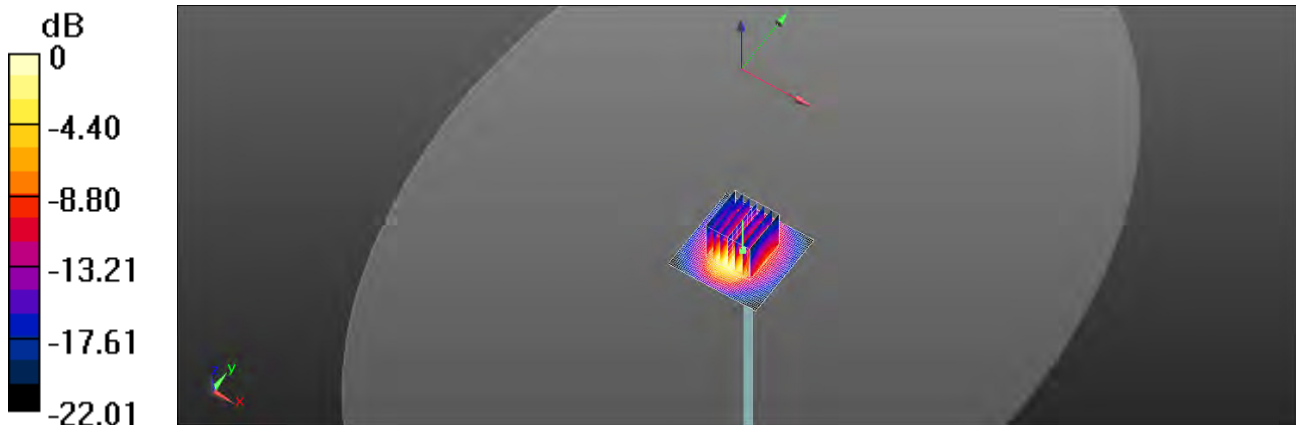
Configuration/Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 100.3 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 27.3 W/kg

SAR(1 g) = 13 W/kg; SAR(10 g) = 5.93 W/kg

Maximum value of SAR (measured) = 20.1 W/kg



0 dB = 20.1 W/kg = 13.03 dBW/kg

Date: 2016/12/7

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; $\epsilon_r = 51.701$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Ambient temperature: 22.0°C; Liquid temperature: 21.7°C

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.12, 7.12, 7.12); Calibrated: 2016/4/27;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2016/4/21
- Phantom: Body
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=12 mm, dy=12 mm

Maximum value of SAR (interpolated) = 21.6 W/kg

Configuration/Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid:

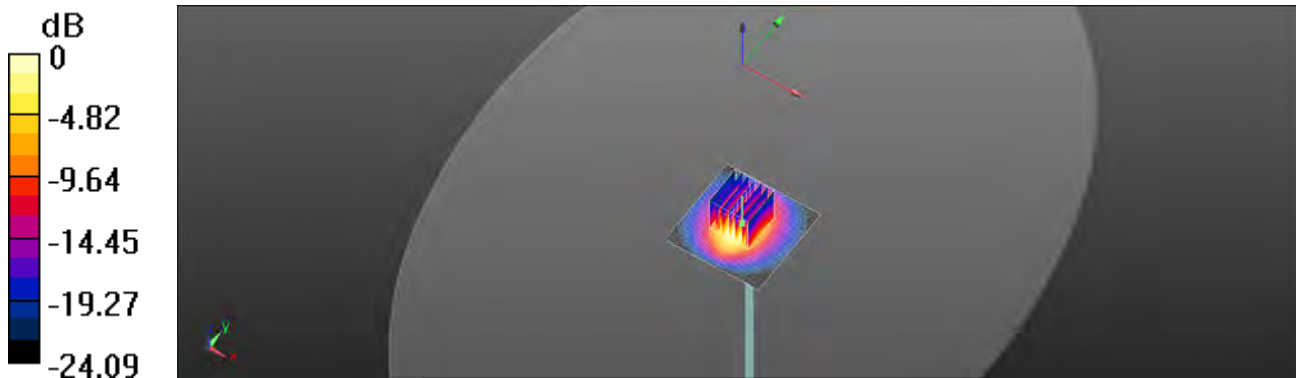
dx=5mm, dy=5mm, dz=5mm

Reference Value = 97.38 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 30.2 W/kg

SAR(1 g) = 13.6 W/kg; SAR(10 g) = 5.98 W/kg

Maximum value of SAR (measured) = 21.5 W/kg



0 dB = 21.5 W/kg = 13.32 dBW/kg

Date: 2017/2/8

Dipole 5300 MHz_SN:1040

Communication System: CW; Frequency: 5300 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 5300$ MHz; $\sigma = 5.607$ S/m; $\epsilon_r = 47.577$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(4.34, 4.34, 4.34); Calibrated: 2016/4/27;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2016/4/21
- Phantom: Body
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Pin=100mW/Area Scan (51x51x1): Interpolated grid: dx=10 mm, dy=10 mm

Maximum value of SAR (interpolated) = 17.0 W/kg

Configuration/Pin=100mW/Zoom Scan (7x7x12)/Cube 0: Measurement grid:

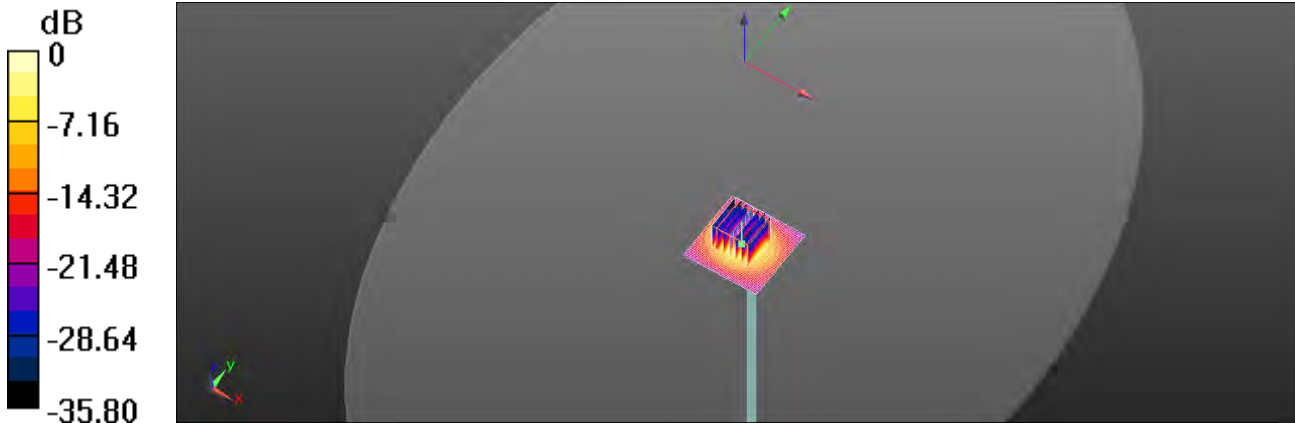
dx=4mm, dy=4mm, dz=2mm

Reference Value = 59.64 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 35.1 W/kg

SAR(1 g) = 7.89 W/kg; SAR(10 g) = 2.18 W/kg

Maximum value of SAR (measured) = 17.1 W/kg



0 dB = 17.1 W/kg = 12.33 dBW/kg

Date: 2017/2/8

Dipole 5600 MHz_SN:1040

Communication System: CW; Frequency: 5600 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 5600$ MHz; $\sigma = 6.002$ S/m; $\epsilon_r = 46.582$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Ambient temperature: 22.1°C; Liquid temperature: 22.3°C

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(3.7, 3.7, 3.7); Calibrated: 2016/4/27;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2016/4/21
- Phantom: Body
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Pin=100mW/Area Scan (51x51x1): Interpolated grid: dx=10 mm, dy=10 mm

Maximum value of SAR (interpolated) = 18.1 W/kg

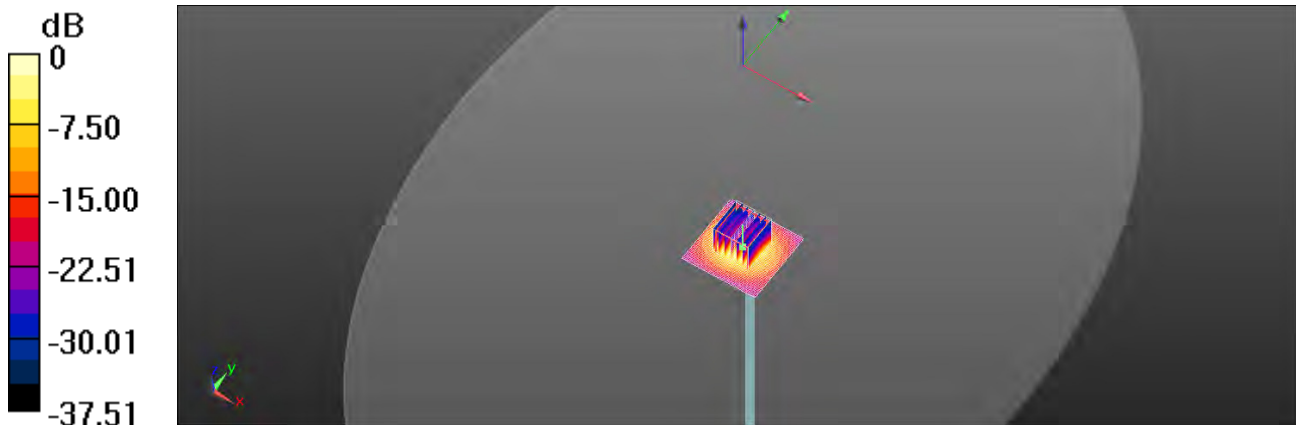
Configuration/Pin=100mW/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 60.52 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 36.5 W/kg

SAR(1 g) = 8.14 W/kg; SAR(10 g) = 2.26 W/kg

Maximum value of SAR (measured) = 18.1 W/kg



0 dB = 18.6 W/kg = 12.70 dBW/kg

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
C 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: **DAE4-856_Apr16**

CALIBRATION CERTIFICATE

Object: **DAE4 - SD 000 D04 BM - SN: 856**

Calibration procedure(s): **QA CAL-06.v29
Calibration procedure for the data acquisition electronics (DAE)**

Calibration date: **April 21, 2016**

The 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&E critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Kathray Multimeter Type 2001	SN: 0810278	09-Sep-15 (No:17153)	Sep-16
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Auto DAE Calibration Unit	SE UWS 053 AA 1001	05-Jan-16 (in house check)	In house check: Jan-17
Calibrator Box V2.1	SE UMS 008 AA 1002	05-Jan-16 (in house check)	In house check: Jan-17

Calibrated by:	Name R. Mayraz	Function Technician	Signature
Approved by:	Name Fin Bonifat	Function Deputy Technical Manager	Signature

Issued: April 21, 2016

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.

**Calibration Laboratory of
Schmid & Partner
Engineering AG**
Zeughausstrasse 42, 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.

DC Voltage Measurement

A/D - Converter Resolution nominal

High Range: 1LSB = 6.1 μ 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	403.450 \pm 0.02% (k=2)	404.571 \pm 0.02% (k=2)	403.888 \pm 0.02% (k=2)
Low Range	3.97641 \pm 1.50% (k=2)	3.97912 \pm 1.50% (k=2)	3.97796 \pm 1.50% (k=2)

Connector Angle

Connector Angle to be used in DASY system	52.0 $^{\circ}$ \pm 1 $^{\circ}$
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Appendix (Additional assessments outside the scope of SCS0108)

1. DC Voltage Linearity

High Range	Reading (μV)	Difference (μV)	Error (%)
Channel X + Input	199996.11	0.91	0.00
Channel X + Input	19999.18	-2.34	-0.01
Channel X - Input	-19999.41	1.06	-0.01
Channel Y + Input	199997.66	2.51	0.00
Channel Y + Input	19998.64	-2.84	-0.01
Channel Y - Input	-20002.21	-1.85	0.01
Channel Z + Input	199995.99	0.62	0.00
Channel Z + Input	19999.35	-2.13	-0.01
Channel Z - Input	-20002.57	-1.88	0.01

Low Range	Reading (μV)	Difference (μV)	Error (%)
Channel X + Input	2001.58	0.10	0.01
Channel X + Input	202.26	0.40	0.20
Channel X - Input	-197.29	0.76	-0.38
Channel Y + Input	2001.59	0.10	0.00
Channel Y + Input	200.88	-1.06	-0.52
Channel Y - Input	-199.46	-1.39	0.70
Channel Z + Input	2001.75	0.28	0.01
Channel Z + Input	201.40	-0.39	-0.19
Channel Z - Input	-198.94	-0.69	0.35

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 (μV)	Low Range Average Reading (μV)
Channel X	200	-14.19	-16.06
	-200	18.03	16.49
Channel Y	200	-2.43	-2.73
	-200	0.85	0.06
Channel Z	200	10.84	10.76
	-200	-12.44	-12.80

3. Channel separation

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	Input Voltage (mV)	Channel X (μV)	Channel Y (μV)	Channel Z (μV)
Channel X	200	-	1.98	-2.81
Channel Y	200	7.60	-	4.11
Channel Z	200	9.54	4.60	-

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	16223	16358
Channel Y	15947	17393
Channel Z	15877	17066

5. Input Offset Measurement

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec
Input 10M Ω

	Average (μ V)	min. Offset (μ V)	max. Offset (μ V)	Std. Deviation (μ V)
Channel X	0.86	0.04	1.50	0.29
Channel Y	-0.51	-2.36	0.33	0.41
Channel Z	-0.75	-2.04	0.01	0.30

6. Input Offset Current

Nominal input circuitry offset current on all channels: <25fA

7. Input Resistance (Typical values for information)

	Zeroing (kOhm)	Measuring (MOhm)
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 **SGS-TW (Auden)**

Certificate No.: **EX3-3770_Apr16**

CALIBRATION CERTIFICATE

Object: **EX3DVII - SN 3770**

Calibration procedure(s): **QA CAL-01.v8; QA CAL-12.v9; QA CAL-14.v4; QA CAL-23.v5;
QA CAL-25.v6
Calibration procedure for dosimetric E-field probes**

Calibration date: **April 27, 2016**

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (3).
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 = 75%)

Calibration Equipment used (M&PE critical for calibration)

Primary Standards	ID	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	06-Apr-16 (No. 217-02288a/0228a)	Apr-17
Power sensor NRP-Z91	SN: 103244	06-Apr-16 (No. 217-02288)	Apr-17
Power sensor NRP-Z91	SN: 103245	06-Apr-16 (No. 217-02288)	Apr-17
Reference 20 dB Attenuator	SN: 55277 (20x)	05-Apr-16 (No. 217-02293)	Apr-17
Reference Probe ESXUV2	SN: 3013	31-Dec-15 (No. EES-3013_Dec15)	Dec-16
DAE4	SN: 680	23-Dec-15 (No. DAE4-680_Dec15)	Dec-16
Secondary Standards	ID	Check Date (in house)	Scheduled Check
Power meter E4410B	SN: G841253B74	06-Apr-16 (No. 217-02285a/0228a)	In house check: Jun-16
Power sensor E4412A	SN: MY41498067	06-Apr-16 (No. 217-02285)	In house check: Jun-16
Power sensor E4412A	SN: G80110210	06-Apr-16 (No. 217-02284)	In house check: Jun-16
RF generator HP 8548C	SN: US3642U01703	04-Aug-09 (in house check Apr-13)	In house check: Jun-16
Network Analyzer HP 8753E	SN: 1S17390595	18-Oct-01 (in house check Oct-15)	In house check: Oct-16

Calibrated by: **Stéphane Audelin** (Name) / **Laboratory Technician** (Function) / *[Signature]* (Signature)

Approved by: **Krzysztof Przewoźnik** (Name) / **Technical Manager** (Function) / *[Signature]* (Signature)

Issued: April 27, 2016

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Accreditation No.: **SCS 0108**

Glossary:

TSL	Issue simulating liquid
NORM _{x,y,z}	sensitivity in free space
ConvF	sensitivity in TSL / NORM _{x,y,z}
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A, B, C, D	modulation dependent linearization parameters
Polarization φ	φ rotation around probe axis
Polarization θ	θ 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, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
- 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) KOB 865864, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Methods Applied and Interpretation of Parameters:

- NORM_{x,y,z}: Assessed for E-field polarization $\theta = 0$ ($f \leq 900$ MHz in TEM-cell; $f > 1800$ MHz: R22 waveguide). NORM_{x,y,z} are only intermediate values, i.e., the uncertainties of NORM_{x,y,z} does not affect the E²-field uncertainty inside TSL (see below ConvF).
- NORM(f)_{x,y,z} = NORM_{x,y,z} * 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_{x,y,z}: 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_{x,y,z}, B_{x,y,z}, C_{x,y,z}, D_{x,y,z}; V_{Rx,y,z}; 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. V_R 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_{x,y,z} * 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 ± 50 MHz to ± 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_x (no uncertainty required).

EX3DV4 -- SN:3770

April 27, 2016

Probe EX3DV4

SN:3770

Manufactured: July 6, 2010
Calibrated: April 27, 2016

Calibrated for DASY/EASY Systems
(Note: non-compatible with DASY2 system!)

EX3DV4- SN:3770

April 27, 2016

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3770

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu\text{V}/(\text{V}/\text{m})^{0.5}$) ^A	0.31	0.61	0.40	$\pm 10.1 \%$
DCP (mV) ^B	100.4	97.4	102.0	

Modulation Calibration Parameters

UID	Communication System Name		A dB	B dB $\sqrt{\mu\text{V}}$	C	D dB	VR mV	Unc ^C (k=2)
0	CW	X	0.0	0.0	1.0	0.00	145.0	$\pm 2.2 \%$
		Y	0.0	0.0	1.0		148.7	
		Z	0.0	0.0	1.0		135.3	

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%.

^A The uncertainties of Norm X,Y,Z do not affect the E²-field uncertainty inside TSL (see Pages 5 and 6).

^B Numerical linearization parameter: uncertainty not required.

^C Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

EX3DV4- SN:3770

April 27, 2016

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3770

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) ^c	Relative Permittivity ^f	Conductivity (S/m) ^f	ConvF X	ConvF Y	ConvF Z	Alpha ^g	Depth ^g (mm)	Unc (k=2)
450	43.5	0.87	11.36	11.36	11.36	0.18	1.20	± 13.3 %
750	41.9	0.89	9.83	9.83	9.83	0.41	0.88	± 12.0 %
835	41.5	0.90	9.47	9.47	9.47	0.14	1.48	± 12.0 %
900	41.5	0.97	9.17	9.17	9.17	0.15	1.78	± 12.0 %
1750	40.1	1.37	8.19	8.19	8.19	0.12	1.68	± 12.0 %
1900	40.0	1.40	7.88	7.88	7.88	0.12	1.77	± 12.0 %
2000	40.0	1.40	7.91	7.91	7.91	0.14	1.61	± 12.0 %
2300	39.5	1.67	7.47	7.47	7.47	0.13	2.08	± 12.0 %
2450	39.2	1.80	7.12	7.12	7.12	0.14	2.00	± 12.0 %
2600	39.0	1.96	6.95	6.95	6.95	0.21	1.26	± 12.0 %
5250	35.9	4.71	5.03	5.03	5.03	0.40	1.60	± 13.1 %
5600	35.5	5.07	4.42	4.42	4.42	0.50	1.80	± 13.1 %
5750	35.4	5.22	4.83	4.83	4.83	0.50	1.80	± 13.1 %

^c 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.

^f 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.

^g 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.

EX3DV4-- SN:3770

April 27, 2016

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3770

Calibration Parameter Determined in Body Tissue Simulating Media

f (MHz) ^C	Relative Permittivity ^D	Conductivity (S/m) ^E	ConvF X	ConvF Y	ConvF Z	Alpha ^G	Depth (mm) ^H	Unc (k=2)
450	56.7	0.94	10.49	10.49	10.49	0.09	1.20	± 13.3 %
750	55.5	0.96	9.43	9.43	9.43	0.19	1.26	± 12.0 %
835	55.2	0.97	9.30	9.30	9.30	0.17	1.43	± 12.0 %
900	55.0	1.05	9.15	9.15	9.15	0.28	1.06	± 12.0 %
1750	53.4	1.49	7.88	7.88	7.88	0.10	2.60	± 12.0 %
1900	53.3	1.52	7.71	7.71	7.71	0.11	2.44	± 12.0 %
2000	53.3	1.52	7.82	7.82	7.82	0.18	1.42	± 12.0 %
2300	52.9	1.81	7.53	7.53	7.53	0.54	0.69	± 12.0 %
2450	52.7	1.95	7.37	7.37	7.37	0.80	0.56	± 12.0 %
2600	52.5	2.16	7.12	7.12	7.12	0.80	0.56	± 12.0 %
5250	48.9	5.36	4.34	4.34	4.34	0.60	1.90	± 13.1 %
5600	48.5	5.77	3.70	3.70	3.70	0.60	1.90	± 13.1 %
5750	48.3	5.94	4.07	4.07	4.07	0.60	1.90	± 13.1 %

^C 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.

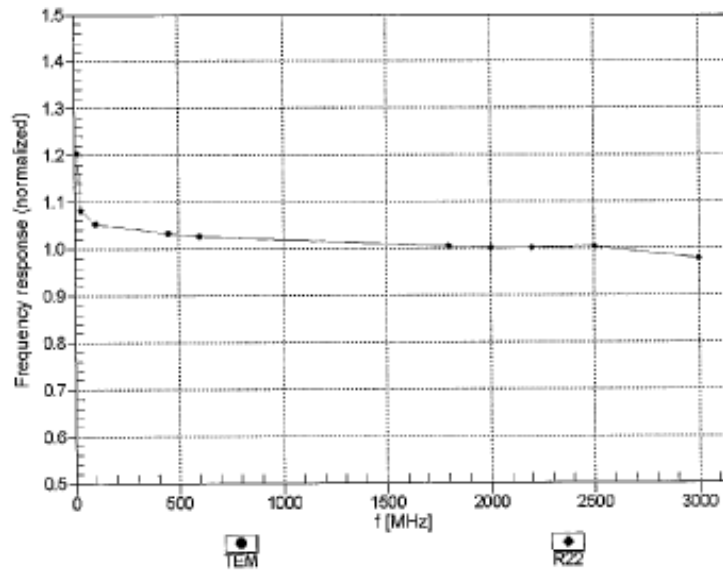
^D At frequencies below 3 GHz, the validity of tissue parameters (ϵ and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ϵ and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

^E 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.

EX3DV4-SN:3770

April 27, 2016

Frequency Response of E-Field (TEM-Cell: ifi110 EXX, Waveguide: R22)



Uncertainty of Frequency Response of E-field: $\pm 6.3\%$ (k=2)

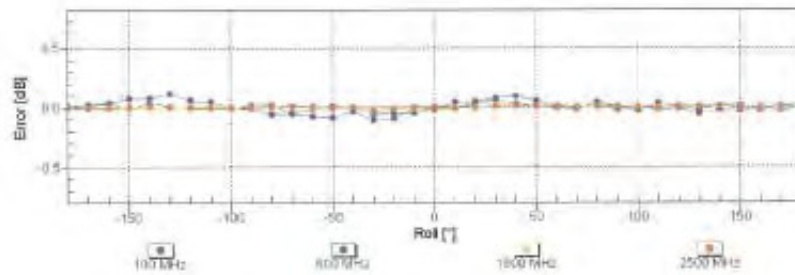
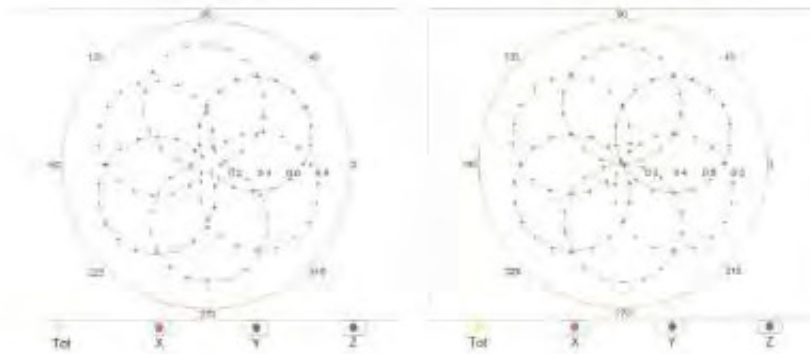
EX3DV4-SN:3770

April 27, 2016

Receiving Pattern (ϕ), $\theta = 0^\circ$

f=600 MHz,TEM

f=1800 MHz,R22

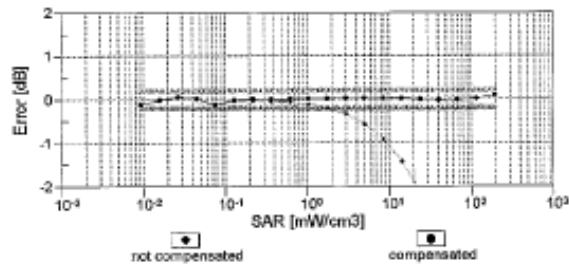
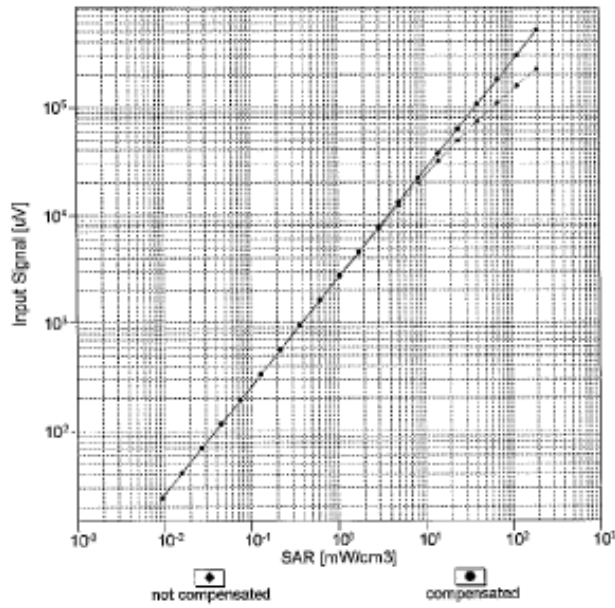


Uncertainty of Axial Isotropy Assessment: $\pm 0.5\%$ (k=2)

EX3DV4-SN:3770

April 27, 2016

Dynamic Range f(SAR_{head}) (TEM cell , f_{eval}= 1900 MHz)

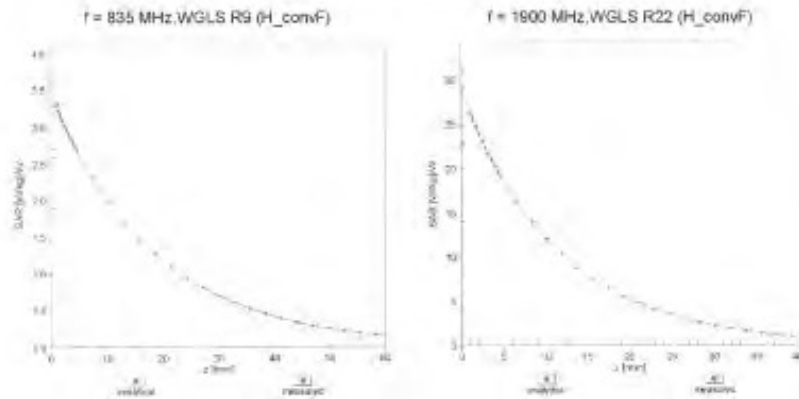


Uncertainty of Linearity Assessment: $\pm 0.6\%$ (k=2)

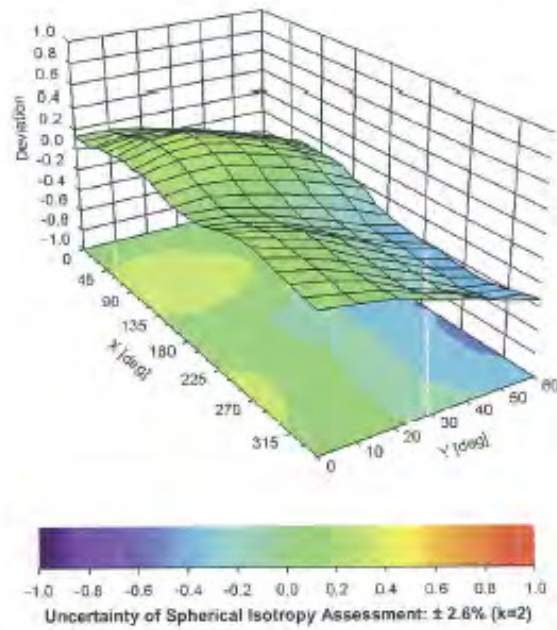
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Conversion Factor Assessment



Deviation from Isotropy in Liquid Error (θ, φ), f = 900 MHz



EX3DV4- SN:3770

April 27, 2016

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3770

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	-29.9
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

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	Probabilit y	Div	Div Value	ci (1g)	ci (10g)	Standard uncertainty	Standard uncertainty	vi, or Veff
Measurement system									
Probe calibration	6.55%	N	1	1	1	1	6.55%	6.55%	∞
Isotropy , Axial	3.50%	R	√3	1.732	1	1	2.02%	2.02%	∞
Isotropy, Hemispherical	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%	∞
Measurement drift (class A evaluation)	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	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%	∞
Test Sample related									
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%	∞
Phantom and Setup									
Phantom Uncertainty	4.00%	R	√3	1.732	1	1	2.31%	2.31%	∞
Liquid permittivity (mea.)	3.90%	N	1	1	0.64	0.43	2.50%	1.68%	M
Liquid Conductivity (mea.)	4.09%	N	1	1	0.6	0.49	2.45%	2.00%	M
Combined standard uncertainty		RSS					12.23%	11.99%	
Expant uncertainty (95% confidence							24.46%	23.99%	

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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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	Probabilit y	Div	Div Value	ci (1g)	ci (10g)	Standard uncertainty	Standard uncertainty	vi, or Veff
Measurement system									
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%	∞
Measurement drift (class A evaluation)	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	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%	∞
Test Sample related									
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%	∞
Phantom and Setup									
Phantom Uncertainty	4.00%	R	√3	1.732	1	1	2.31%	2.31%	∞
Liquid permittivity (mea.)	4.24%	N	1	1	0.64	0.43	2.71%	1.82%	M
Liquid Conductivity (mea.)	4.93%	N	1	1	0.6	0.49	2.96%	2.42%	M
Combined standard uncertainty		RSS					12.10%	11.80%	
Expant uncertainty (95% confidence							24.21%	23.61%	

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9. System Validation from Original Equipment Supplier

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Accreditation No.: SCS 0108

Client: SGS-TW (Auden)

Certificate No: D750V3-1015_Aug16

CALIBRATION CERTIFICATE

Object: D750V3 - SN: 1015

Calibration procedure(s): QA CAL-05.v9
Calibration procedure for dipole validation kits above 700 MHz

Calibration date: August 30, 2016

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 $(22 \pm 3)^\circ\text{C}$ and humidity $< 70\%$.

Calibration Equipment used (M&E: critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	06-Apr-16 (No. 217-02288/02288)	Apr-17
Power sensor NRP-Z91	SN: 103244	06-Apr-16 (No. 217-02288)	Apr-17
Power sensor NRP-Z91	SN: 103245	06-Apr-16 (No. 217-02288)	Apr-17
Reference 20 dB Attenuator	SN: 5058 (20k)	06-Apr-16 (No. 217-02292)	Apr-17
Type-N mismatch combination	SN: 5047.2 / 06327	06-Apr-16 (No. 217-02295)	Apr-17
Reference Probe EX3DV4	SN: 7349	15-Jun-16 (No. EX3-7349_Jun16)	Jun-17
DAE4	SN: 601	30-Dec-15 (No. DAE4-601_Dec15)	Dec-16

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter EPM-442A	SN: G837460704	07-Oct-15 (No. 217-02222)	In house check: Oct-16
Power sensor HP 8481A	SN: US37292783	07-Oct-15 (No. 217-02222)	In house check: Oct-16
Power sensor HP 8481A	SN: MY41092217	07-Oct-15 (No. 217-02223)	In house check: Oct-16
RF generator B&S SMT-06	SN: 100972	15-Jun-15 (in house check Jun-15)	In house check: Oct-16
Network Analyzer HP 8733E	SN: US37390585	18-Oct-01 (in house check Oct-15)	In house check: Oct-16

Calibrated by: Michael Weber
Name: Michael Weber
Function: Laboratory Technician

Signature:

Approved by: Katja Pokovic
Name: Katja Pokovic
Function: Technical Manager

Signature:

Issued: August 30, 2016

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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, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
- 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%.

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.8.8
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 \pm 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 \pm 0.2) °C	42.4 \pm 6 %	0.91 mho/m \pm 6 %
Head TSL temperature change during test	< 0.5 °C	—	—

SAR result with Head TSL

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.11 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	8.32 W/kg \pm 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.38 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	5.45 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	55.5	0.96 mho/m
Measured Body TSL parameters	(22.0 \pm 0.2) °C	54.9 \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 ³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	2.25 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	8.77 W/kg \pm 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	1.47 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	5.76 W/kg \pm 16.5 % (k=2)

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	53.1 Ω - 0.2 $j\Omega$
Return Loss	-30.5 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	49.0 Ω - 2.0 $j\Omega$
Return Loss	-30.5 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.037 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 leading line is directly connected to the second arm of this 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	March 22, 2010

DASY5 Validation Report for Head TSL

Date: 30.08.2016

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 750 MHz; Type: D750V3; Serial: D750Y3 - SN: 1015

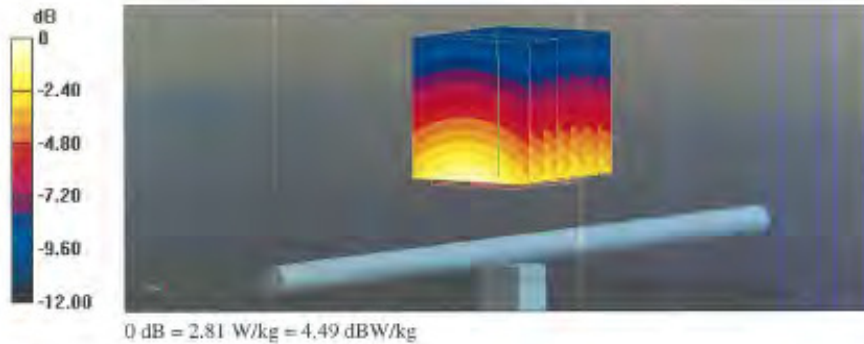
Communication System: UID 0 - CW; Frequency: 750 MHz
Medium parameters used: $f = 750$ MHz; $\sigma = 0.91$ S/m; $\epsilon_r = 42.4$; $\rho = 1000$ kg/m³
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(10.07, 10.07, 10.07); Calibrated: 15.06.2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 30.12.2015
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- DASY52 52.8.8(1258); SEMCAD X (4.6.10(7372))

Dipole Calibration for Head Tissue/Pin=250 mW, d=15mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 58.26 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 3.16 W/kg
SAR(1 g) = 2.11 W/kg; SAR(10 g) = 1.38 W/kg
Maximum value of SAR (measured) = 2.81 W/kg



DASY5 Validation Report for Body TSL

Date: 30.08.2016

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 750 MHz; Type: D750V3; Serial: D750V3 - SN: 1015

Communication System: UID 0 - CW; Frequency: 750 MHz

Medium parameters used: $f = 750$ MHz; $\sigma = 0.99$ S/m; $\epsilon_r = 54.9$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(9.99, 9.99, 9.99); Calibrated: 15.06.2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 30.12.2015
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7372)

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 = 57.47 V/m; Power Drift = -0.01 dB

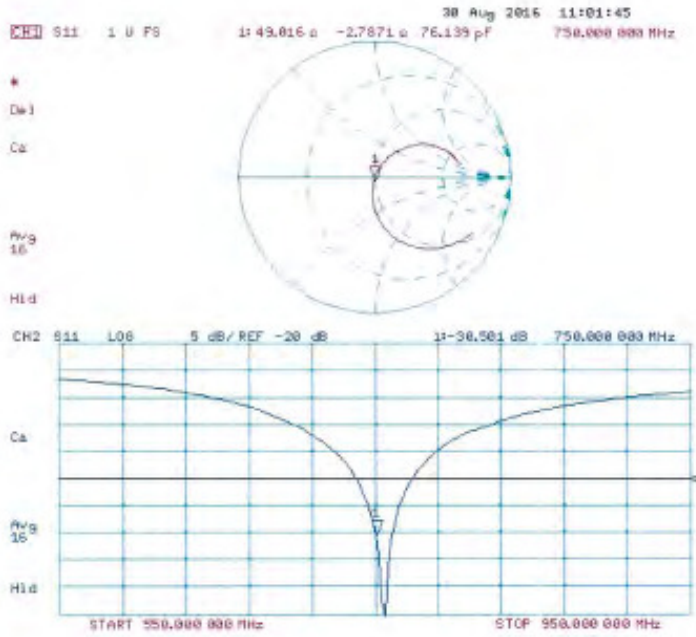
Peak SAR (extrapolated) = 3.39 W/kg

SAR(1 g) = 2.25 W/kg; SAR(10 g) = 1.47 W/kg

Maximum value of SAR (measured) = 2.97 W/kg



Impedance Measurement Plot for Body TSL



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Accreditation No.: SCS 0108

Client: **SGS-TW (Auden)**

Certificate No: **D835V2-4d063_Aug16**

CALIBRATION CERTIFICATE

Object: **D835V2 - SN:4d063**

Calibration procedure(s): **QA CAL-05.Y9**
Calibration procedure for dipole validation kits above 700 MHz

Calibration date: **August 25, 2016**

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 traced laboratory facility, environmental temperature (23 ± 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	06-Apr-16 (No. 217-02288/02289)	Apr-17
Power sensor NRP-Z91	SN: 103244	06-Apr-16 (No. 217-02288)	Apr-17
Power sensor NRP-Z91	SN: 103240	06-Apr-16 (No. 217-02289)	Apr-17
Reference 20 dB Attenuator	SN: 5058 (20k)	05-Apr-16 (No. 217-02292)	Apr-17
Type-N mismatch combination	SN: 5947.2 / 06327	05-Apr-16 (No. 217-02295)	Apr-17
Reference Probe EXSDV4	SN: 7349	16-Jun-16 (No. EX3-7349_Jun16)	Jun-17
DAE4	SN: 601	30-Dec-15 (No. DAE4-801_Dec15)	Dec-16

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter EPW-442A	SN: GB37480704	07-Oct-15 (No. 217-02222)	In house check: Oct-16
Power sensor HP 8481A	SN: US37292783	07-Oct-15 (No. 217-02222)	In house check: Oct-16
Power sensor HP 8481A	SN: MY41000317	07-Oct-15 (No. 217-02223)	In house check: Oct-16
RF generator F&S SMT-06	SN: 100972	15-Jun-15 (In house check Jun-15)	In house check: Oct-16
Network Analyzer HP-8753E	SN: US37390585	18-Oct-01 (In house check: Oct-15)	In house check: Oct-16

Calibrated by:	Name: Michael Weber	Function: Laboratory Technician	Signature:
Approved by:	Name: Katja Pokovic	Function: Technique Manager	Signature:

Issued: August 29, 2016

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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, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
- 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 865864, "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%.

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.8.8
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 ± 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 ± 0.2) °C	42.1 ± 6 %	0.93 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	—	—

SAR result with Head TSL

SAR averaged over 1 cm ² (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.40 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	9.40 W/kg ± 17.0 % (k=2)

SAR averaged over 10 cm ² (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.54 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	6.05 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	55.2	0.97 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	54.7 ± 6 %	1.01 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	—	—

SAR result with Body TSL

SAR averaged over 1 cm ² (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	2.47 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	9.57 W/kg ± 17.0 % (k=2)

SAR averaged over 10 cm ² (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	6.28 W/kg ± 16.5 % (k=2)

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	51.2 Ω - 2.6 $\mu\Omega$
Return Loss	- 30.3 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	47.3 Ω - 5.5 $\mu\Omega$
Return Loss	- 24.0 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.392 ns
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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 27, 2005

DASY5 Validation Report for Head TSL

Date: 25.08.2016

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:4d063

Communication System: UID 0 - CW; Frequency: 835 MHz

Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.93 \text{ S/m}$; $\epsilon_r = 42.1$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(9.72, 9.72, 9.72); Calibrated: 15.06.2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 30.12.2015
- Phantom: Flat Phantom 4.9L; Type: QD000P49A.A; Serial: 1001
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7372)

Dipole Calibration for Head Tissue/Pin=250 mW, d=15mm/Zoom Scan (7x7x7)/Cube 0:

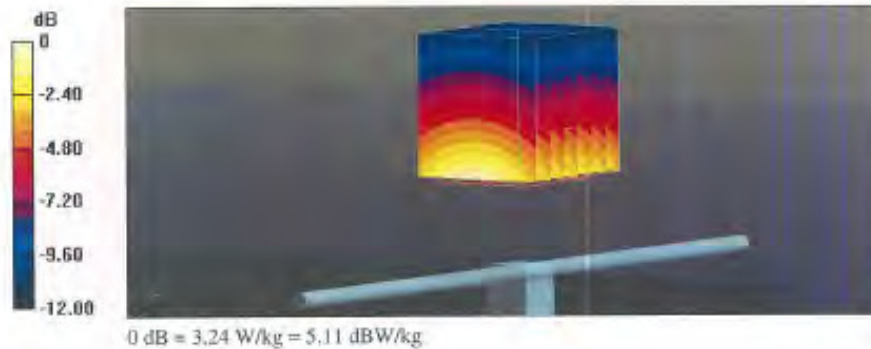
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 61.75 V/m; Power Drift = 0.03 dB

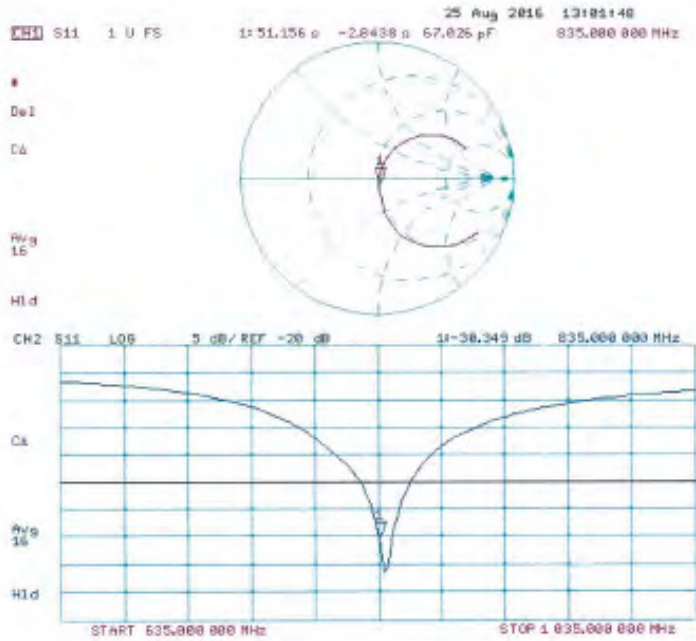
Peak SAR (extrapolated) = 3.65 W/kg

SAR(1 g) = 2.4 W/kg; SAR(10 g) = 1.54 W/kg

Maximum value of SAR (measured) = 3.24 W/kg



Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 25.08.2016

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:4d063

Communication System: UID 0 - CW; Frequency: 835 MHz

Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 1.01 \text{ S/m}$; $\epsilon_r = 54.7$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(9.73, 9.73, 9.73); Calibrated: 15.06.2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 30.12.2015
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7372)

Dipole Calibration for Body Tissue/Pin=250 mW, d=15mm/Zoom Scan (7x7x7)/Cube 0:

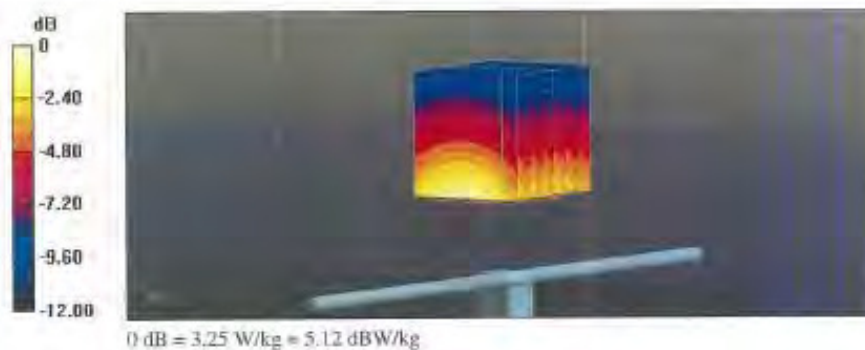
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 59.83 V/m; Power Drift = -0.00 dB

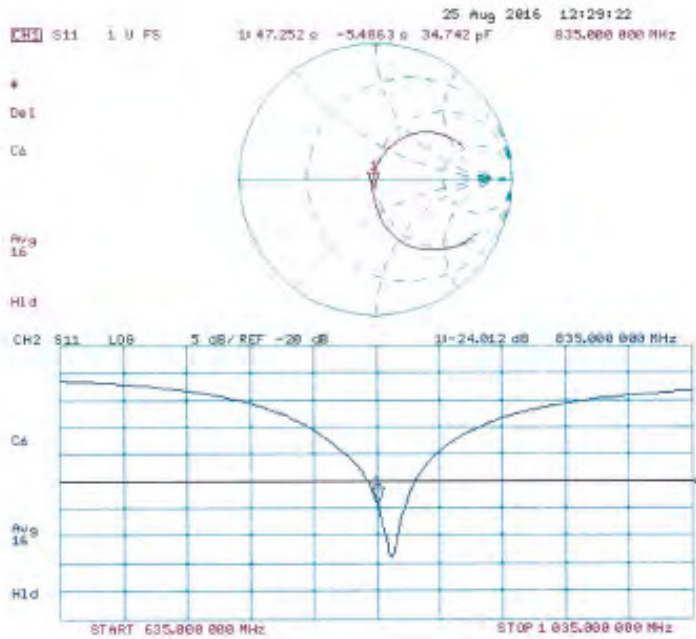
Peak SAR (extrapolated) = 3.63 W/kg

SAR(1 g) = 2.47 W/kg; SAR(10 g) = 1.61 W/kg

Maximum value of SAR (measured) = 3.25 W/kg



Impedance Measurement Plot for Body TSL



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Accreditation No.: **SCS 0108**

Client **SGS-TW (Auden)**

Certificate No: **D1750V2-1008_Aug16**

CALIBRATION CERTIFICATE

Object **D1750V2 - SN:1008**

Calibration procedure(s) **QA CAL-05.v9**
Calibration procedure for dipole validation kits above 700 MHz

Calibration date: **August 31, 2016**

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	06-Apr-16 (No. 217-02288/02289)	Apr-17
Power sensor NRP-Z91	SN: 103244	06-Apr-16 (No. 217-02288)	Apr-17
Power sensor NRP-Z91	SN: 103245	06-Apr-16 (No. 217-02289)	Apr-17
Reference 20 dB Attenuator	SN: 5058 (20k)	05-Apr-16 (No. 217-02292)	Apr-17
Type-N mismatch combination	SN: 5047.2 / 06827	05-Apr-16 (No. 217-02295)	Apr-17
Reference Probe EX3DV4	SN: 7349	15-Jun-16 (No. EX3-7349_Jun16)	Jun-17
DAE4	SN: 601	30-Dec-15 (No. DAE4-601_Dec15)	Dec-16
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter EPM-442A	SN: GB37480704	07-Oct-15 (No. 217-02222)	In house check: Oct-16
Power sensor HP 8461A	SN: US37292783	07-Oct-15 (No. 217-02222)	In house check: Oct-16
Power sensor HP 8481A	SN: MY41032317	07-Oct-15 (No. 217-02223)	In house check: Oct-16
RF generator R&S SMT-05	SN: 100972	15-Jun-15 (in house check Jun-15)	In house check: Oct-16
Network Analyzer HP 8753E	SN: US37399586	16-Oct-11 (in house check Oct-15)	In house check: Oct-16

Calibrated by:	Name Johannes Kurikka	Function Laboratory Technician	Signature
Approved by:	Name Kajja Pekovic	Technical Manager	

Issued: August 31, 2016

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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, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
- 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%.

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5+	V52.8.8
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 ± 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 ± 0.2) °C	40.3 ± 6 %	1.37 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	—	—

SAR result with Head TSL

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	9.28 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	37.2 W/kg ± 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	4.90 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	19.6 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	53.4	1.49 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	53.1 ± 6 %	1.49 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	—	—

SAR result with Body TSL

SAR averaged over 1 cm ³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	9.34 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	37.3 W/kg ± 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	4.96 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	19.9 W/kg ± 16.5 % (k=2)

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL

Impedance, transformed to lead point	51.0 Ω - 0.2 j Ω
Return Loss	-40.1 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	48.7 Ω - 0.5 j Ω
Return Loss	-29.5 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.221 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	May 27, 2003

DASY5 Validation Report for Head TSL

Date: 24.08.2016

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1750 MHz; Type: D1750V2; Serial: D1750V2 - SN:1008

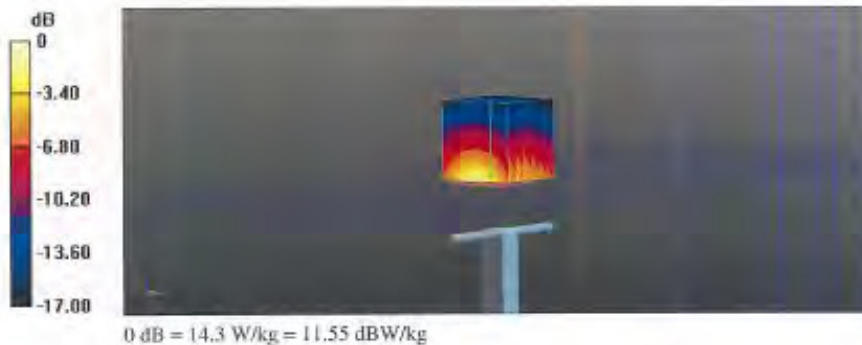
Communication System: UID 0 - CW; Frequency: 1750 MHz
Medium parameters used: $f = 1750$ MHz; $\sigma = 1.37$ S/m; $\epsilon_r = 40.3$; $\rho = 1000$ kg/m³
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

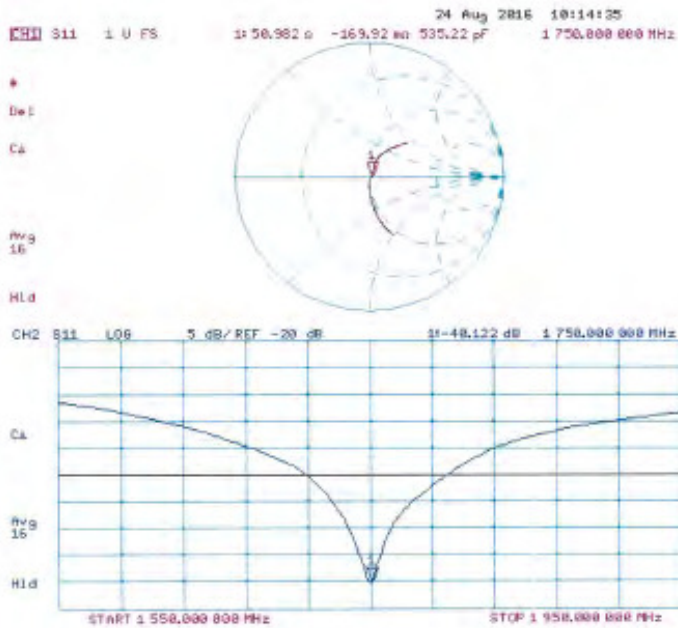
- Probe: EX3DV4 - SN7349; ConvF(8.46, 8.46, 8.46); Calibrated: 15.06.2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 30.12.2015
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7372)

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 = 105.8 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 17.2 W/kg
SAR(1 g) = 9.28 W/kg; SAR(10 g) = 4.9 W/kg
Maximum value of SAR (measured) = 14.3 W/kg



Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 31.08.2016

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1750 MHz; Type: D1750V2; Serial: D1750V2 - SN:1008

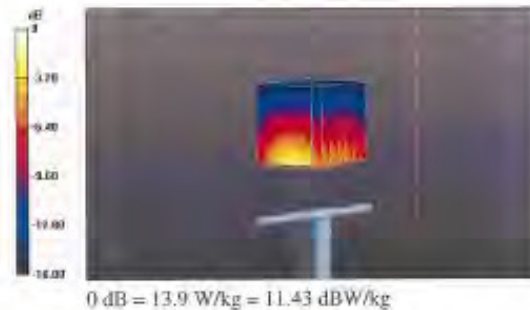
Communication System: UID 0 - CW; Frequency: 1750 MHz
Medium parameters used: $f = 1750$ MHz; $\sigma = 1.49$ S/m; $\epsilon_r = 53.1$; $\rho = 1000$ kg/m³
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

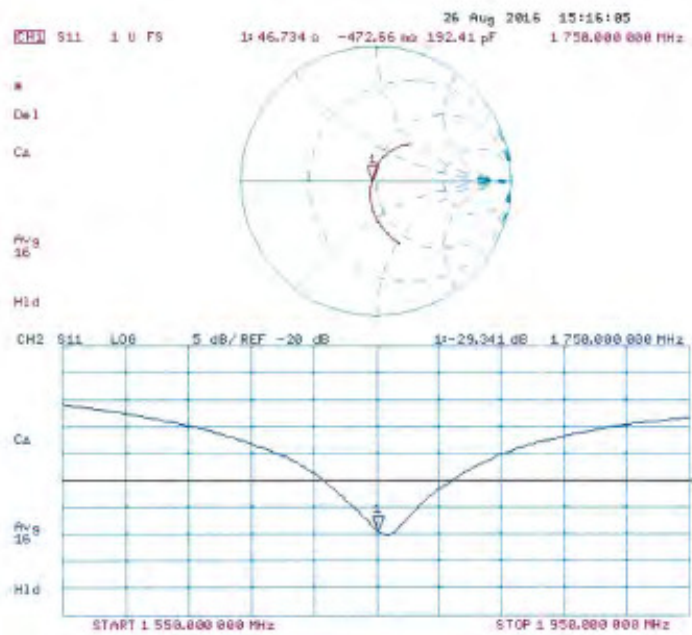
- Probe: EX3DV4 - SN7349; ConvF(8.25, 8.25, 8.25); Calibrated: 15.06.2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 30.12.2015
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7372)

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 = 100.8 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 16.4 W/kg
SAR(1 g) = 9.34 W/kg; SAR(10 g) = 4.98 W/kg
Maximum value of SAR (measured) = 13.9 W/kg



Impedance Measurement Plot for Body TSL



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Accreditation No.: **SCS 0108**

Client **SGS-TW (Auden)**

Certificate No: **D1900V2-5d027_Apr16**

CALIBRATION CERTIFICATE

Object **D1900V2 - SN: 5d027**

Calibration procedure(s) **QA CAL-05.v9
Calibration procedure for dipole validation kits above 700 MHz**

Calibration date **April 25, 2016**

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	06-Apr-16 (No. 217-02288/02289)	Apr-17
Power sensor NRP-Z91	SN: 103244	06-Apr-16 (No. 217-02288)	Apr-17
Power sensor NRP-Z91	SN: 103245	06-Apr-16 (No. 217-02289)	Apr-17
Reference 20 dB Attenuator	SN: 5058 (20k)	05-Apr-16 (No. 217-02292)	Apr-17
Type-N mismatch combination	SN: 5047.2 / 06327	05-Apr-16 (No. 217-02295)	Apr-17
Reference Probe EX3DV4	SN: 7349	31-Dec-15 (No. EX3-7349_Dec15)	Dec-16
DAE4	SN: 601	30-Dec-15 (No. DAE4-601_Dec15)	Dec-16
Secondary Standards	ID #	Check Date (In house)	Scheduled Check
Power meter EPM-442A	SN: GB37480704	07-Oct-15 (No. 217-02222)	In house check: Oct-16
Power sensor HP 8481A	SN: USS7292783	07-Oct-15 (No. 217-02222)	In house check: Oct-16
Power sensor HP 8481A	SN: MY41092317	07-Oct-15 (No. 217-02223)	In house check: Oct-16
RF generator R&S SMT-06	SN: 100872	15-Jun-15 (In house check Jun-15)	In house check: Oct-16
Network Analyzer HP 8753E	SN: USS7990685	16-Oct-01 (In house check Oct-15)	In house check: Oct-16

Calibrated by:	Name Michael Weber	Function Laboratory Technician	Signature
Approved by:	Name Kolja Pokovic	Technical Manager	

Issued: April 26, 2016

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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, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
- 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:

- a) 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%.

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.8.8
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 \pm 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 \pm 0.2) °C	40.0 \pm 6 %	1.37 mho/m \pm 6 %
Head TSL temperature change during test	< 0.5 °C	---	---

SAR result with Head TSL

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	9.55 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	36.7 W/kg \pm 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	5.03 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	20.3 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	53.3	1.52 mho/m
Measured Body TSL parameters	(22.0 \pm 0.2) °C	52.9 \pm 6 %	1.49 mho/m \pm 6 %
Body TSL temperature change during test	< 0.5 °C	---	---

SAR result with Body TSL

SAR averaged over 1 cm ³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	9.83 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	39.7 W/kg \pm 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	5.21 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	21.0 W/kg \pm 16.5 % (k=2)

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	50.8 Ω + 4.4 j Ω
Return Loss	- 27.0 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	46.5 Ω + 5.6 j Ω
Return Loss	- 23.3 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.196 ns
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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 17, 2002

DASY5 Validation Report for Head TSL

Date: 25.04.2016

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 5d027

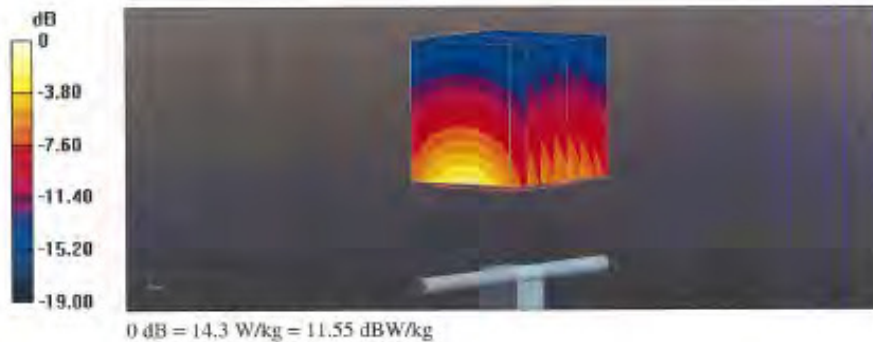
Communication System: UID 0 - CW; Frequency: 1900 MHz
Medium parameters used: $f = 1900$ MHz; $\sigma = 1.37$ S/m; $\epsilon_r = 40$; $\rho = 1000$ kg/m³
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

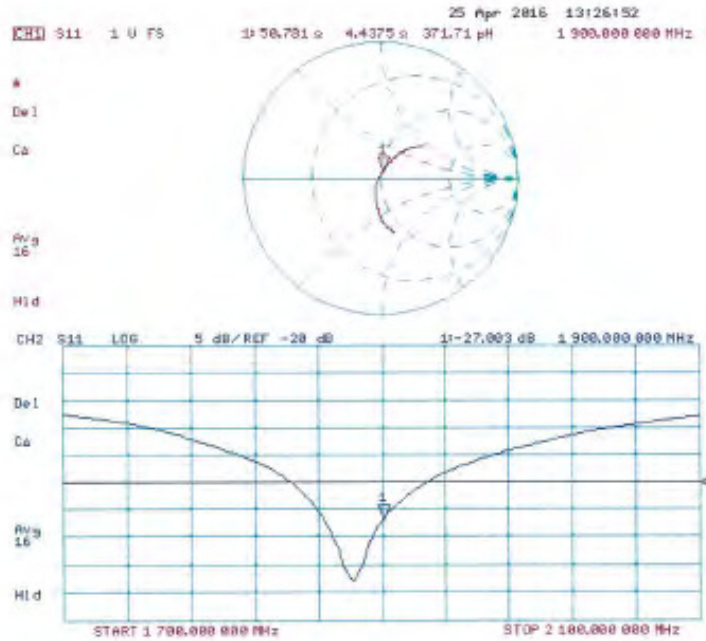
- Probe: EX3DV4 - SN7349; ConvF(8.2, 8.2, 8.2); Calibrated: 31.12.2015;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 30.12.2015
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7372)

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 = 106.9 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 17.2 W/kg
SAR(1 g) = 9.55 W/kg; SAR(10 g) = 5.03 W/kg
Maximum value of SAR (measured) = 14.3 W/kg



Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 25.04.2016

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 5d027

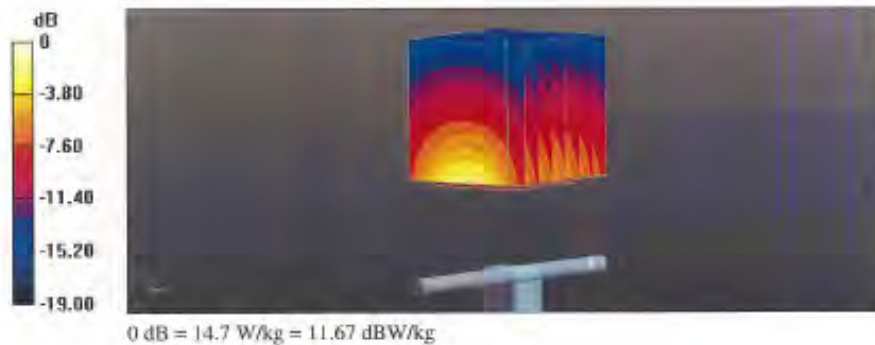
Communication System: UID 0 - CW; Frequency: 1900 MHz
Medium parameters used: $f = 1900$ MHz; $\sigma = 1.49$ S/m; $\epsilon_r = 52.9$; $\rho = 1000$ kg/m³
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

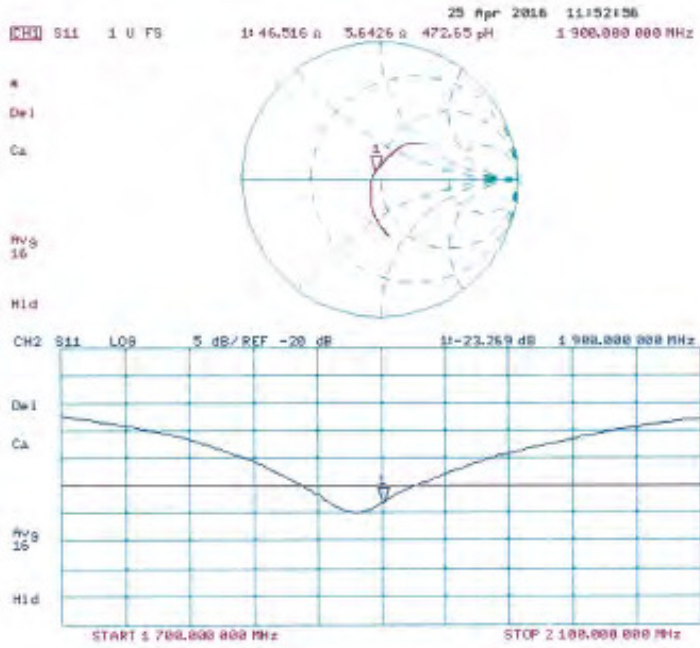
- Probe: EX3DV4 - SN7349; ConvF(8.03, 8.03, 8.03); Calibrated: 31.12.2015;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 30.12.2015
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7372)

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 = 104.2 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 17.2 W/kg
SAR(1 g) = 9.83 W/kg; SAR(10 g) = 5.21 W/kg
Maximum value of SAR (measured) = 14.7 W/kg



Impedance Measurement Plot for Body TSL



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Accreditation No.: **SCS 0108**

Client: **SGS-TW (Auden)**

Certificate No.: **D2450V2-727_Apr16**

CALIBRATION CERTIFICATE

Object: **D2450V2 - SN:727**

Calibration procedure(s): **QA CAL-05.v9**
Calibration procedure for dipole validation kits above 700 MHz

Calibration date: **April 19, 2016**

This calibration certificate documents the traceability to national standards, which (are) (is) 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 ± 3)°C and humidity = 70%.

Calibration Equipment used (M&E: critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	06-Apr-16 (No. 217-02280/02289)	Apr-17
Power sensor NRP-Z91	SN: 103244	06-Apr-16 (No. 217-02288)	Apr-17
Power sensor NRP-Z91	SN: 103245	06-Apr-16 (No. 217-02289)	Apr-17
Reference 20 dB Attenuator	SN: 6038 (20K)	06-Apr-16 (No. 217-02292)	Apr-17
Type-N mismatch combination	SN: 6047.2 / 06327	06-Apr-16 (No. 217-02295)	Apr-17
Reference Probe EX3DV4	SN: 7349	31-Dec-15 (No. EX3-7349_Dec15)	Dec-16
DAE4	SN: 601	30-Dec-15 (No. DAE4-601_Dec15)	Dec-16
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter EPM-442A	SN: 0837460704	07-Oct-15 (No. 217-02222)	in house check: Oct-16
Power sensor HP 8481A	SN: US37292793	07-Oct-15 (No. 217-02222)	in house check: Oct-16
Power sensor HP 8481A	SN: MY41092317	07-Oct-15 (No. 217-02223)	in house check: Oct-16
P/F generator R&S SMT-06	SN: 100972	15-Jun-15 (in house check Jun-15)	in house check: Oct-16
Network Analyzer HP 8753E	SN: US37390585	18-Oct-01 (in house check Oct-15)	in house check: Oct-16

Calibrated by: **Michael Weber** (Name) / **Laboratory Technician** (Function) / *M. Weber* (Signature)

Approved by: **Katja Pokovic** (Name) / **Technical Manager** (Function) / *K. Pokovic* (Signature)

Issued: April 20, 2016

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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, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
- 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:

- a) 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%.

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.8.8
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 \pm 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 \pm 0.2) °C	40.0 \pm 6 %	1.83 mho/m \pm 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	12.8 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	51.0 W/kg \pm 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	5.93 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	23.7 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	52.7	1.95 mho/m
Measured Body TSL parameters	(22.0 \pm 0.2) °C	52.7 \pm 6 %	1.98 mho/m \pm 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm ³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	12.5 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	49.6 W/kg \pm 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	5.88 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	23.3 W/kg \pm 16.5 % (k=2)

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	55.3 Ω + 2.0 j Ω
Return Loss	- 25.4 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	52.1 Ω + 4.8 j Ω
Return Loss	- 25.9 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

DASY5 Validation Report for Head TSL

Date: 19.04.2016

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; $\sigma = 1.83$ S/m; $\epsilon_r = 40$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvR(7.76, 7.76, 7.76); Calibrated: 31.12.2015;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 30.12.2015
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7372)

Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

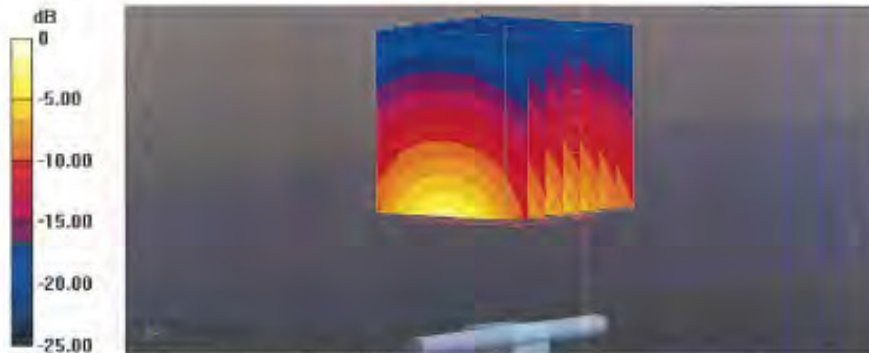
Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 112.1 V/m; Power Drift = 0.05 dB

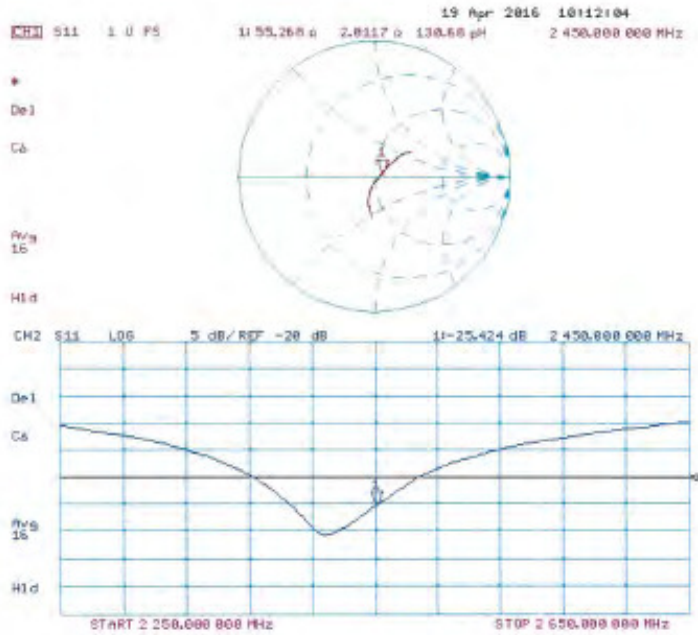
Peak SAR (extrapolated) = 25.7 W/kg

SAR(1 g) = 12.8 W/kg; SAR(10 g) = 5.93 W/kg

Maximum value of SAR (measured) = 20.8 W/kg



Impedance Measurement Plot for Head TSL



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Accreditation No.: **SCS 0108**

Client **SGS-TW (Auden)**

Certificate No: **D2600V2-1005_Jan16**

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 21, 2016		
<p>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.</p> <p>All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.</p> <p>Calibration Equipment used (M&TE critical for calibration)</p>			
Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	BB37480704	07-Oct-15 (No. 217-02222)	Oct-16
Power sensor HP 8481A	US37292783	07-Oct-15 (No. 217-02222)	Oct-16
Power sensor HP 8481A	MY41082317	07-Oct-15 (No. 217-02223)	Oct-16
Reference 20 dB Attenuator	SN: 5058 (20k)	01-Apr-15 (No. 217-02131)	Mar-16
Type-N mismatch combination	SN: 5047.2 / 06327	01-Apr-15 (No. 217-02134)	Mar-16
Reference Probe EX3DV4	SN: 7349	31-Dec-15 (No. EX3-7349_Dec15)	Dec-16
DAE4	SN: 601	30-Dec-15 (No. DAE4-601_Dec15)	Dec-16
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
RF generator R&S SMT-06	100972	15-Jun-15 (in house check Jun-15)	In house check: Jun-16
Network Analyzer HP 8753E	US37390585 54206	18-Oct-01 (in house check Oct-15)	In house check: Oct-16
Calibrated by:	Name Leif Klynsen	Function Laboratory Technician	Signature
Approved by:	Name Katja Pokovic	Function Technical Manager	Signature
This calibration certificate shall not be reproduced except in full without written approval of the laboratory.			Issued: January 26, 2016

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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, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
- 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%.

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.8.8
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	37.3 \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 ³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	14.2 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	55.2 W/kg \pm 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	6.29 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	24.7 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	51.6 \pm 6 %	2.22 mho/m \pm 6 %
Body TSL temperature change during test	< 0.5 °C	---	---

SAR result with Body TSL

SAR averaged over 1 cm ³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	13.7 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	53.9 W/kg \pm 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	6.10 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	24.2 W/kg \pm 16.5 % (k=2)

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	51.2 Ω - 4.2 j Ω
Return Loss	- 27.2 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	45.6 Ω - 3.3 j Ω
Return Loss	- 24.8 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.154 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: 21.01.2016

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: $f = 2600 \text{ MHz}$; $\sigma = 2.04 \text{ S/m}$; $\epsilon_r = 37.3$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(7.49, 7.49, 7.49); Calibrated: 31.12.2015;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 30.12.2015
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7372)

Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

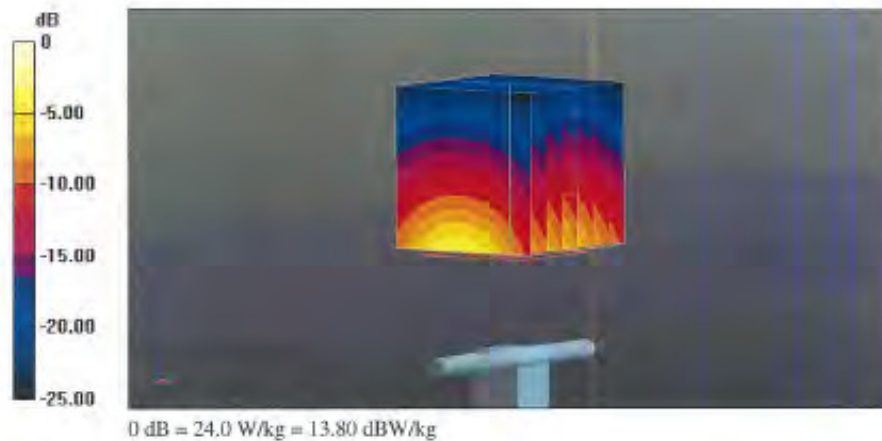
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 114.8 V/m; Power Drift = 0.01 dB

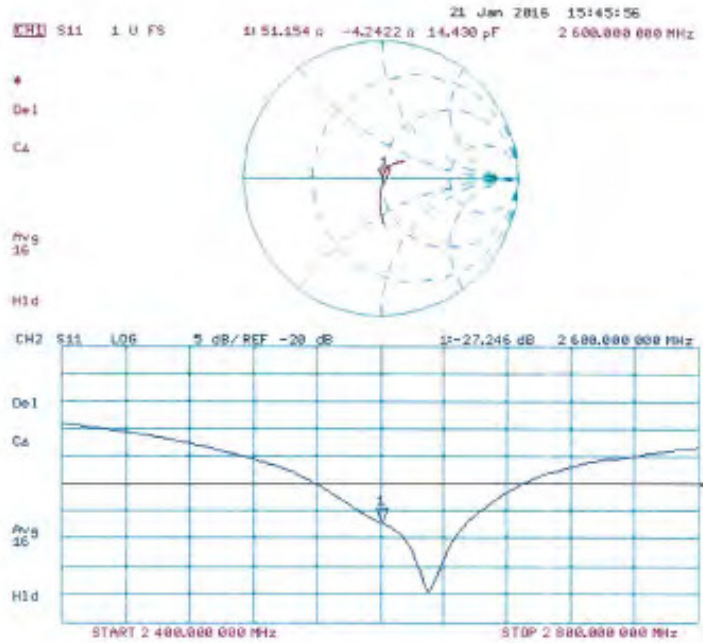
Peak SAR (extrapolated) = 30.2 W/kg

SAR(1 g) = 14.2 W/kg; SAR(10 g) = 6.29 W/kg

Maximum value of SAR (measured) = 24.0 W/kg



Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 21.01.2016

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2600 MHz; Type: D2600V2; Serial: D2600V2 - SN: 1005

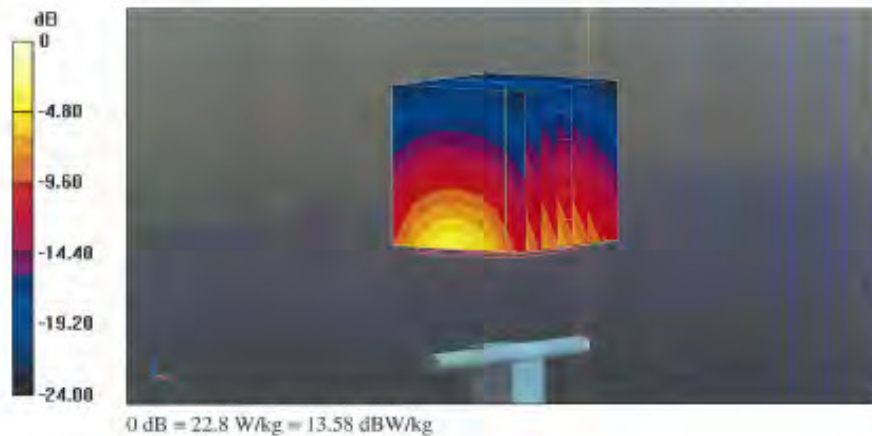
Communication System: UID 0 - CW; Frequency: 2600 MHz
Medium parameters used: $f = 2600$ MHz; $\sigma = 2.22$ S/m; $\epsilon_r = 51.6$; $\rho = 1000$ kg/m³
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

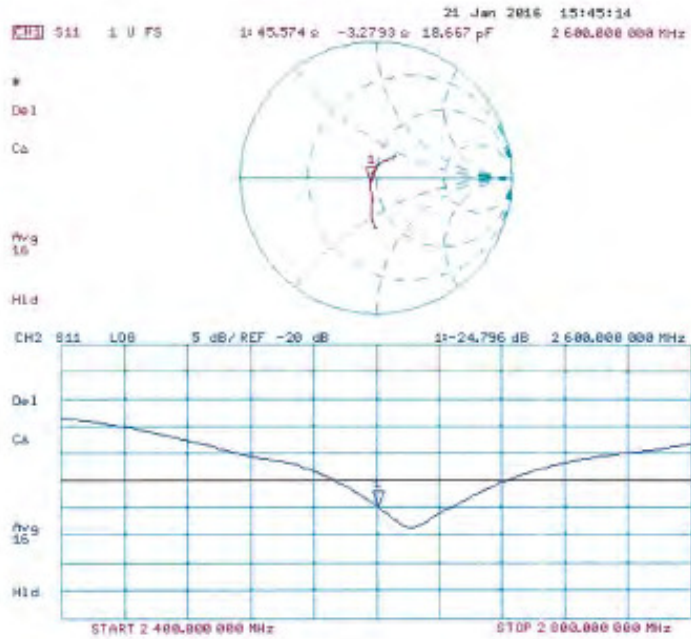
- Probe: EX3DV4 - SN7349; ConvF(7.6, 7.6, 7.6); Calibrated: 31.12.2015;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 30.12.2015
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.8,8(1258); SEMCAD X 14.6.10(7372)

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 = 106.7 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 28.4 W/kg
SAR(1 g) = 13.7 W/kg; SAR(10 g) = 6.1 W/kg
Maximum value of SAR (measured) = 22.8 W/kg



Impedance Measurement Plot for Body TSL



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Accreditation No.: **SCS 0108**

Client: **Auden**

Certificate No: **D5GHzV2-1040_Jun16**

CALIBRATION CERTIFICATE

Object: **D5GHzV2 - SN:1040**

Calibration procedure(s): **QA CAL-22.v2
Calibration procedure for dipole validation kits between 3-6 GHz**

Calibration date: **June 17, 2016**

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	06-Apr-16 (No. 217-02286/02289)	Apr-17
Power sensor NRP-Z91	SN: 103244	06-Apr-16 (No. 217-02288)	Apr-17
Power sensor NRP-Z91	SN: 103245	06-Apr-16 (No. 217-02289)	Apr-17
Reference 20 dB Attenuator	SN: 5056 (20k)	05-Apr-16 (No. 217-02292)	Apr-17
Type-N mismatch combination	SN: 5047.2 / 06327	05-Apr-16 (No. 217-02295)	Apr-17
Reference Probe EX3DV4	SN: 3503	31-Dec-15 (No. EX3-3503_Dec15)	Dec-16
DAE4	SN: 601	30-Dec-15 (No. DAE4-601_Dec15)	Dec-16
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter EPM-442A	SN: 0837480704	07-Oct-15 (No. 217-02222)	In house check: Oct-16
Power sensor HP 8461A	SN: U53729E7B3	07-Oct-15 (No. 217-02222)	In house check: Oct-16
Power sensor HP 8461A	SN: MY41032917	07-Oct-15 (No. 217-02223)	In house check: Oct-16
RF generator B&S SMT-00	SN: 100872	15-Jun-15 (In house check: Jun-15)	In house check: Oct-16
Network Analyzer HP 8753E	SN: U537390585	19-Oct-15 (In house check: Oct-15)	In house check: Oct-16

Calibrated by:	Name: Jeton Kastrioti	Function: Laboratory Technician	Signature:
Approved by:	Name: Kaja Pekovic	Function: Technical Manager	Signature:

Issued: June 20, 2016

Certificate No: **D5GHzV2-1040_Jun16**

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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 62209-2, "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%.

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.8.8
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 5500 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	4.66 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	34.8 ± 6 %	4.54 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 ³ (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	7.68 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	75.2 W/kg ± 19.9 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.21 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	21.9 W/kg ± 19.5 % (k=2)

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	34.6 ± 6 %	4.64 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 ³ (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	8.24 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	81.7 W / kg ± 19.9 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.36 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	23.3 W/kg ± 19.5 % (k=2)

Head TSL parameters at 5500 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.6	4.98 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	34.3 ± 6 %	4.83 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL at 5500 MHz

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	7.93 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	78.6 W/kg ± 19.9 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.26 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	22.4 W/kg ± 19.5 % (k=2)

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	34.2 ± 5 %	4.93 mho/m ± 5 %
Head TSL temperature change during test	< 0.5 °C	—	—

SAR result with Head TSL at 5600 MHz

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	8.12 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	80.5 W/kg ± 19.9 % (k=2)

SAR averaged over 10 cm ³ (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	22.9 W/kg ± 19.5 % (k=2)

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	33.9 ± 6 %	5.14 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 ³ (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	7.66 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	75.6 W/kg ± 19.9 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	Condition	
SAR measured	100 mW input power	2.19 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	21.7 W/kg ± 19.5 % (k=2)

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	47.1 ± 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 ³ (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	7.35 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	72.9 W/kg ± 19.9 % (k=2)

SAR averaged over 10 cm ³ (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)

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	46.9 ± 6 %	5.53 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 ³ (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	7.70 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	76.4 W/kg ± 19.9 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.16 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	21.4 W/kg ± 19.5 % (k=2)

Body TSL parameters at 5500 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	48.6	5.65 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	46.5 ± 6 %	5.80 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL at 5500 MHz

SAR averaged over 1 cm ³ (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	7.92 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	78.6 W/kg ± 19.9 % (k=2)

SAR averaged over 10 cm ³ (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 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	46.3 ± 6 %	5.95 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 ³ (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	7.90 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	78.4 W/kg ± 19.9 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.21 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	21.9 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	46.0 ± 6 %	6.23 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 ³ (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	7.58 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	75.2 W/kg ± 19.9 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.10 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	20.8 W/kg ± 19.5 % (k=2)

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL at 5200 MHz

Impedance, transformed to feed point	50.2 Ω - 8.5 j Ω
Return Loss	- 21.4 dB

Antenna Parameters with Head TSL at 5300 MHz

Impedance, transformed to feed point	47.8 Ω - 3.3 j Ω
Return Loss	- 27.8 dB

Antenna Parameters with Head TSL at 5500 MHz

Impedance, transformed to feed point	50.0 Ω - 5.9 j Ω
Return Loss	- 24.6 dB

Antenna Parameters with Head TSL at 5600 MHz

Impedance, transformed to feed point	56.4 Ω - 3.3 j Ω
Return Loss	- 23.3 dB

Antenna Parameters with Head TSL at 5800 MHz

Impedance, transformed to feed point	54.3 Ω - 2.3 j Ω
Return Loss	- 26.6 dB

Antenna Parameters with Body TSL at 5200 MHz

Impedance, transformed to feed point	50.7 Ω - 7.0 j Ω
Return Loss	- 23.2 dB

Antenna Parameters with Body TSL at 5300 MHz

Impedance, transformed to feed point	48.6 Ω - 1.6 j Ω
Return Loss	- 33.4 dB

Antenna Parameters with Body TSL at 5500 MHz

Impedance, transformed to feed point	50.3 Ω - 4.4 j Ω
Return Loss	- 27.2 dB

Antenna Parameters with Body TSL at 5600 MHz

Impedance, transformed to feed point	57.9 Ω - 2.3 $j\Omega$
Return Loss	- 22.4 dB

Antenna Parameters with Body TSL at 5800 MHz

Impedance, transformed to feed point	54.6 Ω - 0.7 $j\Omega$
Return Loss	- 27.0 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.203 ns
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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 30, 2005

DASY5 Validation Report for Head TSL

Date: 17.06.2016

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN: 1040

Communication System: UID 0 - CW; Frequency: 5200 MHz, Frequency: 5300 MHz, Frequency: 5500 MHz, Frequency: 5600 MHz, Frequency: 5800 MHz
Medium parameters used: $f = 5200$ MHz; $\sigma = 4.54$ S/m; $\epsilon_r = 34.8$; $\rho = 1000$ kg/m³, Medium parameters used: $f = 5300$ MHz; $\sigma = 4.64$ S/m; $\epsilon_r = 34.6$; $\rho = 1000$ kg/m³, Medium parameters used: $f = 5500$ MHz; $\sigma = 4.83$ S/m; $\epsilon_r = 34.3$; $\rho = 1000$ kg/m³, Medium parameters used: $f = 5600$ MHz; $\sigma = 4.93$ S/m; $\epsilon_r = 34.2$; $\rho = 1000$ kg/m³, Medium parameters used: $f = 5800$ MHz; $\sigma = 5.14$ S/m; $\epsilon_r = 33.9$; $\rho = 1000$ kg/m³
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN3503; ConvF(5.59, 5.59, 5.59); Calibrated: 31.12.2015, ConvF(5.25, 5.25, 5.25); Calibrated: 31.12.2015, ConvF(5.18, 5.18, 5.18); Calibrated: 31.12.2015, ConvF(4.99, 4.99, 4.99); Calibrated: 31.12.2015, ConvF(4.95, 4.95, 4.95); Calibrated: 31.12.2015;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 30.12.2015
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7372)

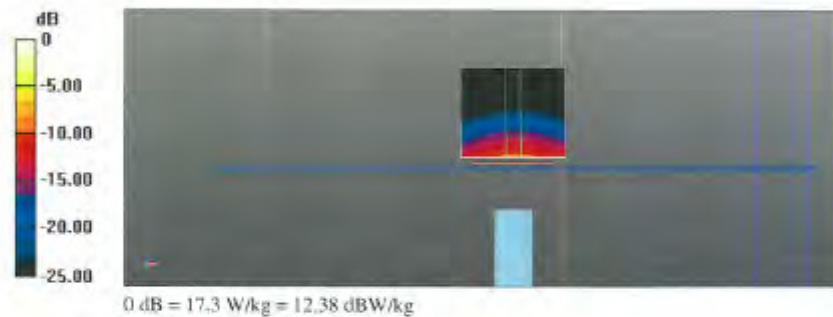
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Reference Value = 70.41 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 27.7 W/kg
SAR(1 g) = 7.68 W/kg; SAR(10 g) = 2.21 W/kg
Maximum value of SAR (measured) = 17.3 W/kg

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 = 72.35 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 30.6 W/kg
SAR(1 g) = 8.24 W/kg; SAR(10 g) = 2.36 W/kg
Maximum value of SAR (measured) = 18.8 W/kg

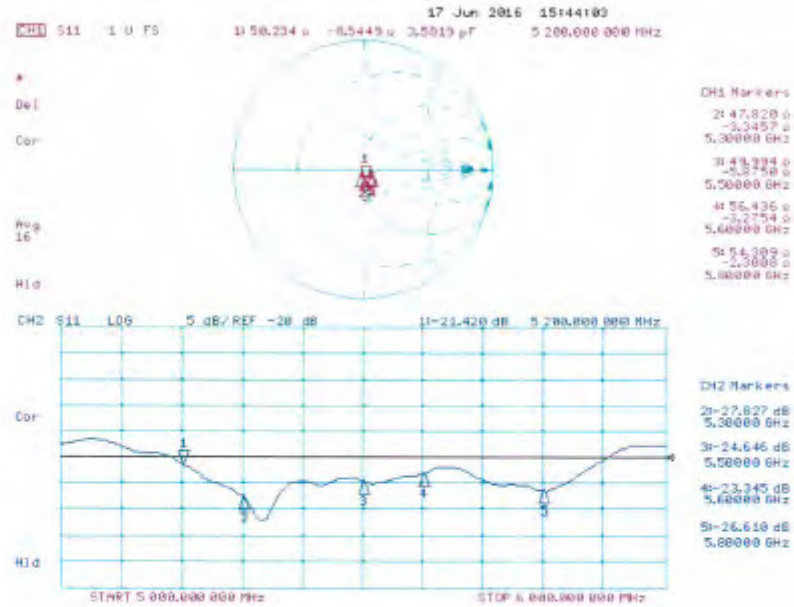
Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5500 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 70.02 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 30.8 W/kg
SAR(1 g) = 7.93 W/kg; SAR(10 g) = 2.26 W/kg
Maximum value of SAR (measured) = 18.5 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 = 71.08 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 31.5 W/kg
SAR(1 g) = 8.12 W/kg; SAR(10 g) = 2.32 W/kg
Maximum value of SAR (measured) = 19.0 W/kg

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 = 67.92 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 31.4 W/kg
SAR(1 g) = 7.66 W/kg; SAR(10 g) = 2.19 W/kg
Maximum value of SAR (measured) = 18.4 W/kg



Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 16.06.2016

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN: 1040

Communication System: UID 0 - CW; Frequency: 5200 MHz, Frequency: 5300 MHz, Frequency: 5500 MHz, Frequency: 5600 MHz, Frequency: 5800 MHz
Medium parameters used: $f = 5200$ MHz; $\sigma = 5.41$ S/m; $\epsilon_r = 47.1$; $\rho = 1000$ kg/m³, Medium parameters used: $f = 5300$ MHz; $\sigma = 5.53$ S/m; $\epsilon_r = 46.9$; $\rho = 1000$ kg/m³, Medium parameters used: $f = 5500$ MHz; $\sigma = 5.8$ S/m; $\epsilon_r = 46.5$; $\rho = 1000$ kg/m³, Medium parameters used: $f = 5600$ MHz; $\sigma = 5.95$ S/m; $\epsilon_r = 46.3$; $\rho = 1000$ kg/m³, Medium parameters used: $f = 5800$ MHz; $\sigma = 6.23$ S/m; $\epsilon_r = 46$; $\rho = 1000$ kg/m³
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN3503; ConvF(4.99, 4.99, 4.99); Calibrated: 31.12.2015, ConvF(4.75, 4.75, 4.75); Calibrated: 31.12.2015, ConvF(4.4, 4.4, 4.4); Calibrated: 31.12.2015, ConvF(4.35, 4.35, 4.35); Calibrated: 31.12.2015, ConvF(4.27, 4.27, 4.27); Calibrated: 31.12.2015;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 30.12.2015
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7372)

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 = 66.34 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 27.4 W/kg
SAR(1 g) = 7.35 W/kg; SAR(10 g) = 2.07 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 = 68.02 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 29.2 W/kg
SAR(1 g) = 7.7 W/kg; SAR(10 g) = 2.16 W/kg
Maximum value of SAR (measured) = 17.6 W/kg

Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5500 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 67.81 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 31.7 W/kg
SAR(1 g) = 7.92 W/kg; SAR(10 g) = 2.19 W/kg
Maximum value of SAR (measured) = 18.6 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 = 67.28 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 32.5 W/kg

SAR(1 g) = 7.9 W/kg; SAR(10 g) = 2.21 W/kg

Maximum value of SAR (measured) = 18.6 W/kg

Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5800 MHz/Zoom Scan,

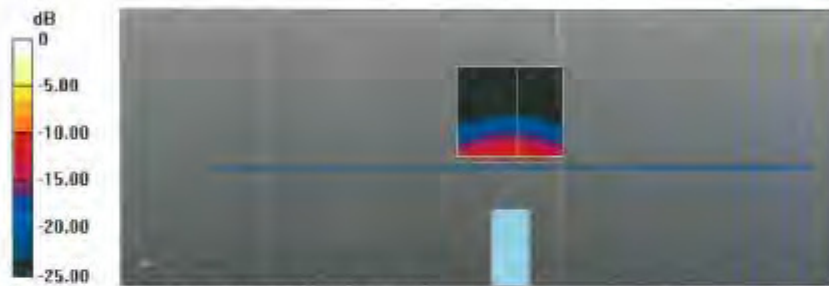
dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 65.14 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 32.9 W/kg

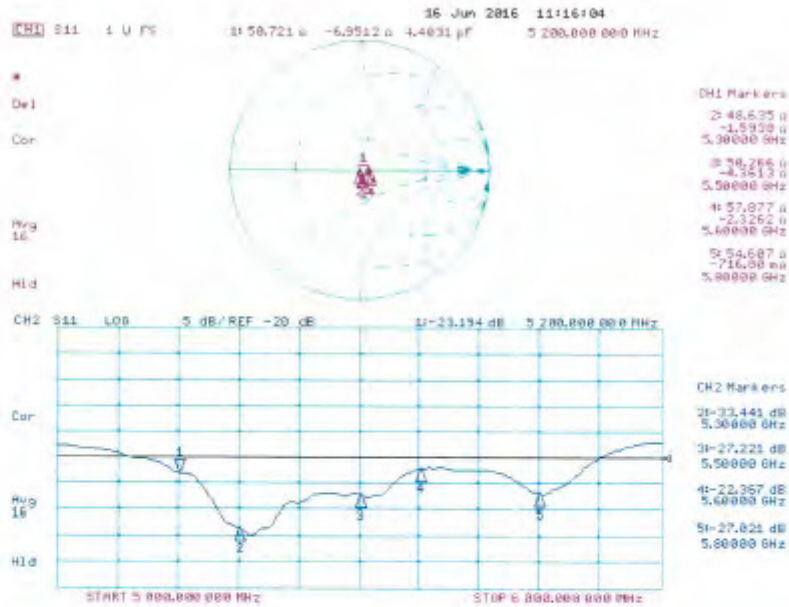
SAR(1 g) = 7.58 W/kg; SAR(10 g) = 2.1 W/kg

Maximum value of SAR (measured) = 18.3 W/kg



0 dB = 16.8 W/kg = 12.25 dBW/kg

Impedance Measurement Plot for Body TSL



- End of 1st part of report -