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SAR TEST REPORT





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

Tablet Computer Equipment Under Test

FZ-L1 **Marketing Name**

Panasonic Brand Name FZ-L1AA Model No.

Panasonic Corporation of North America **Company Name**

Two Riverfront Plaza, 9th Floor, Newark, NJ 07102-5490 **Company Address**

IEEE/ANSI C95.1-1992, IEEE 1528-2013, **Standards**

> KDB616217D04v01r02,KDB865664D01v01r04, KDB865664D02v01r02,KDB941225D01v03r01, KDB941225D05v02r05,KDB447498D01v06,

KDB248227D01v02r02

FCC ID ACJFZL1B Nov. 15, 2018 **Date of Receipt**

Date of Test(s) Nov. 25, 2018 ~ Dec. 11, 2018

Date of Issue Dec. 19, 2018

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

Remarks:

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

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

Clerk / Ruby Ou	Engineer / Bond Tsai	Asst. Manager / John Yeh		
Kuby Ou	BondIsai	John Teh		

Date: Dec. 19, 2018

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Revision History

Report Number	Revision	Description	Issue Date
E5/2018/B0009	Rev.00	Initial creation of document	Dec. 13, 2018
E5/2018/B0009	Rev.01	Modify page 44	Dec. 19, 2018

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1. General Information

1.1 Testing Laboratory

SGS Taiwan Ltd. Electronics & Communication Laboratory			
No. 2, Keji 1st Rd., Guishan Township, Taoyuan County, 33383, Taiwan			
Tel	+886-2-2299-3279		
Fax	+886-2-2298-0488		
Internet	http://www.tw.sgs.com/		

1.2 Details of Applicant

Company Name	Panasonic Corporation of North America
Company Address	Two Riverfront Plaza, 9th Floor, Newark, NJ 07102-5490

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1.3 Description of EUT

Description of Lot	T				
Equipment Under Test	Tablet Computer				
Marketing Name	FZ-L1				
Brand Name	Panasonic				
Model No.	FZ-L1AA				
FCC ID	ACJFZL1B				
Mode of Operation		⊠HSPA	\ +		
	WCDMA		1		
Duty Coals	LTE FDD		1		
Duty Cycle	WLAN802.11 a/b/g/n(20M/40M)	1			
	Bluetooth		1		
	WCDMA Band II	1850	_	1910	
	WCDMA Band V	824	_	849	
	LTE FDD Band 2	1850	_	1910	
	LTE FDD Band 4	1710	_	1755	
	LTE FDD Band 5	824	_	849	
TX Frequency Range	LTE FDD Band 12	699	_	716	
(MHz)	LTE FDD Band 13	777	_	787	
	WLAN802.11 b/g/n(20M)	2412	_	2462	
	WLAN802.11 a/n(20M) 5.2G	5180	_	5240	
	WLAN802.11 n(40M) 5.2G	5190	_	5230	
	WLAN802.11 a/n(20M) 5.3G	5260	_	5320	
	WLAN802.11 n(40M) 5.3G	5270	_	5310	
	WLAN802.11 a/n (20M) 5.6G	5500	_	5720	

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TX Frequency Range (MHz)	WLAN802.11 n (40M) 5.6G	5510	_	5710
	WLAN802.11 a/n(20M) 5.8G	5745	_	5825
(IVIITIZ)	WLAN802.11 n(40M) 5.8G	5710	_	5795
	Bluetooth	2402	_	2480
	WCDMA Band II	9262	_	9538
	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 12	23017	_	23173
	LTE FDD Band 13	23205	_	23255
	WLAN802.11 b/g/n(20M)	1	_	11
Channel Number (ARFCN)	WLAN802.11 a/n(20M) 5.2G	36	_	48
(viii ori)	WLAN802.11 n(40M) 5.2G	38	_	46
	WLAN802.11 a/n(20M) 5.3G	52	_	64
	WLAN802.11 n(40M) 5.3G	54	_	62
	WLAN802.11 a/n (20M) 5.6G	100	_	144
	WLAN802.11 n (40M) 5.6G	102	_	142
	WLAN802.11 a/n(20M) 5.8G	149	_	165
	WLAN802.11 n(40M) 5.8G	142	_	159
	Bluetooth	0	_	78

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Max. SAR (1 g) (Unit: W/Kg)					
Band	Measured	Reported	Channel	Position	
WCDMA Band II	0.98	1.15	9538	Back side	
WCDMA Band V	0.96	1.26	4233	Back side	
LTE FDD Band 2	0.99	1.11	18900	Back side	
LTE FDD Band 4	1.01	1.19	20050	Back side	
LTE FDD Band 5	1.13	1.13	20525	Back side	
LTE FDD Band 12	1.26	1.27	23130	Back side	
LTE FDD Band 13	1.18	1.20	23230	Back side	

Max. SAR (1 g) (Unit: W/Kg)					
Band	Measured	Reported	Channel	Position	
WLAN802.11 b	0.29	0.41	11	Bottom side	
Bluetooth (GFSK)	0.04	0.06	0	Bottom side	
WLAN802.11 n(40M) 5.2G	0.19	0.27	46	Left side	
WLAN802.11 a 5.3G	0.64	0.96	60	Left side	
WLAN802.11 a 5.6G	0.65	0.96	136	Left side	
WLAN802.11 a 5.8G	0.75	1.12	165	Back side	

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

Unit: dBm

Offic. abili				
Band		WCDMA II		
	TX Channel	9262	9400	9538
Fre	equency (MHz)	1852.4	1880	1907.6
Max. Rated Avg. I	Power+Max. Tolerance (dBm)		23.20	
3GPP Rel 99	RMC 12.2Kbps	22.34	22.24	22.28
	HSDPA Subtest-1	21.92	22.01	22.23
3GPP Rel 5	HSDPA Subtest-2	21.53	21.45	21.61
SGFF Rei S	HSDPA Subtest-3	21.53	21.47	21.65
	HSDPA Subtest-4	21.52	21.47	21.64
	HSUPA Subtest-1	21.33	21.36	21.94
	HSUPA Subtest-2	20.44	20.48	20.76
3GPP Rel 6	HSUPA Subtest-3	20.48	20.64	20.75
	HSUPA Subtest-4	20.79	20.93	21.15
	HSUPA Subtest-5	22.00	22.00	22.10
3GPP Rel 7	HSPA+ Subtest-1	21.33	21.25	21.29

Band		1	WCDMA V		
	TX Channel	4132	4183	4233	
Fre	equency (MHz)	826.4	836.6	846.6	
Max. Rated Avg. I	Power+Max. Tolerance (dBm)		23.00		
3GPP Rel 99	RMC 12.2Kbps	21.87	21.79	21.80	
	HSDPA Subtest-1	20.80	20.78	20.73	
3GPP Rel 5	HSDPA Subtest-2	20.77	20.68	20.76	
SGFF Rei S	HSDPA Subtest-3	20.36	20.29	20.26	
	HSDPA Subtest-4	20.33	20.20	20.27	
	HSUPA Subtest-1	20.77	20.91	20.69	
	HSUPA Subtest-2	20.34	20.23	20.25	
3GPP Rel 6	HSUPA Subtest-3	20.76	20.73	20.69	
	HSUPA Subtest-4	20.81	20.74	20.72	
	HSUPA Subtest-5	20.74	20.72	20.68	
3GPP Rel 7	HSPA+ Subtest-1	20.88	20.77	20.81	

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

Unit: dRm

Unit: dBm					
Band		WCDMA II			
	TX Channel	9262	9400	9538	
Fre	equency (MHz)	1852.4	1880	1907.6	
Max. Rated Avg. I	Power+Max. Tolerance (dBm)		18.50		
3GPP Rel 99	RMC 12.2Kbps	17.67	17.68	17.79	
	HSDPA Subtest-1	17.46	17.15	17.57	
3GPP Rel 5	HSDPA Subtest-2	17.28	17.50	17.12	
SGPP Rei 5	HSDPA Subtest-3	17.66	17.46	17.62	
	HSDPA Subtest-4	17.26	17.37	17.15	
	HSUPA Subtest-1	17.25	17.67	17.41	
	HSUPA Subtest-2	17.52	17.13	17.06	
3GPP Rel 6	HSUPA Subtest-3	17.59	17.42	17.24	
	HSUPA Subtest-4	17.35	17.22	17.56	
	HSUPA Subtest-5	17.12	17.04	17.77	
3GPP Rel 7	HSPA+ Subtest-1	17.55	17.58	17.61	

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	βο	βd	β _d (SF)	β _o /β _d	β _{HS} (Note1)	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	β _{ed} 1: 47/15 β _{ed} 2: 47/15	4 4	2	2.0	1.0	15	92
4	2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71
5	15/15	15/15	64	15/15	30/15	24/15	134/15	4	1	1.0	0.0	21	81

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LTE FDD Band 2 / Band 4 / Band 5 / Band 12 / Band 13 power table (Full power):

BW(Mhz) Modulation RB Size RB Offset Frequency (MHz) Channel power (dBm) Conducted power (dBm) Target (dBm) Conducted power (dBm) Tolerance (dBm) Conducted power (dBm) Conduc					FDD Band 2	., Sand	. 5 65 11 61	140.00	ponoi
APSK 1 RB	BW(Mhz)	Modulation	RB Size	RB Offset		Channel		Power + Max. Tolerance	Allowed per
1 RB					1860	18700	23.02	24	0
1 RB				0	1880	18900	23.06	24	0
APSK OPSK					1900	19100	22.98	24	0
20 1900					1860	18700	23.05	24	0
QPSK QPSK 0 1880 18900 22.94 24 0 1900 19100 23.05 24 0 1880 18900 22.98 23 0-1 1880 18900 22.08 23 0-1 1900 19100 22.14 23 0-1 1900 19100 22.14 23 0-1 1900 19100 22.14 23 0-1 1900 19100 22.14 23 0-1 1900 19100 22.12 23 0-1 1900 19100 22.12 23 0-1 1900 19100 22.12 23 0-1 1900 19100 22.12 23 0-1 1900 19100 22.10 23 0-1 1900 19100 22.10 23 0-1 1900 19100 22.10 23 0-1 1900 19100 22.11 23 0-1 1860 18700 22.05 23 0-1 1900 19100 22.10 23 0-1 1900 19100 22.11 23 0-1 1900 19100 22.15 23 0-1 1860 18700 22.85 23 0-1 1860 18700 22.10 23 0-1 1900 19100 22.15 23 0-1 1900 19100 22.15 23 0-1 1900 19100 22.15 23 0-1 1900 19100 22.15 23 0-1 1860 18700 22.35 23 0-1 1900 19100 22.15 23 0-1 1860 18700 22.35 23 0-1 1860 18700 22.35 23 0-1 1860 18700 22.35 23 0-1 1860 18700 22.10 23 0-1 1900 19100 22.15 23 0-1 1900 19100 22.15 23 0-1 1860 18700 22.35 23 0-1 1860 18700 22.35 23 0-1 1860 18700 22.35 23 0-1 1860 18700 22.06 23 0-1 1860 18700 22.06 23 0-1 1860 18700 22.06 23 0-1 1860 18700 22.06 22 0-2 1860 18700 20.89 22 0-2 1860 18700 20.89 22 0-2 1860 18700 20.89 22 0-2 1860 18700 20.99 22 0-2 1860 18700 20.99 22 0-2 1860 18700 20.99 22 0-2 1860 18700 20.99 22 0-2 1860 18700 20.99 22 0-2 1900 19100 21.13 22 0-2 1860 18700 20.99 22 0-2 1900 19100 21.10 22.00 20.9			1 RB	50	1880	18900	23.05	24	0
QPSK QPSK 0 1880 18900 22.94 24 0 1900 19100 23.05 24 0 1860 18700 21.99 23 0-1 1860 18900 22.08 23 0-1 1900 19100 22.14 23 0-1 1860 18700 21.88 23 0-1 1900 19100 22.12 23 0-1 1900 19100 22.12 23 0-1 1860 18700 21.88 23 0-1 1860 18700 21.88 23 0-1 1860 18700 21.88 23 0-1 1860 18700 22.10 23 0-1 1900 19100 22.11 23 0-1 1900 19100 22.11 23 0-1 1900 19100 22.10 23 0-1 1900 19100 22.11 23 0-1 1900 19100 22.11 23 0-1 1900 19100 22.15 23 0-1 1900 19100 22.18 23 0-1 1900 19100 22.18 23 0-1 1900 19100 22.18 23 0-1 1900 19100 22.18 23 0-1 1860 18700 22.15 23 0-1 1900 19100 22.15 23 0-1 1900 19100 22.15 23 0-1 1900 19100 22.15 23 0-1 1900 19100 22.44 23 0-1 1900 19100 22.44 23 0-1 1900 19100 22.44 23 0-1 1900 19100 22.44 23 0-1 1860 18700 22.26 23 0-1 1900 19100 22.01 23 0-1 1860 18700 22.26 23 0-1 1860 18700 20.89 22 0-2 1860 18700 20.89 22 0-2 1860 18700 20.87 22 0-2 1860 18700 20.87 22 0-2 1860 18700 20.99 22 0-2 1860 18700 20.79 22 0-2 1860 18700 20.79 22 0-2 1860 18700 20.79 22 0-2 1860 18700 20.99 22 0-2 1900 19100 21.06 22 0-2 1900 19100 21.06 22 0-2 1900 19100 21.06 22 0-2 1900 19100 21.06 22 0-2 1900 19100 21.06 22 0-2 1900 19100 20.99 22 0-2					1900	19100	23.31	24	0
QPSK QPSK 0					1860	18700	22.70	24	0
OPSK O				99	1880	18900	22.94	24	0
OPSK					1900	19100	23.05	24	0
100RB					1860	18700	21.99	23	0-1
20 1860		QPSK		0	1880	18900	22.08	23	0-1
20 1880 18900 22.07 23 0-1					1900	19100	22.14	23	0-1
1900 19100 22.12 23 0-1 1860 18700 21.88 23 0-1 1880 18900 22.11 23 0-1 1860 18700 22.05 23 0-1 1860 18700 22.05 23 0-1 1860 18700 22.10 23 0-1 1860 18700 22.10 23 0-1 1900 19100 22.10 23 0-1 1900 19100 22.18 23 0-1 1900 19100 22.18 23 0-1 1900 19100 22.18 23 0-1 1880 18900 21.77 23 0-1 1900 19100 22.15 23 0-1 1900 19100 22.15 23 0-1 1900 19100 22.15 23 0-1 1900 19100 22.15 23 0-1 1900 19100 22.15 23 0-1 1900 19100 22.16 23 0-1 1860 18700 22.35 23 0-1 1860 18700 22.36 23 0-1 1900 19100 22.44 23 0-1 1860 18700 22.26 23 0-1 1900 19100 22.01 23 0-1 1900 19100 22.01 23 0-1 1900 19100 22.01 23 0-1 1900 19100 22.01 23 0-1 1860 18700 20.89 22 0-2 1900 19100 21.13 22 0-2 1860 18700 20.89 22 0-2 1900 19100 21.11 22 0-2 1860 18700 20.87 22 0-2 1860 18700 20.87 22 0-2 1860 18700 20.99 22 0-2 1860 18700 20.99 22 0-2 1860 18700 20.99 22 0-2 1860 18700 20.99 22 0-2 1860 18700 20.99 22 0-2					1860	18700	21.86	23	0-1
20 1860			50 RB	25	1880	18900	22.07	23	0-1
20 1880 18900 22.11 23 0-1 1900 19100 22.10 23 0-1 1860 18700 22.05 23 0-1 1880 18900 22.10 23 0-1 1880 18900 22.10 23 0-1 1900 19100 22.18 23 0-1 1860 18700 22.11 23 0-1 1860 18700 22.11 23 0-1 1900 19100 22.15 23 0-1 1900 19100 22.15 23 0-1 1900 19100 22.35 23 0-1 1860 18700 22.35 23 0-1 1900 19100 22.44 23 0-1 1900 19100 22.44 23 0-1 1900 19100 22.26 23 0-1 1900 19100 22.01 23 0-1 1900 19100 22.01 23 0-1 1900 19100 22.01 23 0-1 1900 19100 22.01 23 0-1 1900 19100 22.01 23 0-1 1900 19100 21.06 22 0-2 1860 18700 20.87 22 0-2 1860 18700 20.87 22 0-2 1860 18700 20.87 22 0-2 1860 18700 20.87 22 0-2 1860 18700 20.97 22 0-2 1860 18700 20.98 22 0-2 1900 19100 21.06 22 0-2 1900 19100 21.06 22 0-2 1860 18700 20.98 22 0-2 1860 18700 20.98 22 0-2 1860 18700 20.98 22 0-2 1860 18700 20.98 22 0-2 1860 18700 20.98 22 0-2 1860 18700 20.99 22 0-2 1860 18700 20.99 22 0-2 1860 18700 20.99 22 0-2 1860 18700 20.99 22 0-2 1860 18700 20.99 22 0-2 1860 18700 20.99 22 0-2 1860 18700 20.99 22 0-2 1860 18700 20.99 22 0-2 1860 18800 18900 20.99 22 0-2 1860 18800 18900 20.99 22 0-2 1860 18700 20.99 22 0-2 1860 18800 18900 20.99 22 0-2 1860 18800 18900 20.99 22 0-2 1860 18800 20.99 22 0-2 1860 18800 20.99 22 0-2 1860 18800 20.99 22 0-2 1860 18800 20.99 22 0-2 1860 18800 20.99 22 0-2 1860 18800 20.99 22 0-2 1860 18600 20.99 22 0-2 1860 18600 20.99 22 0-2 1860 18600 20.99 22					1900	19100	22.12	23	0-1
100RB					1860	18700	21.88	23	0-1
100RB				50	1880	18900	22.11	23	0-1
100RB					1900	19100	22.10	23	0-1
1900 19100 22.18 23 0-1 1860 18700 22.11 23 0-1 1880 18900 21.77 23 0-1 1900 19100 22.15 23 0-1 1900 19100 22.15 23 0-1 1880 18900 21.77 23 0-1 1880 18900 21.77 23 0-1 1880 18900 21.77 23 0-1 1900 19100 22.44 23 0-1 1880 18700 22.26 23 0-1 1880 18900 21.70 23 0-1 1900 19100 22.01 23 0-1 1900 19100 22.01 23 0-1 1900 19100 22.01 23 0-1 1880 18900 21.06 22 0-2 1900 19100 21.13 22 0-2 1860 18700 20.89 22 0-2 1860 18700 20.87 22 0-2 1860 18700 20.87 22 0-2 1860 18700 20.87 22 0-2 1900 19100 21.11 22 0-2 1860 18700 20.79 22 0-2 1860 18700 20.79 22 0-2 1860 18700 20.79 22 0-2 1860 18700 20.79 22 0-2 1860 18700 20.79 22 0-2 1860 18700 20.79 22 0-2 1860 18700 20.79 22 0-2 1860 18700 20.99 22 0-2 1860 18700 20.98 22 0-2				•	1860	18700	22.05	23	0-1
1 RB 1860 18700 22.11 23 0-1 1880 18900 21.77 23 0-1 1900 19100 22.15 23 0-1 1860 18700 22.35 23 0-1 1860 18700 22.35 23 0-1 1900 19100 22.44 23 0-1 1900 19100 22.44 23 0-1 1900 19100 22.44 23 0-1 1860 18700 22.26 23 0-1 1900 19100 22.01 23 0-1 1900 19100 22.01 23 0-1 1900 19100 22.01 23 0-1 1860 18700 20.89 22 0-2 1860 18700 20.89 22 0-2 1900 19100 21.13 22 0-2 1900 19100 21.13 22 0-2 1860 18700 20.87 22 0-2 1900 19100 21.11 22 0-2 1900 19100 21.11 22 0-2 1900 19100 21.11 22 0-2 1900 19100 21.06 22 0-2 1900 19100 21.06 22 0-2 1900 19100 21.06 22 0-2 1900 19100 21.06 22 0-2 1860 18700 20.98 22 0-2 1860 18700 20.98 22 0-2 1860 18700 20.98 22 0-2 1860 18700 20.98 22 0-2 1860 18700 20.98 22 0-2 1860 18700 20.98 22 0-2 1860 18700 20.99 22 0-2 1860 18700 20.99 22 0-2 1860 18700 20.99 22 0-2 1860 18700 20.99 22 0-2 1860 18700 20.99 22 0-2 1860 18700 20.99 22 0-2 1860 18700 20.99 22 0-2 1860 18700 20.99 22 0-2 1860 18700 20.99 22 0-2 1860 18700 20.99 22 0-2 1860 18700 20.99 22 0-2 1860 18700 20.99 22 0-2 1860 18700 20.99 22 0-2 1800 18700 20.99 22 0-2 1800 18700 20.99 22 0-2 1800 18700 20.99 22 0-2 1800 18700 20.99 22 0-2 1800 18700 20.99 22 0-2 1800 18700 20.99 22 0-2 1800 18700 20.99 22 0-2 1800 18700 20.99 22 0-2 1800 18700 20.99 22 0-2 1800 18700 20.99 22 0-2 20.20			100RB		1880	18900	22.10	23	0-1
1 RB	20				1900	19100	22.18	23	0-1
1 RB	20				1860	18700	22.11	23	0-1
1 RB				0	1880	18900	21.77	23	0-1
1 RB					1900	19100	22.15	23	0-1
16-QAM 1900 19100 22.44 23 0-1 1860 18700 22.26 23 0-1 1900 19100 22.170 23 0-1 1900 19100 22.01 23 0-1 1900 19100 22.01 23 0-1 1860 18700 20.89 22 0-2 1900 19100 21.13 22 0-2 1900 19100 21.13 22 0-2 1860 18700 20.87 22 0-2 1860 18700 20.87 22 0-2 1900 19100 21.11 22 0-2 1900 19100 21.11 22 0-2 1900 19100 21.11 22 0-2 1900 19100 21.06 22 0-2 1900 19100 21.06 22 0-2 1900 19100 21.06 22 0-2 1860 18700 20.79 22 0-2 1860 18700 20.79 20 20 20 20 20 20 20 20 20 2					1860	18700	22.35	23	0-1
1860 18700 22.26 23 0-1 1880 18900 21.70 23 0-1 1900 19100 22.01 23 0-1 1860 18700 20.89 22 0-2 1880 18900 21.06 22 0-2 1900 19100 21.13 22 0-2 1860 18700 20.87 22 0-2 1860 18700 20.87 22 0-2 1880 18900 21.03 22 0-2 1900 19100 21.11 22 0-2 1900 19100 21.11 22 0-2 1860 18700 20.79 22 0-2 1860 18700 20.79 22 0-2 1900 19100 21.06 22 0-2 1860 18700 20.79 22 0-2 1860 18700 20.79 22 0-2 1860 18700 20.79 22 0-2 1860 18700 20.99 22 0-2 1860 18700 20.98 22 0-2			1 RB	50	1880	18900	21.77	23	0-1
16-QAM 199 1880 18900 21.70 23 0-1 1900 19100 22.01 23 0-1 23 0-1 1860 18700 20.89 22 0-2 1900 19100 21.13 22 0-2 1900 19100 21.13 22 0-2 1900 19100 21.13 22 0-2 1900 19100 21.11 22 0-2 1900 19100 21.11 22 0-2 1900 19100 21.11 22 0-2 1900 19100 21.11 22 0-2 1900 19100 21.11 22 0-2 1860 18700 20.79 22 0-2 1900 19100 21.09 22 0-2 1900 19100 21.06 22 0-2 1900 19100 21.06 22 0-2 1900 19100 21.09 22 0-2 1860 18700 20.99 22 0-2					1900	19100	22.44	23	0-1
16-QAM 1900 19100 22.01 23 0-1 1860 18700 20.89 22 0-2 1900 19100 21.06 22 0-2 1900 19100 21.13 22 0-2 1860 18700 20.87 22 0-2 1860 18700 20.87 22 0-2 1900 19100 21.11 22 0-2 1900 19100 21.11 22 0-2 1860 18700 20.79 22 0-2 1860 18700 20.79 22 0-2 1860 18700 20.79 22 0-2 1900 19100 21.06 22 0-2 1900 19100 21.06 22 0-2 1860 18700 20.98 22 0-2 1860 18700 20.98 22 0-2					1860	18700	22.26	23	0-1
16-QAM 0 1860 18700 20.89 22 0-2 1900 19100 21.06 22 0-2 1900 19100 21.13 22 0-2 1860 18700 20.87 22 0-2 1860 18700 20.87 22 0-2 1880 18900 21.03 22 0-2 1900 19100 21.11 22 0-2 1860 18700 20.79 22 0-2 1860 1880 18900 21.09 22 0-2 1900 19100 21.16 22 0-2 1900 19100 21.06 22 0-2 1860 18700 20.99 22 0-2 1860 18700 20.99 22 0-2				99	1880	18900	21.70	23	0-1
16-QAM 1880 18900 21.06 22 0-2 1900 19100 21.13 22 0-2 1860 18700 20.87 22 0-2 1880 18900 21.03 22 0-2 1900 19100 21.11 22 0-2 1860 18700 20.79 22 0-2 1880 18900 21.09 22 0-2 1900 19100 21.06 22 0-2 1900 19100 21.06 22 0-2 1860 18700 20.98 22 0-2 1880 18900 20.99 22 0-2					1900	19100	22.01	23	0-1
1900 19100 21.13 22 0-2 1860 18700 20.87 22 0-2 1880 18900 21.03 22 0-2 1900 19100 21.11 22 0-2 1860 18700 20.79 22 0-2 1880 18900 21.09 22 0-2 1900 19100 21.06 22 0-2 1860 18700 20.98 22 0-2 1860 18700 20.98 22 0-2 1880 18900 20.99 22 0-2					1860	18700	20.89	22	0-2
50 RB 25		16-QAM		0	1880	18900	21.06	22	0-2
50 RB 25 1880 18900 21.03 22 0-2 1900 19100 21.11 22 0-2 1860 18700 20.79 22 0-2 1880 18900 21.09 22 0-2 1900 19100 21.06 22 0-2 1860 18700 20.98 22 0-2 1860 18700 20.98 22 0-2 1880 18900 20.99 22 0-2					1900	19100	21.13	22	0-2
1900 19100 21.11 22 0-2 1860 18700 20.79 22 0-2 1880 18900 21.09 22 0-2 1900 19100 21.06 22 0-2 1860 18700 20.98 22 0-2 100RB 1880 18900 20.99 22 0-2					1860	18700	20.87	22	0-2
1860 18700 20.79 22 0-2 1880 18900 21.09 22 0-2 1900 19100 21.06 22 0-2 1860 18700 20.98 22 0-2 100RB 1880 18900 20.99 22 0-2			50 RB	25	1880	18900	21.03	22	0-2
50					1900	19100	21.11	22	0-2
1900 19100 21.06 22 0-2 1860 18700 20.98 22 0-2 100RB 1880 18900 20.99 22 0-2					1860	18700	20.79	22	0-2
1860 18700 20.98 22 0-2 100RB 1880 18900 20.99 22 0-2				50	1880	18900	21.09	22	0-2
100RB 1880 18900 20.99 22 0-2					1900	19100	21.06	22	0-2
					1860	18700	20.98	22	0-2
1900 19100 21.21 22 0-2			100F	ORB	1880	18900	20.99	22	0-2
					1900	19100	21.21	22	0-2

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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				FDD Band 2				
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
				1857.5	18675	22.76	24	0
			0	1880	18900	22.82	24	0
				1902.5	19125	22.93	24	0
				1857.5	18675	22.68	24	0
		1 RB	36	1880	18900	22.67	24	0
				1902.5	19125	22.69	24	0
				1857.5	18675	22.61	24	0
			74	1880	18900	22.71	24	0
				1902.5	19125	22.94	24	0
				1857.5	18675	21.81	23	0-1
	QPSK		0	1880	18900	21.80	23	0-1
				1902.5	19125	21.93	23	0-1
				1857.5	18675	21.76	23	0-1
		36 RB	18	1880	18900	21.83	23	0-1
				1902.5	19125	21.90	23	0-1
				1857.5	18675	21.68	23	0-1
			37	1880	18900	21.90	23	0-1
				1902.5	19125	21.91	23	0-1
				1857.5	18675	21.79	23	0-1
		75	RB	1880	18900	21.85	23	0-1
15				1902.5	19125	22.01	23	0-1
13			0	1857.5	18675	21.88	23	0-1
				1880	18900	21.81	23	0-1
				1902.5	19125	22.19	23	0-1
				1857.5	18675	21.36	23	0-1
		1 RB	36	1880	18900	21.78	23	0-1
				1902.5	19125	21.92	23	0-1
				1857.5	18675	21.59	23	0-1
			74	1880	18900	22.02	23	0-1
				1902.5	19125	22.18	23	0-1
				1857.5	18675	20.78	22	0-2
	16-QAM		0	1880	18900	20.82	22	0-2
				1902.5	19125	20.84	22	0-2
				1857.5	18675	20.73	22	0-2
		36 RB	18	1880	18900	20.76	22	0-2
				1902.5	19125	20.69	22	0-2
				1857.5	18675	20.63	22	0-2
			37	1880	18900	20.81	22	0-2
				1902.5	19125	20.74	22	0-2
				1857.5	18675	20.73	22	0-2
		75	RB	1880	18900	20.75	22	0-2
				1902.5	19125	20.80	22	0-2

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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				FDD Band 2				
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
				1855	18650	22.64	24	0
			0	1880	18900	22.85	24	0
				1905	19150	22.85	24	0
				1855	18650	22.61	24	0
		1 RB	25	1880	18900	23.08	24	0
				1905	19150	23.28	24	0
				1855	18650	22.62	24	0
			49	1880	18900	22.91	24	0
				1905	19150	23.16	24	0
				1855	18650	21.86	23	0-1
	QPSK		0	1880	18900	21.90	23	0-1
				1905	19150	22.05	23	0-1
				1855	18650	21.84	23	0-1
		25 RB	12	1880	18900	21.89	23	0-1
				1905	19150	22.08	23	0-1
				1855	18650	21.82	23	0-1
			25	1880	18900	21.86	23	0-1
				1905	19150	21.90	23	0-1
				1855	18650	21.81	23	0-1
		50RB		1880	18900	21.86	23	0-1
10				1905	19150	22.09	23	0-1
				1855	18650	21.87	23	0-1
			0	1880	18900	21.68	23	0-1
				1905	19150	21.82	23	0-1
				1855	18650	22.28	23	0-1
		1 RB	25	1880	18900	21.94	23	0-1
				1905	19150	21.91	23	0-1
			4.5	1855	18650	21.85	23	0-1
			49	1880	18900	21.68	23	0-1
				1905	19150	21.82	23	0-1
	40.044			1855	18650	21.09	22	0-2
	16-QAM		0	1880	18900	20.89	22	0-2
				1905	19150	21.14	22	0-2
		05.00	40	1855	18650	20.90	22	0-2
		25 RB	12	1880	18900	20.80	22	0-2
				1905	19150	21.18	22	0-2
			25	1855	18650	20.75	22	0-2
			25	1880	18900	20.99	22	0-2
				1905	19150	20.95	22	0-2
		F0	DD	1855	18650	20.73	22	0-2
	50	ΝĎ	1880	18900	20.76	22	0-2	
				1905	19150	20.97	22	0-2

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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				FDD Band 2				
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
				1852.5	18625	22.76	24	0
			0	1880	18900	22.79	24	0
				1907.5	19175	23.03	24	0
				1852.5	18625	22.93	24	0
		1 RB	12	1880	18900	23.04	24	0
				1907.5	19175	23.17	24	0
				1852.5	18625	22.84	24	0
			24	1880	18900	22.85	24	0
				1907.5	19175	23.07	24	0
				1852.5	18625	21.81	23	0-1
	QPSK		0	1880	18900	21.81	23	0-1
				1907.5	19175	21.77	23	0-1
				1852.5	18625	21.79	23	0-1
		12 RB	6	1880	18900	21.84	23	0-1
				1907.5	19175	21.95	23	0-1
				1852.5	18625	21.83	23	0-1
			13	1880	18900	21.82	23	0-1
				1907.5	19175	21.96	23	0-1
				1852.5	18625	21.82	23	0-1
		25	RB	1880	18900	21.81	23	0-1
5				1907.5	19175	21.89	23	0-1
			_	1852.5	18625	21.74	23	0-1
			0	1880	18900	21.59	23	0-1
				1907.5	19175	22.25	23	0-1
				1852.5	18625	21.70	23	0-1
		1 RB	12	1880	18900	21.71	23	0-1
				1907.5	19175	22.26	23	0-1
			0.4	1852.5	18625	21.69	23	0-1
			24	1880	18900	21.62	23	0-1
				1907.5	19175	21.73	23	0-1
	16 0 4 4		_	1852.5	18625	20.76	22	0-2
	16-QAM		0	1880	18900	20.63	22	0-2
				1907.5	19175	20.69	22	0-2
		12 DD	6	1852.5	18625	20.71	22	0-2
	12 RB	IZ KD	6	1880	18900	20.78	22	0-2
				1907.5	19175	20.76	22	0-2
			13	1852.5	18625	20.76	22	0-2
			13	1880 1907.5	18900	20.76 20.87	22 22	0-2 0-2
				1852.5	19175 18625	20.87	22	0-2
		25	RB	1880	18900	20.79	22	0-2
		25		1907.5	19175		22	0-2
				1907.5	19175	20.98	ZZ	∪-∠

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				FDD Band 2				
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
				1851.5	18615	22.59	24	0
			0	1880	18900	22.70	24	0
				1908.5	19185	22.78	24	0
				1851.5	18615	22.50	24	0
		1 RB	7	1880	18900	22.93	24	0
				1908.5	19185	23.01	24	0
				1851.5	18615	22.48	24	0
			14	1880	18900	22.77	24	0
				1908.5	19185	23.14	24	0
				1851.5	18615	21.74	23	0-1
	QPSK		0	1880	18900	21.82	23	0-1
				1908.5	19185	21.88	23	0-1
				1851.5	18615	21.74	23	0-1
		8 RB	4	1880	18900	21.78	23	0-1
				1908.5	19185	21.96	23	0-1
				1851.5	18615	21.82	23	0-1
			7	1880	18900	21.81	23	0-1
				1908.5	19185	21.98	23	0-1
				1851.5	18615	21.71	23	0-1
		15	RB	1880	18900	21.75	23	0-1
3				1908.5	19185	21.93	23	0-1
				1851.5	18615	21.80	23	0-1
			0	1880	18900	21.59	23	0-1
				1908.5	19185	21.73	23	0-1
			_	1851.5	18615	21.85	23	0-1
		1 RB	7	1880	18900	21.69	23	0-1
				1908.5	19185	21.75	23	0-1
			4.4	1851.5	18615	21.86	23	0-1
			14	1880	18900	21.55	23	0-1
				1908.5	19185	21.80	23	0-1
	16 OAM		0	1851.5	18615	20.58	22	0-2
	16-QAM		0	1880	18900	20.87	22	0-2
				1908.5	19185	20.62	22	0-2
		8 RB	4	1851.5	18615	20.56	22 22	0-2
		OND	4	1880	18900	20.82		0-2
				1908.5	19185	20.90 20.58	22 22	0-2 0-2
			7	1851.5 1880	18615 18900	20.58	22	0-2 0-2
			_ ′	1908.5	19185	20.78	22	0-2
ĺ				1851.5	18615	20.50	22	0-2
		15	RB	1880	18900	20.65	22	0-2
		13		1908.5	19185	21.02	22	0-2
	1			1300.5	19100	21.02	22	0-2

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				FDD Band 2						
Target MPR										
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)		
				1850.7	18607	22.61	24	0		
			0	1880	18900	22.76	24	0		
				1909.3	19193	22.74	24	0		
				1850.7	18607	22.74	24	0		
		1 RB	2	1880	18900	22.82	24	0		
				1909.3	19193	22.89	24	0		
				1850.7	18607	22.58	24	0		
			5	1880	18900	22.79	24	0		
				1909.3	19193	22.73	24	0		
				1850.7	18607	22.65	24	0		
	QPSK		0	1880	18900	22.84	24	0		
				1909.3	19193	22.91	24	0		
				1850.7	18607	22.68	24	0		
		3 RB	2	1880	18900	22.78	24	0		
				1909.3	19193	22.95	24	0		
				1850.7	18607	22.78	24	0		
			3	1880	18900	22.74	24	0		
				1909.3	19193	22.90	24	0		
				1850.7	18607	21.72	23	0-1		
		6F	RB	1880	18900	21.75	23	0-1		
1.4				1909.3	19193	21.91	23	0-1		
'''				1850.7	18607	21.88	23	0-1		
			0	1880	18900	21.58	23	0-1		
				1909.3	19193	21.94	23	0-1		
				1850.7	18607	21.86	23	0-1		
		1 RB	2	1880	18900	21.71	23	0-1		
				1909.3	19193	22.10	23	0-1		
				1850.7	18607	21.59	23	0-1		
			5	1880	18900	21.28	23	0-1		
				1909.3	19193	22.14	23	0-1		
				1850.7	18607	21.74	23	0-1		
	16-QAM		0	1880	18900	21.57	23	0-1		
				1909.3	19193	21.96	23	0-1		
			_	1850.7	18607	21.86	23	0-1		
		3 RB	2	1880	18900	21.66	23	0-1		
				1909.3	19193	22.11	23	0-1		
				1850.7	18607	21.82	23	0-1		
			3	1880	18900	21.61	23	0-1		
				1909.3	19193	22.18	23	0-1		
			20	1850.7	18607	20.76	22	0-2		
	6R	KR	1880	18900	20.36	22	0-2			
				1909.3	19193	20.58	22	0-2		

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				FDD Band 4				
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
				1720	20050	23.41	24.5	0
			0	1732.5	20175	23.25	24.5	0
				1745	20300	23.37	24.5	0
				1720	20050	23.17	24.5	0
		1 RB	50	1732.5	20175	23.55	24.5	0
				1745	20300	23.05	24.5	0
				1720	20050	23.04	24.5	0
			99	1732.5	20175	22.84	24.5	0
				1745	20300	23.21	24.5	0
				1720	20050	22.23	23.5	0-1
	QPSK		0	1732.5	20175	22.14	23.5	0-1
				1745	20300	22.25	23.5	0-1
				1720	20050	22.06	23.5	0-1
		50 RB	25	1732.5	20175	22.14	23.5	0-1
				1745	20300	22.00	23.5	0-1
				1720	20050	21.96	23.5	0-1
			50	1732.5	20175	22.05	23.5	0-1
				1745	20300	22.05	23.5	0-1
				1720	20050	22.05	23.5	0-1
		100	100RB		20175	22.14	23.5	0-1
20					20300	22.05	23.5	0-1
				1720	20050	22.89	23.5	0-1
			0	1732.5	20175	22.28	23.5	0-1
				1745	20300	22.83	23.5	0-1
				1720	20050	22.25	23.5	0-1
		1 RB	50	1732.5	20175	22.43	23.5	0-1
				1745	20300	22.69	23.5	0-1
				1720	20050	21.76	23.5	0-1
			99	1732.5	20175	22.18	23.5	0-1
				1745	20300	22.52	23.5	0-1
			_	1720	20050	21.16	22.5	0-2
	16-QAM		0	1732.5	20175	21.31	22.5	0-2
				1745	20300	21.17	22.5	0-2
		50.55		1720	20050	21.02	22.5	0-2
		50 RB	25	1732.5	20175	21.18	22.5	0-2
				1745	20300	21.05	22.5	0-2
			F0	1720	20050	20.88	22.5	0-2
			50	1732.5	20175	21.20	22.5	0-2
				1745	20300	21.01	22.5	0-2
		400	\DD	1720	20050	21.02	22.5	0-2
	100	IKB	1732.5	20175	21.18	22.5	0-2	
				1745	20300	20.98	22.5	0-2

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				FDD Band 4				
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
				1717.5	20025	23.25	24.5	0
			0	1732.5	20175	23.27	24.5	0
				1747.5	20325	23.22	24.5	0
				1717.5	20025	22.95	24.5	0
		1 RB	36	1732.5	20175	23.21	24.5	0
				1747.5	20325	22.94	24.5	0
				1717.5	20025	22.79	24.5	0
			74	1732.5	20175	22.90	24.5	0
				1747.5	20325	23.16	24.5	0
				1717.5	20025	22.10	23.5	0-1
	QPSK		0	1732.5	20175	22.08	23.5	0-1
				1747.5	20325	22.04	23.5	0-1
				1717.5	20025	21.95	23.5	0-1
		36 RB	18	1732.5	20175	22.06	23.5	0-1
				1747.5	20325	21.91	23.5	0-1
				1717.5	20025	21.92	23.5	0-1
			37	1732.5	20175	21.98	23.5	0-1
				1747.5	20325	22.00	23.5	0-1
				1717.5	20025	22.02	23.5	0-1
		75	75RB		20175	22.03	23.5	0-1
15				1747.5	20325	21.90	23.5	0-1
				1717.5	20025	22.28	23.5	0-1
			0	1732.5	20175	22.58	23.5	0-1
				1747.5	20325	22.64	23.5	0-1
				1717.5	20025	21.87	23.5	0-1
		1 RB	36	1732.5	20175	22.64	23.5	0-1
				1747.5	20325	22.39	23.5	0-1
			 .	1717.5	20025	21.73	23.5	0-1
			74	1732.5	20175	22.36	23.5	0-1
				1747.5	20325	22.61	23.5	0-1
	40.044			1717.5	20025	20.95	22.5	0-2
	16-QAM		0	1732.5	20175	21.02	22.5	0-2
				1747.5	20325	20.99	22.5	0-2
		00.00	40	1717.5	20025	20.90	22.5	0-2
		36 RB	18	1732.5	20175	20.99	22.5	0-2
				1747.5	20325	20.95	22.5	0-2
			27	1717.5	20025	20.91	22.5	0-2
			37	1732.5	20175	20.90	22.5	0-2
				1747.5	20325	20.96	22.5	0-2
		75	DD	1717.5	20025	20.80	22.5	0-2
	75	ΝĎ	1732.5	20175	20.97	22.5	0-2	
				1747.5	20325	20.83	22.5	0-2

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				FDD Band 4				
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
				1715	20000	23.19	24.5	0
			0	1732.5	20175	23.07	24.5	0
				1750	20350	23.21	24.5	0
				1715	20000	23.07	24.5	0
		1 RB	25	1732.5	20175	23.26	24.5	0
				1750	20350	23.43	24.5	0
				1715	20000	22.85	24.5	0
			49	1732.5	20175	22.99	24.5	0
				1750	20350	23.26	24.5	0
				1715	20000	22.06	23.5	0-1
	QPSK		0	1732.5	20175	21.98	23.5	0-1
				1750	20350	21.95	23.5	0-1
				1715	20000	22.01	23.5	0-1
		25 RB	12	1732.5	20175	22.02	23.5	0-1
				1750	20350	22.02	23.5	0-1
				1715	20000	21.92	23.5	0-1
			25	1732.5	20175	21.97	23.5	0-1
				1750	20350	22.05	23.5	0-1
				1715	20000	22.06	23.5	0-1
		50	RB	1732.5	20175	22.06	23.5	0-1
10				1750	20350	22.06	23.5	0-1
10				1715	20000	22.42	23.5	0-1
			0	1732.5	20175	22.29	23.5	0-1
				1750	20350	22.31	23.5	0-1
				1715	20000	22.39	23.5	0-1
		1 RB	25	1732.5	20175	22.48	23.5	0-1
				1750	20350	22.40	23.5	0-1
				1715	20000	22.18	23.5	0-1
			49	1732.5	20175	22.05	23.5	0-1
				1750	20350	22.29	23.5	0-1
				1715	20000	20.97	22.5	0-2
	16-QAM		0	1732.5	20175	21.13	22.5	0-2
				1750	20350	21.08	22.5	0-2
				1715	20000	20.94	22.5	0-2
		25 RB	12	1732.5	20175	20.80	22.5	0-2
				1750	20350	21.31	22.5	0-2
			6.5	1715	20000	20.84	22.5	0-2
			25	1732.5	20175	20.86	22.5	0-2
				1750	20350	21.32	22.5	0-2
			55	1715	20000	21.02	22.5	0-2
	50	KB	1732.5	20175	20.99	22.5	0-2	
				1750	20350	21.11	22.5	0-2

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				FDD Band 4				
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
				1712.5	19975	23.19	24.5	0
			0	1732.5	20175	23.23	24.5	0
				1752.5	20375	23.23	24.5	0
				1712.5	19975	23.17	24.5	0
		1 RB	12	1732.5	20175	23.40	24.5	0
				1752.5	20375	23.50	24.5	0
				1712.5	19975	23.09	24.5	0
			24	1732.5	20175	23.17	24.5	0
				1752.5	20375	23.29	24.5	0
				1712.5	19975	22.02	23.5	0-1
	QPSK		0	1732.5	20175	22.00	23.5	0-1
				1752.5	20375	22.05	23.5	0-1
				1712.5	19975	21.87	23.5	0-1
		12 RB	6	1732.5	20175	21.98	23.5	0-1
				1752.5	20375	22.03	23.5	0-1
				1712.5	19975	21.90	23.5	0-1
			13	1732.5	20175	21.97	23.5	0-1
				1752.5	20375	22.03	23.5	0-1
				1712.5	19975	21.92	23.5	0-1
		25	RB	1732.5	20175	22.05	23.5	0-1
5				1752.5	20375	22.09	23.5	0-1
				1712.5	19975	22.28	23.5	0-1
			0	1732.5	20175	22.49	23.5	0-1
				1752.5	20375	22.21	23.5	0-1
				1712.5	19975	21.95	23.5	0-1
		1 RB	12	1732.5	20175	22.24	23.5	0-1
				1752.5	20375	22.34	23.5	0-1
				1712.5	19975	22.27	23.5	0-1
			24	1732.5	20175	22.59	23.5	0-1
				1752.5	20375	22.00	23.5	0-1
			_	1712.5	19975	20.98	22.5	0-2
	16-QAM		0	1732.5	20175	20.95	22.5	0-2
				1752.5	20375	21.01	22.5	0-2
			_	1712.5	19975	20.92	22.5	0-2
	12 RB	12 RB	6	1732.5	20175	20.93	22.5	0-2
			1752.5	20375	21.08	22.5	0-2	
		40	1712.5	19975	20.86	22.5	0-2	
			13	1732.5	20175	20.82	22.5	0-2
				1752.5	20375	21.09	22.5	0-2
l				1712.5	19975	20.83	22.5	0-2
l		25	RB	1732.5	20175	21.04	22.5	0-2
				1752.5	20375	21.10	22.5	0-2

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				FDD Band 4				
				. DD Dana 4				
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
				1711.5	19965	23.18	24.5	0
			0	1732.5	20175	23.02	24.5	0
				1753.5	20385	23.08	24.5	0
				1711.5	19965	23.22	24.5	0
		1 RB	7	1732.5	20175	23.25	24.5	0
				1753.5	20385	23.39	24.5	0
				1711.5	19965	22.97	24.5	0
			14	1732.5	20175	23.15	24.5	0
				1753.5	20385	23.23	24.5	0
				1711.5	19965	22.04	23.5	0-1
	QPSK		0	1732.5	20175	22.04	23.5	0-1
				1753.5	20385	22.10	23.5	0-1
				1711.5	19965	21.93	23.5	0-1
		8 RB	4	1732.5	20175	21.93	23.5	0-1
				1753.5	20385	22.06	23.5	0-1
				1711.5	19965	21.87	23.5	0-1
			7	1732.5	20175	21.94	23.5	0-1
				1753.5	20385	22.03	23.5	0-1
				1711.5	19965	21.93	23.5	0-1
		15	RB	1732.5	20175	21.95	23.5	0-1
3				1753.5	20385	22.08	23.5	
			0	1711.5	19965	22.11	23.5	
			0	1732.5	20175	22.43	23.5	
				1753.5	20385	22.27	23.5	
			_	1711.5	19965	21.90	23.5	
		1 RB	7	1732.5	20175	22.08	23.5	
				1753.5	20385	22.34	23.5	
				1711.5	19965	21.93	23.5	
			14	1732.5	20175	22.25	23.5	
				1753.5	20385	22.29	23.5	
	40.0414			1711.5	19965	21.16	22.5	
	16-QAM		0	1732.5	20175	21.05	22.5	
				1753.5	20385	21.26	22.5	
		0 DD	A	1711.5	19965	20.86	22.5	
		8 RB	4	1732.5	20175	21.08	22.5	
				1753.5	20385	21.20	22.5	
			7	1711.5	19965	20.92	22.5	0 0 0 0 0 0 0 0 0 0-1 0-1 0-1 0-1 0-1 0-
			·	1732.5	20175	21.08 21.17	22.5	
				1753.5 1711.5	20385	+	22.5	
		15	RR	1711.5	19965 20175	20.87	22.5 22.5	
	15F	ועט	1732.5	20175	+	22.5		
				1703.5	20385	21.13	22.5	U-Z

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				FDD Band 4								
				. DD Dana 4								
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)				
				1710.7	19957	23.02	24.5	0				
			0	1732.5	20175	23.00	24.5	0				
				1754.3	20393	23.03	24.5	0				
				1710.7	19957	23.14	24.5	0				
		1 RB	2	1732.5	20175	23.00	24.5	0				
				1754.3	20393	23.21	24.5	0				
				1710.7	19957	23.00	24.5	0				
			5	1732.5	20175	22.99	24.5	0				
				1754.3	20393	23.06	24.5	0				
				1710.7	19957	23.08	24.5	0				
	QPSK		0	1732.5	20175	23.07	24.5	0				
				1754.3	20393	23.12	24.5	0				
				1710.7	19957	23.07	24.5	0				
		3 RB	2	1732.5	20175	23.08	24.5	0				
				1754.3	20393	23.12	24.5	0				
				1710.7	19957	23.05	24.5	0				
			3	1732.5	20175	23.05	24.5	0				
				1754.3	20393	23.12	24.5	0				
			•	1710.7	19957	22.03	23.5	0-1				
		6F	RB	1732.5	20175	22.05	23.5	0-1				
1.4				1754.3	20393	22.16	23.5	0 0 0 0 0 0 0 0 0 0-1 0-1 0-1 0-1 0-1 0-				
1.4				1710.7	19957	22.32	23.5	0-1				
			0	1732.5	20175	22.16	23.5	0-1				
				1754.3	20393	22.32	23.5	0-1				
				1710.7	19957	21.94	23.5	0-1				
		1 RB	2	1732.5	20175	22.30	23.5	0-1				
				1754.3	20393	21.98	23.5	0-1				
				1710.7	19957	22.25	23.5	0-1				
			5	1732.5	20175	22.61	23.5	0-1				
				1754.3	20393	22.61	23.5	0-1				
				1710.7	19957	22.05	23.5	0-1				
	16-QAM		0	1732.5	20175	22.07	23.5	0-1				
				1754.3	20393	22.23	23.5	0-1				
				1710.7	19957	22.04	23.5	Allowed per 3GPP(dB) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0				
		3 RB	2	1732.5	20175	22.17	23.5					
				1754.3	20393	22.13	23.5	0-1				
				1710.7	19957	22.03	23.5	0-1 0-1 0-1 0-1 0-1 0-1 0-1 0-1 0-1 0-1				
			3	1732.5	20175	22.22	23.5	0-1				
				1754.3	20393	22.17	23.5	0-1				
				1710.7	19957	21.07	22.5	0-1 0-1 0-1 0-1 0-1 0-1 0-1 0-1 0-1 0-1				
		6F	RB	1732.5	20175	20.92	22.5	0-2				
				1754.3	20393	20.98	22.5	0-2				

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				FDD Band 5				
				. DD Dana o				
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
				829	20450	23.16	23.5	0
			0	836.5	20525	23.33	23.5	0
				844	20600	23.28	23.5	0
				829	20450	23.40	23.5	0
		1 RB	25	836.5	20525	23.49	23.5	0
				844	20600	23.29	23.5	0
				829	20450	23.33	23.5	0
			49	836.5	20525	23.09	23.5	0
				844	20600	23.17	23.5	0
				829	20450	22.28	22.5	0-1
	QPSK		0	836.5	20525	22.34	22.5	0-1
				844	20600	22.28	22.5	0-1
				829	20450	22.33	22.5	0-1
		25 RB	12	836.5	20525	22.33	22.5	0-1
				844	20600	22.33	22.5	0-1
				829	20450	22.31	22.5	0-1
			25	836.5	20525	22.36	22.5	0-1
				844	20600	22.21	22.5	0-1
				829	20450	22.29	22.5	0-1
		50	RB	836.5	20525	22.37	22.5	0-1
10				844	20600	22.27	22.5	0-1
				829	20450	22.32	22.5	0-1
			0	836.5	20525	22.37	22.5	0-1
				844	20600	22.42	22.5	0-1
				829	20450	22.43	22.5	0-1
		1 RB	25	836.5	20525	22.47	22.5	0-1
				844	20600	22.48	22.5	0-1
				829	20450	22.34	22.5	0-1
			49	836.5	20525	22.22	22.5	0-1
				844	20600	22.19	22.5	0-1
			_	829	20450	21.17	21.5	0-2
	16-QAM		0	836.5	20525	21.39	21.5	0-2
				844	20600	21.26	21.5	0-2
		05.55	4.5	829	20450	21.28	21.5	0-2
		25 RB	12	836.5	20525	21.39	21.5	0-2
				844	20600	21.39	21.5	0-2
			6.5	829	20450	21.41	21.5	0-2
			25	836.5	20525	21.24	21.5	0-2
				844	20600	21.16	21.5	0-2
		500RB		829	20450	21.30	21.5	0-2
		500	IKB	836.5	20525	21.38	21.5	0-2
				844	20600	21.30	21.5	0-2

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				FDD Band 5				
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
				826.5	20425	23.24	23.5	0
			0	836.5	20525	23.45	23.5	0
				846.5	20625	23.48	23.5	0
				826.5	20425	23.38	23.5	0
		1 RB	12	836.5	20525	23.39	23.5	0
				846.5	20625	23.34	23.5	0
				826.5	20425	23.48	23.5	0
			24	836.5	20525	23.43	23.5	0
				846.5	20625	23.47	23.5	0
				826.5	20425	22.22	22.5	0-1
	QPSK		0	836.5	20525	22.34	22.5	0-1
				846.5	20625	22.23	22.5	0-1
				826.5	20425	22.27	22.5	0-1
		12 RB	6	836.5	20525	22.33	22.5	0-1
				846.5	20625	22.20	22.5	0-1
				826.5	20425	22.20	22.5	0-1
			13	836.5	20525	22.28	22.5	0-1
				846.5	20625	22.16	22.5	0-1
				826.5	20425	22.25	22.5	0-1
		25	RB	836.5	20525	22.36	22.5	0-1
5				846.5	20625	22.23	22.5	
			0	826.5	20425	22.46	22.5	
			0	836.5	20525	22.07	22.5	
				846.5	20625	22.15	22.5	
				826.5	20425	22.13	22.5	
		1 RB	12	836.5	20525	21.95	22.5	_
				846.5	20625	22.06	22.5	
			0.4	826.5	20425	22.22	22.5	
			24	836.5	20525	21.88	22.5	
				846.5	20625	22.24	22.5	
	16 0 4 4			826.5	20425	21.30	21.5	
	16-QAM		0	836.5	20525	21.38	21.5	
				846.5	20625	21.37	21.5	
		12 RB		826.5	20425	21.35	21.5	
		IZ KD	6	836.5	20525	21.38	21.5	0-1 0-1 0-1 0-1 0-1 0-1 0-1 0-1 0-1 0-1
				846.5 826.5	20625	21.24	21.5	
			13	826.5 836.5	20425	21.26	21.5	
			13	836.5 846.5	20525	21.35	21.5	
				846.5 826.5	20625	21.21 21.45	21.5	
		25	RB	826.5 836.5	20425 20525	21.43	21.5 21.5	
		25RI	5	846.5	20525	21.43	21.5	0-2
				040.0	20020	41.41	۵۱.۵	U-Z

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				FDD Band 5						
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)		
				825.5	20415	23.29	23.5	0		
			0	836.5	20525	23.48	23.5	0		
				847.5	20635	23.24	23.5	0		
				825.5	20415	23.43	23.5	0		
		1 RB	7	836.5	20525	23.44	23.5	0		
				847.5	20635	23.38	23.5	0		
				825.5	20415	23.31	23.5	0		
			14	836.5	20525	23.46	23.5	0		
				847.5	20635	23.28	23.5	0		
				825.5	20415	22.30	22.5	0-1		
	QPSK		0	836.5	20525	22.39	22.5	0-1		
				847.5	20635	22.32	22.5	0-1		
				825.5	20415	22.28	22.5	0-1		
		8 RB	4	836.5	20525	22.41	22.5	0-1		
				847.5	20635	22.33	22.5	0-1		
				825.5	20415	22.29	22.5	0-1		
			7	836.5	20525	22.42	22.5	0-1		
				847.5	20635	22.25	22.5	0-1		
				825.5	20415	22.22	22.5	0-1		
		15	RB	836.5	20525	22.22	22.5	0-1		
3				847.5	20635	22.11	22.5	0-1		
			_	825.5	20415	22.06	22.5	0-1		
			0	836.5	20525	22.42	22.5	0-1		
				847.5	20635	21.95	22.5	0-1		
				825.5	20415	22.07	22.5			
		1 RB	7	836.5	20525	22.39	22.5	.		
				847.5	20635	22.13	22.5	0-1		
				825.5	20415	22.03	22.5			
			14	836.5	20525	22.44	22.5			
				847.5	20635	21.91	22.5			
	40.044			825.5	20415	21.38	21.5			
	16-QAM		0	836.5	20525	21.30	21.5			
				847.5	20635	21.44	21.5			
		0.00	,	825.5	20415	21.36	21.5	Allowed per 3GPP(dB) 0 0 0 0 0 0 0 0 0 0 0 0 0 0-1 0-1 0-1		
		8 RB	4	836.5	20525	21.35	21.5			
				847.5	20635	21.48	21.5			
			7	825.5	20415	21.35	21.5	.		
			7	836.5	20525	21.33	21.5	3GPP(dB) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0-1 0-1 0-		
				847.5	20635	21.30	21.5	.		
		4-	DD	825.5	20415	21.49	21.5			
	15R	KD	836.5	20525	21.34	21.5				
						847.5	20635	21.38	21.5	0-2

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				FDD Band 5				FDD Band 5											
				. DD Dana 0															
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)											
				824.7	20407	23.06	23.5	0											
			0	836.5	20525	23.38	23.5	0											
				848.3	20643	23.22	23.5	0											
				824.7	20407	23.34	23.5	0											
		1 RB	2	836.5	20525	23.43	23.5	0											
				848.3	20643	23.26	23.5	0											
				824.7	20407	23.03	23.5	0											
			5	836.5	20525	23.48	23.5	0											
				848.3	20643	23.14	23.5	0											
				824.7	20407	23.16	23.5	0											
	QPSK		0	836.5	20525	23.50	23.5	0											
				848.3	20643	23.38	23.5	0											
				824.7	20407	23.31	23.5	0											
		3 RB	2	836.5	20525	23.44	23.5	0											
				848.3	20643	23.29	23.5	0											
				824.7	20407	23.07	23.5	0											
			3	836.5	20525	23.50	23.5	0											
				848.3	20643	23.36	23.5	0											
				824.7	20407	22.20	22.5	0-1											
		6F	₹B	836.5	20525	22.41	22.5	0-1											
1.4				848.3	20643	22.24	22.5	0 0-1 0-1 0-1 0-1 0-1											
				824.7	20407	22.37	22.5												
			0	836.5	20525	22.41	22.5												
				848.3	20643	22.44	22.5												
				824.7	20407	22.44	22.5												
		1 RB	2	836.5	20525	22.49	22.5												
				848.3	20643	22.14	22.5												
			_	824.7	20407	22.37	22.5												
			5	836.5	20525	22.40	22.5												
				848.3	20643	21.98	22.5												
	40.0414			824.7	20407	22.44	22.5												
	16-QAM		0	836.5	20525	22.45	22.5												
				848.3	20643	22.32	22.5												
		2 DD	2	824.7	20407	22.41	22.5												
		3 RB		836.5	20525	22.46	22.5												
				848.3	20643	22.26	22.5												
			3	824.7	20407	22.41	22.5												
			J	836.5 848.3	20525	22.41	22.5												
				848.3 824.7	20643	22.26 21.26	22.5												
		61	RB	836.5	20407 20525	21.26	21.5 21.5	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0											
	6F		' D	848.3	20525		21.5												
				048.3	∠∪043	21.19	21.5	U-Z											

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				FDD Band 12							
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)			
				704	23060	23.39	23.5	0			
			0	707.5	23095	23.16	23.5	0			
				711	23130	23.37	23.5	0			
				704	23060	23.46	23.5	0			
		1 RB	25	707.5	23095	23.40	23.5	0			
				711	23130	23.47	23.5	0			
				704	23060	23.26	23.5	0			
			49	707.5	23095	23.21	23.5	0			
				711	23130	23.44	23.5	0			
				704	23060	22.27	22.5	0-1			
	QPSK		0	707.5	23095	22.18	22.5	0-1			
				711	23130	22.40	22.5	0-1			
				704	23060	22.29	22.5	0-1			
		25 RB	12	707.5	23095	22.26	22.5	0-1			
				711	23130	22.41	22.5	0-1			
				704	23060	22.32	22.5	0-1			
			25	707.5	23095	22.24	22.5	0-1			
				711	23130	22.34	22.5	0-1			
				704	23060	22.31	22.5	0-1			
		50	RB	707.5	23095	22.28	22.5	0-1			
10				711	23130	22.39	22.5	0 0 0-1 0-1 0-1 0-1 0-1 0-1 0-1 0-1 0-1			
			_	704	23060	22.46	22.5	0-1			
			0	707.5	23095	22.32	22.5	0-1			
				711	23130	22.41	22.5				
				704	23060	22.45	22.5				
		1 RB	25	707.5	23095	22.40	22.5				
				711	23130	22.45	22.5				
			4.5	704	23060	22.30	22.5				
			49	707.5	23095	22.34	22.5				
				711	23130	22.39	22.5				
	40.044			704	23060	21.23	21.5	0-2			
	16-QAM		0	707.5	23095	21.15	21.5	0-2			
				711	23130	21.30	21.5	0-2			
		05.00	40	704	23060	21.26	21.5	0-2			
		25 RB	12	707.5	23095	21.34	21.5	0-2			
				711	23130	21.42	21.5	0-2			
			25	704	23060	21.30	21.5	0-2			
			25	707.5	23095	21.15	21.5	0-2			
				711	23130	21.17	21.5	0-2			
		F0	DD	704	23060	21.23	21.5	0-2			
	50R		ΝĎ	707.5	23095	21.20	21.5	0-2			
				711	23130	21.38	21.5	0-2			

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				FDD Band 12				
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
				701.5	23035	23.41	23.5	0
			0	707.5	23095	23.39	23.5	0
				713.5	23155	23.38	23.5	0
				701.5	23035	23.38	23.5	0
		1 RB	12	707.5	23095	23.31	23.5	0
				713.5	23155	23.36	23.5	0
				701.5	23035	23.45	23.5	0
			24	707.5	23095	23.19	23.5	0
				713.5	23155	23.23	23.5	0
				701.5	23035	22.25	22.5	0-1
	QPSK		0	707.5	23095	22.25	22.5	0-1
				713.5	23155	22.29	22.5	0-1
				701.5	23035	22.34	22.5	0-1
		12 RB	6	707.5	23095	22.25	22.5	0-1
				713.5	23155	22.30	22.5	0-1
				701.5	23035	22.41	22.5	0-1
			13	707.5	23095	22.30	22.5	0-1
				713.5	23155	22.27	22.5	0-1
				701.5	23035	22.32	22.5	0-1
		25	RB	707.5	23095	22.29	22.5	0-1
5				713.5	23155	22.24	22.5	
			0	701.5	23035	21.74	22.5	
			0	707.5	23095	22.36	22.5	
				713.5	23155	22.34	22.5	-
		. 55		701.5	23035	21.79	22.5	
		1 RB	12	707.5	23095	22.18	22.5	·
				713.5	23155	22.15	22.5	_
			0.4	701.5	23035	21.80	22.5	
			24	707.5	23095	22.49	22.5	
				713.5	23155	22.16	22.5	
	16 0 4 4 4			701.5	23035	21.18	21.5	
	16-QAM		0	707.5	23095	21.49	21.5	
				713.5	23155	21.25	21.5	
		12 DD		701.5	23035	21.42	21.5	
		12 RB	6	707.5	23095	21.40	21.5	
				713.5	23155	21.18	21.5	
			13	701.5	23035	21.40	21.5	
			13	707.5 713.5	23095	21.42 21.24	21.5	
				713.5 701.5	23155		21.5	.
		25	RB	701.5	23035 23095	21.35 21.20	21.5 21.5	3GPP(dB) 0 0 0 0 0 0 0 0 0 0 0 0 0 0-1 0-1 0-1
	25R		707.5	23155	21.27	21.5		
				1 13.3	Z3133	Z1.Z1	۷۱.5	∪-∠

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				FDD Band 12				
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
				700.5	23025	23.45	23.5	0
			0	707.5	23095	23.45	23.5	0
				714.5	23165	23.44	23.5	0
				700.5	23025	23.42	23.5	0
		1 RB	7	707.5	23095	23.43	23.5	0
				714.5	23165	23.39	23.5	0
				700.5	23025	23.26	23.5	0
			14	707.5	23095	23.34	23.5	0
				714.5	23165	23.43	23.5	0
				700.5	23025	22.29	22.5	0-1
	QPSK		0	707.5	23095	22.18	22.5	0-1
				714.5	23165	22.33	22.5	0-1
				700.5	23025	22.43	22.5	0-1
		8 RB	4	707.5	23095	22.20	22.5	0-1
				714.5	23165	22.23	22.5	0-1
				700.5	23025	22.50	22.5	0-1
			7	707.5	23095	22.26	22.5	0-1
				714.5	23165	22.32	22.5	0-1
				700.5	23025	22.42	22.5	0-1
		15	RB	707.5	23095	22.30	22.5	0-1
3				714.5	23165	22.33	22.5	0-1
				700.5	23025	22.39	22.5	0-1
			0	707.5	23095	22.23	22.5	0-1
				714.5				0-1
				700.5				
		1 RB	7	707.5		1		
				714.5	23165	21.97		0-1
				700.5	5 23025 22.43 22.5 0- 5 23095 22.20 22.5 0- 5 23165 22.23 22.5 0- 5 23025 22.50 22.5 0- 5 23095 22.26 22.5 0- 5 23165 22.32 22.5 0- 5 23025 22.42 22.5 0- 5 23095 22.30 22.5 0- 5 23165 22.33 22.5 0- 5 23025 22.39 22.5 0- 5 23095 22.23 22.5 0- 5 23025 22.23 22.5 0- 5 23025 22.23 22.5 0- 5 23025 22.23 22.5 0- 5 23025 22.23 22.5 0- 5 23025 21.97 22.5 0- 5			
			14	707.5		†		
				714.5		1		
	40.044			700.5		ł		
	16-QAM		0	707.5		1		
				714.5				
		0.00	,	700.5				0 0 0 0 0 0 0 0 0 0 0 0-1 0-1 0-1 0-1 0-
		8 RB	4	707.5		<u> </u>		
				714.5				
			7	700.5	23025	21.25	21.5	3GPP(dB) 0 0 0 0 0 0 0 0 0 0 0 0 0 0-1 0-1 0-1
			7	707.5	23095	21.41	21.5	
				714.5	23165	21.33	21.5	
		4.5	DD	700.5	23025	21.23	21.5	
	15R		מא	707.5	23095	21.45	21.5	
				714.5	23165	21.23	21.5	0-2

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				FDD Band 12								
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)				
				699.7	23017	23.30	23.5	0				
			0	707.5	23095	23.29	23.5	0				
				715.3	23173	23.10	23.5	0				
				699.7	23017	23.39	23.5	0				
		1 RB	2	707.5	23095	23.31	23.5	0				
				715.3	23173	23.12	23.5	0				
				699.7	23017	23.14	23.5	0				
			5	707.5	23095	23.26	23.5	0				
				715.3	23173	23.09	23.5	0				
				699.7	23017	23.32	23.5	0				
	QPSK		0	707.5	23095	23.35	23.5	0				
				715.3	23173	23.28	23.5	0				
				699.7	23017	23.44	23.5	0				
		3 RB	2	707.5	23095	23.39	23.5	0				
				715.3	23173	23.33	23.5	0				
				699.7	23017	23.42	23.5	0				
			3	707.5	23095	23.44	23.5	0				
				715.3	23173	23.28	23.5	0				
				699.7	23017	22.40	22.5	0-1				
		6	RB	707.5	23095	22.33	22.5	0-1				
1.4				715.3	23173	22.47	22.5	0 0 0 0 0 0 0 0 0 0 0 0				
				699.7	23017	21.86	22.5	0-1				
			0	707.5	23095	21.69	22.5	0-1				
				715.3	23173	22.29	22.5	0-1				
				699.7	23017	21.96	22.5					
		1 RB	2	707.5	23095	22.29	22.5					
				715.3	23173	22.37	22.5	-				
			_	699.7	23017	22.16	22.5					
			5	707.5	23095	22.26	22.5					
				715.3	23173	22.26	22.5					
	40.0444			699.7	23017	22.45	22.5					
	16-QAM		0	707.5	23095	22.42	22.5					
				715.3	23173	22.42	22.5					
		0.00		699.7	23017	22.45	22.5					
		3 RB	2	707.5	23095	22.46	22.5					
				715.3	23173	22.47	22.5					
			2	699.7	23017	22.40	22.5	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0				
			3	707.5	23095	22.47	22.5					
				715.3	23173	22.27	22.5					
		CDD		699.7	23017	21.20	21.5					
	6RI	7D	707.5	23095	21.11	21.5						
								715.3	23173	21.18	21.5	0-2

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				FDD Band 13				
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
			0	782	23230	23.42	23.5	0
		1 RB	25	782	23230	23.06	23.5	0
			49	782	23230	22.85	23.5	0
	QPSK		0	782	23230	22.10	22.5	0-1
		25 RB	12	782	23230	22.08	22.5	0-1
			25	782	23230	21.96	22.5	0-1
10		50	RB	782	23230	21.99	22.5	0-1
10			0	782	23230	22.07	22.5	0-1
		1 RB	25	782	23230	22.26	22.5	0-1
			49	782	23230	21.83	22.5	0-1
	16-QAM		0	782	23230	21.09	21.5	0-2
		25 RB	12	782	23230	30 22.10 22.5 0-1 30 22.08 22.5 0-1 30 21.96 22.5 0-1 30 21.99 22.5 0-1 30 22.07 22.5 0-1 30 22.26 22.5 0-1 30 22.26 22.5 0-1 30 21.83 22.5 0-1 30 21.09 21.5 0-2 30 21.06 21.5 0-2 30 21.06 21.5 0-2		
			25	782	23230	21.06	21.5	0-2
		50	RB	782	23230	21.13	21.5	0-2

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				FDD Band 13								
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)				
				779.5	23205	23.11	23.5	0				
			0	782	23230	23.20	23.5	0				
				784.5	23255	22.93	23.5	0				
				779.5	23205	23.40	23.5	0				
		1 RB	12	782	23230	23.29	23.5	0				
				784.5	23255	23.05	23.5	0				
				779.5	23205	23.12	23.5	0				
			24	782	23230	23.00	23.5	0				
				784.5	23255	22.98	23.5	0				
				779.5	23205	22.14	22.5	0-1				
	QPSK		0	782	23230	22.17	22.5	0-1				
				784.5	23255	21.99	22.5	0-1				
				779.5	23205	22.17	22.5	0-1				
		12 RB	6	782	23230	22.09	22.5	0-1				
				784.5	23255	21.98	22.5	0-1				
				779.5	23205	22.14	22.5	0-1				
			13	782	23230	21.93	22.5	0-1				
				784.5	23255	21.98	22.5	0-1				
				779.5	23205	22.07	22.5	0-1				
		25	RB	782	23230	22.03	22.5	0-1				
5				784.5	23255	21.97	22.5	0-1				
				779.5	23205	21.76	22.5	0-1				
			0	782	23230	21.80	22.5	0-1				
				784.5	23255	21.71	22.5	0-1				
				779.5	23205	21.75	22.5	0-1				
		1 RB	12	782	23230	21.91	22.5	0-1				
				784.5	23255	21.54	22.5	0-1				
				779.5	23205	22.00	22.5	0-1				
			24	782	23230	21.78	22.5	0-1				
				784.5	23255	21.66	22.5	0-1				
	40.044			779.5	23205	21.04	21.5	0-2				
	16-QAM		0	782	23230	21.18	21.5	0-2				
				784.5	23255	20.99	21.5	0-2				
		40.00		779.5	23205	21.10	21.5	0-2				
		12 RB	6	782	23230	21.01	21.5	0-2				
				784.5	23255	20.99	21.5	0-2				
			10	779.5	23205	21.16	21.5	0-2				
			13	782	23230	20.94	21.5	0-2				
				784.5	23255	21.00	21.5	0-2				
		2500		779.5	23205	21.38	21.5	0-2				
	25R	מא	782	23230	21.25	21.5	0-2					
								784.5	23255	21.27	21.5	0-2

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LTE FDD Band 2 / Band 4 power table (Reduced power):

FDD Band 27 Band 4 power table (Reduced power): FDD Band 2									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
				1860	18700	17.41	18	0	
			0	1880	18900	17.31	18	0	
				1900	19100	17.34	18	0	
				1860	18700	17.41	18	0	
		1 RB	50	1880	18900	17.46	18	0	
				1900	19100	17.37	18	0	
				1860	18700	17.10	18	0	
			99	1880	18900	17.49	18	0	
				1900	19100	17.30	18	0	
				1860	18700	17.48	18	0	
	QPSK		0	1880	18900	17.42	18	0	
		50 RB		1900	19100	17.46	18	0	
				1860	18700	17.47	18	0	
			25	1880	18900	17.41	18	0	
				1900	19100	17.48	18	0	
			50	1860	18700	17.46	18	0	
				1880	18900	17.40	18	0	
				1900	19100	17.42	18	0	
		100RB		1860	18700	17.39	18	0	
				1880	18900	17.47	18	0	
20					19100	17.44	18	0	
20		1 RB 50		1860	18700	17.45	18	0	
			0	1880	18900	17.36	18	0	
				1900	19100	17.42	18	0	
			50	1860	18700	17.43	18	0	
				1880	18900	17.45	18	0	
				1900	19100	17.45	18	0	
				1860	18700	17.30	18	0	
			99	1880	18900	17.48	18	0	
				1900	19100	17.48	18	0	
		0		1860	18700	17.44	18	0	
	16-QAM		0	1880	18900	17.44	18	0	
				1900	19100	17.47	18	0	
				1860	18700	17.45	18	0	
		50 RB	25	1880	18900	17.42	18	0	
				1900	19100	17.46	18	0	
				1860	18700	17.42	18	0	
			50	1880	18900	17.42	18	0	
				1900	19100	17.47	18	0	
		100RB		1860	18700	17.43	18	0	
				1880	18900	17.41	18	0	
				1900	19100	17.42	18	0	

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FDD Band 2										
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)		
				1857.5	18675	17.42	18	0		
			0	1880	18900	17.39	18	0		
				1902.5	19125	17.45	18	0		
				1857.5	18675	17.30	18	0		
		1 RB	36	1880	18900	17.28	18	0		
				1902.5	19125	17.11	18	0		
				1857.5	18675	17.42	18	0		
			74	1880	18900	17.45	18	0		
				1902.5	19125	17.27	18	0		
				1857.5	18675	17.46	18	0		
	QPSK		0	1880	18900	17.32	18	0		
				1902.5	19125	17.40	18	0		
				1857.5	18675	17.48	18	0		
		36 RB	18	1880	18900	17.34	18	0		
				1902.5	19125	17.43	18	0		
				1857.5	18675	17.32	18	0		
			37	1880	18900	17.45	18	0		
				1902.5	19125	17.45	18	0		
		75RB		1857.5	18675	17.48	18	0		
				1880	18900	17.40	18	0		
15				1902.5	19125	17.42	18	0		
				1857.5	18675	17.40	18	0		
			0	1880	18900	17.42	18	0		
				1902.5	19125	17.27	18	0		
			36	1857.5	18675	17.45	18	0		
				1880	18900	17.31	18	0		
				1902.5	19125	17.21	18	0		
				1857.5	18675	17.47	18	0		
			74	1880	18900	17.41	18	0		
				1902.5	19125	17.28	18	0		
				1857.5	18675	17.42	18	0		
	16-QAM		0	1880	18900	17.34	18	0		
				1902.5	19125	17.38	18	0		
				1857.5	18675	17.44	18	0		
		36 RB	18	1880	18900	17.17	18	0		
				1902.5	19125	17.40	18	0		
				1857.5	18675	17.48	18	0		
			37	1880	18900	17.28	18	0		
				1902.5	19125	17.42	18	0		
		75RB		1857.5	18675	17.45	18	0		
				1880 1902.5	18900	17.34	18	0		
					19125	17.48	18	0		

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FDD Band 2										
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)		
				1855	18650	17.30	18	0		
			0	1880	18900	17.26	18	0		
				1905	19150	17.41	18	0		
				1855	18650	17.48	18	0		
		1 RB	25	1880	18900	17.33	18	0		
				1905	19150	17.45	18	0		
				1855	18650	17.21	18	0		
			49	1880	18900	17.40	18	0		
				1905	19150	17.46	18	0		
				1855	18650	17.42	18	0		
	QPSK		0	1880	18900	17.42	18	0		
				1905	19150	17.47	18	0		
				1855	18650	17.47	18	0		
		25 RB	12	1880	18900	17.38	18	0		
				1905	19150	17.44	18	0		
			25	1855	18650	17.34	18	0		
				1880	18900	17.30	18	0		
				1905	19150	17.41	18	0		
		50RB		1855	18650	17.48	18	0		
				1880	18900	17.31	18	0		
10				1905	19150	17.45	18	0		
10		1 RB	0	1855	18650	17.41	18	0		
				1880	18900	17.48	18	0		
				1905	19150	17.48	18	0		
			25	1855	18650	17.46	18	0		
				1880	18900	17.48	18	0		
				1905	19150	17.40	18	0		
				1855	18650	17.48	18	0		
			49	1880	18900	17.46	18	0		
				1905	19150	17.36	18	0		
				1855	18650	17.39	18	0		
	16-QAM		0	1880	18900	17.40	18	0		
				1905	19150	17.43	18	0		
				1855	18650	17.43	18	0		
		25 RB	12	1880	18900	17.47	18	0		
				1905	19150	17.48	18	0		
				1855	18650	17.31	18	0		
			25	1880	18900	17.48	18	0		
				1905	19150	17.45	18	0		
		50RB		1855	18650	17.48	18	0		
				1880	18900	17.34	18	0		
				1905	19150	17.42	18	0		

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	FDD Band 2									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)		
			0	1852.5	18625	17.43	18	0		
				1880	18900	17.45	18	0		
				1907.5	19175	17.39	18	0		
				1852.5	18625	17.41	18	0		
		1 RB	12	1880	18900	17.41	18	0		
				1907.5	19175	17.48	18	0		
				1852.5	18625	17.48	18	0		
			24	1880	18900	17.47	18	0		
				1907.5	19175	17.45	18	0		
				1852.5	18625	17.39	18	0		
	QPSK		0	1880	18900	17.32	18	0		
				1907.5	19175	17.31	18	0		
		12 RB		1852.5	18625	17.31	18	0		
			6	1880	18900	17.23	18	0		
				1907.5	19175	17.39	18	0		
			13	1852.5	18625	17.46	18	0		
				1880	18900	17.34	18	0		
				1907.5	19175	17.36	18	0		
		25RB		1852.5	18625	17.37	18	0		
				1880	18900	17.31	18	0		
5				1907.5	19175	17.30	18	0		
		1 RB	0	1852.5	18625	17.47	18	0		
				1880	18900	17.47	18	0		
				1907.5	19175	17.41	18	0		
			12	1852.5	18625	17.36	18	0		
				1880	18900	17.39	18	0		
				1907.5	19175	17.45	18	0		
			9.1	1852.5	18625	17.21	18	0		
			24	1880	18900	17.46	18	0		
				1907.5	19175	17.34	18	0		
	16 0 14			1852.5	18625	17.39	18	0		
	16-QAM		0	1880	18900	17.30	18	0		
				1907.5	19175	17.24	18	0		
		12 DD	6	1852.5	18625	17.41	18	0		
		12 RB	O	1880	18900	17.31	18	0		
				1907.5	19175	17.41	18	0		
			12	1852.5	18625 18900	17.45	18	0		
			13	1880		17.40	18	0		
				1907.5 1852.5	19175	17.47	18	0		
		25	OEDD		18625 18900	17.47 17.37	18 18	0		
		25RB		1880						
				1907.5	19175	17.44	18	0		

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FDD Band 2										
							Target	MPR		
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Power + Max. Tolerance (dBm)	Allowed per 3GPP(dB)		
				1851.5	18615	17.36	18	0		
			0	1880	18900	17.39	18	0		
				1908.5	19185	17.39	18	0		
				1851.5	18615	17.42	18	0		
		1 RB	7	1880	18900	17.38	18	0		
				1908.5	19185	17.48	18	0		
				1851.5	18615	17.37	18	0		
			14	1880	18900	17.40	18	0		
				1908.5	19185	17.47	18	0		
				1851.5	18615	17.36	18	0		
	QPSK		0	1880	18900	17.38	18	0		
				1908.5	19185	17.43	18	0		
		8 RB		1851.5	18615	17.35	18	0		
			4	1880	18900	17.42	18	0		
			7	1908.5	19185	17.38	18	0		
				1851.5	18615	17.46	18	0		
				1880	18900	17.41	18	0		
				1908.5	19185	17.40	18	0		
		15RB		1851.5	18615	17.47	18	0		
				1880	18900	17.44	18	0		
3				1908.5	19185	17.38	18	0		
		1 RB	0	1851.5	18615	17.44	18	0		
				1880	18900	17.42	18	0		
			7	1908.5 1851.5	19185 18615	17.40 17.46	18 18	0		
				1880	18900	17.48	18	0		
				1908.5	19185	17.47	18	0		
				1851.5	18615	17.47	18	0		
			14	1880	18900	17.44	18	0		
				1908.5	19185	17.46	18	0		
			0	1851.5	18615	17.23	18	0		
	16-QAM			1880	18900	17.16	18	0		
				1908.5	19185	17.17	18	0		
				1851.5	18615	17.23	18	0		
		8 RB	4	1880	18900	17.04	18	0		
		O ND		1908.5	19185	17.16	18	0		
				1851.5	18615	17.21	18	0		
			7	1880	18900	17.11	18	0		
				1908.5	19185	17.19	18	0		
		15RB		1851.5	18615	17.21	18	0		
				1880	18900	17.06	18	0		
				1908.5	19185	17.24	18	0		

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	FDD Band 2											
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)				
				1850.7	18607	17.45	18	0				
			0	1880	18900	17.33	18	0				
				1909.3	19193	17.44	18	0				
				1850.7	18607	17.46	18	0				
		1 RB	2	1880	18900	17.39	18	0				
				1909.3	19193	17.47	18	0				
				1850.7	18607	17.44	18	0				
			5	1880	18900	17.32	18	0				
				1909.3	19193	17.44	18	0				
				1850.7	18607	17.41	18	0				
	QPSK	QPSK		1880	18900	17.43	18	0				
				1909.3	19193	17.46	18	0				
			2	1850.7	18607	17.45	18	0				
		3 RB		1880	18900	17.39	18	0				
				1909.3	19193	17.48	18	0				
			1850.7	18607	17.42	18	0					
		3	1880	18900	17.48	18	0					
				1909.3	19193	17.45	18	0				
			000		18607	17.43	18	0				
		6RB		1880	18900	17.46	18	0				
1.4				1909.3	19193	17.45	18	0				
				1850.7	18607	17.47	18	0				
			0	1880	18900	17.43	18	0				
				1909.3	19193	17.38	18	0				
				1850.7	18607	17.43	18	0				
		1 RB	2	1880	18900	17.44	18	0				
				1909.3	19193	17.35	18	0				
			_	1850.7	18607	17.48	18	0				
			5	1880	18900	17.45	18	0				
				1909.3	19193	17.28	18	0				
			_	1850.7	18607	17.43	18	0				
	16-QAM		0	1880	18900	17.41	18	0				
				1909.3	19193	17.29	18	0				
			_	1850.7	18607	17.46	18	0				
	3 RB	3 RB	2	1880	18900	17.36	18	0				
				1909.3	19193	17.46	18	0				
				1850.7	18607	17.42	18	0				
			3	1880	18900	17.33	18	0				
				1909.3	19193	17.47	18	0				
			D D	1850.7	18607	17.27	18	0				
		6F	RB	1880	18900	17.17	18	0				
				1909.3	19193	17.08	18	0				

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	FDD Band 4											
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)				
				1720	20050	17.78	18.5	0				
			0	1732.5	20175	17.51	18.5	0				
				1745	20300	17.42	18.5	0				
				1720	20050	17.44	18.5	0				
		1 RB	50	1732.5	20175	17.56	18.5	0				
				1745	20300	17.36	18.5	0				
	QPSK			1720	20050	17.14	18.5	0				
			99	1732.5	20175	17.17	18.5	0				
				1745	20300	17.22	18.5	0				
				1720	20050	17.45	18.5	0				
			0	1732.5	20175	17.53	18.5	0				
				1745	20300	17.49	18.5	0				
				1720	20050	17.40	18.5	0				
	50 RB	25	1732.5	20175	17.54	18.5	0					
			1745	20300	17.45	18.5	0					
				1720	20050	17.39	18.5	0				
			50	1732.5	20175	17.49	18.5	0				
				1745	20300	17.36	18.5	0				
				1720	20050	17.48	18.5	0				
		100RB		1732.5	20175	17.59	18.5	0				
20				1745	20300	17.44	18.5	0				
20				1720	20050	17.41	18.5	0				
			0	1732.5	20175	17.59	18.5	0				
				1745	20300	17.38	18.5	0				
				1720	20050	17.60	18.5	0				
		1 RB	50	1732.5	20175	17.51	18.5	0				
				1745	20300	17.53	18.5	0				
				1720	20050	17.29	18.5	0				
			99	1732.5	20175	17.62	18.5	0				
				1745	20300	17.28	18.5	0				
				1720	20050	17.50	18.5	0				
	16-QAM		0	1732.5	20175	17.49	18.5	0				
				1745	20300	17.45	18.5	0				
				1720	20050	17.37	18.5	0				
		50 RB	25	1732.5	20175	17.41	18.5	0				
				1745	20300	17.41	18.5	0				
				1720	20050	17.42	18.5	0				
			50	1732.5	20175	17.37	18.5	0				
				1745	20300	17.25	18.5	0				
				1720	20050	17.46	18.5	0				
		100)RB	1732.5	20175	17.49	18.5	0				
				1745	20300	17.53	18.5	0				

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	FDD Band 4											
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)				
				1717.5	20025	17.52	18.5	0				
			0	1732.5	20175	17.51	18.5	0				
				1747.5	20325	17.58	18.5	0				
				1717.5	20025	17.30	18.5	0				
		1 RB	36	1732.5	20175	17.30	18.5	0				
				1747.5	20325	17.26	18.5	0				
			74	1717.5	20025	17.25	18.5	0				
				1732.5	20175	17.32	18.5	0				
				1747.5	20325	17.45	18.5	0				
				1717.5	20025	17.58	18.5	0				
	QPSK		0	1732.5	20175	17.53	18.5	0				
				1747.5	20325	17.48	18.5	0				
				1717.5	20025	17.33	18.5	0				
	36 RB	18	1732.5	20175	17.57	18.5	0					
				1747.5	20325	17.45	18.5	0				
				1717.5	20025	17.32	18.5	0				
			37	1732.5	20175	17.56	18.5	0				
				1747.5	20325	17.41	18.5	0				
				1717.5	20025	17.37	18.5	0				
		75RB		1732.5	20175	17.50	18.5	0				
15				1747.5	20325	17.50	18.5	0				
15				1717.5	20025	17.57	18.5	0				
			0	1732.5	20175	17.32	18.5	0				
				1747.5	20325	17.57	18.5	0				
				1717.5	20025	17.56	18.5	0				
		1 RB	36	1732.5	20175	17.62	18.5	0				
				1747.5	20325	17.33	18.5	0				
				1717.5	20025	17.45	18.5	0				
			74	1732.5	20175	17.64	18.5	0				
				1747.5	20325	17.47	18.5	0				
				1717.5	20025	17.45	18.5	0				
	16-QAM		0	1732.5	20175	17.50	18.5	0				
				1747.5	20325	17.53	18.5	0				
				1717.5	20025	17.24	18.5	0				
		36 RB	18	1732.5	20175	17.55	18.5	0				
				1747.5	20325	17.51	18.5	0				
				1717.5	20025	17.31	18.5	0				
			37	1732.5	20175	17.44	18.5	0				
				1747.5	20325	17.46	18.5	0				
				1717.5	20025	17.39	18.5	0				
		75	RB	1732.5	20175	17.52	18.5	0				
				1747.5	20325	17.43	18.5	0				

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	FDD Band 4											
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)				
				1715	20000	17.47	18.5	0				
			0	1732.5	20175	17.36	18.5	0				
				1750	20350	17.54	18.5	0				
				1715	20000	17.77	18.5	0				
		1 RB	25	1732.5	20175	17.50	18.5	0				
				1750	20350	17.67	18.5	0				
				1715	20000	17.37	18.5	0				
			49	1732.5	20175	17.19	18.5	0				
				1750	20350	17.57	18.5	0				
				1715	20000	17.52	18.5	0				
	QPSK		0	1732.5	20175	17.58	18.5	0				
				1750	20350	17.47	18.5	0				
				1715	20000	17.52	18.5	0				
	25 RB	12	1732.5	20175	17.57	18.5	0					
				1750	20350	17.59	18.5	0				
				1715	20000	17.37	18.5	0				
			25	1732.5	20175	17.50	18.5	0				
				1750	20350	17.61	18.5	0				
				1715	20000	17.51	18.5	0				
		50RB		1732.5	20175	17.55	18.5	0				
40				1750	20350	17.50	18.5	0				
10				1715	20000	17.49	18.5	0				
			0	1732.5	20175	17.57	18.5	0				
				1750	20350	17.66	18.5	0				
				1715	20000	17.47	18.5	0				
		1 RB	25	1732.5	20175	17.66	18.5	0				
				1750	20350	17.49	18.5	0				
				1715	20000	17.62	18.5	0				
			49	1732.5	20175	17.59	18.5	0				
				1750	20350	17.62	18.5	0				
				1715	20000	17.66	18.5	0				
	16-QAM		0	1732.5	20175	17.62	18.5	0				
				1750	20350	17.54	18.5	0				
				1715	20000	17.68	18.5	0				
	[25 RB	12	1732.5	20175	17.63	18.5	0				
	[1750	20350	17.54	18.5	0				
	[1715	20000	17.44	18.5	0				
	[25	1732.5	20175	17.55	18.5	0				
	[1750	20350	17.67	18.5	0				
	[1715	20000	17.56	18.5	0				
	[50	RB	1732.5	20175	17.50	18.5	0				
				1750	20350	17.55	18.5	0				

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	FDD Band 4											
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)				
				1712.5	19975	17.31	18.5	0				
			0	1732.5	20175	17.51	18.5	0				
				1752.5	20375	17.30	18.5	0				
				1712.5	19975	17.29	18.5	0				
		1 RB	12	1732.5	20175	17.44	18.5	0				
				1752.5	20375	17.53	18.5	0				
				1712.5	19975	17.33	18.5	0				
			24	1732.5	20175	17.45	18.5	0				
				1752.5	20375	17.40	18.5	0				
				1712.5	19975	17.39	18.5	0				
	QPSK	QPSK		1732.5	20175	17.39	18.5	0				
				1752.5	20375	17.48	18.5	0				
				1712.5	19975	17.36	18.5	0				
	12 RB	6	1732.5	20175	17.45	18.5	0					
			1752.5	20375	17.56	18.5	0					
			1712.5	19975	17.39	18.5	0					
		13	1732.5	20175	17.46	18.5	0					
			1752.5	20375	17.57	18.5	0					
				1712.5	19975	17.42	18.5	0				
		25	25RB		20175	17.40	18.5	0				
5				1752.5	20375	17.61	18.5	0				
			_	1712.5	19975	17.62	18.5	0				
			0	1732.5	20175	17.52	18.5	0				
				1752.5	20375	17.68	18.5	0				
				1712.5	19975	17.51	18.5	0				
		1 RB	12	1732.5	20175	17.61	18.5	0				
				1752.5	20375	17.49	18.5	0				
			0.4	1712.5	19975	17.54	18.5	0				
			24	1732.5	20175	17.65	18.5	0				
				1752.5	20375	17.74	18.5	0				
	16 0 4 4		_	1712.5	19975	17.25	18.5	0				
	16-QAM		0	1732.5	20175	17.25	18.5	0				
				1752.5	20375	17.44	18.5	0				
	12 DD	6	1712.5	19975	17.23	18.5	0					
	12 RB	6	1732.5	20175	17.34	18.5	0					
				1752.5	20375	17.41	18.5	0				
			13	1712.5	19975	17.28	18.5	0				
			13	1732.5 1752.5	20175	17.43 17.42	18.5 18.5	0				
				1752.5 1712.5	20375 19975		18.5 18.5	0				
		25	RB	1712.5	20175	17.37 17.45	18.5 18.5	0				
		25				17.45		0				
				1752.5	20375	17.40	18.5	U				

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	FDD Band 4											
Target												
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)				
				1711.5	19965	17.46	18.5	0				
			0	1732.5	20175	17.57	18.5	0				
				1753.5	20385	17.63	18.5	0				
				1711.5	19965	17.75	18.5	0				
		1 RB	7	1732.5	20175	17.71	18.5	0				
	QPSK			1753.5	20385	17.69	18.5	0				
				1711.5	19965	17.57	18.5	0				
			14	1732.5	20175	17.62	18.5	0				
				1753.5	20385	17.62	18.5	0				
				1711.5	19965	17.45	18.5	0				
			0	1732.5	20175	17.50	18.5	0				
				1753.5	20385	17.47	18.5	0				
				1711.5	19965	17.48	18.5	0				
	8 RB	4	1732.5	20175	17.45	18.5	0					
			1753.5	20385	17.57	18.5	0					
				1711.5	19965	17.44	18.5	0				
			7	1732.5	20175	17.46	18.5	0				
				1753.5	20385	17.53	18.5	0				
				1711.5	19965	17.45	18.5	0				
		15RB		1732.5	20175	17.43	18.5	0				
3				1753.5	20385	17.61	18.5	0				
3				1711.5	19965	17.59	18.5	0				
			0	1732.5	20175	17.60	18.5	0				
				1753.5	20385	17.66	18.5	0				
				1711.5	19965	17.48	18.5	0				
		1 RB	7	1732.5	20175	17.53	18.5	0				
				1753.5	20385	17.59	18.5	0				
				1711.5	19965	17.62	18.5	0				
			14	1732.5	20175	17.57	18.5	0				
				1753.5	20385	17.55	18.5	0				
				1711.5	19965	17.16	18.5	0				
	16-QAM		0	1732.5	20175	17.53	18.5	0				
				1753.5	20385	17.48	18.5	0				
				1711.5	19965	17.38	18.5	0				
		8 RB	4	1732.5	20175	17.46	18.5	0				
				1753.5	20385	17.62	18.5	0				
				1711.5	19965	17.48	18.5	0				
			7	1732.5	20175	17.39	18.5	0				
				1753.5	20385	17.67	18.5	0				
				1711.5	19965	17.41	18.5	0				
		15	RB	1732.5	20175	17.49	18.5	0				
				1753.5	20385	17.72	18.5	0				

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	FDD Band 4											
Torrect												
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)				
				1710.7	19957	17.47	18.5	0				
			0	1732.5	20175	17.37	18.5	0				
				1754.3	20393	17.41	18.5	0				
				1710.7	19957	17.36	18.5	0				
		1 RB	2	1732.5	20175	17.38	18.5	0				
				1754.3	20393	17.59	18.5	0				
				1710.7	19957	17.31	18.5	0				
			5	1732.5	20175	17.33	18.5	0				
				1754.3	20393	17.51	18.5	0				
	QPSK			1710.7	19957	17.33	18.5	0				
			0	1732.5	20175	17.39	18.5	0				
				1754.3	20393	17.46	18.5	0				
				1710.7	19957	17.43	18.5	0				
	3 RB	2	1732.5	20175	17.36	18.5	0					
				1754.3	20393	17.58	18.5	0				
				1710.7	19957	17.45	18.5	0				
			3	1732.5	20175	17.43	18.5	0				
				1754.3	20393	17.53	18.5	0				
			•	1710.7	19957	17.41	18.5	0				
		6R	RB	1732.5	20175	17.37	18.5	0				
1.4				1754.3	20393	17.55	18.5	0				
1.4				1710.7	19957	17.51	18.5	0				
			0	1732.5	20175	17.63	18.5	0				
				1754.3	20393	17.74	18.5	0				
				1710.7	19957	17.72	18.5	0				
		1 RB	2	1732.5	20175	17.42	18.5	0				
				1754.3	20393	17.52	18.5	0				
				1710.7	19957	17.57	18.5	0				
			5	1732.5	20175	17.37	18.5	0				
				1754.3	20393	17.51	18.5	0				
				1710.7	19957	17.39	18.5	0				
	16-QAM		0	1732.5	20175	17.46	18.5	0				
				1754.3	20393	17.44	18.5	0				
				1710.7	19957	17.36	18.5	0				
		3 RB	2	1732.5	20175	17.28	18.5	0				
				1754.3	20393	17.51	18.5	0				
				1710.7	19957	17.26	18.5	0				
			3	1732.5	20175	17.43	18.5	0				
				1754.3	20393	17.34	18.5	0				
				1710.7	19957	17.24	18.5	0				
		6F	RB	1732.5	20175	17.41	18.5	0				
				1754.3	20393	17.25	18.5	0				

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

Band	Mode	Channel	Frequency (MHz)	Data Rate	Max. Rated Avg. Power + Max. Tolerance (dBm)	Average power (dBm)
		1	2412		19.50	17.75
	802.11b	6	2437	1Mbps	19.50	17.88
		11	2462		19.50	17.96
	802.11g	1	2412	6Mbps	14.50	12.76
		2	2417		17.50	15.87
		6	2437		17.50	15.71
2450 MHz		10	2457		17.50	15.78
		11	2462		14.50	12.92
		1	2412		14.50	12.80
		2	2417		17.50	15.92
	802.11n-HT20	6	2437	MCS0	17.50	15.77
		10	2457		17.50	15.78
		11	2462		14.50	12.96

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Band	Mode	Channel	Frequency (MHz)	Data Rate	Max. Rated Avg. Power + Max. Tolerance (dBm)	Average power (dBm)
		36	5180		14.50	12.54
	802.11a	40	5200	6Mbps	14.50	12.53
		44	5220		14.50	12.67
		48	5240		14.50	12.62
5.15-5.25 GHz		36	5180		14.50	12.56
5.15-5.25 GHZ	802.11n-HT20	40	5200	MCS0	14.50	12.55
-	002.1111-11120	44	5220	IVICSU	14.50	12.60
		48	5240		14.50	12.75
	802.11n-HT40	38	5190	MCS0	14.50	12.55
	002.111111140	46	5230	IVICOU	14.50	12.83

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Band	Mode	Channel	Frequency (MHz)	Data Rate	Max. Rated Avg. Power + Max. Tolerance (dBm)	Average power (dBm)
		52	5260		17.50	15.67
	802.11a	56	5280	6Mbps	17.50	15.65
		60	5300		17.50	15.75
		64	5320		14.50	12.55
5.25-5.35 GHz		52	5260		16.50	14.77
5.25-5.35 GHZ	802.11n-HT20	56	5280	MCS0	16.50	14.73
	602.111FH120	60	5300	IVICSU	16.50	14.74
		64	5320		14.50	12.73
	802.11n-HT40	54	5270	MCS0	14.50	12.93
	002.111111140	62	5310	IVICOU	14.50	12.86

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Band	Mode	Channel	Frequency (MHz)	Data Rate	Max. Rated Avg. Power + Max. Tolerance (dBm)	Average power (dBm)
		100	5500		14.50	12.87
		104	5520		17.50	15.76
		116	5580		17.50	15.81
	802.11a	120	5600	6Mbps	17.50	15.61
	002.11a	124	5620	Olvibps	17.50	15.59
		128	5640		17.50	15.54
		136	5680		17.50	15.79
		140	5700		14.50	12.88
		100	5500		14.50	12.79
		104	5520		16.50	14.83
5600 MHz		116	5580		16.50	14.84
3000 1011 12	802.11n-HT20	120	5600	MCS0	16.50	14.75
	002.111111120	124	5620	IVICOU	16.50	14.79
		128	5640		16.50	14.68
		136	5680		16.50	14.81
		140	5700		14.50	12.98
		102	5510		14.50	12.52
		110	5550		14.50	12.53
	802.11n-HT40	118	5590	MCS0	14.50	12.50
	002.1111-1140	126	5630	IVICSU	14.50	12.50
		134	5670		14.50	12.51
		142	5710		14.50	12.52

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Mode	Mode	Channel	Frequency (MHz)	Data Rate	Max. Rated Avg. Power + Max. Tolerance (dBm)	Average power (dBm)
	802.11a	149	5745		17.50	15.76
		157	5785	6Mbps	17.50	15.56
		165	5825		17.50	15.77
5800 MHz		149	5745		16.50	14.80
3600 MHZ	802.11n-HT20	157	5785	MCS0	16.50	14.59
-		165	5825		16.50	14.86
	802.11n-HT40	151	5755	MCS0	14.50	12.59
	002.111111140	159	5795	IVICOU	14.50	12.64

Bluetooth conducted power table:

Mode			1Mbps	2Mbps	3Mbps	Max. Rated
	Channel	Frequency (MHz)	Average power (dBm)	Average power (dBm)	Average power (dBm)	Avg. Power + Max. Tolerance (dBm)
	CH 00	2402	9.66	7.49	7.49	
BR/EDR	CH 39	2441	8.95	7.40	7.41	11.6
	CH 78	2480	8.15	6.22	6.24	

Mode	Channel	Frequency	GFSK				
	Channel	(MHz)	Max. Rated Avg.Power + Max. Tolerance (dBm)	Average Output Power (dBm)			
	CH 00	2402		0.81			
LE	CH 20	2442	2.7	0.38			
	CH 39	2480		-1.08			

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1.4 Test Environment

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

1.5 Operation Description

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

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

Based on KDB inquiry, proceed full test the Standard model without scanner, then worst cases test Landscape scanner and Portrait scanner.

WWAN

WCDMA BII / LTE B2/4 (p-sensor)

Back/top_0mm with power reduction

Back_11mm / top_11mm / bottom/right/Left sides_0mm with full power

WCDMA BV / LTE B5/12/13

Back/top/bottom/right/Left sides_0mm with full power

WLAN

Back/top/bottom/right/left sides_0mm with full power

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Note:

- 1. During the SAR testing, the DASY 5 system checks power drift by comparing the e-field strength of one specific location measured at the beginning with that measured at the end of the SAR testing.
- 2. The 3G SAR test reduction procedure is applied to HSDPA with 12.2 kbps RMC as the primary mode. Since the maximum output power in a secondary mode (HSDPA) is $\leq \frac{1}{4}$ dB higher than the primary mode (WCDMA), SAR measurement is not required for the secondary mode (HSDPA).
- 3. The 3G SAR test reduction procedure is applied to HSPA (HSUPA/HSDPA with RMC) with 12.2 kbps RMC as the primary mode. Since the maximum output power in a secondary mode (HSPA) is ≤ 1/4 dB higher than the primary mode (WCDMA), SAR measurement is not required for the secondary mode (HSPA).
- 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

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- The procedures required for 1 RB allocation in 5.2.1 are applied to measure the SAR for QPSK with 50% RB allocation.
- c. Per Section 5.2.3, the largest channel bandwidth and measure SAR for QPSK with 100% RB allocation
- For QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation in 5.2.1 and 5.2.2 are \leq 0.8 W/kg.
- Otherwise, SAR is measured for the highest output power channel and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
- d. Per Section 5.2.4, Higher order modulations
- For each modulation besides QPSK; e.g., 16-QAM, 64-QAM, apply the QPSK procedures in sections 5.2.1, 5.2.2 and 5.2.3 to determine the QAM configurations that may need SAR measurement. For each configuration identified as required for testing, SAR is required only when the highest maximum output power for the configuration in the higher order modulation is $> \frac{1}{2}$ dB higher than the same configuration in QPSK or when the reported SAR for the QPSK configuration is > 1.45 W/kg.
- e. Per Section 5.3, other channel bandwidth standalone SAR test requirements
- For the other channel bandwidths used by the device in a frequency band, apply all the procedures required for the largest channel bandwidth in section 5.2 to determine the channels and RB configurations that need SAR testing and only measure SAR when the highest maximum output power of a configuration requiring testing in the smaller channel bandwidth is > 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.

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802.11b DSSS SAR Test Requirements:

- 5. SAR is measured for 2.4 GHz 802.11b DSSS mode using the highest measured maximum output power channel, when the reported SAR of the highest measured maximum output power channel for the exposure configuration is ≤ 0.8 W/kg, no further SAR testing is required for 802.11b DSSS in that exposure configuration.
- 6. When the reported SAR is > 0.8 W/kg, SAR is required for that exposure configuration using the next highest measured output power channel. When any reported SAR is > 1.2 W/kg, SAR is required for the third channel; i.e., all channels require testing.

802.11g/n OFDM SAR Test Exclusion Requirements:

7. SAR is not required for 802.11g/n since the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg.

Initial Test Configuration:

- 8. An initial test configuration is determined for OFDM transmission modes according to the channel bandwidth, modulation and data rate combination(s) with the highest maximum output power specified for production units in each standalone and aggregated frequency band.
- 9. SAR is measured using the highest measured maximum output power channel. When the reported SAR of the initial test configuration is > 0.8 W/kg, SAR measurement is required for the subsequent next highest measured output power channel(s) in the initial test configuration until the reported SAR is ≤ 1.2 W/kg or all required channels are tested.
- 10. Since the highest reported SAR for the initial test configuration is adjusted by the ratio of the subsequent test configuration to initial test configuration specified

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maximum output power and the adjusted SAR is ≤ 1.2 W/kg, SAR is not required for subsequent test configuration.

- 11. According to KDB447498D01v06, SAR test exclusion evaluation for surfaces/edges of tablet is not required since SAR measurements for all the surfaces/edges were performed.
- 12. According to KDB447498D01v06, testing of other required channels is not required when the reported 1-g SAR for the highest output channel is \leq 0.8 W/kg, when the transmission band is \leq 100 MHz.
- 13. According to KDB865664D01v01r04, SAR measurement variability must be assessed for each frequency band. When the original highest measured SAR is ≥ 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 (~ 10% from the 1-g SAR limit)

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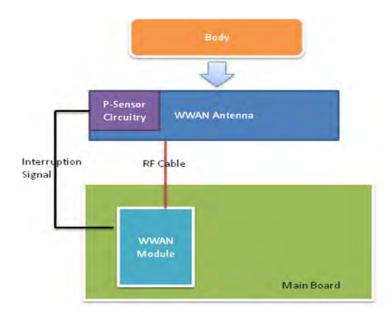
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1.6 Proximity sensor operation description

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.



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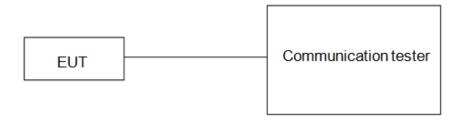
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1.6.1 Proximity sensor measurement procedure

- 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.



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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 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
- 4. 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.
- 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.
- 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.

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- 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 worst trigger distance of proximity sensor is 12mm.
- 10. For top side, the worst trigger distance of proximity sensor is 14mm, and we perform the 1.6.3 tilt angle testing in next step.

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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 +/- 45deg or more from the vertical position at 0 deg.
- 2. If sensor triggering is released and normal maximum output power is restored within the +/- 45deg 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.
- After the tilt angle testing for top side, the sensor is released during +/-45deg until 12mm, so 12-1=11mm should be used in the SAR measurements.

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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.
- 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.

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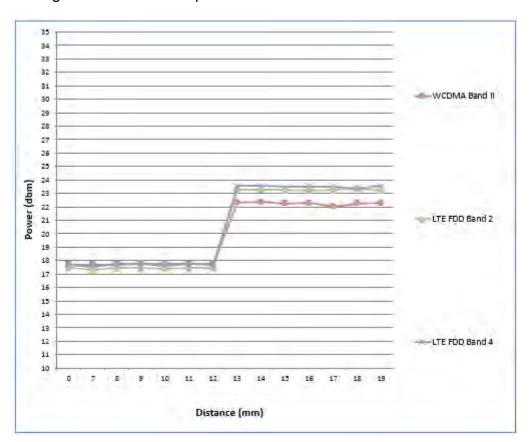
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1.6.5 Results

The measured output power within \pm 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



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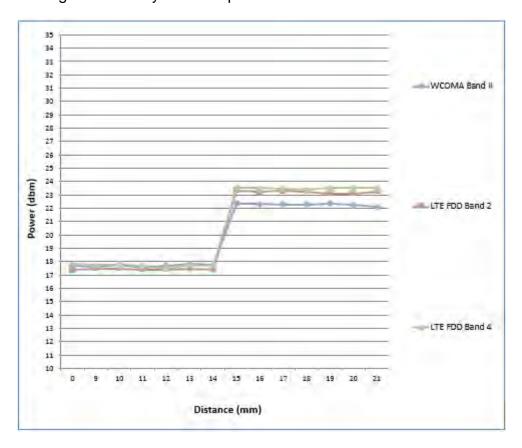
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Moving device away from the phantom



For back side, the worst trigger distance of proximity sensor is 12mm, and we tested backside SAR in 11mm with full power and 0mm with reduced power.

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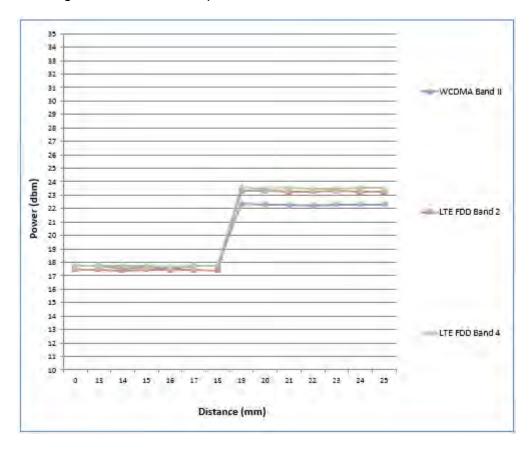
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Top side

Moving device toward the phantom



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Moving device away from the phantom

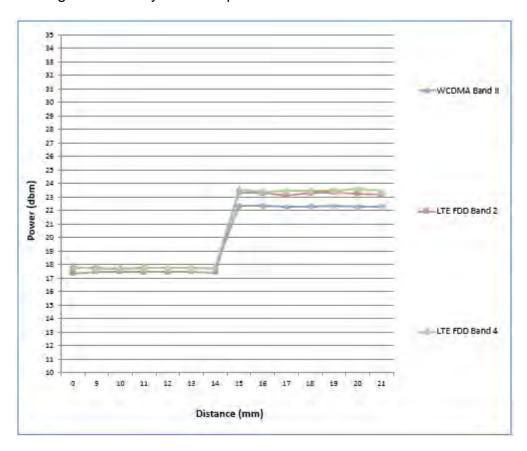


Table 1.6.5 Tilt angle test results for top side

P-sens		-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
12mn	n	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON
13mn	n	OFF	OFF	ON	ON	ON	ON	ON	ON	ON	ON	ON	OFF	OFF
14mn	n	OFF	OFF	OFF	ON	ON	ON	ON	ON	ON	ON	OFF	OFF	OFF

During the tilt angle testing for top side, the sensor is released during +/- 45deg until 12mm, so 12-1=11mm should be used in the SAR measurements.

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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.

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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 WCDMA/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		
WCDMA B2	YES		
WCDMA B5	NO		
LTE B2/4	YES		
LTE B5/12/13	NO		
WLAN	NO		
ВТ	NO		

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

Technology / Band	Mode	Default Maximum Power (dBm)
UMTS B2	All	18.5
UMTS B5	All	23.0
LTE B2	All	18
LTE B4	All	18.5
LTE B5	All	23.5
LTE B12	All	23.5
LTE B13	All	23.5

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1.7 The SAR Measurement System

A block diagram of the SAR measurement System is given in Fig. a. This SAR Measurement System uses a Computer-controlled 3-D stepper motor system (SPEAG DASY 5 professional system). The model EX3DV4 field probe is used to determine the internal electric fields. The SAR can be obtained from the equation SAR= σ (|Ei|²)/ ρ 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.

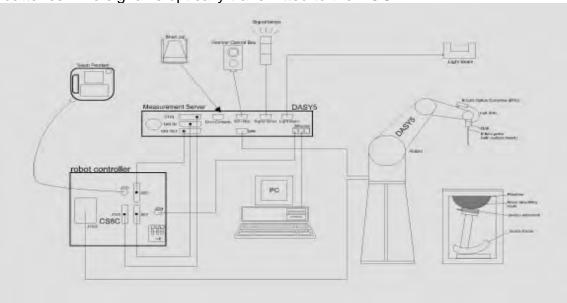


Fig. a The block diagram of SAR system

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

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1.8 System Components

EX3DV4 E-Field Probe

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

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PHANTOM

PHANTOW	
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.	英
		Device Holder

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1.9 SAR System Verification

The microwave circuit arrangement for system verification is sketched in Fig. b. The daily system accuracy verification occurs within the flat section of the SAM phantom. A SAR measurement was performed to see if the measured SAR was within +/- 10% from the target SAR values. These tests were done at 750/835/1750/1900/2450/5200/5300/5600/5800MHz. The tests were conducted on the same days as the measurement of the DUT. The obtained results from the system accuracy verification are displayed in the table 1 (SAR values are normalized to 1W forward power delivered to the dipole). During the tests, the ambient temperature of the laboratory was 21.7° C, the relative humidity was 62% and the liquid depth above the ear reference points was ≥ 15 cm ± 5 mm (frequency ≤ 3 GHz) or ≥ 10 cm ± 5 mm (frequency > 3 G Hz) in all the cases. It is seen that the system is operating within its specification, as the results are within acceptable tolerance of the reference values.

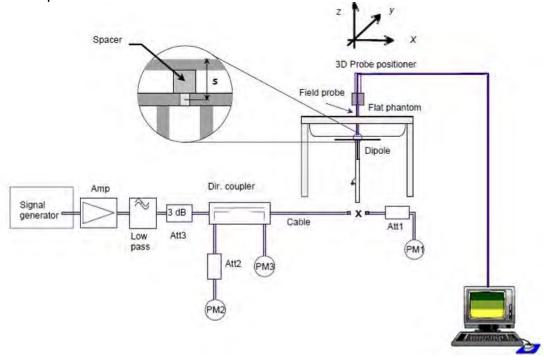


Fig. b The block diagram of system verification

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Validation Kit	S/N	Frequency (MHz)		1W Target SAR-1g (mW/g)	Pin=250mW Measured SAR-1g (mW/g)	Measured SAR-1g normalized to 1W (mW/g)	Deviation (%)	Measured Date		
D750V3	1078	750	Body	8.63	2.19	8.76	1.51%	Nov. 25, 2018		
D730V3	D730V3 1076	750	Бойу	8.63	2.17	8.68	0.58%	Dec. 09, 2018		
D835V2	14120	835	Body	9.68	2.48	9.92	2.48%	Nov. 26, 2018		
D033 V Z	40120		033 Body	9.68	2.46	9.84	1.65%	Dec. 09, 2018		
D1750V2	1000	1022	1023	1750	Body	36.8	9.03	36.12	-1.85%	Nov. 27, 2018
D1730V2	1023	1730	1730 Body	36.8	9.01	36.04	-2.07%	Dec. 10, 2018		
D1900V2	5d173	1900	Body	40.9	9.92	39.68	-2.98%	Nov. 28, 2018		
D1900V2 5017.	3u173	1900	1900 Body	40.9	9.94	39.76	-2.79%	Dec. 10, 2018		
D2450V2	727	2450	50 Body	50.8	12.6	50.40	-0.79%	Nov. 29, 2018		
D2450V2	121	2430	Dody	50.8	12.5	50.00	-1.57%	Dec. 11, 2018		

Validation Kit	S/N	Frequency (MHz)		1W Target SAR-1g (mW/g)	Pin=100mW Measured SAR-1g (mW/g)	Measured SAR-1g normalized to 1W (mW/g)	Deviation (%)	Measured Date
		5200	Body	70.9	7.11	71.10	0.28%	Nov. 30, 2018
		3200	bouy	70.9	7.09	70.90	0.00%	.00% Dec. 11, 2018
	1023 -	5300 1023 5600	Body	72.9	7.38	73.80	1.23%	Dec. 01, 2018
D5GHzV2				72.9	7.41	74.10	1.65%	Dec. 11, 2018
DOGITZVZ			0 Body	77.6	7.81	78.10	0.64%	Dec. 02, 2018
		3000		77.6	7.85	78.50	1.16%	Dec. 11, 2018
		5800	0 Body	74.1	7.42	74.20	0.13%	Dec. 03, 2018
		3000		74.1	7.39	73.90	-0.27%	Dec. 11, 2018

Table 1. Results of system verification

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1.10 Tissue Simulant Fluid for the Frequency Band

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

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

Tissue Type	Measurement Date	Measured Frequency (MHz)	Target Dielectric Constant, εr	Target Conductivity, σ (S/m)	Measured Dielectric Constant, εr	Measured Conductivity, σ (S/m)	% dev ɛr	% dev σ
		704	55.710	0.960	56.365	0.937	-1.18%	2.37%
		707.5	55.697	0.960	56.334	0.938	-1.14%	2.30%
	Nov, 25. 2018	711	55.683	0.960	56.315	0.939	-1.13%	2.22%
		750	55.531	0.963	56.255	0.941	-1.30%	2.32%
		782	55.406	0.966	56.515	0.942	-2.00%	2.47%
		826.4	55.234	0.969	55.167	1.006	0.12%	-3.78%
		829	55.223	0.970	55.144	1.008	0.14%	-3.97%
		835	55.200	0.970	55.123	1.009	0.14%	-4.02%
	Nov, 26. 2018	836.5	55.195	0.972	55.022	1.011	0.31%	-4.03%
		836.6	55.195	0.972	55.001	1.013	0.35%	-4.22%
		844	55.172	0.981	54.995	1.014	0.32%	-3.36%
		846.6	55.164	0.984	54.895	1.019	0.49%	-3.53%
		1720	53.511	1.469	53.076	1.422	0.81%	3.23%
Body	Nov, 27, 2018	1732.5	53.478	1.477	53.086	1.423	0.73%	3.68%
Бойу	1400, 27. 2016	1745	53.445	1.485	53.094	1.434	0.66%	3.45%
		1750	53.432	1.488	52.765	1.452	1.25%	2.45%
		1852.4	53.300	1.520	52.633	1.453	1.25%	4.41%
		1860	53.300	1.520	52.628	1.454	1.26%	4.34%
	Nov, 28. 2018	1880	53.300	1.520	52.615	1.499	1.29%	1.38%
		1900	53.300	1.520	52.605	1.501	1.30%	1.25%
		1907.6	53.300	1.520	52.510	1.512	1.48%	0.53%
		2402	52.764	1.904	52.885	1.939	-0.23%	-1.83%
		2412	52.751	1.914	52.874	1.941	-0.23%	-1.43%
		2437	52.717	1.938	52.863	1.943	-0.28%	-0.28%
	Nov, 29. 2018	2441	52.712	1.941	52.855	1.944	-0.27%	-0.13%
		2450	52.700	1.950	52.668	2.019	0.06%	-3.54%
		2462	52.685	1.967	52.648	2.021	0.07%	-2.74%
		2480	52.662	1.993	52.631	2.022	0.06%	-1.48%

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Tissue Type	Measurement Date	Measured Frequency (MHz)	Target Dielectric Constant, εr	Target Conductivity, σ (S/m)	Measured Dielectric Constant, εr	Measured Conductivity, σ (S/m)	% dev εr	% dev σ
		5190	49.028	5.288	47.334	5.155	3.45%	2.51%
	Nov, 30. 2018	5200	49.014	5.299	47.323	5.159	3.45%	2.65%
		5230	48.974	5.334	47.317	5.162	3.38%	3.23%
		5260	48.933	5.369	47.303	5.164	3.33%	3.82%
	Dec, 01. 2018	5280	48.906	5.393	47.298	5.223	3.29%	3.15%
		5300	48.879	5.416	47.153	5.372	3.53%	0.81%
		5520	48.580	5.673	47.911	5.911	1.38%	-4.20%
	Dec, 02. 2018	5580	48.499	5.743	47.905	5.932	1.22%	-3.29%
Body	Dec, 02. 2010	5600	48.471	5.766	47.893	5.933	1.19%	-2.89%
		5680	48.363	5.860	47.883	5.934	0.99%	-1.27%
		5745	48.275	5.936	47.077	5.911	2.48%	0.42%
		5785	48.220	5.982	47.068	5.928	2.39%	0.91%
		5800	48.200	6.000	47.055	5.933	2.38%	1.12%
	Dec, 03. 2018	5825	48.166	6.029	47.034	5.954	2.35%	1.25%
		5785	48.220	5.982	47.023	5.969	2.48%	0.23%
		5800	48.200	6.000	47.011	5.971	2.47%	0.48%
		5825	48.166	6.029	46.997	5.976	2.43%	0.88%

Tissue Type	Measurement Date	Measured Frequency (MHz)	Target Dielectric Constant, εr	Target Conductivity, σ (S/m)	Measured Dielectric Constant, Er	Measured Conductivity, σ (S/m)	% dev ɛr	% dev σ
		704	55.710	0.960	56.204	0.942	-0.89%	1.85%
		707.5	55.697	0.960	56.285	0.944	-1.06%	1.67%
		711	55.683	0.960	56.187	0.945	-0.90%	1.60%
		750	55.531	0.963	56.001	0.946	-0.85%	1.80%
		782	55.406	0.966	56.497	0.945	-1.97%	2.16%
	Dec, 09. 2018	826.4	55.234	0.969	54.945	1.009	0.52%	-4.09%
		829	55.223	0.970	54.954	1.010	0.49%	-4.17%
		835	55.200	0.970	54.824	1.011	0.68%	-4.23%
		836.5	55.195	0.972	54.860	1.013	0.61%	-4.23%
		836.6	55.195	0.972	54.937	1.017	0.47%	-4.63%
Body		844	55.172	0.981	54.892	1.023	0.51%	-4.27%
		846.6	55.164	0.984	54.639	1.026	0.95%	-4.24%
		1720	53.511	1.469	52.972	1.422	1.01%	3.23%
		1732.5	53.478	1.477	53.081	1.428	0.74%	3.34%
		1745	53.445	1.485	53.066	1.434	0.71%	3.45%
		1750	53.432	1.488	52.497	1.462	1.75%	1.78%
	Dec, 10. 2018	1852.4	53.300	1.520	52.582	1.460	1.35%	3.95%
		1860	53.300	1.520	52.486	1.462	1.53%	3.82%
		1880	53.300	1.520	52.334	1.507	1.81%	0.86%
		1900	53.300	1.520	52.568	1.511	1.37%	0.59%
		1907.6	53.300	1.520	52.305	1.517	1.87%	0.20%

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Tissue Type	Measurement Date	Measured Frequency (MHz)	Target Dielectric Constant, εr	Target Conductivity, σ (S/m)	Measured Dielectric Constant, £r	Measured Conductivity, σ (S/m)	% dev εr	% dev σ
		2402	52.764	1.904	52.836	1.943	-0.14%	-2.04%
		2412	52.751	1.914	52.781	1.944	-0.06%	-1.58%
		2437	52.717	1.938	52.859	1.944	-0.27%	-0.33%
		2441	52.712	1.941	52.565	1.946	0.28%	-0.24%
		2450	52.700	1.950	52.540	2.026	0.30%	-3.90%
		2462	52.685	1.967	52.378	2.028	0.58%	-3.10%
		2480	52.662	1.993	52.377	2.027	0.54%	-1.73%
		5190	49.028	5.288	47.169	5.160	3.79%	2.41%
		5200	49.014	5.299	47.205	5.167	3.69%	2.50%
		5230	48.974	5.334	47.236	5.167	3.55%	3.14%
		5260	48.933	5.369	47.179	5.167	3.58%	3.77%
Body	Dec, 11. 2018	5280	48.906	5.393	47.196	5.225	3.50%	3.11%
Body	Dec, 11. 2016	5300	48.879	5.416	46.977	5.379	3.89%	0.68%
		5520	48.580	5.673	47.855	5.914	1.49%	-4.25%
		5580	48.499	5.743	47.870	5.933	1.30%	-3.31%
		5600	48.471	5.766	47.722	5.933	1.55%	-2.89%
		5680	48.363	5.860	47.871	5.943	1.02%	-1.42%
		5745	48.275	5.936	47.006	5.919	2.63%	0.28%
		5785	48.220	5.982	46.811	5.934	2.92%	0.81%
		5800	48.200	6.000	47.047	5.940	2.39%	1.00%
		5825	48.166	6.029	46.855	5.958	2.72%	1.18%
		5785	48.220	5.982	46.904	5.978	2.73%	0.07%
		5800	48.200	6.000	46.720	5.972	3.07%	0.47%
		5825	48.166	6.029	46.938	5.981	2.55%	0.80%

Table 2. Dielectric Parameters of Tissue Simulant Fluid

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The composition of the body tissue simulating liquid.

The composition of the body tissue simulating liquid.											
_				Ingre	dient			.			
Frequency (MHz)	Mode	DGMBE	Water	Salt	Preventol D-7	Cellulose	Sugar	Total amount			
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	1.0L(Kg)			
2450	Body	301.7 g	698.3 g	_	_	_	1	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

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1.11 Evaluation Procedures

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

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

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

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

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

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these cube measurements.

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

The first procedure is an extrapolation (incl. Boundary correction) to get the points between the lowest measured plane and the surface. The next step uses 3D interpolation to get all points within the measured volume. In the last step, a 1g cube is placed numerically into the volume and its averaged SAR is calculated. This cube is the 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:

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- 1. The temperature gradient is not directly measurable but must be evaluated from temperature measurements at different time steps. Special precaution is necessary to avoid measurement errors caused by temperature gradients due to energy equalizing effects or convection currents in the liquid. Such effects cannot be completely avoided, as the measured field itself destroys the thermal equilibrium in the liquid. With a careful setup these errors can be kept small.
- 2. The measured volume around the temperature probe is not well defined. It is difficult to calculate the energy transfer from a surrounding gradient temperature field into the probe. These effects must be considered, since temperature probes are calibrated in liquid with homogeneous temperatures. There is no traceable standard for temperature rise measurements.
- 3. The calibration depends on the assessment of the specific density, the heat capacity and the conductivity of the medium. While the specific density and heat capacity can be measured accurately with standardized procedures (\sim 2% for c; much better for ρ), there is no standard for the measurement of the conductivity. Depending on the method and liquid, the error can well exceed ±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 ±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 ±5% (RSS) when the same liquid is used for the calibration and for actual measurements and ±7-9% (RSS) when not, which is in good agreement with the estimates given in [2].

1.12.2 Calibration with Analytical Fields

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

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

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

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2. The accuracy of the calculated field strength will depend on the assessment of the dielectric parameters of the liquid.

3. Due to the small wavelength in liquids with high permittivity, even small setups might be above the resonant cutoff frequencies. The field distribution in the setup must be carefully checked for conformity with the theoretical field distribution.

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1.13 Test Standards and Limits

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

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

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

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

Table 4. RF exposure limits

Notes:

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

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2. Summary of Results

WCDMA Band II (full power)

Mode	Position	Distance (mm)	СН	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg) Measured Reported		Plot page
	Back side	11	9262	1852.4	23.20	22.34	21.90%	0.502	0.612	-
	Back side	11	9400	1880	23.20	22.24	24.74%	0.598	0.746	-
	Back side	11	9538	1907.6	23.20	22.28	23.59%	0.610	0.754	-
MODMA	Back side**	11	9538	1907.6	23.20	22.28	23.59%	0.584	0.722	-
WCDMA Band II	Back side***	11	9538	1907.6	23.20	22.28	23.59%	0.566	0.700	-
Banan	Top side	11	9262	1852.4	23.20	22.34	21.90%	0.092	0.112	-
	Bottom side	0	9262	1852.4	23.20	22.34	21.90%	0.173	0.211	-
	Right side	0	9262	1852.4	23.20	22.34	21.90%	0.022	0.027	•
	Left side	0	9262	1852.4	23.20	22.34	21.90%	0.319	0.389	-

^{** -} Landscape scanner spotcheck

WCDMA Band II (reduced power)

Mode	Position	Distance (mm)	СН	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Avg. Power	Scaling	Averaged 1, (W/	g	Plot page
					Tolcrance (dBill)	(dBm)		Measured	Reported	
	Back side	0	9262	1852.4	18.50	17.67	21.06%	0.933	1.129	-
	Back side	0	9400	1880	18.50	17.68	20.78%	0.945	1.141	-
	Back side	0	9538	1907.6	18.50	17.79	17.76%	0.977	1.151	113
	Back side*	0	9538	1907.6	18.50	17.79	17.76%	0.971	1.143	-
WCDMA	Back side**	0	9538	1907.6	18.50	17.79	17.76%	0.951	1.120	-
Band II	Back side***	0	9538	1907.6	18.50	17.79	17.76%	0.933	1.099	-
	Back side****	0	9538	1907.6	18.50	17.79	17.76%	0.042	0.049	-
	Back side****	0	9538	1907.6	18.50	17.79	17.76%	0.041	0.048	-
	Back side*****	0	9538	1907.6	18.50	17.79	17.76%	0.044	0.052	-
	Top side	0	9538	1907.6	18.50	17.79	17.76%	0.178	0.210	-

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

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^{*** -} Portrait scanner spotcheck

^{** -} Landscape scanner spotcheck

^{*** -} Portrait scanner spotcheck

^{**** -} Hand Strap 11U

^{***** -} Hand Strap 12U

^{***** -} Hand Strap 13U



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WCDMA Band V (full power)

Mode	Position	Distance (mm)	СН	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power	Scaling	Averaged 1 (W/	g	Plot page
					Tolerance (abin)	(dBm)		Measured	Reported	
	Back side	0	4132	826.4	23	21.87	29.72%	0.923	1.197	-
	Back side	0	4183	836.6	23	21.79	32.13%	0.911	1.204	-
	Back side	0	4233	846.6	23	21.8	31.83%	0.959	1.264	114
	Back side*	0	4233	846.6	23	21.8	31.83%	0.944	1.244	-
	Back side**	0	4233	846.6	23	21.8	31.83%	0.934	1.231	-
14/00144	Back side***	0	4233	846.6	23	21.8	31.83%	0.922	1.215	-
WCDMA Band V	Back side****	0	4233	846.6	23	21.8	31.83%	0.099	0.131	-
Bana v	Back side****	0	4233	846.6	23	21.8	31.83%	0.091	0.120	-
	Back side*****	0	4233	846.6	23	21.8	31.83%	0.097	0.128	-
	Top side	0	4233	846.6	23	21.8	31.83%	0.148	0.195	-
	Bottom side	0	4233	846.6	23	21.8	31.83%	0.048	0.063	-
	Right side	0	4233	846.6	23	21.8	31.83%	0.006	0.008	-
	Left side	0	4233	846.6	23	21.8	31.83%	0.307	0.405	-

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

**** - Hand Strap 11U

***** - Hand Strap 12U

***** - Hand Strap 13U

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^{** -} Landscape scanner spotcheck

^{*** -} Portrait scanner spotcheck



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LTE FDD Band 2 (full power)

Mode	Bandwidth	Modulation	RB	RB	Position	Distance	СН	Freq.		Measured	Caslina		SAR over V/kg)	Plot			
Mode	(MHz)	Wodulation	Size	start	Position	(mm)	Б	(MHz)	Max. Tolerance (dBm)	Avg. Power (dBm)	Scaling	Measured	Reported	page			
				0	Back side	11	18900	1880	24	23.06	24.17%	0.582	0.723	-			
					Back side	11	18700	1860	24	23.05	24.45%	0.571	0.711	-			
				Back side	11	19100	1900	24	23.31	17.22%	0.652	0.764	-				
			1 RB		Back side**	11	19100	1900	24	23.31	17.22%	0.553	0.648	-			
				50	Back side***	11	19100	1900	24	23.31	17.22%	0.532	0.624	-			
				00	Top side	11	19100	1900	24	23.31	17.22%	0.121	0.142	-			
					Bottom side	0	19100	1900	24	23.31	17.22%	0.094	0.110	-			
					Right side	0	19100	1900	24	23.31	17.22%	0.006	0.007	-			
LTE					Left side	0	19100	1900	24	23.31	17.22%	0.262	0.307	-			
Band 2	20MHz	QPSK			Back side	11	19100	1900	23	22.12	22.46%	0.481	0.589	-			
					Top side	11	19100	1900	23	22.12	22.46%	0.095	0.116	-			
			50 RB	50 RB 25	50 RB 25	B 25	25	Bottom side	0	19100	1900	23	22.12	22.46%	0.079	0.097	-
					Right side	0	19100	1900	23	22.12	22.46%	0.005	0.006	-			
					Left side	0	19100	1900	23	22.12	22.46%	0.224	0.274	-			
					Back side	11	19100	1900	23	22.18	20.78%	0.471	0.569	-			
			1		Top side	11	19100	1900	23	22.18	20.78%	0.088	0.106	-			
			100	RB	Bottom side	0	19100	1900	23	22.18	20.78%	0.075	0.091	-			
					Right side	0	19100	1900	23	22.18	20.78%	0.005	0.006	-			
					Left side	0	19100	1900	23	22.18	20.78%	0.213	0.257	-			

^{** -} Landscape scanner spotcheck

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^{*** -} Portrait scanner spotcheck



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LTE FDD Band 2 (reduced power)

Mode	Bandwidth	Modulation	RB	RB	Position	Distance	СН	Freq.		Measured	Caslina	Averaged 1g (\	Plot		
Wode	(MHz)	Modulation	Size	start	Position	(mm)	Сп	(MHz)	Max. Tolerance (dBm)	Avg. Power (dBm)	Scaling	Measured	Reported	page	
				0	Back side	0	18700	1860	18	17.42	14.29%	0.951	1.087	-	
				50	Back side	0	19100	1900	18	17.37	15.61%	0.956	1.105	-	
					Back side	0	18900	1880	18	17.49	12.46%	0.987	1.110	115	
			1 RB		Back side*	0	18900	1880	18	17.49	12.46%	0.985	1.108	-	
					Back side**	0	18900	1880	18	17.49	12.46%	0.974	1.095	-	
			TIND	99	Back side***	0	18900	1880	18	17.49	12.46%	0.966	1.086	-	
				99	Back side****	0	18900	1880	18	17.49	12.46%	0.036	0.040	-	
					Back side*****	0	18900	1880	18	17.49	12.46%	0.031	0.035	-	
LTE	20MHz	QPSK			Back side*****	0	18900	1880	18	17.49	12.46%	0.028	0.031	-	
Band 2	201011 12	QFSK			Top side	0	18900	1880	18	17.49	12.46%	0.182	0.205	-	
				0	Back side	0	18700	1860	18	17.48	12.72%	0.963	1.085	-	
			50 RB	Ü	Back side	0	18900	1880	18	17.42	14.29%	0.965	1.103	-	
			30 KD	25	Back side	0	19100	1900	18	17.48	12.72%	0.971	1.095	-	
				2	Top side	0	19100	1900	18	17.48	12.72%	0.178	0.201	-	
					Back side	0	18700	1860	18	17.39	15.08%	0.918	1.056	-	
			100	RR	Back side	0	18900	1880	18	17.47	12.98%	0.923	1.043	-	
			100 F	100 RB	100 RB	Back side	0	19100	1900	18	17.44	13.76%	0.921	1.048	-
					Top side	0	18900	1880	18	17.47	12.98%	0.174	0.197	-	

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

- ** Landscape scanner spotcheck
- *** Portrait scanner spotcheck
- **** Hand Strap 11U
- ***** Hand Strap 12U
- ***** Hand Strap 13U

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LTE FDD Band 4 (full power)

Made	Bandwidth	Madulatian	DD Ci	DD start	Position	Distance	СН	Freq.	Max. Rated Avg.Power +	Measured	Caslina	Averaged 1g (V	SAR over V/kg)	Plot
Mode	(MHz)	Modulation	RB Size	RB Start	Position	(mm)	Сп	(MHz)	Max. Tolerance (dBm)	Avg. Power (dBm)	Scaling	Measured	Reported	page
					Back side	11	20050	1720	24.5	23.41	28.53%	0.669	0.860	-
				0	Back side	11	20300	1745	24.5	23.37	29.72%	0.682	0.885	-
				U	Back side**	11	20300	1745	24.5	23.37	29.72%	0.661	0.857	-
					Back side***	11	20300	1745	24.5	23.37	29.72%	0.643	0.834	-
			1 RB		Back side	11	20175	1732.5	24.5	23.55	24.45%	0.660	0.821	-
					Top side	11	20175	1732.5	24.5	23.55	24.45%	0.119	0.148	-
				50	Bottom side	0	20175	1732.5	24.5	23.55	24.45%	0.101	0.126	-
					Right side	0	20175	1732.5	24.5	23.55	24.45%	0.007	0.009	-
LTE					Left side	0	20175	1732.5	24.5	23.55	24.45%	0.288	0.358	-
Band 4	20MHz	QPSK			Back side	11	20300	1745	23.5	22.25	33.35%	0.501	0.668	-
Dana .					Top side	11	20300	1745	23.5	22.25	33.35%	0.088	0.117	-
			50 RB	0	Bottom side	0	20300	1745	23.5	22.25	33.35%	0.077	0.103	-
					Right side	0	20300	1745	23.5	22.25	33.35%	0.004	0.006	-
					Left side	0	20300	1745	23.5	22.25	33.35%	0.212	0.283	-
					Back side	11	20175	1732.5	23.5	22.14	36.77%	0.492	0.673	-
					Top side	11	20175	1732.5	23.5	22.14	36.77%	0.087	0.119	-
1			100	RB	Bottom side	0	20175	1732.5	23.5	22.14	36.77%	0.071	0.097	-
1					Right side	0	20175	1732.5	23.5	22.14	36.77%	0.004	0.005	-
					Left side	0	20175	1732.5	23.5	22.14	36.77%	0.209	0.286	-

^{** -} Landscape scanner spotcheck

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^{*** -} Portrait scanner spotcheck



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LTE FDD Band 4 (reduced power)

Manda	Bandwidth	NA-dulation	DD Ci	DD -44	Position	Distance	СН	Freq.	Max. Rated Avg.Power +	Measured	Ozaliza.		SAR over V/kg)	Plot
Mode	(MHz)	Modulation	RB Size	RB Start	Position	(mm)	Сп	(MHz)	Max. Tolerance (dBm)	Avg. Power (dBm)	Scaling	Measured	Reported	page
					Back side	0	20050	1720	18.5	17.78	18.03%	1.010	1.192	116
					Back side*	0	20050	1720	18.5	17.78	18.03%	0.994	1.173	-
					Back side**	0	20050	1720	18.5	17.78	18.03%	0.984	1.161	-
					Back side***	0	20050	1720	18.5	17.78	18.03%	0.953	1.125	-
			1 RB	0	Back side****	0	20050	1720	18.5	17.78	18.03%	0.037	0.044	-
					Back side*****	0	20050	1720	18.5	17.78	18.03%	0.034	0.040	-
					Back side******	0	20050	1720	18.5	17.78	18.03%	0.035	0.041	-
LTE					Back side	0	20175	1732.5	18.5	17.51	25.60%	0.941	1.182	-
Band 4	20MHz	QPSK			Top side	0	20050	1720	18.5	17.78	18.03%	0.587	0.693	-
Dana 4				0	Back side	0	20050	1720	18.5	17.45	27.35%	0.912	1.161	
			50 RB	U	Back side	0	20300	1745	18.5	17.49	26.18%	0.918	1.158	-
			30 KB	25	Back side	0	20175	1732.5	18.5	17.54	24.74%	0.924	1.153	-
				25	Top side	0	20175	1732.5	18.5	17.54	24.74%	0.546	0.681	-
					Back side	0	20050	1720	18.5	17.48	26.47%	0.933	1.180	-
			100	RB	Back side	0	20175	1732.5	18.5	17.59	23.31%	0.942	1.162	-
	l	l	100	, IVD	Back side	0	20300	1745	18.5	17.44	27.64%	0.921	1.176	-
	l	l			Top side	0	20175	1732.5	18.5	17.59	23.31%	0.538	0.663	-

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

- *** Portrait scanner spotcheck
- **** Hand Strap 11U
- ***** Hand Strap 12U
- ***** Hand Strap 13U

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^{** -} Landscape scanner spotcheck



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LTE FDD Band 5 (full power)

Mode	Bandwidth	Modulation	DD Cine	DR stort	Position	Distance	СН	Freq.	Max. Rated Avg.Power +	Measured Avg. Power	Scaling	Averaged 1g (V		Plot
Wode	(MHz)	Modulation	NB Size	ND Start	Position	(mm)	5	(MHz)	Max. Tolerance (dBm)	(dBm)	Scalling	Measured	Reported	page
					Back side	0	20450	829	23.5	23.40	2.33%	1.010	1.034	-
					Back side	0	20525	836.5	23.5	23.49	0.23%	1.130	1.133	117
					Back side*	0	20525	836.5	23.5	23.49	0.23%	1.050	1.052	-
					Back side**	0	20525	836.5	23.5	23.49	0.23%	0.995	0.997	-
					Back side***	0	20525	836.5	23.5	23.49	0.23%	0.981	0.983	-
					Back side****	0	20525	836.5	23.5	23.49	0.23%	0.095	0.095	-
			1 RB	25	Back side*****	0	20525	836.5	23.5	23.49	0.23%	0.091	0.091	-
					Back side******	0	20525	836.5	23.5	23.49	0.23%	0.088	0.088	-
					Back side	0	20600	844	23.5	23.29	4.95%	1.020	1.071	
					Top side	0	20525	836.5	23.5	23.49	0.23%	0.174	0.174	
					Bottom side	0	20525	836.5	23.5	23.49	0.23%	0.057	0.057	
LTE					Right side	0	20525	836.5	23.5	23.49	0.23%	0.007	0.007	
Band 5	10MHz	QPSK			Left side	0	20525	836.5	23.5	23.49	0.23%	0.361	0.362	
Dana 3				12	Back side	0	20450	829	22.5	22.33	3.99%	0.833	0.866	-
				12	Back side	0	20600	844	22.5	22.33	3.99%	0.832	0.865	
					Back side	0	20525	836.5	22.5	22.36	3.28%	0.848	0.876	-
			25 RB		Top side	0	20525	836.5	22.5	22.36	3.28%	0.131	0.135	
				25	Bottom side	0	20525	836.5	22.5	22.36	3.28%	0.043	0.044	-
					Right side	0	20525	836.5	22.5	22.36	3.28%	0.006	0.006	
					Left side	0	20525	836.5	22.5	22.36	3.28%	0.272	0.281	-
	1				Back side	0	20525	836.5	22.5	22.37	3.04%	0.825	0.850	-
	1				Top side	0	20525	836.5	22.5	22.37	3.04%	0.127	0.131	-
	1		50	RB	Bottom side	0	20525	836.5	22.5	22.37	3.04%	0.041	0.042	-
	1				Right side	0	20525	836.5	22.5	22.37	3.04%	0.005	0.006	-
	1				Left side	0	20525	836.5	22.5	22.37	3.04%	0.264	0.272	-

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

**** - Hand Strap 11U

***** - Hand Strap 12U

***** - Hand Strap 13U

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^{** -} Landscape scanner spotcheck

^{*** -} Portrait scanner spotcheck



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LTE FDD Band 12 (full power)

Mode	Bandwidth	Modulatior	DR Size	DR start	Position	Distance	СН	Freq.	Max. Rated Avg.Power +	Measured Avg.Power	Scaling		SAR over V/kg)	Plot
Mode	(MHz)	viodulation	ND GIZE	ND start	1 conton	(mm)	5	(MHz)	Max. Tolerance (dBm)	(dBm)	County	Measured	Reported	page
					Back side	0	23060	704	23.5	23.46	0.93%	1.020	1.029	-
					Back side	0	23095	707.5	23.5	23.40	2.33%	1.160	1.187	-
					Back side	0	23130	711	23.5	23.47	0.69%	1.260	1.269	118
					Back side*	0	23130	711	23.5	23.47	0.69%	1.210	1.218	-
					Back side**	0	23130	711	23.5	23.47	0.69%	1.130	1.138	-
					Back side***	0	23130	711	23.5	23.47	0.69%	1.060	1.067	-
			1 RB	25	Back side****	0	23130	711	23.5	23.47	0.69%	0.119	0.120	-
					Back side*****	0	23130	711	23.5	23.47	0.69%	0.112	0.113	-
					Back side*****	0	23130	711	23.5	23.47	0.69%	0.117	0.118	-
					Top side	0	23130	711	23.5	23.47 0.0	0.69%	0.191	0.192	-
					Bottom side	0	23130	711	23.5		0.69%	0.062	0.062	-
					Right side	0	23130	711	23.5	23.47	0.69%	0.008	0.008	-
LTE					Left side	0	23130	711	23.5	23.47	0.69%	0.401	0.404	-
Band 12	10MHz	QPSK			Back side	0	23095	707.5	22.5	22.26	5.68%	0.911	0.963	-
					Back side	0	23130	711	22.5	22.41	2.09%	0.932	0.952	-
				12	Top side	0	23130	711	22.5	22.41	2.09%	0.142	0.145	-
			25 RB	12	Bottom side	0	23130	711	22.5	22.41	2.09%	0.045	0.046	-
					Right side	0	23130	711	22.5	22.41	2.09%	0.006	0.006	-
					Left side	0	23130	711	22.5	22.41	2.09%	0.298	0.304	-
				25	Back side	0	23060	704	22.5	22.32	4.23%	0.903	0.941	-
					Back side	0	23060	704	22.5	22.31	4.47%	0.861	0.900	-
					Back side	0	23095	707.5	22.5	22.28	5.20%	0.882	0.928	-
					Back side	0	23130	711	22.5	22.39	2.57%	0.894	0.917	-
			50	RB	Top side	0	23130	711	22.5	22.39	2.57%	0.137	0.141	-
					Bottom side	0	23130	711	22.5	22.39	2.57%	0.043	0.044	-
					Right side	0	23130	711	22.5	22.39	2.57%	0.005	0.005	
					Left side	0	23130	711	22.5	22.39	2.57%	0.287	0.294	-

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

- ** Landscape scanner spotcheck
- *** Portrait scanner spotcheck
- **** Hand Strap 11U
- ***** Hand Strap 12U
- ***** Hand Strap 13U

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LTE FDD Band 13 (full power)

Mode	Bandwidth	Modulation	DR Ciro	BP stort	Position	Distance	СН	Freq.	Max. Rated Avg.Power +	Measured Avg. Power	Scaling		SAR over V/kg)	Plot
Mode	(MHz)	viodulatioi	KB SIZE	RD Statt	Position	(mm)	СП	(MHz)	Max. Tolerance (dBm)	(dBm)	Ü	Measured	Reported	page
					Back side	0	23230	782	23.5	23.42	1.86%	1.180	1.202	119
					Back side*	0	23230	782	23.5	23.42	1.86%	1.110	1.131	-
					Back side**	0	23230	782	23.5	23.42	1.86%	1.040	1.059	-
					Back side***	0	23230	782	23.5	23.42	1.86%	0.995	1.013	-
					Back side****	0	23230	782	23.5	23.42	1.86%	0.126	0.128	-
				0	Back side*****	0	23230	782	23.5	23.42	1.86%	0.118	0.120	-
			1 RB		Back side*****	0	23230	782	23.5	23.42	1.86%	0.114	0.116	-
					Top side	0	23230	782	23.5	23.42	1.86%	0.183	0.186	-
					Bottom side	0	23230	782	23.5	23.42	1.86%	0.061	0.062	-
					Right side	0	23230	782	23.5	23.42	1.86%	0.008	0.008	-
					Left side	0	23230	782	23.5	23.42	1.86%	0.382	0.389	-
LTE				25	Back side	0	23230	782	23.5	23.06	10.66%	1.080	1.195	-
Band 13	10MHz	QPSK		49	Back side	0	23230	782	23.5	22.85	16.14%	1.010	1.173	-
Dana 13					Back side	0	23230	782	22.5	22.10	9.65%	0.862	0.945	-
					Top side	0	23230	782	22.5	22.10	9.65%	0.136	0.149	-
				0	Bottom side	0	23230	782	22.5	22.10	9.65%	0.047	0.052	-
			25 RB		Right side	0	23230	782	22.5	22.10	9.65%	0.006	0.007	-
					Left side	0	23230	782	22.5	22.10	9.65%	0.281	0.308	-
				12	Back side	0	23230	782	22.5	22.08	10.15%	0.855	0.942	-
				25	Back side	0	23230	782	22.5	21.96	13.24%	0.841	0.952	-
					Back side	0	23230	782	22.5	21.99	12.46%	0.851	0.957	-
					Top side	0	23230	782	22.5	21.99	12.46%	0.133	0.150	-
			50	RB	Bottom side	0	23230	782	22.5	21.99	12.46%	0.043	0.048	-
					Right side	0	23230	782	22.5	21.99	12.46%	0.006	0.007	
1					Left side	0	23230	782	22.5	21.99	12.46%	0.277	0.312	-

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

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^{** -} Landscape scanner spotcheck

^{*** -} Portrait scanner spotcheck

^{**** -} Hand Strap 11U

^{***** -} Hand Strap 12U

^{***** -} Hand Strap 13U



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WLAN/BT

Mode	Position	Distance (mm)	СН	Freq.	Max. Rated Avg. Power + Max.	Measured Avg. Power	Scaling	Averaged S (W/	AR over 1g /kg)	Plot
		(111111)		(IVII IZ)	Tolerance (dBm)	(dBm)		Measured	Reported	page
	Back side	0	11	2462	19.5	17.96	142.56%	0.215	0.307	-
	Top side	0	11	2462	19.5	17.96	142.56%	0.001	0.002	-
	Bottom side	0	11	2462	19.5	17.96	142.56%	0.285	0.406	120
	Bottom side**	0	11	2462	19.5	17.96	142.56%	0.271	0.386	-
WLAN 802.11b	Bottom side***	0	11	2462	19.5	17.96	142.56%	0.233	0.332	-
WLAN 602.11b	Bottom side****	0	11	2462	19.5	17.96	142.56%	0.211	0.301	-
	Bottom side*****	0	11	2462	19.5	17.96	142.56%	0.245	0.349	-
	Bottom side*****	0	11	2462	19.5	17.96	142.56%	0.246	0.351	-
	Right side	0	11	2462	19.5	17.96	142.56%	0.009	0.012	-
	Left side	0	11	2462	19.5	17.96	142.56%	0.045	0.064	-
	Back side	0	0	2402	11.6	9.66	156.31%	0.036	0.056	-
	Top side	0	0	2402	11.6	9.66	156.31%	0.000	0.000	-
	Bottom side	0	0	2402	11.6	9.66	156.31%	0.038	0.059	121
	Bottom side**	0	0	2402	11.6	9.66	156.31%	0.024	0.038	-
Bluetooth	Bottom side***	0	0	2402	11.6	9.66	156.31%	0.021	0.033	-
(GFSK)	Bottom side****	0	0	2402	11.6	9.66	156.31%	0.033	0.052	-
	Bottom side*****	0	0	2402	11.6	9.66	156.31%	0.031	0.048	-
	Bottom side*****	0	0	2402	11.6	9.66	156.31%	0.029	0.045	-
	Right side	0	0	2402	11.6	9.66	156.31%	0.001	0.002	-
	Left side	0	0	2402	11.6	9.66	156.31%	0.006	0.010	-
	Back side	0	46	5230	14.5	12.83	146.89%	0.156	0.229	-
	Top side	0	46	5230	14.5	12.83	146.89%	0.000	0.001	
	Bottom side	0	46	5230	14.5	12.83	146.89%	0.095	0.140	-
	Right side	0	46	5230	14.5	12.83	146.89%	0.000	0.001	-
/LAN 802.11n(40M) 5.2G	Left side	0	46	5230	14.5	12.83	146.89%	0.186	0.273	122
	Left side**	0	46	5230	14.5	12.83	146.89%	0.163	0.239	-
	Left side***	0	46	5230	14.5	12.83	146.89%	0.164	0.241	-
	Left side****	0	46	5230	14.5	12.83	146.89%	0.171	0.251	-
	Left side*****	0	46	5230	14.5	12.83	146.89%	0.162	0.238	-
	Left side*****	0	46	5230	14.5	12.83	146.89%	0.166	0.244	-

- ** Landscape scanner spotcheck
- *** Portrait scanner spotcheck
- **** Hand Strap 11U
- ***** Hand Strap 12U
- ***** Hand Strap 13U

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Mode	Position	Distance (mm)	СН	Freq.	Max. Rated Avg. Power + Max.	Measured Avg. Power	Scaling	Averaged S (W/		Plot
		(111111)		(IVITIZ)	Tolerance (dBm)	(dBm)		Measured	Reported	page
	Back side	0	60	5300	17.5	15.75	149.62%	0.465	0.696	-
	Top side	0	60	5300	17.5	15.75	149.62%	0.001	0.002	-
	Bottom side	0	60	5300	17.5	15.75	149.62%	0.327	0.489	-
	Right side	0	60	5300	17.5	15.75	149.62%	0.002	0.002	-
	Left side	0	52	5260	17.5	15.67	152.41%	0.539	0.821	-
WLAN 802.11a 5.3G	Left side	0	60	5300	17.5	15.75	149.62%	0.639	0.956	123
	Left side**	0	60	5300	17.5	15.75	149.62%	0.615	0.920	-
	Left side***	0	60	5300	17.5	15.75	149.62%	0.594	0.889	-
	Left side****	0	60	5300	17.5	15.75	149.62%	0.601	0.899	-
	Left side*****	0	60	5300	17.5	15.75	149.62%	0.598	0.895	-
	Left side*****	0	60	5300	17.5	15.75	149.62%	0.606	0.907	-
	Back side	0	116	5580	17.5	15.81	147.57%	0.413	0.609	-
	Top side	0	116	5580	17.5	15.81	147.57%	0.001	0.002	-
	Bottom side	0	116	5580	17.5	15.81	147.57%	0.286	0.422	-
	Right side	0	116	5580	17.5	15.81	147.57%	0.001	0.002	-
	Left side	0	116	5580	17.5	15.81	147.57%	0.559	0.825	-
WLAN 802.11a 5.6G	Left side	0	136	5680	17.5	15.79	148.25%	0.648	0.961	124
	Left side**	0	136	5680	17.5	15.79	148.25%	0.622	0.922	-
	Left side***	0	136	5680	17.5	15.79	148.25%	0.606	0.898	-
	Left side****	0	136	5680	17.5	15.79	148.25%	0.423	0.627	-
	Left side*****	0	136	5680	17.5	15.79	148.25%	0.484	0.718	-
	Left side*****	0	136	5680	17.5	15.79	148.25%	0.543	0.805	-
	Back side	0	149	5745	17.5	15.76	149.28%	0.618	0.923	-
	Back side	0	157	5785	17.5	15.56	156.31%	0.664	1.038	-
	Back side	0	165	5825	17.5	15.77	148.94%	0.750	1.117	125
	Back side**	0	165	5825	17.5	15.77	148.94%	0.703	1.047	-
	Back side***	0	165	5825	17.5	15.77	148.94%	0.651	0.970	-
	Back side****	0	165	5825	17.5	15.77	148.94%	0.014	0.021	-
WLAN 802.11a 5.8G	Back side****	0	165	5825	17.5	15.77	148.94%	0.017	0.025	-
	Back side*****	0	165	5825	17.5	15.77	148.94%	0.017	0.025	-
	Top side	0	165	5825	17.5	15.77	148.94%	0.002	0.002	-
	Bottom side	0	165	5825	17.5	15.77	148.94%	0.384	0.572	-
	Right side	0	165	5825	17.5	15.77	148.94%	0.002	0.003	-
	Left side	0	149	5745	17.5	15.76	149.28%	0.667	0.996	-
ľ	Left side	0	165	5825	17.5	15.77	148.94%	0.558	0.831	-

^{** -} Landscape scanner spotcheck

*** - Portrait scanner spotcheck

**** - Hand Strap 11U

***** - Hand Strap 12U

***** - Hand Strap 13U

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3. Simultaneous Transmission Analysis

Simultaneous Transmission Scenarios:

NO.	Simultaneous Transmit Configurations	Body
1	UMTS + 2.4GHz	YES
2	UMTS + 5GHz	YES
3	UMTS + BT	YES
5	LTE + 2.4GHz	YES
6	LTE + 5GHz	YES
7	LTE + BT	YES

Note

- 1) WWAN and WLAN may transmit simultaneously.
- 2) Bluetooth and WLAN share the same antenna path.
- 3) Bluetooth can't transmit with WLAN simultaneously.

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3.1 Estimated SAR calculation

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

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

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

3.2 SPLSR evaluation and analysis

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

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

The ratio is determined by (SAR1 + SAR2)^1.5/Ri, 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 Ri is the separation distance between the peak SAR locations for the antenna pair in mm.

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

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Back side WWAN + 2.4GHz WLAN

No.	Position	Conditions	Distance (mm)	Max. WWAN	Max. WLAN	SAR Sum	SPLSR
		WCDMA Band II	0	1.151	0.307	1.458	ΣSAR<1.6,
			,		0.00		Not required
		WCDMA Band	0	1.264	0.307	1.571	ΣSAR<1.6,
		V	O	1.204	0.307	1.57 1	Not required
		LTE Band 2	0	1.110	0.307	1.417	ΣSAR<1.6,
		LTL Dallu Z	0	1.110	0.307	1.417	Not required
1	Back side	LTE Band 4	0	1.192	0.307	1.499	ΣSAR<1.6,
'	Dack Side	LTL Dallu 4	0	1.192	0.307	1.499	Not required
		LTE Band 5	0	1.133	0.307	1.440	ΣSAR<1.6,
		LTL Ballu 5	O	1.133	0.307	1.440	Not required
		LTE Band 12	0	1.269	0.307	1.576	ΣSAR<1.6,
		LIE Dallu 12	U	1.209	0.307	1.576	Not required
		LTE Band 13	0	1.202	0.307	1.509	ΣSAR<1.6,
		LIE Dalla 13	U	1.202	0.307	1.509	Not required

Top side WWAN + 2.4GHz WLAN

No.	Position	Conditions	Distance (mm)	Max. WWAN	Max. WLAN	SAR Sum	SPLSR
		WCDMA Band II	0	0.210	0.002	0.212	ΣSAR<1.6, Not required
		WCDMA Band V	0	0.195	0.002	0.197	ΣSAR<1.6, Not required
		LTE Band 2	0	0.205	0.002	0.207	ΣSAR<1.6, Not required
2	Top side	LTE Band 4	0	0.693	0.002	0.695	ΣSAR<1.6, Not required
		LTE Band 5	0	0.174	0.002	0.176	ΣSAR<1.6, Not required
		LTE Band 12	0	0.192	0.002	0.194	ΣSAR<1.6, Not required
		LTE Band 13	0	0.186	0.002	0.188	ΣSAR<1.6, Not required

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Bottom side WWAN + 2.4GHz WLAN

No.	Position	Conditions	Distance (mm)	Max. WWAN	Max. WLAN	SAR Sum	SPLSR
		WCDMA Band II	0	0.211	0.406	0.617	ΣSAR<1.6, Not required
		WCDMA Band V	0	0.063	0.406	0.469	ΣSAR<1.6, Not required
		LTE Band 2	0	0.110	0.406	0.516	ΣSAR<1.6, Not required
3	Bottom side	LTE Band 4	0	0.126	0.406	0.532	ΣSAR<1.6, Not required
		LTE Band 5	0	0.057	0.406	0.463	ΣSAR<1.6, Not required
		LTE Band 12	0	0.062	0.406	0.468	ΣSAR<1.6, Not required
		LTE Band 13	0	0.062	0.406	0.468	ΣSAR<1.6, Not required

Right side WWAN + 2.4GHz WLAN

No.	Position	Conditions	Distance (mm)	Max. WWAN	Max. WLAN	SAR Sum	SPLSR
		WCDMA Band II	0	0.027	0.012	0.039	ΣSAR<1.6, Not required
		WCDMA Band V	0	0.008	0.012	0.020	ΣSAR<1.6, Not required
		LTE Band 2	0	0.007	0.012	0.019	ΣSAR<1.6, Not required
4	Right side	LTE Band 4	0	0.009	0.012	0.021	ΣSAR<1.6, Not required
		LTE Band 5	0	0.007	0.012	0.019	ΣSAR<1.6, Not required
		LTE Band 12	0	0.008	0.012	0.020	ΣSAR<1.6, Not required
		LTE Band 13	0	0.008	0.012	0.020	ΣSAR<1.6, Not required

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Left side WWAN + 2.4GHz WLAN

No.	Position	Conditions	Distance (mm)	Max. WWAN	Max. WLAN	SAR Sum	SPLSR														
		WCDMA Band II	0	0.389	0.064	0.453	ΣSAR<1.6, Not required														
	5 Left side	WCDMA Band V	0	0.405	0.064	0.469	ΣSAR<1.6,														
		LTE Band 2	0	0.307	0.064	0.371	ΣSAR<1.6, Not required														
5		LTE Band 4	0	0.358	0.064	0.422	ΣSAR<1.6, Not required														
					-	_						-		[LTE Band 5	0	0.362	0.064	0.426	ΣSAR<1.6, Not required
								LTE Band 12	0	0.404	0.064	0.468	ΣSAR<1.6, Not required								
		LTE Band 13	0	0.389	0.064	0.453	ΣSAR<1.6, Not required														

Back side WWAN + 5GHz WLAN

No.	Position	Conditions	Distance (mm)	Max. WWAN	Max. WLAN	SAR Sum	SPLSR		
		WCDMA Band II	0	1.151	1.117	2.268	Analyzed as below		
		WCDMA Band V	0	1.264	1.117	2.381	Analyzed as below		
		LTE Band 2	0	1.110	1.117	2.227	Analyzed as below		
6	Back side	LTE Band 4	0	1.192	1.117	2.309	Analyzed as below		
		LTE Band 5	0	1.133	1.117	2.250	Analyzed as below		
	-			LTE Band 12	0	1.269	1.117	2.386	Analyzed as below
		LTE Band 13	0	1.202	1.117	2.319	Analyzed as below		

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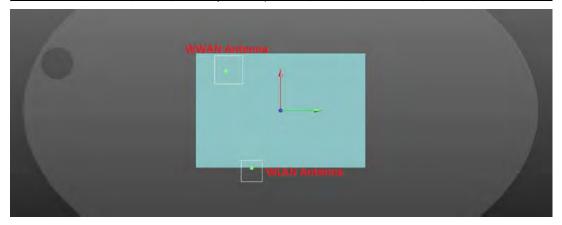
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Back side WCDMA Band II + 5GHz WLAN

Conditions	Position	Position SAR Value (W/kg	Coo	rdinates	(cm)	ΣSAR (W/kg	Peak Location Separation	SPLSR	Simultaneous Transmission
			х	у	Z)	Distance (mm)		SAR Test
WLAN	Back	1.117	-6.58	-3.30	-0.351	2.268	114.49	0.030	SPLSR<0.04,
WCDMA Band II	side	1.151	4.49	-6.22	-0.384	2.200	114.43	0.030	Not required



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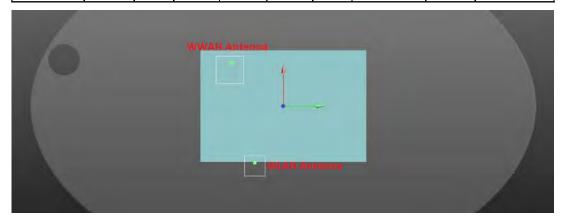
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Back side WCDMA Band V + 5GHz WLAN

Conditions	Position	SAR Value (W/kg	Coo	rdinates	(cm)	ΣSAR (W/kg	Peak Location Separation	SPLSR	Simultaneous Transmission
)	Х	у	Z)	Distance (mm)		SAR Test
WLAN	Back	1.117	-6.58	-3.30	-0.351	2.381	119	0.031	SPLSR<0.04,
WCDMA Band V	side	1.264	5.00	-6.04	-0.44	2.301	119	0.001	Not required



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Back side LTE Band 2 + 5GHz WLAN

Cor	nditions	Position	SAR Value (W/kg	Coo	rdinates	(cm)	ΣSAR (W/kg	Peak Location Separation	SPLSR	Simultaneous Transmission
)	х	у	Z)	Distance (mm)		SAR Test
٧	VLAN	Back	1.117	-6.58	-3.30	-0.351	2.227	115.27	0.029	SPLSR<0.04,
	LTE and 2	side	1.110	4.65	5.90	-0.385		113.21	0.029	Not required



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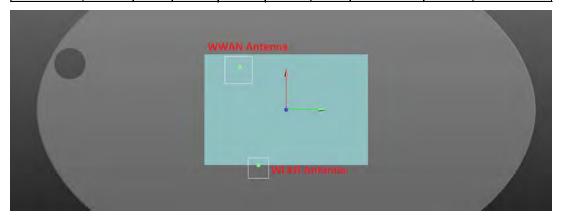
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Back side LTE Band 4 + 5GHz WLAN

Conditions	Position	SAR Value (W/kg	Coo	rdinates	(cm)	ΣSAR (W/kg	Peak Location Separation	SPLSR	Simultaneous Transmission
		(vv/kg)	х	у	Z)	Distance (mm)		SAR Test
WLAN	Back	1.117	-6.58	-3.30	-0.351	2.309	117.47	0.030	SPLSR<0.04,
LTE Band 4	side	1.192	4.97	-5.44	-0.29	2.509	117.47	0.030	Not required



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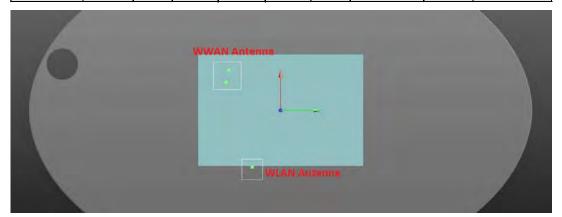
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Back side LTE Band 5 + 5GHz WLAN

(Conditions	Position	SAR Value (W/kg	Coo	rdinates	(cm)	ΣSAR (W/kg	Peak Location Separation	SPLSR	Simultaneous Transmission
)	х	у	Z)	Distance (mm)		SAR Test
	WLAN	Back	1.117	-6.58	-3.30	-0.351	2.25	115.98	0.029	SPLSR<0.04,
	LTE Band 5	side	1.133	4.69	-6.04	-0.416	2.20	113.90	0.029	Not required



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Back side LTE Band 12 + 5GHz WLAN

Conditions	Position	SAR Value (W/kg	Coordinates (cm)			ΣSAR (W/kg	Peak Location Separation Distance	SPLSR	Simultaneous Transmission
)	х	у	Z)	Distance (mm)		SAR Test
WLAN	Back	1.117	-6.58	-3.30	-0.351	2.386	115.64	0.032	SPLSR<0.04,
LTE Band 12	side	1.269	4.69	-5.89	-0.417	2.300	113.04	0.032	Not required



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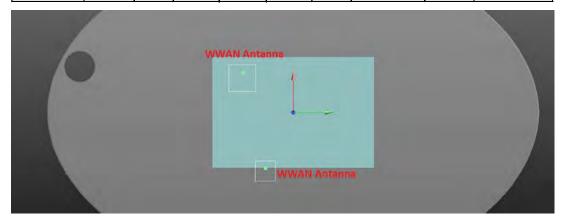
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Back side LTE Band 13 + 5GHz WLAN

Conditions	Position	SAR Value (W/kg	Coordinates (cm)			ΣSAR (W/kg	Peak Location Separation Distance	SPLSR	Simultaneous Transmission
)	х	у	Z)	Distance (mm)		SAR Test
WLAN	Back	1.117	-6.58	-3.30	-0.351	2.319	115.64	0.031	SPLSR<0.04,
LTE Band 13	side	1.202	4.69	-5.89	-0.418	2.519	113.04	0.031	Not required



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Top side WWAN + 5GHz WLAN

No.	Position	Conditions	Distance (mm)	Max. WWAN	Max. WLAN	SAR Sum	SPLSR		
		WCDMA Band II	0	0.210	0.002	0.212	ΣSAR<1.6, Not required		
		WCDMA Band V	0	0.195	0.002	0.197	ΣSAR<1.6, Not required		
		LTE Band 2	0	0.205	0.002	0.207	ΣSAR<1.6, Not required		
7	Top side	LTE Band 4	0	0.693	0.002	0.695	ΣSAR<1.6, Not required		
		LTE Band 5	0	0.174	0.002	0.176	ΣSAR<1.6, Not required		
				LTE Band 12	0	0.192	0.002	0.194	ΣSAR<1.6, Not required
		LTE Band 13	0	0.186	0.002	0.188	ΣSAR<1.6, Not required		

Bottom side WWAN + 5GHz WLAN

No.	Position	Conditions	Distance (mm)	Max. WWAN	Max. WLAN	SAR Sum	SPLSR										
	8 Bottom side	WCDMA Band II	0	0.211	0.572	0.783	ΣSAR<1.6, Not required										
		WCDMA Band V	0	0.063	0.572	0.635	ΣSAR<1.6, Not required										
		LTE Band 2	0	0.110	0.572	0.682	ΣSAR<1.6, Not required										
8			LTE Band 4	0	0.126	0.572	0.698	ΣSAR<1.6, Not required									
						1				ļ		LTE Band 5	0	0.057	0.572	0.629	ΣSAR<1.6, Not required
					LTE Band 12	0	0.062	0.572	0.634	ΣSAR<1.6, Not required							
		LTE Band 13	0	0.062	0.572	0.634	ΣSAR<1.6, Not required										

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Right side WWAN + 5GHz WLAN

No.	Position	Conditions	Distance (mm)	Max. WWAN	Max. WLAN	SAR Sum	SPLSR		
		WCDMA Band II	0	0.027	0.003	0.030	ΣSAR<1.6, Not required		
		WCDMA Band V	0	0.008	0.003	0.011	ΣSAR<1.6, Not required		
		LTE Band 2	0	0.007	0.003	0.010	ΣSAR<1.6, Not required		
9	Right side	LTE Band 4	0	0.009	0.003	0.012	ΣSAR<1.6, Not required		
		LTE Band 5	0	0.007	0.003	0.010	ΣSAR<1.6, Not required		
		-	-	LTE Band 12		0.008	0.003	0.011	ΣSAR<1.6, Not required
		LTE Band 13	0	0.008	0.003	0.011	ΣSAR<1.6, Not required		

Left side WWAN + 5GHz WLAN

No.	Position	Conditions	Distance (mm)	Max. WWAN	Max. WLAN	SAR Sum	SPLSR
10	Left side	WCDMA Band II	0	0.389	0.996	1.385	ΣSAR<1.6, Not required
		WCDMA Band V	0	0.405	0.996	1.401	ΣSAR<1.6, Not required
		LTE Band 2	0	0.307	0.996	1.303	ΣSAR<1.6, Not required
		LTE Band 4	0	0.358	0.996	1.354	ΣSAR<1.6, Not required
		LTE Band 5	0	0.362	0.996	1.358	ΣSAR<1.6, Not required
		LTE Band 12	0	0.404	0.996	1.400	ΣSAR<1.6, Not required
		LTE Band 13	0	0.389	0.996	1.385	ΣSAR<1.6, Not required

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Back side WWAN + Bluetooth

No.	Position	Conditions	Distance (mm)	Max. WWAN	ВТ	SAR Sum	SPLSR
11	Back side	WCDMA Band II	0	1.151	0.056	1.207	ΣSAR<1.6, Not required
		WCDMA Band V	0	1.264	0.056	1.320	ΣSAR<1.6, Not required
		LTE Band 2	0	1.110	0.056	1.166	ΣSAR<1.6, Not required
		LTE Band 4	0	1.192	0.056	1.248	ΣSAR<1.6, Not required
		LTE Band 5	0	1.133	0.056	1.189	ΣSAR<1.6, Not required
		LTE Band 12	0	1.269	0.056	1.325	ΣSAR<1.6, Not required
		LTE Band 13	0	1.202	0.056	1.258	ΣSAR<1.6, Not required

Top side WWAN + Bluetooth

No.	Position	Conditions	Distance (mm)	Max. WWAN	ВТ	SAR Sum	SPLSR
12	Top side	WCDMA Band II	0	0.210	0.000	0.210	ΣSAR<1.6, Not required
		WCDMA Band V	0	0.195	0.000	0.195	ΣSAR<1.6, Not required
		LTE Band 2	0	0.205	0.000	0.205	ΣSAR<1.6, Not required
		LTE Band 4	0	0.693	0.000	0.693	ΣSAR<1.6, Not required
		LTE Band 5	0	0.174	0.000	0.174	ΣSAR<1.6, Not required
		LTE Band 12	0	0.192	0.000	0.192	ΣSAR<1.6, Not required
		LTE Band 13	0	0.186	0.000	0.186	ΣSAR<1.6, Not required

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Bottom side WWAN + Bluetooth

No.	Position	Conditions	Distance (mm)	Max. WWAN	ВТ	SAR Sum	SPLSR	
	Bottom side	WCDMA Band II	0	0.211	0.059	0.270	ΣSAR<1.6, Not required	
			WCDMA Band V	0	0.063	0.059	0.122	ΣSAR<1.6, Not required
			LTE Band 2	0	0.110	0.059	0.169	ΣSAR<1.6, Not required
13		LTE Band 4	0	0.126	0.059	0.185	ΣSAR<1.6, Not required	
			LTE Band 5	0	0.057	0.059	0.116	ΣSAR<1.6, Not required
		LTE Band 12	0	0.062	0.059	0.121	ΣSAR<1.6, Not required	
		LTE Band 13	0	0.062	0.059	0.121	ΣSAR<1.6, Not required	

Right side WWAN + Bluetooth

No.	Position	Conditions	Distance (mm)	Max. WWAN	ВТ	SAR Sum	SPLSR	
	Right side	WCDMA Band II	0	0.027	0.002	0.029	ΣSAR<1.6, Not required	
			WCDMA Band V	0	0.008	0.002	0.010	ΣSAR<1.6, Not required
		LTE Band 2	0	0.007	0.002	0.009	ΣSAR<1.6, Not required	
14		Right side	LTE Band 4	0	0.009	0.002	0.011	ΣSAR<1.6, Not required
			LTE Band 5	0	0.007	0.002	0.009	ΣSAR<1.6, Not required
		LTE Band 12	0	0.008	0.002	0.010	ΣSAR<1.6, Not required	
		LTE Band 13	0	0.008	0.002	0.010	ΣSAR<1.6, Not required	

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Left side WWAN + Bluetooth

No.	Position	Conditions	Distance (mm)	Max. WWAN	ВТ	SAR Sum	SPLSR
	Left side	WCDMA Band II	0	0.389	0.010	0.399	ΣSAR<1.6,
							Not required
		WCDMA Band	0	0.405	0.010	010 0.415	ΣSAR<1.6,
		V	U	0.405	0.010		Not required
		LTE Band 2	0	0.307	0.010	0.317	ΣSAR<1.6,
							Not required
15		LTE Band 4	0	0.358	0.010	0.368	ΣSAR<1.6,
13							Not required
		LTE Band 5	0	0.362	0.010	0.372	ΣSAR<1.6,
							Not required
		LTE Band 12	0	0.404	0.010	0.414	ΣSAR<1.6,
			U		0.010		Not required
		LTE Band 13	0	0.389	0.010	0.399	ΣSAR<1.6,
			U				Not required

Conclusion:

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

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4. Instruments List

Manufacturer	Device	Туре	Serial number	Date of last calibration	Date of next calibration
SPEAG	Dosimetric E-Field Probe	EX3DV4	3938	Oct.24,2018	Oct.23,2019
	System Validation Dipole	D750V3	1078	Jun.20,2018	Jun.19,2019
		D835V2	4d120	Jun.20,2018	Jun.19,2019
CDE A C		D1750V2	1023	Jun.11,2018	Jun.10,2019
SPEAG		D1900V2	5d173	Apr.25,2018	Apr.24,2019
		D2450V2	727	Apr.24,2018	Apr.23,2019
		D5GHzV2	1023	Jan.25,2018	Jan.24,2019
SPEAG	Data acquisition Electronics	DAE4	1336	Aug.06,2018	Aug.05,2019
SPEAG	Software	DASY 52 V52.10.1	N/A	Calibration not required	Calibration not required
SPEAG	Phantom	ELI	N/A	Calibration not required	Calibration not required
Agilent	Network Analyzer	E5071C	MY46107530	Feb.26,2018	
Agilent	Dielectric Probe Kit	85070E	MY44300677	Calibration not required	Calibration not required
Agilent	Dual-directional	772D	MY52180142	Jul.04,2018	Jul.03,2019
	coupler	778D	MY52180302	Jul.05,2018	Jul.04,2019
Agilent	RF Signal Generator	N5181A	MY50144143	Mar.15,2018	Mar.14,2019
Agilent	Power Meter	E4417A	MY52240003	Feb.01,2018	Jan.31,2019

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Manufacturer	Device	Туре	Serial number	Date of last calibration	Date of next calibration
Agilent	Power Meter	E4417A	MY52240003	Dec.21,2017	Dec.20,2018
A mile mt	Power Sensor	E9301H	MY52200003	Dec.21,2017	Dec.20,2018
Agilent	Fower Sensor		MY52200004	Dec.21,2017	Dec.20,2018
TECPEL	Digital thermometer	DTM-303A	TP130077	Mar.09,2018	Mar.08,2019
Anritsu	Radio Communication Test	MT8820C	6201061014	Mar.14,2018	Mar.13,2019
R&S	Radio Communication Test	CMW 500	143913	Apr.29.2018	Apr.28.2019

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5. Measurements

Date: 2018/11/28

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 MHz; $\sigma = 1.512$ S/m; $\varepsilon_r = 52.51$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY5 Configuration:

Probe: EX3DV4 - SN3938; ConvF(7.52, 7.52, 7.52); Calibrated: 2018/10/24

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1336; Calibrated: 2018/8/6

Phantom: ELI

DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

Area Scan (61x71x1): Interpolated grid: dx=15 mm, dy=15 mm

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

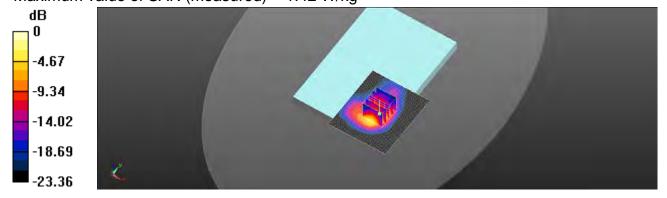
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 1.443 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 1.87 W/kg

SAR(1 g) = 0.977 W/kg; SAR(10 g) = 0.446 W/kg

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



0 dB = 1.42 W/kg = 1.51 dBW/kg

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Date: 2018/11/26

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; $\sigma = 1.019$ S/m; $\varepsilon_r = 54.895$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Ambient temperature: 22.1°C; Liquid temperature: 21.4°C

DASY5 Configuration:

Probe: EX3DV4 - SN3938; ConvF(9.56, 9.56, 9.56); Calibrated: 2018/10/24

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1336; Calibrated: 2018/8/6

Phantom: ELI

DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

Area Scan (61x71x1): Interpolated grid: dx=15 mm, dy=15 mm

Maximum value of SAR (interpolated) = 1.39 W/kg

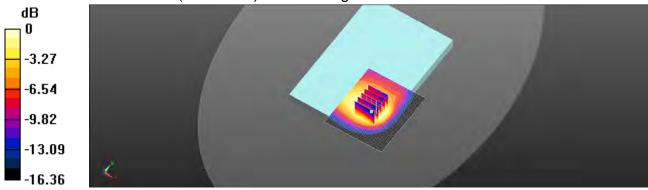
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 10.49 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 1.75 W/kg

SAR(1 g) = 0.959 W/kg; SAR(10 g) = 0.606 W/kg

Maximum value of SAR (measured) = 1.33 W/kg



0 dB = 1.33 W/kg = 1.25 dBW/kg

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Date: 2018/11/28

LTE Band 2 (20MHz)_Body_Back side_CH 18900_QPSK_1-99_0mm

Communication System: LTE; Frequency: 1880 MHz; Duty Cycle: 1:1

Medium parameters used: f = 1880 MHz; $\sigma = 1.499 \text{ S/m}$; $\epsilon_r = 52.615$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

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

DASY5 Configuration:

Probe: EX3DV4 - SN3938; ConvF(7.52, 7.52, 7.52); Calibrated: 2018/10/24

• Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1336; Calibrated: 2018/8/6

Phantom: ELI

DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

Area Scan (61x71x1): Interpolated grid: dx=15 mm, dy=15 mm

Maximum value of SAR (interpolated) = 1.59 W/kg

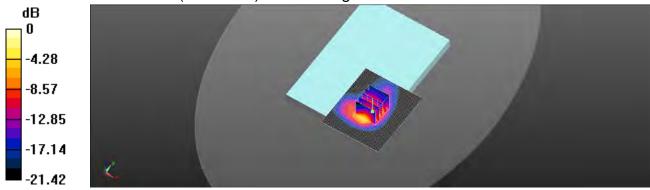
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 1.713 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 1.90 W/kg

SAR(1 g) = 0.987 W/kg; SAR(10 g) = 0.451 W/kg

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



0 dB = 1.45 W/kg = 1.62 dBW/kg

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Date: 2018/11/27

LTE Band 4 (20MHz) Body Back side CH 20050 QPSK 1-0 0mm

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

Medium parameters used: f = 1720 MHz; $\sigma = 1.422 \text{ S/m}$; $\epsilon_r = 53.076$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Ambient temperature: 22.6°C; Liquid temperature: 21.8°C

DASY5 Configuration:

Probe: EX3DV4 - SN3938; ConvF(7.83, 7.83, 7.83); Calibrated: 2018/10/24

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1336; Calibrated: 2018/8/6

Phantom: ELI

DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

Area Scan (61x71x1): Interpolated grid: dx=15 mm, dy=15 mm

Maximum value of SAR (interpolated) = 1.72 W/kg

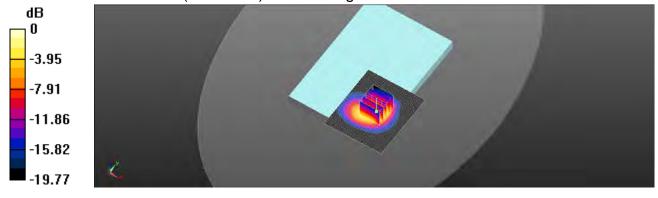
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 1.317 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 1.79 W/kg

SAR(1 g) = 1.01 W/kg; SAR(10 g) = 0.506 W/kg

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



0 dB = 1.38 W/kg = 1.41 dBW/kg

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Date: 2018/11/26

LTE Band 5 (10MHz) Body Back side CH 20525 QPSK 1-25 0mm

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

Medium parameters used: f = 836.5 MHz; $\sigma = 1.011 \text{ S/m}$; $\varepsilon_r = 55.022$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Ambient temperature: 22.1°C; Liquid temperature: 21.4°C

DASY5 Configuration:

- Probe: EX3DV4 SN3938; ConvF(9.56, 9.56, 9.56); Calibrated: 2018/10/24
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2018/8/6
- Phantom: ELI
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

Area Scan (61x71x1): Interpolated grid: dx=15 mm, dy=15 mm

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

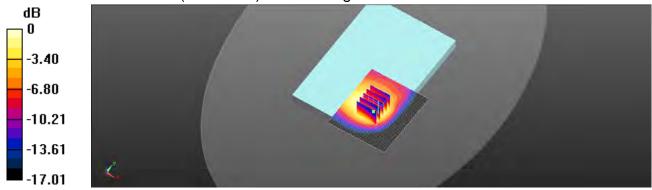
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 11.90 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 2.18 W/kg

SAR(1 g) = 1.13 W/kg; SAR(10 g) = 0.701 W/kg

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



0 dB = 1.57 W/kg = 1.97 dBW/kg

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Date: 2018/11/25

LTE Band 12 (10MHz)_Body_Back side_CH 23130_QPSK_1-25_0mm

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

Medium parameters used: f = 711 MHz; σ = 0.939 S/m; ϵ_r = 56.315; ρ = 1000 kg/m³

Phantom section: Flat Section

Ambient temperature: 22.2°C; Liquid temperature: 21.8°C

DASY5 Configuration:

Probe: EX3DV4 - SN3938; ConvF(9.72, 9.72, 9.72); Calibrated: 2018/10/24

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1336; Calibrated: 2018/8/6

Phantom: ELI

DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

Area Scan (61x71x1): Interpolated grid: dx=15 mm, dy=15 mm

Maximum value of SAR (interpolated) = 1.95 W/kg

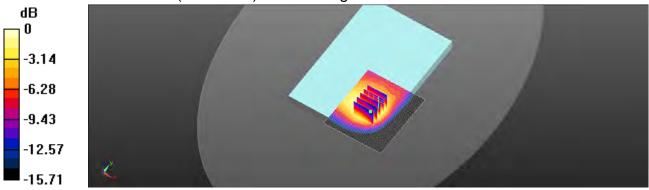
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 13.13 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 2.26 W/kg

SAR(1 g) = 1.26 W/kg; SAR(10 g) = 0.829 W/kg

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



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

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Date: 2018/11/25

LTE Band 13 (10MHz)_Body_Back side_CH 23230_QPSK_1-0_0mm

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

Medium parameters used: f = 782 MHz; $\sigma = 0.942$ S/m; $\varepsilon_r = 56.515$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Ambient temperature: 22.2°C; Liquid temperature: 21.8°C

DASY5 Configuration:

Probe: EX3DV4 - SN3938; ConvF(9.72, 9.72, 9.72); Calibrated: 2018/10/24

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1336; Calibrated: 2018/8/6

Phantom: ELI

DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

Area Scan (61x71x1): Interpolated grid: dx=15 mm, dy=15 mm

Maximum value of SAR (interpolated) = 1.90 W/kg

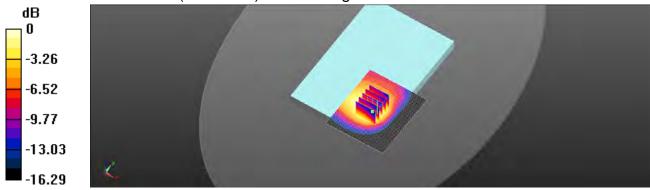
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 14.25 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 2.18 W/kg

SAR(1 g) = 1.18 W/kg; SAR(10 g) = 0.762 W/kg

Maximum value of SAR (measured) = 1.60 W/kg



0 dB = 1.60 W/kg = 2.05 dBW/kg

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Date: 2018/11/29

WLAN 802.11b_Body_Bottom side_CH 11_0mm

Communication System: WLAN 2.45G; Frequency: 2462 MHz; Duty Cycle: 1:1

Medium parameters used: f = 2462 MHz; $\sigma = 2.021 \text{ S/m}$; $\varepsilon_r = 52.648$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

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

DASY5 Configuration:

- Probe: EX3DV4 SN3938; ConvF(7.3, 7.3, 7.3); Calibrated: 2018/10/24
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2018/8/6
- Phantom: ELI
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

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

Maximum value of SAR (interpolated) = 0.470 W/kg

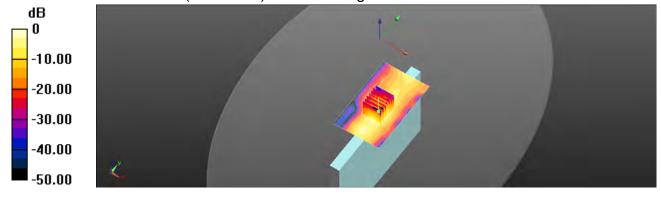
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 8.755 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 0.664 W/kg

SAR(1 g) = 0.285 W/kg; SAR(10 g) = 0.108 W/kg

Maximum value of SAR (measured) = 0.461 W/kg



0 dB = 0.461 W/kq = -3.36 dBW/kq

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Date: 2018/11/29

Bluetooth(GFSK) Body Bottom side CH 0 0mm

Communication System: Bluetooth; Frequency: 2402 MHz; Duty Cycle: 1:1

Medium parameters used: f = 2402 MHz; $\sigma = 1.939 \text{ S/m}$; $\varepsilon_r = 52.885$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

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

DASY5 Configuration:

Probe: EX3DV4 - SN3938; ConvF(7.3, 7.3, 7.3); Calibrated: 2018/10/24

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1336; Calibrated: 2018/8/6

Phantom: ELI

DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

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

Maximum value of SAR (interpolated) = 0.0793 W/kg

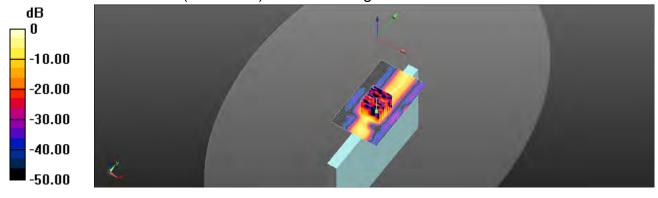
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 3.557 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 0.0780 W/kg

SAR(1 g) = 0.038 W/kg; SAR(10 g) = 0.012 W/kg

Maximum value of SAR (measured) = 0.0608 W/kg



0 dB = 0.0608 W/kg = -12.16 dBW/kg

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Date: 2018/11/30

WLAN 802.11n(40M) 5.2G Body Left side CH 46 0mm

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

Medium parameters used: f = 5230 MHz; $\sigma = 5.162 \text{ S/m}$; $\epsilon_r = 47.317$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Ambient temperature: 22.1°C; Liquid temperature: 21.9°C

DASY5 Configuration:

Probe: EX3DV4 - SN3938; ConvF(4.23, 4.23, 4.23); Calibrated: 2018/10/24

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1336; Calibrated: 2018/8/6

Phantom: ELI

DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

Area Scan (71x111x1): Interpolated grid: dx=10 mm, dy=10 mm

Maximum value of SAR (interpolated) = 0.526 W/kg

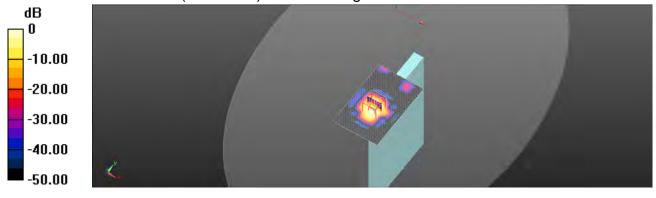
Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 0.5470 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 0.830 W/kg

SAR(1 g) = 0.186 W/kg; SAR(10 g) = 0.044 W/kg

Maximum value of SAR (measured) = 0.429 W/kg



0 dB = 0.429 W/kq = -3.68 dBW/kq

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Date: 2018/12/1

WLAN 802.11a 5.3G_Body_Left side_CH 60_0mm

Communication System: WLAN 5G; Frequency: 5300 MHz; Duty Cycle: 1:1

Medium parameters used: f = 5300 MHz; $\sigma = 5.372$ S/m; $\epsilon_r = 47.153$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Ambient temperature: 22.7°C; Liquid temperature: 21.8°C

DASY5 Configuration:

Probe: EX3DV4 - SN3938; ConvF(4.23, 4.23, 4.23); Calibrated: 2018/10/24

• Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1336; Calibrated: 2018/8/6

Phantom: ELI

DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

Area Scan (71x111x1): Interpolated grid: dx=10 mm, dy=10 mm

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

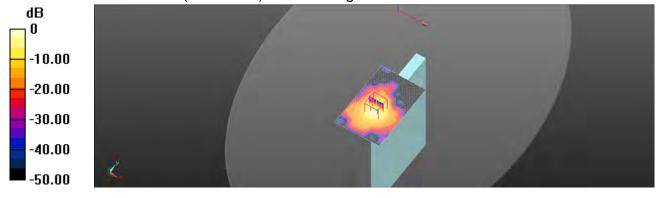
Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 0.5380 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 2.71 W/kg

SAR(1 g) = 0.639 W/kg; SAR(10 g) = 0.159 W/kg

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



0 dB = 1.42 W/kg = 1.53 dBW/kg

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Date: 2018/12/2

WLAN 802.11a 5.6G_Body_Left side_CH 136_0mm

Communication System: WLAN 5G; Frequency: 5680 MHz; Duty Cycle: 1:1

Medium parameters used: f = 5680 MHz; $\sigma = 5.934$ S/m; $\epsilon_r = 47.883$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Ambient temperature: 22.1°C; Liquid temperature: 21.5°C

DASY5 Configuration:

Probe: EX3DV4 - SN3938; ConvF(4, 4, 4); Calibrated: 2018/10/24

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1336; Calibrated: 2018/8/6

Phantom: ELI

DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

Area Scan (71x111x1): Interpolated grid: dx=10 mm, dy=10 mm

Maximum value of SAR (interpolated) = 1.32 W/kg

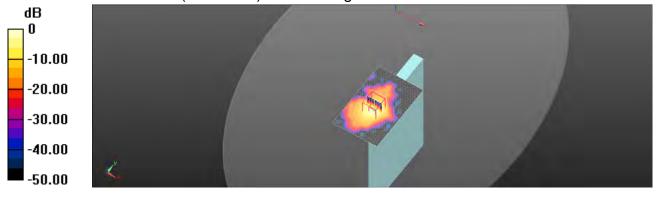
Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 1.479 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 3.01 W/kg

SAR(1 g) = 0.648 W/kg; SAR(10 g) = 0.154 W/kg

Maximum value of SAR (measured) = 1.51 W/kg



0 dB = 1.51 W/kg = 1.78 dBW/kg

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Date: 2018/12/3

WLAN 802.11a 5.8G Body Back side CH 165 0mm

Communication System: WLAN 5G; Frequency: 5825 MHz; Duty Cycle: 1:1

Medium parameters used: f = 5825 MHz; $\sigma = 5.976 \text{ S/m}$; $\epsilon_r = 46.997$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

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

DASY5 Configuration:

- Probe: EX3DV4 SN3938; ConvF(4, 4, 4); Calibrated: 2018/10/24
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2018/8/6
- Phantom: ELI
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

Area Scan (81x121x1): Interpolated grid: dx=10 mm, dy=10 mm

Maximum value of SAR (interpolated) = 1.01 W/kg

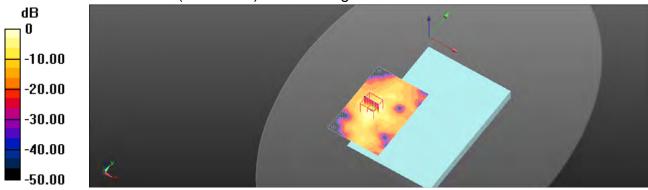
Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 2.518 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 4.73 W/kg

SAR(1 g) = 0.750 W/kg; SAR(10 g) = 0.188 W/kg

Maximum value of SAR (measured) = 2.04 W/kg



0 dB = 2.04 W/kg = 3.09 dBW/kg

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6. SAR System Performance Verification

Date: 2018/11/25

Dipole 750 MHz_SN:1078

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

Medium parameters used: f = 750 MHz; $\sigma = 0.941 \text{S/m}$; $\varepsilon_r = 56.255$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Ambient temperature: 22.2°C; Liquid temperature: 21.8°C

DASY5 Configuration:

Probe: EX3DV4 - SN3938; ConvF(9.72, 9.72, 9.72); Calibrated: 2018/10/24

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1336; Calibrated: 2018/8/6

Phantom: ELI

DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

Area Scan (51x141x1): Interpolated grid: dx=15 mm, dy=15 mm

Maximum value of SAR (interpolated) = 2.40 W/kg

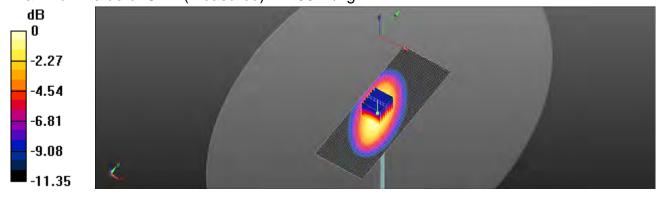
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 55.43 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 3.04 W/kg

SAR(1 g) = 2.19 W/kg; SAR(10 g) = 1.39 W/kg

Maximum value of SAR (measured) = 2.56 W/kg



0 dB = 2.56 W/kg = 4.09 dBW/kg

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Date: 2018/12/9

Dipole 750 MHz_SN:1078

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

Medium parameters used: f = 750 MHz; $\sigma = 0.945 \text{ S/m}$; $\varepsilon_r = 56.001$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Ambient temperature: 22.1°C; Liquid temperature: 21.6°C

DASY5 Configuration:

Probe: EX3DV4 - SN3938; ConvF(9.72, 9.72, 9.72); Calibrated: 2018/10/24

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1336; Calibrated: 2018/8/6

Phantom: ELI

DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

Area Scan (51x141x1): Interpolated grid: dx=15 mm, dy=15 mm

Maximum value of SAR (interpolated) = 2.39 W/kg

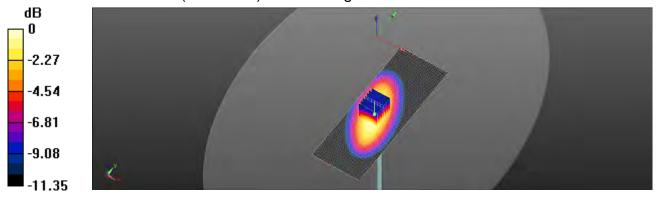
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 55.23 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 3.01 W/kg

SAR(1 g) = 2.17 W/kg; SAR(10 g) = 1.37 W/kg

Maximum value of SAR (measured) = 2.53 W/kg



0 dB = 2.53 W/kg = 4.06 dBW/kg

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Date: 2018/11/26

Dipole 835 MHz_SN:4d120

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

Medium parameters used: f = 835 MHz; $\sigma = 1.009$ S/m; $\varepsilon_r = 55.123$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Ambient temperature: 22.1°C; Liquid temperature: 21.4°C

DASY5 Configuration:

Probe: EX3DV4 - SN3938; ConvF(9.56, 9.56, 9.56); Calibrated: 2018/10/24

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1336; Calibrated: 2018/8/6

Phantom: ELI

DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

Area Scan (61x121x1): Interpolated grid: dx=15 mm, dy=15 mm

Maximum value of SAR (interpolated) = 3.15 W/kg

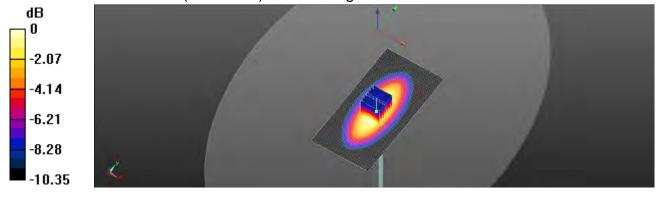
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 56.63 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 3.69 W/kg

SAR(1 g) = 2.48 W/kg; SAR(10 g) = 1.63 W/kg

Maximum value of SAR (measured) = 3.14 W/kg



0 dB = 3.14 W/kg = 4.96 dBW/kg

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Date: 2018/12/9

Dipole 835 MHz_SN:4d120

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

Medium parameters used: f = 835 MHz; $\sigma = 1.011$ S/m; $\varepsilon_r = 54.824$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Ambient temperature: 22.1°C; Liquid temperature: 21.6°C

DASY5 Configuration:

Probe: EX3DV4 - SN3938; ConvF(9.56, 9.56, 9.56); Calibrated: 2018/10/24

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1336; Calibrated: 2018/8/6

Phantom: ELI

DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

Area Scan (61x121x1): Interpolated grid: dx=15 mm, dy=15 mm

Maximum value of SAR (interpolated) = 3.11 W/kg

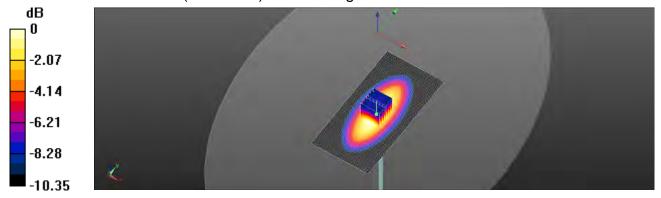
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 56.51 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 3.62 W/kg

SAR(1 g) = 2.46 W/kg; SAR(10 g) = 1.61 W/kg

Maximum value of SAR (measured) = 3.12 W/kg



0 dB = 3.12 W/kg = 4.92 dBW/kg

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Date: 2018/11/27

Dipole 1750 MHz_SN:1023

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

Medium parameters used: f = 1750 MHz; $\sigma = 1.452 \text{ S/m}$; $\epsilon_r = 52.765$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Ambient temperature: 22.6°C; Liquid temperature: 21.8°C

DASY5 Configuration:

Probe: EX3DV4 - SN3938; ConvF(7.83, 7.83, 7.83); Calibrated: 2018/10/24

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1336; Calibrated: 2018/8/6

Phantom: ELI

DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

Area Scan (41x71x1): Interpolated grid: dx=15 mm, dy=15 mm

Maximum value of SAR (interpolated) = 13.2 W/kg

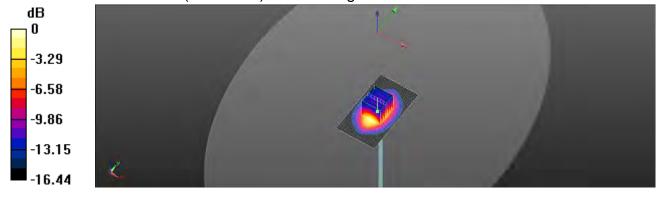
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 95.40 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 15.7 W/kg

SAR(1 g) = 9.03 W/kg; SAR(10 g) = 4.87 W/kg

Maximum value of SAR (measured) = 12.5 W/kg



0 dB = 12.5 W/kg = 10.98 dBW/kg

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prosecuted to the fullest extent of the law.



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Date: 2018/12/10

Dipole 1750 MHz_SN:1023

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

Medium parameters used: f = 1750 MHz; $\sigma = 1.462 \text{ S/m}$; $\epsilon_r = 52.497$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Ambient temperature: 22.7°C; Liquid temperature: 21.8°C

DASY5 Configuration:

Probe: EX3DV4 - SN3938; ConvF(7.83, 7.83, 7.83); Calibrated: 2018/10/24

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1336; Calibrated: 2018/8/6

Phantom: ELI

DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

Area Scan (41x71x1): Interpolated grid: dx=15 mm, dy=15 mm

Maximum value of SAR (interpolated) = 13.1 W/kg

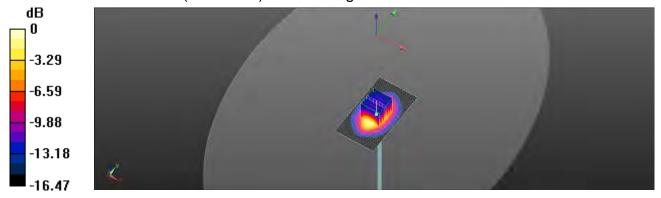
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 95.10 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 15.5 W/kg

SAR(1 g) = 9.01 W/kg; SAR(10 g) = 4.85 W/kg

Maximum value of SAR (measured) = 12.3 W/kg



0 dB = 12.3 W/kg = 10.78 dBW/kg

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Date: 2018/11/28

Dipole 1900 MHz_SN:5d173

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

Medium parameters used: f = 1900 MHz; $\sigma = 1.501 \text{ S/m}$; $\varepsilon_r = 52.605$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

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

DASY5 Configuration:

Probe: EX3DV4 - SN3938; ConvF(7.52, 7.52, 7.52); Calibrated: 2018/10/24

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1336; Calibrated: 2018/8/6

Phantom: ELI

DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

Area Scan (41x101x1): Interpolated grid: dx=15 mm, dy=15 mm

Maximum value of SAR (interpolated) = 14.0 W/kg

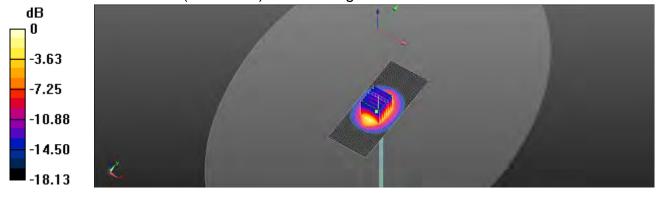
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 97.69 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 17.8 W/kg

SAR(1 g) = 9.92 W/kg; SAR(10 g) = 5.29 W/kg

Maximum value of SAR (measured) = 13.9 W/kg



0 dB = 13.9 W/kg = 11.43 dBW/kg

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Date: 2018/12/10

Dipole 1900 MHz_SN:5d173

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

Medium parameters used: f = 1900 MHz; $\sigma = 1.511 \text{ S/m}$; $\varepsilon_r = 52.568$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Ambient temperature: 22.7°C; Liquid temperature: 21.8°C

DASY5 Configuration:

Probe: EX3DV4 - SN3938; ConvF(7.52, 7.52, 7.52); Calibrated: 2018/10/24

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1336; Calibrated: 2018/8/6

Phantom: ELI

DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

Area Scan (41x101x1): Interpolated grid: dx=15 mm, dy=15 mm

Maximum value of SAR (interpolated) = 14.5 W/kg

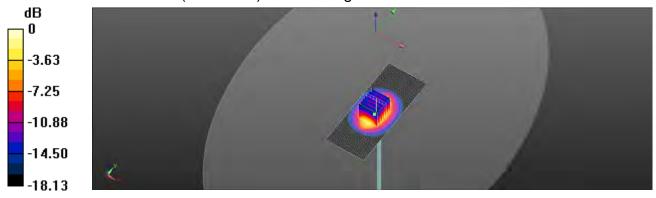
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 97.88 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 17.9 W/kg

SAR(1 g) = 9.94 W/kg; SAR(10 g) = 5.31 W/kg

Maximum value of SAR (measured) = 13.6 W/kg



0 dB = 13.6 W/kg = 11.39 dBW/kg

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Date: 2018/11/29

Dipole 2450 MHz_SN:727

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

Medium parameters used: f = 2450 MHz; $\sigma = 2.019 \text{ S/m}$; $\varepsilon_r = 52.668$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

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

DASY5 Configuration:

Probe: EX3DV4 - SN3938; ConvF(7.3, 7.3, 7.3); Calibrated: 2018/10/24

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1336; Calibrated: 2018/8/6

Phantom: ELI

DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

Area Scan (61x131x1): Interpolated grid: dx=12 mm, dy=12 mm

Maximum value of SAR (interpolated) = 20.3 W/kg

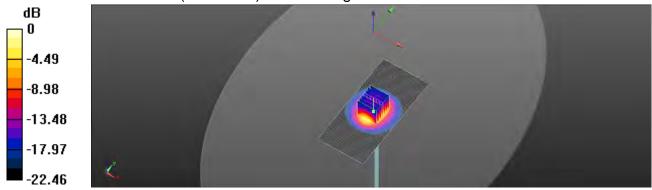
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 99.83 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 26.1 W/kg

SAR(1 g) = 12.6 W/kg; SAR(10 g) = 5.97 W/kg

Maximum value of SAR (measured) = 19.3 W/kg



0 dB = 19.3 W/kg = 12.86 dBW/kg

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Date: 2018/12/11

Dipole 2450 MHz_SN:727

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

Medium parameters used: f = 2450 MHz; $\sigma = 2.026 \text{ S/m}$; $\varepsilon_r = 52.54$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

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

DASY5 Configuration:

Probe: EX3DV4 - SN3938; ConvF(7.3, 7.3, 7.3); Calibrated: 2018/10/24

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1336; Calibrated: 2018/8/6

Phantom: ELI

DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

Area Scan (61x131x1): Interpolated grid: dx=12 mm, dy=12 mm

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

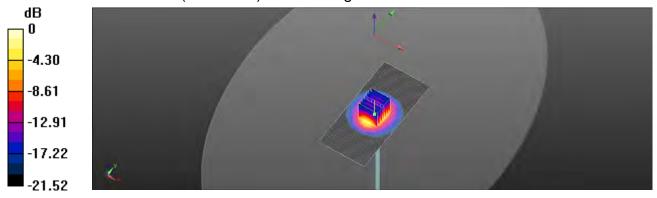
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 99.63 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 25.8 W/kg

SAR(1 g) = 12.5 W/kg; SAR(10 g) = 5.95 W/kg

Maximum value of SAR (measured) = 19.1 W/kg



0 dB = 19.1 W/kg = 12.76 dBW/kg

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Date: 2018/11/30

Dipole 5200 MHz_SN:1023

Communication System: CW; Frequency: 5200 MHz; Duty Cycle: 1:1

Medium parameters used: f = 5200 MHz; $\sigma = 5.159 \text{ S/m}$; $\varepsilon_r = 47.323$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Ambient temperature: 22.1°C; Liquid temperature: 21.9°C

DASY5 Configuration:

Probe: EX3DV4 - SN3938; ConvF(4.23, 4.23, 4.23); Calibrated: 2018/10/24

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1336; Calibrated: 2018/8/6

Phantom: ELI

DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

Area Scan (61x91x1): Interpolated grid: dx=10 mm, dy=10 mm

Maximum value of SAR (interpolated) = 14.9 W/kg

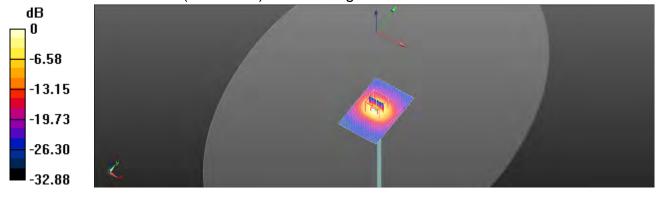
Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 56.12 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 27.6 W/kg

SAR(1 g) = 7.11 W/kg; SAR(10 g) = 1.95 W/kg

Maximum value of SAR (measured) = 14.5 W/kg



0 dB = 14.5 W/kg = 11.60 dBW/kg

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Date: 2018/12/11

Dipole 5200 MHz_SN:1023

Communication System: CW; Frequency: 5200 MHz; Duty Cycle: 1:1

Medium parameters used: f = 5200 MHz; $\sigma = 5.167 \text{ S/m}$; $\varepsilon_r = 47.205$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

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

DASY5 Configuration:

Probe: EX3DV4 - SN3938; ConvF(4.23, 4.23, 4.23); Calibrated: 2018/10/24

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1336; Calibrated: 2018/8/6

Phantom: ELI

DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

Area Scan (61x91x1): Interpolated grid: dx=10 mm, dy=10 mm

Maximum value of SAR (interpolated) = 14.8 W/kg

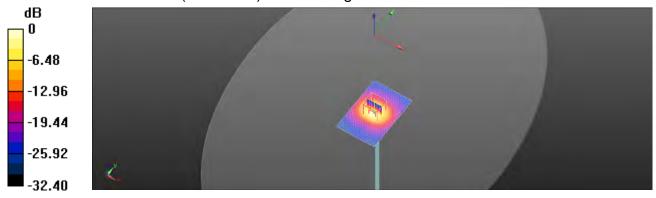
Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 56.01 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 27.4 W/kg

SAR(1 g) = 7.09 W/kg; SAR(10 g) = 1.93 W/kg

Maximum value of SAR (measured) = 14.1 W/kg



0 dB = 14.1 W/kg = 11.58 dBW/kg

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Date: 2018/12/1

Dipole 5300 MHz_SN:1023

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

Medium parameters used: f = 5300 MHz; $\sigma = 5.372 \text{ S/m}$; $\epsilon_r = 47.153$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Ambient temperature: 22.7°C; Liquid temperature: 21.8°C

DASY5 Configuration:

Probe: EX3DV4 - SN3938; ConvF(4.23, 4.23, 4.23); Calibrated: 2018/10/24

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1336; Calibrated: 2018/8/6

Phantom: ELI

DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

Area Scan (61x91x1): Interpolated grid: dx=10 mm, dy=10 mm

Maximum value of SAR (interpolated) = 15.3 W/kg

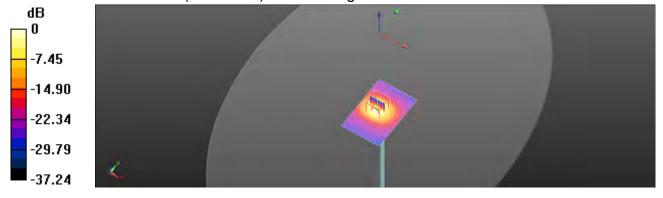
Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 47.61 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 31.0 W/kg

SAR(1 g) = 7.38 W/kg; SAR(10 g) = 2.07 W/kg

Maximum value of SAR (measured) = 15.8 W/kg



0 dB = 15.8 W/kg = 11.98 dBW/kg

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Date: 2018/12/11

Dipole 5300 MHz_SN:1023

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

Medium parameters used: f = 5300 MHz; $\sigma = 5.379 \text{ S/m}$; $\epsilon_r = 46.977$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

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

DASY5 Configuration:

Probe: EX3DV4 - SN3938; ConvF(4.23, 4.23, 4.23); Calibrated: 2018/10/24

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1336; Calibrated: 2018/8/6

Phantom: ELI

DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

Area Scan (61x91x1): Interpolated grid: dx=10 mm, dy=10 mm

Maximum value of SAR (interpolated) = 15.6 W/kg

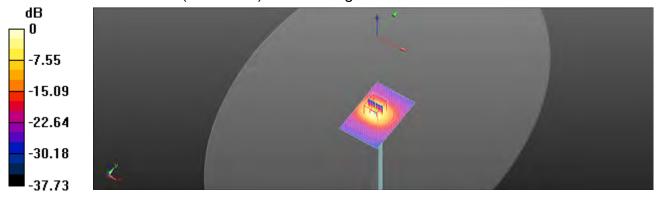
Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 47.91 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 31.6 W/kg

SAR(1 g) = 7.41 W/kg; SAR(10 g) = 2.11 W/kg

Maximum value of SAR (measured) = 15.9 W/kg



0 dB = 15.9 W/kg = 11.99 dBW/kg

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Date: 2018/12/2

Dipole 5600 MHz_SN:1023

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

Medium parameters used: f = 5600 MHz; $\sigma = 5.933 \text{ S/m}$; $\epsilon_r = 47.893$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Ambient temperature: 22.1°C; Liquid temperature: 21.5°C

DASY5 Configuration:

Probe: EX3DV4 - SN3938; ConvF(4, 4, 4); Calibrated: 2018/10/24

• Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1336; Calibrated: 2018/8/6

Phantom: ELI

DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

Area Scan (61x81x1): Interpolated grid: dx=10 mm, dy=10 mm

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

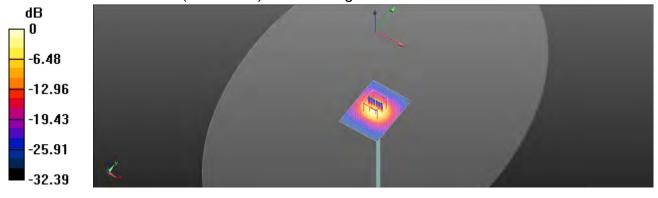
Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 58.76 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 32.7 W/kg

SAR(1 g) = 7.81 W/kg; SAR(10 g) = 2.2 W/kg

Maximum value of SAR (measured) = 16.7 W/kg



0 dB = 16.7 W/kg = 12.23 dBW/kg

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Date: 2018/12/11

Dipole 5600 MHz_SN:1023

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

Medium parameters used: f = 5600 MHz; $\sigma = 5.933 \text{ S/m}$; $\varepsilon_r = 47.722$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

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

DASY5 Configuration:

Probe: EX3DV4 - SN3938; ConvF(4, 4, 4); Calibrated: 2018/10/24

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1336; Calibrated: 2018/8/6

Phantom: ELI

DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

Area Scan (61x81x1): Interpolated grid: dx=10 mm, dy=10 mm

Maximum value of SAR (interpolated) = 17.4 W/kg

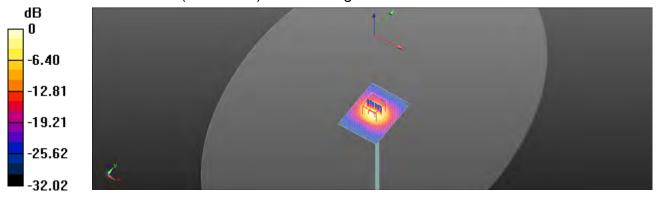
Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 58.94 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 33.1 W/kg

SAR(1 g) = 7.85 W/kg; SAR(10 g) = 2.24 W/kg

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



0 dB = 17.1 W/kg = 12.63 dBW/kg

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Date: 2018/12/3

Dipole 5800 MHz_SN:1023

Communication System: CW; Frequency: 5800 MHz; Duty Cycle: 1:1

Medium parameters used: f = 5800 MHz; $\sigma = 5.971 \text{ S/m}$; $\epsilon_r = 47.011$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

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

DASY5 Configuration:

Probe: EX3DV4 - SN3938; ConvF(4, 4, 4); Calibrated: 2018/10/24

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1336; Calibrated: 2018/8/6

Phantom: ELI

DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

Area Scan (61x91x1): Interpolated grid: dx=10 mm, dy=10 mm

Maximum value of SAR (interpolated) = 15.6 W/kg

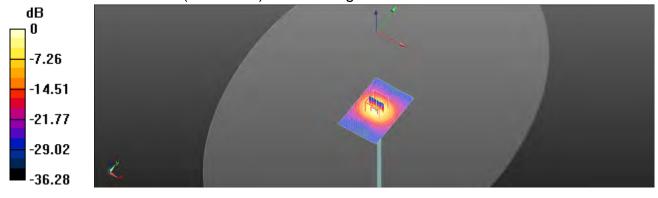
Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 53.97 V/m; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 32.1 W/kg

SAR(1 g) = 7.42 W/kg; SAR(10 g) = 2.05 W/kg

Maximum value of SAR (measured) = 15.8 W/kg



0 dB = 15.8 W/kg = 11.98 dBW/kg

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Date: 2018/12/11

Dipole 5800 MHz_SN:1023

Communication System: CW; Frequency: 5800 MHz; Duty Cycle: 1:1

Medium parameters used: f = 5800 MHz; $\sigma = 5.972 \text{ S/m}$; $\varepsilon_r = 46.72$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

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

DASY5 Configuration:

Probe: EX3DV4 - SN3938; ConvF(4, 4, 4); Calibrated: 2018/10/24

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1336; Calibrated: 2018/8/6

Phantom: ELI

DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

Area Scan (61x91x1): Interpolated grid: dx=10 mm, dy=10 mm

Maximum value of SAR (interpolated) = 15.3 W/kg

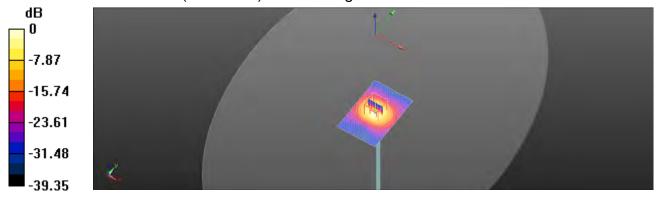
Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 53.61 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 31.8 W/kg

SAR(1 g) = 7.39 W/kg; SAR(10 g) = 2.01 W/kg

Maximum value of SAR (measured) = 15.5 W/kg



0 dB = 15.5 W/kg = 11.77 dBW/kg

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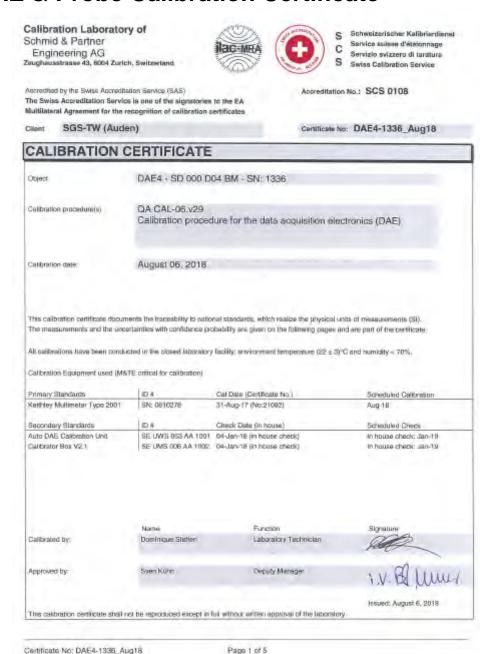
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7. DAE & Probe Calibration Certificate



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Calibration Laboratory of Schmid & Partner Engineering AG Zeughausstrasse 43, 8004 Zurich, Switzerland





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Acquelimina No.: SCS 0108

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 certification

Glossary

DAE data acquisition electronics

information used in DASY system to align probe sensor X to the robot Connector angle

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
 - 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

Certificate No: DAE4-1336_Aug181

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DC Voltage Measurement A/D - Converter Resolution nominal

High Flange: 1LSB = full range = -100...+300 mV full range = -1.....+3mV 6.tµV Low Range: ILSB = SinV DASY measurement parameters; Auto Zero Time: 3 sec; Measuring time: 3 sec

Calibration Factors	X	A.	Z
High Range	403.344 ± 0.02% (k=2)	403.624 ± 0.02% (k=2)	403.107 ± 0.02% (k=2)
Low Range	3,95102 ± 1,50% (k=2)	3,98703 ± 1,50% (k=2)	3.99683 ± 1.50% (k=2)

Connector Angle

Connector Angle to be used in DASY system	287.0° ± 1°

Certificate No: DAE4-1336_Aug18

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Appendix (Additional assessments outside the scope of SCS0108)

1. DC Voltage Linearity

High Renge	Reading (µV)	Difference (µV)	Error (%)
Channel X + Input	200042.98	8.65	0.00
Channel X + Input	20006.34	1.77	0.01
Channel X - Input	-20005,65	-0.58	0.00
Channel Y + Input	200034,32	0.12	0.00
Channel Y + Input	20003.47	-1:57	0.01
Channel Y - Input	20008.39	-1.21	0,01
Channel 2 + Input	200032.22	-2.05	-0.00
Channel Z + Input	20002.78	-2.14	-0.01
Channel Z - Input	-20007.34	-2.09	0.01

Low Range	Reading (µV)	Difference (µV)	Error (%)
Channel X + Input	2001.47	0.30	0,01
Channel X + Input	201.92	0.79	0.39
Channel X - Input	-198.26	0.59	-0.30
Channel Y + Input	2001.55	0.37	50.0
Channel Y + Input	200.97	-0.11	-0.05
Channel Y - Input	-199.34	-0.43	0.22
Channel Z + Input	2001,12	0.04	0.00
Channel Z + Input	200.15	-0,89	-0.44
Channel Z - Input	-200.14	11.15	0.58

2. Common mode sensitivity

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

	Common mode Input Voltage (mV)	High Range Average Reading (µV)	Low Range Average Reading (µV)
Channel X	200	B:04	4.72
	- 200	4.13	4.79
Channel Y	200	-3,65	-3,78
	200	2,68	2.45
Channel Z	200	22,40	22.16
	-200	-24.83	-25.10

3. Channel separation

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

	Input Voltage (mV)	Channel X (µV)	Channel Y (µV)	Channel Z (µV)
Channel X	200	+1	6.12	+1.64
Channel Y	500	9.19		6.46
Channel Z	200	8.44	6.31	9

Certificate No: DAE4-1336_Aug18

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4. AD-Converter Values with inputs shorted

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

	High Range (LSB)	Low Range (LSB)
Channel X	15666	16509
Channel Y	15907	15587
Channel Z	15855	15507

5. Input Offset Measurement

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

	Average (μV)	min. Ωffset (μV)	max. Offset (μV)	Std. Deviation (µV)
Channel X	0.87	-0.00	2.62	0.36
Channel Y	3.53	2.87	4.59	0.34
Channel Z	-0.18	-1.34	1.53	0.54

6. Input Offset Current

Nominal Input circuitry offset current on all channels <25fA

7. Input Resistance (Typical values for information)

	Zaroing (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	16	+14
Supply (- Vcc)	-0.01	-B	-9

Certificate No: DAE4-1936_Aug18

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Calibration Laboratory of Schmid & Partner Engineering AG Zeughausstrasse 43, 8004 Zurich, Switzerland





Schweizerlscher Kalibrierdienst Service suisse d'étalonnage Servizio evizzero di taracura Swise Calibration Service

Accreditation No.: SCS 0108

Actued ted by the Swiss Accreditation Service (SAS) The Series Accreditation Service is one of the signaturies to the EA

Multilateral Agreement for the recognition of calibration certificates

SGS-TW (Auden)

tents No. EX3-3938_Oct18

CALIBRATION CERTIFICATE Object EX3DV4 - SN:3938 Coloration procedure (c) QA CAL-01.V8, QA CAL 12 V9, QA CAL-14.V4, QA CAL-23.V5, QA Calibration procedure for dosimetrio E-field probes Calibration date October 24, 2018 This calibration certificate documents the trackability to national standards, which realize the physical units of migasuroments (SV). The measurements and the uncontaining 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, anvironment temperature (22 ± 3)°C and humidity < 70%. Calibration Emploment used (M&TE ortical for calibration)

Primary Standards	ID:	Call Date (Dertificate No.)	Scheduled Carpration
Power meter NRP	SN: 104778	04-Apr-18 (No. 217-02672/02673)	Apr-19
Power sensor NRP-Z91	SN: 103244	04-Apr-16 (No. 217-02672)	Apr-19
Power sensor NRP-Z91	SN: 103245	04-Apr-18 (No. 217-02673)	Apr-19
Reference 20 dB Attenuator	SN: 55277 (20x)	04-Apr-18 (No. 217-02662)	Apr-19
Reference Probe ES3DV2	SN: 3013	30-Dec-17 (No. ES3-3013 Dec17)	Dec-18
DAE4	SN: 660	21-Dec-17 (No. DAE4-660_Dec17)	Dec-18
Secondary Standards	ID.	Check Date (in house)	Schuduled Check
Power maler E4419B	SN: GB41293874	05-Apr-16 (in house check Jun-18)	In house check: Jun 20
Power service E4452A	SN: MY41488087	05-Apr-16 (in house check Jun-18)	In house check: Jun 28
Power kensor E4412A	SN:000110210	06-Apr-16 (in house check Jun-18)	In house check: dury-20
10" generator HP 8645C	SN: USS842U01700	04-Aug-99 (in house check Jun.18)	In house check Jun-20
Network Analyzer EB358A	3N: US41080477	31-Mar-14 (in house check Oct-18)	In house gheck: Opt-19

Name	Function	Signature
Julion Kautrurii	Laboratory Technician	+ W-
Kolia Posoyie	Technica (Abringer	Reag
		Issued: October 24, 2018
	Julion Kautrus	Julion Kastruti Lationality Technician

Certificate No. EX3-3938_Ora16

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Calibration Laboratory of Schmid & Partner Engineering AG upon Switzelled





Sohweizunscher Kallmierdierst 5 Service suisse d'étalcemage Servizio svizzero di memuni Swiee Calibration Sorvice

Accordination No.: SCS 0108

Ascredited by the Swiss Accreditation Service (SAS)

The Swiss Accorditation Service is one of the signatures to the EA Must tateral Agraement for the recognition of calibration certificans

Glossary:

TSU tissue simulating liquid NORMK, y, z sensitivity in free space sensitivity in TSL / NORMx,y,z dicide compression point ConvF DCP

crest factor (1/duty, cycle) of the RF signal modulation dependent linearization parameters CF A, B, C, D

Poistization of orotation around probe axis

3 rotation around an axis that is in the plane normal to probe axis (all messurement center), Polonization II

i.e., 8 = 0 is normal to probe exis information used in DASY system to align probe sensor X to the robot coordinate system Connector Angle

Calibration is Performed According to the Following Standards:

EEE Str 1528-2013, 1EEE Recommended Practice for Determining the Peak Spatial Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Messurement

Techniques: June 2013
IEC 62209-1.1, "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-

held and budy-mounted devices used next to the ser (fleouency range of 300 MHz to 6 GHz)", July 2016

c) IEC 62209-2. "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices." used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)*, March 2010 KDB 865684, "SAR Measurement Requirements for 100 MHz to 6 GHz."

Methods Applied and Interpretation of Parameters:

- NORMx,y,z. Assessed for E-field polarization $\theta = 0$ ($f \le 900$ MHz in TEM-cell, f = 1800 MHz; R22 waveguide). NORMx,y,z are only intermediate values, i.e., the uncertainties of NORMx,y,z does not affect the E²-field uncertainty inside TSL (see below ConvF).
- NORM(f)x,y,z = NORMx,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.
- DCPx,yz: DCP are numerical inequization parameters assessed based on the data of power sweep with DW signal ind uncertainty required). DCP does not depend on frequency nor misma.
- PAR: PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal cheracteristics
- Ax.y.z; Bx.y.z; Cx.y.z; Dx.y.z; VRx.y.z; A, B, C, D are numerical linearization parameters assessed bosed on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. VR is the maximum calibration range expressed in RMS voltage across the diade.
- ConvF and Boundary Effect Parameters: Assessed in flat phenton 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 actupe 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 NORMX,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
- Sphinical isotropy (3D deviation from isotropy): in a field of law gradients realized using a flat pitanism. excoped by a patch antenna.
- Sensor Offset: The sensor offset corresponds to the offset of virtual measurement center from the probe to (on probe axis). No tolerance required:

 Connector Angle: The angle is assessed using the information gained by determining the NORMs (no.
- uncertainty required).

Certificate No: EX3-3938 (Det R

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EX3DVA - SN:3908

Onligher 24, 2818

Probe EX3DV4

SN:3938

Manufactured: Calibrated: May 2, 2013 October 24, 2018

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

Certificate No: EX3 3508, Done

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EXTRA4- SN 3938

Optober 24, 2018

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3938

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Uno (k=2)
Norm [uV/(V/m) ²) ⁵	0.51	0.57	0.33	± 10.7 %
DCP (mV)	103.2	100.3	107.8	210.170

Modulation Calibration Parameters

UID	Communication System Name		dB	B dBõV	- 0	D	VR mV	Une (k=2)
D CW	CW	X	0.0	0,0	1.0	0.00	164.0	±3:5 %
		Y	0.0	0.0	1.0		1742	
		Z	0.0	0.0	1.0		1763	

Note: For details on UID parameters see Appendix.

Sensor Model Parameters

	G1 fF	C2 IF	u V	T1 ms.V-2	T2 ms.V=	T3 ms	T4 VT	75 V"	Th
X	59.09	436.9	35.15	26.09	1.205	5,10	1.012	0.575	1.009
Y	53.22	40B.3	37.24	24.25	1.457	5.10	0.000	0.766	1.013
Z	46.65	332.5	32.92	15.26	1.153	4.98	2.000	0.225	1.008

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%.

Certificate No: Ex3-3938 Oct 18

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This uncertainties of Norm X,Y,Z on registless the E²-faid unconstant mindle TSL (see Pages 5 and 6)

Manusical brandstation parameter intentiarity not required.

Uncontently is determined using the manuderiation from these response unplying methodates description and is expressed by the square of the



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EX3DV4~EN:3908

October 24, 2018

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3938

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) ^G	Relative Permittivity	Conductivity (S(m)	ConvF X	ConvF Y	ComvF Z	Alpha [®]	Depth " (mm)	(k=2)
750	41.9	0.89	9.82	9.82	9,82	0.45	0.80	± 12.0 %
835	41,5	0.90	9.50	9.50	9.50	0.50	0.85	± 12.0 %
900	41,5	0.97	9.25	9.25	9.25	0.33	1:04	±1205
1450	40.5	1:20	8.53	8.53	8,53	0.30	0,88	± 12.0 %
1750	40:1	1.37	8.32	8.32	H.32	0.36	0,90	±12.0%
1900	40.0	1.40	7.95	7.95	7.95	0.29	0,90	± 12.0%
2000	40.0	1.40	7.93	7.93	7:93	0.36	0.80	±12.0 %
2300	39.5	1.67	7.59	7.59	7.53	0.37	0.80	112.09
2450	39.2	1.80	7.17	7,17	7.17	0.36	0.B3	±12.0 %
2600	39.0	1.96	7.31	7.11	7.11	0.38	0:87	± 12.0 %
5250	35.9	4.71	5.00	5.00	5.00	0.40	1,80	£ 43.1 %
5600	35.5	6.07	4.65	4.65	4.65	0,40	1.80	±13.1 %
5750	35.4	5.22	4.76	4.76	4.76	0,40	1,80	±13.1%

Firmquency validity above 300 MHz of ± 100 MHz only applies to DASY v4 4 and tigher (see Page 2), asset is restricted to ± 50 MHz. The uncompanty is the RSS of the ConvF uncontainty of calibration frequency and the uncontainty for the instituted frequency hand if requency validity can be eathered to ± 150 MHz. The for DonvF assessments in 26, 84, 130, 150 and 220 MHz respectively. Above 5 CHs frequency validity can be eathered to ± 150 MHz.

All frequencies below 3 GHz, the validity of tissue parameters (a and a) can be released to ± 10% if Equal complementain immule a applied to measured SAR validate. All frequencies shows 3 GHz, the validity of testee parameters (a and a) is contributed to ± 5% the encestably is the RSS of the ConvF uncontainty for indicated target these parameters.

Applia Dogst are determined during calibration. SPEAG verticates that the extension due to the basiciary effect when compression is standard as the transplance to the parameters.

Certificate No: EX3-3938_Oct18-

Rage 5 rf 30

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EX3DV4-SN:3935

October 24, 2018

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3938

Calibration Parameter Determined in Body Tissue Simulating Media

F(MHz)*	Relative Permittivity	Conductivity (\$/m)	ConvF X	ConvF Y	ConvF 2	Alpha ^d	Depth S (mm)	Unic (k=2)
750	55.5	0.96	9.72	9.72	9.72	0.46	0.87	±120%
335	55.2	0.97	9.56	9.56	9.56	0.41	0.92	±12.0%
900	55.0	1.05	9.33	9.33	9.33	0.48	0.87	±12.0 %
1450.	54.0	1,30	7.98	7,911	7.98	0.32	0.90	±12.09
1750	53.4	1.49	7.83	7.83	7.83	0.43	0.90	±12.09
1900	53.3	1.52	7.52	7.52	7.52	0.33	0.96	± 12.0 9
2000	53.3	1.52	7.62	7,62.	7:82	0.38	0.89	± 12.0 %
2300	52.9	1.81	7.33	7.33	7.33	0.42	11.87	± 12.0 %
2450	52.7	1,95	7.30	7.30	7.30	0.35	0.87	= 12.0.9
2600	52.5	2.16	7.15	7.15	7.16	0.33	0.95	± 12.0 %
5250	48,0	5,36	4.23	4.23	4,23	0.50	1.90	±13.1 %
5800	48.5	5.77	3.77	3.77	3.77	0.50	7.90	±13.1%
5800	48.2	6.00	4.00	4.00	4.00	0.50	1.90	± 13.1 %

Finguisncy validity store 300 MHz of ± 100 MHz only applies for DASY v4.4 and rights is an People 2), also it is restricted to ± 50 MHz. The ancestismy is the RSS of the ConvF undertainty at distinsion frequency and the uncertainty in the incident frequency band. Finguisncy wainty below 300 MHz is ± 10, 25, 40, 50 and 70 MHz, for ConvF assessments at 30, 54, 129, 150 and 200 MHz respectively. Above 5 GHz Property validity can be extended to ± 10 MHz.

*At Incorporate below 3 GHz, the validity of issue parameters (current) can be retained at ± 40% initiate companisation for improved 5AR values. At frequencies above 3 CPHz, the validity of insura parameters (current) and of the extended in ± 9%. The uncertainty is the ConvF advantably for independing the losse parameters of insurance parameters (currently for independing the insurance parameters).

*Applied Depth are determined during castration. SPEAC apparets that the remaining deviation due to the boundary effect after companisations of always least man = 1% to Reputations below 2 GHz and heliow 2 GHz and heliow 5 2% for requirements.

Darkhuath No. Eks. 3836_Oct18

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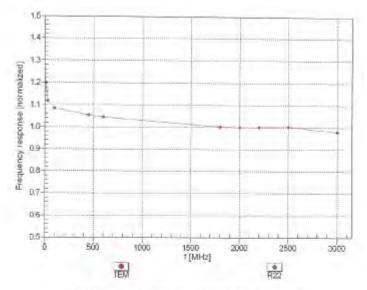


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October 24, 2018

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



Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

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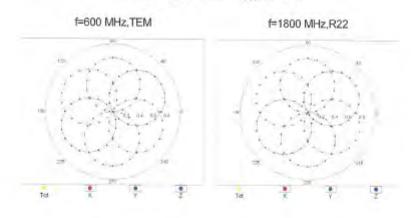


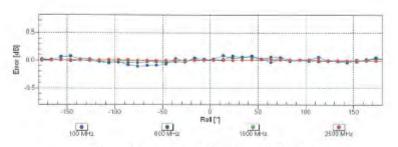
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EX3DV4-SN:3938

October 24, 2018

Receiving Pattern (\$), 9 = 0°





Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

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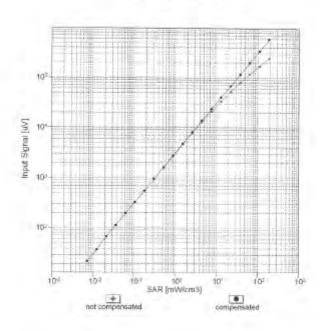


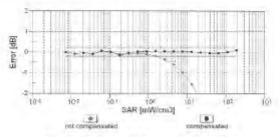
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EX3DV4- SN:3938

October 24, 2018

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





Uncertainty of Linearity Assessment: ± 0.6% (k=2)

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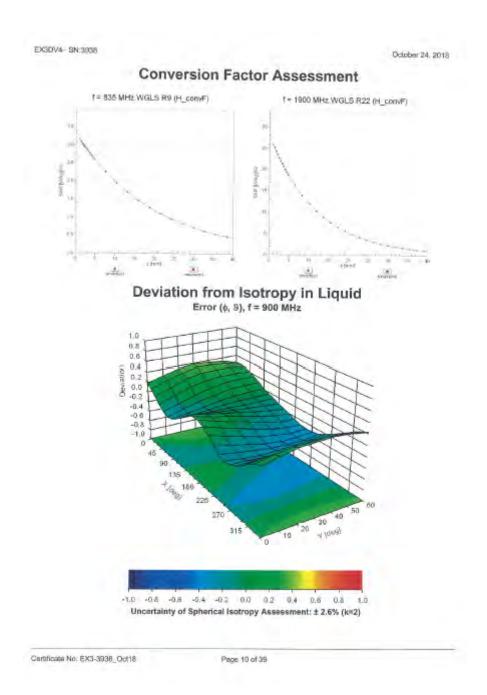
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EX3DV4-SN:3838

Optober 24, 2018

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3938

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (*)	-26.4
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	dsabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	9 mm
To Dismeter	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 Massurement Distance from Surface	1.4 mm

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EX3DV4-SN:3935 October 24, 2018

UID	Communication System Name	Ш	dB	qB /W	С	t/B	mV mV	Max Unc* (k=2)
0	CW	X	0.00	0.00	1.00	0.00	164.0	± 3.5 %
	1	Υ.	0.00	.0.00	1.00		174.2	-
		Z	0.00	0.00	1.00		176.3	
10010- CAA	SAR Validation (Square, 100ms, 10ms)	X	11.84	84.28	19.03	10.00	20.0	19.8%
100		Y	4.75	72.52	14.55		20.0	
		Z	2.70	65.86	10.62		20.0	
10011- CAB	UNITS-FED (WCDMA)		1,25	71.04	17.46	0.00	150,0	主导反称
		Y	0.87	85.19	13,50		150.0	
		Z	1 10	89.84	16.56		150.0	
10012- CAB	EEE 802,11b WIFI 2.4 GHz (DSSS, 1 Mbps)	X	1.29	65,77	16.62	0.43	150.0	3.9.E W
		Y Z	1:13	B3,57	14.74		150.D	
No.	Topic conversion in the second		1/17	54.77	15.66		100.0	
10013- CAB	EEE 802.11g WiFi 2.4 GHz (DSSS- OFDM, 6 Mbps)	X	5.06	87.01	17.40	1.46	150.0	±9.6%
	777	Y	4.93	B6,63	17.09		150.0	
		Z	4,79	66.72	16.84	-	150.0	
10021- DAC	GBM-FDD (TDMA, GMSK)	×	100.00	118.51	.90,68	9,39	50,0	19.8%
		Y	100.00	117:47	30.14		50.0	
Pilinon		Z	9.68	81.68	18.25		50.0	
10023- DAC	GPRS-FDD (TOWA, GMSK, TN 0)	×	100.00	118,45	30.70	9.57	50.0	± 9.6 %
		Y	100.00	117.42	30.17		50.0	
		Z	8.28	79.56	17.55		50.0	-
10024- DAC	GPRS-FDD (TDMA; GMSK, TN 0-1)	×	100.00	116.27	28.62	6,56	60,0	±9,6%
		Y	100,00	113.88	27.38		0.00	
	The second second	Z	17.36	88.43	18.89		60.0	
10025- DAC	EDGE-FDD (TDMA, IIPSK, TN 0)	×	14.85	105,19	41,16	12,57	50.0	#86#
1.0		Y	0.69	80.08	30.32		50.0	
		2	5.13	73,32	26.13		50.0	
10026- DAC	EDGE-FOD (TDMA, 8PSK, TN 0-1)	×	28.61	116.31	40,38	9.56	60/0	29.6%
		Y-	17.18	103.12	35.82		60.0	
	The same and the same and the	2	10.76	92.22	31,22		6D.D	
10027- DAC	GPRS-FDD (TDMA: GMSK, TN 0-1-2)	X	100,00	116.23	27.82	4,80	80.0	± 9.6 %
		Y	100.00	112.20	25.80		80.0	
10.0	The state of the s	Z	100,00	105.42	22.06		80.0	
10028- DAC	BPRS-FDD (TDMA, GMSK, TN 0-1-2-3)	Х	100.00	117.56	27.68	3.55	100.0	±9.6%
		. A.	100,00	111.19	24.62		100.0	
	A Description of the last of t	2	100 00	105.06	21.28	-211	100.0	16.00
10029- DAC	EDGE-FDD (TDMA, BPSK, TN 0-1-2)	×	14.44	99.44	33.73	7.80	0.08	±9.6%
		Y	10.38	91.48	30.62		0.08	
		2	6,98	83.31	26.90		0.08	- 22
10030- CAA	IEEE BOZ.15.1 Bluetonth (GFSK, DH1)	8	100.00	115.12	27.62	5,30	70:0:	19.6%
		Y	100,00	111.80	25.93		70.0	
	Carlotte Strategy Court and the	Z	13 15	85.08	17,21		70.0	
10031- CAA	IEEE 802.15.1 Bluelooth (GFSK, DH3)	×	100,00	120.41	27.44	1.88	100.0	±9.6 M
200		Y	100.00	105.85	20.53		100.0	
		Z	100.00	102.30	18.50		100.0	I.

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October 24, 2016

10032: CAA	IEEE 802.15 1 Bluetooth (GESK, DH5)	×	100.00	129.17	29.93	1.17	100.0	19.6%
		8	100.00	101.34	18.33		100.0	_
		Ž	100.00	104.25	16.92		100.0	
1003% CAA	(EEE BOZ.15.1 Bluesbath (PIM-DQPSK. DH1)	×	100.00	128.01	35,11	5.30	70,0	19.6 W
		Y	30.26	106.06	28.70		70.0	
		I Z	7.08	82.85	20.38		70.0	-
10034- GAA	IEEE 802.15.1 Bluesonth (PW4-DGPSK, DH3)	×	31.82.	111.52	29.61	1.88	100.0	±96%
-		Y	4.94	81.70	19.61		100:0	
		Z	3.36	77.14	17.43		100.0	
10005- CAA	IEEE 802 15.1 Bluelooth (PI/4-DQPSK, DHS)	X	8.76	93.74	24,54	1.17	100,0	±9.0%
		Y.	2.58	74.38	16.61		100.0	
	CONTRACTOR OF CONTRACT	2	2.45	74./B	16.51		100.0	
10036- CAA	IEEE 802 15 1 Bluexostin (8-DPSK, DH1)	×	100.00	128.23	35.27	5.30	70.0	19.0%
		Y	49.55	114:02	30.85		70.0	
	the contract of the contract of	2	8,81	95.86	21.44		70.0	
10037- CAA	IEEE BI32 15 1 Bitielooth (II-DPSK, DH3)	X	28.47	109:85	29.14	1.88	100.0	±3.0%
		Y	4.63	60.65	15,28		100.0	
	-	Z	3.10	76:20	17.05		100.0	
10038- CAA	IEEE 802 16.1 Blunioch (R-DPSK, DH5)	×	0.40	95,18	25,08	1.17	100,0	19.6%
		Y .	2.66	74.97	16.94		100.0	
Engage	market in the first	Z	2.52	75.38	16.85		100.0	0.00
10039 CAB	CDMA2000 (1xRTT\RC1)	8	2.91	79.68	19.30	0.00	158,0	196%
_		Y	1.40	87.94	13.51		150.0	
10000	The second second	2	2.58	79.60	18.81		150.0	
10042 CAB	(S-54) IS-136 FOD (TDMA/FDM, PI/4- DQPSK, Halfrate)	×	100.00	114.29	27.89	7.78	50.0	±96%
		. 4	100.00	112.24	26.63		50.0	
	The second secon	Z	7.08	77.78	15.66		50.0	
10044- CAA	(S-91/EIA/TIA-553) FOD (FDMA, FMI	×	0.00	111/10	2.98	0.00	150.0	19.6%
		Y	0.12	121.97	13.25		150.0	
-	A CONTRACTOR OF THE PARTY OF TH	Z	0.02	124.98	11,44		150.0	
10046- CAA	DECT (TDD: TDMA/FDM; GFSK; Full Skit 24)	X	100,00	120.31	32.96	13.50	25.0	19,8%
		Y	28.80	98.60	27.12		25.0	
A DOMESTIC	And and an arrangement of the same of the	Z.	6.10	73.04	16.66		25.0	
10045- CAA	DECT (TDD, TDMA/FDM, GFSK, Double Sigt, 12)	Х-	100.00	118.79	31,19	10.79	40.0	498%
		Y.	42.73	105.35	27.59		40.0	
CONTRACT OF	Topics was the name of the same of the sam	.7.	6.52	75.70	16,44		40.0	Loss.
10058- GAA	LIMTS-TOD (FD-SCDMA, 1-28 Maps)	X	59/92	116.40	32.89	9.03	50,0	± 9.8%
-		Y	20.27	96.61	26.81		50.0	
OHIO C	PROPERTY AND	2	8,72	E1.48	20.30		50.0	
DAC	EDGE-FDD (TDMA, BRSIC, TN 0-1-2-3)	X	3.95	90.34	29,75	6.55	100.0	19.6%
_		Y	7,41	E4.68	27.34		100.0	
10059-	HEET BOTH AND MODELS THAT	·Z	5.31	78.46	24.34		100.0	
CAB	IEEE 802 11b WIFI 2.4 GHz (DSSS, 2 Mbps)	X	1.45	68,16	17.83	0.67	110.0	=3.0 A
_		Y	1.24	65.28	15/64		110.0	
0000-	(DEE and Also Mileto Andre Andre	Z	1:24	66,08	15.24		1.10.0	
CAB	IEEE 802.11th WIFI 2-4 GHz (DSSS, 5-5 Mbps)	×	100,00	138.52	35.86	1,30	110.0	T86%
		Y	100.00	127.82	31.55		110.0	
		2	75.11	127.04	31.74		110.0	

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EX30V4- SN 3938

Dozobii 24, 2018

10061- CAB	IEEE 802 11b WIFI 2.4 GHz (DSSS. 1) Mbps)	X	37.93	122.29	34.76	2,04	71D.D	±9.6 K
		Y	7.04	91.70	25,29		110.0	
		2	3.71	82.53	21.92		110.0	
0062- CAC	IEEE 802.11a/h WIFI 5 GHz (OFDM, 6 Mbps)	X	4.83	66.93	16.78	0.49	100.0	#98%
-		1.A.	4.68.	66.44	16.40		100.0	
		Z	4.61	66.82	16.41	-	100.0	
0083- CAC	(EEE 802.11a/h WFL5 GH2 (OFDM, 9 Mbps)	X	4,86	87.07	16.91	0.72	100.0	#9.8.%
	1000	Y	4.71	66.58	16.52		100.0	
		2	4.62	86.89	16.47		100.0	
10064- CAC	IEEE 802.11a/h WIFI 5 GHz (OFDM, 12 Moss)	×	5.19	67.38	17.15	0.86	100.0	±9.6 %
		8	5.02	66.91	16.79		100.0	
		Z	4:90	67 10	16.66		100.0	
10065- CAC	IEEE 802 11a/h WIFI 5 GHz (OFDM, 18 Mttps)	X	5.07	67.37	17.30	1.21	100.0	± 9.6 %
	1	Y	4.91	66.89	16.94		100.0	
		2	4.77	66.99	96.73		100.0	
10086- CAC	IEEE 802.71a/h WiFi 5 GHz (OFDM, 24 Mbps)	Х.	5.11	67 44	17.51	1.46	100.0	±9.6 %
		Y	4.95	66.98	17.15		100.0	
	The second section of the second	Z	4.78	66.99	16.85		100.0	·
10087- CAC	(EEE 802.11a/h WiFI 5 GHz (OFDM, 36 Mbps)	X	5,40	67.52	17.91	204	100.0	主印音物
		Y	5.26	67.17	17.62		100.0	
		Z	5.06	67,09	17.23		100.0	
10058- DAC	JEEE 802 118/h WIFI 5 GHz (OFDM, 48 Mbps)	X	5.51	67.80	18.25	2.55	100.0	± 9.6 %
	9.10	9	5.36	87.48	17.94		100,0	
		Z	5.11	67.14	17.41		100.0	
10069- CAC	IEEE 802 11a/h WIFI 5 CHz (OFDM, 54 Mbps)	×	5.58	67.69	18.40	2.67	100,0	19.6%
		Y	5.44	67.37	18.13		100.0	
	have some one if you	Z	5.19	67.11	17.58		100.0	
10071- CAB	EEE 802.11g WF(2.4 GHz (DSSS/OFDM, 9 Mpps)	×	5.17	67.17	17.75	1.99	100.0	±9.6%
-	The state of the s	Y	505	66.81	17.46		100.0	
		Z	4.88	56.78	17.09		100.D	
10072- CAB	(DSSS/OFDM, 12 Mbps)	×	521	57.68	18.06	2.30	100,0	±9.6 %
CT YES	The contract result in temporal	Y	5.08	87.27	17.74		100.0	
		Z	4.87	67.11	17.28		100.0	
10073- CAB	(EEE 802.11g WiF) 2.4 GHz (DSSS/OFDM, 18 Mbps)	×	5.30	67.92	18.44	2.83	100.0	198%
	The state of the s	Y	5.18	67.55	18:13		100.0	
		Z	4.94	57.26	17.56		100.0	100
10074- GAB	IEEE 802.11g WIFI 2.4 GHz (DSSS/OFDM, 24 Mbps)	X	5.29	67,90	18.65	3.30	100.0	±96%
		·Y	5.19	67.54	18.34		100.0	
	the second of the second	Z	4.93	67.18	17.70		100.0	
10075- CAB	(EEE 802 Hg WIFI 2.4 GHz (DSSS/OFDM, 36 Mbps)	×	5.40	68.28	19.10	3.82	2000A	±98%
		Y	5.28	67.86	18.77		90.0	-
		Z	4.98	67.33	17.99		90.0	
10076- CAB	(DSSS)OFDM, 48 Mbps)	Х	5.38	67,97	19.17	4.15	90.0	196%
		Y	5.29	67.64	18.88		90.0	
		2	5.00	87.13	18,10		90.0	
10077- CAB	(DSSS/OFDM, 54 Mbps)	×	5.A1	68.03	19.26	4,30	90.D	296%
	The management of such as supplied.	1 22	5.32	67.72	18.98		90.0	
		- Y	2.34	D1-12	100.000		Sec. 13	

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10081-	CDMA2900 (1xRTT, RC3)	TX	1.20	70.94	15.87	0.00	150.0	1959
CAB	Section and Albert (1) (see)		1140	10,04	1,21,014	9/89	150/0	T B/ 0 A
		Y	0.66	63.33	10.59		150.0	
		Z	0.97	69.12	14.01		150.0	
10082- CAB	IS-547 IS-138 FDO (TDMA/FDM, PV4- DQPSK, Fulirate)	×	1.85	61,30	6.54	4.77	80.0	18.6%
		Y	1.15	60.10	5.56		80.0	
CORPORATE AND ADDRESS OF THE PARTY OF THE PA	Control Control Control Control	Z	0.90	60.00	4.82		80.0	
DAC	GPRS-FDD (TDMA, GMSH, TN-0-4)	X	100.00	116.34	28.67	6.56	60.0	£9,6%
		1.4	100.00	113.98	27.45		60.0	
10097	UMTS-EDD (HSDPA)	Z	16,90	88.08	18.81	-	80.0	
CAB	UNITS-EDD (HSDPA)	×	1.98	69.10	16,78	0.00	150.0	198%
		Z	1.88	66.14	14.64	-	150.0	
10098-	UMTS-FDD (HSUPA, Sublest 2)		1.92	60.38	16.52	0.05	180.0	-
CAB	Umis-FDD (Hauffa, Subjest 2)	×	1,94	69.09	16.77	0.00	150,0	198%
		Y	182	66,08	14,59		150.0	
10099-	EDGE-FOD (TDMA, 8PSK, TN 0-4)	- Z	1.87	69/33	16.49	N/m d	150.0	-
DAC	CHURCHUM (TURNIC BESK, TN 0-4)	×	17.22	115,31	40,37	9.56	90.0	±9.8%
		2	10.80	92.24	35.83		60.0	
10100-	LTE-FOD (SC-FDMA: 100% R9: 20	X	3.51	72.21	31.22 17.62	0.00	159.0	+96%
CAE	MHz, QPSK)	Y.	2.94	69.12	15.85	0.00	150.0	1909
		2	3.29	71.84	17.33	-		
10101- CAE	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	×	3:42	68.37	15.44	0.00	150,0	±9.5%
	15-11-11-11-11-11-11-11-11-11-11-11-11-1	4	3.15	66.88	15.45		450.0	
		12	3.26	58.19	16.19		150.0	-
10102- CAE	LTE-FDD (8C-FDMA, 100% RB, 20 MHz, 64-QAM)	×	3.51	58.25	16.50	0,00	380.0	196%
		Y-1	3.25	55.87	15.57		158.0	
	Andrew Control of the	Z-	3:35	88.16	18.28	_	150.0	
10103- GAG	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, OPSK)	×	9.10	80,51	22.32	3,98	85.0	196%
		Y	7.71	77.60	21.05		65.0	
V-7-7		2	6.72	75.88	19.85		65.0	
10108- CAG	MH2_16-QAM)	X	8.36	77.67	22.00	3.98	85/0	+9.6%
		1	7,55	75,78	21.18		65.0	
Inches:		2	6.54	73.78	19,84		65.0	
IDIOS- DAG	MHS, 64-QAMI	×	8.22	77.35	22:27	3.98	85.0	10.6%
		Y.	7.00	74.28	20,84		65.0	
12106-	THE EDITION DOLLAR ADDRESS OF THE	2	E.41	73.36	19.96		65.0	
ZAG.	LITE-FDD (SC-FDMA, 100% RB, 17 MHz, QPSK)	X	3.07	71.32	17,44	0.00	150,0	±9.6 %
		Y	2.58	68.37	15.67		150.0	
1010a-	LTE-FDD (SG-FDMA, 100% RB, 10	- Z.	2.85	71.00	17,15		180.0	200
GAG	MHz. 16-QAM)	X	3.09	68,24	16,43	9.00	150.0	±96%
		Z	2.80	66.64	15.30		150.0	
0110- AG	LTE-FDD (SC-FDMA, 100% RB, 5 MHz. DPSK)	X	2.62	68.15 70.39	16.17 17.16	0.00	150.0	±9/6 %
		V	2.08	67.38	16.04		450.0	
		2	2.30	70.10	15.21		150.0	
0111	LTE-FDD (SC-FDMA, HIBY, RB, 5 MHz.	X	2.83	69.15	16.80	11.00	150.0	100
EMG	16-QAM)	y	2.49		16,90	11.00	150.0	49.6条
		Z	271	69.56	15.44 16.7E	_	150,0	
		3. 60	Sec. C. L.	436,00	100.732		750 B	

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10112-	LTE-FOD (SC-FDMA, MIRE RB, 10 MRs. 64-QAM)	×	3.20	68.11	16.43	0.00	150,0	主导股系
CAG	MPS, BQ-QAMI	Y	2.93	80.85	15.39		150.0	
		2	3.04	68.13	16.21		150.0	
CAG	LITE-FOID (SC-FUMA: 100% RB, 5 MHz. 84-DAM)	X	2.58	69.16	16.96	G.GD	150.0	196%
Lar 163	10132311	Y	2.64	67.31	15.63		150.0	
		Y Z	2.87	69.66	16.87		150.0	
10334- CAC	GEE 802-11n (HT Greenfield, 13.5) Mhos. BPSK)	Х	5.21	67.32	16.54	0.00	150.0	1984
		Y	5.08	66.85	16 21		150.0	
		Z	5.00	67.43	16.43		150.0	
10115- DAC	IEEE 802.11n (HT Greenfield, B1 Mbps, 16-QAM)	×	5.56	67.00	16.68	0.00	150.0	59.8 W
		Y	5.42	67.15	16.37		150.0	
		2	5:34	67.52	16.48		150.0	
10116- CAC	IEEE 802,11n (HT Grounfield, 135 Mbps: 64-QAM)	X	5,33	67.58	16.60	0.00	150.0	+0.8 c
		· V	5:19	67.09	16.26		150.0	
		-2	5.15	67.61	16.44		150.0	
10117- GAG	IEEE 802 11n (HT Mixed, 13.5 Mbbs, BPSK)	X	5.21	67.33	19.56	0,00	150.0	±3,6 ≤
- 10	1 7	79	5.06	66.76	16.10		150.0	
		2	5/03	67.31	15.39		150.0	
1011E- CAC	(EEE 802 116 (HT Mixed, 81 Mbps 16- GAM)	×	5.63	67.75	16.76	0.00	150.0	# BE =
		Y	5.50	07.54	15.45		150,0	
		Z	1:41	67.66	15.55		150.0	
10119- DAG	IEEE 802.11n (HT Mired, 135 Mbps, 64- QAM)	X	5.20	67,52	16.58	0.00	150,0	19.6%
		Y	5.16	67.02	16.24		150.0	
		Z	0.13	87.5h	16.43		150.0	
10140- CAE	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)	X	3.55	88.24	16.42	0.00	150.0	±96%
7.7	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Y	5.29	60.88	15.49		150.0	
		Z	1.39	68.15	10.19		150.0	1
10141- CAE	LTE-FDD (50-FDMA, 100%-RB, 15 MHz, 64-QAM)	×	3.66	68,26	16.55	0.00	150.0	±0.6%
311.34		Y	3.42	66.99	15.00		168.0	
		2	3:52	88.25	16.36:	- 4	150.0	
10142- CAE	LTE-FDO (6C-FDMA, 100% RB, 8 MHz, DPSK)	X	2.31	70.61	17.10.	0,00	150.0	195%
		W-	1 B4	87.11	14.75		150.0	
		12	2.12	70.48	16.65	100	450 0	1
1014B- CAL	LTE-FOD (SC FDMA, 100% RB, 3 MHz, 16-DAM)	×	277	70.28	16.99	0.00	150.0	498%
J. Che.		7	2.81	57.48	15.00	-	150.0	
		-Z	2.68	70.99	16.78		150.0	
10144- GAE	LTE-FDD (SC-FDM), 100% RB, 3 MHz, 64-GAM)	X	2.51	67.88	15.37	0.00	150.0	± 9.6 %
		V.	234	85.60	13.59		150.0	
		2	2.29	67.85	14 87		150 0	
10145- CAF	LTE-FDD (SD-FDMA, 100% RB, 1.4 MHz, QPSK)	X	1.73	£0.60	15.10	.0.50	150,0	±36%
		Y	1.11	03.06	10.90	-	150.0	
		2	133	67.08	12.73		150.0	
10146- GAF	LTE FDD (SC-FDMA, 100% RB, 1.4 MHz, 18-QAM)	X	4.24	75.06	17.12	0.00	160.0	196%
		Y.	2.46	6E.71	13.45		150.0	
		2	2.38	66.35	12:25	200	150.0	
10147-	LTE-FDD (SC-FDMA, 100% RB) 1.4	X	5.45	B1,86	19.47	0.00	1500	19.8%
DAF	MHT 64-DAMI							
DAF	MHz, 64-QANI)	4	3.10	71:79	14.97		750.0	

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±9.6%	150.0	0.00	16.47	68.31	3.10	2	LIE FDD (SC-FDMA, 50% RB, 20 MHz,	10149=
2 3,0 3		0.00	1000		1000	1.00	18-DAM)	DAE
	150.0		15,35	66.69	2,81	Y	-	
	150.0		16,22	68.23	2.93	.Z	1	*****
±9.6 %	150.0	0,00	18,48	68 18	3.21	×	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 84-QAM)	10150- CAE
	150.0		15.43	66.70	2.94	.A.		
1	150.0	-	16.26	68,20	3.05	Z		200.00
E9.6%	85.0	3.98	23.67	83.77	10.13	×	LTE-TDD (SC-FDMA, 50% RB, 20 MHz. QPSK).	CAG
	85.0		22.26	80.52	8.42	Y		
	65.0		20.59	77.61	6.89	Z	LES THIS ISS THAT THE UP AND A	10152-
±9.6 %	65.0	3,98	22.05	79.08	0.04	×	LTE-TBD (SC-FDMA 50% RB 20 MHz. 16-GAM)	CAG
	55.0		20.98	75.91	7 13	Y		
	85.0		19.44	73.58	6.04	Z	THE WHOLES SHIP THE STATE OF THE STATE OF	10153
19.6%	85.0	3.98	22.75	78,92	8.44	×	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)	CAG
	65.0		21.74	76.89	7.56	Y		
	65.0	100	20.30	74.70	6.48	Z	LTC. COD ONE POALS FOR THE CO.	10154-
± 9.6 %	150.0	0.00	17.50	70.97	2.59	X	LTE-FDD (SG-FDMA, 50% RB, 10 MHz, QPSK)	DAE
	160.0		15:47	B7:77	2.12	Y		
	150.0		17.16	70.74	2.38	Z	LEE CONTROL COLLEGE CONTROL COLLEGE	10155-
+9.6 S	150.0	0.00	16.90	89.15.	2.83	×	LTE-FDD (SC-FDMA, 56% RB), 10 MHz, 16-QAM)	DAG
	150,0		15.45	67.14	2.49	Y		
	150.0	1000	16.78	89.67	2.71	Z	1	10158-
±9.6 %	150,0	0.00	17.23	71.19	2.21	×	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, QPSK)	CAG:
	150.0	- T	14.46	10.50	1.68	Y		
	150.0	1	16.65	71.01	2.01	Z	LIFE FIRE CON COLUMN AND AND AND ADDRESS.	10157-
±96%	150,0	0.00	15.72	98.89	2.40	Х	LTE-FDD (SC-FDMA, 50% RB, 5 MHz. 16-QAM)	CAG
	150:0		13.48	65.89	1.95	Y.		
	150.0		14.94	68.70	2.19	2	1 We had it	10158-
198%	150 0	0.00	17.01	69.22	2.98	X	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)	GAG
	150.0		15.65	67.36	2.65	.Y.		
	150.0	-	16.93	69.75	2.88	2	I BE CONTROL FOR INC.	10159-
186 F	150.0	0.00	16.05	69.44	2.54	X	LTE-FOD (5C-FDMA, 50% RB, 5 MHs, 64-QAM)	CAG
	150.0		13.77	88.31	2.05	Y		
	150.0		15.34	69.42	2:34	Z	I WE SEE THE PROPERTY OF THE PARTY OF	10160-
196%	150.0	0.00	16.97	69.71	2.98	×	LTE-FOID (SC-FOMA, 50% RB, 18 MHz, QPGK)	CAE
	150.0		15.60	67.67	2.82	Y		
	150.0		16.72	69.58	2.78	Z	LTE EDO (DO EDATE TOO OR LESS	10161-
土县,6%	150.0	0.00	16:44	69.11	3.11	X	LTE-FDO (SC-FDMA, 50% RB, 15 MHz; 16-GAM)	CAE
	150.0		15.34	69.60	2.83	Y		
	150.0	-	16/22	68,19	2.95	2	LTE-FDD (SC-FDMA, 50% RB, 15 MHz.	10162-
196%	150.0	0.00	16.50	68.15	3.21	X	64-QAM)	CAE
	150.0		15.46	66.74	2.94	2		_
-	150.0	-	16.32	68.32	3.08	X	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz.	10186-
+9.6%	150.0	3.01	19.91	71.03	4.07		OPSK)	LAF
	150.0		19,36	69.95	3.79	Y		
-	150.0	-	19.76	71.36	3.83	7	LTE-FDO (SC-FDMA, 50% RE. 1.4 MHz	0187-
±0.5%	150.0	3.01	20,07	74.80	5.42	X	18-QAM	ME
	150.0		19.75	72.79	4.77	Y		
	150.0		20.77	76.01	5.29	2		

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10168- CAF	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)	X	6.05	77.17	21.98	3.01	150.0	±9.6%
UMP	Бе-QHM)	Y	5.30	75.09	21.09		150.0	
		Z	6.36	79.86	22.71		150.0	
10169- CAE	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, OPSK)	X	3.85	72.93	20.70	3.01	150.0	± 9.6 %
U. A.	G. Sry	Y	3.33	70.15	19.41		150.0	
		Z	3.47	72.51	20.23		150.0	
10170- CAE	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	X	6.37	81.48	23.72	3.01	150.0	±9.6 %
		Y	4.75	78.10	21.63		150.0	
Court at I	Version of the contract of the contract of the	Z	7.01	85.04	24.72		150.0	
10171-	LTE-FDD (SC-FDMA, 1 RB, 20 MHz,	X	4.87	75.76	20.53	3.01	150.0	±9.6 %
AAE	64-QAM)		3.500	0,000	10000	55500		2000000
		Y	3.87	71.72	18.83		150.0	
		Z	4.54	76.13	20.23		150.0	
10172- CAG	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	X	80.41	131.60	39.78	6.02	65.0	± 9.6 %
		Υ.	18.51	103.18	32.14		65.0	
A. Corporation	S CONTROL OF THE STATE OF THE S	Z	14.22	97.99	29.18		65.0	
10173- CAG	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	X	100.00	127.75	36.65	6.02	65.0	±9.6 %
	50000000	Y	30.31	107.15	31.45		65.0	
Kalaba J	Figs commence with the commence of the commenc	Z	25.08	102.02	28.13	201-278020	65.0	100000000
10174- CAG	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	X	60.73	116.92	33.35	6.02	66.0	± 9.6 %
0010	or sarany	Y	21.73	99.84	28.80		65.0	
		Z	17.08	94.57	25.40		65.0	
10175- CAG	LTE-FDD (SC-FDMA, 1 RB, 10 MHz. QPSK)	X	3.78	72.50	20.41	3.01	150.0	± 9.6 %
CO TO		Y	3.29	69.80	19.15		150.0	
		Z	3.40	71.98	19.88		150.0	
10176- CAG	LTE-FDD (SC-FDMA, 1 RS, 10 MHz, 16-QAM)	Х	6.38	81.51	23.73	3,01	150.0	± 9.6 %
LHG	10-60-411	Y	4.76	76.12	21.65		150.0	
_		Z	7.03	85.08	24.74		150.0	
10177- CAL	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, QPSK)	X	3.82	72.71	20.53	3.01	150.0	±9.6 %
CPU.	uran)	Y	3.32	69.97	19.25		150.0	
		Z	3.44	72.23	20.02		150.0	_
10178- CAG	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 16- QAM)	X	6.28	81.12	23.55	3.01	150.0	± 9.6 %
CANG	GAM)	Y	4.70	75.86	21.51		150.0	
		Z	6.85	84.54	24.51		150.0	
10179-	LTE-FDD (SC-FDMA, 1 RB, 10 MHz,	X	5.53	78.38	21.95	3.01	150.0	± 9.6 %
CAG	84-QAM)	Y	4.28	73.73	20.08		150.0	
		Z	5.53	80.03	22.20		150.0	
10180-	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 64-	X	4.85	75.63	20.45	3.01	150.0	± 9.6 %
CAG	QAM)	Y	3.85	71.63	18.78		150.0	
	1/2		4.51	75.97	20.14		150.0	
	1 THE PROPERTY OF THE LAND ASSESSMENT	2		72.60	20.14	3.01	150.0	± 9.6 %
10181- CAE	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	X	3.82	2.700	7777	3,01	1933	1 8.0 %
200	200.000	Y	3.31	69.95	19.24		150.0	
		Z	3.44	72.20	20.01	0.07	150.0	
10182- CAE	LTE-FDO (SC-FDMA, 1 RB, 15 MHz, 16-QAM)	×	6.25	81.09	23.54	3.01	150.0	±9.6 %
		Y	4.70	75.84	21.50		150.0	
		Z	6.83	84.50	24.49		150.0	
10183- AAD	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)	X	4.84	75.60	20.44	3.01	150.0	±9.6 %
		Y	0.00	74.04	18.77		150.0	
	A CONTRACTOR OF THE CONTRACTOR	1.3	3.85	71,61	10.77		150.0	

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20.54 3.01 150.0	76 2	1 72	3.83	×	LTE-FDD (SC-FDMA, 1 RB. 3 MHz.	10184-
					QPSK)	GAE
19.27 150.0		70	3.32	Y		
20.04 150.0		72	3.45 6.29	Z	LTE-FDD (SC-FDMA, 1 RB, 3 MHz. 16-	inias.
23.58 3.01 150.0	8 3	81	6.29	X	QAM)	CAE
21.53 150.0	11 1	75	4.72	Y		
24.55 150.0	33 2	. 84	5.88	2		
20.48 3.01 150.0	38 2	75	4.86	×	LTE-FDD (SC-FDMA: 1 RB; 3 MHz: 84- QAM)	AAE
18.80 150.0		-71	3.87	Y		
20.17 150.0		76	4.53	Z	THE PART OF SHIP THE SHIP	10187-
20.60 3.01 150 D		72	3.84	8	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz. QPSX)	CAF
19.33 150 0		70	3.33	Y		
20.11 150.0		72	3.46	Z	THE EDITING FOLIS A 780 TATAL	161188-
24,08 3.01 150.0		82	6,59	×	LTE-FOD (SC-FOMA, 1 RB, 1.4 MHz, 16-CAM)	ZAF
21.93 150,0		- 76	4.88	Y		
25.23 150.0		86	7.44	2	LTE-FOO ISC-FOWA, 1 RB, 1.4 MHz.	10 199
20.81 3.01 150.0	-	76	5,01	×	BI-QAM	AAF
19 08 150.0		72	3.96	Y		
20.80 150.0		76	4,72	2	IEEE BOZ 11n IHT Greenfield, 6.5 Mbps.	10193-
16.35 0.00 150.0		66	4.64	×	BPSK)	GAC
15.91 160.0		-66	4.48	Y		
16,19 150.0		-66	4.48	Z	IESE 802 11n (HT Grandfield 39 Moos	10194-
16.46 0.00 150.0		67	4.84	X	16-QAM)	CAC
FB.03 160.0		- 88	4.66			_
16.31 150.0		87	4.65	Z X	IEEE 802 11n (HT Grounfield, 65 Mbps.	10195
16.47 0,00 150,0		67	4.88	1.2	64-QAM)	CAC
16.05 150.0		66	4.70	Y		
16.32 150,0		-87	4.69	2	IEEE 802 11n (HT Mixed, 6.5 Mhps.	10196
15.38 0.00 150.0		88	4.66	×	BRSK)	CAC
15.93 150.0		- 66	4.49	Y		_
16.21 150.0		66	4.48	Z	EFE 802 11n (HT Mood 39 Mbps, 16-	10197
16.47 0.00 150.0		157	4,85	X	CAM)	DAG
16.04 150.0		188	4,67	4		
16,32 150.0 16.48 0.00 150.0		67. 87	4.86	Z X	JEEE 802, 11n (HT Mixed, 86 Mbps, 64- QAM)	1019B-
16.06 150.0	n 1	66	4.70	Y		
		67.	4.88	Z		
16.33 150.0 16.35 0.00 150.0		66.	4.81	X-	IEEE 802.11n (HT Mixed, 7.2 Mbps, BPSK)	10219i CACI
15.89 150.0	V 1	55	4.43	¥		
16.10 130,0		67	4.42	2		
16.47 0.00 150.0		67.	4.86	X	EFE 802.11n (HT Maed 43.3 Mopt 16-	0220-
16.04 150.0	100	66.	4.07	Y	QAM)	CAC
16.31 150.0		67.	4.65	Z		
10.46 0.00 150.0		67	4.89	X	IEEE 802.11n (HT Mixed; 72.2 Mbps; 64- QAM)	0221 CAG
16 DS 160.0	3 3	66.3	4.71	Y 1		
16.31 150.0		67.	4.70	Z		
16.57 0.00 150.0		87.	5.19	×	IEEE 802.11n (HT Mixed, 15 Mbps) BPSK)	0222- CAC
18.18 150.0	7 10	56.	5.03	Y		
16 39 150.0		67.	5.01	Z		

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10223-	IEEE 802 11n (HT Mixed, 90 Mbps, 16-	X	5.54	67.61	16.71	0.00	150.0	£ 9.0 %
CAC	CAMI	170	3500,0			0.00	100/0	£ 0.0 %
		Y	5.35	68,99	16.32		150.0	
	and the second second second	2	5.29	167,45	16.47		150.0	
10224- CAC	JEEE 802.11n JHT Maret. 150 Mags. 64- DAM)	X	5.24	67,46	16,55	.0.00	150.0	196%
	1000	Y	5.08	66.87	16.16		150.0	
A FFEE	I STREET TO STREET	2	5.06	87.45	16:38		150.0	
10225- CAB	UMTS-FDO (HSPA+)	X	2,94	66.51	15,90	0.00	150.0	595%
		Y	2.72	65.45	14.90		150.0	
	The second second second	Z	2.80	66.78	15.59		150.0	
10226- CAA	LTE-TDD (SC-FDWA, 1 RB, 1.4 MHz, 18-QAM)	X	100,00	127.97	36.79	6.02	65.0	±9.6 %
		Y	33.01	106.86	32.02		65.0	
		Z	28.60	104.35	28.88		65.0	
DIZZ7- CAA	LTE-TDD (SC-FDMA; 1 RB, 1.4 MHz, 64-QAM)	х	71.64	120.02	34.24	8.02	65.0	#96%
		Y.	27.56	104.08	30.11		65.0	
	A CONTRACTOR OF THE PROPERTY O	Z	21.67	.98.19	25.50		85 D	/
10228- CAA	LTE-TOD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)	X	83,76	133.19	40,33	6.02	65.0	±9.6 %
	0.3.	Y.	27.23	111,37	34.65		65.0	
4777	Control of the second second	Z	14,92	99.20	29.65		65.0	
10229- CAC	LTE-TOD (SC-FDMA, 1 RB, 3 MHz, 16- QAM):	×	100.00	127.75	36.66	6.02	65.0	± 9.0 %
		Y	30.45	107.22	31.48		65.0	
		Z	25.36	102.20	28.19	10000	65.0	
10230- DAC	LTE-TDD (SC-FDMA, 1 RB, 3 MHz 64- QAM)	X	64.64	118.06	33.66	6.02	65.0	± 9,6%
100		Y	25,67	162,71	29.64		65,0	
		Z	19.55	96.45	25.91		55.0	
10231- CAC	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, CPSK)	×	74.78	130.72	39.63	6.02	65.0	196%
		Y	25.26	109.74	34.10		65.0	
	The same of the sa	Z	13.54	97.69	29.10		65.0	
10232- CAF	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16- QAM)	X	100.00	127.76	36.66	8.02	65.0	#96 W
		Y-	30,44	107.22	31.48		85.0	
		Z	25.32	102.18	28.18		85.0	Corner
10233- GAF	LTE-TOD (SC-FDMA, 1 RB, 5 MHz, 54- GAM)	X	64.74	118.10	33.67	B.02	65.0	计自在外
		- Y	25.00	102.71	29.64		85.0	
	Sugar and service and an artist of the service of t	Z	19.51	96.43	25.91		85.0	-
10234- GAF	LTE-TOD (SC-FDMA, 1 RB, 5 MHz GPSK)	X	68.79	128.16	38.87	8.02	65.0	±9,63
		Y	23.59	108.16	33.53		65,0	
		2	12.92	98.23	28.52	-	65.0	
10235- CAF	LTE-TDD (SC-FDMA_1 RE, 10 MHz, 18-QAM)	×	100,00	127.77	36,66	6.02	65.0	1963
		Y	30.53	107.29	31.50	-	65.0	-
	The State of the S	2	25.37	102.23	28.19	201	65.0	-07
10238- CAF	LTE-TDD (SC-FDMA: 1 RB, (B MHz, 84-QAM)	X	65.78	118.34	33.37	6,02	05.0	=9.6.5
	1	Y	25.93	102.87	29,68	-	65.D	-
	The same of the sa	Z	19.72	96.57	25.94		65.0	1000
10237- CAF	LTE-TOD (SC-FOMA, 1 RB, 10 MHz. OPSK)	X	78.22	131.13	39.74	6.02	66.0	1965
		Y	25.46	109.93	34.16		65.0	-
20.00	I Company of the Comp	12	13.89	97.78	29.12	-	65.0	. 0.00
10238- CAF	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)	×	100.00	127.7E	36,66	6.02	65/0	± 9.65
		7.6	20.42	107.93	31.48		65 T	

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10239- CAE	LTE-TDD (SC-FDMA, 1 RB, 15 MHz. 64-DAM)	×	64.82	118.13	33,68	6.02	65.0	± 0.6 %
to-re-	(Incarred)	Ý	25.62	102.71	29.84	-	66.0	-
		ż	19.45	78.40	35.90		65.0	-
10240: CAF	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, GPSK)	×	75.84	131.04	39.71	6.02	65.0	± 9.6 %
		Y	25.37	109.88	34.14		55.0	
		2	13.84	97.74	29.11		65.0	
18241- CAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-DAM)	X	12.34	87.77	28.08	6.98	65,0	±9.8%
		Y	10.07	84,69	26.80		65.0	
10242-	1	2	9.45	83.27	25.34	1000	85.0	
CAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, S4-QAM)	X	11.90	86.38	27.88	6,98	65.0	23/05
		Y	9.43	82.13	25.70		65.0	
10243	THE TOP OF COLUMN THE THE TABLE	2	8.66	82.07	24.81		66.0	
CAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)	8	9,29	E3.62	27/37	6.96	85.0	2965
_			7.69	79 19	25,41		65.0	1
10244	LTE-TOD (SC-FDMA, 50% RB 3 MHz	Z	6.90	78.25	24:23	170	85.0	
CAC	16-OAM).	×	11.62	86.26	22.95	3,98	85.0	±8.6 %
		· Y	9.03	81.02	21.07		65.0	
10245-	LTE-TDD (SC-FDMA, 50% R9, 3 MHz	Z	5.90	74.19	17.01		65.0	
CAC	64-QAM)	X	11.21	B4.37	22.59	3.98	85.0	19,6%
		Y	8.74	80.23	20.72		85,0	
10246- CAC	CTE-TOD (SC-FDMA, 50% RB, 3 MHz, QPSK)	X	5.76 13.76	73.60 91.33	16.72 25.01	3.98	65.0 65.0	19.6%
50.10	sar unj	Y	8.27	82.50	21.35		1000	-
		2	5124				65.0	
10247-	LTF-TDD (SC-FDMA, 50%, RB; 5 MHz,	×	8.45	75.79	17.95	Tel teles	65.0	1000
CAF	16-QAM)	Y	and the same of	80.38	21.81	3.98	65.0	19.6%
_		2	5.10	76.53 72.95	15,78		86.0	
10248- DAF	LTE-TOD (SC-FOMA, 50% RB, 5 MHz, 64-QAM)	×	7.96	79.46	17.62 21.43	3.98	85,0 85.0	1968
		Y	6.50	75.86	19.49		85.0	
		2	5.09	72.45	17.30		65.0	-
10249- CAF	LTE-TOD (SC-FDMA 50% File 5 MHZ CPSK)	X	14.67	92.89	20.21	3.90	65,0	195%
	And the second s	Y	9.72	85.51	23.23		65.0	
-		2	8.59	79.52	20.29		65.0	
1025G- CAF	LTE-TOD (SG-FDMA, 50% RB, 10 MHz. 16-QAM)	X	8.79	81.74	23.60	3.98	65.0	196%
		Y	7.53	78.89	22.19		65.0	
10000	The same of the Control of the Contr	2	6:20	76.02	20.42		65.0	-
10251- CAF	LTE-TOD (SC-FDMA, 50% RB, 10 MHz., 54-QAM)	×	B,02	78.77	22.12	3.98	65.0	19.6 W
		Y	7,01	78:38	20.84		65.0	
10252	LTE TWO MY PERIOD CON THE TOTAL	7	5.03	73-77	19.44	-	65.0	
CAF	LTE-TOD (SC-FDMA, 50% RB, 10 MHz, DPSK).	×	12.21	89.16	25,66	3.58	65.0	195%
		Y	8.34	84.33	23.66		85.0	
10253-	LTE-TDD (SC-FDMA, 50%, RB. 15 MHz.		7.06	80.08	21.46		.65.0	
CAF	18-QAM)	X	7.75	77.29	21.77	5.98	65,0	± 8,6 %
		Y	6.93	75:28	20.72		E5.0	
0254	LTE-TOD (SC-FDMA, 50% RB; 15 MHz.	2 X	8.1E	73,10	19.23	1000	65.U	-
CAF	64-DAM)	N		78,13	22.42	3,98	65.0	±8.6 %
			7.34	76.22	21.42	100	85.0	
		2.	5.32	74.11	19.09		66.0	

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±9.6%	65.0	3.98	23.60	62.96	9.52	X 1	LTE-TDD (BC-FDMA, 50% FRB. 15 MHz.	10255-
10000	1000			7.3.5.5		×	(QPSIC)	CAF
	65,0		29.07	79 93	6.80	Z		
± 8:6.%	65,0 65,0	3 96	21.18	77:07 82:65	10.25	8	LTE-TDD (SC-FDMA, 100% RB, 1.4	0256-
±8,6,5	6500	2.00	23:30	02.00	10.20		MHz. 16-QAMI	CAA
	65.0		18.77	77.45	7,42	9		
	65 0		14.06	69.73	4.37	. Z.	American market market and a	
±86%	65.0	3.58	20.00	81.35	V.67	8	I,TE-TOD (5C-FDMA, 100%) RB, 1.4 MHz, 64-QAM)	10257- CAA
	65.0		19.24	76.38	7.07	4		
-	65.0	2.5	13.71	69,13	4,27	2		
1965	65.0	3.90	23/06	87.41	11.24	X	LTE-TDD (5C-FDMA: 100W RB: 1.4 MHz, QPSK)	1025B- DAA:
_	65,0		18.86	77.82	6,32	Y		
2020	65.0 65.0	3.98	15.20 22.38	71,16 80.75	8.87	Z	LTE-TDD (SC-FDMA, 100% RB, 3 MHz,	10259-
1881	330	-3.60		11,140,0			16-DAAN	CAC
	65.0	-	20.63	74.09	5.55	Y Z		
196%	65.0	3.98	22.23	80.29	8.31	X	LTE-TDD (SC-FDMA, 100% RB 3 MHz	10260-
1807	700	3.80		40.00		100	64 DAM	DAC
	65.0		20.51	27.04	8.94	Y		
- 2000	65.0	2.00	18.49	73.86	5.55	2		111111111111111111111111111111111111111
E863	65.0	3.98	25.58	89,95	12.47	X	LTE-TOD (SC-FDMA_100% R8_3 MHz OP\$K)	10261- CAC
	85.0		23.10	84.05	0.00	γ		
±0.6 %	65.0 65.0	3.98	20.51	78.99 81.69	6.47 8.78	X	LTE-TOD (SC-FDMA, 100% RB 5 MHz	10262-
	65.0		22.15	78.83	7.52	9	16-QAM)	CAF
	65.0	-	20.36	75.95	6.19	Z		
19.6 5	65.0	3.98	22.12	7a.76	6.01	X	LTE-TOD (SC-FDMA: 100% RB, 5 MHz) 64-QAM)	10263- CAF
	65.0		70.65	76:35	1.00	.V.	privary)	-ru
	65.0		19.13	73.75	5.82	Ž.		
1005	65.0	3.98	25,56	88.92	19.07	X	LTE-TOD (SC-FDMA, 100% RB, 5 MHz) OPSKI	10264- CAF
	68-0		23.56	8411	8.25	. Y.	1997	
	65.0	-	21:36	79.85	7,01	7		Section 1
± 9.0 %	950	3.93	22.05	79.00	H.Tu	X	LITE-TOD (SC FDMA, 100% RB 10 MHS 16-DAM)	10266- CAF
	65.0		20.07	75,81	7.13	Y		
	40.0	200	19.44	73,58	8.64	Ž	The second second second	-
1987	65.0	3.98	22.74	79.91	8 VI4	X	LTE-TOD (SC-FDMA, 1005 RB 10 MHz, 64 GAM)	1020G GAE
	85.0		21.73	75.88	7.55	Y		
±9.85	65,0 65,0	3,98	20.29	74.6B 83.79	10.11	×	LTE-TOD (SC-FDMA 100% RS 10	10267-
	86.0	_	22.26	100.47	541	Ý	MHz OPSK)	DAF
-	85.0		20.67	77.07	0.67	7		
2000	88.0	3.96	22.02	77.18	8.39	2	L15-TOO (SIGHUMA, OUTCINE 15) MHZ 10-DAM)	10268- CAF
	85.0		21,20	75.61	7.95	- Y		202
	85.0	100	19.92	73.67	8.70	2		
3 9,0 °	85.0	3.98	21.88	76.83	11.28	×	LTE-TOD (SC-FOMA, 100% RB, 15 MHz, 64-DAM)	10269- DAF
	65.0	1	21.07	75.05	7,58	V		
	85.0		19.83	73,30	6.67	2		
± 9.64	95.0	2.98	22.20	79.53	88.8	×	LTE-TOD (BC-FOMA, 100% RB; 15: MHZ, CIPSK)	CAE
	有打 U		21,20	77,34	7.84	Y		
	95.0	-	10.85	75,30	6.74	2		

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10274- CAB	UMTS FDD (HSUPA, Subtest 5, 3GPP Rel8.10)	×	2.69	67.00	15.83	0.00	150.0	196%
-	- industrial	Y	2.47	65.8V	14.87	_	150.0	_
		12	2.60	67.27	15.58		150.0	
10275- CAB	UMTS-FDD (HSUPA, Subtest 5, 3GPP Refs. 4)	X	1.83	70.14	16.96	0.00	150.0	± 8.6 %
		Nº	1,44	66.20	14.31		150.0	
		12	1,70	69.74	16.44		150.0	
10277-	PH\$ (QPSIC)	X	3.93	66,44	11.35	9.03	50.0	19.0%
CAA	775047570	I Y	3,47	64.75	10.20	20.03	50.0	1,8,0 %
		Z	2.62	62.17	7.82		50.0	-
10278-	PHS (QPSK, BW 884MHz, Rolleff 0.5)	×	14,82	89.25	23.47	8.88		
CAA	1 1 - Jan 244 part opening transmitted	9	7.61		-	9.03	50.0	198%
		- T	4.20	78.00	18:87		50.0	-
10279	PHS (QPSK, BW 884MHz, Rolloff 0.38)	X		69.20	13.78	1000	50.0	
CAA	FIRS (GEAN, BAY BOHMINZ, ROXION 0.36)		14.85	89.41	23.56	9.03	50.0	298%
_		Y	7.77	76.24	18.99		50.0	
robon:	CONTROL DOL ONE	2	4.39	69.44	13,93		50.0	
10290- AAE	GDMA2000, RC1 SQ55, Full Risky	*	2.10	73.72	17.08	0.00	150,0	±9.6%
		9	1.20	65.83	12.24		150.0	
	Land of the Carlo	Z	1.79	72:49	15.56	1	150.0	
AAB	CDAM2000, RC3, S055, Full Rate	×	1 16	70.51	15,66	0.00	150.0	2.9.6%
		Y.	0.67	63.17	10.49		150.0	
-	All the same of th	2	0.04	38.71	13.80		150.0	
10292: AAB	CDMA2000, RC3, SO3Z, Full Rate	ж	1.93	79.24	19.72	0.00	150/0	±9.6%
624		Y.	0.78	85.41	12.01		150.0	
	The second of th	Z	2.04	80.04	18.65		150.0	
til293-	COMA2000, RC3, SO3, Full Rate	×	4.24	91.88	24.82	0.00	150.0	19.6%
		Ψ.	0.99	68.94	14.19		150.0	
		1.2	16.88	110.82	28.51		150.0	_
1(1295- AAB	CDMA2000, RC1, SQ3, 1/8th Rate 25 fr.	X	12.27	89,66	25.50	9,08	3D.0	÷46%
		V.	10:64	85.72	24.40		50.0	
	Management of the Control of the Con	2	6.99	77.74	20.11		50.0	
AAD CAA	LTE-FDD (SC-FDMA, 50% RB, 20 MHz. DPSK)	8	3.09	Y1.44	17.51	0.00	350.0	19.6%
		Y	2.59	58.47	15.73		150.0	
	the state of the s	Z	2.87	71.14	17.24		150.0	
10298- AAD	LTE-FDD (SC-FDMA, 609) RB, 3 MHz. QPSK)	X	2.03	71.15	18.52	0,00	150.0	19.6%
		Y	1.39	65.75	12.91		150.0	
		Z	1.75	70.22	15.26	-	150.0	-
10289- NAD	LTE-FOO (SC-FDMA, 50% RB, 3 MHz, 16-QAM)	X	4,56	77.12	18.36	0.00	150.0	19.8 K
	-1 -1	Y	3.14	71.60	15.64		150.0	_
-		2	3.75	74.00	15.70		150.0	-
10300-	LTE-FDD (SC-FDMA, 50% RB, 3 MHz.	X.	2.97	89.66	14.52	0.00	150.0	+00 V
9AD	64-QAM)	Y	2.26	88.29	12.48	4,40		±9.6 %
		2	2.17	96.32	11.62		150.0	-
10301- AAA	IEEE 802 16e WWAX (29:10, 5ms, 10MHz, DPSK, PUSC)	X	6.32	86.98	15.3f	4.17	150.0 50,0	±9.8%
	3.31.323	Y.	ñ.22	66.88	18.11		1550	
		2	4.67	65.61		_	50.0	
0302-	IEEE 802 10e WIMAX (29:18, 5ms.	X	5.74		17.38	1.000	50.0	
AAA	10MHz OPSK PUSC, 3 CTRL symbols)			67.34	16.93	4:96	- 50.0	± 9.8 %
		Y Z	5,58	66.87	18.46		50.0	
				68:25	18.00			

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10303- AAA	IEEE 802.16e WIMAX (31:15, 5ms, 10MHz, 64QAM, PUSC)	X	5,54	67.22	18.91	4.96	50.0	±9.6 %
	The state of the s	Y	5.37	66.70	18.39		50.0	
		Z	4.93	65.95	17.95		50.0	
10304- 4,6,6	IEEE 802.16e WIMAX (29:18, 5ms, 10MHz, 64QAM, PUSC)	х	5,28	66.83	18.25	4.17	50.0	±9.6 %
		Y	5.10	66.29	17.74		50.0	
		Z	4.73	65.82	17.46		50.0	
10305- AAA	IEEE 802.16e WIMAX (31:15, 10ms, 10MHz, 64QAM, PUSC, 15 symbols)	х	5.67	72.27	22.34	6.02	35.0	±9.6 %
1277		Y	5.72	72.48	21.90		35.0	
All the state of		Z	4.06	68.90	20.05	220200	35.0	- vittoti
10306- AAA	IEEE 802.16a WIMAX (29:18, 10ms, 10MHz, 64QAM, PUSC, 18 symbols)	X	5.47	68.37	20.21	6.02	35.0	±9.6 %
		Y	5.52	69.50	20.64		35.0	
		Z	4.82	67.24	19.32		35.0	
10307- AAA	IEEE 802.16e WIMAX (29:18, 10ms, 10MHz, QPSK, PUSC, 18 symbols)	X	5.58	70.12	21.19	6.02	36.0	±9.6 %
		Y	5.54	70.11	20.79		35.0	
Serger		Z	4.75	67.57	19.37		35.0	
10308- AAA	IEEE 802.16e WIMAX (29:18, 10ms, 10MHz, 16QAM, PUSC)	X	5,58	70.46	21.39	6,02	35.0	± 9.6 %
0.10	10000000000000000000000000000000000000	Y	5.56	70.49	21.00		35.0	
	Deligion of the second	Z	4.74	67.84	19.54	The state	35.0	-000
10309- AAA	IEEE 802.16e WIMAX (29:18, 10ms, 10MHz, 16QAM, AMC 2x3, 18 symbols)	X	5.56	68,68	20.38	6.02	35.0	±9,6%
		Y	5.61	69.80	20.81		35.0	
		Z	4.87	67.43	19.45		35,0	
10310- AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, QPSK, AMC 2x3, 18 symbols)	X	5.54	69.67	21.04	6.02	35.0	± 9.6 %
51000		Y	5.51	69.73	20.68		35.0	
	The second of th	Z	4.78	67.38	19.33		35.0	
10311- AAD	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, QPSK)	X	3.47	70.67	17.10	0.00	150.0	± 9.5 %
		Y	2.93	67.81	15.46		150.0	
		Z	3.26	70.40	16.86		150.0	
10313- AAA	DEN 1:3	X.	10.55	84.71	20.54	6.99	70.0	± 9.6 %
		Y	5.52	75.51	16.93		70.0	
		Z	3.35	69.99	14.11		70.0	
10314- AAA	DEN 1:6	×	24.93	102.67	28.79	10.00	30.0	±9.6 %
177727		Y	8.40	84.46	22.81		30.0	
		Z	4.59	75.67	18.98	10000	30.0	Carboon.
10315- AAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 96pc duty cycle)	X	1.16	65.40	16.44	0.17	150.0	± 9.6 %
		Y	1.01	63.11	14.44		150.0	
		Z	1.08	64.77	15.73		150.0	
10316- AAB	IEEE 802.11g WiFi 2.4 GHz (ERP- OFDM, 6 Mbps, 96pc duty cycle)	X	4.72	66.92	16.53	0.17	150.0	± 9.6 %
Section	A Complete on the Complete of	Y	4.56	86.38	16.12	-	150.0	
Personal Control	The state of the s	Z	4.51	66.86	16.22		150.0	
10317- AAC	IEEE 802.11a WiFi 5 GHz (OFDM, 6 Mbps, 96pc duty cycle)	×	4.72	66.92	16.53	0.17	150.0	±9.6%
		Y	4.56	66.38	16.12		150.0	
		Z	4.51	66.86	16.22	77.57	150.0	1000
10400- AAD	IEEE 802.11ac WiFi (20MHz, 64-QAM, 99pc duty cycle)	×	4.84	67.20	16.45	0.00	150.0	±9.6 %
		Y	4.66	66.61	16.02		150.0	
		Z	4.63	67.25	16.28		150.0	
10401- AAD	IEEE 802.11ac WiFi (40MHz, 64-QAM, 99pc duty cycle)	X	5.48	67.20	16.49	0.00	150.0	±9.6 %
		Y	5.35	66.85	16.23		150.0	
					16.32		150.0	

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10407	TEEE BUZ 11ac WIFI (SDMHz, 64-CIAM,	1 45	6.76	67.76	In Landau	1 2 2 2	10000	
AAD	SOpcially cycle)	8	0.78	65/38	167.00	0.00	150.0	19,6%
-	1,111,121	Y	5.61	67.21	16 26		150.0	-
		Z	5.57	67.70	16.42		150.0	
AAE	CDMA2000 (IXEV-DD, Rev. 0)	×	2.10	73.72	17.08	0.00	115.0	2 9.0 %
		I-Y	1.20	65.63	12:24		115.0	
inana-	CDMA28IIII (19EV-DD Rev. A)	Z	1.79	72.49	15,56	1000	115.0	
AAS	Carmazumi (19EY-CiC, Hely, A)	×	2:10	73.72	17.06	0.00	115.0	19.8%
		Y Z	1.79	65.83	12.24		1150	
IDANE.	CBMA2000, RC3, SO32, SCHO, Full	X	100.00	72.49	15,56	2.00	115.0	-
AAE	Rate	×	37.00	122.19	31,29	0.00	100.0	±9.6%
		Z	100.00	105.80	27.50	-	100.0	
17M181-	LTE-TDD (SC-FDMA, 1 RB, 10 MHz.	X	100.00	114,73	27.11		100.0	- 22.0
AAF	OPSK, UI. Subhame=2.3.4,7.8,9 Subframe Conf=4)	^	100,00	121.06	30,81	3.23	90.0	196%
	The second secon	Y	100.00	121.88	31.03		80.0	
-		12	83,71	111.58	25.89		30.0	
AAA	(EEE 802.11b WFr 2.4 GHz (DSSS. 1 Mbps. 99pc duty cycle)	×	1,63	53.90	15.54	0.00	150.0	±9.6%
		Y	0.91	61.92	13.65		150.0	
10416	IPPE AND ALL HARM LOLD AND	2	0.99	63.88	15.24		150.0	
AAA	DEEE 802 11g WIFI 2.4 GHz (EHP OFDM, 8 Mbps, 89pc duty cyce)	×	1.64	66.82	18.39	0.00	150,0	±9/6%
		8	4.48	66.26	15.97		150.0	
10417-	IEEE 802:11a/h WIFI 5 GHZ (OFDM: 6	2	-0.48	86.96	16.25		150.0	
AAB	Mbps, 99pc duty cycle)	×	4.84	65,82	16,39	0,00	150.0	±9.6 %
		Z	4.48	66.96	15.97		150,0	
10416 AAA	IEEE 802 11g W/FI 2.4 GHz (DSSS- OFDM, 6 Maps, 1900 dwy cycle, Long preserbule)	x	4.53	88.97	16.25 16.41	0,00	150.0	±26%
		Y	4.47	86.40	15.97		150.0	
	Complete Com	Z	4.47	97.14	10.29		150.0	
10419 AAA	EEE 802,11g WFI 2.4 GHz (DSSS) OFDM 6 Mips, 99pc duty cycle. Short preembule)	×	4.65	96.92	16.41	0.00	150.0	± 9.6 %.
_		Y	4.48	66,36	15.96		150.0	
10422-	IFFE AND ASSURED TO A STATE OF THE PARTY.	Z.	4,49	67.08	16.28		150.0	the same
AAE	IEEE 802.11/1/HT Greenfield, 7.2 Mbgs. BPSK(×	4 78	86.82	16.42	0.00	150.0	198%
			4.51	66.37	16:01		150.0	
10423-	IEEE 902.11n IHT Greenfield, 43.3	Z	4.51	67,65	16.28	200	150.0	
AAB	Mbos: 16-GAMI	Ŷ	4.79	67.29	16.55	.00.00	150.0	±9.8%
		2	0.77	66,71	16.13		150 0	-
10424-	ISEE 802.11n (HT Greenfield, 72.2	X	4 86		16.39	10.000	150.0	
AAB	Mbps; 64-QAM]	Y .	4.70	67.24	16.52	0.00	150.0	8.0.76
		2	4.69	67.32	16.10		150.0	
10426- AAB	IEEE 802.11n (HT Greenfield, 15 Mbps. BPSK)	*	5,44	67.47	16.62	0,00	150.0	±9.0 %
		Y	5.32	67.05	15.33		150.0	_
		ż	5.25	67.48	16.46		150.0	_
10426 AAE	IEEE 802.11n (HT Greenfield, 90 Mbps: 16-QAM)	X	5.45	67,50	16.63	0.00	150.0	180 W
		4	5.32	87.06	16.33		150.0	

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18427- AAS	IEEE 802.11n (HT Greatfield, 150 Mbps, 64-QAM)	×	547	87,62	10.61	0.00	150 0	±96%
VVIII	04-0000)	Y	533	B7:04	15.31		150.0	
		ž.	5.28	67.50	1E.46		450.0	
1D430- AAD	LTEFOO (OFDMA, 6 MHz, E-TM 9.1)	8	4.44	70.94	18.55	11.00	150.0	世 9.6 %
		V	4.14	70.00	17.76		150.0	
7.1	Name of Contract of the Contra	,Z	4.53	72.71	19.04		150.0	
HOHST- NAD	LTE-FOO (OFDMA, 10 MHz, E-TM 3.1)	X	4.38	67.45	16.50	0.00	150.0	± 9.6 %
		Y	4.17	05.74	15.93		150.0	
	A STATE OF THE PARTY OF THE PAR	Z	4.70	67.80	16.51		150.0	
10432- AAC	LIE-FDD (OFDMA, 15 MHz, E-TM 2-1)	3	4.87	87.30	16.51	0.00	15030	± 9.0 %
		Y	4.47	65.68	10.03		150,0	
TETAR	THE BOX TREATH SALES IN THE BLAT	Z	4,47	67.41	16:54	- 0.00	150.0	
10433- AAC	LTE-FDD (OFDMA, 20 WHZ E-TM 3 I)	×	4.90	67,28	16,55	0,00	150.0	1969
		Y	4.72	66.69	16,12		150,0	_
10 KA -	Un wear and a series of the se	T	471	67.3h	16.31	El celles	150.0	1000
10434- AAA	V/-CDMA (BS Test Model 1, 84 DPCH)	X	4.58	71.86	18.83	0.00	150.0	+084
		Y	421	70.69	17.07		150.0	
10435 AAF	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, GPSK, Ut. Subhame=2 3,4,7,8,9)	X	100.00	74.00 120.88	30.73	3.22	150.0 80.0	39.65
nnt	GP 5K, Ut 30398889-2,3/5//0,0)	Y	100.00	121.69	30.95		80:0	
_		Z	66.38	108.66	25.18		80.0	
10447- AAD	LTE-FUD (OFDMAL5 MHz, E-TM 3/1, Closing 44%)	×	3.72	67.65	48/10	0.00	150.0	±0.6%
cirar	Suggesting His ray	¥.	3.44	86.58	15.18		150.0	
		2	3.50	67.81	15.74		150.0	
TOTALI-	LTE-FDD (DFDMA: 10 MHz, E-TM 3.1, Clippy 44%)	×	4.21	67.23	16.37	0.00	150.0	±9.6 9
		V.	6.00	86.50	15.77		150.0	
		Z	4.02	.67.40	9E.18		150.0	1000
10449- AAC	LTE-FDD (OFDMA: 15 MHz, E-TM 3-1 Cliping 44%)	×	4.46	67.14	16:42	0.00	150.0	19.69
		Y	4.27	66.49	15.91		150.0	
	The state of the s	Z	4.28	67.27	16.26		150,0	
10450- AAG	LTE-FDD (OFDMA, 20) MHz E-TM 3.1 Clipping 44%)	×	4.64	67.06	16.42	0.00	150.0	±8.65
		Y	4.47	6b,43.	15.96		150.0	
	The state of the s	2	4.47	67.16	15.26		150.0	
18451- AAA	W-CDMA (BS Test Model 1, 64 DPCH, Capping 44%)	×	3.06	68.00	15,99	0.00	150.0	1969
		4	3.33	66,69	14.77		150.0	
	The state of the s	Z	3.40	88.00	15,28		150.0	
10458 AAB	TEEE BOX.11mc W/D (168MHz: 64-DAM) 98pc duty cycle)	×	8.29	68.08	16.78	0.00	150.0	2981
		×	6.17	67.63	15.50	-	150.0	-
TOTAL -	Village man ten tunnent	Z X		66.45	16.58	0.60	150.0	±0.65
10457- AAA	UMTS-FDD (DC-HSDPA)	×	3.63	54.29	15.67	0.00	150.0	T. U.M.
		Z	3.72	95.60	15.95		150.0	-
10458- AAA	CDMA2000 (1xEV-DO, Rev. B, 2 carriers)	X	4.16	70.93	18.07	0.00	150.0	± 9.61
NAME .	Call mail	Y	3.83	69.00	17.01		150.0	
_		2	4.35	73.12	18.40		150.0	
10456-	CDMA2000 (1sEV-DO, Rev. B. 3	X	5.20	68,00	18:25	0.00	150.0	±984
AAA	cainers)	W.	501	87.77	17.91		150.0	
	+	Z.	5:25	011-05	16.70		450 D	1

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10460-	LIMTS-FOD (WCDMA, AMR)	X	1.12	72.77	16.83	0.00	150.0	129.6%
AAA			MAG.	COE-NA	4	#30FC	1000	2000
_		Y	0.73	80.44	13.95	-	150.0	
10461-	LTE-TDD (SC-FDMA, 1 RB; 1.4 MHz,	X	100.00	71.76	19.00	10.000	150.0	
AAA.	GPSK, UL Subrame=2.3,4,7,8,9)	×	300.00	126,43	33.83	3.25	80.0	19.63
		Y	100.00	125.87	32.93		80.0	
	The second secon	Z	90.37	116.03	27.82		80.0	
AAA	LTE-TDD (SC-FDMA, 1 RB, 1,4 MHz, 15-QAM, UL Subframer 2.3.4.7,8,9)	X	100.00	109.88	25.58	3.23	80,0	±8.63
		Y	100,00	109,45	₹5.28		80.0	
10463-	LATE THIS ISSUED OF THE LATE O	2	1.10	60.79	7.86		80.0	
AAA	LTE-TOD (SC-FDMA, 1 RS, 1.4 MHz, 64 QAM, UL Subframe+2.3.4,7.8.9)	X	100,00	106.70	24.02	3.23	30.0	± 9.6 3
		-Y	49.13	98.79	22.03		80.0	
10464-	LTE-TDD (SC-FDMA, 1 RB, 3 MHz	2	1.03	60.00	7.05	0.00	80.0	-
AAB	DPSK, UL Subtrame=2.3,4,7,8,9)	X	100,00	124.44	32.24	3.23	80.0	±069
		4	100.00	123.71	31,77		80.0	
10460-	LTS-TOD (SC-FDMA, 1 RB, 3 MHz, 16-	Z	25.88	109.41	23.07	0.00	80.0	
AAB	DAM, UL Subframe=2.3.4.7.8.9)	9	1,000		25.30	3,23	80.0	±9.6 %
		Z	1:05	108.89	24.99		80.0	
10466-	LTE-TDD (SC-FDMA, 1 RB 3 MHz, 64	1 K	100.00	80.34	7.60	0.00	80.0	
AAB	QAM, UL Subtraine=2,3,4,7,8,9)	Y	17.42	100000	1.40	3.23	AD.O	£953
		Z	1.03	87.73	19.15		80.0	
TDAET SAE	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, GPSK, UL Subframe=2,3,4,7,9,9)	×	100.00	124.87	7.00 32.33	3.23	0.08	± 9/8/4
11.15	Car City, the Green William Charles Inches	Y	100.00	123.85	31.88	-	80.0	_
	La .	Z	34.96	102.47	23.96		0.08	_
TO4BE- AAE	LTE-TDD (SC-FDMA, 1 HB .5 MHz 16- QAM, UL Subframe+2,3.4,7,8,9)	×	100,00	109.58	28.38	3.23	80.0	1989
		Y	108:00	109.06	25.07		0.08	
		1.2	1.06	60.45	7.67		80.0	
10489 AAE	LTE-TOD (SC-FDMA, 1'RB, 5 MHz, 64- QAM, UL Subframo=2 3.4 7.8,9)	×	100,00	106.18	23.77	3.23	80.0	#989
		Y	18,04	88.11	19.26		80.0	
10470-	Contraction of the Contraction	Z	1.03	60.00	7.00		80.0	
MAE	DPSK, UL Subframe=2,3,4,7,8,9)	×.	100,00	124.71	32.35	3.28	90.0	±9.6 %
		Ν.	100.00	123.98	31,88		80.0	
10471-	LTE-TDD (SG #DMA, 1 RB, 10 MHz, 16-	2 X	100.00	102:56	23.97	-	50.0	
AAE	QAM, U.L. Subtramo=2,3,4,7,8,9)	A.	75000	109.53	25.35	3.23	80.0	19.6%
		Z	1.00.00	109.01	25.04		86.0	
104721 NAE	LTF-TOD (SC FDMA, 1 RB, 10 MHz, 64- GAM, UL Subframe-2.3.4.7.8.9)	*	100,00	105.13	7.64 23.74	3.23	80.0	土里在別
	the state of the s	ψ.	17.90	.88.00	19.21		80,0	
Add to	THE RESERVE TO THE RE	Z	1.03	60.00	8.09		80.0	
10473 VAE	LTE-TDO (SC-FDMA, 1 RB, 15 MHz, OPSK, UL Subtrame=2,3,4,7,8,9)	х	100.00	124.67	32,34	3.23	86.0	:26%
		Y	100.00	123.85	31.87		80.0	
- A TO -		Z	34.67	102:34	23/91		90.9	-
MAE	LTE-TDD (SC-FDMA, 1 RE: 15 MHz, 16- QAM, UL Subtrame=2.3,4,7,0,9)	×	100.00	109.54	25.35	3.23	80,0	+9.6%
		Y	100,00	109.01	25,04		-80.0	-
11475-	Vite transport provide a view of the	Z	1.05	80.39	7.63		80,0	
NAE	LTE/TDD (SC-FDMA, 1 RB, 15 MHz, 84- QAM, UL Subframe=2.3,4,7,8,9)	×	100.00	196,14	23.74	3,23	80.0	196%
-		A	17.52	67.78	19.16		0.08	
		7	1.03	60.00	6.00		80.0	

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± 9.6 %	HDU	3.23	25.27	109.27	100.00	(X)	LIE-TOD (SO-FDMA, 1 RB 20 MHz, 18-	10477-
				70000	7719737	V	QAM, UL Sobtrame=2,3,4,7,8,8)	AAF
	80.0	-	74.96 7.55	108.84 80.28	100.00	2		_
±9.6%	80.0 80.0	1.22	23.72	T08.79	100.00	X	LTE-TDD (SC-FDMA URB 20 MHZ 84-	t/ld78-
29,076	80.0	11.24	2012	110.775	- HOLESON		QAM, UL Subtrarre=2,3,4,7,8,9)	AAF
	H0.0		19,06	07.46	17:03	Y-		
	80.0		0.90	80.00	1.03	Z	Company of the Control of the Contro	
±9.8 M	80.0	3.23	30.35	106.40	32.A7	8	LTE-TDD (8C-FDMA, 50% RB, 1.4 MH≥ QPSK, UL Subtrame=2,1,4,7,8,9)	AAA
	80.0		26:35	102.56	23.42	4.		
	BD.a		29.97	85:84	8.33	2		
29,85	80.0	3.23	27.50	105.02	42.90	X	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 18-GAM, UL Subfame=2,3,4,7,8,9)	10480- AAA
	80.0		24.14	94.12	20.70	Ψ.		
	80.0	3 0 1	17.00	76.74	6.08	7.	1	
10,6%	80.0	3.23	25.80	100 01	33.63	8	LTE-TOD (SC-FDMA: 60% RB, 1.4 MHz, 04-QAM, UL Subframe=2,3.4,7,8,9)	10481-
	80.0		22.38	59.36	15.67	4		
	80.0		15.13	72.49	4,46	Z	La contraction of the second	
10.6%	80.0	2.23	23.04	87 36	0.50.	×	LTE-TOD (SC-FDMA, 50% RB, 5 MHz, QPSrt, UL Subframe=2.3,4.7.6.9)	10482- AAB
	80.0		17.65	74.35	3.94	Y		
	90.0		15.33	70.00	2.70	7	A Tomorrow Art. William	
19,6%	80.0	2.23	23,81	90,75	15.24	×	LTE-TDD (SC-FDMA, 50% RB, 3 MHz. 16-QAM, UL Subframe=2.3.4,7.5.9)	10483- AAE
	B0 0		21.08	83.76	9.75	4	10.0000	
	80.0		15.18	71:04	3.87	7		
±0.6%	90.0	2.23	25.00	88.08	12.87	×	LTE-TDD (SC-FDMA, 50% RB, 3 MHz; 64-DAM, UL Subtrame=2,3.4,7.6,9)	40484- AAB
	80.0		20,86	81.59	8.49	W.	3-20-01, 00-000-00-00-00-00-00-00-00-00-00-00-00	4 9 400
	BO.D.		14.84	70,14	3.66	Z	I CONTRACTOR OF THE PARTY OF TH	
土田原作	80.0	2.23	23.28	25,70	7.98	×	LTE-TDD (SC-FDMA 50% RB, 5 MHz: QPSK, UL Subfame=2.3.4.7.8.9)	10185- AAE
	80.0		19.15	75.94	4.38	V.		10.00
	80.0		17.26	72.53	3.77	2	The second second second	
1964	80.0	2.23	19.55	75.17	5.38	8	LTE-TDD (SC-FDMA, 50% RB, 5 MHz 15-GAM, UL Subframe=2.3,4,7,8,9)	10488- AAE
	80.0		16.72	70.74	3.78	- 74	THE REPORT OF THE PROPERTY OF THE PARTY OF T	1400
W 100	80.0		15.26	BS:57	3.08	2		
± 9:0 %	80.0	2.23	19.25	75.40	5.22	X	LTE-TOD (SC-FDMA, 50% RB, 5 MHz. 64-DAM, UL Subframe=2,3,4,7,6,9)	10407- AAE
	60.0		16.54	70.31	3.77	Y	in creat or manuals and the	CACHE.
=	80.0	1000	15.40	68.23	3.09	Z	at the second of	
±.0.6 %	90.0	2.23	22.14	B1.08	6.58	3.	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK, UL Subhame=23.4,7 8,9)	10488- AAE
	8070		19.35	74.73	4.49	. Y.		124
	80.0	100	17/94	72.12	3.06	Z		
±9.61	90,0	2.23	19,42	73.47	4.88	Х	LTE-TDD (SC-FDMA, 50% RB, 10 MHz 16-QAM, UL Sebframe=2.3.4.7.8.0)	10489- AAE
	80.0		17,71	70.32	4.01	Y		
	90.0		16.70	00.92	3.48	2.	Faller Comment of the Comment	
±5.8 %	90.0	2.25	19.23	72.95	130	*	LTE-TDD (SC-FDMA, 50% RB, 10 MHz 64 QAM, UL Subframe=2.3,4,7,8,9)	10490- AAE
	80.0		17.64	70.09	4.10	Y		
-	60.0		76.66	66.77	3.07	I		
±9.6 %	60.0	2.25	20.70	76.95	5.95	×	LTE-TOD (8C-FDMA, 50% RB, 15 MHz, QPSK, UL Subhamer 2.3.4.7.8.9)	10491- AAE
	80.0		18.69	72.00	4,52	Y		111.
	90.0		17.60	70.84	0.02	Z	be one are transmissioned	11
±8,61	80,0	2.23	18.90	71/68	4.04	×	LTE-TOD (BC-FUMA, 50%, RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	10482- AAE
	0.06		17.83	69,40	4.21	Y		7
	-80.0		15.75	68.32	3.83	. Z		

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STRAIN -	SM	20.28		

October 24, 2018

10493- AAE	LTE-TDD (SC-FDMA_50'S RE_15 MHz_ 64-QAM, LL Subframe=2.3,4,7,8;9)	×	4.97	71.38	18,79	2.23	B0.0	1985
		X	4.37	59.24	17.58	-	80.0	
	The second secon	Z	3.90	88,20	16.76		80.0	
10494- AAF	LTE-TDD (SC-FDMA, 50%, RB, 20 MHz, QPSK, UL Subhame=2,3,4,7,9,9).	X	6.95	79.86	21.50	2.23	90,0	1964
		Y	4.99	74.37	19.18		90.0	
	The Australia Committee of the Committee	2	4.13	72.26	18.02		80.0	-
10495 AAF	LTE-TDD (SC-FDMA, 50% RB, 30 MHz. 16-QAM, UL Subframe=2.3.4,7,8,8)	×	5.07	72,39	18.10	2.23	90.0	±96%
		Y	4.37	89.87	17-84		80.0	
		12	3.87	88.70	16.98		80.0	
10/196- AAF	LTE-TDD (SC #DMA, 50% RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	5.07	71.80	18.98	2.23	30.0	±9.6%
		Y	4.43	89.53	17.74		80.0	
1000	A THE RESERVE OF THE PARTY OF T	Z	3.95	68.45	18.92		80.0	
10497- AAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK, UL Subframe=2.0,4,7,6,8)	X	1 77	84.28	21.25	2.23	80.0	196%
		Y	2.76	69.51	14.63		80.0	
		2	1.83	65.26	12.27		80.0	
1049H- AAA	LTS-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-OAM, UL Subframo=2,3,4,7,8,9)	×	4.10	72.22	15.94	2.23	80.0	#86%
		· Y	2.08	.63.53	11.20		80.0	
	The state of the s	Z	1.49	60.84	9.11		80.0	
10499 AAA	HTE-TDD (SC-FDMA, 100% RB, 1/4 MHz, 64-CAM, LT, Subtrame=2,3,4,7,6,9)	N	3.88	73,30	15.38	2,23	80.0	19.6%
		W	2.02	62.98	10.80		0.08	_
		Z	1.45	60.40	8.75		80.0	
10900- AAB	LTE-TDD (SC FDMA: 100% RB, 3 MHz, QPBK, UL Subframer 2.3,4,7,8,9)	×	6.85	82.59	Z2.44	2.23	80.0	±8.6%
	The Cartes and the Ca	8	4.30	75.01	19.09		0.06	1
	The Property Control of the Control	Z	3.32	71.99	17.46		80.0	-
10001- AAB	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM, LL Subfraims=2,3,4,7,8,9)	8	5.08	74.80	19.39	2.23	0.08	± 9.6 %
		Y	3,50	70.59	17.11		88.0	
	The second of the second of the second	2	3.27	68.63	15.87		80.0	
10502- AAB	LTE-TDID (SC-FDMA, 100% RB, 3 MHz. B4-DAM, UL Subframe-2,3.4.7,8.9)	8	5,08	74.42	19,19	2.23	80.0	±9.6 M
		Y	3.94	70.38	16.86		80.0	
	and the second s	Z	3.32	56.58	15.78		80.0	
10503- AAE	LTE-TDD (SC-FDMA, 100% RB, 5 MHz QPSK, UL Subframe=2,3,4,7,8,9)	X	5.47	80.7E	22.03	2.23	80,0	± 5.8 %
		Y	4.42	74.51	19.24		50.0	
I demail	wer later to the same of the s	7	3,53	71.90	17.84	5.00	80.0	
AAE	LTE-TDD (80-FDMA, 100% RB 5 MHz. 15-QAM, UL Subirama=2 3 4.7.8.9)	X	4 84	73.38	19.37	2.23	20,06	±9.6%
_		A.	8.99	70.22	17.65		60.0	-
10505-	LEF TOP OUR DATE	2	3.46	68.82	10.64		80.0	
10505- AAE	LTE-TOD (SC FOMA, 100% RB, 5 MHz., B4-GAM, UL Subirance-2,3,4,7,8,9)	3	4 85	72.84	19:17	2.23	0,08	±0.6 ₩
		9.	4.07	69.98	17.58		80.0	1
10506	LITE THO LOC DIVING MICE.	2	3.65	68.67	16.80		80.0	1
AAE	LTE-TDO (SC-FDMA, 100% R8, 10 MHz QPSK, UL Sunfermer-2,3,4,7,8,5)	×	6.87	79.65	21.49	2,23	80.0	+98 M
		Y	0.94	74.20	19.10		80.0	
10507-	LATE THE INC. COMM. NOW, No. 17	2	4.10	72.10	17,94		0.08	
AAE	LTE-TDD (SC-FDMA, 100% RB: 10. MHz: 16-QAM, UL Subframe=2:3.4.7,8,9)	×	5,05	72.32	19.14	2.23	80.0	19,6%
		Y	4.35	69.81	17.80		60.0	_

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10508- AAE	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	Х	5.05	71.72	18.93	2.23	80.0	±9.6 %
		Y	4.41	69.46	17.70		80.0	
oce univi-	Paragraphic Company and School Company	Z	3.93	68.38	16.87	o areas	80.0	-0.31 (135
10609- NAE	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	Х	6.42	76.31	20.23	2.23	80.0	±9.6%
1,00		Y	5.10	72.45	18.45		80.0	
		Z	4.44	71.04	17.56		80.0	
10510- AAE	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM, UL Subframe=2,3.4,7.8,9)	X	5.41	71.43	18.82	2.23	80.0	± 9.6 %
	0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 -	Y	4.81	69.39	17.73		80.0	
1277000	The second secon	Z	4.34	68.44	16.99	Total Autority Co.	80.0	V U.Str.
10511- AAE	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	5.40	70.96	18.67	2.23	80.0	± 9.6 %
		Y	4.84	69.09	17.65		80.0	
		Z	4.39	68.21	16.94		80.0	
10512- AAF	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK, UL Subframe=2.3.4.7.8.9)	X	7,47	79.47	21.24	2.23	80.0	±9.5%
		Y	5.46	74.25	18.99		80.0	
		Z	4.64	72.47	17.97		80.0	
10513- AAF	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	Х	5.39	72.08	19.07	2.23	80.0	±9.6%
	process to the rest of the second	Y	4.72	69.76	17.86		80.0	
3105000	Property and the second	Z	4.23	68.69	17.07		80.0	Jones are
10514- AAF	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	х	5.30	71.34	18.83	2.23	80.0	19.6%
		Y	4.71	89.27	17.73		80.0	
		2	4.25	68.30	16.97		80.0	
10515- AAA	IEEE 802.11b WIFI 2.4 GHz (DSSS, 2 Mbps, 99pc duty cycle)	X	0.99	64.18	15.67	0.00	150.0	±9.6 %
1722474		Y	0.87	62.03	13.65		150.0	
- C012 MI	SOCIO DE MANAGEMENTO DE LA MASSA PARA DE LA CONTRACTOR DE	Z	0.96	64.13	15.35	-0.000	150.0	105 Keeply 5
10516- AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps, 99pc duty cycle)	X	1.07	82.62	23.29	0.00	150.0	± 9.6 %
	The state of the s	Y	0.42	66.18	13.67		150.0	
		Z	0.79	78.03	21.08		150.0	
10517- AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps, 99pc duty cycle)	X	0.89	67.34	17.01	0.00	150.0	± 9.6 %
		Y	0.70	63,35	13.75		150.0	
		Z	0.83	66.82	16.43	-	150.0	-
10518- AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 99pc duty cycle)	×	4.64	66.90	16.38	0.00	150.0	± 9.6 %
	PERSONAL PROPERTY OF THE PROPE	Y	4.47	66.33	15.94		150.0	
10519-	IEEE 802.11a/h WIFi 5 GHz (OFDM, 12	Z X	4.47	67.04 67.18	16.24	0.00	150.0	± 9.6 %
AAB	Mbps, 99pc duty cycle)	0.0	4.67	10000000	48.00	(0000)	150.0	-573530
		Y	4.65	66.59 67.25	16.08		150.0	
10500	HEEF GOD AA - B. MICH P. COLL INCOL. 10	7		67.17	16.45	0.00	150.0	±9.6 %
10520- AAB	IEEE 802.11a/h WIFi 5 GHz (OFDM, 18 Mbps, 99pc duty cycle)	×	4.71	67.17	15.99	0.00	150.0	29.0%
10.71		Z	4.52	67.23	16.28		150.0	
10521- AAB	IEEE 802.11a/h WIFI 5 GHz (OFDM, 24 Mbps, 99pc duty cycle)	X	4.64	67.19	16.44	0.00	150.0	± 9.6 %
HMD	mupa, supe unity system	Y	4.45	66.53	15.97		150.0	
		Z	4.44	67.24	16.27	-	150.0	
10522-	IEEE 802.11a/h WFI 5 GHz (OFDM, 36	X	4.69	67.17	16.48	0.00	150.0	± 9.6 %
		100						
10522- AAB	Mbps, 99pc duty cycle)	Y	4.51	66.60	16.04		150.0	

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10523- AAB	IEEE 802 11a/n WIFI 5 GHz (OFDM, 48 Mbps, 98pc duly cycle)	X	4.56	67.08	16.34	0,00	150.0	186%
	100000000000000000000000000000000000000	9	4.28	66.45	15/88		150.0	
		12	4.39	67.23	16.22		150.0	
10524- AAU	IEEE 802 11a/n W/Fi 5 GHz (OFDM, 54 Mbps, 99pc duty cycle)	8	4.64	67.13	16.40	0.00	150.0	± 9.6 %
	11/10/11/20/20/20	. Y	4.45	66.52	16.01		150.0	
	the first of the same of the s	2	4.44	67.24	16.32	-	150.0	1
10525- AAE	(EEE 802,11ac WiF) (20MHz, MCSO) (Spc duty cycle)	8	4.60	06.17	18.06	0.00	150.0	±9.6%
] Y	4.43	65.55	15.60		150.0	
		.2	4.64	86.33	15.94		150.0	
10526- AAH	IEEE 802, TTac WIFF (20MHz, MCS1, 99pc fluty rydie)	×	4.80	06.57	10.20	0.00	150.0	3362
		Y	19.0	65.93	15.75		150.0	
1000	THE RESERVE OF THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TWO IS NAMED IN COLUMN TW	Z	4.61	86.68	16.07		150.0	9000
10527- AAE	IEEE 802.11ac W.F. (20MHz, MCS2, 99pc duty cycle)	X.	4.72	66.55	16.16	0.00	150.0	198%
		Y	4.52	65.88	15,69		150.0	
		2:	4.53	96.66	16.02		150.0	1
1B528- AAE	(EEE 802.11ac WIF (20MHz, MCS3, 99pc duty cycle)	×	4.73	66,57	16.19	0.00	150.0	1 B.6 (S
	The second secon	Y	4.54	85.90	15.72		150,0	
	The second secon	Z	4.55	88.67	16.05		150.0	
10529- AAB	IEEE 802.1.1ac WiFi (20MHz, MCS4, 99bc dudy cycle).	Х	4.73	66.57	16.19	0.00	150.0	± 9,6 %
		Y	4.54	65.90	15.72		150.0	
		2	4.55	88.67	16.05		150.0	
10631- AAB	(EEE 802 11ac WIFI (20MHz, MC56, 99pc duty cycle)	X	4.74	86.72	18,22	0,00	150.0	19.6%
		Y	4.53	68.01	15.73		150.0	
	The second secon	- Z	4.53	66.77	18.00		150.0	
10532+ AAB	IEEE 802,11ac WIFI (20MHz, MCS7, 99pp duty cycle)	×	#.60	66.59	16,17	0,00	150.0	198%
	700	Y	4.39	65.86	15.88		150.0	
		2	4.40	86.64	16.01		150.0	
AAB	(EEE 802,11ac WiFi (20MHz, MCS8, 98pc duty cycle)	X	4.75	66,60	16.17	0.00	150.0	+96%
		Y	4.55	65.94	15.70		150.0	
	The second secon	2	4.56	66.73	18.05		150.0	
10684 AAB	EEE 802 11ac WiFI (40MHz, MCS0, 99bc dusy syste)	X	5.24	66.67	16.21	0.00	150.0	19.6%
		Y	5,08	66.08	15.82		150 0	
		Z	5.06	66.70	#8.06	-	150.0	
19535- AAB	IEEE 802 11sc WiFi (40MHz, MCS1, 99pc duty cycle)	X	5.31	06.61	18.26	0.00	150.0	198%
		Y	5.14	66.24	15:89		150.0	
1000	A Part Control of the	Z	5 12	86.86	16.13		150.0	
10536- AAB	IEEE 802,11ec WF; (40MHz, MCS2, 99pc chily cyde)	X	5.13	66.81	16.25	0.00	150.0	198%
		Y	5,01	66.19	15.84		150.0	
10637	FFF YOU ALL WAR THOU AND A STATE OF THE PARTY OF THE PART	2	8.00	86.34	16 11		180.0	
AAB	IEEE 802.11ac WIFI (40MHz, MCS3, 99pc duty cycle)	X	5.24	66.77	16.23	0.00	150.0	于 8 E %
		Y	5.07	66.17	15.84		150.0	
10538-	TEEC AND AN - TAMES LARROW TO THE	Z	5.08	86.79	16.08		150.0	
BAA	IEEE 002.11ac WIFI (40MHz, MCS4, BBpc duty cycle)	×	6.35	66.82	16.29	0,00	150.0	29.6%
		Y	5.17	86,21	15.90		150.0	
10540	TERROOF AND ALL TOWNS AND ALL	2	8.14	66,79	16.12		150.0	
AAE	IEEE 802 11ac WIFI (#8MHz, MCSB, 99pc duty cycle)	×	5.25	56,78	16.29	0.00	150.0	± 976 W
		Y	5.09	66.21	15.91		150.0	

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10541- AAB	IEEE 802.11ec WIFi (40MHz, MCS7, 99pc duty cycle)	×	5.24	66.69	16.24	0.00	150.0	±9.8 %
	100000	Y	5.05	66.08	15.84		150.0	
	a service the service of the service	Z	5.05	66.69	16.08		150.0	
10542- NAB	(EEE 802,11ac WF (40MHz, MCS8, 99pc duty cycle)	X	5.30	66.72	16.27	0.00	150.0	#9.H%
	and charles	·Y.	5.22	86.16	15.50		150.0	
		Z	5.20	66.74	16:12		150.0	
10543- AAB	IEEE 802.11ec WFi (40MHz, MCS9) 88pc duty cycle)	X	5.47	66.74	16.29	0.00	150.0	±9.6%
	and and along	4	5.30	66.21	15.95		150.0	
		Z	5.27	66.76	16.14		150.0	
10544- AAB	IEEE 802.11ec WIFI (80MH≥ MCS0, ff8pc duty cycle)	X	5.52	66,77	16.19	0.00	150.0	1.8.6%
		Y	5.38	56:20	15.82		750.0	
		Z	5.37	66.80	16.04		150.0	
10545- AAB	IEEE 802.11ac WiFi (80MHz, NICS1 99pc duty cycle)	Х	5.72	67.14	16,31	0.00	150.0	±9.6%
1.5		Y	5.58	66.63	15.99		150.0	
		Z	5.53	67.12	16.15		150.0	
10546- AAB	IEEE 802.11ec WIFI (80MHz, MC62, 99pc duty cycle)	×	5.61	87,04	16.28	0.00	150/0	±9.8%
7.0		Y	5.45	66.44	15.91		150.0	
		2	5.43	66.99	16.10	-	150.0	
10547- AAB	IEEE 802.11ac WiFI (80MHz, MCB3, 99pc duty cycle)	х	5.70	67.12	16,31	0.00	150.0	± 9.8 %
		Y	5.53	66.49	15.92		150.0	-
	LA VIEW WILLIAM	2	5.50	67/02	15.11		150.0	
10548- AAB	EEE 802 11ap W/FI (89MHz, MCS4, 99pc duty cycle)	X	5.83	67.96	16.70	0.00	150.0	≥9.6 %
		Y	5.82	87.53	16.41		150.0	
		2	5.64	67.E3	16.39		150.0	1
10550- AAB	IEEE 802 11ac WIFI (BOMHz, MCS6, 99pc duty cycle)	×	5.63	67.00	16.27	0.00	150.0	±9.6 %
		1.9	5.47	66.43	15.91		150.0	
		2	5.45	67.00	16.12		150.0	
10551- AAB	IEEE 802,11ac WIFI (BOMHz, MCS7, 99pc duty cycle)	X	5,65	67.07	18.26	0,00	150.0	≥9.6 %
7.0.0	supersity of the	1.8	5.48	65.48	15.89		150.0	
		2	5.46	67.04	18.10		150.0	
10552- AAB	IEEE 802 11ac WIFI (80MHz, MCS8 99pc duty cycle)	Х	5.55	66.66	18.18	0.00	150.0	19.8%
. 4 . 14	and a state of the	- 4	5.39	66.26	15.80		150.0	
		Z	5.39	66.89	16.04		150.0	
10553- AAB	IEEE 802 T1ac WIFI (80MHz, MCS9, 99pc duty cycle)	X	5.00	66.91	16.22	0,00	150,0	± 9.6 %
		Y	5,48	58.32	15.86		100.0	
		2	5.47	66.91	16.07		150.0	100
10554- AAC	IEEE 802 11ac WIFI (160MHz, MCS0, 99ac duly cycle)	X	5.92	67.13	16.27	0.00	150.0	±9.6%
		Y	5.78	68.58	15.93		150,0	
	The state of the s	1.2	5.77	87.13	16.11		150.0	
10555- AAC	IEEE 802 11ac WiFi (100MHz, MCS1, 90pc duty uyde)	Х	8.06	87,44	16,39	0.00	150.0	± 8.6 %
		Y	5.92	86 89	16.06		150.0	
		- 2	5.88	67.38	18.21	-	150.0	
10056+ AAC	IEEE 502.11ac WIFI (160MHz, MCS2. 99pc duty cycle)	X	6,07	67.47	16.40	0.00	150,0	LEEN
		Y	5,94	66.94	16.07		150.0	
	THE RESERVE AND THE PARTY OF TH	- Z	5.90	67.42	16.23	-	150.0	
10557- AAC	IEEE 502.11ac WiFI (160MHz, MCS3, 99pc duty syde)	×	6.06	67.43	16,40	0.000	150.0	±9.6%
		-Y	5.91	68.85	16.05		150.0	
		2	5.87		16.22		150.0	

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(0558-	IEEE BIZ 11ac WIFI (180MHz, MCS4,	×	5.11	67.60	16.50	-0.00	150.0	19.6%
AAC	99pc duty syste)	-		FIN 50	10.75			
		Y	5.96	67.02	16.15		150.0	
10560-	THE RES ALCOHOL: LINES	2	5.91	67.50	16,30	-	150.0	
AAC	IEEE 802.11ea WIFI (160MHz, MCS8, 99purdusy cycle)	X	E.3.1	67.48	16.47	0.00	150.0	± 9.6 %
	The state of the s	W.	5.95	66.87	18.11		150.0	
	- Committee of the Comm	1.2	5.92	67.38	16.28		150.0	
10561 AAC	(EEE 802.11ac WIFI (160MHz MCS7, 560c duty cycle)	X	8,02	67.40	16.48	0.00	150.0	± 9.6 %
	The same of the sa	- 8	5.87	EE BA	18:13		150.0	
	A Character of the Control of the Co	12	5.84	67.33	15.29	-	150.0	
AAC	IEEE 802.11ac WIFT (160MHz, MCSS, 99pc duty pycie)	X	6.16	67.62	16.69	0.00	150.0	IN.0 %
		-35	6.01	67.26	16.35		150.0	
-		2	5.93	67.63	15.44		150.0	
10563- AAC	IEEE 802.11ac WiFi 160MHz, MCS3, 99pc duty oyale)	*	9,47	68,29	16,80	0.00	150.0	1985
		¥ .	6.34	67.82	15.58		150.0	
	THE RESERVE AND ADDRESS.	2	6.09	87.70	16.43		150.0	
10564- AAA	IEEE 802,11g WIFI 2.4 GHz (DSSS- DFDM, 9 Mbps, 98pc duty cycle)	×	4.97	68.98	16.53	0,48	150.0	E 3.6 #
	1	4	4.81	68.46	15.14		150.0	
		2	4.78	87.02	16.32		150.0	
10565- AAA	IEEE 802:11g WIFI 2.4 GHz (DSSS- OFDM, 12 Mbps, 99pc duty cycle)	×	5.23	B7.46	16.85	0.46	150.0	196%
	The state of the s	Y	5.05	86.93	16.47		150.0	
		-21	5.01	67.49	16.66	_	150.0	
10566- AAA	TEBE 802.11g WF12.4 GHz (DS85- OFDM, 18 Mbps, 39pc (kry cycle)	×	5.00	67.34	16 69	0.46	150.0	19.6%
		Y	4.88	96.77	16.28		150,0	
	Local Company of the	Z	4.84	87.32	16.46		150.0	
10567. AAA	GEEF 802.11g WF/ 2.4 GHz (DSSS- OFDM, 24 Mbps. 55pc duty cycle)	×	5.09	67.74	17.04	0.46	150.0	19.6%
		- 9	4.91	87.15	16.63		150.0	
	The second second second	2	4.85	87.80	16.87	-	150.0	_
10568- AAA	IEEE 802 11g WIFi 2.4 GHz (DSSS- OFDM, 38 Mbps, 95pc duty cycle)	×	4.97	67.07	16,45	· D.46	150.0	19.6 %
		Y	4.80	98.54	16.05		150.0	
		Z	4.74	67.03	10.19	_	150.0	-
10589+ AAA	DEEE 802.11g WiFi 2.4 GHz (DSSS- DFDM, 48 Mbps: 39pg daty cycle)	8	5.03	67.78	17.08	0.46	150,0	± 9.8 %
	-	I V	4.86	67.22	18.68		150.0	
	4	2	4.85	67.93	18.95		150,0	
10570- AAA	IEEE 802.11g WF12.4 CHz (DSSS- OFDM, 64 Wbps, 30bc duty cycle)	X.	5.08	RT 62	17,01	0.46	150.0	1965
10.00		Ŷ	4.90	67.08	16.62		150.0	
		2	4.88	67.73	16.86		150.0	
10571- AAA	IEBE 802,115 WFI 2.4 GHz (DS8S, 1 Wbps: 90pc duty cycle)	Ж	1.32	55.77	17 12	0.46	130.0	± 9.6 %
		Y	1.14	64.23	15.06		130.0	
		7	1.17	05:20	15.80		130.0	
10572-	IEEE 802,116 WIFI 2.4 GHz (DSSS, 2	X	1.36	67.60	17.58	D.46	130.0	-0.00
AAA.	Mbps, 90pc duty cycle)	Y	1.16	64.80	15.39	11,46		±9.8%
		Z	1.10				120.0	
LIEU Van	(EEE 802,11b WIFI 2.4 GHz (DSSS, 5.6- Maps, 90ps duty cycle)	X	100,00	100.25	40.35	0.46	130.0	±8.6 W
	The same already	Y.	1.94	61.80	20:21		4000	
- 100		Z	5:37	101,40			138,8	
15574	IEEE 802,116 WIF12.4 BHz (DSSS, 11	X	1.88		27.76	9.50	130.0	
M/A	Minns 90pu dury cycle)	Y	1.96	77.53	22:17	0.46	130.0	±25%
		1 2		7031	17.98	-	130.0	
		2 E	1,45	73.83	20.12		1307.0	

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10575- AAA	IEEE 802.11g WIFi 2.4 GHz (DSSS- OFDM, 6 Mbps, 90pc duty cycle)	X	4.77	66.82	16.63	0.46	130.0	±9.6 %
		Y	4.62	66.32	16.23		130.0	
	New York Control of the Control of t	Z	4.56	66.75	16.29		130.0	
10576- AAA	IEEE 802.11g WIFI 2.4 GHz (DSSS- OFDM, 9 Mbps, 90pc duty cycle)	X	4.80	66.99	16.69	0.46	130.0	± 9.6 %
0.01	or ent a super super and a parer	Y	4.64	66.47	16.29		130.0	
		Z	4.59	66.94	16.38		130.0	
10577-	IEEE 802.11g WiFi 2.4 GHz (DSSS-	X	5.03	67.31	16.86	0.46	130.0	±9.6%
AAA	OFDM, 12 Mbps, 90pc duty cycle)	Y	4.85	66.78	16.47	0.40	130.0	13.0 %
		2	4.78	67.21	16.54		130.0	
10578-	IEEE 802,11g WiFi 2,4 GHz (DSSS-	X	4.93	67.50	16.98	0.46	130.0	± 9.6 %
AAA	OFDM, 18 Mbps, 90pc duty cycle)	1333	38.80	337970		0.40	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	19.0 %
		Y	4.75	66.94	16.57		130.0	
		Z	4,69	67.42	16.68		130.0	
10579- AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS- OFDM, 24 Mbps, 90pc duty cycle)	X	4.69	66,84	16.33	0.46	130.0	±9.6 %
		Y	4.52	66.24	15.89		130.0	
		Z	4.43	88.57	15.89		130.0	
10580- AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS- OFDM, 36 Mbps, 90pc duty cycle)	X	4.74	66.81	16.32	0.46	130,0	±9.6 %
		Y	4.57	66.26	15.90		130.0	
Lancia de la constante de la c	Community and a second	Z	4.47	66.59	15.90	- x 59x -	130.0	1775
10581- AAA	IEEE 802.11g WIFI 2.4 GHz (DSSS- OFDM, 48 Mbps, 90pp duty cycle)	X	4.83	67.59	16.95	0.46	130.0	±9.6 %
	Of sore, 10 resigns, onges many operary	Y	4.65	86.98	16.51		130.0	
		Z	4.59	67.47	16.62		130.0	
10582- AAA	IEEE 802.11g WIFI 2.4 GHz (DSSS- OFDM, 54 Mbps, 90pc duty cycle)	X	4.64	66.58	16.12	0.46	130.0	±9.6 %
1001	Or one or mage sugar and system	Y	4.47	66.00	15.67		130.0	
		Z	4.36	66.28	15.65		130.0	
10583- AAB	IEEE 802,11a/h WiFi 5 GHz (OFDM, 6 Mbps, 90pc duty cycle)	×	4.77	66.82	16.63	0.46	130.0	±9.6 %
PUPL	mupa, supe duty of oct	Y	4.62	86.32	16.23		130.0	
		Z	4.56	66.75	16.29		130.0	
10584- AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 90pc duty cycle)	X	4.80	66.99	16.69	0.46	130.0	± 9.6 %
PV90	wops, sope outy cycle	Y	4.64	66.47	16.29		130.0	
		Z	4.59	65.94	16.38		130.0	
ADERE	IEEE 802.11ah WFi 5 GHz (OFDM, 12	X	5.03	67.31	16.86	0.46	130.0	± 9.6 %
10585- AAB	Mbps, 90pc duty cycle)		4.4			0.40		I 9.0 36
		Y	4.85	65.78	16.47		130.0	_
140000		Z	4.78	67.21	16.54	6.45	130.0	100
10586- AAB	IEEE 802.11a/h W/Fi 5 GHz (OFDM, 18 Mbps, 90pc duty cycle)	X	4.93	67.50	16.98	0.46	130.0	± 9.6 %
		Y	4.75	66.94	16.57		130.0	
		Z	4.69	67.42	16.68		130.0	
10587- AAB	IEEE 902.11a/h WiFi 5 GHz (OFDM, 24 Mbps, 90pc duty cycle)	X	4.69	66.84	16.33	0.46	130.0	±9.6 %
		Y	4.52	66.24	15.89		130.0	
		Z	4.43	66.57	15.89		130.0	0
10588- AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps, 90pc duty cycle)	X	4.74	66.81	16.32	0.46	130.0	± 9.6 %
		Y	4.57	66.26	15.90		130.0	
111111	The best of the second	Z	4.47	66.59	15,90	-532.4	130.0	
10589-	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 90pc duty cycle)	×	4.83	67.59	16.95	0.46	130.0	± 9,6 %
		Y	4.65	66.98	16.51		130.0	
BAA	metal sales and aleast						130.0	
	Walter and Stand		4.59	67.47	16.62		130.0	
10590-	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54	X	4.59 4.64	67.47 66.58	16.62	0.46	130.0	±9.6%
BAA		2				0.46		±9.6%

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± 9,6 %

196%

+9.6%

130.0

130.0

0.46

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16.57 16.58 17.00

16.75 16.86 16.84

16.23

57.15

10591- AAB	IEEE 902.71n (HT Mored, 20MHz. MCS0_90pp duty cycle)	×	4,02	66.87	16.71	0.46	130.0	18.6%
2.7		4	4.77	E6:38	16:34		130.0	
		- 7	4.71	66.82	16.40		130.0	
10592- AAB	(EEE 802)1h (NT Mixed, 20MHz, MCS1, 90pp duty cycle)	×	5.09	67.22	16.84	0.46	130.0	19.6 %
		8.	4.93	66.72	16.47		130.0	
	Carlo Anno Anno Anno Anno Anno Anno Anno An	2 %	4.86	67.15	16.53		130.0	
105B3- AAB	IEEE 802:11n (HT Mixed, 20MHz, MGS2, 90pc duty cycle)	×	5.02	87.17	16.74	11.46	130.0	29.6%
		Y	4.85	88:64	16.36		130.0	
- 11		2 X	4.77	87.04	16,40		130.0	
10594- AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS3, 90pc duty cycle)	×	5.07	67.32	16.89	0.46	130.0	196%
		Y	4.90	66.80	16.51		130.0	
		- 2	4.83	67.23	16.57		130.0	
10585- AAB	IEEE 802.11n (HT Mbsid, DOMHz, MCS4, 90pc duty cycle)	×	5.05	67.29	16.79	0.46	130.0	196 W
		Y	4.87	66.75	76.40	1	130.0	
	and the second s	. 2	4.80	67.17	16.45		130.0	-
10596- AAB	IEEE 802 11n (HT Mixed, 20MHz MGS5, 90pp duty cycle)	×	4,98	67.29	16.80	0.46	130.0	±9.6%
		Y	4.81	86.75	16.40		130.0	
	The second secon	Z	4.73	57.16	16.45		130.0	
10597- AAB	IEEE 802 11n (HT Mixed, 20MHz, MCSS, 90pc duty cycle)	×	4.94	67.23	16,70	0.46	130.0	196%
177	1	- Y	4:76	66.86	16.29		130.0	
			4,68	67.05	18,33		130.0	
10598- AAB	IEEE 802.TTn (HT Mixed, 26Mirz, MCS7, 90pc duty cycle)	*	+.92	67.49	18.98	0.46	130.0	198%
		14	4.74	86.90	16.65		130.0	
10000		X	4.68	67,34	16.63		f30.0	
10599- AAB	IEEE 802.11n (HT Mixed, 40MHz, MOSO, 90pc duty cycle)	×	5.58	87.43	16,88	0.46	130.0	19.8%
		Y.	5.44	66.96	18.56		130.0	
COLLEGE	- CONTRACTOR - CON	2	5:34	67.25	16.55		130.B	
10600- AAB	MCS1, 90pc duty cycle)	X	5.74	67.88	17.07	0.46	130,0	196%
		18	5,60	57.47	18.79		130.0	
	Language and the Control of the Cont	- 2	5.43	67.51	16.64		130.0	
AAB	IEEE 802 11n (HT Mixed, 40MHz; MCS2, 90pc duty syde)	35	5,81	67.61	16.95	0.46	130.0	主机各根

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AAB.

10603

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10606

AAB

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IEEE 802.71n (HT Mixed, 48MHz,

EEE 802 11n (HT Mixed, 40MHz.

IEEE 902.11n (HT Mixed, 30MHz.

IEEE 802.11n (HT Mixed, AOMHz.,

IEEE 802 11n (HT Moved, 40MHz, MCS7, 90pc duty cycle)

MCS3, 90pc duty bycki)

MCS4, 90pc duty cycle)

MCSS, 30pc duty cycle

MCS6, 90pc duty cycle)

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10507- AAB	1EEE 902 Tisc WiFI (20MHz, MCSO, 80pc duty cycle)	X	4.76	95.21	16.35	17.46	130.0	± 9.6 %
		8	4.60	35.56	15.94		130.0	
		7	455	56.17	16.05		130.0	
80001 8A,R	IEEE BIJZ 1 (ac WIFI (20MHz MGS1), 90pc duty cycle)	X	4.97	85.64	16.51	0.46	130,0	# 9 6 TS
		Y.	4.79	65.07	18.11		130.0	
	The state of the s	Z	4.73	86.56	16.21		130.0	
AAE	BEE BOX 11ac W/Ft (20MHz, MCS2, 90paduty cycle)	×	4.86	68,52	16,38	0.46	130.0	#95%
	- X	V	4.63	85.92	15.94		130.0	
		2	4.62	86.40	10.04		130.0	
TD610- BAA	IEEE 802 11ac WIFI (20MHz, MCSS, 100pt duty ovida)	×	4.91	68,68	T6.5d	0.46	130.0	396%
		Y	4.73	66.08	16:11		130.0	
			447	86.58	16:22		130.0	
10011 AAB	IEEE 802,11ac WFI (20MHz; MC84, 90pc duty cyclo)	×	4.63	88.50	16,39	0.46	190.0	198 W
		Y	4.65	65.89	16.96		130.0	
		Z	4.59	66.36	16.65		130.0	
10612. AAB	IEEE 802.11ac WiFI (20MHz, MCSS: 90pc duty cycle)	30	4.85	96,66	16.44	0.46	130.0	19.6%
		Y	4,66	66.04	16.00		130.0	
		0 Z	4.59	86.49	16.08	100	130 D	
10613- AAB	IEEE 802 11ac WIFI (20MHz, MCS6, 90pc duty cycle)	×	4,00	66.57	16.33	0.46	130.0	± 9.6 %
7	TALL STATE OF THE	T.Y	4.67	65.94	15.89		130.0	-
		7	4.59	65.36	15.95		130.0	C
AAE.	(EEE 802 11ac WiFi (20MHz, MCS7) 90ac duty cycle)	×	4.80	66.77	15.57	0.48	130.0	±10.6 %
-		100	4.00	06.11	18.11		130.0	
		12	4.55	86:63	19:24		130.0	-
AAB	IEEE BOZ 11sp WiF (20MHz, MCS8, 90pc duty cycle)	×	4 83	66,33	16.17	0,48	130.0	±0.6 %
		9	4.65	65.72	15.74		130.0	
		Z	4.57	66.14	15.79		130.0	
AAE	IEEE 902.1 (ac WIFI (40MHz, MCSD, 90pc duly cyce)	8	5.40	66,72	16.51	0.46	130.0	=96%
	Topo and square	- V	5.25	86:20	10.17		1300	
		2	5.18	66.58	16.21		130.0	
10617- AAD	IEEE 902 Has WiFI (30MHz, MCS1) 90pc duty cycle)	X	5.46	66.82	16,52	0.46	120.0	± 9.6 %
1.4.400	pages west schools	- Y	5.32	66.35	16.21		130.0	
		12	5.23	66.70	1E.24		130.0	
1061B- AAB	IEEE 802 1 iso WiFi MOMRS, MCS2, 90pp day cycle)	×	5.36	96.91	16.59	0.46	130.0	19.6%
10.60		Y	5.20	96.37	16.23		130.0	
		1.7	B.13	66.77	16.30		130.0	-
10819- AAS	IEEE 802 11ac WIFI (40MHz, MCS3, 900c duty cycle)	X	E.38	56.73	16.44	0.46	130.0	±9.6%
		Y	5.23	86.21	16.09		130.0	
		1.2	5.14	86.53	16.10		130.0	
10620- AAB	IEEE 802,11ac WiFr (#0NHz, MCS4, 90pc duty cycle)	X	5.40	66.81	16.52	0.48	138.0	主草机物
		-X-	5.33	66.26	16.17		130.0	
		2	5.23	66.56	46.17		130.0	
106Z1	TEEE etz. Hac WF (40MHz, MCSS). Dipp duty cyclin	×	5,47	66.89	18.68	0.46	130,0	1964
		7	5.31	66.35	16.33		130.0	
	1 1 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	1.Z	5.24	66.76	16.40		130 0	
10622- AAEI	IEEE 802,17eg Willia (40MHz, MG56) 50pc puty cycle)	×	5.47	67.00	18.72	DAB	130.0	±9.6%
	- Colored Dates	Y	5.33	66.52	15.41		130.0	

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10823- AAE	IEEE 802,11ac WiFr (40MHz, MC\$7, 90pc tluty pycle)	×	5:38	66.59	16.41	0.46	130.0	19.6%
	7.00	Y .	5.20	66.04	16.05		130.0	
		Z	5.12	68.39	16.07		130.0	
10624- AAB	IEEE 802.118c WEI (60WHz, MESS 90pc duty syste)	35	5.54	66,74	16.54	0.46	130.0	19.6%
		Α.	5.40	66.26	16.22		130.0	
-	the second second second second	- 7	5.31	66.66	16.23		130.0	
AAE	IEEE 802 11ec WF+ (60MHz, MCSB, 30pc duty cycle)	×	5.91	67.68	17.05	0,46	130.0	±9.6 W
	12-12	Y.	5.81	67.35	16.82		130.6	
48.00A	000	Z	5.60	87.33	16.65	9	130.0	
10628 AAB	IEEE 802.11nn WFi (80MHz, MCS6, 90pc duty cycle)	X	5.66	86.70	16,44	.Q.46	-130.0	19.5%
		Y	5.54	88.25	16.12		130,0	
10627-	IFFE ON A COUNTY OF THE PARTY O	12	5.47	86.84	16.16		130.0	1000
AAB	IEEE 802.11ab WFI (80MHz, MCS1, 90bb dufy cycle)	X	5.90	57.28	16,64	0.40	130,0	±9.6%
_		Y	5.79	86.84	16,38		130.0	
10628-	CEEE GOT 14 to HER COME 1 100	2	5,67	67.08	16.34		130.0	
AAB	(EEE 8027 113o W/ITI (80MHz, MCS2, 90bb duty cycle)	X.	5.73	56.91	16,42	0.46	130.0	106%
	-	Υ.	5.58	86.38	16.08		130.0	
10629-	THE AND NAME OF THE PARTY OF TH	12	5.49	66.66	18.06		130.0	
AAB	IEEE 802: \fac WiFI (BDMH2, MCS3, 90pc daily cycle)	×.	5.81	66.97	18.43	0.46	130.0	注印启标
-		-Y	5.67	66.48	18.18		130.0	
10400	vertex noted to complete country of the country of	1.2	5.56	66.69	16.07	200	130.0	
AAB	IEEE 882.1186 W/Fi (90MHz, MCE4. 90pc duty cycle)	18	6.26	08,50	17.18	0,46	130.0	± 9.6 %
		Y	5.18	BB 37	18,98		130.0	
10631-	Large and a street of the second	Z	5,83	67.70	16.58	1	130.0	
AAB	IEEE 802.11an WFI (80MHz, MCS5, 90pa duty cycle)	×	6.19	68.38	17.32	0.46	130.0	198%
		Y	8.03	67.83	18.99		130.0	
10683		Z	5.88	67.92	16.89	1	130.0	
AAB	EEE 802 11sc WiFi (80MHz MCS6) 900c duly cycle	X	5,89	67:37	16,63	0.46	130,0	#96 S
		1.30	5.75	86.88	16.53		130.0	
10833		12	5,87	67.23	16.57	1000	130.0	
AAH	IEEE 802 11sc WiFi (80MHz, MOS7, 80pc duty cycle)	X	5.81	67.14	18.55	0,46	130.0	±98%
		1/4	5.84	86.53	18.18		130.0	
A Confession	The state of the s	Z	5.57	66.88	18.21		130.0	
10834- AAE	BEEE 802,11ac WFI (BIIMHZ, MCS8, 90pc duty cycle)	×	5.79	67.15	16/62	0.48	130.0	主机放牧
		Y	5.83	66.56	16.26		130.0	
10635-	after one day there are all	- 2	5,56	66,95	16.31		130.0	
AAB	EEE 802.11ac WilFi (RIMHz, MC89, 90pc duty cycle)	X	0.68	88.88	16:03	0.48	130,0	±96%
		Y	5,52	65,92	15.67		130.0	
10836-	ISSE for the Williams	2	F.47	66.16	15.62		130.0	
AAC	IEEE BIO2 11ac WIFI (180MHz MCS), 90pc duty cycle)	×	6.07	67.13	18.52	9.46	1200.0	188%
		1 4	5.95	86:65	16.23		130.0	
10037	IDDE 000 standaling stress to the	2.1	5.87	68,97	16,23	-	130.0	
AAC	IEEE.802.11ac/WIFI (160MHz, MCS1, Blipc daty cycle)	X	6.23	fi7.50	16.68	9,48	130.0	±9.6%
		Y	5.11	67.04	15.40		130.0	-
10838-	SEE 960 the Okn Market 1000	Z	6.00	57.28	16.35		130.0	
AAG	REEE 802.11ac.WIFI (160MHz, MCS2, 90pc duty cycle)	×	6.23	67,47	16.65	0.48	130.0	108%
		Y	5.11	67.00	16.38		130 /	
		Z	8.04	67.28	16.34		130.0	

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MAC	JEEE BDZ 11ac WIFI (160MHz, MCS3, 90pc duty dycle)	X	6.25	67 A9	18.70	0,46	+110.0	±9.6%
		Y	6.09	66.87	16.39		130.0	
		Z.	6.00	67.25	16.37		130.0	1500
064U-	(FEE 802) (at WIFI (160MHz, MCS4, 90pc duty cycle)	×	8.25	87.50	16.67	11.46	130.0	= 9.6 %
		V.	6.41	67,01	16.35		130.0	
	The state of the s	1.2	5.99	67.21	16.29		130.0	1000
10641- AAC	SEE 802 11ac WiFi (160MHz, MCS5, 30pc cary cycle)	8	625	67.31	16.67	0.46	100.0	#85%
P 175		Y.	0.13	66.65	16.30		130.0	1
	Land out the same of the same	. Z	6.03	87.11	16.26		23D D	Laborator and
10642- AAC:	EEE 802,11ec WFI (160MHz, MCS6, 90pc duty cycle)	X	8.63	67,65	16.91	11.46	130.0	7.002
		Ψ.	0.16	67:13	16.60		130,0	
		Z	6.10	67.47	16.62		130.0	
10643- AAC	IEEE 807 11ac W.Fi (160MHz, MCS7 90pc duty cycle)	×	6.15	67:31	18:65	0.46	130.0	495
		- Y:	6.02	55.62	10.04		130.0	
400		- Z	5.91	67.06	16:30	-	120.0	
10614 AAC	IEEE 802 (196 WIFI (190MHz, MCS8) 90pc duty cycle)	×	8,35	87.00	16,98	0.46	130.0	T 3.0 M
		. 4	6.21	87.40	15.65		130.0	
TERTE		Z	6.05	H7 49	16.53	70.10	130.0	
10646- AAC	IEEE 802.11ac W.Fl. (160MHz, MCSo. 80pc duty cyde)	X	8.71	88.51	17.21	11.46	130.0	±965
		18	8.88	68,36	37.09		1500	
	Later Control of the	1.7	6.25	67.70	16.50	100	130.0	1000
10846- AAF	LTE-TOD (SC-FDMA, 1 RB, 5 MHz, OPSK, UL Subframe=2,7).	X	86,47	140.37	45.40	D:30	60,0	主印在 报
		Y.	39.84	122.44	40.63		60.0	
		7	18.19	1DA 43	33.83		60.0	
10647- AAF	LTE-TDD (SG-FDMA, 1 R8, 20 MHz. DPSK, UL Subframe 2.7)	X	80.45	139.77	45.45	9.30	80.0	± 9.6 9
		¥	36.72	121.04	40.88		60.0	
	A CONTRACTOR OF THE PARTY OF TH	2	36.41	102.96	33.52	-	60.0	1000
10648- AAA	COMA2000 (1st Advanced)	X	D.87	56.51	13.20	0.00	150.0	150.0
44.4		- Y	0.58	61.72	9.15		150 0	
4774	Secretary Commercial C	Z	0.69	54.60	11.24	and the same	150.0	100
10650: AAD	(TE-TDD (OFDMA & MHz E-TM 5.1 Olipping 44%)	Х	431	69.00	17.79	2.23	0,00	=86%
		Y	3.89	67.20	16.71		80.0	
		Z	16.E	E7, 10	16,29		90,0	
HD653- AAD	LTE-TDD (OFDMA 10 MHz, E-TM 3.1. Clipping 44%)	×	4.72	07,01	17.64	2.24	80,0	398%
		Y	4 40	BE 72	16.87		HD.D	
	Company of the Compan	2	4.16	60.48	10.48		80,0	1 000
10654- AAD	LTE-TDG (OFDMA: 15 MHz: E-TM 3.1 Clipping 44%)	X	4.64	67.52	17,60	2.25	80,0	1965
		Y	4.35	60.39	18.88		80.0	
de la mari	Name and address of the Parket	Z	6.15	65.16	26.50	8.05	80.0	- 80
10655- AAE	LTE-TDD (GFOMA, 20 MHz, E-TM 3.1. Olipping 44%)	×	4.69	67.54	17.64	2,23	60.0	29,6%
		¥	4.42	66.40	16.92		0.08	
Consider.	Policy Manager of control to a control	Z	4.19	66.14	16.53	10.00	800	+9.65
10658- AAA	Pulsa Weintform (200Hz, 10%)	8	100.00	116.60	30 15	10.00	122	4.0.0.2
		Y	27.27	97.34	24.81		50,0	
O manus	Half - Half - Land - Stephila - Holland	1 2	5.41	73/00	11.99	c no	60.0	1866
AAA	Falsa Waveform (200Hz, 20%)	8	100.00	114.08	97.78	6.90	C-15,011	10.64
		Y	100.00	111.99	26.70		00.00	
		7	5.06	74,90	14,50		90.0	

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EXSOVAL SN-3938

October 24, 2018

10660- AAA	Pulse Waveform (200Hz, 40%)	×	100.00	113.57	26.20	3.98	80.0	± 9.6 %
		Y	100.00	108.48	23.71		80.0	
		2	17.55	86.88	16.64		80.0	
10661- AAA	Pulse Waveform (200Hz, 60%)	X	100.00	116.76	26.28	2.22	100.0	± 9.6 %
		Y	100.00	105.43	21.11		100.0	
		Z	100.00	100.82	18.62		100.0	
10662- AAA	Pulse Waveform (200Hz, 80%)	×	100.00	127.89	28.96	0.97	120.0	± 9.6 %
		Y	3.43	74.94	10.68		120.0	
Market St.	DATACHO DATACHO -	Z.	100.00	98.67	16.42		120.0	
10670- AAA	Bluetooth Low Energy	×	100.00	117.22	26.83	2.19	100.0	±9.6 %
		Y	100:00	107.88	22.47		100.0	
		Z	100.00	104.58	20.49		100.0	

Uncertainty is determined using the max, deviation from linear response applying rectangular distribution and its expressed for the square of the

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8. Uncertainty Budget

Measurement Uncertainty evaluation template for DUT SAR test (3-6G)

A	С	D	е		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%	œ
Isotropy , Axial	3.50%	R	√3	1.732	1	1	2.02%	2.02%	8
Isotropy, Hemispherical	9.60%	R	√3	1.732	1	1	5.54%	5.54%	œ
Modulation Response	2.40%	R	√3	1.732	1	1	1.40%	1.40%	8
Boundary Effect	1.00%	R	√3	1.732	1	1	0.58%	0.58%	80
Linearity	4.70%	R	√3	1.732	1	1	2.71%	2.71%	80
Detection Limits	1.00%	R	√3	1.732	1	1	0.58%	0.58%	œ
Readout Electronics	0.30%	N	1	1	1	1	0.30%	0.30%	80
Response time	0.80%	R	√3	1.732	1	1	0.46%	0.46%	8
Integration Time	2.60%	R	√3	1.732	1	1	1.50%	1.50%	80
Measurement drift (class A evaluation)	1.75%	R	√3	1.732	1	1	1.01%	1.01%	80
RF ambient condition - noise	3.00%	R	√3	1.732	1	1	1.73%	1.73%	8
RF ambient conditions - reflections	3.00%	R	√3	1.732	1	1	1.73%	1.73%	80
Probe positioner Mechanical restrictions	0.40%	R	√3	1.732	1	1	0.23%	0.23%	80
Probe Positioning with respect to phantom	2.90%	R	√3	1.732	1	1	1.67%	1.67%	8
Post-processing	1.00%	R	√3	1.732	1	1	0.58%	0.58%	80
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.)	3.89%	N	1	1	0.64	0.43	2.49%	1.67%	М
Liquid Conductivity (mea.)	4.25%	N	1	1	0.6	0.49	2.55%	2.08%	М
Combined standard uncertainty		RSS					12.25%	12.01%	
Expant uncertainty (95% confidence							24.49%	24.02%	

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Measurement Uncertainty evaluation template for DUT SAR test (0.3-3G)

A	С	D	е		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%	∞
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.)	1.97%	N	1	1	0.64	0.43	1.26%	0.85%	М
Liquid Conductivity (mea.)	4.63%	N	1	1	0.6	0.49	2.78%	2.27%	М
Combined standard uncertainty		RSS					11.82%	11.66%	

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9. System Validation from Original Equipment Supplier

Calibration Laboratory of Schmid & Partner Engineering AG Zeughausstrasse 43, 8004 Zurich, Switzerland





Schweizenischer Kallbrierdienst Service suisso d'étalonnage C Servizio svizzero di taratura S **Swiss Calibration Service**

Accreditation No.: SCS 0108

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.

	Advisorable		
Object	D750V3 - SN:10	78	
Calibration procedure(s)	QA CAL-05.v10 Calibration proce	edure for dipole validation kits abo	ove 700 MHz
Calibration date:	June 20, 2018		
The measurements and the unce	ettanties with confidence p	ional standards, which realize the physical un vickebility are given on the following pages are ry facility: environment temperatuse (22 ± 31)	nd are part of the certificene
Calibration Equipment used (M8)	to critical for calibration)		
	(D a	Cal Date (Certificate No.)	Scheduled Carbon on
rimary Standards		Cal Date (Certificate No.) 04-Apr-18 (No. 217-02672/10673)	Scheduled Caronillon Apr-19
nimary Standards DWG moter NRP DWG sensor NRP-291	101		
nimery Standards bywer meter NRIP bywer sensor NRIP-291 bywer sensor NRIP-291	8N: 104778 SN: 103244 SN: 103245	04-Apr-18 (No. 217-02672/09673)	Apr-18
Primary Standards Power meter NRP Power sensor NRP-Z91 Power sensor NRP-Z91 Reference 20 dB Altenuator	ID 8 SN: 104778 SN: 103244 SN: 103245 SN: 5058 (20x)	04-Apr-18 (No. 217-02672/09673) 04-Apr-18 (No. 217-02672)	Apr-19 Apr-19
Primary Standards Power mater NEPP Power sensor NEPP-Z91 Power sensor NEPP-Z91 Reference 20 dB Attenuator Type-N mismatch combination	ID 8 SN: 104778 SN: 103244 SN: 103245 SN: 5058 (20x) SN: 5047.2 / 06327	04-Apr-18 (No. 217-02872/00673) 04-Apr-18 (No. 217-02672) 04-Apr-18 (No. 217-02673)	Apr-18 Apr-19 Apr-19
Primary Standards Power meter NRP Power sensor NRP-Z91 Power sensor NRP-Z91 Reference 20 dB Attenuator Type-N mismatch combination Reference Probe EX3DV4	SN: 104778 SN: 103244 SN: 103245 SN: 103245 SN: 5058 (20x) SN: 5047.2 / 06327 SN: 7348	04-Apr-16 (No. 217-02672/02673) 04-Apr-16 (No. 217-02672) 04-Apr-16 (No. 217-02673) 04-Apr-16 (No. 217-02682) 04-Apr-18 (No. 217-02683) 30-0e-37 (No. EX3-7349, Dec) 7/	Apr-18 Apr-19 Apr-19 Apr-19
Primary Standards Power meter NRP Power sensor NRP-Z91 Power sensor NRP-Z91 Reference 20 dB Attenuator Type-N mismatch combination Reference Probe EX3DV4	ID 8 SN: 104778 SN: 103244 SN: 103245 SN: 5058 (20x) SN: 5047.2 / 06327	04-Apr:18 (No. 217-02672/02673) 04-Apr:18 (No. 217-02672) 04-Apr:18 (No. 217-02673) 04-Apr:18 (No. 217-02683) 04-Apr:18 (No. 217-02683)	Apr-19 Apr-19 Apr-19 Apr-19
Primary Standards Power meter NRP-Zet Power sensor NRP-Zet Primar sensor NRP-Zet Reference 20 dB Altenuator Type-N mismatch combination Reference Probe EX3DV4 DAE4 Secondary Standards	ID 8 SN: 104778 SN: 103244 SN: 103245 SN: 5058 (208) SN: 5047.2 / 06327 SN: 7348 SN: 801	04-Apr:18 (No. 217-02672/02673) 04-Apr:18 (No. 217-02672) 04-Apr:18 (No. 217-02673) 04-Apr:18 (No. 217-02683) 04-Apr:18 (No. 217-02683) 30-06c-37 (No. EXS-7349, Dect 7) 26-Cet-17 (No. DAE4-001_Oct17) Check Date (imhouse)	Apr-19 Apr-19 Apr-19 Apr-19 Dec-18
Primary Standards Power meter NRP Power sensor NRP-Z91 Power sensor NRP-Z91 Reference 20 dB Attenuator Type-N mismatch combination Reference Probe EX3DV4 DAE4 Secondary Standards Power meter EPM-442A	50 8 \$N: 104778 \$N: 103245 \$N: 103245 \$N: 5058 (20x) \$N: 5047.2 / 06327 \$N: 7348 \$N: 801 (D a \$N: GB37480704	04-Apr-18 (No. 217-02672/02673) 04-Apr-18 (No. 217-02672) 04-Apr-18 (No. 217-02673) 04-Apr-18 (No. 217-02682) D4-Apr-18 (No. 217-02683) 30 Dec-17 (No. EX3-7349, Dec) 7/ 26-Ce) 17 (No. DAE4-001, Oct 17) Check Date (in house)	Apr-19 Apr-19 Apr-19 Apr-19 Doc-18 Oct-18 Schedulad Check
Primary Standards Power meter NRP Power sensor NRP-Z91 Power sensor NRP-Z91 Reference 20 dB Altenuator Type-N mismatch combination Reference Probe EX3DV4 DAE4 Secondary Standards Power meter EPM-442A Power sensor HP 8481A	ID 8 SN: 104778 SN: 103244 SN: 103245 SN: 5058 (20x) SN: 5057.2 / 06327 SN: 7057 SN: 7057 SN: 7057 SN: GB37480704 SN: GB37480704 SN: US37292783	04-Act-16 (No. 217-02672/02673) 04-Act-16 (No. 217-02672) 04-Act-18 (No. 217-02673) 04-Act-18 (No. 217-02682) 04-Act-18 (No. 217-02682) 04-Act-18 (No. 217-02683) 30-Dec-17 (No. EX3-7349, Dec) 7/ 26-Cet-17 (No. DAE4-001, Oct17) Check Date (in house) 07-Oct-15 (in house check Oct-16) 07-Oct-15 (in house check Oct-18)	April 19 April 19 April 19 April 19 April 19 Decil 18 Octil 18 Schedulad Check In house check; Octil 18
Primary Standards Prover meter NRP Prover sensor NRP-291 Prover sensor NRP-291 Reference 20 dB Attenuator Type-N mismatch combination Reference Probe EX3DV4 DAE4 Secondary Standards Prover sensor HP 9461A Prover sensor HP 9461A	ID 8 SN: 104778 SN: 103244 SN: 103245 SN: 5058 (20x) SN: 5058 (20x) SN: 7048 SN: 7049 SN: GB37480704 SN: US37292783 SN: MY41092317	04-Acu-18 (No. 217-02672/02673) 04-Acu-18 (No. 217-02672) 04-Acu-18 (No. 217-02673) 04-Acu-18 (No. 217-02683) 04-Acu-18 (No. 217-02683) 04-Acu-18 (No. 217-02683) 04-0c-17 (No. DAE4-001, Oct17) Check Date (in house) 07-Oct-15 (in house check Oct-18) 07-Oct-15 (in house check Oct-18)	Apr-19 Apr-19 Apr-19 Apr-19 Apr-19 Doc-18 Oct-18 Schedulad Check In house check: Oct-18 In house check: Oct-18
Primary Standards Prower sensor NRP-Z91 Primar sensor NRP-Z91 Primar sensor NRP-Z91 Reference 20 dB Altenuation type-N mismatch combination Reference Probe EX3DV4 DAE4 Secondary Standards Prower sensor HP 3481 A Prower sensor HP 3481 A RE generator R&S SMT-OS	ID 8 SN: 104778 SN: 103244 SN: 103245 SN: 5058 (20x) SN: 5047.2 / 06327 SN: 7348 SN: 601 ID 8 SN: GB37480704 SN: US37292783 SN: MY41092317 SN: 100972	04-Acc+18 (No. 217-02672/02673) 04-Agc+18 (No. 217-02672) 04-Agc+18 (No. 217-02673) 04-Agc+18 (No. 217-02683) 04-Acc+18 (No. 217-02683) 00-0c-17 (No. EXS-7349, Dect 17) 26-Cet+17 (No. DAE4-001, Oct 17) Check Date (imhouse) 07-Oct+15 (inhouse check Oct+18) 07-Oct+15 (inhouse check Oct+18) 17-Oct+15 (inhouse check Oct+18) 16-oun-15 (inhouse check Oct+18)	Apr-19 Apr-19 Apr-19 Apr-19 Dec-18 Oct-18 Schedulad Check In house check: Oct-18 In house check: Oct-18 In house check: Oct-18
Primary Standards Power meter NRP Power sensor NRP-Z91 Power sensor NRP-Z91 Reference 20 dB Altenuator Type-N mismatch combination Reference Probe EX3DV4 DAE4 Secondary Standards Power sensor HP 9481A Power sensor HP 9481A RE generator R&S SMT-OS	ID 8 SN: 104778 SN: 103244 SN: 103245 SN: 5058 (20x) SN: 5058 (20x) SN: 7048 SN: 7049 SN: GB37480704 SN: US37292783 SN: MY41092317	04-Acu-18 (No. 217-02672/02673) 04-Acu-18 (No. 217-02672) 04-Acu-18 (No. 217-02673) 04-Acu-18 (No. 217-02683) 04-Acu-18 (No. 217-02683) 04-Acu-18 (No. 217-02683) 04-0c-17 (No. DAE4-001, Oct17) Check Date (in house) 07-Oct-15 (in house check Oct-18) 07-Oct-15 (in house check Oct-18)	Apr-19 Apr-19 Apr-19 Apr-19 Dec-18 Oct-18 Schedulad Check In house check: Oct-18 In house check: Oct-18 In house check: Oct-18
Primary Standards Power meter NRP Power sensor NRP-Z91 Power sensor NRP-Z91 Reference 20 dB Altenuator Type-N mismatch combination Reference Probe EX3DV4 DAE4 Secondary Standards Power meter EPM-442A Power sensor HP 8481A	ID 8 SN: 104778 SN: 103244 SN: 103245 SN: 5058 (20x) SN: 5047.2 / 06327 SN: 7348 SN: 601 ID 8 SN: GB37480704 SN: US37292783 SN: MY41092317 SN: 100972	04-Acc+18 (No. 217-02672/02673) 04-Agc+18 (No. 217-02672) 04-Agc+18 (No. 217-02673) 04-Agc+18 (No. 217-02683) 04-Acc+18 (No. 217-02683) 00-0c-17 (No. EXS-7349, Dect 17) 26-Cet+17 (No. DAE4-001, Oct 17) Check Date (imhouse) 07-Oct+15 (inhouse check Oct+18) 07-Oct+15 (inhouse check Oct+18) 17-Oct+15 (inhouse check Oct+18) 16-oun-15 (inhouse check Oct+18)	Apr-19 Apr-19 Apr-19 Apr-19 Apr-19 Occ-18 Oct-18
Primary Standards Power meter NRP Power sensor NRP-Ze1 Power sensor NRP-Ze1 Reference 20 dB Altenuator Type-N mismatch combination Reference Probe EX3DV4 DAE4 Secondary Standards Power sensor HP 9481A Power sensor HP 9481A RE generator R&S SMT-OS	ID 8 SN: 104778 SN: 103245 SN: 103245 SN: 5058 (20x) SN: 5058 (20x) SN: 5047.2 / 06327 SN: 801 ID 8 SN: GB37480704 SN: US37292783 SN: MY41092317 SN: 100972 SN: US37390525	04-Apr-18 (No. 217-02672/02673) 04-Apr-18 (No. 217-02672) 04-Apr-18 (No. 217-02673) 04-Apr-18 (No. 217-02673) 04-Apr-18 (No. 217-02682) 04-Apr-18 (No. 217-02683) 30-Dec-17 (No. EX3-7349, Dec) 7/ 26-Cet-17 (No. DAE4-601, Oct 17) Check Date (in house) 07-Cet-15 (in house check Oct-18) 07-Cet-15 (in house check Oct-18) 16-Cet-01 (in house check Oct-16) 16-Cet-01 (in house check Oct-17)	Apr-19 Apr-19 Apr-19 Apr-19 Dec-18 Oct-18 Schedulad Check In house check: Oct-18 In house check: Oct-18 In house check: Oct-18 In house check: Oct-18

Certificate No: D750V3-1078_Jun18

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Calibration Laboratory of Schmid & Partner

Engineering AG 43, 8904 Zurich, Switzerland





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Glossary:

TSL fissue simulating liquid

ConvF sensitivity in TSL / NORM x,y,z N/A not applicable or not measured

Calibration is Performed According to the Following Standards:

- a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques', June 2013
- b) IEC 62209-1, "Measurement procedure for the assessment of Specific Absorption Plate. (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)". July 2016
- c) IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless. communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)". March 2010
- d) KDB 865664, SAR Measurement Requirements for 100 MHz to 6 GHz

Additional Documentation:

DASY4/5 System Handbook.

Methods Applied and Interpretation of Parameters:

- Measurement Conditions: Further details are available from the Validation Report at the end. of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL. The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented. parallel to the body axis.
- Feed Point Impedance and Return Loss: These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- Electrical Delay: One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- SAR measured: SAR measured at the stated antenna input power.
- SAR normalized: SAR as measured, normalized to an input power of 1 W at the antenna connector.
- SAR for nominal TSL parameters: The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%

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Measurement Conditions

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

DASY5	V52.10.1
Advanced Extrapolation	
Modular Flat Phantom	
15 mm	with Spacer
dx, dy, dz = 5 mm	
750 MHz ± 1 MHz	
	Advanced Extrapolation Modular Flat Phantom 15 mm dx, dy, dz = 5 mm

Head TSL parameters

rs and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	41.9	0.89 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	40.9 ± 6 %	0.90 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C		

SAR result with Head TSL

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.09 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	8.25 W/kg ± 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.36 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	5.38 W/kg ± 16.5 % (k=2)

Body TSL parameters

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	55.5	0.96 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	55.2 ± 6 %	0.96 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C		

SAR result with Body TSL

SAR averaged over 1 cm ² (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	2.16 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	8.63 W/kg ± 17.0 % (k=2)

SAR averaged over 10 cm ² (10 g) of Body TSL	condition	
SAR measured	250 mW input power	1.43 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	5.72 W/kg ± 16.5 % (k=2)

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Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	55.8 Ω + 0.8 jΩ
Return Loss	- 25.3 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	50.5 Ω - 3.3 jΩ
Return Loss	- 29.5 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.038 ns

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	November 15, 2012

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DASY5 Validation Report for Head TSL

Date: 14.06.2018

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 750 MHz; Type: D750V3; Serial: D750V3 - SN:1078

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

Medium parameters used: f = 750 MHz; $\sigma = 0.9 \text{ S/m}$; $\varepsilon_r = 40.9$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

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

DASY52 Configuration:

dB

-2.00 4.00 6.00 H.000 10.00

- Probe: EX3DV4 SN7349; ConvF(10.22, 10.22, 10.22) @ 750 MHz; Calibrated; 30.12.2017
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 26.10.2017
- Phantom: Flat Phantom 4.9 (front); Type: QD 00L P49 AA; Serial: 1001
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

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

Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 59.18 V/m; Power Drift = -0.01 dB Peak SAR (extrapolated) = 3.13 W/kg

SAR(1 g) = 2.09 W/kg; SAR(10 g) = 1.36 W/kg

Maximum value of SAR (measured) = 2.79 W/kg



0 dB = 2.79 W/kg = 4.46 dBW/kg

Certificate No: D750V3-1078 Jun 18

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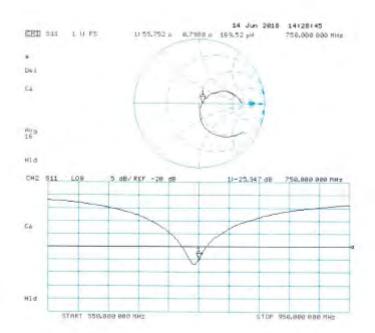
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Impedance Measurement Plot for Head TSL



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DASY5 Validation Report for Body TSL

Date: 20.06.2018

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 750 MHz; Type: D750V3; Serial: D750V3 - SN:1078

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

Medium parameters used: f = 750 MHz; $\sigma = 0.96$ S/m; $\varepsilon_r = 55.2$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY52 Configuration:

- Probe: EX3DV4 SN7349; ConvF(10.19, 10.19, 10.19) @ 750 MHz; Calibrated: 30.12.2017
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 26.10.2017
- Phantom: Flat Phantom 4.9 (Back); Type: QD 00R P49 AA; Serial: 1005
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

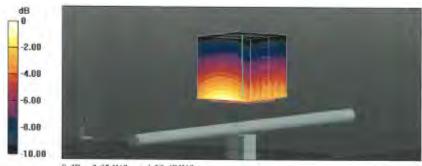
Dipole Calibration for Body Tissue/Pin=250 mW, d=15mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 57.54 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 3.18 W/kg

SAR(1 g) = 2.16 W/kg; SAR(10 g) = 1.43 W/kg

Maximum value of SAR (measured) = 2,85 W/kg



0 dB = 2.85 W/kg = 4.55 dBW/kg

Certificate No: D750V3-1078_Jun18

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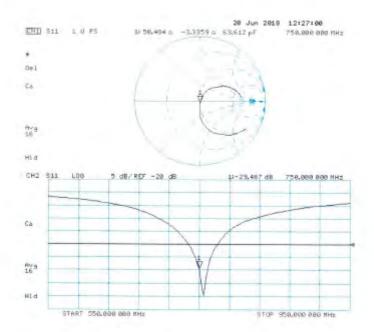
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Impedance Measurement Plot for Body TSL



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Certificate No: D835V2-4d120_Jun18

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Calibration Laboratory of Schmid & Partner

Engineering AG Youghousstrasse 43, ISSM Zurich, Switzenland





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Swiss Calibration Service

Accresisation No.: SCS 0108

Accommon by the Swiss Accommon Service (SAS)

The Swiss Accorditation Service is one of the alignaturies to the EA Multilateral Agreement for the recognision of calibration certificates.

Glossary:

TSL tissue simulating liquid
ConvF sensitivity in TSL / NORM x.y.,2
N/A not applicable or not measured

Calibration is Performed According to the Following Standards:

- IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
- iEC 62209-1, "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
- 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 5 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 uncortainty 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%.

Gertdicate No. D805V2-4d120_Jun18

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Measurement Conditions

DASY Version	DASY5	V52.10.1
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	15 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	835 MHz ± 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	40.7 ± 6 %	0.93 mha/m ± 6 %
Head TSL temperature change during test	< 0.5 °C		

SAR result with Head TSL

SAR averaged over 1 cm3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.41 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	9.37 W/kg ± 17.0 % (k=2)

SAR averaged over 10 cm3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.55 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	6.06 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	55.0 ± 6 %	0.99 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	2.46 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	9.68 W/kg ± 17.0 % (k=2)

SAR averaged over 10 cm3 (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	6.36 W/kg ± 16.5 % (k=2)

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Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	51.5 Ω - 3.1 jΩ
Return Loss	- 29.3 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	48.3 Ω - 5.8 jΩ
Return Loss	- 24.3 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.396 ns

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG	
Manufactured on	June 29, 2010	

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DASY5 Validation Report for Head TSL

Date: 20.06.2018

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:4d120

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

Medium parameters used: f = 835 MHz; $\sigma = 0.93$ S/m; $\varepsilon_r = 40.7$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

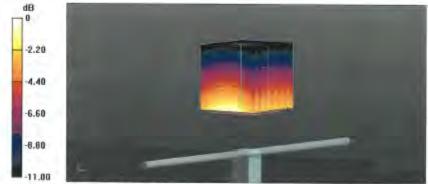
DASY52 Configuration:

- Probe: EX3DV4 SN7349; ConvF(9.9, 9.9, 9.9) @ 835 MHz; Calibrated: 30.12,2017
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 26.10,2017
- Phantom: Flat Phantom 4.9 (front): Type: QD 00L P49 AA; Serial: 1001
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

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

Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 62,60 V/m; Power Drift = -0.02 dB Peak SAR (extrapolated) = 3.71 W/kg

SAR(1 g) = 2.41 W/kg; SAR(10 g) = 1.55 W/kgMaximum value of SAR (measured) = 3.27 W/kg



0 dB = 3.27 W/kg = 5.15 dBW/kg

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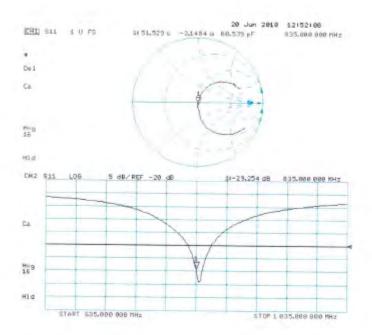
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Impedance Measurement Plot for Head TSL



Certificate No: D835V2-4d120_Jun18

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DASY5 Validation Report for Body TSL

Date: 20.06.2018

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:4d120

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

Medium parameters used: f = 835 MHz; $\sigma = 0.99$ S/m; $\varepsilon_n = 55$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63_19-2011)

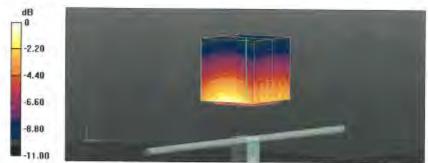
DASY52 Configuration:

- Probe: EX3DV4 SN7349; ConvF(10.05, 10.05, 10.05) @ 835 MHz; Calibrated: 30.12.2017
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 26.10.2017
- Phantom: Flat Phantom 4.9 (Back); Type: QD 00R P49 AA; Serial: 1005
- DASY52 52,10.1(1476); SEMCAD X 14.6.11(7439)

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

Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 61.00 V/m; Power Drift = -0.02 dB Peak SAR (extrapolated) = 3.66 W/kg

SAR(1 g) = 2.46 W/kg; SAR(10 g) = 1.61 W/kgMaximum value of SAR (measured) = 3.28 W/kg



0 dB = 3.28 W/kg = 5.16 dBW/kg

Certificate No: D835V2-4d120_Jun18

Page 7 of 8

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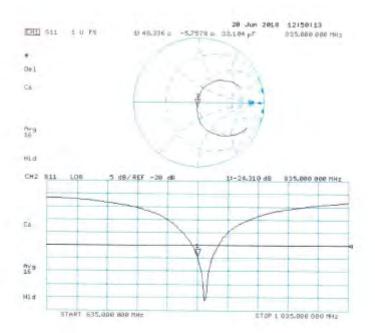
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Impedance Measurement Plot for Body TSL



Certificate No: D835V2-4d120_Jun18

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Calibration Laboratory of Schmid & Partner Engineering AG Zeughausstrasse 43, 8004 Zurich. Switzerland





Accreditation No.: SCS 0108

Accredited by the Swiss Accorditation Service (SAS) The Swiss Accreditation Service is one of the signatories to the EA Multituteral Agreement for the recognition of calibration certificates

Auden

Certificate No: D1750V2-1023_Jun18

	CERTIFICATI	-	
Object	D1750V2 - SN:1023		
Calibration procedure(s)	QA CAL-05.v10 Calibration proces	edure for dipole validation kits abo	nuo 700 MHz
		The second second second	575 7 GO 1181E
Caleration date:	June 11, 2018		
The measurements and the unco	ortamics with confidence p	to oal standards, which makes the physical un probability are given on the following pages are my bod by, providentable temperature ($82 \pm 3)$	of are part of the certificate.
Calibration Equipment used (NS	TE ortical for calibration)		
Primary Standards	(D.a.	Cel Date (Certificate No.	Scheduled Carprahin
Power meter NRF	SN: 104778	04-Apr-18 (No. 217-02672/02673)	Apri-19
Power sensor NRP-Z91	SN: 103244	04-Apr-18 (No. 217-02672)	Apr-19
Power sensor NRP-291	SN: 103245	04-Apr-18 (No. 217 02673)	Apr-19
Eswer sensor rithmizar	SN: 5058 (20k)	04-Apr-18 (No. 217-02682)	Aprita
Reference 20 dB Attenuator			
Reference 20 dB Attenuator Type-N mismatch combination	SN: 5047.2 / 06327	04-Apr-18 (No. 217-02660)	Apr-19
Fleterence 20 dB Attenuator Type-N mismatch combination Reterence Probe EX3DV4	SN: 5047.2 / 06327 SN: 7349	04-Apr-18 (No. 217-02660) 30-Dec-17 (No. EX3-7349_Dec17)	Apr-19 Dec-18
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Fleterence 20 dB Attenuator Type-N mismatch combination Reterence Probe EX3DV4	SN: 7349	30-Dec-17 (No. EX3-7349_Dec17)	Dec-18
Reference 20 dB Attenuator Type-N mismatch combination Reference Probe EX30v4 DAE4 Secondary Standards Power meter EPM-442A	SN: 7349 SN: 601	30-04c-17 (No. EX3-7349_Dec17) 26-Oct-17 (No. DAE4-601_Oct17)	Dec-18 Oct-16
Reference 20 dB Attenuator Type-N mismatch combination Reference Probe EX3DV4 DAE4 Secondary Standards Power meter EPM-442A Power sensor HP 8481A	SN: 7349 SN: 601 ID # SN: GB37480704 SN: US37292763	30-Dec-17 (No. EX3-7349_Dec17) 26-Oct-17 (No. DAE4-601_Dct17) Check Daise (in house)	Dec-18 Oct-16 Scheduled Check
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Reference 20 dB Attanuator Type-N mismatch combination Reference Probe EX3DV4 DAE4 Secondary Standards Power meter EPM-442A Power sensor HP 8481A RF generator R&S SNT-06	SN: 7349 SN: 601 ID # SN: GB37480704 SN: US37292763 SN: MY41092317	30-Dec-17 (No. EX3-7349_Dec17) 26-Oct-17 (No. DAE4-601_Oct17) Check Date (in house) 07-Oct-16 (in house check Oct-16) 07-Oct-15 (in house check Oct-16) 07-Oct-15 (in house check Oct-16)	Dec-18 Oct-18 Scheduled Check In house check, Oct-18 In house check, Oct-18 In house check, Oct-18 In house check, Oct-18
Reference 20 dB Attenuator Type-N mismatch combination Reference Probe EX3DV4 DAE4 Secondary Standards Power meter EPM-442A Power sensor HP 8481A	SN: 7349 SN: 601 ID # SN: GB37480704 SN: US37292763 SN: MY\$1092317 SN: 100972	30-Dec-17 (No. EX3-7349_Dec17) 26-Oct-17 (No. DAE4-601_Oct17) Check Date (in house) 07-Oct-15 (in house check Oct-16) 07-Oct-15 (in house check Oct-16) 07-Oct-15 (in house check Oct-16) 15-Jun-15 (in house check Oct-16)	Dec-18 Oct-16 Scheduled Check In Youse check Oct-18 In Youse check Oct-18
Reference 20 dB Attanuator Type-N mismatch combination Reference Probe EX3DV4 DAE4 Secondary Standards Power meter EPM-442A Power sensor HP 8481A RF generator R&S SMT-06	SN: 7349 SN: 601 ID # SN: GB37480704 SN: US37292763 SN: MY\$1692317 SN: 100972 SN: US37290585	30-Dec-17 (No. EX3-7349_Dec17) 26-Oct-17 (No. DAE4-601_Oct17) Check Date (in house) 07-Oct-15 (in house check Oct-16) 07-Oct-15 (in house check Oct-16) 07-Oct-15 (in house check Oct-16) 15-Jun-15 (in house check Oct-16) 18-Oct-11 (in house check Oct-17)	Dac-18 Oct-16 Scheduled Chack In fouse afteck Oct-16
Reference 20 dB Attanuator Type-N mismatch combination Reference Probe EX3DV4 DAE4 Secondary Standards Power meter EPM-442A Power secsor HP 8481A Power secsor HP 8481A RF generator R&S SMT-08 Network Analyzer HP 8750E Celebrated by:	SN: 7349 SN: 601 ID # SN: GB37480704 SN: US37292763 SN: US37292763 SN: US37390585 Name	30-Dec-17 (No. EX3-7349_Dec17) 26-Oct-17 (No. DAE4-601_Oct17) Check Date (in house) 07-Oct-15 (in house check Oct-16) 07-Oct-15 (in house check Oct-16) 07-Oct-15 (in house check Oct-16) 15-Jun-15 (in house check Oct-16) 18-Oct-01 (in house check Oct-17) Function Laboratory Technician	Dac-18 Oct-16 Scheduled Chack In fouse afteck Oct-16
Reference 20 dB Attanuator Type-N mismatch combination Platesance Probe EX3DV4 DAE4 DAE4 Secondary Standards Power meter EPM-442A Power sensor HP 8481A Power sensor HP 8481A RF generator R&S SMT-09 Network Analyzer HP 875XE	SN: 7349 SN: 601 ID # SN: GB\$7480704 SN: US37292763 SN: MY41092317 SN: 100872 SN: US37390585	30-Dec-17 (No. EX3-7349_Dec17) 26-Oct-17 (No. DAE4-601_Oct17) Check Date (in house) 07-Oct-15 (in house check Oct-16) 07-Oct-15 (in house check Oct-16) 07-Oct-15 (in house check Oct-16) 15-Jun-15 (in house check Oct-16) 18-Oct-11 (in house check Oct-17)	Dec-18 Oct-16 Scheduled Chack In flouse check: Oct-16

Certificate No: D1750V2-1023 Jun 18

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Calibration Laboratory of Schmid & Partner Engineering AG 53 0004 Zurich, Switterland





Schweizerischer Kalifiriefdienst Service surps d'étalonnage C Servizio svizzero di termura Swiss Calibration Service

Attraction No.: SCS 0108

According by the Swise Accomplished Survey (SAS)

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Glossary:

TSL tissue simulating liquid ConvF sensitivity in TSL / NORM x,v,z not applicable or not measured

Calibration is Performed According to the Following Standards:

- a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
- b) IEC 62209-1, "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
- c) IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30. MHz to 6 GHz)", March 2010
- d) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

e) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- Measurement Conditions: Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL: The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- Feed Point Impedance and Return Loss: These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- Electrical Delay. One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- SAR measured: SAR measured at the stated antenna input power,
- SAR normalized: SAR as measured, normalized to an input power of 1 W at the antenna connector
- SAR for nominal TSL parameters: The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

Certificate No: D1750V2-1000 Jun 18

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Measurement Conditions

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

DASY Version	DASY5	V52.10.1
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	1750 MHz ± 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	39.0 ± 6 %	1.36 mha/m ± 6 %
Head TSL temperature change during test	< 0.5 °C		

SAR result with Head TSL

SAR averaged over 1 cm3 (1 g) of Head TSL	Condition		
SAR measured	250 mW input power	9.10 W/kg	
SAR for nominal Head TSL parameters	normalized to 1W	36.3 W/kg ± 17.0 % (k=2)	

SAR averaged over 10 cm3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	4.82 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	19.3 W/kg ± 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	53.6 ± 6 %	1.47 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	****	

SAR result with Body TSL

SAR averaged over 1 cm3 (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	9.12 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	36.8 W/kg ± 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	4.90 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	19.7 W/kg ± 16.5 % (k=2)

Certificate No: D1750V2-1023 Jun18

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Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	51.0 Ω - 0.5 jΩ
Return Loss	- 39.1 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	46.0 Ω + 0.3 jΩ
Return Loss	- 27.5 dBl

General Antenna Parameters and Design

Electrical Delay (one direction)	4.047
Electrical Delay (one direction)	1.217 ns

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	August 20, 2009

Certificate No: D1750V2-1023_Jun18

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DASY5 Validation Report for Head TSL

Date: 11.06.2018

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1750 MHz; Type: D1750V2; Serial: D1750V2 - SN:1023

Communication System: UID 0 - CW; Frequency: 1750 MHz

Medium parameters used: f = 1750 MHz; $\sigma = 1.36 \text{ S/m}$; $\epsilon_r = 39$; $p = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

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

DASY52 Configuration:

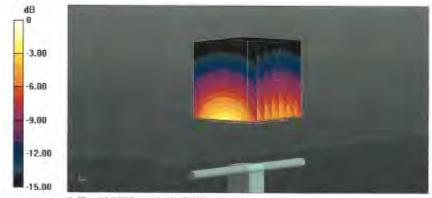
- Probe: EX3DV4 SN7349; ConvF(8.5, 8.5, 8.5) @ 1750 MHz; Calibrated: 30.12.2017
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 26.10.2017
- Phantom: Flat Phantom 5.0 (front); Type: QD 000 P50 AA; Serial: 1001
- DASY52 52:10.1(1476); SEMCAD X 14.6.11(7439)

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

Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 106.5 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 16.5 W/kg

SAR(1 g) = 9.1 W/kg; SAR(10 g) = 4.82 W/kgMaximum value of SAR (measured) = 14.0 W/kg



0 dB = 14.0 W/kg = 11.46 dBW/kg

Certificate No. D1750V2-1023_Jun18

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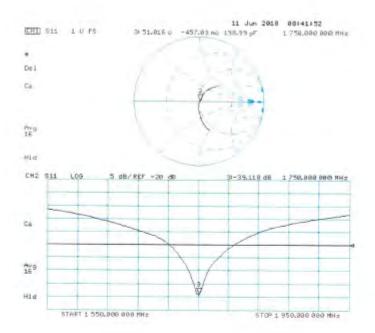
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Impedance Measurement Plot for Head TSL



Certificate No: D1750V2-1023 Jun 18

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DASY5 Validation Report for Body TSL

Date: 11.06.2018

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1750 MHz; Type: D1750V2; Serial: D1750V2 - SN:1023

Communication System: UID 0 - CW; Frequency: 1750 MHz

Medium parameters used: f = 1750 MHz; $\sigma = 1.47 \text{ S/m}$; $\epsilon_r = 53.6$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

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

DASY52 Configuration:

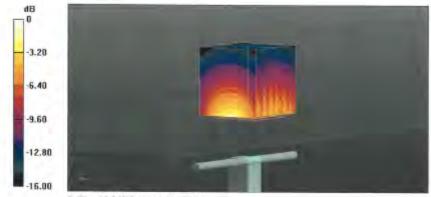
- Probe: EX3DV4 SN7349; ConvF(8.35, 8.35, 8.35) @ 1750 MHz; Calibrated: 30.12.2017
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 26.10.2017
- Phantom: Flat Phantom 5.0 (back); Type: QD 000 P50 AA; Serial: 1002
- DASY52 52:10.1(1476); SEMCAD X 14.6.11(7439)

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

Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 102.3 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 15.8 W/kg SAR(1 g) = 9.12 W/kg; SAR(10 g) = 4.9 W/kg

Maximum value of SAR (measured) = 13.5 W/kg



0 dB = 13.5 W/kg = 11.30 dBW/kg

Certificate No: D1750V2-1023_Jun18

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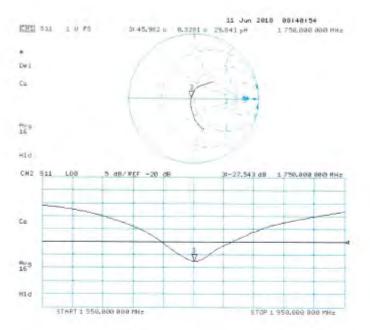
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Impedance Measurement Plot for Body TSL



Certificate No: D1750V2-1023_Jun18

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Calibration Laboratory of Schmid & Partner Engineering AG Zeughausstrasse 43, 8004 Zurich, Switzerland

Accreding by the Swiss Accreditation Service (SAS)





Schweizerischer Kalibrierdienst Service suisse d'étalonnage Servizio svizzero di taratura **Swiss Calibration Service**

Accreditation No. SCS 0108

The Swiss Accreditation Service is one of the signaturies to the EA Multilateral Agreement for the recognition of calibration certificates

CALIBRATION C	CHI IOAT		
Object	D1900V2 - SN:5	d173	
Contration procedure(s)	QA CAL-05,v10	edure for dipole validation kits abo	
	Calibration proce	ours for dipole validation kits app	ove 700 MHz
Colibration date:	April 25, 2018		
This calibration partitionte document	ents the traceability to not	lorel standards, which realize the physical ur	nts of measuraments (SI),
		robability are given on the following pages ar	
all calibrations have been conduc-	cied in the closed laborate	ry facility: environment temperature (22 ± 3)1	C and humidity < 70%
Calibration Equipment used (M87	TE colical for cultivation)		
Calibration Equipment used (M&T	TE entical for cultimation)	Cal Date (Certificate No.)	Schedulet Calibration
		Cat Date (Certificate No.) 04 Apr-18 (No. 217-08572/02673)	Schedulet Carbonium
Primary Standards	10 4		
Primery Standards Cover mater NRP Cover sensor NRP-291	ID 8 SN: 104776	04-Apr-18 (No. 217-02672/02673)	Apr-19 Apr-19
Primary Standards	ID # SN: 104776 SN: 103244	04-Apr-18 (No. 217-02672/02673) 04-Apr-18 (No. 217-02672)	Apr-19 Apr-19 Apr-19
rimary Standards Green meter NRP Ower sensor NRP-291 Defenance 20 dB Attenuator	ID 8 SN: 104776 SN: 103244 SN 103245	04-Apr-18 (No. 217-06672/02675) 04-Apr-18 (No. 217-02672) 04-Apr-18 (No. 217-02673)	Apr-19 Apr-19
Primary Standards Ower sensor NRP-Z91 Ower sensor NRP-Z91 Oelerance 20 d3 Altenuator Ope-N mismatch combination	ID 8 SN: 104778 SN: 103244 SN: 103245 SN: 5068 (20k)	04-Apr-18 (No. 217-08572/02673) 04-Apr-18 (No. 217-02672) 04-Apr-16 (No. 217-02573) 04-Apr-18 (No. 217-02582)	Apr-19 Apr-19 Apr-19 Apr-19
Primary Standards Power meter NRP Power sensor NRP-291 Power sensor NRP-291	ID 8 SN: 104775 SN: 103244 SN: 103245 SN: 5068 (20k) SN: 5067.2 / 06927	04-Apr-18 (No. 217-02672/02673) 04-Apr-18 (No. 217-02672) 04-Apr-18 (No. 217-02673) 04-Apr-18 (No. 217-02682) 04-Apr-18 (No. 217-02683)	Арт-19 Арт-19 Арт-19 Арт-19 Арт-19
Primary Standards Power sensor NRP-Z91 Cower sensor NRP-Z91 Selerance 20 dB Attenuator Type-N interested combination Telerance Probe EX3DV4 AAE4 Secondary Standards	ID 4 SN: 104776 SN: 103244 SN: 103245 SN: 5068 (20k) SN: 5067.2 / 06327 SN: 7348 SN: 601	04-Apr-18 (No. 217-02672/02673) 04-Apr-18 (No. 217-02672) 06-Apr-18 (No. 217-02673) 06-Apr-18 (No. 217-02682) 06-Apr-18 (No. 217-02683) 30-Dac-17 (No. EXS-7349 Dec17)	Apr-19 Apr-19 Apr-19 Apr-19 Apr-19 Dec-18
Primary Standards Ower sensor NRP-Z91 Ower sensor NRP-Z91 Pelerance 20 dB Attenuator Type-N mismatch combination feterance Probe EX3DV4 DAE4 Secondary Standards Ower moter EPM-442A	ID # SN: 104776 SN: 103244 SN: 103245 SN: 5064 (20k) SN: 5047.2 / 06327 SN: 7349 SN: 801	04-Apr-18 (No. 217-02672/02673) 04-Apr-18 (No. 217-02672) 04-Apr-18 (No. 217-02673) 04-Apr-18 (No. 217-02682) 04-Apr-18 (No. 217-02683) 30-Dac-17 (No. EXS-7349, Dec17) 28-Ost-17 (No. DAE4-601_Oct17) Check Date (in house) 07-Oct-15 (in house)	Apr-19 Apr-19 Apr-19 Apr-19 Apr-19 Dec-18 Oct-18 Scheduled Check In house check, Oct-18
Primary Standards Power sensor NRP-Z91 Power sensor NRP-Z91 Power sensor NRP-Z91 Paleanace 20 dB Attenuator Type-N miseriatch combination leterance Probe EX3DV4 DAE4 Secondary Standards Power mater EPIM-442A Power mater EPIM-442A	ID 4 SN: 104776 SN: 103244 SN: 103245 SN: 506725 SN: 50672 / 106327 SN: 7349 SN: 801	04-Apr-18 (No. 217-02672)02673) 04-Apr-18 (No. 217-02672) 06-Apr-18 (No. 217-02673) 04-Apr-18 (No. 217-02682) 04-Apr-18 (No. 217-02682) 30-Dac-17 (No. EXS-7349, Dec17) 28-Oss-17 (No. DAE4-601, Oct17) Check Dain (in house) 07-Osl-15 (in house check Oct-16) 07-Osl-15 (in house check Oct-16)	Apr-19 Apr-19 Apr-19 Apr-19 Apr-19 Dec-18 Oct-18 Scheduled Check
Primary Standards Power sensor NRP-Z91 Power sensor NRP-Z91 Peterence 20 dB Attenuator Type-N Internation combination feterence Probe EX3DV4 AAE4 Secondary Standards Power moter EPM-442A Power sensor HP 8481A	ID 4 SN: 104776 SN: 103244 SN: 103245 SN: 5068 (20k) SN: 5037.2 / 06327 SN: 7348 SN: 601 ID 6 SN: GB37480704 SN: US37292763 SN: US37292763 SN: MY41082317	04-Apr-18 (No. 217-02672)02673) 04-Apr-18 (No. 217-02672) 06-Apr-18 (No. 217-02673) 04-Apr-18 (No. 217-02682) 04-Apr-18 (No. 217-02682) 04-Apr-18 (No. 217-02683) 30-Dac-17 (No. EXS-7349, Dec17) 28-Da:-17 (No. DAE-1-691_Oct17) Check Dain (In house) 07-Oct-15 (In house check Oct-16) 07-Oct-15 (In house check Oct-16) 07-Oct-15 (In house check Oct-16)	Apr-19 Apr-19 Apr-19 Apr-19 Apr-18 Apr-18 Dec-18 Oct-18 Scheduled Check In house check: Oct-18 In house check: Oct-18
Primary Standards Power sensor NRP-Z91 Power sensor NRP-Z91 Power sensor NRP-Z91 Peterance 20 dB Attenuator Type-M intensistich combination feterance Probe EX3DV4 DAE4 Recondary Standards Power sensor HP 8481A Power sensor HP 8481A Power sensor HP 8481A	ID 4 SN: 104776 SN: 103244 SN: 103245 SN: 5068 (20k) SN: 5087.2 / D6327 SN: 7349 SN: 801 ID # SN: GBS7480704 SN: US\$7292763 SN: MY41092317 SN: 100972	04-Apr-18 (No. 217-02672)/02673) 04-Apr-18 (No. 217-02672) 04-Apr-18 (No. 217-02673) 04-Apr-18 (No. 217-02682) 05-Dat-17 (No. DAE-1801_Oct17) Check Dain (in house) 07-Oct-15 (in house check Oct-16) 07-Oct-15 (in house check Oct-16) 15-Jun-15 (in house check Oct-16)	Apr-19 Apr-19 Apr-19 Apr-19 Apr-18 Dec-18 Oct-18 Scheduled Check In house check: Oct-18 In house check: Oct-18 In house check: Oct-18 In house check: Oct-18
Primary Standards Power sensor NRP-Z91 Power sensor NRP-Z91 Peterence 20 dB Attenuator Type-N Internation combination feterence Probe EX3DV4 AAE4 Secondary Standards Power moter EPM-442A Power sensor HP 8481A	ID 4 SN: 104776 SN: 103244 SN: 103245 SN: 5068 (20k) SN: 5037.2 / 06327 SN: 7348 SN: 601 ID 6 SN: GB37480704 SN: US37292763 SN: US37292763 SN: MY41082317	04-Apr-18 (No. 217-02672)02673) 04-Apr-18 (No. 217-02672) 06-Apr-18 (No. 217-02673) 04-Apr-18 (No. 217-02682) 04-Apr-18 (No. 217-02682) 04-Apr-18 (No. 217-02683) 30-Dac-17 (No. EXS-7349, Dec17) 28-Da:-17 (No. DAE-1-691_Oct17) Check Dain (In house) 07-Oct-15 (In house check Oct-16) 07-Oct-15 (In house check Oct-16) 07-Oct-15 (In house check Oct-16)	Apr-19 Apr-19 Apr-19 Apr-19 Apr-19 Apr-18 Dec-18 Oct-18 Scheduled Check In house check: Oct-18 In house check: Oct-18
Primary Standards Power serior NRP Power serior NRP-Z91 Power serior NRP-Z91 Peterance 20 dB Attenuator Type-N mismatch combination Reterance Probe EX3DV4 AAE4 Secondary Standards Power mater EPM-442A Power serior HP 8481A Power serior HP 8481A Power serior HP 8481A Reterance Arialyzer HP 8783E	ID 4 SN: 104776 SN: 103244 SN: 103245 SN: 5068 (20k) SN: 50672 / D6927 SN: 7348 SN: 601 ID # SN: GB37480704 SN: US37290783 SN: MY41092317 SN: 100972 SN: US37390585 Name	D4-Apr-18 (No. 217-02672)/02473) D4-Apr-18 (No. 217-02672) D4-Apr-18 (No. 217-02673) D4-Apr-18 (No. 217-02682) D4-Apr-17 (No. EXS-7349, Dec17) 28-Osc-17 (No. DAE4-601_Oct17) Check Dalin (in house) D7-Osc-15 (in house check Oct-16) D7-Osc-15 (in house check Oct-17) Function	Apr-19 Apr-19 Apr-19 Apr-19 Dec-18 Oct-18 Scheduled Check In house check: Oct-18 In house check: Oct-18 In house check: Oct-18 In house check: Oct-18
Primary Standards Power sensor NRP-Z91 Power sensor NRP-Z91 Power sensor NRP-Z91 Peterance 20 dB Attenuator Type-M intensistich combination feterance Probe EX3DV4 DAE4 Recondary Standards Power sensor HP 8481A Power sensor HP 8481A Power sensor HP 8481A	ID 4 SN: 104776 SN: 103244 SN: 103245 SN: 50472 / 06327 SN: 50472 / 06327 SN: 7348 SN: 601 ID # SN: GBS7480704 SN: USS728/763 SN: MY41082317 SN: 100972 SN: USS7290585	04-Apr-18 (No. 217-02672/02673) 04-Apr-18 (No. 217-02672) 04-Apr-18 (No. 217-02672) 04-Apr-18 (No. 217-02682) 04-Apr-18 (No. 217-02682) 04-Apr-18 (No. 217-02683) 30-Dac-17 (No. EXS-7349, Dec17) 28-Ost-17 (No. DAE4-601_Oct17) Check Date (in house) 07-Ost-15 (in house check Oct-16) 07-Ost-15 (in house check Oct-16) 17-Ost-15 (in house check Oct-16) 15-Jun-15 (in house check Oct-16) 18-Ost-01 (in house check Oct-16)	Apr-19 Apr-19 Apr-19 Apr-19 Apr-19 Dec-18 Oct-18 Scheduled Check In house check: Oct-18 In house check: Oct-18 In house check: Oct-18 In house check: Oct-18

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S Seiss Calibration Service

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Glossary:

TSL ConvF N/A tissue simulating liquid

sensitivity in TSL / NORM x,y,z 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

 EC 62209-1, "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016

c) IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010

d) KDB 885664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

e) 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%.

Cumicate No. D1900V2-5d173. Aprill

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Measurement Conditions

DASY system configuration, as far as not given on page t

DASY Version	DASY5	V52:10.0
Extrapolation	Advanced Extrapolation	
Phantom	Modular Fiat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	1900 MHz ± T 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 mhp/m
Messured Head TSL parameters	(22.0 ± 0.2) °C	41 1 ± 8 %	1,35 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	9.89 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	40.7 W/kg = 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	opndition	
SAR measured	250 mW input power	5.21 W/kg
SAR for nominal Head TSL parameters	portratized to 1W.	21.2 W/kg ± 16.5 % (k=2)

Body TSL parameters

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	53.3	1.52 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	55.3 ± 6.%	1.47 mho/m ± 6 %
Body TSL temperature change during test	€ 0.5 °C		-

SAR result with Body TSL

SAR averaged over 1 cm ² (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	9.93 W/kg
SAR for nominal Body TSL parameters	mornalized to TW	40.9 W/kg ± 17.0 % (k=2)

SAR averaged over 10 cm² (10 g) of Body TSL	condition	
SAR measured	250 mW input power	5.30 W/kg
SAR for nominal Body TSL parameters	normalized to TW	21.6 W/kg ± 16.5 % (k=2)

Certificate No: D1900V2-5d173_Ajir18

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Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	51.4.0.+5.1 JQ	
Return Loss	- 25,6 dB	

Antenna Parameters with Body TSL

Impedance, transformed to feed point	47.341 + 7.2 (0)
Return Loss	- 22 1 dB

General Antenna Parameters and Design

Electrical Datay (one direction)	1.195 ns
-in-ind-table) fano pre-diretty	1,100 Mp

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 ownfall dipole length is still according to the Standard.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG	
Manufactured on	June 08, 2012	

Certificate No. D1900V2-5d173_Apr1ff

Page 4 of B

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DASY5 Validation Report for Head TSL

Date: 25.04.2018

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d173

Communication System: UID 0 - CW; Frequency: 1900 MHz

Medium parameters used: f = 1900 MHz; $\sigma = 1.35 \text{ S/m}$; $\varepsilon_c = 41.1$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

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

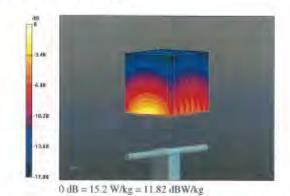
DASY52 Configuration:

- Probe: EX3DV4 SN7349; ConvF(8.18, 8.18, 8.18); Calibrated: 30,12,2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 26,10.2017
- Phantom: Flat Phantom 5.0 (front); Type: QD 000 P50 AA; Serial: 1001
- DASY52 52.10.0(1446); SEMCAD X 14.6.10(7417)

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

Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 110.9 V/m; Power Drift = -0.01 dB Peak SAR (extrapolated) = 18.3 W/kg SAR(1 g) = 9.89 W/kg; SAR(10 g) = 5.21 W/kg

Maximum value of SAR (measured) = 15.2 W/kg



Certificate No: D1900V2-5d173 Apr18

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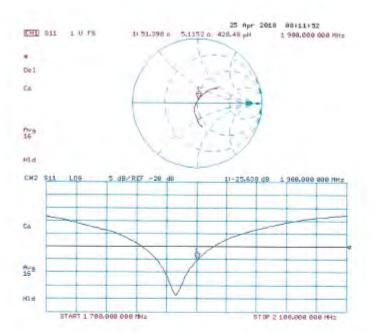
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Impedance Measurement Plot for Head TSL



Certificate No: D1900V2-5d173_Apr18.

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DASY5 Validation Report for Body TSL

Date: 25.04.2018

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d173

Communication System: UID 0 - CW; Frequency: 1900 MHz

Medium parameters used: f = 1900 MHz; $\sigma = 1.47 \text{ S/m}$; $\epsilon_f = 55.3$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

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

DASY52 Configuration:

- Probe: EX3DV4 SN7349; ConvF(8.15, 8.15, 8.15); Calibrated: 30.12.2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 26.10.2017
- Phantom: Flat Phantom 5.0 (back); Type: QD 000 P50 AA; Serial: 1002
- DASY52 52,10.0(1446); SEMCAD X 14.6.10(7417)

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

Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 104.6 V/m; Power Drift = -0.09 dB Peak SAR (extrapolated) = 17.7 W/kg SAR(1 g) = 9.93 W/kg; SAR(10 g) = 5.3 W/kg Maximum value of SAR (measured) = 14.7 W/kg



0 dB = 14.7 W/kg = 11.67 dBW/kg

Certificate No: D1900V2-5d173_Apr18

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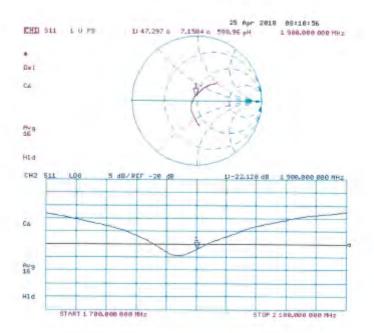
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Impedance Measurement Plot for Body TSL



Certificate No: D1900V2-5d173_Apr18

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Calibration Laboratory of Schmid & Partner Engineering AG sughausstrasse 43, 8004 Zurich, Switzerland





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Accreditation No.: SCS 0108

Accredited by the Swiss Accreditation Service (SAS)

The Swiss Accreditation Service is one of the signatories to the EA

CALIBRATION C	CERTIFICATE		
Disjoint	D2450V2 - SN:72	27	
Carbining procedure(s)	QA CAL-05.v10 Calibration proce	dure for dipole validation kits abo	ove 700 MHz
Calibration date:	April 24, 2018		
		ional standards, which realize the physical un robsbilly are given on the following pages ar	
All calibrations have been condu	cted in the closed laborato	ry facility: environment temperature (22 ± 3)*)	Crailed Unithouth # 500%
		ry facility: environment temperature (22 ± 3)*	C all quillory < 7006
Calibration Equipment used (M8		ry tacting: environment temperature (22 ± 3)*1 Cal Data (Certificate No.)	Schedued Calibration
Calibration Equipment used (M&	TE critical for calibration)		
Calibration Equipment used (M8 Primary Standards Power mater MRP	TE critical for calibration)	Cal Date (Certificate No.)	Scheduled Calibration
Calibration Equipment used (M8 Primary Standards Power mater (MRP Power sensor (MRP-ZSH)	TE critical for calibration) ID # SN: 104778	Cal Data (Certificate No.) 04-Apr-18 (No. 217-02672/02673)	Scheduled Calibration Apr-19
Catibration Equipment used (M8 Primery Stiendards Power mater (MRP Power sensor (MRP-Z91 Power sensor (MRP-Z91	7E critical for celibration) ID # SN: 104778 SN: 103244	Cal Cate (Certificate No.) 04-Apr-18 (No. 217-02672X2673) 04-Apr-18 (No. 217-02672)	Scheduled Calibration Apr-19 Apr-19
Calibration Equipment used (M8 Primary Standards Power motor NRP Power sensor NRP-Z91 Power sensor NRP-Z91 Reference 20 dB Attenusion	TE critical for calibration) ID # SN: 104778 SN: 103244 SN: 103245	Cal Cate (Certificate No.) 04-Apr-18 (No. 217-02672/02673) 04-Apr-18 (No. 217-02672) 04-Apr-18 (No. 217-02673) 04-Apr-18 (No. 217-02682) 04-Apr-18 (No. 217-02682)	Screedured Calibration Apr-19 Apr-19 Apr-19 Apr-19
Calibration Equipment used (M8 Primary Standards Power mater MRP Power sensor NRP-291 Reference 20 dB Attenuator Type-N mismatch combination	TE critical for calibration) ID # SN: 104778 SN: 103244 SN: 103245 SN: 5058 (20k)	Cal Cata (Certificate No.) 04-Apr-18 (No. 217-02672X2673) 04-Apr-18 (No. 217-02672) 04-Apr-18 (No. 217-02673) 04-Apr-18 (No. 217-02682) 04-Apr-18 (No. 217-02683) 30-0eo-17 (No. EX3-7349_Dec17)	Screeduled Calibration Apr-19 Apr-19 Apr-19 Apr-19 Apr-19 Doc-18
Catibration Equipment used (M8 Primary Standards Power mater (MPP Power sensor NRP-291 Power sensor NRP-291 Reference 20 dB Attenuator Type-N mismatch combination Reference Probe EXSOVA	TE critical for calibration) ID # SN: 104778 SN: 103244 SN: 103245 SN: 5047.2 / 06327	Cal Cate (Certificate No.) 04-Apr-18 (No. 217-02672/02673) 04-Apr-18 (No. 217-02672) 04-Apr-18 (No. 217-02673) 04-Apr-18 (No. 217-02682) 04-Apr-18 (No. 217-02682)	Screedured Calibration Apr-19 Apr-19 Apr-19 Apr-19
Calibration Equipment used (M8 Primary Standards Power major NRP Power sensor NRP-291 Power sensor NRP-291 Reference 20 dB Attenuation Type-N mismatch combination Reference Probe EXSOV4 DAE4	TE critical for celluration) ID # SN: 104779 SN: 103244 SN: 103245 SN: 5058 (20k) SN: 5047.2 / 06327 SN: 7349	Cal Cata (Certificate No.) 04-Apr-18 (No. 217-02672X2673) 04-Apr-18 (No. 217-02672) 04-Apr-18 (No. 217-02673) 04-Apr-18 (No. 217-02682) 04-Apr-18 (No. 217-02683) 30-0eo-17 (No. EX3-7349_Dec17)	Screeduled Calibration Apr-19 Apr-19 Apr-19 Apr-19 Apr-19 Doc-18
Calibration Equipment used (M8 Primary Standards Prower sensor NRP-Zirl Power Sensor NRP	TE critical for calibration) ID # SN: 104778 SN: 103244 SN: 103245 SN: 5058 (20k) SN: 5047.2 / 06327 SN: 7349 SN: 601	Cal Cain (Cerificate No.) 04-Apr-18 (No. 217-02672/02673) 04-Apr-18 (No. 217-02672) 04-Apr-18 (No. 217-02682) 04-Apr-18 (No. 217-02682) 04-Apr-18 (No. EX3-7349_Dec17) 26-Oct-17 (No. DAE4-601_De117)	Scheduled Calibration Apr-19 Apr-19 Apr-19 Apr-19 Dac-18 Out-18 Scheduled Check
Calibration Equipment used (M8 Primary Standants Power mater MPP Power sensor NRP-291 Power sensor NRP-291 Reference 20 dis Altericator Type-N mismatch combination Reference Probe EXSOVA DAE4 Secondary Standards Power mater EPM-442A	TE critical for calibration) ID # SN: 104778 SN: 103244 SN: 103245 SN: 5058 (20K) SN: 5058 (20K) SN: 5047:2 / 06327 SN: 7349 SN: 501	Cal Date (Certificate No.) 04-Apr-18 (No. 217-02672/02673) 04-Apr-18 (No. 217-02672) 04-Apr-18 (No. 217-02673) 04-Apr-18 (No. 217-02682) 04-Apr-18 (No. 217-02682) 04-Apr-18 (No. 217-02683) 30-0se-17 (No. EXS-7349, Dec17) 26-Oct-17 (No. DAE4-601, Oct17) Check Date (in house)	Scheduled Calibration Apr-19 Apr-19 Apr-19 Apr-19 Dec-18 Oct-18 Scheduled Check In flouse check: Oct-18
Catibration Equipment used (M8 Primary Standards Prower sensor NRIP-Zert Power sensor NRIP-Zert Power sensor NRIP-Zert Reference 20 dis Attenuation Type-N mismatch combination Ratesance Probe EX30V4 DAE4 Secondary Standards Power mater EPM-442A Power sensor HP 8481A	TE critical for celluration) ID # SN: 104778 SN: 103244 SN: 103245 SN: 5058 (20K) SN: 5047.2 / 06327 SN: 7349 SN: 601 ID # SN: GB37450704	Cal Cate (Certificate No.) 04-Apr-18 (No. 217-02672/02673) 04-Apr-18 (No. 217-02672) 04-Apr-18 (No. 217-02673) 04-Apr-18 (No. 217-02682) 04-Apr-18 (No. 217-02682) 30-Dec-17 (No. EX3-7349_Dec17) 25-Oct-17 (No. DAE4-601_Det17) Chack Bate (in house) 07-Oct-15 (in house)	Scheduled Calibration Apr-19 Apr-19 Apr-19 Apr-19 Apr-19 Dac-18 Oct-18 Scheduled Check In house check: Oct-18 In house check: Oct-18
Calibration Equipment used (M8 Primary Standards Prower seasor NRP-Zert Power seasor NRP-Zert Power seasor NRP-Zert Reference 20 dB Attenuator Type-N mismatch combination Reference Probe EXEDV4 DAE4 Secondary Standards Power meter EPM-442A Power sensor HP 8481A	TE critical for celibration) ID # SN: 104778 SN: 103244 SN: 103245 SN: 50472 / 06327 SN: 50472 / 06327 SN: 5047 ID # SN: GB37450704 SN: U837292783	Cal Data (Certificate No.) 04-Apr-18 (No. 217-02672X36573) 04-Apr-18 (No. 217-02672X36573) 04-Apr-18 (No. 217-02673) 04-Apr-18 (No. 217-02682) 04-Apr-18 (No. 217-02682) 04-Apr-18 (No. 217-02682) 05-Dec-17 (No. EXS-7349_Dec17) 26-Oct-17 (No. DAE4-601_Oct17) Check Data (in bouse) 07-Oct-15 (in pouse check Oct-16) 07-Oct-15 (in house check Oct-16)	Scheduled Calibration Apt-19 Apt-19 Apt-19 Apt-19 Apt-19 Dac-18 Oct-18 Scheduled Check In focuse check: Oct-18 In focuse check: Oct-18 In focuse check: Oct-18 In focuse check: Oct-18
Calibration Equipment used (M8 Primary Standards Prower sensor NRP-Zirl Power sensor NRP-Zirl Interence 20 dB Attenuation Type-N mismatch combination Reference Probe EXSOV4 DAE4 Secondary Scandards Power sensor HP 8481A Power sensor HP 8481A RF generator PAS SMT-06	TE critical for celibration) ID a SN: 104778 SN: 103244 SN: 103245 SN: 5055 (20k) SN: 5047.2 / 06327 SN: 5047.2 / 06327 SN: 5047.3 / 06327 SN: GB37450704 SN: UB37202783 SN: MY41082517	Cal Cata (Certificate No.) 04-Apr-18 (No. 217-02672/02673) 04-Apr-18 (No. 217-02672) 04-Apr-18 (No. 217-02673) 04-Apr-18 (No. 217-02682) 04-Apr-18 (No. 217-02682) 04-Apr-18 (No. 217-02682) 05-Dec-17 (No. EXS-7349, Dec17) 26-Oc-17 (No. DAE4-601, Oci17) Check Bate (in house) 07-Oc-15 (in house check Oci-16) 07-Oc-15 (in house check Oci-16) 07-Oc-15 (in house check Oci-16)	Scheduled Calibration Apt-19 Apt-19 Apt-19 Apt-19 Apt-19 Dac-18 Oct-18 Scheduled Check In focuse check: Oct-18 In focuse check: Oct-18 In focuse check: Oct-18 In focuse check: Oct-18
All calibrations have being condu- Catibration Equipment used (M8. Primary Standards Power sensor NRP-Z91 Power sensor NRP-Z91 Reference 20 dB Attenuation Type-N mismatch combination Reference Probe EXSOV4 DAE4 Secondary Seandards Power meter EPM-442A Power sensor HP 6461A Power sensor HP 6461A Power sensor HP 6461A Power sensor HP 6461A RF generator PAS SMT-06 Network Analyzer HP 8753E	TE critical for calibration) ID # SN: 104778 SN: 103244 SN: 103245 SN: 5058 (20K) SN: 5058 (20K) SN: 5047:27 06327 SN: 7349 SN: 601 ID # SN: GB37450704 SN: US37292783 SN: MY41082517 SN: 100972	Cal Date (Certificate No.) 04-Apr-18 (No. 217-02672/C2673) 04-Apr-18 (No. 217-02672) 04-Apr-18 (No. 217-02673) 04-Apr-18 (No. 217-02682) 04-Apr-18 (No. 217-02682) 04-Apr-18 (No. 217-02683) 30-0se-17 (No. EX3-7349_Dec17) 25-Oct-17 (No. DAE4-601_Oct17) Check Date (in tiouse) 07-Oct-15 (in house check Oct-16) 07-Oct-15 (in house check Oct-16) 15-Jun-15 (in house check Oct-16)	Scheduled Calibration Apt-19 Apt-19 Apt-19 Apt-19 Apt-19 Dac-18 Oct-18 Scheduled Check In focuse check: Oct-18 In focuse check: Oct-18 In focuse check: Oct-18 In focuse check: Oct-18
Calibration Equipment used (M8 Primary Standards Power sensor NRP-Z91 Power sensor NRP-Z91 Power sensor NRP-Z91 Reference 20 dB Attenuation Type-N mismatch combination Rafecance Probe EX30V4 BAE4 Secondary Scandards Power mister EPM-442A Power sensor HP 9461A RF generator PAS SMT-06	TE critical for cellibration) ID # SN: 104778 SN: 103244 SN: 103245 SN: 5058 (20k) SN: 50472 / 06327 SN: 7349 SN: 601 ID # SN: GB37450704 SN: US37292783 SN: MY41082317 SN: 100972 SN: US37390565	Cal Data (Certificate No.) 04-Apr-18 (No. 217-02672X0673) 04-Apr-18 (No. 217-02672X0673) 04-Apr-18 (No. 217-02672) 04-Apr-18 (No. 217-02682) 04-Apr-18 (No. 217-02682) 04-Apr-18 (No. 217-02682) 30-Dec-17 (No. EXS-7349_Dec17) 26-Oct-17 (No. DAE4-601_Det17) Check Date (in house) 07-Oct-15 (in house check Oct-16) 07-Oct-15 (in house check Oct-16) 15-Jun-15 (in house check Oct-16) 18-Oct-01 (in house check Oct-16)	Scheduled Calibration Apr-19 Apr-19 Apr-19 Apr-19 Dec-18 Oct-18 Scheduled Check In fouse check: Oct-18
Catibration Equipment used (M8. Primary Standards Power mater MRP Power sensor MRP-Z91 Power sensor MRP-Z91 Reference 20 dB Attenuation Type-N mismatch combination Reference Probe EXSOV4 DAE4 Secondary Scandards Power mater EPM-442A Power sensor HP 8461A Power sensor HP 8461A RF generator R&S SMT-06 Network Analyzer HP 8753E	TE critical for celibration) ID a SN: 104778 SN: 103244 SN: 103245 SN: 5047 2 / 06327 SN: GB37450704 SN: US37202783 SN: MY41082517 SN: US37390585 Name	Cal Data (Certificate No.) 04-Apr-18 (No. 217-02672X0673) 04-Apr-18 (No. 217-02672) 04-Apr-18 (No. 217-02672) 04-Apr-18 (No. 217-02682) 04-Apr-18 (No. 217-02682) 05-Dec-17 (No. EXS-7349_Dec17) 25-Oct-17 (No. DAE4-601_Oct17) Check Data (in house) 07-Oct-15 (in house check Oct-16) 07-Oct-15 (in house check Oct-16) 15-Jun-15 (in house check Oct-16) 18-Oct-01 (in fouse check Oct-17) Function	Scheduled Calibration Apr-19 Apr-19 Apr-19 Apr-19 Dec-18 Oct-18 Scheduled Check In fouse check: Oct-18

Certificate No: D2450V2-727_Apr18

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Calibration Laboratory of

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Accreditation No.: SCS 0108

Accredited by the Swiss Accreditation Service (SAS)

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Glossary:

tissue simulating liquid TSL

sensitivity in TSL / NORM x,y,z ConvF N/A not applicable or not measured

Calibration is Performed According to the Following Standards:

- a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques*, June 2013
- b) IEC 62209-1, "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
- c) IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30) MHz to 6 GHz)", March 2010.
- d) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

e) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- Measurement Conditions: Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated,
- Antenna Parameters with TSL: The dipole is incunted 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
- 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%.

Conflicate No: D2450V2-727_Apr 18

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Measurement Conditions

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

DASY Version	DASY5	V52.10.0
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz. = 5 mm	
Frequency	2450 MHz = 1 MHz	

Head TSL parameters

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22,0 °C	39.2	1.80 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	38.3 ± 8 %	1.86 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C		

SAR result with Head TSL

SAR averaged over 1 cm ⁵ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	13,3 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	52.1 W/kg ± 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition		
SAR measured	250 mW input power	8.16 W/kg	
SAR for nominal Head TSL parameters	normalized to TW	24.3 W/kg ± 16.5 % (k=2)	

Body TSL parameters

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	52.7	1.95 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	52.5 ± 6 %	2.01 mha/m = 6 %.
Body TSL temperature change during test	< 0.5.°C	-	-

SAR result with Body TSL

SAR sveraged over 1 cm ¹ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	12.9 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	50.8 W/kg ± 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	6.00 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	23.8 W/kg ± 16.5 % (k=2)

Certificate No: D2450V2-727_Apr18

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Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	55.2 \Omega + 2.7 \mu
Return Loss	= 25.1 dB

Antenna Parameters with Body TSL

Impledance, transformed to feed point	51.2 (2 + 5.6 (2)	
Return Loss	- 25.0 dB	

General Antenna Parameters and Design

Electrical Delay (one direction)	1.149 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 semingid 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 cage. 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 SAFI data are not affected by this change. The overall dipole length is still

according to the Standard.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG	
Manufactured on	January 09, 2003	

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DASY5 Validation Report for Head TSL

Date: 24.04.2018

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:727

Communication System: UID 0 - CW; Frequency: 2450 MHz

Medium parameters used: f = 2450 MHz; $\sigma = 1.86 \text{ S/m}$; $\epsilon_t = 38.3$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

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

DASY52 Configuration:

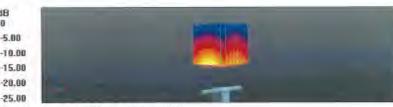
- Probe: EX3DV4 SN7349; ConvF(7.88, 7.88, 7.88); Calibrated: 30.12.2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 26.10.2017
- Phantom: Flat Phantom 5.0 (front); Type: QD 000 P50 AA; Serial: 1001
- DASY52 52.10.0(1446); SEMCAD X 14.6.10(7417)

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

Measurement grid; dx=5mm, dy=5mm, dz=5mm Reference Value = 116.0 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 26.7 W/kg

SAR(1 g) = 13.3 W/kg; SAR(10 g) = 6.16 W/kgMaximum value of SAR (measured) = 22.0 W/kg



0 dB = 22.0 W/kg = 13.42 dBW/kg

Certificate No: D2450V2-727_April8

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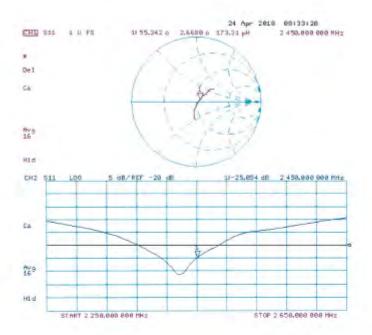
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Impedance Measurement Plot for Head TSL



Certificate No: D2450V2-727_Apr18

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DASY5 Validation Report for Body TSL

Date: 24.04.2018

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:727

Communication System: UID 0 - CW; Frequency: 2450 MHz.

Medium parameters used: f = 2450 MHz; $\sigma = 2.01 \text{ S/m}$; $\varepsilon_r = 52.5$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

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

DASY52 Configuration:

-5.00 10.00 -15.0020.00 25.00

- Probe: EX3DV4 SN7349; ConvF(8.01, 8.01, 8.01); Calibrated: 30.12.2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 26.10.2017
- Phantom: Flat Phantom 5.0 (back); Type: QD 000 P50 AA; Serial: 1002
- DASY52 52.10.0(1446); SEMCAD X 14.6.10(7417)

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

Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 108.4 V/m; Power Drift = -0.07 dB Peak SAR (extrapolated) = 25.5 W/kg SAR(1 g) = 12.9 W/kg; SAR(10 g) = 6 W/kg

Maximum value of SAR (measured) = 21.1 W/kg



0 dB = 21.1 W/kg = 13,24 dBW/kg

Certificate No: D2450V2-727, April 8

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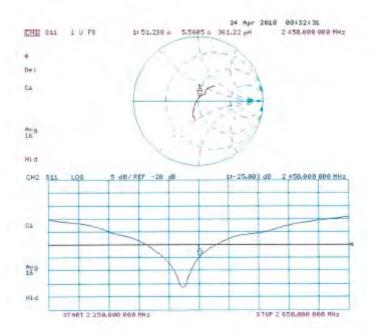
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Impedance Measurement Plot for Body TSL



Certificate No: D2450V2-727_Apr18

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Calibration Laboratory of Schmid & Partner Engineering AG Zaughausstrasse 43, 8004 Zurich, Switzerland





Schweizerischer Kalibrierdienst Service suisse d'étalonnage C Servizio avizzero di teratura Swiss Calibration Service

Appreditation No.: SCS 0108

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

SGS-TW (Auden)

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Certificate No: D5GHzV2-1023_Jan18

bjed	D5GHzV2 - SN:1	023	
Celibration procedure(s)	QA CAL-22.v2 Calibration proce	dure for dipole validation kits bett	ween 3-6 GHz
Calibration date:	January 25, 2018		
The measurements and the unce	maintles with confidence p	ional standards, which realize the physical unicobability are given on the following pieges and y facility, environment temperatural (22 \pm 3)%	ed are part of the certificate.
Calibration Equipment used (M&T	TE critical for calibration)	Cal Date (Certificate No.)	Scheduled Calibration
Power maler NRP	EN: 104779	04-Apr-17 (No. 217-02521/02522)	Apr-18
And the same of th	SN: 109244	04-Apr-17 (No. 217-02521)	
Proper sensor NRP-Z01			ADN-18
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Power sensor MRP-Z91 Power sensor MRP-Z91 Reference 20 dfs Attenuator	SN: 103246	04-Apt-17 (No. 217-02522)	Apr-18 Apr-18 Apr-18
Power sensor NRP-Z91 Reference 20 dB Attenuator	SN: 103246 SN: 5058 (20k)	D4-Apt-17 (No. 217-02522) 07-Apr-17 (No. 217-02528)	Apr-18 Apr-18
Power sensor NRP-291 Reference 20 dB Alternustor Type-N mismatch combination	SN: 103245 SN: 5058 (20k) SN: 5047 2 / 06327	04-Apr-17 (No. 217-02522) 07-Apr-17 (No. 217-02528) 07-Apr-17 (No. 217-02528)	Apr-18
Power sensor NRP-Z91	SN: 103246 SN: 5058 (20k)	D4-Apt-17 (No. 217-02522) 07-Apr-17 (No. 217-02528)	Apr-18 Apr-18 Apr-18
Power sensor NRP-Z91 Reference 20 dB Attenuator Type-N mismatch combination Reference Probe EX3DV4	SN: 109245 SN: 5058 (20k) SN: 5047 2 / 06327 SN: 3503	04-Apt-17 (No. 217-02522) 07-Apr-17 (No. 217-02528) 07-Apr-17 (No. 217-02529) 30-Dec-17 (No. EX3-3503_Dec17)	Apr-18 Apr-18 Apr-18 Dec-18
Power sensor NRP-Z91 Reterance 20 dB Attenuator Type-N mismatch combination Reference Probe EX3DV4 DAE4	SN: 103246 SN: 5058 (20k) SN: 5047 2 / 06327 SN: 3503 SN: 601	04-Apt-17 (No. 217-02522) 07-Apr-17 (No. 217-02528) 07-Apr-17 (No. 217-02529) 30-Dec-17 (No. EX3-3503_Dec17) 26-Oct-17 (No. DAE4-601_Oct17)	Apr-18 Apr-18 Apr-18 Dec-18 Oct-18 Scheduled Check In house check: Oct-18
Power sensor NRP-Z91 Feterance 20 dB Attenuator Type-N mismatch combination Reference Probe EX3DV4 DAE4 Secondary Standards	SN: 103246 SN: 5058 (20k) SN: 5047 2 / 06327 SN: 3503 SN: 601	04-Api-17 (No. 217-02522) 07-Apr-17 (No. 217-02528) 07-Apr-17 (No. 217-02528) 30-Dec-17 (No. EX3-3503_Dec17) 26-Det-17 (No. DAE4-601_Oct17) Check Date (in house)	Apr-18 Apr-16 Apr-16 Dec-18 Oct-18
Power sensor NRP-Z91 Reference 20 dB Attenuator Type-N mismatch combination Reference Probe EX3DV4 DAE4 Secondary Standards Power motor EPM-442A	SN: 103245 SN: 5058 (20k) SN: 5047 2 / 05327 SN: 3303 SN: 601	04-Apt-17 (No. 217-02522) 07-Apr-17 (No. 217-02528) 07-Apr-17 (No. 217-02528) 30-Dec-17 (No. EX3-3503_Dec17) 26-Oct-17 (No. DAE4-601_Oct17) Check Date (in house) 07-Oct-15 (in house check Oct-16) 07-Oct-15 (in house check Oct-16) 07-Oct-15 (in house check Oct-16)	Apr-18 Apr-18 Apr-18 Apr-18 Dec-18 Dec-18 Scheduled Check In house check: Oct-18 In house check: Oct-18 In house check: Oct-18
Power sensor NRP-Z91 Reference 20 dB Attenuator Type-N mismatch combination Reference Probe EX3DV4 DAE4 Secondary Standards Power meter EPM-442A Power meter EPM-442A	SN: 103245 SN: 5058 (20k) SN: 5047 2 / 05327 SN: 3503 SN: 601 ID # SN: G837480704 SN: US37282783	04-Apt-17 (No. 217-02522) 07-Apr-17 (No. 217-02528) 07-Apr-17 (No. 217-02529) 30-Dec-17 (No. EX3-3503_Dec17) 26-Oct-17 (No. DAE4-601_Oct17) Check Date (in house) 07-Oct-15 (in house check Oct-16) 07-Oct-15 (in house check Oct-16) 15-Jun-15 (in house check Oct-16)	Apr-18 Apr-18 Apr-16 Dec-18 Oct-18 Scheduled Check In house check: Oct-18
Power sensor NRP-Z91 Reference 20 dB Attenuator Type-N, mismatch combination Reference Probe EX3DV4 DAE4 Secondary Standards Power maker EPM-442A Power sensor HP 8481A Power sensor HP 8461A	SN: 103245 SN: 5058 (20k) SN: 5047 2 / 06327 SN: 504 SN: 601 ID # SN: GS37480704 SN: US37282783 SN: MY41092317	04-Apt-17 (No. 217-02522) 07-Apr-17 (No. 217-02528) 07-Apr-17 (No. 217-02528) 30-Dec-17 (No. EX3-3503_Dec17) 26-Oct-17 (No. DAE4-601_Oct17) Check Date (in house) 07-Oct-15 (in house check Oct-16) 07-Oct-15 (in house check Oct-16) 07-Oct-15 (in house check Oct-16)	Apr-18 Apr-18 Apr-18 Apr-18 Dec-18 Dec-18 Scheduled Check In house check: Oct-18 In house check: Oct-18 In house check: Oct-18
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Power sensor NRP-Z91 Retarance 20 dB Attenuator Type-N mismatch combination Reference Probe EX3DV4 DAE4 Secondary Standards Power meter EPM-442A Power sensor HP 8481A Power sensor HP 8481A Power sensor HP 8481A	SN: 103245 SN: 5058 (20k) SN: 5047 2 / 05327 SN: 501 SN: 601 SN: GS37460704 SN: US3728783 SN: MY41092317 SN: 100672 SN: US37380685	04-Apt-17 (No. 217-02522) 07-Apr-17 (No. 217-02528) 07-Apr-17 (No. 217-02528) 30-Dec-17 (No. EX3-3503_Dec17) 26-Det-17 (No. DAE4-601_Oct17) Check Date (in house) 07-Oct-15 (in house check Oct-16) 07-Oct-15 (in house check Oct-16) 07-Oct-15 (in house check Oct-16) 15-Jun-15 (in house check Oct-16) 18-Oct-01 (in house check Oct-17)	Apr-18 Apr-18 Apr-18 Dec-18 Oct-18 Scheduled Check In house check: Oct-18
Power sensor NRP-Z91 Retarance 20 dB Attenuator Type-N mismatch combination Reference Probe EX3DV4 DAE4 Secondary Standards Power meter EPM-442A Power sensor HP 8481A Power sensor HP 8461 A RF generator R&S SMT-66 Network Arwiyzer HP 8753E Calibrated by:	SN: 103245 SN: 5058 (20k) SN: 5047 2 / 05327 SN: 3503 SN: 601 JD # SN: GS37480704 SN: US37292783 SN: MY41092317 SN: 100972 SN: US37380605 Name Jaken Kastmill	04-Apt-17 (No. 217-02522) 07-Apr-17 (No. 217-02529) 07-Apr-17 (No. 217-02529) 09-Dec-17 (No. EX3-S503 Dec17) 26-Oct-17 (No. DAE4-601 Det17) Check Date (in house) 07-Oct-15 (in house check Oct-16) 07-Oct-15 (in house check Oct-16) 15-Jun-15 (in house check Oct-16) 15-Jun-15 (in house check Oct-17) Function Laboratory Tectrolous	Apr-18 Apr-18 Apr-18 Dec-18 Oct-18 Scheduled Check In house check: Oct-18
Power sensor NRP-Z91 Reference 20 dB Attenuator Type-N mismatch combination Reference Probe EX3DV4 DAE4 Secondary Standards Power motor EPM-442A Power sensor HP 8481A Power sensor HP 8461A AFF generator R&S SMT-06 Notwork Analyzer HP 8753E	SN: 109245 SN: 5058 (20k) SN: 5047 2 / 05327 SN: 5047 2 / 05327 SN: 601 ID # SN: GB37480704 SN: US372927B3 SN: WY41092317 SN: 100972 SN: US37380605	04-Apt-17 (No. 217-02522) 07-Apr-17 (No. 217-02528) 07-Apr-17 (No. 217-02528) 00-Dec-17 (No. EX3-S503_Dec-17) 26-Det-17 (No. DAE4-601_Oct17) Check Date (in house) 07-Oct-15 (in house check Oct-16) 07-Oct-15 (in house check Oct-16) 15-Jun-15 (in house check Oct-16) 15-Jun-15 (in house check Oct-16) 16-Oct-01 (in house check Oct-17) Function	Apr-18 Apr-18 Apr-18 Dec-18 Oct-18 Scheduled Check In house check: Oct-18

Gertificate No: D5GHzV2-1023 Jan18

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Calibration Laboratory of Schmid & Partner

Engineering AG Zeughausetrasse 43, 8004 Zurich: Switzerland





S Schwelzerischer Kalibrierdiensi
C Service subse d'étalonnage
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S Swiss Calibration Service

Accreditation No.: SCS 0108

Accretited 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

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

 EC 62209-1, "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016

 iEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010

d) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

e) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- Measurement Conditions: Further details are available from the Validation Report at the end
 of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL: The dipole is mounted with the spacer to position its feed
 point exactly below the center marking of the flat phantom section, with the arms oriented
 parallel to the body axis.
- Feed Point Impedance and Return Loss: These parameters are measured with the dipole
 positioned under the liquid filled phantom. The impedance stated is transformed from the
 measurement at the SMA connector to the feed point. The Return Loss ensures low
 reflected power. No uncertainty required.
- Electrical Delay: One-way delay between the SMA connector and the antenna feed point.
 No uncertainty required.
- SAR measured: SAR measured at the stated antenna input power.
- SAR normalized: SAR as measured, normalized to an input power of 1 W at the antenna connector.
- SAR for nominal TSL parameters: The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

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Measurement Conditions

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

DASY Version	DASY5	V52,10.0
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom V5.0	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy = 4.0 mm, dz = 1.4 mm	Graded Ratio = 1.4 (Z direction)
Frequency	5200 MHz ± 1 MHz 5300 MHz ± 1 MHz 5600 MHz ± 1 MHz 5800 MHz ± 1 MHz	

Head TSL parameters at 5200 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22,0 °C	36.0	4.66 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	36.3 ± 6 %	4.50 mha/m ± 8 %
Head TSL temperature change during lest	€0.5 °C	per-	1997

SAR result with Head TSL at 5200 MHz

SAR averaged over 1 cm2 (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	7:72 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	77.3 W/kg ± 19.9 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.22 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	22.2 W/kg ± 19.5 % (k=2)

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Head TSL parameters at 5300 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.9	4.76 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	35.2 ± 6 %	4.60 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	-	-

SAR result with Head TSL at 5300 MHz

SAR averaged over 1 cm ⁹ (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	8.09 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	80.9 W / kg ± 19.9 % (k=2)

SAR averaged over 10 cm3 (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	23.2 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 ℃	35.5	5.07 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	35.8 ± 6 %	4.90 mha/m ± 6 %
Head TSL temperature change during test	< 0.5°C		+

SAR result with Head TSL at 5600 MHz

SAR averaged over 1 cm3 (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	B.19 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	81.9 W/kg ± 19.9 % (k=2)

SAR averaged over 10 cm ² (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.34 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	23.4 W/kg ± 19.5 % (k=2)

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Head TSL parameters at 5800 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.3	5.27 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	35.5 ± 6 %	5.11 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	(tank)	-

SAR result with Head TSL at 5800 MHz

SAR averaged over 1 cm2 (1 g) of Head TSL	Condition	
SAR measured	100 mW Input power	7.90 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	79.0 W/kg ± 19.9 % (k=2)

SAR averaged over 10 cm3 (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2,25 W/kg
SAR for nominal Head TSL parameters	nomalized to 1W	22.5 W/kg ± 19.5 % (k=2)

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Body TSL parameters at 5200 MHz

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	49.0	5.30 mha/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	47.3±6%	5,41 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C		_

SAR result with Body TSL at 5200 MHz

SAR averaged over 1 cm3 (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	7.14 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	70.9 W/kg ± 19.9 % (k=2)

SAR averaged over 10 cm² (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.00 W/kg
SAR for nominal Body TSL parameters	normalized to fW	19.8 W/kg ± 19.5 % (k=2)

Body TSL parameters at 5300 MHz

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	48.9	5.42 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	47 1 ± 6 %	5.54 mho/m = 6 %
Body TSL temperature change during test	< 0,5 °C	-	0-0

SAR result with Body TSL at 5300 MHz

SAR averaged over 1 cm3 (1 g) of Body TSL	Condition	
SAR measured	100 mW Input power	7.24 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	2.06 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	20.4 W/kg ± 19.5 % (k=2)

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Body TSL parameters at 5600 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	48.5	5.77 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	46.6 ± 6 %	5.94 mha/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	med.	

SAR result with Body TSL at 5600 MHz

SAR averaged over 1 cm3 (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	7.81 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	77,6 W/kg ± 19.9 % (k=2)

SAR averaged over 10 cm 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 5800 MHz

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	48.2	6.00 mholm
Measured Body TSL parameters	(22.0 ± 0.2) °C	48.2 ± 6 %	6.22 mha/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	_	

SAR result with Body TSL at 5800 MHz

SAR averaged over 1 cm3 (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	7.46 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	74.1 W/kg ± 19.9 % (k=2)

SAR averaged over 10 cm ² (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.07 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	20.5 W/kg ± 19.5 % (k=2)

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Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL at 5200 MHz

Impedance, transformed to feed point	50.1 Ω - 8.1 jΩ
Return Loss	- 21.9 dB

Antenna Parameters with Head TSL at 5300 MHz

Impedance, transformed to feed point	50.5 Ω - 2.3 KΩ	
Return Loss	- 32.7 dB	

Antenna Parameters with Head TSL at 5600 MHz

Impedance, transformed to feed point	53.9 Ω - 0.7 [Ω	
Return Loss	- 28.4 dB	

Antenna Parameters with Head TSL at 5800 MHz

Impedance, transformed to feed point	55.3 Ω + 2.6 jΩ
Heturn Loss	- 25.1 dB

Antenna Parameters with Body TSL at 5200 MHz

Impedance, transformed to feed point	49.8 Ω - 6.9 jΩ.
Return Loss	- 23.2 dB

Antenna Parameters with Body TSL at 5300 MHz

Impedance, transformed to leed point	50.9 Ω - 0.9 jΩ	
Return Loss	- 37.9 dB	

Antenna Parameters with Body TSL at 5600 MHz

Impedance, transformed to feed point	$56.0 \Omega + 0.5 \Omega$
Return Loss	- 24.9 dB

Antenna Parameters with Body TSL at 5800 MHz

Impedance, transformed to feed point	56.6 Ω + 2.3 Ω	
Return Loss	- 23.7 dB	

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General Antenna Parameters and Design

Electrical Delay (one direction)	1:199 ns

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard,

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG	
Manufactured on	February 05, 2004	

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DASY5 Validation Report for Head TSL

Date: 25.01.2018

Test Laboratory; SPEAG, Zurich, Switzerland

DUT: Dipole D5GHzV2; Type; D5GHzV2; Serial: D5GHzV2 - SN:1023

Communication System: UID 0 - CW/ Frequency: 5200 MHz, Frequency: 5300 MHz, Frequency: 5600 MHz, Frequency: 5800 MHz

Medium parameters used: f = 5200 MHz; $\sigma = 4.5 \text{ S/m}$; $\varepsilon_c = 36.3$; $\rho = 1000 \text{ kg/m}^3$.

Medium parameters used: f = 5300 MHz; $\sigma = 4.6 \text{ S/m}$; $\epsilon_c = 36.2$; $\rho = 1000 \text{ kg/m}^3$.

Medium parameters used: f = 5600 MHz; $\sigma = 4.9$ S/m; $\epsilon_r = 35.8$; $\rho = 1000$ kg/m² Medium parameters used: f = 5800 MHz; $\sigma = 5.11 \text{ S/m}$; $\epsilon_r = 35.5$; $\rho = 1000 \text{ kg/m}^2$

Phantom section: Flat Section

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

DASY52 Configuration:

- Probe: EX3DV4 SN3503; ConvF(5.75, 5.75, 5.75); Calibrated: 30.12,2017. ConvF(5.5, 5.5, 5.5); Calibrated: 30.12.2017, ConvF(5.05, 5.05, 5.05); Calibrated: 30.12.2017. ConvF(4.96, 4,96, 4,96); Calibrated: 30.12.2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 26.10.2017
- Phantom: Flat Phantom 5.0 (front): Type: QD 000 P50 AA; Serial: 1001
- DASY52 52.10.0(1446); SEMCAD X 14.6.10(7417)

Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5200 MH₂/Zoom Scan, dist=1.4mm

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

Reference Value = 70.47 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 27.5 W/kg

SAR(1 g) = 7.72 W/kg; SAR(10 g) = 2.22 W/kg

Maximum value of SAR (measured) = 17.7 W/kg.

Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5300 MHz/Zoom Scan, dist=1.4mm

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

Reference Value = 74.63 V/m; Power Drift = 40.06 dB

Peak SAR (extrapolated) = 29.6 W/kg

SAR(1 g) = 8.09 W/kg; SAR(10 g) = 2.32 W/kg

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

Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, I=5600 MHz/Zoom Scan, dist=1.4mm

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

Reference Value = 70.79 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 31,5 W/kg

SAR(1 g) = 8.19 W/kg; SAR(10 g) = 2.34 W/kg

Maximum value of SAR (measured) = 19.6 W/kg

Certificate No: D5GHzV2-1023_Jan18

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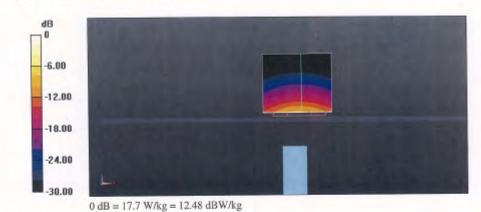
Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5800 MHz/Zoom Scan, dist=1.4mm

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

Reference Value = 69.22 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 31.2 W/kg

SAR(1 g) = 7.9 W/kg; SAR(10 g) = 2.25 W/kgMaximum value of SAR (measured) = 19.0 W/kg



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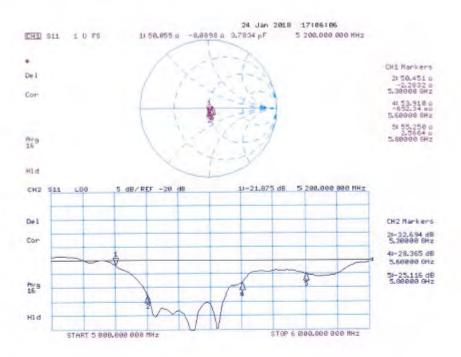
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Impedance Measurement Plot for Head TSL



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DASY5 Validation Report for Body TSL

Date: 23.01.2018

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN:1023

Communication System: UID 0 - CW; Frequency: 5200 MHz, Frequency; 5300 MHz, Frequency: 5600 MHz, Frequency: 5800 MHz

Medium parameters used: f = 5200 MHz; $\sigma = 5.41 \text{ S/m}$; $\epsilon_r = 47.3$; $\rho = 1000 \text{ kg/m}^3$, Medium parameters used: f = 5300 MHz; $\sigma = 5.54 \text{ S/m}$; $\epsilon_r = 47.1$; $\rho = 1000 \text{ kg/m}^3$, Medium parameters used: f = 5600 MHz; $\sigma = 5.94 \text{ S/m}$; $\epsilon_r = 46.6$; $\rho = 1000 \text{ kg/m}^3$, Medium parameters used: f = 5800 MHz; $\sigma = 6.22 \text{ S/m}$; $\epsilon_r = 46.2$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

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

DASY52 Configuration:

- Probe: EX3DV4 SN3503; ConvF(5.35, 5.35, 5.35); Calibrated: 30.12.2017.
 ConvF(5.15, 5.15, 5.15); Calibrated: 30.12.2017, ConvF(4.65, 4.65, 4.65);
 Calibrated: 30.12.2017, ConvF(4.53, 4.53, 4.53); Calibrated: 30.12.2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAPA Sn601; Calibrated: 26.10.2017
- Phantom: Flat Phantom 5.0 (back); Type: QD 000 P50 AA; Serial: 1002
- DASY52 52, 10.0(1446); SEMCAD X 14.6.10(7417)

Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5200 MHz/Zoom Scan, dist=1.4mm

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

Reference Value = 66.00 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 26.4 W/kg

SAR(1 g) = 7.14 W/kg; SAR(10 g) = 2 W/kg

Maximum value of SAR (measured) = 16.8 W/kg

Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5300 MHz/Zoom Scan, dist=1.4mm

(8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1,4mm

Reference Value = 65.19 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 28.4 W/kg

SAR(1 g) - 7.34 W/kg; SAR(10 g) = 2.06 W/kg

Maximum value of SAR (measured) = 17.6 W/kg

Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5600 MHz/Zoom Scan, dist=1.4mm

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

Reference Value = 66.21 V/m; Power Drift = -0.09 dB

Peak SAR (extrapolated) = 32.8 W/kg

SAR(1 g) = 7.81 W/kg; SAR(10 g) = 2.19 W/kg

Maximum value of SAR (measured) = 19.1 W/kg

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Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5800 MHz/Zoom Scan, dist=1.4mm

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

Reference Value = 64.05 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 32.3 W/kg

SAR(1 g) = 7.46 W/kg; SAR(10 g) = 2.07 W/kg

Maximum value of SAR (measured) = 18.8 W/kg



0 dB = 18.8 W/kg = 12.74 dBW/kg

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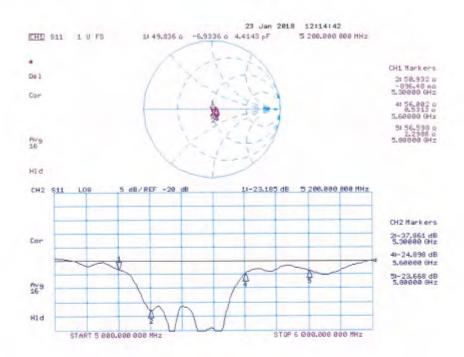
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Impedance Measurement Plot for Body TSL



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- End of report -

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