

SAR TEST REPORT

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

Equipment Under Test	7-inch Rugged Tablet
Brand Name	Pioneerpos
Model No.	DASH7E1
Company Name	Pioneer POS Solution, Inc.
Company Address	238 Benton Ct., City of Industry, CA 91789
Standards	IEEE /ANSI C95.1 , C95.3, IEEE 1528 2003, KDB248227D01v02r01, KDB616217D04v01r01, KDB865664D01v01r03, KDB865664D02v01r01, KDB941225D01v03, KDB941225D05v02r03, KDB447498D01v05r02
FCC ID	CPOD7E1-LTE
Date of Receipt	Apr. 01, 2015
Date of Test(s)	Jun. 15, 2015 ~ Jun. 22, 2015
Date of Issue	Aug. 04, 2015

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

Remarks:

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

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Signed on behalf of SGS

Sr. Engineer

Afu Chen

Afu Chen

Date: Aug. 04, 2015

Sr. Engineer

John Teh

John Yeh

Date: Aug. 04, 2015

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Version

Report Number	Revision	Date	Memo
EN/2015/40004	00	2015/7/20	Initial creation of test report.
EN/2015/40004	01	2015/8/4	1 st modification

This test report contains a reference to the previous version test report that it replaces.

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1. General Information

1.1 Testing Laboratory

SGS Taiwan Ltd. Electronics & Communication Laboratory	
No.134, Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan	
Tel	+886-2-2299-3279
Fax	+886-2-2298-0488
Internet	http://www.tw.sgs.com/

1.2 Details of Applicant

Company Name	Pioneer POS Solution, Inc.
Company Address	238 Benton Ct., City of Industry, CA 91789

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1.3 Description of EUT

Equipment Under Test	7-inch Rugged Tablet	
Brand Name	Pioneerpos	
Model No.	DASH7E1	
FCC ID	CPOD7E1-LTE	
Mode of Operation	<input checked="" type="checkbox"/> GPRS <input checked="" type="checkbox"/> EDGE <input checked="" type="checkbox"/> WCDMA <input checked="" type="checkbox"/> HSDPA <input checked="" type="checkbox"/> HSUPA <input checked="" type="checkbox"/> LTE <input checked="" type="checkbox"/> CDMA 1xRTT <input checked="" type="checkbox"/> CDMA 1x EVDO Rev.0/ Rev.A <input checked="" type="checkbox"/> WLAN802.11 a/b/g/n(20M/40M) <input checked="" type="checkbox"/> Bluetooth	
Duty Cycle	GPRS	1/4.1 (1Dn2UP) 1/8.3 (1Dn1UP)
	EDGE	1/2 (1Dn4UP) 1/2.76 (1Dn3UP) 1/4.1 (1Dn2UP) 1/8.3 (1Dn1UP)
	WCDMA	1
	LTE	1
	CDMA 1xRTT/ EVDO Rev.0/ Rev. A	1
	WLAN802.11 a/b/g/n(20M/40M)	1
	Bluetooth	1

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TX Frequency Range (MHz)	GPRS850	824.2	—	848.8
	GPRS1900	1850.2	—	1909.8
	WCDMA Band II	1852.4	—	1907.6
	WCDMA Band IV	1712.4	—	1752.6
	WCDMA Band V	826.4	—	846.6
	LTE FDD Band II	1850	—	1910
	LTE FDD Band IV	1710	—	1755
	LTE FDD Band V	824	—	849
	LTE FDD Band XIII	777	—	787
	LTE FDD Band XVII	704	—	716
	LTE FDD Band XXV	1850	—	1915
	CDMA (BC0)	824.7	—	848.31
	CDMA (BC1)	1851.25	—	1908.75
	CDMA (BC10)	817.9	—	823.1
	WLAN802.11 b/g/n(20M)	2412	—	2462
	WLAN802.11 n(40M)	2422	—	2452
	WLAN802.11 a/n(20M)	5180	—	5240
	WLAN802.11 n(40M)	5190	—	5230
	WLAN802.11 a/n(20M)	5260	—	5320
	WLAN802.11 n(40M)	5270	—	5310
	WLAN802.11 a/n(20M)	5500	—	5700
	WLAN802.11 n(40M)	5510	—	5670
	WLAN802.11 a/n(20M)	5745	—	5825
	WLAN802.11 n(40M)	5710	—	5795
	Bluetooth	2402	—	2480

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Channel Number (ARFCN)	GPRS850	128	—	251
	GPRS1900	512	—	810
	WCDMA Band II	9262	—	9538
	WCDMA Band IV	1312	—	1513
	WCDMA Band V	4132	—	4233
	LTE FDD Band II	18607	—	19193
	LTE FDD Band IV	19957	—	20393
	LTE FDD Band V	20407	—	20643
	LTE FDD Band XIII	23205	—	23255
	LTE FDD Band XVII	23755	—	23825
	LTE FDD Band XXV	26047	—	26683
	CDMA (BC0)	1013	—	777
	CDMA (BC1)	25	—	1175
	CDMA (BC10)	476	—	684
	WLAN802.11 b/g/n(20M)	1	—	11
	WLAN802.11 n(40M)	3	—	9
	WLAN802.11 a/n(20M)	36	—	48
	WLAN802.11 n(40M)	38	—	46
	WLAN802.11 a/n(20M)	52	—	64
	WLAN802.11 n(40M)	54	—	62
	WLAN802.11 a/n(20M)	100	—	140
	WLAN802.11 n(40M)	102	—	134
	WLAN802.11 a/n(20M)	149	—	165
	WLAN802.11 n(40M)	142	—	159
	Bluetooth	0	—	78

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Max. SAR (1 g) (Unit: W/Kg)				
Band	Measured	Reported	Channel	Position
GPRS 850	0.991	0.991	251	Left side
GRPS 1900	1.26	1.335	512	Back side_Curve
WCDMA Band II	1.160	1.160	9262	Back side_Curve
WCDMA Band IV	1.07	1.131	1513	Back side_Curve
WCDMA Band V	0.565	0.615	4183	Left side
LTE FDD Band II	0.983	1.090	19100	Top side
LTE FDD Band IV	1.150	1.193	20175	Back side
LTE FDD Band V	0.419	0.601	20600	Left side
LTE FDD Band XIII	0.583	0.837	23230	Left side
LTE FDD Band XVII	0.312	0.438	23780	Left side
LTE FDD Band XXV	1.140	1.159	26590	Top side
CDMA (BC0)	0.72	0.771	1013	Left side
CDMA (BC1)	1.00	1.009	1175	Back side
CDMA (BC10)	0.659	0.723	560	Left side

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Max. SAR (1 g) (Unit: W/Kg)					
Antenna	Band	Measured	Reported	Channel	Position
Main	WLAN802.11 b	0.825	1.010	11	Right side
	WLAN802.11 a 5.2G	0.383	0.441	40	Right side
	WLAN802.11 n(40M) 5.2G	0.303	0.372	46	Right side
	WLAN802.11 n(20M) 5.3G	0.261	0.303	60	Right side
	WLAN802.11 n(40M) 5.3G	0.27	0.319	54	Right side
	WLAN802.11 n(20M) 5.6G	0.276	0.327	104	Right side
	WLAN802.11 n(20M) 5.6G	0.313	0.372	120	Right side
	WLAN802.11 n(20M) 5.6G	0.324	0.401	140	Right side
	WLAN802.11 n(40M) 5.8G	0.349	0.513	159	Right side
Aux	WLAN802.11 b	0.83	0.842	6	Top side
	WLAN802.11 a 5.2G	0.792	0.928	36	Top side
	WLAN802.11 n(40M) 5.2G	0.775	0.810	46	Top side
	WLAN802.11 n(20M) 5.3G	0.69	0.855	60	Top side
	WLAN802.11 n(40M) 5.3G	0.793	0.919	54	Top side
	WLAN802.11 n(20M) 5.6G	0.654	0.821	120	Top side
	WLAN802.11 n(40M) 5.8G	0.586	0.877	159	Top side

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GPRS/EDGE conducted power table:

Burst average power				
Max. Rated Avg. Power + Max. Tolerance (dBm)			33	30.8
			1Dn1UP	1Dn2UP
EUT mode	Frequency (MHz)	CH	Avg. (dBm)	Avg. (dBm)
GPRS 850	824.2	128	31.70	30.78
	836.6	190	31.70	30.74
	848.8	251	32.10	30.80
Source-based time average power				
GPRS 850	824.2	128	22.67	24.76
	836.6	190	22.67	24.72
	848.8	251	23.07	24.78
The division factor compared to the number of TX time slot				
Division factor			1 TX time slot	2 TX time slot
			-9.03	-6.02

Burst average power						
Max. Rated Avg. Power + Max. Tolerance (dBm)			28	28	28	28
			1Dn1UP	1Dn2UP	1Dn3UP	1Dn4UP
EUT mode	Frequency (MHz)	CH	Avg. (dBm)	Avg. (dBm)	Avg. (dBm)	Avg. (dBm)
EDGE 850 (MCS5)	824.2	128	26.50	26.30	26.20	26.20
	836.6	190	26.50	26.30	26.20	26.20
	848.8	251	26.50	26.30	26.20	26.20
Source-based time average power						
EDGE 850 (MCS5)	824.2	128	17.47	20.28	21.94	23.19
	836.6	190	17.47	20.28	21.94	23.19
	848.8	251	17.47	20.28	21.94	23.19
The division factor compared to the number of TX time slot						
Division factor			1 TX time slot	2 TX time slot	3 TX time slot	4 TX time slot
			-9.03	-6.02	-4.26	-3.01

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Burst average power				
Max. Rated Avg. Power + Max. Tolerance (dBm)			30	28.5
			1Dn1UP	1Dn2UP
EUT mode	Frequency (MHz)	CH	Avg. (dBm)	Avg. (dBm)
GPRS 1900	1850.2	512	29.00	28.23
	1880	661	29.20	28.33
	1909.8	810	29.00	28.29
Source-based time average power				
GPRS 1900	1850.2	512	19.97	22.21
	1880	661	20.17	22.31
	1909.8	810	19.97	22.27
The division factor compared to the number of TX time slot				
Division factor			1 TX time slot	2 TX time slot
			-9.03	-6.02

Burst average power						
Max. Rated Avg. Power + Max. Tolerance (dBm)			27	27	27	27
			1Dn1UP	1Dn2UP	1Dn3UP	1Dn4UP
EUT mode	Frequency (MHz)	CH	Avg. (dBm)	Avg. (dBm)	Avg. (dBm)	Avg. (dBm)
EDGE 1900 (MCS5)	1850.2	512	25.30	25.10	25.00	25.00
	1880	661	25.30	25.10	25.00	25.00
	1909.8	810	25.20	25.10	25.00	25.00
Source-based time average power						
EDGE 1900 (MCS5)	1850.2	512	16.27	19.08	20.74	21.99
	1880	661	16.27	19.08	20.74	21.99
	1909.8	810	16.17	19.08	20.74	21.99
The division factor compared to the number of TX time slot						
Division factor			1 TX time slot	2 TX time slot	3 TX time slot	4 TX time slot
			-9.03	-6.02	-4.26	-3.01

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WCDMA Band II / Band IV / Band V - HSDPA / HSUPA conducted power table:

Band	CH	Max. Rated Avg. Power + Max. Tolerance (dBm)	Rel99 AV(dBm)	HSDPA mode AV(dBm)				HSUPA mode AV(dBm)					HSPA+ mode AV(dBm)				
				SUB-1	SUB-2	SUB-3	SUB-4	SUB-1	SUB-2	SUB-3	SUB-4	SUB-5	SUB-1	SUB-2	SUB-3	SUB-4	SUB-5
WCDMA Band II Rel 7	9262	21.5	21.50	20.99	20.38	20.51	20.58	21.42	19.97	19.98	20.10	20.32	21.43	19.91	20.40	20.02	21.23
	9400	21.5	21.36	20.87	20.22	20.42	20.43	21.34	19.89	19.90	20.02	20.22	21.33	19.81	20.32	19.92	21.18
	9538	21.5	21.48	20.92	20.33	20.39	20.51	21.42	19.97	19.98	20.10	20.27	21.43	19.91	20.44	20.02	21.29
WCDMA Band IV Rel 7	1312	22	21.77	21.28	20.65	20.8	20.87	21.69	20.24	20.25	20.37	20.91	21.70	20.18	20.67	20.29	21.50
	1412	22	21.75	21.31	20.61	20.86	20.87	21.73	20.28	20.29	20.41	20.98	21.72	20.20	20.71	20.31	21.57
	1513	22	21.76	21.26	20.61	20.73	20.85	21.70	20.25	20.26	20.38	20.93	21.71	20.19	20.72	20.30	21.57
WCDMA Band V Rel 7	4132	23	22.55	22.00	21.48	21.54	21.59	22.51	20.57	20.55	20.62	21.27	22.52	20.55	21.50	20.58	22.33
	4183	23	22.63	22.12	21.52	21.64	21.68	22.56	20.64	20.62	20.7	21.61	22.55	20.57	21.55	20.63	22.32
	4233	23	22.49	22.03	21.36	21.54	21.6	22.41	20.45	20.49	20.53	21.39	22.40	20.37	21.39	20.43	22.22

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

HSUPA

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

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LTE FDD Band II/ Band IV/ Band V/ Band XIII/ Band XVII / Band XXV power table:

FDD Band 2								
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
20	QPSK	1 RB	0	1860	18700	21.83	22	0
				1880	18900	21.76	22	0
				1900	19100	21.63	22	0
			50	1860	18700	21.81	22	0
				1880	18900	21.60	22	0
				1900	19100	21.71	22	0
			99	1860	18700	21.81	22	0
				1880	18900	21.75	22	0
				1900	19100	21.88	22	0
		50 RB	0	1860	18700	21.69	22	0-1
				1880	18900	21.87	22	0-1
				1900	19100	21.53	22	0-1
			25	1860	18700	21.81	22	0-1
				1880	18900	21.72	22	0-1
				1900	19100	21.52	22	0-1
			50	1860	18700	21.86	22	0-1
				1880	18900	21.81	22	0-1
				1900	19100	21.55	22	0-1
		100RB		1860	18700	21.77	22	0-1
				1880	18900	21.74	22	0-1
				1900	19100	21.62	22	0-1
	16-QAM	1 RB	0	1860	18700	20.70	22	0-1
				1880	18900	20.66	22	0-1
				1900	19100	20.52	22	0-1
			50	1860	18700	20.65	22	0-1
				1880	18900	20.50	22	0-1
				1900	19100	20.63	22	0-1
			99	1860	18700	20.69	22	0-1
				1880	18900	20.65	22	0-1
				1900	19100	20.71	22	0-1
		50 RB	0	1860	18700	20.75	22	0-2
				1880	18900	20.70	22	0-2
				1900	19100	20.53	22	0-2
			25	1860	18700	20.75	22	0-2
				1880	18900	20.68	22	0-2
				1900	19100	20.37	22	0-2
			50	1860	18700	20.71	22	0-2
				1880	18900	20.79	22	0-2
				1900	19100	20.55	22	0-2
		100RB		1860	18700	20.61	22	0-2
				1880	18900	20.65	22	0-2
				1900	19100	20.51	22	0-2

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FDD Band 2								
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
15	QPSK	1 RB	0	1857.5	18675	21.77	22	0
				1880	18900	21.61	22	0
				1902.5	19125	21.49	22	0
			36	1857.5	18675	21.67	22	0
				1880	18900	21.45	22	0
				1902.5	19125	21.61	22	0
			74	1857.5	18675	21.61	22	0
				1880	18900	21.60	22	0
				1902.5	19125	21.75	22	0
		36 RB	0	1857.5	18675	21.61	22	0-1
				1880	18900	21.65	22	0-1
				1902.5	19125	21.48	22	0-1
			18	1857.5	18675	21.62	22	0-1
				1880	18900	21.54	22	0-1
				1902.5	19125	21.49	22	0-1
			37	1857.5	18675	21.68	22	0-1
				1880	18900	21.66	22	0-1
				1902.5	19125	21.48	22	0-1
			75RB	1857.5	18675	21.64	22	0-1
				1880	18900	21.57	22	0-1
				1902.5	19125	21.44	22	0-1
	16-QAM	1 RB	0	1857.5	18675	20.54	22	0-1
				1880	18900	20.52	22	0-1
				1902.5	19125	20.47	22	0-1
			36	1857.5	18675	20.56	22	0-1
				1880	18900	20.39	22	0-1
				1902.5	19125	20.44	22	0-1
			74	1857.5	18675	20.57	22	0-1
				1880	18900	20.55	22	0-1
				1902.5	19125	20.61	22	0-1
		36 RB	0	1857.5	18675	20.45	22	0-2
				1880	18900	20.61	22	0-2
				1902.5	19125	20.24	22	0-2
			18	1857.5	18675	20.58	22	0-2
				1880	18900	20.45	22	0-2
				1902.5	19125	20.39	22	0-2
			37	1857.5	18675	20.58	22	0-2
				1880	18900	20.51	22	0-2
				1902.5	19125	20.35	22	0-2
			75RB	1857.5	18675	20.51	22	0-2
				1880	18900	20.49	22	0-2
				1902.5	19125	20.35	22	0-2

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FDD Band 2								
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
10	QPSK	1 RB	0	1855	18650	21.62	22	0
				1880	18900	21.60	22	0
				1905	19150	21.25	22	0
			25	1855	18650	21.60	22	0
				1880	18900	21.49	22	0
				1905	19150	21.64	22	0
			49	1855	18650	21.55	22	0
				1880	18900	21.37	22	0
				1905	19150	21.80	22	0
		25 RB	0	1855	18650	21.58	22	0-1
				1880	18900	21.69	22	0-1
				1905	19150	21.42	22	0-1
			12	1855	18650	21.61	22	0-1
				1880	18900	21.44	22	0-1
				1905	19150	21.48	22	0-1
			25	1855	18650	21.64	22	0-1
				1880	18900	21.57	22	0-1
				1905	19150	21.52	22	0-1
		50RB		1855	18650	21.61	22	0-1
				1880	18900	21.41	22	0-1
				1905	19150	21.55	22	0-1
	16-QAM	1 RB	0	1855	18650	20.59	22	0-1
				1880	18900	20.48	22	0-1
				1905	19150	20.47	22	0-1
			25	1855	18650	20.59	22	0-1
				1880	18900	20.38	22	0-1
				1905	19150	20.60	22	0-1
			49	1855	18650	20.67	22	0-1
				1880	18900	20.61	22	0-1
				1905	19150	20.42	22	0-1
		25 RB	0	1855	18650	20.35	22	0-2
				1880	18900	20.57	22	0-2
				1905	19150	20.14	22	0-2
			12	1855	18650	20.48	22	0-2
				1880	18900	20.48	22	0-2
				1905	19150	20.34	22	0-2
			25	1855	18650	20.48	22	0-2
				1880	18900	20.46	22	0-2
				1905	19150	20.43	22	0-2
		50RB		1855	18650	20.55	22	0-2
				1880	18900	20.47	22	0-2
				1905	19150	20.28	22	0-2

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FDD Band 2								
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
5	QPSK	1 RB	0	1852.5	18625	21.56	22	0
				1880	18900	21.68	22	0
				1907.5	19175	21.21	22	0
			12	1852.5	18625	21.69	22	0
				1880	18900	21.49	22	0
				1907.5	19175	21.70	22	0
		24		1852.5	18625	21.52	22	0
				1880	18900	21.33	22	0
				1907.5	19175	21.88	22	0
		12 RB	0	1852.5	18625	21.63	22	0-1
				1880	18900	21.68	22	0-1
				1907.5	19175	21.44	22	0-1
			6	1852.5	18625	21.60	22	0-1
				1880	18900	21.37	22	0-1
				1907.5	19175	21.46	22	0-1
			13	1852.5	18625	21.59	22	0-1
				1880	18900	21.60	22	0-1
				1907.5	19175	21.46	22	0-1
		25RB		1852.5	18625	21.62	22	0-1
				1880	18900	21.44	22	0-1
				1907.5	19175	21.52	22	0-1
	16-QAM	1 RB	0	1852.5	18625	20.66	22	0-1
				1880	18900	20.38	22	0-1
				1907.5	19175	20.55	22	0-1
			12	1852.5	18625	20.63	22	0-1
				1880	18900	20.30	22	0-1
				1907.5	19175	20.59	22	0-1
		24		1852.5	18625	20.72	22	0-1
				1880	18900	20.61	22	0-1
				1907.5	19175	20.46	22	0-1
		12 RB	0	1852.5	18625	20.45	22	0-2
				1880	18900	20.61	22	0-2
				1907.5	19175	20.23	22	0-2
			6	1852.5	18625	20.57	22	0-2
				1880	18900	20.58	22	0-2
				1907.5	19175	20.35	22	0-2
			13	1852.5	18625	20.58	22	0-2
				1880	18900	20.53	22	0-2
				1907.5	19175	20.52	22	0-2
		25RB		1852.5	18625	20.52	22	0-2
				1880	18900	20.45	22	0-2
				1907.5	19175	20.31	22	0-2

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FDD Band 2								
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
3	QPSK	1 RB	0	1851.5	18615	21.55	22	0
				1880	18900	21.61	22	0
				1908.5	19185	21.25	22	0
			7	1851.5	18615	21.51	22	0
				1880	18900	21.48	22	0
				1908.5	19185	21.74	22	0
			14	1851.5	18615	21.65	22	0
				1880	18900	21.36	22	0
				1908.5	19185	21.87	22	0
		8 RB	0	1851.5	18615	21.56	22	0-1
				1880	18900	21.59	22	0-1
				1908.5	19185	21.51	22	0-1
			4	1851.5	18615	21.52	22	0-1
				1880	18900	21.37	22	0-1
				1908.5	19185	21.44	22	0-1
			7	1851.5	18615	21.70	22	0-1
				1880	18900	21.65	22	0-1
				1908.5	19185	21.58	22	0-1
			15RB	1851.5	18615	21.59	22	0-1
				1880	18900	21.34	22	0-1
				1908.5	19185	21.54	22	0-1
	16-QAM	1 RB	0	1851.5	18615	20.67	22	0-1
				1880	18900	20.48	22	0-1
				1908.5	19185	20.43	22	0-1
			7	1851.5	18615	20.69	22	0-1
				1880	18900	20.43	22	0-1
				1908.5	19185	20.50	22	0-1
			14	1851.5	18615	20.76	22	0-1
				1880	18900	20.65	22	0-1
				1908.5	19185	20.44	22	0-1
		8 RB	0	1851.5	18615	20.43	22	0-2
				1880	18900	20.58	22	0-2
				1908.5	19185	20.19	22	0-2
			4	1851.5	18615	20.57	22	0-2
				1880	18900	20.45	22	0-2
				1908.5	19185	20.39	22	0-2
			7	1851.5	18615	20.44	22	0-2
				1880	18900	20.49	22	0-2
				1908.5	19185	20.49	22	0-2
			15RB	1851.5	18615	20.58	22	0-2
				1880	18900	20.42	22	0-2
				1908.5	19185	20.29	22	0-2

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FDD Band 2								
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
1.4	QPSK	1 RB	0	1850.7	18607	21.52	22	0
				1880	18900	21.53	22	0
				1909.3	19193	21.29	22	0
			2	1850.7	18607	21.56	22	0
				1880	18900	21.57	22	0
				1909.3	19193	21.60	22	0
			5	1850.7	18607	21.47	22	0
				1880	18900	21.38	22	0
				1909.3	19193	21.90	22	0
		3 RB	0	1850.7	18607	21.67	22	0-1
				1880	18900	21.76	22	0-1
				1909.3	19193	21.35	22	0-1
			2	1850.7	18607	21.60	22	0-1
				1880	18900	21.42	22	0-1
				1909.3	19193	21.48	22	0-1
			3	1850.7	18607	21.73	22	0-1
				1880	18900	21.64	22	0-1
				1909.3	19193	21.46	22	0-1
			6RB	1850.7	18607	21.65	22	0-1
				1880	18900	21.32	22	0-1
				1909.3	19193	21.59	22	0-1
	16-QAM	1 RB	0	1850.7	18607	20.54	22	0-1
				1880	18900	20.52	22	0-1
				1909.3	19193	20.48	22	0-1
			2	1850.7	18607	20.57	22	0-1
				1880	18900	20.35	22	0-1
				1909.3	19193	20.52	22	0-1
			5	1850.7	18607	20.73	22	0-1
				1880	18900	20.69	22	0-1
				1909.3	19193	20.41	22	0-1
		3 RB	0	1850.7	18607	20.26	22	0-2
				1880	18900	20.57	22	0-2
				1909.3	19193	20.17	22	0-2
			2	1850.7	18607	20.53	22	0-2
				1880	18900	20.45	22	0-2
				1909.3	19193	20.33	22	0-2
			3	1850.7	18607	20.58	22	0-2
				1880	18900	20.40	22	0-2
				1909.3	19193	20.46	22	0-2
			6RB	1850.7	18607	20.50	22	0-2
				1880	18900	20.43	22	0-2
				1909.3	19193	20.26	22	0-2

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FDD Band 4								
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
20	QPSK	1 RB	0	1720	20050	21.81	22	0
				1732.5	20175	21.84	22	0
				1745	20300	21.85	22	0
			50	1720	20050	21.90	22	0
				1732.5	20175	21.80	22	0
				1745	20300	21.91	22	0
			99	1720	20050	21.86	22	0
				1732.5	20175	21.82	22	0
				1745	20300	21.88	22	0
		50 RB	0	1720	20050	21.65	22	0-1
				1732.5	20175	21.75	22	0-1
				1745	20300	21.78	22	0-1
			25	1720	20050	21.66	22	0-1
				1732.5	20175	21.79	22	0-1
				1745	20300	21.85	22	0-1
			50	1720	20050	21.75	22	0-1
				1732.5	20175	21.78	22	0-1
				1745	20300	21.78	22	0-1
		100RB		1720	20050	21.70	22	0-1
				1732.5	20175	21.81	22	0-1
				1745	20300	21.74	22	0-1
	16-QAM	1 RB	0	1720	20050	20.71	22	0-1
				1732.5	20175	20.76	22	0-1
				1745	20300	20.79	22	0-1
			50	1720	20050	20.81	22	0-1
				1732.5	20175	20.73	22	0-1
				1745	20300	20.81	22	0-1
			99	1720	20050	20.83	22	0-1
				1732.5	20175	20.81	22	0-1
				1745	20300	20.85	22	0-1
		50 RB	0	1720	20050	20.63	22	0-2
				1732.5	20175	20.70	22	0-2
				1745	20300	20.69	22	0-2
			25	1720	20050	20.61	22	0-2
				1732.5	20175	20.70	22	0-2
				1745	20300	20.83	22	0-2
			50	1720	20050	20.69	22	0-2
				1732.5	20175	20.70	22	0-2
				1745	20300	20.72	22	0-2
		100RB		1720	20050	20.66	22	0-2
				1732.5	20175	20.78	22	0-2
				1745	20300	20.64	22	0-2

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FDD Band 4								
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
15	QPSK	1 RB	0	1717.5	20025	21.77	22	0
				1732.5	20175	21.74	22	0
				1747.5	20325	21.85	22	0
			36	1717.5	20025	21.85	22	0
				1732.5	20175	21.73	22	0
				1747.5	20325	21.80	22	0
			74	1717.5	20025	21.76	22	0
				1732.5	20175	21.74	22	0
				1747.5	20325	21.87	22	0
		36 RB	0	1717.5	20025	21.57	22	0-1
				1732.5	20175	21.75	22	0-1
				1747.5	20325	21.72	22	0-1
			18	1717.5	20025	21.57	22	0-1
				1732.5	20175	21.75	22	0-1
				1747.5	20325	21.80	22	0-1
			37	1717.5	20025	21.67	22	0-1
				1732.5	20175	21.69	22	0-1
				1747.5	20325	21.77	22	0-1
		75RB		1717.5	20025	21.64	22	0-1
				1732.5	20175	21.80	22	0-1
				1747.5	20325	21.72	22	0-1
	16-QAM	1 RB	0	1717.5	20025	20.68	22	0-1
				1732.5	20175	20.72	22	0-1
				1747.5	20325	20.75	22	0-1
			36	1717.5	20025	20.73	22	0-1
				1732.5	20175	20.70	22	0-1
				1747.5	20325	20.77	22	0-1
			74	1717.5	20025	20.77	22	0-1
				1732.5	20175	20.76	22	0-1
				1747.5	20325	20.80	22	0-1
		36 RB	0	1717.5	20025	20.60	22	0-2
				1732.5	20175	20.62	22	0-2
				1747.5	20325	20.68	22	0-2
			18	1717.5	20025	20.58	22	0-2
				1732.5	20175	20.62	22	0-2
				1747.5	20325	20.82	22	0-2
			37	1717.5	20025	20.60	22	0-2
				1732.5	20175	20.62	22	0-2
				1747.5	20325	20.65	22	0-2
		75RB		1717.5	20025	20.62	22	0-2
				1732.5	20175	20.73	22	0-2
				1747.5	20325	20.64	22	0-2

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FDD Band 4								
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
10	QPSK	1 RB	0	1715	20000	21.75	22	0
				1732.5	20175	21.70	22	0
				1750	20350	21.75	22	0
			25	1715	20000	21.78	22	0
				1732.5	20175	21.70	22	0
				1750	20350	21.78	22	0
			49	1715	20000	21.68	22	0
				1732.5	20175	21.69	22	0
				1750	20350	21.81	22	0
		25 RB	0	1715	20000	21.55	22	0-1
				1732.5	20175	21.72	22	0-1
				1750	20350	21.63	22	0-1
			12	1715	20000	21.53	22	0-1
				1732.5	20175	21.71	22	0-1
				1750	20350	21.79	22	0-1
			25	1715	20000	21.62	22	0-1
				1732.5	20175	21.67	22	0-1
				1750	20350	21.68	22	0-1
		50RB		1715	20000	21.60	22	0-1
				1732.5	20175	21.71	22	0-1
				1750	20350	21.67	22	0-1
	16-QAM	1 RB	0	1715	20000	20.60	22	0-1
				1732.5	20175	20.67	22	0-1
				1750	20350	20.69	22	0-1
			25	1715	20000	20.64	22	0-1
				1732.5	20175	20.68	22	0-1
				1750	20350	20.72	22	0-1
			49	1715	20000	20.70	22	0-1
				1732.5	20175	20.72	22	0-1
				1750	20350	20.70	22	0-1
		25 RB	0	1715	20000	20.53	22	0-2
				1732.5	20175	20.56	22	0-2
				1750	20350	20.63	22	0-2
			12	1715	20000	20.56	22	0-2
				1732.5	20175	20.54	22	0-2
				1750	20350	20.74	22	0-2
			25	1715	20000	20.56	22	0-2
				1732.5	20175	20.53	22	0-2
				1750	20350	20.59	22	0-2
		50RB		1715	20000	20.62	22	0-2
				1732.5	20175	20.66	22	0-2
				1750	20350	20.54	22	0-2

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FDD Band 4									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
5	QPSK	1 RB	0	1712.5	19975	21.68	22	0	
				1732.5	20175	21.66	22	0	
				1752.5	20375	21.68	22	0	
			12	1712.5	19975	21.70	22	0	
				1732.5	20175	21.67	22	0	
				1752.5	20375	21.68	22	0	
			24	1712.5	19975	21.65	22	0	
				1732.5	20175	21.65	22	0	
				1752.5	20375	21.81	22	0	
		12 RB	0	1712.5	19975	21.48	22	0-1	
				1732.5	20175	21.70	22	0-1	
				1752.5	20375	21.59	22	0-1	
			6	1712.5	19975	21.51	22	0-1	
				1732.5	20175	21.63	22	0-1	
				1752.5	20375	21.70	22	0-1	
			13	1712.5	19975	21.58	22	0-1	
				1732.5	20175	21.64	22	0-1	
				1752.5	20375	21.60	22	0-1	
		25RB			1712.5	19975	21.58	22	0-1
					1732.5	20175	21.71	22	0-1
					1752.5	20375	21.64	22	0-1
		16-QAM	1 RB	0	1712.5	19975	20.56	22	0-1
					1732.5	20175	20.62	22	0-1
					1752.5	20375	20.62	22	0-1
	12			1712.5	19975	20.55	22	0-1	
				1732.5	20175	20.67	22	0-1	
				1752.5	20375	20.62	22	0-1	
	24			1712.5	19975	20.67	22	0-1	
				1732.5	20175	20.71	22	0-1	
				1752.5	20375	20.69	22	0-1	
	12 RB			0	1712.5	19975	20.50	22	0-2
					1732.5	20175	20.52	22	0-2
					1752.5	20375	20.58	22	0-2
			6	1712.5	19975	20.55	22	0-2	
				1732.5	20175	20.49	22	0-2	
				1752.5	20375	20.71	22	0-2	
			13	1712.5	19975	20.54	22	0-2	
				1732.5	20175	20.43	22	0-2	
				1752.5	20375	20.58	22	0-2	
	25RB			1712.5	19975	20.60	22	0-2	
				1732.5	20175	20.63	22	0-2	
				1752.5	20375	20.53	22	0-2	

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FDD Band 4								
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
3	QPSK	1 RB	0	1711.5	19965	21.62	22	0
				1732.5	20175	21.65	22	0
				1753.5	20385	21.59	22	0
			7	1711.5	19965	21.63	22	0
				1732.5	20175	21.61	22	0
				1753.5	20385	21.68	22	0
			14	1711.5	19965	21.59	22	0
				1732.5	20175	21.56	22	0
				1753.5	20385	21.77	22	0
		8 RB	0	1711.5	19965	21.42	22	0-1
				1732.5	20175	21.69	22	0-1
				1753.5	20385	21.50	22	0-1
			4	1711.5	19965	21.43	22	0-1
				1732.5	20175	21.55	22	0-1
				1753.5	20385	21.62	22	0-1
			7	1711.5	19965	21.50	22	0-1
				1732.5	20175	21.62	22	0-1
				1753.5	20385	21.57	22	0-1
		15RB		1711.5	19965	21.56	22	0-1
				1732.5	20175	21.61	22	0-1
				1753.5	20385	21.55	22	0-1
	16-QAM	1 RB	0	1711.5	19965	20.53	22	0-1
				1732.5	20175	20.54	22	0-1
				1753.5	20385	20.61	22	0-1
			7	1711.5	19965	20.52	22	0-1
				1732.5	20175	20.65	22	0-1
				1753.5	20385	20.56	22	0-1
			14	1711.5	19965	20.62	22	0-1
				1732.5	20175	20.66	22	0-1
				1753.5	20385	20.60	22	0-1
		8 RB	0	1711.5	19965	20.46	22	0-2
				1732.5	20175	20.49	22	0-2
				1753.5	20385	20.52	22	0-2
			4	1711.5	19965	20.52	22	0-2
				1732.5	20175	20.43	22	0-2
				1753.5	20385	20.67	22	0-2
			7	1711.5	19965	20.46	22	0-2
				1732.5	20175	20.36	22	0-2
				1753.5	20385	20.56	22	0-2
		15RB		1711.5	19965	20.51	22	0-2
				1732.5	20175	20.57	22	0-2
				1753.5	20385	20.51	22	0-2

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FDD Band 4								
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
1.4	QPSK	1 RB	0	1710.7	19957	21.60	22	0
				1732.5	20175	21.61	22	0
				1754.3	20393	21.64	22	0
			2	1710.7	19957	21.68	22	0
				1732.5	20175	21.66	22	0
				1754.3	20393	21.61	22	0
			5	1710.7	19957	21.57	22	0
				1732.5	20175	21.64	22	0
				1754.3	20393	21.71	22	0
		3 RB	0	1710.7	19957	21.47	22	0-1
				1732.5	20175	21.61	22	0-1
				1754.3	20393	21.55	22	0-1
			2	1710.7	19957	21.49	22	0-1
				1732.5	20175	21.58	22	0-1
				1754.3	20393	21.63	22	0-1
			3	1710.7	19957	21.52	22	0-1
				1732.5	20175	21.60	22	0-1
				1754.3	20393	21.53	22	0-1
		6RB		1710.7	19957	21.56	22	0-1
				1732.5	20175	21.67	22	0-1
				1754.3	20393	21.55	22	0-1
	16-QAM	1 RB	0	1710.7	19957	20.50	22	0-1
				1732.5	20175	20.58	22	0-1
				1754.3	20393	20.54	22	0-1
			2	1710.7	19957	20.54	22	0-1
				1732.5	20175	20.66	22	0-1
				1754.3	20393	20.60	22	0-1
			5	1710.7	19957	20.67	22	0-1
				1732.5	20175	20.67	22	0-1
				1754.3	20393	20.65	22	0-1
		3 RB	0	1710.7	19957	20.41	22	0-2
				1732.5	20175	20.44	22	0-2
				1754.3	20393	20.49	22	0-2
			2	1710.7	19957	20.47	22	0-2
				1732.5	20175	20.41	22	0-2
				1754.3	20393	20.63	22	0-2
			3	1710.7	19957	20.52	22	0-2
				1732.5	20175	20.34	22	0-2
				1754.3	20393	20.49	22	0-2
		6RB		1710.7	19957	20.52	22	0-2
				1732.5	20175	20.61	22	0-2
				1754.3	20393	20.44	22	0-2

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FDD Band 5								
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
10	QPSK	1 RB	0	829	20450	22.44	23	0
				836.5	20525	22.21	23	0
				844	20600	22.38	23	0
			25	829	20450	22.39	23	0
				836.5	20525	22.36	23	0
				844	20600	22.47	23	0
			49	829	20450	22.39	23	0
				836.5	20525	22.39	23	0
				844	20600	22.55	23	0
		25 RB	0	829	20450	21.22	23	0-1
				836.5	20525	21.39	23	0-1
				844	20600	21.43	23	0-1
			12	829	20450	21.3	23	0-1
				836.5	20525	21.44	23	0-1
				844	20600	21.51	23	0-1
			25	829	20450	21.34	23	0-1
				836.5	20525	21.42	23	0-1
				844	20600	21.48	23	0-1
		50RB		829	20450	21.39	23	0-1
				836.5	20525	21.35	23	0-1
				844	20600	21.43	23	0-1
	16-QAM	1 RB	0	829	20450	20.94	22	0-1
				836.5	20525	21.64	22	0-1
				844	20600	21.29	22	0-1
			25	829	20450	21.00	22	0-1
				836.5	20525	21.67	22	0-1
				844	20600	21.61	22	0-1
			49	829	20450	20.97	22	0-1
				836.5	20525	21.71	22	0-1
				844	20600	21.84	22	0-1
		25 RB	0	829	20450	20.21	22	0-2
				836.5	20525	20.37	22	0-2
				844	20600	20.42	22	0-2
			12	829	20450	20.2	22	0-2
				836.5	20525	20.31	22	0-2
				844	20600	20.29	22	0-2
			25	829	20450	20.24	22	0-2
				836.5	20525	20.45	22	0-2
				844	20600	20.42	22	0-2
		50RB		829	20450	20.09	22	0-2
				836.5	20525	20.36	22	0-2
				844	20600	20.28	22	0-2

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FDD Band 5								
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
5	QPSK	1 RB	0	826.5	20425	22.32	23	0
				836.5	20525	22.34	23	0
				846.5	20625	22.32	23	0
			12	826.5	20425	22.13	23	0
				836.5	20525	22.35	23	0
				846.5	20625	22.50	23	0
			24	826.5	20425	22.35	23	0
				836.5	20525	22.33	23	0
				846.5	20625	22.32	23	0
		12 RB	0	826.5	20425	21.26	23	0-1
				836.5	20525	21.47	23	0-1
				846.5	20625	21.39	23	0-1
			6	826.5	20425	21.32	23	0-1
				836.5	20525	21.51	23	0-1
				846.5	20625	21.63	23	0-1
			13	826.5	20425	21.24	23	0-1
				836.5	20525	21.44	23	0-1
				846.5	20625	21.47	23	0-1
		25RB		826.5	20425	21.27	23	0-1
				836.5	20525	21.35	23	0-1
				846.5	20625	21.38	23	0-1
	16-QAM	1 RB	0	826.5	20425	21.1	22	0-1
				836.5	20525	21.63	22	0-1
				846.5	20625	21.47	22	0-1
			12	826.5	20425	21.13	22	0-1
				836.5	20525	21.6	22	0-1
				846.5	20625	21.07	22	0-1
			24	826.5	20425	21.51	22	0-1
				836.5	20525	21.23	22	0-1
				846.5	20625	21.57	22	0-1
		12 RB	0	826.5	20425	20.32	22	0-2
				836.5	20525	20.46	22	0-2
				846.5	20625	20.6	22	0-2
			6	826.5	20425	20.24	22	0-2
				836.5	20525	20.49	22	0-2
				846.5	20625	20.65	22	0-2
			13	826.5	20425	20.4	22	0-2
				836.5	20525	20.39	22	0-2
				846.5	20625	20.43	22	0-2
		25RB		826.5	20425	20.25	22	0-2
				836.5	20525	20.37	22	0-2
				846.5	20625	20.34	22	0-2

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FDD Band 5								
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
3	QPSK	1 RB	0	825.5	20415	22.08	23	0
				836.5	20525	22.3	23	0
				847.5	20635	22.33	23	0
			7	825.5	20415	22.21	23	0
				836.5	20525	22.42	23	0
				847.5	20635	22.4	23	0
			14	825.5	20415	22.27	23	0
				836.5	20525	22.45	23	0
				847.5	20635	22.3	23	0
		8 RB	0	825.5	20415	21.35	23	0-1
				836.5	20525	21.43	23	0-1
				847.5	20635	21.46	23	0-1
			4	825.5	20415	21.33	23	0-1
				836.5	20525	21.44	23	0-1
				847.5	20635	21.44	23	0-1
			7	825.5	20415	21.28	23	0-1
				836.5	20525	21.42	23	0-1
				847.5	20635	21.42	23	0-1
		15RB		825.5	20415	21.34	23	0-1
				836.5	20525	21.44	23	0-1
				847.5	20635	21.46	23	0-1
	16-QAM	1 RB	0	825.5	20415	20.91	22	0-1
				836.5	20525	21.01	22	0-1
				847.5	20635	21.21	22	0-1
			7	825.5	20415	21.46	22	0-1
				836.5	20525	21.58	22	0-1
				847.5	20635	21.69	22	0-1
			14	825.5	20415	21.23	22	0-1
				836.5	20525	21.59	22	0-1
				847.5	20635	21.29	22	0-1
		8 RB	0	825.5	20415	20.07	22	0-2
				836.5	20525	20.22	22	0-2
				847.5	20635	20.37	22	0-2
			4	825.5	20415	20.32	22	0-2
				836.5	20525	20.51	22	0-2
				847.5	20635	20.4	22	0-2
			7	825.5	20415	20.21	22	0-2
				836.5	20525	20.31	22	0-2
				847.5	20635	20.4	22	0-2
		15RB		825.5	20415	20.22	22	0-2
				836.5	20525	20.4	22	0-2
				847.5	20635	20.37	22	0-2

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FDD Band 5								
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
1.4	QPSK	1 RB	0	824.7	20407	22.17	23	0
				836.5	20525	22.39	23	0
				848.3	20643	22.14	23	0
			2	824.7	20407	22.44	23	0
				836.5	20525	22.37	23	0
				848.3	20643	22.38	23	0
			5	824.7	20407	22.21	23	0
				836.5	20525	22.36	23	0
				848.3	20643	22.36	23	0
		3 RB	0	824.7	20407	22.46	23	0-1
				836.5	20525	22.59	23	0-1
				848.3	20643	22.45	23	0-1
			2	824.7	20407	22.25	23	0-1
				836.5	20525	22.4	23	0-1
				848.3	20643	22.37	23	0-1
			3	824.7	20407	22.18	23	0-1
				836.5	20525	22.32	23	0-1
				848.3	20643	22.4	23	0-1
			6RB	824.7	20407	21.44	23	0-1
				836.5	20525	21.41	23	0-1
				848.3	20643	21.45	23	0-1
	16-QAM	1 RB	0	824.7	20407	21.15	22	0-1
				836.5	20525	21.48	22	0-1
				848.3	20643	21.57	22	0-1
			2	824.7	20407	21.25	22	0-1
				836.5	20525	21.37	22	0-1
				848.3	20643	21.45	22	0-1
			5	824.7	20407	21.27	22	0-1
				836.5	20525	21.34	22	0-1
				848.3	20643	21.67	22	0-1
		3 RB	0	824.7	20407	21.36	22	0-2
				836.5	20525	21.53	22	0-2
				848.3	20643	21.58	22	0-2
			2	824.7	20407	21.27	22	0-2
				836.5	20525	21.55	22	0-2
				848.3	20643	21.51	22	0-2
			3	824.7	20407	21.5	22	0-2
				836.5	20525	21.55	22	0-2
				848.3	20643	21.55	22	0-2
		6RB		824.7	20407	20.44	22	0-2
				836.5	20525	20.55	22	0-2
				848.3	20643	20.48	22	0-2

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FDD Band 13								
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
10	QPSK	1 RB	0	782	23230	22.23	23	0
			25	782	23230	22.66	23	0
			49	782	23230	22.18	23	0
		25 RB	0	782	23230	21.41	23	0-1
			12	782	23230	21.76	23	0-1
			25	782	23230	21.69	23	0-1
			50RB	782	23230	21.43	23	0-1
	16-QAM	1 RB	0	782	23230	21.37	22	0-1
			25	782	23230	21.5	22	0-1
			49	782	23230	21.3	22	0-1
		25 RB	0	782	23230	20.31	22	0-2
			12	782	23230	20.76	22	0-2
			25	782	23230	20.63	22	0-2
			50RB	782	23230	20.43	22	0-2

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FDD Band 13								
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
5	QPSK	1 RB	0	779.5	23205	22.26	23	0
				782	23230	22.56	23	0
				784.5	23255	22.61	23	0
			12	779.5	23205	22.33	23	0
				782	23230	22.55	23	0
				784.5	23255	22.36	23	0
			24	779.5	23205	22.53	23	0
				782	23230	22.42	23	0
				784.5	23255	22.21	23	0
		12 RB	0	779.5	23205	21.43	23	0-1
				782	23230	21.47	23	0-1
				784.5	23255	21.68	23	0-1
			6	779.5	23205	21.42	23	0-1
				782	23230	21.58	23	0-1
				784.5	23255	21.47	23	0-1
			13	779.5	23205	21.56	23	0-1
				782	23230	21.61	23	0-1
				784.5	23255	21.27	23	0-1
			25RB	779.5	23205	21.4	23	0-1
				782	23230	21.61	23	0-1
				784.5	23255	21.49	23	0-1
	16-QAM	1 RB	0	779.5	23205	21.12	22	0-1
				782	23230	21.5	22	0-1
				784.5	23255	21.91	22	0-1
			12	779.5	23205	21.31	22	0-1
				782	23230	21.55	22	0-1
				784.5	23255	21.37	22	0-1
			24	779.5	23205	21.77	22	0-1
				782	23230	21.22	22	0-1
				784.5	23255	21.01	22	0-1
		12 RB	0	779.5	23205	20.41	22	0-2
				782	23230	20.51	22	0-2
				784.5	23255	20.69	22	0-2
			6	779.5	23205	20.35	22	0-2
				782	23230	20.62	22	0-2
				784.5	23255	20.56	22	0-2
			13	779.5	23205	20.52	22	0-2
				782	23230	20.54	22	0-2
				784.5	23255	20.25	22	0-2
		25RB		779.5	23205	20.39	22	0-2
				782	23230	20.53	22	0-2
				784.5	23255	20.54	22	0-2

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FDD Band 17								
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
10	QPSK	1 RB	0	709	23780	22.31	23	0
				710	23790	22.3	23	0
				711	23800	22.57	23	0
			25	709	23780	22.77	23	0
				710	23790	22.55	23	0
				711	23800	22.87	23	0
			49	709	23780	22.22	23	0
				710	23790	22.46	23	0
				711	23800	22.19	23	0
		25 RB	0	709	23780	21.61	23	0-1
				710	23790	21.62	23	0-1
				711	23800	21.67	23	0-1
			12	709	23780	21.6	23	0-1
				710	23790	21.66	23	0-1
				711	23800	21.52	23	0-1
			25	709	23780	21.57	23	0-1
				710	23790	21.36	23	0-1
				711	23800	21.55	23	0-1
		50RB		709	23780	21.53	23	0-1
				710	23790	21.43	23	0-1
				711	23800	21.43	23	0-1
	16-QAM	1 RB	0	709	23780	21.35	22	0-1
				710	23790	21.79	22	0-1
				711	23800	21.53	22	0-1
			25	709	23780	21.69	22	0-1
				710	23790	21.83	22	0-1
				711	23800	21.63	22	0-1
			49	709	23780	21.32	22	0-1
				710	23790	20.93	22	0-1
				711	23800	21.32	22	0-1
		25 RB	0	709	23780	20.67	22	0-2
				710	23790	20.59	22	0-2
				711	23800	20.66	22	0-2
			12	709	23780	20.59	22	0-2
				710	23790	20.7	22	0-2
				711	23800	20.47	22	0-2
			25	709	23780	20.64	22	0-2
				710	23790	20.26	22	0-2
				711	23800	20.5	22	0-2
		50RB		709	23780	20.51	22	0-2
				710	23790	20.44	22	0-2
				711	23800	20.37	22	0-2

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FDD Band 17								
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
5	QPSK	1 RB	0	706.5	23755	22.04	23	0
				710	23790	22.63	23	0
				713.5	23825	22.54	23	0
			12	706.5	23755	22.51	23	0
				710	23790	22.88	23	0
				713.5	23825	22.34	23	0
			24	706.5	23755	22.9	23	0
				710	23790	22.38	23	0
				713.5	23825	22.1	23	0
		12 RB	0	706.5	23755	21.39	23	0-1
				710	23790	21.71	23	0-1
				713.5	23825	21.51	23	0-1
			6	706.5	23755	21.54	23	0-1
				710	23790	21.79	23	0-1
				713.5	23825	21.51	23	0-1
			13	706.5	23755	21.73	23	0-1
				710	23790	21.66	23	0-1
				713.5	23825	21.28	23	0-1
		25RB		706.5	23755	21.5	23	0-1
				710	23790	21.47	23	0-1
				713.5	23825	21.36	23	0-1
	16-QAM	1 RB	0	706.5	23755	21.35	22	0-1
				710	23790	21.52	22	0-1
				713.5	23825	21.59	22	0-1
			12	706.5	23755	21.64	22	0-1
				710	23790	21.21	22	0-1
				713.5	23825	21.11	22	0-1
			24	706.5	23755	21.5	22	0-1
				710	23790	21.36	22	0-1
				713.5	23825	21.09	22	0-1
		12 RB	0	706.5	23755	20.41	22	0-2
				710	23790	20.75	22	0-2
				713.5	23825	20.47	22	0-2
			6	706.5	23755	20.52	22	0-2
				710	23790	20.55	22	0-2
				713.5	23825	20.5	22	0-2
			13	706.5	23755	20.72	22	0-2
				710	23790	20.72	22	0-2
				713.5	23825	20.2	22	0-2
		25RB		706.5	23755	20.53	22	0-2
				710	23790	20.77	22	0-2
				713.5	23825	20.37	22	0-2

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FDD Band 25								
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
20	QPSK	1 RB	0	1860	26140	21.92	22	0
				1882.5	26365	21.72	22	0
				1905	26590	21.68	22	0
			50	1860	26140	21.90	22	0
				1882.5	26365	21.70	22	0
				1905	26590	21.66	22	0
			99	1860	26140	21.81	22	0
				1882.5	26365	21.69	22	0
				1905	26590	21.70	22	0
		50 RB	0	1860	26140	21.88	22	0-1
				1882.5	26365	21.74	22	0-1
				1905	26590	21.62	22	0-1
			25	1860	26140	21.68	22	0-1
				1882.5	26365	21.76	22	0-1
				1905	26590	21.72	22	0-1
			50	1860	26140	21.91	22	0-1
				1882.5	26365	21.73	22	0-1
				1905	26590	21.93	22	0-1
		100RB		1860	26140	21.71	22	0-1
				1882.5	26365	21.70	22	0-1
				1905	26590	21.73	22	0-1
	16-QAM	1 RB	0	1860	26140	20.88	22	0-1
				1882.5	26365	20.63	22	0-1
				1905	26590	20.67	22	0-1
			50	1860	26140	20.81	22	0-1
				1882.5	26365	20.64	22	0-1
				1905	26590	20.62	22	0-1
			99	1860	26140	20.78	22	0-1
				1882.5	26365	20.66	22	0-1
				1905	26590	20.64	22	0-1
		50 RB	0	1860	26140	20.83	22	0-2
				1882.5	26365	20.68	22	0-2
				1905	26590	20.53	22	0-2
			25	1860	26140	20.59	22	0-2
				1882.5	26365	20.74	22	0-2
				1905	26590	20.69	22	0-2
			50	1860	26140	20.90	22	0-2
				1882.5	26365	20.64	22	0-2
				1905	26590	20.84	22	0-2
		100RB		1860	26140	20.70	22	0-2
				1882.5	26365	20.66	22	0-2
				1905	26590	20.72	22	0-2

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FDD Band 25								
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
15	QPSK	1 RB	0	1857.5	26115	21.88	22	0
				1882.5	26365	21.70	22	0
				1907.5	26615	21.62	22	0
			36	1857.5	26115	21.82	22	0
				1882.5	26365	21.65	22	0
				1907.5	26615	21.62	22	0
			74	1857.5	26115	21.79	22	0
				1882.5	26365	21.63	22	0
				1907.5	26615	21.63	22	0
		36 RB	0	1857.5	26115	21.79	22	0-1
				1882.5	26365	21.65	22	0-1
				1907.5	26615	21.57	22	0-1
			18	1857.5	26115	21.65	22	0-1
				1882.5	26365	21.70	22	0-1
				1907.5	26615	21.68	22	0-1
			37	1857.5	26115	21.83	22	0-1
				1882.5	26365	21.68	22	0-1
				1907.5	26615	21.84	22	0-1
		75RB		1857.5	26115	21.64	22	0-1
				1882.5	26365	21.66	22	0-1
				1907.5	26615	21.68	22	0-1
	16-QAM	1 RB	0	1857.5	26115	20.80	22	0-1
				1882.5	26365	20.55	22	0-1
				1907.5	26615	20.62	22	0-1
			36	1857.5	26115	20.78	22	0-1
				1882.5	26365	20.57	22	0-1
				1907.5	26615	20.55	22	0-1
			74	1857.5	26115	20.74	22	0-1
				1882.5	26365	20.63	22	0-1
				1907.5	26615	20.61	22	0-1
		36 RB	0	1857.5	26115	20.77	22	0-2
				1882.5	26365	20.63	22	0-2
				1907.5	26615	20.43	22	0-2
			18	1857.5	26115	20.58	22	0-2
				1882.5	26365	20.65	22	0-2
				1907.5	26615	20.64	22	0-2
			37	1857.5	26115	20.86	22	0-2
				1882.5	26365	20.63	22	0-2
				1907.5	26615	20.76	22	0-2
		75RB		1857.5	26115	20.66	22	0-2
				1882.5	26365	20.60	22	0-2
				1907.5	26615	20.65	22	0-2

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FDD Band 25								
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
10	QPSK	1 RB	0	1855	26090	21.88	22	0
				1882.5	26365	21.66	22	0
				1910	26640	21.55	22	0
			25	1855	26090	21.81	22	0
				1882.5	26365	21.55	22	0
				1910	26640	21.60	22	0
			49	1855	26090	21.78	22	0
				1882.5	26365	21.55	22	0
				1910	26640	21.55	22	0
		25 RB	0	1855	26090	21.69	22	0-1
				1882.5	26365	21.56	22	0-1
				1910	26640	21.54	22	0-1
			12	1855	26090	21.62	22	0-1
				1882.5	26365	21.69	22	0-1
				1910	26640	21.59	22	0-1
			25	1855	26090	21.80	22	0-1
				1882.5	26365	21.60	22	0-1
				1910	26640	21.79	22	0-1
		50RB		1855	26090	21.58	22	0-1
				1882.5	26365	21.63	22	0-1
				1910	26640	21.68	22	0-1
	16-QAM	1 RB	0	1855	26090	20.70	22	0-1
				1882.5	26365	20.52	22	0-1
				1910	26640	20.54	22	0-1
			25	1855	26090	20.74	22	0-1
				1882.5	26365	20.49	22	0-1
				1910	26640	20.54	22	0-1
			49	1855	26090	20.68	22	0-1
				1882.5	26365	20.53	22	0-1
				1910	26640	20.54	22	0-1
		25 RB	0	1855	26090	20.77	22	0-2
				1882.5	26365	20.58	22	0-2
				1910	26640	20.41	22	0-2
			12	1855	26090	20.51	22	0-2
				1882.5	26365	20.60	22	0-2
				1910	26640	20.60	22	0-2
			25	1855	26090	20.80	22	0-2
				1882.5	26365	20.62	22	0-2
				1910	26640	20.74	22	0-2
		50RB		1855	26090	20.66	22	0-2
				1882.5	26365	20.50	22	0-2
				1910	26640	20.59	22	0-2

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FDD Band 25								
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
5	QPSK	1 RB	0	1852.5	26065	21.81	22	0
				1882.5	26365	21.58	22	0
				1912.5	26665	21.50	22	0
			12	1852.5	26065	21.77	22	0
				1882.5	26365	21.53	22	0
				1912.5	26665	21.51	22	0
			24	1852.5	26065	21.71	22	0
				1882.5	26365	21.46	22	0
				1912.5	26665	21.46	22	0
		12 RB	0	1852.5	26065	21.63	22	0-1
				1882.5	26365	21.53	22	0-1
				1912.5	26665	21.52	22	0-1
			6	1852.5	26065	21.60	22	0-1
				1882.5	26365	21.61	22	0-1
				1912.5	26665	21.53	22	0-1
			13	1852.5	26065	21.76	22	0-1
				1882.5	26365	21.57	22	0-1
				1912.5	26665	21.70	22	0-1
		25RB		1852.5	26065	21.50	22	0-1
				1882.5	26365	21.58	22	0-1
				1912.5	26665	21.63	22	0-1
	16-QAM	1 RB	0	1852.5	26065	20.66	22	0-1
				1882.5	26365	20.46	22	0-1
				1912.5	26665	20.46	22	0-1
			12	1852.5	26065	20.72	22	0-1
				1882.5	26365	20.45	22	0-1
				1912.5	26665	20.47	22	0-1
			24	1852.5	26065	20.63	22	0-1
				1882.5	26365	20.45	22	0-1
				1912.5	26665	20.47	22	0-1
		12 RB	0	1852.5	26065	20.68	22	0-2
				1882.5	26365	20.50	22	0-2
				1912.5	26665	20.32	22	0-2
			6	1852.5	26065	20.45	22	0-2
				1882.5	26365	20.59	22	0-2
				1912.5	26665	20.51	22	0-2
			13	1852.5	26065	20.71	22	0-2
				1882.5	26365	20.57	22	0-2
				1912.5	26665	20.66	22	0-2
		25RB		1852.5	26065	20.65	22	0-2
				1882.5	26365	20.48	22	0-2
				1912.5	26665	20.49	22	0-2

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FDD Band 25									
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)	
3	QPSK	1 RB	0	1851.5	26055	21.80	22	0	
				1882.5	26365	21.48	22	0	
				1913.5	26675	21.48	22	0	
			7	1851.5	26055	21.75	22	0	
				1882.5	26365	21.47	22	0	
				1913.5	26675	21.47	22	0	
			14	1851.5	26055	21.63	22	0	
				1882.5	26365	21.46	22	0	
				1913.5	26675	21.46	22	0	
		8 RB	0	1851.5	26055	21.61	22	0-1	
				1882.5	26365	21.47	22	0-1	
				1913.5	26675	21.46	22	0-1	
			4	1851.5	26055	21.60	22	0-1	
				1882.5	26365	21.55	22	0-1	
				1913.5	26675	21.48	22	0-1	
			7	1851.5	26055	21.71	22	0-1	
				1882.5	26365	21.49	22	0-1	
				1913.5	26675	21.65	22	0-1	
		15RB			1851.5	26055	21.45	22	0-1
					1882.5	26365	21.53	22	0-1
					1913.5	26675	21.56	22	0-1
	16-QAM	1 RB	0	1851.5	26055	20.59	22	0-1	
				1882.5	26365	20.39	22	0-1	
				1913.5	26675	20.44	22	0-1	
			7	1851.5	26055	20.66	22	0-1	
				1882.5	26365	20.43	22	0-1	
				1913.5	26675	20.41	22	0-1	
			14	1851.5	26055	20.62	22	0-1	
				1882.5	26365	20.42	22	0-1	
				1913.5	26675	20.43	22	0-1	
		8 RB	0	1851.5	26055	20.59	22	0-2	
				1882.5	26365	20.45	22	0-2	
				1913.5	26675	20.26	22	0-2	
			4	1851.5	26055	20.37	22	0-2	
				1882.5	26365	20.57	22	0-2	
				1913.5	26675	20.49	22	0-2	
			7	1851.5	26055	20.62	22	0-2	
				1882.5	26365	20.51	22	0-2	
				1913.5	26675	20.61	22	0-2	
		15RB			1851.5	26055	20.62	22	0-2
					1882.5	26365	20.42	22	0-2
					1913.5	26675	20.42	22	0-2

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FDD Band 25								
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
1.4	QPSK	1 RB	0	1850.7	26047	21.75	22	0
				1882.5	26365	21.44	22	0
				1914.3	26683	21.48	22	0
			2	1850.7	26047	21.66	22	0
				1882.5	26365	21.44	22	0
				1914.3	26683	21.46	22	0
			5	1850.7	26047	21.58	22	0
				1882.5	26365	21.36	22	0
				1914.3	26683	21.43	22	0
		3 RB	0	1850.7	26047	21.57	22	0-1
				1882.5	26365	21.46	22	0-1
				1914.3	26683	21.43	22	0-1
			2	1850.7	26047	21.58	22	0-1
				1882.5	26365	21.54	22	0-1
				1914.3	26683	21.46	22	0-1
			3	1850.7	26047	21.70	22	0-1
				1882.5	26365	21.42	22	0-1
				1914.3	26683	21.63	22	0-1
		6RB		1850.7	26047	21.39	22	0-1
				1882.5	26365	21.51	22	0-1
				1914.3	26683	21.48	22	0-1
	16-QAM	1 RB	0	1850.7	26047	20.51	22	0-1
				1882.5	26365	20.34	22	0-1
				1914.3	26683	20.36	22	0-1
			2	1850.7	26047	20.63	22	0-1
				1882.5	26365	20.36	22	0-1
				1914.3	26683	20.38	22	0-1
			5	1850.7	26047	20.60	22	0-1
				1882.5	26365	20.36	22	0-1
				1914.3	26683	20.41	22	0-1
		3 RB	0	1850.7	26047	20.55	22	0-2
				1882.5	26365	20.44	22	0-2
				1914.3	26683	20.23	22	0-2
			2	1850.7	26047	20.27	22	0-2
				1882.5	26365	20.51	22	0-2
				1914.3	26683	20.41	22	0-2
			3	1850.7	26047	20.61	22	0-2
				1882.5	26365	20.44	22	0-2
				1914.3	26683	20.56	22	0-2
		6RB		1850.7	26047	20.59	22	0-2
				1882.5	26365	20.39	22	0-2
				1914.3	26683	20.41	22	0-2

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CDMA conducted power table:

Band	Channel	Frequency (MHz)	Target Power + Max. Tolerance (dBm)	1xRTT				EVDO	
				SO55	SO55	TDSO/SO32	TDSO/SO32	1x EvDO Rev. 0, FTAP/RTAP	1x EvDO Rev. A, FETAP/RETAP
				RC1	RC3	FCH+SCH	FCH	Subtype 0/1	Subtype 2
CDMA (BC0)	1013	824.7	23.00	22.67	22.64	22.58	22.58	22.70	22.60
	384	836.52	23.00	22.76	22.72	22.67	22.73	22.90	22.70
	777	848.31	23.00	22.50	22.45	22.28	22.29	22.60	22.50
CDMA (BC1)	25	1851.25	22.00	21.94	21.93	21.91	21.93	21.97	21.94
	600	1880	22.00	21.74	21.72	21.70	21.70	21.78	21.77
	1175	1908.75	22.00	21.92	21.87	21.84	21.84	21.96	21.95
CDMA (BC10)	476	817.9	23.00	22.57	22.55	22.48	22.51	22.60	22.50
	560	820	23.00	22.57	22.57	22.50	22.52	22.60	22.50
	684	823.1	23.00	22.61	22.63	22.57	22.59	22.70	22.60

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

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

Main Antenna (CH0)

802.11 b		Max. Rated Avg. Power + Max. Tolerance (dBm)	Average Power Output (dBm)
CH	Frequency (MHz)		Data Rate (Mbps)
			1
1	2412	13.5	13.50
6	2437	13.5	13.00
11	2462	13.5	12.62

802.11 g		Max. Rated Avg. Power + Max. Tolerance (dBm)	Average Power Output (dBm)
CH	Frequency (MHz)		Data Rate (Mbps)
			6
1	2412	6.77	6.04
6	2437	13	12.60
11	2462	6	5.83

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Main Antenna (CH0)

802.11 n(20M)		Max. Rated Avg. Power + Max. Tolerance (dBm)	Average Power Output (dBm)
CH	Frequency (MHz)		Data Rate (Mbps)
			6.5
1	2412	10	9.49
6	2437	10	9.30
11	2462	10	8.71

802.11 n(40M)		Max. Rated Avg. Power + Max. Tolerance (dBm)	Average Power Output (dBm)
CH	Frequency (MHz)		Data Rate (Mbps)
			13.5
3	2422	8	7.50
6	2437	9.5	8.65
9	2452	8	7.52

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Main Antenna (CH0)

802.11 a		Max. Rated Avg. Power + Max. Tolerance (dBm)	Average Power Output(dBm)
5.2/5.3/5.6/5.8G			Data Rate (Mbps)
CH	Frequency (MHz)		
36	5180	10.5	9.48
40	5200	10.5	9.89
44	5220	10.5	9.81
48	5240	10.5	9.78
52	5260	10.5	9.91
56	5280	10.5	9.94
60	5300	10.5	9.89
64	5320	9	8.54
100	5500	6	5.99
104	5520	10.5	9.23
108	5540	10.5	9.82
112	5560	10.5	9.76
116	5580	10.5	9.79
120	5600	10.5	9.72
124	5620	10.5	9.85
128	5640	10.5	9.93
132	5660	10.5	9.86
136	5680	10.5	9.85
140	5700	8	7.43
149	5745	10.5	9.39
153	5765	10.5	9.52
157	5785	10.5	9.69
161	5805	10.5	9.77
165	5825	10.5	9.87

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Main Antenna (CH0)

802.11 n(20M)		Max. Rated Avg. Power + Max. Tolerance (dBm)	Average Power Output(dBm)
5.2/5.3/5.6/5.8G			
CH	Frequency (MHz)		Data Rate (Mbps)
			6.5
36	5180	10.5	9.98
40	5200	10.5	9.85
44	5220	10.5	9.72
48	5240	10.5	9.65
52	5260	10.5	9.71
56	5280	10.5	9.79
60	5300	10.5	9.85
64	5320	10.5	9.48
100	5500	9.0	8.22
104	5520	10.5	9.77
108	5540	10.5	9.82
112	5560	10.5	9.74
116	5580	10.5	9.73
120	5600	10.5	9.75
124	5620	10.5	9.69
128	5640	10.5	9.85
132	5660	10.5	9.79
136	5680	10.5	9.63
140	5700	10.5	9.57
149	5745	10.5	9.30
153	5765	10.5	9.38
157	5785	10.5	9.47
161	5805	10.5	9.61
165	5825	10.5	9.65

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Main Antenna (CHO)

802.11 n(40M)		Max. Rated Avg. Power + Max. Tolerance (dBm)	Average Power Output(dBm)
5.2/5.3/5.6/5.8G			
CH	Frequency (MHz)		Data Rate (Mbps)
			13.5
38	5190	9.0	8.23
46	5230	10.5	9.61
54	5270	10.5	9.77
62	5310	9.0	7.23
102	5510	7.0	5.75
110	5550	10.0	9.58
118	5590	10.0	9.62
126	5630	10.0	9.71
134	5670	10.0	9.64
151	5755	11.0	9.21
159	5795	11.0	9.33

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Aux Antenna (CH1)

802.11 b		Max. Rated Avg. Power + Max. Tolerance (dBm)	Average Power Output (dBm)
CH	Frequency (MHz)		Data Rate (Mbps)
			1
1	2412	11	10.73
6	2437	11.2	11.14
11	2462	12	11.59

802.11 g		Max. Rated Avg. Power + Max. Tolerance (dBm)	Average Power Output (dBm)
CH	Frequency (MHz)		Data Rate (Mbps)
			6
1	2412	6	5.79
6	2437	11	10.97
11	2462	5	4.94

802.11 n(20M)		Max. Rated Avg. Power + Max. Tolerance (dBm)	Average Power Output (dBm)
CH	Frequency (MHz)		Data Rate (Mbps)
			6.5
1	2412	10	9.35
6	2437	10	9.49
11	2462	10	9.41

802.11 n(40M)		Max. Rated Avg. Power + Max. Tolerance (dBm)	Average Power Output (dBm)
CH	Frequency (MHz)		Data Rate (Mbps)
			13.5
3	2422	8	7.19
6	2437	9.5	8.63
9	2452	8	7.81

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Aux Antenna (CH1)

802.11 a		Max. Rated Avg. Power + Max. Tolerance (dBm)	Average Power Output(dBm)
5.2/5.3/5.6/5.8G			Data Rate (Mbps)
CH	Frequency (MHz)		
36	5180	10	9.31
40	5200	10	9.37
44	5220	10	9.22
48	5240	10	9.19
52	5260	10	9.16
56	5280	10	9.12
60	5300	10	9.60
64	5320	9	8.99
100	5500	6	5.97
104	5520	10.5	9.39
108	5540	10.5	9.45
112	5560	10.5	9.41
116	5580	10.5	9.39
120	5600	10.5	9.51
124	5620	10.5	9.37
128	5640	10.5	9.44
132	5660	10.5	9.39
136	5680	10.5	9.31
140	5700	8	7.62
149	5745	10	9.32
153	5765	10	9.44
157	5785	10	9.47
161	5805	10	9.52
165	5825	10	9.50

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Aux Antenna (CH1)

802.11 n(20M)		Max. Rated Avg. Power + Max. Tolerance (dBm)	Average Power Output(dBm)
5.2/5.3/5.6/5.8G			
CH	Frequency (MHz)		Data Rate (Mbps)
			6.5
36	5180	10.0	9.31
40	5200	10.0	9.36
44	5220	10.0	9.27
48	5240	10.0	9.19
52	5260	10.5	9.13
56	5280	10.5	9.11
60	5300	10.5	9.57
64	5320	10.5	9.49
100	5500	9.0	8.44
104	5520	10.5	9.39
108	5540	10.5	9.41
112	5560	10.5	9.35
116	5580	10.5	9.47
120	5600	10.5	9.51
124	5620	10.5	9.48
128	5640	10.5	9.44
132	5660	10.5	9.33
136	5680	10.5	9.27
140	5700	10.5	9.26
149	5745	10.5	9.25
153	5765	10.5	9.42
157	5785	10.5	9.51
161	5805	10.5	9.49
165	5825	10.5	9.54

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Aux Antenna (CH1)

802.11 n(40M)		Max. Rated Avg. Power + Max. Tolerance (dBm)	Average Power Output(dBm)
5.2/5.3/5.6/5.8G			
CH	Frequency (MHz)		Data Rate (Mbps)
			13.5
38	5190	9.00	8.57
46	5230	10.00	9.81
54	5270	10.50	9.86
62	5310	9.00	7.52
102	5510	7.00	5.75
110	5550	10.00	9.66
118	5590	10.00	9.23
126	5630	10.00	9.62
134	5670	10.00	9.04
151	5755	11.00	9.18
159	5795	11.00	9.25

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MIMO (CH0 + CH1)

802.11 n(20M)		Max. Rated Avg. Power + Max. Tolerance (dBm)	Average Power Output (dBm)		
CH	Frequency (MHz)		Data Rate (Mbps)		
			CH0	CH1	CH0 + CH1
1	2412	10	7.09	5.81	9.51
6	2437	10	7.45	5.25	9.50
11	2462	10	7.66	4.81	9.48

802.11 n(40M)		Max. Rated Avg. Power + Max. Tolerance (dBm)	Average Power Output (dBm)		
CH	Frequency (MHz)		Data Rate (Mbps)		
			CH0	CH1	CH0 + CH1
3	2422	8	5.29	3.59	7.53
6	2437	9.5	7.11	4.83	9.13
9	2452	8	6.15	2.88	7.83

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MIMO (CH0 + CH1)

802.11 n(20M)		Max. Rated Avg. Power + Max. Tolerance (dBm)	Average Power Output (dBm)		
5.2/5.3/5.6/5.8G			Data Rate (Mbps)		
CH	Frequency (MHz)		CH0	CH1	CH0 + CH1
36	5180	10.5	7.60	7.08	10.36
40	5200	10.5	7.51	6.77	10.17
44	5220	10.5	7.45	6.55	10.03
48	5240	10.5	7.33	6.41	9.90
52	5260	10.5	7.27	6.18	9.77
56	5280	10.5	7.88	7.05	10.50
60	5300	10.5	7.67	6.89	10.31
64	5320	10.5	6.90	6.04	9.50
100	5500	9.0	5.73	5.17	8.47
104	5520	10.5	7.46	7.06	10.27
108	5540	10.5	7.39	6.88	10.15
112	5560	10.5	7.33	6.78	10.07
116	5580	10.5	7.29	6.73	10.03
120	5600	10.5	7.21	6.80	10.02
124	5620	10.5	7.33	6.83	10.10
128	5640	10.5	7.39	6.81	10.12
132	5660	10.5	7.44	6.88	10.18
136	5680	10.5	7.42	6.99	10.22
140	5700	10.5	7.75	7.22	10.50
149	5745	10.5	7.26	6.50	9.91
153	5765	10.5	7.39	6.56	10.01
157	5785	10.5	7.21	6.69	9.97
161	5805	10.5	7.55	6.68	10.15
165	5825	10.5	7.36	6.90	10.15

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MIMO (CH0 + CH1)

802.11 n(40M)		Max. Rated Avg. Power + Max. Tolerance (dBm)	Average Power Output (dBm)		
5.2/5.3/5.6/5.8G			Data Rate (Mbps)		
CH	Frequency (MHz)		CH0	CH1	CH0 + CH1
38	5190	9.0	6.33	5.63	9.00
46	5230	10.5	7.87	6.97	10.45
54	5270	10.5	7.73	6.77	10.29
62	5310	9.0	5.59	4.49	8.09
102	5510	7.0	3.93	3.50	6.73
110	5550	10.0	6.93	6.55	9.75
118	5590	10.0	6.81	6.55	9.69
126	5630	10.0	7.06	6.42	9.76
134	5670	10.0	7.13	6.63	9.90
151	5755	11.0	7.66	7.11	10.40
159	5795	11.0	7.80	7.18	10.51

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Bluetooth conducted power table:

Frequency (MHz)	Data Rate	Avg.	
		dBm	mW
2402	1	3.51	2.244
2441	1	2.48	1.770
2480	1	1.98	1.578
2402	2	-1.85	0.653
2441	2	-3.23	0.475
2480	2	-4.34	0.368
2402	3	-3.11	0.489
2441	3	-4.95	0.320
2480	3	-5.65	0.272

Frequency (MHz)	Avg. (dBm)
	BT4.0
2402	1.48
2442	0.41
2480	0.17

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1.4 Test Environment

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

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

1.5 Operation Description

1. WWAN (GPRS/EDGE/WCDMA/HSDPA/HSPA/CDMA 1xRTT/CDMA EVDO rev.0 & rev.A/LTE):

The EUT is controlled by using Radio Communication Tester(R&S CMU200 and Anritsu MT8820C), and the communication between the EUT and the tester is established by air link. **The EUT was tested in the following configurations confirmed via KDB inquiry. (tracking number: 781437)**

Configurations: Back/back_curve/top/bottom/left/right side_0mm.

(Testing the left_curve side is not required since the reported SAR is $< 1.2 \text{ W/kg}$ based on KDB inquiry 781437.)

2. WLAN (802.11 a/b/g/n):

Use chipset specific software to control the EUT, and makes it transmit in maximum power. **The EUT was tested in the following configurations confirmed via KDB inquiry. (tracking number: 781437)**

Configurations: Back/back_curve/top/bottom/left/right side_0mm.

(Testing the right_curve side is not required since the reported SAR is $< 1.2 \text{ W/kg}$ based on KDB inquiry 781437.)

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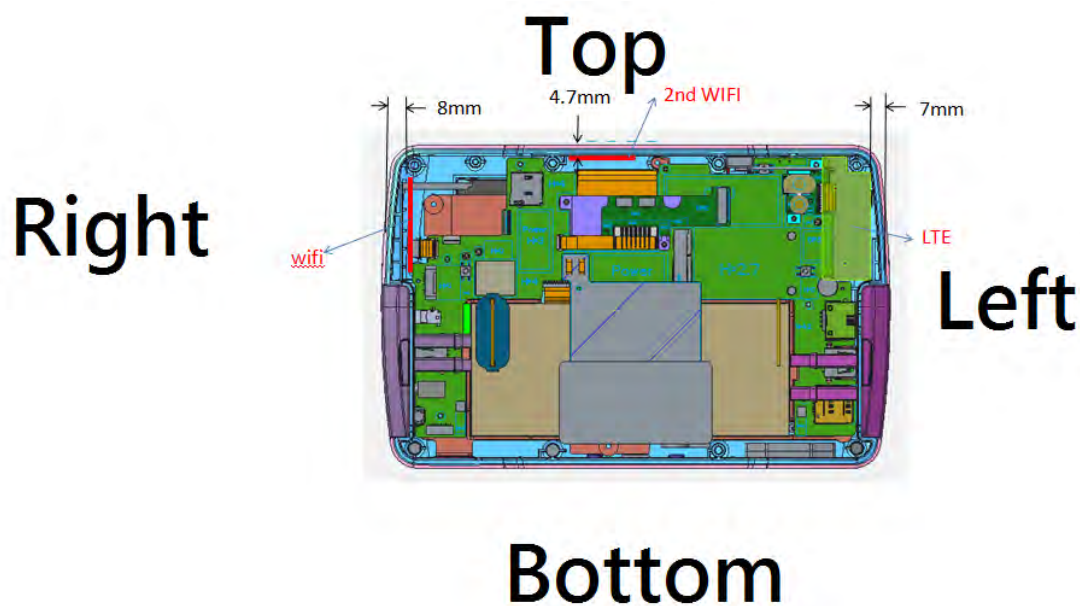
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Antenna position plot(back view)

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Note:

1. SAR test for GPRS was performed on the maximum sourced-based time-averaged power.
2. SAR measurement is not required for HSDPA/HSPA/HSPA+ since its maximum output power is less than ¼ dB higher than RMC without HSDPA/HSPA/HSPA+.
3. Body SAR was measured using Subtype 0/1 Physical Layer configurations for Rev. 0. The 3G SAR test reduction procedure is applied to Rev. A, Subtype 2 Physical layer configuration, with Rev. 0 as the primary mode.
4. For this Ev-Do data device that also support 1x RTT data operations, the 3G SAR test reduction procedure is applied to 1x RTT RC3 and RC1 with Ev-Do Rev. 0, Rev. A as the respective primary modes.(Since SAR is not required for Ev-Do Rev. A, only Rev. 0 need consideration as the primary mode.)
5. LTE modes test according to **FCC KDB 941225 D05v02r03**.
 - a. Per Section 5.2.1, the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation.
 - Using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
 - When the reported SAR is ≤ 0.8 W/kg, testing of the remaining RB offset configurations and required test channels is not required for 1 RB allocation; otherwise, SAR is required for the remaining required test channels and only for the RB offset configuration with the highest output power for that channel.
 - When the reported SAR of a required test channel is > 1.45 W/kg, SAR is required for all three RB offset configurations for that required test channel.
 - b. Per Section 5.2.2, the largest channel bandwidth and measure SAR for QPSK with 50% RB allocation
 - The procedures required for 1 RB allocation in 5.2.1 are applied to measure the SAR for QPSK with 50% RB allocation.
 - c. Per Section 5.2.3, the largest channel bandwidth and measure SAR for QPSK with 100% RB allocation
 - For QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation in 5.2.1 and 5.2.2 are ≤ 0.8 W/kg.
 - Otherwise, SAR is measured for the highest output power channel and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
 - d. Per Section 5.2.4, Higher order modulations

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- For each modulation besides QPSK; e.g., 16-QAM, 64-QAM, apply the QPSK procedures in sections 5.2.1, 5.2.2 and 5.2.3 to determine the QAM configurations that may need SAR measurement. For each configuration identified as required for testing, SAR is required only when the highest maximum output power for the configuration in the higher order modulation is $> \frac{1}{2}$ dB higher than the same configuration in QPSK or when the reported SAR for the QPSK configuration is > 1.45 W/kg.
- e. Per Section 5.3, other channel bandwidth standalone SAR test requirements
 - For the other channel bandwidths used by the device in a frequency band, apply all the procedures required for the largest channel bandwidth in section 5.2 to determine the channels and RB configurations that need SAR testing and only measure SAR when the highest maximum output power of a configuration requiring testing in the smaller channel bandwidth is $> \frac{1}{2}$ dB higher than the equivalent channel configurations in the largest channel bandwidth configuration or the reported SAR of a configuration for the largest channel bandwidth is > 1.45 W/kg.
 - The equivalent channel configuration for the RB allocation, RB offset and modulation etc. is determined for the smaller channel bandwidth according to the same number of RB allocated in the largest channel bandwidth.

802.11b DSSS SAR Test Requirements:

6. 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.
7. 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:

8. 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.

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Initial Test Configuration:

9. 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.
10. 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.
11. For WLAN Main & Aux antennas, 5.2G a/n(40), 5.3G n(20)/n(40), 5.6G n(20), 5.8G n(40) are chosen to be the initial test configurations.
12. For WLAN Main & Aux antennas, 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 maximum output power and the adjusted SAR is < 1.2 W/kg, SAR is not required for that subsequent test configuration.
13. BT and WLAN Main use the same antenna path and Bluetooth can't transmit simultaneously with WLAN Main.
14. Based on KDB447498D01, BT SAR measurement for back/top/right/left/bottom sides can be excluded.

(1) SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

$$\frac{\text{Max. tune up power(mW)}}{\text{Min. test separation distance(mm)}} \times \sqrt{f(\text{GHz})} \leq 3$$

When the minimum test separation distance is < 5mm, 5mm is applied to determine SAR test exclusion.

(2) For test separation distances > 50 mm, and the frequency at 100 MHz to 1500MHz, the SAR test exclusion threshold is determined according to the following, and as illustrated in Appendix B of KDB447498 D01.

$$[(\text{Threshold at 50mm in step1}) + (\text{test separation distance}-50\text{mm}) \times \left(\frac{f(\text{MHz})}{150}\right)](\text{mW}),$$

(3) For test separation distances > 50 mm, and the frequency at >1500MHz to 6GHz, the SAR test exclusion threshold is determined according to the following, and as illustrated in Appendix B of KDB447498 D01.

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Mode	Maximum power(dBm)	Maximum power(mW)	Top side			Right side			Left side		
			Ant. to surface (mm)	Exclusion threshold	Require SAR testing?	Ant. to surface (mm)	Exclusion threshold	Require SAR testing?	Ant. to surface (mm)	over 200mm	Require SAR testing?
BT	3.51	2.244	15.9	0.222	NO	less than 5	0.707	NO	214.2	yes	NO
Mode	Maximum power(dBm)	Maximum power(mW)	Back / back_curve			Bottom side					
			Ant. to surface (mm)	Exclusion threshold	Require SAR testing?	Ant. to surface (mm)	Exclusion threshold	Require SAR testing?			
BT	3.51	2.244	less than 5	0.707	NO	82.6	326.07	NO			

- 15.** For 2.4/5.2/5.3/5.6/5.8GHz WLAN Main and Aux antennas, the maximum output power of each antenna during simultaneous transmission (for 802.11n) is much less than that used in standalone transmission (802.11a/b/n), so it is more conservative to use the sum of 1-g SAR provision to exclude the SAR measurement for 802.11n MIMO.
- 16.** According to KDB447498 D01, testing of other required channels is not required when the reported 1-g SAR for the highest output channel is ≤ 0.8 W/kg, when the transmission band is ≤ 100 MHz.
- 17.** According to KDB865664 D01, SAR measurement variability must be assessed for each frequency band. When the original highest measured SAR is ≥ 0.8 W/kg, repeated that measurement once. Perform a second repeated measurement only if the ratio of largest to smallest SAR for the original and first repeated measurements is > 1.20 or when the original or repeated measurement is ≥ 1.45 W/kg ($\sim 10\%$ from the 1-g SAR limit).

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1.6 The SAR Measurement System

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

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

- 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).
- 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.
- 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.

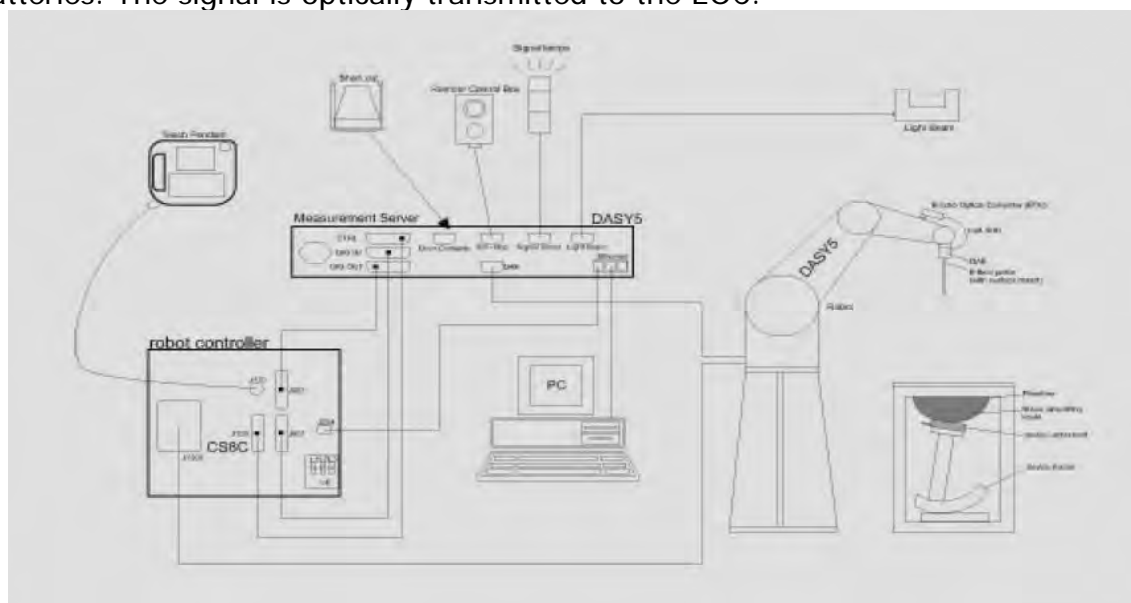


Fig. a The block diagram of SAR system

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- 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.
 - 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.
 - A probe alignment unit which improves the (absolute) accuracy of the probe positioning.
 - A computer operating Windows 7.
 - DASY 5 software.
 - Remote control with teach pendant and additional circuitry for robot safety such as warning lamps, etc.
 - The SAM twin phantom enabling testing left-hand and right-hand usage.
 - The device holder for handheld mobile phones.
 - Tissue simulating liquid mixed according to the given recipes.
- Validation dipole kits allowing to validate the proper functioning of the system.

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1.7 System Components

EX3DV4 E-Field Probe

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

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SAM PHANTOM V4.0C

Construction	<p>The shell corresponds to the specifications of the Specific Anthropomorphic Mannequin (SAM) phantom defined in IEEE 1528 and IEC 62209.</p> <p>It enables the dosimetric evaluation of left and right hand phone usage as well as body mounted usage at the flat phantom region. A cover prevents evaporation of the liquid. Reference markings on the phantom allow the complete setup of all predefined phantom positions and measurement grids by manually teaching three points with the robot.</p>	
Shell Thickness	2 ± 0.2 mm	
Filling Volume	Approx. 25 liters	
Dimensions	Height: 850 mm; Length: 1000 mm; Width: 500 mm	

DEVICE HOLDER

Construction	<p>The device holder (Supporter) for Notebook is made by POM (polyoxymethylene resin) , which is non-metal and non-conductive.</p> <p>The height can be adjusted to fit varies kind of notebooks.</p>	 <p>Device Holder</p>
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1.8 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 $\pm 10\%$ 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 $\geq 15\text{ cm} \pm 5\text{ mm}$ (frequency $\leq 3\text{ GHz}$) or $\geq 10\text{ cm} \pm 5\text{ mm}$ (frequency $> 3\text{ GHz}$) in all the cases. It is seen that the system is operating within its specification, as the results are within acceptable tolerance of the reference values.

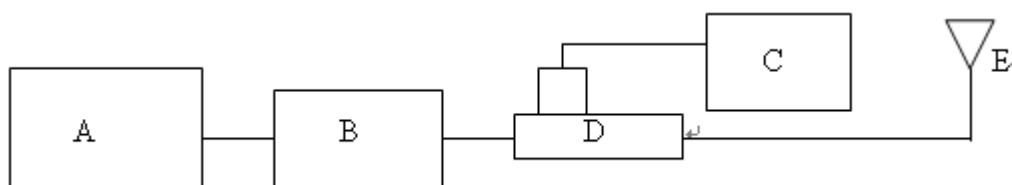


Fig. b The block diagram of system verification

- A. Signal generator
- B. Amplifier
- C. Power meter
- D. Dual directional coupling
- E. Reference dipole antenna



Photograph of the dipole Antenna

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Validation Kit	S/N	Frequency (MHz)		1W Target SAR-1g (mW/g)	Measured SAR-1g (mW/g)	Measured SAR-1g normalized to 1W (mW/g)	Deviation (%)	Measured Date
D750V2	1015	750	Body	8.75	2.18	8.72	-0.34%	Jun. 15, 2015
D835V2	4d063	835	Body	9.35	2.42	9.68	3.53%	Jun. 16, 2015
D1750V2	1008	1750	Body	37.5	9.43	37.72	0.59%	Jun. 17, 2015
D1900V2	5d027	1900	Body	39.3	9.87	39.48	0.46%	Jun. 18, 2015
D2450V2	727	2450	Body	51	13.8	55.2	8.24%	Jun. 19, 2015
D5GHzV2	1023	5200	Body	73.5	7.08	70.8	-3.67%	Jun. 20, 2015
		5300	Body	74.6	7.49	74.9	0.40%	Jun. 21, 2015
		5600	Body	77.9	7.81	78.1	0.26%	Jun. 22, 2015
		5800	Body	75.6	7.51	75.1	-0.66%	Jun. 22, 2015

Table 1. Results of system validation

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1.9 Tissue Simulant Fluid for the Frequency Band

The dielectric properties for this body-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 (30 KHz-6000 MHz).

All dielectric parameters of tissue simulates were measured within 24 hours of SAR measurements. The depth of the tissue simulant in the flat section of the phantom was $\geq 15 \text{ cm} \pm 5 \text{ mm}$ (Frequency $\leq 3\text{G}$) or $\geq 10 \text{ cm} \pm 5 \text{ mm}$ (Frequency $> 3\text{G}$) during all tests. (Fig. 2)

Tissue Type	Measured Frequency (MHz)	Target Dielectric Constant, ϵ_r	Target Conductivity, σ (S/m)	Measured Dielectric Constant, ϵ_r	Measured Conductivity, σ (S/m)	% dev ϵ_r	% dev σ	Measurement Date
Body	711	55.683	0.960	53.797	0.974	3.39%	-1.42%	June,15 2015
	750	55.531	0.963	53.393	0.981	3.85%	-1.83%	
	782	55.406	0.966	53.042	1.005	4.27%	-4.05%	
	818	55.267	0.969	56.831	0.994	-2.83%	-2.62%	June,16 2015
	820	55.258	0.969	56.806	0.995	-2.80%	-2.70%	
	823.1	55.246	0.969	56.773	0.999	-2.76%	-3.09%	
	824.2	55.242	0.969	56.743	0.999	-2.72%	-3.08%	
	825	55.240	0.969	56.719	1	-2.68%	-3.18%	
	826.4	55.234	0.969	56.7	1	-2.66%	-3.16%	
	835	55.200	0.970	56.648	1.01	-2.62%	-4.12%	
	836.52	55.195	0.972	56.669	1.014	-2.67%	-4.33%	
	836.6	55.195	0.972	56.669	1.014	-2.67%	-4.32%	
	844	55.172	0.981	56.606	1.02	-2.60%	-3.97%	
	848.31	55.159	0.986	56.511	1.025	-2.45%	-3.92%	
	849	55.158	0.987	56.515	1.026	-2.46%	-3.95%	
	1712.4	53.531	1.465	52.882	1.409	1.21%	3.80%	June,17 2015
	1720	53.511	1.469	52.85	1.414	1.23%	3.78%	
	1732.4	53.478	1.477	52.833	1.425	1.21%	3.54%	
	1732.5	53.478	1.477	52.831	1.425	1.21%	3.54%	
	1732.6	53.477	1.477	52.831	1.425	1.21%	3.55%	
	1745	53.445	1.485	52.822	1.437	1.17%	3.25%	
	1750	53.432	1.488	52.821	1.442	1.14%	3.12%	
	1752.6	53.425	1.490	52.808	1.446	1.15%	2.96%	

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Tissue Type	Measured Frequency (MHz)	Target Dielectric Constant, ϵ_r	Target Conductivity, σ (S/m)	Measured Dielectric Constant, ϵ_r	Measured Conductivity, σ (S/m)	% dev ϵ_r	% dev σ	Measurement Date
Body	1850.2	53.300	1.520	53.753	1.45	-0.85%	4.61%	June,18 2015
	1851.25	53.300	1.520	53.749	1.453	-0.84%	4.41%	
	1852.4	53.300	1.520	53.75	1.454	-0.84%	4.34%	
	1860	53.300	1.520	53.718	1.459	-0.78%	4.01%	
	1880	53.300	1.520	53.657	1.481	-0.67%	2.57%	
	1882.5	53.300	1.520	53.678	1.482	-0.71%	2.50%	
	1900	53.300	1.520	53.595	1.501	-0.55%	1.25%	
	1905	53.300	1.520	53.572	1.508	-0.51%	0.79%	
	1907.6	53.300	1.520	53.58	1.511	-0.53%	0.59%	
	1908.75	53.300	1.520	53.621	1.513	-0.60%	0.46%	
	1910	53.300	1.520	53.584	1.513	-0.53%	0.46%	June,19 2015
	2412	52.751	1.914	51.436	1.992	2.49%	-4.09%	
	2437	52.717	1.938	51.353	2.019	2.59%	-4.20%	
	2450	52.700	1.950	51.276	2.037	2.70%	-4.46%	
	2462	52.685	1.967	51.248	2.051	2.73%	-4.27%	June,20 2015
	5180	49.041	5.276	48.079	5.424	1.96%	-2.81%	
	5190	49.028	5.288	48.005	5.443	2.09%	-2.94%	
	5200	49.014	5.299	47.93	5.462	2.21%	-3.07%	
	5220	48.987	5.323	47.853	5.492	2.32%	-3.18%	
	5230	48.974	5.334	47.832	5.507	2.33%	-3.24%	June,21 2015
	5240	48.960	5.346	47.811	5.522	2.35%	-3.29%	
	5260	48.933	5.369	47.733	5.552	2.45%	-3.40%	
	5270	48.919	5.381	47.696	5.567	2.50%	-3.46%	
	5300	48.879	5.416	47.56	5.609	2.70%	-3.56%	
	5310	48.865	5.428	47.554	5.618	2.68%	-3.51%	June,22 2015
	5320	48.851	5.439	47.523	5.627	2.72%	-3.45%	
	5520	48.580	5.673	46.795	5.91	3.67%	-4.18%	
	5600	48.471	5.766	46.575	6.004	3.91%	-4.12%	
	5700	48.336	5.883	46.301	6.037	4.21%	-2.61%	
	5755	48.261	5.947	46.129	6.195	4.42%	-4.16%	
	5795	48.207	5.994	46.024	6.208	4.53%	-3.57%	
	5800	48.200	6.000	46.008	6.21	4.55%	-3.50%	

Table 2. Dielectric Parameters of Tissue Simulant Fluid

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The composition of the body tissue simulating liquid:

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

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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1.10 Evaluation Procedures

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

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

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

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

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

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

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

1.11 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:

1.11.1 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:

- 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.

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- 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.
- The calibration depends on the assessment of the specific density, the heat capacity and the conductivity of the medium. While the specific density and heat capacity can be measured accurately with standardized procedures ($\sim 2\%$ for c ; much better for ρ), there is no standard for the measurement of the conductivity. Depending on the method and liquid, the error can well exceed $\pm 5\%$.
- Temperature rise measurements are not very sensitive and therefore are often performed at a higher power level than the E-field measurements. The nonlinearities in the system (e.g., power measurements, different components, etc.) must be considered.

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

1.11.2 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:

- The setup must enable accurate determination of the incident power.
- The accuracy of the calculated field strength will depend on the assessment of the dielectric parameters of the liquid.
- 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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1.12 Test Standards and Limits

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

- (1) Limits for Occupational/Controlled exposure: 0.4 W/kg as averaged over the whole-body and spatial peak SAR not exceeding 8 W/kg as averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube). Exceptions are the hands, wrists, feet and ankles where the spatial peak SAR shall not exceed 20 W/kg, as averaged over an 10 grams of tissue (defined as a tissue volume in the shape of a cube).
- (2) Occupational/Controlled limits apply when persons are exposed as a consequence of their employment provided these persons are fully aware of and exercise control over their exposure. Awareness of exposure can be accomplished by use of warning labels or by specific training or education through appropriate means, such as an RF safety program in a work environment.
- (3) Limits for General Population/Uncontrolled exposure: 0.08 W/kg as averaged over the whole-body and spatial peak SAR not exceeding 1.6 W/kg as averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube). Exceptions are the hands, wrists, feet and ankles where the spatial peak SAR shall not exceed 4 W/kg, as averaged over any 10 grams of tissue (defined as a tissue volume in the shape of a cube). General Population/Uncontrolled limits apply when the general public may be exposed, or when persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or do not exercise control over their exposure. Warning labels placed on consumer devices such as cellular telephones will not be sufficient reason to allow these devices to be evaluated subject to limits for occupational/controlled exposure in paragraph (d)(1)

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of this section. (Table 4.)

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

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

GPRS 850 MHz

Mode	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page
								Measured	Reported	
GPRS 850 (1D2UP)	Back side	0mm	128	824.2	30.8	30.78	0.46%	0.63	0.633	-
	Back side	0mm	190	836.6	30.8	30.74	1.39%	0.731	0.741	-
	Back side	0mm	251	848.8	30.8	30.80	0.00%	0.827	0.827	-
	Back side_Curve	0mm	251	848.8	30.8	30.80	0.00%	0.72	0.720	-
	Top side	0mm	251	848.8	30.8	30.80	0.00%	0.762	0.762	-
	Bottom	0mm	251	848.8	30.8	30.80	0.00%	0.0128	0.013	-
	Left side	0mm	128	824.2	30.8	30.78	0.46%	0.942	0.946	-
	Left side	0mm	190	836.6	30.8	30.74	1.39%	0.945	0.958	-
	Left side	0mm	251	848.8	30.8	30.80	0.00%	0.991	0.991	183
	Left side*	0mm	251	848.8	30.8	30.80	0.00%	0.988	0.988	-
	Right side	0mm	251	848.8	30.8	30.80	0.00%	0.002	0.002	-

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

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GPRS 1900 MHz

Mode	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page
								Measured	Reported	
GPRS 1900 (1Dn2UP)	Back side	0mm	512	1850.2	28.5	28.25	5.93%	1.13	1.197	-
	Back side	0mm	661	1880	28.5	28.33	3.99%	1.12	1.165	-
	Back side	0mm	810	1909.8	28.5	28.29	4.95%	1.11	1.165	-
	Back side_Curve	0mm	512	1850.2	28.5	28.25	5.93%	1.26	1.335	184
	Back side_Curve	0mm	661	1880	28.5	28.33	3.99%	1.14	1.186	-
	Back side_Curve	0mm	810	1909.8	28.5	28.29	4.95%	1.14	1.196	-
	Back side *	0mm	512	1850.2	28.5	28.25	5.93%	1.24	1.313	-
	Top side	0mm	512	1850.2	28.5	28.25	5.93%	0.985	1.043	-
	Top side	0mm	661	1880	28.5	28.33	3.99%	1.09	1.134	-
	Top side	0mm	810	1909.8	28.5	28.29	4.95%	1.09	1.144	-
	Bottom	0mm	661	1880	28.5	28.33	3.99%	0.0145	0.015	-
	Left side	0mm	661	1880	28.5	28.33	3.99%	0.287	0.298	-
	Right side	0mm	661	1880	28.5	28.33	3.99%	0.0012	0.001	-

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

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WCDMA Band II

Mode	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page
								Measured	Reported	
WCDMA Band 2	Back side	0mm	9262	1852.4	21.5	21.50	0.00%	0.903	0.903	-
	Back side	0mm	9400	1880	21.5	21.36	3.28%	0.931	0.962	-
	Back side	0mm	9538	1909.8	21.5	21.48	0.46%	0.876	0.880	-
	Back side_Curve	0mm	9262	1852.4	21.5	21.50	0.00%	1.160	1.160	185
	Back side_Curve	0mm	9400	1880	21.5	21.36	3.28%	1.04	1.074	-
	Back side_Curve	0mm	9538	1909.8	21.5	21.48	0.46%	0.956	0.960	-
	Back side_Curve*	0mm	9262	1852.4	21.5	21.50	0.00%	1.02	1.020	-
	Top side	0mm	9262	1852.4	21.5	21.50	0.00%	0.974	0.974	-
	Top side	0mm	9400	1880	21.5	21.36	3.28%	1.00	1.033	-
	Top side	0mm	9538	1909.8	21.5	21.48	0.46%	1.00	1.005	-
	Bottom	0mm	9262	1852.4	21.5	21.50	0.00%	0.0162	0.016	-
	Left side	0mm	9262	1852.4	21.5	21.50	0.00%	0.299	0.299	-
	Right side	0mm	9262	1852.4	21.5	21.50	0.00%	0.0019	0.002	-

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

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WCDMA Band IV

Mode	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page
								Measured	Reported	
WCDMA Band 4	Back side	0mm	1312	1712.4	22	21.77	5.44%	0.947	0.999	-
	Back side	0mm	1412	1732.6	22	21.75	5.93%	0.93	0.985	-
	Back side	0mm	1513	1752.6	22	21.76	5.68%	0.926	0.979	-
	Back side_Curve	0mm	1312	1712.4	22	21.77	5.44%	1.05	1.107	-
	Back side_Curve	0mm	1412	1732.6	22	21.75	5.93%	1.03	1.091	-
	Back side_Curve	0mm	1513	1752.6	22	21.76	5.68%	1.07	1.131	186
	Back side_Curve*	0mm	1513	1752.6	22	21.76	5.68%	1.05	1.110	-
	Top side	0mm	1312	1712.4	22	21.77	5.44%	0.981	1.034	-
	Top side	0mm	1412	1732.6	22	21.75	5.93%	0.972	1.030	-
	Top side	0mm	1513	1752.6	22	21.76	5.68%	0.993	1.049	-
	Bottom	0mm	1312	1712.4	22	21.77	5.44%	0.0235	0.025	-
	Left side	0mm	1312	1712.4	22	21.77	5.44%	0.532	0.561	-
	Right side	0mm	1312	1712.4	22	21.77	5.44%	0.0042	0.004	-

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

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WCDMA Band V

Mode	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page
								Measured	Reported	
WCDMA Band 5	Back side	0mm	4183	836.6	23	22.63	8.89%	0.374	0.407	-
	Back	0mm	4183	836.6	23	22.63	8.89%	0.369	0.402	-
	Top side	0mm	4183	836.6	23	22.63	8.89%	0.359	0.391	-
	Bottom	0mm	4183	836.6	23	22.63	8.89%	0.0321	0.035	-
	Left side	0mm	4183	836.6	23	22.63	8.89%	0.565	0.615	187
	Right side	0mm	4183	836.6	23	22.63	8.89%	0.0028	0.003	-

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LTE FDD Band II

Mode	Bandwidth (MHz)	Modulation	RB Size	RB start	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page
												Measured	Reported	
LTE Band 2	20MHz	QPSK	1 RB	0	Back side	0mm	18700	1860	22	21.83	3.99%	0.822	0.855	-
					Back side_Curve	0mm	18700	1860	22	21.83	3.99%	0.743	0.773	-
					Top side	0mm	18700	1860	22	21.83	3.99%	0.921	0.958	-
				0	Back side	0mm	18900	1880	22	21.76	5.68%	0.790	0.835	-
					Back side_Curve	0mm	18900	1880	22	21.76	5.68%	0.682	0.721	-
					Top side	0mm	18900	1880	22	21.76	5.68%	0.931	0.984	-
				99	Back side	0mm	19100	1900	22	21.88	2.80%	0.778	0.800	-
					Back side_Curve	0mm	19100	1900	22	21.88	2.80%	0.963	0.990	-
					Top side	0mm	19100	1900	22	21.88	2.80%	0.861	0.885	-
					Bottom side	0mm	19100	1900	22	21.88	2.80%	0.025	0.026	-
					Left side	0mm	19100	1900	22	21.88	2.80%	0.188	0.193	-
					Right side	0mm	19100	1900	22	21.88	2.80%	0.011	0.011	-
			50 RB	0	Back side	0mm	18900	1880	22	21.87	3.04%	0.905	0.932	-
					Back side_Curve	0mm	18900	1880	22	21.87	3.04%	0.761	0.784	-
					Top side	0mm	18900	1880	22	21.87	3.04%	1.000	1.030	-
					Bottom side	0mm	18900	1880	22	21.87	3.04%	0.031	0.032	-
					Left side_Curve	0mm	18900	1880	22	21.87	3.04%	0.339	0.349	-
				50	Back side	0mm	18700	1860	22	21.86	3.28%	0.860	0.888	-
					Back side_Curve	0mm	18700	1860	22	21.86	3.28%	0.947	0.978	-
					Top side	0mm	18700	1860	22	21.86	3.28%	0.947	0.978	-
				50	Back side	0mm	19100	1900	22	21.55	10.92%	0.845	0.937	-
					Back side_Curve	0mm	19100	1900	22	21.55	10.92%	0.925	1.026	-
					Top side	0mm	19100	1900	22	21.55	10.92%	0.983	1.090	-

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Mode	Bandwidth (MHz)	Modulation	RB Size	RB start	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page
												Measured	Reported	
LTE Band 2	20MHz	QPSK	100 RB	0	Back side	0mm	18700	1860	22	21.77	5.44%	0.933	0.984	-
					Back side_Curve	0mm	18700	1860	22	21.77	5.44%	1.030	1.086	188
					Back side_Curve*	0mm	18700	1860	22	21.77	5.44%	0.998	1.052	-
					Top side	0mm	18700	1860	22	21.77	5.44%	0.864	0.911	-
					Bottom side	0mm	18700	1860	22	21.77	5.44%	0.039	0.041	-
					Left side	0mm	18700	1860	22	21.77	5.44%	0.221	0.233	-
					Right side	0mm	18700	1860	22	21.77	5.44%	0.026	0.027	-
					Back side	0mm	18900	1900	22	21.74	6.17%	1.000	1.062	-
					Back side_Curve	0mm	18900	1900	22	21.74	6.17%	0.929	0.986	-
					Top side	0mm	18900	1900	22	21.74	6.17%	0.997	1.059	-
					Back side	0mm	19100	1900	22	21.62	9.14%	0.948	1.035	-
					Back side_Curve	0mm	19100	1900	22	21.62	9.14%	0.892	0.974	-
					Top side	0mm	19100	1900	22	21.62	9.14%	0.998	1.089	-

* - repeated at the highest SAR measurement according to the FCC KDB865664D01v01r03

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LTE FDD Band IV

Mode	Bandwidth (MHz)	Modulation	RB Size	RB start	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page
												Measured	Reported	
LTE Band 4	20MHz	QPSK	1 RB	0	Back side	0mm	20175	1732.5	22	21.84	3.75%	1.150	1.193	189
					Back side*	0mm	20175	1732.5	22	21.84	3.75%	1.090	1.131	-
					Back side_Curve	0mm	20175	1732.5	22	21.84	3.75%	1.070	1.110	-
					Top side	0mm	20175	1732.5	22	21.84	3.75%	1.030	1.069	-
				50	Back side	0mm	20050	1720	22	21.90	2.33%	0.862	0.882	-
					Back side_Curve	0mm	20050	1720	22	21.90	2.33%	1.050	1.074	-
					Top side	0mm	20050	1720	22	21.90	2.33%	1.020	1.044	-
				50	Back side	0mm	20300	1745	22	21.91	2.09%	0.899	0.918	-
					Back side_Curve	0mm	20300	1745	22	21.91	2.09%	1.130	1.154	-
					Top side	0mm	20300	1745	22	21.91	2.09%	0.967	0.987	-
					Bottom side	0mm	20300	1745	22	21.91	2.09%	0.034	0.035	-
					Left side	0mm	20300	1745	22	21.91	2.09%	0.460	0.470	-
					Right side	0mm	20300	1745	22	21.91	2.09%	0.0065	0.007	-

* - repeated at the highest SAR measurement according to the FCC KDB865664D01v01r03

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Mode	Bandwidth (MHz)	Modulation	RB Size	RB start	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page
												Measured	Reported	
LTE Band 4	20MHz	QPSK	50 RB	25	Back side	0mm	20175	1732.5	22	21.79	4.95%	0.905	0.950	-
					Back side_Curve	0mm	20175	1732.5	22	21.79	4.95%	0.999	1.048	-
					Top side	0mm	20175	1732.5	22	21.79	4.95%	0.888	0.932	-
				50	Back side	0mm	20300	1745	22	21.85	3.51%	0.912	0.944	-
					Back side_Curve	0mm	20300	1745	22	21.85	3.51%	1.030	1.066	-
					Top side	0mm	20300	1745	22	21.85	3.51%	0.915	0.947	-
					Bottom side	0mm	20300	1745	22	21.85	3.51%	0.029	0.030	-
					Left side	0mm	20300	1745	22	21.85	3.51%	0.432	0.447	-
					Right side	0mm	20300	1745	22	21.85	3.51%	0.0051	0.005	-
				50	Back side	0mm	20050	1720	22	21.75	5.93%	0.891	0.944	-
					Back side_Curve	0mm	20050	1720	22	21.75	5.93%	0.982	1.040	-
					Top side	0mm	20050	1720	22	21.75	5.93%	0.878	0.930	-
			100 RB	0	Back side	0mm	20050	1720	22	21.70	7.15%	0.938	1.005	-
					Back side_Curve	0mm	20050	1720	22	21.70	7.15%	0.856	0.917	-
					Top side	0mm	20050	1720	22	21.70	7.15%	0.984	1.054	-
					Back side	0mm	20175	1732.5	22	21.81	4.47%	1.060	1.107	-
					Back side_Curve	0mm	20175	1732.5	22	21.81	4.47%	0.852	0.890	-
					Top side	0mm	20175	1732.5	22	21.81	4.47%	0.953	0.996	-
					Bottom side	0mm	20175	1732.5	22	21.81	4.47%	0.042	0.044	-
					Left side	0mm	20175	1732.5	22	21.81	4.47%	0.520	0.543	-
					Right side	0mm	20175	1732.5	22	21.81	4.47%	0.0045	0.005	-
					Back side	0mm	20300	1745	22	21.74	6.17%	0.944	1.002	-
					Back side_Curve	0mm	20300	1745	22	21.74	6.17%	0.847	0.899	-
					Top side	0mm	20300	1745	22	21.74	6.17%	0.960	1.019	-

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LTE FDD Band V

Mode	Bandwidth (MHz)	Modulation	RB Size	RB start	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page
												Measured	Reported	
LTE Band 5	10MHz	QPSK	1 RB	49	Back side	0mm	20600	844	23	22.55	10.92%	0.326	0.362	-
					Back side_Curve	0mm	20600	844	23	22.55	10.92%	0.335	0.372	-
					Top side	0mm	20600	844	23	22.55	10.92%	0.423	0.469	-
					Bottom side	0mm	20600	844	23	22.55	10.92%	0.068	0.075	-
					Left side	0mm	20600	844	23	22.55	10.92%	0.432	0.479	190
					Right side	0mm	20600	844	23	22.55	10.92%	0.0054	0.006	-
			25 RB	12	Back side	0mm	20600	844	23	21.51	40.93%	0.347	0.489	-
					Back side_Curve	0mm	20600	844	23	21.51	40.93%	0.411	0.579	-
					Top side	0mm	20600	844	23	21.51	40.93%	0.342	0.482	-
					Bottom side	0mm	20600	844	23	21.51	40.93%	0.054	0.076	-
					Left side	0mm	20600	844	23	21.51	40.93%	0.371	0.523	-
					Right side	0mm	20600	844	23	21.51	40.93%	0.0068	0.010	-
			50 RB	0	Back side	0mm	20600	844	23	21.43	43.55%	0.342	0.491	-
					Back side_Curve	0mm	20600	844	23	21.43	43.55%	0.404	0.580	-
					Top side	0mm	20600	844	23	21.43	43.55%	0.401	0.576	-
					Bottom side	0mm	20600	844	23	21.43	43.55%	0.038	0.055	-
					Left side	0mm	20600	844	23	21.43	43.55%	0.419	0.601	-
					Right side	0mm	20600	844	23	21.43	43.55%	0.0095	0.014	-

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LTE FDD Band XIII

Mode	Bandwidth (MHz)	Modulation	RB Size	RB start	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page
												Measured	Reported	
LTE Band 13	10MHz	QPSK	1 RB	25	Back side	0mm	23200	782	23	22.66	8.14%	0.433	0.468	-
					Back side_Curve	0mm	23200	782	23	22.66	8.14%	0.449	0.486	-
					Top side	0mm	23200	782	23	22.66	8.14%	0.508	0.549	-
					Bottom side	0mm	23200	782	23	22.66	8.14%	0.048	0.052	-
					Left side	0mm	23200	782	23	22.66	8.14%	0.594	0.642	191
					Right side	0mm	23200	782	23	22.66	8.14%	0.0052	0.006	-
			25 RB	12	Back side	0mm	23200	782	23	21.76	33.05%	0.317	0.422	-
					Back side_Curve	0mm	23200	782	23	21.76	33.05%	0.341	0.454	-
					Top side	0mm	23200	782	23	21.76	33.05%	0.309	0.411	-
					Bottom side	0mm	23200	782	23	21.76	33.05%	0.026	0.035	-
					Left side	0mm	23200	782	23	21.76	33.05%	0.496	0.660	-
					Right side	0mm	23200	782	23	21.76	33.05%	0.0078	0.010	-
			50 RB	0	Back side	0mm	23200	782	23	21.43	43.55%	0.293	0.421	-
					Back side_Curve	0mm	23200	782	23	21.43	43.55%	0.309	0.444	-
					Top side	0mm	23200	782	23	21.43	43.55%	0.308	0.442	-
					Bottom side	0mm	23200	782	23	21.43	43.55%	0.065	0.093	-
					Left side	0mm	23200	782	23	21.43	43.55%	0.583	0.837	-
					Right side	0mm	23200	782	23	21.43	43.55%	0.0064	0.009	-

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LTE FDD Band XVII

Mode	Bandwidth (MHz)	Modulation	RB Size	RB start	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page
												Measured	Reported	
LTE Band 17	10MHz	QPSK	1 RB	25	Back side	0mm	23800	711	23	22.87	3.04%	0.190	0.196	-
					Back side_Curve	0mm	23800	711	23	22.87	3.04%	0.172	0.177	-
					Top side	0mm	23800	711	23	22.87	3.04%	0.162	0.167	-
					Bottom side	0mm	23800	711	23	22.87	3.04%	0.008	0.008	-
					Left side	0mm	23800	711	23	22.87	3.04%	0.397	0.409	192
					Right side	0mm	23800	711	23	22.87	3.04%	0.0018	0.002	-
			25 RB	0	Back side	0mm	23800	711	23	21.67	35.83%	0.194	0.264	-
					Back side_Curve	0mm	23800	711	23	21.67	35.83%	0.218	0.296	-
					Top side	0mm	23800	711	23	21.67	35.83%	0.164	0.223	-
					Bottom side	0mm	23800	711	23	21.67	35.83%	0.005	0.006	-
					Left side	0mm	23800	711	23	21.67	35.83%	0.320	0.435	-
					Right side	0mm	23800	711	23	21.67	35.83%	0.0025	0.003	-
			50 RB	0	Back side	0mm	23780	709	23	21.53	40.28%	0.170	0.238	-
					Back side_Curve	0mm	23780	709	23	21.53	40.28%	0.198	0.278	-
					Top side	0mm	23780	709	23	21.53	40.28%	0.137	0.192	-
					Bottom side	0mm	23780	709	23	21.53	40.28%	0.006	0.009	-
					Left side	0mm	23780	709	23	21.53	40.28%	0.312	0.438	-
					Right side	0mm	23780	709	23	21.53	40.28%	0.0036	0.005	-

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LTE FDD Band XXV

Mode	Bandwidth (MHz)	Modulation	RB Size	RB start	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page
												Measured	Reported	
LTE Band 25	20MHz	QPSK	1 RB	0	Back side	0mm	26140	1860	22	21.92	1.86%	1.130	1.151	-
					Back side_Curve	0mm	26140	1860	22	21.92	1.86%	0.918	0.935	-
					Top side	0mm	26140	1860	22	21.92	1.86%	1.070	1.090	-
					Bottom side	0mm	26140	1860	22	21.92	1.86%	0.015	0.015	-
					Left side	0mm	26140	1860	22	21.92	1.86%	0.368	0.375	-
					Right side	0mm	26140	1860	22	21.92	1.86%	0.0072	0.007	-
				50	Back side	0mm	26365	1882.5	22	21.72	6.66%	0.968	1.032	-
					Back side_Curve	0mm	26365	1882.5	22	21.72	6.66%	0.912	0.973	-
					Top side	0mm	26365	1882.5	22	21.72	6.66%	1.060	1.131	-
				99	Back side	0mm	26590	1905	22	21.70	7.15%	1.030	1.104	-
					Back side_Curve	0mm	26590	1905	22	21.70	7.15%	0.914	0.979	-
					Top side	0mm	26590	1905	22	21.70	7.15%	1.060	1.136	-

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Mode	Bandwidth (MHz)	Modulation	RB Size	RB start	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page
												Measured	Reported	
LTE Band 25	20MHz	QPSK	50 RB	25	Back side	0mm	26365	1882.5	22	21.76	5.68%	0.826	0.873	-
					Back side_Curve	0mm	26365	1882.5	22	21.76	5.68%	0.888	0.938	-
					Top side	0mm	26365	1882.5	22	21.76	5.68%	1.060	1.120	-
				50	Back side	0mm	26140	1860	22	21.91	2.09%	0.838	0.856	-
					Back side_Curve	0mm	26140	1860	22	21.91	2.09%	0.893	0.912	-
					Top side	0mm	26140	1860	22	21.91	2.09%	1.040	1.062	-
				50	Back side	0mm	26590	1905	22	21.93	1.62%	0.888	0.902	-
					Back side_Curve	0mm	26590	1905	22	21.93	1.62%	0.903	0.918	-
					Top side	0mm	26590	1905	22	21.93	1.62%	1.140	1.159	193
					Top side*	0mm	26590	1905	22	21.93	1.62%	0.997	1.013	-
					Bottom side	0mm	26590	1905	22	21.93	1.62%	0.026	0.026	-
					Left side	0mm	26590	1905	22	21.93	1.62%	0.269	0.273	-
					Right side	0mm	26590	1905	22	21.93	1.62%	0.0045	0.005	-
			100 RB	0	Back side	0mm	26140	1860	22	21.71	6.91%	0.904	0.966	-
					Back side_Curve	0mm	26140	1860	22	21.71	6.91%	0.857	0.916	-
					Top side	0mm	26140	1860	22	21.71	6.91%	1.010	1.080	-
					Back side	0mm	26365	1882.5	22	21.70	7.15%	0.878	0.941	-
					Back side_Curve	0mm	26365	1882.5	22	21.70	7.15%	0.830	0.889	-
					Top side	0mm	26365	1882.5	22	21.70	7.15%	0.990	1.061	-
					Back side	0mm	26590	1905	22	21.73	6.41%	0.985	1.048	-
					Back side_Curve	0mm	26590	1905	22	21.73	6.41%	0.860	0.915	-
					Top side	0mm	26590	1905	22	21.73	6.41%	0.975	1.038	-
					Bottom side	0mm	26590	1905	22	21.73	6.41%	0.021	0.022	-
					Left side	0mm	26590	1905	22	21.73	6.41%	0.242	0.258	-
					Right side	0mm	26590	1905	22	21.73	6.41%	0.0056	0.006	-

* - repeated at the highest SAR measurement according to the FCC KDB865664D01v01r03

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CDMA / EVDO (BC0)

Mode		Service	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page
										Measured	Reported	
CDMA BC 0	EVDO	Rev. 0 Subtype 0/1	Back side	0mm	384	836.52	23	22.9	2.33%	0.528	0.540	-
			Back side_Curve	0mm	384	836.52	23	22.9	2.33%	0.604	0.618	-
			Top side	0mm	384	836.52	23	22.9	2.33%	0.643	0.658	-
			Bottom	0mm	384	836.52	23	22.9	2.33%	0.068	0.070	-
			Left side	0mm	1013	824.7	23	22.7	7.15%	0.72	0.771	-
			Left side	0mm	384	836.52	23	22.9	2.33%	0.73	0.747	194
			Left side	0mm	777	848.31	23	22.6	9.65%	0.687	0.753	-
			Right side	0mm	384	836.52	23	22.9	2.33%	0.0065	0.007	-

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CDMA / EVDO (BC1)

Mode		Service	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page
										Measured	Reported	
CDMA BC 1	EVDO	Rev. 0 Subtype 0/1	Back side	0mm	25	1851.25	22	21.97	0.69%	0.957	0.964	-
			Back side	0mm	600	1880	22	21.78	5.20%	0.942	0.991	-
			Back side	0mm	1175	1908.75	22	21.96	0.93%	1.000	1.009	195
			Back side*	0mm	1175	1908.75	22	21.96	0.93%	0.887	0.895	-
			Back side_Curve	0mm	25	1851.25	22	21.97	0.69%	0.966	0.973	-
			Back side_Curve	0mm	600	1880	22	21.78	5.20%	0.886	0.932	-
			Back side_Curve	0mm	1175	1908.75	22	21.96	0.93%	0.915	0.923	-
			Top side	0mm	25	1851.25	22	21.97	0.69%	0.783	0.788	-
			Top side	0mm	600	1880	22	21.78	5.20%	0.834	0.877	-
			Top side	0mm	1175	1908.75	22	21.96	0.93%	0.895	0.903	-
			Botoom side	0mm	25	1851.25	22	21.97	0.69%	0.025	0.025	-
			Left side	0mm	25	1851.25	22	21.97	0.69%	0.339	0.341	-
			Right side	0mm	25	1851.25	22	21.97	0.69%	0.0041	0.004	-

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

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CDMA / EVDO (BC10)

Mode		Service	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page
										Measured	Reported	
CDMA BC 10	EVDO	Rev. 0 Subtype 0/1	Back side	0mm	684	823.1	23	22.7	7.15%	0.513	0.550	-
			Back side_Curve	0mm	684	823.1	23	22.7	7.15%	0.593	0.635	-
			Top side	0mm	684	823.1	23	22.7	7.15%	0.545	0.584	-
			Bottom	0mm	684	823.1	23	22.7	7.15%	0.054	0.058	-
			Left side	0mm	476	817.9	23	22.6	9.65%	0.65	0.713	-
			Left side	0mm	560	820	23	22.6	9.65%	0.659	0.723	-
			Left side	0mm	684	823.1	23	22.7	7.15%	0.668	0.716	196
			Right side	0mm	684	823.1	23	22.7	7.15%	0.0035	0.004	-

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WLAN802.11 Main Antenna

Antenna	Mode	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page
									Measured	Reported	
Main	WLAN802.11 b	Back side	0	1	2412	13.5	13.50	0.00%	0.261	0.261	-
		Back side_Curve	0	1	2412	13.5	13.50	0.00%	0.356	0.356	-
		Top side	0	1	2412	13.5	13.50	0.00%	0.0527	0.053	-
		Bottom side	0	1	2412	13.5	13.50	0.00%	0.00556	0.006	-
		Left side	0	1	2412	13.5	13.50	0.00%	0.00616	0.006	-
		Right side	0	1	2412	13.5	13.50	0.00%	0.915	0.915	197
		Right side*	0	1	2412	13.5	13.50	0.00%	0.903	0.903	-
		Right side	0	6	2437	13.5	13.00	12.20%	0.876	0.983	-
		Right side	0	11	2462	13.5	12.62	22.46%	0.825	1.010	-
	WLAN802.11 a 5.2G	Back side	0	40	5200	10.5	9.89	15.08%	0.0501	0.058	-
		Back side_Curve	0	40	5200	10.5	9.89	15.08%	0.0522	0.060	-
		Top side	0	40	5200	10.5	9.89	15.08%	0.0727	0.084	-
		Bottom side	0	40	5200	10.5	9.89	15.08%	0.00112	0.001	-
		Left side	0	40	5200	10.5	9.89	15.08%	0.00011	0.000	-
		Right side	0	40	5200	10.5	9.89	15.08%	0.383	0.441	198
	WLAN802.11 n(40M) 5.2G	Back side	0	46	5230	10.5	9.61	22.74%	0.0431	0.053	-
		Back side_Curve	0	46	5230	10.5	9.61	22.74%	0.0493	0.061	-
		Top side	0	46	5230	10.5	9.61	22.74%	0.0723	0.089	-
		Bottom side	0	46	5230	10.5	9.61	22.74%	0.00245	0.003	-
		Left side	0	46	5230	10.5	9.61	22.74%	0.0016	0.002	-
		Right side	0	46	5230	10.5	9.61	22.74%	0.303	0.372	199
	WLAN802.11 n(20M) 5.3G	Back side	0	60	5300	10.5	9.85	16.14%	0.0457	0.053	-
		Back side_Curve	0	60	5300	10.5	9.85	16.14%	0.0498	0.058	-
		Top side	0	60	5300	10.5	9.85	16.14%	0.0628	0.073	-
		Bottom side	0	60	5300	10.5	9.85	16.14%	0.0019	0.002	-
		Left side	0	60	5300	10.5	9.85	16.14%	0.00012	0.000	-
		Right side	0	60	5300	10.5	9.85	16.14%	0.261	0.303	200

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Antenna	Mode	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page
									Measured	Reported	
Main	WLAN802.11 n(40M) 5.3G	Back side	0	54	5270	10.5	9.77	18.30%	0.0524	0.062	-
		Back side_Curve	0	54	5270	10.5	9.77	18.30%	0.0525	0.062	-
		Top side	0	54	5270	10.5	9.77	18.30%	0.0568	0.067	-
		Bottom side	0	54	5270	10.5	9.77	18.30%	0.0018	0.002	-
		Left side	0	54	5270	10.5	9.77	18.30%	0.00042	0.000	-
		Right side	0	54	5270	10.5	9.77	18.30%	0.27	0.319	201
	WLAN802.11 n(20M) 5.6G	Back side	0	104	5520	10.5	9.77	18.30%	0.0481	0.057	-
		Back side_Curve	0	104	5520	10.5	9.77	18.30%	0.0525	0.062	-
		Top side	0	104	5520	10.5	9.77	18.30%	0.0568	0.067	-
		Bottom side	0	104	5520	10.5	9.77	18.30%	0.0018	0.002	-
		Left side	0	104	5520	10.5	9.77	18.30%	0.00042	0.000	-
		Right side	0	104	5520	10.5	9.77	18.30%	0.276	0.327	202
	WLAN802.11 n(20M) 5.6G	Back side	0	120	5600	10.5	9.75	18.85%	0.0612	0.073	-
		Back side_Curve	0	120	5600	10.5	9.75	18.85%	0.0655	0.078	-
		Top side	0	120	5600	10.5	9.75	18.85%	0.0712	0.085	-
		Bottom side	0	120	5600	10.5	9.75	18.85%	0.0011	0.001	-
		Left side	0	120	5600	10.5	9.75	18.85%	0.00034	0.000	-
		Right side	0	120	5600	10.5	9.75	18.85%	0.313	0.372	203
	WLAN802.11 n(20M) 5.6G	Back side	0	140	5700	10.5	9.57	23.88%	0.0587	0.073	-
		Back side_Curve	0	140	5700	10.5	9.57	23.88%	0.0612	0.076	-
		Top side	0	140	5700	10.5	9.57	23.88%	0.0585	0.072	-
		Bottom side	0	140	5700	10.5	9.57	23.88%	0.0015	0.002	-
		Left side	0	140	5700	10.5	9.57	23.88%	0.00038	0.000	-
		Right side	0	140	5700	10.5	9.57	23.88%	0.324	0.401	204
	WLAN802.11 n(40M) 5.8G	Back side	0	159	5795	11	9.33	46.89%	0.0478	0.070	-
		Back side_Curve	0	159	5795	11	9.33	46.89%	0.0502	0.074	-
		Top side	0	159	5795	11	9.33	46.89%	0.0492	0.072	-
		Bottom side	0	159	5795	11	9.33	46.89%	0.0017	0.002	-
		Left side	0	159	5795	11	9.33	46.89%	0.00012	0.000	-
		Right side	0	159	5795	11	9.33	46.89%	0.349	0.513	205

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

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WLAN802.11 Aux Antenna

Antenna	Mode	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page
									Measured	Reported	
Aux	WLAN802.11 b	Back side	0	11	2462	11.2	11.14	1.39%	0.0909	0.092	-
		Top side	0	1	2412	11	10.73	6.41%	0.712	0.758	-
		Top side	0	6	2437	11.2	11.14	1.39%	0.83	0.842	206
		Top side	0	11	2462	12	11.59	9.90%	0.744	0.818	-
		Bottom side	0	11	2462	11.2	11.14	1.39%	0.00596	0.006	-
		Left side	0	11	2462	11.2	11.14	1.39%	0.00234	0.002	-
		Right side	0	11	2462	11.2	11.14	1.39%	0.00545	0.006	-
	WLAN802.11 a 5.2G	Back side	0	40	5200	10	9.37	15.61%	0.169	0.195	-
		Top side	0	36	5180	10	9.31	17.22%	0.792	0.928	207
		Top side	0	40	5200	10	9.37	15.61%	0.775	0.896	-
		Top side	0	44	5220	10	9.22	19.67%	0.702	0.840	-
		Top side	0	48	5240	10	9.19	20.50%	0.721	0.869	-
		Bottom side	0	40	5200	10	9.37	15.61%	0.0012	0.001	-
	WLAN802.11 n(40M) 5.2G	Left side	0	40	5200	10	9.37	15.61%	0.0022	0.003	-
		Right side	0	40	5200	10	9.37	15.61%	0.0102	0.012	-
		Back side	0	46	5230	10	9.81	4.47%	0.193	0.202	-
		Top side	0	38	5190	9	8.57	10.41%	0.329	0.363	-
		Top side	0	46	5230	10	9.81	4.47%	0.775	0.810	208
		Bottom side	0	46	5230	10	9.81	4.47%	0.000965	0.001	-
	WLAN802.11 n(20M) 5.3G	Left side	0	46	5230	10	9.81	4.47%	0.00335	0.003	-
		Right side	0	46	5230	10	9.81	4.47%	0.0122	0.013	-
		Back side	0	60	5300	10.5	9.57	23.88%	0.157	0.194	-
		Top side	0	52	5260	10.5	9.13	37.09%	0.57	0.781	-
		Top side	0	60	5300	10.5	9.57	23.88%	0.69	0.855	209
		Top side	0	64	5320	10.5	9.49	26.18%	0.642	0.810	-
	WLAN802.11 n(40M) 5.3G	Bottom side	0	60	5300	10.5	9.57	23.88%	0.0023	0.003	-
		Left side	0	60	5300	10.5	9.57	23.88%	0.00426	0.005	-
		Right side	0	60	5300	10.5	9.57	23.88%	0.0152	0.019	-
		Back side	0	54	5270	10.5	9.86	15.88%	0.162	0.188	-
		Top side	0	54	5270	10.5	9.86	15.88%	0.793	0.919	210
		Top side	0	62	5310	9	7.52	40.60%	0.397	0.558	-
	WLAN802.11 n(20M) 5.6G	Bottom side	0	54	5270	10.5	9.86	15.88%	0.0058	0.007	-
		Left side	0	54	5270	10.5	9.86	15.88%	0.00264	0.003	-
		Right side	0	54	5270	10.5	9.86	15.88%	0.0117	0.014	-
		Back side	0	120	5600	10.5	9.51	25.60%	0.148	0.186	-
		Top side	0	104	5520	10.5	9.39	29.12%	0.434	0.560	-
		Top side	0	120	5600	10.5	9.51	25.60%	0.654	0.821	211
	WLAN802.11 n(40M) 5.8G	Top side	0	140	5700	10.5	9.26	33.05%	0.408	0.543	-
		Bottom side	0	120	5600	10.5	9.51	25.60%	0.0049	0.006	-
		Left side	0	120	5600	10.5	9.51	25.60%	0.00375	0.005	-
		Right side	0	120	5600	10.5	9.51	25.60%	0.0231	0.029	-
		Back side	0	159	5795	11	9.25	49.62%	0.142	0.212	-
		Top side	0	151	5755	11	9.18	52.05%	0.408	0.620	-
	WLAN802.11 n(40M) 5.8G	Top side	0	159	5795	11	9.25	49.62%	0.586	0.877	212
		Bottom side	0	159	5795	11	9.25	49.62%	0.0028	0.004	-
		Left side	0	159	5795	11	9.25	49.62%	0.00428	0.006	-
		Right side	0	159	5795	11	9.25	49.62%	0.0159	0.024	-

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3. Simultaneous Transmission Analysis

Simultaneous Transmission Scenarios:

Simultaneous Transmit Configurations	Body
GPRS850/1900 + 2.4/5GHz WLAN Main	Yes
GPRS850/1900 + 2.4/5GHz WLAN Aux	Yes
GPRS850/1900 + 2.4/5GHz WLAN MIMO	Yes
WCDMA B2/4/5 + 2.4/5GHz WLAN Main	Yes
WCDMA B2/4/5 + 2.4/5GHz WLAN Aux	Yes
WCDMA B2/4/5 + 2.4/5GHz WLAN MIMO	Yes
LTE B2/4/5/13/17/25 + 2.4/5GHz WLAN Main	Yes
LTE B2/4/5/13/17/25 + 2.4/5GHz WLAN Aux	Yes
LTE B2/4/5/13/17/25 + 2.4/5GHz WLAN MIMO	Yes
CDMA BC0/BC1/10 + 2.4/5GHz WLAN Main	Yes
CDMA BC0/BC1/10 + 2.4/5GHz WLAN Aux	Yes
CDMA BC0/BC1/10 + 2.4/5GHz WLAN MIMO	Yes
GPRS850/1900 + 2.4/5GHz WLAN Aux + BT	Yes
WCDMA B2/4/5 + 2.4/5GHz WLAN Aux + BT	Yes
LTE B2/4/5/13/17/25 + 2.4/5GHz WLAN Aux + BT	Yes
CDMA BC0/BC1/BC10 + 2.4/5GHz WLAN Aux + BT	Yes

Note:

1. WWAN and WLAN may transmit simultaneously.
2. Bluetooth and WLAN Main share the same antenna path, and BT can't transmit with WLAN Main simultaneously.
3. For 2.4/5GHz WLAN Main and Aux antennas, the maximum output power of each antenna during simultaneous transmission (for 802.11n) is much less than that used in standalone transmission (for 802.11a/b/g/n), so it is more conservative to use the sum of 1-g SAR provision in KDB447498D01 to exclude the SAR measurement for 802.11n MIMO.
4. There are so many combination for simultaneous transmission, we choose the worst cases(all transmitters transmit simultaneously at maximum power) to do the simultaneous transmission analysis to capture the worst cases.
5. Based on KDB447498D01, when standalone BT test exclusion applies, BT SAR is estimated; the peak location is assumed to be at the feed-point or geometric center of the antenna.
For peak SAR location separation distance, we choose the separation distances between WWAN/WLAN Aux antennas and BT antenna to be the worst cases.
Ps. For top side, the separation distance between WWAN and BT antennas is 185.8mm.
For top side, the separation distance between WLAN Aux and BT antennas is 79mm.

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3.1 Estimated SAR calculation

According to KDB447498 D01v05 – When standalone SAR test exclusion applies to an antenna that transmits simultaneously with other antennas, the standalone SAR must be estimated according to following to determine simultaneous transmission SAR test exclusion:

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

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

Mode / Band	frequency (GHz)	Maximum power(dBm)	Test position	test separation distance(mm)	Estimated SAR(W/kg)
BT / 2.4G	2.48	3.51	top	15.9	0.03
BT / 2.4G	2.48	3.51	left / bottom	larger than 50mm	0.4
BT / 2.4G	2.48	3.51	right / back / back_curve	less than 5mm	0.094

3.2 SPLSR evaluation and analysis

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

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

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

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

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

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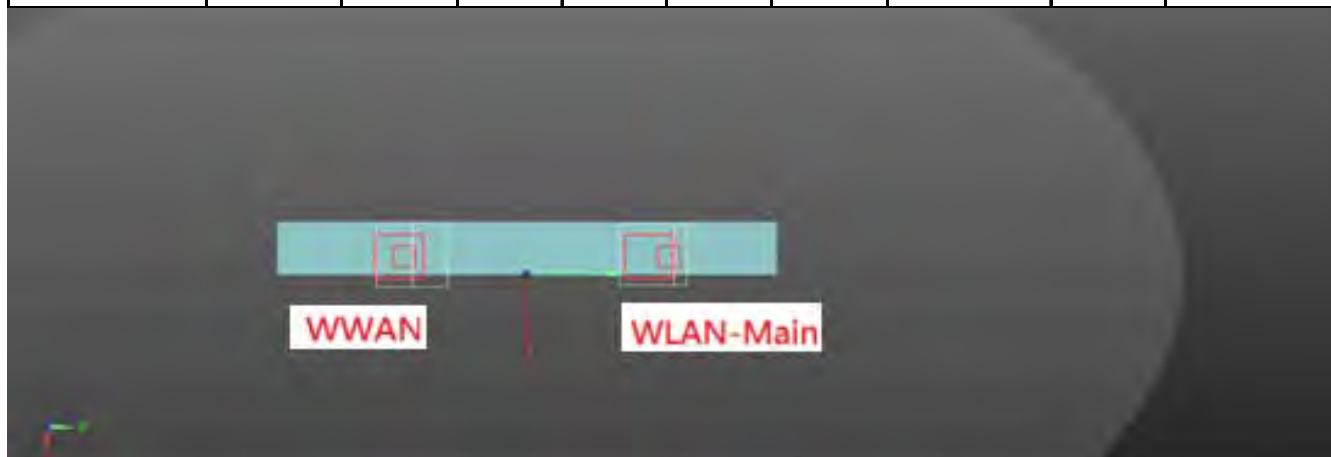
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GPRS 850 + 2.4GHz WLAN MIMO

No.	Conditions	Position	Distance (mm)	Max. WWAN	Max. WLAN Main	Max. WLAN Aux	SAR Sum	SPLSR
1	850	Back side	0	0.866	0.261	0.111	1.238	Σ SAR<1.6, Not required
		Back side_Curve(Left)	0	0.754	-	-	-	Σ SAR<1.6, Not required
		Back side_Curve(Right)	0	-	0.356	-	-	Σ SAR<1.6, Not required
		Top side	0	0.762	0.0527	0.842	1.657	Analyzed as below
		Bottom side	0	0.013	0.006	0.007	0.026	Σ SAR<1.6, Not required
		Left side	0	1.038	0.006	0.003	1.047	Σ SAR<1.6, Not required
		Right side	0	0.002	1.01	0.007	1.019	Σ SAR<1.6, Not required

WWAN & WLAN Main

Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
			x	y	z				
GPRS 850	Top side	0.762	-0.84	-4.83	-0.70	0.8147	115.4	0.006	SPLSR<0.04, Not required
WLAN Main		0.0527	-0.70	6.24	2.55				



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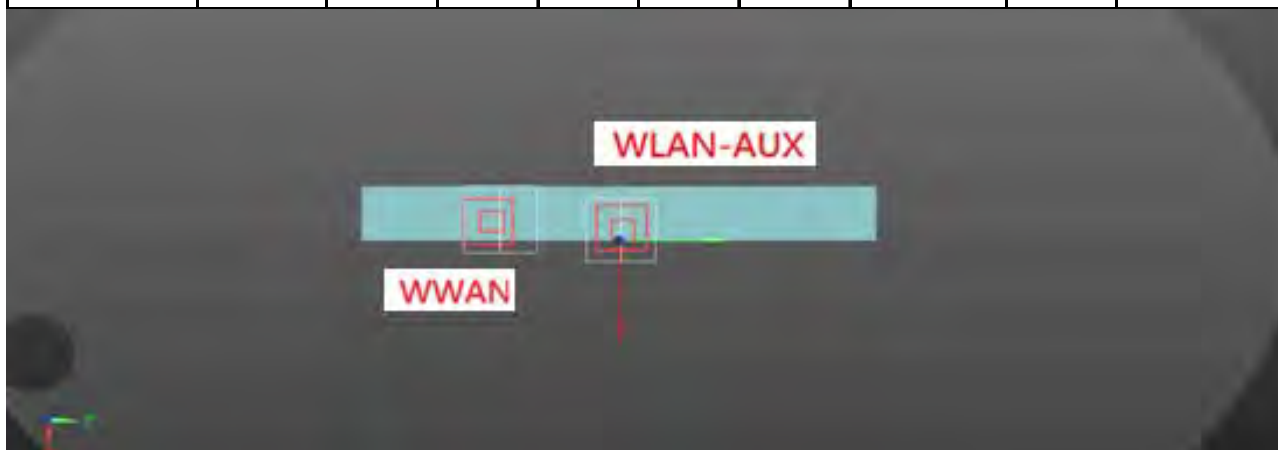
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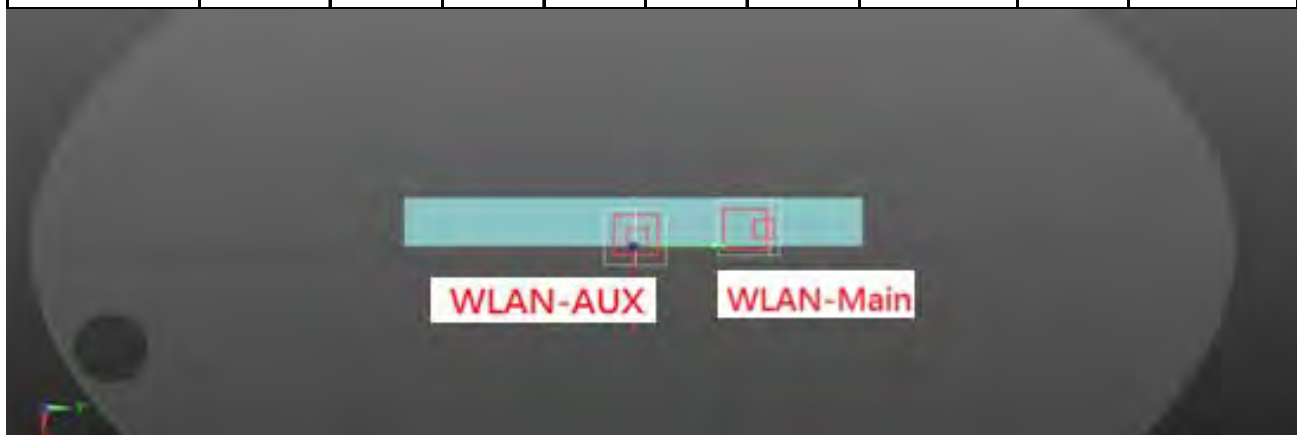
WWAN & WLAN Aux

Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
			x	y	z				
GPRS 850	Top side	0.762	-0.84	-4.83	-0.70	1.604	52.4	0.039	SPLSR<0.04, Not required
WLAN Aux		0.842	-0.74	0.58	-0.73				



WLAN Main & WLAN Aux

Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
			x	y	z				
WLAN Main	Top side	0.0527	-0.70	6.24	2.55	0.8947	67.1	0.013	SPLSR<0.04, Not required
WLAN Aux		0.842	-0.74	0.58	-0.73				



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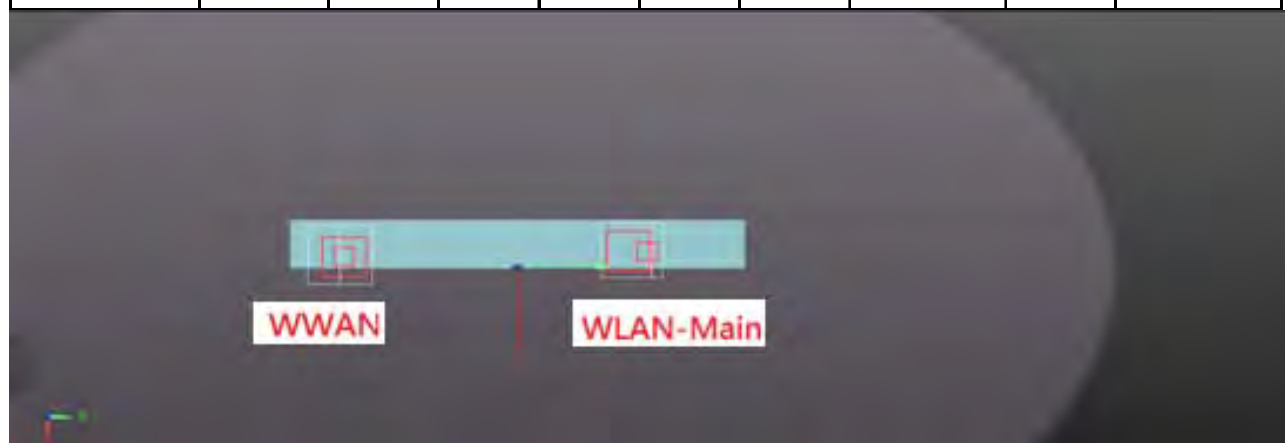
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GPRS 1900 + 2.4GHz WLAN MIMO

No.	Conditions	Position	Distance (mm)	Max. WWAN	Max. WLAN Main	Max. WLAN Aux	SAR Sum	SPLSR
2	1900	Back side	0	1.197	0.261	0.111	1.569	Σ SAR<1.6, Not required
		Back side_Curve(Left)	0	1.335	-	-	-	Σ SAR<1.6, Not required
		Back side_Curve(Right)	0	-	0.356	-	-	Σ SAR<1.6, Not required
		Top side	0	1.144	0.0527	0.842	2.0387	Analyzed as below
		Bottom side	0	0.0145	0.006	0.007	0.0275	Σ SAR<1.6, Not required
		Left side	0	0.287	0.006	0.003	0.296	Σ SAR<1.6, Not required
		Right side	0	0.0012	1.01	0.007	1.0182	Σ SAR<1.6, Not required

WWAN & WLAN Main

Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
			x	y	z				
GPRS 1900	Top side	1.144	-0.54	-8.59	0.45	1.1967	149.8	0.009	SPLSR<0.04, Not required
WLAN Main		0.0527	-0.70	6.24	2.55				



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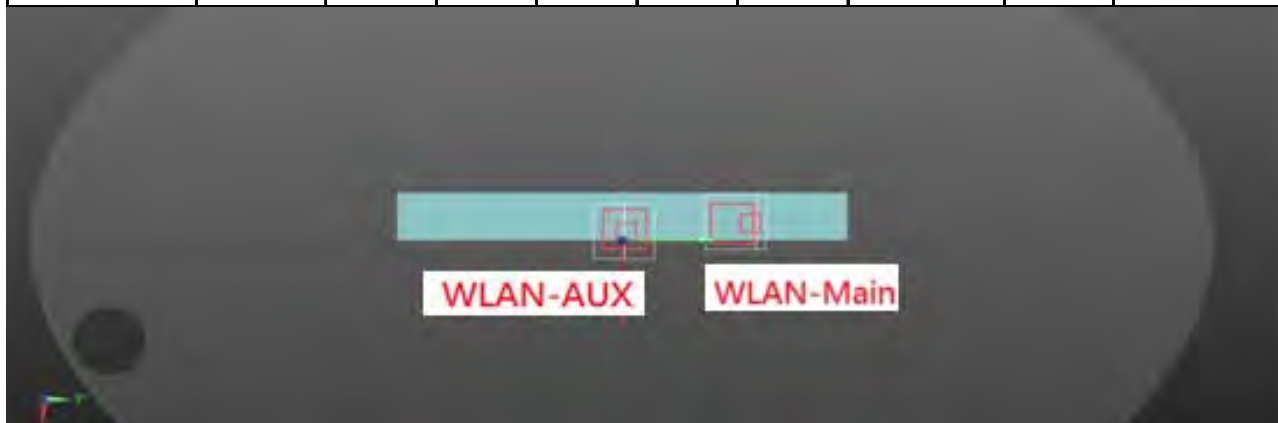
WWAN & WLAN Aux

Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
			x	y	z				
GPRS 1900	Top side	1.144	-0.54	-8.59	0.45	1.986	90.7	0.031	SPLSR<0.04, Not required
WLAN Aux		0.842	-0.74	0.58	-0.73				



WLAN Main & WLAN Aux

Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
			x	y	z				
WLAN Main	Top side	0.0527	-0.70	6.24	2.55	0.8947	67.1	0.013	SPLSR<0.04, Not required
WLAN Aux		0.842	-0.74	0.58	-0.73				



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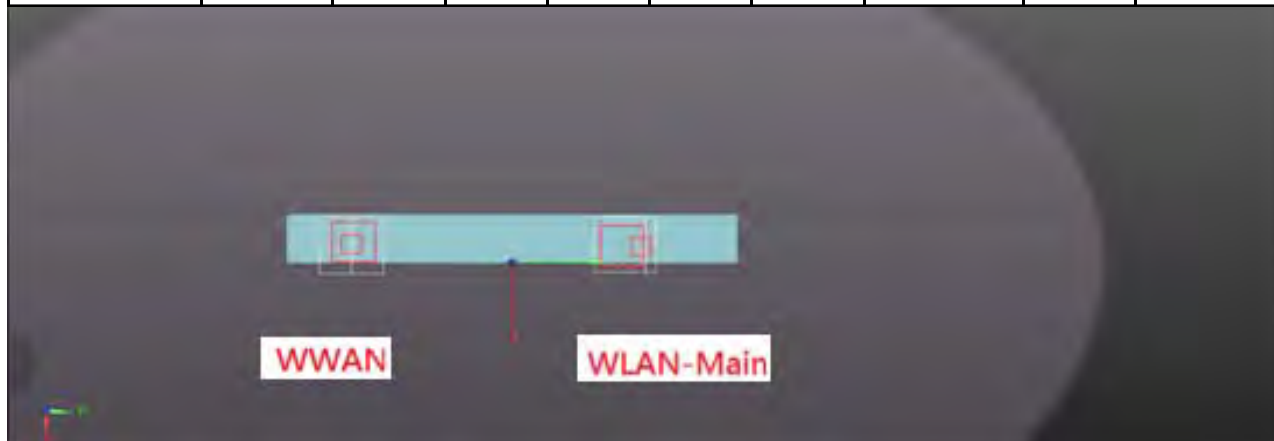
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WCDMA Band II + 2.4GHz WLAN MIMO

No.	Conditions	Position	Distance (mm)	Max. WWAN	Max. WLAN Main	Max. WLAN Aux	SAR Sum	SPLSR
3	WCDMA Band 2	Back side	0	0.962	0.261	0.111	1.334	Σ SAR<1.6, Not required
		Back side_Curve(Left)	0	1.16	-	-	-	Σ SAR<1.6, Not required
		Back side_Curve(Right)	0	-	0.356	-	-	Σ SAR<1.6, Not required
		Top side	0	1.033	0.0527	0.842	1.9277	Analyzed as below
		Bottom side	0	0.016	0.006	0.007	0.029	Σ SAR<1.6, Not required
		Left side	0	0.299	0.006	0.003	0.308	Σ SAR<1.6, Not required
		Right side	0	0.002	1.01	0.007	1.019	Σ SAR<1.6, Not required

WWAN & WLAN Main

Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
			x	y	z				
WCDMA B2	Top side	1.033	-1.00	-8.00	0.45	1.0857	144	0.008	SPLSR<0.04, Not required
WLAN Main		0.0527	-0.70	6.24	2.55				



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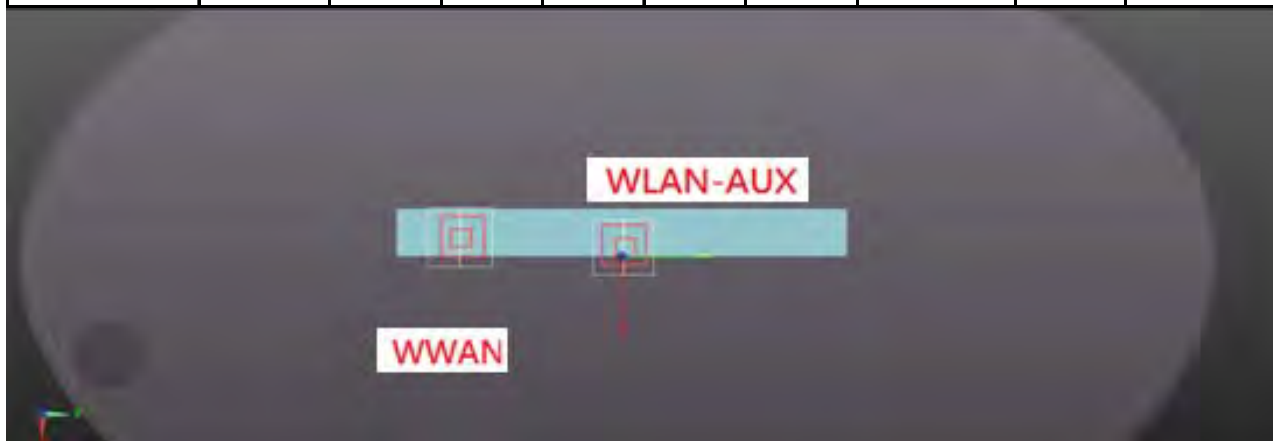
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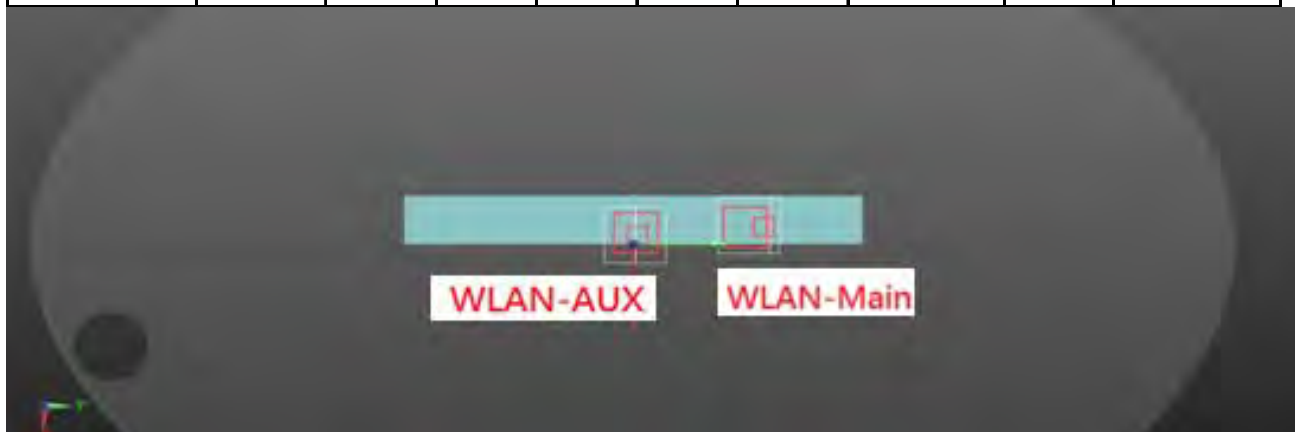
WWAN & WLAN Aux

Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
			x	y	z				
WCDMA B2	Top side	1.033	-1.00	-8.00	0.45	1.875	85	0.030	SPLSR<0.04, Not required
WLAN Aux		0.842	-0.74	0.58	-0.73				



WLAN Main & WLAN Aux

Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
			x	y	z				
WLAN Main	Top side	0.0527	-0.70	6.24	2.55	0.8947	67.1	0.013	SPLSR<0.04, Not required
WLAN Aux		0.842	-0.74	0.58	-0.73				



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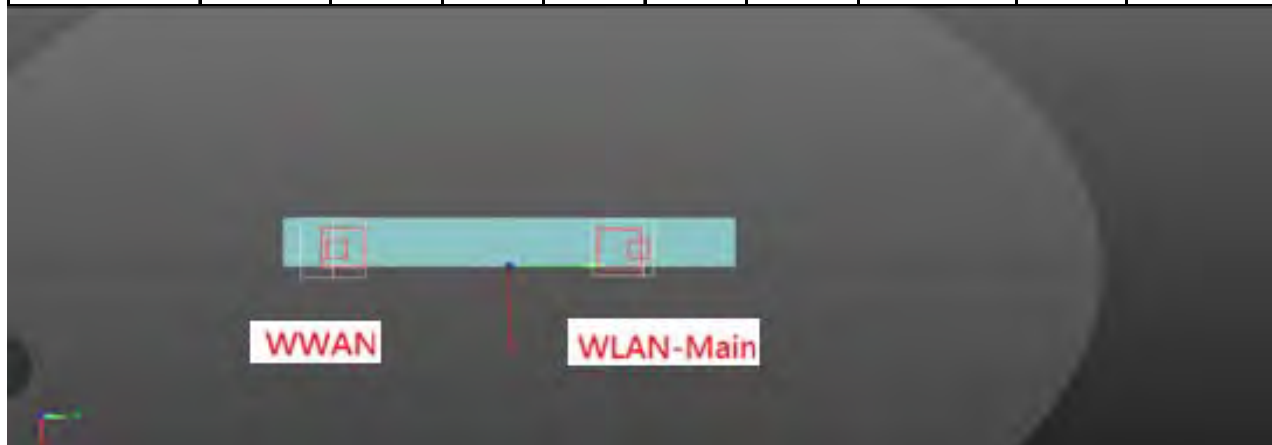
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WCDMA Band IV + 2.4GHz WLAN MIMO

No.	Conditions	Position	Distance (mm)	Max. WWAN	Max. WLAN Main	Max. WLAN Aux	SAR Sum	SPLSR
4	WCDMA Band 4	Back side	0	0.999	0.261	0.111	1.371	Σ SAR<1.6, Not required
		Back side_Curve(Left)	0	1.131	-	-	-	Σ SAR<1.6, Not required
		Back side_Curve(Right)	0	-	0.356	-	-	Σ SAR<1.6, Not required
		Top side	0	1.049	0.0527	0.842	1.9437	Analyzed as below
		Bottom side	0	0.0235	0.006	0.007	0.0365	Σ SAR<1.6, Not required
		Left side	0	0.532	0.006	0.003	0.541	Σ SAR<1.6, Not required
		Right side	0	0.0042	1.01	0.007	1.0212	Σ SAR<1.6, Not required

WWAN & WLAN Main

Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
			x	y	z				
WCDMA B4	Top side	1.049	-0.84	-8.59	-0.50	1.1017	151.4	0.008	SPLSR<0.04, Not required
WLAN Main		0.0527	-0.70	6.24	2.55				



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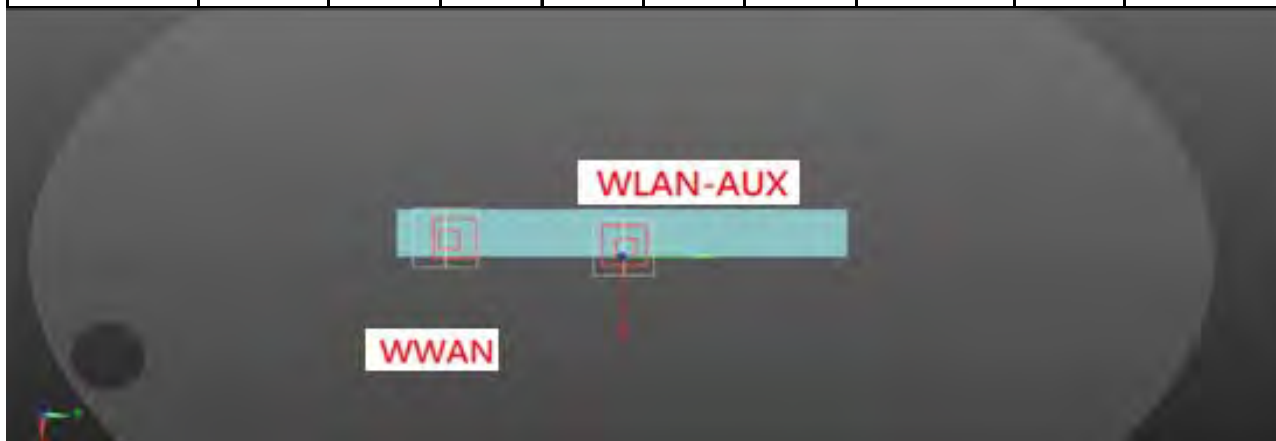
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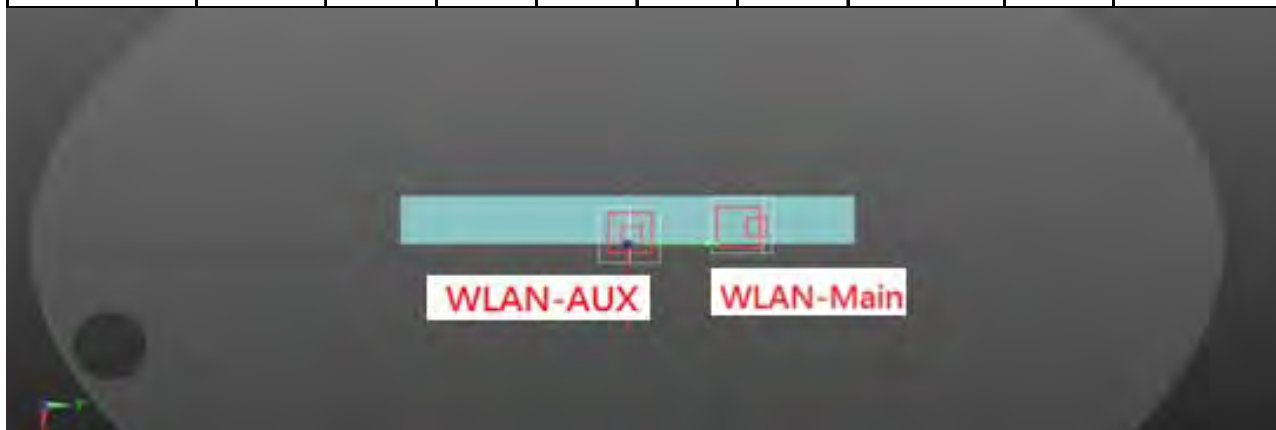
WWAN & WLAN Aux

Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
			x	y	z				
WCDMA B4	Top side	1.049	-0.84	-8.59	-0.50	1.891	90	0.029	SPLSR<0.04, Not required
WLAN Aux		0.842	-0.74	0.58	-0.73				



WLAN Main & WLAN Aux

Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
			x	y	z				
WLAN Main	Top side	0.0527	-0.70	6.24	2.55	0.8947	67.1	0.013	SPLSR<0.04, Not required
WLAN Aux		0.842	-0.74	0.58	-0.73				



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WCDMA Band V + 2.4GHz WLAN MIMO

No.	Conditions	Position	Distance (mm)	Max. WWAN	Max. WLAN Main	Max. WLAN Aux	SAR Sum	SPLSR
5	WCDMA Band 5	Back side	0	0.407	0.261	0.111	0.779	Σ SAR<1.6, Not required
		Back side_Curve(Left)	0	0.402	-	-	-	Σ SAR<1.6, Not required
		Back side_Curve(Right)	0	-	0.356	-	-	Σ SAR<1.6, Not required
		Top side	0	0.391	0.0527	0.842	1.2857	Σ SAR<1.6, Not required
		Bottom side	0	0.035	0.006	0.007	0.048	Σ SAR<1.6, Not required
		Left side	0	0.615	0.006	0.003	0.624	Σ SAR<1.6, Not required
		Right side	0	0.003	1.01	0.007	1.02	Σ SAR<1.6, Not required

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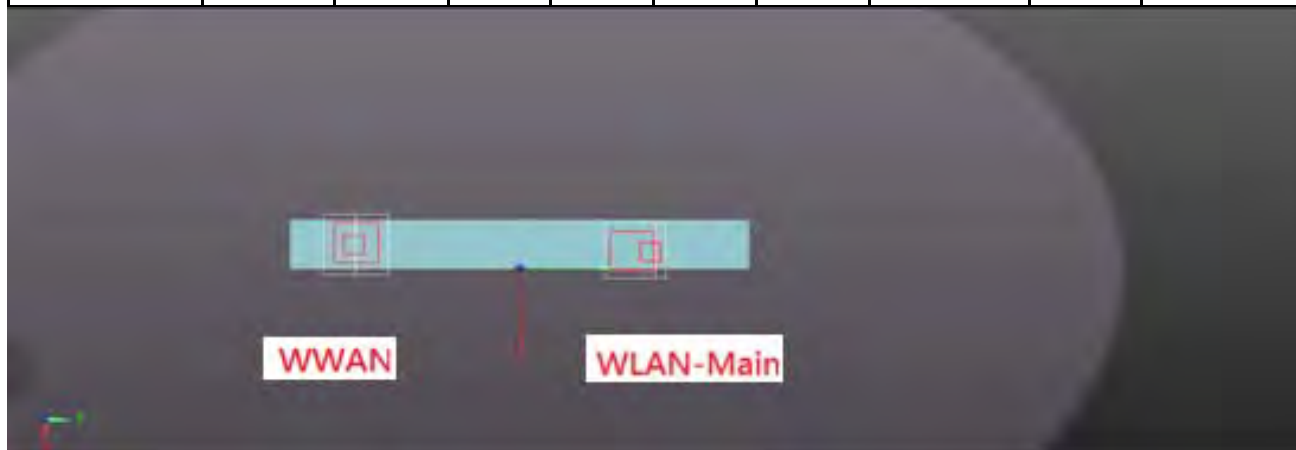
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LTE FDD Band II + 2.4GHz WLAN MIMO

No.	Conditions	Position	Distance (mm)	Max. WWAN	Max. WLAN Main	Max. WLAN Aux	SAR Sum	SPLSR
6	LTE Band 2	Back side	0	1.062	0.261	0.111	1.434	$\Sigma SAR < 1.6$, Not required
		Back side_Curve(Left)	0	1.086	-	-	-	$\Sigma SAR < 1.6$, Not required
		Back side_Curve(Right)	0	-	0.356	-	-	$\Sigma SAR < 1.6$, Not required
		Top side	0	1.09	0.0527	0.842	1.9847	Analyzed as below
		Bottom side	0	0.041	0.006	0.007	0.054	$\Sigma SAR < 1.6$, Not required
		Left side	0	0.281	0.006	0.003	0.29	$\Sigma SAR < 1.6$, Not required
		Right side	0	0.027	1.01	0.007	1.044	$\Sigma SAR < 1.6$, Not required

WWAN & WLAN Main

Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
			x	y	z				
LTE Band 2	Top side	1.09	-1.30	-8.16	0.45	1.1427	145.6	0.008	$SPLSR < 0.04$, Not required
WLAN Main		0.0527	-0.70	6.24	2.55				



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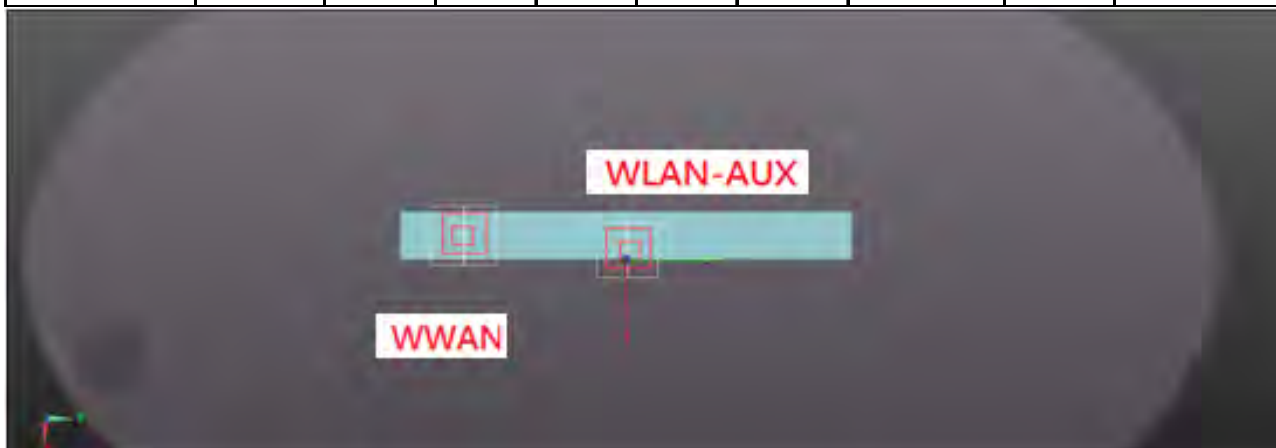
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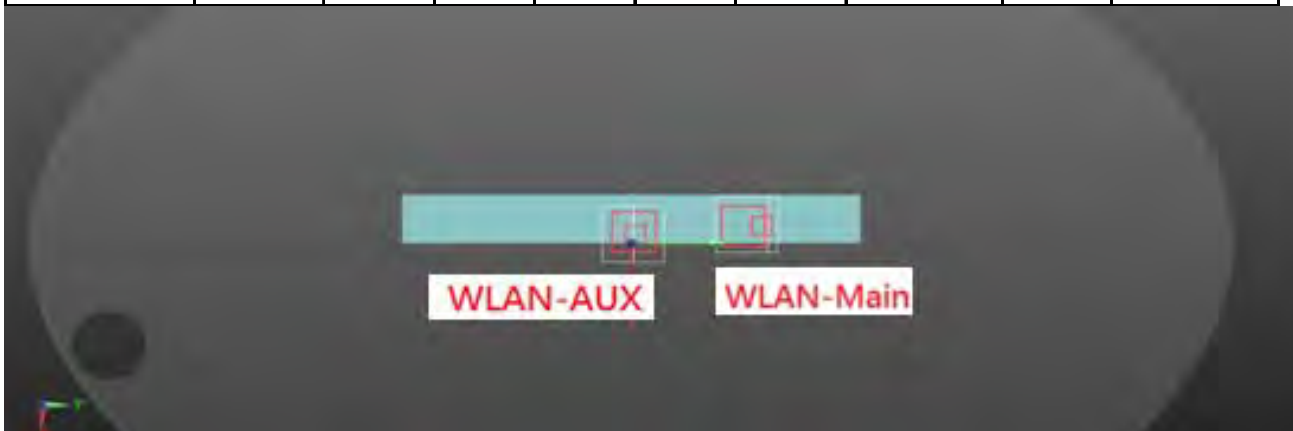
WWAN & WLAN Aux

Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
			x	y	z				
LTE Band 2	Top side	1.09	-1.30	-8.16	0.45	1.932	86.7	0.031	SPLSR<0.04, Not required
WLAN Aux		0.842	-0.74	0.58	-0.73				



WLAN Main & WLAN Aux

Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
			x	y	z				
WLAN Main	Top side	0.0527	-0.70	6.24	2.55	0.8947	67.1	0.013	SPLSR<0.04, Not required
WLAN Aux		0.842	-0.74	0.58	-0.73				



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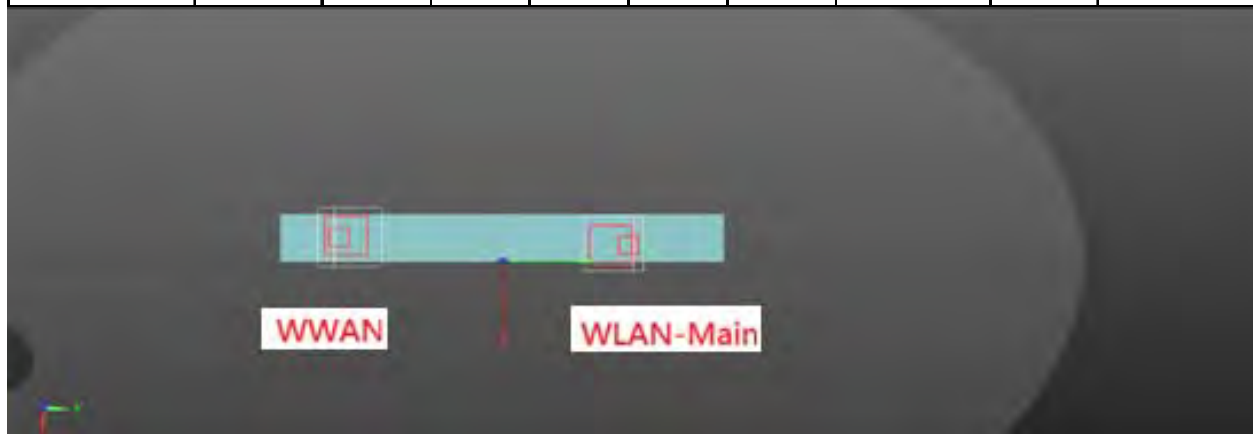
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LTE FDD Band IV + 2.4GHz WLAN MIMO

No.	Conditions	Position	Distance (mm)	Max. WWAN	Max. WLAN Main	Max. WLAN Aux	SAR Sum	SPLSR
7	LTE Band 4	Back side	0	1.193	0.261	0.111	1.565	$\Sigma SAR < 1.6$, Not required
		Back side_Curve(Left)	0	1.154	-	-	-	$\Sigma SAR < 1.6$, Not required
		Back side_Curve(Right)	0	-	0.356	-	-	$\Sigma SAR < 1.6$, Not required
		Top side	0	1.069	0.0527	0.842	1.9637	Analyzed as below
		Bottom side	0	0.044	0.006	0.007	0.057	$\Sigma SAR < 1.6$, Not required
		Left side	0	0.543	0.006	0.003	0.552	$\Sigma SAR < 1.6$, Not required
		Right side	0	0.007	1.01	0.007	1.024	$\Sigma SAR < 1.6$, Not required

WWAN & WLAN Main

Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
			x	y	z				
LTE Band 4	Top side	1.069	-1.35	-8.34	-0.48	1.1217	149	0.008	$SPLSR < 0.04$, Not required
WLAN Main		0.0527	-0.70	6.24	2.55				



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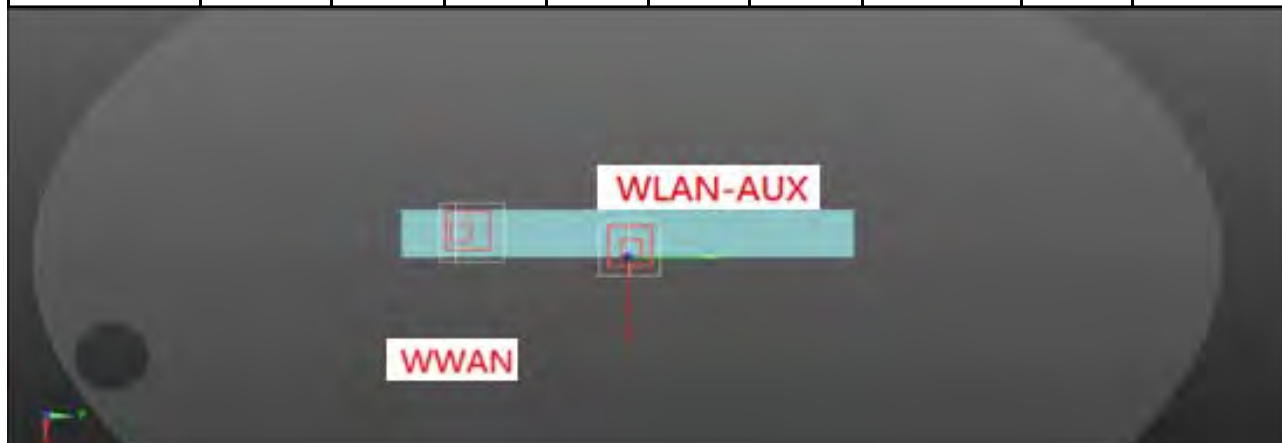
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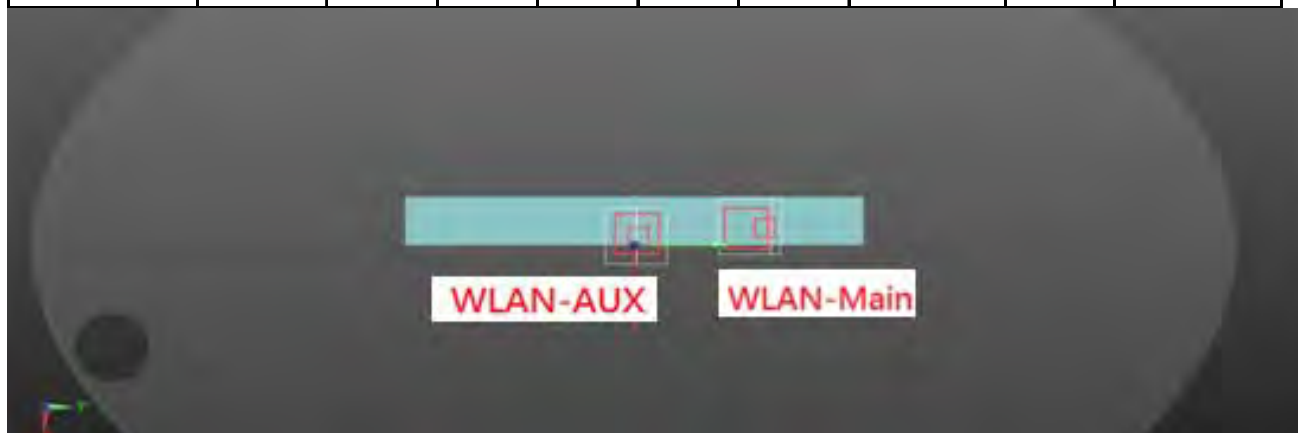
WWAN & WLAN Aux

Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
			x	y	z				
LTE Band 4	Top side	1.069	-1.35	-8.34	-0.48	1.911	87.8	0.030	SPLSR<0.04, Not required
WLAN Aux		0.842	-0.74	0.58	-0.73				



WLAN Main & WLAN Aux

Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
			x	y	z				
WLAN Main	Top side	0.0527	-0.70	6.24	2.55	0.8947	67.1	0.013	SPLSR<0.04, Not required
WLAN Aux		0.842	-0.74	0.58	-0.73				



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LTE FDD Band V + 2.4GHz WLAN MIMO

No.	Conditions	Position	Distance (mm)	Max. WWAN	Max. WLAN Main	Max. WLAN Aux	SAR Sum	SPLSR
8	LTE Band 5	Back side	0	0.491	0.261	0.111	0.863	Σ SAR<1.6, Not required
		Back side_Curve(Left)	0	0.58	-	-	-	Σ SAR<1.6, Not required
		Back side_Curve(Right)	0	-	0.356	-	-	Σ SAR<1.6, Not required
		Top side	0	0.576	0.0527	0.842	1.4707	Σ SAR<1.6, Not required
		Bottom side	0	0.076	0.006	0.007	0.089	Σ SAR<1.6, Not required
		Left side	0	0.601	0.006	0.003	0.61	Σ SAR<1.6, Not required
		Right side	0	0.014	1.01	0.007	1.031	Σ SAR<1.6, Not required

LTE FDD Band XIII + 2.4GHz WLAN MIMO

No.	Conditions	Position	Distance (mm)	Max. WWAN	Max. WLAN Main	Max. WLAN Aux	SAR Sum	SPLSR
9	LTE Band 13	Back side	0	0.468	0.261	0.111	0.84	Σ SAR<1.6, Not required
		Back side_Curve(Left)	0	0.486	-	-	-	Σ SAR<1.6, Not required
		Back side_Curve(Right)	0	-	0.356	-	-	Σ SAR<1.6, Not required
		Top side	0	0.549	0.0527	0.842	1.4437	Σ SAR<1.6, Not required
		Bottom side	0	0.093	0.006	0.007	0.106	Σ SAR<1.6, Not required
		Left side	0	0.837	0.006	0.003	0.846	Σ SAR<1.6, Not required
		Right side	0	0.01	1.01	0.007	1.027	Σ SAR<1.6, Not required

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LTE FDD Band XVII + 2.4GHz WLAN MIMO

No.	Conditions	Position	Distance (mm)	Max. WWAN	Max. WLAN Main	Max. WLAN Aux	SAR Sum	SPLSR
10	LTE Band 17	Back side	0	0.264	0.261	0.111	0.636	Σ SAR<1.6, Not required
		Back side_Curve(Left)	0	0.296	-	-	-	Σ SAR<1.6, Not required
		Back side_Curve(Right)	0	-	0.356	-	-	Σ SAR<1.6, Not required
		Top side	0	0.223	0.0527	0.842	1.1177	Σ SAR<1.6, Not required
		Bottom side	0	0.009	0.006	0.007	0.022	Σ SAR<1.6, Not required
		Left side	0	0.438	0.006	0.003	0.447	Σ SAR<1.6, Not required
		Right side	0	0.005	1.01	0.007	1.022	Σ SAR<1.6, Not required

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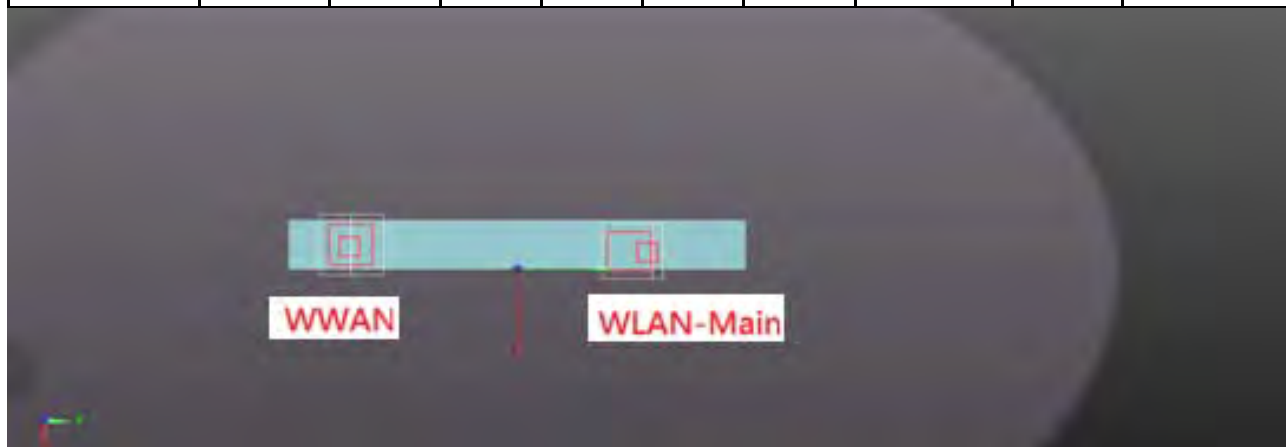
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LTE FDD Band XXV + 2.4GHz WLAN MIMO

No.	Conditions	Position	Distance (mm)	Max. WWAN	Max. WLAN Main	Max. WLAN Aux	SAR Sum	SPLSR
11	LTE Band 25	Back side	0	1.151	0.261	0.111	1.523	$\Sigma SAR < 1.6$, Not required
		Back side_Curve(Left)	0	0.979	-	-	-	$\Sigma SAR < 1.6$, Not required
		Back side_Curve(Right)	0	-	0.356	-	-	$\Sigma SAR < 1.6$, Not required
		Top side	0	1.159	0.0527	0.842	2.0537	Analyzed as below
		Bottom side	0	0.026	0.006	0.007	0.039	$\Sigma SAR < 1.6$, Not required
		Left side	0	0.375	0.006	0.003	0.384	$\Sigma SAR < 1.6$, Not required
		Right side	0	0.007	1.01	0.007	1.024	$\Sigma SAR < 1.6$, Not required

WWAN & WLAN Main

Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
			x	y	z				
LTE Band 25	Top side	1.159	-1.14	-8.47	0.51	1.2117	148.6	0.009	SPLSR < 0.04, Not required
WLAN Main		0.0527	-0.70	6.24	2.55				



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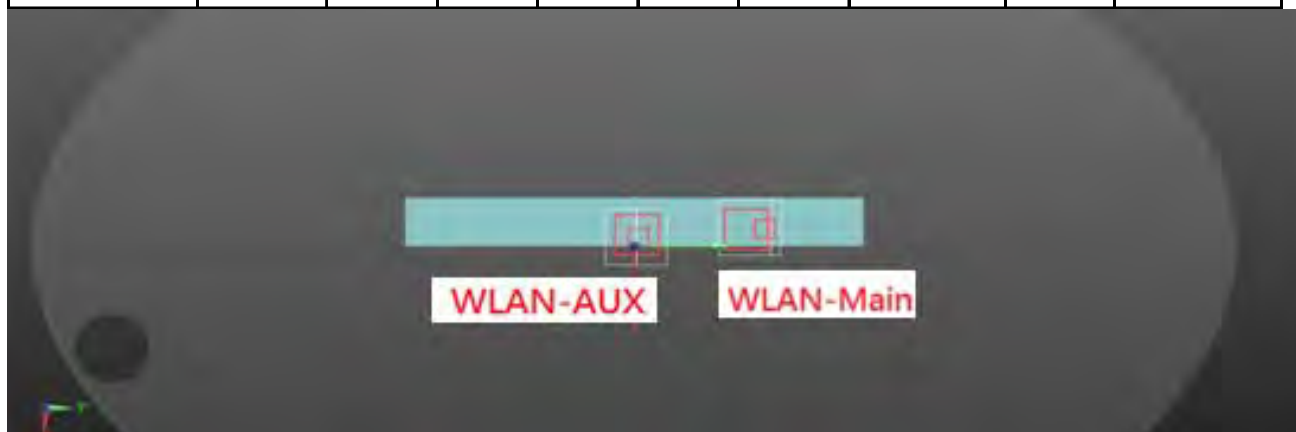
WWAN & WLAN Aux

Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
			x	y	z				
LTE Band 25	Top side	1.159	-1.14	-8.47	0.51	2.001	89.8	0.032	SPLSR<0.04, Not required
WLAN Aux		0.842	-0.74	0.58	-0.73				



WLAN Main & WLAN Aux

Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
			x	y	z				
WLAN Main	Top side	0.0527	-0.70	6.24	2.55	0.8947	67.1	0.013	SPLSR<0.04, Not required
WLAN Aux		0.842	-0.74	0.58	-0.73				



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CDMA / EVDO BC0 + 2.4GHz WLAN MIMO

No.	Conditions	Position	Distance (mm)	Max. WWAN	Max. WLAN Main	Max. WLAN Aux	SAR Sum	SPLSR
12	EVDO BC 0	Back side	0	0.54	0.261	0.111	0.912	Σ SAR<1.6, Not required
		Back side_Curve(Left)	0	0.618	-	-	-	Σ SAR<1.6, Not required
		Back side_Curve(Right)	0	-	0.356	-	-	Σ SAR<1.6, Not required
		Top side	0	0.658	0.0527	0.842	1.5527	Σ SAR<1.6, Not required
		Bottom side	0	0.07	0.006	0.007	0.083	Σ SAR<1.6, Not required
		Left side	0	0.771	0.006	0.003	0.78	Σ SAR<1.6, Not required
		Right side	0	0.007	1.01	0.007	1.024	Σ SAR<1.6, Not required

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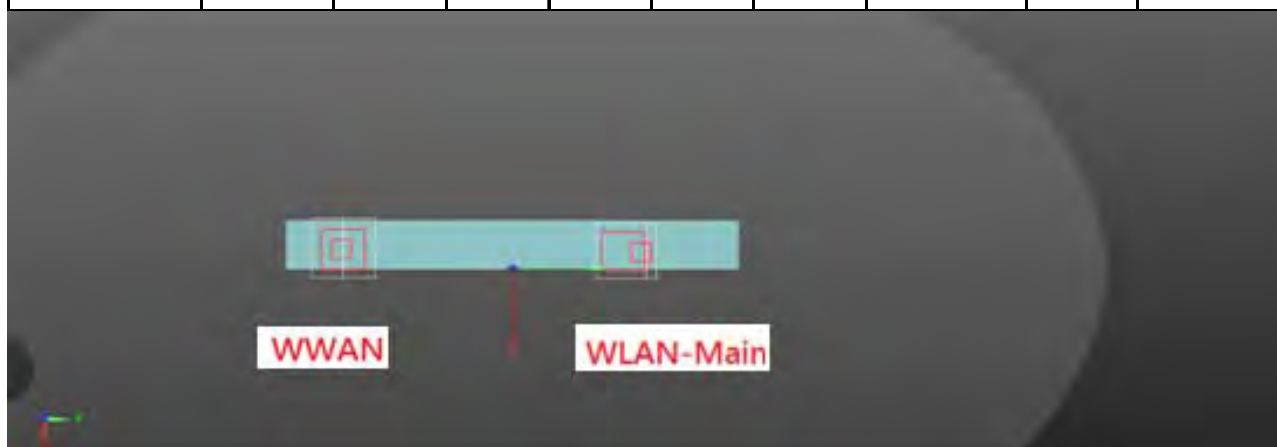
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CDMA / EVDO BC1 + 2.4GHz WLAN MIMO

No.	Conditions	Position	Distance (mm)	Max. WWAN	Max. WLAN Main	Max. WLAN Aux	SAR Sum	SPLSR
13	EVDO BC 1	Back side	0	1.008	0.261	0.111	1.38	Σ SAR<1.6, Not required
		Back side_Curve(Left)	0	0.973	-	-	-	Σ SAR<1.6, Not required
		Back side_Curve(Right)	0	-	0.356	-	-	Σ SAR<1.6, Not required
		Top side	0	0.903	0.0527	0.842	1.7977	Analyzed as below
		Bottom side	0	0.025	0.006	0.007	0.038	Σ SAR<1.6, Not required
		Left side	0	0.341	0.006	0.003	0.35	Σ SAR<1.6, Not required
		Right side	0	0.004	1.01	0.007	1.021	Σ SAR<1.6, Not required

WWAN & WLAN Main

Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
			x	y	z				
EVDO BC 1	Top side	0.903	-0.99	-8.56	-0.46	1.745	89.7	0.026	SPLSR<0.04, Not required
WLAN Aux		0.842	-0.74	0.58	-0.73				



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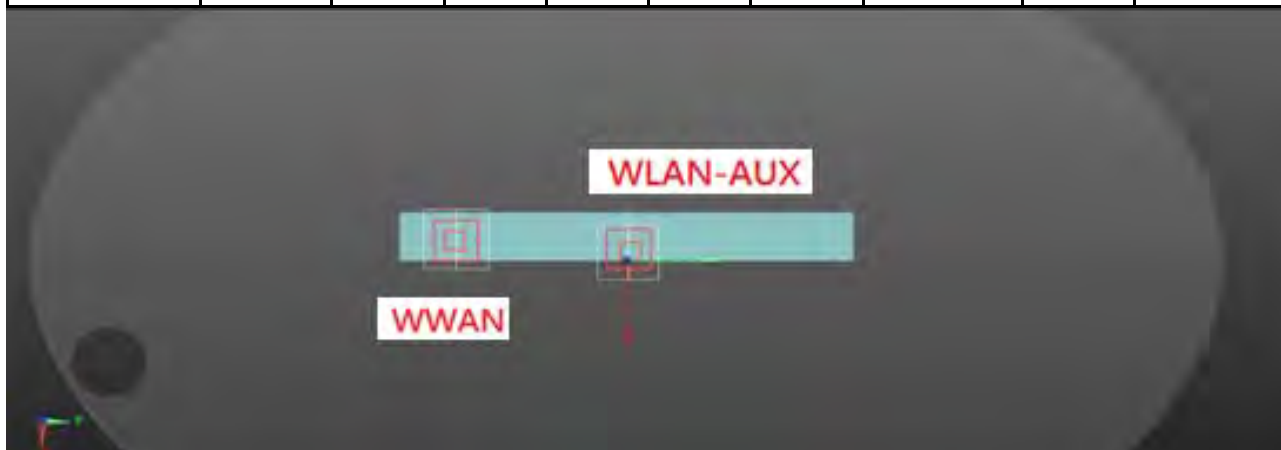
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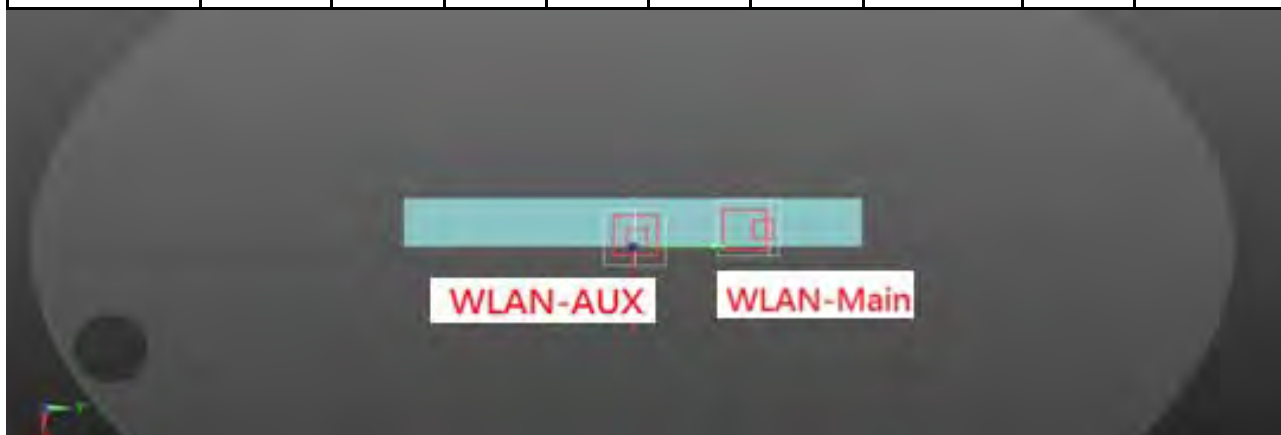
WWAN & WLAN Aux

Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
			x	y	z				
EVDO BC 1	Top side	0.903	-0.99	-8.56	-0.46	0.9557	151.1	0.006	SPLSR<0.04, Not required
WLAN Main		0.0527	-0.70	6.24	2.55				



WLAN Main & WLAN Aux

Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
			x	y	z				
WLAN Main	Top side	0.0527	-0.70	6.24	2.55	0.8947	67.1	0.013	SPLSR<0.04, Not required
WLAN Aux		0.842	-0.74	0.58	-0.73				



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CDMA / EVDO BC10 + 2.4GHz WLAN MIMO

No.	Conditions	Position	Distance (mm)	Max. WWAN	Max. WLAN Main	Max. WLAN Aux	SAR Sum	SPLSR
14	EVDO BC 10	Back side	0	0.55	0.261	0.111	0.922	Σ SAR<1.6, Not required
		Back side_Curve(Left)	0	0.635	-	-	-	Σ SAR<1.6, Not required
		Back side_Curve(Right)	0	-	0.356	-	-	Σ SAR<1.6, Not required
		Top side	0	0.582	0.0527	0.842	1.4767	Σ SAR<1.6, Not required
		Bottom side	0	0.058	0.006	0.007	0.071	Σ SAR<1.6, Not required
		Left side	0	0.723	0.006	0.003	0.732	Σ SAR<1.6, Not required
		Right side	0	0.004	1.01	0.007	1.021	Σ SAR<1.6, Not required

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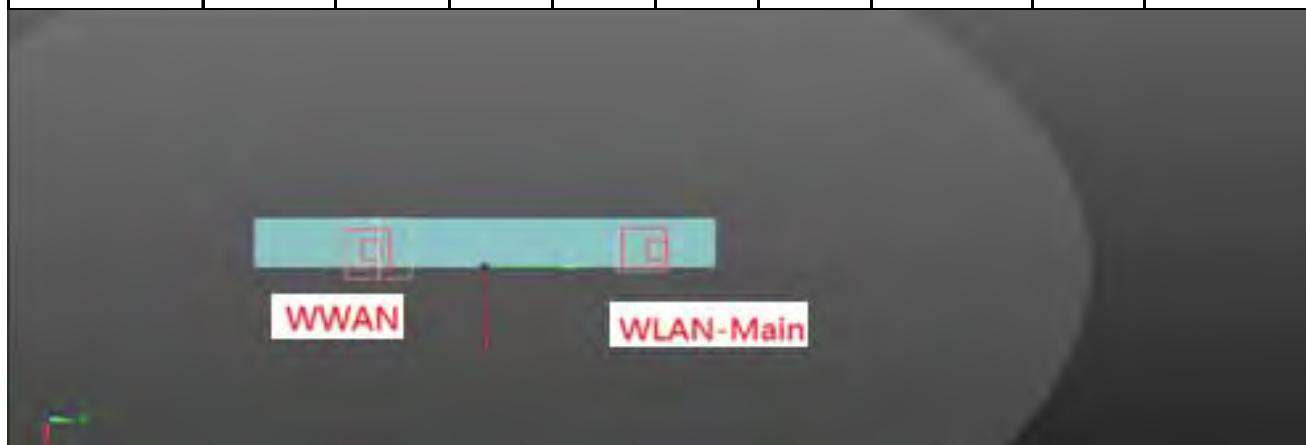
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GPRS 850 + 5GHz WLAN MIMO

No.	Conditions	Position	Distance (mm)	Max. WWAN	Max. WLAN Main	Max. WLAN Aux	SAR Sum	SPLSR
15	850	Back side	0	0.866	0.073	0.212	1.151	Σ SAR<1.6, Not required
		Back side_Curve(Left)	0	0.754	-	-	-	Σ SAR<1.6, Not required
		Back side_Curve(Right)	0	-	0.078	-	-	Σ SAR<1.6, Not required
		Top side	0	0.762	0.089	0.928	1.779	Analyzed as below
		Bottom side	0	0.013	0.003	0.007	0.023	Σ SAR<1.6, Not required
		Left side	0	1.038	0.002	0.006	1.046	Σ SAR<1.6, Not required
		Right side	0	0.002	0.513	0.029	0.544	Σ SAR<1.6, Not required

WWAN & WLAN Main

Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
			x	y	z				
GPRS 850	Top side	0.762	-0.84	-4.83	-0.70	0.851	138.9	0.006	SPLSR<0.04, Not required
WLAN Main		0.089	-2.10	8.72	2.08				



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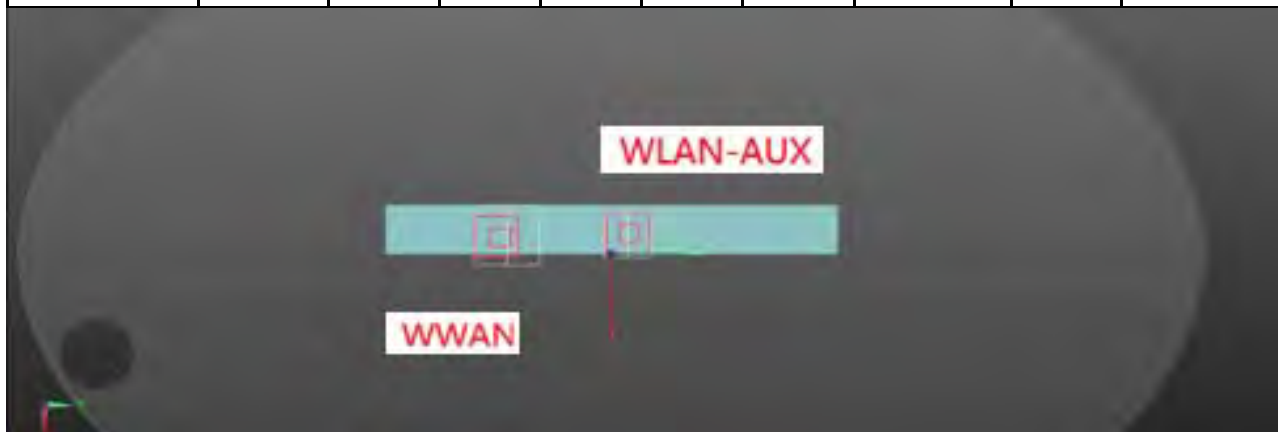
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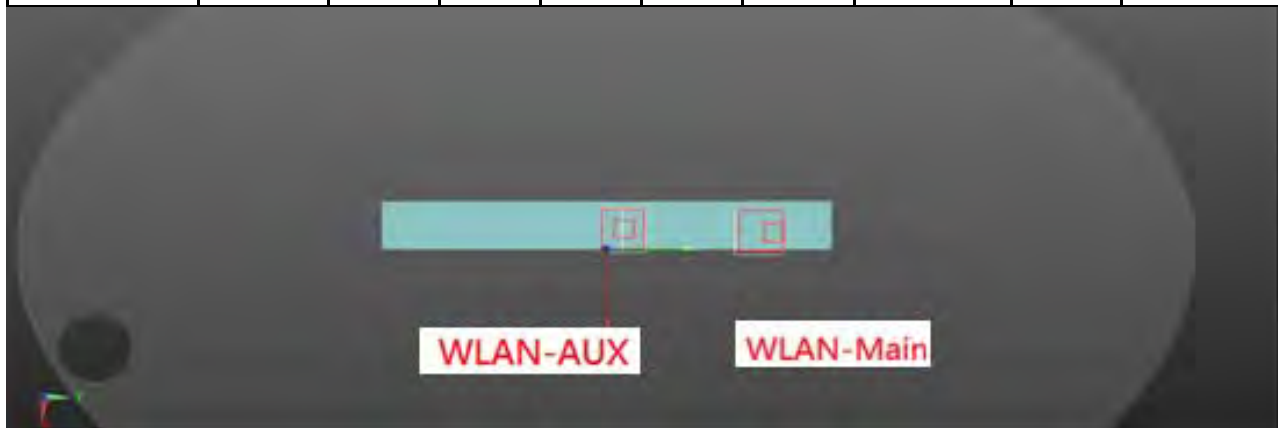
WWAN & WLAN Aux

Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
			x	y	z				
GPRS 850	Top side	0.762	-0.84	-4.83	-0.70	1.69	58	0.038	SPLSR<0.04, Not required
WLAN Aux		0.928	-1.08	0.96	-0.76				



WLAN Main & WLAN Aux

Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
			x	y	z				
WLAN Main	Top side	0.089	-2.10	8.72	2.08	1.017	83.2	0.012	SPLSR<0.04, Not required
WLAN Aux		0.928	-1.08	0.96	-0.76				



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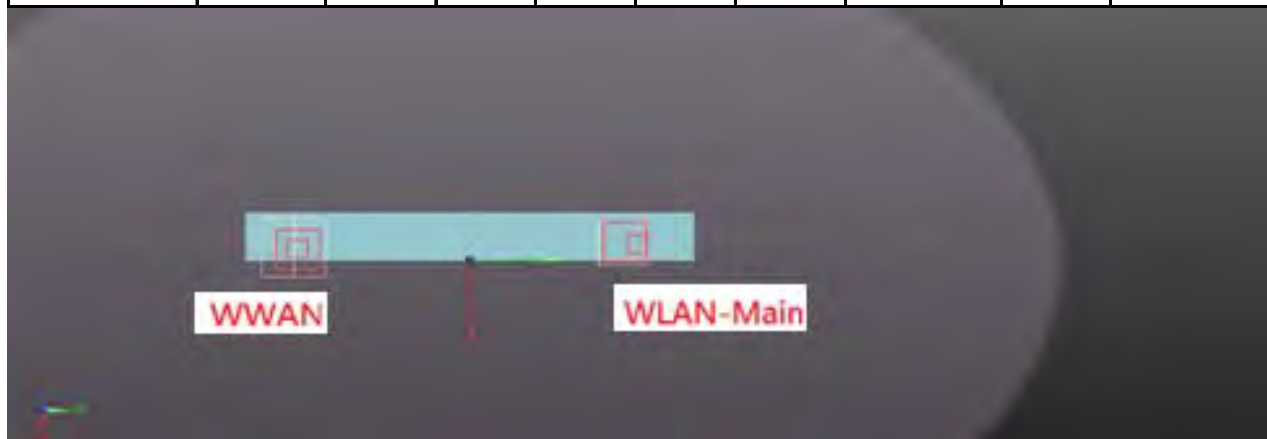
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GPRS 1900 + 5GHz WLAN MIMO

No.	Conditions	Position	Distance (mm)	Max. WWAN	Max. WLAN Main	Max. WLAN Aux	SAR Sum	SPLSR
16	1900	Back side	0	1.197	0.073	0.212	1.482	Σ SAR<1.6, Not required
		Back side_Curve(Left)	0	1.335	-	-	-	Σ SAR<1.6, Not required
		Back side_Curve(Right)	0	-	0.078	-	-	Σ SAR<1.6, Not required
		Top side	0	1.144	0.089	0.928	2.161	Analyzed as below
		Bottom side	0	0.0145	0.003	0.007	0.0245	Σ SAR<1.6, Not required
		Left side	0	0.287	0.002	0.006	0.295	Σ SAR<1.6, Not required
		Right side	0	0.0012	0.513	0.029	0.5432	Σ SAR<1.6, Not required

WWAN & WLAN Main

Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
			x	y	z				
GPRS 1900	Top side	1.144	-0.54	-8.59	0.45	1.233	174.6	0.008	SPLSR<0.04, Not required
WLAN Main		0.089	-2.10	8.72	2.08				



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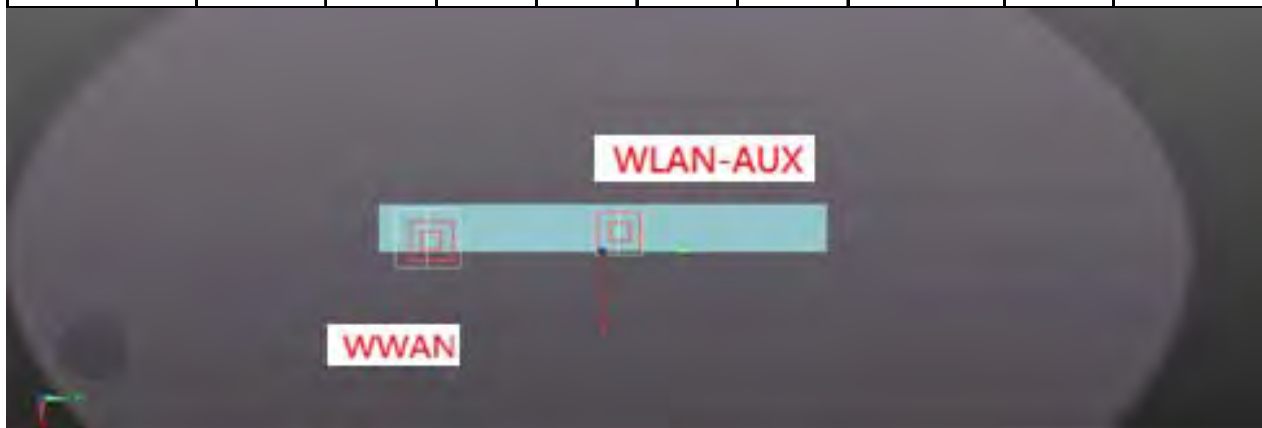
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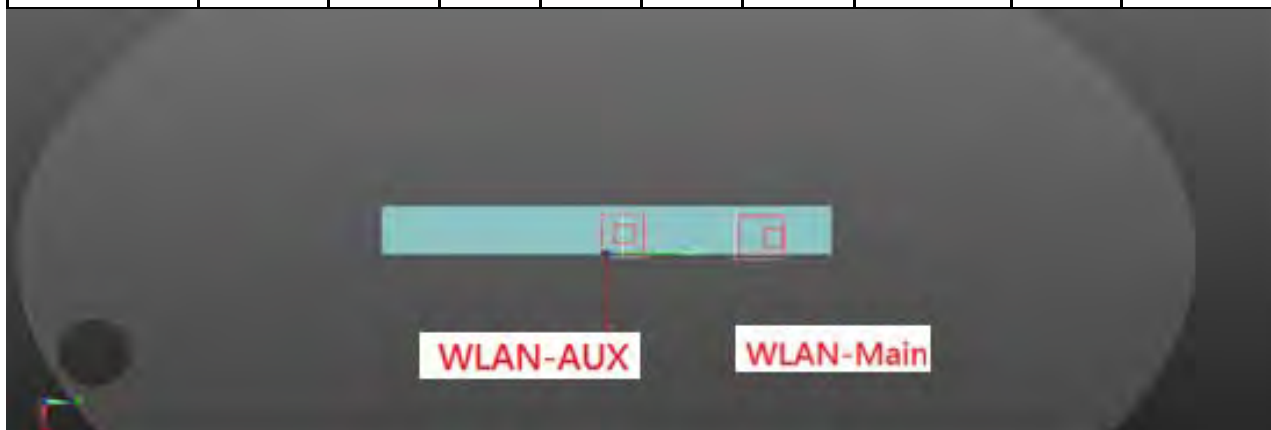
WWAN & WLAN Aux

Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
			x	y	z				
GPRS 1900	Top side	1.144	-0.54	-8.59	0.45	2.072	96.4	0.031	SPLSR<0.04, Not required
WLAN Aux		0.928	-1.08	0.96	-0.76				



WLAN Main & WLAN Aux

Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
			x	y	z				
WLAN Main	Top side	0.089	-2.10	8.72	2.08	1.017	83.2	0.012	SPLSR<0.04, Not required
WLAN Aux		0.928	-1.08	0.96	-0.76				



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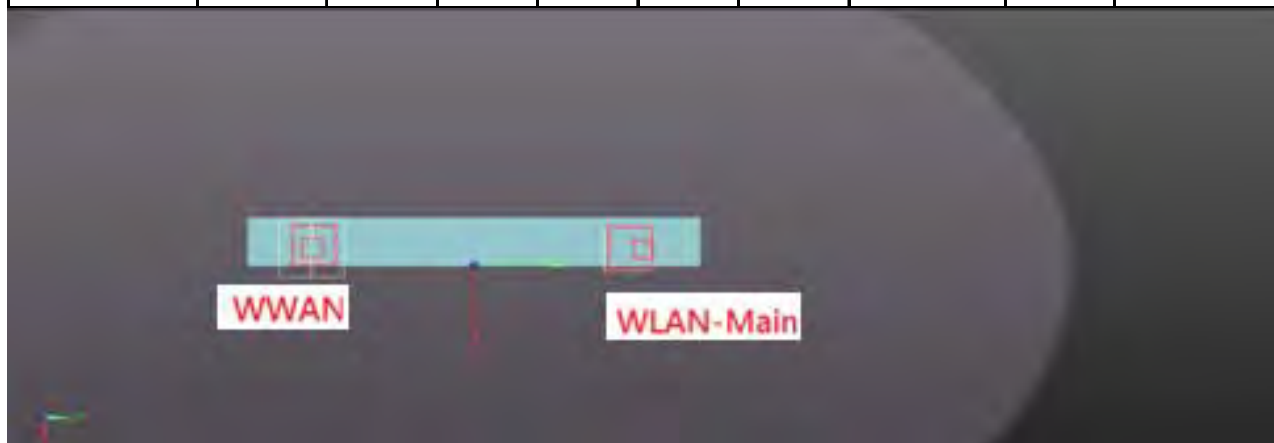
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WCDMA Band II + 5GHz WLAN MIMO

No.	Conditions	Position	Distance (mm)	Max. WWAN	Max. WLAN Main	Max. WLAN Aux	SAR Sum	SPLSR
17	WCDMA Band 2	Back side	0	0.962	0.073	0.212	1.247	Σ SAR<1.6, Not required
		Back side_Curve(Left)	0	1.16	-	-	-	Σ SAR<1.6, Not required
		Back side_Curve(Right)	0	-	0.078	-	-	Σ SAR<1.6, Not required
		Top side	0	1.033	0.089	0.928	2.05	Analyzed as below
		Bottom side	0	0.016	0.003	0.007	0.026	Σ SAR<1.6, Not required
		Left side	0	0.299	0.002	0.006	0.307	Σ SAR<1.6, Not required
		Right side	0	0.002	0.513	0.029	0.544	Σ SAR<1.6, Not required

WWAN & WLAN Main

Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
			x	y	z				
WCDMA B2	Top side	1.033	-1.00	-8.00	0.45	1.122	168.3	0.007	SPLSR<0.04, Not required
WLAN Main		0.089	-2.10	8.72	2.08				



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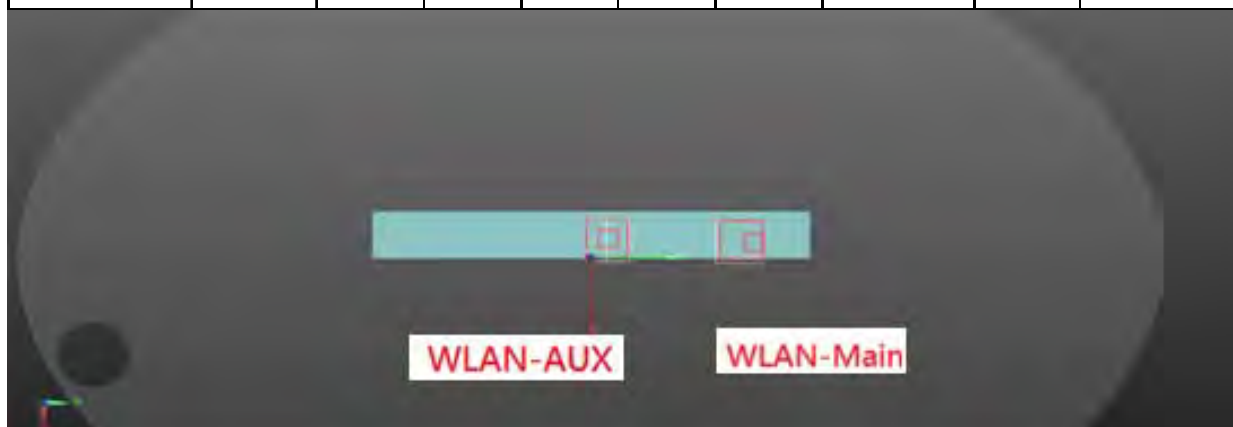
WWAN & WLAN Aux

Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
			x	y	z				
WCDMA B2	Top side	1.033	-1.00	-8.00	0.45	1.961	90.4	0.030	SPLSR<0.04, Not required
WLAN Aux		0.928	-1.08	0.96	-0.76				



WLAN Main & WLAN Aux

Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
			x	y	z				
WLAN Main	Top side	0.089	-2.10	8.72	2.08	1.017	83.2	0.012	SPLSR<0.04, Not required
WLAN Aux		0.928	-1.08	0.96	-0.76				



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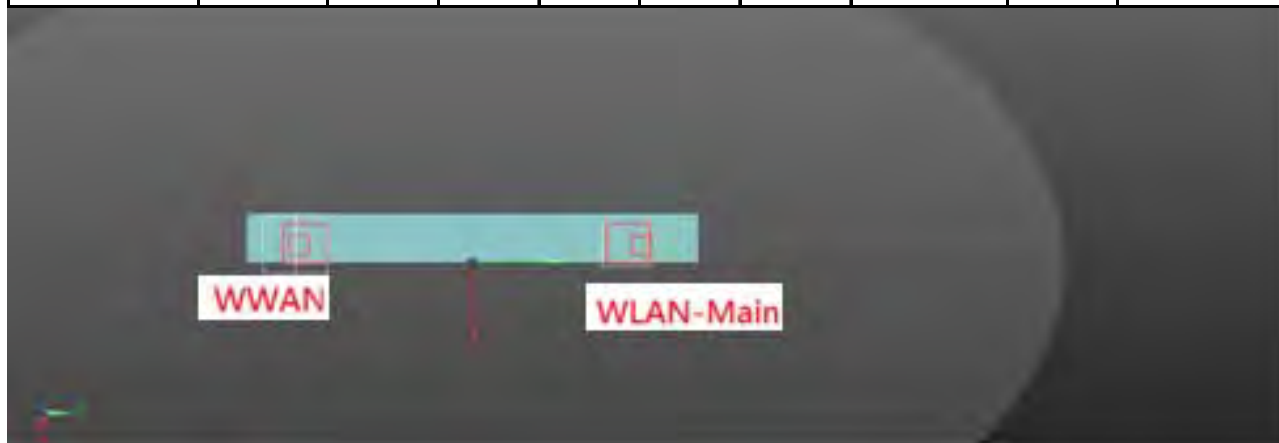
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WCDMA Band IV + 5GHz WLAN MIMO

No.	Conditions	Position	Distance (mm)	Max. WWAN	Max. WLAN Main	Max. WLAN Aux	SAR Sum	SPLSR
18	WCDMA Band 4	Back side	0	0.999	0.073	0.212	1.284	Σ SAR<1.6, Not required
		Back side_Curve(Left)	0	1.131	-	-	-	Σ SAR<1.6, Not required
		Back side_Curve(Right)	0	-	0.078	-	-	Σ SAR<1.6, Not required
		Top side	0	1.049	0.089	0.928	2.066	Analyzed as below
		Bottom side	0	0.0235	0.003	0.007	0.0335	Σ SAR<1.6, Not required
		Left side	0	0.532	0.002	0.006	0.54	Σ SAR<1.6, Not required
		Right side	0	0.0042	0.513	0.029	0.5462	Σ SAR<1.6, Not required

WWAN & WLAN Main

Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
			x	y	z				
WCDMA B4	Top side	1.049	-0.84	-8.59	-0.50	1.138	175.5	0.007	SPLSR<0.04, Not required
WLAN Main		0.089	-2.10	8.72	2.08				



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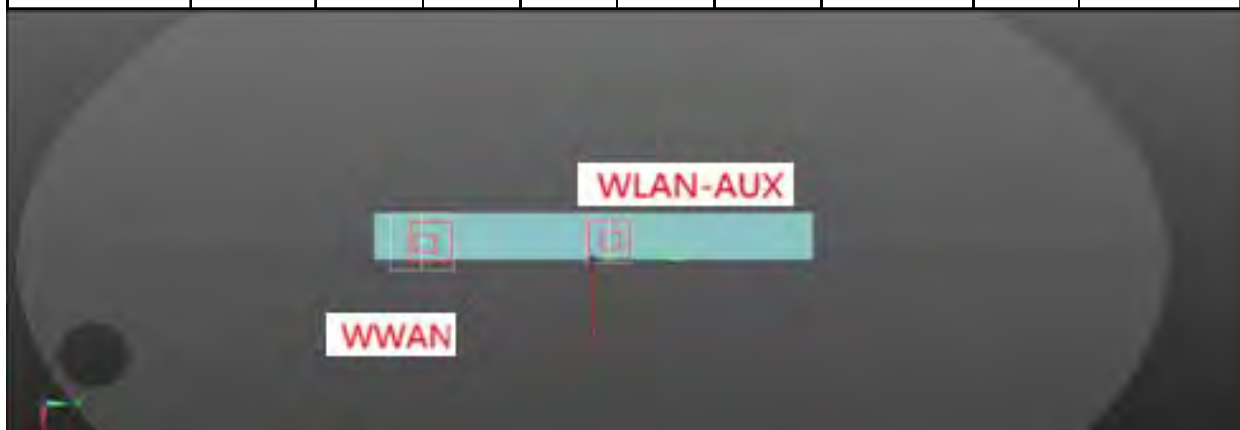
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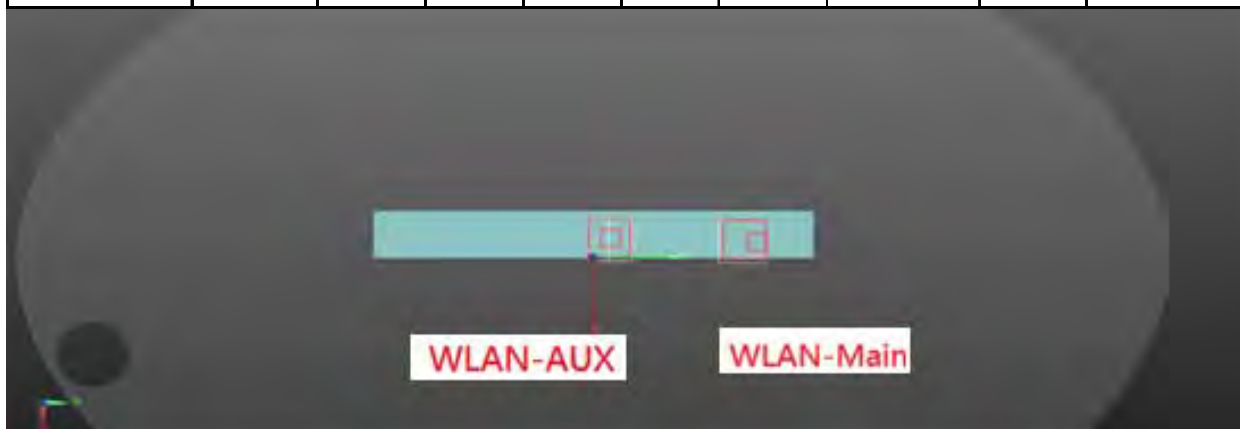
WWAN & WLAN Aux

Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
			x	y	z				
WCDMA B4	Top side	1.049	-0.84	-8.59	-0.50	1.977	95.6	0.029	SPLSR<0.04, Not required
WLAN Aux		0.928	-1.08	0.96	-0.76				



WLAN Main & WLAN Aux

Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
			x	y	z				
WLAN Main	Top side	0.089	-2.10	8.72	2.08	1.017	83.2	0.012	SPLSR<0.04, Not required
WLAN Aux		0.928	-1.08	0.96	-0.76				



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WCDMA Band V + 5GHz WLAN MIMO

No.	Conditions	Position	Distance (mm)	Max. WWAN	Max. WLAN Main	Max. WLAN Aux	SAR Sum	SPLSR
19	WCDMA Band 5	Back side	0	0.407	0.073	0.212	0.692	Σ SAR<1.6, Not required
		Back side_Curve(Left)	0	0.402	-	-	-	Σ SAR<1.6, Not required
		Back side_Curve(Right)	0	-	0.078	-	-	Σ SAR<1.6, Not required
		Top side	0	0.391	0.089	0.928	1.408	Σ SAR<1.6, Not required
		Bottom side	0	0.035	0.003	0.007	0.045	Σ SAR<1.6, Not required
		Left side	0	0.615	0.002	0.006	0.623	Σ SAR<1.6, Not required
		Right side	0	0.003	0.513	0.029	0.545	Σ SAR<1.6, Not required

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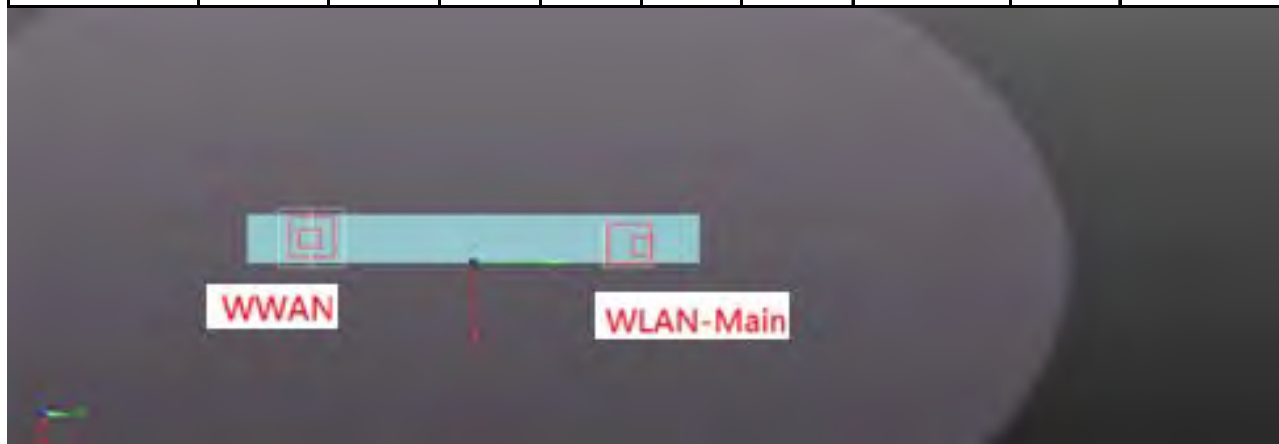
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LTE FDD Band II + 5GHz WLAN MIMO

No.	Conditions	Position	Distance (mm)	Max. WWAN	Max. WLAN Main	Max. WLAN Aux	SAR Sum	SPLSR
20	LTE Band 2	Back side	0	1.062	0.073	0.212	1.347	Σ SAR<1.6, Not required
		Back side_Curve(Left)	0	1.086	-	-	-	Σ SAR<1.6, Not required
		Back side_Curve(Right)	0	-	0.078	-	-	Σ SAR<1.6, Not required
		Top side	0	1.09	0.089	0.928	2.107	Analyzed as below
		Bottom side	0	0.041	0.003	0.007	0.051	Σ SAR<1.6, Not required
		Left side	0	0.281	0.002	0.006	0.289	Σ SAR<1.6, Not required
		Right side	0	0.027	0.513	0.029	0.569	Σ SAR<1.6, Not required

WWAN & WLAN Main

Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
			x	y	z				
LTE Band 2	Top side	1.09	-1.30	-8.16	0.45	1.179	169.8	0.008	SPLSR<0.04, Not required
WLAN Main		0.089	-2.10	8.72	2.08				



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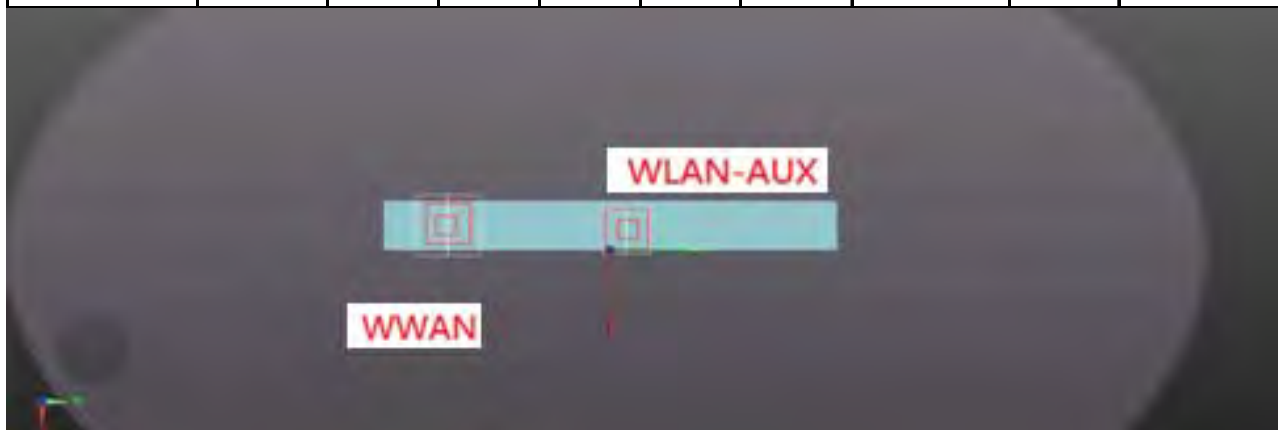
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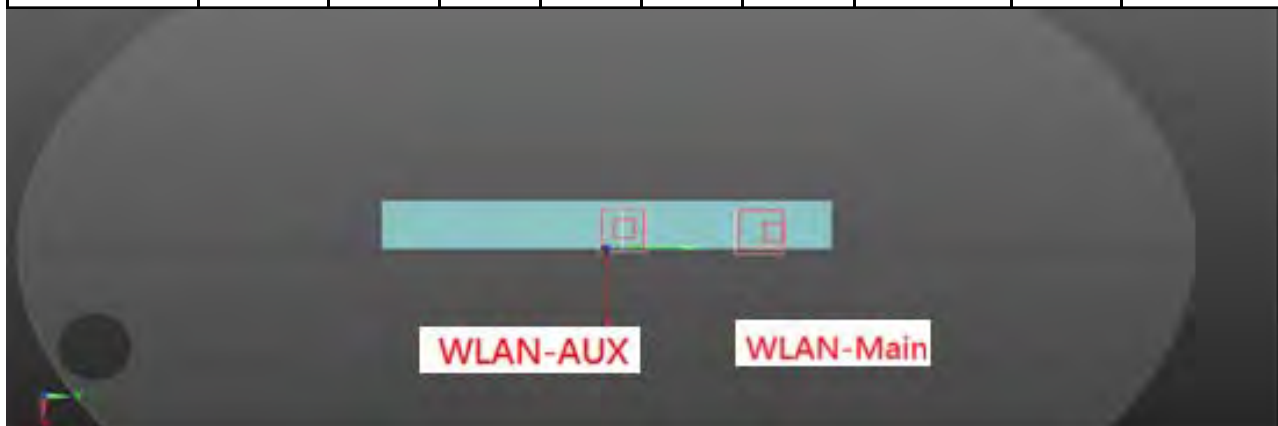
WWAN & WLAN Aux

Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
			x	y	z				
LTE Band 2	Top side	1.09	-1.30	-8.16	0.45	2.018	92	0.031	SPLSR<0.04, Not required
WLAN Aux		0.928	-1.08	0.96	-0.76				



WLAN Main & WLAN Aux

Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
			x	y	z				
WLAN Main	Top side	0.089	-2.10	8.72	2.08	1.017	83.2	0.012	SPLSR<0.04, Not required
WLAN Aux		0.928	-1.08	0.96	-0.76				



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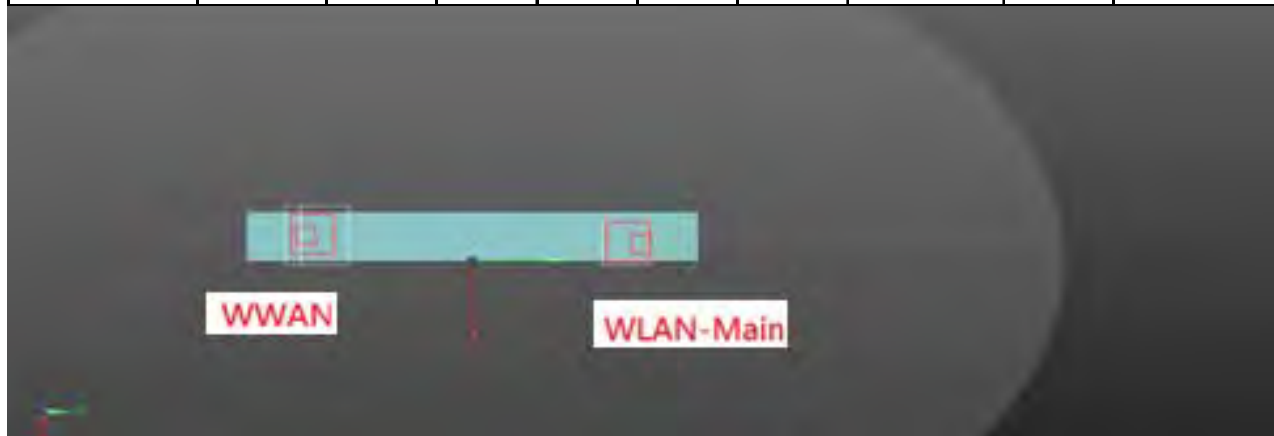
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LTE FDD Band IV + 5GHz WLAN MIMO

No.	Conditions	Position	Distance (mm)	Max. WWAN	Max. WLAN Main	Max. WLAN Aux	SAR Sum	SPLSR
21	LTE Band 4	Back side	0	1.193	0.073	0.212	1.478	$\Sigma SAR < 1.6$, Not required
		Back side_Curve(Left)	0	1.154	-	-	-	$\Sigma SAR < 1.6$, Not required
		Back side_Curve(Right)	0	-	0.078	-	-	$\Sigma SAR < 1.6$, Not required
		Top side	0	1.069	0.089	0.928	2.086	Analyzed as below
		Bottom side	0	0.044	0.003	0.007	0.054	$\Sigma SAR < 1.6$, Not required
		Left side	0	0.543	0.002	0.006	0.551	$\Sigma SAR < 1.6$, Not required
		Right side	0	0.007	0.513	0.029	0.549	$\Sigma SAR < 1.6$, Not required

WWAN & WLAN Main

Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
			x	y	z				
LTE Band 4	Top side	1.069	-1.35	-8.34	-0.48	1.158	172.7	0.007	$SPLSR < 0.04$, Not required
WLAN Main		0.089	-2.10	8.72	2.08				



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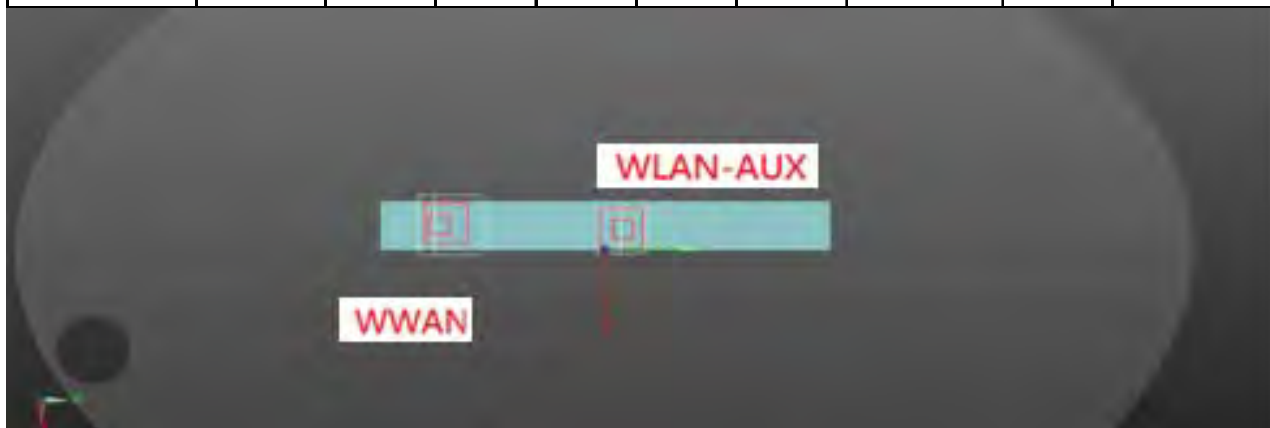
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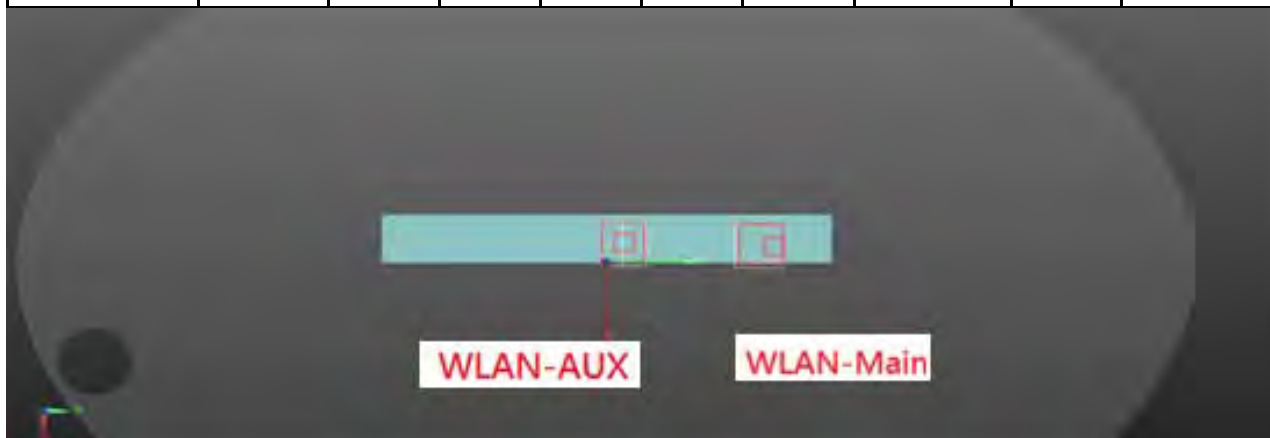
WWAN & WLAN Aux

Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
			x	y	z				
LTE Band 4	Top side	1.069	-1.35	-8.34	-0.48	1.997	93.1	0.030	SPLSR<0.04, Not required
WLAN Aux		0.928	-1.08	0.96	-0.76				



WLAN Main & WLAN Aux

Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
			x	y	z				
WLAN Main	Top side	0.089	-2.10	8.72	2.08	1.017	83.2	0.012	SPLSR<0.04, Not required
WLAN Aux		0.928	-1.08	0.96	-0.76				



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LTE FDD Band V + 5GHz WLAN MIMO

No.	Conditions	Position	Distance (mm)	Max. WWAN	Max. WLAN Main	Max. WLAN Aux	SAR Sum	SPLSR
22	LTE Band 5	Back side	0	0.491	0.073	0.212	0.776	Σ SAR<1.6, Not required
		Back side_Curve(Left)	0	0.58	-	-	-	Σ SAR<1.6, Not required
		Back side_Curve(Right)	0	-	0.078	-	-	Σ SAR<1.6, Not required
		Top side	0	0.576	0.089	0.928	1.593	Σ SAR<1.6, Not required
		Bottom side	0	0.076	0.003	0.007	0.086	Σ SAR<1.6, Not required
		Left side	0	0.601	0.002	0.006	0.609	Σ SAR<1.6, Not required
		Right side	0	0.014	0.513	0.029	0.556	Σ SAR<1.6, Not required

LTE FDD Band XIII + 5GHz WLAN MIMO

No.	Conditions	Position	Distance (mm)	Max. WWAN	Max. WLAN Main	Max. WLAN Aux	SAR Sum	SPLSR
23	LTE Band 13	Back side	0	0.468	0.073	0.212	0.753	Σ SAR<1.6, Not required
		Back side_Curve(Left)	0	0.486	-	-	-	Σ SAR<1.6, Not required
		Back side_Curve(Right)	0	-	0.078	-	-	Σ SAR<1.6, Not required
		Top side	0	0.549	0.089	0.928	1.566	Σ SAR<1.6, Not required
		Bottom side	0	0.093	0.003	0.007	0.103	Σ SAR<1.6, Not required
		Left side	0	0.837	0.002	0.006	0.845	Σ SAR<1.6, Not required
		Right side	0	0.01	0.513	0.029	0.552	Σ SAR<1.6, Not required

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LTE FDD Band XVII + 5GHz WLAN MIMO

No.	Conditions	Position	Distance (mm)	Max. WWAN	Max. WLAN Main	Max. WLAN Aux	SAR Sum	SPLSR
24	LTE Band 17	Back side	0	0.264	0.073	0.212	0.549	Σ SAR<1.6, Not required
		Back side_Curve(Left)	0	0.296	-	-	-	Σ SAR<1.6, Not required
		Back side_Curve(Right)	0	-	0.078	-	-	Σ SAR<1.6, Not required
		Top side	0	0.223	0.089	0.928	1.24	Σ SAR<1.6, Not required
		Bottom side	0	0.009	0.003	0.007	0.019	Σ SAR<1.6, Not required
		Left side	0	0.438	0.002	0.006	0.446	Σ SAR<1.6, Not required
		Right side	0	0.005	0.513	0.029	0.547	Σ SAR<1.6, Not required

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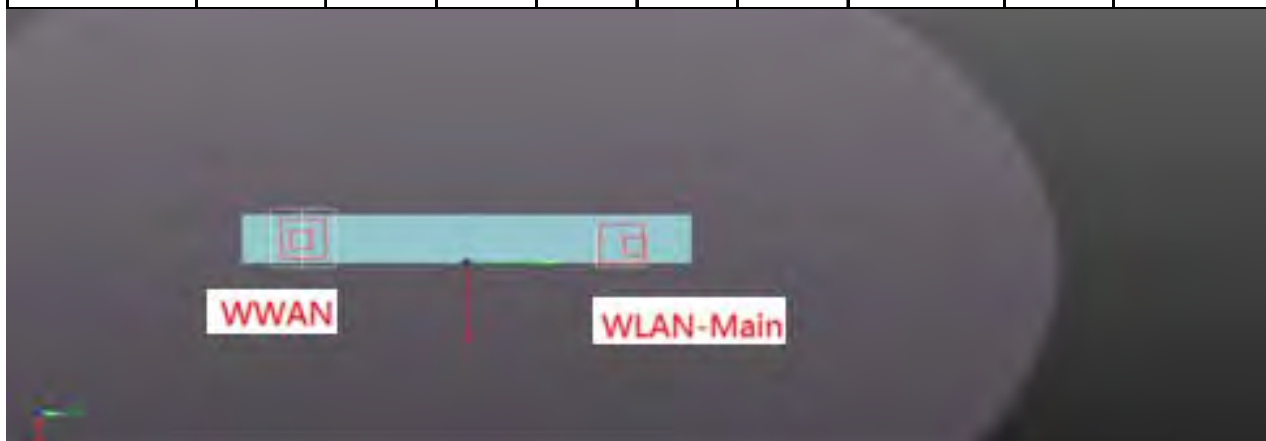
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LTE FDD Band XXV + 5GHz WLAN MIMO

No.	Conditions	Position	Distance (mm)	Max. WWAN	Max. WLAN Main	Max. WLAN Aux	SAR Sum	SPLSR
25	LTE Band 25	Back side	0	1.151	0.073	0.212	1.436	Σ SAR<1.6, Not required
		Back side_Curve(LLeft)	0	0.979	-	-	-	Σ SAR<1.6, Not required
		Back side_Curve(Right)	0	-	0.078	-	-	Σ SAR<1.6, Not required
		Top side	0	1.136	0.089	0.928	2.153	Analyzed as below
		Bottom side	0	0.026	0.003	0.007	0.036	Σ SAR<1.6, Not required
		Left side	0	0.375	0.002	0.006	0.383	Σ SAR<1.6, Not required
		Right side	0	0.007	0.513	0.029	0.549	Σ SAR<1.6, Not required

WWAN & WLAN Main

Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
			x	y	z				
LTE Band 25	Top side	1.159	-1.14	-8.47	0.51	1.248	172.9	0.008	SPLSR<0.04, Not required
WLAN Main		0.089	-2.10	8.72	2.08				



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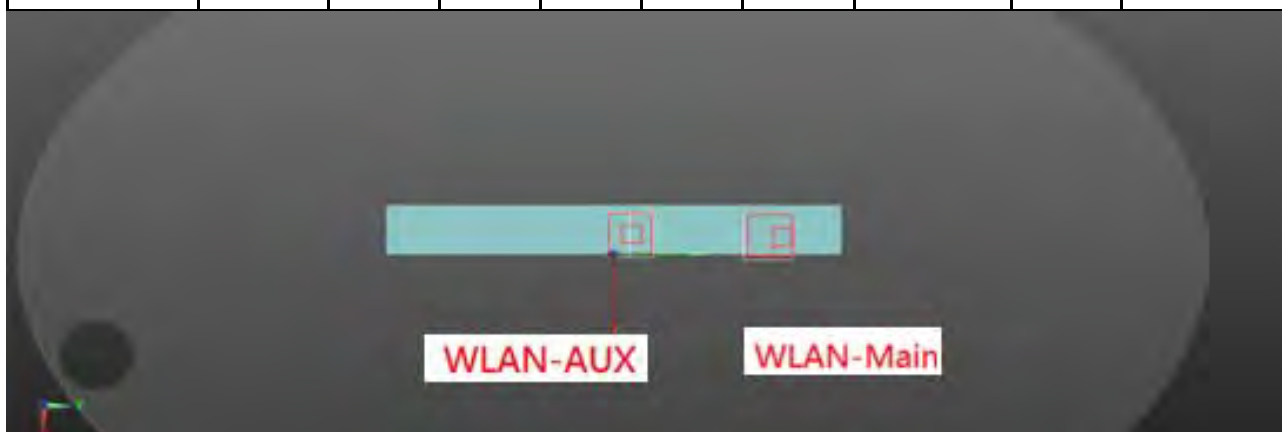
WWAN & WLAN Aux

Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
			x	y	z				
LTE Band 25	Top side	1.159	-1.14	-8.47	0.51	2.087	95.1	0.032	SPLSR<0.04, Not required
WLAN Aux		0.928	-1.08	0.96	-0.76				



WLAN Main & WLAN Aux

Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
			x	y	z				
WLAN Main	Top side	0.089	-2.10	8.72	2.08	1.017	83.2	0.012	SPLSR<0.04, Not required
WLAN Aux		0.928	-1.08	0.96	-0.76				



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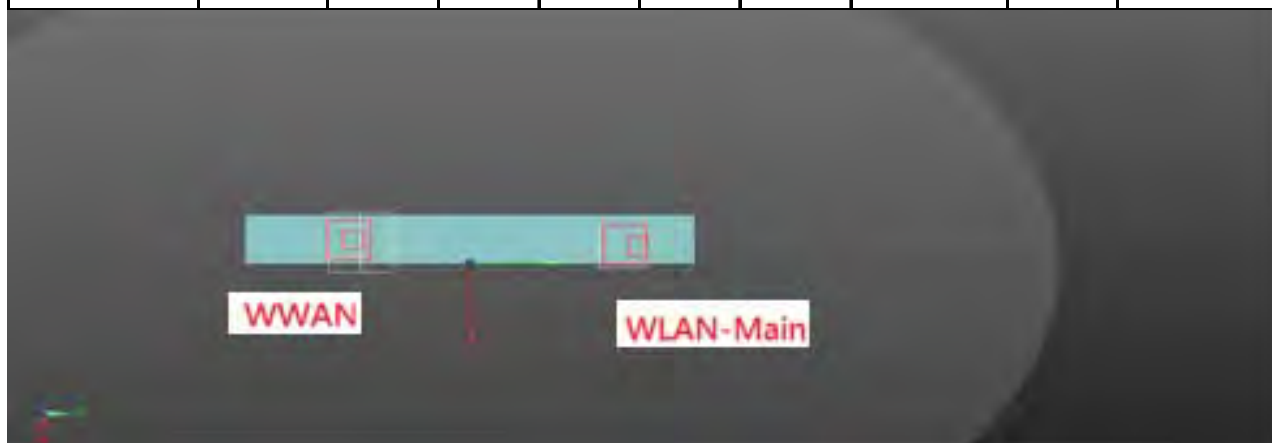
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CDMA / EVDO BC0 + 5GHz WLAN MIMO

No.	Conditions	Position	Distance (mm)	Max. WWAN	Max. WLAN Main	Max. WLAN Aux	SAR Sum	SPLSR
26	EVDO BC 0	Back side	0	0.54	0.073	0.212	0.825	Σ SAR<1.6, Not required
		Back side_Curve(Left)	0	0.618	-	-	-	Σ SAR<1.6, Not required
		Back side_Curve(Right)	0	-	0.078	-	-	Σ SAR<1.6, Not required
		Top side	0	0.658	0.089	0.928	1.675	Analyzed as below
		Bottom side	0	0.07	0.003	0.007	0.08	Σ SAR<1.6, Not required
		Left side	0	0.771	0.002	0.006	0.779	Σ SAR<1.6, Not required
		Right side	0	0.007	0.513	0.029	0.549	Σ SAR<1.6, Not required

WWAN & WLAN Main

Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
			x	y	z				
EVDO BC 0	Top side	0.658	-1.15	-5.29	-0.68	0.747	143.1	0.005	SPLSR<0.04, Not required
WLAN Main		0.089	-2.10	8.72	2.08				



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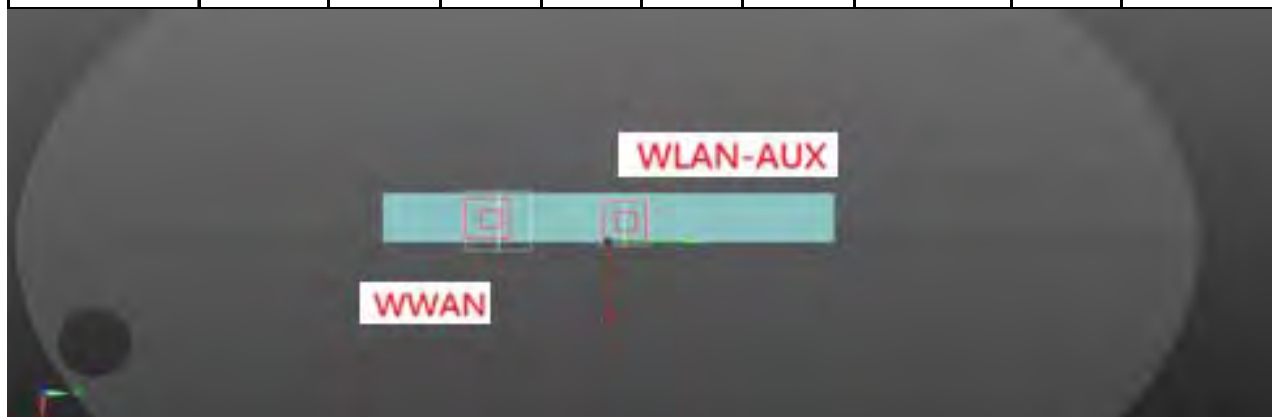
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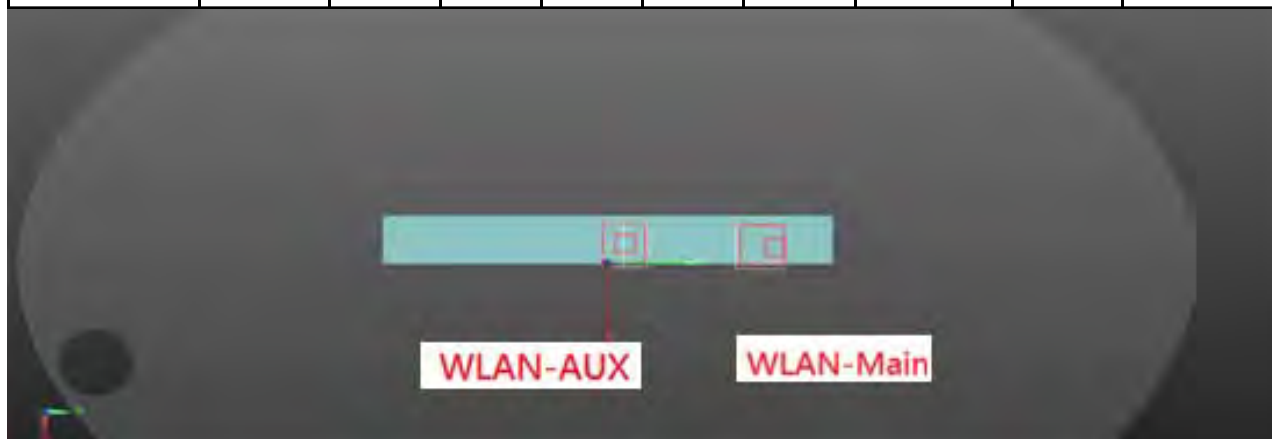
WWAN & WLAN Aux

Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
			x	y	z				
EVDO BC 0	Top side	0.658	-1.15	-5.29	-0.68	1.586	62.5	0.032	SPLSR<0.04, Not required
WLAN Aux		0.928	-1.08	0.96	-0.76				



WLAN Main & WLAN Aux

Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
			x	y	z				
WLAN Main	Top side	0.089	-2.10	8.72	2.08	1.017	83.2	0.012	SPLSR<0.04, Not required
WLAN Aux		0.928	-1.08	0.96	-0.76				



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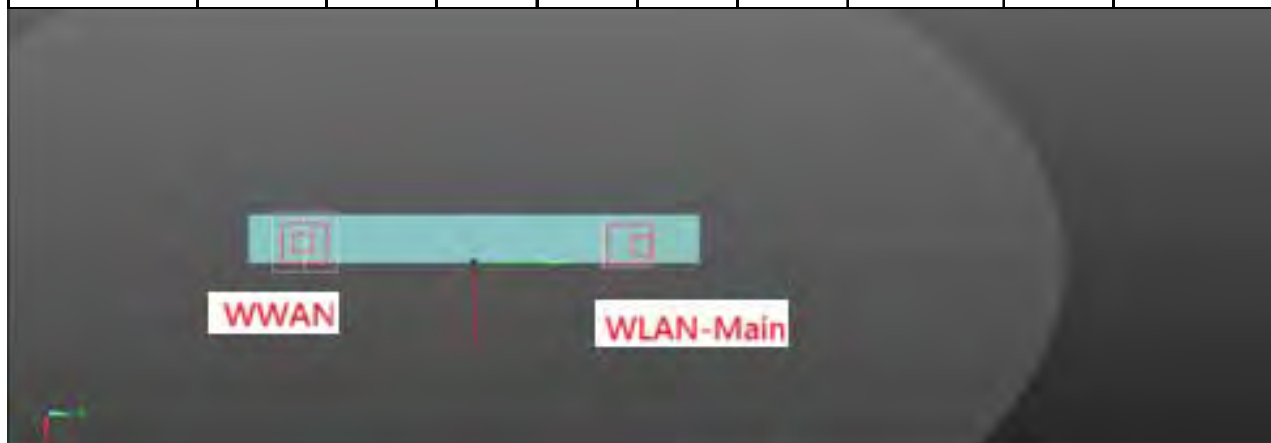
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CDMA / EVDO BC1 + 5GHz WLAN MIMO

No.	Conditions	Position	Distance (mm)	Max. WWAN	Max. WLAN Main	Max. WLAN Aux	SAR Sum	SPLSR
27	EVDO BC 1	Back side	0	1.008	0.073	0.212	1.293	Σ SAR<1.6, Not required
		Back side_Curve(Left)	0	0.973	-	-	-	Σ SAR<1.6, Not required
		Back side_Curve(Right)	0	-	0.078	-	-	Σ SAR<1.6, Not required
		Top side	0	0.903	0.089	0.928	1.92	Analyzed as below
		Bottom side	0	0.025	0.003	0.007	0.035	Σ SAR<1.6, Not required
		Left side	0	0.341	0.002	0.006	0.349	Σ SAR<1.6, Not required
		Right side	0	0.004	0.513	0.029	0.546	Σ SAR<1.6, Not required

WWAN & WLAN Main

Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
			x	y	z				
EVDO BC 1	Top side	0.903	-0.99	-8.56	-0.46	0.992	175	0.006	SPLSR<0.04, Not required
WLAN Main		0.089	-2.10	8.72	2.08				



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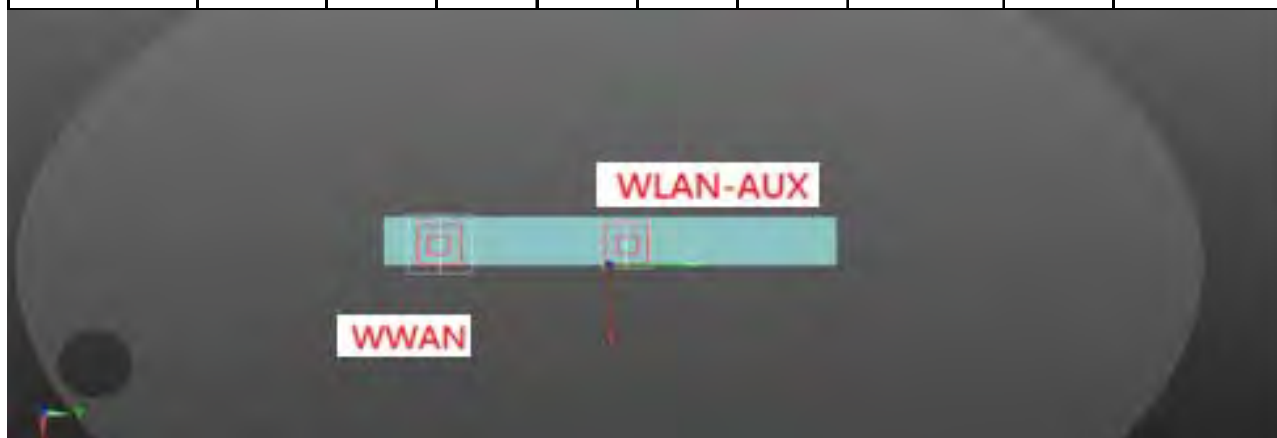
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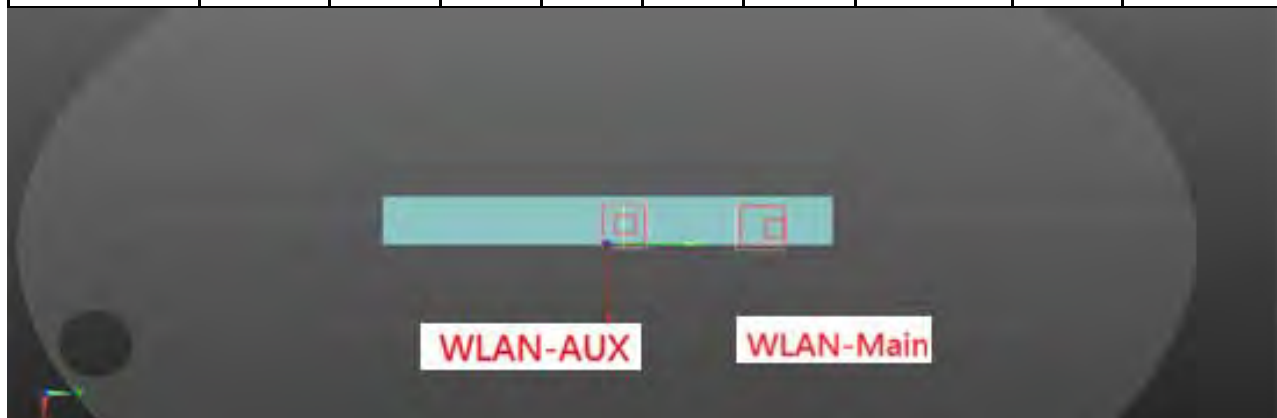
WWAN & WLAN Aux

Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
			x	y	z				
EVDO BC 1	Top side	0.903	-0.99	-8.56	-0.46	1.831	95.2	0.026	SPLSR<0.04, Not required
WLAN Aux		0.928	-1.08	0.96	-0.76				



WLAN Main & WLAN Aux

Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
			x	y	z				
WLAN Main	Top side	0.089	-2.10	8.72	2.08	1.017	83.2	0.012	SPLSR<0.04, Not required
WLAN Aux		0.928	-1.08	0.96	-0.76				



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CDMA / EVDO BC10 + 5GHz WLAN MIMO

No.	Conditions	Position	Distance (mm)	Max. WWAN	Max. WLAN Main	Max. WLAN Aux	SAR Sum	SPLSR
28	EVDO BC 10	Back side	0	0.55	0.073	0.212	0.835	Σ SAR<1.6, Not required
		Back side_Curve(Left)	0	0.635	-	-	-	Σ SAR<1.6, Not required
		Back side_Curve(Right)	0	-	0.078	-	-	Σ SAR<1.6, Not required
		Top side	0	0.582	0.089	0.928	1.599	Σ SAR<1.6, Not required
		Bottom side	0	0.058	0.003	0.007	0.068	Σ SAR<1.6, Not required
		Left side	0	0.723	0.002	0.006	0.731	Σ SAR<1.6, Not required
		Right side	0	0.004	0.513	0.029	0.546	Σ SAR<1.6, Not required

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GPRS 850 + BT + 2.4GHz WLAN Aux

No.	Conditions	Position	Distance (mm)	Max. WWAN	BT	Max. WLAN Aux	SAR Sum	SPLSR
29	850	Back side	0	0.866	0.094	0.111	1.071	$\Sigma SAR < 1.6$, Not required
		Back side_Curve(Left)	0	0.754	-	-	-	$\Sigma SAR < 1.6$, Not required
		Back side_Curve(Right)	0	-	0.094	-	-	$\Sigma SAR < 1.6$, Not required
		Top side	0	0.762	0.03	0.842	1.634	Analyzed as below
		Bottom side	0	0.013	0.4	0.007	0.42	$\Sigma SAR < 1.6$, Not required
		Left side	0	1.038	0.4	0.003	1.441	$\Sigma SAR < 1.6$, Not required
		Right side	0	0.002	0.094	0.007	0.103	$\Sigma SAR < 1.6$, Not required

WWAN & BT

Conditions	Position	SAR Value (W/kg)	ΣSAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
GPRS 850	Top side	0.762	0.792	185.8	0.004	SPLSR < 0.04, Not required
BT		0.03				

BT & WLAN Aux

Conditions	Position	SAR Value (W/kg)	ΣSAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
BT	Top side	0.03	0.872	79	0.010	SPLSR < 0.04, Not required
WLAN Aux		0.842				

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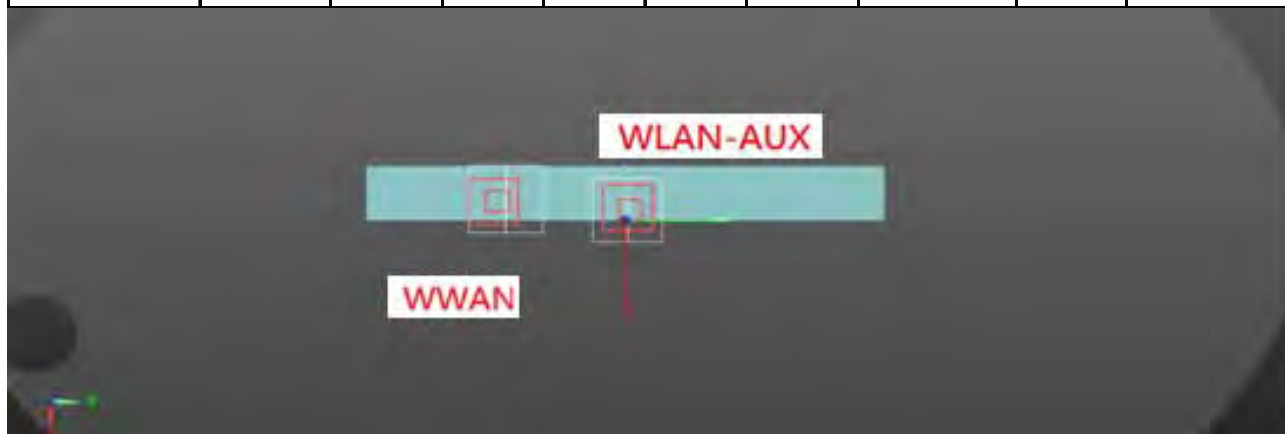
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WWAN & WLAN Aux

Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
			x	y	z				
GPRS 850	Top side	0.762	-0.84	-4.83	-0.70	1.604	52.4	0.039	SPLSR<0.04, Not required
WLAN Aux		0.842	-0.74	0.58	-0.73				



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GPRS 1900 + BT+ 2.4GHz WLAN Aux

No.	Conditions	Position	Distance (mm)	Max. WWAN	BT	Max. WLAN Aux	SAR Sum	SPLSR
30	1900	Back side	0	1.197	0.094	0.111	1.402	Σ SAR<1.6, Not required
		Back side_Curve(Left)	0	1.335	-	-	-	Σ SAR<1.6, Not required
		Back side_Curve(Right)	0	-	0.094	-	-	Σ SAR<1.6, Not required
		Top side	0	1.144	0.03	0.842	2.016	Analyzed as below
		Bottom side	0	0.0145	0.4	0.007	0.4215	Σ SAR<1.6, Not required
		Left side	0	0.287	0.4	0.003	0.69	Σ SAR<1.6, Not required
		Right side	0	0.0012	0.094	0.007	0.1022	Σ SAR<1.6, Not required

WWAN & BT

Conditions	Position	SAR Value (W/kg)	Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
GPRS 1900	Top side	1.144	1.174	185.8	0.007	SPLSR<0.04, Not required
BT		0.03				

BT & WLAN Aux

Conditions	Position	SAR Value (W/kg)	Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
BT	Top side	0.03	0.872	79	0.010	SPLSR<0.04, Not required
WLAN Aux		0.842				

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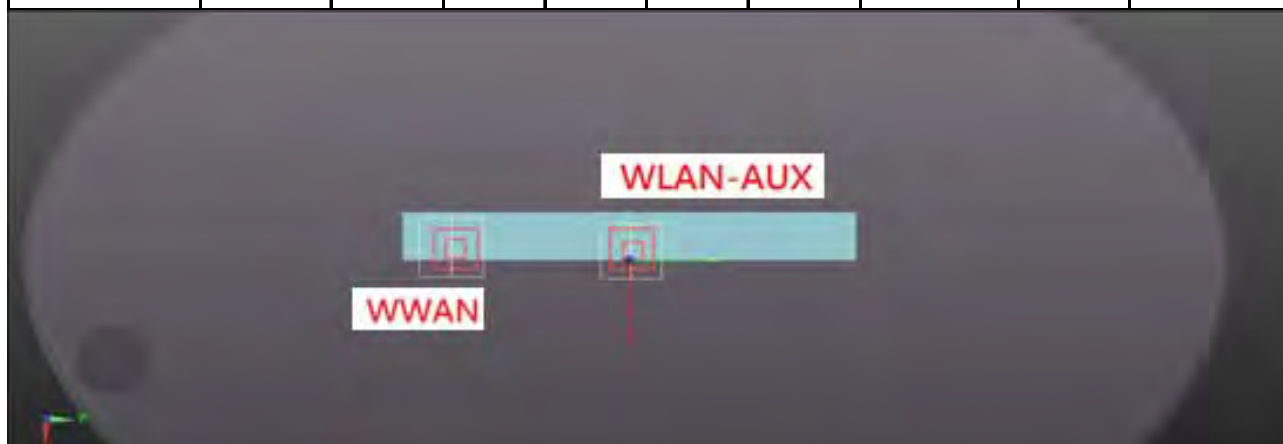
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WWAN & WLAN Aux

Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
			x	y	z				
GPRS 1900	Top side	1.144	-0.54	-8.59	0.45	1.986	90.7	0.031	SPLSR<0.04, Not required
WLAN Aux		0.842	-0.74	0.58	-0.73				



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WCDMA Band II + BT+ 2.4GHz WLAN Aux

No.	Conditions	Position	Distance (mm)	Max. WWAN	BT	Max. WLAN Aux	SAR Sum	SPLSR
31	WCDMA Band 2	Back side	0	0.962	0.094	0.111	1.167	Σ SAR<1.6, Not required
		Back side_Curve(Left)	0	1.16	-	-	-	Σ SAR<1.6, Not required
		Back side_Curve(Right)	0	-	0.094	-	-	Σ SAR<1.6, Not required
		Top side	0	1.033	0.03	0.842	1.905	Analyzed as below
		Bottom side	0	0.016	0.4	0.007	0.423	Σ SAR<1.6, Not required
		Left side	0	0.299	0.4	0.003	0.702	Σ SAR<1.6, Not required
		Right side	0	0.002	0.094	0.007	0.103	Σ SAR<1.6, Not required

WWAN & BT

Conditions	Position	SAR Value (W/kg)	Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
WCDMA B2	Top side	1.033	1.063	185.8	0.006	SPLSR<0.04, Not required
BT		0.03				

BT & WLAN Aux

Conditions	Position	SAR Value (W/kg)	Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
BT	Top side	0.03	0.872	79	0.010	SPLSR<0.04, Not required
WLAN Aux		0.842				

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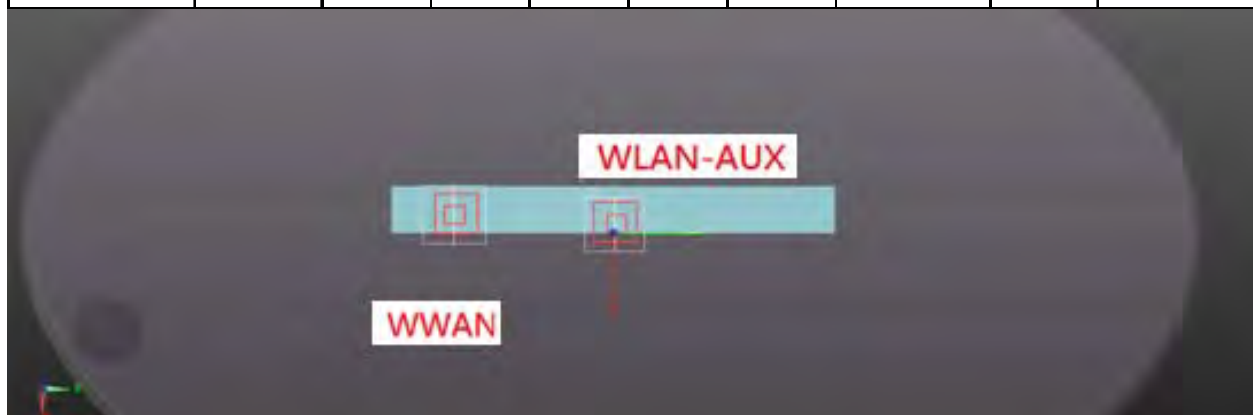
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WWAN & WLAN Aux

Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
			x	y	z				
WCDMA B2	Top side	1.033	-1.00	-8.00	0.45	1.875	85	0.030	SPLSR<0.04, Not required
WLAN Aux		0.842	-0.74	0.58	-0.73				



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WCDMA Band IV + BT + 2.4GHz WLAN Aux

No.	Conditions	Position	Distance (mm)	Max. WWAN	BT	Max. WLAN Aux	SAR Sum	SPLSR
32	WCDMA Band 4	Back side	0	0.999	0.094	0.111	1.204	Σ SAR<1.6, Not required
		Back side_Curve(Left)	0	1.131	-	-	-	Σ SAR<1.6, Not required
		Back side_Curve(Right)	0	-	0.094	-	-	Σ SAR<1.6, Not required
		Top side	0	1.049	0.03	0.842	1.921	Analyzed as below
		Bottom side	0	0.0235	0.4	0.007	0.4305	Σ SAR<1.6, Not required
		Left side	0	0.532	0.4	0.003	0.935	Σ SAR<1.6, Not required
		Right side	0	0.0042	0.094	0.007	0.1052	Σ SAR<1.6, Not required

WWAN & BT

Conditions	Position	SAR Value (W/kg)	Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
WCDMA B4	Top side	1.049	1.079	185.8	0.006	SPLSR<0.04, Not required
BT		0.03				

BT & WLAN Aux

Conditions	Position	SAR Value (W/kg)	Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
BT	Top side	0.03	0.872	79	0.010	SPLSR<0.04, Not required
WLAN Aux		0.842				

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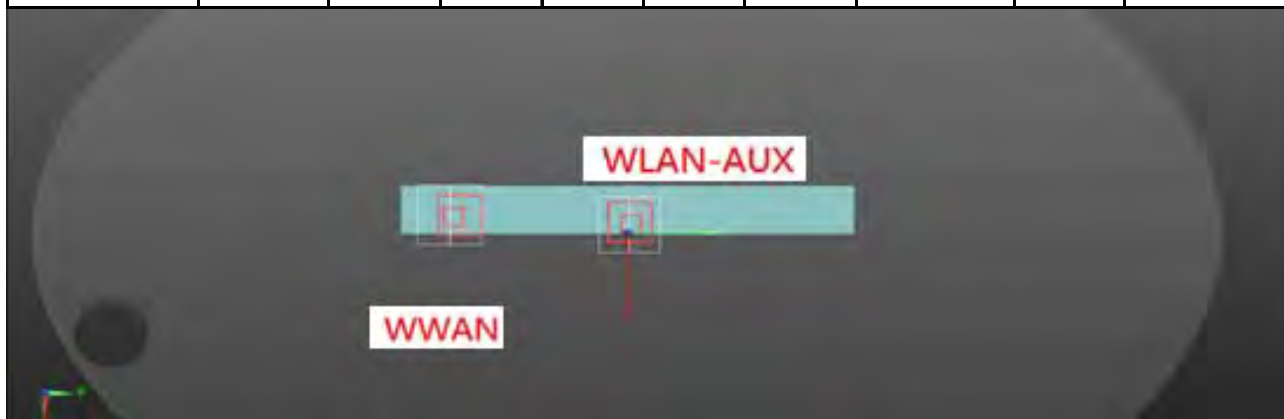
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WWAN & WLAN Aux

Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
			x	y	z				
WCDMA B4	Top side	1.049	-0.84	-8.59	-0.50	1.891	90	0.029	SPLSR<0.04, Not required
WLAN Aux		0.842	-0.74	0.58	-0.73				



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WCDMA Band V + BT+ 2.4GHz WLAN Aux

No.	Conditions	Position	Distance (mm)	Max. WWAN	BT	Max. WLAN Aux	SAR Sum	SPLSR
33	WCDMA Band 5	Back side	0	0.407	0.094	0.111	0.612	Σ SAR<1.6, Not required
		Back side_Curve(Left)	0	0.402	-	-	-	Σ SAR<1.6, Not required
		Back side_Curve(Right)	0	-	0.094	-	-	Σ SAR<1.6, Not required
		Top side	0	0.391	0.03	0.842	1.263	Σ SAR<1.6, Not required
		Bottom side	0	0.035	0.4	0.007	0.442	Σ SAR<1.6, Not required
		Left side	0	0.615	0.4	0.003	1.018	Σ SAR<1.6, Not required
		Right side	0	0.003	0.094	0.007	0.104	Σ SAR<1.6, Not required

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LTE FDD Band II + BT+ 2.4GHz WLAN Aux

No.	Conditions	Position	Distance (mm)	Max. WWAN	BT	Max. WLAN Aux	SAR Sum	SPLSR
34	LTE Band 2	Back side	0	1.062	0.094	0.111	1.267	Σ SAR<1.6, Not required
		Back side_Curve(Left)	0	1.086	-	-	-	Σ SAR<1.6, Not required
		Back side_Curve(Right)	0	-	0.094	-	-	Σ SAR<1.6, Not required
		Top side	0	1.09	0.03	0.842	1.962	Analyzed as below
		Bottom side	0	0.041	0.4	0.007	0.448	Σ SAR<1.6, Not required
		Left side	0	0.281	0.4	0.003	0.684	Σ SAR<1.6, Not required
		Right side	0	0.027	0.094	0.007	0.128	Σ SAR<1.6, Not required

WWAN & BT

Conditions	Position	SAR Value (W/kg)	Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
LTE Band 2	Top side	1.09	1.12	185.8	0.006	SPLSR<0.04, Not required
BT		0.03				

BT & WLAN Aux

Conditions	Position	SAR Value (W/kg)	Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
BT	Top side	0.03	0.872	79	0.010	SPLSR<0.04, Not required
WLAN Aux		0.842				

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WWAN & WLAN Aux

Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
			x	y	z				
LTE Band 2	Top side	1.09	-1.30	-8.16	0.45	1.932	86.7	0.031	SPLSR<0.04, Not required
WLAN Aux		0.842	-0.74	0.58	-0.73				



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No.	Conditions	Position	Distance (mm)	Max. WWAN	BT	Max. WLAN Aux	SAR Sum	SPLSR
35	LTE Band 4	Back side	0	1.193	0.094	0.111	1.398	Σ SAR<1.6, Not required
		Back side_Curve(Left)	0	1.154	-	-	-	Σ SAR<1.6, Not required
		Back side_Curve(Right)	0	-	0.094	-	-	Σ SAR<1.6, Not required
		Top side	0	1.069	0.03	0.842	1.941	Analyzed as below
		Bottom side	0	0.044	0.4	0.007	0.451	Σ SAR<1.6, Not required
		Left side	0	0.543	0.4	0.003	0.946	Σ SAR<1.6, Not required
		Right side	0	0.007	0.094	0.007	0.108	Σ SAR<1.6, Not required

WWAN & BT

Conditions	Position	SAR Value (W/kg)	Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
LTE Band 4	Top side	1.069	1.099	185.8	0.006	SPLSR<0.04, Not required
BT		0.03				

BT & WLAN Aux

Conditions	Position	SAR Value (W/kg)	Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
BT	Top side	0.03	0.872	79	0.010	SPLSR<0.04, Not required
WLAN Aux		0.842				

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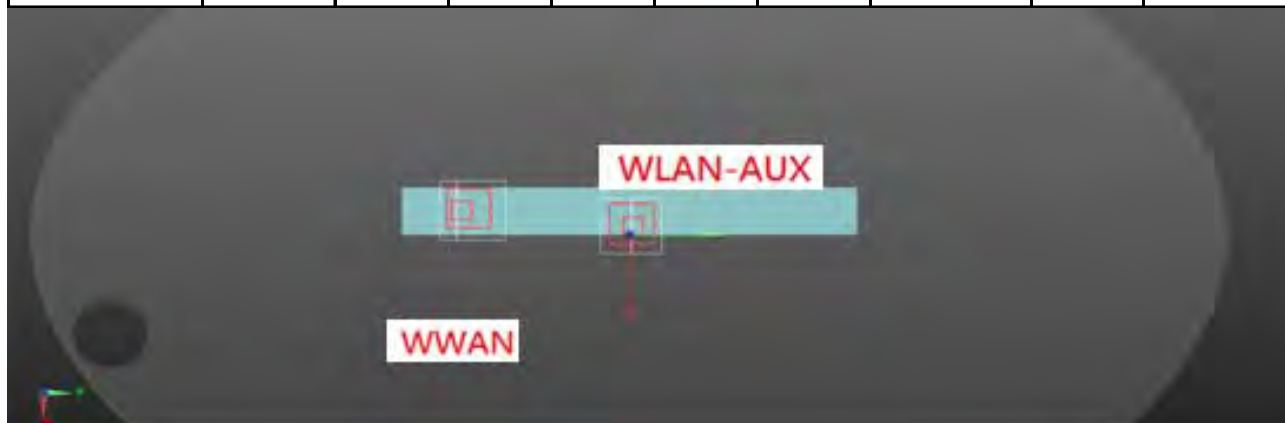
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WWAN & WLAN Aux

Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
			x	y	z				
LTE Band 4	Top side	1.069	-1.35	-8.34	-0.48	1.911	87.8	0.030	SPLSR<0.04, Not required
WLAN Aux		0.842	-0.74	0.58	-0.73				



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No.	Conditions	Position	Distance (mm)	Max. WWAN	BT	Max. WLAN Aux	SAR Sum	SPLSR
36	LTE Band 5	Back side	0	0.491	0.094	0.111	0.696	Σ SAR<1.6, Not required
		Back side_Curve(Left)	0	0.58	-	-	-	Σ SAR<1.6, Not required
		Back side_Curve(Right)	0	-	0.094	-	-	Σ SAR<1.6, Not required
		Top side	0	0.576	0.03	0.842	1.448	Σ SAR<1.6, Not required
		Bottom side	0	0.076	0.4	0.007	0.483	Σ SAR<1.6, Not required
		Left side	0	0.601	0.4	0.003	1.004	Σ SAR<1.6, Not required
		Right side	0	0.014	0.094	0.007	0.115	Σ SAR<1.6, Not required

LTE FDD Band XIII + BT+ 2.4GHz WLAN Aux

No.	Conditions	Position	Distance (mm)	Max. WWAN	BT	Max. WLAN Aux	SAR Sum	SPLSR
37	LTE Band 13	Back side	0	0.468	0.094	0.111	0.673	Σ SAR<1.6, Not required
		Back side_Curve(Left)	0	0.486	-	-	-	Σ SAR<1.6, Not required
		Back side_Curve(Right)	0	-	0.094	-	-	Σ SAR<1.6, Not required
		Top side	0	0.549	0.03	0.842	1.421	Σ SAR<1.6, Not required
		Bottom side	0	0.093	0.4	0.007	0.5	Σ SAR<1.6, Not required
		Left side	0	0.837	0.4	0.003	1.24	Σ SAR<1.6, Not required
		Right side	0	0.01	0.094	0.007	0.111	Σ SAR<1.6, Not required

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LTE FDD Band XVII + BT+ 2.4GHz WLAN Aux

No.	Conditions	Position	Distance (mm)	Max. WWAN	BT	Max. WLAN Aux	SAR Sum	SPLSR
38	LTE Band 17	Back side	0	0.264	0.094	0.111	0.469	Σ SAR<1.6, Not required
		Back side_Curve(Left)	0	0.296	-	-	-	Σ SAR<1.6, Not required
		Back side_Curve(Right)	0	-	0.094	-	-	Σ SAR<1.6, Not required
		Top side	0	0.223	0.03	0.842	1.095	Σ SAR<1.6, Not required
		Bottom side	0	0.009	0.4	0.007	0.416	Σ SAR<1.6, Not required
		Left side	0	0.438	0.4	0.003	0.841	Σ SAR<1.6, Not required
		Right side	0	0.005	0.094	0.007	0.106	Σ SAR<1.6, Not required

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LTE FDD Band XXV + BT+ 2.4GHz WLAN Aux

No.	Conditions	Position	Distance (mm)	Max. WWAN	BT	Max. WLAN Aux	SAR Sum	SPLSR
39	LTE Band 25	Back side	0	1.151	0.094	0.111	1.356	Σ SAR<1.6, Not required
		Back side_Curve(Left)	0	0.979	-	-	-	Σ SAR<1.6, Not required
		Back side_Curve(Right)	0	-	0.094	-	-	Σ SAR<1.6, Not required
		Top side	0	1.159	0.03	0.842	2.031	Analyzed as below
		Bottom side	0	0.026	0.4	0.007	0.433	Σ SAR<1.6, Not required
		Left side	0	0.375	0.4	0.003	0.778	Σ SAR<1.6, Not required
		Right side	0	0.007	0.094	0.007	0.108	Σ SAR<1.6, Not required

WWAN & BT

Conditions	Position	SAR Value (W/kg)	Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
LTE Band 25	Top side	1.159	1.189	185.8	0.007	SPLSR<0.04, Not required
BT		0.03				

BT & WLAN Aux

Conditions	Position	SAR Value (W/kg)	Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
BT	Top side	0.03	0.872	79	0.010	SPLSR<0.04, Not required
WLAN Aux		0.842				

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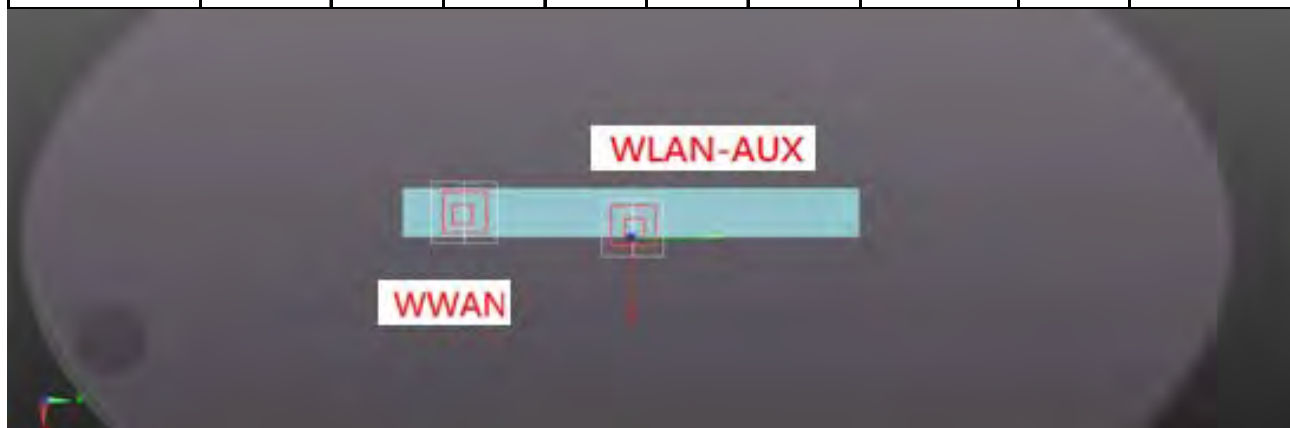
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WWAN & WLAN Aux

Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
			x	y	z				
LTE Band 25	Top side	1.159	-1.14	-8.47	0.51	2.001	89.8	0.032	SPLSR<0.04, Not required
WLAN Aux		0.842	-0.74	0.58	-0.73				



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CDMA / EVDO BC0 + BT+ 2.4GHz WLAN Aux

No.	Conditions	Position	Distance (mm)	Max. WWAN	BT	Max. WLAN Aux	SAR Sum	SPLSR
40	EVDO BC 0	Back side	0	0.54	0.094	0.111	0.745	Σ SAR<1.6, Not required
		Back side_Curve(Left)	0	0.618	-	-	-	Σ SAR<1.6, Not required
		Back side_Curve(Right)	0	-	0.094	-	-	Σ SAR<1.6, Not required
		Top side	0	0.658	0.03	0.842	1.53	Σ SAR<1.6, Not required
		Bottom side	0	0.07	0.4	0.007	0.477	Σ SAR<1.6, Not required
		Left side	0	0.771	0.4	0.003	1.174	Σ SAR<1.6, Not required
		Right side	0	0.007	0.094	0.007	0.108	Σ SAR<1.6, Not required

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CDMA / EVDO BC1 + BT+ 2.4GHz WLAN Aux

No.	Conditions	Position	Distance (mm)	Max. WWAN	BT	Max. WLAN Aux	SAR Sum	SPLSR
41	EVDO BC 1	Back side	0	1.008	0.094	0.111	1.213	Σ SAR<1.6, Not required
		Back side_Curve(Left)	0	0.973	-	-	-	Σ SAR<1.6, Not required
		Back side_Curve(Right)	0	-	0.094	-	-	Σ SAR<1.6, Not required
		Top side	0	0.903	0.03	0.842	1.775	Analyzed as below
		Bottom side	0	0.025	0.4	0.007	0.432	Σ SAR<1.6, Not required
		Left side	0	0.341	0.4	0.003	0.744	Σ SAR<1.6, Not required
		Right side	0	0.004	0.094	0.007	0.105	Σ SAR<1.6, Not required

WWAN & BT

Conditions	Position	SAR Value (W/kg)	Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
EVDO BC1	Top side	0.903	0.933	185.8	0.005	SPLSR<0.04, Not required
BT		0.03				

BT & WLAN Aux

Conditions	Position	SAR Value (W/kg)	Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
BT	Top side	0.03	0.872	79	0.010	SPLSR<0.04, Not required
WLAN Aux		0.842				

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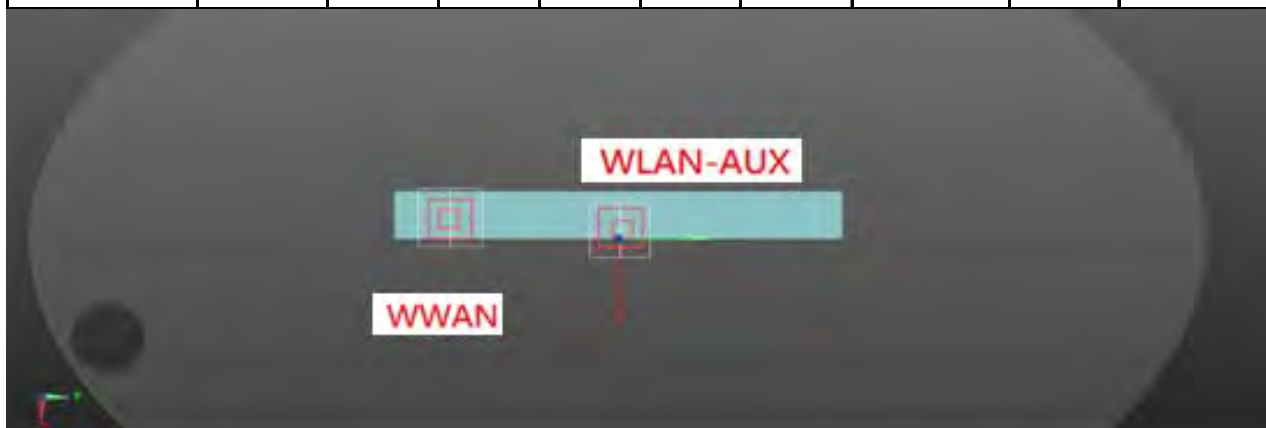
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WWAN & WLAN Aux

Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
			x	y	z				
EVDO BC 1	Top side	0.903	-0.99	-8.56	-0.46	1.745	89.7	0.026	SPLSR<0.04, Not required
WLAN Aux		0.842	-0.74	0.58	-0.73				



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CDMA / EVDO BC10 + BT + 2.4GHz WLAN Aux

No.	Conditions	Position	Distance (mm)	Max. WWAN	BT	Max. WLAN Aux	SAR Sum	SPLSR
42	EVDO BC 10	Back side	0	0.55	0.094	0.111	0.755	Σ SAR<1.6, Not required
		Back side_Curve(Left)	0	0.635	-	-	-	Σ SAR<1.6, Not required
		Back side_Curve(Right)	0	-	0.094	-	-	Σ SAR<1.6, Not required
		Top side	0	0.582	0.03	0.842	1.454	Σ SAR<1.6, Not required
		Bottom side	0	0.058	0.4	0.007	0.465	Σ SAR<1.6, Not required
		Left side	0	0.723	0.4	0.003	1.126	Σ SAR<1.6, Not required
		Right side	0	0.004	0.094	0.007	0.105	Σ SAR<1.6, Not required

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GPRS 850 + BT + 5GHz WLAN Aux

No.	Conditions	Position	Distance (mm)	Max. WWAN	BT	Max. WLAN Aux	SAR Sum	SPLSR
43	850	Back side	0	0.866	0.094	0.212	1.172	Σ SAR<1.6, Not required
		Back side_Curve(Left)	0	0.754	-	-	-	Σ SAR<1.6, Not required
		Back side_Curve(Right)	0	-	0.094	-	-	Σ SAR<1.6, Not required
		Top side	0	0.762	0.03	0.928	1.72	Analyzed as below
		Bottom side	0	0.013	0.4	0.007	0.42	Σ SAR<1.6, Not required
		Left side	0	1.038	0.4	0.006	1.444	Σ SAR<1.6, Not required
		Right side	0	0.002	0.094	0.029	0.125	Σ SAR<1.6, Not required

WWAN & BT

Conditions	Position	SAR Value (W/kg)	Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
GPRS 850	Top side	0.762	0.792	185.8	0.004	SPLSR<0.04, Not required
BT		0.03				

BT & WLAN Aux

Conditions	Position	SAR Value (W/kg)	Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
BT	Top side	0.03	0.958	79	0.012	SPLSR<0.04, Not required
WLAN Aux		0.928				

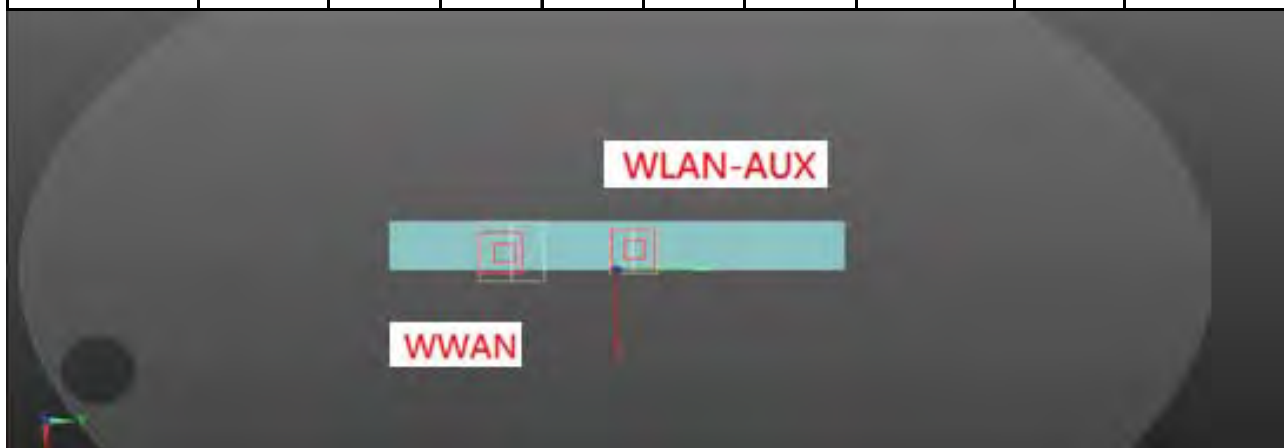
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WWAN & WLAN Aux

Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
			x	y	z				
GPRS 850	Top side	0.762	-0.84	-4.83	-0.70	1.69	58	0.038	SPLSR<0.04, Not required
WLAN Aux		0.928	-1.08	0.96	-0.76				



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GPRS 1900 + BT+ 5GHz WLAN Main

No.	Conditions	Position	Distance (mm)	Max. WWAN	Max. WLAN Main	Max. WLAN Aux	SAR Sum	SPLSR
44	1900	Back side	0	1.197	0.094	0.212	1.503	Σ SAR<1.6, Not required
		Back side_Curve(Left)	0	1.335	-	-	-	Σ SAR<1.6, Not required
		Back side_Curve(Right)	0	-	0.094	-	-	Σ SAR<1.6, Not required
		Top side	0	1.144	0.03	0.928	2.102	Analyzed as below
		Bottom side	0	0.0145	0.4	0.007	0.4215	Σ SAR<1.6, Not required
		Left side	0	0.287	0.4	0.006	0.693	Σ SAR<1.6, Not required
		Right side	0	0.0012	0.094	0.029	0.1242	Σ SAR<1.6, Not required

WWAN & BT

Conditions	Position	SAR Value (W/kg)	Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
GPRS 1900	Top side	1.144	1.174	185.8	0.007	SPLSR<0.04, Not required
BT		0.03				

BT & WLAN Aux

Conditions	Position	SAR Value (W/kg)	Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
BT	Top side	0.03	0.958	79	0.012	SPLSR<0.04, Not required
WLAN Aux		0.928				

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WWAN & WLAN Aux

Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
			x	y	z				
GPRS 1900	Top side	1.144	-0.54	-8.59	0.45	2.072	96.4	0.031	SPLSR<0.04, Not required
WLAN Aux		0.928	-1.08	0.96	-0.76				



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WCDMA Band II + BT+ 5GHz WLAN Main

No.	Conditions	Position	Distance (mm)	Max. WWAN	Max. WLAN Main	Max. WLAN Aux	SAR Sum	SPLSR
45	WCDMA Band 2	Back side	0	0.962	0.094	0.212	1.268	Σ SAR<1.6, Not required
		Back side_Curve(Left)	0	1.16	-	-	-	Σ SAR<1.6, Not required
		Back side_Curve(Right)	0	-	0.094	-	-	Σ SAR<1.6, Not required
		Top side	0	1.033	0.03	0.928	1.991	Analyzed as below
		Bottom side	0	0.016	0.4	0.007	0.423	Σ SAR<1.6, Not required
		Left side	0	0.299	0.4	0.006	0.705	Σ SAR<1.6, Not required
		Right side	0	0.002	0.094	0.029	0.125	Σ SAR<1.6, Not required

WWAN & BT

Conditions	Position	SAR Value (W/kg)	Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
WCDMA B2	Top side	1.033	1.063	85.8	0.013	SPLSR<0.04, Not required
BT		0.03				

BT & WLAN Aux

Conditions	Position	SAR Value (W/kg)	Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
BT	Top side	0.03	0.958	79	0.012	SPLSR<0.04, Not required
WLAN Aux		0.928				

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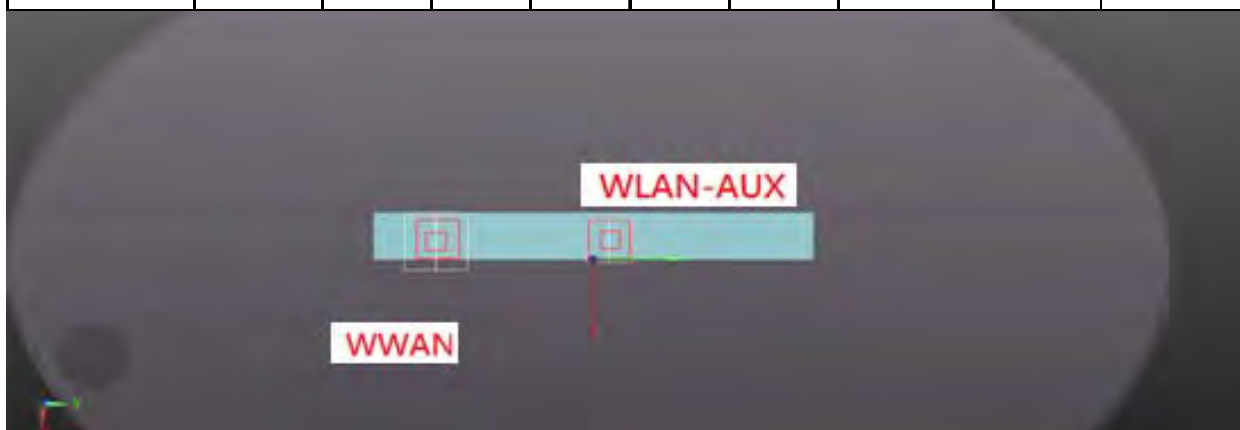
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WWAN & WLAN Aux

Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
			x	y	z				
WCDMA B2	Top side	1.033	-1.00	-8.00	0.45	1.961	90.4	0.030	SPLSR<0.04, Not required
WLAN Aux		0.928	-1.08	0.96	-0.76				



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WCDMA Band IV + BT + 5GHz WLAN Main

No.	Conditions	Position	Distance (mm)	Max. WWAN	Max. WLAN Main	Max. WLAN Aux	SAR Sum	SPLSR
46	WCDMA Band 4	Back side	0	0.999	0.094	0.212	1.305	Σ SAR<1.6, Not required
		Back side_Curve(Left)	0	1.131	-	-	-	Σ SAR<1.6, Not required
		Back side_Curve(Right)	0	-	0.094	-	-	Σ SAR<1.6, Not required
		Top side	0	1.049	0.03	0.928	2.007	Analyzed as below
		Bottom side	0	0.0235	0.4	0.007	0.4305	Σ SAR<1.6, Not required
		Left side	0	0.532	0.4	0.006	0.938	Σ SAR<1.6, Not required
		Right side	0	0.0042	0.094	0.029	0.1272	Σ SAR<1.6, Not required

WWAN & BT

Conditions	Position	SAR Value (W/kg)	Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
WCDMA B4	Top side	1.049	1.079	185.8	0.006	SPLSR<0.04, Not required
BT		0.03				

BT & WLAN Aux

Conditions	Position	SAR Value (W/kg)	Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
BT	Top side	0.03	0.958	79	0.012	SPLSR<0.04, Not required
WLAN Aux		0.928				

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WWAN & WLAN Aux

Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
			x	y	z				
WCDMA B4	Top side	1.049	-0.84	-8.59	-0.50	1.977	95.6	0.029	SPLSR<0.04, Not required
WLAN Aux		0.928	-1.08	0.96	-0.76				



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WCDMA Band V + BT+ 5GHz WLAN Main

No.	Conditions	Position	Distance (mm)	Max. WWAN	Max. WLAN Main	Max. WLAN Aux	SAR Sum	SPLSR
47	WCDMA Band 5	Back side	0	0.407	0.094	0.212	0.713	Σ SAR<1.6, Not required
		Back side_Curve(Left)	0	0.402	-	-	-	Σ SAR<1.6, Not required
		Back side_Curve(Right)	0	-	0.094	-	-	Σ SAR<1.6, Not required
		Top side	0	0.391	0.03	0.928	1.349	Analyzed as below
		Bottom side	0	0.035	0.4	0.007	0.442	Σ SAR<1.6, Not required
		Left side	0	0.615	0.4	0.006	1.021	Σ SAR<1.6, Not required
		Right side	0	0.003	0.094	0.029	0.126	Σ SAR<1.6, Not required

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LTE FDD Band II + BT+ 5GHz WLAN Aux

No.	Conditions	Position	Distance (mm)	Max. WWAN	Max. WLAN Main	Max. WLAN Aux	SAR Sum	SPLSR
48	LTE Band 2	Back side	0	1.062	0.094	0.212	1.368	Σ SAR<1.6, Not required
		Back side_Curve(Left)	0	1.086	-	-	-	Σ SAR<1.6, Not required
		Back side_Curve(Right)	0	-	0.094	-	-	Σ SAR<1.6, Not required
		Top side	0	1.09	0.03	0.928	2.048	Analyzed as below
		Bottom side	0	0.041	0.4	0.007	0.448	Σ SAR<1.6, Not required
		Left side	0	0.281	0.4	0.006	0.687	Σ SAR<1.6, Not required
		Right side	0	0.027	0.094	0.029	0.15	Σ SAR<1.6, Not required

WWAN & BT

Conditions	Position	SAR Value (W/kg)	Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
LTE Band 2	Top side	1.09	1.12	185.8	0.006	SPLSR<0.04, Not required
BT		0.03				

BT & WLAN Aux

Conditions	Position	SAR Value (W/kg)	Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
BT	Top side	0.03	0.958	79	0.012	SPLSR<0.04, Not required
WLAN Aux		0.928				

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WWAN & WLAN Aux

Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
			x	y	z				
LTE Band 2	Top side	1.09	-1.30	-8.16	0.45	2.018	92	0.031	SPLSR<0.04, Not required
WLAN Aux		0.928	-1.08	0.96	-0.76				



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No.	Conditions	Position	Distance (mm)	Max. WWAN	Max. WLAN Main	Max. WLAN Aux	SAR Sum	SPLSR
49	LTE Band 4	Back side	0	1.193	0.094	0.212	1.499	$\Sigma SAR < 1.6$, Not required
		Back side_Curve(Left)	0	1.154	-	-	-	$\Sigma SAR < 1.6$, Not required
		Back side_Curve(Right)	0	-	0.094	-	-	$\Sigma SAR < 1.6$, Not required
		Top side	0	1.069	0.03	0.928	2.027	Analyzed as below
		Bottom side	0	0.044	0.4	0.007	0.451	$\Sigma SAR < 1.6$, Not required
		Left side	0	0.543	0.4	0.006	0.949	$\Sigma SAR < 1.6$, Not required
		Right side	0	0.007	0.094	0.029	0.13	$\Sigma SAR < 1.6$, Not required

WWAN & BT

Conditions	Position	SAR Value (W/kg)	ΣSAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
LTE Band 4	Top side	1.069	1.099	185.8	0.006	SPLSR < 0.04, Not required
BT		0.03				

BT & WLAN Aux

Conditions	Position	SAR Value (W/kg)	ΣSAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
BT	Top side	0.03	0.958	79	0.012	SPLSR < 0.04, Not required
WLAN Aux		0.928				

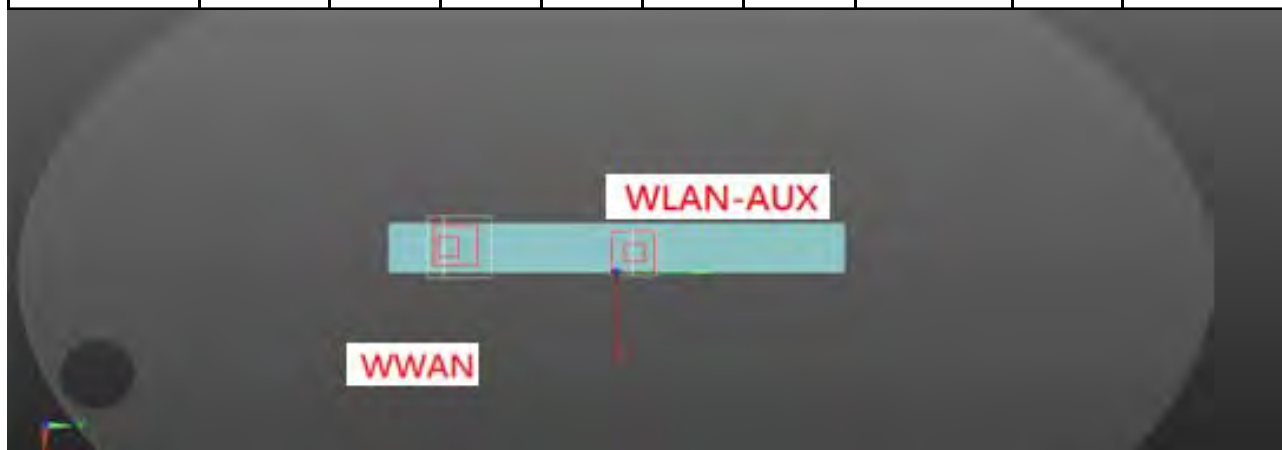
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WWAN & WLAN Aux

Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
			x	y	z				
LTE Band 4	Top side	1.069	-1.35	-8.34	-0.48	1.997	93.1	0.030	SPLSR<0.04, Not required
WLAN Aux		0.928	-1.08	0.96	-0.76				



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No.	Conditions	Position	Distance (mm)	Max. WWAN	BT	Max. WLAN Aux	SAR Sum	SPLSR
50	LTE Band 5	Back side	0	0.491	0.094	0.212	0.797	Σ SAR<1.6, Not required
		Back side_Curve(Left)	0	0.58	-	-	-	Σ SAR<1.6, Not required
		Back side_Curve(Right)	0	-	0.094	-	-	Σ SAR<1.6, Not required
		Top side	0	0.576	0.03	0.928	1.534	Σ SAR<1.6, Not required
		Bottom side	0	0.076	0.4	0.007	0.483	Σ SAR<1.6, Not required
		Left side	0	0.601	0.4	0.006	1.007	Σ SAR<1.6, Not required
		Right side	0	0.014	0.094	0.029	0.137	Σ SAR<1.6, Not required

LTE FDD Band XIII + BT + 5GHz WLAN Aux

No.	Conditions	Position	Distance (mm)	Max. WWAN	BT	Max. WLAN Aux	SAR Sum	SPLSR
51	LTE Band 13	Back side	0	0.468	0.094	0.212	0.774	Σ SAR<1.6, Not required
		Back side_Curve(Left)	0	0.486	-	-	-	Σ SAR<1.6, Not required
		Back side_Curve(Right)	0	-	0.094	-	-	Σ SAR<1.6, Not required
		Top side	0	0.549	0.03	0.928	1.507	Σ SAR<1.6, Not required
		Bottom side	0	0.093	0.4	0.007	0.5	Σ SAR<1.6, Not required
		Left side	0	0.837	0.4	0.006	1.243	Σ SAR<1.6, Not required
		Right side	0	0.01	0.094	0.029	0.133	Σ SAR<1.6, Not required

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LTE FDD Band XVII + BT + 5GHz WLAN Aux

No.	Conditions	Position	Distance (mm)	Max. WWAN	BT	Max. WLAN Aux	SAR Sum	SPLSR
52	LTE Band 17	Back side	0	0.264	0.094	0.212	0.57	Σ SAR<1.6, Not required
		Back side_Curve(Left)	0	0.296	-	-	-	Σ SAR<1.6, Not required
		Back side_Curve(Right)	0	-	0.094	-	-	Σ SAR<1.6, Not required
		Top side	0	0.223	0.03	0.928	1.181	Σ SAR<1.6, Not required
		Bottom side	0	0.009	0.4	0.007	0.416	Σ SAR<1.6, Not required
		Left side	0	0.438	0.4	0.006	0.844	Σ SAR<1.6, Not required
		Right side	0	0.005	0.094	0.029	0.128	Σ SAR<1.6, Not required

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LTE FDD Band XXV+ BT+ 5GHz WLAN Aux

No.	Conditions	Position	Distance (mm)	Max. WWAN	BT	Max. WLAN Aux	SAR Sum	SPLSR
53	LTE Band 25	Back side	0	1.151	0.094	0.212	1.457	Σ SAR<1.6, Not required
		Back side_Curve(Left)	0	0.979	-	-	-	Σ SAR<1.6, Not required
		Back side_Curve(Right)	0	-	0.094	-	-	Σ SAR<1.6, Not required
		Top side	0	1.136	0.03	0.928	2.094	Σ SAR<1.6, Not required
		Bottom side	0	0.026	0.4	0.007	0.433	Σ SAR<1.6, Not required
		Left side	0	0.375	0.4	0.006	0.781	Σ SAR<1.6, Not required
		Right side	0	0.007	0.094	0.029	0.13	Σ SAR<1.6, Not required

WWAN & BT

Conditions	Position	SAR Value (W/kg)	Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
LTE Band 25	Top side	1.159	1.189	185.8	0.007	SPLSR<0.04, Not required
BT		0.03				

BT & WLAN Aux

Conditions	Position	SAR Value (W/kg)	Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
BT	Top side	0.03	0.958	79	0.012	SPLSR<0.04, Not required
WLAN Aux		0.928				

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WWAN & WLAN Aux

Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
			x	y	z				
LTE Band 25	Top side	1.159	-1.14	-8.47	0.51	2.087	95.1	0.032	SPLSR<0.04, Not required
WLAN Aux		0.928	-1.08	0.96	-0.76				



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CDMA / EVDO BC0 + BT+ 5GHz WLAN Main

No.	Conditions	Position	Distance (mm)	Max. WWAN	BT	Max. WLAN Aux	SAR Sum	SPLSR
54	EVDO BC 0	Back side	0	0.54	0.094	0.212	0.846	Σ SAR<1.6, Not required
		Back side_Curve(Left)	0	0.618	-	-	-	Σ SAR<1.6, Not required
		Back side_Curve(Right)	0	-	0.094	-	-	Σ SAR<1.6, Not required
		Top side	0	0.658	0.03	0.928	1.616	Σ SAR<1.6, Not required
		Bottom side	0	0.07	0.4	0.007	0.477	Σ SAR<1.6, Not required
		Left side	0	0.771	0.4	0.006	1.177	Σ SAR<1.6, Not required
		Right side	0	0.007	0.094	0.029	0.13	Σ SAR<1.6, Not required

WWAN & BT

Conditions	Position	SAR Value (W/kg)	Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
EVDO BC 0	Top side	0.658	0.688	185.8	0.003	SPLSR<0.04, Not required
BT		0.03				

BT & WLAN Aux

Conditions	Position	SAR Value (W/kg)	Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
BT	Top side	0.03	0.958	79	0.012	SPLSR<0.04, Not required
WLAN Aux		0.928				

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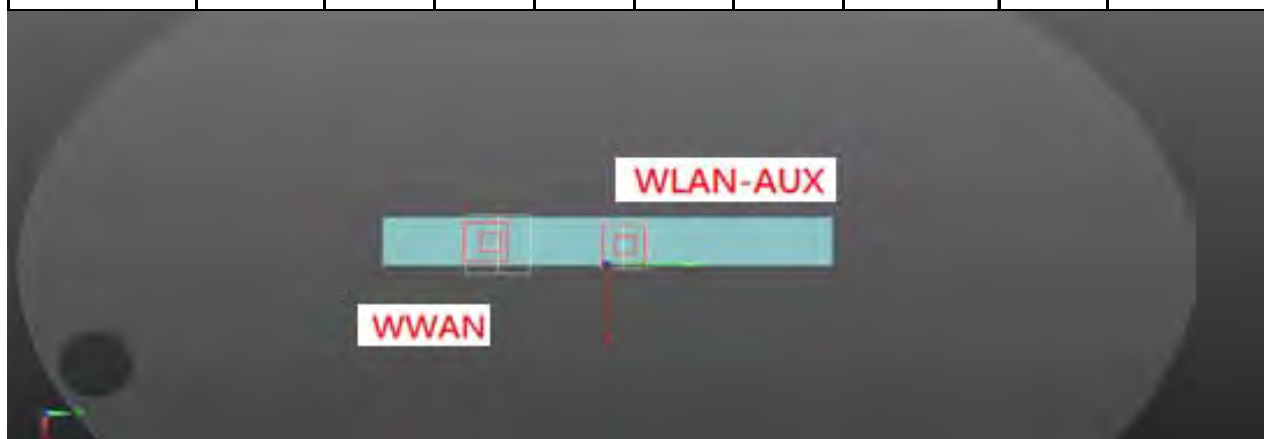
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WWAN & WLAN Aux

Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
			x	y	z				
EVDO BC 0	Top side	0.658	-1.15	-5.29	-0.68	1.586	62.5	0.032	SPLSR<0.04, Not required
WLAN Aux		0.928	-1.08	0.96	-0.76				



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CDMA / EVDO BC1 + BT+ 5GHz WLAN Main

No.	Conditions	Position	Distance (mm)	Max. WWAN	BT	Max. WLAN Aux	SAR Sum	SPLSR
55	EVDO BC 1	Back side	0	1.008	0.094	0.212	1.314	Σ SAR<1.6, Not required
		Back side_Curve(Left)	0	0.973	-	-	-	Σ SAR<1.6, Not required
		Back side_Curve(Right)	0	-	0.094	-	-	Σ SAR<1.6, Not required
		Top side	0	0.903	0.03	0.928	1.861	Σ SAR<1.6, Not required
		Bottom side	0	0.025	0.4	0.007	0.432	Σ SAR<1.6, Not required
		Left side	0	0.341	0.4	0.006	0.747	Σ SAR<1.6, Not required
		Right side	0	0.004	0.094	0.029	0.127	Σ SAR<1.6, Not required

WWAN & BT

Conditions	Position	SAR Value (W/kg)	Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
EVDO BC 1	Top side	0.903	0.933	185.8	0.005	SPLSR<0.04, Not required
BT		0.03				

BT & WLAN Aux

Conditions	Position	SAR Value (W/kg)	Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
BT	Top side	0.03	0.958	79	0.012	SPLSR<0.04, Not required
WLAN Aux		0.928				

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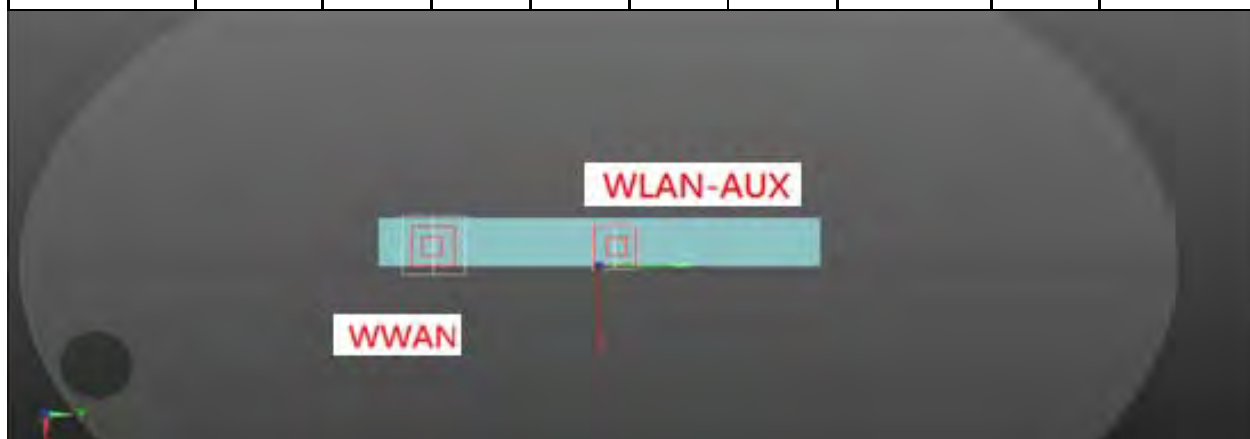
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WWAN & WLAN Aux

Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			Σ SAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
			x	y	z				
EVDO BC 1	Top side	0.903	-0.99	-8.56	-0.46	1.831	95.2	0.026	SPLSR<0.04, Not required
WLAN Aux		0.928	-1.08	0.96	-0.76				



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No.	Conditions	Position	Distance (mm)	Max. WWAN	BT	Max. WLAN Aux	SAR Sum	SPLSR
56	EVDO BC 10	Back side	0	0.55	0.094	0.212	0.856	Σ SAR<1.6, Not required
		Back side_Curve(Left)	0	0.635	-	-	-	Σ SAR<1.6, Not required
		Back side_Curve(Right)	0	-	0.094	-	-	Σ SAR<1.6, Not required
		Top side	0	0.582	0.03	0.928	1.54	Σ SAR<1.6, Not required
		Bottom side	0	0.058	0.4	0.007	0.465	Σ SAR<1.6, Not required
		Left side	0	0.723	0.4	0.006	1.129	Σ SAR<1.6, Not required
		Right side	0	0.004	0.094	0.029	0.127	Σ SAR<1.6, Not required

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4. Instruments List

Manufacturer	Device	Type	Serial number	Date of last calibration	Date of next calibration
Schmid & Partner Engineering AG	Dosimetric E-Field Probe	EX3DV4	3770	Apr.28,2015	Apr.27,2016
Schmid & Partner Engineering AG	System Validation Dipole	D750V2	1015	Aug.28,2014	Aug.27,2015
		D835V2	4d063	Aug.28,2014	Aug.27,2015
		D1750V2	1008	Aug.28,2014	Aug.27,2015
		D1900V2	5d027	Apr.29,2015	Apr.28,2016
		D2450V2	727	Apr.22,2015	Apr.21,2016
		D5GHzV2	1023	Jan.29,2015	Jan.28,2016
Schmid & Partner Engineering AG	Data acquisition Electronics	DAE4	856	Aug.27,2015	Aug.26,2016
Schmid & Partner Engineering AG	Software	DASY 52 V52.8.8	N/A	Calibration not required	Calibration not required
Schmid & Partner Engineering AG	Phantom	SAM	N/A	Calibration not required	Calibration not required
HP	Network Analyzer	8753D	3410A05547	May.21,2015	May.20,2016
Agilent	Dielectric Probe Kit	85070E	MY44300677	Calibration not required	Calibration not required
Agilent	Dual-directional coupler	777D	50114	Aug.07,2014	Aug.06,2015
		778D	50313	Aug.07,2014	Aug.06,2015
Agilent	RF Signal Generator	N5181A	MY50145142	Feb.06,2015	Feb.05,2016
Agilent	Power Meter	E4417A	MY51410006	Oct.25,2013	Oct.24,2015
Agilent	Power Sensor	E9301H	MY51470001	Dec.11,2014	Dec.10,2015
TECPEL	Digital thermometer	DTM-303A	TP130078	Mar.30,2015	Mar.29,2016
R&S	Radio Communication Test	CMU200	122498	Aug.14,2014	Aug.13,2015
Anritsu	Radio Communication Test	MT8820C	6201061014	Aug.06,2014	Aug.05,2015

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5. Measurements

Date: 2015/6/16

GPRS 850_Body-worn_Left side_CH 251

Communication System: GPRS (1Dn2Up); Frequency: 848.8 MHz

Medium parameters used: $f = 849$ MHz; $\sigma = 1.026$ S/m; $\epsilon_r = 56.515$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.17, 9.17, 9.17); Calibrated: 2015/4/28;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2014/8/27
- Phantom: Body;
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Configuration/Body/Area Scan (51x121x1): Interpolated grid: dx=15 mm, dy=15 mm

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

Configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

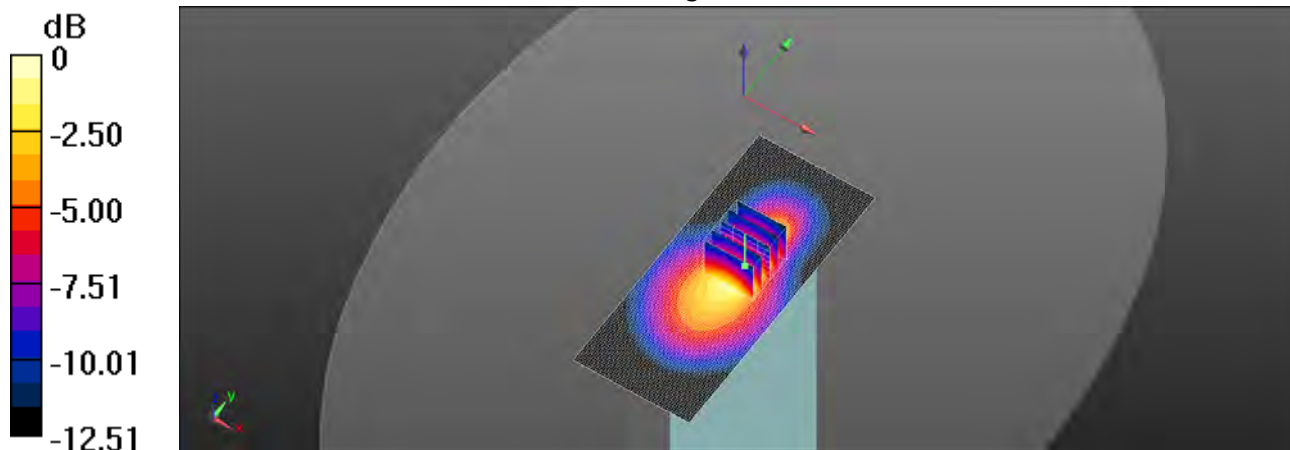
dx=8mm, dy=8mm, dz=5mm

Reference Value = 29.58 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 1.75 W/kg

SAR(1 g) = 0.991 W/kg; SAR(10 g) = 0.626 W/kg

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



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

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Date: 2015/6/18

GPRS 1900_Body-worn_Back(Curve)_CH 512

Communication System: GPRS (1Dn2Up); Frequency: 1850.2 MHz

Medium parameters used: $f = 1850.2 \text{ MHz}$; $\sigma = 1.45 \text{ S/m}$; $\epsilon_r = 53.753$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.59, 7.59, 7.59); Calibrated: 2015/4/28;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2014/8/27
- Phantom: Body;
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

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

Maximum value of SAR (interpolated) = 1.79 W/kg

Configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

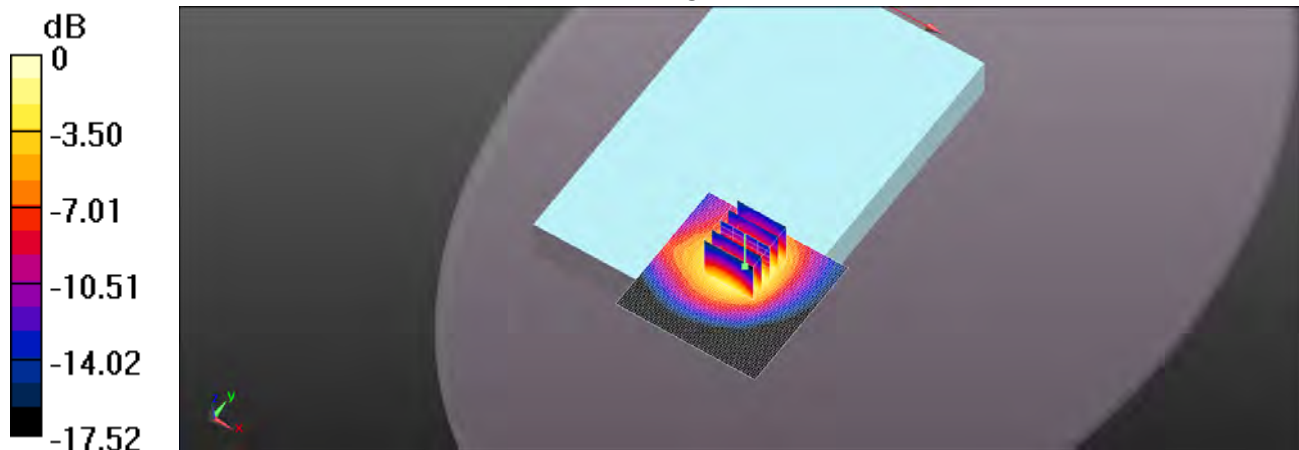
 $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 4.512 V/m; Power Drift = 0.17 dB

Peak SAR (extrapolated) = 2.20 W/kg

SAR(1 g) = 1.26 W/kg; SAR(10 g) = 0.698 W/kg

Maximum value of SAR (measured) = 1.73 W/kg



0 dB = 1.73 W/kg = 2.38 dBW/kg

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Date: 2015/6/18

WCDMA Band 2_Body-worn_Back(Curve)_CH 9262

Communication System: WCDMA; Frequency: 1852.4 MHz

Medium parameters used: $f = 1852.4 \text{ MHz}$; $\sigma = 1.454 \text{ S/m}$; $\epsilon_r = 53.75$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.59, 7.59, 7.59); Calibrated: 2015/4/28;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2014/8/27
- Phantom: Body;
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

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

Maximum value of SAR (interpolated) = 1.61 W/kg

Configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

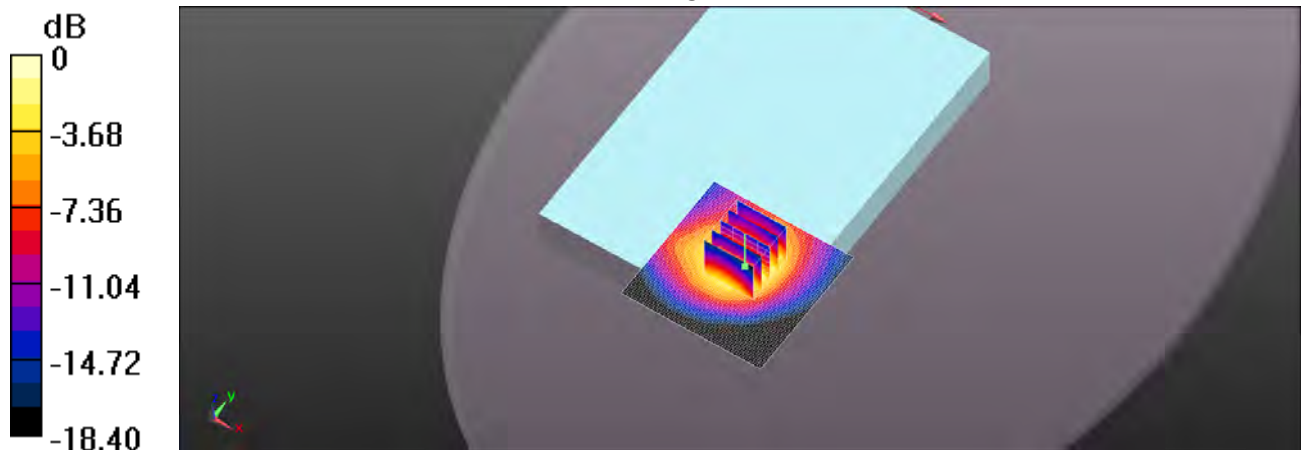
 $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 4.542 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 2.04 W/kg

SAR(1 g) = 1.16 W/kg; SAR(10 g) = 0.639 W/kg

Maximum value of SAR (measured) = 1.62 W/kg



0 dB = 1.62 W/kg = 2.10 dBW/kg

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Date: 2015/6/17

WCDMA Band 4_Body-worn_Back(Curve)_CH 1513

Communication System: WCDMA; Frequency: 1752.6 MHz

Medium parameters used: $f = 1753$ MHz; $\sigma = 1.446$ S/m; $\epsilon_r = 52.808$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.79, 7.79, 7.79); Calibrated: 2015/4/28;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2014/8/27
- Phantom: Body;
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Configuration/Body/Area Scan (61x81x1): Interpolated grid: dx=15 mm, dy=15 mm

Maximum value of SAR (interpolated) = 1.50 W/kg

Configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

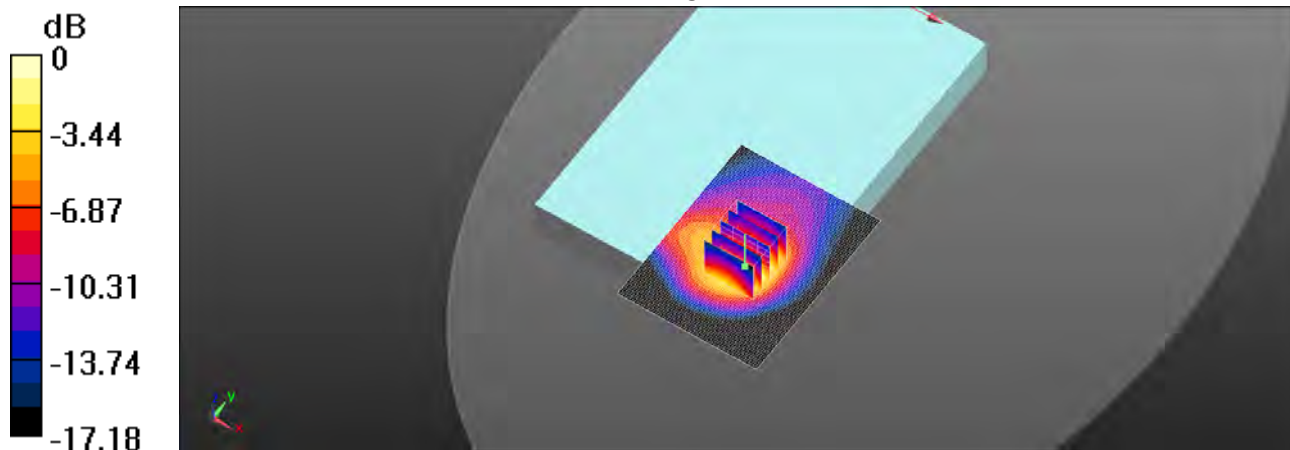
dx=8mm, dy=8mm, dz=5mm

Reference Value = 4.935 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 1.86 W/kg

SAR(1 g) = 1.07 W/kg; SAR(10 g) = 0.585 W/kg

Maximum value of SAR (measured) = 1.48 W/kg



0 dB = 1.48 W/kg = 1.70 dBW/kg

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Date: 2015/6/16

WCDMA Band 5_Body-worn_Left side_CH 4183

Communication System: WCDMA; Frequency: 836.6 MHz

Medium parameters used: $f = 837$ MHz; $\sigma = 1.014$ S/m; $\epsilon_r = 56.669$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.17, 9.17, 9.17); Calibrated: 2015/4/28;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2014/8/27
- Phantom: Body;
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Configuration/Body/Area Scan (51x121x1): Interpolated grid: dx=15mm, dy=15 mm

Maximum value of SAR (interpolated) = 0.718 W/kg

Configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

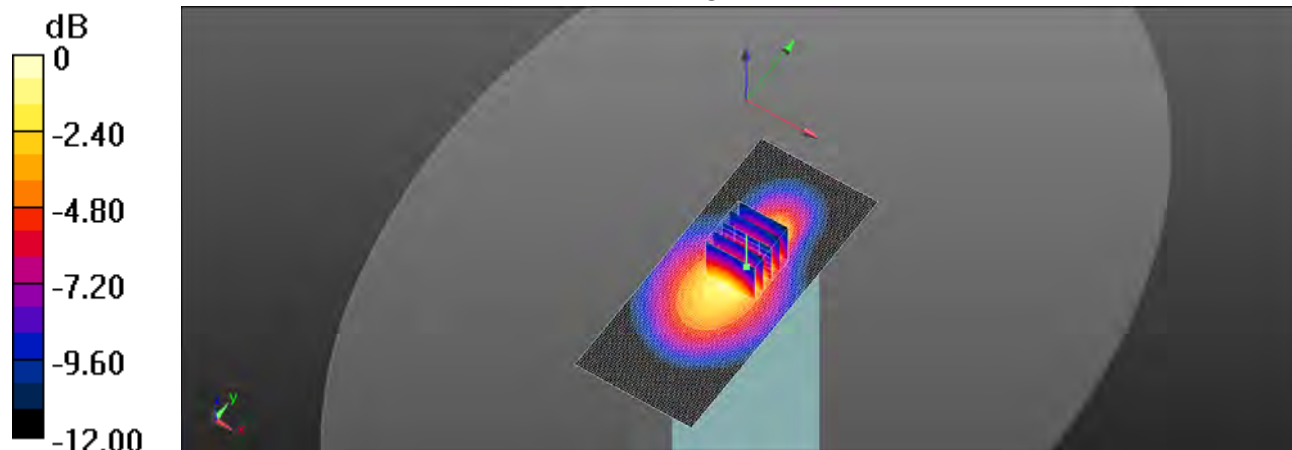
dx=8mm, dy=8mm, dz=5mm

Reference Value = 20.85 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 0.932 W/kg

SAR(1 g) = 0.565 W/kg; SAR(10 g) = 0.356 W/kg

Maximum value of SAR (measured) = 0.779 W/kg



0 dB = 0.779 W/kg = -1.08 dBW/kg

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Date: 2015/6/18

LTE Band 2_Body-worn_Back(Curve)_CH 18700_20M_100-0

Communication System: LTE; Frequency: 1860 MHz

Medium parameters used: $f = 1860$ MHz; $\sigma = 1.459$ S/m; $\epsilon_r = 53.718$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.59, 7.59, 7.59); Calibrated: 2015/4/28;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2014/8/27
- Phantom: Body;
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

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

Maximum value of SAR (interpolated) = 1.44 W/kg

Configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

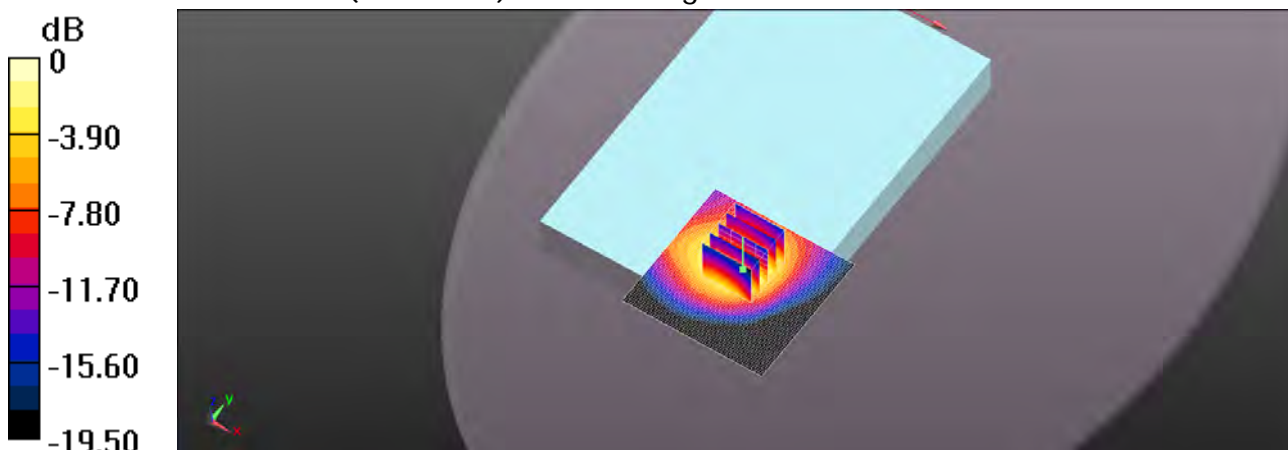
dx=8mm, dy=8mm, dz=5mm

Reference Value = 4.320 V/m; Power Drift = 0.16 dB

Peak SAR (extrapolated) = 1.84 W/kg

SAR(1 g) = 1.03 W/kg; SAR(10 g) = 0.569 W/kg

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



0 dB = 1.46 W/kg = 1.64 dBW/kg

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Date: 2015/6/17

LTE Band 4_Body-worn_Back_CH 20175_20M_1-0

Communication System: LTE; Frequency: 1732.5 MHz

Medium parameters used: $f = 1732.5 \text{ MHz}$; $\sigma = 1.425 \text{ S/m}$; $\epsilon_r = 52.831$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.79, 7.79, 7.79); Calibrated: 2015/4/28;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2014/8/27
- Phantom: Body;
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

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

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

Configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

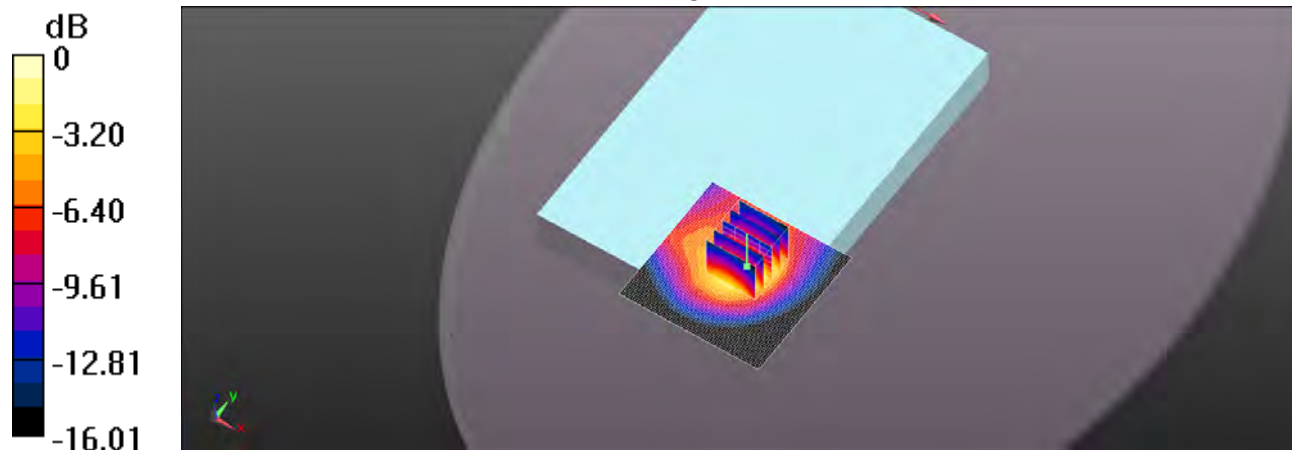
 $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 5.429 V/m; Power Drift = 0.19 dB

Peak SAR (extrapolated) = 1.95 W/kg

SAR(1 g) = 1.15 W/kg; SAR(10 g) = 0.625 W/kg

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



0 dB = 1.59 W/kg = 2.01 dBW/kg

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Date: 2015/6/16

LTE Band 5_Body-worn_Left side_CH 20600_10M_1-49

Communication System: LTE; Frequency: 844 MHz

Medium parameters used: $f = 844 \text{ MHz}$; $\sigma = 1.02 \text{ S/m}$; $\epsilon_r = 56.606$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.17, 9.17, 9.17); Calibrated: 2015/4/28;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2014/8/27
- Phantom: Body;
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Configuration/Body/Area Scan (61x111x1): Interpolated grid: $dx=15 \text{ mm}$, $dy=15 \text{ mm}$

Maximum value of SAR (interpolated) = 0.596 W/kg

Configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

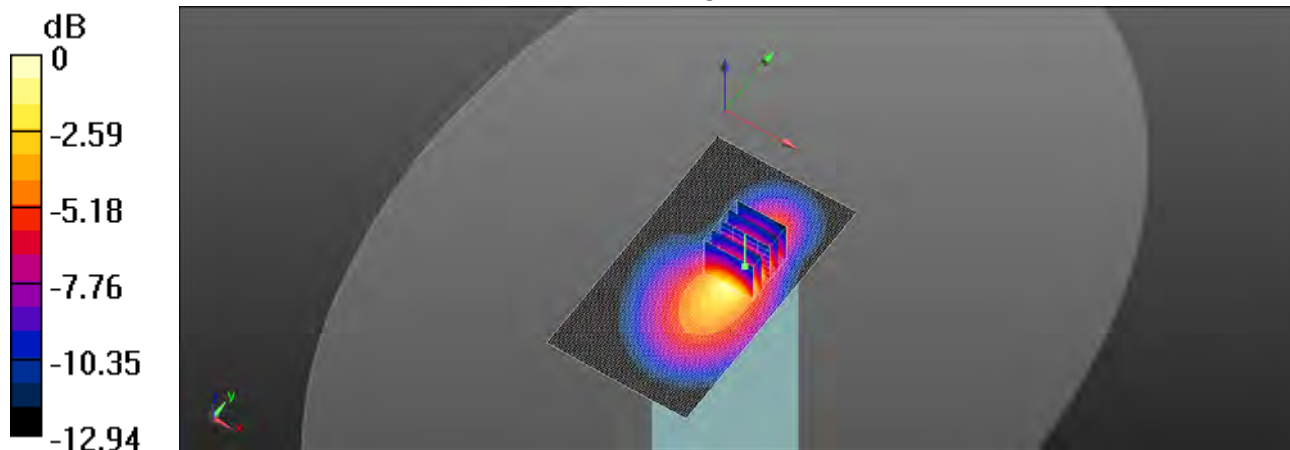
 $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 18.01 V/m; Power Drift = 0.10 dB

Peak SAR (extrapolated) = 0.741 W/kg

SAR(1 g) = 0.432 W/kg; SAR(10 g) = 0.255 W/kg

Maximum value of SAR (measured) = 0.606 W/kg



0 dB = 0.606 W/kg = -2.18 dBW/kg

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Date: 2015/6/15

LTE Band 13_Body-worn_Left side_CH 23230_10M_1-25

Communication System: LTE; Frequency: 782 MHz

Medium parameters used: $f = 782 \text{ MHz}$; $\sigma = 1.005 \text{ S/m}$; $\epsilon_r = 53.042$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.3, 9.3, 9.3); Calibrated: 2015/4/28;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2014/8/27
- Phantom: Body;
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Configuration/Body/Area Scan (61x111x1): Interpolated grid: $dx=15 \text{ mm}$, $dy=15 \text{ mm}$

Maximum value of SAR (interpolated) = 0.803 W/kg

Configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

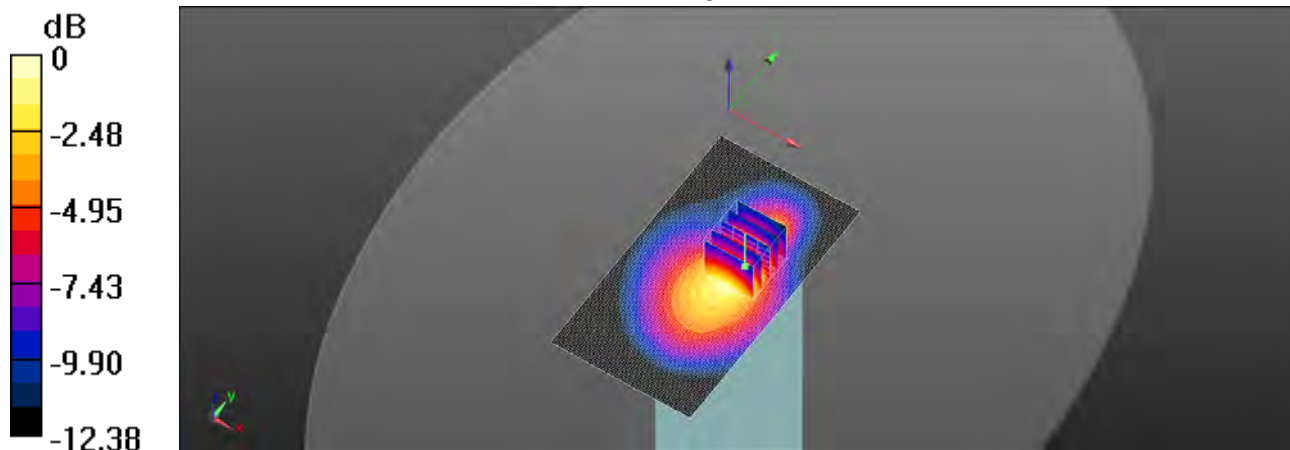
 $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 20.82 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 0.954 W/kg

SAR(1 g) = 0.594 W/kg; SAR(10 g) = 0.372 W/kg

Maximum value of SAR (measured) = 0.801 W/kg



0 dB = 0.801 W/kg = -0.96 dBW/kg

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Date: 2015/6/15

LTE Band 17_Body-worn_Left side_CH 23800_10M_1-25

Communication System: LTE; Frequency: 711 MHz

Medium parameters used: $f = 711 \text{ MHz}$; $\sigma = 0.974 \text{ S/m}$; $\epsilon_r = 53.797$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.3, 9.3, 9.3); Calibrated: 2015/4/28;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2014/8/27
- Phantom: Body;
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Configuration/Body/Area Scan (61x111x1): Interpolated grid: $dx=15 \text{ mm}$, $dy=15 \text{ mm}$

Maximum value of SAR (interpolated) = 0.537 W/kg

Configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

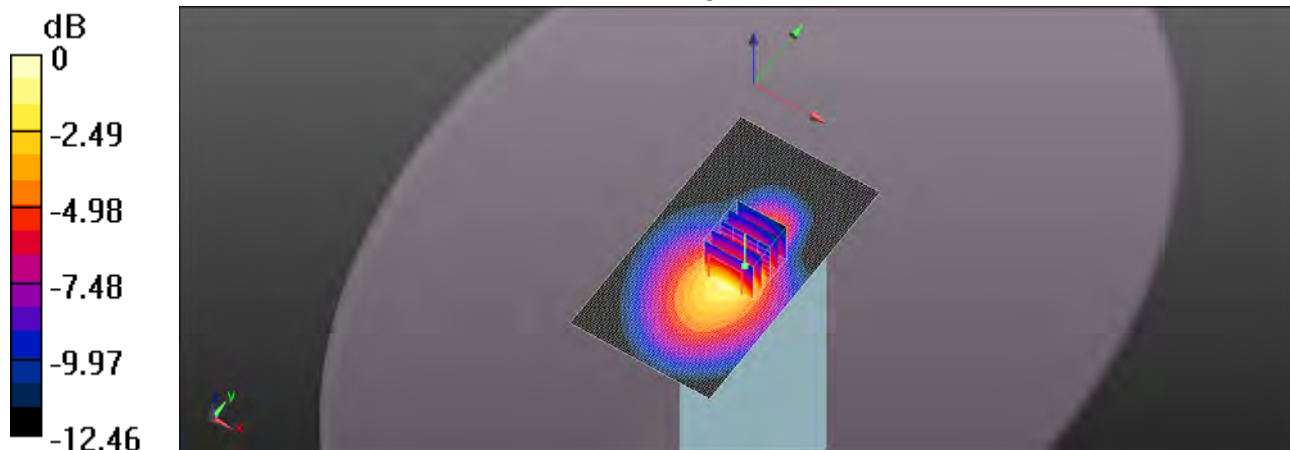
 $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 19.47 V/m; Power Drift = 0.16 dB

Peak SAR (extrapolated) = 0.719 W/kg

SAR(1 g) = 0.397 W/kg; SAR(10 g) = 0.252 W/kg

Maximum value of SAR (measured) = 0.594 W/kg



0 dB = 0.594 W/kg = -2.26 dBW/kg

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Date: 2015/6/18

LET Band 25_Body-worn_Top side_CH 26590_20M_50-50

Communication System: LTE; Frequency: 1905 MHz

Medium parameters used: $f = 1905$ MHz; $\sigma = 1.508$ S/m; $\epsilon_r = 53.572$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.59, 7.59, 7.59); Calibrated: 2015/4/28;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2014/8/27
- Phantom: Body;
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

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

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

Configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

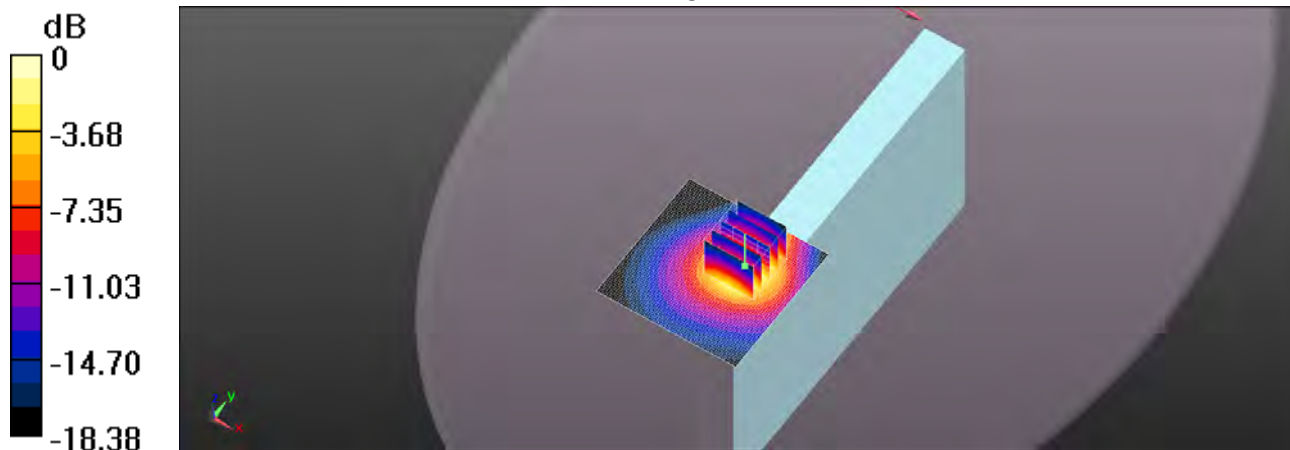
dx=8mm, dy=8mm, dz=5mm

Reference Value = 7.854 V/m; Power Drift = 0.10 dB

Peak SAR (extrapolated) = 2.07 W/kg

SAR(1 g) = 1.14 W/kg; SAR(10 g) = 0.604 W/kg

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



0 dB = 1.59 W/kg = 2.01 dBW/kg

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Date: 2015/6/16

EVDO BC0_Body-worn_Left side_CH 384

Communication System: 1xEvDO; Frequency: 836.52 MHz

Medium parameters used: $f = 837$ MHz; $\sigma = 1.014$ S/m; $\epsilon_r = 56.669$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.17, 9.17, 9.17); Calibrated: 2015/4/28;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2014/8/27
- Phantom: Body;
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Configuration/Body/Area Scan (51x121x1): Interpolated grid: dx=15 mm, dy=15 mm

Maximum value of SAR (interpolated) = 1.02 W/kg

Configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

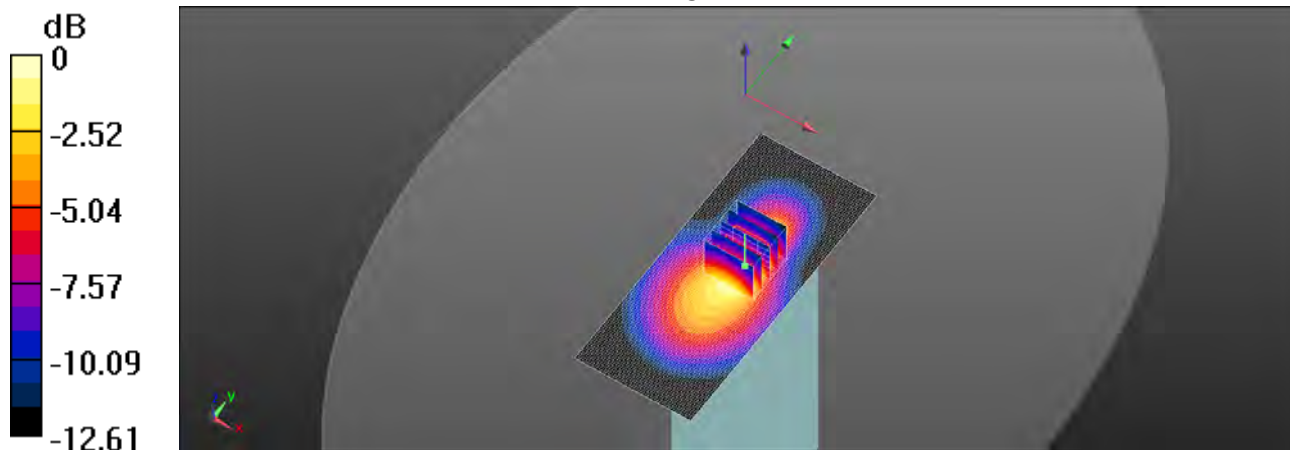
dx=8mm, dy=8mm, dz=5mm

Reference Value = 25.75 V/m; Power Drift = -0.09 dB

Peak SAR (extrapolated) = 1.26 W/kg

SAR(1 g) = 0.73 W/kg; SAR(10 g) = 0.44 W/kg

Maximum value of SAR (measured) = 1.04 W/kg



0 dB = 1.04 W/kg = 0.17 dBW/kg

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Date: 2015/6/18

EVDO BC1_Body-worn_Back_CH 1175

Communication System: 1xEvDO; Frequency: 1908.75 MHz

Medium parameters used: $f = 1909$ MHz; $\sigma = 1.513$ S/m; $\epsilon_r = 53.621$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.59, 7.59, 7.59); Calibrated: 2015/4/28;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2014/8/27
- Phantom: Body;
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

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

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

Configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

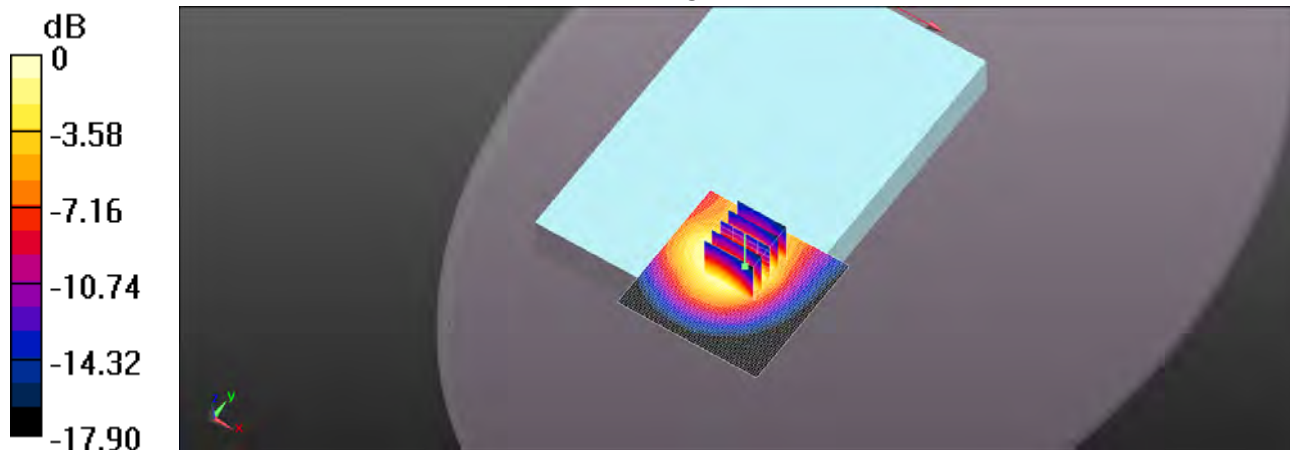
dx=8mm, dy=8mm, dz=5mm

Reference Value = 4.984 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 1.75 W/kg

SAR(1 g) = 1 W/kg; SAR(10 g) = 0.563 W/kg

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



0 dB = 1.36 W/kg = 1.34 dBW/kg

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Date: 2015/6/16

EVDO BC10_Body-worn_Left side_CH 684

Communication System: 1xEvDO; Frequency: 823.1 MHz

Medium parameters used: $f = 823.1$ MHz; $\sigma = 0.999$ S/m; $\epsilon_r = 56.773$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.17, 9.17, 9.17); Calibrated: 2015/4/28;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2014/8/27
- Phantom: Body;
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Configuration/Body/Area Scan (71x121x1): Interpolated grid: dx=15 mm, dy=15 mm

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

Configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

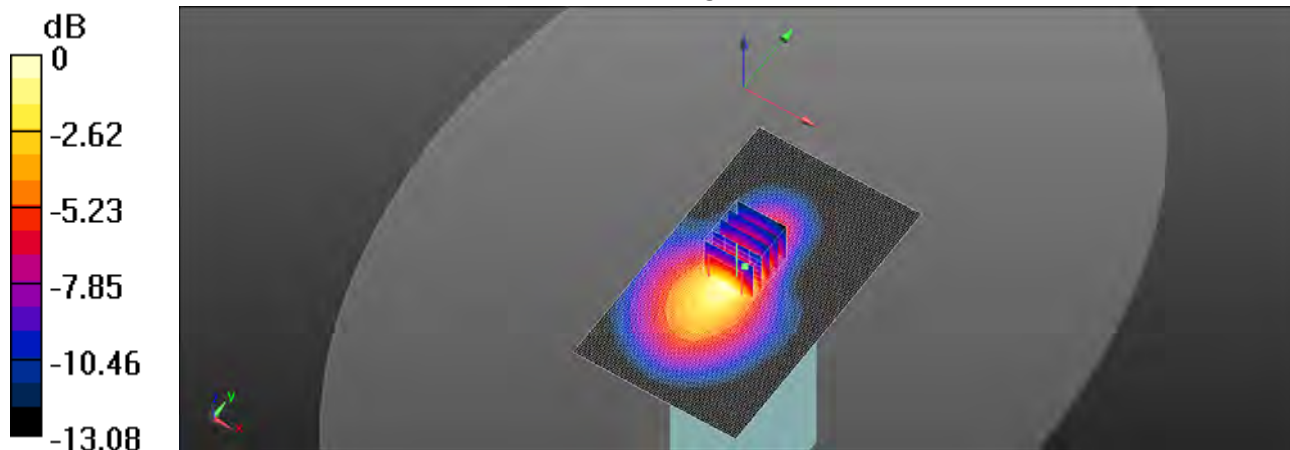
dx=8mm, dy=8mm, dz=5mm

Reference Value = 28.67 V/m; Power Drift = -0.10 dB

Peak SAR (extrapolated) = 1.20 W/kg

SAR(1 g) = 0.668 W/kg; SAR(10 g) = 0.412 W/kg

Maximum value of SAR (measured) = 0.995 W/kg



0 dB = 0.995 W/kg = -0.02 dBW/kg

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Date: 2015/6/19

WLAN802.11 b 2.4G_Body_Right side_CH 1_Main

Communication System: WLAN 2.45G; Frequency: 2412 MHz

Medium parameters used: $f = 2412 \text{ MHz}$; $\sigma = 1.992 \text{ S/m}$; $\epsilon_r = 51.436$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.21, 7.21, 7.21); Calibrated: 2015/4/28;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2014/8/27
- Phantom: Body;
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Configuration/Body/Area Scan (71x91x1): Interpolated grid: $dx=12 \text{ mm}$, $dy=12 \text{ mm}$

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

Configuration/Body/Zoom Scan (7x7x7)/Cube 0: Measurement grid:

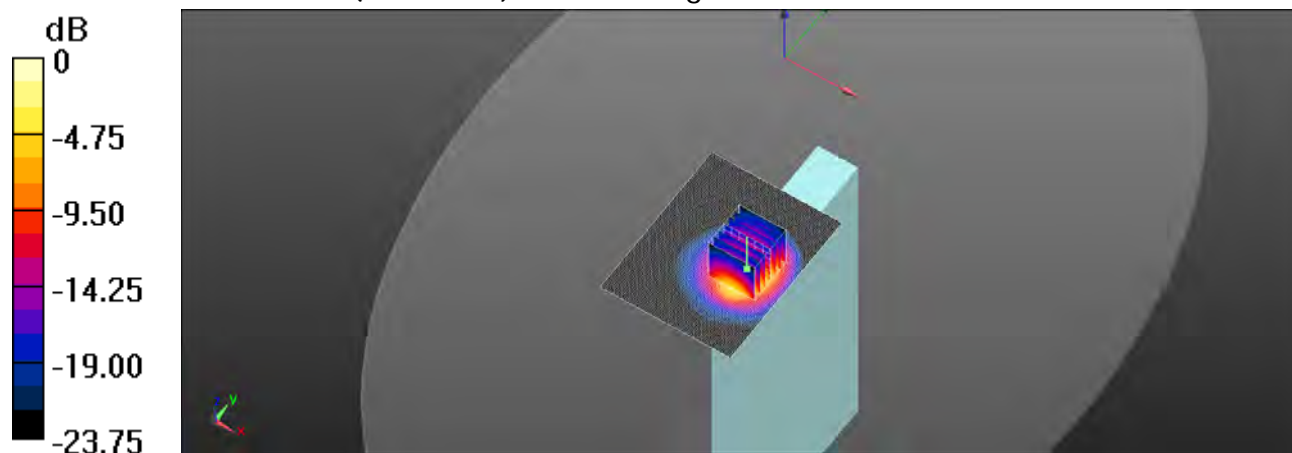
 $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 6.773 V/m; Power Drift = 0.15 dB

Peak SAR (extrapolated) = 1.97 W/kg

SAR(1 g) = 0.915 W/kg; SAR(10 g) = 0.394 W/kg

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



0 dB = 1.43 W/kg = 1.55 dBW/kg

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Date: 2015/6/20

WLAN802.11 a 5.2G_Body_Right side_CH 40_Main

Communication System: WLAN 5G; Frequency: 5200 MHz

Medium parameters used: $f = 5200 \text{ MHz}$; $\sigma = 5.462 \text{ S/m}$; $\epsilon_r = 47.93$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(4.7, 4.7, 4.7); Calibrated: 2015/4/28;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2014/8/27
- Phantom: Body;
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Configuration/Body/Area Scan (71x91x1): Interpolated grid: $dx=10 \text{ mm}$, $dy=10 \text{ mm}$

Maximum value of SAR (interpolated) = 0.708 W/kg

Configuration/Body/Zoom Scan (7x7x12)/Cube 0: Measurement grid:

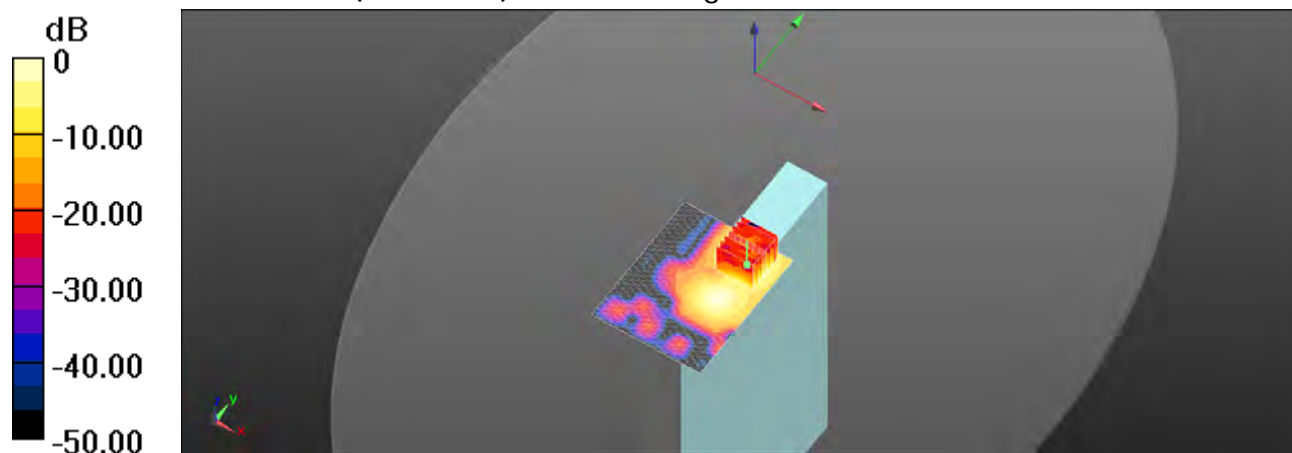
 $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=2\text{mm}$

Reference Value = 11.54 V/m; Power Drift = -0.19 dB

Peak SAR (extrapolated) = 1.55 W/kg

SAR(1 g) = 0.383 W/kg; SAR(10 g) = 0.116 W/kg

Maximum value of SAR (measured) = 0.761 W/kg



0 dB = 0.761 W/kg = -1.19 dBW/kg

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Date: 2015/6/20

WLAN802.11 n(40M) 5.2G_Body_Right side_CH 46_Main

Communication System: WLAN 5G; Frequency: 5230 MHz

Medium parameters used: $f = 5230 \text{ MHz}$; $\sigma = 5.507 \text{ S/m}$; $\epsilon_r = 47.832$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(4.7, 4.7, 4.7); Calibrated: 2015/4/28;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2014/8/27
- Phantom: Body;
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Configuration/Body/Area Scan (71x91x1): Interpolated grid: $dx=10 \text{ mm}$, $dy=10 \text{ mm}$

Maximum value of SAR (interpolated) = 0.593 W/kg

Configuration/Body/Zoom Scan (7x7x12)/Cube 0: Measurement grid:

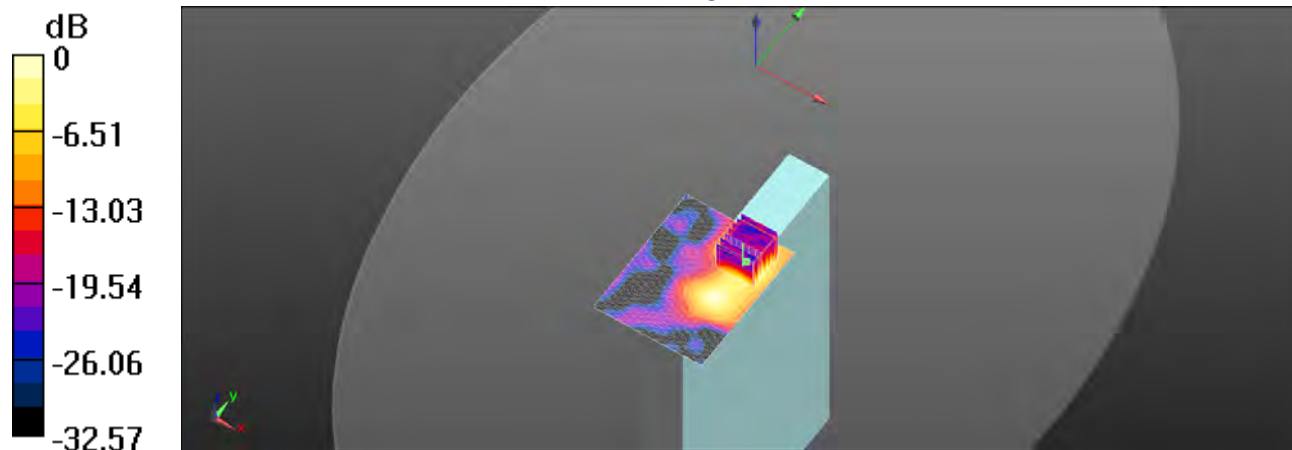
 $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=2\text{mm}$

Reference Value = 9.846 V/m; Power Drift = -0.12 dB

Peak SAR (extrapolated) = 1.29 W/kg

SAR(1 g) = 0.303 W/kg; SAR(10 g) = 0.090 W/kg

Maximum value of SAR (measured) = 0.587 W/kg



0 dB = 0.587 W/kg = -2.31 dBW/kg

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Date: 2015/6/21

WLAN802.11 n(20M) 5.3G_Body_Right side_CH 60_Main

Communication System: WLAN 5G; Frequency: 5300 MHz

Medium parameters used: $f = 5300 \text{ MHz}$; $\sigma = 5.609 \text{ S/m}$; $\epsilon_r = 47.56$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(4.7, 4.7, 4.7); Calibrated: 2015/4/28;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2014/8/27
- Phantom: Body;
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Configuration/Body/Area Scan (71x91x1): Interpolated grid: $dx=10 \text{ mm}$, $dy=10 \text{ mm}$

Maximum value of SAR (interpolated) = 0.498 W/kg

Configuration/Body/Zoom Scan (7x7x12)/Cube 0: Measurement grid:

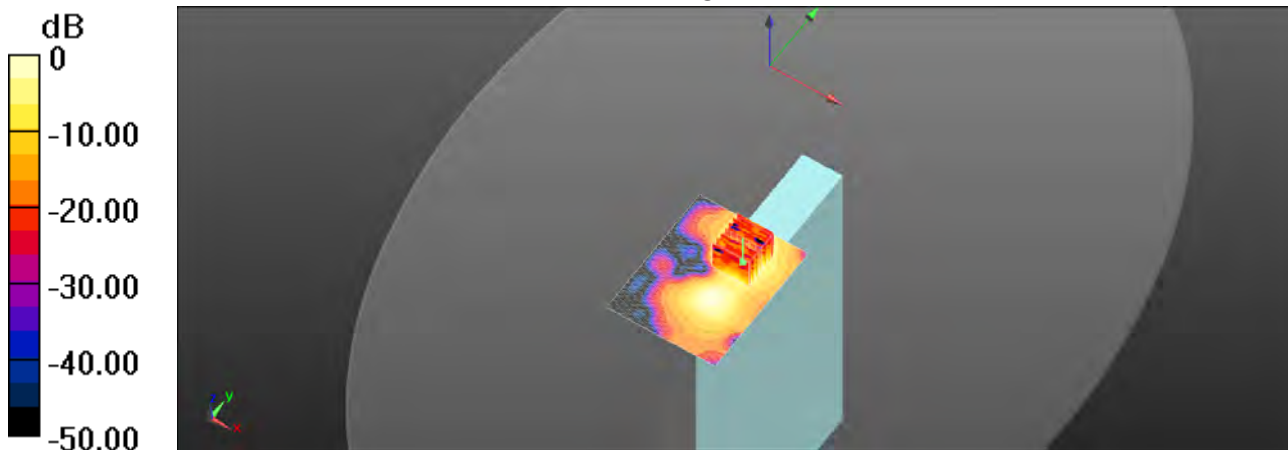
 $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=2\text{mm}$

Reference Value = 4.687 V/m; Power Drift = 0.12 dB

Peak SAR (extrapolated) = 1.07 W/kg

SAR(1 g) = 0.261 W/kg; SAR(10 g) = 0.078 W/kg.

Maximum value of SAR (measured) = 0.522 W/kg



0 dB = 0.522 W/kg = -2.82 dBW/kg

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Date: 2015/6/21

WLAN802.11 n(40M) 5.3G_Body_Right side_CH 54_Main

Communication System: WLAN 5G; Frequency: 5270 MHz

Medium parameters used: $f = 5270$ MHz; $\sigma = 5.567$ S/m; $\epsilon_r = 47.696$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(4.7, 4.7, 4.7); Calibrated: 2015/4/28;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2014/8/27
- Phantom: Body;
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Configuration/Body/Area Scan (71x91x1): Interpolated grid: dx=10 mm, dy=10 mm

Maximum value of SAR (interpolated) = 0.534 W/kg

Configuration/Body/Zoom Scan (7x7x12)/Cube 0: Measurement grid:

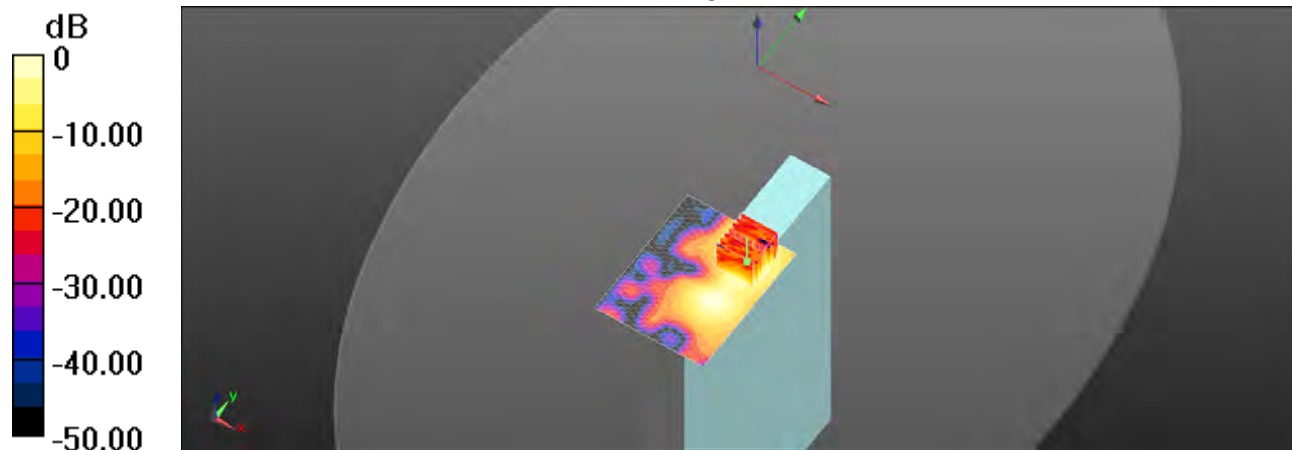
dx=4mm, dy=4mm, dz=2mm

Reference Value = 8.546 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 1.12 W/kg

SAR(1 g) = 0.270 W/kg; SAR(10 g) = 0.082 W/kg

Maximum value of SAR (measured) = 0.519 W/kg



0 dB = 0.519 W/kg = -2.85 dBW/kg

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Date: 2015/6/22

WLAN802.11 n(20M) 5.6G_Body_Right side_CH 104_Main

Communication System: WLAN 5G; Frequency: 5520 MHz

Medium parameters used: $f = 5520 \text{ MHz}$; $\sigma = 5.91 \text{ S/m}$; $\epsilon_r = 46.795$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(4.03, 4.03, 4.03); Calibrated: 2015/4/28;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2014/8/27
- Phantom: Body;
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Configuration/Body/Area Scan (71x91x1): Interpolated grid: $dx=10 \text{ mm}$, $dy=10 \text{ mm}$

Maximum value of SAR (interpolated) = 0.549 W/kg

Configuration/Body/Zoom Scan (7x7x12)/Cube 0: Measurement grid:

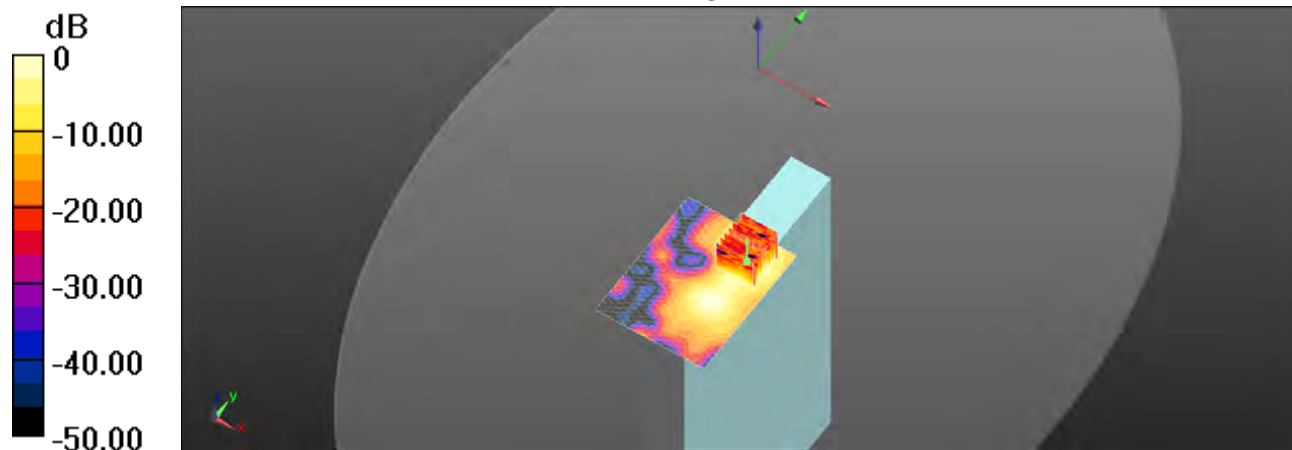
 $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=2\text{mm}$

Reference Value = 8.736 V/m; Power Drift = 0.16 dB

Peak SAR (extrapolated) = 1.12 W/kg

SAR(1 g) = 0.276 W/kg; SAR(10 g) = 0.085 W/kg

Maximum value of SAR (measured) = 0.539 W/kg



0 dB = 0.539 W/kg = -2.68 dBW/kg

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Date: 2015/6/22

WLAN802.11 n(20M) 5.6G_Body_Right side_CH 120_Main

Communication System: WLAN 5G; Frequency: 5600 MHz

Medium parameters used: $f = 5600$ MHz; $\sigma = 6.004$ S/m; $\epsilon_r = 46.575$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(4.03, 4.03, 4.03); Calibrated: 2015/4/28;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2014/8/27
- Phantom: Body;
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Configuration/Body/Area Scan (71x91x1): Interpolated grid: dx=10 mm, dy=10 mm

Maximum value of SAR (interpolated) = 0.598 W/kg

Configuration/Body/Zoom Scan (7x7x12)/Cube 0: Measurement grid:

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

Reference Value = 5.764 V/m; Power Drift = 0.15 dB

Peak SAR (extrapolated) = 1.39 W/kg

SAR(1 g) = 0.313 W/kg; SAR(10 g) = 0.098 W/kg.

Maximum value of SAR (measured) = 0.632 W/kg

Configuration/Body/Zoom Scan (7x7x12)/Cube 1: Measurement grid:

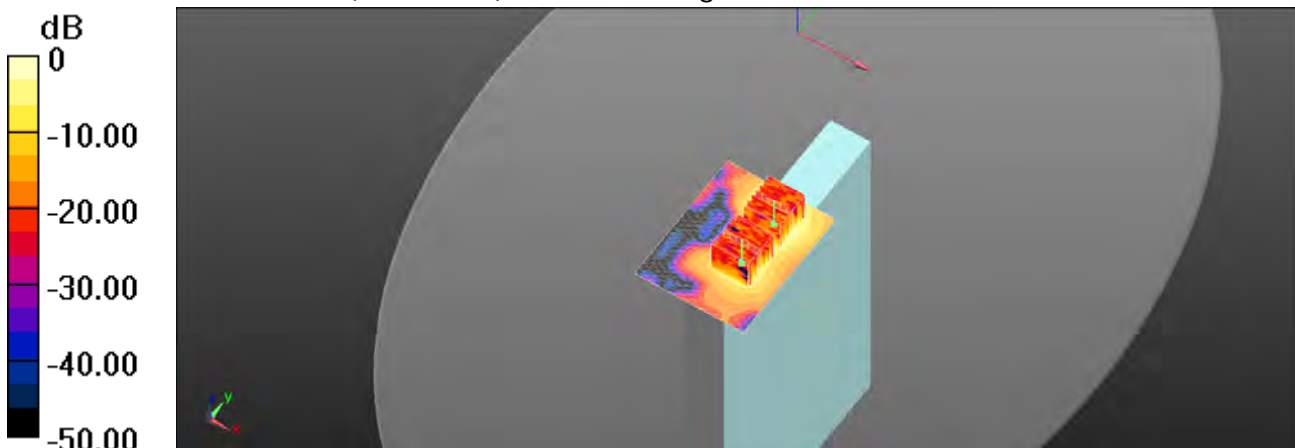
dx=4mm, dy=4mm, dz=2mm

Reference Value = 5.764 V/m; Power Drift = 0.15 dB

Peak SAR (extrapolated) = 1.19 W/kg

SAR(1 g) = 0.251 W/kg; SAR(10 g) = 0.065 W/kg

Maximum value of SAR (measured) = 0.546 W/kg



0 dB = 0.546 W/kg = -2.63 dBW/kg

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Date: 2015/6/22

WLAN802.11 n(20M) 5.6G_Body_Right side_CH 140_Main

Communication System: WLAN 5G; Frequency: 5700 MHz

Medium parameters used: $f = 5700 \text{ MHz}$; $\sigma = 6.037 \text{ S/m}$; $\epsilon_r = 46.301$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(4.03, 4.03, 4.03); Calibrated: 2015/4/28;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2014/8/27
- Phantom: Body;
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Configuration/Body/Area Scan (71x91x1): Interpolated grid: $dx=10 \text{ mm}$, $dy=10 \text{ mm}$

Maximum value of SAR (interpolated) = 0.624 W/kg

Configuration/Body/Zoom Scan (7x7x12)/Cube 0: Measurement grid:

 $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=2\text{mm}$

Reference Value = 6.024 V/m; Power Drift = 0.16 dB

Peak SAR (extrapolated) = 1.41 W/kg

SAR(1 g) = 0.324 W/kg; SAR(10 g) = 0.102 W/kg

Maximum value of SAR (measured) = 0.655 W/kg

Configuration/Body/Zoom Scan (7x7x12)/Cube 1: Measurement grid:

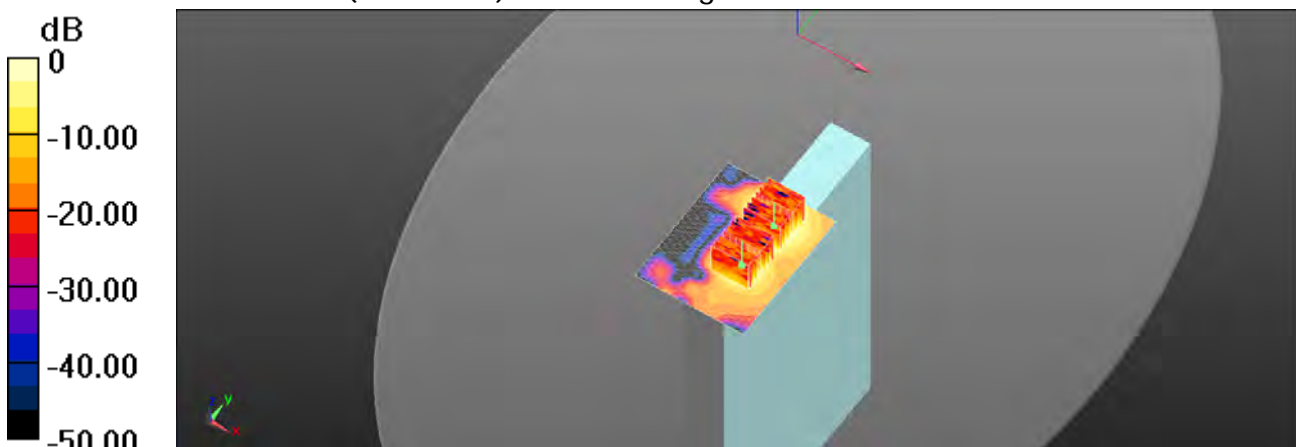
 $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=2\text{mm}$

Reference Value = 6.024 V/m; Power Drift = 0.16 dB

Peak SAR (extrapolated) = 1.31 W/kg

SAR(1 g) = 0.263 W/kg; SAR(10 g) = 0.069 W/kg

Maximum value of SAR (measured) = 0.565 W/kg



0 dB = 0.565 W/kg = -2.48 dBW/kg

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Date: 2015/6/22

WLAN802.11 n(40M) 5.8G_Body_Right side_CH 159_Main

Communication System: WLAN 5G; Frequency: 5795 MHz

Medium parameters used: $f = 5795 \text{ MHz}$; $\sigma = 6.208 \text{ S/m}$; $\epsilon_r = 46.024$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(4.33, 4.33, 4.33); Calibrated: 2015/4/28;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2014/8/27
- Phantom: Body;
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Configuration/Body/Area Scan (71x91x1): Interpolated grid: $dx=10 \text{ mm}$, $dy=10 \text{ mm}$.

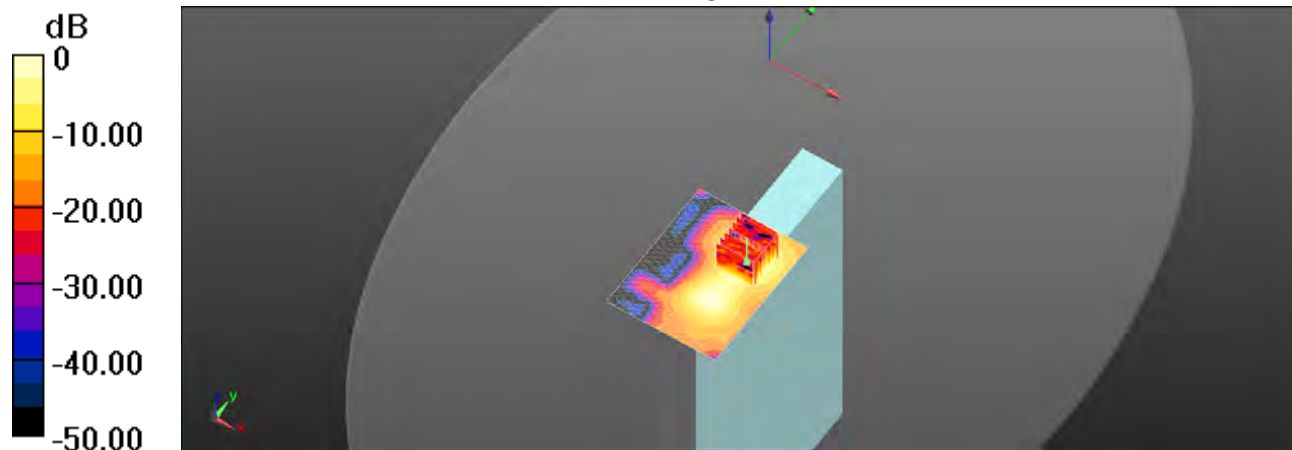
Maximum value of SAR (interpolated) = 0.733 W/kg

Configuration/Body/Zoom Scan (7x7x12)/Cube 0: Measurement grid:

 $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=2\text{mm}$

Reference Value = 6.559 V/m ; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 1.58 W/kg
SAR(1 g) = 0.349 W/kg ; SAR(10 g) = 0.099 W/kg

Maximum value of SAR (measured) = 0.740 W/kg

 $0 \text{ dB} = 0.740 \text{ W/kg} = -1.31 \text{ dBW/kg}$

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Date: 2015/6/19

WLAN802.11 b 2.4G_Body_Top side_CH 6_Aux

Communication System: WLAN 2.45G; Frequency: 2437 MHz

Medium parameters used: $f = 2437 \text{ MHz}$; $\sigma = 2.019 \text{ S/m}$; $\epsilon_r = 51.353$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.21, 7.21, 7.21); Calibrated: 2015/4/28;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2014/8/27
- Phantom: Body;
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Configuration/Body/Area Scan (71x71x1): Interpolated grid: $dx=12 \text{ mm}$, $dy=12 \text{ mm}$

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

Configuration/Body/Zoom Scan (7x7x7)/Cube 0: Measurement grid:

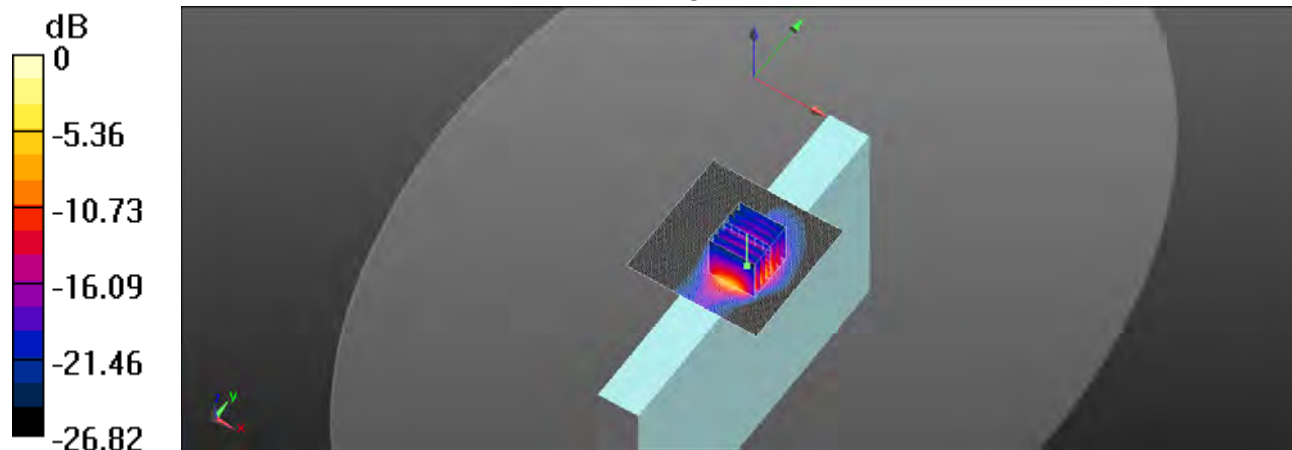
 $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 23.52 V/m; Power Drift = 0.14 dB

Peak SAR (extrapolated) = 2.20 W/kg

SAR(1 g) = 0.830 W/kg; SAR(10 g) = 0.315 W/kg

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



0 dB = 1.36 W/kg = 1.34 dBW/kg

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Date: 2015/6/20

WLAN802.11 a 5.2G_Body_Top side_CH 36_Aux

Communication System: WLAN 5G; Frequency: 5180 MHz

Medium parameters used: $f = 5180 \text{ MHz}$; $\sigma = 5.424 \text{ S/m}$; $\epsilon_r = 48.079$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(4.7, 4.7, 4.7); Calibrated: 2015/4/28;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2014/8/27
- Phantom: Body;
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Configuration/Body/Area Scan (71x71x1): Interpolated grid: $dx=10 \text{ mm}$, $dy=10 \text{ mm}$

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

Configuration/Body/Zoom Scan (7x7x12)/Cube 0: Measurement grid:

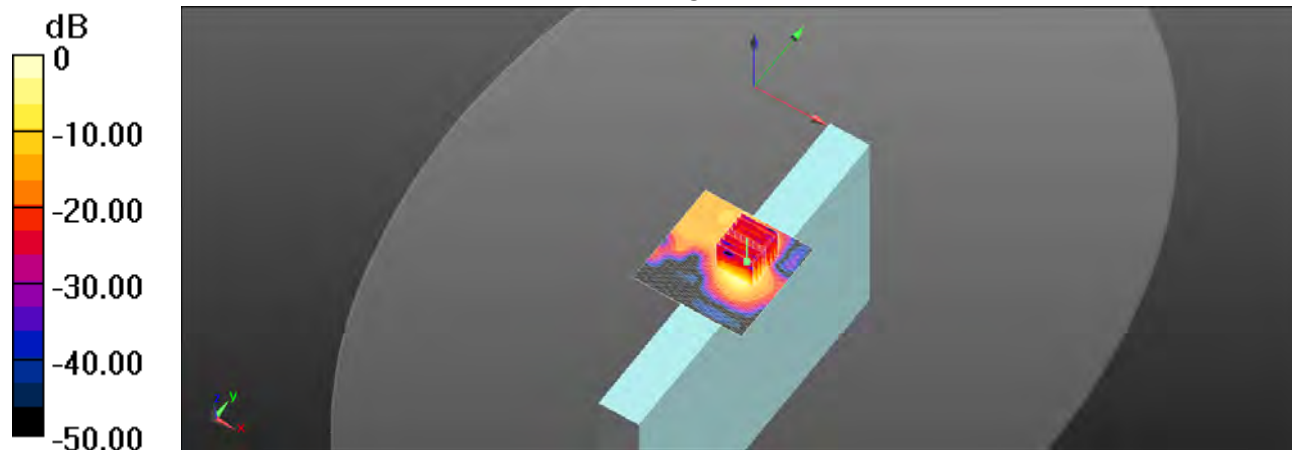
 $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=2\text{mm}$

Reference Value = 7.653 V/m; Power Drift = 0.12 dB

Peak SAR (extrapolated) = 4.05 W/kg

SAR(1 g) = 0.792 W/kg; SAR(10 g) = 0.197 W/kg

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



0 dB = 1.72 W/kg = 2.36 dBW/kg

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Date: 2015/6/21

WLAN802.11 n(40M) 5.2G_Body_Top side_CH 46_Aux

Communication System: WLAN 5G; Frequency: 5230 MHz

Medium parameters used: $f = 5230 \text{ MHz}$; $\sigma = 5.507 \text{ S/m}$; $\epsilon_r = 47.832$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(4.7, 4.7, 4.7); Calibrated: 2015/4/28;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2014/8/27
- Phantom: Body;
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Configuration/Body/Area Scan (71x71x1): Interpolated grid: $dx=10 \text{ mm}$, $dy=10 \text{ mm}$

Maximum value of SAR (interpolated) = 1.62 W/kg

Configuration/Body/Zoom Scan (7x7x12)/Cube 0: Measurement grid:

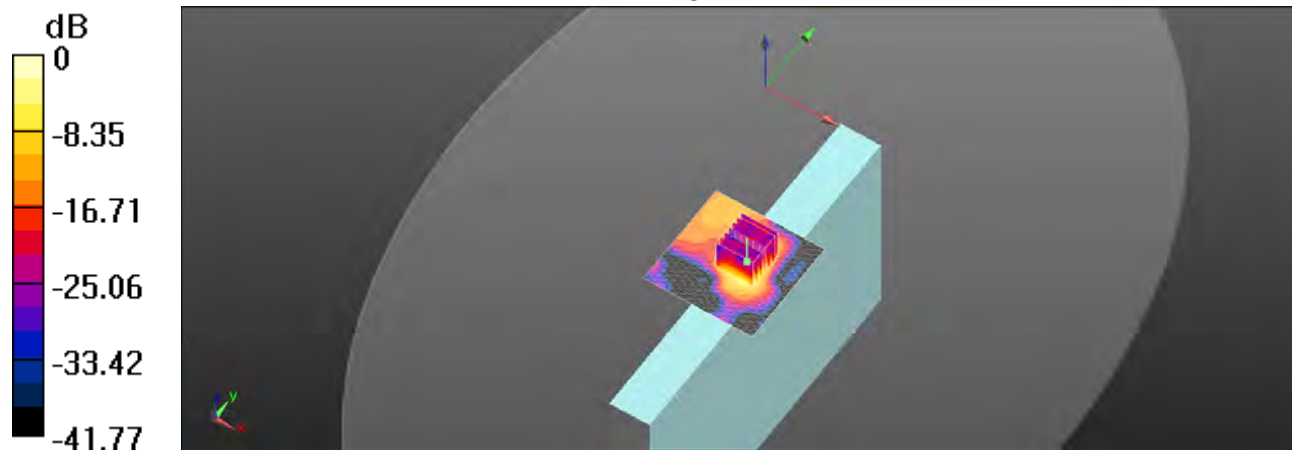
 $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=2\text{mm}$

Reference Value = 4.568 V/m; Power Drift = 0.17 dB

Peak SAR (extrapolated) = 4.17 W/kg

SAR(1 g) = 0.775 W/kg; SAR(10 g) = 0.194 W/kg

Maximum value of SAR (measured) = 1.64 W/kg



0 dB = 1.64 W/kg = 2.15 dBW/kg

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Date: 2015/6/21

WLAN802.11 n(20M) 5.3G_Body_Top side_CH 60_Aux

Communication System: WLAN 5G; Frequency: 5300 MHz

Medium parameters used: $f = 5300 \text{ MHz}$; $\sigma = 5.609 \text{ S/m}$; $\epsilon_r = 47.56$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(4.7, 4.7, 4.7); Calibrated: 2015/4/28;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2014/8/27
- Phantom: Body;
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Configuration/Body/Area Scan (71x71x1): Interpolated grid: $dx=10 \text{ mm}$, $dy=10 \text{ mm}$

Maximum value of SAR (interpolated) = 1.40 W/kg

Configuration/Body/Zoom Scan (7x7x12)/Cube 0: Measurement grid:

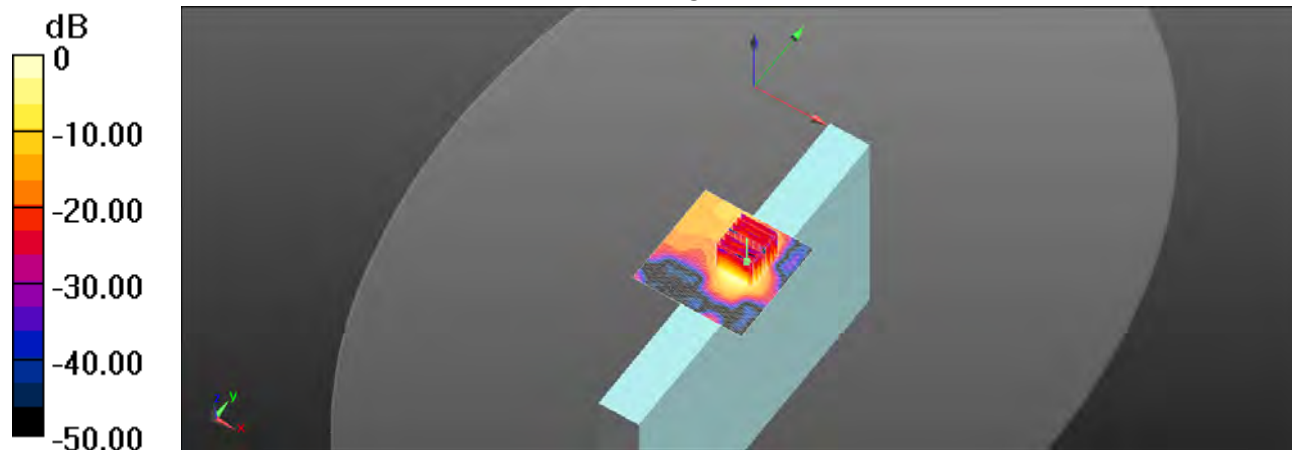
 $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=2\text{mm}$

Reference Value = 6.878 V/m; Power Drift = 0.10 dB

Peak SAR (extrapolated) = 3.68 W/kg

SAR(1 g) = 0.690 W/kg; SAR(10 g) = 0.177 W/kg

Maximum value of SAR (measured) = 1.52 W/kg


 $0 \text{ dB} = 1.52 \text{ W/kg} = 1.82 \text{ dBW/kg}$

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Date: 2015/6/21

WLAN802.11 n(40M) 5.3G_Body_Top side_CH 54_Aux

Communication System: WLAN 5G; Frequency: 5270 MHz

Medium parameters used: $f = 5270 \text{ MHz}$; $\sigma = 5.567 \text{ S/m}$; $\epsilon_r = 47.696$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(4.7, 4.7, 4.7); Calibrated: 2015/4/28;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2014/8/27
- Phantom: Body;
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Configuration/Body/Area Scan (71x71x1): Interpolated grid: $dx=10 \text{ mm}$, $dy=10 \text{ mm}$

Maximum value of SAR (interpolated) = 1.65 W/kg

Configuration/Body/Zoom Scan (7x7x12)/Cube 0: Measurement grid:

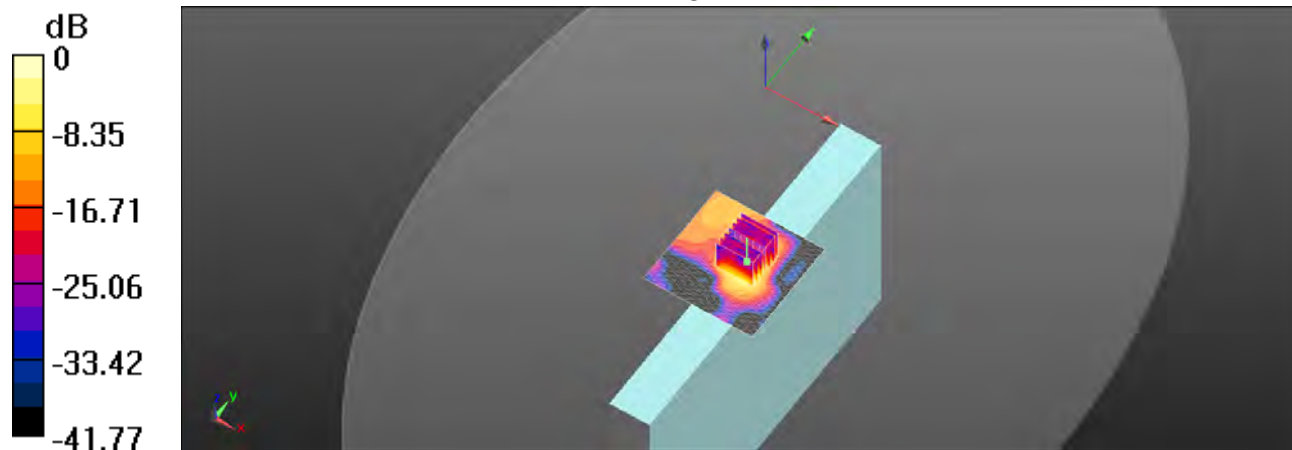
 $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=2\text{mm}$

Reference Value = 4.598 V/m; Power Drift = 0.17 dB

Peak SAR (extrapolated) = 4.27 W/kg

SAR(1 g) = 0.793 W/kg; SAR(10 g) = 0.199 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: 2015/6/22

WLAN802.11 n(20M) 5.6G_Body_Top side_CH 120_Aux

Communication System: WLAN 5G; Frequency: 5600 MHz

Medium parameters used: $f = 5600$ MHz; $\sigma = 6.004$ S/m; $\epsilon_r = 46.575$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(4.03, 4.03, 4.03); Calibrated: 2015/4/28;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2014/8/27
- Phantom: Body;
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Configuration/Body/Area Scan (71x71x1): Interpolated grid: dx=10 mm, dy=10 mm

Maximum value of SAR (interpolated) = 1.28 W/kg

Configuration/Body/Zoom Scan (7x7x12)/Cube 0: Measurement grid:

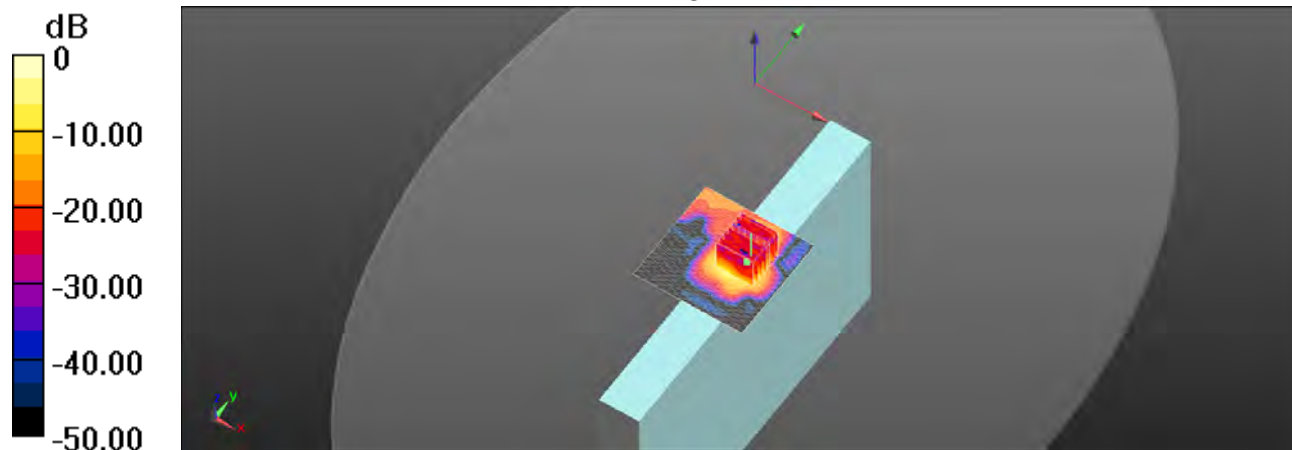
dx=4mm, dy=4mm, dz=2mm

Reference Value = 5.503 V/m; Power Drift = 0.10 dB

Peak SAR (extrapolated) = 4.00 W/kg

SAR(1 g) = 0.654 W/kg; SAR(10 g) = 0.149 W/kg

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



0 dB = 1.51 W/kg = 1.79 dBW/kg

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Date: 2015/6/22

WLAN802.11 n(40M) 5.8G_Body_Top side_CH 159_Aux

Communication System: WLAN 5G; Frequency: 5795 MHz

Medium parameters used: $f = 5795 \text{ MHz}$; $\sigma = 6.208 \text{ S/m}$; $\epsilon_r = 46.024$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(4.33, 4.33, 4.33); Calibrated: 2015/4/28;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2014/8/27
- Phantom: Body;
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Configuration/Body/Area Scan (71x71x1): Interpolated grid: $dx=10 \text{ mm}$, $dy=10 \text{ mm}$

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

Configuration/Body/Zoom Scan (7x7x12)/Cube 0: Measurement grid:

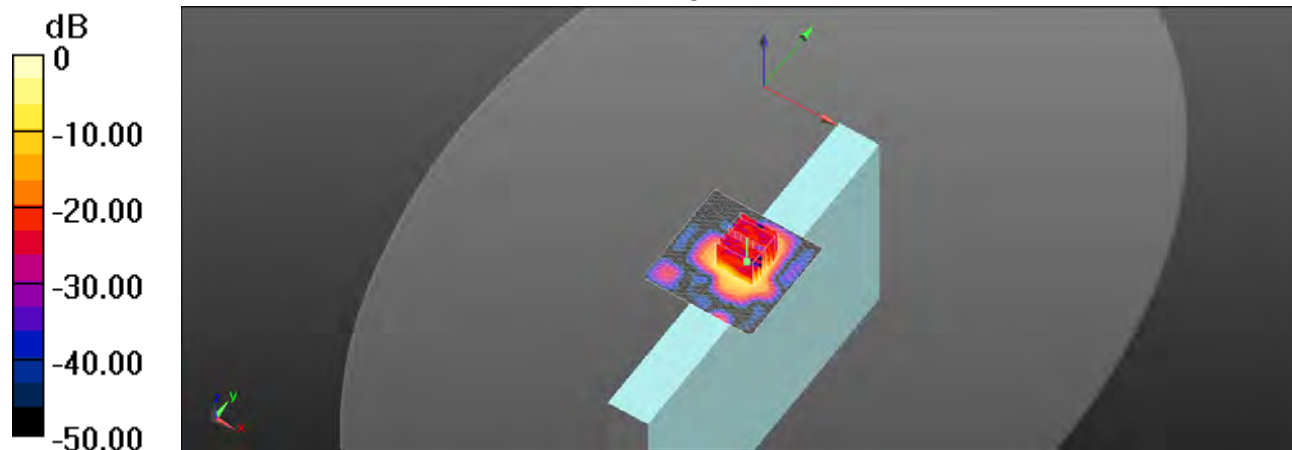
 $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=2\text{mm}$

Reference Value = 3.611 V/m; Power Drift = 0.12 dB

Peak SAR (extrapolated) = 3.61 W/kg

SAR(1 g) = 0.586 W/kg; SAR(10 g) = 0.126 W/kg

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


 $0 \text{ dB} = 1.38 \text{ W/kg} = 1.40 \text{ dBW/kg}$

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6. SAR System Performance Verification

Date: 2015/6/15

Dipole 750 MHz_SN:1015_Body

Communication System: CW; Frequency: 750 MHz

Medium parameters used: $f = 750 \text{ MHz}$; $\sigma = 0.981 \text{ S/m}$; $\epsilon_r = 52.393$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.3, 9.3, 9.3); Calibrated: 2015/4/28;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2014/8/27
- Phantom: Body;
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Configuration/Pin=250mW/Area Scan (41x141x1): Interpolated grid:

$dx=15 \text{ mm}$, $dy=15 \text{ mm}$

Maximum value of SAR (interpolated) = 2.69 W/kg

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

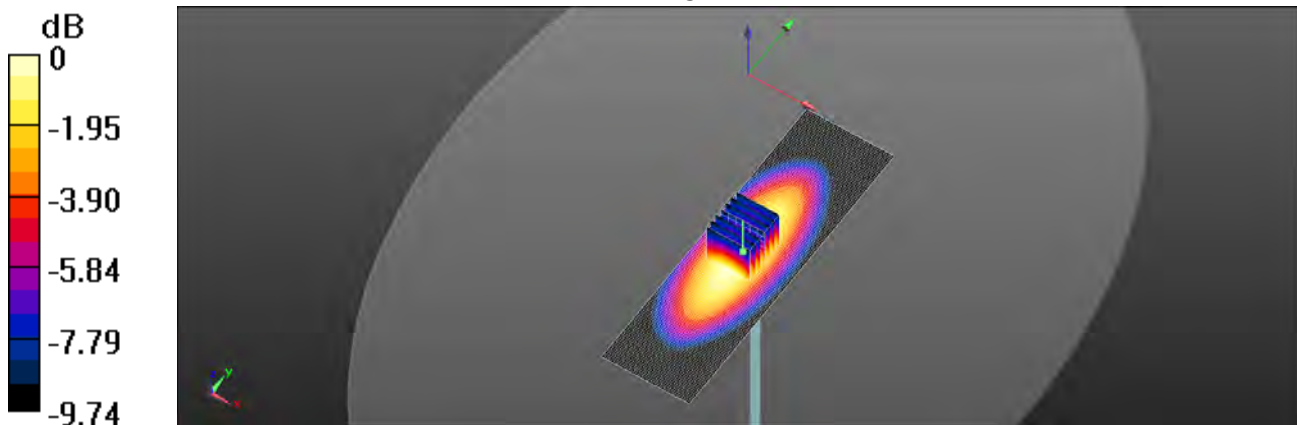
grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 52.19 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 3.17 W/kg

SAR(1 g) = 2.18 W/kg; SAR(10 g) = 1.46 W/kg

Maximum value of SAR (measured) = 2.74 W/kg



0 dB = 2.74 W/kg = 4.38 dBW/kg

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Date: 2015/6/16

Dipole 835 MHz_SN:4d063_Body

Communication System: CW; Frequency: 835 MHz

Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 1.01 \text{ S/m}$; $\epsilon_r = 56.648$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.17, 9.17, 9.17); Calibrated: 2015/4/28;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2014/8/27
- Phantom: Body;
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Configuration/Pin=250mW/Area Scan (41x121x1): Interpolated grid:

 $dx=15 \text{ mm}$, $dy=15 \text{ mm}$

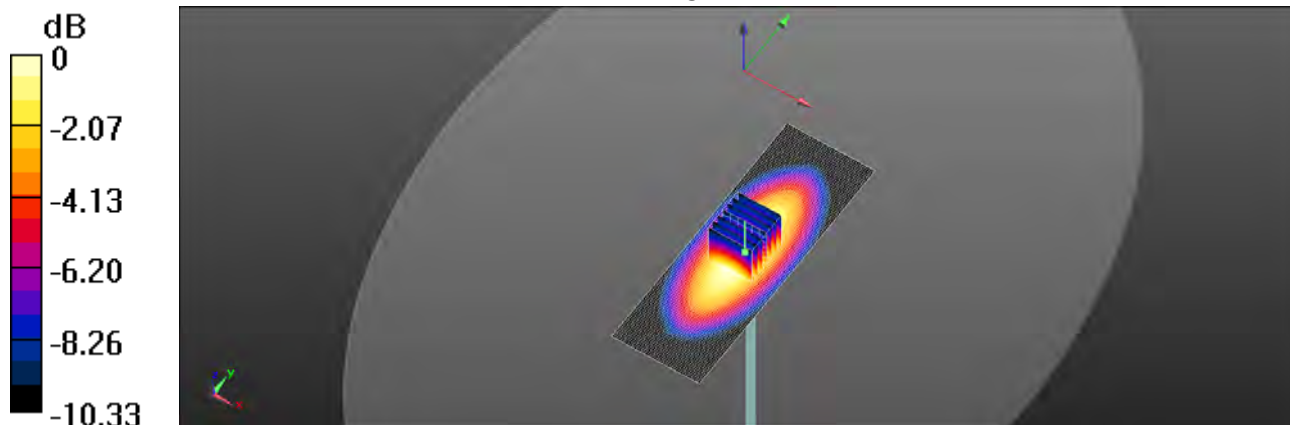
Maximum value of SAR (interpolated) = 3.10 W/kg

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

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

Reference Value = 56.93 V/m ; Power Drift = -0.11 dB

Peak SAR (extrapolated) = 3.58 W/kg
SAR(1 g) = 2.42 W/kg ; SAR(10 g) = 1.59 W/kg

Maximum value of SAR (measured) = 3.06 W/kg

 $0 \text{ dB} = 3.06 \text{ W/kg} = 4.86 \text{ dBW/kg}$

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Date: 2015/6/17

Dipole 1750 MHz_SN:1008_Body

Communication System: CW; Frequency: 1750 MHz

Medium parameters used: $f = 1750$ MHz; $\sigma = 1.442$ S/m; $\epsilon_r = 52.821$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.79, 7.79, 7.79); Calibrated: 2015/4/28;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2014/8/27
- Phantom: Body;
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Configuration/Pin=250mW/Area Scan (41x71x1): Interpolated grid: dx=15 mm, dy=15 mm

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

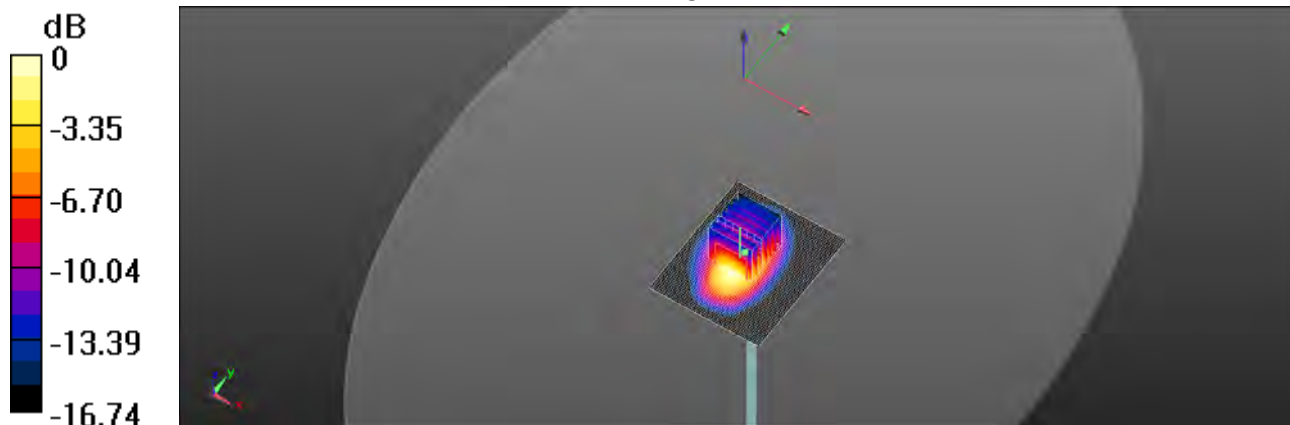
Configuration/Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 97.78 V/m; Power Drift = -0.00 dB

Peak SAR (extrapolated) = 16.7 W/kg

SAR(1 g) = 9.43 W/kg; SAR(10 g) = 5.02 W/kg

Maximum value of SAR (measured) = 13.4 W/kg



0 dB = 13.4 W/kg = 11.27 dBW/kg

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Date: 2015/6/18

Dipole 1900 MHz_SN:5d027_Body

Communication System: CW; Frequency: 1900 MHz

Medium parameters used: $f = 1900 \text{ MHz}$; $\sigma = 1.501 \text{ S/m}$; $\epsilon_r = 53.595$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.59, 7.59, 7.59); Calibrated: 2015/4/28;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2014/8/27
- Phantom: Body;
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Configuration/Pin=250mW/Area Scan (31x71x1): Interpolated grid: $dx=15 \text{ mm}$, $dy=15 \text{ mm}$

Maximum value of SAR (interpolated) = 15.0 W/kg

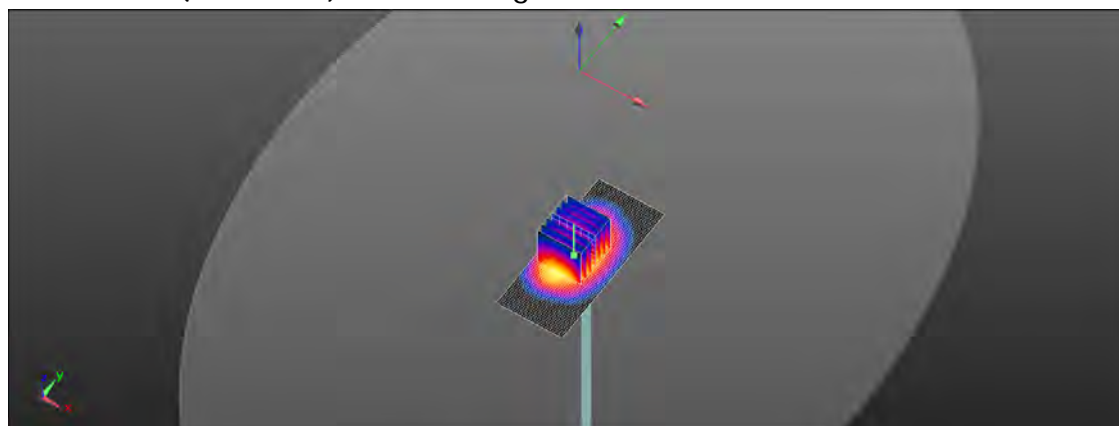
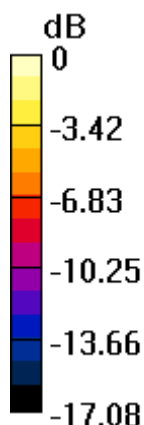
Configuration/Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 96.67 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 17.7 W/kg

SAR(1 g) = 9.87 W/kg; SAR(10 g) = 5.19 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: 2015/6/19

Dipole 2450 MHz_SN:727_Body

Communication System: CW; Frequency: 2450 MHz

Medium parameters used: $f = 2450$ MHz; $\sigma = 2.037$ S/m; $\epsilon_r = 51.276$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.21, 7.21, 7.21); Calibrated: 2015/4/28;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2014/8/27
- Phantom: Body;
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Configuration/Pin=250mW/Area Scan (31x61x1): Interpolated grid: dx=12 mm, dy=12 mm

Maximum value of SAR (interpolated) = 22.5 W/kg

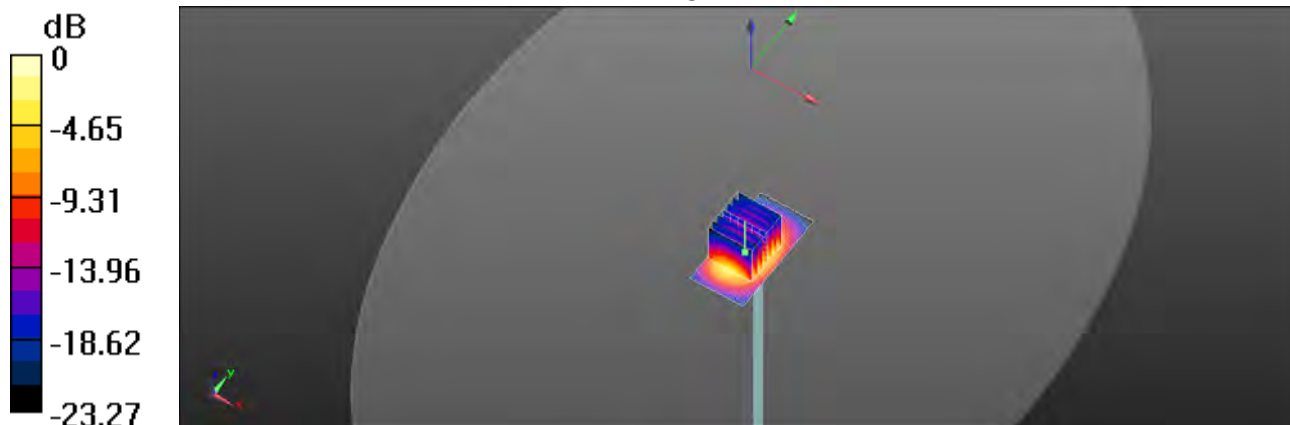
Configuration/Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 103.9 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 30.8 W/kg

SAR(1 g) = 13.8 W/kg; SAR(10 g) = 6.21 W/kg

Maximum value of SAR (measured) = 22.1 W/kg



0 dB = 22.1 W/kg = 13.44 dBW/kg

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Date: 2015/6/20

Dipole 5200 MHz_SN:1023_Body

Communication System: CW; Frequency: 5200 MHz

Medium parameters used: $f = 5200 \text{ MHz}$; $\sigma = 5.462 \text{ S/m}$; $\epsilon_r = 47.93$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(4.7, 4.7, 4.7); Calibrated: 2015/4/28;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2014/8/27
- Phantom: Body;
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Configuration/Pin=100mW/Area Scan (41x81x1): Interpolated grid: $dx=10 \text{ mm}$, $dy=10 \text{ mm}$

Maximum value of SAR (interpolated) = 15.2 W/kg

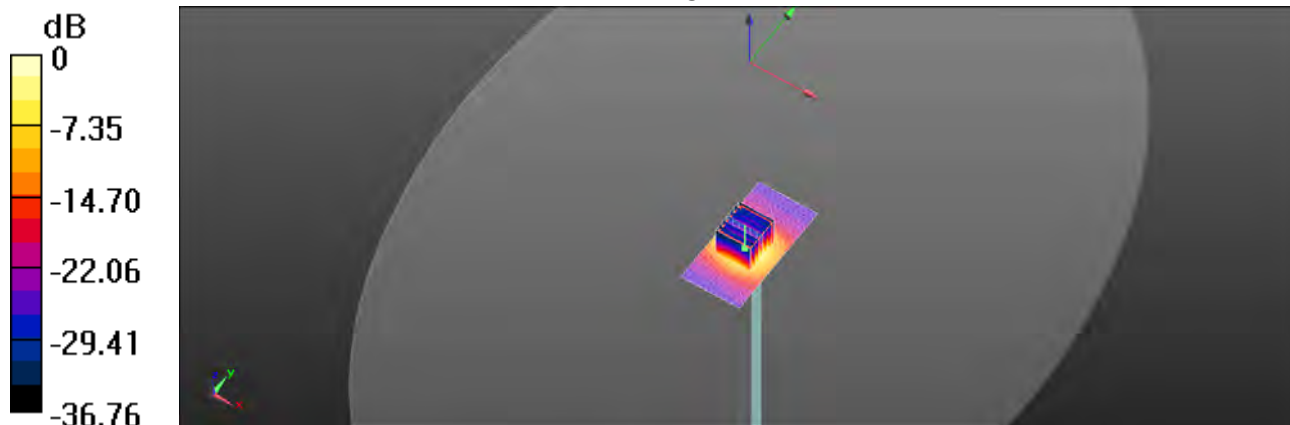
Configuration/Pin=100mW/Zoom Scan (7x7x12)/Cube 0: Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=2\text{mm}$

Reference Value = 53.89 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 31.7 W/kg

SAR(1 g) = 7.08 W/kg; SAR(10 g) = 1.99 W/kg

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



0 dB = 14.8 W/kg = 11.70 dBW/kg

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Date: 2015/6/21

Dipole 5300 MHz_SN:1023_Body

Communication System: CW; Frequency: 5300 MHz

Medium parameters used: $f = 5300 \text{ MHz}$; $\sigma = 5.609 \text{ S/m}$; $\epsilon_r = 47.56$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(4.7, 4.7, 4.7); Calibrated: 2015/4/28;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2014/8/27
- Phantom: Body;
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Configuration/Pin=100mW/Area Scan (41x81x1): Interpolated grid: $dx=10 \text{ mm}$, $dy=10 \text{ mm}$

Maximum value of SAR (interpolated) = 16.1 W/kg

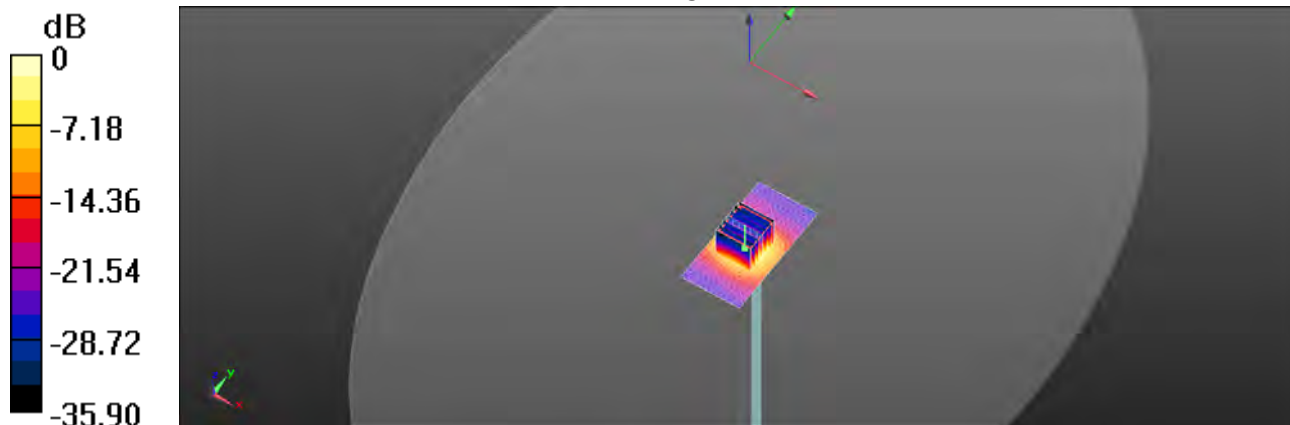
Configuration/Pin=100mW/Zoom Scan (7x7x12)/Cube 0: Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=2\text{mm}$

Reference Value = 54.74 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 33.5 W/kg

SAR(1 g) = 7.49 W/kg; SAR(10 g) = 2.11 W/kg

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



0 dB = 15.6 W/kg = 11.93 dBW/kg

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Date: 2015/6/22

Dipole 5600 MHz_SN:1023_Body

Communication System: CW; Frequency: 5600 MHz

Medium parameters used: $f = 5600 \text{ MHz}$; $\sigma = 6.004 \text{ S/m}$; $\epsilon_r = 46.575$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(4.03, 4.03, 4.03); Calibrated: 2015/4/28;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2014/8/27
- Phantom: Body;
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Configuration/Pin=100mW/Area Scan (41x81x1): Interpolated grid: $dx=10 \text{ mm}$, $dy=10 \text{ mm}$

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

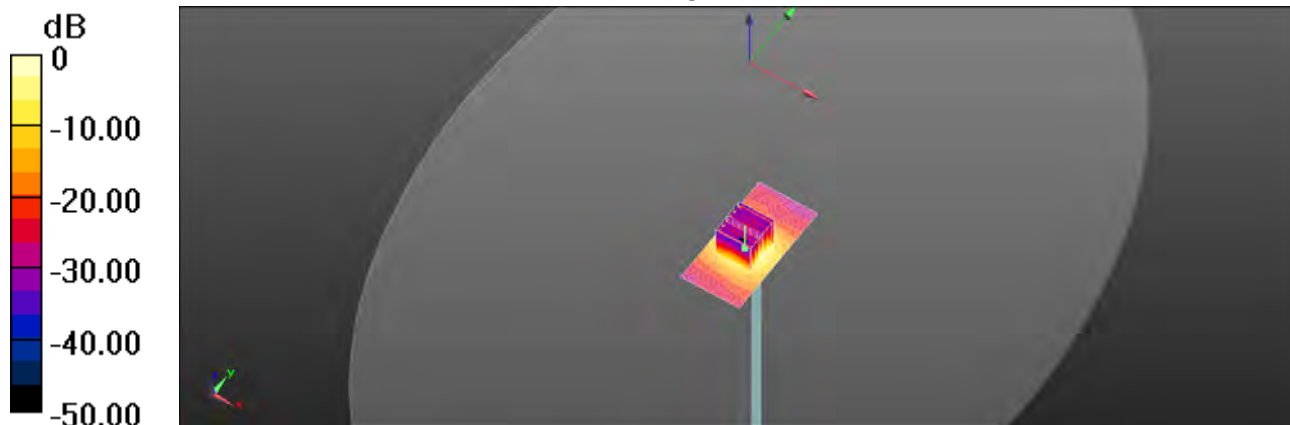
Configuration/Pin=100mW/Zoom Scan (7x7x12)/Cube 0: Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=2\text{mm}$

Reference Value = 55.83 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 37.4 W/kg

SAR(1 g) = 7.81 W/kg; SAR(10 g) = 2.16 W/kg

Maximum value of SAR (measured) = 16.6 W/kg



0 dB = 16.6 W/kg = 12.20 dBW/kg

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Member of SGS Group

Date: 2015/6/22

Dipole 5800 MHz_SN:1023_Body

Communication System: CW; Frequency: 5800 MHz

Medium parameters used: $f = 5800 \text{ MHz}$; $\sigma = 6.21 \text{ S/m}$; $\epsilon_r = 46.008$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(4.33, 4.33, 4.33); Calibrated: 2015/4/28;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2014/8/27
- Phantom: Body;
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Configuration/Pin=100mW/Area Scan (41x81x1): Interpolated grid: $dx=10 \text{ mm}$, $dy=10 \text{ mm}$

Maximum value of SAR (interpolated) = 16.5 W/kg

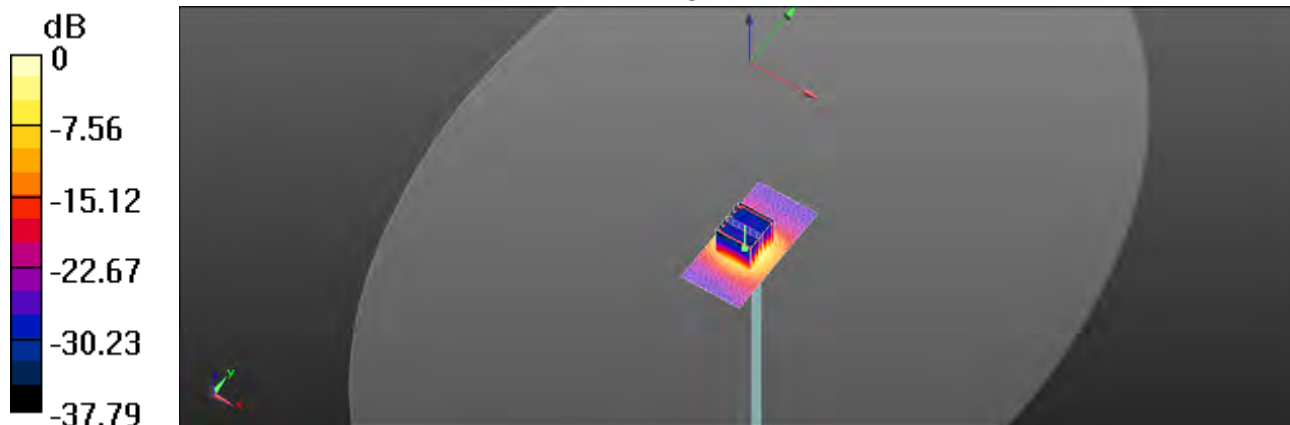
Configuration/Pin=100mW/Zoom Scan (7x7x12)/Cube 0: Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=2\text{mm}$

Reference Value = 54.44 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 34.8 W/kg

SAR(1 g) = 7.51 W/kg; SAR(10 g) = 2.08 W/kg

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



0 dB = 15.9 W/kg = 12.01 dBW/kg

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7. DAE & Probe Calibration Certificate

Calibration Laboratory of Schmid & Partner Engineering AG Zeughausstrasse 43, 8004 Zurich, Switzerland		 	S Schweizerischer Kalibrierdienst C Service suisse d'étalonnage S Servizio svizzero di taratura S Swiss Calibration Service
Accredited by the Swiss Accreditation Service (SAS) The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates		Accreditation No. : SCS 108	
Client SGS - TW (Auden)		Certificate No. DAE4-856_Aug14	

CALIBRATION CERTIFICATE			
Object	DAE4 - SD 000 D04 BM - SN: 856		
Calibration procedure(s)	QA CAL-06.v26 Calibration procedure for the data acquisition electronics (DAE)		
Calibration date:	August 27, 2014		
<p>This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI). The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.</p> <p>All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.</p> <p>Calibration Equipment used (MATE critical for calibration)</p>			
Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Keithley Multimeter Type 2007	SN: 0810278	01-Oct-13 (No. 13978)	Oct-14
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Auto DAE Calibration Unit	SE LWS 053 AA 1001	07-Jan-14 (in house check)	In house check, Jan-15
Calibrator Box V2.1	SE LWS 005 AA 1002	07-Jan-14 (in house check)	In house check, Jan-15
Calibrated by:	Name Dominique Seiden	Function Technician	Signature 
Approved by:	Name En Bommert	Function Deputy Technical Manager	Signature 
This calibration certificate shall not be reproduced except in full without written approval of the laboratory.			Issued: August 27, 2014

Certificate No: DAE-856_Aug14

Page 1 of 5

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



S Schweizerischer Kalibrierdienst
S Service suisse d'étalonnage
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 The Swiss Accreditation Service is one of the signatories to the EA
 Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Glossary

DAE data acquisition electronics
Connector angle information used in DASY system to align probe sensor X to the robot coordinate system.

Methods Applied and Interpretation of Parameters

- **DC Voltage Measurement:** Calibration Factor assessed for use in DASY system by comparison with a calibrated instrument traceable to national standards. The figure given corresponds to the full scale range of the voltmeter in the respective range.
- **Connector angle:** The angle of the connector is assessed measuring the angle mechanically by a tool inserted. Uncertainty is not required.
- The following parameters as documented in the Appendix contain technical information as a result from the performance test and require no uncertainty.
 - **DC Voltage Measurement Linearity:** Verification of the Linearity at +10% and -10% of the nominal calibration voltage. Influence of offset voltage is included in this measurement.
 - **Common mode sensitivity:** Influence of a positive or negative common mode voltage on the differential measurement.
 - **Channel separation:** Influence of a voltage on the neighbor channels not subject to an input voltage.
 - **AD Converter Values with inputs shorted:** Values on the internal AD converter corresponding to zero input voltage.
 - **Input Offset Measurement:** Output voltage and statistical results over a large number of zero voltage measurements.
 - **Input Offset Current:** Typical value for information; Maximum channel input offset current, not considering the input resistance.
 - **Input resistance:** Typical value for information; DAE input resistance at the connector, during internal auto-zeroing and during measurement.
 - **Low Battery Alarm Voltage:** Typical value for information. Below this voltage, a battery alarm signal is generated.
 - **Power consumption:** Typical value for information. Supply currents in various operating modes.

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DC Voltage Measurement

A/D - Converter Resolution nominal

High Range: 1LSB = 6.11mV, full range = -300...+300 mV

Low Range: 1LSB = 61mV, full range = -1...+3mV

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

Calibration Factors	X	Y	Z
High Range	403.468 ± 0.02% (k=2)	404.581 ± 0.02% (k=2)	403.903 ± 0.02% (k=2)
Low Range	3.97681 ± 1.50% (k=2)	3.97783 ± 1.50% (k=2)	3.97815 ± 1.50% (k=2)

Connector Angle

Connector Angle to be used in DASY system	52.5 ° ± 1 °
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Appendix (Additional assessments outside the scope of SCS108)

1. DC Voltage Linearity

High Range	Reading (μV)	Difference (μV)	Error (%)
Channel X + Input	199998.32	0.64	0.00
Channel X + Input	19998.90	-2.25	-0.01
Channel X - Input	-20000.45	0.34	-0.00
Channel Y + Input	199999.95	0.95	0.00
Channel Y + Input	19997.51	-3.82	-0.02
Channel Y - Input	-20000.77	0.07	-0.00
Channel Z + Input	199997.26	-0.19	-0.00
Channel Z + Input	19997.65	-3.57	-0.02
Channel Z - Input	-20002.47	-1.55	0.01

Low Range	Reading (μV)	Difference (μV)	Error (%)
Channel X + Input	2001.05	-0.05	-0.00
Channel X + Input	202.34	0.60	0.40
Channel X - Input	-198.31	0.26	-0.13
Channel Y + Input	2001.39	0.26	0.01
Channel Y + Input	201.08	-0.36	-0.18
Channel Y - Input	-199.24	-0.78	0.39
Channel Z + Input	2000.92	-0.18	-0.01
Channel Z + Input	200.26	-1.22	-0.60
Channel Z - Input	-199.91	-1.47	0.74

2. Common mode sensitivity

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

	Common mode Input Voltage (mV)	High Range Average Reading (μV)	Low Range Average Reading (μV)
Channel X	200	-14.76	-16.42
	-200	17.19	15.88
Channel Y	200	-2.17	-2.25
	-200	0.90	0.51
Channel Z	200	10.27	10.05
	-200	-13.06	-13.03

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	-	2.81	-1.15
Channel Y	200	7.99	-	3.07
Channel Z	200	8.65	5.24	-

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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	16226	16620
Channel Y	15942	16809
Channel Z	15875	16811

5. Input Offset Measurement

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

Input 10M Ω

	Average (μ V)	min. Offset (μ V)	max. Offset (μ V)	Std. Deviation (μ V)
Channel X	0.72	-0.77	1.89	0.38
Channel Y	-0.24	-1.57	1.09	0.42
Channel Z	-0.98	-2.01	0.07	0.80

6. Input Offset Current

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

7. Input Resistance (Typical values for information)

	Zeroing (k Ω m)	Measuring (M Ω m)
Channel X	200	200
Channel Y	200	200
Channel Z	200	200

8. Low Battery Alarm Voltage (Typical values for information)

Typical values	Alarm Level (VDC)
Supply (+ Vcc)	+7.9
Supply (- Vcc)	-7.8

9. Power Consumption (Typical values for information)

Typical values	Switched off (mA)	Stand by (mA)	Transmitting (mA)
Supply (+ Vcc)	+0.01	+6	+14
Supply (- Vcc)	-0.01	-6	-9

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Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

Client **SGS-TW (Auden)**

Certificate No: **EX3-3770_Apr15**

CALIBRATION CERTIFICATE

Object **EX3DV4 - SN:3770**

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

Calibration date: **April 28, 2015**

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID	Cal Date (Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	01-Apr-15 (No. 217-02128)	Mar-16
Power sensor E4412A	MY41498087	01-Apr-15 (No. 217-02128)	Mar-16
Reference 3 dB Attenuator	SN: S5054 (3c)	01-Apr-15 (No. 217-02129)	Mar-16
Reference 20 dB Attenuator	SN: S5277 (20x)	01-Apr-15 (No. 217-02132)	Mar-16
Reference 30 dB Attenuator	SN: S5129 (30b)	01-Apr-15 (No. 217-02133)	Mar-16
Reference Probe ES3DV2	SN: 3013	30-Dec-14 (No. ES3-3013_Dec14)	Dec-15
DAE4	SN: 660	14-Jan-15 (No. DAE4-660_Jan15)	Jan-16
Secondary Standards	ID	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Apr-13)	In house check: Apr-16
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-14)	In house check: Oct-15

	Name	Function	Signature
Calibrated by:	Jeton Kastrati	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	
This calibration certificate shall not be reproduced except in full without written approval of the laboratory.			Issued: April 30, 2015

Certificate No: EX3-3770_Apr15

Page 1 of 11

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Glossary:

TSL	tissue simulating liquid
NORM _{x,y,z}	sensitivity in free space
ConvF	sensitivity in TSL / NORM _{x,y,z}
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A, B, C, D	modulation dependent linearization parameters
Polarization φ	φ rotation around probe axis
Polarization ϑ	ϑ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., $\vartheta = 0$ is normal to probe axis
Connector Angle	information used in DASY system to align probe sensor X to the robot coordinate system

Calibration is Performed According to the Following Standards:

- IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
- IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005

Methods Applied and Interpretation of Parameters:

- NORM_{x,y,z}**: Assessed for E-field polarization $\vartheta = 0$ ($f \leq 900$ MHz in TEM-cell; $f > 1800$ MHz: R22 waveguide). NORM_{x,y,z} are only intermediate values, i.e., the uncertainties of NORM_{x,y,z} does not affect the E²-field uncertainty inside TSL (see below ConvF).
- NORM(f)_{x,y,z}** = NORM_{x,y,z} * frequency_response (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of ConvF.
- DCP_{x,y,z}**: DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal (no uncertainty required). DCP does not depend on frequency nor media.
- PAR**: PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics
- A_{x,y,z}; B_{x,y,z}; C_{x,y,z}; D_{x,y,z}; VR_{x,y,z}**: A, B, C, D are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. VR is the maximum calibration range expressed in RMS voltage across the diode.
- ConvF and Boundary Effect Parameters**: Assessed in flat phantom using E-field (or Temperature Transfer Standard for $f \leq 800$ MHz) and inside waveguide using analytical field distributions based on power measurements for $f > 800$ MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to NORM_{x,y,z} * ConvF whereby the uncertainty corresponds to that given for ConvF. A frequency dependent ConvF is used in DASY version 4.4 and higher which allows extending the validity from ± 50 MHz to ± 100 MHz.
- Spherical isotropy (3D deviation from isotropy)**: in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- Sensor Offset**: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.
- Connector Angle**: The angle is assessed using the information gained by determining the NORM_x (no uncertainty required).

Certificate No.: EX3-3770_Apr15

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EX3DV4 – SN:3770

April 28, 2015

Probe EX3DV4

SN:3770

Manufactured: July 6, 2010
Calibrated: April 28, 2015

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

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EX3DV4- SN:3770

April 28, 2015

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

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu\text{V}/(\text{V}/\text{m})^2$) ^A	0.31	0.62	0.40	± 10.1 %
DCP (mV) ^B	105.3	100.7	101.6	

Modulation Calibration Parameters

UID	Communication System Name		A dB	B dB $\sqrt{\mu\text{V}}$	C	D dB	VR mV	Unc ^E (k=2)
0	CW	X	0.0	0.0	1.0	0.00	145.1	±3.8 %
		Y	0.0	0.0	1.0		129.4	
		Z	0.0	0.0	1.0		138.4	

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

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

^B Numerical linearization parameter: uncertainty not required.

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

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EX3DV4- SN:3770

April 28, 2015

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3770**Calibration Parameter Determined in Head Tissue Simulating Media**

f (MHz) ^C	Relative Permittivity ^F	Conductivity (S/m) ^F	ConvF X	ConvF Y	ConvF Z	Alpha ^G	Depth ^G (mm)	Unct. (k=2)
750	41.9	0.89	9.53	9.53	9.53	0.26	1.28	± 12.0 %
835	41.5	0.90	9.13	9.13	9.13	0.21	1.53	± 12.0 %
900	41.5	0.97	8.89	8.89	8.89	0.23	1.38	± 12.0 %
1450	40.5	1.20	8.19	8.19	8.19	0.18	1.59	± 12.0 %
1750	40.1	1.37	8.04	8.04	8.04	0.38	0.80	± 12.0 %
1900	40.0	1.40	7.82	7.82	7.82	0.36	0.80	± 12.0 %
2000	40.0	1.40	7.81	7.81	7.81	0.36	0.80	± 12.0 %
2300	39.5	1.67	7.47	7.47	7.47	0.27	0.96	± 12.0 %
2450	39.2	1.80	7.16	7.16	7.16	0.34	0.80	± 12.0 %
2600	39.0	1.96	6.85	6.85	6.85	0.34	0.92	± 12.0 %
5250	35.9	4.71	5.27	5.27	5.27	0.30	1.80	± 13.1 %
5600	35.5	5.07	4.65	4.65	4.65	0.35	1.80	± 13.1 %
5750	35.4	5.22	4.92	4.92	4.92	0.40	1.80	± 13.1 %

^C Frequency validity above 300 MHz of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ± 10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Above 5 GHz frequency validity can be extended to ± 110 MHz.

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

^G Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ± 1% for frequencies below 3 GHz and below ± 2% for frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

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EX3DV4-SN:3770

April 28, 2015

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3770**Calibration Parameter Determined in Body Tissue Simulating Media**

f (MHz) ^C	Relative Permittivity ^F	Conductivity (S/m) ^F	ConvF X	ConvF Y	ConvF Z	Alpha ^G	Depth (mm)	Unct. (k=2)
750	55.5	0.96	9.30	9.30	9.30	0.25	1.38	± 12.0 %
835	55.2	0.97	9.17	9.17	9.17	0.34	1.05	± 12.0 %
900	55.0	1.05	8.91	8.91	8.91	0.30	1.20	± 12.0 %
1450	54.0	1.30	8.12	8.12	8.12	0.18	1.62	± 12.0 %
1750	53.4	1.49	7.79	7.79	7.79	0.44	0.80	± 12.0 %
1900	53.3	1.52	7.59	7.59	7.59	0.44	0.80	± 12.0 %
2000	53.3	1.52	7.73	7.73	7.73	0.42	0.80	± 12.0 %
2300	52.9	1.81	7.32	7.32	7.32	0.41	0.80	± 12.0 %
2450	52.7	1.95	7.21	7.21	7.21	0.31	0.80	± 12.0 %
2600	52.5	2.16	6.96	6.96	6.96	0.27	0.80	± 12.0 %
5250	48.9	5.36	4.70	4.70	4.70	0.35	1.90	± 13.1 %
5600	48.5	5.77	4.03	4.03	4.03	0.45	1.90	± 13.1 %
5750	48.3	5.94	4.33	4.33	4.33	0.50	1.90	± 13.1 %

^C Frequency validity above 300 MHz of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ± 10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Above 5 GHz frequency validity can be extended to ± 110 MHz.

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

^G Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ± 1% for frequencies below 3 GHz and below ± 2% for frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

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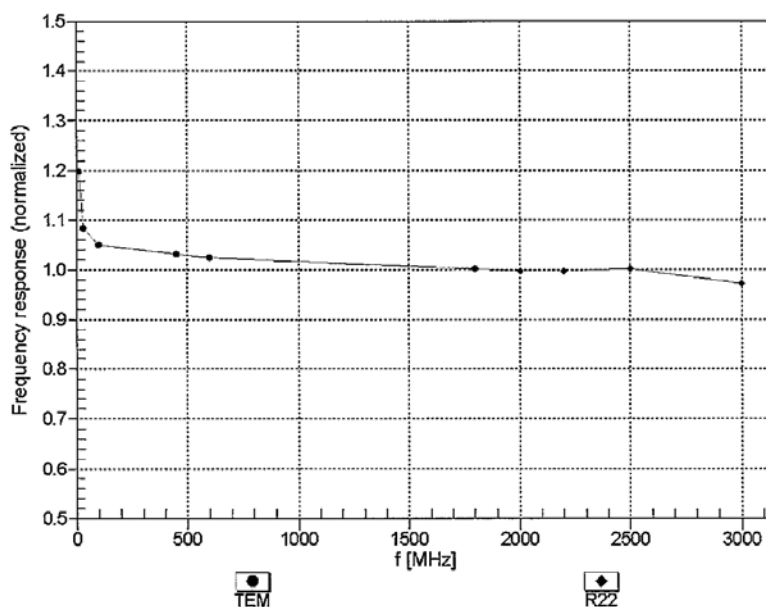
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EX3DV4— SN:3770

April 28, 2015

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



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

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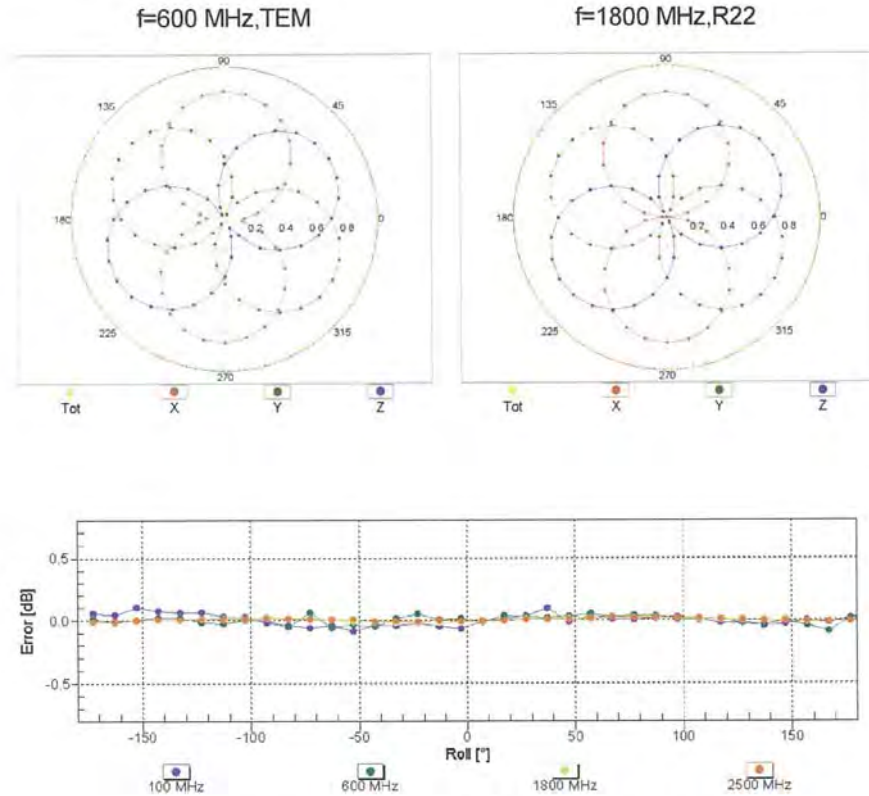
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EX3DV4-SN:3770

April 28, 2015

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



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

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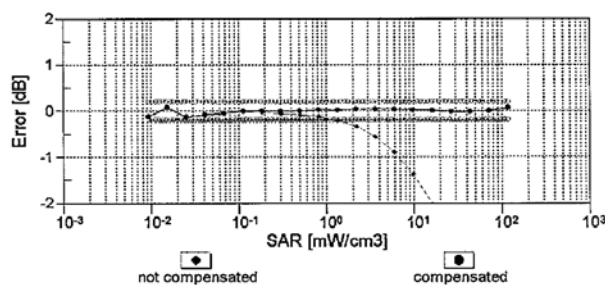
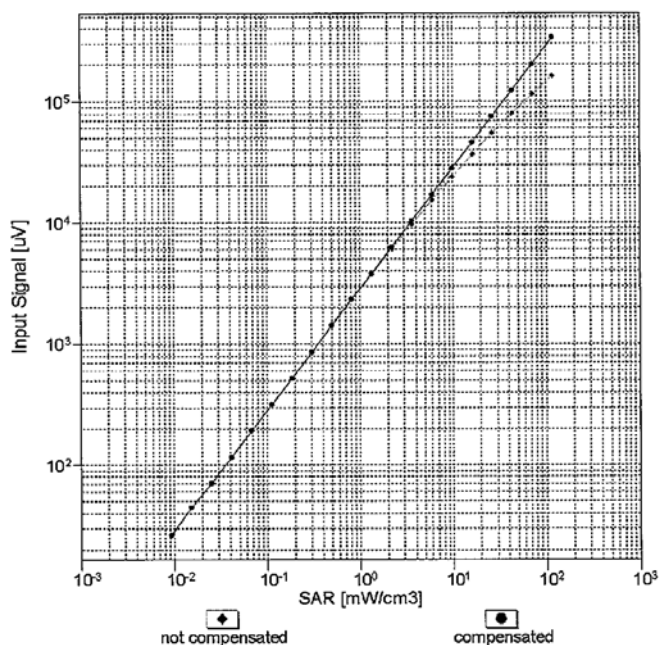
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EX3DV4- SN:3770

April 28, 2015

Dynamic Range $f(\text{SAR}_{\text{head}})$ (TEM cell , $f_{\text{eval}} = 1900 \text{ MHz}$)



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

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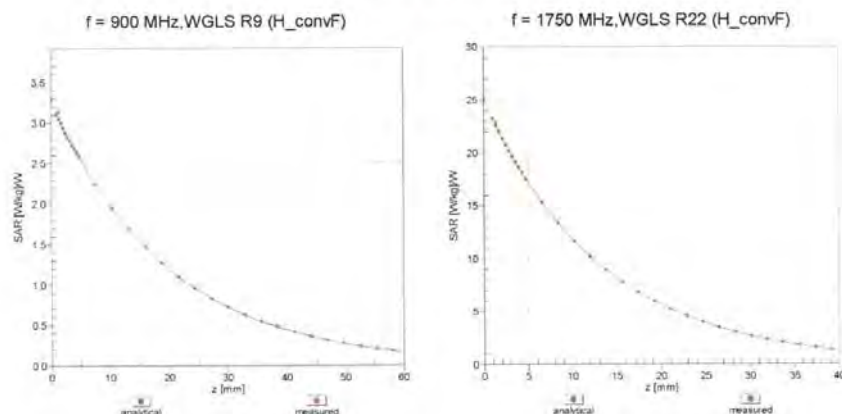
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EX3DV4-SN:3770

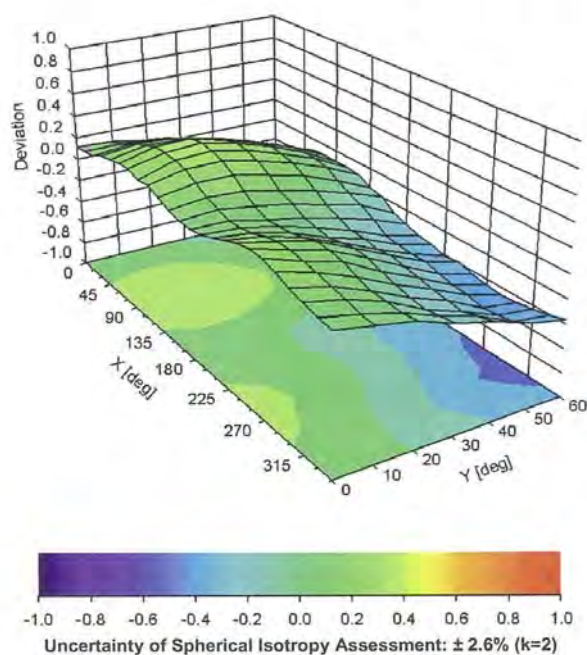
April 28, 2015

Conversion Factor Assessment



Deviation from Isotropy in Liquid

Error (ϕ , θ), $f = 900$ MHz



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

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	-32.7
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	9 mm
Tip Diameter	2.5 mm
Probe Tip to Sensor X Calibration Point	1 mm
Probe Tip to Sensor Y Calibration Point	1 mm
Probe Tip to Sensor Z Calibration Point	1 mm
Recommended Measurement Distance from Surface	1.4 mm

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8. Uncertainty Budget

Measurement Uncertainty evaluation template for DUT SAR test
IEEE 1528

A	c	D	e		f	g	$h=c * f / e$	$i=c * g / e$	k
Source of Uncertainty	Tolerance/ Uncertainty	Probability Distribution	Div	Div Value	ci (1g)	ci (10g)	Standard uncertainty	Standard uncertainty	v_i , or V_{eff}
Measurement system									
Probe calibration	6.55%	N	1	1	1	1	6.55%	6.55%	∞
<i>Isotropy, Axial</i>	3.50%	R	$\sqrt{3}$	1.732	1	1	2.02%	2.02%	∞
<i>Isotropy, Hemispherical</i>	9.60%	R	$\sqrt{3}$	1.732	1	1	5.54%	5.54%	∞
Boundary Effect	1.00%	R	$\sqrt{3}$	1.732	1	1	0.58%	0.58%	∞
Linearity	4.70%	R	$\sqrt{3}$	1.732	1	1	2.71%	2.71%	∞
Detection Limits	1.00%	R	$\sqrt{3}$	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	$\sqrt{3}$	1.732	1	1	0.46%	0.46%	∞
Integration Time	2.60%	R	$\sqrt{3}$	1.732	1	1	1.50%	1.50%	∞
Measurement drift (class A evaluation)	1.75%	R	$\sqrt{3}$	1.732	1	1	1.01%	1.01%	∞
RF ambient condition - noise	3.00%	R	$\sqrt{3}$	1.732	1	1	1.73%	1.73%	∞
RF ambient conditions - reflections	3.00%	R	$\sqrt{3}$	1.732	1	1	1.73%	1.73%	∞
Probe positioner Mechanical restrictions	0.40%	R	$\sqrt{3}$	1.732	1	1	0.23%	0.23%	∞
Probe Positioning with respect to phantom shell	2.90%	R	$\sqrt{3}$	1.732	1	1	1.67%	1.67%	∞
Post-processing	1.00%	R	$\sqrt{3}$	1.732	1	1	0.58%	0.58%	∞
Max SAR Eval	1.00%	R	$\sqrt{3}$	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	$\sqrt{3}$	1.732	1	1	2.89%	2.89%	∞
Phantom and Setup									
Phantom Uncertainty	4.00%	R	$\sqrt{3}$	1.732	1	1	2.31%	2.31%	∞
Deviation from reference liquid target ϵ_r (Body)	3.04%	N	1	1	0.64	0.43	1.95%	1.31%	M
Deviation from reference liquid target σ (Body)	3.74%	N	1	1	0.6	0.49	2.24%	1.83%	M
Liquid conductivity σ – temperature uncertainty	2.20%	R	$\sqrt{3}$	1.732	0.78	0.71	0.99%	0.90%	∞
Liquid permittivity ϵ – temperature uncertainty	0.20%	R	$\sqrt{3}$	1.732	0.23	0.26	0.03%	0.03%	∞
Combined standard uncertainty		RSS					11.99%	11.82%	
Expanded uncertainty (95% confidence interval), $K=2$							23.97%	23.64%	

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9. Phantom Description

Schmid & Partner Engineering AG

s p e a g

Zeughausstrasse 43, 8004 Zurich, Switzerland
Phone: +41 1 245 9700, Fax: +41 1 245 9779
info@speag.com, http://www.speag.com

Certificate of Conformity / First Article Inspection

Item	SAM Twin Phantom V4.0
Type No	QD 000 P40 C
Series No	TP-1150 and higher
Manufacturer	SPEAG Zeughausstrasse 43 CH-8004 Zurich Switzerland

Tests

The series production process used allows the limitation to test of first articles.

Complete tests were made on the pre-series Type No. QD 000 P40 AA, Serial No. TP-1001 and on the series first article Type No. QD 000 P40 BA, Serial No. TP-1006. Certain parameters have been retested using further series items (called samples) or are tested at each item.

Test	Requirement	Details	Units tested
Dimensions	Compliant with the geometry according to the CAD model.	IT'IS CAD File (*)	First article, Samples
Material thickness of shell	Compliant with the requirements according to the standards	2mm +/- 0.2mm in flat and specific areas of head section	First article, Samples, TP-1314 ff.
Material thickness at ERP	Compliant with the requirements according to the standards	8mm +/- 0.2mm at ERP	First article, A3 items
Material parameters	Dielectric parameters for required frequencies	300 MHz - 6 GHz; Relative permittivity < 5; Loss tangent < 0.05	Material samples
Material resistivity	The material has been tested to be compatible with the liquids defined in the standards if handled and cleaned according to the instructions. Observe technical Note for material compatibility.	DEGMSE based simulating liquids	Pre-series, First article, Material samples
Sagging	Compliant with the requirements according to the standards. Sagging of the flat section when filled with tissue simulating liquid	< 1% typical < 0.6% if filled with 155mm of HSL900 and without OUT below	Prototypes, Sample testing

Standards

- (1) CENELEC EN 50361
 - (2) IEEE Std 1528-2003
 - (3) IEC 62209 Part 1
 - (4) FCC OET Bulletin 65, Supplement C, Edition 01-01
- (*) The IT'IS CAD file is derived from [2] and is also within the tolerance requirements of the shapes of the other documents.

Conformity

Based on the sample tests above, we certify that this item is in compliance with the uncertainty requirements of SAR measurements specified in standards [1] to [4].

Date 07.07.2005

Signature / Stamp

s p e a g

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info@speag.com, http://www.speag.com

Doc No: S&P - QD 000 P40 C - 3

Page 1 (1)

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10. System Validation from Original Equipment Supplier

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



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

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

Accreditation No.: SCS 108

Client: SGS-TW (Auden)

Certificate No.: D750V3-1015_Aug14

CALIBRATION CERTIFICATE

Object: D750V3 - SN: 1015

Calibration procedure(s): QA-CAL-05.v0
Calibration procedure for dipole validation kits above 700 MHz

Calibration date: August 28, 2014

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility; environment temperature $(22 \pm 3)^\circ\text{C}$ and humidity $< 70\%$.

Calibration Equipment used (MATE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	08-Oct-13 (No. 217-01827)	Oct-14
Power sensor HP 8481A	US37292783	09-Oct-13 (No. 217-01827)	Oct-14
Power sensor HP 8481A	MY41092317	09-Oct-13 (No. 217-01828)	Oct-14
Reference 20 dB Attenuator	SN: 5058 (29K)	03-Apr-14 (No. 217-01916)	Apr-15
Type-N mismatch combination	SN: 5047.2 / 00327	03-Apr-14 (No. 217-01921)	Apr-15
Reference Probe ES3DV3	SN: 3205	30-Dec-13 (No. ESS-3205_Dec13)	Dec-14
DAE4	SN: 601	18-Aug-14 (No. DAE4-031_Aug14)	Aug-15
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
RF generator R&S SM1-05	160005	04-Aug-08 (in house check Oct-13)	In house check: Oct-16
Network Analyzer HP 8753E	US37290585 84205	18-Oct-01 (in house check Oct-13)	In house check: Oct-14

Calibrated by: Name: Mirella Weber Function: Laboratory Technician Signature: M. Weber

Approved by: Karja Polonsky Technical Manager

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

Issued: August 28, 2014

Certificate No.: D750V3-1015_Aug14

Page 1 of 8

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Accreditation No.: **SCS 108**

Glossary:

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

Calibration is Performed According to the Following Standards:

- IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
- IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
- KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

- DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

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

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

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Measurement Conditions

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

DASY Version	DASY5	V52.6.6
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	15 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	750 MHz \pm 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	41.9	0.89 mho/m
Measured Head TSL parameters	(22.0 \pm 0.2) °C	42.2 \pm 6 %	0.91 mho/m \pm 6 %
Head TSL temperature change during test	< 0.5 °C		

SAR result with Head TSL

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.11 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	8.31 W/kg \pm 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.38 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	5.45 W/kg \pm 16.5 % (k=2)

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	55.5	0.96 mho/m
Measured Body TSL parameters	(22.0 \pm 0.2) °C	55.4 \pm 6 %	0.99 mho/m \pm 6 %
Body TSL temperature change during test	< 0.5 °C		

SAR result with Body TSL

SAR averaged over 1 cm ³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	2.24 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	8.75 W/kg \pm 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	1.49 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	5.85 W/kg \pm 16.5 % (k=2)

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Appendix (Additional assessments outside the scope of SCS108)**Antenna Parameters with Head TSL**

Impedance, transformed to feed point	53.1 Ω - 0.4 j Ω
Return Loss	- 30.4 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	48.3 Ω - 2.9 j Ω
Return Loss	- 29.5 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.037 ns
----------------------------------	----------

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

The dipole is made of standard semirigid coaxial cable. The center conductor of the 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	March 22, 2010

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DASY5 Validation Report for Head TSL

Date: 28.08.2014

Test Laboratory: SPEAG, Zurich, Switzerland

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

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

Medium parameters used: $f = 750 \text{ MHz}$; $\sigma = 0.91 \text{ S/m}$; $\epsilon_r = 42.2$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

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

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(6.37, 6.37, 6.37); Calibrated: 30.12.2013;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 18.08.2014
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

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

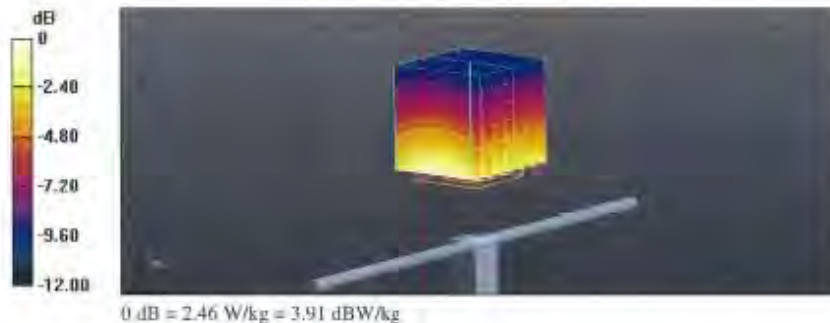
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 53.68 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 3.13 W/kg

SAR(1 g) = 2.11 W/kg; SAR(10 g) = 1.38 W/kg

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

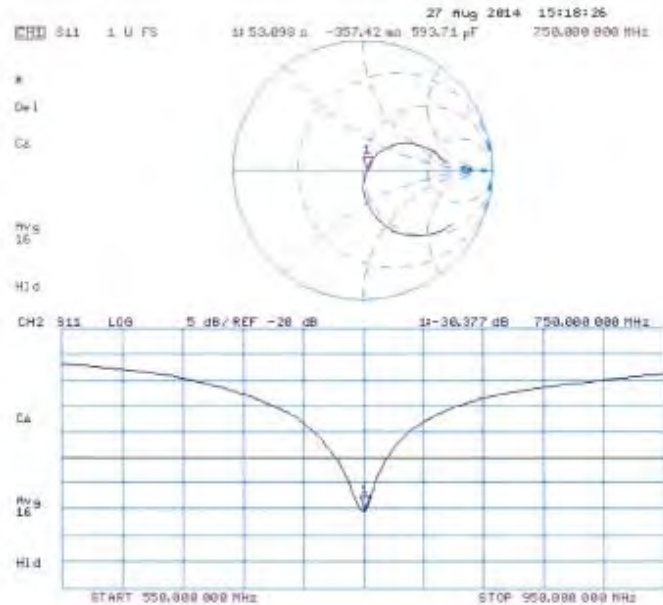


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Impedance Measurement Plot for Head TSL



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DASY5 Validation Report for Body TSL

Date: 27.08.2014

Test Laboratory: SPEAG, Zurich, Switzerland

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

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

Medium parameters used: $f = 750 \text{ MHz}$; $\sigma = 0.99 \text{ S/m}$; $\epsilon_r = 55.4$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

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

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(6.13, 6.13, 6.13); Calibrated: 30.12.2013;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 18.08.2014
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- DASY52 52.8,8(1222); SEMCAD X 14.6.10(7331)

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

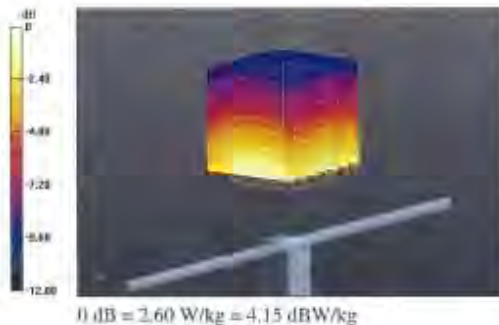
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 53.06 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 3.26 W/kg

SAR(1 g) = 2.24 W/kg; SAR(10 g) = 1.49 W/kg

Maximum value of SAR (measured) = 2.60 W/kg

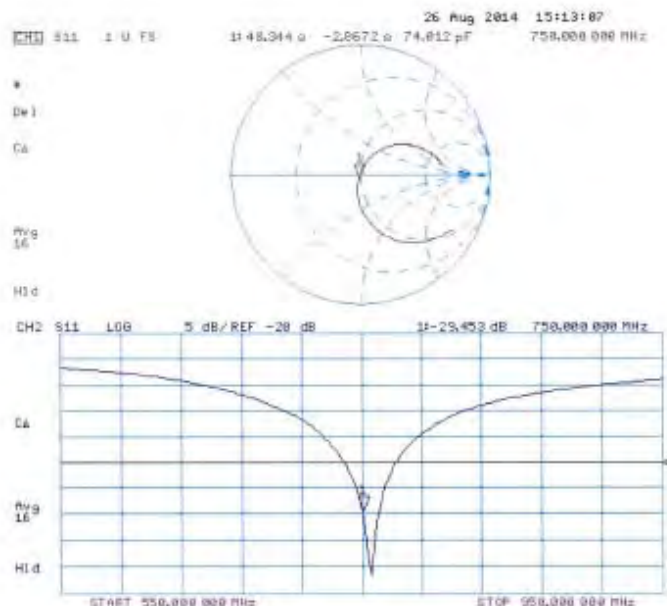


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Impedance Measurement Plot for Body TSL



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



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 Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 108

Client: SGS-TW (Auden)

Certificate No: D835V2-4d063_Aug14

CALIBRATION CERTIFICATE

Object: D835V2 - SN: 4d063

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

Calibration date: August 28, 2014

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
 The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility, environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&PE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	BS37480704	04-Oct-13 (No. 217-01827)	Oct-14
Power sensor HP 8461A	US37292793	09-Oct-13 (No. 217-01827)	Oct-14
Power sensor HP 8481A	MY41092317	09-Oct-13 (No. 217-01828)	Oct-14
Reference 20 dB Attenuator	SN: 5008 (20K)	03-Apr-14 (No. 217-01816)	Apr-15
Type-N mismatch combination	SN: 5047.2 / 06327	03-Apr-14 (No. 217-01821)	Apr-15
Reference Probe ES30DV3	SN: 3205	30-Dec-13 (No. ES3-3205_Dec13)	Dec-14
DAE4	SN: 601	18-Aug-14 (No. DAE4-601_Aug14)	Aug-15
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
RF generator R&S SMT-06	100005	04-Aug-14 (in house check Oct-13)	in house check Oct-15
Network Analyzer HP 8753E	US37290585 54206	18-Oct-11 (in house check Oct-13)	in house check Oct-14

Calibrated by: Name: Michael Walder Function: Laboratory Technician Signature: M. Walder

Approved by: Name: Kersti Pokorny Function: Technical Manager Signature: K. Pokorny

Issued: August 28, 2014

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

Certificate No: D835V2-4d063_Aug14

Page 1 of 8

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Accreditation No.: SCS 108

Glossary:

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

Calibration is Performed According to the Following Standards:

- IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices; Measurement Techniques", June 2013
- IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
- KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

- DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

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

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

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Measurement Conditions

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

DASY Version	DASY5	V52.8.8
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	15 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	835 MHz \pm 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	41.5	0.90 mho/m
Measured Head TSL parameters	(22.0 \pm 0.2) °C	42.0 \pm 6 %	0.94 mho/m \pm 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.38 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	9.24 W/kg \pm 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.55 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	6.05 W/kg \pm 16.5 % (k=2)

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	55.2	0.97 mho/m
Measured Body TSL parameters	(22.0 \pm 0.2) °C	55.2 \pm 6 %	1.01 mho/m \pm 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm ³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	2.41 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	9.35 W/kg \pm 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	1.59 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	6.21 W/kg \pm 16.5 % (k=2)

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Appendix (Additional assessments outside the scope of SCS108)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	51.7 Ω - 3.6 j Ω
Return Loss	-28.2 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	47.1 Ω - 5.8 j Ω
Return Loss	-23.7 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.081 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 samlingin coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

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

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	November 27, 2006

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DASY5 Validation Report for Head TSL

Date: 28.08.2014

Test Laboratory: SPEAG, Zürich, Switzerland

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

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

Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.94 \text{ S/m}$; $\epsilon_r = 42$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

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

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(6.22, 6.22, 6.22); Calibrated: 30.12.2013;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 18.08.2014
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

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

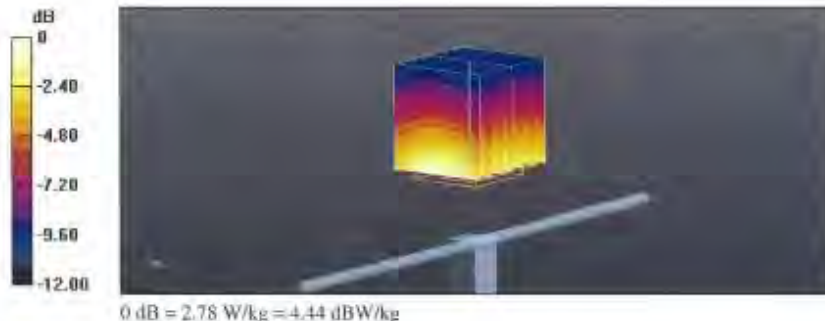
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 56.23 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 3.53 W/kg

SAR(1 g) = 2.38 W/kg; SAR(10 g) = 1.55 W/kg

Maximum value of SAR (measured) = 2.78 W/kg



Certificate No: D835V2-4d063_Aug14

Page 5 of 8

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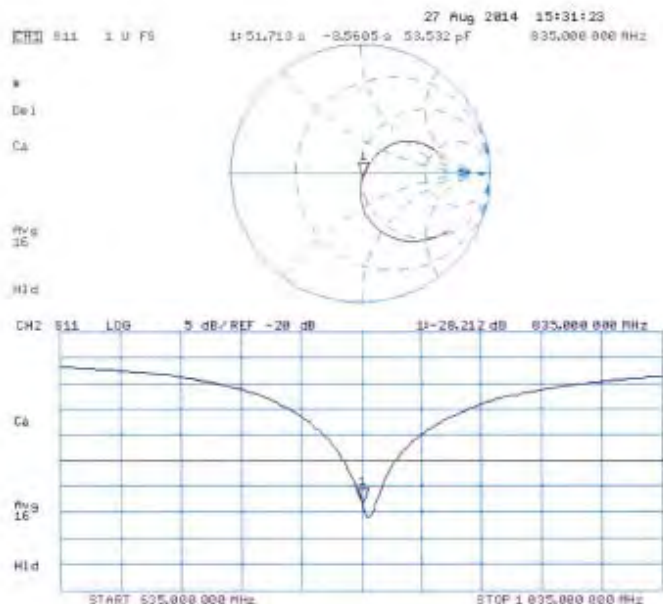
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Impedance Measurement Plot for Head TSL



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DASY5 Validation Report for Body TSL

Date: 27.08.2014

Test Laboratory: SPEAG, Zurich, Switzerland

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

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

Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 1.01 \text{ S/m}$; $\epsilon_r = 55.2$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

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

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(6.09, 6.09, 6.09); Calibrated: 30.12.2013;
- Sensor-Surface; 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 18.08.2014
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- DASY52 52.8,8(1222); SEMCAD X 14.6.10(7331)

Dipole Calibration for Body Tissue/ $P_{in}=250 \text{ mW}$, $d=15\text{mm}$ /Zoom Scan (7x7x7)/Cube 0:

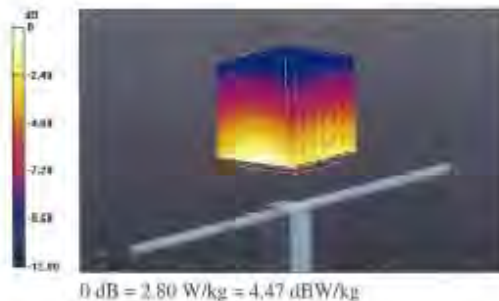
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 54.65 V/m ; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 3.53 W/kg

SAR(1 g) = 2.41 W/kg ; SAR(10 g) = 1.59 W/kg

Maximum value of SAR (measured) = 2.80 W/kg

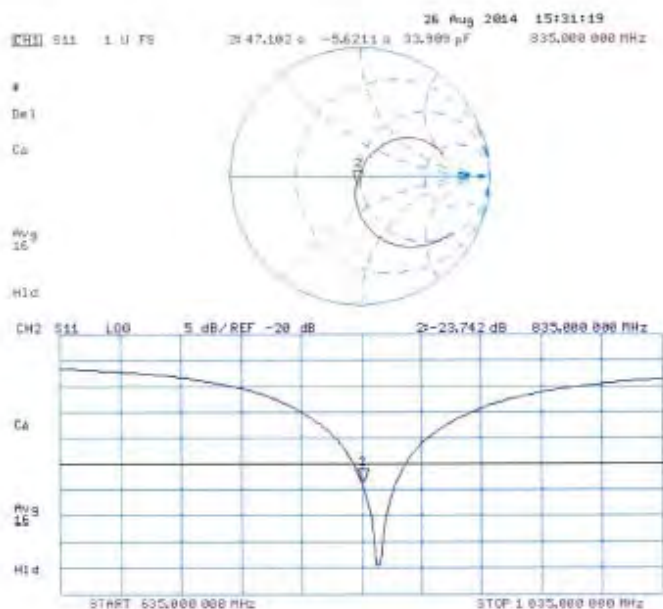


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Impedance Measurement Plot for Body TSL



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



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S Service suisse d'étalonnage
S Servizio svizzero di taratura
S Swiss Calibration Service

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

Accreditation No.: SCS 108

Client SGS-TW (Auden)

Certificate No: D1750V2-1008_Aug14

CALIBRATION CERTIFICATE

Object D1750V2 - SN: 1008

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

Calibration date: August 28, 2014

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility; environment: temperature (22 ± 0.1°C) and humidity < 70%.

Calibration Equipment used (M&E critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	0507480704	09-Oct-13 (No. 217-01827)	Oct-14
Power sensor HP 8481A	US37292783	09-Oct-13 (No. 217-01827)	Oct-14
Power sensor HP 8481A	MY41092317	09-Oct-13 (No. 217-01828)	Oct-14
Reference 20 dB Attenuator	SN: 5058 (20K)	03-Apr-14 (No. 217-01918)	Apr-15
Type-N mismatch combination	SN: 5047.2 / 06327	03-Apr-14 (No. 217-01921)	Apr-15
Reference Probe ES30V3	SN: 3205	30-Dec-13 (No. ES3-3205_Dec13)	Dec-14
DAE4	SN: 601	18-Aug-14 (No. DAE4-601_Aug14)	Aug-15
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
RF generator RAS SMT-06	100005	04-Aug-09 (in house check Oct-13)	in house check: Oct-16
Network Analyzer HP 8753E	US37390585 84205	18-Oct-01 (in house check Oct-13)	in house check: Oct-14

Calibrated by: Name Michael Weber Function Laboratory Technician Signature

Approved by: Name Kaja Pockovic Function Technical Manager Signature

Issued: August 28, 2014

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

Certificate No: D1750V2-1008_Aug14

Page 1 of 8

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Approved by the Swiss Accreditation Service (SAS)

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

Accreditation No.: **SCS 108**

Glossary:

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

Calibration is Performed According to the Following Standards:

- IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices; Measurement Techniques", June 2013
- IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
- KDB 865884, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

- DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

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

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

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Measurement Conditions

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

DASY Version	DASY5	V52.6.6
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	1750 MHz \pm 1 MHz	

Head TSL parameters

The following parameters and calculations were applied:

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	40.1	1.37 mho/m
Measured Head TSL parameters	(22.0 \pm 0.2) °C	39.2 \pm 6 %	1.37 mho/m \pm 6 %
Head TSL temperature change during test	< 0.5 °C	—	—

SAR result with Head TSL

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	9.26 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	36.9 W/kg \pm 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	4.91 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	19.6 W/kg \pm 16.5 % (k=2)

Body TSL parameters

The following parameters and calculations were applied:

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	53.4	1.49 mho/m
Measured Body TSL parameters	(22.0 \pm 0.2) °C	52.0 \pm 6 %	1.49 mho/m \pm 6 %
Body TSL temperature change during test	< 0.5 °C	—	—

SAR result with Body TSL

SAR averaged over 1 cm ³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	9.44 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	37.5 W/kg \pm 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	5.07 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	20.2 W/kg \pm 16.5 % (k=2)

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Appendix (Additional assessments outside the scope of SCS108)**Antenna Parameters with Head TSL**

Impedance, transformed to feed point	$50.4 \Omega + 0.3 j\Omega$
Return Loss	-46.4 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	$46.4 \Omega + 0.3 j\Omega$
Return Loss	-28.5 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.222 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 11, 2009

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DASY5 Validation Report for Head TSL

Date: 28.08.2014

Test Laboratory: SPEAG, Zurich, Switzerland

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

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

Medium parameters used: $f = 1750$ MHz; $\sigma = 1.37$ S/m; $\epsilon_r = 39.2$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(5.23, 5.23, 5.23); Calibrated: 30.12.2013;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 18.08.2014
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

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

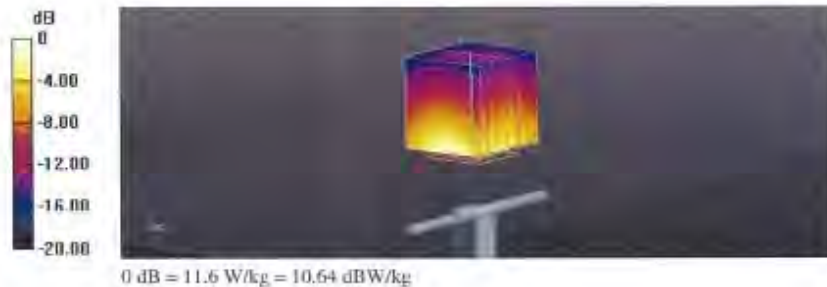
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 95.53 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 16.7 W/kg

SAR(1 g) = 9.26 W/kg; SAR(10 g) = 4.91 W/kg

Maximum value of SAR (measured) = 11.6 W/kg

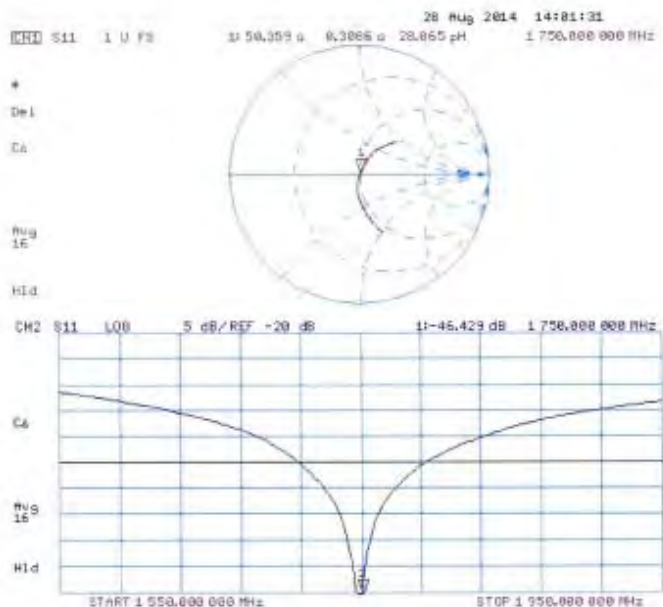


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Impedance Measurement Plot for Head TSL



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DASY5 Validation Report for Body TSL

Date: 28.08.2014

Test Laboratory: SPEAG, Zurich, Switzerland

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

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

Medium parameters used: $f = 1750$ MHz; $\sigma = 1.49$ S/m; $\epsilon_r = 52$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.89, 4.89, 4.89); Calibrated: 30.12.2013;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 18.08.2014
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

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

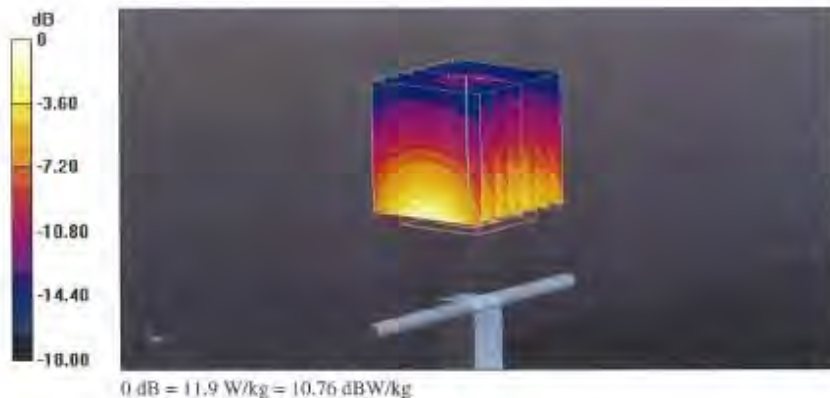
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 93.44 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 16.3 W/kg

SAR(1 g) = 9.44 W/kg; SAR(10 g) = 5.07 W/kg

Maximum value of SAR (measured) = 11.9 W/kg

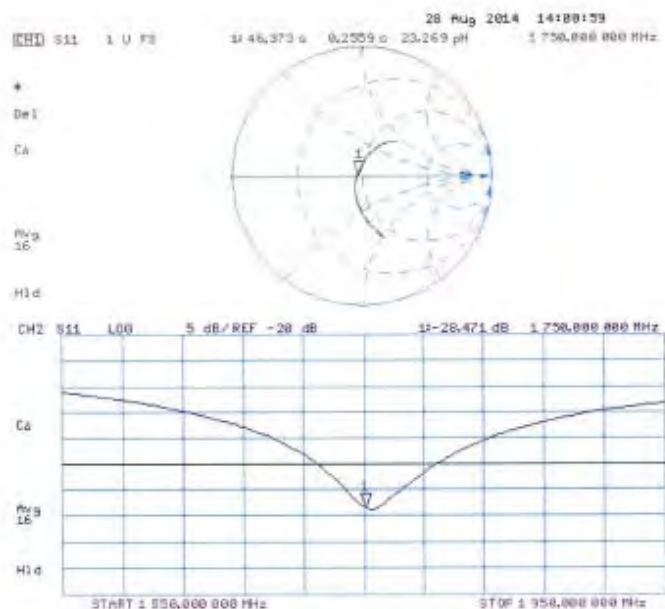


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Impedance Measurement Plot for Body TSL



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 Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

Client **SGS-TW (Auden)**

Certificate No: **D1900V2-5d027_Apr15**

CALIBRATION CERTIFICATE

Object **D1900V2 - SN:5d027**

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

Calibration date: **April 29, 2015**

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
 The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility; environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	07-Oct-14 (No. 217-02020)	Oct-15
Power sensor HP 8481A	US37292783	07-Oct-14 (No. 217-02020)	Oct-15
Power sensor HP 8481A	MY41092317	07-Oct-14 (No. 217-02021)	Oct-15
Reference 20 dB Attenuator	SN: 5058 (20k)	01-Apr-15 (No. 217-02131)	Mar-16
Type-N mismatch combination	SN: 5047.2 / 06327	01-Apr-15 (No. 217-02134)	Mar-16
Reference Probe ES3DV3	SN: 3205	30-Dec-14 (No. ES3-3205_Dec14)	Dec-15
DAE4	SN: 601	18-Aug-14 (No. DAE4-601_Aug14)	Aug-15
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
RF generator R&S SMT-06	100005	04-Aug-99 (in house check Oct-13)	In house check: Oct-16
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-14)	In house check: Oct-15

Calibrated by: **Claudio Leubler** **Laboratory Technician**

Signature

Approved by: **Katja Pokovic** **Technical Manager**

Signature

Issued: April 29, 2015

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Certificate No: D1900V2-5d027_Apr15

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

Accreditation No.: SCS 0108

Glossary:

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

Calibration is Performed According to the Following Standards:

- IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
- IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
- KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

- DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

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

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

Measurement Conditions

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

DASY Version	DASY5	V52.8.8
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	1900 MHz \pm 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	40.0	1.40 mho/m
Measured Head TSL parameters	(22.0 \pm 0.2) °C	38.6 \pm 6 %	1.37 mho/m \pm 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	10.1 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	40.6 W/kg \pm 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	5.30 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	21.3 W/kg \pm 16.5 % (k=2)

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	53.3	1.52 mho/m
Measured Body TSL parameters	(22.0 \pm 0.2) °C	52.8 \pm 6 %	1.50 mho/m \pm 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm ³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	9.78 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	39.3 W/kg \pm 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	5.20 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	20.9 W/kg \pm 16.5 % (k=2)

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Appendix (Additional assessments outside the scope of SCS 0108)**Antenna Parameters with Head TSL**

Impedance, transformed to feed point	50.2 Ω + 2.5 j Ω
Return Loss	- 32.2 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	46.5 Ω + 2.5 j Ω
Return Loss	- 27.0 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.197 ns
----------------------------------	----------

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

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

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

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	December 17, 2002

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DASY5 Validation Report for Head TSL

Date: 29.04.2015

Test Laboratory: SPEAG, Zurich, Switzerland

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

Communication System: UID 0 - CW; Frequency: 1900 MHz

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.37$ S/m; $\epsilon_r = 38.6$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(5, 5, 5); Calibrated: 30.12.2014;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 18.08.2014
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

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

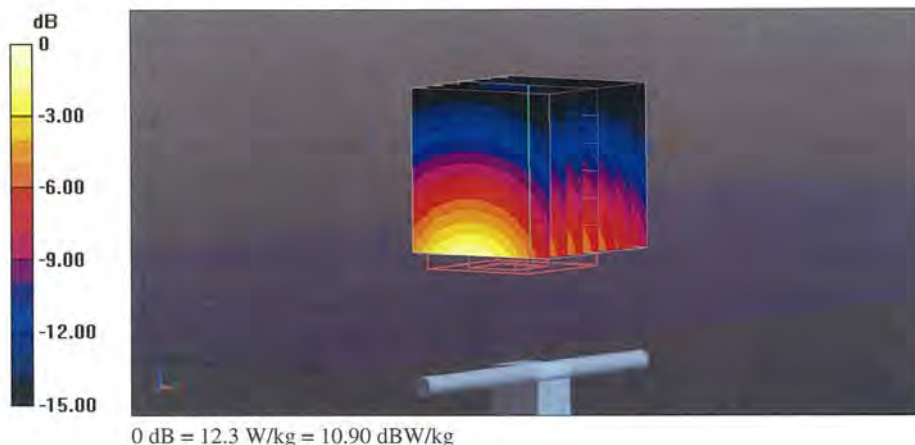
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 97.71 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 18.5 W/kg

SAR(1 g) = 10.1 W/kg; SAR(10 g) = 5.3 W/kg

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

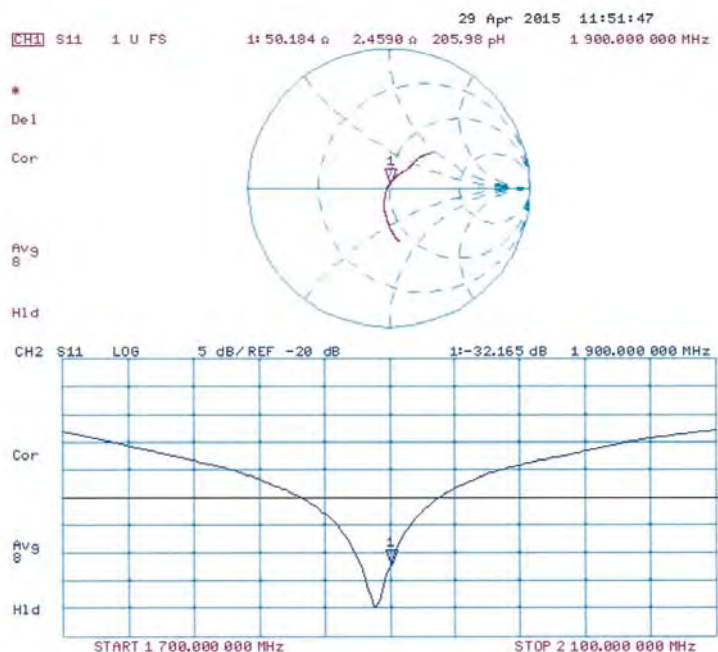


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Impedance Measurement Plot for Head TSL



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DASY5 Validation Report for Body TSL

Date: 29.04.2015

Test Laboratory: SPEAG, Zurich, Switzerland

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

Communication System: UID 0 - CW; Frequency: 1900 MHz

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.5$ S/m; $\epsilon_r = 52.8$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.65, 4.65, 4.65); Calibrated: 30.12.2014;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 18.08.2014
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

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

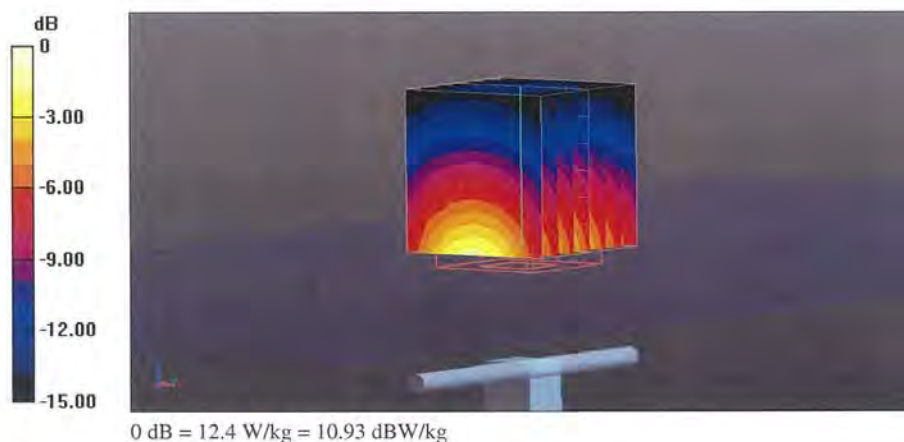
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 94.63 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 16.7 W/kg

SAR(1 g) = 9.78 W/kg; SAR(10 g) = 5.2 W/kg

Maximum value of SAR (measured) = 12.4 W/kg

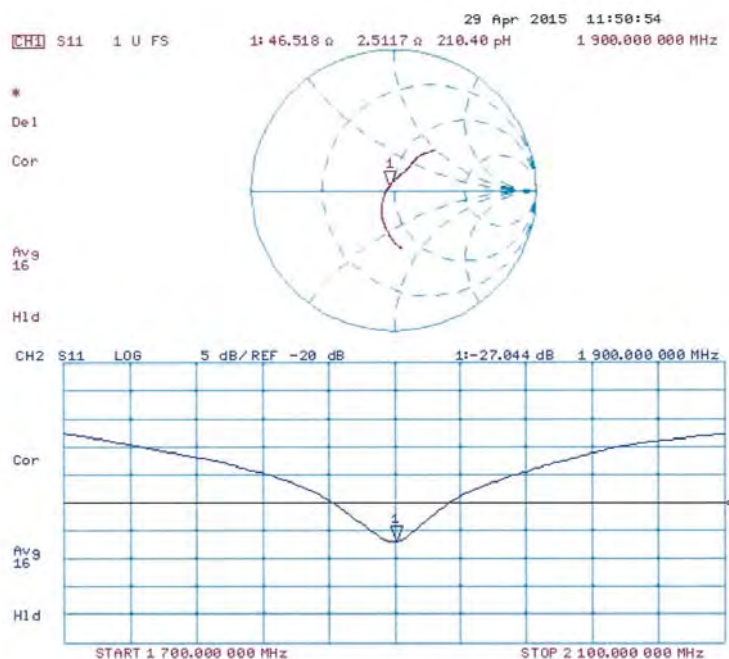


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Impedance Measurement Plot for Body TSL



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Accreditation No.: SCS 0108

Client **SGS-TW (Auden)**

Certificate No: **D2450V2-727_Apr15**

CALIBRATION CERTIFICATE

Object **D2450V2 - SN: 727**

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

Calibration date: **April 22, 2015**

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	07-Oct-14 (No. 217-02020)	Oct-15
Power sensor HP 8481A	US37292783	07-Oct-14 (No. 217-02020)	Oct-15
Power sensor HP 8481A	MY41092317	07-Oct-14 (No. 217-02021)	Oct-15
Reference 20 dB Attenuator	SN: 5058 (20k)	01-Apr-15 (No. 217-02131)	Mar-16
Type-N mismatch combination	SN: 5047.2 / 05327	01-Apr-15 (No. 217-02134)	Mar-16
Reference Probe ES3DV3	SN: 3205	30-Dec-14 (No. ES3-3205_Dec14)	Dec-15
DAE4	SN: 601	18-Aug-14 (No. DAE4-601_Aug14)	Aug-15
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
RF generator R&S SMT-06	100005	04-Aug-99 (in house check Oct-13)	In house check: Oct-16
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-14)	In house check: Oct-15

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

Issued: April 23, 2015

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

Certificate No: D2450V2-727_Apr15

Page 1 of 8

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Accreditation No.: SCS 0108

Glossary:

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

Calibration is Performed According to the Following Standards:

- IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
- IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
- KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

- DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

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

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

Measurement Conditions

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

DASY Version	DASY5	V52.8.8
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	2450 MHz \pm 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	39.2	1.80 mho/m
Measured Head TSL parameters	(22.0 \pm 0.2) °C	37.6 \pm 6 %	1.82 mho/m \pm 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	13.2 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	52.0 W/kg \pm 17.0 % (k=2)
SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	6.10 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	24.2 W/kg \pm 16.5 % (k=2)

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	52.7	1.95 mho/m
Measured Body TSL parameters	(22.0 \pm 0.2) °C	50.6 \pm 6 %	2.02 mho/m \pm 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm ³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	13.1 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	51.0 W/kg \pm 17.0 % (k=2)
SAR averaged over 10 cm ³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	6.10 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	24.0 W/kg \pm 16.5 % (k=2)

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Appendix (Additional assessments outside the scope of SCS 0108)**Antenna Parameters with Head TSL**

Impedance, transformed to feed point	56.2 Ω + 1.3 j Ω
Return Loss	- 24.6 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	51.8 Ω + 3.3 j Ω
Return Loss	- 28.6 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 semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

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

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	January 09, 2003

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DASY5 Validation Report for Head TSL

Date: 22.04.2015

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; $\sigma = 1.82$ S/m; $\epsilon_r = 37.6$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.54, 4.54, 4.54); Calibrated: 30.12.2014;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 18.08.2014
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

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

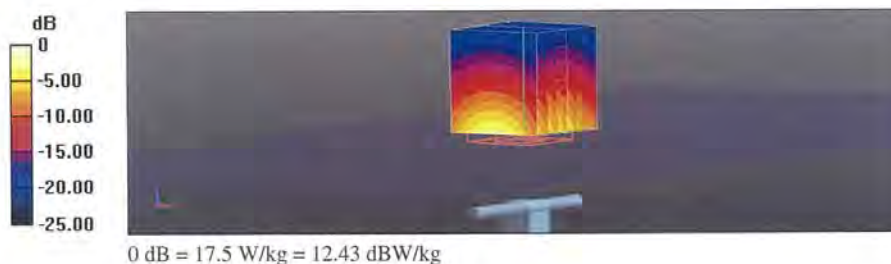
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 101.5 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 27.4 W/kg

SAR(1 g) = 13.2 W/kg; SAR(10 g) = 6.1 W/kg

Maximum value of SAR (measured) = 17.5 W/kg

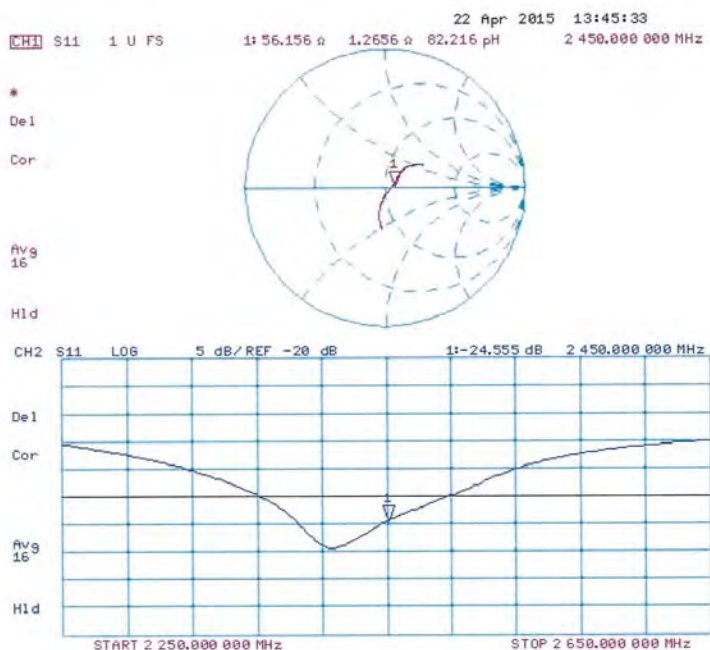


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Impedance Measurement Plot for Head TSL



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DASY5 Validation Report for Body TSL

Date: 22.04.2015

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: $f = 2450 \text{ MHz}$; $\sigma = 2.02 \text{ S/m}$; $\epsilon_r = 50.6$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

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

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.32, 4.32, 4.32); Calibrated: 30.12.2014;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 18.08.2014
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

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

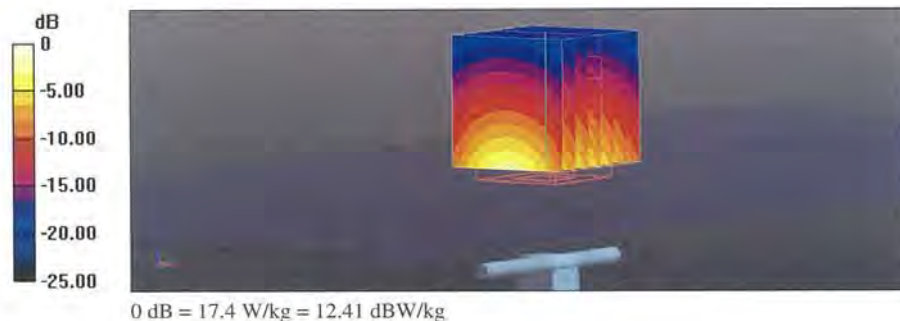
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 95.54 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 27.2 W/kg

SAR(1 g) = 13.1 W/kg; SAR(10 g) = 6.1 W/kg

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

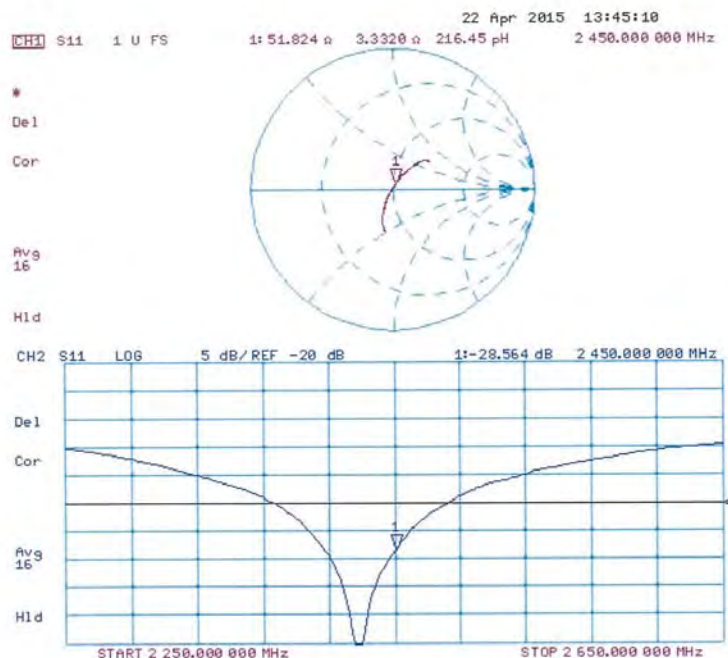


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Impedance Measurement Plot for Body TSL



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**Calibration Laboratory of
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Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

Client **SGS-TW (Auden)**

Certificate No: **D5GHzV2-1023_Jan15**

CALIBRATION CERTIFICATE

Object: **D5GHzV2 - SN:1023**

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

Calibration date: **January 29, 2015**

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3°C) and humidity < 70%.

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

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	07-Oct-14 (No. 217-02020)	Oct-15
Power sensor HP 8481A	US37292783	07-Oct-14 (No. 217-02020)	Oct-15
Power sensor HP 8481A	MY41092317	07-Oct-14 (No. 217-02021)	Oct-15
Reference 20 dB Attenuator	SN: 5058 (30W)	03-Apr-14 (No. 217-01916)	Apr-15
Type-N mismatch combination	SN: 8047 2 / 06327	03-Apr-14 (No. 217-01921)	Apr-15
Reference Probe EX3DV4	SN: 3503	30-Dec-14 (No. EX3-3503_Dec14)	Dec-15
DAEs	SN: 801	18-Aug-14 (No. DAE4-801_Aug14)	Aug-15
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
RF generator R&S SMT 06	100005	04-Aug-09 (in house check Oct-13)	In house check: Oct-15
Network Analyzer HP 8753E	US37360080 54208	19-Oct-01 (in house check Oct-14)	In house check: Oct-15

Calibrated by: **Michèle Wäber** Name: **Michèle Wäber** Function: **Laboratory Technician** Signature: **M. Wäber**

Approved by: **Katja Polovnik** Name: **Katja Polovnik** Function: **Technical Manager** Signature: **K. Polovnik**

This calibration certificate shall not be reproduced except in full without written approval of the laboratory. Issued: January 29, 2015

Certificate No: D5GHzV2-1023_Jan15

Page 1 of 15

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Accreditation No.: SCS 0106

Glossary:

TSL tissue simulating liquid
ConyF sensitivity in TSL / NORM x,y,z
N/A not applicable or not measured

Calibration is Performed According to the Following Standards:

- IEC 62209-2, "Evaluation of Human Exposure to Radio Frequency Fields from Handheld and Body-Mounted Wireless Communication Devices in the Frequency Range of 30 MHz to 6 GHz: Human models, Instrumentation, and Procedures". Part 2: "Procedure to determine the Specific Absorption Rate (SAR) for including accessories and multiple transmitters", March 2010
- KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"
- 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

Additional Documentation:

- DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

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

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

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Measurement Conditions

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

DASY Version	DA5Y5	V52.6.8
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom V5.0	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy = 4.0 mm, dz = 1.4 mm	Gradient Ratio = 1.4 (Z direction)
Frequency	5200 MHz \pm 1 MHz 5300 MHz \pm 1 MHz 5600 MHz \pm 1 MHz 5800 MHz \pm 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	4.56 mho/m
Measured Head TSL parameters	(22.0 \pm 0.2) °C	36.3 \pm 0.3 %	4.56 mho/m \pm 6 %
Head TSL temperature change during test	< 0.5 °C	—	—

SAR result with Head TSL at 5200 MHz

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	7.78 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	77.9 W/kg \pm 19.9 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	Condition	
SAR measured	100 mW input power	22.2 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	22.2 W/kg \pm 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	4.78 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	36.1 ± 6 %	4.86 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	—	—

SAR result with Head TSL at 5300 MHz

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	6.17 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	61.7 W / kg ± 19.9 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.34 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	23.4 W/kg ± 19.5 % (k=2)

Head TSL parameters at 5600 MHz

The following parameters and calculations were applied:

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.5	5.07 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	35.7 ± 6 %	4.97 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	—	—

SAR result with Head TSL at 5600 MHz

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	6.14 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	61.4 W/kg ± 19.9 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.31 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	23.1 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	35.4 ± 6 %	5.18 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	—	—

SAR result with Head TSL at 5800 MHz

SAR averaged over 1 cm ² (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	7.82 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	78.2 W/kg ± 19.9 % (k=2)

SAR averaged over 10 cm ² (10 g) of Head TSL	Condition	
SAR measured	100 mW input power	2.23 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	22.3 W/kg ± 19.5 % (k=2)

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Body TSL parameters at 5200 MHz

The following parameters and calculations were applied:

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	49.0	5.30 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	49.4 ± 6 %	5.42 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	—	—

SAR result with Body TSL at 5200 MHz

SAR averaged over 1 cm ³ (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	7.33 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	73.5 W/kg ± 19.9 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Body TSL	Condition	
SAR measured	100 mW input power	2.04 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	20.5 W/kg ± 19.5 % (k=2)

Body TSL parameters at 5300 MHz

The following parameters and calculations were applied:

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	48.8	5.42 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	49.2 ± 6 %	5.55 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	—	—

SAR result with Body TSL at 5300 MHz

SAR averaged over 1 cm ³ (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	7.45 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	74.6 W/kg ± 19.9 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Body TSL	Condition	
SAR measured	100 mW input power	2.07 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	20.8 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	48.7 ± 6 %	5.86 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	—	—

SAR result with Body TSL at 5600 MHz

SAR averaged over 1 cm ³ (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	7.77 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	77.5 W/kg ± 19.9 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.15 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	21.6 W/kg ± 19.5 % (k=2)

Body TSL parameters at 5800 MHz

The following parameters and calculations were applied:

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	48.2	6.00 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	48.4 ± 6 %	6.25 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	—	—

SAR result with Body TSL at 5800 MHz

SAR averaged over 1 cm ³ (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	7.54 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	75.6 W/kg ± 19.9 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.07 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	20.7 W/kg ± 19.5 % (k=2)

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Appendix (Additional assessments outside the scope of SCS0108)

Antenna Parameters with Head TSL at 5200 MHz

Impedance, transformed to feed point	$49.2 \Omega - 8.5 j\Omega$
Return Loss	-21.4 dB

Antenna Parameters with Head TSL at 5300 MHz

Impedance, transformed to feed point	$51.0 \Omega - 3.8 j\Omega$
Return Loss	-28.2 dB

Antenna Parameters with Head TSL at 5600 MHz

Impedance, transformed to feed point	$53.4 \Omega - 2.7 j\Omega$
Return Loss	-27.5 dB

Antenna Parameters with Head TSL at 5800 MHz

Impedance, transformed to feed point	$55.6 \Omega + 1.0 j\Omega$
Return Loss	-25.4 dB

Antenna Parameters with Body TSL at 5200 MHz

Impedance, transformed to feed point	$49.0 \Omega - 7.1 j\Omega$
Return Loss	-22.8 dB

Antenna Parameters with Body TSL at 5300 MHz

Impedance, transformed to feed point	$51.5 \Omega - 2.2 j\Omega$
Return Loss	-31.7 dB

Antenna Parameters with Body TSL at 5600 MHz

Impedance, transformed to feed point	$54.0 \Omega - 1.5 j\Omega$
Return Loss	-26.8 dB

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Antenna Parameters with Body TSL at 5800 MHz

Impedance, transformed to feed point	$55.8\ \Omega + 2.8\ j\Omega$
Return Loss	$\geq 24.5\ \text{dB}$

General Antenna Parameters and Design

Electrical Delay (one direction)	1.199 ns
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After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

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

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

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	February 05, 2004

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DASY5 Validation Report for Head TSL

Date: 28/01/2015

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 5GHz; Type: DSGHzV2; Serial: DSGHzV2 - 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; $\sigma = 4.56$ S/m; $\epsilon_r = 36.3$; $\rho = 1000$ kg/m³, Medium parameters used: $f = 5300$ MHz; $\sigma = 4.66$ S/m; $\epsilon_r = 36.1$; $\rho = 1000$ kg/m³, Medium parameters used: $f = 5600$ MHz; $\sigma = 4.97$ S/m; $\epsilon_r = 35.7$; $\rho = 1000$ kg/m³, Medium parameters used: $f = 5800$ MHz; $\sigma = 5.18$ S/m; $\epsilon_r = 35.4$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY52 Configuration:

- Probe: EX3DV4 - SN3503; ConvF(5.51, 5.51, 5.51); Calibrated: 30.12.2014, ConvF(5.21, 5.21, 5.21); Calibrated: 30.12.2014, ConvF(4.92, 4.92, 4.92); Calibrated: 30.12.2014, ConvF(4.9, 4.9, 4.9); Calibrated: 30.12.2014;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 18.08.2014
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5200 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 64.14 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 28.3 W/kg

SAR(1 g) = 7.78 W/kg; SAR(10 g) = 2.22 W/kg

Maximum value of SAR (measured) = 17.8 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 = 65.47 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 30.7 W/kg

SAR(1 g) = 8.17 W/kg; SAR(10 g) = 2.34 W/kg

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

Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5600 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 63.68 V/m; Power Drift = 0.08 dB

Peak SAR (extrapolated) = 32.2 W/kg

SAR(1 g) = 8.14 W/kg; SAR(10 g) = 2.31 W/kg

Maximum value of SAR (measured) = 18.9 W/kg

Certificate No: DSGHzV2-1023_Jan15

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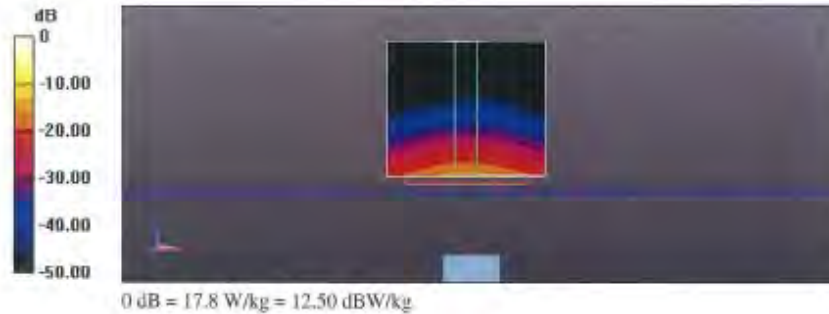
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Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5800 MHz/Zoom Scan,
dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 61.76 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 32.0 W/kg
SAR(1 g) = 7.82 W/kg; SAR(10 g) = 2.23 W/kg
Maximum value of SAR (measured) = 18.4 W/kg

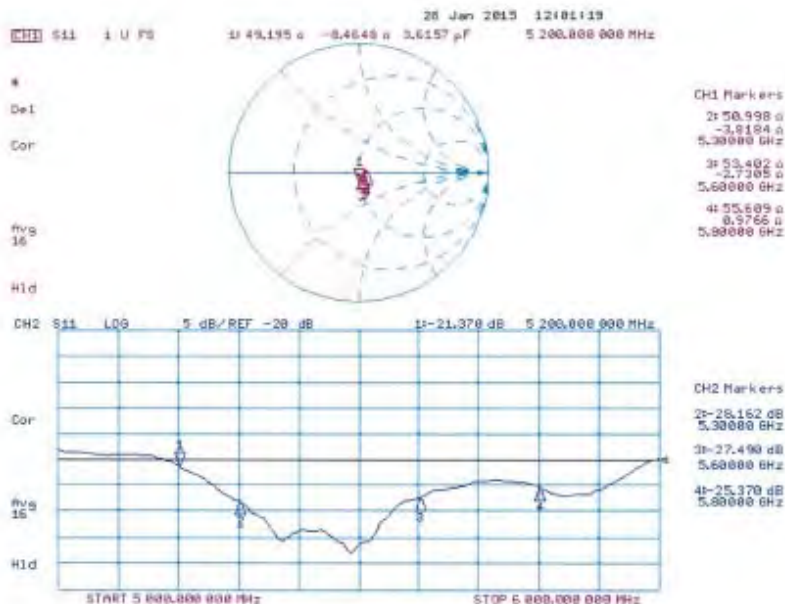


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Impedance Measurement Plot for Head TSL



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DASY5 Validation Report for Body TSL

Date: 29.01.2015

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 5GHz; 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; $\sigma = 3.42$ S/m; $\epsilon_r = 49.4$; $\rho = 1000$ kg/m³; Medium parameters used: $f = 5300$ MHz; $\sigma = 5.55$ S/m; $\epsilon_r = 49.2$; $\rho = 1000$ kg/m³; Medium parameters used: $f = 5600$ MHz; $\sigma = 5.96$ S/m; $\epsilon_r = 48.7$; $\rho = 1000$ kg/m³; Medium parameters used: $f = 5800$ MHz; $\sigma = 6.25$ S/m; $\epsilon_r = 48.4$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY52 Configuration:

- Probe: EX3DV4 - SN3503; ConvF(4.95, 4.95, 4.95); Calibrated: 30.12.2014, ConvF(4.78, 4.78, 4.78); Calibrated: 30.12.2014, ConvF(4.35, 4.35, 4.35); Calibrated: 30.12.2014, ConvF(4.32, 4.32, 4.32); Calibrated: 30.12.2014
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4-Sn601; Calibrated: 18.08.2014
- Phantom: Flat Phantom 3.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

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 = 57.97 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 28.6 W/kg

SAR(1 g) = 7.33 W/kg; SAR(10 g) = 2.04 W/kg

Maximum value of SAR (measured) = 17.3 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 = 57.58 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 30.0 W/kg

SAR(1 g) = 7.45 W/kg; SAR(10 g) = 2.07 W/kg

Maximum value of SAR (measured) = 17.8 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 = 56.88 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 34.4 W/kg

SAR(1 g) = 7.77 W/kg; SAR(10 g) = 2.15 W/kg

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

Certificate No: D5GHzV2-1023_jan15

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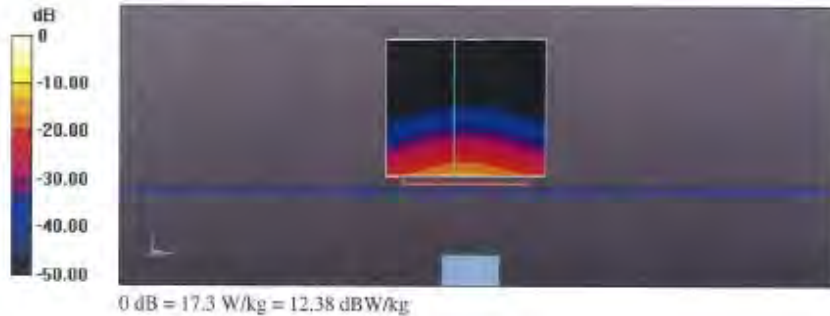
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dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 55.10 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 35.2 W/kg
SAR(1 g) = 7.54 W/kg; SAR(10 g) = 2.07 W/kg
Maximum value of SAR (measured) = 19.1 W/kg

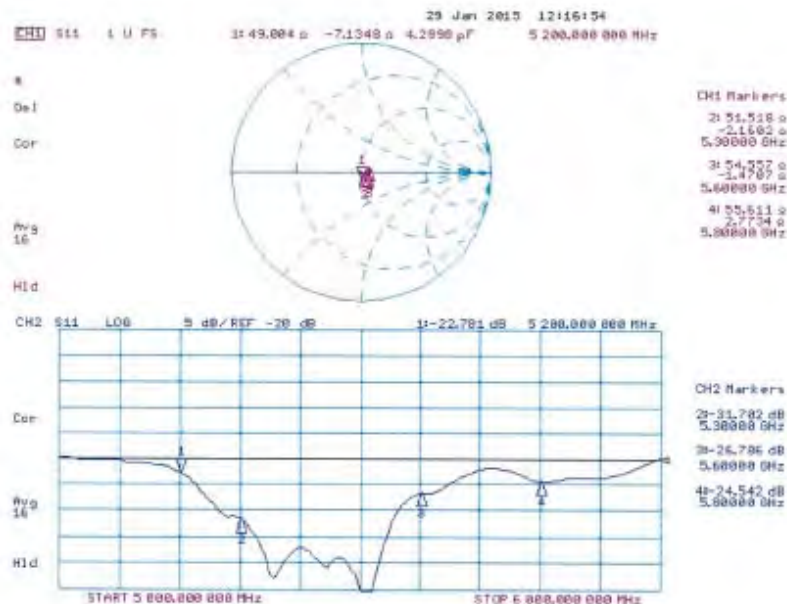


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Impedance Measurement Plot for Body TSL



- End of 1st part of report -

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