SAR TEST REPORT

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

Equipment Under Test	Tablet
Marketing Name	Bobcat
Brand Name	Xplore
Model No.	iX101B1
WWAN Module Model No.	EM7355
WLAN Module Model No.	7260HMW
Company Name	Xplore Technologies
Company Address	14000 Summit Road, Suite 900 Austin, TX 78728 United States
Standards	FCC OET 65 supplement C,IEEE /ANSI C95.1 , C95.3, IEEE 1528, RSS 102
WWAN FCC ID	Q2GEM7355
WLAN FCC ID	Q2G7260H
WWAN IC ID	4596A-EM7355
WWLN IC ID	4596A-7260H
Date of Receipt	Apr. 09, 2014
Date of Test(s)	Apr. 11, 2014 ~ Jun. 04, 2014
Date of Issue	Jun. 05, 2014

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

Remarks:

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

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

Signed on behalf of SGS

Sr. Engineer	**Sr. Engineer**
Pin Chu	John Yeh
Pin Chu	**John Yeh**
Date: Jun. 05, 2014	**Date: Jun. 05, 2014**

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Version

Report Number	Revision	Date	Memo
EN/2014/40008	00	2014/5/15	Initial creation of test report.
EN/2014/40008	01	2014/5/30	1st modification
EN/2014/40008	02	2014/6/5	2nd modification

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

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Contents

1. General Information

1.1 Testing Laboratory

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1.2 Details of Applicant

Company Name	Xplore Technologies
Company Address	14000 Summit Road, Suite 900 Austin, TX 78728 United States

1.3 Description of EUT

Equipment Under Test	Tablet	
Marketing Name	Bobcat	
Brand Name	Xplore	
Model No.	iX101B1	
WWAN Module Model No.	EM7355	
WLAN Module Model No	7260HMW	
WWAN FCC ID	Q2GEM7355	
WLAN FCC ID	Q2G7260H	
WWAN IC ID	4596A-EM7355	
WLAN IC ID	4596A-7260H	
Mode of Operation	☒GPRS ☒EDGE ☒WCDMA ☒HSDPA ☒HSUPA ☒HSUPA+ ☒LTE FDD ☒CDMA 1xRTT ☒CDMA EVDO Rev.0/ Rev. A ☒WLAN802.11 a/b/g/n (20M/40M) /ac(20M/40M/80M) ☒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) /ac(20M/40M/80M)	1
	Bluetooth	1

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 IV	1710	—	1755
	LTE FDD Band XIII	777	—	787
	LTE FDD Band XVII	704	—	716
	LTE FDD Band XXV	1850	—	1915
	CDMA Cellular (BC0)	824.7	—	848.31
	CDMA PCS (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 5.2G	5180	—	5240
	WLAN802.11 n (20M) 5.2G	5180	—	5240
	WLAN802.11 n (40M) 5.2G	5190	—	5230
	WLAN802.11 ac (80M) 5.2G	5210		
	WLAN802.11 a 5.3G	5260	—	5320
	WLAN802.11 n (20M) 5.3G	5260	—	5320
	WLAN802.11 n (40M) 5.3G	5270	—	5310
	WLAN802.11 ac (80M) 5.3G	5290		
	WLAN802.11 a 5.6G	5500	—	5700
	WLAN802.11 n (20M) 5.6G	5500	—	5700
	WLAN802.11 n (40M) 5.6G	5510	—	5670
	WLAN802.11 ac (20M) 5.6G	5720		
	WLAN802.11 ac (40M) 5.6G	5710		
	WLAN802.11 ac (80M) 5.6G	5530	—	5690
	WLAN802.11 a 5.8G	5745	—	5825

TX Frequency Range (MHz)	WLAN802.11 n (20M) 5.8G	5745	—	5825
	WLAN802.11 n (40M) 5.8G	5755	—	5795
	WLAN802.11 ac (80M) 5.8G	5775		
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 IV	19957	—	20393
	LTE FDD Band XIII	23205	—	23255
	LTE FDD Band XVII	23755	—	23825
	LTE FDD Band XXV	26047	—	26683
	CDMA Cellular (BC0)	1013	—	777
	CDMA PCS (BC1)	25	—	1175
	CDMA BC10	476	—	684
	WLAN802.11 b/g/n(20M)	1	—	11
	WLAN802.11 n(40M)	3	—	9
	WLAN802.11 a 5.2G	36	—	48
	WLAN802.11 n (20M) 5.2G	36	—	48
	WLAN802.11 n (40M) 5.2G	38	—	46
	WLAN802.11 ac (80M) 5.2G	42		
	WLAN802.11 a 5.3G	52	—	64
	WLAN802.11 n (20M) 5.3G	52	—	64
	WLAN802.11 n (40M) 5.3G	54	—	62
	WLAN802.11 ac (80M) 5.3G	58		
	WLAN802.11 a 5.6G	100	—	140
	WLAN802.11 n (20M) 5.6G	100	—	140
	WLAN802.11 n (40M) 5.6G	102	—	134
	WLAN802.11 ac (20M) 5.6G	144		

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Channel Number (ARFCN)	WLAN802.11 ac (40M) 5.6G	142		
	WLAN802.11 ac (80M) 5.6G	106	—	138
	WLAN802.11 a 5.8G	149	—	165
	WLAN802.11 n (20M) 5.8G	149	—	165
	WLAN802.11 n (40M) 5.8G	151	—	159
	WLAN802.11 ac (80M) 5.8G	155		

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Max. SAR (1 g) (Unit: W/Kg)				
Band	Measured	Reported	Channel	Position
GPRS 850	1.12	1.195	251	Top side
GRPS 1900	1	1.072	512	Top side
WCDMA Band II	1.06	1.136	9262	Top side
WCDMA Band IV	0.851	0.927	1312	Back side
WCDMA Band V	1.04	1.109	4233	Top side*
LTE FDD Band IV	0.704	0.915	20175	Back side*
LTE FDD Band XIII	0.593	0.828	23230	Back side*
LTE FDD Band XVII	0.864	0.926	23790	Back side
LTE FDD Band XXV	1.16	1.160	26140	Top side
CDMA Cellular (BC0) 1xRTT	0.71	0.942	1013	Top side*
CDMA Cellular (BC0) EVDO Rev. 0	0.827	1.190	1013	Top side*
CDMA Cellular (BC0) EVDO Rev. A	0.836	1.192	1013	Back side
CDMA PCS (BC1) 1xRTT	0.605	0.622	25	Back side*
CDMA EVDO PCS (BC1) EVDO Rev. 0	0.756	0.934	25	Back side
CDMA EVDO PCS (BC1) EVDO Rev. A	0.772	0.926	25	Top side*
CDMA BC10 1xRTT	0.805	1.086	684	Back side*
CDMA BC10 EVDO Rev. 0	0.772	1.134	684	Back side
CDMA BC10 EVDO Rev. A	0.758	1.145	560	Back side*

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

Max. SAR (1 g) (Unit: W/Kg)					
Antenna	Band	Measured	Reported	Channel	Position
Main	WLAN802.11b	0.136	0.141	11	Back side
	WLAN802.11g	0.257	0.263	6	Back side
	WLAN802.11n(20M)	0.241	0.245	6	Back side
	WLAN802.11n(40M)	0.256	0.274	6	Back side
	WLAN802.11a 5.2G	0.355	0.398	40	Back side
	WLAN802.11n(20M) 5.2G	0.404	0.440	40	Back side
	WLAN802.11n(40M) 5.2G	0.308	0.349	46	Top side
	WLAN802.11ac(80M) 5.2G	0.059	0.059	42	Back side
	WLAN802.11a 5.3G	0.402	0.411	56	Top side
	WLAN802.11ac(80M) 5.3G	0.104	0.104	58	Back side
	WLAN802.11a 5.6G	0.65	0.714	132	Top side
	WLAN802.11ac(20M) 5.6G	0.499	0.667	144	Top side
	WLAN802.11ac(40M) 5.6G	0.527	0.717	142	Top side
	WLAN802.11ac(80M) 5.6G	0.372	0.413	138	Top side
	WLAN802.11a 5.8G	0.578	0.697	161	Top side
	WLAN802.11ac(80M) 5.8G	0.448	0.465	155	Top side
Aux	WLAN802.11b	0.209	0.216	11	Top side
	WLAN802.11g	0.246	0.247	6	Top side
	WLAN802.11n(20M)	0.267	0.271	6	Top side
	WLAN802.11a 5.2G	0.58	0.587	40	Top side
	WLAN802.11n(20M) 5.2G	0.767	0.822	40	Top side
	WLAN802.11n(40M) 5.2G	0.45	0.5	46	Top side
	WLAN802.11ac(80M) 5.2G	0.15	0.157	42	Top side

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Max. SAR (1 g) (Unit: W/Kg)					
Antenna	Band	Measured	Reported	Channel	Position
Aux	WLAN802.11a 5.3G	0.775	0.813	60	Top side
	WLAN802.11ac(80M) 5.3G	0.287	0.301	58	Top side
	WLAN802.11a 5.6G	0.778	0.805	136	Back side
	WLAN802.11ac(20M) 5.6G	0.807	0.811	144	Back side*
	WLAN802.11ac(40M) 5.6G	0.733	0.755	142	Back side
	WLAN802.11ac(80M) 5.6G	0.496	0.541	138	Back side
	WLAN802.a 5.8G	1.17	1.194	165	Back side*
	WLAN802.11ac(80M) 5.8G	0.791	0.859	155	Back side
MIMO	WLAN802.11n(20M)	0.118	0.12	1	Back side
	WLAN802.11n(20M) 5.2G	0.376	0.39	48	Top side
	WLAN802.11n(40M) 5.2G	0.135	0.153	46	Top side
	WLAN802.11ac(80M) 5.2G	0.095	0.102	42	Top side
	WLAN802.11n(20M) 5.3G	0.349	0.35	56	Top side
	WLAN802.11ac(80M) 5.3G	0.083	0.083	58	Top side -with mobile battery
	WLAN802.11n(20M) 5.6G	0.501	0.543	136	Back side
	WLAN802.11ac(20M) 5.6G	0.285	0.297	144	Back side
	WLAN802.11ac(40M) 5.6G	0.347	0.377	142	Back side
	WLAN802.11ac(80M) 5.6G	0.17	0.181	138	Back side
	WLAN802.11n(20M) 5.8G	0.392	0.396	161	Back side
	WLAN802.11ac(80M) 5.8G	0.298	0.349	155	Back side

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

GPRS / EDGE conducted power table:

Burst average power				
Max. Rated Avg. Power + Max. Tolerance (dBm)			33.5	33.5
			1Dn1UP	1Dn2UP
EUT mode	Frequency (MHz)	CH	Avg. (dBm)	Avg. (dBm)
GPRS 850 (GMSK)	824.2	128	31.70	31.50
	836.6	190	31.70	31.50
	848.8	251	31.60	31.50
Source-based time average power				
GPRS 850 (GMSK)	824.2	128	22.67	25.48
	836.6	190	22.67	25.48
	848.8	251	22.57	25.48
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	824.2	128	26.50	26.20	26.10	26.10
	836.6	190	26.40	26.30	26.20	26.00
	848.8	251	26.30	26.30	26.20	26.00
Source-based time average power						
EDGE 850	824.2	128	17.47	20.18	21.84	23.09
	836.6	190	17.37	20.28	21.94	22.99
	848.8	251	17.27	20.28	21.94	22.99
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

Burst average power				
Max. Rated Avg. Power + Max. Tolerance (dBm)			30.5	29
			1Dn1UP	1Dn2UP
EUT mode	Frequency (MHz)	CH	Avg. (dBm)	Avg. (dBm)
GPRS 1900 (GMSK)	1850.2	512	28.90	28.70
	1880	661	29.10	29.00
	1909.8	810	28.90	28.80
Source-based time average power				
GPRS 1900 (GMSK)	1850.2	512	19.87	22.68
	1880	661	20.07	22.98
	1909.8	810	19.87	22.78
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)			27	27	27	27
			1Dn1UP	1Dn2UP	1Dn3UP	1Dn4UP
EUT mode	Frequency (MHz)	CH	Avg. (dBm)	Avg. (dBm)	Avg. (dBm)	Avg. (dBm)
EDGE 1900	1850.2	512	25.20	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	1850.2	512	16.17	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

GPRS 850 / EDGE 850 conducted power table (Reduced power):

Burst average power				
Max. Rated Avg. Power + Max. Tolerance (dBm)			30	29.5
			1Dn1UP	1Dn2UP
EUT mode	Frequency (MHz)	CH	Avg. (dBm)	Avg. (dBm)
GPRS 850 (GMSK)	824.2	128	29.66	29.15
	836.6	190	29.67	29.16
	848.8	251	29.63	29.22
Source-based time average power				
GPRS 850 (GMSK)	824.2	128	20.63	23.13
	836.6	190	20.64	23.14
	848.8	251	20.60	23.20
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)			25.5	25.5	25.5	25.5
			1Dn1UP	1Dn2UP	1Dn3UP	1Dn4UP
EUT mode	Frequency (MHz)	CH	Avg. (dBm)	Avg. (dBm)	Avg. (dBm)	Avg. (dBm)
EDGE 850	824.2	128	25.05	25.30	25.21	24.01
	836.6	190	25.11	25.31	25.20	23.99
	848.8	251	25.03	25.31	25.20	24.05
Source-based time average power						
EDGE 850	824.2	128	16.02	19.28	20.95	21.00
	836.6	190	16.08	19.29	20.94	20.98
	848.8	251	16.00	19.29	20.94	21.04
The division factor compared to the number of TX time slot						
Division factor			1 TX time slot	2 TX time slot	3 TX time slot	4 TX time slot
			-9.03	-6.02	-4.26	-3.01

WCDMA Band II / Band IV / Band V - HSDPA / HSUPA/ HSDPA+ 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	23.5	23.20	23.37	23.08	22.89	22.96	23.12	21.09	22.10	21.22	22.93	23.13	21.11	22.10	21.22	22.93
	9400	23.5	23.25	23.14	23.11	22.58	22.59	23.23	21.28	22.23	21.33	23.07	23.22	21.26	22.21	21.30	23.07
	9538	23.5	23.24	23.10	23.09	22.43	22.55	23.18	21.16	22.20	21.20	23.03	23.19	21.18	22.20	21.22	23.05
WCDMA Band IV Rel 7	1312	24	23.21	23.38	23.09	22.9	22.97	23.13	21.10	22.11	21.23	22.94	23.14	21.12	22.11	21.23	22.94
	1412	24	23.36	23.25	23.22	22.69	22.70	23.34	21.39	22.34	21.44	23.18	23.33	21.37	22.32	21.41	23.18
	1513	24	23.20	23.06	23.05	22.39	22.51	23.14	21.12	22.16	21.16	22.99	23.15	21.14	22.16	21.18	23.01
WCDMA Band V Rel 7	4132	22	21.70	21.49	21.63	20.82	20.87	21.66	19.68	20.66	19.73	21.48	21.67	19.70	20.65	19.73	21.48
	4183	22	21.89	21.75	21.78	21.13	21.17	21.82	19.83	20.81	19.89	21.58	21.81	19.83	20.81	19.89	21.58
	4233	22	21.72	21.84	21.59	21.47	21.53	21.64	19.60	20.64	19.66	21.45	21.63	19.60	20.62	19.66	21.45

HSDPA

SUB-TEST	β_c	β_d	β_d *(SF)*	β_c/β_d	β_{HS} *(Note1, 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} *(Note1)*	β_{ec}	β_{ed} *(Note 5) (Note 6)*	β_{ed} *(SF)*	β_{ed} *(Codes)*	CM *(dB) (Note 2)*	MPR *(dB) (Note 2)*	*AG Index (Note 6)*	*E-TFCI*
1	11/15	15/15	64	11/15	22/15	209/225	1309/225	4	1	1.0	0.0	20	75
2	6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67
3	15/15	9/15	64	15/9	30/15	30/15	β_{ed}1: 47/15 β_{ed}2: 47/15	4 4	2	2.0	1.0	15	92
4	2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71
5	15/15	15/15	64	15/15	30/15	24/15	134/15	4	1	1.0	0.0	21	81

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

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 IV Rel 7	1312	21.5	21.13	21.30	21.01	20.82	20.89	21.05	19.02	20.03	19.15	20.86	21.06	19.04	20.03	19.15	20.86
	1412	21.5	21.15	21.04	21.01	20.48	20.49	21.13	19.18	20.13	19.23	20.97	21.12	19.16	20.11	19.20	20.97
	1513	21.5	21.17	21.03	21.02	20.36	20.48	21.11	19.09	20.13	19.13	20.96	21.12	19.11	20.13	19.15	20.98

HSDPA

SUB-TEST	β_c	β_d	β_d *(SF)*	β_c/β_d	β_{HS} *(Note1, 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} *(Note1)*	β_{ec}	β_{ed} *(Note 5) (Note 6)*	β_{ed} *(SF)*	β_{ed} *(Codes)*	CM *(dB) (Note 2)*	MPR *(dB) (Note 2)*	*AG Index (Note 6)*	*E-TFCI*
1	11/15	15/15	64	11/15	22/15	209/225	1309/225	4	1	1.0	0.0	20	75
2	6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67
3	15/15	9/15	64	15/9	30/15	30/15	β_{ed}1: 47/15 β_{ed}2: 47/15	4 4	2	2.0	1.0	15	92
4	2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71
5	15/15	15/15	64	15/15	30/15	24/15	134/15	4	1	1.0	0.0	21	81

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

FDD Band 4								
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Tune-up tolerance limit (dBm)	MPR allowed per 3GPP(dB)
20	QPSK	1 RB	0	1720	20050	22.65	23	0
				1732.5	20175	22.51	23	0
				1745	20300	22.76	23	0
			50	1720	20050	22.74	23	0
				1732.5	20175	22.77	23	0
				1745	20300	22.55	23	0
			99	1720	20050	22.87	23	0
				1732.5	20175	22.41	23	0
				1745	20300	22.71	23	0
		50 RB	0	1720	20050	21.36	23	0-1
				1732.5	20175	21.37	23	0-1
				1745	20300	21.12	23	0-1
			25	1720	20050	21.19	23	0-1
				1732.5	20175	21.38	23	0-1
				1745	20300	21.36	23	0-1
			50	1720	20050	21.51	23	0-1
				1732.5	20175	21.29	23	0-1
				1745	20300	21.23	23	0-1
		100RB		1720	20050	21.37	23	0-1
				1732.5	20175	21.34	23	0-1
				1745	20300	21.37	23	0-1
	16-QAM	1 RB	0	1720	20050	21.82	22	0-1
				1732.5	20175	21.76	22	0-1
				1745	20300	21.75	22	0-1
			50	1720	20050	21.91	22	0-1
				1732.5	20175	21.92	22	0-1
				1745	20300	21.48	22	0-1
			99	1720	20050	21.50	22	0-1
				1732.5	20175	21.55	22	0-1
				1745	20300	21.84	22	0-1
		50 RB	0	1720	20050	20.29	22	0-2
				1732.5	20175	20.35	22	0-2
				1745	20300	20.21	22	0-2
			25	1720	20050	20.55	22	0-2
				1732.5	20175	20.34	22	0-2
				1745	20300	20.44	22	0-2
			50	1720	20050	20.15	22	0-2
				1732.5	20175	20.32	22	0-2
				1745	20300	20.23	22	0-2
		100RB		1720	20050	20.32	22	0-2
				1732.5	20175	20.26	22	0-2
				1745	20300	20.32	22	0-2

FDD Band 4								
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Tune-up tolerance limit (dBm)	MPR allowed per 3GPP(dB)
15	QPSK	1 RB	0	1717.5	20025	22.73	23	0
				1732.5	20175	22.44	23	0
				1747.5	20325	22.68	23	0
			36	1717.5	20025	22.53	23	0
				1732.5	20175	22.58	23	0
				1747.5	20325	22.42	23	0
			74	1717.5	20025	22.58	23	0
				1732.5	20175	22.61	23	0
				1747.5	20325	22.02	23	0
		36 RB	0	1717.5	20025	21.47	23	0-1
				1732.5	20175	21.51	23	0-1
				1747.5	20325	21.41	23	0-1
			18	1717.5	20025	21.42	23	0-1
				1732.5	20175	21.43	23	0-1
				1747.5	20325	21.31	23	0-1
			37	1717.5	20025	21.40	23	0-1
				1732.5	20175	21.51	23	0-1
				1747.5	20325	21.29	23	0-1
		75RB		1717.5	20025	21.23	23	0-1
				1732.5	20175	21.46	23	0-1
				1747.5	20325	21.22	23	0-1
	16-QAM	1 RB	0	1717.5	20025	21.60	22	0-1
				1732.5	20175	21.62	22	0-1
				1747.5	20325	21.49	22	0-1
			36	1717.5	20025	21.80	22	0-1
				1732.5	20175	21.50	22	0-1
				1747.5	20325	21.93	22	0-1
			74	1717.5	20025	21.61	22	0-1
				1732.5	20175	21.70	22	0-1
				1747.5	20325	20.99	22	0-1
		36 RB	0	1717.5	20025	20.34	22	0-2
				1732.5	20175	20.43	22	0-2
				1747.5	20325	20.41	22	0-2
			18	1717.5	20025	20.22	22	0-2
				1732.5	20175	20.50	22	0-2
				1747.5	20325	20.35	22	0-2
			37	1717.5	20025	20.35	22	0-2
				1732.5	20175	20.46	22	0-2
				1747.5	20325	20.33	22	0-2
		75RB		1717.5	20025	20.45	22	0-2
				1732.5	20175	20.42	22	0-2
				1747.5	20325	20.27	22	0-2

FDD Band 4								
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Tune-up tolerance limit (dBm)	MPR allowed per 3GPP(dB)
10	QPSK	1 RB	0	1715	20000	22.54	23	0
				1732.5	20175	22.68	23	0
				1750	20350	22.29	23	0
			25	1715	20000	22.58	23	0
				1732.5	20175	22.72	23	0
				1750	20350	22.24	23	0
			49	1715	20000	22.53	23	0
				1732.5	20175	22.78	23	0
				1750	20350	22.75	23	0
		25 RB	0	1715	20000	21.42	23	0-1
				1732.5	20175	21.47	23	0-1
				1750	20350	21.34	23	0-1
			12	1715	20000	21.52	23	0-1
				1732.5	20175	21.43	23	0-1
				1750	20350	21.34	23	0-1
			25	1715	20000	21.52	23	0-1
				1732.5	20175	21.49	23	0-1
				1750	20350	21.30	23	0-1
		50RB		1715	20000	21.24	23	0-1
				1732.5	20175	21.36	23	0-1
				1750	20350	21.20	23	0-1
	16-QAM	1 RB	0	1715	20000	21.48	22	0-1
				1732.5	20175	21.98	22	0-1
				1750	20350	21.61	22	0-1
			25	1715	20000	21.20	22	0-1
				1732.5	20175	21.20	22	0-1
				1750	20350	21.18	22	0-1
			49	1715	20000	21.71	22	0-1
				1732.5	20175	21.22	22	0-1
				1750	20350	20.95	22	0-1
		25 RB	0	1715	20000	20.25	22	0-2
				1732.5	20175	20.46	22	0-2
				1750	20350	20.40	22	0-2
			12	1715	20000	20.40	22	0-2
				1732.5	20175	20.37	22	0-2
				1750	20350	20.27	22	0-2
			25	1715	20000	20.42	22	0-2
				1732.5	20175	20.33	22	0-2
				1750	20350	20.24	22	0-2
		50RB		1715	20000	20.24	22	0-2
				1732.5	20175	20.29	22	0-2
				1750	20350	20.25	22	0-2

FDD Band 4								
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Tune-up tolerance limit (dBm)	MPR allowed per 3GPP(dB)
5	QPSK	1 RB	0	1712.5	19975	22.34	23	0
				1732.5	20175	22.22	23	0
				1752.5	20375	22.70	23	0
			12	1712.5	19975	22.37	23	0
				1732.5	20175	22.72	23	0
				1752.5	20375	22.24	23	0
			24	1712.5	19975	22.31	23	0
				1732.5	20175	22.40	23	0
				1752.5	20375	22.03	23	0
		12 RB	0	1712.5	19975	21.56	23	0-1
				1732.5	20175	21.50	23	0-1
				1752.5	20375	21.29	23	0-1
			6	1712.5	19975	21.41	23	0-1
				1732.5	20175	21.50	23	0-1
				1752.5	20375	21.39	23	0-1
			13	1712.5	19975	21.41	23	0-1
				1732.5	20175	21.53	23	0-1
				1752.5	20375	21.30	23	0-1
		25RB		1712.5	19975	21.28	23	0-1
				1732.5	20175	21.32	23	0-1
				1752.5	20375	21.22	23	0-1
	16-QAM	1 RB	0	1712.5	19975	21.72	22	0-1
				1732.5	20175	21.45	22	0-1
				1752.5	20375	20.99	22	0-1
			12	1712.5	19975	21.76	22	0-1
				1732.5	20175	21.70	22	0-1
				1752.5	20375	21.56	22	0-1
			24	1712.5	19975	21.75	22	0-1
				1732.5	20175	21.86	22	0-1
				1752.5	20375	21.43	22	0-1
		12 RB	0	1712.5	19975	20.50	22	0-2
				1732.5	20175	20.57	22	0-2
				1752.5	20375	20.28	22	0-2
			6	1712.5	19975	20.75	22	0-2
				1732.5	20175	20.56	22	0-2
				1752.5	20375	20.38	22	0-2
			13	1712.5	19975	20.30	22	0-2
				1732.5	20175	20.60	22	0-2
				1752.5	20375	20.17	22	0-2
		25RB		1712.5	19975	20.18	22	0-2
				1732.5	20175	20.34	22	0-2
				1752.5	20375	20.15	22	0-2

FDD Band 4								
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Tune-up tolerance limit (dBm)	MPR allowed per 3GPP(dB)
3	QPSK	1 RB	0	1711.5	19965	22.45	23	0
				1732.5	20175	22.40	23	0
				1753.5	20385	22.09	23	0
			7	1711.5	19965	22.37	23	0
				1732.5	20175	22.61	23	0
				1753.5	20385	22.25	23	0
			14	1711.5	19965	22.45	23	0
				1732.5	20175	22.40	23	0
				1753.5	20385	22.09	23	0
		8 RB	0	1711.5	19965	21.60	23	0-1
				1732.5	20175	21.83	23	0-1
				1753.5	20385	21.38	23	0-1
			4	1711.5	19965	21.35	23	0-1
				1732.5	20175	21.50	23	0-1
				1753.5	20385	21.44	23	0-1
			7	1711.5	19965	21.31	23	0-1
				1732.5	20175	21.64	23	0-1
				1753.5	20385	21.38	23	0-1
		15RB		1711.5	19965	21.24	23	0-1
				1732.5	20175	21.75	23	0-1
				1753.5	20385	21.30	23	0-1
	16-QAM	1 RB	0	1711.5	19965	21.42	22	0-1
				1732.5	20175	21.60	22	0-1
				1753.5	20385	21.32	22	0-1
			7	1711.5	19965	21.66	22	0-1
				1732.5	20175	21.72	22	0-1
				1753.5	20385	21.67	22	0-1
			14	1711.5	19965	21.62	22	0-1
				1732.5	20175	21.48	22	0-1
				1753.5	20385	21.38	22	0-1
		8 RB	0	1711.5	19965	20.51	22	0-2
				1732.5	20175	20.46	22	0-2
				1753.5	20385	20.36	22	0-2
			4	1711.5	19965	20.29	22	0-2
				1732.5	20175	20.59	22	0-2
				1753.5	20385	20.36	22	0-2
			7	1711.5	19965	20.25	22	0-2
				1732.5	20175	20.70	22	0-2
				1753.5	20385	20.34	22	0-2
		15RB		1711.5	19965	20.47	22	0-2
				1732.5	20175	20.37	22	0-2
				1753.5	20385	20.24	22	0-2

FDD Band 4								
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Tune-up tolerance limit (dBm)	MPR allowed per 3GPP(dB)
1.4	QPSK	1 RB	0	1710.7	19957	22.69	23	0
				1732.5	20175	22.71	23	0
				1754.3	20393	22.33	23	0
			2	1710.7	19957	22.62	23	0
				1732.5	20175	22.24	23	0
				1754.3	20393	22.35	23	0
			5	1710.7	19957	22.70	23	0
				1732.5	20175	22.67	23	0
				1754.3	20393	22.33	23	0
		3 RB	0	1710.7	19957	22.09	23	0
				1732.5	20175	22.26	23	0
				1754.3	20393	22.21	23	0
			2	1710.7	19957	22.60	23	0
				1732.5	20175	22.67	23	0
				1754.3	20393	22.20	23	0
			3	1710.7	19957	22.59	23	0
				1732.5	20175	22.57	23	0
				1754.3	20393	22.19	23	0
		6RB		1710.7	19957	21.47	23	0-1
				1732.5	20175	21.68	23	0-1
				1754.3	20393	21.38	23	0-1
	16-QAM	1 RB	0	1710.7	19957	21.37	22	0-1
				1732.5	20175	21.77	22	0-1
				1754.3	20393	21.13	22	0-1
			2	1710.7	19957	21.25	22	0-1
				1732.5	20175	21.55	22	0-1
				1754.3	20393	21.49	22	0-1
			5	1710.7	19957	21.52	22	0-1
				1732.5	20175	21.54	22	0-1
				1754.3	20393	21.48	22	0-1
		3 RB	0	1710.7	19957	21.52	22	0-1
				1732.5	20175	21.66	22	0-1
				1754.3	20393	21.23	22	0-1
			2	1710.7	19957	21.66	22	0-1
				1732.5	20175	21.24	22	0-1
				1754.3	20393	21.19	22	0-1
			3	1710.7	19957	21.63	22	0-1
				1732.5	20175	21.72	22	0-1
				1754.3	20393	21.16	22	0-1
		6RB		1710.7	19957	20.58	22	0-2
				1732.5	20175	20.50	22	0-2
				1754.3	20393	20.27	22	0-2

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FDD Band 4 (Reduced power)								
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Tune-up tolerance limit (dBm)	MPR allowed per 3GPP(dB)
20	QPSK	1 RB	0	1720	20050	18.85	20	0
				1732.5	20175	18.97	20	0
				1745	20300	19.05	20	0
			50	1720	20050	19.04	20	0
				1732.5	20175	19.05	20	0
				1745	20300	19.09	20	0
			99	1720	20050	19.05	20	0
				1732.5	20175	19.01	20	0
				1745	20300	19.2	20	0
		50 RB	0	1720	20050	18.77	20	0-1
				1732.5	20175	18.72	20	0-1
				1745	20300	18.92	20	0-1
			25	1720	20050	18.85	20	0-1
				1732.5	20175	18.85	20	0-1
				1745	20300	18.84	20	0-1
			50	1720	20050	18.80	20	0-1
				1732.5	20175	18.81	20	0-1
				1745	20300	18.82	20	0-1
		100RB		1720	20050	18.86	20	0-1
				1732.5	20175	18.86	20	0-1
				1745	20300	18.90	20	0-1
	16-QAM	1 RB	0	1720	20050	18.72	20	0-1
				1732.5	20175	18.76	20	0-1
				1745	20300	19.18	20	0-1
			50	1720	20050	19.18	20	0-1
				1732.5	20175	19.21	20	0-1
				1745	20300	18.77	20	0-1
			99	1720	20050	19.22	20	0-1
				1732.5	20175	19.16	20	0-1
				1745	20300	18.98	20	0-1
		50 RB	0	1720	20050	18.71	20	0-2
				1732.5	20175	18.77	20	0-2
				1745	20300	18.80	20	0-2
			25	1720	20050	18.76	20	0-2
				1732.5	20175	18.72	20	0-2
				1745	20300	18.83	20	0-2
			50	1720	20050	18.76	20	0-2
				1732.5	20175	18.72	20	0-2
				1745	20300	18.87	20	0-2
		100RB		1720	20050	18.79	20	0-2
				1732.5	20175	18.81	20	0-2
				1745	20300	18.89	20	0-2

FDD Band 4 (Reduced power)								
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm))	MPR allowed per 3GPP(dB)
15	QPSK	1 RB	0	1717.5	20025	19.05	20	0
				1732.5	20175	19.14	20	0
				1747.5	20325	19.20	20	0
			36	1717.5	20025	19.00	20	0
				1732.5	20175	19.12	20	0
				1747.5	20325	19.20	20	0
			74	1717.5	20025	18.94	20	0
				1732.5	20175	19.04	20	0
				1747.5	20325	19.10	20	0
		36 RB	0	1717.5	20025	18.85	20	0-1
				1732.5	20175	18.82	20	0-1
				1747.5	20325	19.03	20	0-1
			18	1717.5	20025	19.00	20	0-1
				1732.5	20175	18.90	20	0-1
				1747.5	20325	18.95	20	0-1
			37	1717.5	20025	18.99	20	0-1
				1732.5	20175	18.93	20	0-1
				1747.5	20325	18.93	20	0-1
		75RB		1717.5	20025	18.87	20	0-1
				1732.5	20175	18.95	20	0-1
				1747.5	20325	18.91	20	0-1
	16-QAM	1 RB	0	1717.5	20025	18.66	20	0-1
				1732.5	20175	19.12	20	0-1
				1747.5	20325	19.2	20	0-1
			36	1717.5	20025	18.72	20	0-1
				1732.5	20175	19.1	20	0-1
				1747.5	20325	19.19	20	0-1
			74	1717.5	20025	18.86	20	0-1
				1732.5	20175	19.22	20	0-1
				1747.5	20325	19.13	20	0-1
		36 RB	0	1717.5	20025	18.91	20	0-2
				1732.5	20175	18.79	20	0-2
				1747.5	20325	18.92	20	0-2
			18	1717.5	20025	18.96	20	0-2
				1732.5	20175	18.87	20	0-2
				1747.5	20325	18.92	20	0-2
			37	1717.5	20025	18.97	20	0-2
				1732.5	20175	18.90	20	0-2
				1747.5	20325	18.90	20	0-2
		75RB		1717.5	20025	18.82	20	0-2
				1732.5	20175	18.84	20	0-2
				1747.5	20325	18.80	20	0-2

FDD Band 4 (Reduced power)								
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm))	MPR allowed per 3GPP(dB)
10	QPSK	1 RB	0	1715	20000	18.85	20	0
				1732.5	20175	18.96	20	0
				1750	20350	19.02	20	0
			25	1715	20000	18.97	20	0
				1732.5	20175	19.09	20	0
				1750	20350	19.03	20	0
			49	1715	20000	19.10	20	0
				1732.5	20175	18.96	20	0
				1750	20350	19.05	20	0
		25 RB	0	1715	20000	18.95	20	0-1
				1732.5	20175	18.93	20	0-1
				1750	20350	18.99	20	0-1
			12	1715	20000	18.91	20	0-1
				1732.5	20175	18.86	20	0-1
				1750	20350	19.00	20	0-1
			25	1715	20000	18.95	20	0-1
				1732.5	20175	18.91	20	0-1
				1750	20350	18.97	20	0-1
		50RB		1715	20000	18.75	20	0-1
				1732.5	20175	18.83	20	0-1
				1750	20350	18.87	20	0-1
	16-QAM	1 RB	0	1715	20000	18.71	20	0-1
				1732.5	20175	18.99	20	0-1
				1750	20350	19.07	20	0-1
			25	1715	20000	18.96	20	0-1
				1732.5	20175	18.70	20	0-1
				1750	20350	18.99	20	0-1
			49	1715	20000	19.17	20	0-1
				1732.5	20175	18.60	20	0-1
				1750	20350	19.19	20	0-1
		25 RB	0	1715	20000	18.74	20	0-2
				1732.5	20175	18.86	20	0-2
				1750	20350	18.91	20	0-2
			12	1715	20000	18.79	20	0-2
				1732.5	20175	18.94	20	0-2
				1750	20350	18.93	20	0-2
			25	1715	20000	18.92	20	0-2
				1732.5	20175	18.86	20	0-2
				1750	20350	18.95	20	0-2
		50RB		1715	20000	18.77	20	0-2
				1732.5	20175	18.74	20	0-2
				1750	20350	18.89	20	0-2

FDD Band 4 (Reduced power)								
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm))	MPR allowed per 3GPP(dB)
5	QPSK	1 RB	0	1712.5	19975	18.83	20	0
				1732.5	20175	18.93	20	0
				1752.5	20375	19.05	20	0
			12	1712.5	19975	18.90	20	0
				1732.5	20175	18.88	20	0
				1752.5	20375	19.11	20	0
			24	1712.5	19975	18.97	20	0
				1732.5	20175	19.00	20	0
				1752.5	20375	18.97	20	0
		12 RB	0	1712.5	19975	18.92	20	0-1
				1732.5	20175	19.04	20	0-1
				1752.5	20375	19.07	20	0-1
			6	1712.5	19975	19.01	20	0-1
				1732.5	20175	19.04	20	0-1
				1752.5	20375	18.99	20	0-1
			13	1712.5	19975	18.99	20	0-1
				1732.5	20175	18.99	20	0-1
				1752.5	20375	19.05	20	0-1
		25RB		1712.5	19975	18.88	20	0-1
				1732.5	20175	18.89	20	0-1
				1752.5	20375	18.93	20	0-1
	16-QAM	1 RB	0	1712.5	19975	18.94	20	0-1
				1732.5	20175	18.91	20	0-1
				1752.5	20375	19.01	20	0-1
			12	1712.5	19975	19.14	20	0-1
				1732.5	20175	18.70	20	0-1
				1752.5	20375	18.91	20	0-1
			24	1712.5	19975	18.82	20	0-1
				1732.5	20175	18.94	20	0-1
				1752.5	20375	18.91	20	0-1
		12 RB	0	1712.5	19975	18.91	20	0-2
				1732.5	20175	19.03	20	0-2
				1752.5	20375	19.08	20	0-2
			6	1712.5	19975	18.92	20	0-2
				1732.5	20175	19.01	20	0-2
				1752.5	20375	19.14	20	0-2
			13	1712.5	19975	18.95	20	0-2
				1732.5	20175	19.05	20	0-2
				1752.5	20375	19.00	20	0-2
		25RB		1712.5	19975	18.76	20	0-2
				1732.5	20175	18.93	20	0-2
				1752.5	20375	18.92	20	0-2

FDD Band 4 (Reduced power)								
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm))	MPR allowed per 3GPP(dB)
3	QPSK	1 RB	0	1711.5	19965	18.79	20	0
				1732.5	20175	18.74	20	0
				1753.5	20385	18.99	20	0
			7	1711.5	19965	18.90	20	0
				1732.5	20175	18.97	20	0
				1753.5	20385	19.11	20	0
			14	1711.5	19965	18.93	20	0
				1732.5	20175	18.96	20	0
				1753.5	20385	19.02	20	0
		8 RB	0	1711.5	19965	18.87	20	0-1
				1732.5	20175	18.97	20	0-1
				1753.5	20385	19.09	20	0-1
			4	1711.5	19965	18.92	20	0-1
				1732.5	20175	19.06	20	0-1
				1753.5	20385	19.01	20	0-1
			7	1711.5	19965	19.01	20	0-1
				1732.5	20175	18.99	20	0-1
				1753.5	20385	19.02	20	0-1
		15RB		1711.5	19965	18.95	20	0-1
				1732.5	20175	19.01	20	0-1
				1753.5	20385	19.07	20	0-1
	16-QAM	1 RB	0	1711.5	19965	19.17	20	0-1
				1732.5	20175	18.98	20	0-1
				1753.5	20385	19.19	20	0-1
			7	1711.5	19965	19.21	20	0-1
				1732.5	20175	19.18	20	0-1
				1753.5	20385	18.71	20	0-1
			14	1711.5	19965	19.22	20	0-1
				1732.5	20175	18.60	20	0-1
				1753.5	20385	18.75	20	0-1
		8 RB	0	1711.5	19965	18.66	20	0-2
				1732.5	20175	18.96	20	0-2
				1753.5	20385	18.95	20	0-2
			4	1711.5	19965	18.79	20	0-2
				1732.5	20175	18.89	20	0-2
				1753.5	20385	19.00	20	0-2
			7	1711.5	19965	18.94	20	0-2
				1732.5	20175	18.99	20	0-2
				1753.5	20385	18.95	20	0-2
		15RB		1711.5	19965	18.94	20	0-2
				1732.5	20175	18.88	20	0-2
				1753.5	20385	19.08	20	0-2

FDD Band 4 (Reduced power)								
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm))	MPR allowed per 3GPP(dB)
1.4	QPSK	1 RB	0	1710.7	19957	18.76	20	0
				1732.5	20175	18.97	20	0
				1754.3	20393	19.06	20	0
			2	1710.7	19957	18.83	20	0
				1732.5	20175	18.94	20	0
				1754.3	20393	18.99	20	0
			5	1710.7	19957	18.83	20	0
				1732.5	20175	18.93	20	0
				1754.3	20393	19.07	20	0
		3 RB	0	1710.7	19957	18.77	20	0
				1732.5	20175	18.88	20	0
				1754.3	20393	19.00	20	0
			2	1710.7	19957	18.77	20	0
				1732.5	20175	18.86	20	0
				1754.3	20393	19.01	20	0
			3	1710.7	19957	18.80	20	0
				1732.5	20175	18.97	20	0
				1754.3	20393	19.00	20	0
		6RB		1710.7	19957	18.82	20	0-1
				1732.5	20175	18.89	20	0-1
				1754.3	20393	18.96	20	0-1
	16-QAM	1 RB	0	1710.7	19957	18.96	20	0-1
				1732.5	20175	18.63	20	0-1
				1754.3	20393	18.92	20	0-1
			2	1710.7	19957	18.62	20	0-1
				1732.5	20175	19.19	20	0-1
				1754.3	20393	18.89	20	0-1
			5	1710.7	19957	19.06	20	0-1
				1732.5	20175	18.86	20	0-1
				1754.3	20393	19.22	20	0-1
		3 RB	0	1710.7	19957	18.89	20	0-1
				1732.5	20175	19.04	20	0-1
				1754.3	20393	19.07	20	0-1
			2	1710.7	19957	18.72	20	0-1
				1732.5	20175	18.80	20	0-1
				1754.3	20393	18.96	20	0-1
			3	1710.7	19957	18.78	20	0-1
				1732.5	20175	18.82	20	0-1
				1754.3	20393	18.92	20	0-1
		6RB		1710.7	19957	18.76	20	0-2
				1732.5	20175	18.96	20	0-2
				1754.3	20393	19.17	20	0-2

FDD Band 13								
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Tune-up tolerance limit (dBm)	MPR allowed per 3GPP(dB)
10	QPSK	1 RB	0	782	23230	21.71	22.1	0
			25	782	23230	22.06	22.1	0
			49	782	23230	21.55	22.1	0
		25 RB	0	782	23230	20.25	22.1	0-1
			12	782	23230	20.65	22.1	0-1
			25	782	23230	20.43	22.1	0-1
		50RB		782	23230	20.56	22.1	0-1
	16-QAM	1 RB	0	782	23230	19.99	21.1	0-1
			25	782	23230	20.63	21.1	0-1
			49	782	23230	20.77	21.1	0-1
		25 RB	0	782	23230	19.28	21.1	0-2
			12	782	23230	19.59	21.1	0-2
			25	782	23230	19.45	21.1	0-2
		50RB		782	23230	19.58	21.1	0-2

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FDD Band 13								
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Tune-up tolerance limit (dBm)	MPR allowed per 3GPP(dB)
5	QPSK	1 RB	0	779.5	23205	21.03	22.1	0
				782	23230	21.67	22.1	0
				784.5	23255	21.65	22.1	0
			12	779.5	23205	21.51	22.1	0
				782	23230	21.47	22.1	0
				784.5	23255	21.27	22.1	0
			24	779.5	23205	21.53	22.1	0
				782	23230	21.42	22.1	0
				784.5	23255	21.52	22.1	0
		12 RB	0	779.5	23205	20.36	22.1	0-1
				782	23230	20.39	22.1	0-1
				784.5	23255	20.68	22.1	0-1
			6	779.5	23205	20.71	22.1	0-1
				782	23230	20.64	22.1	0-1
				784.5	23255	20.49	22.1	0-1
			13	779.5	23205	20.71	22.1	0-1
				782	23230	20.64	22.1	0-1
				784.5	23255	20.49	22.1	0-1
		25RB		779.5	23205	20.09	22.1	0-1
				782	23230	20.56	22.1	0-1
				784.5	23255	20.48	22.1	0-1
	16-QAM	1 RB	0	779.5	23205	19.82	21.1	0-1
				782	23230	20.52	21.1	0-1
				784.5	23255	20.44	21.1	0-1
			12	779.5	23205	20.91	21.1	0-1
				782	23230	20.99	21.1	0-1
				784.5	23255	20.49	21.1	0-1
			24	779.5	23205	20.86	21.1	0-1
				782	23230	20.49	21.1	0-1
				784.5	23255	20.49	21.1	0-1
		12 RB	0	779.5	23205	19.48	21.1	0-2
				782	23230	19.70	21.1	0-2
				784.5	23255	19.77	21.1	0-2
			6	779.5	23205	19.65	21.1	0-2
				782	23230	19.61	21.1	0-2
				784.5	23255	19.49	21.1	0-2
			13	779.5	23205	19.74	21.1	0-2
				782	23230	19.56	21.1	0-2
				784.5	23255	19.39	21.1	0-2
		25RB		779.5	23205	19.55	21.1	0-2
				782	23230	19.53	21.1	0-2
				784.5	23255	19.51	21.1	0-2

FDD Band 17								
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Tune-up tolerance limit (dBm)	MPR allowed per 3GPP(dB)
10	QPSK	1 RB	0	709	23780	22.30	22.5	0
				710	23790	22.19	22.5	0
				711	23800	22.24	22.5	0
			25	709	23780	22.42	22.5	0
				710	23790	22.20	22.5	0
				711	23800	22.02	22.5	0
			49	709	23780	22.32	22.5	0
				710	23790	22.07	22.5	0
				711	23800	22.02	22.5	0
		25 RB	0	709	23780	21.32	22.5	0-1
				710	23790	21.47	22.5	0-1
				711	23800	21.32	22.5	0-1
			12	709	23780	21.46	22.5	0-1
				710	23790	21.40	22.5	0-1
				711	23800	21.44	22.5	0-1
			25	709	23780	21.32	22.5	0-1
				710	23790	21.30	22.5	0-1
				711	23800	21.19	22.5	0-1
		50RB		709	23780	21.20	22.5	0-1
				710	23790	21.08	22.5	0-1
				711	23800	21.13	22.5	0-1
	16-QAM	1 RB	0	709	23780	21.76	22	0-1
				710	23790	21.46	22	0-1
				711	23800	21.53	22	0-1
			25	709	23780	21.36	22	0-1
				710	23790	21.54	22	0-1
				711	23800	21.16	22	0-1
			49	709	23780	21.11	22	0-1
				710	23790	21.26	22	0-1
				711	23800	21.16	22	0-1
		25 RB	0	709	23780	20.21	22	0-2
				710	23790	20.42	22	0-2
				711	23800	20.40	22	0-2
			12	709	23780	20.44	22	0-2
				710	23790	20.34	22	0-2
				711	23800	20.38	22	0-2
			25	709	23780	20.57	22	0-2
				710	23790	20.39	22	0-2
				711	23800	20.11	22	0-2
		50RB		709	23780	20.18	22	0-2
				710	23790	20.21	22	0-2
				711	23800	20.09	22	0-2

FDD Band 17								
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Tune-up tolerance limit (dBm)	MPR allowed per 3GPP(dB)
5	QPSK	1 RB	0	706.5	23755	22.10	22.5	0
				710	23790	22.45	22.5	0
				713.5	23825	22.27	22.5	0
			12	706.5	23755	22.26	22.5	0
				710	23790	22.24	22.5	0
				713.5	23825	22.18	22.5	0
			24	706.5	23755	22.40	22.5	0
				710	23790	22.37	22.5	0
				713.5	23825	22.02	22.5	0
		12 RB	0	706.5	23755	21.20	22.5	0-1
				710	23790	21.49	22.5	0-1
				713.5	23825	21.18	22.5	0-1
			6	706.5	23755	21.37	22.5	0-1
				710	23790	21.31	22.5	0-1
				713.5	23825	21.17	22.5	0-1
			13	706.5	23755	21.55	22.5	0-1
				710	23790	21.43	22.5	0-1
				713.5	23825	21.06	22.5	0-1
		25RB		706.5	23755	21.19	22.5	0-1
				710	23790	21.29	22.5	0-1
				713.5	23825	21.09	22.5	0-1
	16-QAM	1 RB	0	706.5	23755	21.19	22	0-1
				710	23790	20.90	22	0-1
				713.5	23825	21.14	22	0-1
			12	706.5	23755	21.45	22	0-1
				710	23790	21.53	22	0-1
				713.5	23825	21.00	22	0-1
			24	706.5	23755	21.51	22	0-1
				710	23790	21.77	22	0-1
				713.5	23825	21.10	22	0-1
		12 RB	0	706.5	23755	20.53	22	0-2
				710	23790	20.35	22	0-2
				713.5	23825	20.23	22	0-2
			6	706.5	23755	20.33	22	0-2
				710	23790	20.68	22	0-2
				713.5	23825	20.18	22	0-2
			13	706.5	23755	20.49	22	0-2
				710	23790	20.37	22	0-2
				713.5	23825	20.17	22	0-2
		25RB		706.5	23755	20.20	22	0-2
				710	23790	20.30	22	0-2
				713.5	23825	20.25	22	0-2

FDD Band 25								
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Tune-up tolerance limit (dBm)	MPR allowed per 3GPP(dB)
20	QPSK	1 RB	0	1860	26140	22.21	22.5	0
				1882.5	26365	22.14	22.5	0
				1905	26590	22.04	22.5	0
			50	1860	26140	22.50	22.5	0
				1882.5	26365	22.30	22.5	0
				1905	26590	22.04	22.5	0
			99	1860	26140	22.30	22.5	0
				1882.5	26365	22.19	22.5	0
				1905	26590	22.28	22.5	0
		50 RB	0	1860	26140	21.14	22.5	0-1
				1882.5	26365	21.17	22.5	0-1
				1905	26590	20.97	22.5	0-1
			25	1860	26140	21.10	22.5	0-1
				1882.5	26365	21.10	22.5	0-1
				1905	26590	20.92	22.5	0-1
			50	1860	26140	20.96	22.5	0-1
				1882.5	26365	20.96	22.5	0-1
				1905	26590	21.08	22.5	0-1
		100RB		1860	26140	21.13	22.5	0-1
				1882.5	26365	21.08	22.5	0-1
				1905	26590	21.02	22.5	0-1
	16-QAM	1 RB	0	1860	26140	21.22	22	0-1
				1882.5	26365	21.63	22	0-1
				1905	26590	21.43	22	0-1
			50	1860	26140	21.53	22	0-1
				1882.5	26365	21.18	22	0-1
				1905	26590	20.99	22	0-1
			99	1860	26140	21.61	22	0-1
				1882.5	26365	21.11	22	0-1
				1905	26590	21.16	22	0-1
		50 RB	0	1860	26140	20.31	22	0-2
				1882.5	26365	20.21	22	0-2
				1905	26590	20.03	22	0-2
			25	1860	26140	20.12	22	0-2
				1882.5	26365	20.07	22	0-2
				1905	26590	19.91	22	0-2
			50	1860	26140	19.99	22	0-2
				1882.5	26365	20.00	22	0-2
				1905	26590	19.97	22	0-2
		100RB		1860	26140	20.22	22	0-2
				1882.5	26365	20.11	22	0-2
				1905	26590	20.04	22	0-2

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FDD Band 25								
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Tune-up tolerance limit (dBm)	MPR allowed per 3GPP(dB)
15	QPSK	1 RB	0	1857.5	26115	22.28	22.5	0
				1882.5	26365	22.38	22.5	0
				1907.5	26615	22.15	22.5	0
			36	1857.5	26115	22.39	22.5	0
				1882.5	26365	22.33	22.5	0
				1907.5	26615	22.22	22.5	0
			74	1857.5	26115	22.40	22.5	0
				1882.5	26365	22.19	22.5	0
				1907.5	26615	22.34	22.5	0
		36 RB	0	1857.5	26115	21.23	22.5	0-1
				1882.5	26365	21.26	22.5	0-1
				1907.5	26615	21.00	22.5	0-1
			18	1857.5	26115	21.18	22.5	0-1
				1882.5	26365	21.12	22.5	0-1
				1907.5	26615	21.11	22.5	0-1
			37	1857.5	26115	21.24	22.5	0-1
				1882.5	26365	20.98	22.5	0-1
				1907.5	26615	21.20	22.5	0-1
		75RB		1857.5	26115	21.22	22.5	0-1
				1882.5	26365	21.10	22.5	0-1
				1907.5	26615	21.19	22.5	0-1
	16-QAM	1 RB	0	1857.5	26115	21.35	22	0-1
				1882.5	26365	21.20	22	0-1
				1907.5	26615	20.82	22	0-1
			36	1857.5	26115	21.75	22	0-1
				1882.5	26365	21.48	22	0-1
				1907.5	26615	21.23	22	0-1
			74	1857.5	26115	21.42	22	0-1
				1882.5	26365	21.29	22	0-1
				1907.5	26615	21.76	22	0-1
		36 RB	0	1857.5	26115	20.34	22	0-2
				1882.5	26365	20.32	22	0-2
				1907.5	26615	20.07	22	0-2
			18	1857.5	26115	20.20	22	0-2
				1882.5	26365	20.17	22	0-2
				1907.5	26615	20.07	22	0-2
			37	1857.5	26115	20.25	22	0-2
				1882.5	26365	20.12	22	0-2
				1907.5	26615	20.15	22	0-2
		75RB		1857.5	26115	20.11	22	0-2
				1882.5	26365	20.05	22	0-2
				1907.5	26615	20.10	22	0-2

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FDD Band 25								
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Tune-up tolerance limit (dBm)	MPR allowed per 3GPP(dB)
10	QPSK	1 RB	0	1855	26090	22.15	22.5	0
				1882.5	26365	22.20	22.5	0
				1910	26640	22.31	22.5	0
			25	1855	26090	22.33	22.5	0
				1882.5	26365	22.45	22.5	0
				1910	26640	22.38	22.5	0
			49	1855	26090	22.31	22.5	0
				1882.5	26365	22.10	22.5	0
				1910	26640	22.46	22.5	0
		25 RB	0	1855	26090	21.19	22.5	0-1
				1882.5	26365	21.36	22.5	0-1
				1910	26640	21.14	22.5	0-1
			12	1855	26090	21.21	22.5	0-1
				1882.5	26365	21.19	22.5	0-1
				1910	26640	21.20	22.5	0-1
			25	1855	26090	21.30	22.5	0-1
				1882.5	26365	21.13	22.5	0-1
				1910	26640	21.49	22.5	0-1
		50RB		1855	26090	21.10	22.5	0-1
				1882.5	26365	21.11	22.5	0-1
				1910	26640	21.12	22.5	0-1
	16-QAM	1 RB	0	1855	26090	21.59	22	0-1
				1882.5	26365	21.67	22	0-1
				1910	26640	21.03	22	0-1
			25	1855	26090	21.38	22	0-1
				1882.5	26365	21.33	22	0-1
				1910	26640	21.34	22	0-1
			49	1855	26090	21.31	22	0-1
				1882.5	26365	21.52	22	0-1
				1910	26640	21.43	22	0-1
		25 RB	0	1855	26090	20.19	22	0-2
				1882.5	26365	20.15	22	0-2
				1910	26640	20.21	22	0-2
			12	1855	26090	20.19	22	0-2
				1882.5	26365	20.15	22	0-2
				1910	26640	20.17	22	0-2
			25	1855	26090	20.15	22	0-2
				1882.5	26365	20.12	22	0-2
				1910	26640	20.53	22	0-2
		50RB		1855	26090	20.14	22	0-2
				1882.5	26365	20.10	22	0-2
				1910	26640	20.27	22	0-2

FDD Band 25								
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Tune-up tolerance limit (dBm)	MPR allowed per 3GPP(dB)
5	QPSK	1 RB	0	1852.5	26065	22.38	22.5	0
				1882.5	26365	22.17	22.5	0
				1912.5	26665	22.18	22.5	0
			12	1852.5	26065	22.39	22.5	0
				1882.5	26365	22.27	22.5	0
				1912.5	26665	22.36	22.5	0
			24	1852.5	26065	22.43	22.5	0
				1882.5	26365	22.19	22.5	0
				1912.5	26665	22.44	22.5	0
		12 RB	0	1852.5	26065	21.42	22.5	0-1
				1882.5	26365	21.40	22.5	0-1
				1912.5	26665	21.39	22.5	0-1
			6	1852.5	26065	21.34	22.5	0-1
				1882.5	26365	21.35	22.5	0-1
				1912.5	26665	21.42	22.5	0-1
			13	1852.5	26065	21.37	22.5	0-1
				1882.5	26365	21.35	22.5	0-1
				1912.5	26665	21.54	22.5	0-1
		25RB		1852.5	26065	21.24	22.5	0-1
				1882.5	26365	21.31	22.5	0-1
				1912.5	26665	21.54	22.5	0-1
	16-QAM	1 RB	0	1852.5	26065	21.36	22	0-1
				1882.5	26365	21.63	22	0-1
				1912.5	26665	21.36	22	0-1
			12	1852.5	26065	21.64	22	0-1
				1882.5	26365	21.59	22	0-1
				1912.5	26665	21.75	22	0-1
			24	1852.5	26065	21.57	22	0-1
				1882.5	26365	21.73	22	0-1
				1912.5	26665	21.44	22	0-1
		12 RB	0	1852.5	26065	20.34	22	0-2
				1882.5	26365	20.29	22	0-2
				1912.5	26665	20.55	22	0-2
			6	1852.5	26065	20.35	22	0-2
				1882.5	26365	20.35	22	0-2
				1912.5	26665	20.39	22	0-2
			13	1852.5	26065	20.34	22	0-2
				1882.5	26365	20.25	22	0-2
				1912.5	26665	20.48	22	0-2
		25RB		1852.5	26065	20.18	22	0-2
				1882.5	26365	20.14	22	0-2
				1912.5	26665	20.45	22	0-2

FDD Band 25								
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Tune-up tolerance limit (dBm)	MPR allowed per 3GPP(dB)
3	QPSK	1 RB	0	1851.5	26055	22.43	22.5	0
				1882.5	26365	22.47	22.5	0
				1913.5	26675	22.41	22.5	0
			7	1851.5	26055	22.46	22.5	0
				1882.5	26365	22.47	22.5	0
				1913.5	26675	22.46	22.5	0
			14	1851.5	26055	22.42	22.5	0
				1882.5	26365	22.45	22.5	0
				1913.5	26675	22.42	22.5	0
		8 RB	0	1851.5	26055	21.57	22.5	0-1
				1882.5	26365	21.67	22.5	0-1
				1913.5	26675	21.70	22.5	0-1
			4	1851.5	26055	21.59	22.5	0-1
				1882.5	26365	21.66	22.5	0-1
				1913.5	26675	21.69	22.5	0-1
			7	1851.5	26055	21.61	22.5	0-1
				1882.5	26365	21.54	22.5	0-1
				1913.5	26675	21.52	22.5	0-1
		15RB		1851.5	26055	21.50	22.5	0-1
				1882.5	26365	21.55	22.5	0-1
				1913.5	26675	21.63	22.5	0-1
	16-QAM	1 RB	0	1851.5	26055	21.64	22	0-1
				1882.5	26365	21.53	22	0-1
				1913.5	26675	21.66	22	0-1
			7	1851.5	26055	21.74	22	0-1
				1882.5	26365	21.48	22	0-1
				1913.5	26675	21.80	22	0-1
			14	1851.5	26055	21.78	22	0-1
				1882.5	26365	21.70	22	0-1
				1913.5	26675	21.57	22	0-1
		8 RB	0	1851.5	26055	20.49	22	0-2
				1882.5	26365	20.46	22	0-2
				1913.5	26675	20.59	22	0-2
			4	1851.5	26055	20.46	22	0-2
				1882.5	26365	20.44	22	0-2
				1913.5	26675	20.59	22	0-2
			7	1851.5	26055	20.46	22	0-2
				1882.5	26365	20.46	22	0-2
				1913.5	26675	20.52	22	0-2
		15RB		1851.5	26055	20.60	22	0-2
				1882.5	26365	20.51	22	0-2
				1913.5	26675	20.62	22	0-2

FDD Band 25								
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Tune-up tolerance limit (dBm)	MPR allowed per 3GPP(dB)
1.4	QPSK	1 RB	0	1850.7	26047	22.45	22.5	0
				1882.5	26365	22.41	22.5	0
				1914.3	26683	22.40	22.5	0
			2	1850.7	26047	22.42	22.5	0
				1882.5	26365	22.36	22.5	0
				1914.3	26683	22.28	22.5	0
			5	1850.7	26047	22.41	22.5	0
				1882.5	26365	22.49	22.5	0
				1914.3	26683	22.47	22.5	0
		3 RB	0	1850.7	26047	22.39	22.5	0
				1882.5	26365	22.39	22.5	0
				1914.3	26683	22.49	22.5	0
			2	1850.7	26047	22.40	22.5	0
				1882.5	26365	22.44	22.5	0
				1914.3	26683	22.43	22.5	0
			3	1850.7	26047	22.41	22.5	0
				1882.5	26365	22.45	22.5	0
				1914.3	26683	22.37	22.5	0
		6RB		1850.7	26047	21.52	22.5	0-1
				1882.5	26365	21.51	22.5	0-1
				1914.3	26683	21.68	22.5	0-1
	16-QAM	1 RB	0	1850.7	26047	21.22	22	0-1
				1882.5	26365	21.24	22	0-1
				1914.3	26683	21.34	22	0-1
			2	1850.7	26047	21.26	22	0-1
				1882.5	26365	21.06	22	0-1
				1914.3	26683	21.39	22	0-1
			5	1850.7	26047	21.36	22	0-1
				1882.5	26365	21.23	22	0-1
				1914.3	26683	21.28	22	0-1
		3 RB	0	1850.7	26047	21.35	22	0-1
				1882.5	26365	21.44	22	0-1
				1914.3	26683	21.59	22	0-1
			2	1850.7	26047	21.41	22	0-1
				1882.5	26365	21.63	22	0-1
				1914.3	26683	21.47	22	0-1
			3	1850.7	26047	21.52	22	0-1
				1882.5	26365	21.47	22	0-1
				1914.3	26683	21.54	22	0-1
		6RB		1850.7	26047	20.49	22	0-2
				1882.5	26365	20.59	22	0-2
				1914.3	26683	20.57	22	0-2

CDMA conducted power table :

Band	Channel	Frequency (MHz)	Tune-up tolerance limit	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 0/1	Subtype 2
Cellular (BC0)	1013	824.7	25	23.68	23.66	23.57	23.77	23.42	23.46	23.37
	384	836.52	25	23.71	23.73	23.68	23.79	23.41	23.43	23.33
	777	848.31	25	23.27	23.18	23.26	23.32	23.18	23.19	23.13
PCS (BC1)	25	1851.25	25	24.87	24.84	24.84	24.88	24.08	24.21	24.2
	600	1880	25	24.57	24.57	24.53	24.67	23.92	24.04	24.02
	1175	1908.75	25	24.49	24.51	24.51	24.55	23.81	24.01	23.94
BC10	476	817.9	25	23.55	23.64	23.69	23.65	23.34	23.32	23.21
	560	820	25	23.59	23.47	23.61	23.63	23.25	23.21	23.23
	684	823.1	25	23.67	23.65	23.77	23.7	23.33	23.31	23.3

CDMA conducted power table (Reduced power):

Band	Channel	Frequency (MHz)	Tune-up tolerance limit	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 0/1	Subtype 2
Cellular (BC0)	1013	824.7	22	21.73	21.79	21.76	21.82	21.76	21.77	21.71
	384	836.52	22	21.61	21.6	21.57	21.65	21.84	21.78	21.74
	777	848.31	22	21.48	21.48	21.48	21.51	21.58	21.56	21.48
PCS (BC1)	25	1851.25	22	21.96	21.98	21.96	22	22	21.99	21.98
	600	1880	22	21.86	21.86	21.84	21.95	21.89	21.88	21.85
	1175	1908.75	22	21.92	21.9	21.9	21.94	21.93	21.91	21.9
BC10	476	817.9	22	21.52	21.5	21.5	21.54	21.66	21.66	21.53
	560	820	22	21.5	21.53	21.47	21.59	21.58	21.61	21.52
	684	823.1	22	21.57	21.58	21.57	21.66	21.67	21.72	21.61

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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/ac(20M) 5G	V	V	V
WLAN802.11n/ac(40M) 5G	V	V	V
WLAN802.11ac(80M) 5G	V	V	V

Main Antenna (CH0)

802.11 b		Max. Rated Avg. Power + Max. Tolerance (dBm)	Average Power Output (dBm)			
			Data Rate (Mbps)			
CH	Frequency (MHz)		1	2	5.5	11
1	2412	15.5	15.48	15.38	15.27	15.21
6	2437	15.5	15.49	15.39	15.28	15.2
11	2462	15.5	15.34	15.25	15.15	15.05

802.11 g		Max. Rated Avg. Power + Max. Tolerance (dBm)	Average Power Output(dBm)							
			Data Rate (Mbps)							
CH	Frequency (MHz)		6	9	12	18	24	36	48	54
1	2412	13.5	13.4	13.33	13.28	13.24	13.11	13.06	13	12.96
6	2437	16.5	16.4	16.35	16.29	16.25	16.03	15.98	15.94	15.89
11	2462	13.5	13.2	13.14	13.1	13.04	13	12.95	12.9	12.84

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Main Antenna (CH0)

802.11 n (20M)		Max. Rated Avg. Power + Max. Tolerance (dBm)	Average Power Output(dBm)							
			Data Rate (Mbps)							
CH	Frequency (MHz)		6.5	13	19.5	26	39	52	58.5	65
1	2412	13.5	13.39	13.34	13.3	13.22	13.19	13.15	13.11	13.07
6	2437	16.5	16.42	16.35	16.27	16.22	16.18	16.14	16.09	16.05
11	2462	13.5	13.32	13.21	13.08	13.07	13	12.93	12.87	12.81

802.11 n (40M)		Max. Rated Avg. Power + Max. Tolerance (dBm)	Average Power Output(dBm)							
			Data Rate (Mbps)							
CH	Frequency (MHz)		13.5	27	40.5	54	81	108	121.5	135
3	2422	12	11.97	11.93	11.87	11.77	11.67	11.49	11.41	11.3
6	2437	16.5	16.2	16.15	16.11	15.95	15.8	15.61	15.44	15.35
9	2452	13	12.94	12.85	12.76	12.72	12.67	12.62	12.59	12.53

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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										
CH	Frequency (MHz)		Data Rate (Mbps)							
			6	9	12	18	24	36	48	54
36	5180	13.50	13.14	13.09	13.04	12.99	12.95	12.89	12.87	12.85
40	5200	16.00	15.5	15.34	15.19	15.07	14.96	14.85	14.76	14.66
44	5220	15.00	14.68	14.65	14.62	14.59	14.55	14.52	14.49	14.45
48	5240	15.00	14.99	14.9	14.82	14.71	14.64	14.62	14.55	14.5
52	5260	13.50	13.44	13.37	13.29	13.24	13.11	13.04	12.99	12.91
56	5280	16.00	15.9	15.88	15.86	15.83	15.8	15.77	15.75	15.72
60	5300	16.00	15.96	15.9	15.85	15.77	15.72	15.66	15.62	15.58
64	5320	13.50	13.3	13.26	13.21	13.14	12.97	12.88	12.78	12.7
100	5500	13.50	12.88	12.84	12.8	12.77	12.75	12.72	12.69	12.66
104	5520	16.50	16.32	16.29	16.25	16.22	16.15	16.07	16.03	15.99
108	5540	16.50	16.22	16.18	16.14	16.11	16.07	16.03	15.99	15.94
112	5560	16.50	16.09	16.05	16.01	15.96	15.93	15.87	15.83	15.8
116	5580	16.50	16.18	16.15	16.11	16.08	16.04	16.01	15.57	15.55
132	5660	16.50	16.09	16.03	15.58	15.53	15.48	15.42	15.4	15.35
136	5680	16.50	15.77	15.73	15.69	15.67	15.65	15.62	15.59	15.56
140	5700	13.00	12.87	12.81	12.78	12.75	12.72	12.7	12.68	12.66
149	5745	16.50	16.07	15.89	15.62	15.44	15.37	15.29	15.22	15.14
153	5765	16.50	15.9	15.78	15.74	15.7	15.64	15.6	15.53	15.46
157	5785	16.50	16.17	16.12	16.05	15.99	15.94	15.92	15.86	15.83
161	5805	16.50	15.69	15.62	15.57	15.53	15.48	15.44	15.41	15.38
165	5825	16.50	15.62	15.6	15.56	15.53	15.49	15.46	15.42	15.33

Main Antenna (CH0)

802.11 n(20M) 5.2/5.3/5.6/5.8G		Max. Rated Avg. Power + Max. Tolerance (dBm)	Average Power Output(dBm)							
			Data Rate (Mbps)							
CH	Frequency (MHz)		6.5	13	19.5	26	39	52	58.5	65
36	5180	13.50	13.35	13.31	13.27	13.24	13.21	13.17	13.14	13.11
40	5200	16.00	15.63	15.58	15.55	15.49	15.46	15.40	15.36	15.32
44	5220	15.00	14.74	14.70	14.66	14.61	14.56	14.50	14.46	14.41
48	5240	15.50	15.27	15.24	15.19	15.15	15.11	15.09	15.06	15.03
52	5260	13.50	13.34	13.31	13.27	13.24	13.21	13.17	13.14	13.11
56	5280	16.00	15.99	15.94	15.89	15.84	15.81	15.78	15.75	15.72
60	5300	16.00	15.88	15.82	15.79	15.75	15.71	15.67	15.63	15.60
64	5320	13.50	13.18	13.13	13.08	13.04	13.00	12.96	12.92	12.89
100	5500	13.50	13.24	13.15	13.12	13.08	13.04	13.01	12.96	12.93
104	5520	16.50	16.20	16.15	16.07	15.99	15.96	15.93	15.89	15.86
108	5540	16.50	16.18	16.14	16.10	16.03	15.96	15.94	15.90	15.82
112	5560	16.50	16.26	16.22	16.18	16.15	16.12	16.09	16.05	16.02
116	5580	16.50	16.00	15.96	15.92	15.88	15.82	15.75	15.70	15.64
132	5660	16.50	15.91	15.86	15.82	15.79	15.74	15.72	15.69	15.66
136	5680	16.50	15.79	15.76	15.73	15.69	15.66	15.62	15.58	15.54
140	5700	13.00	12.99	12.90	12.85	12.80	12.76	12.73	12.71	12.66
149	5745	16.50	16.15	16.12	16.07	16.02	15.99	15.96	15.91	15.88
153	5765	16.50	15.88	15.84	15.82	15.78	15.76	15.73	15.71	15.68
157	5785	16.50	15.62	15.58	15.53	15.44	15.36	15.27	15.20	15.12
161	5805	16.50	15.46	15.44	15.41	15.37	15.34	15.30	15.27	15.24
165	5825	16.50	15.75	15.72	15.70	15.67	15.64	15.62	15.58	15.55

Main Antenna (CH0)

802.11 n(40M) 5.2/5.3/5.6/5.8G		Max. Rated Avg. Power + Max. Tolerance (dBm)	Average Power Output (dBm)							
			Data Rate (Mbps)							
CH	Frequency (MHz)		13.5	27	40.5	54	81	108	121.5	135
38	5190	9.50	9.46	9.44	9.42	9.39	9.37	9.33	9.31	9.28
46	5230	15.50	14.96	14.92	14.88	14.8	14.74	14.68	14.61	14.54
54	5270	9.50	9.28	9.14	9.12	8.9	8.84	8.72	8.63	8.5
62	5310	11.00	10.99	10.92	10.86	10.79	10.67	10.55	10.43	10.33
102	5510	10.50	10.21	10.15	10.12	10.07	10.04	10	9.97	9.92
110	5550	16.50	15.5	15.47	15.43	15.4	15.37	15.35	15.33	15.3
134	5670	15.50	15.37	15.31	15.24	15.15	15.07	14.99	14.88	14.8
151	5755	16.50	15.31	15.26	15.21	15.15	15.11	15.04	15	14.95
159	5795	16.50	15.67	15.61	15.54	15.46	15.39	15.32	15.26	15.21

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Main Antenna (CH0)

802.11 ac(20M)		Max. Rated Avg. Power + Max. Tolerance (dBm)	Average Power Output(dBm)								
5.6G											
CH	Frequency (MHz)		Data Rate (Mbps)								
			6.5	13	19.5	26	39	52	58.5	65	78
144	5720	16.50	15.24	15.19	15.15	15.05	14.98	14.87	14.75	14.69	14.61

802.11 ac(40M)		Max. Rated Avg. Power + Max. Tolerance (dBm)	Average Power Output (dBm)									
5.6G												
CH	Frequency (MHz)		Data Rate (Mbps)									
			13.5	27	40.5	54	81	108	121.5	135	162	180
142	5710	16.50	15.16	15.14	15.12	15.1	15.07	15.04	15.01	14.98	14.94	14.91

802.11 ac(80M)		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)									
			29.3	58.5	87.8	117	175.5	234	263.3	292.5	351	390
42	5210	8.50	8.49	8.43	8.39	8.31	8.23	8.18	8.11	8.05	7.99	7.93
58	5290	10.50	10.49	10.41	10.33	10.24	10.14	10.7	10.04	10	9.96	9.92
106	5530	9.00	8.94	8.89	8.81	8.74	8.66	8.53	8.48	8.42	8.39	8.35
138	5690	14.00	13.55	13.49	13.46	13.41	13.38	13.35	13.32	13.3	13.28	13.25
155	5775	14.00	13.84	13.82	13.79	13.77	13.74	13.7	13.66	13.63	13.59	13.56

#. Per FCC KDB443999, transmission on channels which overlap the 5600-5650 MHz is prohibited as a client.

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Aux Antenna (CH1)

802.11 b		Max. Rated Avg. Power + Max. Tolerance (dBm)	Average Power Output (dBm)			
			Data Rate (Mbps)			
CH	Frequency (MHz)		1	2	5.5	11
1	2412	14	13.97	13.94	13.91	13.85
6	2437	14	13.82	13.75	13.7	13.66
11	2462	14	13.85	13.8	13.77	13.73

802.11 g		Max. Rated Avg. Power + Max. Tolerance (dBm)	Average Power Output(dBm)							
			Data Rate (Mbps)							
CH	Frequency (MHz)		6	9	12	18	24	36	48	54
1	2412	12	12	11.97	11.94	11.9	11.87	11.85	11.83	11.81
6	2437	15.5	15.48	15.44	15.4	15.3	15.21	15.17	15.13	15.02
11	2462	13.5	13.49	13.44	13.36	13.29	13.25	13.21	13.17	13.12

802.11 n (20M)		Max. Rated Avg. Power + Max. Tolerance (dBm)	Average Power Output(dBm)							
			Data Rate (Mbps)							
CH	Frequency (MHz)		6.5	13	19.5	26	39	52	58.5	65
1	2412	12	11.95	11.91	11.86	11.78	11.7	11.6	11.54	11.48
6	2437	15.5	15.43	15.38	15.34	15.31	15.28	15.25	15.21	15.17
11	2462	13.5	13.41	13.36	13.3	13.25	13.21	13.15	13.08	13

802.11 n (40M)		Max. Rated Avg. Power + Max. Tolerance (dBm)	Average Power Output(dBm)							
			Data Rate (Mbps)							
CH	Frequency (MHz)		13.5	27	40.5	54	81	108	121.5	135
3	2422	10	9.67	9.6	9.54	9.42	9.31	9.2	9.15	9.12
6	2437	13.5	13.3	13.25	13.2	13.14	13.08	13.02	12.95	12.9
9	2452	13	12.85	12.78	12.72	12.61	12.5	12.4	12.35	12.27

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										
CH	Frequency (MHz)		Data Rate (Mbps)							
			6	9	12	18	24	36	48	54
36	5180	13.00	12.81	12.75	12.71	12.67	12.63	12.58	12.54	12.48
40	5200	16.00	15.95	15.92	15.89	15.85	15.82	15.77	15.70	15.66
44	5220	15.00	14.85	14.81	14.77	14.73	14.68	14.61	14.56	14.50
48	5240	15.00	14.92	14.88	14.85	14.82	14.73	14.71	14.60	14.50
52	5260	13.00	12.97	12.93	12.89	12.84	12.80	12.76	12.73	12.70
56	5280	16.00	15.78	15.74	15.70	15.65	15.61	15.56	15.51	15.47
60	5300	16.00	15.79	15.69	15.60	15.52	15.44	15.39	15.34	15.30
64	5320	13.00	12.98	12.93	12.87	12.80	12.75	12.68	12.62	12.56
100	5500	13.00	12.76	12.71	12.67	12.61	12.54	12.47	12.43	12.40
104	5520	15.00	14.79	14.72	14.65	14.59	14.53	14.46	14.39	14.31
108	5540	15.00	14.77	14.69	14.63	14.55	14.56	14.48	14.00	14.32
112	5560	15.00	14.98	14.91	14.83	14.76	14.69	14.61	14.55	14.45
116	5580	15.00	14.72	14.65	14.58	14.51	14.45	14.38	14.34	14.29
132	5660	15.00	14.69	14.63	14.57	14.50	14.44	14.37	14.30	14.22
136	5680	15.00	14.85	14.78	14.71	14.65	14.58	15.51	14.45	14.38
140	5700	12.50	12.38	12.32	12.27	12.22	12.15	12.07	12.00	11.94
149	5745	15.00	14.96	14.82	14.76	14.70	14.66	14.60	14.57	14.53
153	5765	15.00	14.88	14.81	14.76	14.67	14.60	14.57	14.54	14.51
157	5785	15.00	14.62	14.51	14.47	14.41	14.37	14.31	14.27	14.23
161	5805	15.00	14.77	14.72	14.67	14.61	14.55	14.51	14.46	14.40
165	5825	15.00	14.91	14.87	14.83	14.78	14.72	14.70	14.68	14.66

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			Data Rate (Mbps)							
CH	Frequency (MHz)		6.5	13	19.5	26	39	52	58.5	65
36	5180	13.00	12.81	15.75	15.70	15.63	15.59	12.53	12.47	12.41
40	5200	16.00	15.70	15.67	15.63	15.59	15.56	15.53	15.50	15.47
44	5220	15.00	14.85	14.80	14.74	14.69	14.64	15.57	14.50	14.44
48	5240	15.50	15.09	15.05	15.01	14.96	14.91	14.87	14.84	14.81
52	5260	13.00	12.84	12.80	12.76	12.72	12.77	12.63	12.61	12.59
56	5280	16.00	15.90	15.85	15.81	15.74	15.68	15.63	15.57	15.52
60	5300	16.00	15.93	15.91	15.89	15.87	15.85	15.83	15.81	15.78
64	5320	13.00	12.89	12.87	12.85	12.83	12.81	12.79	12.77	12.75
100	5500	13.00	12.65	12.60	12.57	12.54	12.51	12.47	12.43	12.38
104	5520	15.00	14.69	14.62	14.55	14.47	14.38	14.27	14.20	14.12
108	5540	15.00	14.92	14.87	14.80	14.73	14.65	14.56	14.47	14.38
112	5560	15.00	14.93	14.86	14.79	14.72	14.67	14.60	14.49	14.40
116	5580	15.00	14.75	14.66	14.57	14.48	14.39	14.29	14.18	14.07
132	5660	15.00	14.89	14.77	14.64	14.50	14.37	14.24	14.10	13.95
136	5680	15.00	14.68	14.60	14.52	14.44	14.37	14.31	14.25	14.19
140	5700	12.50	12.26	12.21	12.15	12.09	12.04	11.98	11.92	11.86
149	5745	15.00	14.99	14.86	14.77	14.70	14.62	14.58	14.50	14.44
153	5765	15.00	14.98	14.83	14.74	14.70	14.64	14.55	14.49	14.42
157	5785	15.00	14.53	14.49	14.44	14.40	14.37	14.32	14.28	14.23
161	5805	15.00	14.85	14.80	14.76	14.72	14.70	14.68	14.64	14.59
165	5825	15.00	14.95	14.90	14.87	14.85	14.82	14.79	14.77	14.74

Aux Antenna (CH1)

802.11 n(40M) 5.2/5.3/5.6/5.8G		Max. Rated Avg. Power + Max. Tolerance (dBm)	Average Power Output (dBm)							
			Data Rate (Mbps)							
CH	Frequency (MHz)		13.5	27	40.5	54	81	108	121.5	135
38	5190	10.00	9.64	9.58	9.52	9.46	9.4	9.34	9.28	9.22
46	5230	15.50	15.04	15	14.95	14.89	14.83	14.8	14.77	14.74
54	5270	10.00	9.65	9.59	9.55	9.5	9.44	9.38	9.32	9.28
62	5310	11.00	10.76	10.7	10.63	10.56	10.48	10.41	10.34	10.29
102	5510	10.50	10.35	10.29	12.23	10.17	10.14	10.06	9.99	9.95
110	5550	15.00	14.87	14.72	14.63	14.51	14.37	14.23	14.11	14
134	5670	15.00	14.78	14.65	14.52	14.39	14.26	14.13	14.05	13.94
151	5755	15.00	14.98	14.93	14.87	14.79	14.68	14.59	14.5	14.42
159	5795	15.00	14.96	14.89	14.82	14.76	14.69	14.62	14.53	14.43

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Aux Antenna (CH1)

802.11 ac(20M) 5.6G CH	Frequency (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Average Power Output(dBm) Data Rate (Mbps) 6.5	13	19.5	26	39	52	58.5	65	78
144	5720	15.00	14.98	14.89	14.80	14.71	14.60	14.52	14.39	14.27	14.14

802.11 ac(40M) 5.6G CH	Frequency (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Average Power Output (dBm) Data Rate (Mbps) 13.5	27	40.5	54	81	108	121.5	135	162	180
142	5710	15.00	14.87	14.77	14.66	14.55	14.46	14.35	14.23	14.11	13.98	13.84

802.11 ac(80M) 5.2/5.3/5.6/5.8G CH	Frequency (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Average Power Output (dBm) Data Rate (Mbps) 29.3	58.5	87.8	117	175.5	234	263.3	292.5	351	390
42	5210	8.50	8.3	8.22	8.14	8.06	7.98	7.9	7.81	7.72	7.61	7.5
58	5290	11.00	10.8	10.74	10.71	10.67	10.65	10.63	10.61	10.57	10.55	10.52
106	5530	9.00	8.83	8.79	8.76	8.71	8.64	8.56	8.49	8.41	8.34	8.26
138	5690	14.00	13.62	13.58	13.52	13.44	13.35	13.29	13.21	13.14	13.06	13
155	5775	14.00	13.64	13.6	13.58	13.55	13.52	13.49	13.46	13.44	13.41	13.37

#. Per FCC KDB443999, transmission on channels which overlap the 5600-5650 MHz is prohibited as a client.

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MIMO (CH0 + CH1)

802.11n(20M)		Max. Rated Avg. Power + Max. Tolerance (dBm)	Average Power Output(dBm)							
			Data Rate (Mbps)							
CH	Frequency (MHz)		6.5	13	19.5	26	39	52	58.5	65
1	2412	12.5	12.43	12.39	12.35	12.30	12.25	12.19	12.14	12.09
6	2437	13.5	13.48	13.45	13.40	13.37	13.33	13.28	13.25	13.21
11	2462	13.5	13.46	13.42	13.30	13.25	13.21	13.18	13.11	13.08

802.11n(40M)		Max. Rated Avg. Power + Max. Tolerance (dBm)	Average Power Output(dBm)							
			Data Rate (Mbps)							
CH	Frequency (MHz)		13.5	27	40.5	54	81	108	121.5	135
3	2422	8.5	8.49	8.48	8.47	8.43	8.40	8.36	8.33	8.29
6	2437	13	12.97	12.93	12.91	12.88	12.85	12.81	12.77	12.74
9	2452	12	11.92	11.88	11.86	11.83	11.80	11.75	11.72	11.68

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MIMO (CH0 + CH1)

802.11n(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)		6.5	13	19.5	26	39	52	58.5	65
36	5180	11.00	10.74	10.62	10.58	10.53	10.48	10.42	10.38	10.33
40	5200	13.00	12.90	12.82	12.78	12.76	12.71	12.66	12.61	12.58
44	5220	12.00	11.82	11.71	11.64	11.61	11.57	11.53	11.49	11.46
48	5240	12.50	12.34	12.25	12.22	12.19	12.17	12.14	12.11	12.09
52	5260	11.00	10.95	10.93	10.90	10.87	10.84	10.81	10.77	10.75
56	5280	13.00	12.99	12.96	12.91	12.89	12.85	12.82	12.79	12.74
60	5300	13.00	12.80	12.77	12.69	12.62	12.60	12.55	12.52	12.49
64	5320	11.50	11.06	11.02	10.98	10.95	10.91	10.89	10.84	10.72
100	5500	11.00	10.44	10.42	10.39	10.35	10.32	10.28	10.25	10.22
104	5520	13.50	13.19	13.14	13.11	13.08	13.06	13.04	13.01	12.99
108	5540	13.50	13.04	12.93	12.89	12.87	12.83	12.81	12.78	12.75
112	5560	13.50	13.44	13.42	13.39	13.36	13.31	13.29	13.25	13.22
116	5580	13.50	13.26	13.20	13.17	13.15	13.11	13.08	13.06	13.03
132	5660	13.50	12.70	12.68	12.65	12.63	12.60	12.56	12.54	12.51
136	5680	13.50	13.15	13.12	13.09	13.07	13.00	12.97	12.94	12.90
140	5700	10.50	10.31	10.27	10.22	10.19	10.17	10.13	10.09	10.06
149	5745	13.50	13.48	13.40	13.37	13.34	13.30	13.27	13.24	13.21
153	5765	13.50	13.35	13.32	13.29	13.25	13.21	13.18	13.15	13.12
157	5785	13.50	13.32	13.29	13.27	13.23	13.20	13.17	13.14	13.11
161	5805	13.50	13.46	13.43	13.38	13.36	13.32	13.28	13.23	13.18
165	5825	13.50	13.20	13.17	13.14	13.11	13.08	13.05	13.01	12.97

MIMO (CH0 + CH1)

802.11n(40M) 5.2/5.3/5.6/5.8G		Max. Rated Avg. Power + Max. Tolerance (dBm)	Average Power Output(dBm)							
			Data Rate (Mbps)							
CH	Frequency (MHz)		13.5	27	40.5	54	81	108	121.5	135
38	5190	8.00	7.69	7.65	7.63	7.60	7.58	7.55	7.53	7.50
46	5230	12.50	11.97	11.95	11.92	11.90	11.87	11.84	11.82	11.80
54	5270	8.00	7.30	7.27	7.25	7.22	7.19	7.16	7.13	7.09
62	5310	9.00	8.83	8.80	8.76	8.73	8.69	8.66	8.63	8.60
102	5510	8.00	7.58	7.55	7.52	7.50	7.48	7.46	7.43	7.41
110	5550	13.50	13.40	13.36	13.34	13.32	13.30	13.28	13.24	13.21
134	5670	13.00	12.96	12.94	12.92	12.90	12.86	12.84	12.80	12.77
151	5755	13.50	13.49	13.46	13.44	13.42	13.39	13.36	13.34	13.30
159	5795	13.50	13.46	13.43	13.39	13.36	13.33	13.30	13.28	13.26

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MIMO (CH0 + CH1)

802.11 ac(20M) 5.6G		Max. Rated Avg. Power + Max. Tolerance (dBm)	Average Power Output(dBm)								
			Data Rate (Mbps)								
CH	Frequency (MHz)		6.5	13	19.5	26	39	52	58.5	65	78
144	5720	13.50	13.32	13.30	13.28	13.24	13.21	13.19	13.17	13.14	13.11

802.11 ac(40M) 5.6G		Max. Rated Avg. Power + Max. Tolerance (dBm)	Average Power Output (dBm)									
			Data Rate (Mbps)									
CH	Frequency (MHz)		13.5	27	40.5	54	81	108	121.5	135	162	180
142	5710	13.50	13.14	13.12	13.10	13.07	13.04	13.01	12.98	12.96	12.93	12.90

802.11 ac(80M) 5.2/5.3/5.6/5.8G		Max. Rated Avg. Power + Max. Tolerance (dBm)	Average Power Output (dBm)									
			Data Rate (Mbps)									
CH	Frequency (MHz)		29.3	58.5	87.8	117	175.5	234	263.3	292.5	351	390
42	5210	6.50	6.18	6.16	6.14	6.11	6.09	6.07	6.04	6.01	5.98	5.96
58	5290	8.50	8.49	8.47	8.44	8.41	8.39	8.36	8.33	8.30	8.27	8.24
106	5530	6.50	6.26	6.24	6.21	6.19	6.16	6.13	6.10	6.07	6.03	6.00
138	5690	13.50	13.22	13.18	13.16	13.13	13.10	13.07	13.04	13.02	13.00	12.97
155	5775	13.50	12.81	12.79	12.77	12.74	12.71	12.67	12.65	12.61	12.59	12.56

#. Per FCC KDB443999, transmission on channels which overlap the 5600-5650 MHz is prohibited as a client.

#. **Bluetooth conducted power table:**

Frequency (MHz)	Data Rate	Average	
		dBm	mW
2402	1	1.48	1.406
2441	1	2.24	1.675
2480	1	2.99	1.991
2402	2	1.45	1.396
2441	2	2.21	1.663
2480	2	2.96	1.977
2402	3	-2.75	0.531
2441	3	-1.98	0.634
2480	3	-1.07	0.782

#. **Bluetooth LE conducted power table:**

Frequency (MHz)	Bluetooth Mode	Avg.	
		dBm	mW
2402	LE	1.34	1.361
2440	LE	2.16	1.644
2480	LE	2.87	1.936

#. Due to the EIRP of Bluetooth(4.305mW) is below 20mW, Bluetooth is exempted from SAR evaluation per RSS102 Issue 4.

Ps: EIRP of BT=2.99+3.35=6.34(4.305mW), where the highest peak gain of aux antenna in frequency range 2400MHz to 2500MHz is 3.35 dBi. Thus the higher of the conducted power or EIRP is EIRP.

#.According to KDB447498 D01v05 – The 1-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances≤ 50 mm are determined by: [(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] · [√f(GHz)] ≤ 3.0 for 1-g SAR. Based on the maximum power of Bluetooth and the min. test separation distance, Bluetooth SAR for back side/top side/left side are not required.

(Max. power of channel: 2.99dBm, min. test separation distance=5mm, f=2480MHz, [(1.991/5)* √2.480]=0.627 ≤ 3.0 for back side/top side;

Max. power of channel: 2.99dBm, min. test separation distance=37mm, f=2480MHz, [(1.991/37)* √2.480]=0.085 ≤ 3.0 for left side)

#. For Bluetooth operational modes the transmission is at Aux output. Bluetooth can only be transmitted simultaneously with Main antenna according to client's operation description.

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#.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: [(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] · [√f(GHz) / 7.5] for test separation distances≤ 50 mm.

0.4 W/kg for 1-g SAR, when the test separation distance is > 50 mm.

#. Estimated Bluetooth SAR in back side / top side:

Frequency (MHz)	Date Rate	Average		min. test separation distance	Estimated SAR
		dBm	mW	mm	W/kg
2480	1	2.99	1.991	5	0.084

#. Estimated Bluetooth SAR in Right side:

Frequency (MHz)	Date Rate	Average		min. test separation distance	Estimated SAR
		dBm	mW	mm	W/kg
2480	1	2.99	1.991	>50 mm	0.4

#. Estimated Bluetooth SAR in Left side:

Frequency (MHz)	Date Rate	Average		min. test separation distance	Estimated SAR
		dBm	mW	mm	W/kg
2480	1	2.99	1.991	37	0.011

#. Estimated Bluetooth SAR in back side with test separation distance 9mm:

Frequency (MHz)	Date Rate	Average		min. test separation distance	Estimated SAR
		dBm	mW	mm	W/kg
2480	1	2.99	1.991	9	0.046

#. Estimated Bluetooth SAR in top side with test separation distance 10mm:

Frequency (MHz)	Date Rate	Average		min. test separation distance	Estimated SAR
		dBm	mW	mm	W/kg
2480	1	2.99	1.991	10	0.042

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1.4 Test Environment

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

1.5 Operation Description

1. **WWAN(GPRS/WCDMA/CDMA 1xRTT/EVDO/LTE):** The EUT is controlled by using Radio Communication Testers (R&S CMU200/Anritsu MT8820C/Agilent 8960), and the communication between the EUT and the testers is established by air link.

We test it in 3 configurations:

Configuration 1:Back side with separation distance 0mm.(Some frequency bands support power reduction, separation distance 9mm in full power test is required.)

Configuration 2: Top side with separation distance 0mm. (Some frequency bands support power reduction, separation distance 10mm in full power test is required.)

Configuration 3: Right side with separation distance 0mm.

Configuration 4: Left side. (Left side is not required to be test for WWAN antenna because the SAR test exclusion threshold in FCC KDB447498 D01v05 is applied to this edge.)

Configuration 5: Bottom side. (Bottom side is not required to be test for WWAN antenna because the SAR test exclusion threshold in FCC KDB447498 D01v05 is applied to this edge.)

Band	Power reduction
GPRS 850	**Yes**
EDGE 850	**Yes**
GPRS 1900	No
EDGE 1900	No
WCDMA Band II	No
WCDMA Ban IV	**Yes**
WCDMA Band V	No
LTE FDD Band IV	**Yes**
LTE FDD Band XIII	No
LTE FDD Band XVII	No
LTE FDD Band XXV	No
CDMA Cellular (BC0)	**Yes**
CDMA PCS (BC1)	**Yes**
CDMA BC(10)	**Yes**
WLAN	No

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2. WLAN(802.11a/b/g/n/ac): Use chipset specific software to control the EUT, and makes it transmit in maximum power. Measurements are performed respectively on the lowest, middle and highest channels of the operating band(s).

We test it in 3 configurations:

Configuration 1: Back side with separation distance 0mm.

Configuration 2: Top side with separation distance 0mm.

Configuration 3: Left side with separation distance 0mm. (Left side is not required to be test for WLAN Main antenna because the SAR test exclusion threshold in FCC KDB447498 D01v05 is applied to this edge.)

Configuration 4: Right side. (Right side is not required to be test for WLAN antennas because the SAR test exclusion threshold in FCC KDB447498 D01v05 is applied to this edge.)

Configuration 5: Bottom side. (Bottom side is not required to be test for WLAN antennas because the SAR test exclusion threshold in FCC KDB447498 D01v05 is applied to this edge.)

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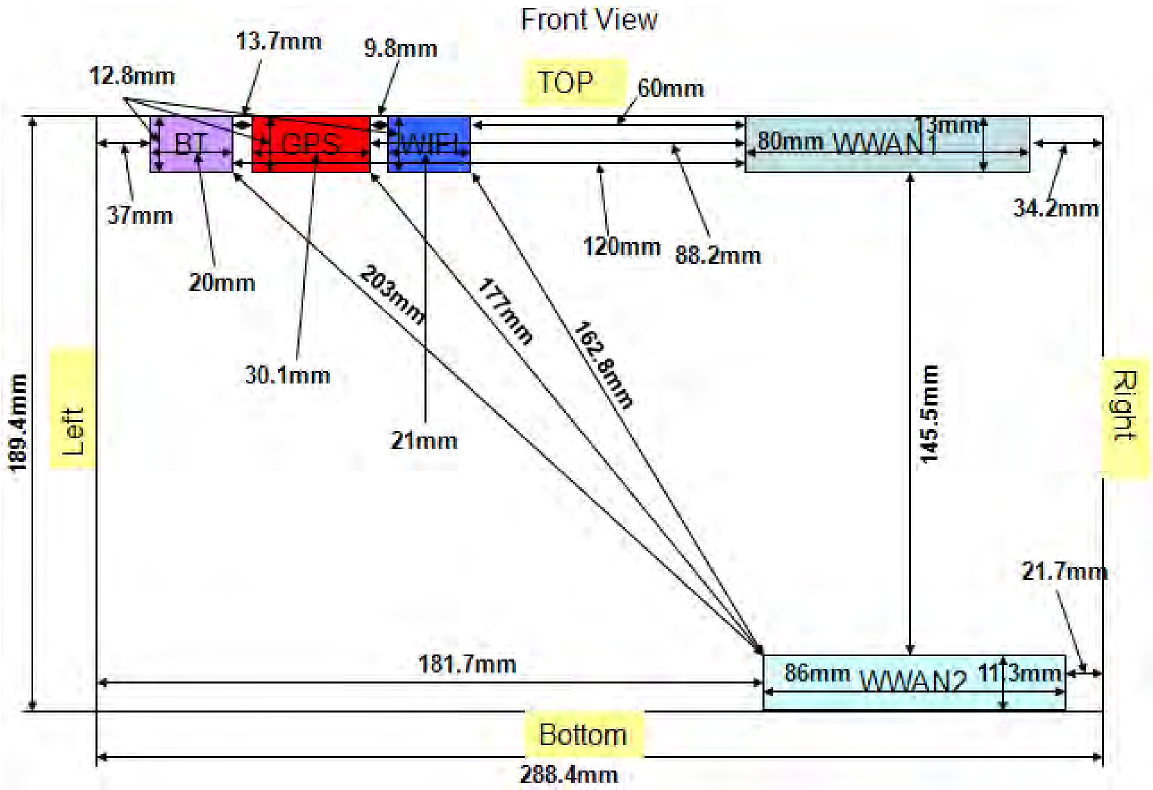

Front view of the tablet display(WWAN1: WWAN Tx antenna, WWAN2: WWAN Rx antenna, WIFI: WLAN Main antenna, BT: WLAN Aux antenna)

Note:

WWAN

#. For GPRS mode, the device is tested based on the maximum sourced-based time-averaged output power (GPRS multi-class 10).

#. According to KDB941225D01, when the maximum average output power of each RF channel with HSPA active is ≤ ¼ dB higher than that measured without HSPA using 12.2 kbps RMC, and the maximum SAR for 12.2 kbps RMC without HSPA is ≤ 75% of the SAR limit, SAR evaluation for HSPA is not required.

#. According to KDB941225D02, when the maximum average output power of each RF channel with (uplink) HSPA+ active is ≤ ¼ dB higher than that measured without HSPA+ using 12.2 kbps RMC, or the maximum reported SAR for 12.2 kbps RMC without HSPA+ is ≤ 75% of the SAR limit, SAR evaluation for HSPA+ is not required.

#. LTE modes test according to **FCC KDB 941225 D05.**

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

- Using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
- When the reported SAR is ≤ 0.8 W/kg, testing of the remaining RB offset configurations and required test channels is not required for 1 RB allocation; otherwise, SAR is required for the remaining required test channels and only for the RB offset configuration with the highest output power for that channel.
- When the reported SAR of a required test channel is > 1.45 W/kg, SAR is required for all three RB offset configurations for that required test channel.

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

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

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

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

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

d. Per Section 5.2.4, Higher order modulations

- For each modulation besides QPSK; e.g., 16-QAM, 64-QAM, apply the QPSK procedures in sections 5.2.1, 5.2.2 and 5.2.3 to determine the QAM configurations that may need SAR measurement. For each configuration identified as required for testing, SAR is required only when the highest maximum output power for the configuration in the higher order modulation is > ½ 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 > ½ 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.

#. Based on KDB941225D01 CDMA EVDO SAR test procedure, SAR is measured using FTAP/RTAP and FETAP/RETAP respectively for Rev. 0 and Rev. A devices. Body SAR is measured using subtype 0/1 physical layer configurations for Rev. 0. SAR for subtype 2 physical layer configurations is not required for Rev. A when the maximum average power of each RF channels is less than that measured in subtype 0/1 physical layer configurations.

#. Based on KDB941225D01 CDMA 1xRTT SAR test procedure, SAR for body exposure configurations is measured in RC3 with the DUT configured using TDSO/SO32, to transmit at full rate on FCH with all other code channels disabled. SAR for multiple code channels(FCH+SCNn) is not required when the maximum average power is less than 1/4 dB higher than that measured with FCH only.

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#. According to KDB447498 D01 v05 4.3.1, at 100 MHz to 6 GHz and for test separation distances > 50 mm, the SAR test exclusion threshold is determined according to the following, and as illustrated in Appendix B of KDB447498 D01 v05.
[[(max. power of channel, including tune-up tolerance, mW)/50mm] ·
[√f(GHz)] + (test separation distance - 50 mm)·(f(MHz)/150)] mW, at 100 MHz to 1500MHz

[[(max. power of channel, including tune-up tolerance, mW)/50mm] ·
[√f(GHz)] + (test separation distance - 50 mm)·10] mW at > 1500 MHz and ≤ 6 GHz

Based on the maximum power of WWAN antenna =33.5dBm(maximum tune-up tolerance limit of GPRS850), max. f=848.8MHz, and the min. test separation distance 156.8mm, WWAN antenna SAR is not required for bottom side.
[(2238.721 mW/50mm) · (√0.8488) + (156.8 - 50 mm)·(848.8/150)] mW = 645.596mW is compared with Appendix B of KDB447498 D01 v05.

Based on the maximum power of WWAN antenna =30.5dBm(maximum tune-up tolerance limit of GPRS1900), max. f=1909.8MHz, and the min. test separation distance 156.8mm, WWAN antenna SAR is not required for bottom side.
[(1122.018 mW/50mm) · (√1.9098) + (156.8 - 50 mm)·10] mW = 1099.012mW is compared with Appendix B of KDB447498 D01 v05.

Because the maximum tune-up tolerance limit power of WCDMA/CDMA 1xRTT/CDMA EVDO/LTE is smaller than that of GPRS850/1900, thus WWAN antenna SAR for bottom side is not required for all the WWAN transmission modes.

#. Because the distance between WWAN antenna and left side =177mm is larger than the distance between WWAN antenna and bottom side =156.8mm, thus left side is not required to be tested for WWAN antenna.

WWAN/Proximity Sensor

#. There is a proximity sensor collocated with WWAN antenna and it supports power reduction in GPRS850/WCDMA B4/LTE B4/CDMA 1xRTT/CDMA EVDO.

#. For back side, the trigger distance of proximity sensor is 10mm, thus we test lap-held mode SAR in 9mm with full power and 0mm with reduced power.

#. For top side, the trigger distance of proximity sensor is 12mm, after the tilt angle testing, we test top side SAR in 10mm with full power and 0mm with reduced power.

WLAN

#. According to KDB447498 D01 v05 4.3.1, at 100 MHz to 6 GHz and for test separation

distances > 50 mm, the SAR test exclusion threshold is determined according to the following, and as illustrated in Appendix B of KDB447498 D01 v05.
[[(max. power of channel, including tune-up tolerance, mW)/50mm] · [√f(GHz)] + (test separation distance - 50 mm)·10] mW at > 1500 MHz and ≤ 6 GHz
Based on the maximum power of WLAN main antenna =16.5dBm(maximum tune-up tolerance limit), max. f=5825MHz, and the min. test separation distance 110.6mm(left side to main antenna), WLAN main antenna SAR is not required for left side.
[(44.668mW/50mm) · (√5.825) + (110.6 - 50 mm)·10] mW = 608.156mW is compared with Appendix B of KDB447498 D01 v05.

#. Because the distance between WLAN main antenna and bottom side(156.8mm)/right side(174.2) is larger than the distance between WLAN main antenna and left side(110.6mm), thus bottom side/right side is not required to be tested for WLAN main antenna.

#. Based on the maximum power of WLAN aux antenna =16dBm(maximum tune-up tolerance limit), max. f=5825MHz, and the min. test separation distance 156.8mm(bottom side to aux antenna), WLAN aux antenna SAR is not required for bottom side.
[(39.811mW/50mm) · (√5.825) + (156.8 - 50 mm)·10] mW = 1069.922mW is compared with Appendix B of KDB447498 D01 v05.

#. Because the distance between WLAN aux antenna and right side(234.2mm) is larger than the distance between WLAN aux antenna and bottom side(156.8mm), thus right side is not required to be tested for WLAN aux antenna.

#. Based on the aggregate maximum power of WLAN mimo antennas =13.5dBm(maximum tune-up tolerance limit), max. f=5825MHz, and the min. test separation distance 156.8mm(bottom side to mimo antennas), WLAN mimo antenna SAR is not required for bottom side.
[(22.387mW/50mm) · (√5.825) + (156.8 - 50 mm)·10] mW = 1069.081mW is compared with Appendix B of KDB447498 D01 v05.

#. Because the distance between WLAN mimo antennas and right side(174.2mm) is larger than the distance between WLAN mimo antennas and bottom side(156.8mm), thus right side is not required to be tested for WLAN mimo antennas.

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#. According to FCC KDB248227 and October 10, 2012 TCB Workshop, SAR is not required for 802.11g/n(20M)/n(40M) channels when the maximum average output power is less than 1/4 dB higher than that measured on the corresponding 802.11b channels.

#. According to FCC KDB248227, for each band, testing at higher data rates and higher order modulation is not required when the maximum average output power for each of these configurations is less than 1/4 dB higher than those measured at the lowest data rate.

#. Due to the maximum average output power of higher data rates is less than 1/4 dB higher than lowest data rate, thus only lowest data rate is required for SAR test.

#. According to FCC KDB248227, when the maximum output channel (maximum tune-up tolerance limit power) in each 802.11a frequency band is not included in the "default test channels", the maximum output channel should be tested instead of an adjacent "default test channel". These are referred to as the "required test channels".

#. According to FCC KDB248227 and October 10, 2012 TCB Workshop, SAR is not required for 802.11 n(20M)/n(40M)/ac(80M) channels when the maximum average output power is less than 1/4 dB higher than that measured on the corresponding 802.11a channels.

#. For main antenna, due to the maximum average output power of 802.11 5.3/5.6/5.8G n(20M)/n(40M) is less than 1/4 dB higher than 802.11 5.3/5.6/5.8a, thus 802.11 5.3/5.6/5.8G n(20M)/n(40M) is not required for SAR test.

#. For aux antenna in 2.4G, due to the maximum average output power of 802.11 n(40M) is less than 1/4 dB higher than 802.11 b, thus 802.11 n(40M) is not required for SAR test.

#. For aux antenna, due to the maximum average output power of 802.11 5.3/5.6/5.8G n(20M)/n(40M) is less than 1/4 dB higher than 802.11 5.3/5.6/5.8a, thus 802.11 5.3/5.6/5.8G n(20M)/n(40M) is not required for SAR test.

#. For mimo antennas in 2.4G, due to the maximum average output power of 802.11 n(40M) is less than 1/4 dB higher than 802.11 n(20M), thus 802.11 n(40M) is not required for SAR test.

#. For mimo antennas, due to the maximum average output power of 802.11 5.3/5.6/5.8G n(40M) is less than 1/4 dB higher than 802.11 5.3/5.6/5.8n(20M), thus 802.11 5.3/5.6/5.8G n(40M) is not required for SAR test.

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#. The device supports 802.11ac(20M), ac(40M), ac(80M) and transmitting one channel at time, not simultaneously, in different 5GHz bands. According to April 2013 TCB Workshop, apply usual 802.11 test exclusion considerations, but include 802.11ac SAR for highest 802.11a configuration in each 5 GHz band and each exposure condition. Therefore, 802.11ac SAR is required for the highest SAR configuration in each 5 GHz band.

#. For main/aux antenna, 802.11ac(80M) SAR is required for the highest SAR configuration in 5.2/5.3/5.6/5.8 a bands.

#. For mimo antennas, 802.11ac(80M) SAR is required for the highest SAR configuration in 5.2/5.3/5.8 n(20M) bands.

#. For main/aux antenna, 802.11ac(20M)/ac(40M) SAR is required in 5.6G band.

#. For mimo antennas, 802.11ac(20M)/ac(40M)/ac(80M) SAR is required in 5.6G band.

WWAN / WLAN

#. According to KDB447498 D01v05, 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.

#. According to KDB447498 D01v05, testing of other required channels is not required when the reported 1-g SAR for the highest output channel is ≤ 0.6 W/kg, when the transmission band is between 100 MHz and 200MHz.

#. According to KDB447498 D01v05, testing of other required channels is not required when the reported 1-g SAR for the highest output channel is ≤ 0.4 W/kg, when the transmission band is ≥ 200MHz.

#. According to KDB865664 D01v01, SAR measurement variability must be assessed for each frequency band. When the original highest measured SAR is ≥ 0.8 W/kg, repeated that measurement once. Perform a second repeated measurement only if the ratio of largest to smallest SAR for the original and first repeated measurements is > 1.20 or when the original or repeated measurement is ≥ 1.45 W/kg (~ 10% from the 1-g SAR limit)

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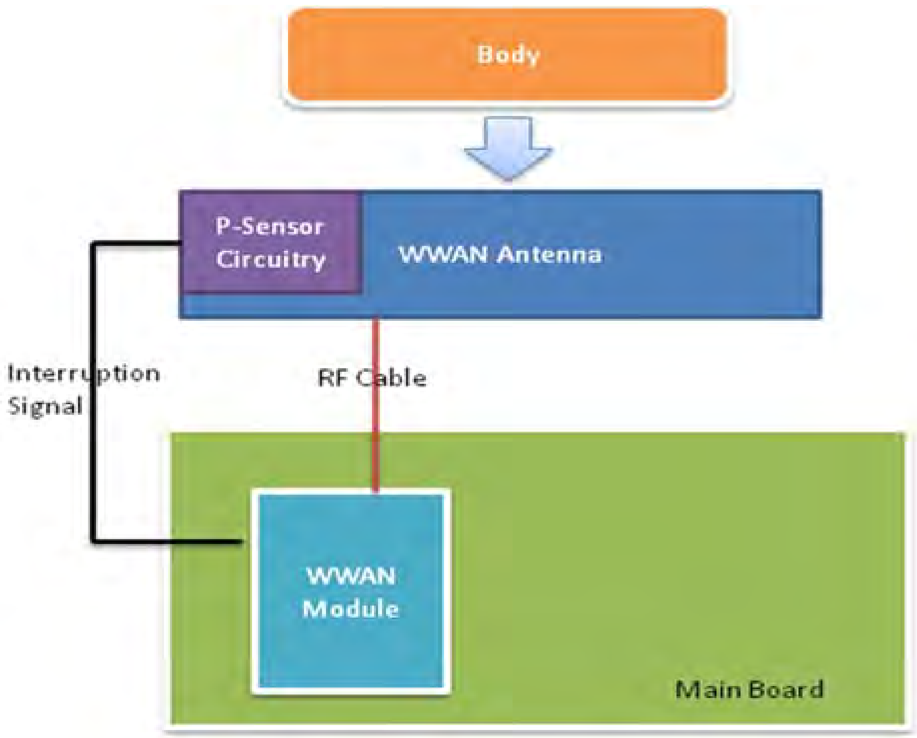
Mobile Battery:

#. There is a mobile battery as an accessory, and it could be combined with the back surface of tablet. We test the tablet with combined mobile battery to be the worst case in each band and each wireless technology.

1.6 Proximity sensor operation description

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

(Please refer "Operation Description "document for proximity sensing coverage area & proximity sensing path)



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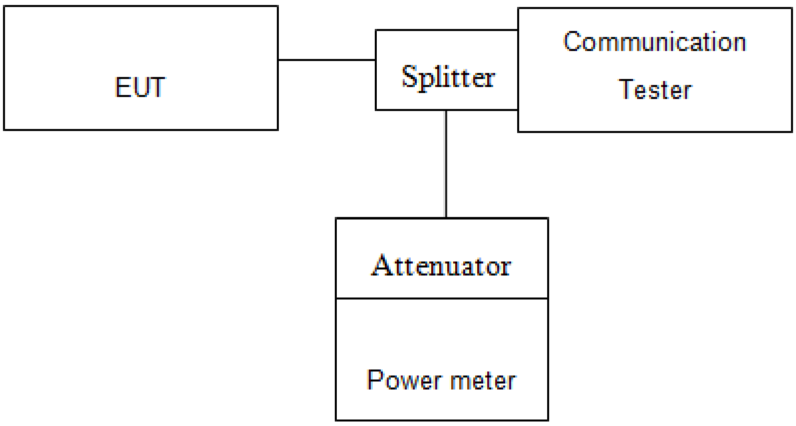
1.6.1 Proximity sensor measurement procedure

(1) There is a proximity sensor collocated with WWAN antenna and it supports power reduction in GPRS850/WCDMA B4/LTE B4/CDMA 1xRTT/CDMA EVDO.

(2) Output power is measured, and monitored by using the power meter. A RF cables with sufficient length was being attached from the antenna port of the module, and used for the measurement The appropriate loss attenuated from cable, splitter, and attenuator is offset to the power meter.



1.6.2 Trigger distances of back side and top side

Test procedure:

1) The entire back surface or edge of the tablet is positioned below a flat phantom filled with the required tissue equivalent medium and positioned at least 20 mm further than the distance that triggers power reduction.

2) The back surface or edge is moved toward the phantom in 3 mm steps until the sensor triggers.

3) The back surface or edge is then moved back (further away) from the phantom until maximum output power is returned to the normal maximum level.

4) The back surface or edge is again moved toward the phantom, but in 1 mm steps, until it is at least 5 mm past the triggering point or touching the phantom

5) If the tablet is not touching the phantom, it is moved in 3 mm steps until it touches the phantom to confirm that the sensor remains triggered and the maximum power stays reduced.

6) The process is then reversed by moving the tablet away from the phantom to determine triggering release, until it is at least 10 mm beyond the point that triggers the return of normal maximum power.

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

8) To ensure all production units are compliant, it is generally necessary to reduce the triggering distance determined from the triggering tests by 1 mm, or more if it is necessary, and use the smallest distance for movements to and from the phantom, minus 1 mm, as the sensor triggering distance for determining the SAR measurement distance.

9) For back side, the trigger distance of proximity sensor is 10mm.

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

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1.6.3 Tilt angle testing

Test procedure:

1) The influence of table tilt angles to proximity sensor triggering is determined by positioning each tablet edge that contains a transmitting antenna, perpendicular to the flat phantom, at the smallest sensor triggering test distance determined in sections 1.6.2 by rotating the tablet around the edge next to the phantom in ≤ 10 deg increments until the tablet is +/- 45deg or more from the vertical position at 0 deg.

2) If sensor triggering is released and normal maximum output power is restored within the +/- 45deg range, the procedures in step 1) should be repeated by reducing the tablet to phantom separation distance by 1 mm until the proximity sensor no longer releases triggering, and maximum output power remains in the reduced mode.

3) The smallest separation distance determined in steps 1) and 2), minus 1 mm, is the sensor triggering distance for tablet tilt coverage. The smallest separation distance determined in sections 1.6.2, 1.6.3 minus 1 mm should be used in the SAR measurements.

4) After the tilt angle testing, 12-1=11mm, is the sensor triggering distance for tablet tilt coverage. The smallest separation distance minus 1 mm(11-1=10mm) should be used in the SAR measurements.

1.6.4 Proximity sensor coverage

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

Test procedure:

1) The back surface or edge of the tablet is positioned at a test separation distance less than or equal to the distance required for back surface or edge triggering, with both the antenna and sensor pad located at least 20 mm laterally outside the edge (boundary) of the phantom, along the direction of maximum antenna and sensor offset.

2) The similar sequence of steps applied to determine sensor triggering distance in section 1.6.2 are used to verify back surface and edge sensor coverage by moving the tablet (sensor and antenna) horizontally toward the phantom while maintaining the samevertical separation between the back surface or edge and the phantom.

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3) After the exact location where triggering of power reduction is determined, with respect to the sensor and antenna, the tablet movement should be continued, in 3 mm increments, until both the sensor and antenna(s) are fully under the phantom and at least 20 mm inside the phantom edge.

4) The process is then repeated from the other direction, at the opposite end of maximum antenna and sensor offset, by rotating the tablet 180 degrees.

5) The WWAN antenna and proximity sensor are collocated and the peak SAR location is overlapping with the proximity sensor, so the procedure of proximity sensor coverage is not required.

1.6.5 Results

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

The proximity sensor is collocated with WWAN antenna and it supports power reduction in GPRS850, WCDMA B4, LTE B4, CDMA 1xRTT and CDMA EVDO.

Back side

Moving device toward the phantom

Measured power	Full power						Reduced power						
Distance(mm)	16	15	14	13	12	11	10	9	8	7	6	5	4
GPRS850 1Tx	31.68	31.66	31.69	31.68	31.7	31.7	29.67	29.66	29.65	29.66	29.63	29.65	29.66
GPRS850 2Tx	31.48	31.47	31.49	31.49	31.49	31.5	29.16	29.16	29.15	29.14	29.14	29.16	29.13
EDGE850 1Tx	26.34	26.37	26.35	26.38	26.37	26.4	25.11	25.08	25.1	25.09	25.09	25.05	25.07
EDGE850 2Tx	26.26	26.25	26.27	26.26	26.28	26.3	25.31	25.3	25.26	25.27	25.29	25.28	25.3
EDGE850 3Tx	26.15	26.17	26.15	26.18	26.2	26.2	25.2	25.19	25.17	25.16	25.2	25.19	25.18
EDGE850 4Tx	25.96	25.96	25.99	25.97	25.98	26	23.99	23.97	23.95	23.99	23.98	23.96	23.99
WCDMA B4	23.36	23.32	23.34	23.36	23.35	23.36	21.15	21.13	21.15	21.13	21.14	21.12	21.13
CDMA 1xRTT Cellular (BC0)	23.78	23.77	23.74	23.75	23.77	23.79	21.65	21.63	21.63	21.65	21.64	21.63	21.62
CDMA EVDO Cellular (BC0)	23.38	23.35	23.38	23.41	23.4	23.41	21.84	21.82	21.82	21.84	21.81	21.83	21.83
CDMA 1xRTT PCS (BC1)	24.66	24.63	24.65	24.62	24.65	24.67	21.95	21.94	21.92	21.92	21.93	21.92	21.94
CDMA EVDO PCS (BC1)	23.91	23.92	23.89	23.9	23.91	23.92	21.89	21.87	21.85	21.84	21.87	21.88	21.88
CDMA 1xRTT BC10	23.59	23.59	23.6	23.63	23.61	23.63	21.59	21.58	21.57	21.55	21.54	51.54	51.57
CDMA EVDO BC10	23.24	23.25	23.24	23.22	23.25	23.25	21.58	21.53	21.54	21.58	21.55	21.55	21.58
LTE B4 20MHz QPSK 1RB	22.87	22.86	22.83	22.85	22.84	22.87	19.05	19.01	19.02	19.04	19.01	19.03	19.04
LTE B4 20MHz QPSK 50RB	21.48	21.49	21.47	21.45	21.46	21.51	18.8	18.77	18.77	18.79	18.79	18.78	18.79
LTE B4 20MHz QPSK 100RB	21.35	21.36	21.34	21.32	21.33	21.37	18.9	18.87	18.88	18.87	18.89	18.86	18.89

Moving device away from the phantom

Measured power	Full power						Reduced power							
Distance(mm)	16	15	14	13	12	11	10	9	8	7	6	5	3	0
GPRS850 1Tx	31.67	31.66	31.68	31.65	31.65	31.7	29.67	29.64	29.65	29.66	29.64	29.67	29.66	29.68
GPRS850 2Tx	31.49	31.47	31.44	31.49	31.5	31.5	29.16	29.13	29.12	29.14	29.14	29.15	29.11	29.14
EDGE850 1Tx	26.37	26.35	26.37	26.38	26.36	26.4	25.11	25.08	25.05	25.07	25.09	25.1	25.11	25.07
EDGE850 2Tx	26.3	26.29	26.3	26.28	26.29	26.3	25.31	25.28	25.28	25.25	25.27	25.3	25.3	25.29
EDGE850 3Tx	26.19	26.18	26.18	26.2	26.17	26.2	25.2	25.2	25.17	25.18	25.16	25.19	25.17	25.2
EDGE850 4Tx	25.98	26	25.98	25.99	25.97	26	23.99	23.96	23.97	23.96	23.99	23.95	23.98	23.98
WCDMA B4	23.36	23.34	23.35	23.34	23.35	23.36	21.15	21.12	21.1	21.11	21.09	21.11	21.13	21.15
CDMA 1xRTT Cellular (BC0)	23.79	23.78	23.78	23.77	23.76	23.79	21.65	21.62	21.6	21.64	21.63	21.65	21.63	21.63
CDMA EVDO Cellular (BC0)	23.38	23.4	23.4	23.41	23.39	23.41	21.84	21.8	21.83	21.81	21.83	21.84	21.82	21.8
CDMA 1xRTT PCS (BC1)	24.67	24.66	24.63	24.65	24.66	24.67	21.95	21.93	21.92	21.92	21.93	21.95	21.94	21.93
CDMA EVDO PCS (BC1)	23.92	23.91	23.9	23.89	23.9	23.92	21.89	21.86	21.88	21.87	21.88	21.85	21.89	21.87
CDMA 1xRTT BC10	23.62	23.61	23.61	23.6	23.62	23.63	21.59	21.58	21.55	21.5	21.51	21.57	21.59	21.58
CDMA EVDO BC10	23.25	23.22	23.24	23.22	23.24	23.25	21.58	21.51	21.52	21.54	21.5	21.55	21.54	51.57
LTE B4 20MHz QPSK 1RB	22.85	22.86	22.84	22.85	22.86	22.87	19.05	19	18.95	18.99	19.01	19.04	18.97	19.04
LTE B4 20MHz QPSK 50RB	21.48	21.49	21.48	21.49	21.5	21.51	18.8	18.79	18.75	18.79	18.77	18.75	18.78	18.8
LTE B4 20MHz QPSK 100RB	21.35	21.31	21.32	21.35	21.34	21.37	18.9	18.89	18.88	18.88	18.84	18.86	18.87	18.89

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For back side, the trigger distance of proximity sensor is 10mm, thus we test back side SAR in 9mm with full power and 0mm with reduced power.

Top side

Moving device toward the phantom

Measured power	Full power						Reduced power						
Distance(mm)	18	17	16	15	14	13	12	11	10	9	8	7	6
GPRS850 1Tx	31.68	31.65	31.63	31.65	31.6	31.7	29.67	29.62	29.66	29.62	29.65	29.64	29.67
GPRS850 2Tx	31.48	31.49	31.44	31.5	31.41	31.5	29.16	29.13	29.15	29.11	29.14	29.13	29.15
EDGE850 1Tx	26.39	26.4	26.36	26.38	26.35	26.4	25.11	25.1	25.04	25.07	25.08	25.09	25.1
EDGE850 2Tx	26.27	26.25	26.28	26.29	26.27	26.3	25.31	25.3	25.28	25.29	25.27	25.27	25.3
EDGE850 3Tx	26.16	26.17	26.14	26.18	26.19	26.2	25.2	25.17	25.15	25.18	25.17	25.2	25.19
EDGE850 4Tx	25.96	25.97	25.98	26	25.97	26	23.99	23.98	23.97	29.96	23.98	23.99	23.98
WCDMA B4	23.36	23.35	23.34	23.31	23.35	23.36	21.15	21.12	21.14	21.12	21.1	21.14	21.13
CDMA 1xRTT Cellular (BC0)	23.76	23.79	23.77	23.75	23.78	23.79	21.65	21.62	21.6	21.63	21.65	21.64	21.63
CDMA EVDO Cellular (BC0)	23.39	23.38	23.36	23.38	23.4	23.41	21.84	21.82	21.83	21.82	21.8	21.83	21.81
CDMA 1xRTT PCS (BC1)	24.67	24.63	24.66	24.65	24.66	24.67	21.95	21.91	21.89	21.92	21.91	21.91	21.94
CDMA EVDO PCS (BC1)	23.92	23.87	23.89	23.9	23.87	23.92	21.89	21.84	21.85	21.84	21.87	21.88	21.86
CDMA 1xRTT BC10	23.59	23.63	23.6	23.61	23.58	23.63	21.59	21.56	21.55	21.57	21.58	21.56	21.59
CDMA EVDO BC10	23.25	23.24	23.21	23.22	23.21	23.25	21.58	21.54	21.58	21.54	21.53	21.54	21.57
LTE B4 20MHz QPSK 1RB	22.83	22.84	22.85	22.86	22.83	22.87	19.05	19	19.01	18.98	19	19.04	19.05
LTE B4 20MHz QPSK 50RB	21.5	21.47	21.49	21.49	21.43	21.51	18.8	18.75	18.78	18.75	18.77	18.79	18.8
LTE B4 20MHz QPSK 100RB	21.36	21.33	21.36	21.35	21.36	21.37	18.9	18.81	18.87	18.85	18.88	18.86	18.89

Moving device away from the phantom

Measured power	Full power						Reduced power							
Distance(mm)	18	17	16	15	14	13	12	11	10	9	8	7	3	0
GPRS850 1Tx	31.68	31.67	31.62	31.66	31.65	31.7	29.67	29.64	29.65	29.63	29.66	29.65	29.66	29.64
GPRS850 2Tx	31.47	31.44	31.46	31.45	31.5	31.5	29.16	29.15	29.15	29.13	29.14	29.14	29.15	29.14
EDGE850 1Tx	26.39	26.37	26.37	26.36	26.4	26.4	25.11	25.04	25.09	25.09	25.1	25.04	25.07	25.11
EDGE850 2Tx	26.29	26.3	26.29	26.28	26.21	26.3	25.31	25.3	25.3	25.26	25.24	25.26	25.28	25.29
EDGE850 3Tx	29.17	26.19	26.19	26.2	26.15	26.2	25.2	25.14	25.18	25.19	25.2	25.14	25.17	25.19
EDGE850 4Tx	25.97	25.99	25.98	25.95	25.98	26	23.99	23.9	23.94	23.99	23.95	23.94	23.96	23.97
WCDMA B4	23.36	23.35	23.34	23.33	23.32	23.36	21.15	21.15	21.1	21.13	21.11	21.15	21.13	21.13
CDMA 1xRTT Cellular (BC0)	23.78	23.77	23.77	23.75	23.78	23.79	21.65	21.62	21.6	21.62	21.59	21.59	21.57	21.63
CDMA EVDO Cellular (BC0)	23.4	23.37	23.33	23.36	23.31	23.41	21.84	21.83	21.83	21.84	21.8	21.83	21.81	21.84
CDMA 1xRTT PCS (BC1)	24.63	24.61	24.67	24.66	24.58	24.67	21.95	21.93	21.95	21.94	21.94	21.93	21.94	21.92
CDMA EVDO PCS (BC1)	23.91	23.89	23.88	23.9	23.91	23.92	21.89	21.88	21.87	21.85	21.86	21.87	21.89	21.88
CDMA 1xRTT BC10	23.63	23.61	23.59	23.6	23.61	23.63	21.59	21.57	21.58	21.58	21.56	21.59	21.57	21.58
CDMA EVDO BC10	23.24	23.25	23.22	23.24	23.22	23.25	21.58	21.56	21.55	21.56	21.54	21.57	21.56	21.58
LTE B4 20MHz QPSK 1RB	22.85	22.87	22.85	22.86	22.85	22.87	19.05	19.04	19.01	19.04	19.02	18.99	19.02	19.04
LTE B4 20MHz QPSK 50RB	21.5	21.49	21.45	21.48	21.5	21.51	18.8	18.79	18.78	18.77	18.8	18.9	18.76	18.77
LTE B4 20MHz QPSK 100RB	21.37	21.36	21.33	21.35	21.36	21.37	18.9	18.87	18.88	18.89	18.86	18.9	18.89	18.87

For top side, the trigger distance of proximity sensor is 12mm, and next we perform the tilt angle testing.

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Table 1.6.5 Tilt angle test results

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

During the tilt angle testing, the sensor triggering is not released and the maximum output power is still reduced within the ± 45° range, thus 12-1=11mm, is the sensor triggering distance for tablet tilt coverage. The smallest separation distance minus 1 mm(11-1=10mm) should be used in the SAR measurements.

1.7 The SAR Measurement System

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

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

- 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.

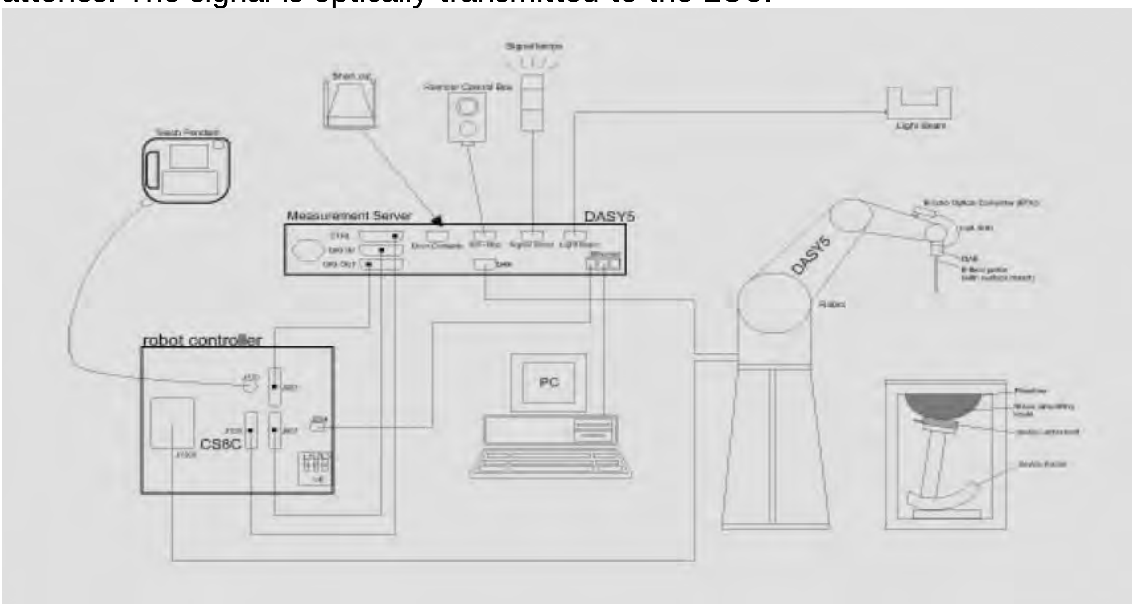

Fig. a The block diagram of SAR system

- 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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1.8 System Components

EX3DV4 E-Field Probe

Construction	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)	
Calibration	Basic Broad Band Calibration in air Conversion Factors (CF) for HSL 750/835/1750/1900/2450/5200/5300/5600/5800 MHz Additional CF for other liquids and frequencies upon request	
Frequency	10 MHz to > 6 GHz, Linearity: ± 0.6 dB	
Directivity	± 0.3 dB in HSL (rotation around probe axis) ± 0.5 dB in tissue material (rotation normal to probe axis)	
Dynamic Range	10 µW/g to > 100 mW/g Linearity: ± 0.2 dB (noise: typically < 1 µW/g)	
Dimensions	Overall length: 337 mm (Tip: 9 mm) Tip diameter: 2.5 mm (Body: 10 mm) Typical distance from probe tip to dipole centers: 1 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	The shell corresponds to the specifications of the Specific Anthropomorphic Mannequin (SAM) phantom defined in IEEE 1528-200X, CENELEC 50361 and IEC 62209. 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.	
Shell Thickness	2 ± 0.2 mm	
Filling Volume	Approx. 25 liters	
Dimensions	Height: 210 mm; Length: 1000 mm; Width: 500 mm	

DEVICE HOLDER

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

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1.9 SAR System Verification

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

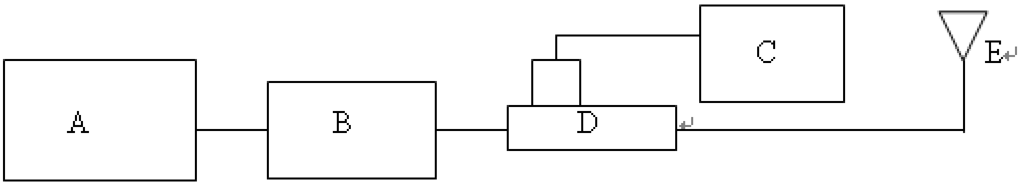
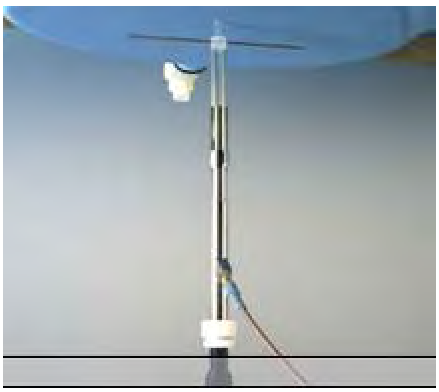


Fig. b The block diagram of system verification

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)		Target SAR (1g) (Pin=250mW) (mW/g)	Measured SAR (1g)(mW/g)	Deviation (%)	Measured Date
D750V2	1015	750	Body	2.23	2.17	2.69%	Apr. 26,2014
D835V2	4d156	835	Body	2.46	2.37	3.66%	Apr. 23,2014
				2.46	2.35	4.47%	Apr. 28,2014
				2.46	2.34	4.88%	Jun. 04, 2014
D1750V2	1095	1750	Body	9.5	9.24	2.74%	Apr. 24,2014
				9.5	9.21	3.05%	Jun. 04, 2014
D1900V2	5d173	1900	Body	10.1	10.2	-0.99%	Apr. 25,2014
				10.1	9.97	1.29%	Apr. 27,2014
				10.1	10.4	-2.97%	Jun. 04, 2014
D2450V2	727	2450	Body	13.2	12.1	8.33%	Apr. 11,2014
				13.2	12.2	7.58%	Apr. 12,2014
D5GHzV2	1023	5200	Body	7.39	7.01	5.14%	Apr. 13,2014
				7.39	7.04	4.74%	Apr. 14,2014
		5300	Body	7.62	7.62	0.00%	Apr. 15,2014
		5600	Body	8.04	8.5	-5.72%	Apr. 16,2014
				8.04	8.02	0.25%	Apr. 17,2014
		5800	Body	7.44	8.06	-8.33%	Apr. 18,2014

Table 1. Results of system validation

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1.10 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 ≥ 15 cm ± 5 mm (Frequency ≤3G) or ≥ 10 cm ± 5 mm (Frequency >3G) during all tests. (Fig. 2)

Tissue Type	Measurement Date	Measured Frequency (MHz)	Target Dielectric Constant, εr	Target Conductivity, σ (S/m)	Measured Dielectric Constant, εr	Measured Conductivity, σ (S/m)	% dev εr	% dev σ
Body	Apr. 26,2014	709	55.691	0.960	53.808	0.915	3.38%	4.69%
		710	55.687	0.960	53.796	0.916	3.40%	4.58%
		711	55.683	0.960	53.783	0.916	3.41%	4.58%
		750	55.531	0.963	53.397	0.993	3.84%	-3.12%
		782	55.406	0.966	54.356	0.961	1.90%	0.52%
	Apr. 28,2014	817.9	55.267	0.969	54.284	1.013	1.78%	-4.54%
		820	55.258	0.969	54.287	1.015	1.76%	-4.75%
		823.1	55.246	0.969	54.305	1.016	1.70%	-4.85%
		824.7	55.240	0.969	53.852	0.998	2.51%	-2.99%
		835	55.2	0.97	53.763	1.001	2.60%	-3.20%
		836.52	55.195	0.972	53.758	1.01	2.60%	-3.91%
		848.31	55.159	0.986	53.667	1.022	2.70%	-3.65%
	Apr. 23,2014	824.2	55.242	0.969	53.861	0.997	2.50%	-2.87%
		826.4	55.234	0.969	53.844	0.999	2.52%	-3.10%
		835	55.2	0.97	53.776	1.008	2.58%	-3.92%
		836.6	55.195	0.972	53.759	1.01	2.60%	-3.91%
		846.6	55.164	0.984	53.682	1.021	2.69%	-3.76%
		848.8	55.158	0.987	53.665	1.023	2.71%	-3.65%

Tissue Type	Measurement Date	Measured Frequency (MHz)	Target Dielectric Constant, εr	Target Conductivity, σ (S/m)	Measured Dielectric Constant, εr	Measured Conductivity, σ (S/m)	% dev εr	% dev σ
Body	Apr. 24,2014	1712.4	53.531	1.465	53.875	1.401	-0.64%	4.37%
		1720	53.511	1.469	54.222	1.403	-1.33%	4.49%
		1732.4	53.478	1.477	53.808	1.423	-0.62%	3.66%
		1732.5	53.478	1.477	54.184	1.417	-1.32%	4.06%
		1745	53.445	1.485	54.157	1.43	-1.33%	3.70%
		1750	53.432	1.488	53.784	1.442	-0.66%	3.09%
		1752.6	53.425	1.49	53.777	1.445	-0.66%	3.02%
	Apr. 25,2014	1850.2	53.300	1.520	54.228	1.478	-1.74%	2.76%
		1852.4	53.300	1.520	54.221	1.48	-1.73%	2.63%
		1860	53.300	1.520	54.195	1.489	-1.68%	2.04%
		1880	53.300	1.520	54.144	1.511	-1.58%	0.59%
		1882.5	53.300	1.520	54.135	1.513	-1.57%	0.46%
		1900	53.300	1.520	54.069	1.534	-1.44%	-0.92%
		1905	53.300	1.520	54.053	1.54	-1.41%	-1.32%
		1907.6	53.300	1.520	54.042	1.543	-1.39%	-1.51%
		1909.8	53.300	1.520	54.035	1.546	-1.38%	-1.71%
	Apr. 27,2014	1851.25	53.300	1.520	54.235	1.479	-1.75%	2.70%
		1880	53.300	1.520	54.151	1.511	-1.60%	0.59%
		1900	53.300	1.520	54.079	1.533	-1.46%	-0.86%
		1908.75	53.300	1.520	54.049	1.544	-1.41%	-1.58%
	Apr. 11, 2014	2412	52.751	1.914	53.072	1.934	-0.61%	-1.04%
		2422	52.737	1.923	53.054	1.941	-0.60%	-0.94%
		2437	52.717	1.938	52.992	1.961	-0.52%	-1.21%
		2450	52.700	1.950	52.953	1.979	-0.48%	-1.49%
		2452	52.697	1.953	52.948	1.980	-0.48%	-1.38%
		2462	52.685	1.967	52.919	1.994	-0.44%	-1.37%
	Apr. 12, 2014	2412	52.751	1.914	53.078	1.932	-0.62%	-0.94%
		2437	52.717	1.938	53.002	1.957	-0.54%	-1.00%
		2450	52.700	1.950	52.965	1.974	-0.50%	-1.23%
		2462	52.685	1.967	52.924	1.989	-0.45%	-1.12%

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Tissue Type	Measurement Date	Measured Frequency (MHz)	Target Dielectric Constant, εr	Target Conductivity, σ (S/m)	Measured Dielectric Constant, εr	Measured Conductivity, σ (S/m)	% dev εr	% dev σ
Body	Apr. 13, 2014	5190	49.028	5.288	48.493	5.152	1.09%	2.57%
		5200	49.014	5.299	48.467	5.163	1.12%	2.57%
		5210	49.001	5.311	48.435	5.181	1.16%	2.45%
		5230	48.974	5.334	48.382	5.212	1.21%	2.29%
		5240	48.960	5.346	48.360	5.227	1.23%	2.23%
	Apr. 14, 2014	5190	49.028	5.288	48.488	5.162	1.10%	2.38%
		5200	49.014	5.299	48.463	5.174	1.12%	2.36%
		5210	49.001	5.311	48.428	5.193	1.17%	2.22%
		5230	48.974	5.334	48.376	5.221	1.22%	2.12%
		5240	48.960	5.346	48.355	5.238	1.24%	2.02%
	Apr. 15, 2014	5280	48.906	5.393	48.251	5.287	1.34%	1.97%
		5290	48.892	5.404	48.226	5.299	1.36%	1.94%
		5300	48.879	5.416	48.202	5.310	1.39%	1.96%
	Apr. 16,2014	5520	48.580	5.673	47.614	5.634	1.99%	0.69%
		5560	48.526	5.720	47.523	5.695	2.07%	0.44%
		5580	48.499	5.743	47.483	5.729	2.09%	0.24%
		5600	48.471	5.766	47.446	5.750	2.11%	0.28%
		5660	48.390	5.837	47.278	5.840	2.30%	-0.05%
		5680	48.363	5.860	47.233	5.874	2.34%	-0.24%
		5720	48.309	5.907	47.120	5.928	2.46%	-0.36%
	Apr. 17,2014	5530	48.566	5.685	47.596	5.649	2.00%	0.63%
		5600	48.471	5.766	47.432	5.738	2.14%	0.49%
		5690	48.349	5.872	47.212	5.884	2.35%	-0.20%
		5710	48.322	5.895	47.155	5.912	2.42%	-0.29%
	Apr. 18,2014	5745	48.275	5.936	47.069	5.965	2.50%	-0.49%
		5765	48.248	5.959	47.018	5.996	2.55%	-0.62%
		5775	48.234	5.971	46.997	6.013	2.56%	-0.70%
		5785	48.220	5.982	46.977	6.027	2.58%	-0.75%
		5800	48.200	6.000	46.948	6.042	2.60%	-0.70%
		5805	48.193	6.006	46.930	6.050	2.62%	-0.73%
		5825	48.166	6.029	46.864	6.081	2.70%	-0.86%

Tissue Type	Measurement Date	Measured Frequency (MHz)	Target Dielectric Constant, εr	Target Conductivity, σ (S/m)	Measured Dielectric Constant, εr	Measured Conductivity, σ (S/m)	% dev εr	% dev σ
Body	Jun. 04, 2014	823.1	55.246	0.969	54.295	1.006	1.72%	-3.82%
		824.7	55.240	0.969	53.842	0.988	2.53%	-1.96%
		835	55.2	0.97	53.766	0.998	2.60%	-2.89%
		846.6	55.164	0.984	53.672	1.011	2.70%	-2.74%
		848.8	55.158	0.987	53.615	1.013	2.80%	-2.63%
		1732.4	53.478	1.477	53.798	1.413	-0.60%	4.33%
		1745	53.445	1.485	54.147	1.42	-1.31%	4.38%
		1750	53.432	1.488	53.774	1.432	-0.64%	3.76%
		1850.2	53.300	1.520	54.218	1.468	-1.72%	3.42%
		1852.4	53.300	1.520	54.211	1.47	-1.71%	3.29%
		1860	53.300	1.520	54.185	1.479	-1.66%	2.70%
		1900	53.300	1.520	54.059	1.524	-1.42%	-0.26%
		1851.25	53.300	1.520	54.212	1.472	-1.71%	3.16%

Table 2. Dielectric Parameters of Tissue Simulant Fluid

The composition of the body tissue simulating liquid:

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

Body Simulating Liquids for 5 GHz, Manufactured by SPEAG:

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

Table 3. Recipes for Tissue Simulating Liquid

1.11 Evaluation Procedures

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

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

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

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

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

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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 the moved around until the highest averaged SAR is found. If the highest SAR is found at the edge of the measured volume, the system will issue a warning: higher SAR values might be found outside of the measured volume. In that case the cube measurement can be repeated, using the new interpolated maximum as the center.

1.12 Probe Calibration Procedures

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

1.12.1 Transfer Calibration with Temperature Probes

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

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

whereby σ is the conductivity, ρ the density and c the heat capacity of the liquid.

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

- 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 (~ 2% for c; much better for ρ) , there is no standard for the measurement of the conductivity. Depending on the method and liquid, the error can well exceed ±5%.
- Temperature rise measurements are not very sensitive and therefore are often performed at a higher power level than the E-field measurements. The nonlinearities in the system (e.g., power measurements, different components, etc.) must be considered.

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

1.12.2 Calibration with Analytical Fields

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

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

- 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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1.13 Test Standards and Limits

According to FCC 47CFR §2.1093(d) The limits to be used for evaluation are based generally on criteria published by the American National Standards Institute (ANSI) for localized specific absorption rate (“SAR”) in Section 4.2 of ‘‘IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz,’’ ANSI/IEEE C95.1–1992, Copyright 1992 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.

2. Summary of Results

GPRS 850 MHz (Full power)

Mode	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page
								Measured	Reported	
GPRS (1D2UP)	Back side	9mm	128	824.2	33.5	31.5	58.49%	0.585	0.927	-
	Back side	9mm	190	836.6	33.5	31.5	58.49%	0.627	0.994	-
	Back side	9mm	251	848.8	33.5	31.5	58.49%	0.648	1.027	-
	Top side	10mm	128	824.2	33.5	31.5	58.49%	0.552	0.875	-
	Top side	10mm	190	836.6	33.5	31.5	58.49%	0.68	1.078	201
	Top side	10mm	251	848.8	33.5	31.5	58.49%	0.664	1.052	-
	Right side	0mm	190	836.6	33.5	31.5	58.49%	0.131	0.208	-
	Back side -with mobile battery	0mm	251	848.8	33.5	31.5	58.49%	0.608	0.964	-

GPRS 850 MHz (Reduced power)

Mode	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page
								Measured	Reported	
GPRS (1D2UP)	Back side	0mm	128	824.2	29.5	29.15	8.39%	0.922	0.999	-
	Back side	0mm	190	836.6	29.5	29.16	8.14%	0.961	1.039	-
	Back side	0mm	251	848.8	29.5	29.22	6.66%	0.959	1.023	-
	Top side	0mm	128	824.2	29.5	29.15	8.39%	1.02	1.106	-
	Top side	0mm	190	836.6	29.5	29.16	8.14%	1.1	1.190	-
	Top side	0mm	251	848.8	29.5	29.22	6.66%	1.12	1.195	202
	Top side*	0mm	251	848.8	29.5	29.22	6.66%	1.11	1.184	-

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

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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 (1Dn2UP)	Back side	0mm	512	1850.2	29	28.7	7.15%	0.975	1.045	-
	Back side	0mm	661	1880	29	29	0.00%	0.816	0.816	-
	Back side	0mm	810	1909.8	29	28.8	4.71%	0.776	0.813	-
	Top side	0mm	512	1850.2	29	28.7	7.15%	1	1.072	203
	Top side	0mm	661	1880	29	29	0.00%	0.934	0.934	-
	Top side	0mm	810	1909.8	29	28.8	4.71%	0.973	1.019	-
	Right side	0mm	661	1880	29	29	0.00%	0.11	0.110	-
	Back side -with mobile battery	0mm	512	1850.2	29	28.7	7.15%	0.335	0.359	-
	Top side -with mobile battery	0mm	512	1850.2	29	28.7	7.15%	0.931	0.998	-
	Top side*	0mm	512	1850.2	29	28.7	7.15%	0.909	0.974	-

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

WCDMA Band II

Mode	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page
								Measured	Reported	
WCDMA Band II	Back side	0mm	9262	1852.4	23.5	23.20	7.15%	0.991	1.062	-
	Back side	0mm	9400	1880	23.5	23.25	5.93%	0.877	0.929	-
	Back side	0mm	9538	1907.6	23.5	23.24	6.17%	0.766	0.813	-
	Top side	0mm	9262	1852.4	23.5	23.20	7.15%	1.06	1.136	204
	Top side	0mm	9400	1880	23.5	23.25	5.93%	1.05	1.112	-
	Top side	0mm	9538	1907.6	23.5	23.24	6.17%	1.01	1.072	-
	Right side	0mm	9400	1880	23.5	23.25	5.93%	0.246	0.261	-
	Back side -with mobile battery	0mm	9262	1852.4	23.5	23.20	7.15%	0.35	0.375	-
	Top side -with mobile battery	0mm	9262	1852.4	23.5	23.20	7.15%	1.05	1.125	-
	Top side*	0mm	9262	1852.4	23.5	23.20	7.15%	1.06	1.136	-

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

WCDMA Band IV (Full power)

Mode	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page
								Measured	Reported	
WCDMA Band IV	Back side	9mm	1312	1712.4	24	23.21	19.95%	0.58	0.696	-
	Back side	9mm	1412	1732.4	24	23.36	15.88%	0.656	0.760	205
	Back side	9mm	1513	1752.6	24	23.20	20.23%	0.584	0.702	-
	Top side	10mm	1412	1732.4	24	23.36	15.88%	0.56	0.649	-
	Right side	0mm	1412	1732.4	24	23.36	15.88%	0.304	0.352	-
	Back side -with mobile battery	0mm	1412	1732.4	24	23.36	15.88%	0.478	0.554	-

WCDMA Band IV (Reduced power)

Mode	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page
								Measured	Reported	
WCDMA Band IV	Back side	0mm	1312	1712.4	21.5	21.13	8.89%	0.851	0.927	-
	Back side	0mm	1412	1732.4	21.5	21.15	8.39%	0.854	0.926	206
	Back side	0mm	1513	1752.6	21.5	21.17	7.89%	0.808	0.872	-
	Top side	0mm	1312	1712.4	21.5	21.13	8.89%	0.83	0.904	-
	Top side	0mm	1412	1732.4	21.5	21.15	8.39%	0.772	0.837	-
	Top side	0mm	1513	1752.6	21.5	21.17	7.89%	0.718	0.775	-
	Back side*	0mm	1312	1712.4	21.5	21.13	8.89%	0.85	0.926	-

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

WCDMA Band V

Mode	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page
								Measured	Reported	
WCDMA Band V	Back side	0mm	4132	826.4	22	21.70	7.15%	0.875	0.938	-
	Back side	0mm	4183	836.6	22	21.89	2.57%	0.947	0.971	-
	Back side	0mm	4233	846.6	22	21.72	6.66%	0.946	1.009	-
	Top side	0mm	4132	826.4	22	21.70	7.15%	0.899	0.963	-
	Top side	0mm	4183	836.6	22	21.89	2.57%	1.01	1.036	-
	Top side	0mm	4233	846.6	22	21.72	6.66%	1.03	1.099	-
	Right side	0mm	4183	836.6	22	21.89	2.57%	0.081	0.083	-
	Back side -with mobile battery	0mm	4233	846.6	22	21.72	6.66%	0.386	0.412	-
	Top side -with mobile battery	0mm	4233	846.6	22	21.72	6.66%	0.993	1.059	-
	Top side*	0mm	4233	846.6	22	21.72	6.66%	1.04	1.109	207

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

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LTE FDD Band IV (Full power)

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	99	Back side	9mm	20050	1720	23	22.87	3.04%	0.513	0.529	-
					Top side	10mm	20050	1720	23	22.87	3.04%	0.582	0.600	208
					Right side	0mm	20050	1720	23	22.87	3.04%	0.304	0.313	-
			50 RB	25	Back side	9mm	20175	1732.5	23	21.38	45.21%	0.455	0.661	-
					Back side	9mm	20300	1745	23	21.36	45.88%	0.46	0.671	-
					Back side -with mobile battery	0mm	20300	1745	23	21.36	45.88%	0.379	0.553	-
				50	Back side	9mm	20050	1720	23	21.51	40.93%	0.463	0.653	-
					Top side	10mm	20050	1720	23	21.51	40.93%	0.453	0.638	-
					Right side	0mm	20050	1720	23	21.51	40.93%	0.237	0.334	-
			100 RB		Back side	9mm	20300	1745	23	21.37	45.55%	0.447	0.651	-
					Top side	10mm	20300	1745	23	21.37	45.55%	0.418	0.608	-
					Right side	0mm	20300	1745	23	21.37	45.55%	0.218	0.317	-

LTE FDD Band IV (Reduced Power)

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	50	Back side	0mm	20175	1732.5	20	19.05	24.45%	0.671	0.835	-
				99	Back side	0mm	20050	1720	20	19.05	24.45%	0.526	0.655	-
					Back side	0mm	20300	1745	20	19.2	20.23%	0.675	0.812	-
					Top side	0mm	20300	1745	20	19.2	20.23%	0.615	0.739	-
			50 RB	0	Back side	0mm	20300	1745	20	18.92	28.23%	0.695	0.891	-
					Top side	0mm	20300	1745	20	18.92	28.23%	0.637	0.817	-
				25	Back side	0mm	20050	1720	20	18.85	30.32%	0.551	0.718	-
					Back side	0mm	20175	1732.5	20	18.85	30.32%	0.546	0.712	-
					Top side	0mm	20050	1720	20	18.85	30.32%	0.632	0.824	-
					Top side	0mm	20175	1732.5	20	18.85	30.32%	0.64	0.834	-
			100 RB		Back side	0mm	20050	1720	20	18.86	30.02%	0.684	0.889	-
					Back side	0mm	20175	1732.5	20	18.86	30.02%	0.695	0.904	-
					Back side	0mm	20300	1745	20	18.9	28.82%	0.694	0.894	-
					Back side*	0mm	20175	1732.5	20	18.86	30.02%	0.704	0.915	209
					Top side	0mm	20050	1720	20	18.86	30.02%	0.628	0.817	-
					Top side	0mm	20175	1732.5	20	18.86	30.02%	0.627	0.815	-
					Top side	0mm	20300	1745	20	18.9	28.82%	0.63	0.812	-

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

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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	23230	782	22.1	22.06	0.93%	0.606	0.612	210
					Top side	0mm	23230	782	22.1	22.06	0.93%	0.598	0.604	-
					Right side	0mm	23230	782	22.1	22.06	0.93%	0.067	0.068	-
			25 RB	12	Back side	0mm	23230	782	22.1	20.65	39.64%	0.56	0.782	-
					Top side	0mm	23230	782	22.1	20.65	39.64%	0.512	0.715	-
					Right side	0mm	23230	782	22.1	20.65	39.64%	0.064	0.089	-
					Back side -with mobile battery	0mm	23230	782	22.1	20.65	39.64%	0.197	0.275	-
					Back side*	0mm	23230	782	22.1	20.65	39.64%	0.593	0.828	-
			50 RB		Back side	0mm	23230	782	22.1	20.56	42.56%	0.53	0.756	-
					Top side	0mm	23230	782	22.1	20.56	42.56%	0.466	0.664	-
					Right side	0mm	23230	782	22.1	20.56	42.56%	0.057	0.081	-

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

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	0	Back side	0mm	23800	711	22.5	22.24	6.17%	0.839	0.891	-
				25	Back side	0mm	23780	709	22.5	22.42	1.86%	0.865	0.881	211
					Back side	0mm	23790	710	22.5	22.2	7.15%	0.864	0.926	-
					Top side	0mm	23780	709	22.5	22.42	1.86%	0.492	0.501	-
					Right side	0mm	23780	709	22.5	22.42	1.86%	0.099	0.101	-
					Back side -with mobile battery	0mm	23800	710	22.5	22.2	7.15%	0.263	0.282	-
					Back side*	0mm	23800	710	22.5	22.2	7.15%	0.838	0.898	-
			25 RB	0	Back side	0mm	23790	710	22.5	21.47	26.77%	0.654	0.829	-
					Top side	0mm	23790	710	22.5	21.47	26.77%	0.363	0.460	-
					Right side	0mm	23790	710	22.5	21.47	26.77%	0.082	0.104	-
				12	Back side	0mm	23780	709	22.5	21.46	27.06%	0.657	0.835	-
					Back side	0mm	23800	711	22.5	21.44	27.64%	0.643	0.821	-
			50 RB		Back side	0mm	23780	709	22.5	21.2	34.90%	0.63	0.850	-
					Back side	0mm	23790	710	22.5	21.08	38.68%	0.619	0.858	-
					Back side	0mm	23800	711	22.5	21.13	37.09%	0.631	0.865	-
					Top side	0mm	23780	709	22.5	21.2	34.90%	0.357	0.482	-
					Right side	0mm	23780	709	22.5	21.2	34.90%	0.084	0.113	-

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

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	50	Back side	0mm	26140	1860	22.5	22.5	0.00%	0.984	0.984	-
					Back side	0mm	26365	1882.5	22.5	22.3	4.71%	0.858	0.898	-
					Top side	0mm	26140	1860	22.5	22.5	0.00%	1.16	1.160	212
					Top side	0mm	26365	1882.5	22.5	22.3	4.71%	1.08	1.131	-
					Right side	0mm	26140	1860	22.5	22.5	0.00%	0.265	0.265	-
					Top side -with mobile battery	0mm	26140	1860	22.5	22.5	0.00%	0.995	0.995	-
					Top side*	0mm	26140	1860	22.5	22.5	0.00%	1.11	1.110	-
				99	Back side	0mm	26590	1905	22.5	22.28	5.20%	0.763	0.803	-
					Top side	0mm	26590	1905	22.5	22.28	5.20%	1.06	1.115	-
			50 RB	0	Back side	0mm	26140	1860	22.5	21.14	36.77%	0.756	1.034	-
					Back side	0mm	26365	1882.5	22.5	21.17	35.83%	0.678	0.921	-
					Back side	0mm	26590	1905	22.5	20.97	42.23%	0.605	0.861	-
					Top side	0mm	26140	1860	22.5	21.14	36.77%	0.842	1.152	-
					Top side	0mm	26365	1882.5	22.5	21.17	35.83%	0.838	1.138	-
					Top side	0mm	26590	1905	22.5	20.97	42.23%	0.776	1.104	-
					Right side	0mm	26365	1882.5	22.5	21.17	35.83%	0.2	0.272	-
					Back side -with mobile battery	0mm	26140	1860	22.5	21.14	36.77%	0.281	0.384	-
			100 RB		Back side	0mm	26140	1860	22.5	21.13	37.09%	0.749	1.027	-
					Back side	0mm	26365	1882.5	22.5	21.08	38.68%	0.645	0.894	-
					Back side	0mm	26590	1905	22.5	21.02	40.60%	0.607	0.853	-
					Top side	0mm	26140	1860	22.5	21.13	37.09%	0.837	1.147	-
					Top side	0mm	26365	1882.5	22.5	21.08	38.68%	0.795	1.102	-
					Top side	0mm	26590	1905	22.5	21.02	40.60%	0.779	1.095	-
					Right side	0mm	26140	1860	22.5	21.13	37.09%	0.202	0.277	-

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

CDMA Cellular (BC0) (Full power)

Band		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	
Cellular (BC0)	1xRTT	TDSO/ SO32/ FCH	Back side	9mm	384	836.52	25.00	23.79	32.13%	0.594	0.785	-
			Top side	10mm	1013	824.7	25.00	23.77	32.74%	0.681	0.904	-
			Top side	10mm	384	836.52	25.00	23.79	32.13%	0.649	0.858	-
			Top side	10mm	777	848.31	25.00	23.32	47.23%	0.523	0.770	-
			Right side	0mm	384	836.52	25.00	23.79	32.13%	0.116	0.153	-
			Top side -with mobile battery	10mm	1013	824.7	25.00	23.77	32.74%	0.668	0.887	-
			Top side*	10mm	1013	824.7	25.00	23.77	32.74%	0.71	0.942	213
Cellular (BC0)	EVDO Rev. 0	1x EvDO Rev. 0, FTAP/RTAP/ Subtype 0/1	Back side	9mm	1013	824.7	25.00	23.42	43.88%	0.541	0.778	-
			Top side	10mm	1013	824.7	25.00	23.42	43.88%	0.804	1.157	-
			Top side	10mm	384	836.52	25.00	23.41	44.21%	0.727	1.048	-
			Top side	10mm	777	848.31	25.00	23.18	52.05%	0.644	0.979	-
			Right side	0mm	1013	824.7	25.00	23.42	43.88%	0.113	0.163	-
			Top side -with mobile battery	10mm	1013	824.7	25.00	23.42	43.88%	0.659	0.948	-
			Top side*	10mm	1013	824.7	25.00	23.42	43.88%	0.827	1.190	214
Cellular (BC0)	EVDO Rev. A	1x EvDO Rev. A, FETAP/ RETAP/ Subtype 0/1	Back side	9mm	1013	824.7	25.00	23.46	42.56%	0.836	1.192	215
			Back side	9mm	384	836.52	25.00	23.43	43.55%	0.698	1.002	-
			Back side	9mm	777	848.31	25.00	23.19	51.71%	0.603	0.915	-
			Top side	10mm	1013	824.7	25.00	23.46	42.56%	0.814	1.160	-
			Top side	10mm	384	836.52	25.00	23.43	43.55%	0.691	0.992	-
			Top side	10mm	777	848.31	25.00	23.19	51.71%	0.61	0.925	-
			Right side	0mm	1013	824.7	25.00	23.46	42.56%	0.106	0.151	-
			Back side -with mobile battery	0mm	1013	824.7	25.00	23.46	42.56%	0.526	0.750	-
			Back side*	9mm	1013	824.7	25.00	23.46	42.56%	0.782	1.115	-

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

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CDMA Cellular (BC0) (Reduced Power)

Band		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	
Cellular (BC0)	1xRTT	TDSO/ SO32/ FCH	Back side	0mm	1013	824.7	22.00	21.82	4.23%	0.379	0.395	-
			Top side	0mm	1013	824.7	22.00	21.82	4.23%	0.515	0.537	216
			Top side	0mm	384	836.52	22.00	21.65	8.39%	0.442	0.479	-
			Top side	0mm	777	848.31	22.00	21.51	11.94%	0.476	0.533	-
Cellular (BC0)	EVDO Rev. 0	1x EvDO Rev. 0, FTAP/RTAP/ Subtype 0/1	Back side	0mm	1013	824.7	22.00	21.76	5.68%	0.693	0.732	217
			Back side	0mm	384	836.52	22.00	21.84	3.75%	0.56	0.581	-
			Back side	0mm	777	848.31	22.00	21.58	10.15%	0.617	0.680	-
			Top side	0mm	384	836.52	22.00	21.84	3.75%	0.42	0.436	-
Cellular (BC0)	EVDO Rev. A	1x EvDO Rev. A, FETAP/ RETAP/ Subtype 0/1	Back side	0mm	1013	824.7	22.00	21.77	5.44%	0.779	0.821	218
			Back side	0mm	384	836.52	22.00	21.78	5.20%	0.591	0.622	-
			Back side	0mm	777	848.31	22.00	21.56	10.66%	0.664	0.735	-
			Top side	0mm	384	836.52	22.00	21.78	5.20%	0.509	0.535	-

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CDMA PCS (BC1) (Full power)

Band		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	
PCS (BC1)	1xRTT	TDSO/ SO32/ FCH	Back side	9mm	25	1851.25	25.00	24.88	2.80%	0.554	0.570	-
			Back side	9mm	600	1880	25.00	24.67	7.89%	0.351	0.379	-
			Back side	9mm	1175	1908.75	25.00	24.55	10.92%	0.378	0.419	-
			Top side	10mm	25	1851.25	25.00	24.88	2.80%	0.536	0.551	-
			Right side	0mm	25	1851.25	25.00	24.88	2.80%	0.427	0.439	-
			Back side*	9mm	25	1851.25	25.00	24.88	2.80%	0.605	0.622	219
PCS (BC1)	EVDO Rev. 0	1x EvDO Rev. 0, FTAP/RTAP/ Subtype 0/1	Back side	9mm	25	1851.25	25.00	24.08	23.59%	0.756	0.934	220
			Back side	9mm	600	1880	25.00	23.92	28.23%	0.493	0.632	-
			Back side	9mm	1175	1908.75	25.00	23.81	31.52%	0.512	0.673	-
			Top side	10mm	25	1851.25	25.00	24.08	23.59%	0.741	0.916	-
			Top side	10mm	600	1880	25.00	23.92	28.23%	0.541	0.694	-
			Top side	10mm	1175	1908.75	25.00	23.81	31.52%	0.453	0.596	-
			Right side	0mm	25	1851.25	25.00	24.08	23.59%	0.545	0.674	-
			Back side -with mobile battery	0mm	25	1851.25	25.00	24.08	23.59%	0.476	0.588	-
			Back side*	9mm	25	1851.25	25.00	24.08	23.59%	0.756	0.934	-
PCS (BC1)	EVDO Rev. A	1x EvDO Rev. A, FETAP/ RETAP/ Subtype 0/1	Back side	9mm	25	1851.25	25.00	24.21	19.95%	0.735	0.882	-
			Back side	9mm	600	1880	25.00	24.04	24.74%	0.481	0.600	-
			Back side	9mm	1175	1908.75	25.00	24.01	25.60%	0.507	0.637	-
			Top side	10mm	25	1851.25	25.00	24.21	19.95%	0.758	0.909	-
			Top side	10mm	600	1880	25.00	24.04	24.74%	0.516	0.644	-
			Top side	10mm	1175	1908.75	25.00	24.01	25.60%	0.519	0.652	-
			Right side	0mm	25	1851.25	25.00	24.21	19.95%	0.515	0.618	-
			Top side -with mobile battery	10mm	25	1851.25	25.00	24.21	19.95%	0.716	0.859	-
			Top side*	10mm	25	1851.25	25.00	24.21	19.95%	0.772	0.926	221

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

CDMA PCS (BC1) (Reduced Power)

Band		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	
PCS (BC1)	1xRTT	TDSO/ SO32/ FCH	Back side	0mm	25	1851.25	22.00	22.00	0.00%	0.467	0.467	222
			Back side	0mm	600	1880	22.00	21.95	1.16%	0.343	0.347	-
			Back side	0mm	1175	1908.75	22.00	21.94	1.39%	0.268	0.272	-
			Top side	0mm	25	1851.25	22.00	22.00	0.00%	0.426	0.426	-
PCS (BC1)	EVDO Rev. 0	1x EvDO Rev. 0, FTAP/RTAP/ Subtype 0/1	Back side	0mm	25	1851.25	22.00	22.00	0.00%	0.454	0.454	223
			Back side	0mm	600	1880	22.00	21.89	2.57%	0.291	0.298	-
			Back side	0mm	1175	1908.75	22.00	21.93	1.62%	0.316	0.321	-
			Top side	0mm	25	1851.25	22.00	22.00	0.00%	0.405	0.405	-
PCS (BC1)	EVDO Rev. A	1x EvDO Rev. A, FETAP/ RETAP/ Subtype 0/1	Back side	0mm	25	1851.25	22.00	21.99	0.23%	0.499	0.500	224
			Back side	0mm	600	1880	22.00	21.88	2.80%	0.362	0.372	-
			Back side	0mm	1175	1908.75	22.00	21.91	2.09%	0.287	0.293	-
			Top side	0mm	25	1851.25	22.00	21.99	0.23%	0.478	0.479	-

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CDMA BC10 (Full power)

Band		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	
BC10	1xRTT	TDSO/ SO32/ FCH	Back side	9mm	476	817.9	25.00	23.65	36.46%	0.678	0.925	-
			Back side	9mm	560	820	25.00	23.63	37.09%	0.704	0.965	-
			Back side	9mm	684	823.1	25.00	23.70	34.90%	0.721	0.973	-
			Top side	10mm	476	817.9	25.00	23.65	36.46%	0.611	0.834	-
			Top side	10mm	560	820	25.00	23.63	37.09%	0.623	0.854	-
			Top side	10mm	684	823.1	25.00	23.70	34.90%	0.664	0.896	-
			Right side	0mm	684	823.1	25.00	23.70	34.90%	0.141	0.190	-
			Back side*	9mm	684	823.1	25.00	23.70	34.90%	0.805	1.086	225
BC10	EVDO Rev. 0	1x EvDO Rev. 0, FTAP/RTAP/ Subtype 0/1	Back side	9mm	476	817.9	25.00	23.34	46.55%	0.735	1.077	-
			Back side	9mm	560	820	25.00	23.25	49.62%	0.719	1.076	-
			Back side	9mm	684	823.1	25.00	23.33	46.89%	0.772	1.134	226
			Top side	10mm	476	817.9	25.00	23.34	46.55%	0.666	0.976	-
			Top side	10mm	560	820	25.00	23.25	49.62%	0.729	1.091	-
			Top side	10mm	684	823.1	25.00	23.33	46.89%	0.733	1.077	-
			Right side	0mm	476	817.9	25.00	23.34	46.55%	0.157	0.230	-
			Back side -with mobile battery	0mm	684	823.1	25.00	23.33	46.89%	0.596	0.875	-
			Back side*	9mm	684	823.1	25.00	23.33	46.89%	0.768	1.128	-
BC10	EVDO Rev. A	1x EvDO Rev. A, FETAP/ RETAP/ Subtype 0/1	Back side	9mm	476	817.9	25.00	23.32	47.23%	0.709	1.044	-
			Back side	9mm	560	820	25.00	23.21	51.01%	0.733	1.107	-
			Back side	9mm	684	823.1	25.00	23.31	47.57%	0.734	1.083	-
			Top side	10mm	476	817.9	25.00	23.32	47.23%	0.69	1.016	-
			Top side	10mm	560	820	25.00	23.21	51.01%	0.687	1.037	-
			Top side	10mm	684	823.1	25.00	23.31	47.57%	0.67	0.989	-
			Right side	0mm	476	817.9	25.00	23.32	47.23%	0.128	0.188	-
			Back side*	9mm	560	820	25.00	23.21	51.01%	0.758	1.145	227

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

CDMA BC10 (Reduced Power)

Band		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	
BC10	1xRTT	TDSO/ SO32/ FCH	Back side	0mm	476	817.9	22.00	21.54	11.17%	0.396	0.440	-
			Back side	0mm	560	820	22.00	21.59	9.90%	0.454	0.499	-
			Back side	0mm	684	823.1	22.00	21.66	8.14%	0.527	0.570	228
			Top side	0mm	476	817.9	22.00	21.66	8.14%	0.439	0.475	-
BC10	EVDO Rev. 0	1x EvDO Rev. 0, FTAP/RTAP/ Subtype 0/1	Back side	0mm	476	817.9	22.00	21.66	8.14%	0.48	0.519	-
			Back side	0mm	560	820	22.00	21.58	10.15%	0.471	0.519	-
			Back side	0mm	684	823.1	22.00	21.67	7.89%	0.665	0.717	229
			Top side	0mm	476	817.9	22.00	21.67	7.89%	0.518	0.559	-
BC10	EVDO Rev. A	1x EvDO Rev. A, FETAP/ RETAP/ Subtype 0/1	Back side	0mm	476	817.9	22.00	21.66	8.14%	0.483	0.522	-
			Back side	0mm	560	820	22.00	21.61	9.40%	0.688	0.753	230
			Back side	0mm	684	823.1	22.00	21.72	6.66%	0.678	0.723	-
			Top side	0mm	476	817.9	22.00	21.72	6.66%	0.461	0.492	-

WLAN Main Antenna

Band	Position	Antenna	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page
								Measured	Reported	
WLAN802.11b	Back side	Main	1	2412	15.50	15.48	0.46%	0.132	0.133	-
	Back side	Main	6	2437	15.50	15.49	0.23%	0.134	0.134	-
	Back side	Main	11	2462	15.50	15.34	3.75%	0.136	0.141	231
	Top side	Main	6	2437	15.50	15.49	0.23%	0.057	0.057	-
	Back side -with mobile battery	Main	11	2462	15.50	15.34	3.75%	0.032	0.033	-
WLAN802.11g	Back side	Main	1	2412	13.50	13.40	2.33%	0.129	0.132	-
	Back side	Main	6	2437	16.50	16.40	2.33%	0.257	0.263	232
	Back side	Main	11	2462	13.50	13.20	7.15%	0.139	0.149	-
	Top side	Main	6	2437	16.50	16.40	2.33%	0.097	0.099	-
	Back side -with mobile battery	Main	6	2437	16.50	16.40	2.33%	0.057	0.058	-
WLAN802.11n (20M)	Back side	Main	1	2412	13.50	13.39	2.57%	0.139	0.143	-
	Back side	Main	6	2437	16.50	16.42	1.86%	0.241	0.245	233
	Back side	Main	11	2462	13.50	13.32	4.23%	0.111	0.116	-
	Top side	Main	6	2437	16.50	16.42	1.86%	0.106	0.108	-
	Back side -with mobile battery	Main	6	2437	16.50	16.42	1.86%	0.067	0.068	-
WLAN802.11n (40M)	Back side	Main	3	2422	12.00	11.97	0.69%	0.089	0.090	-
	Back side	Main	6	2437	16.50	16.20	7.15%	0.256	0.274	234
	Back side	Main	9	2452	13.00	12.94	1.39%	0.109	0.111	-
	Top side	Main	6	2437	16.50	16.20	7.15%	0.104	0.111	-
	Back side -with mobile battery	Main	6	2437	16.50	16.20	7.15%	0.068	0.073	-
WLAN802.11a 5.2G	Back side	Main	40	5200	16	15.5	12.20%	0.355	0.398	235
	Back side	Main	48	5240	15	14.99	0.23%	0.297	0.298	-
	Top side	Main	40	5200	16	15.5	12.20%	0.318	0.357	-
	Back side -with mobile battery	Main	40	5200	16	15.5	12.20%	0.173	0.194	-

Band	Position	Antenna	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page
								Measured	Reported	
WLAN802.11n (20M) 5.2G	Back side	Main	40	5200	16	15.63	8.89%	0.404	0.440	236
	Back side	Main	48	5240	15.5	15.27	5.44%	0.233	0.246	-
	Top side	Main	40	5200	16	15.63	8.89%	0.403	0.439	-
	Back side -with mobile battery	Main	40	5200	16	15.63	8.89%	0.226	0.246	-
WLAN802.11n (40M) 5.2G	Back side	Main	46	5230	15.5	14.96	13.24%	0.216	0.245	-
	Back side	Main	38	5190	9.5	9.46	0.93%	0.044	0.044	-
	Top side	Main	46	5230	15.5	14.96	13.24%	0.308	0.349	237
	Top side -with mobile battery	Main	46	5230	15.5	14.96	13.24%	0.267	0.302	-
WLAN802.11ac (80M) 5.2G	Back side	Main	42	5210	8.5	8.49	0.23%	0.059	0.059	238
	Back side -with mobile battery	Main	42	5210	8.5	8.49	0.23%	0.013	0.013	-
WLAN802.11a 5.3G	Back side	Main	60	5300	16	15.96	0.93%	0.291	0.294	-
	Top side	Main	56	5280	16	15.9	2.33%	0.402	0.411	239
	Top side	Main	60	5300	16	15.96	0.93%	0.379	0.383	-
	Top side -with mobile battery	Main	56	5280	16	15.9	2.33%	0.372	0.381	-
WLAN802.11ac (80M) 5.3G	Back side	Main	58	5290	10.5	10.49	0.23%	0.104	0.104	240
	Back side -with mobile battery	Main	58	5290	10.5	10.49	0.23%	0.101	0.101	-
WLAN802.11a 5.6G	Back side	Main	104	5520	16.5	16.32	4.23%	0.305	0.318	-
	Top side	Main	104	5520	16.5	16.32	4.23%	0.466	0.486	-
	Top side	Main	116	5580	16.5	16.18	7.65%	0.532	0.573	-
	Top side	Main	132	5660	16.5	16.09	9.90%	0.65	0.714	241
	Top side -with mobile battery	Main	132	5660	16.5	16.09	9.90%	0.622	0.684	-
WLAN802.11ac (20M) 5.6G	Back side	Main	144	5720	16.5	15.24	33.66%	0.364	0.487	-
	Top side	Main	144	5720	16.5	15.24	33.66%	0.499	0.667	242
	Top side -with mobile battery	Main	144	5720	16.5	15.24	33.66%	0.44	0.588	-

Band	Position	Antenna	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page
								Measured	Reported	
WLAN802.11ac (40M) 5.6G	Back side	Main	142	5710	16.5	15.16	36.14%	0.358	0.487	-
	Top side	Main	142	5710	16.5	15.16	36.14%	0.527	0.717	243
	Top side -with mobile battery	Main	142	5710	16.5	15.16	36.14%	0.465	0.633	-
WLAN802.11ac (80M) 5.6G	Top side	Main	138	5690	14	13.55	10.92%	0.372	0.413	244
	Top side -with mobile battery	Main	138	5690	14	13.55	10.92%	0.306	0.339	-
WLAN802.11a 5.8G	Back side	Main	157	5785	16.5	16.17	7.89%	0.293	0.316	-
	Top side	Main	149	5745	16.5	16.07	10.41%	0.576	0.636	-
	Top side	Main	157	5785	16.5	16.17	7.89%	0.527	0.569	-
	Top side	Main	161	5805	16.5	15.69	20.50%	0.578	0.697	245
	Top side -with mobile battery	Main	161	5805	16.5	15.69	20.50%	0.549	0.662	-
WLAN802.11ac (80M) 5.8G	Top side	Main	155	5775	14	13.84	3.75%	0.448	0.465	246
	Top side -with mobile battery	Main	155	5775	14	13.84	3.75%	0.442	0.459	-

WLAN Aux Antenna

Band	Position	Antenna	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page
								Measured	Reported	
WLAN802.11b	Back side	Aux	1	2412	14.00	13.97	0.69%	0.152	0.153	-
	Top side	Aux	1	2412	14.00	13.97	0.69%	0.166	0.167	-
	Top side	Aux	6	2437	14.00	13.82	4.23%	0.177	0.184	-
	Top side	Aux	11	2462	14.00	13.85	3.51%	0.209	0.216	247
	Left side	Aux	1	2412	14.00	13.97	0.69%	0.00561	0.006	-
	Top side -with mobile battery	Aux	11	2462	14.00	13.85	3.51%	0.186	0.193	-
WLAN802.11g	Back side	Aux	6	2437	15.50	15.48	0.46%	0.216	0.217	-
	Top side	Aux	1	2412	12.00	12.00	0.00%	0.08	0.080	-
	Top side	Aux	6	2437	15.50	15.48	0.46%	0.246	0.247	248
	Top side	Aux	11	2462	13.50	13.49	0.23%	0.182	0.182	-
	Left side	Aux	6	2437	15.50	15.48	0.46%	0.00797	0.008	-
	Top side -with mobile battery	Aux	6	2437	15.50	15.48	0.46%	0.24	0.241	-
WLAN802.11n (20M)	Back side	Aux	6	2437	15.50	15.43	1.62%	0.258	0.262	-
	Top side	Aux	1	2412	12.00	11.95	1.16%	0.109	0.110	-
	Top side	Aux	6	2437	15.50	15.43	1.62%	0.267	0.271	249
	Top side	Aux	11	2462	13.50	13.41	2.09%	0.187	0.191	-
	Left side	Aux	6	2437	15.50	15.43	1.62%	0.00684	0.007	-
	Top side -with mobile battery	Aux	6	2437	15.50	15.43	1.62%	0.22	0.224	-
WLAN802.11a 5.2G	Back side	Aux	40	5200	16	15.95	1.16%	0.431	0.436	-
	Top side	Aux	40	5200	16	15.95	1.16%	0.58	0.587	250
	Top side	Aux	48	5240	15	14.92	1.86%	0.573	0.584	-
	Left side	Aux	40	5200	16	15.95	1.16%	0.076	0.077	-
	Top side -with mobile battery	Aux	40	5200	16	15.95	1.16%	0.53	0.536	-
WLAN802.11n (20M) 5.2G	Back side	Aux	40	5200	16	15.7	7.15%	0.565	0.605	-
	Top side	Aux	40	5200	16	15.7	7.15%	0.767	0.822	251
	Top side	Aux	48	5240	15.5	15.09	9.90%	0.704	0.774	-
	Left side	Aux	40	5200	16	15.7	7.15%	0.113	0.121	-
	Top side -with mobile battery	Aux	40	5200	16	15.7	7.15%	0.699	0.749	-

Band	Position	Antenna	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page
								Measured	Reported	
WLAN802.11n (40M) 5.2G	Back side	Aux	46	5230	15.5	15.04	11.17%	0.306	0.340	-
	Top side	Aux	38	5190	10	9.64	8.64%	0.194	0.211	-
	Top side	Aux	46	5230	15.5	15.04	11.17%	0.45	0.500	252
	Left side	Aux	46	5230	15.5	15.04	11.17%	0.064	0.071	-
	Top side -with mobile battery	Aux	46	5230	15.5	15.04	11.17%	0.433	0.481	-
WLAN802.11ac (80M) 5.2G	Top side	Aux	42	5210	8.5	8.3	4.71%	0.15	0.157	253
	Top side -with mobile battery	Aux	42	5210	8.5	8.3	4.71%	0.14	0.147	-
WLAN802.11a 5.3G	Back side	Aux	60	5300	16	15.79	4.95%	0.58	0.609	-
	Top side	Aux	56	5280	16	15.78	5.20%	0.736	0.774	-
	Top side	Aux	60	5300	16	15.79	4.95%	0.775	0.813	254
	Left side	Aux	60	5300	16	15.79	4.95%	0.127	0.133	-
	Top side -with mobile battery	Aux	60	5300	16	15.79	4.95%	0.668	0.701	-
WLAN802.11ac (80M) 5.3G	Top side	Aux	58	5290	11	10.8	4.71%	0.287	0.301	255
	Top side -with mobile battery	Aux	58	5290	11	10.8	4.71%	0.265	0.277	-
WLAN802.11a 5.6G	Back side	Aux	104	5520	15	14.79	4.95%	0.655	0.687	-
	Back side	Aux	112	5560	15	14.98	0.46%	0.588	0.591	-
	Back side	Aux	136	5680	15	14.85	3.51%	0.778	0.805	256
	Top side	Aux	112	5560	15	14.98	0.46%	0.217	0.218	-
	Left side	Aux	112	5560	15	14.98	0.46%	0.098	0.098	-
	Back side -with mobile battery	Aux	136	5680	15	14.85	3.51%	0.264	0.273	-
WLAN802.11ac (20M) 5.6G	Back side	Aux	144	5720	15	14.98	0.46%	0.806	0.810	-
	Back side*	Aux	144	5720	15	14.98	0.46%	0.807	0.811	257
	Top side	Aux	144	5720	15	14.98	0.46%	0.436	0.438	-
	Left side	Aux	144	5720	15	14.98	0.46%	0.179	0.180	-
	Back side -with mobile battery	Aux	144	5720	15	14.98	0.46%	0.243	0.244	-

Test distance is 0mm.

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

Band	Position	Antenna	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page
								Measured	Reported	
WLAN802.11ac (40M) 5.6G	Back side	Aux	142	5710	15	14.87	3.04%	0.733	0.755	258
	Top side	Aux	142	5710	15	14.87	3.04%	0.376	0.387	-
	Left side	Aux	142	5710	15	14.87	3.04%	0.161	0.166	-
	Back side -with mobile battery	Aux	142	5710	15	14.87	3.04%	0.21	0.216	-
WLAN802.11ac (80M) 5.6G	Back side	Aux	138	5690	14	13.62	9.14%	0.496	0.541	259
	Back side -with mobile battery	Aux	138	5690	14	13.62	9.14%	0.174	0.190	-
WLAN802.11a 5.8G	Back side	Aux	149	5745	15	14.96	0.93%	0.661	0.667	-
	Back side	Aux	153	5765	15	14.88	2.80%	1.01	1.038	-
	Back side	Aux	165	5825	15	14.91	2.09%	1.04	1.062	-
	Back side*	Aux	165	5825	15	14.91	2.09%	1.17	1.194	260
	Top side	Aux	149	5745	15	14.96	0.93%	0.365	0.368	-
	Left side	Aux	149	5745	15	14.96	0.93%	0.049	0.049	-
	Back side -with mobile battery	Aux	165	5825	15	14.91	2.09%	0.257	0.262	-
WLAN802.11ac (80M) 5.8G	Back side	Aux	155	5775	14	13.64	8.64%	0.791	0.859	261
	Back side -with mobile battery	Aux	155	5775	14	13.64	8.64%	0.109	0.118	-

Test distance is 0mm.

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

WLAN MIMO Antenna

Band	Position	Antenna	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page
								Measured	Reported	
WLAN802.11n (20M)	Back side	MIMO	1	2412	12.50	12.43	1.62%	0.118	0.120	262
	Back side	MIMO	6	2437	13.50	13.48	0.46%	0.097	0.097	-
	Back side	MIMO	11	2462	13.50	13.46	0.93%	0.112	0.113	-
	Top side	MIMO	6	2437	13.50	13.48	0.46%	0.093	0.093	-
	Left side	MIMO	6	2437	13.50	13.48	0.46%	0.00632	0.006	-
	Back side -with mobile battery	MIMO	1	2412	12.50	12.43	1.62%	0.039	0.040	-
WLAN802.11n (20M) 5.2G	Back side	MIMO	40	5200	13	12.9	2.33%	0.281	0.288	-
	Top side	MIMO	40	5200	13	12.9	2.33%	0.303	0.310	-
	Top side	MIMO	48	5240	12.5	12.34	3.75%	0.376	0.390	263
	Left side	MIMO	40	5200	13	12.9	2.33%	0.028	0.029	-
	Top side -with mobile battery	MIMO	48	5240	12.5	12.34	3.75%	0.287	0.298	-
WLAN802.11n (40M) 5.2G	Back side	MIMO	46	5230	12.5	11.97	12.98%	0.076	0.086	-
	Top side	MIMO	38	5190	8	7.69	7.40%	0.093	0.100	-
	Top side	MIMO	46	5230	12.5	11.97	12.98%	0.135	0.153	264
	Left side	MIMO	46	5230	12.5	11.97	12.98%	0.015	0.017	-
	Top side -with mobile battery	MIMO	46	5230	12.5	11.97	12.98%	0.111	0.125	-
WLAN802.11ac (80M) 5.2G	Top side	MIMO	42	5210	6.5	6.18	7.65%	0.095	0.102	265
	Top side -with mobile battery	MIMO	42	5210	6.5	6.18	7.65%	0.069	0.074	-
WLAN802.11n (20M) 5.3G	Back side	MIMO	56	5280	13	12.99	0.23%	0.18	0.180	-
	Top side	MIMO	56	5280	13	12.99	0.23%	0.349	0.350	266
	Top side	MIMO	60	5300	13	12.8	4.71%	0.291	0.305	-
	Left side	MIMO	56	5280	13	12.99	0.23%	0.044	0.044	-
	Top side -with mobile battery	MIMO	56	5280	13	12.99	0.23%	0.305	0.306	-
WLAN802.11ac (80M) 5.3G	Top side	MIMO	58	5290	8.5	8.49	0.23%	0.089	0.089	267
	Top side -with mobile battery	MIMO	58	5290	8.5	8.49	0.23%	0.083	0.083	-

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Band	Position	Antenna	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page
								Measured	Reported	
WLAN802.11n (20M) 5.6G	Back side	MIMO	104	5520	13.5	13.19	7.40%	0.311	0.334	-
	Back side	MIMO	112	5560	13.5	13.44	1.39%	0.201	0.204	-
	Back side	MIMO	136	5680	13.5	13.15	8.39%	0.501	0.543	268
	Top side	MIMO	112	5560	13.5	13.44	1.39%	0.088	0.089	-
	Left side	MIMO	112	5560	13.5	13.44	1.39%	0.04	0.041	-
	Back side -with mobile battery	MIMO	136	5680	13.5	13.15	8.39%	0.127	0.138	-
WLAN802.11ac (20M) 5.6G	Back side	MIMO	144	5720	13.5	13.32	4.23%	0.285	0.297	269
	Top side	MIMO	144	5720	13.5	13.32	4.23%	0.227	0.237	-
	Left side	MIMO	144	5720	13.5	13.32	4.23%	0.075	0.078	-
	Back side -with mobile battery	MIMO	144	5720	13.5	13.32	4.23%	0.123	0.128	-
WLAN802.11ac (40M) 5.6G	Back side	MIMO	142	5710	13.5	13.14	8.64%	0.347	0.377	270
	Top side	MIMO	142	5710	13.5	13.14	8.64%	0.245	0.266	-
	Left side	MIMO	142	5710	13.5	13.14	8.64%	0.096	0.104	-
	Back side -with mobile battery	MIMO	142	5710	13.5	13.14	8.64%	0.09	0.098	-
WLAN802.11ac (80M) 5.6G	Back side	MIMO	106	5530	6.5	6.26	5.68%	0.071	0.075	-
	Back side	MIMO	138	5690	13.5	13.22	6.66%	0.17	0.181	271
	Top side	MIMO	138	5690	13.5	13.22	6.66%	0.116	0.124	-
	Left side	MIMO	138	5690	13.5	13.22	6.66%	0.049	0.052	-
	Back side -with mobile battery	MIMO	138	5690	13.5	13.22	6.66%	0.073	0.078	-
WLAN802.11n (20M) 5.8G	Back side	MIMO	149	5745	13.5	13.48	0.46%	0.311	0.312	-
	Back side	MIMO	153	5765	13.5	13.35	3.51%	0.359	0.372	-
	Back side	MIMO	161	5805	13.5	13.46	0.93%	0.392	0.396	272
	Top side	MIMO	149	5745	13.5	13.48	0.46%	0.24	0.241	-
	Left side	MIMO	149	5745	13.5	13.48	0.46%	0.084	0.084	-
	Back side -with mobile battery	MIMO	161	5805	13.5	13.46	0.93%	0.084	0.085	-
WLAN802.11ac (80M) 5.8G	Back side	MIMO	155	5775	13.5	12.81	17.22%	0.298	0.349	273
	Back side -with mobile battery	MIMO	155	5775	13.5	12.81	17.22%	0.075	0.088	-

3. Simultaneous Transmission Analysis

Simultaneous Transmission Scenarios:

Simultaneous Transmit Configurations	Body
GPRS850/1900 + 2.4GHz Wi-Fi Main + BT	Yes
GPRS850/1900 + 5GHz Wi-Fi Main + BT	Yes
WCDMA B2/4/5 + 2.4GHz Wi-Fi Main + BT	Yes
WCDMA B2/4/5 + 5GHz Wi-Fi Main + BT	Yes
LTE B4/13/17/25 + 2.4GHz Wi-Fi Main + BT	Yes
LTE B4/13/17/25 + 5GHz Wi-Fi Main + BT	Yes
CDMA 1xRTT/EVDO+ 2.4GHz Wi-Fi Main + BT	Yes
CDMA 1xRTT/EVDO+ 5GHz Wi-Fi Main + BT	Yes
GPRS850/1900 + 2.4GHz Wi-Fi Aux	Yes
GPRS850/1900 + 5GHz Wi-Fi Aux	Yes
WCDMA B2/4/5 + 2.4GHz Wi-Fi Aux	Yes
WCDMA B2/4/5 + 5GHz Wi-Fi Aux	Yes
LTE B4/13/17/25 + 2.4GHz Wi-Fi Aux	Yes
LTE B4/13/17/25 + 5GHz Wi-Fi Aux	Yes
CDMA 1xRTT/EVDO+ 2.4GHz Wi-Fi Aux	Yes
CDMA 1xRTT/EVDO+ 5GHz Wi-Fi Aux	Yes
GPRS850/1900 + 2.4GHz Wi-Fi MIMO	Yes
GPRS850/1900 + 5GHz Wi-Fi MIMO	Yes
WCDMA B2/4/5 + 2.4GHz Wi-Fi MIMO	Yes
WCDMA B2/4/5 + 5GHz Wi-Fi MIMO	Yes
LTE B4/13/17/25 + 2.4GHz Wi-Fi MIMO	Yes
LTE B4/13/17/25 + 5GHz Wi-Fi MIMO	Yes
CDMA 1xRTT/EVDO+ 2.4GHz Wi-Fi MIMO	Yes
CDMA 1xRTT/EVDO+ 5GHz Wi-Fi MIMO	Yes

Notes:
1. WWAN and WiFi used the different antennas and can transmit simultaneously
2. Bluetooth and WiFi Aux share the same antenna path and cannot transmit simultaneously

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3.1 SPLSR evaluation and analysis

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

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

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

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

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

#. When the sum of SAR is larger than the limit, SAR test exclusion is determined by the SAR to peak location separation ratio. 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 must be ≤ 0.04 for all antenna pairs in the configuration to qualify for 1-g SAR test exclusion.

#. When SAR is estimated, the peak SAR location is assumed to be at the feed-point or geometric center of the antenna according to KDB447498. Here we choose the smallest separation distance between WLAN Main antenna and BT antenna/WWAN antenna and BT antenna to be the worst case conditions.(The smallest separation distance between WLAN Main antenna and BT antenna is 53.6mm./The smallest separation distance between WWAN antenna and BT antenna is 120mm)

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GPRS 850 + 2.4GHz/5GHz WiFi Main + BT

Test separation distance: 0mm

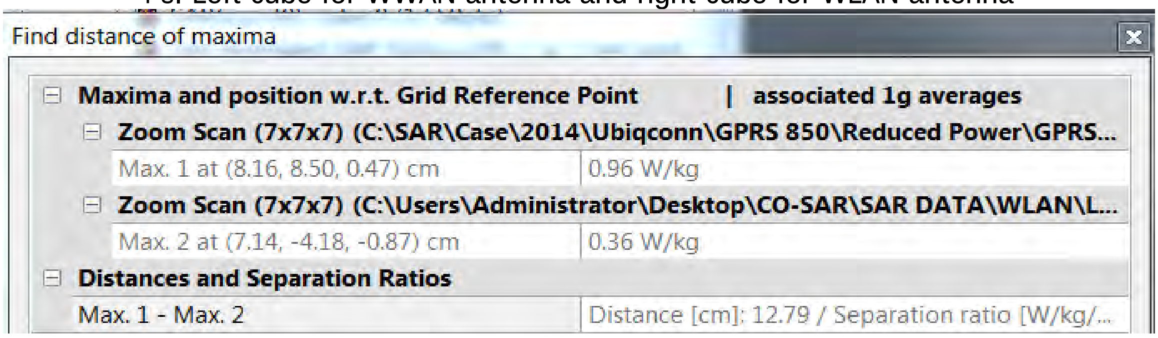
Simultaneous Tx	Configuration	GPRS850 reported SAR(W/kg)	2.4GHz WLAN Main reported SAR(W/kg)	BT estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Back side	1.039	0.274	0.084	1.397
	Top side	1.195	0.111	0.084	1.39

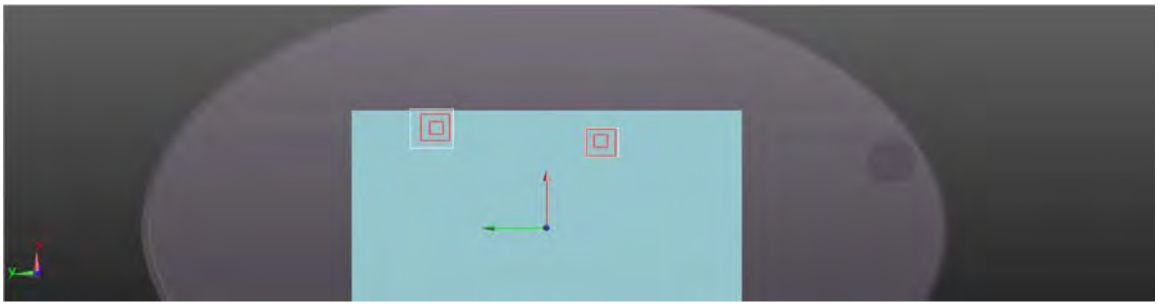
#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	GPRS850 reported SAR(W/kg)	5GHz WLAN Main reported SAR(W/kg)	BT estimated SAR(W/kg)	ΣSAR(W/kg)	SPLSR (GPRS850 &WLAN Main)	SPLSR (GPRS850 &BT)	SPLSR (WLAN Main&BT)
Body SAR	Back side	1.039	0.487	0.084	1.61	0.01474	0.00992	0.00805
	Top side	1.195	0.717	0.084	1.996	0.01973	0.01205	0.01337

Peak SAR locations of GPRS850 and 5GHz WLAN Main antenna for back side 0mm

Ps. Left cube for WWAN antenna and right cube for WLAN antenna





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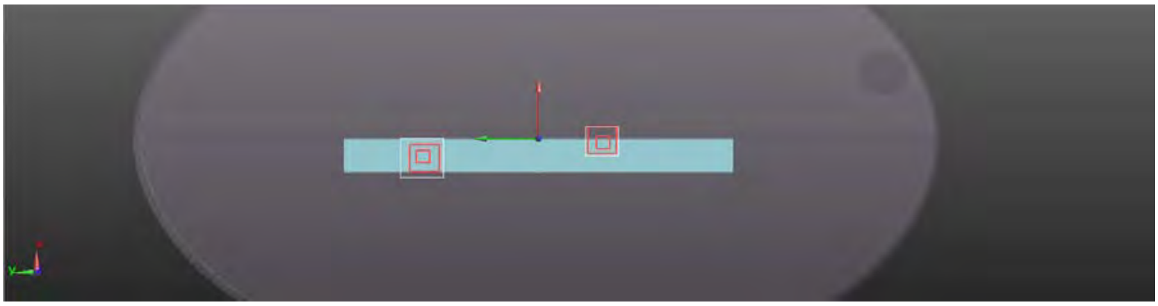
Peak SAR locations of GPRS850 and 5GHz WLAN Main antenna for top side 0mm

Ps. Left cube for WWAN antenna and right cube for WLAN antenna

Find distance of maxima

Maxima and position w.r.t. Grid Reference Point	associated 1g averages
Zoom Scan (7x7x7) (C:\SAR\Case\2014\Ubiqconn\GPRS 850\Reduced Power\GPRS...	
Max. 1 at (-1.55, 8.50, 0.34) cm	1.12 W/kg
Zoom Scan (7x7x7) (C:\Users\Administrator\Desktop\CO-SAR\SAR DATA\WLAN\T...	
Max. 2 at (-0.44, -4.70, -0.88) cm	0.53 W/kg
Distances and Separation Ratios	
Max. 1 - Max. 2	Distance [cm]: 13.40 / Separation ratio [W/kg/...



Simultaneous Tx	Configuration	GPRS850 reported SAR(W/kg)	WLAN Main estimated SAR(W/kg)	BT estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Right side	0.208	0.4	0.4	1.008

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	GPRS850 estimated SAR(W/kg)	WLAN Main estimated SAR(W/kg)	BT estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Left side	0.4	0.4	0.011	0.811

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

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Test separation distance: 9mm

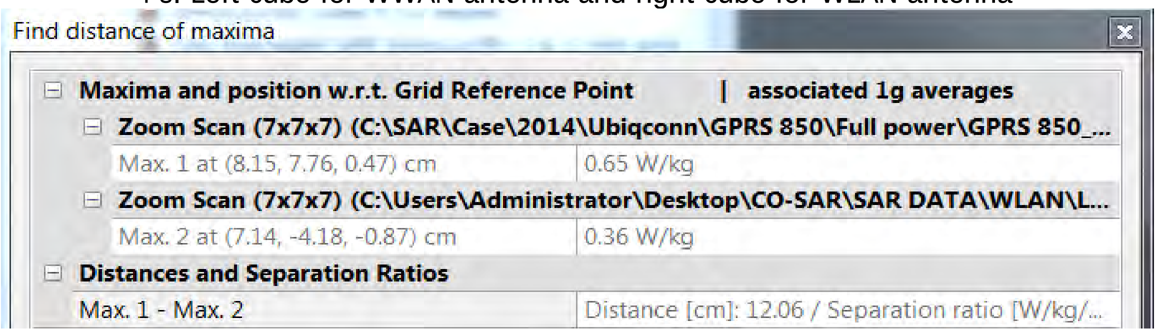
Simultaneous Tx	Configuration	GPRS850 reported SAR(W/kg)	2.4GHz WLAN Main reported SAR(W/kg)	BT estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Back side	1.027	<0.274	0.046	<1.527

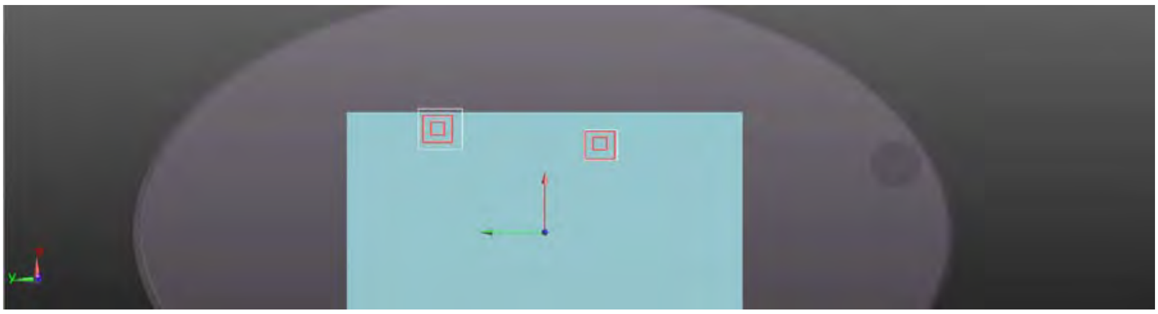
#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	GPRS850 reported SAR(W/kg)	5GHz WLAN Main reported SAR(W/kg)	BT estimated SAR(W/kg)	ΣSAR(W/kg)	SPLSR (GPRS850 &WLAN Main)	SPLSR (GPRS850 &BT)	SPLSR (WLAN Main&BT)
Body SAR	Back side	1.027	<0.487	0.046	<1.74	<0.01545	0.00926	<0.00726

Peak SAR locations of GPRS850 and 5GHz WLAN Main antenna for back side 9mm

Ps. Left cube for WWAN antenna and right cube for WLAN antenna





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Test separation distance: 10mm

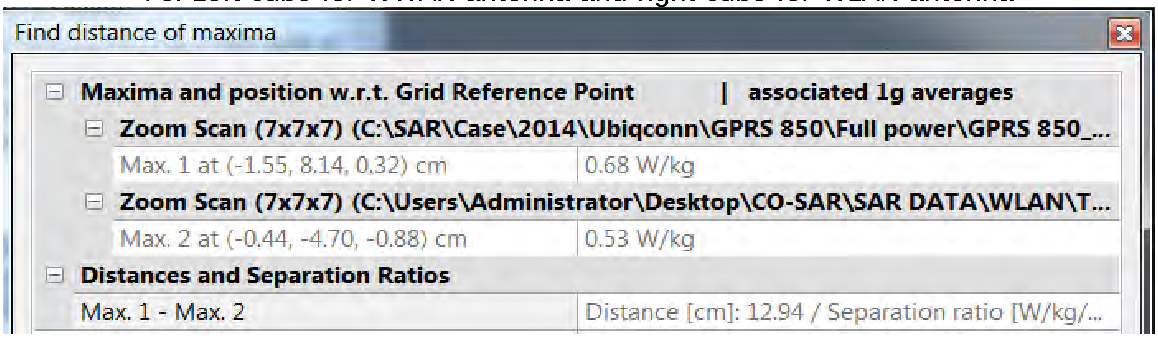
Simultaneous Tx	Configuration	GPRS850 reported SAR(W/kg)	2.4GHz WLAN Main reported SAR(W/kg)	BT estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Top side	1.078	<0.111	0.042	<1.231

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	GPRS850 reported SAR(W/kg)	5GHz WLAN Main reported SAR(W/kg)	BT estimated SAR(W/kg)	ΣSAR(W/kg)	SPLSR (GPRS850 &WLAN Main)	SPLSR (GPRS850 &BT)	SPLSR (WLAN Main&BT)
Body SAR	Top side	1.078	<0.717	0.042	<1.837	<0.01858	0.00988	<0.01234

Peak SAR locations of GPRS850 and 5GHz WLAN Main antenna for top side 10mm

Ps. Left cube for WWAN antenna and right cube for WLAN antenna



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GPRS 1900 + 2.4GHz/5GHz WiFi Main + BT

Test separation distance: 0mm

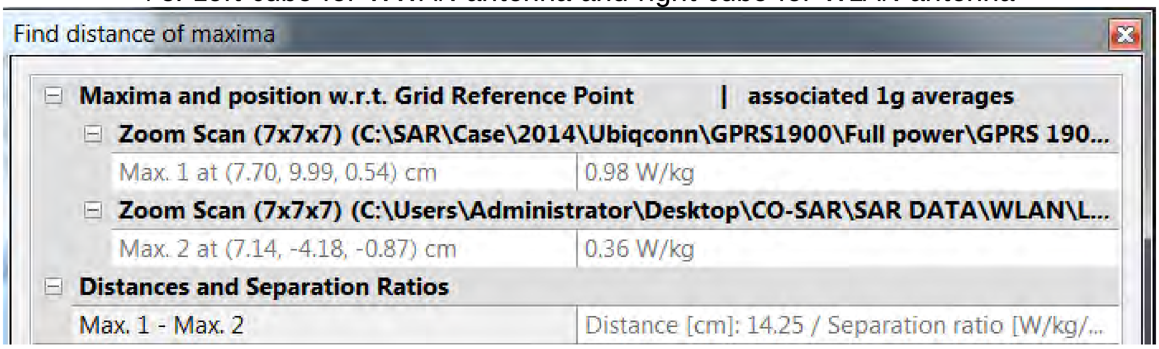
Simultaneous Tx	Configuration	GPRS1900 reported SAR(W/kg)	2.4GHz WLAN Main reported SAR(W/kg)	BT estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Back side	1.045	0.274	0.084	1.403
	Top side	1.072	0.111	0.084	1.267

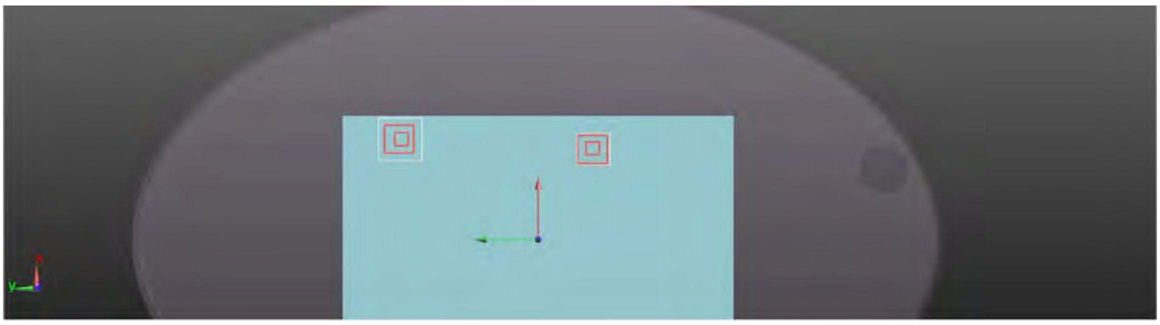
#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	GPRS1900 reported SAR(W/kg)	5GHz WLAN Main reported SAR(W/kg)	BT estimated SAR(W/kg)	ΣSAR(W/kg)	SPLSR (GPRS1900 &WLAN Main)	SPLSR (GPRS1900 &BT)	SPLSR (WLAN Main&BT)
Body SAR	Back side	1.045	0.487	0.084	1.616	0.013307	0.009997	0.00805
	Top side	1.072	0.717	0.084	1.873	0.01475	0.010358	0.013375

Peak SAR locations of GPRS1900 and 5GHz WLAN Main antenna for back side 0mm

Ps. Left cube for WWAN antenna and right cube for WLAN antenna





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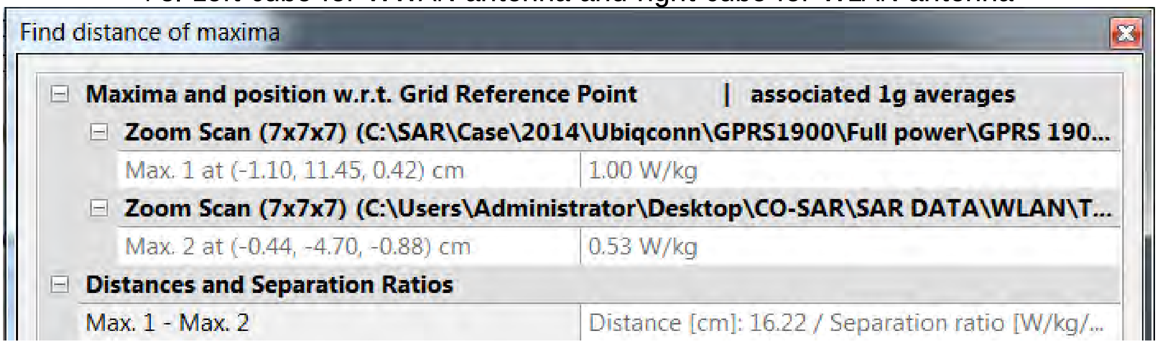
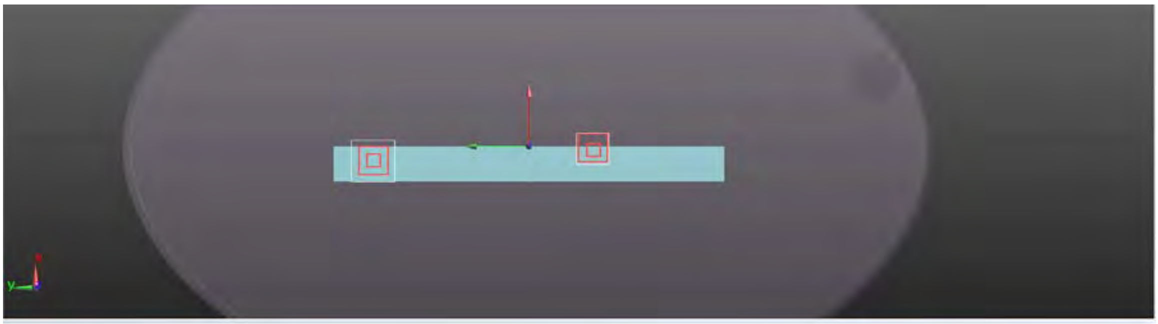
Peak SAR locations of GPRS1900 and 5GHz WLAN Main antenna for top side 0mm

Ps. Left cube for WWAN antenna and right cube for WLAN antenna





Simultaneous Tx	Configuration	GPRS1900 reported SAR(W/kg)	WLAN Main estimated SAR(W/kg)	BT estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Right side	0.11	0.4	0.4	0.91

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	GPRS1900 estimated SAR(W/kg)	WLAN Main estimated SAR(W/kg)	BT estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Left side	0.4	0.4	0.011	0.811

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

WCDMA Band II + 2.4GHz/5GHz WiFi Main + BT

Test separation distance: 0mm

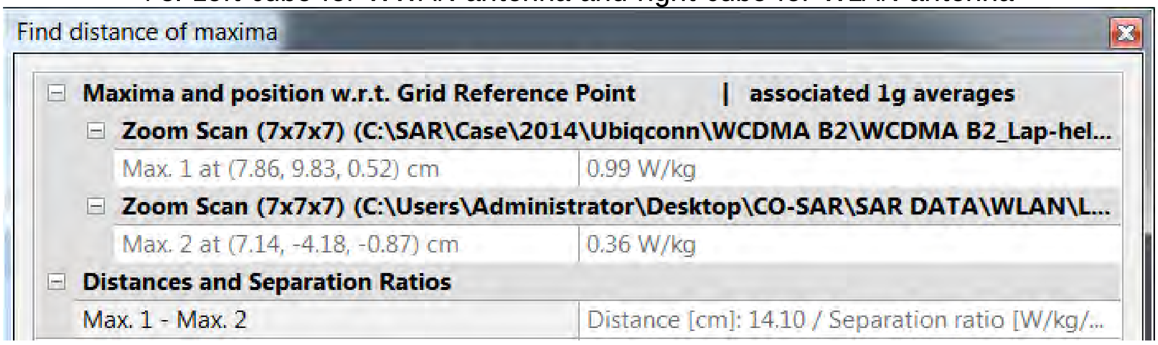
Simultaneous Tx	Configuration	WCDMA Band II reported SAR(W/kg)	2.4GHz WLAN Main reported SAR(W/kg)	BT estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Back side	1.062	0.274	0.084	1.42
	Top side	1.136	0.111	0.084	1.331

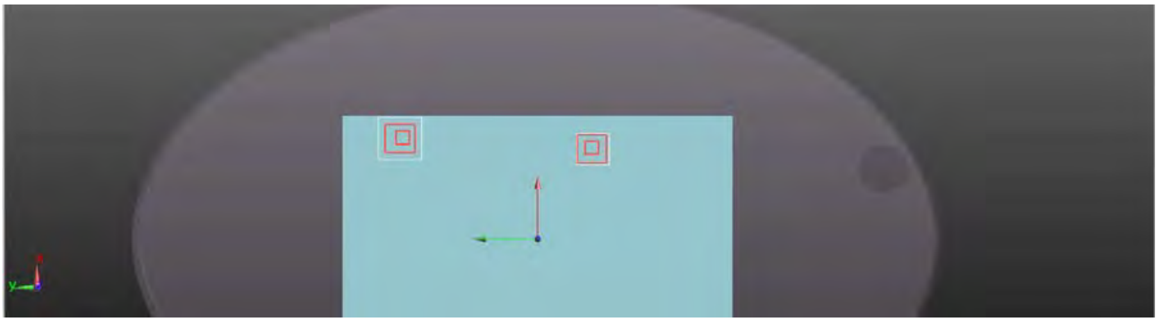
#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	WCDMA Band II reported SAR(W/kg)	5GHz WLAN Main reported SAR(W/kg)	BT estimated SAR(W/kg)	ΣSAR(W/kg)	SPLSR (WCDMA Band II &WLAN	SPLSR (WCDMA Band II &BT)	SPLSR (WLAN Main&BT)
Body SAR	Back side	1.062	0.487	0.084	1.633	0.01367	0.01022	0.00805
	Top side	1.136	0.717	0.084	1.937	0.01556	0.01123	0.01337

Peak SAR locations of WCDMA Band II and 5GHz WLAN Main antenna for back side 0mm

Ps. Left cube for WWAN antenna and right cube for WLAN antenna





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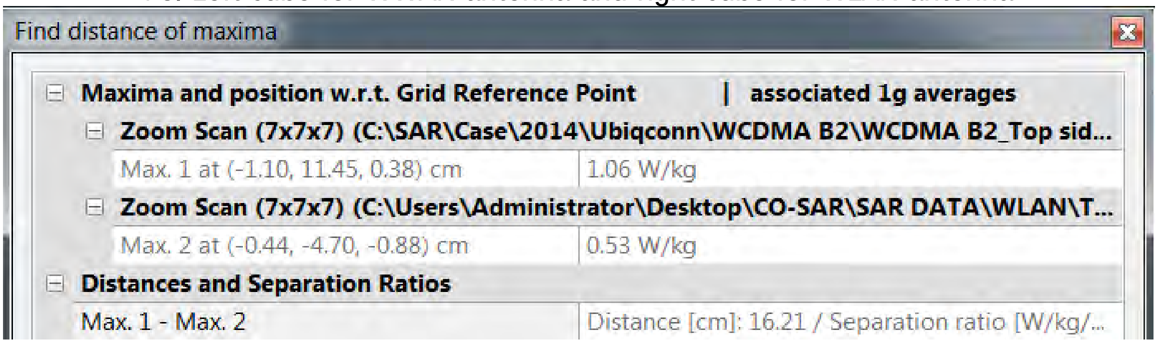
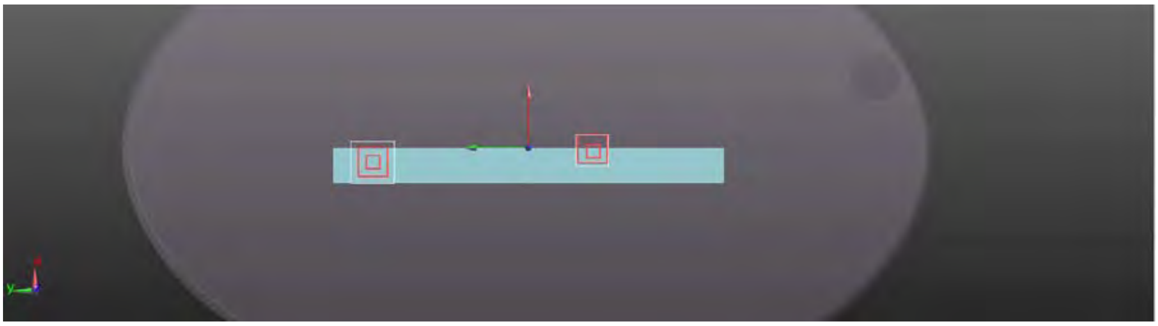
Peak SAR locations of WCDMA Band II and 5GHz WLAN Main antenna for top side 0mm

Ps. Left cube for WWAN antenna and right cube for WLAN antenna





Simultaneous Tx	Configuration	WCDMA Band II reported SAR(W/kg)	WLAN Main estimated SAR(W/kg)	BT estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Right side	0.261	0.4	0.4	1.061

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	WCDMA Band II estimated SAR(W/kg)	WLAN Main estimated SAR(W/kg)	BT estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Left side	0.4	0.4	0.011	0.811

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

WCDMA Band IV + 2.4GHz/5GHz WiFi Main + BT

Test separation distance: 0mm

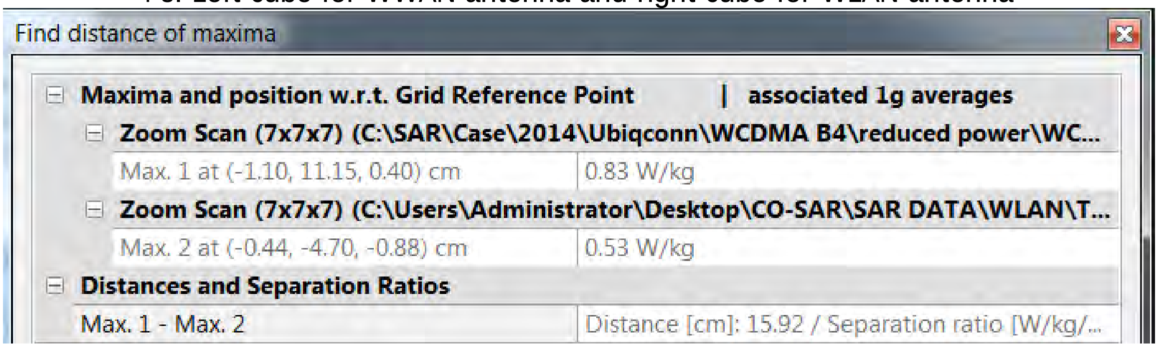
Simultaneous Tx	Configuration	WCDMA Band IV reported SAR(W/kg)	2.4GHz WLAN Main reported SAR(W/kg)	BT estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Back side	0.927	0.274	0.084	1.285
	Top side	0.904	0.111	0.084	1.099

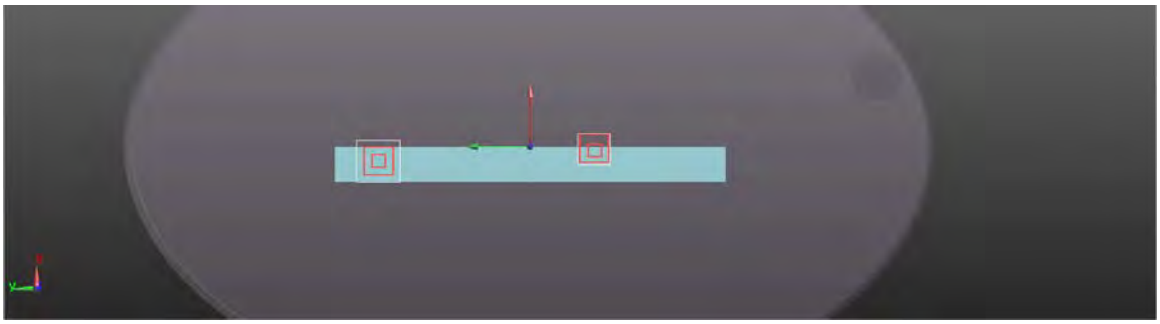
#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	WCDMA Band IV reported SAR(W/kg)	5GHz WLAN Main reported SAR(W/kg)	BT estimated SAR(W/kg)	ΣSAR(W/kg)	SPLSR (WCDMA Band IV &WLAN	SPLSR (WCDMA Band IV &BT)	SPLSR (WLAN Main&BT)
Body SAR	Back side	0.927	0.487	0.084	1.498	-	-	-
	Top side	0.904	0.717	0.084	1.705	0.01296	0.00818	0.01337

Peak SAR locations of WCDMA Band IV and 5GHz WLAN Main antenna for top side 0mm

Ps. Left cube for WWAN antenna and right cube for WLAN antenna





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Simultaneous Tx	Configuration	WCDMA Band IV reported SAR(W/kg)	WLAN Main estimated SAR(W/kg)	BT estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Right side	0.352	0.4	0.4	1.152

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	WCDMA Band IV estimated SAR(W/kg)	WLAN Main estimated SAR(W/kg)	BT estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Left side	0.4	0.4	0.011	0.811

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Test separation distance: 9mm

Simultaneous Tx	Configuration	WCDMA Band IV reported SAR(W/kg)	2.4GHz WLAN Main reported SAR(W/kg)	BT estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Back side	0.76	<0.274	0.046	<1.08

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	WCDMA Band IV reported SAR(W/kg)	5GHz WLAN Main reported SAR(W/kg)	BT estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Back side	0.76	<0.487	0.046	<1.293

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

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Test separation distance: 10mm

Simultaneous Tx	Configuration	WCDMA Band IV reported SAR(W/kg)	2.4GHz WLAN Main reported SAR(W/kg)	BT estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Top side	0.649	<0.111	0.042	<0.802

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	WCDMA Band IV reported SAR(W/kg)	5GHz WLAN Main reported SAR(W/kg)	BT estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Top side	0.649	<0.717	0.042	<1.408

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

WCDMA Band V + 2.4GHz/5GHz WiFi Main + BT

Test separation distance: 0mm

Simultaneous Tx	Configuration	WCDMA Band V reported SAR(W/kg)	2.4GHz WLAN Main reported SAR(W/kg)	BT estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Back side	1.009	0.274	0.084	1.367
	Top side	1.109	0.111	0.084	1.304

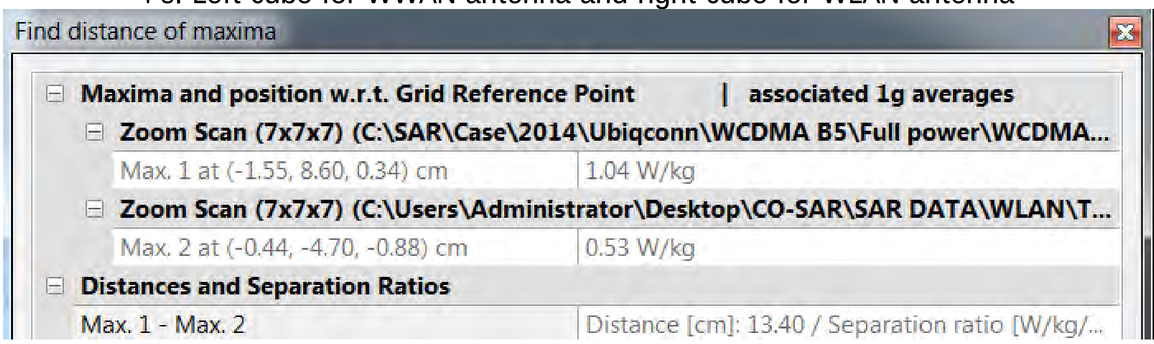
#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

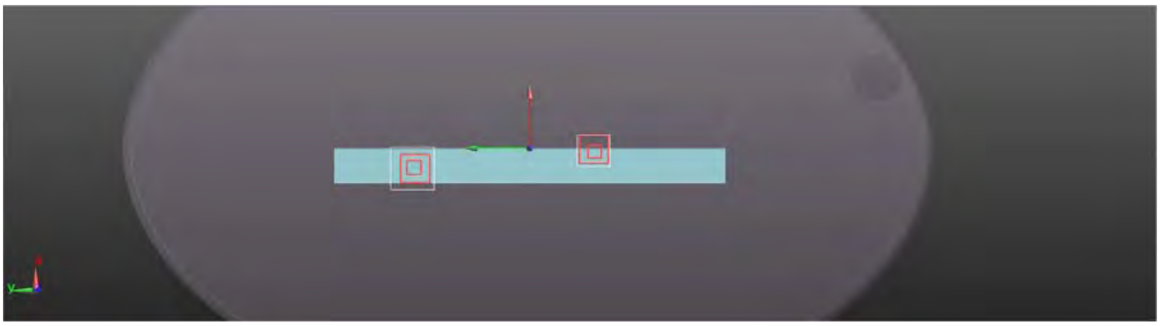
Simultaneous Tx	Configuration	WCDMA Band V reported SAR(W/kg)	5GHz WLAN Main reported SAR(W/kg)	BT estimated SAR(W/kg)	ΣSAR(W/kg)	SPLSR (WCDMA Band V &WLAN	SPLSR (WCDMA Band V &BT)	SPLSR (WLAN Main&BT)
Body SAR	Back side	1.009	0.487	0.084	1.58	-	-	-
	Top side	1.109	0.717	0.084	1.91	0.01841	0.01086	0.01337

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Peak SAR locations of WCDMA Band V and 5GHz WLAN Main antenna for top side 0mm

Ps. Left cube for WWAN antenna and right cube for WLAN antenna





Simultaneous Tx	Configuration	WCDMA Band V reported SAR(W/kg)	WLAN Main estimated SAR(W/kg)	BT estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Right side	0.083	0.4	0.4	0.883

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	WCDMA Band V estimated SAR(W/kg)	WLAN Main estimated SAR(W/kg)	BT estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Left side	0.4	0.4	0.011	0.811

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

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LTE Band IV + 2.4GHz/5GHz WiFi Main + BT

Test separation distance: 0mm

Simultaneous Tx	Configuration	LTE Band IV reported SAR(W/kg)	2.4GHz WLAN Main reported SAR(W/kg)	BT estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Back side	0.915	0.274	0.084	1.273
	Top side	0.834	0.111	0.084	1.029

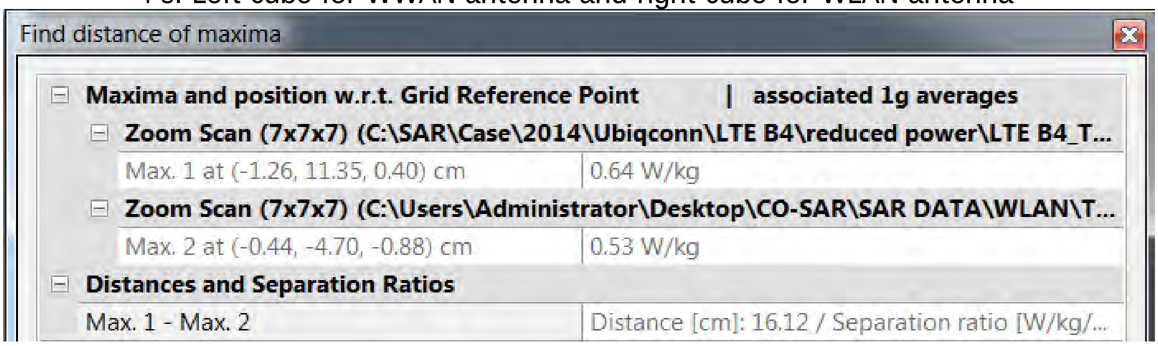
#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

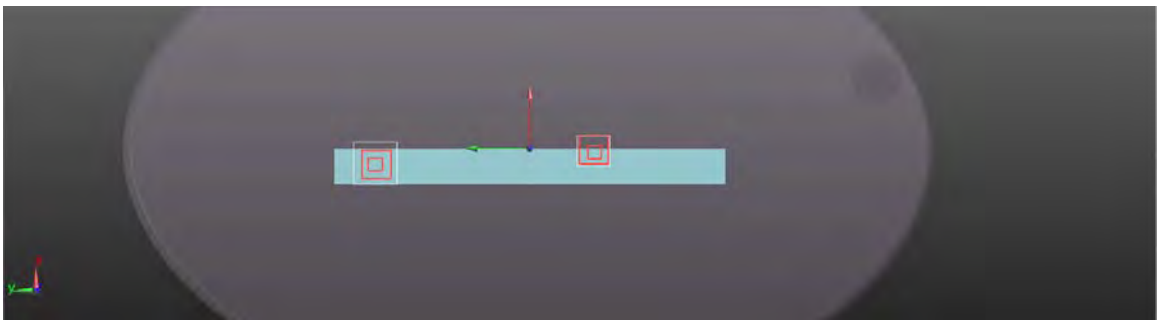
Simultaneous Tx	Configuration	LTE Band IV reported SAR(W/kg)	5GHz WLAN Main reported SAR(W/kg)	BT estimated SAR(W/kg)	ΣSAR(W/kg)	SPLSR (LTE Band IV &WLAN Main)	SPLSR (LTE Band IV &BT)	SPLSR (WLAN Main&BT)
Body SAR	Back side	0.915	0.487	0.084	1.486	-	-	-
	Top side	0.834	0.717	0.084	1.635	0.011983	0.00733	0.01337

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Peak SAR locations of LTE Band IV and 5GHz WLAN Main antenna for top side 0mm

Ps. Left cube for WWAN antenna and right cube for WLAN antenna





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Simultaneous Tx	Configuration	LTE Band IV reported SAR(W/kg)	WLAN Main estimated SAR(W/kg)	BT estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Right side	0.334	0.4	0.4	1.134

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	LTE Band IV estimated SAR(W/kg)	WLAN Main estimated SAR(W/kg)	BT estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Left side	0.4	0.4	0.011	0.811

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Test separation distance: 9mm

Simultaneous Tx	Configuration	LTE Band IV reported SAR(W/kg)	2.4GHz WLAN Main reported SAR(W/kg)	BT estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Back side	0.671	<0.274	0.046	<0.991

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	LTE Band IV reported SAR(W/kg)	5GHz WLAN Main reported SAR(W/kg)	BT estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Back side	0.671	<0.487	0.046	<1.204

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Test separation distance: 10mm

Simultaneous Tx	Configuration	LTE Band IV reported SAR(W/kg)	2.4GHz WLAN Main reported SAR(W/kg)	BT estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Top side	0.638	<0.111	0.042	<0.791

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	LTE Band IV reported SAR(W/kg)	5GHz WLAN Main reported SAR(W/kg)	BT estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Top side	0.638	<0.717	0.042	<1.397

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

LTE Band XIII + 2.4GHz/5GHz WiFi Main + BT

Test separation distance: 0mm

Simultaneous Tx	Configuration	LTE Band XIII reported SAR(W/kg)	2.4GHz WLAN Main reported SAR(W/kg)	BT estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Back side	0.828	0.274	0.084	1.186
	Top side	0.715	0.111	0.084	0.91

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	LTE Band XIII reported SAR(W/kg)	5GHz WLAN Main reported SAR(W/kg)	BT estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Back side	0.828	0.487	0.084	1.399
	Top side	0.715	0.717	0.084	1.516

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	LTE Band XIII reported SAR(W/kg)	WLAN Main estimated SAR(W/kg)	BT estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Right side	0.089	0.4	0.4	0.889

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	LTE Band XIII estimated SAR(W/kg)	WLAN Main estimated SAR(W/kg)	BT estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Left side	0.4	0.4	0.011	0.811

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

LTE Band XVII + 2.4GHz/5GHz WiFi Main + BT

Test separation distance: 0mm

Simultaneous Tx	Configuration	LTE Band XVII reported SAR(W/kg)	2.4GHz WLAN Main reported SAR(W/kg)	BT estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Back side	0.926	0.274	0.084	1.284
	Top side	0.501	0.111	0.084	0.696

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	LTE Band XVII reported SAR(W/kg)	5GHz WLAN Main reported SAR(W/kg)	BT estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Back side	0.926	0.487	0.084	1.497
	Top side	0.501	0.717	0.084	1.302

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	LTE Band XVII reported SAR(W/kg)	WLAN Main estimated SAR(W/kg)	BT estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Right side	0.113	0.4	0.4	0.913

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	LTE Band XVII estimated SAR(W/kg)	WLAN Main estimated SAR(W/kg)	BT estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Left side	0.4	0.4	0.011	0.811

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

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LTE Band XXV + 2.4GHz/5GHz WiFi Main + BT

Test separation distance: 0mm

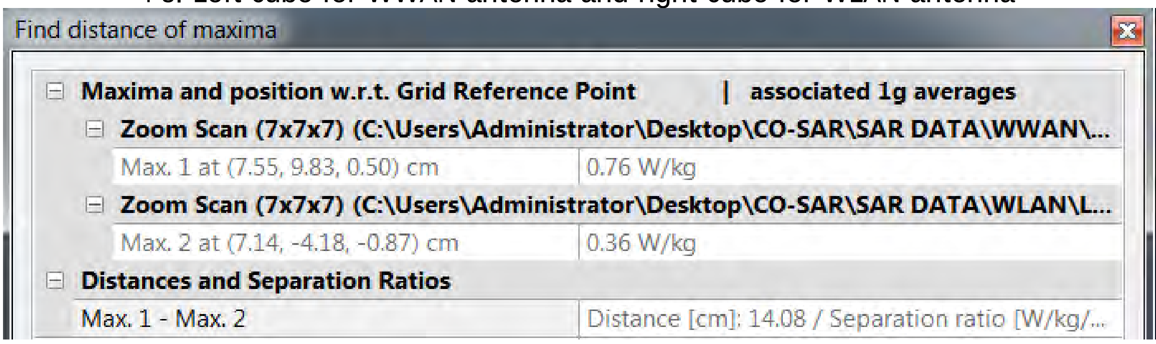
Simultaneous Tx	Configuration	LTE Band XXV reported SAR(W/kg)	2.4GHz WLAN Main reported SAR(W/kg)	BT estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Back side	1.034	0.274	0.084	1.392
	Top side	1.16	0.111	0.084	1.355

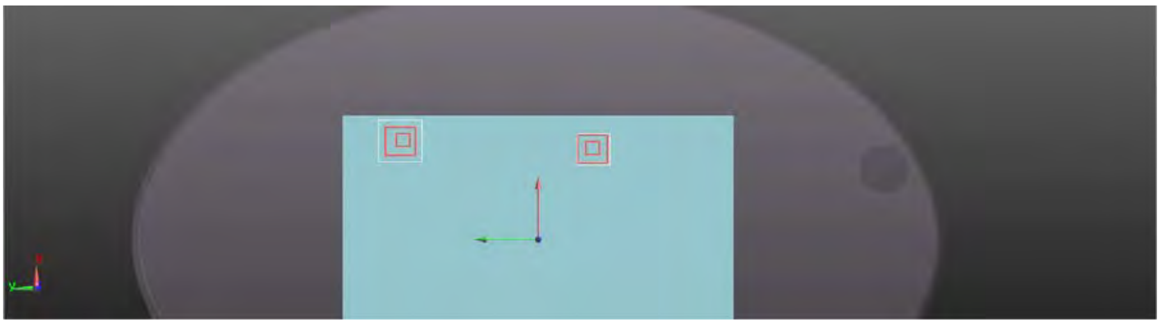
#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	LTE Band XXV reported SAR(W/kg)	5GHz WLAN Main reported SAR(W/kg)	BT estimated SAR(W/kg)	ΣSAR(W/kg)	SPLSR (LTE Band XXV &WLAN	SPLSR (LTE Band XXV &BT)	SPLSR (WLAN Main&BT)
Body SAR	Back side	1.034	0.487	0.084	1.605	0.01332	0.00985	0.00805
	Top side	1.16	0.717	0.084	1.961	0.01582	0.01156	0.01337

Peak SAR locations of LTE Band XXV and 5GHz WLAN Main antenna for back side 0mm

Ps. Left cube for WWAN antenna and right cube for WLAN antenna





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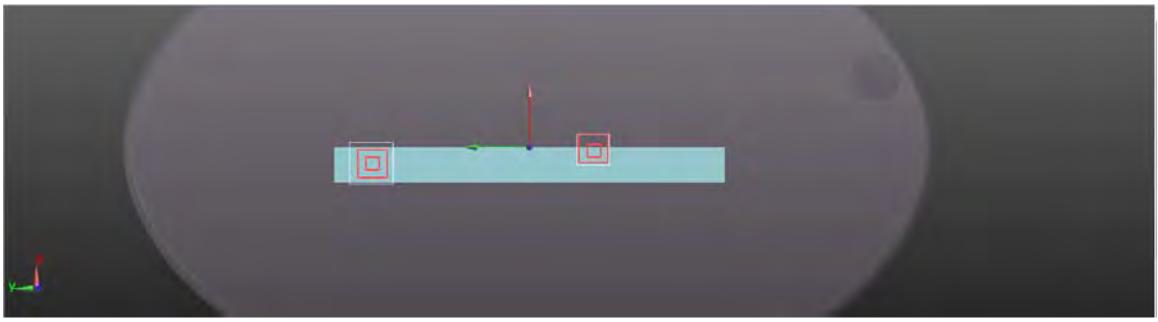
Peak SAR locations of LTE Band XXV and 5GHz WLAN Main antenna for top side 0mm

Ps. Left cube for WWAN antenna and right cube for WLAN antenna

Find distance of maxima

Maxima and position w.r.t. Grid Reference Point	associated 1g averages
Zoom Scan (7x7x7) (C:\Users\Administrator\Desktop\CO-SAR\SAR DATA\WWAN\...	
Max. 1 at (-1.25, 11.49, 0.40) cm	1.16 W/kg
Zoom Scan (7x7x7) (C:\Users\Administrator\Desktop\CO-SAR\SAR DATA\WLAN\T...	
Max. 2 at (-0.44, -4.70, -0.88) cm	0.53 W/kg
Distances and Separation Ratios	
Max. 1 - Max. 2	Distance [cm]: 16.26 / Separation ratio [W/kg/...



Simultaneous Tx	Configuration	LTE Band XXV reported SAR(W/kg)	WLAN Main estimated SAR(W/kg)	BT estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Right side	0.277	0.4	0.4	1.077

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	LTE Band XXV estimated SAR(W/kg)	WLAN Main estimated SAR(W/kg)	BT estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Left side	0.4	0.4	0.011	0.811

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

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CDMA Cellular (BC0) + 2.4GHz/5GHz WiFi Main + BT

Test separation distance: 0mm

Simultaneous Tx	Configuration	Cellular (BC0) reported SAR(W/kg)	2.4GHz WLAN Main reported SAR(W/kg)	BT estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Back side	0.821	0.274	0.084	1.179
	Top side	0.537	0.111	0.084	0.732

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	Cellular (BC0) reported SAR(W/kg)	5GHz WLAN Main reported SAR(W/kg)	BT estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Back side	0.821	0.487	0.084	1.392
	Top side	0.537	0.717	0.084	1.338

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	Cellular (BC0) reported SAR(W/kg)	WLAN Main estimated SAR(W/kg)	BT estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Right side	0.163	0.4	0.4	0.963

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	Cellular (BC0) estimated SAR(W/kg)	WLAN Main estimated SAR(W/kg)	BT estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Left side	0.4	0.4	0.011	0.811

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Test separation distance: 9mm

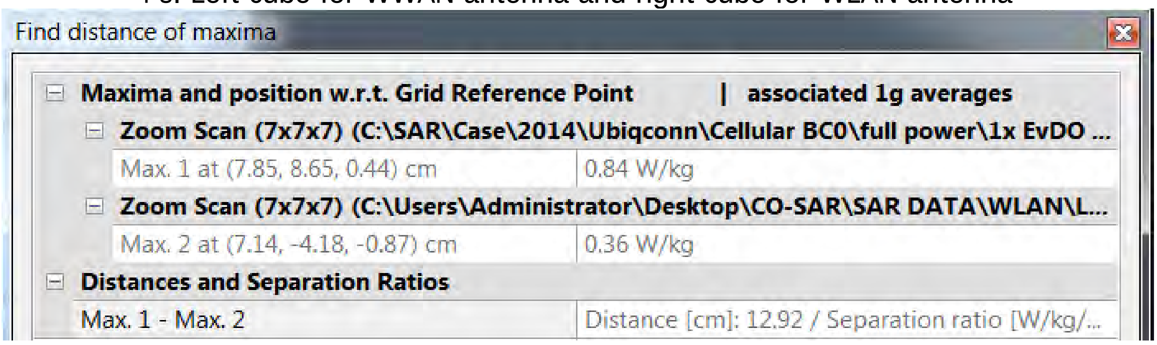
Simultaneous Tx	Configuration	Cellular (BC0) reported SAR(W/kg)	2.4GHz WLAN Main reported SAR(W/kg)	BT estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Back side	1.192	<0.274	0.046	<1.512

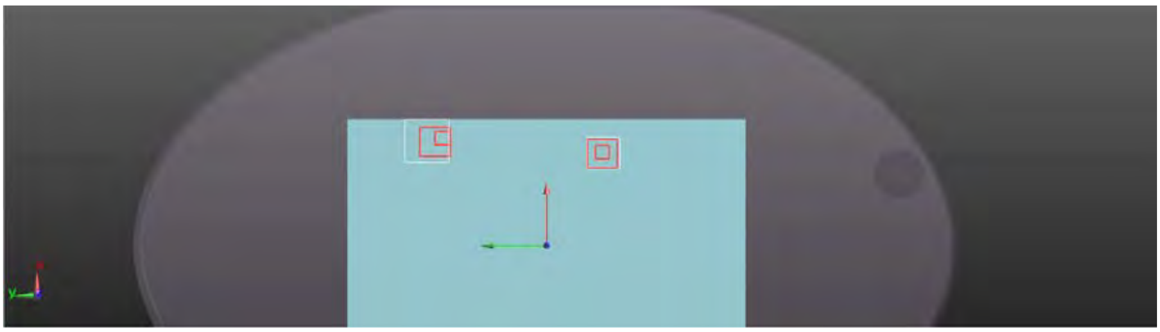
#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	Cellular (BC0) reported SAR(W/kg)	5GHz WLAN Main reported SAR(W/kg)	BT estimated SAR(W/kg)	ΣSAR(W/kg)	SPLSR (Cellular (BC0) &WLAN	SPLSR (Cellular (BC0) &BT)	SPLSR (WLAN Main&BT)
Body SAR	Back side	1.192	<0.487	0.046	<1.725	<0.01684	0.01148	<0.00726

Peak SAR locations of Cellular (BC0) and 5GHz WLAN Main antenna for back side 9mm

Ps. Left cube for WWAN antenna and right cube for WLAN antenna





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Test separation distance: 10mm

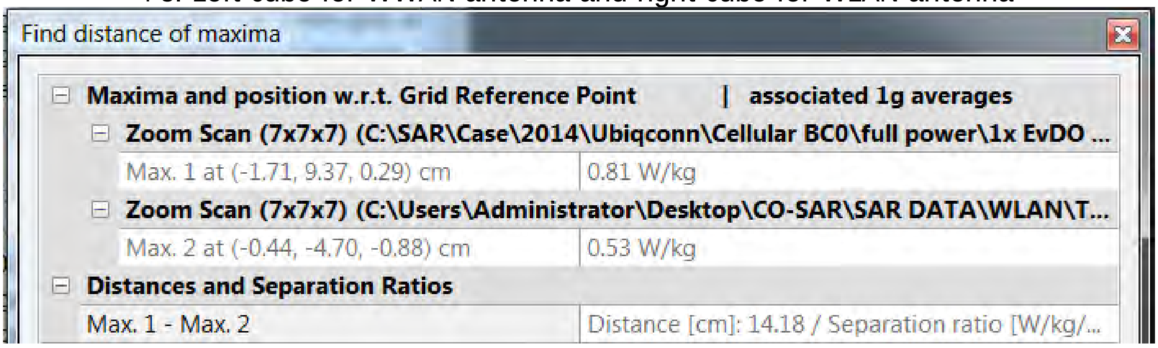
Simultaneous Tx	Configuration	Cellular (BC0) reported SAR(W/kg)	2.4GHz WLAN Main reported SAR(W/kg)	BT estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Top side	1.16	<0.111	0.042	<1.313

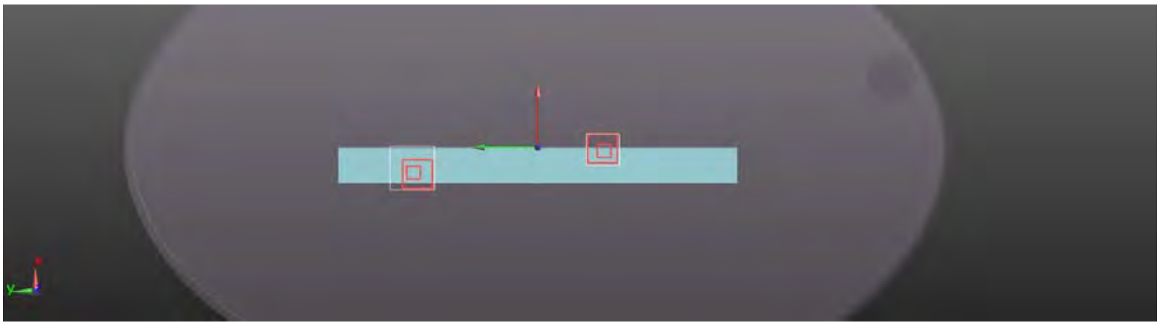
#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	Cellular (BC0) reported SAR(W/kg)	5GHz WLAN Main reported SAR(W/kg)	BT estimated SAR(W/kg)	ΣSAR(W/kg)	SPLSR (Cellular (BC0) &WLAN	SPLSR (Cellular (BC0) &BT)	SPLSR (WLAN Main&BT)
Body SAR	Top side	1.16	<0.717	0.042	<1.919	<0.01814	0.01098	<0.01234

Peak SAR locations of Cellular (BC0) and 5GHz WLAN Main antenna for top side 10mm

Ps. Left cube for WWAN antenna and right cube for WLAN antenna





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CDMA PCS (BC1) + 2.4GHz/5GHz WiFi Main + BT

Test separation distance: 0mm

Simultaneous Tx	Configuration	PCS (BC1) reported SAR(W/kg)	2.4GHz WLAN Main reported SAR(W/kg)	BT estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Back side	0.5	0.274	0.084	0.858
	Top side	0.479	0.111	0.084	0.674

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	PCS (BC1) reported SAR(W/kg)	5GHz WLAN Main reported SAR(W/kg)	BT estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Back side	0.5	0.487	0.084	1.071
	Top side	0.479	0.717	0.084	1.28

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	PCS (BC1) reported SAR(W/kg)	WLAN Main estimated SAR(W/kg)	BT estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Right side	0.674	0.4	0.4	1.474

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	PCS (BC1) estimated SAR(W/kg)	WLAN Main estimated SAR(W/kg)	BT estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Left side	0.4	0.4	0.011	0.811

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Test separation distance: 9mm

Simultaneous Tx	Configuration	PCS (BC1) reported SAR(W/kg)	2.4GHz WLAN Main reported SAR(W/kg)	BT estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Back side	0.934	<0.274	0.046	<1.254

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	PCS (BC1) reported SAR(W/kg)	5GHz WLAN Main reported SAR(W/kg)	BT estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Back side	0.934	<0.487	0.046	<1.467

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

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Test separation distance: 10mm

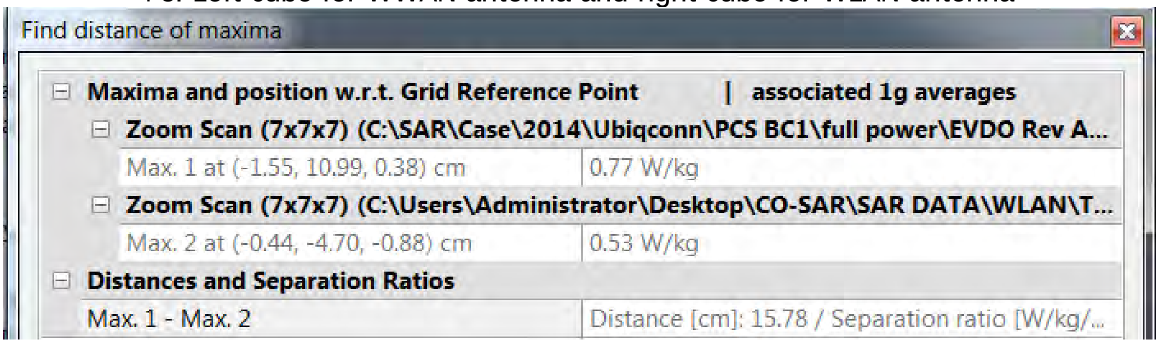
Simultaneous Tx	Configuration	PCS (BC1) reported SAR(W/kg)	2.4GHz WLAN Main reported SAR(W/kg)	BT estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Top side	0.926	<0.111	0.042	<1.079

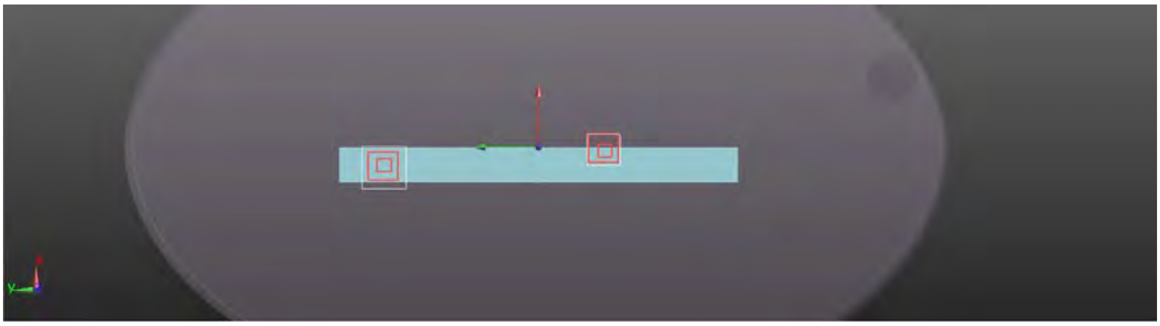
#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	PCS (BC1) reported SAR(W/kg)	5GHz WLAN Main reported SAR(W/kg)	BT estimated SAR(W/kg)	ΣSAR(W/kg)	SPLSR (PCS (BC1) &WLAN Main)	SPLSR (PCS (BC1) &BT)	SPLSR (WLAN Main&BT)
Body SAR	Top side	0.926	<0.717	0.042	<1.685	<0.01335	0.00794	<0.01234

Peak SAR locations of PCS (BC1) and 5GHz WLAN Main antenna for top side 10mm

Ps. Left cube for WWAN antenna and right cube for WLAN antenna





CDMA BC10 + 2.4GHz/5GHz WiFi Main + BT

Test separation distance: 0mm

Simultaneous Tx	Configuration	BC10 reported SAR(W/kg)	2.4GHz WLAN Main reported SAR(W/kg)	BT estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Back side	0.753	0.274	0.084	1.111
	Top side	0.559	0.111	0.084	0.754

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	BC10 reported SAR(W/kg)	5GHz WLAN Main reported SAR(W/kg)	BT estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Back side	0.753	0.487	0.084	1.324
	Top side	0.559	0.717	0.084	1.36

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	BC10 reported SAR(W/kg)	WLAN Main estimated SAR(W/kg)	BT estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Right side	0.23	0.4	0.4	1.03

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	BC10 estimated SAR(W/kg)	WLAN Main estimated SAR(W/kg)	BT estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Left side	0.4	0.4	0.011	0.811

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

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Test separation distance: 9mm

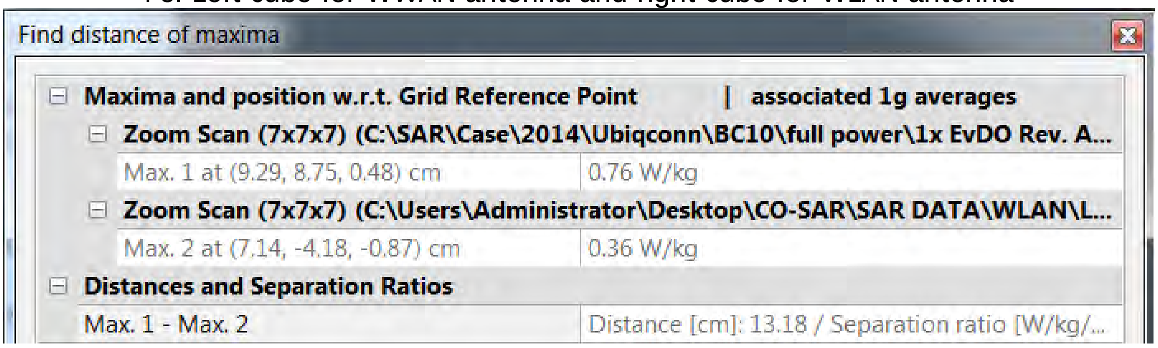
Simultaneous Tx	Configuration	BC10 reported SAR(W/kg)	2.4GHz WLAN Main reported SAR(W/kg)	BT estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Back side	1.145	<0.274	0.046	<1.465

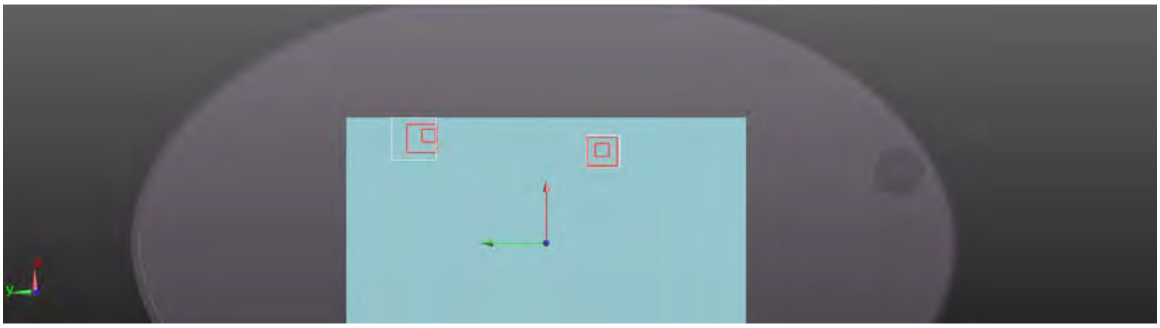
#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	BC10 reported SAR(W/kg)	5GHz WLAN Main reported SAR(W/kg)	BT estimated SAR(W/kg)	ΣSAR(W/kg)	SPLSR (BC10 &WLAN Main)	SPLSR (BC10 &BT)	SPLSR (WLAN Main&BT)
Body SAR	Back side	1.145	<0.487	0.046	<1.678	<0.01582	0.01083	<0.00726

Peak SAR locations of BC0 and 5GHz WLAN Main antenna for back side 9mm

Ps. Left cube for WWAN antenna and right cube for WLAN antenna





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Test separation distance: 10mm

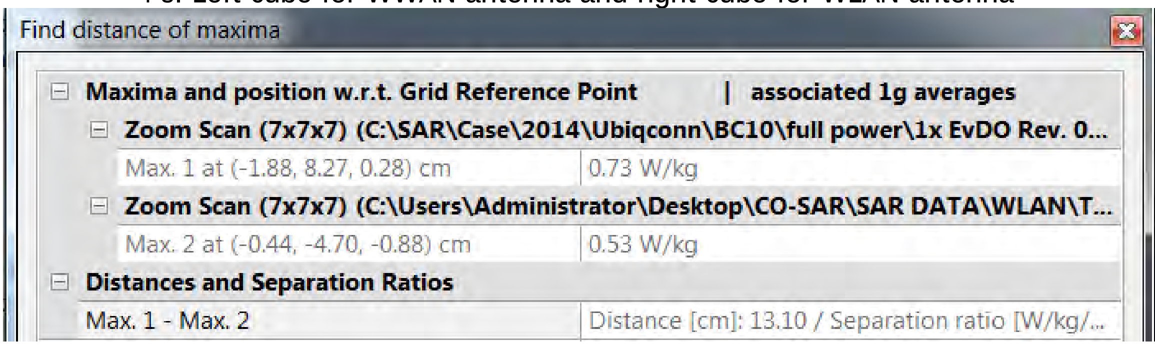
Simultaneous Tx	Configuration	BC10 reported SAR(W/kg)	2.4GHz WLAN Main reported SAR(W/kg)	BT estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Top side	1.091	<0.111	0.042	<1.244

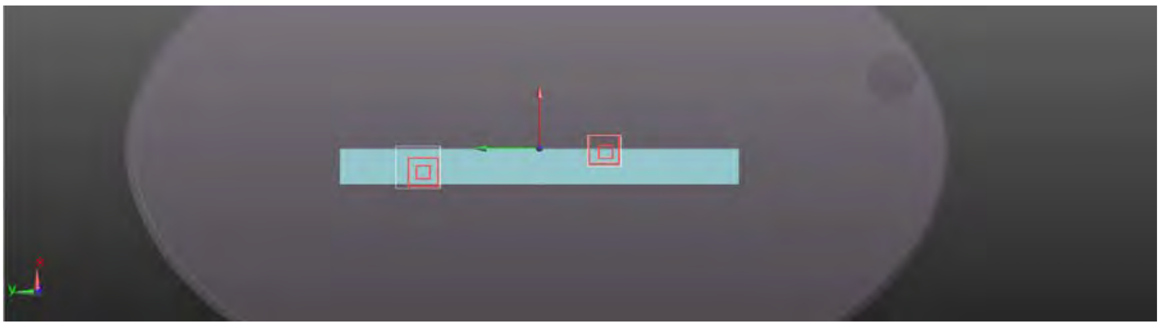
#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	BC10 reported SAR(W/kg)	5GHz WLAN Main reported SAR(W/kg)	BT estimated SAR(W/kg)	ΣSAR(W/kg)	SPLSR (BC10 &WLAN Main)	SPLSR (BC10 &BT)	SPLSR (WLAN Main&BT)
Body SAR	Top side	1.091	<0.717	0.042	<1.85	<0.01856	0.01005	<0.01234

Peak SAR locations of BC0 and 5GHz WLAN Main antenna for top side 10mm

Ps. Left cube for WWAN antenna and right cube for WLAN antenna





GPRS 850 + 2.4GHz/ 5GHz WiFi Aux

Test separation distance: 0mm

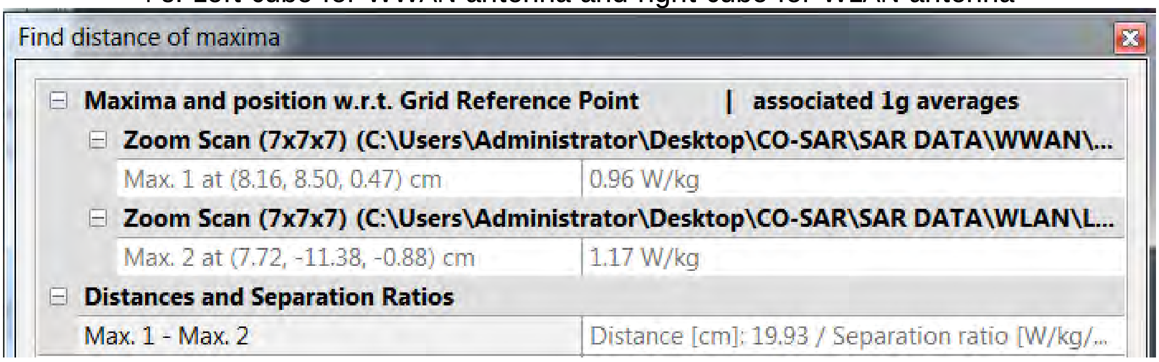
Simultaneous Tx	Configuration	GPRS850 reported SAR(W/kg)	2.4GHz WLAN Aux reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Back side	1.039	0.262	1.301
	Top side	1.195	0.271	1.466

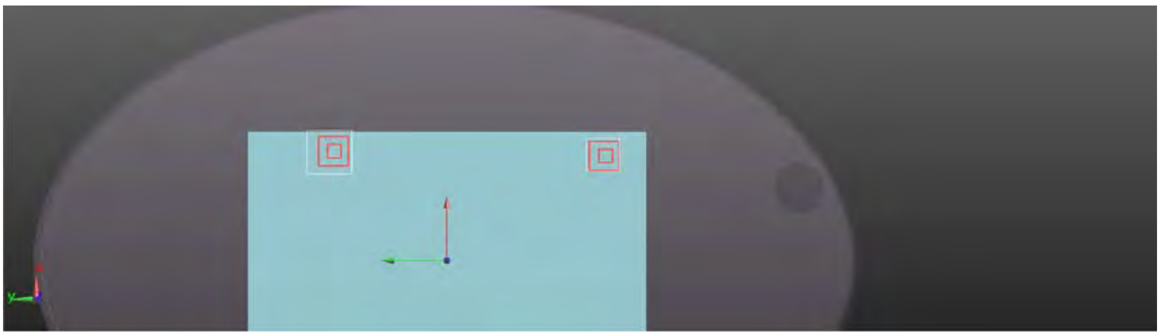
#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	GPRS850 reported SAR(W/kg)	5GHz WLAN Aux reported SAR(W/kg)	ΣSAR(W/kg)	SPLSR
Body SAR	Back side	1.039	1.194	2.233	0.01674
	Top side	1.195	0.822	2.017	0.01662

Peak SAR locations of GPRS850 and 5GHz WLAN Aux antenna for back side 0mm

Ps. Left cube for WWAN antenna and right cube for WLAN antenna





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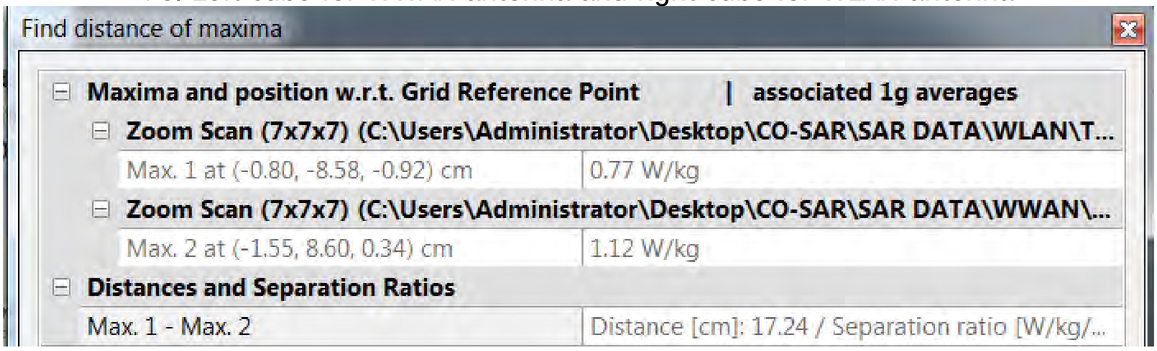
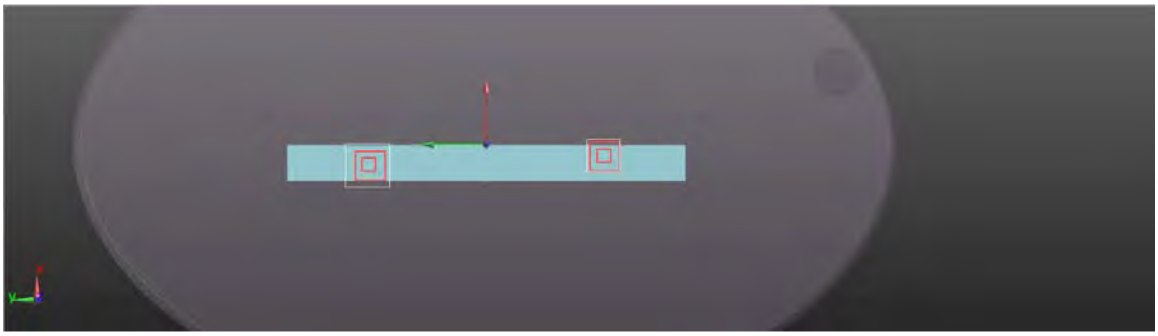
Peak SAR locations of GPRS850 and 5GHz WLAN Aux antenna for top side 0mm

Ps. Left cube for WWAN antenna and right cube for WLAN antenna





Simultaneous Tx	Configuration	GPRS850 reported SAR(W/kg)	WLAN Aux estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Right side	0.208	0.4	0.608

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	GPRS850 estimated SAR(W/kg)	WLAN Aux reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Left side	0.4	0.18	0.58

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

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Test separation distance: 9mm

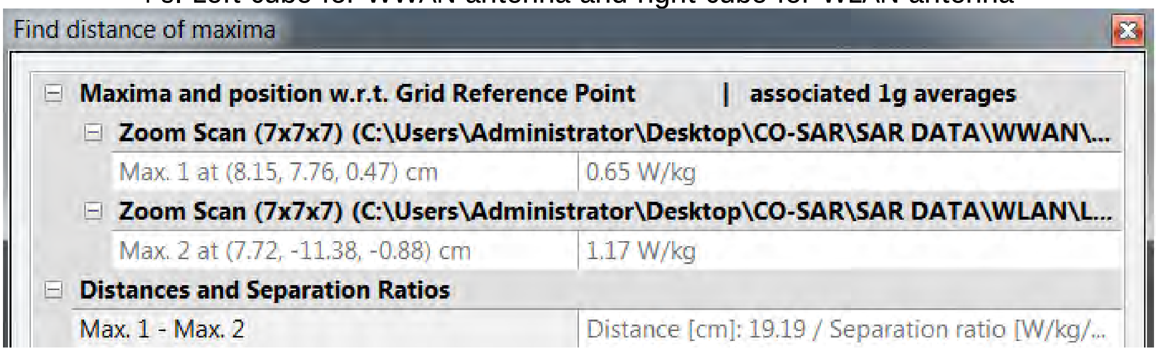
Simultaneous Tx	Configuration	GPRS850 reported SAR(W/kg)	2.4GHz WLAN Aux reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Back side	1.027	<0.262	<1.289

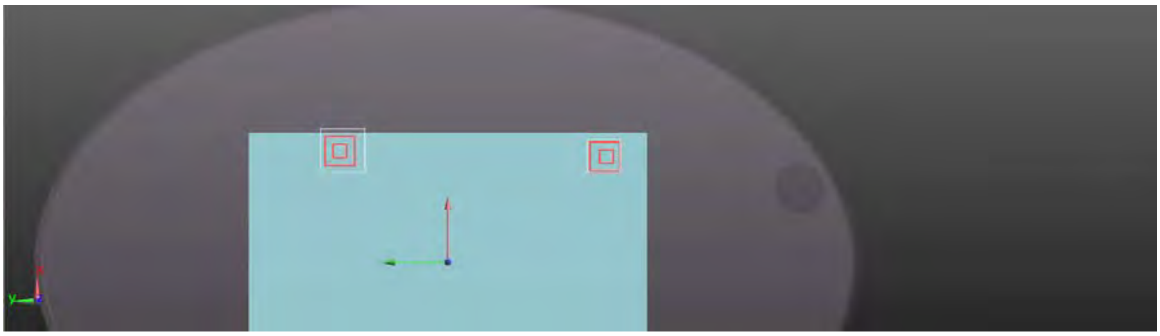
#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	GPRS850 reported SAR(W/kg)	5GHz WLAN Aux reported SAR(W/kg)	ΣSAR(W/kg)	SPLSR
Body SAR	Back side	1.027	<1.194	<2.221	<0.01725

Peak SAR locations of GPRS850 and 5GHz WLAN Aux antenna for back side 9mm

Ps. Left cube for WWAN antenna and right cube for WLAN antenna





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Test separation distance: 10mm

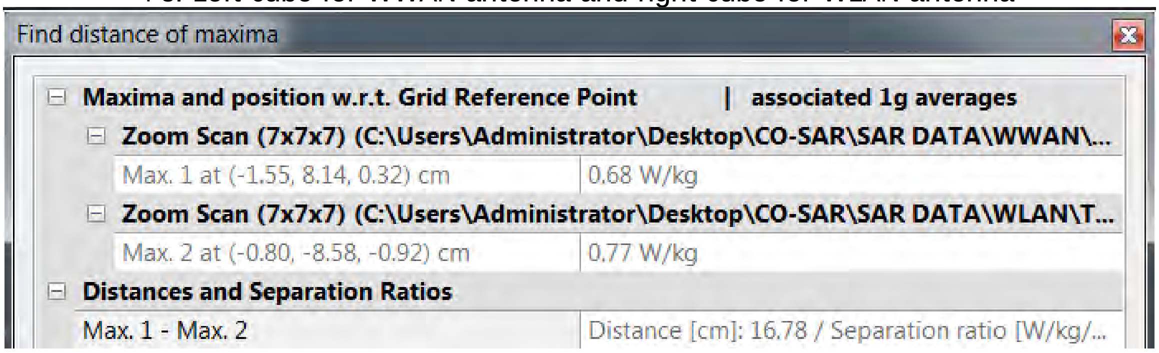
Simultaneous Tx	Configuration	GPRS850 reported SAR(W/kg)	2.4GHz WLAN Aux reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Top side	1.078	<0.271	<1.349

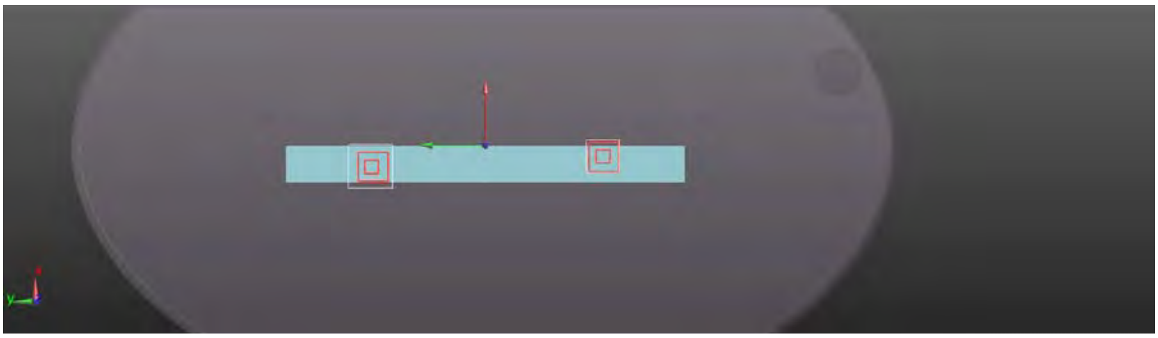
#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	GPRS850 reported SAR(W/kg)	5GHz WLAN Aux reported SAR(W/kg)	ΣSAR(W/kg)	SPLSR
Body SAR	Top side	1.078	<0.822	<1.9	<0.01561

Peak SAR locations of GPRS850 and 5GHz WLAN Aux antenna for top side 10mm

Ps. Left cube for WWAN antenna and right cube for WLAN antenna





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GPRS 1900 + 2.4GHz / 5GHz WiFi Aux

Test separation distance: 0mm

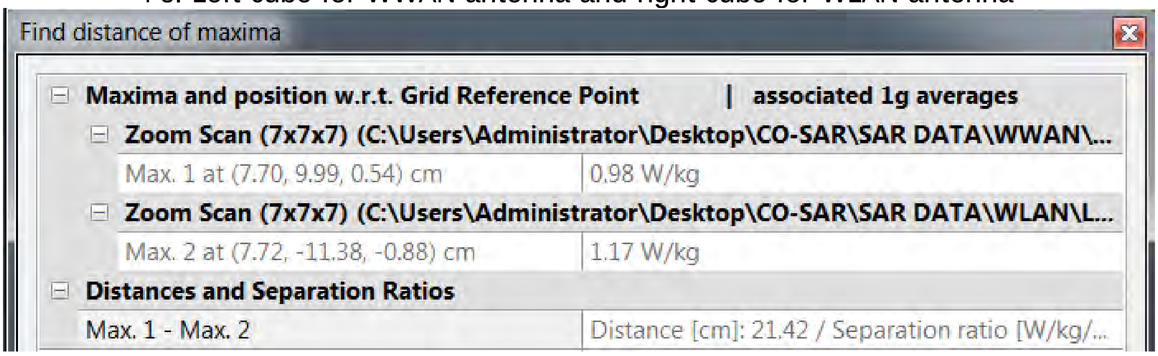
Simultaneous Tx	Configuration	GPRS1900 reported SAR(W/kg)	2.4GHz WLAN Aux reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Back side	1.045	0.262	1.307
	Top side	1.072	0.271	1.343

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	GPRS1900 reported SAR(W/kg)	5GHz WLAN Aux reported SAR(W/kg)	ΣSAR(W/kg)	SPLSR
Body SAR	Back side	1.045	1.194	2.239	0.01564
	Top side	1.072	0.822	1.894	0.01298

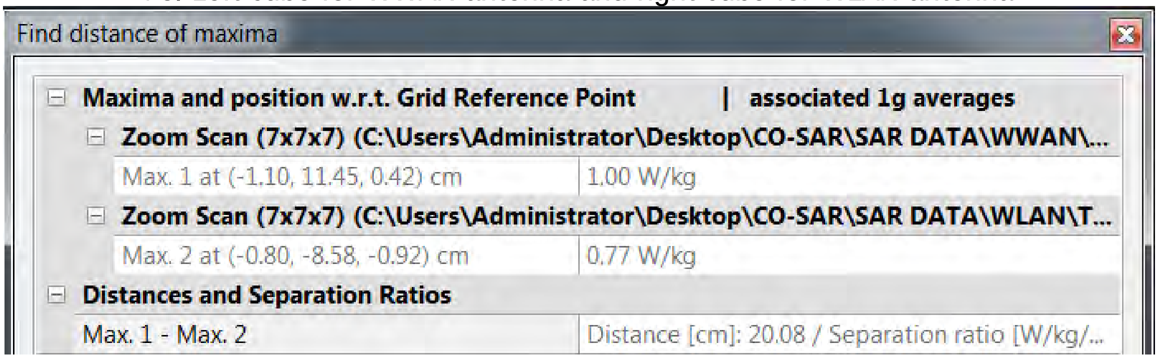
Peak SAR locations of GPRS1900 and 5GHz WLAN Aux antenna for back side 0mm

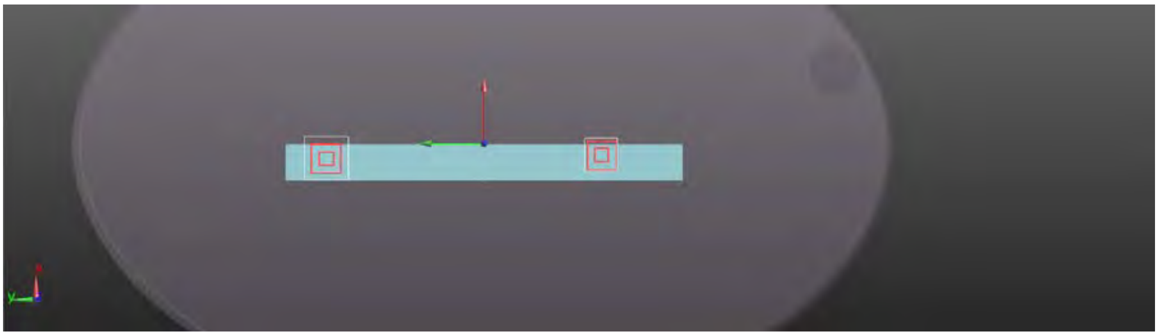
Ps. Left cube for WWAN antenna and right cube for WLAN antenna



Peak SAR locations of GPRS1900 and 5GHz WLAN Aux antenna for top side 0mm

Ps. Left cube for WWAN antenna and right cube for WLAN antenna





Simultaneous Tx	Configuration	GPRS1900 reported SAR(W/kg)	WLAN Aux estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Right side	0.11	0.4	0.51

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	GPRS1900 estimated SAR(W/kg)	WLAN Aux reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Left side	0.4	0.18	0.58

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

WCDMA Band II + 2.4GHz/ 5GHz WiFi Aux

Test separation distance: 0mm

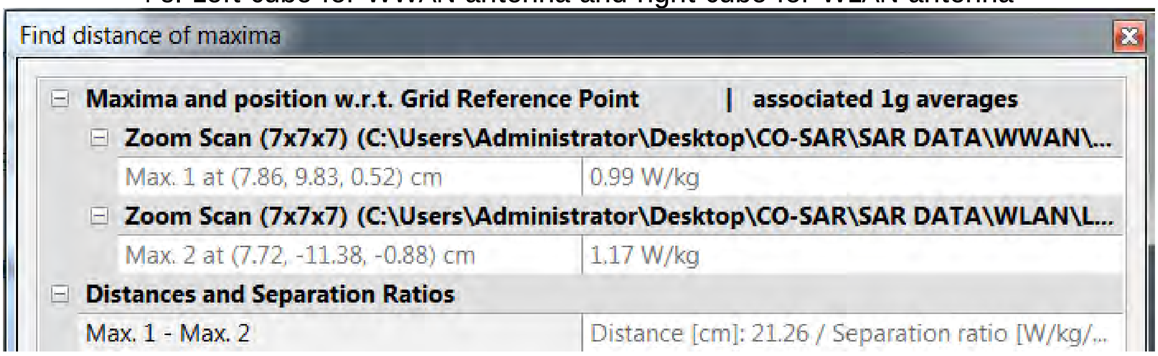
Simultaneous Tx	Configuration	WCDMA Band II reported SAR(W/kg)	2.4GHz WLAN Aux reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Back side	1.062	0.262	1.324
	Top side	1.136	0.271	1.407

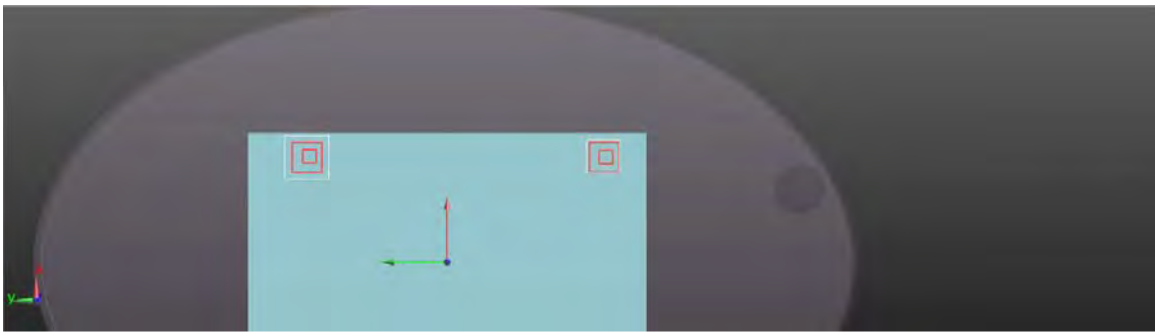
#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	WCDMA Band II reported SAR(W/kg)	5GHz WLAN Aux reported SAR(W/kg)	ΣSAR(W/kg)	SPLSR
Body SAR	Back side	1.062	1.194	2.256	0.01594
	Top side	1.136	0.822	1.958	0.01365

Peak SAR locations of WCDMA Band II and 5GHz WLAN Aux antenna for back side 0mm

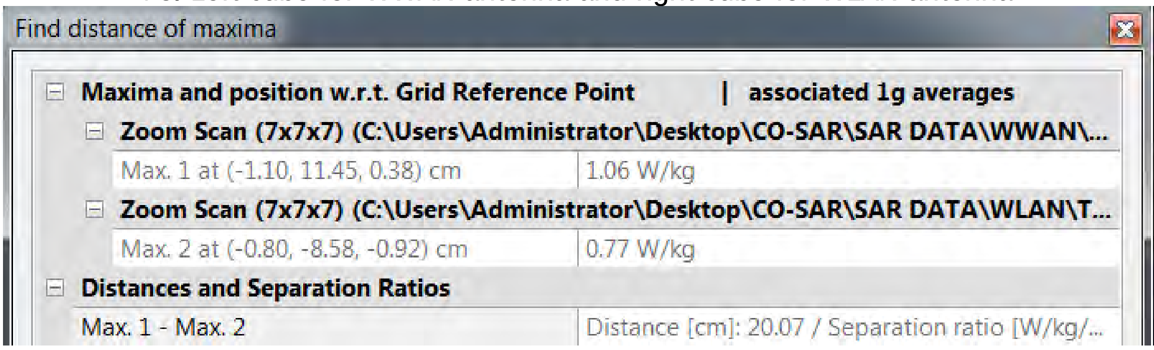
Ps. Left cube for WWAN antenna and right cube for WLAN antenna

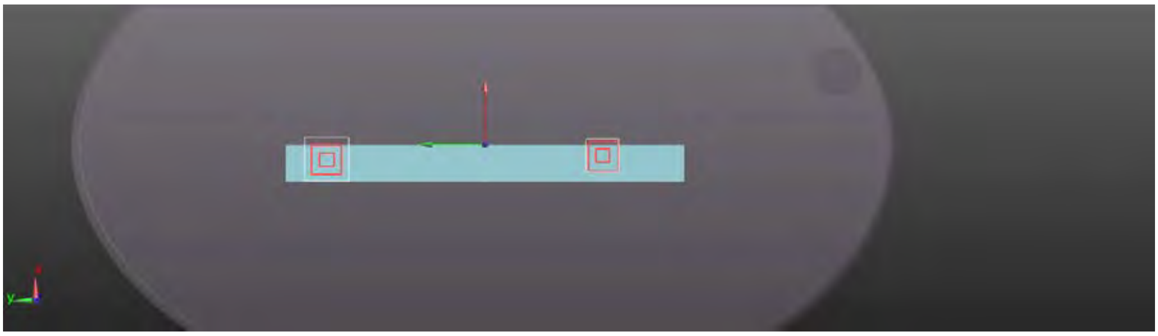




Peak SAR locations of WCDMA Band II and 5GHz WLAN Aux antenna for top side 0mm

Ps. Left cube for WWAN antenna and right cube for WLAN antenna





Simultaneous Tx	Configuration	WCDMA Band II reported SAR(W/kg)	WLAN Aux estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Right side	0.261	0.4	0.661

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	WCDMA Band II estimated SAR(W/kg)	WLAN Aux reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Left side	0.4	0.18	0.58

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

WCDMA Band IV + 2.4GHz/ 5GHz WiFi Aux

Test separation distance: 0mm

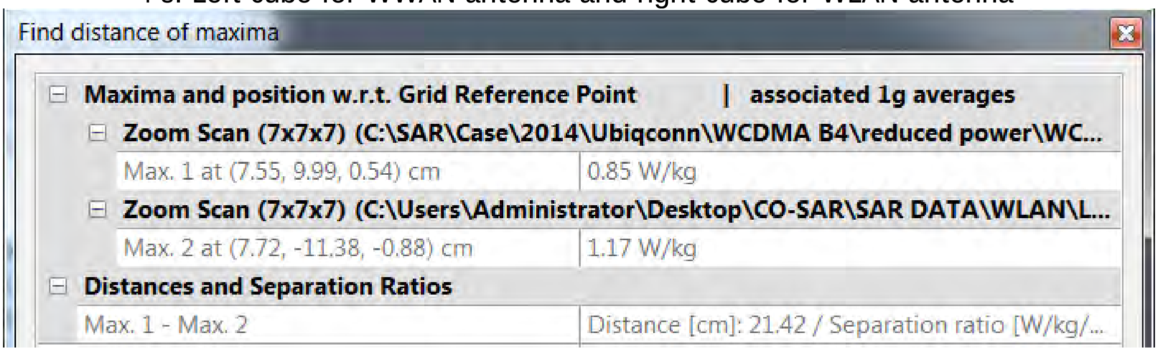
Simultaneous Tx	Configuration	WCDMA Band IV reported SAR(W/kg)	2.4GHz WLAN Aux reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Back side	0.927	0.262	1.189
	Top side	0.904	0.271	1.175

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	WCDMA Band IV reported SAR(W/kg)	5GHz WLAN Aux reported SAR(W/kg)	ΣSAR(W/kg)	SPLSR
Body SAR	Back side	0.927	1.194	2.121	0.01442
	Top side	0.904	0.822	1.726	0.01146

Peak SAR locations of WCDMA Band IV and 5GHz WLAN Aux antenna for back side 0mm

Ps. Left cube for WWAN antenna and right cube for WLAN antenna



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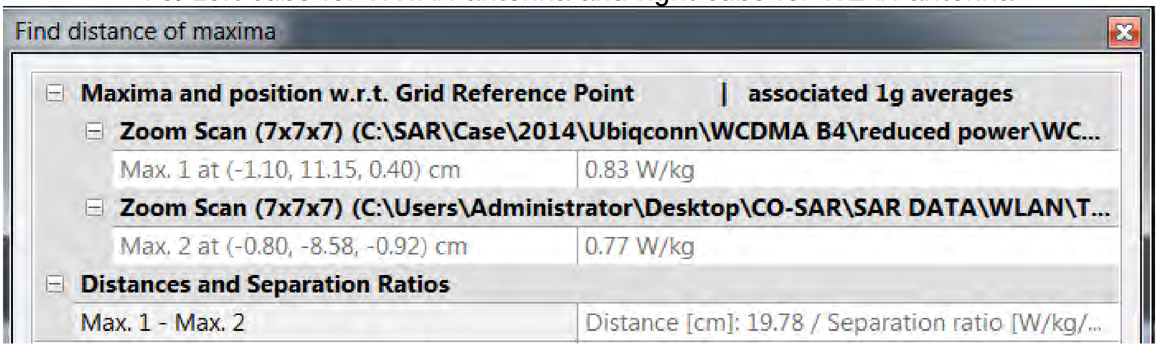
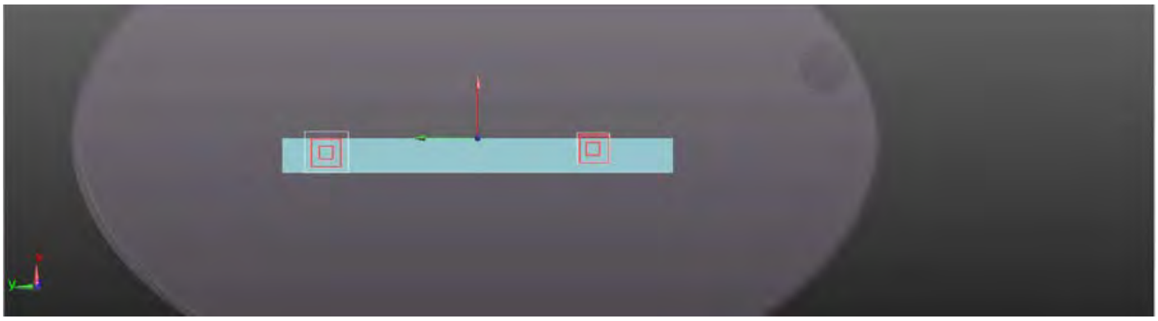
Peak SAR locations of WCDMA Band IV and 5GHz WLAN Aux antenna for top side 0mm

Ps. Left cube for WWAN antenna and right cube for WLAN antenna





Simultaneous Tx	Configuration	WCDMA Band IV reported SAR(W/kg)	WLAN Aux estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Right side	0.352	0.4	0.752

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	WCDMA Band IV estimated SAR(W/kg)	WLAN Aux reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Left side	0.4	0.18	0.58

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

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Test separation distance: 9mm

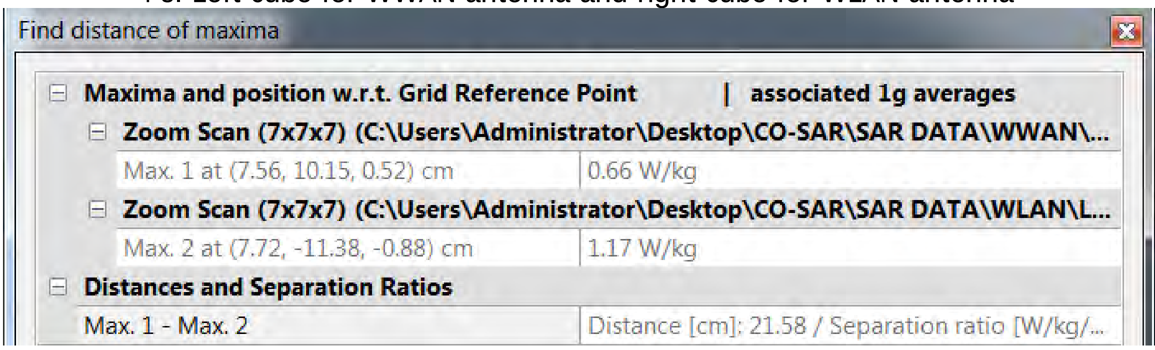
Simultaneous Tx	Configuration	WCDMA Band IV reported SAR(W/kg)	2.4GHz WLAN Aux reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Back side	0.76	<0.262	<1.022

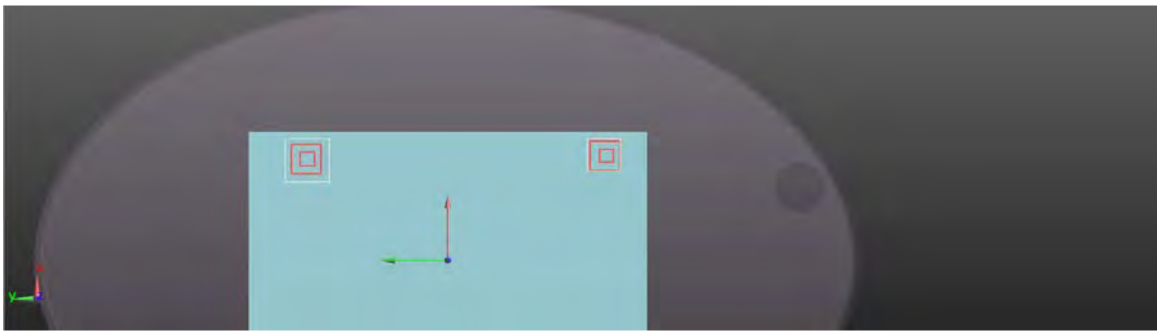
#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	WCDMA Band IV reported SAR(W/kg)	5GHz WLAN Aux reported SAR(W/kg)	ΣSAR(W/kg)	SPLSR
Body SAR	Back side	0.76	<1.194	<1.954	<0.01266

Peak SAR locations of WCDMA Band IV and 5GHz WLAN Aux antenna for back side 9mm

Ps. Left cube for WWAN antenna and right cube for WLAN antenna





Test separation distance: 10mm

Simultaneous Tx	Configuration	WCDMA Band IV reported SAR(W/kg)	2.4GHz WLAN Aux reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Top side	0.649	<0.271	<0.92

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	WCDMA Band IV reported SAR(W/kg)	5GHz WLAN Aux reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Top side	0.649	<0.822	<1.471

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

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WCDMA Band V + 2.4GHz / 5GHz WiFi Aux

Test separation distance: 0mm

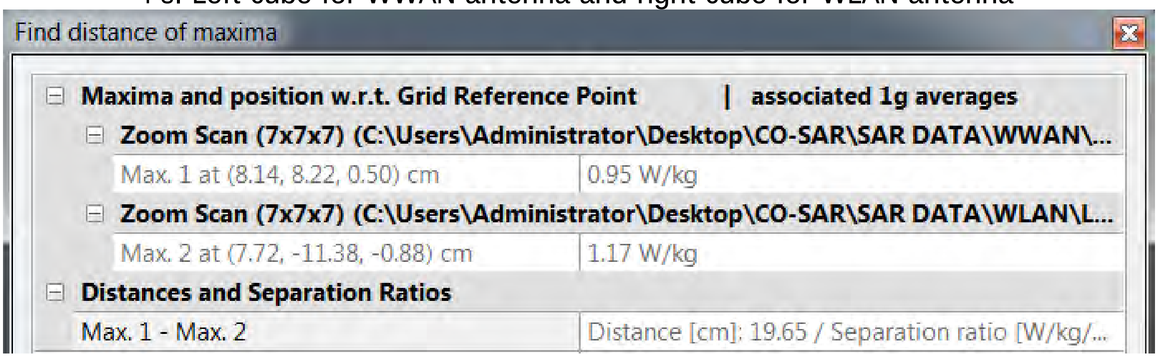
Simultaneous Tx	Configuration	WCDMA Band V reported SAR(W/kg)	2.4GHz WLAN Aux reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Back side	1.009	0.262	1.271
	Top side	1.109	0.271	1.38

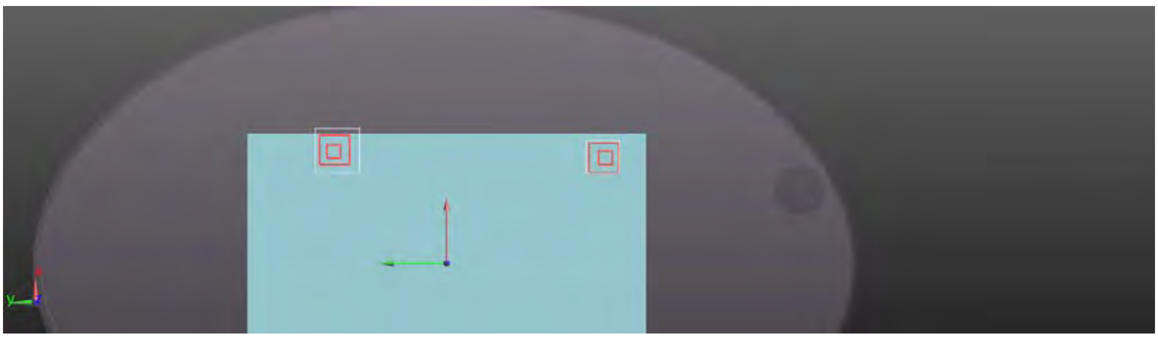
#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	WCDMA Band V reported SAR(W/kg)	5GHz WLAN Aux reported SAR(W/kg)	ΣSAR(W/kg)	SPLSR
Body SAR	Back side	1.009	1.194	2.203	0.01664
	Top side	1.109	0.822	1.931	0.01556

Peak SAR locations of WCDMA Band V and 5GHz WLAN Aux antenna for back side 0mm

Ps. Left cube for WWAN antenna and right cube for WLAN antenna





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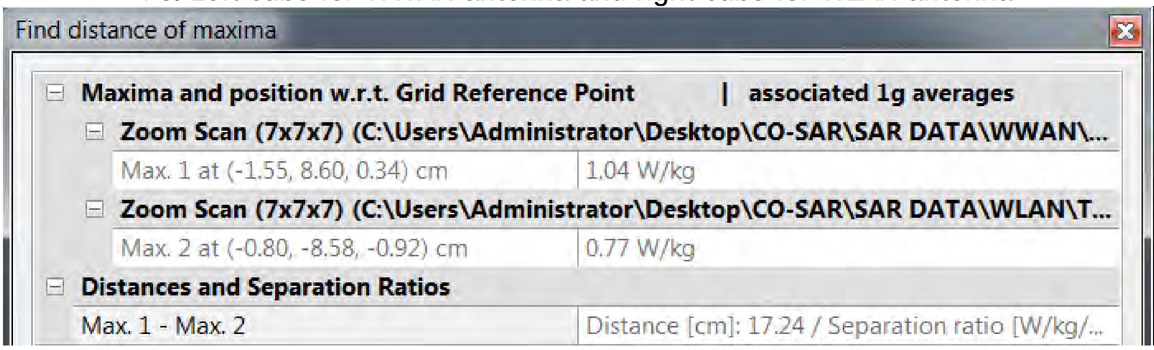
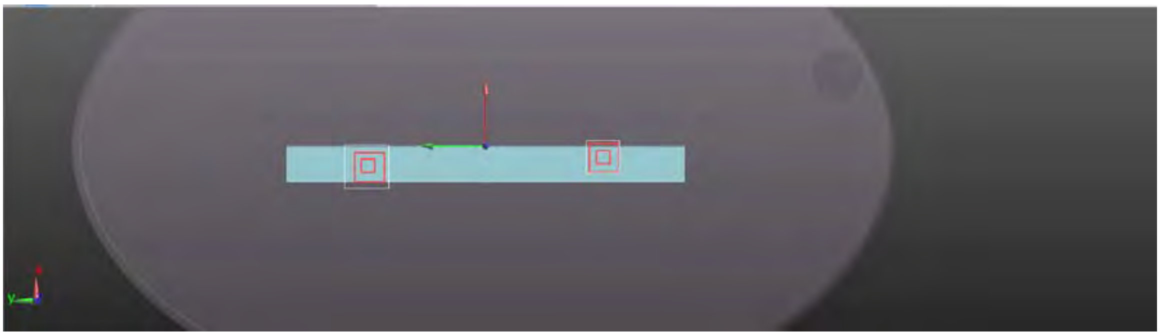
Peak SAR locations of WCDMA Band V and 5GHz WLAN Aux antenna for top side 0mm

Ps. Left cube for WWAN antenna and right cube for WLAN antenna





Simultaneous Tx	Configuration	WCDMA Band V reported SAR(W/kg)	WLAN Aux estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Right side	0.083	0.4	0.483

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	WCDMA Band V estimated SAR(W/kg)	WLAN Aux reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Left side	0.4	0.18	0.58

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

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LTE Band IV + 2.4GHz / 5GHz WiFi Aux

Test separation distance: 0mm

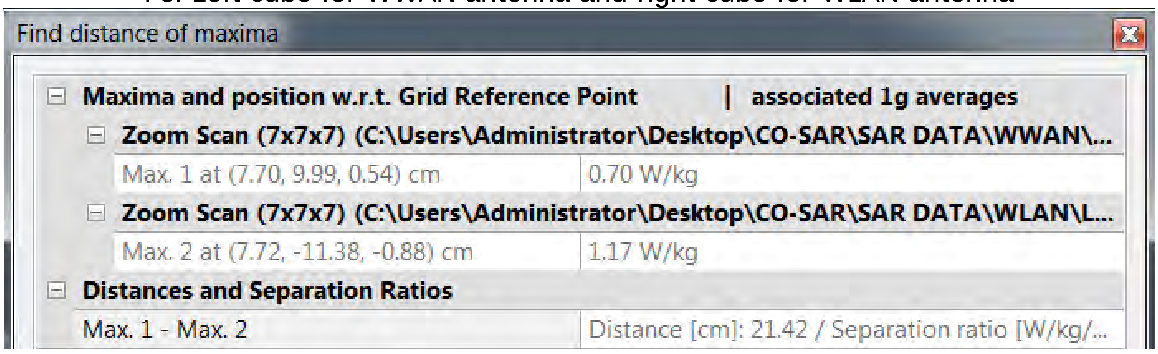
Simultaneous Tx	Configuration	LTE Band IV reported SAR(W/kg)	2.4GHz WLAN Aux reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Back side	0.915	0.262	1.177
	Top side	0.834	0.271	1.105

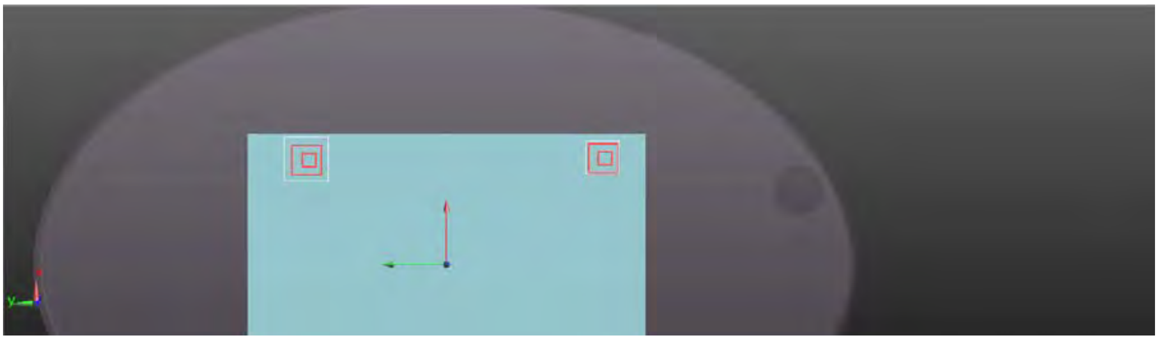
#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	LTE Band IV reported SAR(W/kg)	5GHz WLAN Aux reported SAR(W/kg)	ΣSAR(W/kg)	SPLSR
Body SAR	Back side	0.915	1.194	2.109	0.01430
	Top side	0.834	0.822	1.656	0.01074

Peak SAR locations of LTE Band IV and 5GHz WLAN Aux antenna for back side 0mm

Ps. Left cube for WWAN antenna and right cube for WLAN antenna





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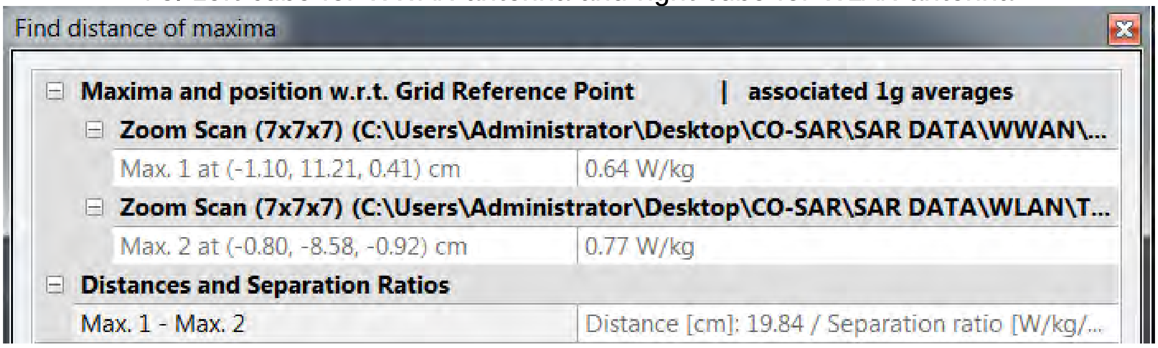
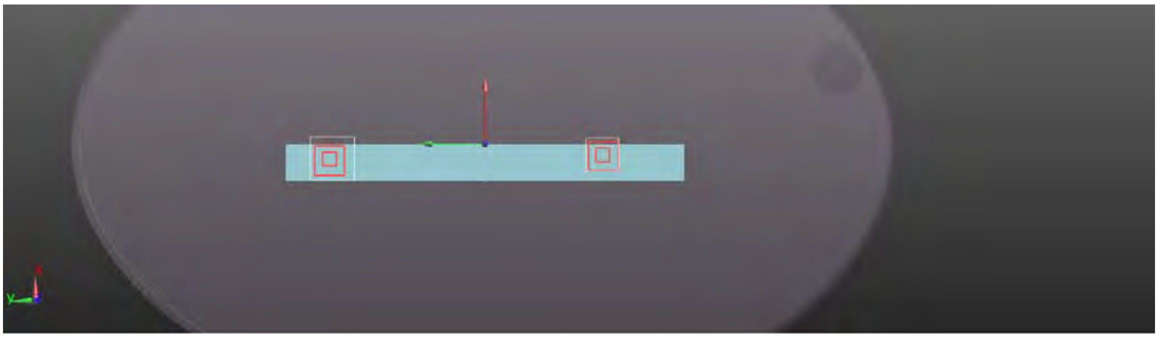
Peak SAR locations of LTE Band IV and 5GHz WLAN Aux antenna for top side 0mm

Ps. Left cube for WWAN antenna and right cube for WLAN antenna





Simultaneous Tx	Configuration	LTE Band IV reported SAR(W/kg)	WLAN Aux estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Right side	0.334	0.4	0.734

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	LTE Band IV estimated SAR(W/kg)	WLAN Aux reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Left side	0.4	0.18	0.58

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Test separation distance: 9mm

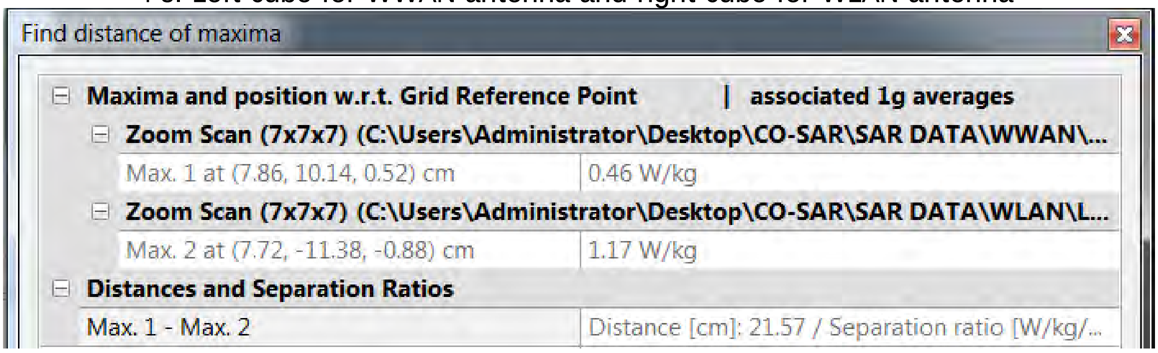
Simultaneous Tx	Configuration	LTE Band IV reported SAR(W/kg)	2.4GHz WLAN Aux reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Back side	0.671	<0.262	<0.933

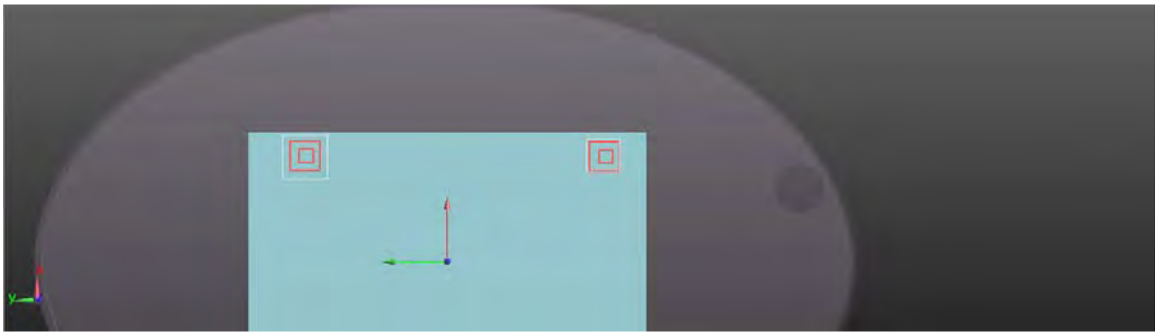
#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	LTE Band IV reported SAR(W/kg)	5GHz WLAN Aux reported SAR(W/kg)	ΣSAR(W/kg)	SPLSR
Body SAR	Back side	0.671	<1.194	<1.865	<0.01181

Peak SAR locations of LTE Band IV and 5GHz WLAN Aux antenna for back side 9mm

Ps. Left cube for WWAN antenna and right cube for WLAN antenna





Test separation distance: 10mm

Simultaneous Tx	Configuration	LTE Band IV reported SAR(W/kg)	2.4GHz WLAN Aux reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Top side	0.638	<0.271	<0.909

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	LTE Band IV reported SAR(W/kg)	5GHz WLAN Aux reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Top side	0.638	<0.822	<1.46

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

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LTE Band XIII + 2.4GHz/ 5GHz WiFi Aux

Test separation distance: 0mm

Simultaneous Tx	Configuration	LTE Band XIII reported SAR(W/kg)	2.4GHz WLAN Aux reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Back side	0.828	0.262	1.09
	Top side	0.715	0.271	0.986

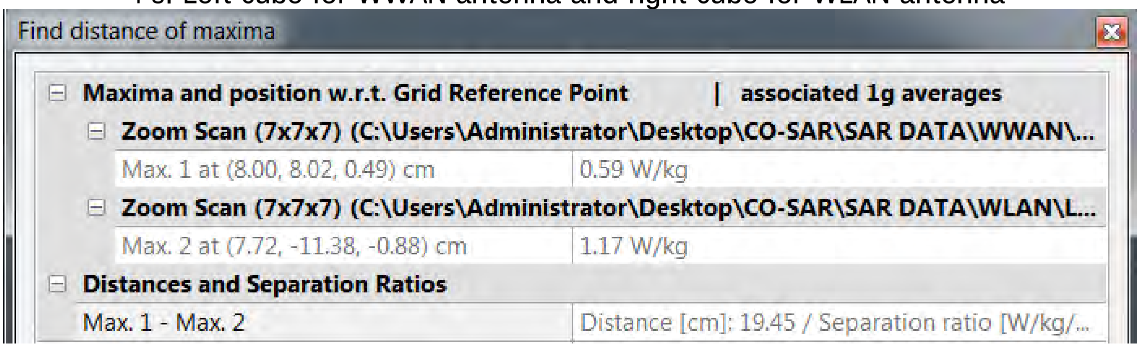
#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

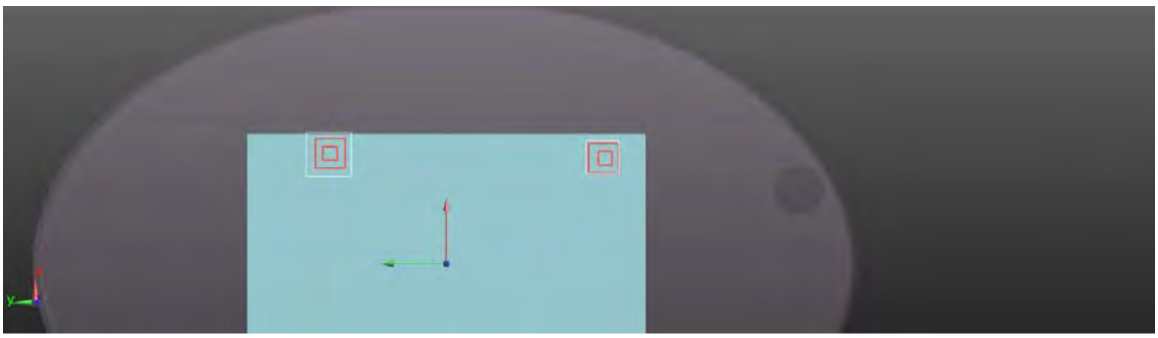
Simultaneous Tx	Configuration	LTE Band XIII reported SAR(W/kg)	5GHz WLAN Aux reported SAR(W/kg)	ΣSAR(W/kg)	SPLSR
Body SAR	Back side	0.828	1.194	2.022	0.01478
	Top side	0.715	0.822	1.537	-

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Peak SAR locations of LTE Band XIII and 5GHz WLAN Aux antenna for back side 0mm

Ps. Left cube for WWAN antenna and right cube for WLAN antenna





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Simultaneous Tx	Configuration	LTE Band XIII reported SAR(W/kg)	WLAN Aux estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Right side	0.089	0.4	0.489

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	LTE Band XIII estimated SAR(W/kg)	WLAN Aux reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Left side	0.4	0.18	0.58

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

LTE Band XVII + 2.4GHz/ 5GHz WiFi Aux

Test separation distance: 0mm

Simultaneous Tx	Configuration	LTE Band XVII reported SAR(W/kg)	2.4GHz WLAN Aux reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Back side	0.926	0.262	1.188
	Top side	0.501	0.271	0.772

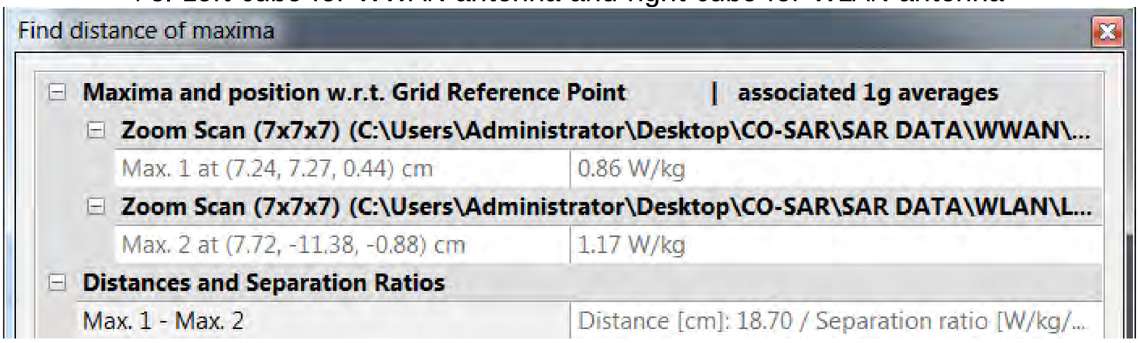
#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

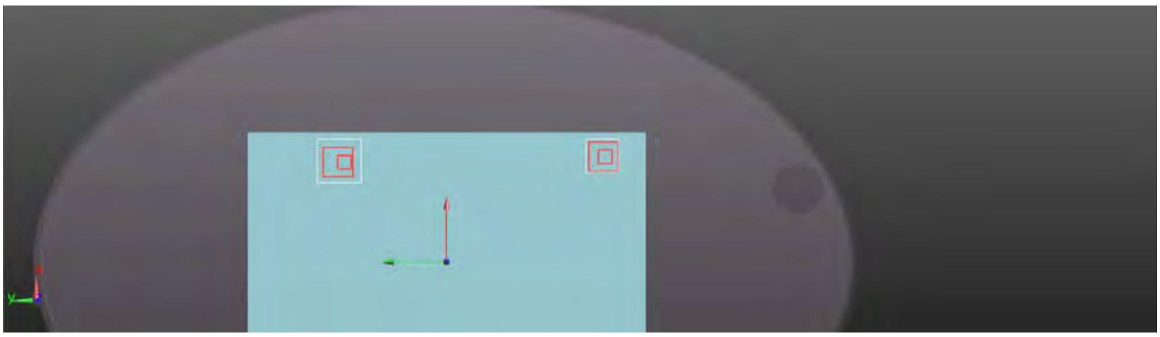
Simultaneous Tx	Configuration	LTE Band XVII reported SAR(W/kg)	5GHz WLAN Aux reported SAR(W/kg)	ΣSAR(W/kg)	SPLSR
Body SAR	Back side	0.926	1.194	2.12	0.01651
	Top side	0.501	0.822	1.323	-

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Peak SAR locations of LTE Band XVII and 5GHz WLAN Aux antenna for back side 0mm

Ps. Left cube for WWAN antenna and right cube for WLAN antenna





Simultaneous Tx	Configuration	LTE Band XVII reported SAR(W/kg)	WLAN Aux estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Right side	0.113	0.4	0.513

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	LTE Band XVII estimated SAR(W/kg)	WLAN Aux reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Left side	0.4	0.18	0.58

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

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LTE Band XXV + 2.4GHz / 5GHz WiFi Aux

Test separation distance: 0mm

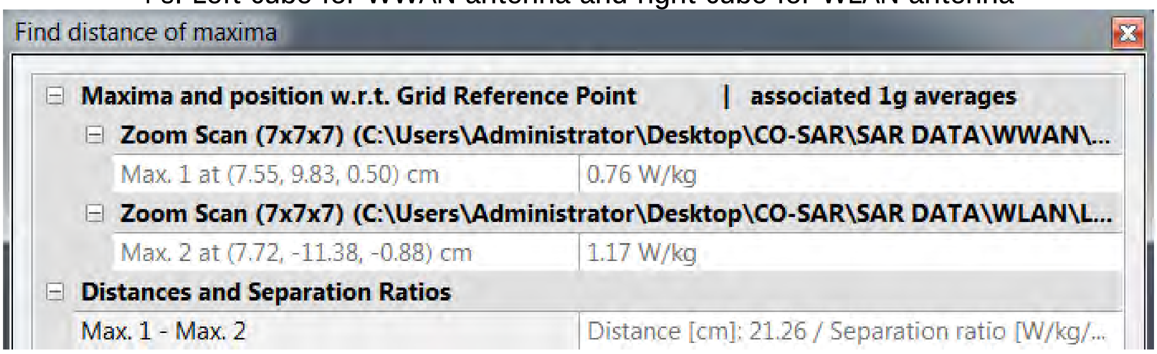
Simultaneous Tx	Configuration	LTE Band XXV reported SAR(W/kg)	2.4GHz WLAN Aux reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Back side	1.034	0.262	1.296
	Top side	1.16	0.271	1.431

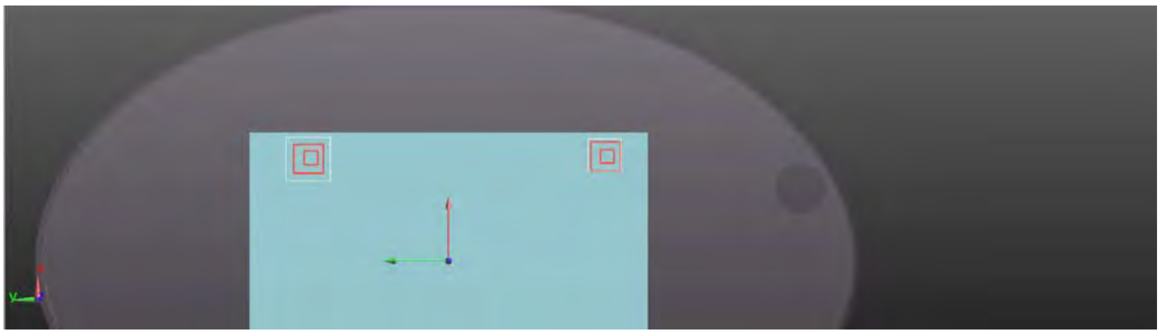
#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	LTE Band XXV reported SAR(W/kg)	5GHz WLAN Aux reported SAR(W/kg)	ΣSAR(W/kg)	SPLSR
Body SAR	Back side	1.034	1.194	2.228	0.01564
	Top side	1.16	0.822	1.982	0.01387

Peak SAR locations of LTE Band XXV and 5GHz WLAN Aux antenna for back side 0mm

Ps. Left cube for WWAN antenna and right cube for WLAN antenna





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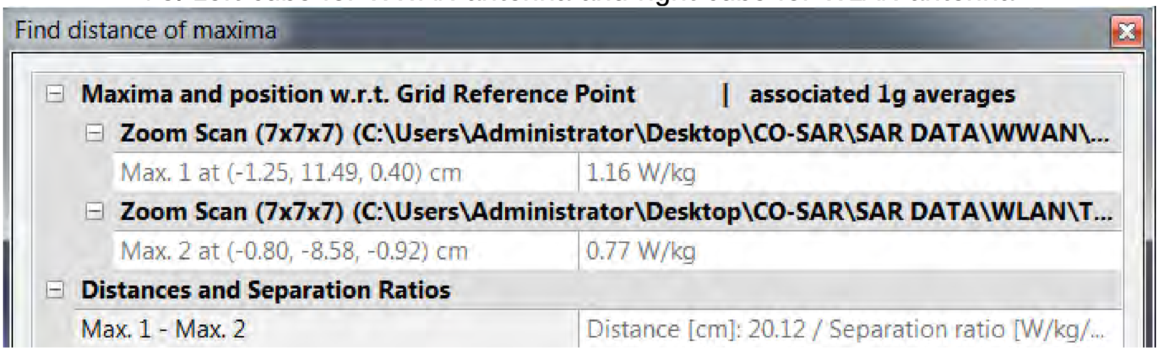
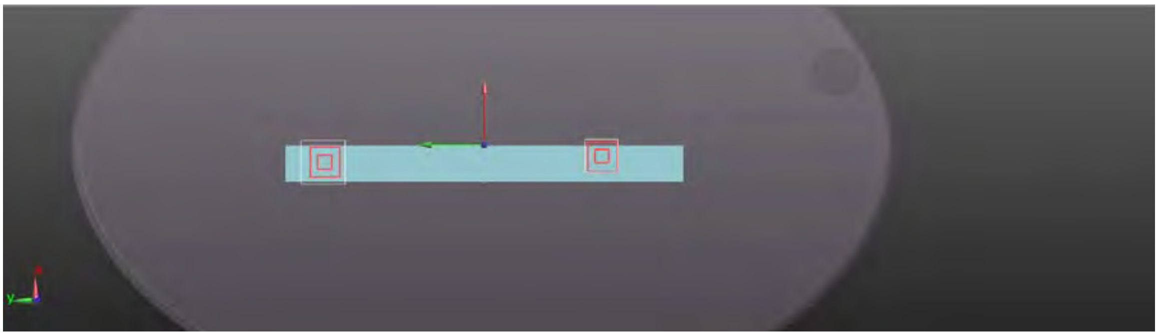
Peak SAR locations of LTE Band XXV and 5GHz WLAN Aux antenna for top side 0mm

Ps. Left cube for WWAN antenna and right cube for WLAN antenna





Simultaneous Tx	Configuration	LTE Band XXV reported SAR(W/kg)	WLAN Aux estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Right side	0.227	0.4	0.627

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	LTE Band XXV estimated SAR(W/kg)	WLAN Aux reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Left side	0.4	0.18	0.58

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

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CDMA Cellular (BC0) + 2.4GHz / 5GHz WiFi Aux

Test separation distance: 0mm

Simultaneous Tx	Configuration	Cellular (BC0) reported SAR(W/kg)	2.4GHz WLAN Aux reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Back side	0.821	0.262	1.083
	Top side	0.537	0.271	0.808

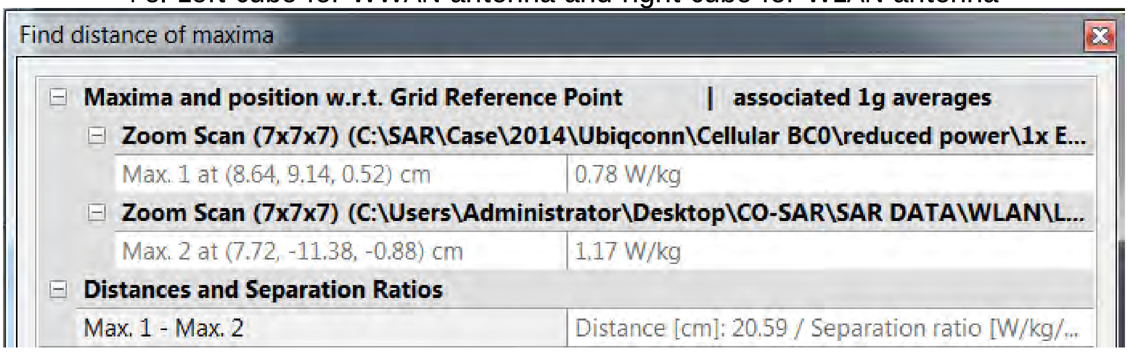
#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	Cellular (BC0) reported SAR(W/kg)	5GHz WLAN Aux reported SAR(W/kg)	ΣSAR(W/kg)	SPLSR
Body SAR	Back side	0.821	1.194	2.015	0.01389
	Top side	0.537	0.822	1.359	-

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Peak SAR locations of Cellular (BC0) and 5GHz WLAN Aux antenna for back side 0mm

Ps. Left cube for WWAN antenna and right cube for WLAN antenna



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Simultaneous Tx	Configuration	Cellular (BC0) reported SAR(W/kg)	WLAN Aux estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Right side	0.163	0.4	0.563

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	Cellular (BC0) estimated SAR(W/kg)	WLAN Aux reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Left side	0.4	0.18	0.58

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

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Test separation distance: 9mm

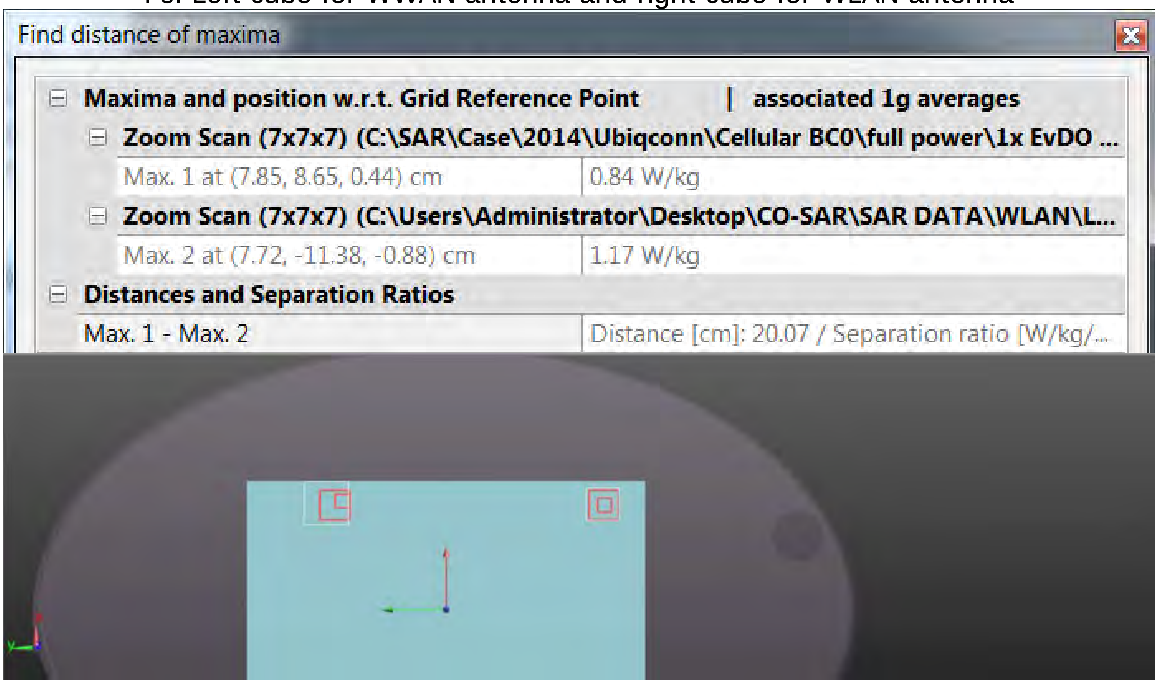
Simultaneous Tx	Configuration	Cellular (BC0) reported SAR(W/kg)	2.4GHz WLAN Aux reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Back side	1.192	<0.262	<1.454

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	Cellular (BC0) reported SAR(W/kg)	5GHz WLAN Aux reported SAR(W/kg)	ΣSAR(W/kg)	SPLSR
Body SAR	Back side	1.192	<1.194	<2.386	<0.01836

Peak SAR locations of Cellular (BC0) and 5GHz WLAN Aux antenna for back side 9mm

Ps. Left cube for WWAN antenna and right cube for WLAN antenna



Test separation distance: 10mm

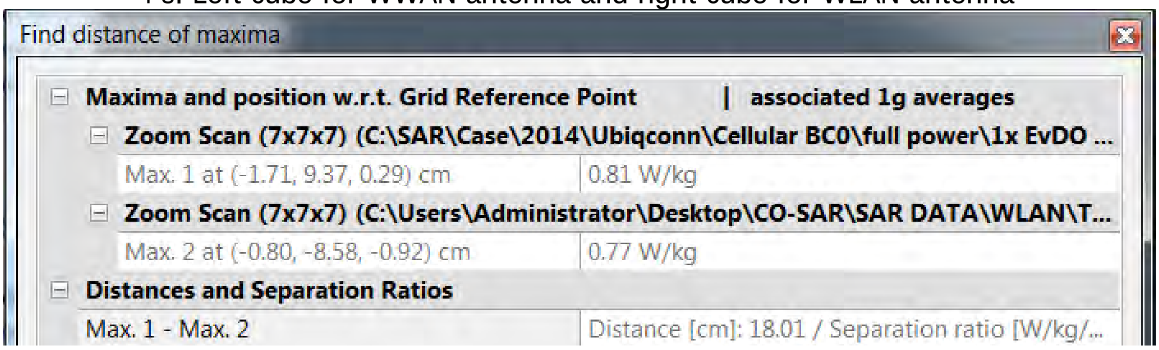
Simultaneous Tx	Configuration	Cellular (BC0) reported SAR(W/kg)	2.4GHz WLAN Aux reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Top side	1.16	<0.271	<1.431

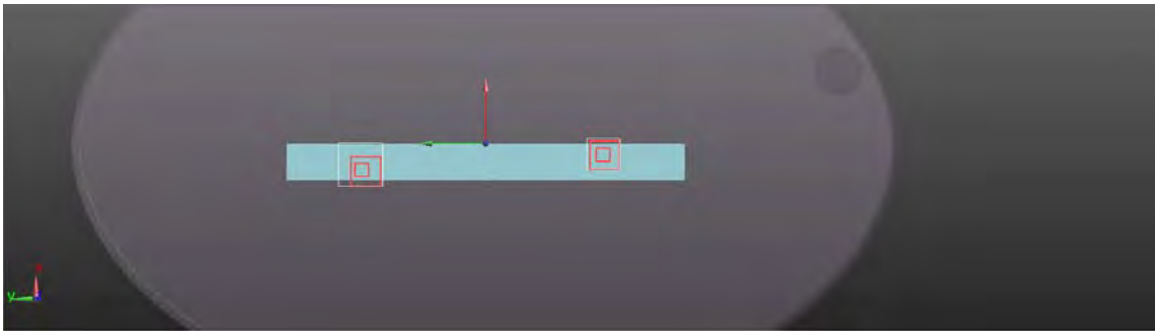
#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	Cellular (BC0) reported SAR(W/kg)	5GHz WLAN Aux reported SAR(W/kg)	ΣSAR(W/kg)	SPLSR
Body SAR	Top side	1.16	<0.822	<1.982	<0.01549

Peak SAR locations of Cellular (BC0) and 5GHz WLAN Aux antenna for top side 10mm

Ps. Left cube for WWAN antenna and right cube for WLAN antenna





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CDMA PCS (BC1) + 2.4GHz / 5GHz WiFi Aux

Test separation distance: 0mm

Simultaneous Tx	Configuration	PCS (BC1) reported SAR(W/kg)	2.4GHz WLAN Aux reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Back side	0.5	0.262	0.762
	Top side	0.479	0.271	0.75

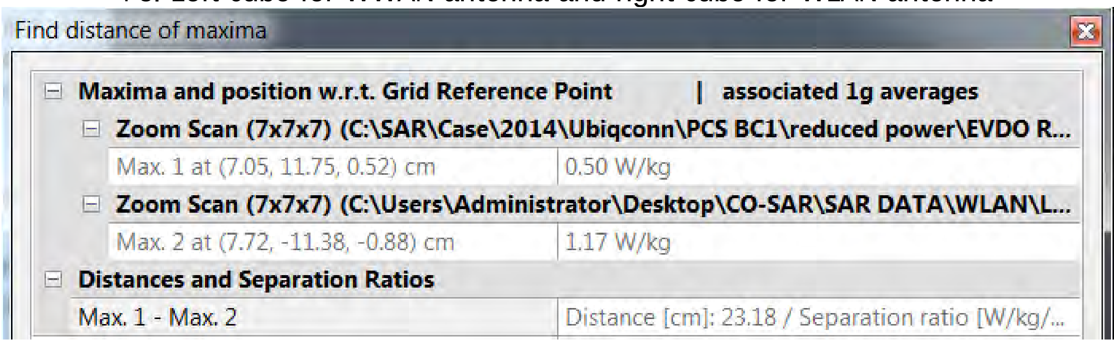
#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

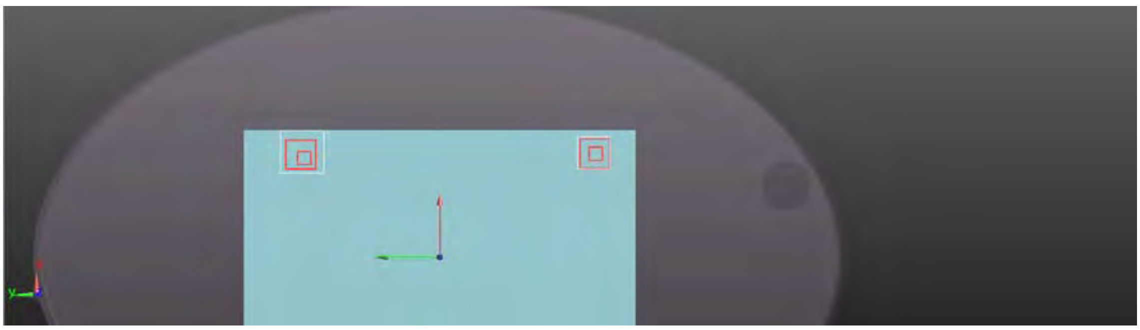
Simultaneous Tx	Configuration	PCS (BC1) reported SAR(W/kg)	5GHz WLAN Aux reported SAR(W/kg)	ΣSAR(W/kg)	SPLSR
Body SAR	Back side	0.5	1.194	1.694	0.00951
	Top side	0.479	0.822	1.301	-

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Peak SAR locations of PCS (BC1) and 5GHz WLAN Aux antenna for back side 0mm

Ps. Left cube for WWAN antenna and right cube for WLAN antenna





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Simultaneous Tx	Configuration	PCS (BC1) reported SAR(W/kg)	WLAN Aux estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Right side	0.674	0.4	1.074

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	PCS (BC1) estimated SAR(W/kg)	WLAN Aux reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Left side	0.4	0.18	0.58

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Test separation distance: 9mm

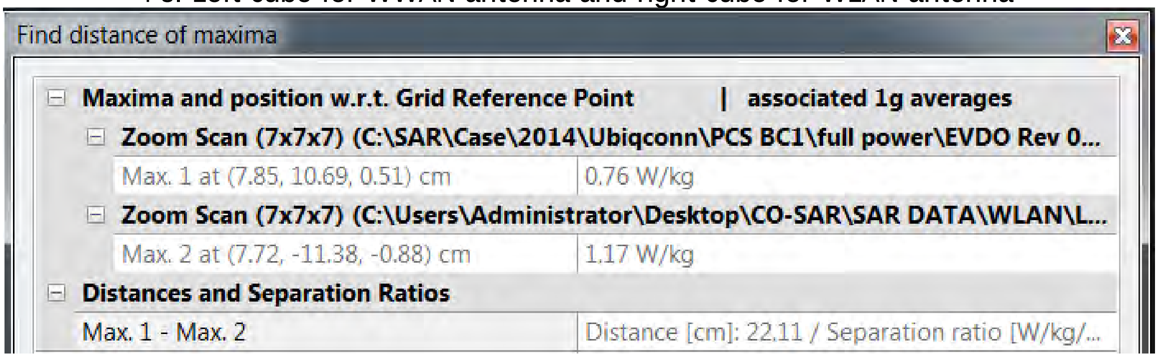
Simultaneous Tx	Configuration	PCS (BC1) reported SAR(W/kg)	2.4GHz WLAN Aux reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Back side	0.934	<0.262	<1.196

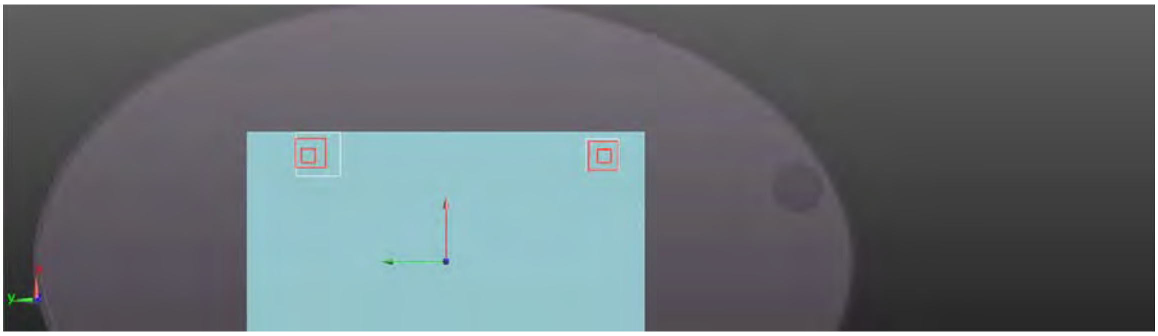
#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	PCS (BC1) reported SAR(W/kg)	5GHz WLAN Aux reported SAR(W/kg)	ΣSAR(W/kg)	SPLSR
Body SAR	Back side	0.934	<1.194	<2.128	<0.01404

Peak SAR locations of PCS (BC1) and 5GHz WLAN Aux antenna for back side 9mm

Ps. Left cube for WWAN antenna and right cube for WLAN antenna





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Test separation distance: 10mm

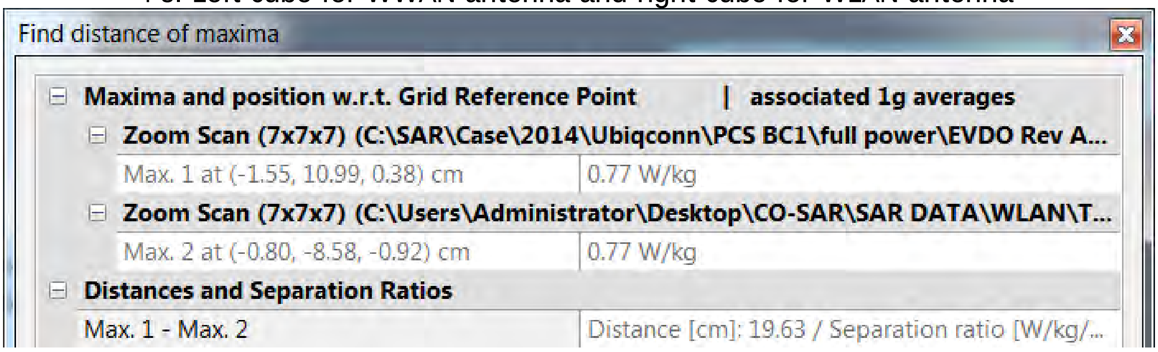
Simultaneous Tx	Configuration	PCS (BC1) reported SAR(W/kg)	2.4GHz WLAN Aux reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Top side	0.926	<0.271	<1.197

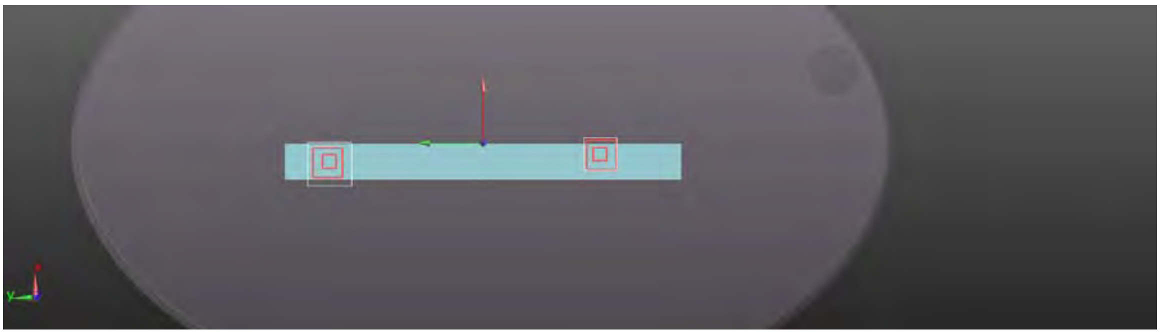
#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	PCS (BC1) reported SAR(W/kg)	5GHz WLAN Aux reported SAR(W/kg)	ΣSAR(W/kg)	SPLSR
Body SAR	Top side	0.926	<0.822	<1.748	<0.01177

Peak SAR locations of PCS (BC1) and 5GHz WLAN Aux antenna for top side 10mm

Ps. Left cube for WWAN antenna and right cube for WLAN antenna





CDMA BC10 + 2.4GHz / 5GHz WiFi Aux

Test separation distance: 0mm

Simultaneous Tx	Configuration	BC10 reported SAR(W/kg)	2.4GHz WLAN Aux reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Back side	0.753	0.262	1.015
	Top side	0.559	0.271	0.83

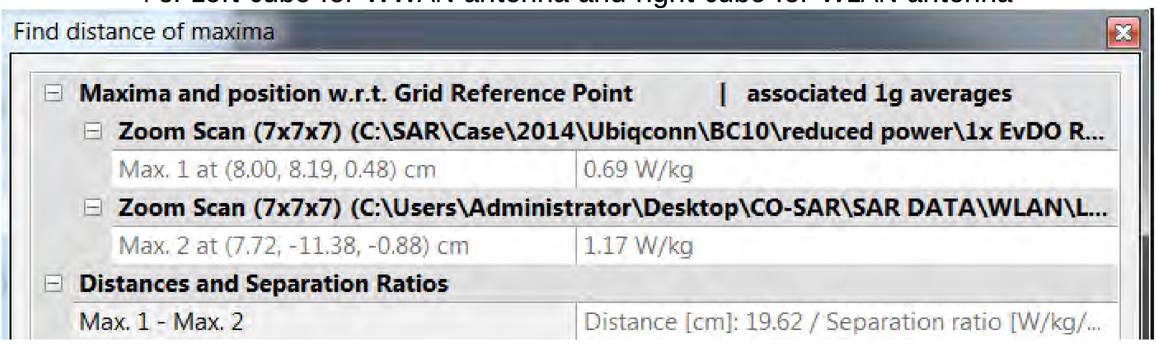
#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

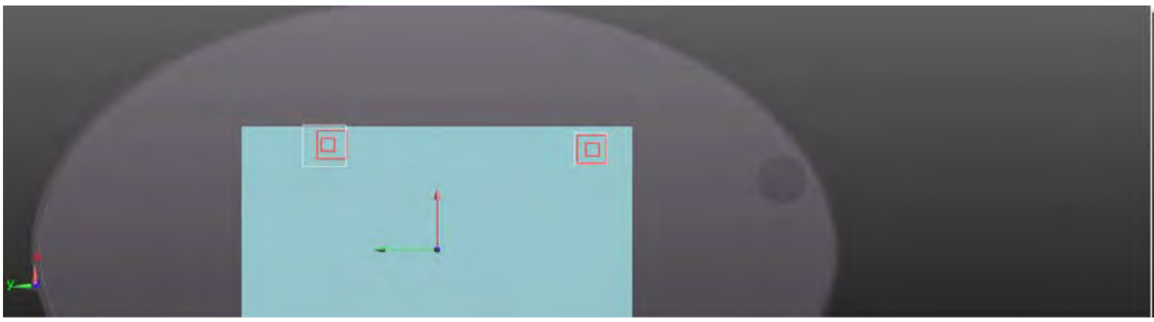
Simultaneous Tx	Configuration	BC10 reported SAR(W/kg)	5GHz WLAN Aux reported SAR(W/kg)	ΣSAR(W/kg)	SPLSR
Body SAR	Back side	0.753	1.194	1.947	0.01385
	Top side	0.559	0.822	1.381	-

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Peak SAR locations of BC10 and 5GHz WLAN Aux antenna for back side 0mm

Ps. Left cube for WWAN antenna and right cube for WLAN antenna





Simultaneous Tx	Configuration	BC10 reported SAR(W/kg)	WLAN Aux estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Right side	0.23	0.4	0.63

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	BC10 estimated SAR(W/kg)	WLAN Aux reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Left side	0.4	0.18	0.58

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

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Test separation distance: 9mm

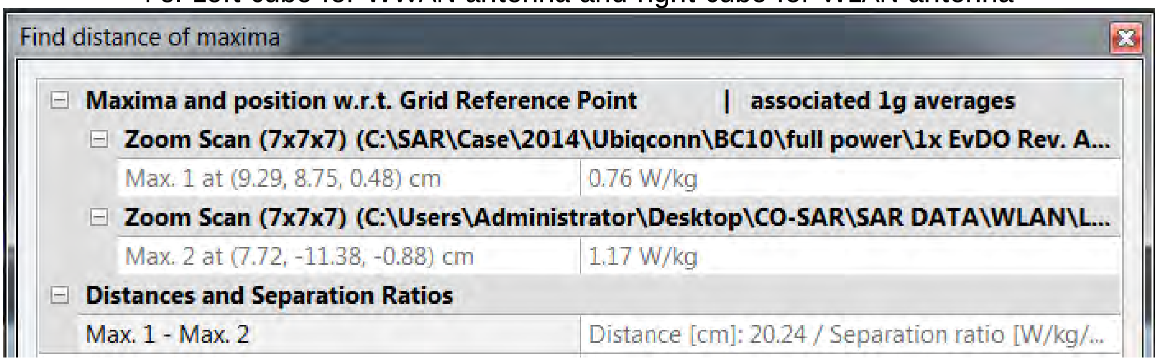
Simultaneous Tx	Configuration	BC10 reported SAR(W/kg)	2.4GHz WLAN Aux reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Back side	1.145	<0.262	<1.407

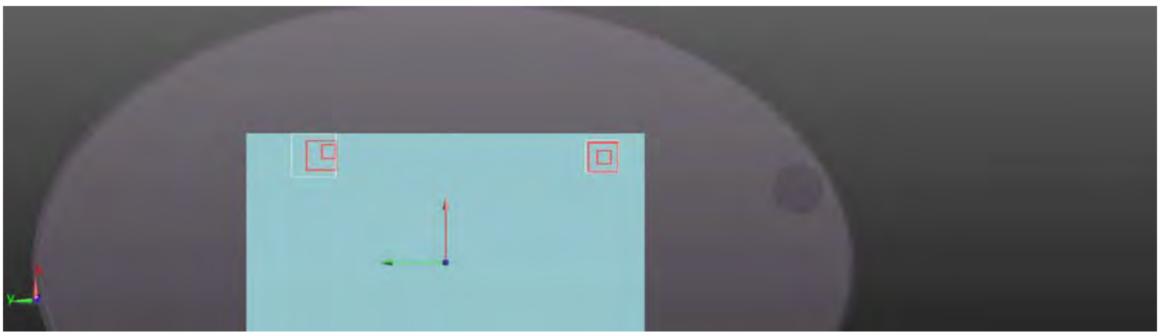
#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	BC10 reported SAR(W/kg)	5GHz WLAN Aux reported SAR(W/kg)	ΣSAR(W/kg)	SPLSR
Body SAR	Back side	1.145	<1.194	<2.339	<0.01767

Peak SAR locations of BC10 and 5GHz WLAN Aux antenna for back side 9mm

Ps. Left cube for WWAN antenna and right cube for WLAN antenna





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Test separation distance: 10mm

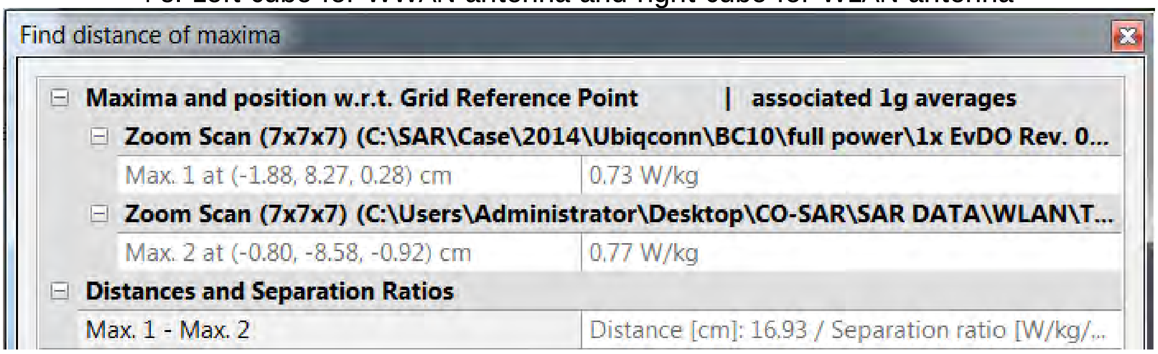
Simultaneous Tx	Configuration	BC10 reported SAR(W/kg)	2.4GHz WLAN Aux reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Top side	1.091	<0.271	<1.362

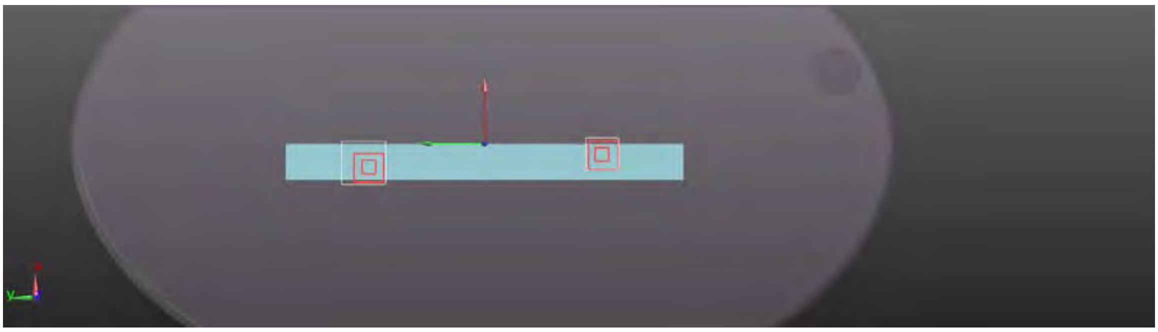
#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	BC10 reported SAR(W/kg)	5GHz WLAN Aux reported SAR(W/kg)	ΣSAR(W/kg)	SPLSR
Body SAR	Top side	1.091	<0.822	<1.913	<0.01563

Peak SAR locations of BC10 and 5GHz WLAN Aux antenna for top side 10mm

Ps. Left cube for WWAN antenna and right cube for WLAN antenna





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GPRS 850 + 2.4GHz/5GHz WiFi MIMO

Test separation distance: 0mm

Simultaneous Tx	Configuration	GPRS850 reported SAR(W/kg)	2.4GHz WLAN MIMO reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Back side	1.039	0.12	1.159
	Top side	1.195	0.093	1.288

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	GPRS850 reported SAR(W/kg)	5GHz WLAN MIMO reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Back side	1.039	0.543	1.582
	Top side	1.195	0.39	1.585

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	GPRS850 reported SAR(W/kg)	WLAN MIMO estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Right side	0.208	0.4	0.608

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	GPRS850 estimated SAR(W/kg)	WLAN MIMO reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Left side	0.4	0.104	0.504

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Test separation distance: 9mm

Simultaneous Tx	Configuration	GPRS850 reported SAR(W/kg)	2.4GHz WLAN MIMO reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Back side	1.027	<0.12	<1.147

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	GPRS850 reported SAR(W/kg)	5GHz WLAN MIMO reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Back side	1.027	<0.543	<1.57

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Test separation distance: 10mm

Simultaneous Tx	Configuration	GPRS850 reported SAR(W/kg)	2.4GHz WLAN MIMO reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Top side	1.078	<0.093	<1.171

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	GPRS850 reported SAR(W/kg)	5GHz WLAN MIMO reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Top side	1.078	<0.39	<1.468

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

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GPRS 1900 + 2.4GHz/5GHz WiFi MIMO

Test separation distance: 0mm

Simultaneous Tx	Configuration	GPRS1900 reported SAR(W/kg)	2.4GHz WLAN MIMO reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Back side	1.045	0.12	1.165
	Top side	1.072	0.093	1.165

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	GPRS1900 reported SAR(W/kg)	5GHz WLAN MIMO reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Back side	1.045	0.543	1.588
	Top side	1.072	0.39	1.462

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	GPRS1900 reported SAR(W/kg)	WLAN MIMO estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Right side	0.11	0.4	0.51

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	GPRS1900 estimated SAR(W/kg)	WLAN MIMO reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Left side	0.4	0.104	0.504

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

WCDMA Band II + 2.4GHz/5GHz WiFi MIMO

Test separation distance: 0mm

Simultaneous Tx	Configuration	WCDMA Band II reported SAR(W/kg)	2.4GHz WLAN MIMO reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Back side	1.062	0.12	1.182
	Top side	1.136	0.093	1.229

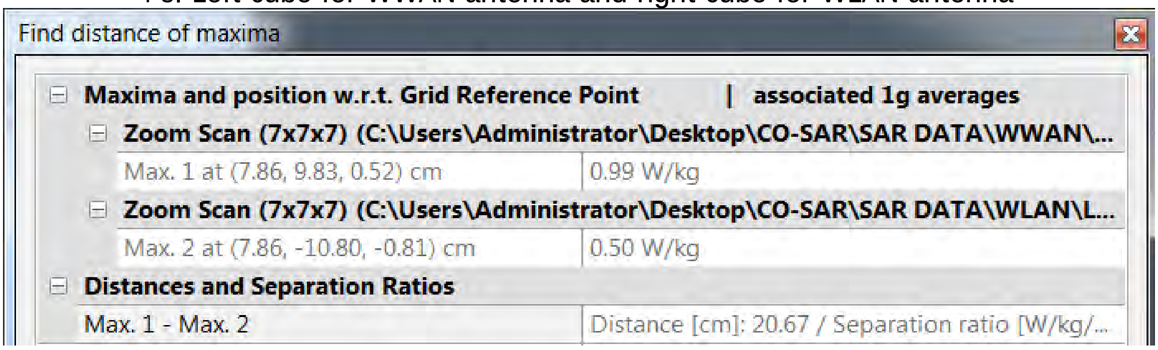
#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

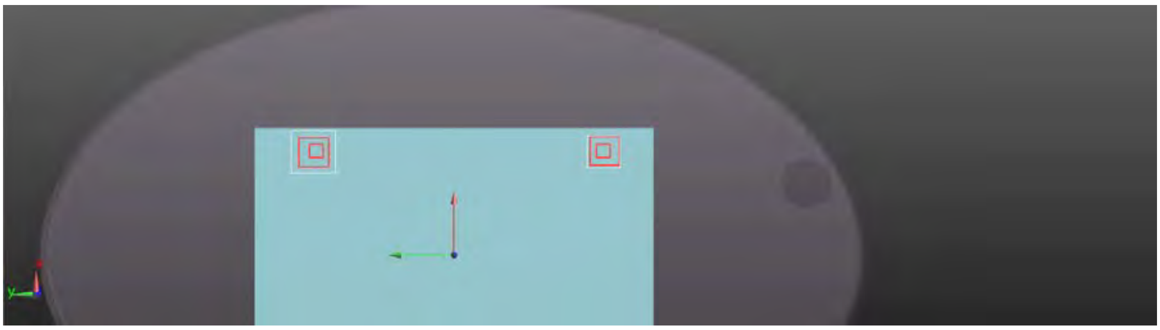
Simultaneous Tx	Configuration	WCDMA Band II reported SAR(W/kg)	5GHz WLAN MIMO reported SAR(W/kg)	ΣSAR(W/kg)	SPLSR
Body SAR	Back side	1.062	0.543	1.605	0.00984
	Top side	1.136	0.39	1.526	-

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Peak SAR locations of WCDMA Band II and 5GHz WLAN MIMO antenna for back side 0mm

Ps. Left cube for WWAN antenna and right cube for WLAN antenna





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Simultaneous Tx	Configuration	WCDMA Band II reported SAR(W/kg)	WLAN MIMO estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Right side	0.261	0.4	0.661

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	WCDMA Band II estimated SAR(W/kg)	WLAN MIMO reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Left side	0.4	0.104	0.504

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

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WCDMA Band IV + 2.4GHz/5GHz WiFi MIMO

Test separation distance: 0mm

Simultaneous Tx	Configuration	WCDMA Band IV reported SAR(W/kg)	2.4GHz WLAN MIMO reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Back side	0.927	0.12	1.047
	Top side	0.904	0.093	0.997

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	WCDMA Band IV reported SAR(W/kg)	5GHz WLAN MIMO reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Back side	0.927	0.543	1.47
	Top side	0.904	0.39	1.294

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	WCDMA Band IV reported SAR(W/kg)	WLAN MIMO estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Right side	0.352	0.4	0.752

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	WCDMA Band IV estimated SAR(W/kg)	WLAN MIMO reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Left side	0.4	0.104	0.504

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

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Test separation distance: 9mm

Simultaneous Tx	Configuration	WCDMA Band IV reported SAR(W/kg)	2.4GHz WLAN MIMO reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Back side	0.76	<0.12	<0.88

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	WCDMA Band IV reported SAR(W/kg)	5GHz WLAN MIMO reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Back side	0.76	<0.543	<1.303

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Test separation distance: 10mm

Simultaneous Tx	Configuration	WCDMA Band IV reported SAR(W/kg)	2.4GHz WLAN MIMO reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Top side	0.649	<0.093	<0.742

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	WCDMA Band IV reported SAR(W/kg)	5GHz WLAN MIMO reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Top side	0.649	<0.39	<1.039

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

WCDMA Band V + 2.4GHz/5GHz WiFi MIMO

Test separation distance: 0mm

Simultaneous Tx	Configuration	WCDMA Band V reported SAR(W/kg)	2.4GHz WLAN MIMO reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Back side	1.009	0.12	1.129
	Top side	1.109	0.093	1.202

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	WCDMA Band V reported SAR(W/kg)	5GHz WLAN MIMO reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Back side	1.009	0.543	1.552
	Top side	1.109	0.39	1.499

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	WCDMA Band V reported SAR(W/kg)	WLAN MIMO estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Right side	0.083	0.4	0.483

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	WCDMA Band V estimated SAR(W/kg)	WLAN MIMO reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Left side	0.4	0.104	0.504

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

LTE Band IV + 2.4GHz/5GHz WiFi MIMO

Test separation distance: 0mm

Simultaneous Tx	Configuration	LTE Band IV reported SAR(W/kg)	2.4GHz WLAN MIMO reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Back side	0.915	0.12	1.035
	Top side	0.834	0.093	0.927

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	LTE Band IV reported SAR(W/kg)	5GHz WLAN MIMO reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Back side	0.915	0.543	1.458
	Top side	0.834	0.39	1.224

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	LTE Band IV reported SAR(W/kg)	WLAN MIMO estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Right side	0.334	0.4	0.734

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	LTE Band IV estimated SAR(W/kg)	WLAN MIMO reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Left side	0.4	0.104	0.504

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Test separation distance: 9mm

Simultaneous Tx	Configuration	LTE Band IV reported SAR(W/kg)	2.4GHz WLAN MIMO reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Back side	0.671	<0.12	<0.791

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	LTE Band IV reported SAR(W/kg)	5GHz WLAN MIMO reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Back side	0.671	<0.543	<1.214

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Test separation distance: 10mm

Simultaneous Tx	Configuration	LTE Band IV reported SAR(W/kg)	2.4GHz WLAN MIMO reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Top side	0.638	<0.093	<0.731

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	LTE Band IV reported SAR(W/kg)	5GHz WLAN MIMO reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Top side	0.638	<0.39	<1.028

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

LTE Band XIII + 2.4GHz/5GHz WiFi MIMO

Test separation distance: 0mm

Simultaneous Tx	Configuration	LTE Band XIII reported SAR(W/kg)	2.4GHz WLAN MIMO reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Back side	0.828	0.12	0.948
	Top side	0.715	0.093	0.808

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	LTE Band XIII reported SAR(W/kg)	5GHz WLAN MIMO reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Back side	0.828	0.543	1.371
	Top side	0.715	0.39	1.105

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	LTE Band XIII reported SAR(W/kg)	WLAN MIMO estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Right side	0.089	0.4	0.489

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	LTE Band XIII estimated SAR(W/kg)	WLAN MIMO reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Left side	0.4	0.104	0.504

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

LTE Band XVII + 2.4GHz/5GHz WiFi MIMO

Test separation distance: 0mm

Simultaneous Tx	Configuration	LTE Band XVII reported SAR(W/kg)	2.4GHz WLAN MIMO reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Back side	0.926	0.12	1.046
	Top side	0.501	0.093	0.594

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	LTE Band XVII reported SAR(W/kg)	5GHz WLAN MIMO reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Back side	0.926	0.543	1.469
	Top side	0.501	0.39	0.891

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	LTE Band XVII reported SAR(W/kg)	WLAN MIMO estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Right side	0.113	0.4	0.513

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	LTE Band XVII estimated SAR(W/kg)	WLAN MIMO reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Left side	0.4	0.104	0.504

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

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LTE Band XXV + 2.4GHz/5GHz WiFi MIMO

Test separation distance: 0mm

Simultaneous Tx	Configuration	LTE Band XXV reported SAR(W/kg)	2.4GHz WLAN MIMO reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Back side	1.034	0.12	1.154
	Top side	1.16	0.093	1.253

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	LTE Band XXV reported SAR(W/kg)	5GHz WLAN MIMO reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Back side	1.034	0.543	1.577
	Top side	1.16	0.39	1.55

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	LTE Band XXV reported SAR(W/kg)	WLAN MIMO estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Right side	0.227	0.4	0.627

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	LTE Band XXV estimated SAR(W/kg)	WLAN MIMO reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Left side	0.4	0.104	0.504

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

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CDMA Cellular (BC0) + 2.4GHz/5GHz WiFi MIMO

Test separation distance: 0mm

Simultaneous Tx	Configuration	Cellular (BC0) reported SAR(W/kg)	2.4GHz WLAN MIMO reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Back side	0.821	0.12	0.941
	Top side	0.537	0.093	0.63

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	Cellular (BC0) reported SAR(W/kg)	5GHz WLAN MIMO reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Back side	0.821	0.543	1.364
	Top side	0.537	0.39	0.927

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	Cellular (BC0) reported SAR(W/kg)	WLAN MIMO estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Right side	0.163	0.4	0.563

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	Cellular (BC0) estimated SAR(W/kg)	WLAN MIMO reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Left side	0.4	0.104	0.504

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

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Test separation distance: 9mm

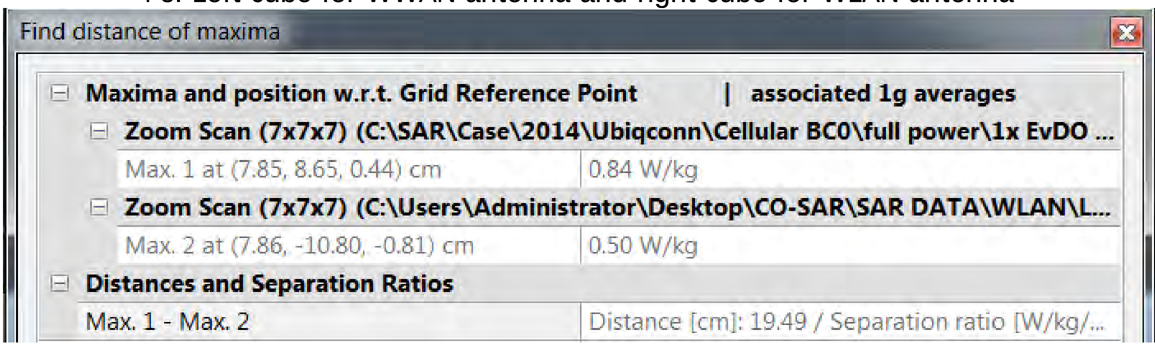
Simultaneous Tx	Configuration	Cellular (BC0) reported SAR(W/kg)	2.4GHz WLAN MIMO reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Back side	1.192	<0.12	<1.312

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	Cellular (BC0) reported SAR(W/kg)	5GHz WLAN MIMO reported SAR(W/kg)	ΣSAR(W/kg)	SPLSR
Body SAR	Back side	1.192	<0.543	<1.735	<0.01173

Peak SAR locations of Cellular (BC0) and 5GHz WLAN MIMO antenna for back side 9mm

Ps. Left cube for WWAN antenna and right cube for WLAN antenna



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Test separation distance: 10mm

Simultaneous Tx	Configuration	Cellular (BC0) reported SAR(W/kg)	2.4GHz WLAN MIMO reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Top side	1.16	<0.093	<1.253

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	Cellular (BC0) reported SAR(W/kg)	5GHz WLAN MIMO reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Top side	1.16	<0.39	<1.55

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

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CDMA PCS (BC1) + 2.4GHz/5GHz WiFi MIMO

Test separation distance: 0mm

Simultaneous Tx	Configuration	PCS (BC1) reported SAR(W/kg)	2.4GHz WLAN MIMO reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Back side	0.5	0.12	0.62
	Top side	0.479	0.093	0.572

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	PCS (BC1) reported SAR(W/kg)	5GHz WLAN MIMO reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Back side	0.5	0.543	1.043
	Top side	0.479	0.39	0.869

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	PCS (BC1) reported SAR(W/kg)	WLAN MIMO estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Right side	0.674	0.4	1.074

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	PCS (BC1) estimated SAR(W/kg)	WLAN MIMO reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Left side	0.4	0.104	0.504

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Test separation distance: 9mm

Simultaneous Tx	Configuration	PCS (BC1) reported SAR(W/kg)	2.4GHz WLAN MIMO reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Back side	0.934	<0.12	<1.054

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	PCS (BC1) reported SAR(W/kg)	5GHz WLAN MIMO reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Back side	0.934	<0.543	<1.477

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Test separation distance: 10mm

Simultaneous Tx	Configuration	PCS (BC1) reported SAR(W/kg)	2.4GHz WLAN MIMO reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Top side	0.926	<0.093	<1.019

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	PCS (BC1) reported SAR(W/kg)	5GHz WLAN MIMO reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Top side	0.926	<0.39	<1.316

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

CDMA BC10 + 2.4GHz/5GHz WiFi MIMO

Test separation distance: 0mm

Simultaneous Tx	Configuration	BC10 reported SAR(W/kg)	2.4GHz WLAN MIMO reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Back side	0.753	0.12	0.873
	Top side	0.559	0.093	0.652

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	BC10 reported SAR(W/kg)	5GHz WLAN MIMO reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Back side	0.753	0.543	1.296
	Top side	0.559	0.39	0.949

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	BC10 reported SAR(W/kg)	WLAN MIMO estimated SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Right side	0.23	0.4	0.63

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	BC10 estimated SAR(W/kg)	WLAN MIMO reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Left side	0.4	0.104	0.504

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Test separation distance: 9mm

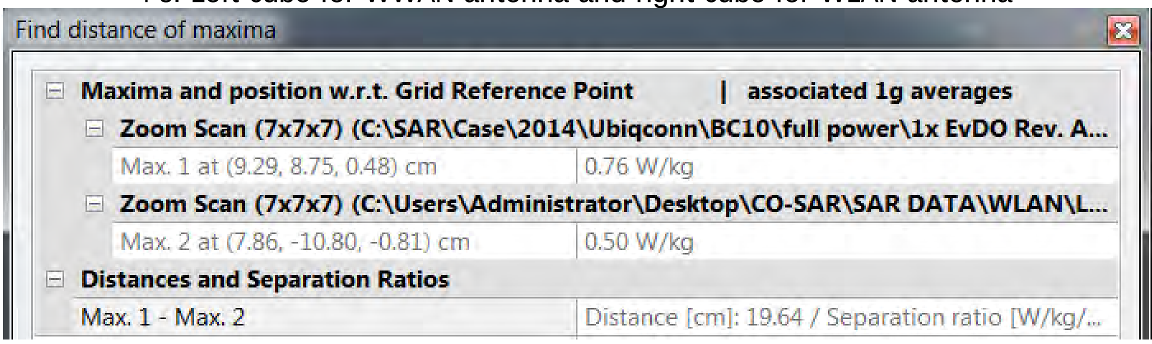
Simultaneous Tx	Configuration	BC10 reported SAR(W/kg)	2.4GHz WLAN MIMO reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Back side	1.145	<0.12	<1.265

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	BC10 reported SAR(W/kg)	5GHz WLAN MIMO reported SAR(W/kg)	ΣSAR(W/kg)	SPLSR
Body SAR	Back side	1.145	<0.543	<1.688	<0.01117

Peak SAR locations of BC10 and 5GHz WLAN MIMO antenna for back side 9mm

Ps. Left cube for WWAN antenna and right cube for WLAN antenna



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Test separation distance: 10mm

Simultaneous Tx	Configuration	BC10 reported SAR(W/kg)	2.4GHz WLAN MIMO reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Top side	1.091	<0.093	<1.184

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

Simultaneous Tx	Configuration	BC10 reported SAR(W/kg)	5GHz WLAN MIMO reported SAR(W/kg)	ΣSAR(W/kg)
Body SAR	Top side	1.091	<0.39	<1.481

#. Simultaneous Transmission SAR test exclusion can be applied due to the sum of the 1-g SAR for all the simultaneous transmitting antennas in the same test configuration is ≤ 1.6 W/kg.

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	3578	Jun.20,2013	Jun.19,2014
			3979	Mar.04,2014	Mar.03,2015
Schmid & Partner Engineering AG	750/835/1750/1900/ 2450/ 5G System Validation Dipole	D750V2	1015	Aug.26,2013	Aug.25,2014
		D835V2	4d156	Jun.06,2013	Jun.05,2014
		D1750V2	1095	Jun.06,2013	Jun.05,2014
		D1900V2	5d173	Jun.10,2013	Jun.09,2014
		D2450V2	727	May.02,2013	May.01,2014
		D5GHzV2	1023	Jan.30,2014	Jan.29,2015
Schmid & Partner Engineering AG	Data acquisition Electronics	DAE4	1336	Sep.24,2013	Sep.23,2014
			856	May.23,2013	May.22,2014
Schmid & Partner Engineering AG	Software	DASY 52 V52.8.7	N/A	Calibration not required	Calibration not required
Schmid & Partner Engineering AG	Phantom	SAM	N/A	Calibration not required	Calibration not required
Agilent	Network Analyzer	E5071C	MY46107530	Feb.14,2014	Feb.13,2015
Agilent	Dielectric Probe Kit	85070E	MY44300677	Calibration not required	Calibration not required
Agilent	Dual-directional coupler	772D	MY46151242	Jul.04,2013	Jul.03,2014
		778D	MY48220468	Apr.01,2014	Mar.31,2015
Agilent	RF Signal Generator	N5181A	MY50144143	Jun.26.2013	Jun.25.2014
Agilent	Power Meter	E4417A	MY51410006	Oct.25,2013	Oct.24,2015
Agilent	Power Sensor	E9301H	MY51470001	Dec.16,2013	Dec.15,2014
TECPEL	Digital thermometer	DTM-303A	TP130077	Mar.17,2014	Mar.16,2015

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Manufacturer	Device	Type	Serial number	Date of last calibration	Date of next calibration
R&S	Radio Communication Test	CMU200	113505	May.14,2013	May.13,2014
				May.08,2014	May.07,2015
Anritsu	Radio Communication Test	MT8820C	6201061014	May.21,2013	May.20,2014
			6201061049	Sep.18,2013	Sep.17,2014
Agilent	Radio Communication Test	8960	GB44051912	Jul.25,2013	Jul.24,2014
Anritsu	Power Meter	ML2495A	1005007	Jan.13,2014	Jan.12,2015
Anritsu	Power Sensor	MA2411B	917032	Jan.13,2014	Jan.12,2015
Mini-Circuit	Attenuator	BW-S10W2+	002	Fed.27,2014	Fed.26,2015
RF-LAMBAD	Splitter	RFLT2W1G18G	11-JSPF412-018	Fed.27,2014	Fed.26,2015

5. Measurements

Date: 4/23/2014

GPRS 850_Top side_CH190_full power_10mm

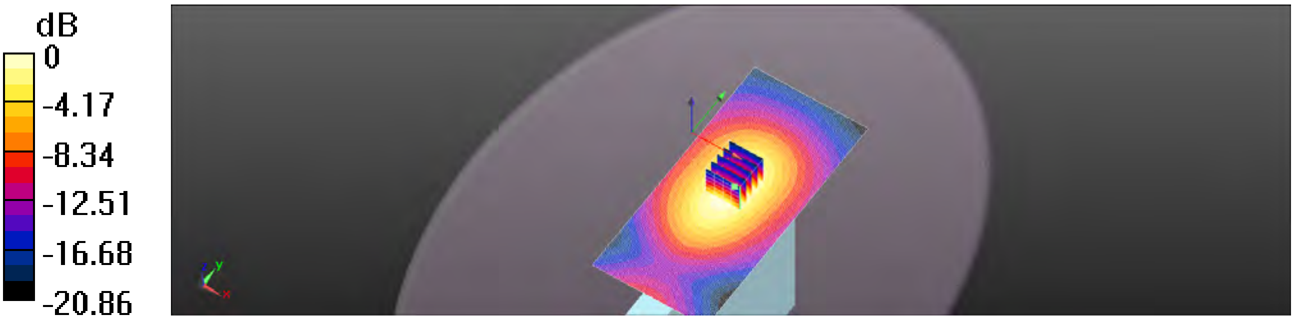
Communication System: GPRS(1Dn2Up); Frequency: 836.6 MHz
Medium parameters used: f = 837 MHz; σ = 1.01 S/m; ε_r = 53.759; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3979; ConvF(9.21, 9.21, 9.21); Calibrated: 3/4/2014;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/23/2013
- Phantom: ELI v5.0 ; Type: QDOVA002AA; Serial: TP:xxxx
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/Body/Area Scan (71x151x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 0.819 W/kg

Configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.288 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.958 W/kg
SAR(1 g) = 0.680 W/kg; SAR(10 g) = 0.468 W/kg
Maximum value of SAR (measured) = 0.831 W/kg



0 dB = 0.819 W/kg = -0.87 dBW/kg

Date: 4/23/2014

GPRS 850_Top side_CH251_reduced power_0mm

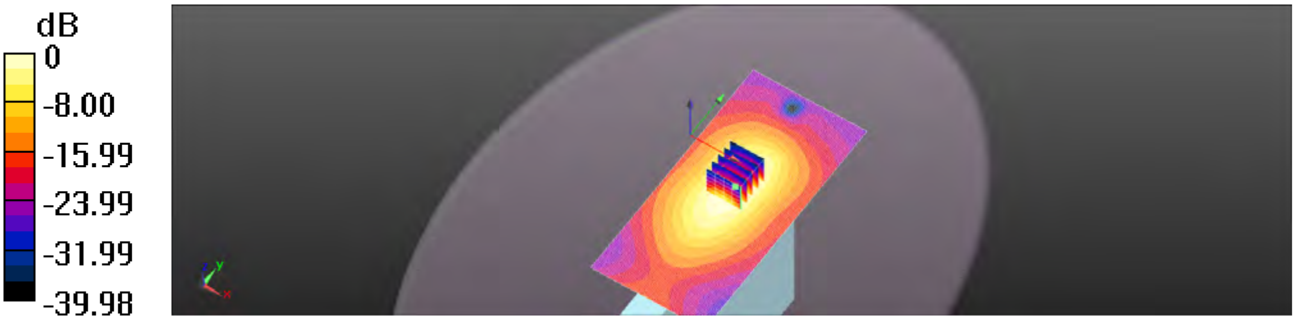
Communication System: GPRS(1Dn2Up); Frequency: 848.8 MHz
Medium parameters used: f = 849 MHz; σ = 1.023 S/m; ε_r = 53.665; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3979; ConvF(9.21, 9.21, 9.21); Calibrated: 3/4/2014;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/23/2013
- Phantom: ELI v5.0 ; Type: QDOVA002AA; Serial: TP:xxxx
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/Body/Area Scan (71x151x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 1.45 W/kg

Configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.490 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 1.75 W/kg
SAR(1 g) = 1.12 W/kg; SAR(10 g) = 0.707 W/kg
Maximum value of SAR (measured) = 1.45 W/kg



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

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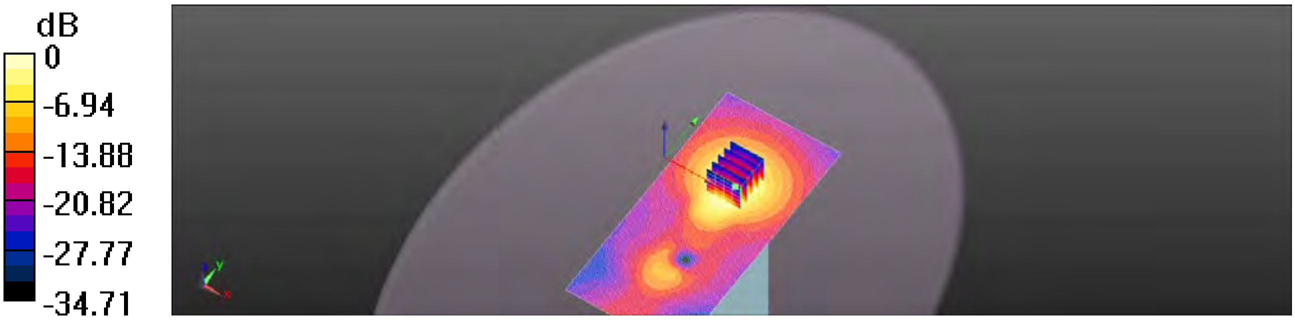
Date: 4/25/2014

GPRS 1900_Top side_CH 512_full power_0mm
Communication System: GPRS(1Dn2Up); Frequency: 1850.2 MHz
Medium parameters used: f= 1850.2 MHz; σ = 1.478 S/m; ε_r = 54.228; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:
- Probe: EX3DV4 - SN3979; ConvF(7.71, 7.71, 7.71); Calibrated: 3/4/2014;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/23/2013
- Phantom: ELI v5.0 ; Type: QDOVA002AA; Serial: TP:xxxx
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/Body/Area Scan (71x151x1): 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 = 5.369 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 1.64 W/kg
SAR(1 g) = 1 W/kg; SAR(10 g) = 0.561 W/kg
Maximum value of SAR (measured) = 1.35 W/kg



0 dB = 1.37 W/kg = 1.37 dBW/kg

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Date: 4/25/2014

WCDMA B2_Top side_CH9262_full power_0mm

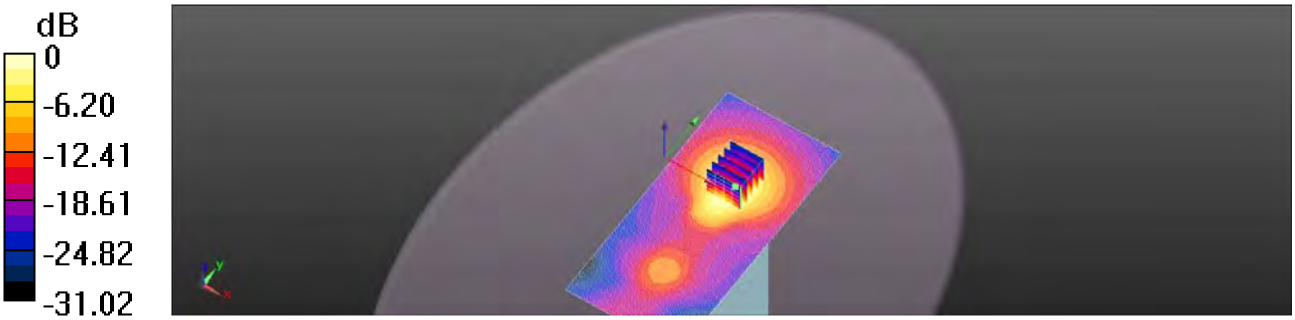
Communication System: WCDMA; Frequency: 1852.4 MHz
Medium parameters used: f= 1852.4 MHz; σ = 1.48 S/m; ε_r = 54.221; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3979; ConvF(7.71, 7.71, 7.71); Calibrated: 3/4/2014;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/23/2013
- Phantom: ELI v5.0 ; Type: QDOVA002AA; Serial: TP:xxxx
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/Body/Area Scan (71x151x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 1.46 W/kg

Configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.542 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 1.76 W/kg
SAR(1 g) = 1.06 W/kg; SAR(10 g) = 0.590 W/kg
Maximum value of SAR (measured) = 1.44 W/kg



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

Date: 4/24/2014

WCDMA B4_Back side_CH 1412_full power_9mm

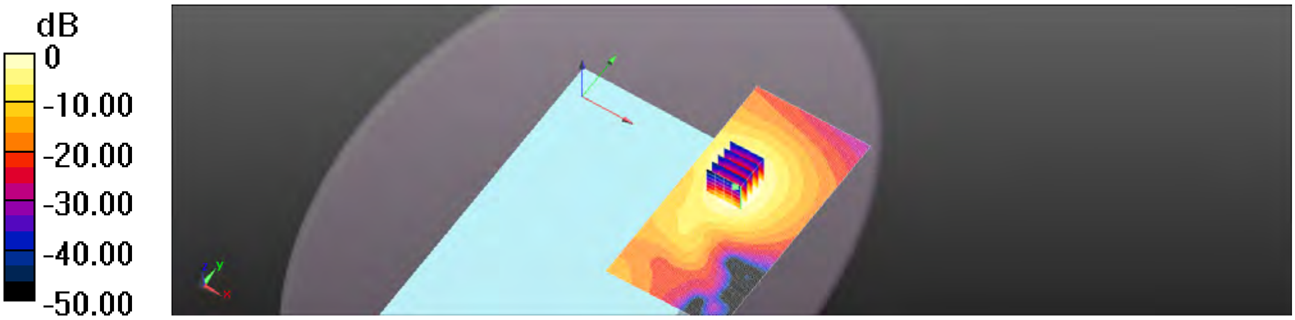
Communication System: WCDMA ; Frequency: 1732.4 MHz
Medium parameters used: f = 1732.4 MHz; σ = 1.423 S/m; ε_r = 53.808; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3979; ConvF(8.12, 8.12, 8.12); Calibrated: 3/4/2014;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/23/2013
- Phantom: ELI v5.0 ; Type: QDOVA002AA; Serial: TP:xxxx
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/Body/Area Scan (71x141x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 0.894 W/kg

Configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.012 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 1.05 W/kg
SAR(1 g) = 0.656 W/kg; SAR(10 g) = 0.393 W/kg
Maximum value of SAR (measured) = 0.864 W/kg



0 dB = 0.894 W/kg = -0.49 dBW/kg

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Date: 4/24/2014

WCDMA B4_Back side_CH 1412_reduced power_0mm

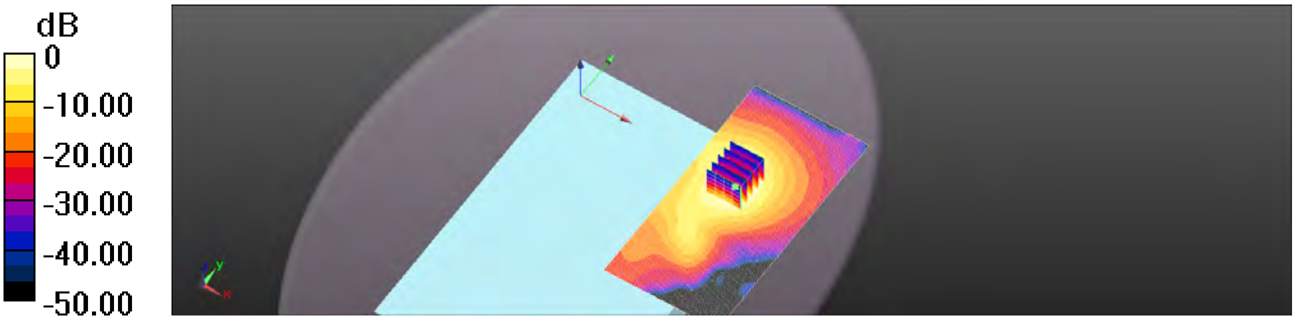
Communication System: WCDMA ; Frequency: 1732.4 MHz
Medium parameters used: f = 1732.4 MHz; σ = 1.423 S/m; ε_r = 53.808; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3979; ConvF(8.12, 8.12, 8.12); Calibrated: 3/4/2014;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/23/2013
- Phantom: ELI v5.0 ; Type: QDOVA002AA; Serial: TP:xxxx
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/Body/Area Scan (71x141x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 1.22 W/kg

Configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.080 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 1.46 W/kg
SAR(1 g) = 0.854 W/kg; SAR(10 g) = 0.476 W/kg
Maximum value of SAR (measured) = 1.16 W/kg



0 dB = 1.22 W/kg = 0.85 dBW/kg

Date: 4/23/2014

WCDMA B5_Top side_CH4233_full power_0mm_repeat sar test at the highest sar measurement

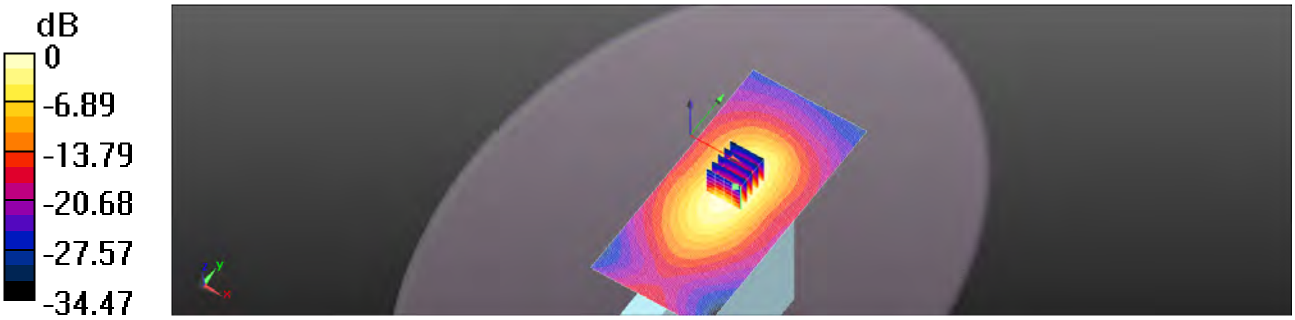
Communication System: WCDMA; Frequency: 846.6 MHz
Medium parameters used: f = 847 MHz; σ = 1.021 S/m; ε_r = 53.682; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3979; ConvF(9.21, 9.21, 9.21); Calibrated: 3/4/2014;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/23/2013
- Phantom: ELI v5.0 ; Type: QDOVA002AA; Serial: TP:xxxx
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/Body/Area Scan (71x151x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 1.33 W/kg

Configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.196 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 1.65 W/kg
SAR(1 g) = 1.04 W/kg; SAR(10 g) = 0.655 W/kg
Maximum value of SAR (measured) = 1.36 W/kg



0 dB = 1.33 W/kg = 1.23 dBW/kg

Date: 4/24/2014

LTE B4_Top side_CH20050_QPSK_1-99_full power_10mm

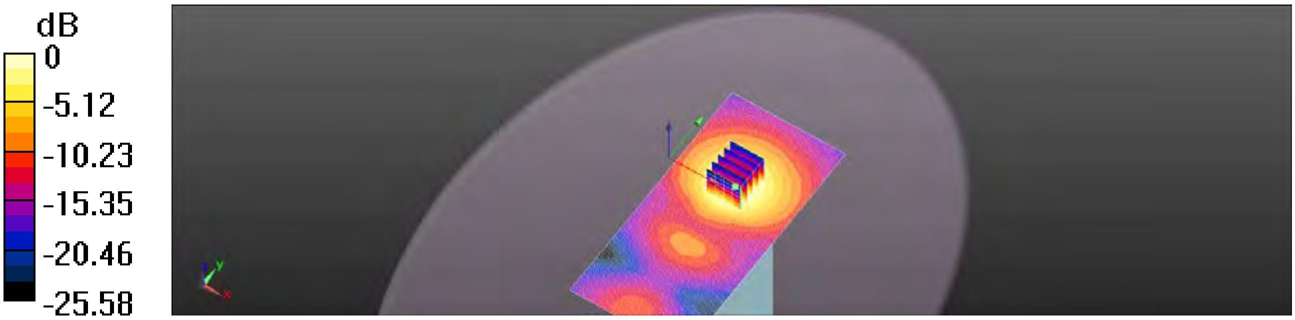
Communication System: LTE_Band 4; Frequency: 1720 MHz
Medium parameters used: f = 1720 MHz; σ = 1.403 S/m; ε_r = 54.222; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3979; ConvF(8.12, 8.12, 8.12); Calibrated: 3/4/2014;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/23/2013
- Phantom: ELI v5.0 ; Type: QDOVA002AA; Serial: TP:xxxx
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/Body/Area Scan (71x151x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 0.781 W/kg

Configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.916 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 0.900 W/kg
SAR(1 g) = 0.582 W/kg; SAR(10 g) = 0.360 W/kg
Maximum value of SAR (measured) = 0.747 W/kg



0 dB = 0.781 W/kg = -1.07 dBW/kg

Date: 4/24/2014

LTE B4_Back side_CH20175_QPSK_100-0_reduced power_0mm_repeat sar test at the highest sar measurement

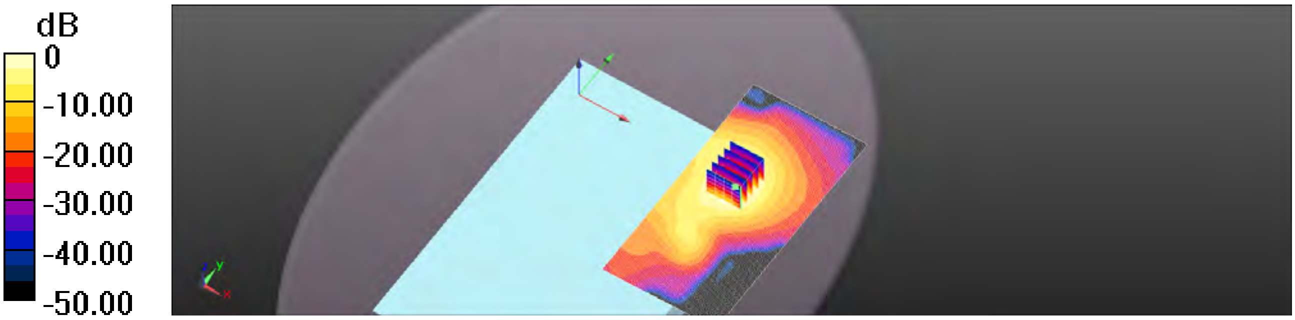
Communication System: LTE_Band 4; Frequency: 1732.5 MHz
Medium parameters used: f = 1732.5 MHz; σ = 1.417 S/m; ε_r = 54.184; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3979; ConvF(8.12, 8.12, 8.12); Calibrated: 3/4/2014;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/23/2013
- Phantom: ELI v5.0 ; Type: QDOVA002AA; Serial: TP:xxxx
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/Body/Area Scan (71x141x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 0.973 W/kg

Configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.767 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 1.19 W/kg
SAR(1 g) = 0.704 W/kg; SAR(10 g) = 0.392 W/kg
Maximum value of SAR (measured) = 0.961 W/kg



0 dB = 0.973 W/kg = -0.12 dBW/kg

Date: 4/26/2014

LTE B13_Back side_CH23230_QPSK_1-25_full power_0mm

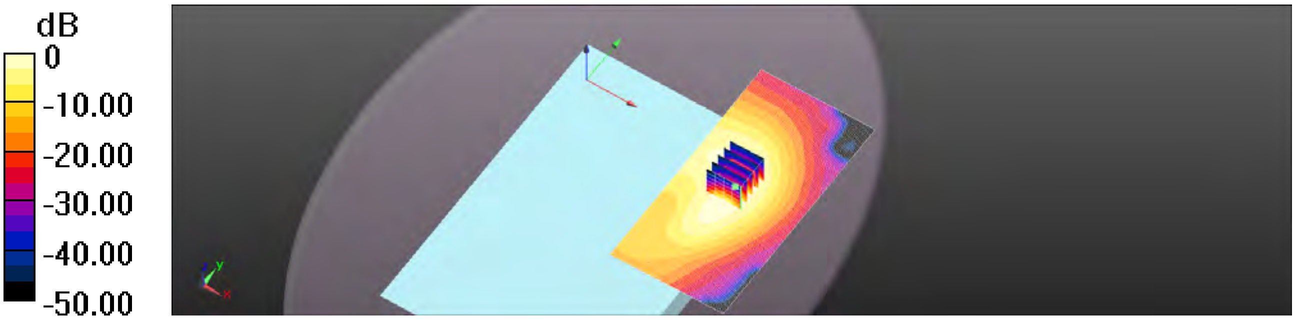
Communication System: LTE_Band 13; Frequency: 782 MHz
Medium parameters used: f = 782 MHz; σ = 0.961 S/m; ε_r = 54.356; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3979; ConvF(9.44, 9.44, 9.44); Calibrated: 3/4/2014;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/23/2013
- Phantom: ELI v5.0 ; Type: QDOVA002AA; Serial: TP:xxxx
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/Body/Area Scan (71x141x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 0.792 W/kg

Configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.107 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 0.955 W/kg
SAR(1 g) = 0.606 W/kg; SAR(10 g) = 0.388 W/kg
Maximum value of SAR (measured) = 0.792 W/kg



0 dB = 0.792 W/kg = -1.01 dBW/kg

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Date: 4/26/2014

LTE B17_Back side_CH23780_QPSK_1-25_full power_0mm

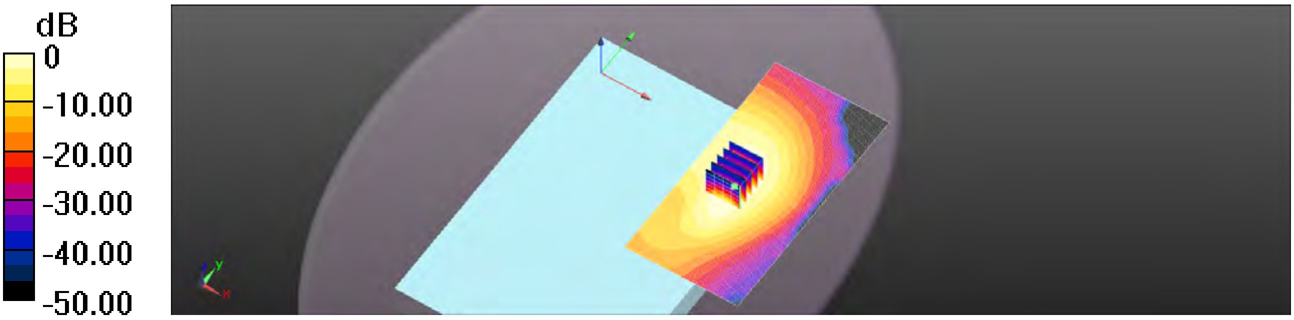
Communication System: LTE_Band 17; Frequency: 709 MHz
Medium parameters used: f = 709 MHz; σ = 0.915 S/m; ε_r = 53.808; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3979; ConvF(9.44, 9.44, 9.44); Calibrated: 3/4/2014;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/23/2013
- Phantom: ELI v5.0 ; Type: QDOVA002AA; Serial: TP:xxxx
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/Body/Area Scan (71x141x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 1.12 W/kg

Configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.993 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 1.43 W/kg
SAR(1 g) = 0.865 W/kg; SAR(10 g) = 0.547 W/kg
Maximum value of SAR (measured) = 1.14 W/kg



0 dB = 1.12 W/kg = 0.48 dBW/kg

Date: 4/25/2014

LTE B25_Top side_CH26140_QPSK_1-50_full power_0mm

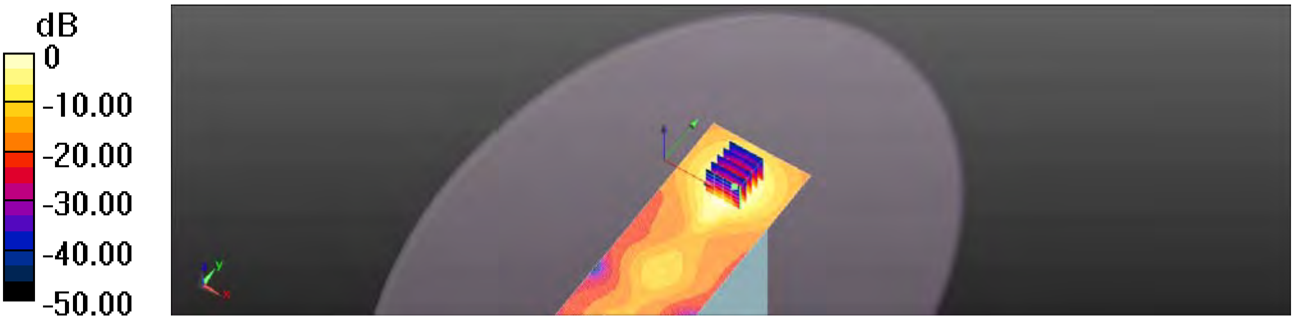
Communication System: LTE Band 25; Frequency: 1860 MHz
Medium parameters used: f = 1860 MHz; σ = 1.489 S/m; ε_r = 54.195; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3979; ConvF(7.71, 7.71, 7.71); Calibrated: 3/4/2014;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/23/2013
- Phantom: ELI v5.0 ; Type: QDOVA002AA; Serial: TP:xxxx
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/Body/Area Scan (61x211x1): 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 = 5.392 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 1.93 W/kg
SAR(1 g) = 1.16 W/kg; SAR(10 g) = 0.638 W/kg
Maximum value of SAR (measured) = 1.57 W/kg



0 dB = 1.50 W/kg = 1.77 dBW/kg

Date: 4/28/2014

Cellular BC0_Top side_CH 1013_full power_10mm_1xRTT_ repeat sar test at the highest sar measurement

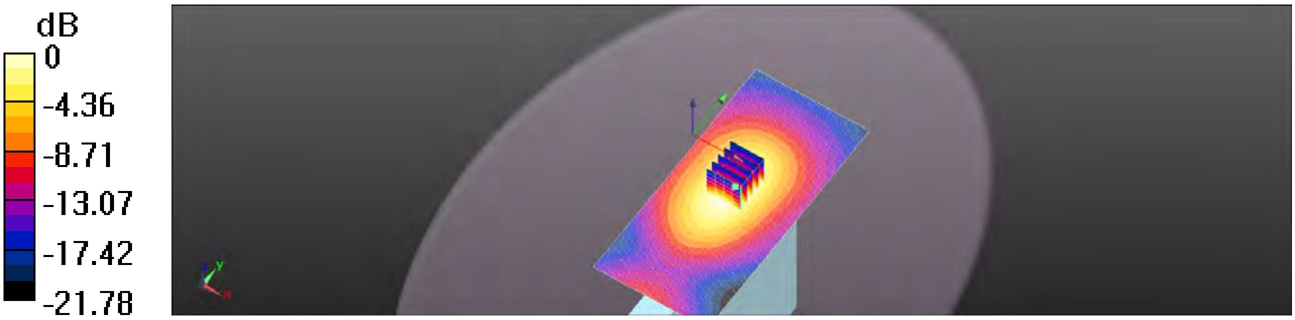
Communication System: CDMA; Frequency: 824.7 MHz
Medium parameters used: f = 825 MHz; σ = 0.998 S/m; ε_r = 53.852; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3979; ConvF(9.21, 9.21, 9.21); Calibrated: 3/4/2014;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/23/2013
- Phantom: ELI v5.0 ; Type: QDOVA002AA; Serial: TP:xxxx
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/Body/Area Scan (71x151x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 0.828 W/kg

Configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.775 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 1.01 W/kg
SAR(1 g) = 0.710 W/kg; SAR(10 g) = 0.485 W/kg
Maximum value of SAR (measured) = 0.876 W/kg



0 dB = 0.828 W/kg = -0.82 dBW/kg

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Date: 4/28/2014

Cellular BC0_Top side_CH 1013_full power_10mm_1x EVDO Rev. 0_ repeat sar test at the highest sar measurement

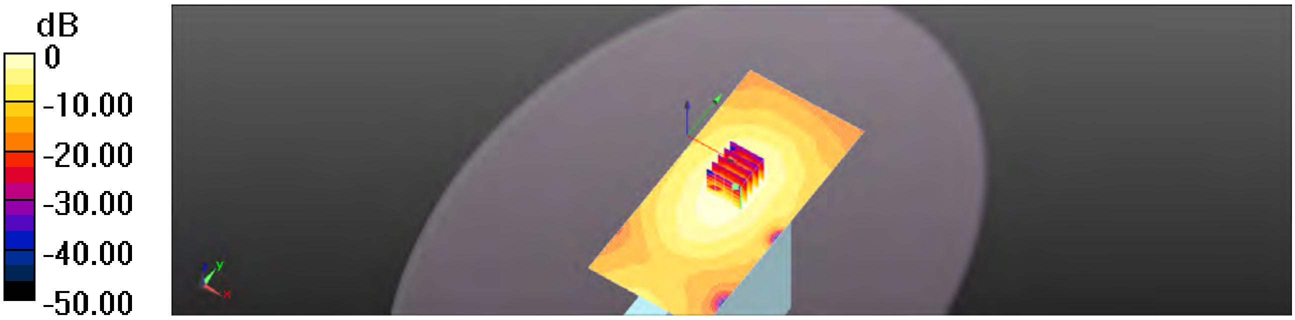
Communication System: 1xEVDO; Frequency: 824.7 MHz
Medium parameters used: f = 825 MHz; σ = 0.998 S/m; ε_r = 53.852; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3979; ConvF(9.21, 9.21, 9.21); Calibrated: 3/4/2014;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/23/2013
- Phantom: ELI v5.0 ; Type: QDOVA002AA; Serial: TP:xxxx
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/Body/Area Scan (71x151x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 1.08 W/kg

Configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.211 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 1.14 W/kg
SAR(1 g) = 0.827 W/kg; SAR(10 g) = 0.560 W/kg
Maximum value of SAR (measured) = 1.00 W/kg



0 dB = 1.08 W/kg = 0.32 dBW/kg

Date: 4/28/2014

Cellular BC0_Back side_CH 1013_full power_9mm_1x EVDO Rev. A

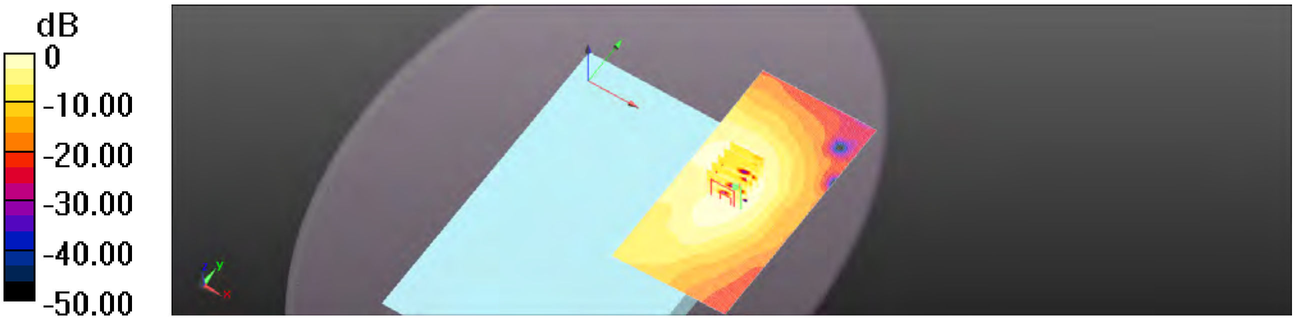
Communication System: 1xEVDO; Frequency: 824.7 MHz
Medium parameters used: f = 825 MHz; σ = 0.998 S/m; ε_r = 53.852; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3979; ConvF(9.21, 9.21, 9.21); Calibrated: 3/4/2014;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/23/2013
- Phantom: ELI v5.0 ; Type: QDOVA002AA; Serial: TP:xxxx
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/Body/Area Scan (71x141x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 1.10 W/kg

Configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.492 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 1.84 W/kg
SAR(1 g) = 0.836 W/kg; SAR(10 g) = 0.511 W/kg
Maximum value of SAR (measured) = 1.14 W/kg



0 dB = 1.10 W/kg = 0.42 dBW/kg

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Date: 4/28/2014

Cellular BC0_Top side_CH 1013_reduced power_0mm_1xRTT

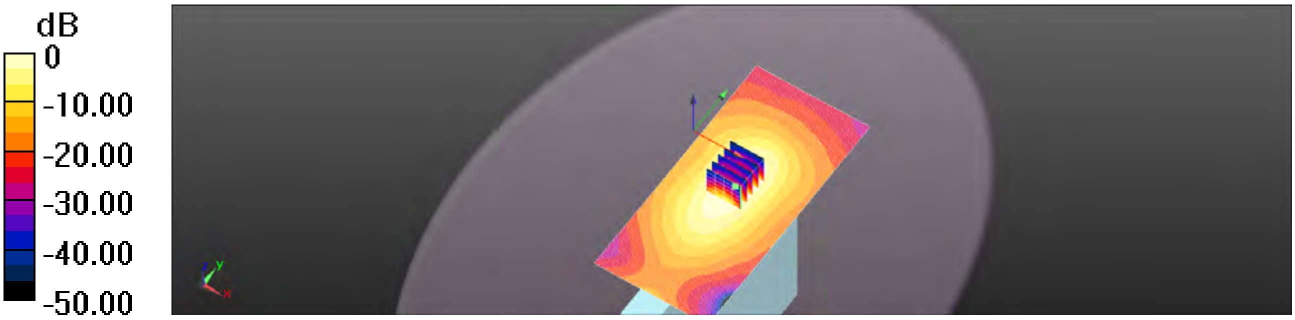
Communication System: CDMA; Frequency: 824.7 MHz
Medium parameters used: f = 825 MHz; σ = 0.998 S/m; ε_r = 53.852; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3979; ConvF(9.21, 9.21, 9.21); Calibrated: 3/4/2014;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/23/2013
- Phantom: ELI v5.0 ; Type: QDOVA002AA; Serial: TP:xxxx
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/Body/Area Scan (71x151x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 0.613 W/kg

Configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.566 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 0.818 W/kg
SAR(1 g) = 0.515 W/kg; SAR(10 g) = 0.322 W/kg
Maximum value of SAR (measured) = 0.673 W/kg



0 dB = 0.613 W/kg = -2.13 dBW/kg

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Date: 4/28/2014

Cellular BC0_Back side_CH 1013_reduced power_0mm_1xEvDO Rev. 0

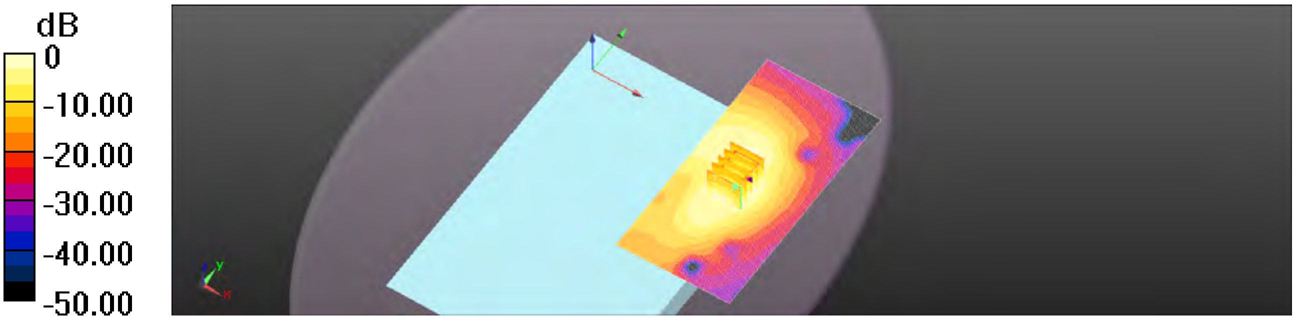
Communication System: 1xEVDO; Frequency: 824.7 MHz
Medium parameters used: f = 825 MHz; σ = 0.998 S/m; ε_r = 53.852; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3979; ConvF(9.21, 9.21, 9.21); Calibrated: 3/4/2014;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/23/2013
- Phantom: ELI v5.0 ; Type: QDOVA002AA; Serial: TP:xxxx
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/Body/Area Scan (71x141x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 1.11 W/kg

Configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.082 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 1.13 W/kg
SAR(1 g) = 0.693 W/kg; SAR(10 g) = 0.435 W/kg
Maximum value of SAR (measured) = 0.933 W/kg



0 dB = 1.11 W/kg = 0.45 dBW/kg

Date: 4/28/2014

Cellular BC0_Back side_CH 1013_reduced power_0mm_1xEvDO Rev. A

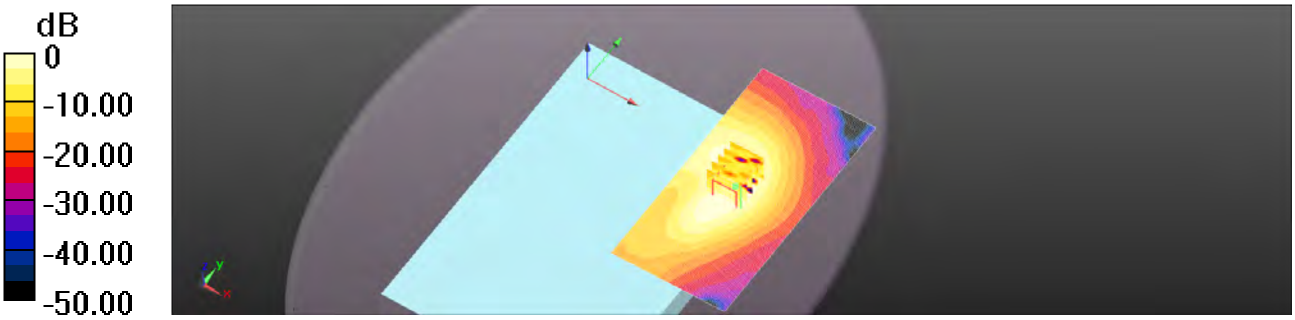
Communication System: 1xEVDO; Frequency: 824.7 MHz
Medium parameters used: f = 825 MHz; σ = 0.998 S/m; ε_r = 53.852; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3979; ConvF(9.21, 9.21, 9.21); Calibrated: 3/4/2014;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/23/2013
- Phantom: ELI v5.0 ; Type: QDOVA002AA; Serial: TP:xxxx
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/Body/Area Scan (71x141x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 0.844 W/kg

Configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.998 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 1.48 W/kg
SAR(1 g) = 0.779 W/kg; SAR(10 g) = 0.457 W/kg
Maximum value of SAR (measured) = 1.09 W/kg



0 dB = 0.844 W/kg = -0.74 dBW/kg

Date: 4/27/2014

PCS BC1_Back side_CH 25_full power_9mm_1xRTT_ repeat sar test at the highest sar measurement

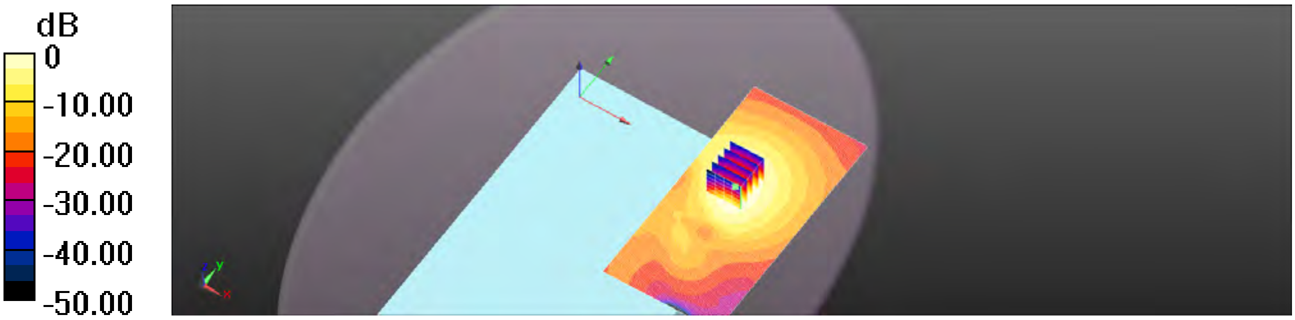
Communication System: CDMA; Frequency: 1851.25 MHz
Medium parameters used: f = 1851.25 MHz; σ = 1.479 S/m; ε_r = 54.235; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3979; ConvF(7.71, 7.71, 7.71); Calibrated: 3/4/2014;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/23/2013
- Phantom: ELI v5.0 ; Type: QDOVA002AA; Serial: TP:xxxx
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/Body/Area Scan (71x141x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 0.811 W/kg

Configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.123 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 0.970 W/kg
SAR(1 g) = 0.605 W/kg; SAR(10 g) = 0.364 W/kg
Maximum value of SAR (measured) = 0.786 W/kg



0 dB = 0.811 W/kg = -0.91 dBW/kg

Date: 4/27/2014

PCS BC1_Back side_CH 25_full power_9mm_1x EVDO Rev. 0

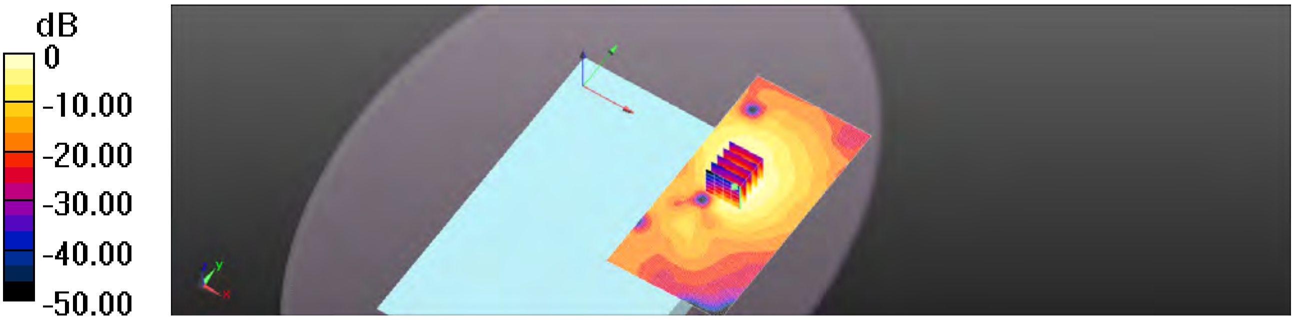
Communication System: 1xEVDO; Frequency: 1851.25 MHz
Medium parameters used: f = 1851.25 MHz; σ = 1.479 S/m; εr = 54.235; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3979; ConvF(7.71, 7.71, 7.71); Calibrated: 3/4/2014;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/23/2013
- Phantom: ELI v5.0 ; Type: QDOVA002AA; Serial: TP:xxxx
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/Body/Area Scan (71x141x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 1.09 W/kg

Configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.661 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 1.44 W/kg
SAR(1 g) = 0.756 W/kg; SAR(10 g) = 0.442 W/kg
Maximum value of SAR (measured) = 1.02 W/kg



0 dB = 1.09 W/kg = 0.37 dBW/kg

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Date: 4/27/2014

PCS BC1_Top side_CH 25_full power_10mm_1x EVDO Rev. A_ repeat sar test at the highest sar measurement

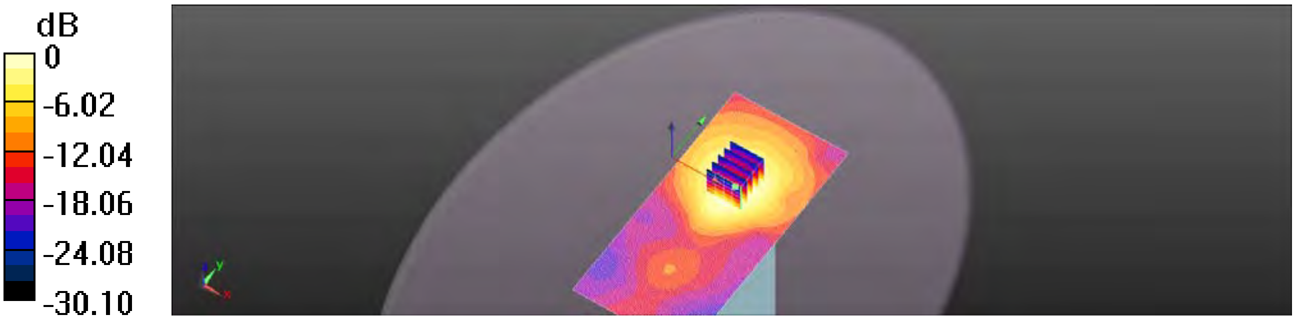
Communication System: 1xEVDO; Frequency: 1851.25 MHz
Medium parameters used: f = 1851.25 MHz; σ = 1.479 S/m; εr = 54.235; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3979; ConvF(7.71, 7.71, 7.71); Calibrated: 3/4/2014;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/23/2013
- Phantom: ELI v5.0 ; Type: QDOVA002AA; Serial: TP:xxxx
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/Body/Area Scan (71x151x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 0.779 W/kg

Configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.926 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 1.21 W/kg
SAR(1 g) = 0.772 W/kg; SAR(10 g) = 0.474 W/kg
Maximum value of SAR (measured) = 1.02 W/kg



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

Date: 4/27/2014

PCS BC1_Back side_CH 25_reduced power_0mm_1xRTT

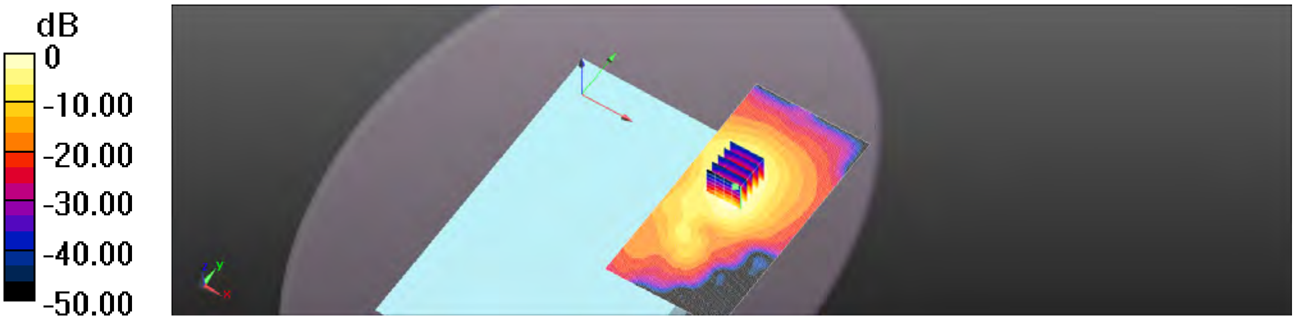
Communication System: CDMA; Frequency: 1851.25 MHz
Medium parameters used: f = 1851.25 MHz; σ = 1.479 S/m; ε_r = 54.235; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3979; ConvF(7.71, 7.71, 7.71); Calibrated: 3/4/2014;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/23/2013
- Phantom: ELI v5.0 ; Type: QDOVA002AA; Serial: TP:xxxx
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/Body/Area Scan (71x141x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 0.678 W/kg

Configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.795 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.815 W/kg
SAR(1 g) = 0.467 W/kg; SAR(10 g) = 0.269 W/kg
Maximum value of SAR (measured) = 0.622 W/kg



0 dB = 0.678 W/kg = -1.69 dBW/kg

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Member of SGS Group

Date: 4/27/2014

PCS BC1_Back side_CH 25_reduced power_0mm_1x EVDO Rev. 0

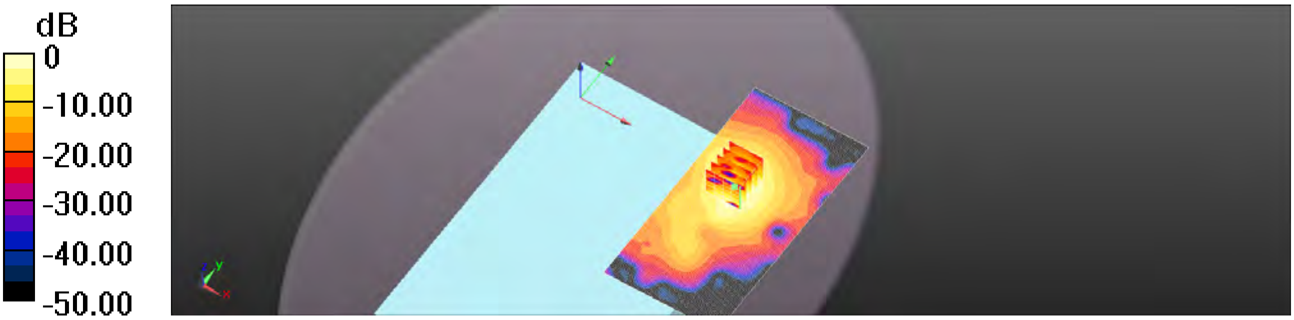
Communication System: 1xEVDO; Frequency: 1851.25 MHz
Medium parameters used: f = 1851.25 MHz; σ = 1.479 S/m; εr = 54.235; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3979; ConvF(7.71, 7.71, 7.71); Calibrated: 3/4/2014;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/23/2013
- Phantom: ELI v5.0 ; Type: QDOVA002AA; Serial: TP:xxxx
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/Body/Area Scan (71x141x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 0.679 W/kg

Configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.534 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 0.882 W/kg
SAR(1 g) = 0.454 W/kg; SAR(10 g) = 0.229 W/kg
Maximum value of SAR (measured) = 0.677 W/kg



0 dB = 0.679 W/kg = -1.68 dBW/kg

Date: 4/27/2014

PCS BC1_Back side_CH 25_reduced power_0mm_1x EVDO Rev. A

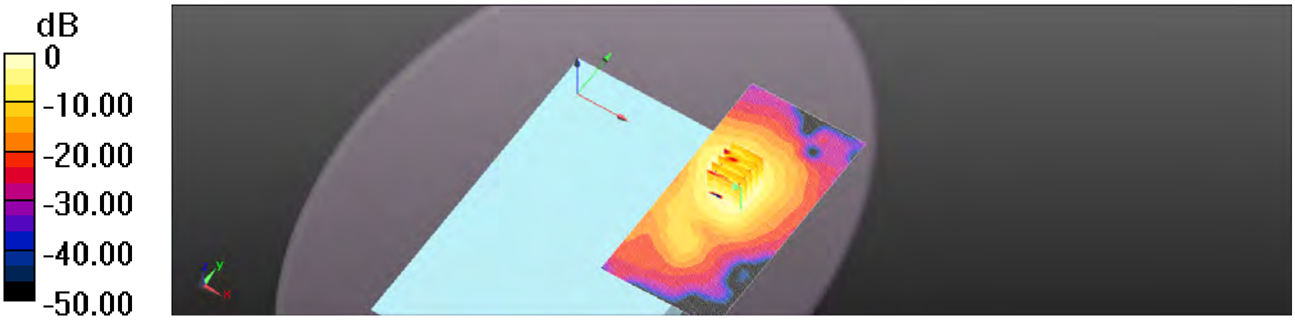
Communication System: 1xEVDO; Frequency: 1851.25 MHz
Medium parameters used: f = 1851.25 MHz; σ = 1.479 S/m; εr = 54.235; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3979; ConvF(7.71, 7.71, 7.71); Calibrated: 3/4/2014;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/23/2013
- Phantom: ELI v5.0 ; Type: QDOVA002AA; Serial: TP:xxxx
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/Body/Area Scan (71x141x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 0.894 W/kg

Configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.333 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 2.50 W/kg
SAR(1 g) = 0.499 W/kg; SAR(10 g) = 0.268 W/kg
Maximum value of SAR (measured) = 0.655 W/kg



0 dB = 0.894 W/kg = -0.48 dBW/kg

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Date: 4/28/2014

BC10_Back side_CH 684_full power_9mm_1xRTT_ repeat sar test at the highest sar measurement

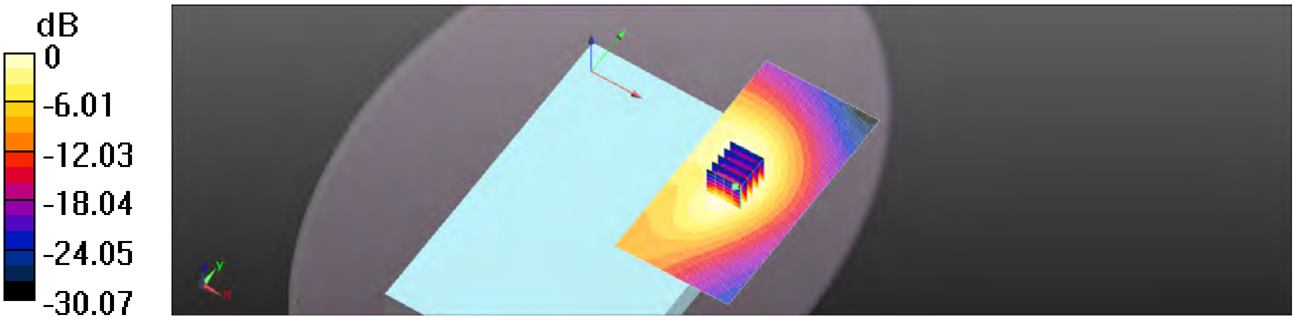
Communication System: CDMA; Frequency: 823.1 MHz
Medium parameters used: f = 823.1 MHz; σ = 1.016 S/m; ε_r = 54.305; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3979; ConvF(9.21, 9.21, 9.21); Calibrated: 3/4/2014;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/23/2013
- Phantom: ELI v5.0 ; Type: QDOVA002AA; Serial: TP:xxxx
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/Body/Area Scan (71x141x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 0.969 W/kg

Configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.654 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 1.16 W/kg
SAR(1 g) = 0.805 W/kg; SAR(10 g) = 0.546 W/kg
Maximum value of SAR (measured) = 0.995 W/kg



0 dB = 0.969 W/kg = -0.14 dBW/kg

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Date: 4/28/2014

BC10_Back side_CH 684_full power_9mm_1x EvDO Rev. 0

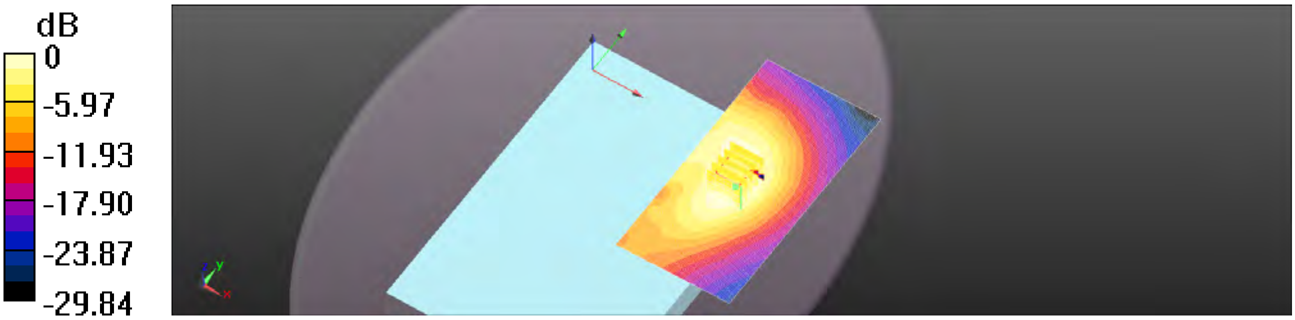
Communication System: 1xEVDO; Frequency: 823.1 MHz
Medium parameters used: f = 823.1 MHz; σ = 1.016 S/m; ε_r = 54.305; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3979; ConvF(9.21, 9.21, 9.21); Calibrated: 3/4/2014;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/23/2013
- Phantom: ELI v5.0 ; Type: QDOVA002AA; Serial: TP:xxxx
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/Body/Area Scan (71x141x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 0.945 W/kg

Configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.886 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 1.09 W/kg
SAR(1 g) = 0.772 W/kg; SAR(10 g) = 0.513 W/kg
Maximum value of SAR (measured) = 0.955 W/kg



0 dB = 0.945 W/kg = -0.25 dBW/kg

Date: 4/28/2014

BC10_Back side_CH 560_full power_9mm_1x EvDO Rev. A_ repeat sar test at the highest sar measurement

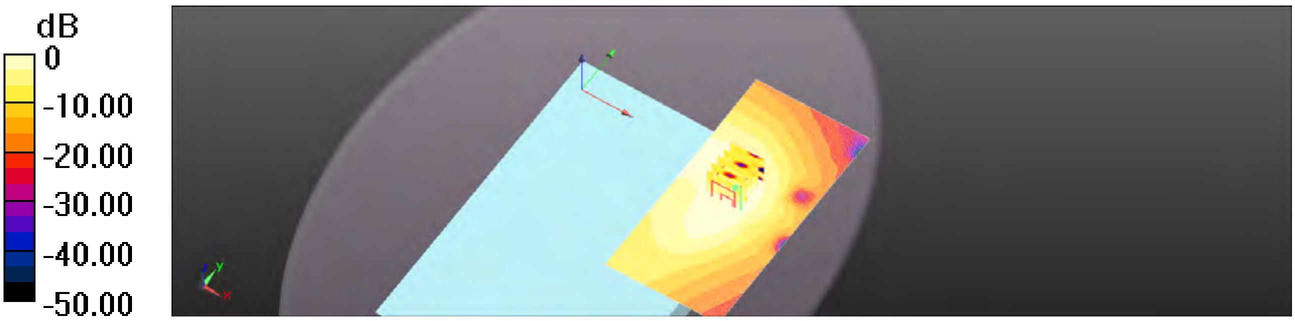
Communication System: 1xEVDO; Frequency: 820 MHz
Medium parameters used: f = 820 MHz; σ = 1.015 S/m; ε_r = 54.287; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3979; ConvF(9.21, 9.21, 9.21); Calibrated: 3/4/2014;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/23/2013
- Phantom: ELI v5.0 ; Type: QDOVA002AA; Serial: TP:xxxx
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/Body/Area Scan (71x141x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 0.745 W/kg

Configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.260 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 1.23 W/kg
SAR(1 g) = 0.758 W/kg; SAR(10 g) = 0.460 W/kg
Maximum value of SAR (measured) = 0.930 W/kg



0 dB = 0.745 W/kg = -1.28 dBW/kg

Date: 4/28/2014

BC10_Back side_CH 684_reduced power_0mm_1xRTT

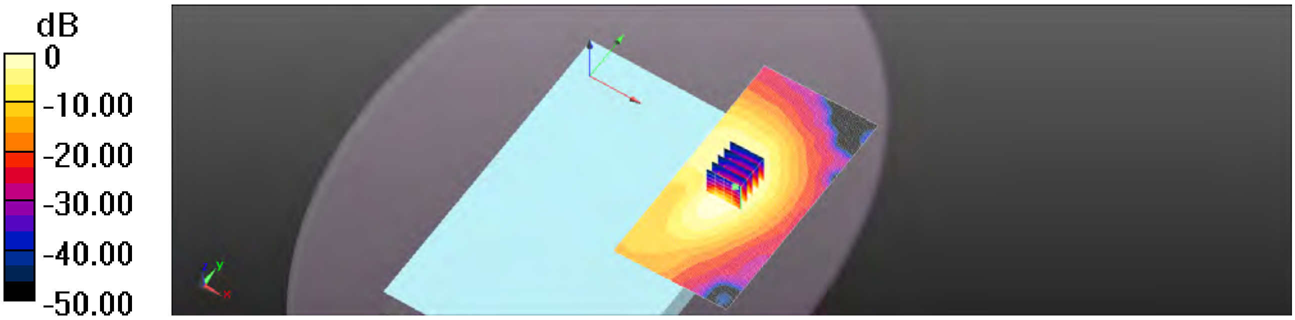
Communication System: CDMA; Frequency: 823.1 MHz
Medium parameters used: f = 823.1 MHz; σ = 1.016 S/m; ε_r = 54.305; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3979; ConvF(9.21, 9.21, 9.21); Calibrated: 3/4/2014;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/23/2013
- Phantom: ELI v5.0 ; Type: QDOVA002AA; Serial: TP:xxxx
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/Body/Area Scan (71x141x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 0.764 W/kg

Configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.242 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 0.817 W/kg
SAR(1 g) = 0.527 W/kg; SAR(10 g) = 0.334 W/kg
Maximum value of SAR (measured) = 0.678 W/kg



0 dB = 0.764 W/kg = -1.17 dBW/kg

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Date: 4/28/2014

BC10_Back side_CH 684_reduced power_0mm_1xEvDO Rev. 0

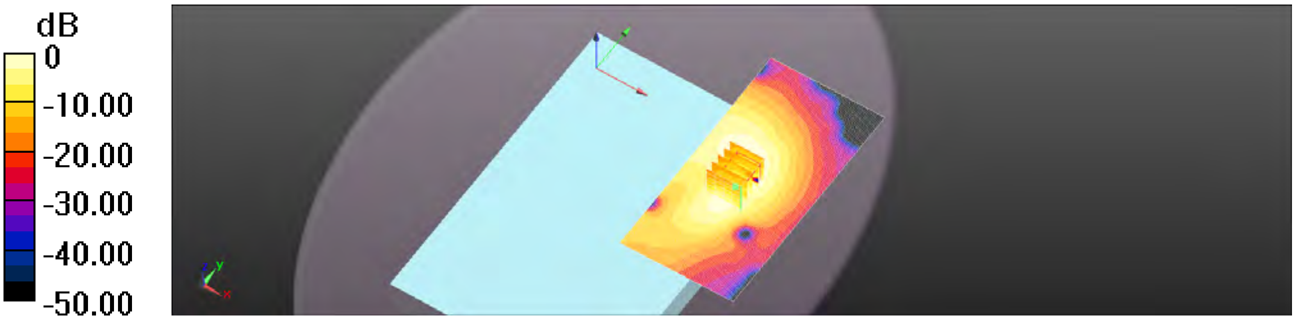
Communication System: 1xEVDO; Frequency: 823.1 MHz
Medium parameters used: f = 823.1 MHz; σ = 1.016 S/m; ε_r = 54.305; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3979; ConvF(9.21, 9.21, 9.21); Calibrated: 3/4/2014;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/23/2013
- Phantom: ELI v5.0 ; Type: QDOVA002AA; Serial: TP:xxxx
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/Body/Area Scan (71x141x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 0.975 W/kg

Configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.896 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 1.04 W/kg
SAR(1 g) = 0.665 W/kg; SAR(10 g) = 0.419 W/kg
Maximum value of SAR (measured) = 0.862 W/kg



0 dB = 0.975 W/kg = -0.11 dBW/kg

Date: 4/28/2014

BC10_Back side_CH 560_reduced power_0mm_1xEvDO Rev. A

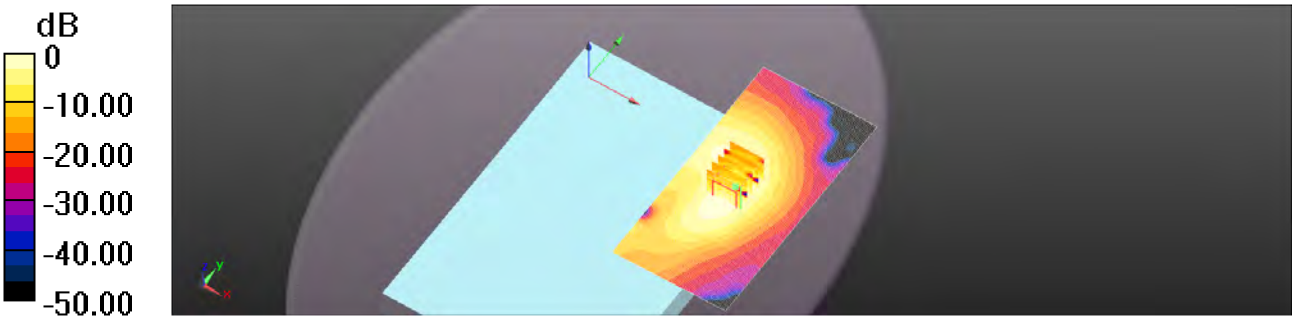
Communication System: 1xEVDO; Frequency: 820 MHz
Medium parameters used: f = 820 MHz; σ = 1.015 S/m; ε_r = 54.287; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3979; ConvF(9.21, 9.21, 9.21); Calibrated: 3/4/2014;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/23/2013
- Phantom: ELI v5.0 ; Type: QDOVA002AA; Serial: TP:xxxx
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/Body/Area Scan (71x141x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 0.682 W/kg

Configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.145 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 1.08 W/kg
SAR(1 g) = 0.688 W/kg; SAR(10 g) = 0.392 W/kg
Maximum value of SAR (measured) = 0.948 W/kg



0 dB = 0.682 W/kg = -1.66 dBW/kg

WLAN802.11b_Body_Back side_CH 11_Main

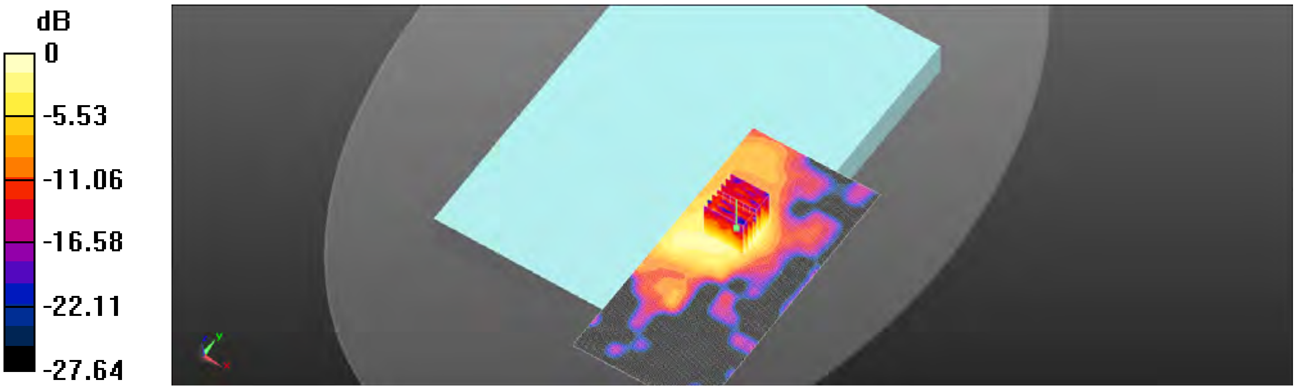
Communication System:WLAN 2.45G ; Frequency: 2462 MHz
Medium parameters used: f = 2462 MHz; σ = 1.994 S/m; ε_r = 52.919; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3578; ConvF(6.31, 6.31, 6.31); Calibrated: 2013/6/20;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2013/9/24
- Phantom: ELI v5.0
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/Lap-held/Area Scan (81x171x1): Interpolated grid: dx=12 mm, dy=12 mm
Maximum value of SAR (interpolated) = 0.193 W/kg

Configuration/Lap-held/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 1.484 V/m; Power Drift = 0.13 dB
Peak SAR (extrapolated) = 0.262 W/kg
SAR(1 g) = 0.136 W/kg; SAR(10 g) = 0.070 W/kg
Maximum value of SAR (measured) = 0.198 W/kg



0 dB = 0.198 W/kg = -7.03 dBW/kg

Date: 2014/4/11

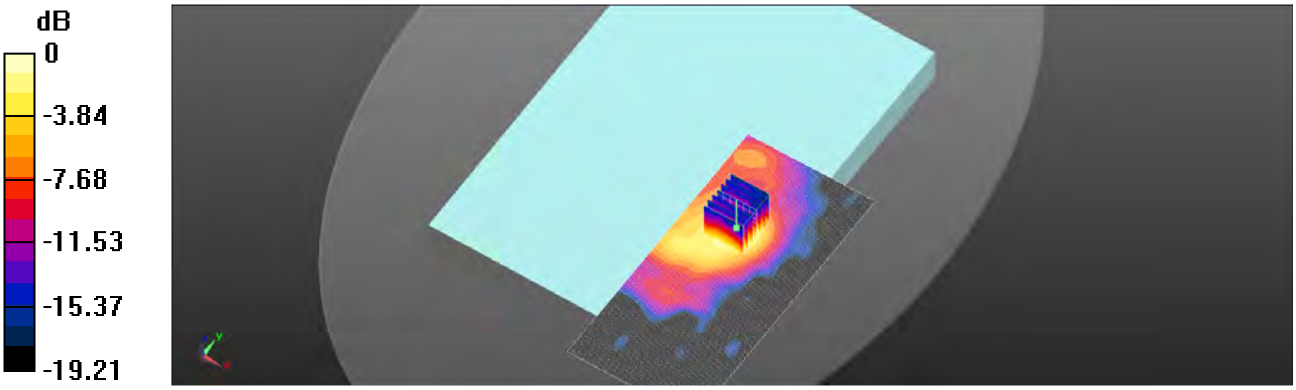
WLAN802.11g_Body_Back side_CH 6_Main
Communication System:WLAN 2.45G ; Frequency: 2437 MHz
Medium parameters used: f = 2437 MHz; σ = 1.961 S/m; ε_r = 52.992; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3578; ConvF(6.31, 6.31, 6.31); Calibrated: 2013/6/20;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2013/9/24
- Phantom: ELI v5.0
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/Lap-held/Area Scan (81x171x1): Interpolated grid: dx=12 mm, dy=12 mm
Maximum value of SAR (interpolated) = 0.385 W/kg

Configuration/Lap-held/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.191 V/m; Power Drift = -0.14 dB
Peak SAR (extrapolated) = 0.491 W/kg
SAR(1 g) = 0.257 W/kg; SAR(10 g) = 0.131 W/kg
Maximum value of SAR (measured) = 0.370 W/kg



0 dB = 0.370 W/kg = -4.32 dBW/kg

WLAN802.11n(20M)_Body_Back side_CH 6_Main

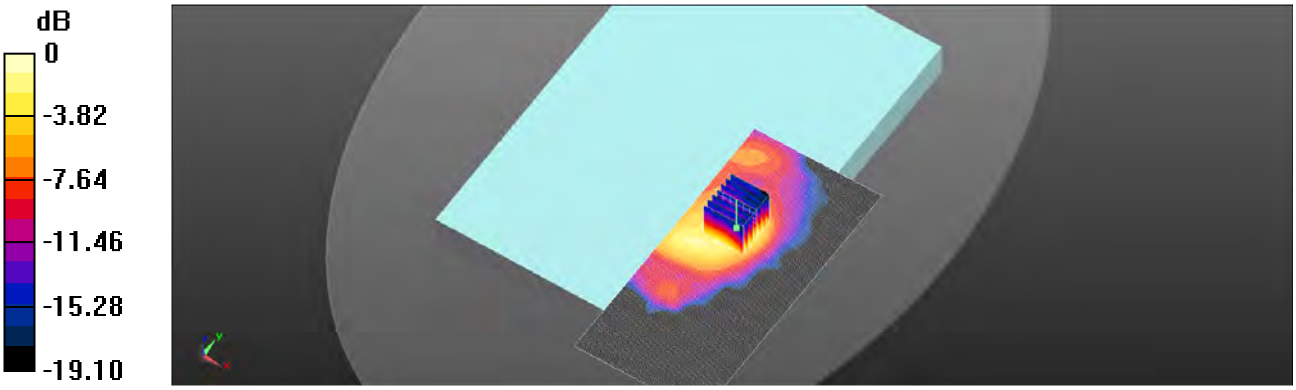
Communication System:WLAN 2.45G ; Frequency: 2437 MHz
Medium parameters used: f = 2437 MHz; σ = 1.961 S/m; ε_r = 52.992; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3578; ConvF(6.31, 6.31, 6.31); Calibrated: 2013/6/20;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2013/9/24
- Phantom: ELI v5.0
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/Lap-held/Area Scan (81x171x1): Interpolated grid: dx=12 mm, dy=12 mm
Maximum value of SAR (interpolated) = 0.349 W/kg

Configuration/Lap-held/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.714 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 0.467 W/kg
SAR(1 g) = 0.241 W/kg; SAR(10 g) = 0.123 W/kg
Maximum value of SAR (measured) = 0.348 W/kg



0 dB = 0.348 W/kg = -4.58 dBW/kg

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Date: 2014/4/11

WLAN802.11n(40M)_Body_Back side_CH 6_Main

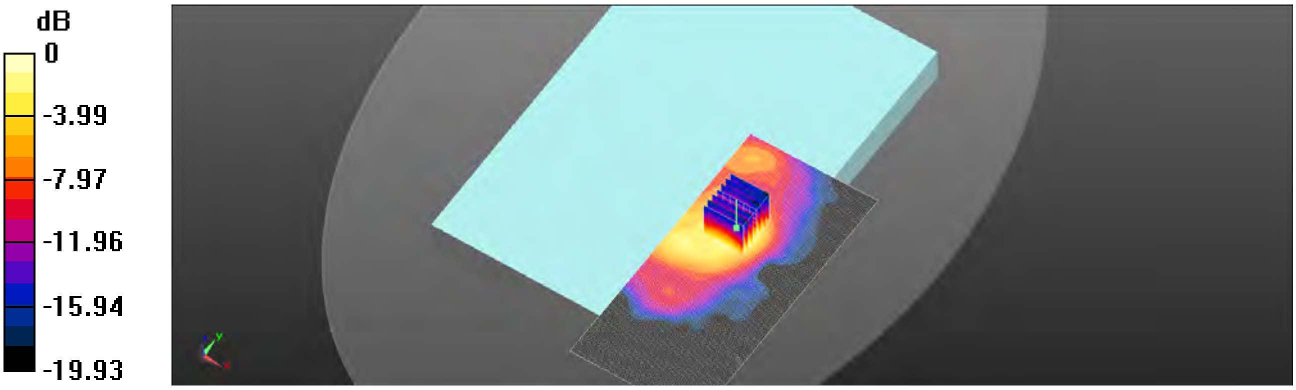
Communication System:WLAN 2.45G ; Frequency: 2437 MHz
Medium parameters used: f = 2437 MHz; σ = 1.961 S/m; ε_r = 52.992; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3578; ConvF(6.31, 6.31, 6.31); Calibrated: 2013/6/20;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2013/9/24
- Phantom: ELI v5.0
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/Lap-held/Area Scan (81x171x1): Interpolated grid: dx=12 mm, dy=12 mm
Maximum value of SAR (interpolated) = 0.382 W/kg

Configuration/Lap-held/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.591 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.491 W/kg
SAR(1 g) = 0.256 W/kg; SAR(10 g) = 0.131 W/kg
Maximum value of SAR (measured) = 0.371 W/kg



0 dB = 0.371 W/kg = -4.31 dBW/kg

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Date: 2014/4/13

WLAN802.11a5.2G_Body_Back side_CH 40_Main

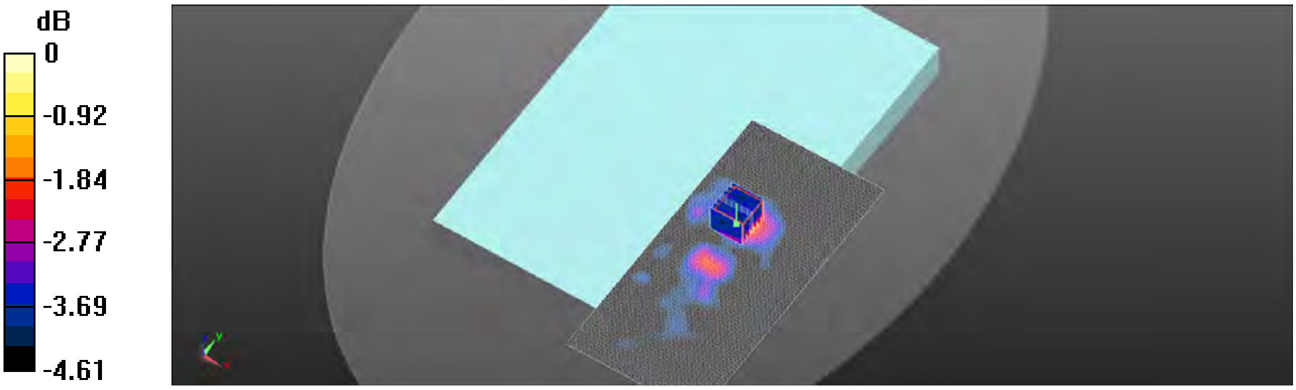
Communication System:WLAN 5G ; Frequency: 5200 MHz
Medium parameters used: f = 5200 MHz; σ = 5.163 S/m; ε_r = 48.467; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3578; ConvF(3.9, 3.9, 3.9); Calibrated: 2013/6/20;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2013/9/24
- Phantom: ELI v5.0
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/Lap-held/Area Scan (101x211x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 0.511 W/kg

Configuration/Lap-held/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 6.127 V/m; Power Drift = -0.18 dB
Peak SAR (extrapolated) = 0.997 W/kg
SAR(1 g) = 0.355 W/kg; SAR(10 g) = 0.245 W/kg
Maximum value of SAR (measured) = 0.467 W/kg



0 dB = 0.467 W/kg = -3.31 dBW/kg

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Date: 2014/4/13

WLAN802.11n(20M)5.2G_Body_Back side_CH 40_Main

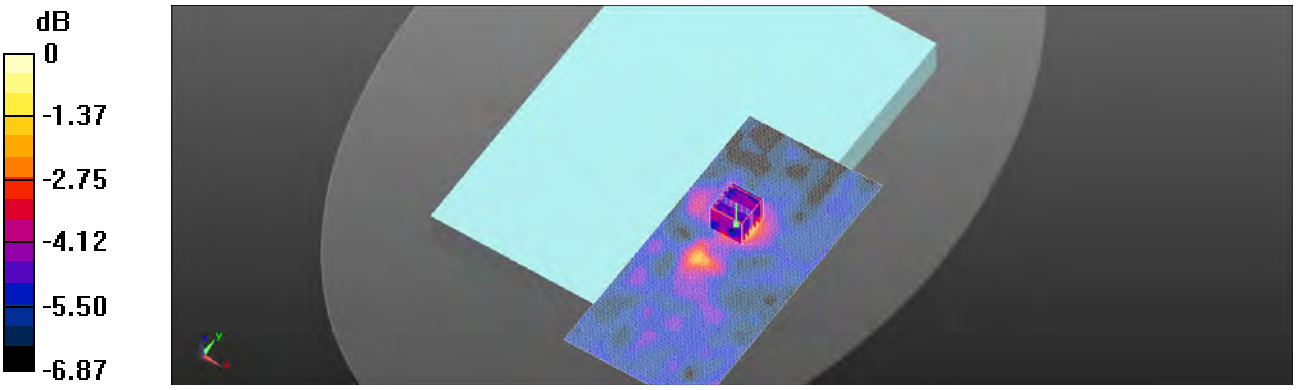
Communication System:WLAN 5G ; Frequency: 5200 MHz
Medium parameters used: f = 5200 MHz; σ = 5.163 S/m; ε_r = 48.467; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3578; ConvF(3.9, 3.9, 3.9); Calibrated: 2013/6/20;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2013/9/24
- Phantom: ELI v5.0
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/Lap-held/Area Scan (101x211x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 0.592 W/kg

Configuration/Lap-held/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 5.198 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 1.11 W/kg
SAR(1 g) = 0.404 W/kg; SAR(10 g) = 0.263 W/kg
Maximum value of SAR (measured) = 0.572 W/kg



0 dB = 0.572 W/kg = -2.43 dBW/kg

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Date: 2014/4/13

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

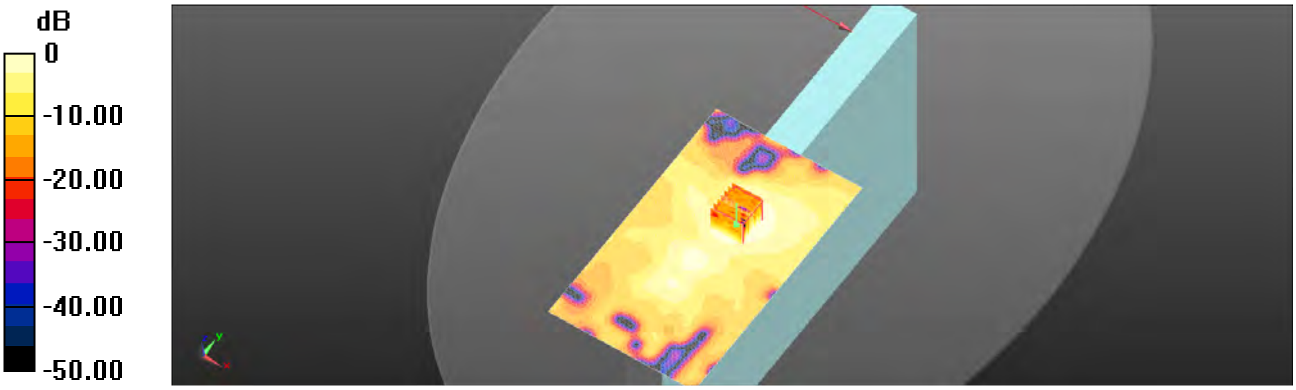
Communication System:WLAN 5G ; Frequency: 5230 MHz
Medium parameters used: f = 5230 MHz; σ = 5.212 S/m; ε_r = 48.382; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3578; ConvF(3.9, 3.9, 3.9); Calibrated: 2013/6/20;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2013/9/24
- Phantom: ELI v5.0
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/Top side/Area Scan (111x191x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 0.524 W/kg

Configuration/Top side/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 2.173 V/m; Power Drift = 0.16 dB
Peak SAR (extrapolated) = 1.11 W/kg
SAR(1 g) = 0.308 W/kg; SAR(10 g) = 0.135 W/kg
Maximum value of SAR (measured) = 0.528 W/kg



0 dB = 0.528 W/kg = -2.77 dBW/kg

Date: 2014/4/13

WLAN802.11ac(80M)5.2G_Body_Back side_CH 42_Main

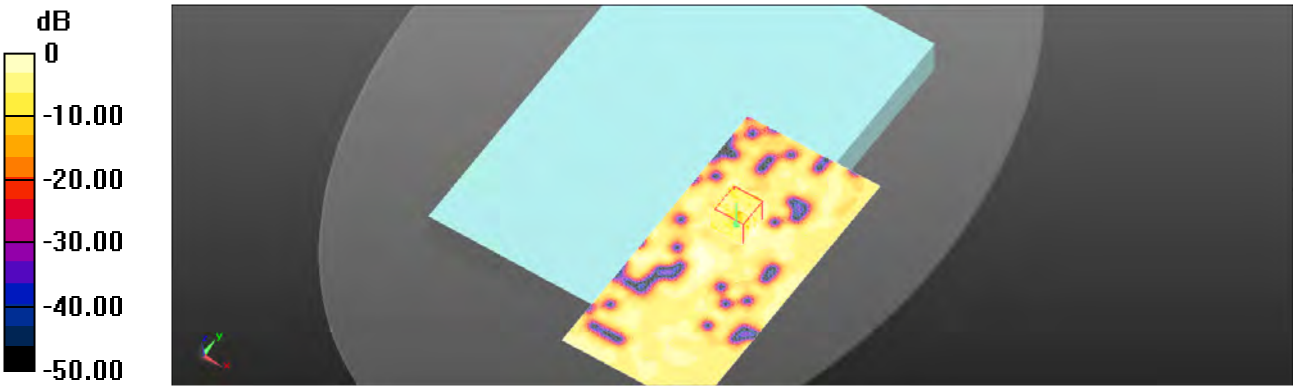
Communication System:WLAN 5G ; Frequency: 5210 MHz
Medium parameters used: f = 5210 MHz; σ = 5.181 S/m; ε_r = 48.435; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3578; ConvF(3.9, 3.9, 3.9); Calibrated: 2013/6/20;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2013/9/24
- Phantom: ELI v5.0
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/Lap-held/Area Scan (101x211x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 0.0992 W/kg

Configuration/Lap-held/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 1.116 V/m; Power Drift = -0.19 dB
Peak SAR (extrapolated) = 0.167 W/kg
SAR(1 g) = 0.059 W/kg; SAR(10 g) = 0.035 W/kg
Maximum value of SAR (measured) = 0.105 W/kg



0 dB = 0.105 W/kg = -9.79 dBW/kg

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Date: 2014/4/15

WLAN802.11a5.3G_Body_Top side_CH 56_Main

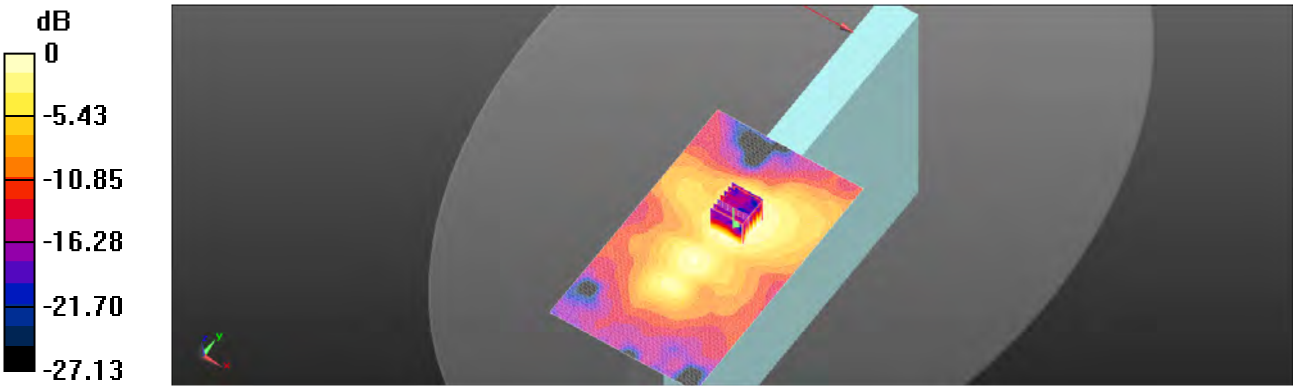
Communication System:WLAN 5G ; Frequency: 5280 MHz
Medium parameters used: f = 5280 MHz; σ = 5.287 S/m; ε_r = 48.251; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3578; ConvF(3.64, 3.64, 3.64); Calibrated: 2013/6/20;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2013/9/24
- Phantom: ELI v5.0
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/Top side/Area Scan (111x191x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 0.692 W/kg

Configuration/Top side/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 1.657 V/m; Power Drift = 0.16 dB
Peak SAR (extrapolated) = 1.40 W/kg
SAR(1 g) = 0.402 W/kg; SAR(10 g) = 0.179 W/kg
Maximum value of SAR (measured) = 0.692 W/kg



0 dB = 0.692 W/kg = -1.60 dBW/kg

Date: 2014/4/15

WLAN802.11ac(80M)5.3G_Body_Top side_CH 58_Main

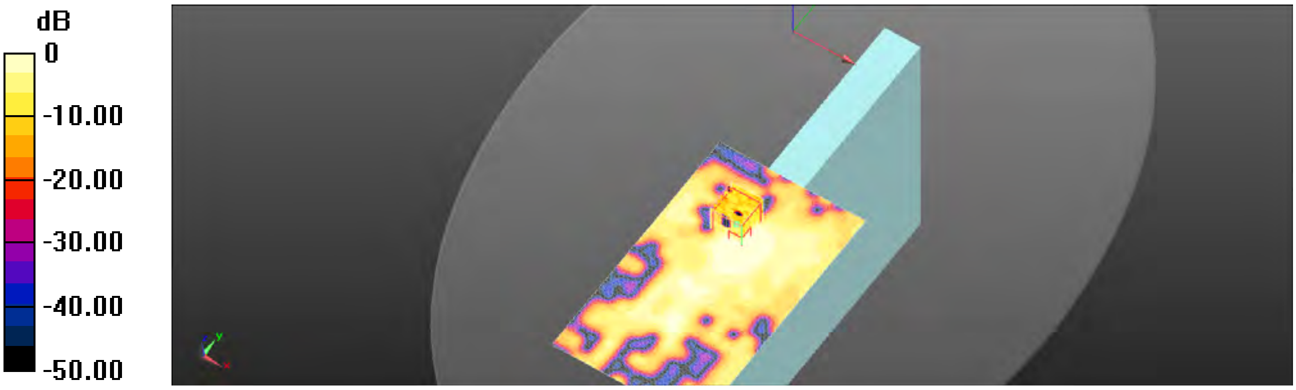
Communication System:WLAN 5G ; Frequency: 5290 MHz
Medium parameters used: f = 5290 MHz; σ = 5.299 S/m; ε_r = 48.226; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3578; ConvF(3.64, 3.64, 3.64); Calibrated: 2013/6/20;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2013/9/24
- Phantom: ELI v5.0
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/Top side/Area Scan (111x191x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 0.218 W/kg

Configuration/Top side/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 1.721 V/m; Power Drift = 0.18 dB
Peak SAR (extrapolated) = 0.371 W/kg
SAR(1 g) = 0.104 W/kg; SAR(10 g) = 0.029 W/kg
Maximum value of SAR (measured) = 0.193 W/kg



0 dB = 0.193 W/kg = -7.14 dBW/kg

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Date: 2014/4/16

WLAN802.11a5.6G_Body_Top side_CH 132_Main

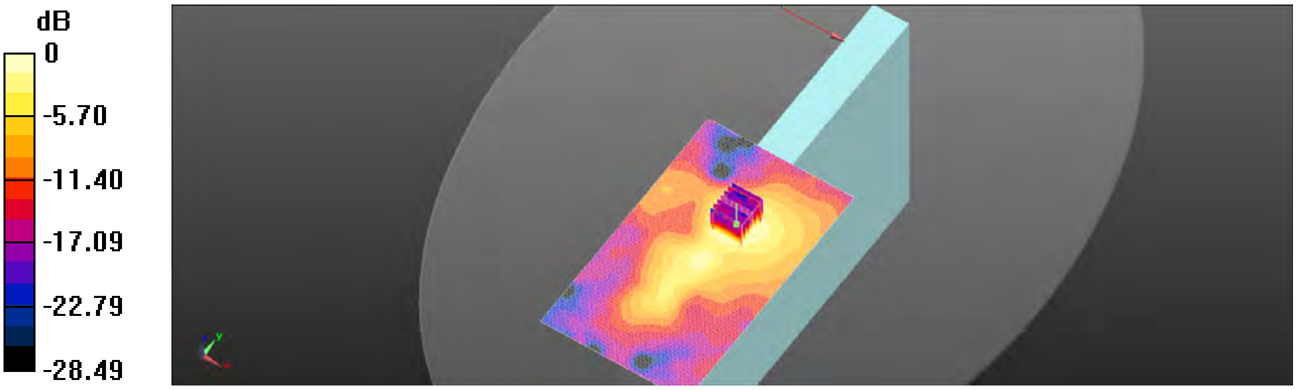
Communication System:WLAN 5G ; Frequency: 5660 MHz
Medium parameters used: f = 5660 MHz; σ = 5.84 S/m; ε_r = 47.278; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3578; ConvF(3.29, 3.29, 3.29); Calibrated: 2013/6/20;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2013/9/24
- Phantom: ELI v5.0
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/Top side/Area Scan (111x191x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 1.18 W/kg

Configuration/Top side/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 3.754 V/m; Power Drift = -0.17 dB
Peak SAR (extrapolated) = 2.61 W/kg
SAR(1 g) = 0.650 W/kg; SAR(10 g) = 0.264 W/kg
Maximum value of SAR (measured) = 1.18 W/kg



0 dB = 1.18 W/kg = 0.72 dBW/kg

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Date: 2014/4/16

WLAN802.11ac(20M)5.6G_Body_Top side_CH 144_Main

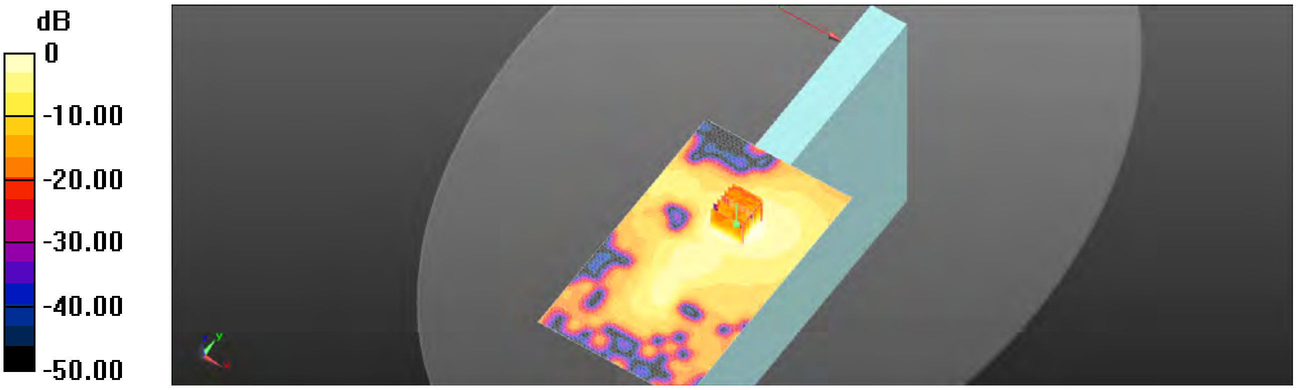
Communication System:WLAN 5G ; Frequency: 5720 MHz
Medium parameters used: f = 5720 MHz; σ = 5.928 S/m; ε_r = 47.12; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3578; ConvF(3.35, 3.35, 3.35); Calibrated: 2013/6/20;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2013/9/24
- Phantom: ELI v5.0
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/Top side/Area Scan (111x191x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 0.890 W/kg

Configuration/Top side/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 3.101 V/m; Power Drift = 0.19 dB
Peak SAR (extrapolated) = 1.85 W/kg
SAR(1 g) = 0.499 W/kg; SAR(10 g) = 0.207 W/kg
Maximum value of SAR (measured) = 0.900 W/kg



0 dB = 0.900 W/kg = -0.46 dBW/kg

Date: 2014/4/17

WLAN802.11ac(40M)5.6G_Body_Top side_CH 142_Main

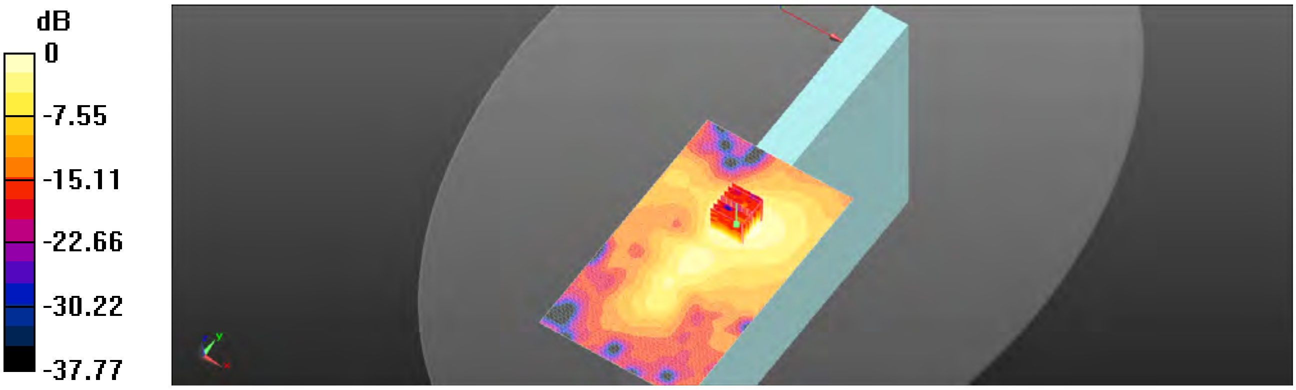
Communication System:WLAN 5G ; Frequency: 5710 MHz
Medium parameters used: f = 5710 MHz; σ = 5.912 S/m; ε_r = 47.155; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3578; ConvF(3.35, 3.35, 3.35); Calibrated: 2013/6/20;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2013/9/24
- Phantom: ELI v5.0
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/Top side/Area Scan (111x191x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 0.947 W/kg

Configuration/Top side/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 3.685 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 2.05 W/kg
SAR(1 g) = 0.527 W/kg; SAR(10 g) = 0.217 W/kg
Maximum value of SAR (measured) = 0.953 W/kg



0 dB = 0.953 W/kg = -0.21 dBW/kg

WLAN802.11ac(80M)5.6G_Body_Top side_CH 138_Main

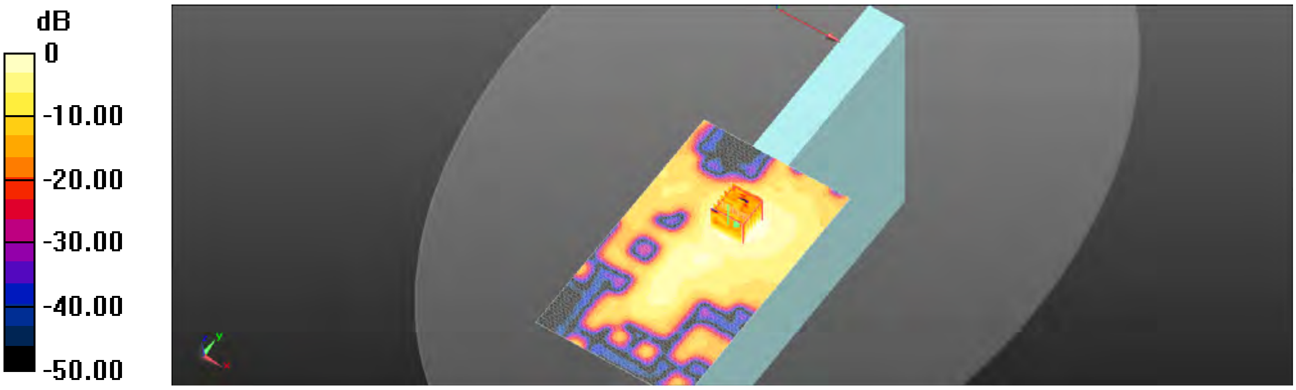
Communication System:WLAN 5G ; Frequency: 5690 MHz
Medium parameters used: f = 5690 MHz; σ = 5.884 S/m; ε_r = 47.212; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3578; ConvF(3.29, 3.29, 3.29); Calibrated: 2013/6/20;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2013/9/24
- Phantom: ELI v5.0
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/Top side/Area Scan (111x191x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 0.695 W/kg

Configuration/Top side/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 2.671 V/m; Power Drift = 0.15 dB
Peak SAR (extrapolated) = 1.42 W/kg
SAR(1 g) = 0.372 W/kg; SAR(10 g) = 0.158 W/kg
Maximum value of SAR (measured) = 0.679 W/kg



0 dB = 0.679 W/kg = -1.68 dBW/kg

Date: 2014/4/18

WLAN802.11a5.8G_Body_Top side_CH 161_Main

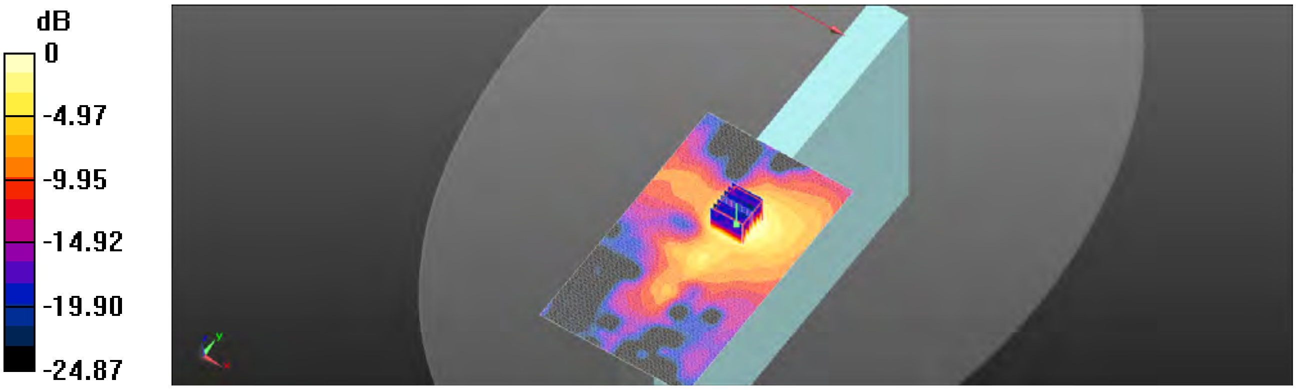
Communication System:WLAN 5G ; Frequency: 5805 MHz
Medium parameters used: f = 5805 MHz; σ = 6.05 S/m; ε_r = 46.93; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3578; ConvF(3.35, 3.35, 3.35); Calibrated: 2013/6/20;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2013/9/24
- Phantom: ELI v5.0
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/Top side/Area Scan (111x191x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 1.10 W/kg

Configuration/Top side/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 3.087 V/m; Power Drift = 0.18 dB
Peak SAR (extrapolated) = 2.26 W/kg
SAR(1 g) = 0.578 W/kg; SAR(10 g) = 0.232 W/kg
Maximum value of SAR (measured) = 1.07 W/kg



0 dB = 1.07 W/kg = 0.29 dBW/kg

WLAN802.11ac5.8G_Body_Top side_CH 155_Main

Communication System:WLAN 5G ; Frequency: 5775 MHz

Medium parameters used: f = 5775 MHz; σ = 6.013 S/m; ε_r = 46.997; ρ = 1000 kg/m^3

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3578; ConvF(3.35, 3.35, 3.35); Calibrated: 2013/6/20;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2013/9/24
- Phantom: ELI v5.0
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/Top side/Area Scan (111x191x1): Interpolated grid: dx=10 mm, dy=10 mm

Maximum value of SAR (interpolated) = 0.823 W/kg

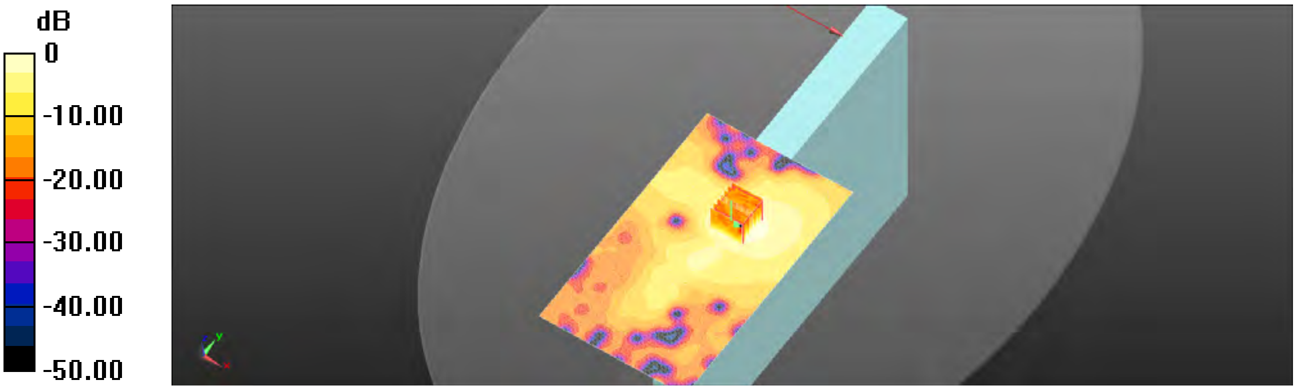
Configuration/Top side/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 3.014 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 1.65 W/kg

SAR(1 g) = 0.448 W/kg; SAR(10 g) = 0.185 W/kg

Maximum value of SAR (measured) = 0.802 W/kg



0 dB = 0.802 W/kg = -0.96 dBW/kg

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Date: 2014/4/12

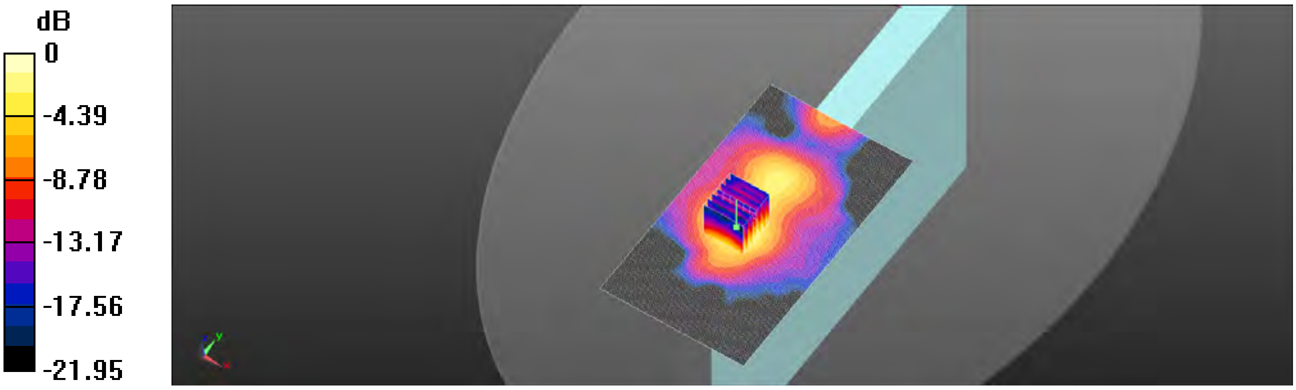
WLAN802.11b_Body_Top side_CH 11_AUX
Communication System:WLAN 2.45G ; Frequency: 2462 MHz
Medium parameters used: f = 2462 MHz; σ = 1.989 S/m; ε_r = 52.924; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3578; ConvF(6.31, 6.31, 6.31); Calibrated: 2013/6/20;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2013/9/24
- Phantom: ELI v5.0
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/Top side/Area Scan (91x161x1): Interpolated grid: dx=12 mm, dy=12 mm
Maximum value of SAR (interpolated) = 0.304 W/kg

Configuration/Top side/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.854 V/m; Power Drift = 0.19 dB
Peak SAR (extrapolated) = 0.400 W/kg
SAR(1 g) = 0.209 W/kg; SAR(10 g) = 0.105 W/kg
Maximum value of SAR (measured) = 0.303 W/kg



0 dB = 0.303 W/kg = -5.19 dBW/kg

Date: 2014/4/12

WLAN802.11g_Body_Top side_CH 6_AUX

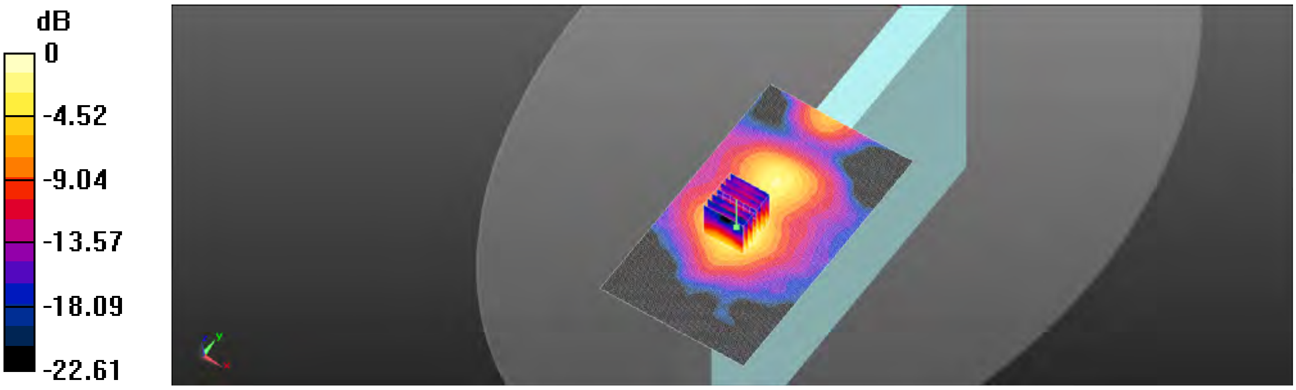
Communication System:WLAN 2.45G ; Frequency: 2437 MHz
Medium parameters used: f = 2437 MHz; σ = 1.957 S/m; ε_r = 53.002; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3578; ConvF(6.31, 6.31, 6.31); Calibrated: 2013/6/20;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2013/9/24
- Phantom: ELI v5.0
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/Top side/Area Scan (91x161x1): Interpolated grid: dx=12 mm, dy=12 mm
Maximum value of SAR (interpolated) = 0.358 W/kg

Configuration/Top side/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.464 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 0.465 W/kg
SAR(1 g) = 0.246 W/kg; SAR(10 g) = 0.123 W/kg
Maximum value of SAR (measured) = 0.354 W/kg



0 dB = 0.354 W/kg = -4.51 dBW/kg

Date: 2014/4/12

WLAN802.11n(20M)_Body_Top side_CH 6_AUX

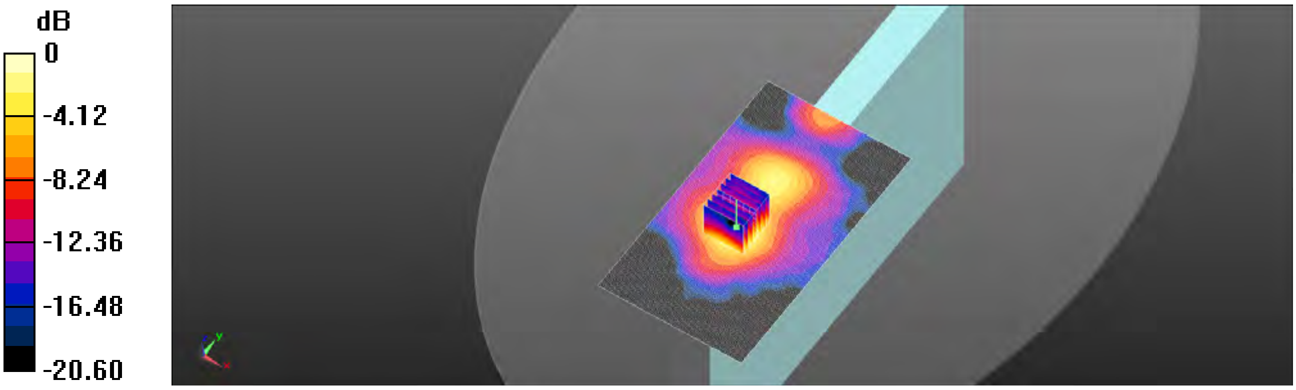
Communication System:WLAN 2.45G ; Frequency: 2437 MHz
Medium parameters used: f = 2437 MHz; σ = 1.957 S/m; ε_r = 53.002; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3578; ConvF(6.31, 6.31, 6.31); Calibrated: 2013/6/20;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2013/9/24
- Phantom: ELI v5.0
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/Top side/Area Scan (91x161x1): Interpolated grid: dx=12 mm, dy=12 mm
Maximum value of SAR (interpolated) = 0.388 W/kg

Configuration/Top side/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.802 V/m; Power Drift = 0.14 dB
Peak SAR (extrapolated) = 0.499 W/kg
SAR(1 g) = 0.267 W/kg; SAR(10 g) = 0.135 W/kg
Maximum value of SAR (measured) = 0.380 W/kg



0 dB = 0.380 W/kg = -4.20 dBW/kg

Date: 2014/4/14

WLAN802.11a5.2G_Body_Top side_CH 40_Aux

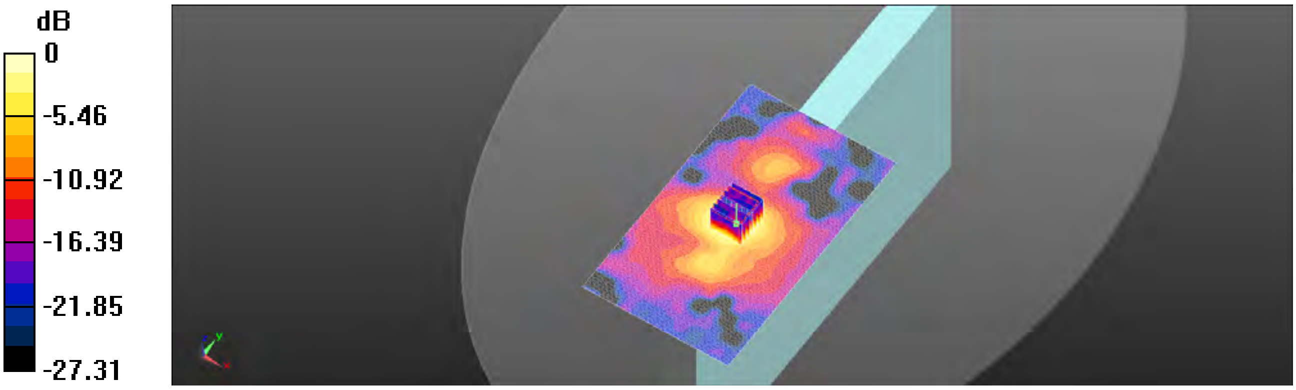
Communication System:WLAN 5G ; Frequency: 5200 MHz
Medium parameters used: f = 5200 MHz; σ = 5.174 S/m; εr = 48.463; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3578; ConvF(3.9, 3.9, 3.9); Calibrated: 2013/6/20;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2013/9/24
- Phantom: ELI v5.0
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/Top side/Area Scan (111x191x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 1.03 W/kg

Configuration/Top side/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 2.669 V/m; Power Drift = 0.18 dB
Peak SAR (extrapolated) = 1.87 W/kg
SAR(1 g) = 0.580 W/kg; SAR(10 g) = 0.220 W/kg
Maximum value of SAR (measured) = 1.05 W/kg



0 dB = 1.05 W/kg = 0.21 dBW/kg

Date: 2014/4/14

WLAN802.11n(20M)5.2G_Body_Top side_CH 40_Aux

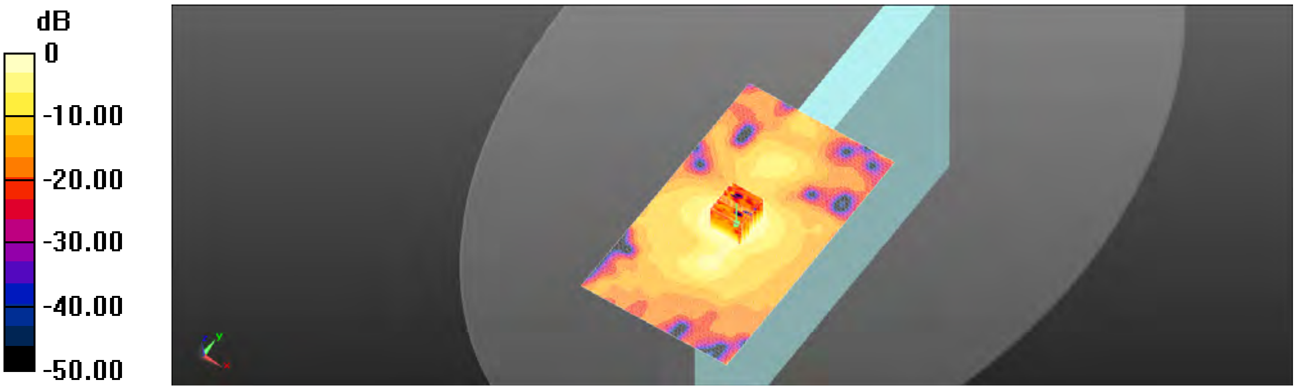
Communication System:WLAN 5G ; Frequency: 5200 MHz
Medium parameters used: f = 5200 MHz; σ = 5.174 S/m; εr = 48.463; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3578; ConvF(3.9, 3.9, 3.9); Calibrated: 2013/6/20;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2013/9/24
- Phantom: ELI v5.0
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/Top side/Area Scan (111x191x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 1.39 W/kg

Configuration/Top side/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 3.182 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 2.61 W/kg
SAR(1 g) = 0.767 W/kg; SAR(10 g) = 0.293 W/kg
Maximum value of SAR (measured) = 1.40 W/kg



0 dB = 1.40 W/kg = 1.46 dBW/kg

Date: 2014/4/14

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

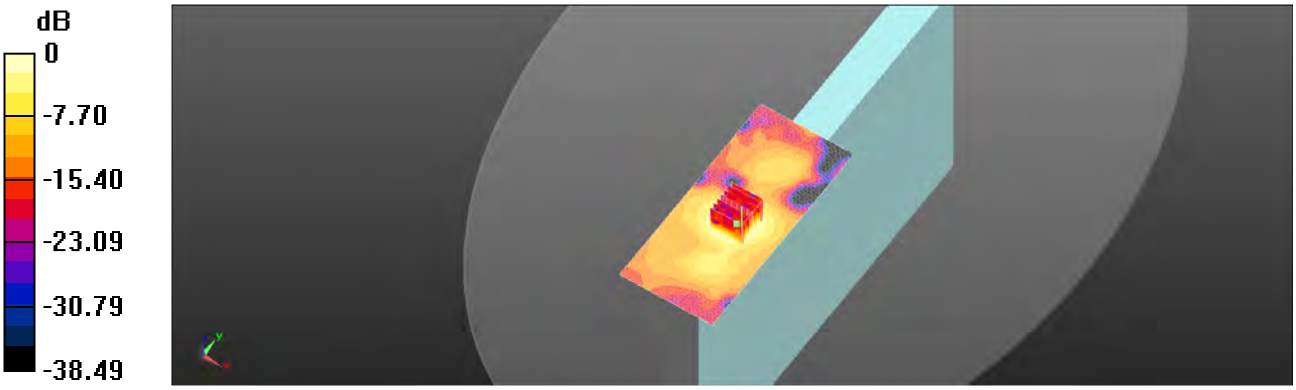
Communication System:WLAN 5G ; Frequency: 5230 MHz
Medium parameters used: f = 5230 MHz; σ = 5.221 S/m; εr = 48.376; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3578; ConvF(3.9, 3.9, 3.9); Calibrated: 2013/6/20;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2013/9/24
- Phantom: ELI v5.0
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/Top side/Area Scan (71x161x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 0.752 W/kg

Configuration/Top side/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 2.570 V/m; Power Drift = 0.19 dB
Peak SAR (extrapolated) = 1.53 W/kg
SAR(1 g) = 0.450 W/kg; SAR(10 g) = 0.168 W/kg
Maximum value of SAR (measured) = 0.822 W/kg



0 dB = 0.822 W/kg = -0.85 dBW/kg

Date: 2014/4/14

WLAN802.11ac(80M)5.2G_Body_Top side_CH 42_Aux

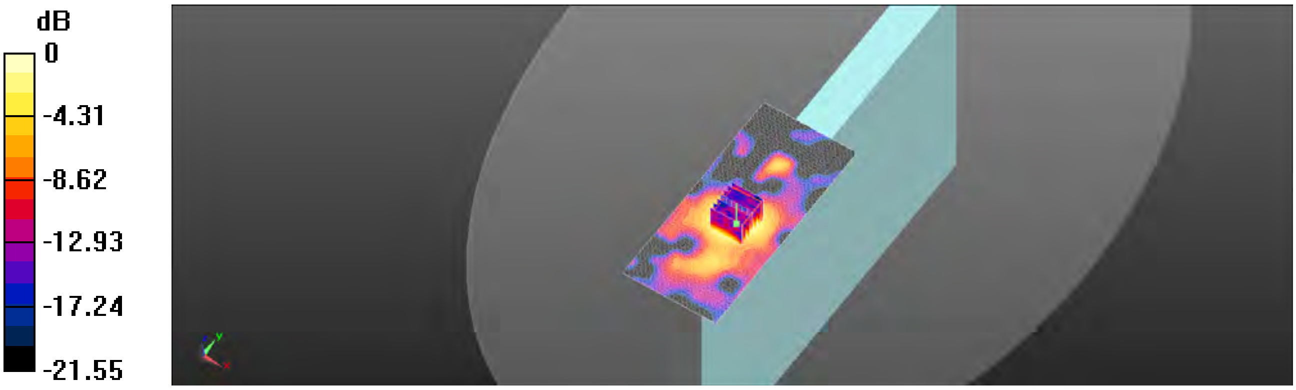
Communication System:WLAN 5G ; Frequency: 5210 MHz
Medium parameters used: f = 5210 MHz; σ = 5.193 S/m; εr = 48.428; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3578; ConvF(3.9, 3.9, 3.9); Calibrated: 2013/6/20;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2013/9/24
- Phantom: ELI v5.0
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/Top side/Area Scan (71x161x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 0.276 W/kg

Configuration/Top side/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 1.449 V/m; Power Drift = 0.18 dB
Peak SAR (extrapolated) = 0.523 W/kg
SAR(1 g) = 0.150 W/kg; SAR(10 g) = 0.060 W/kg
Maximum value of SAR (measured) = 0.277 W/kg



0 dB = 0.277 W/kg = -5.58 dBW/kg

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Date: 2014/4/15

WLAN802.11a5.3G_Body_Top side_CH 60_Aux

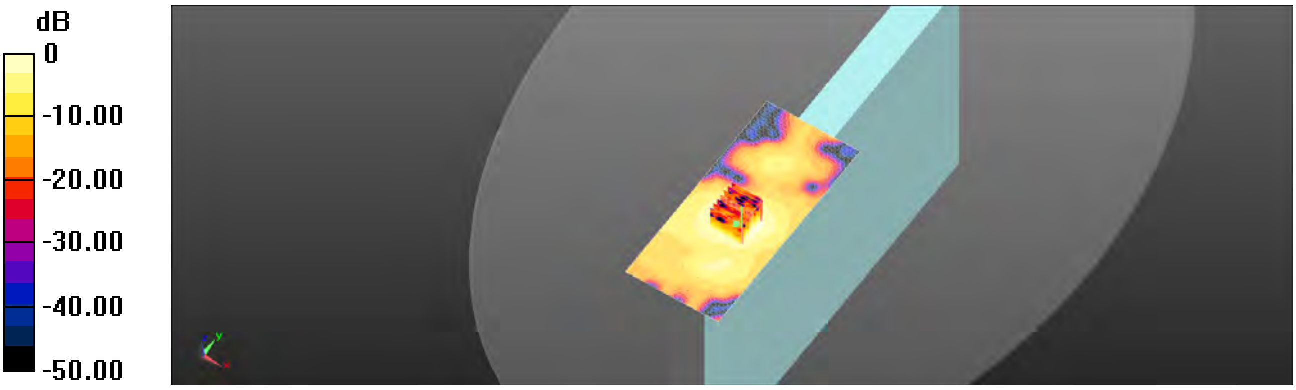
Communication System:WLAN 5G ; Frequency: 5300 MHz
Medium parameters used: f = 5300 MHz; σ = 5.31 S/m; ε_r = 48.202; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3578; ConvF(3.64, 3.64, 3.64); Calibrated: 2013/6/20;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2013/9/24
- Phantom: ELI v5.0
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/Top side/Area Scan (71x161x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 1.46 W/kg

Configuration/Top side/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 2.218 V/m; Power Drift = 0.17 dB
Peak SAR (extrapolated) = 2.67 W/kg
SAR(1 g) = 0.775 W/kg; SAR(10 g) = 0.298 W/kg
Maximum value of SAR (measured) = 1.42 W/kg



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

Date: 2014/4/15

WLAN802.11ac(80M)5.3G_Body_Top side_CH 58_Aux

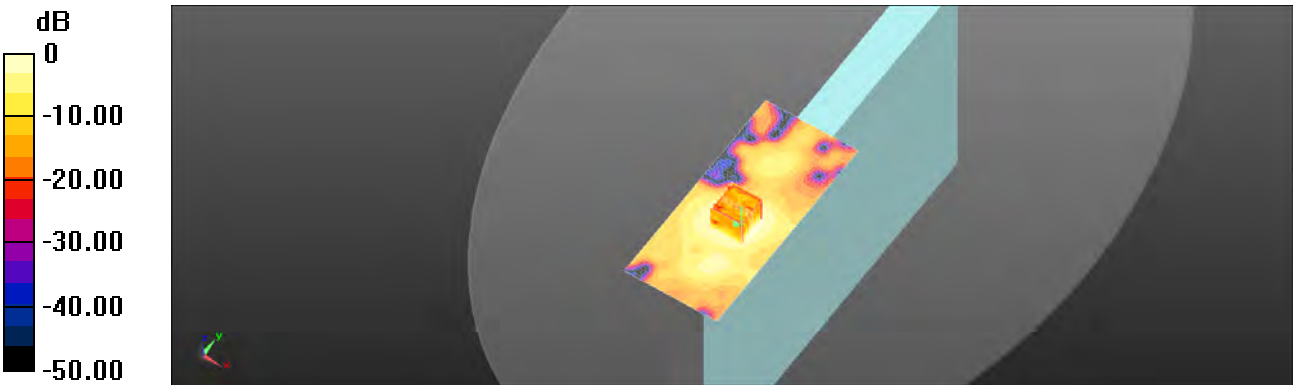
Communication System:WLAN 5G ; Frequency: 5290 MHz
Medium parameters used: f = 5290 MHz; σ = 5.299 S/m; ε_r = 48.226; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3578; ConvF(3.64, 3.64, 3.64); Calibrated: 2013/6/20;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2013/9/24
- Phantom: ELI v5.0
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/Top side/Area Scan (71x161x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 0.534 W/kg

Configuration/Top side/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 2.246 V/m; Power Drift = 0.16 dB
Peak SAR (extrapolated) = 1.02 W/kg
SAR(1 g) = 0.287 W/kg; SAR(10 g) = 0.117 W/kg
Maximum value of SAR (measured) = 0.524 W/kg



0 dB = 0.524 W/kg = -2.81 dBW/kg

Date: 2014/4/16

WLAN802.11a5.6G_Body_Back side_CH 136_Aux

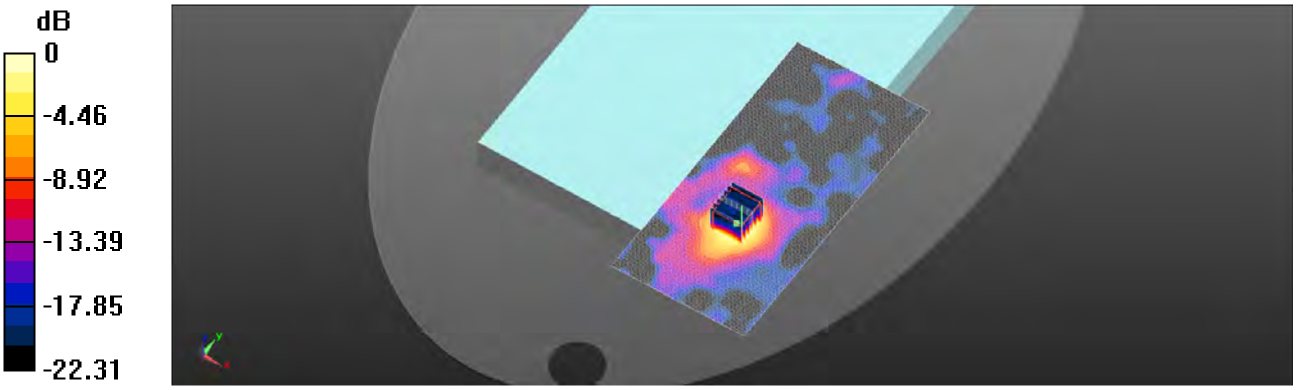
Communication System:WLAN 5G ; Frequency: 5680 MHz
Medium parameters used: f = 5680 MHz; σ = 5.874 S/m; ε_r = 47.233; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3578; ConvF(3.29, 3.29, 3.29); Calibrated: 2013/6/20;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2013/9/24
- Phantom: ELI v5.0
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/Lap-held/Area Scan (101x211x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 1.53 W/kg

Configuration/Lap-held/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 1.090 V/m; Power Drift = 0.14 dB
Peak SAR (extrapolated) = 3.00 W/kg
SAR(1 g) = 0.778 W/kg; SAR(10 g) = 0.288 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: 2014/4/16

WLAN802.11ac(20M)5.6G_Body_Back side_CH 144_Aux_repeat SAR test at the highest SAR measurement

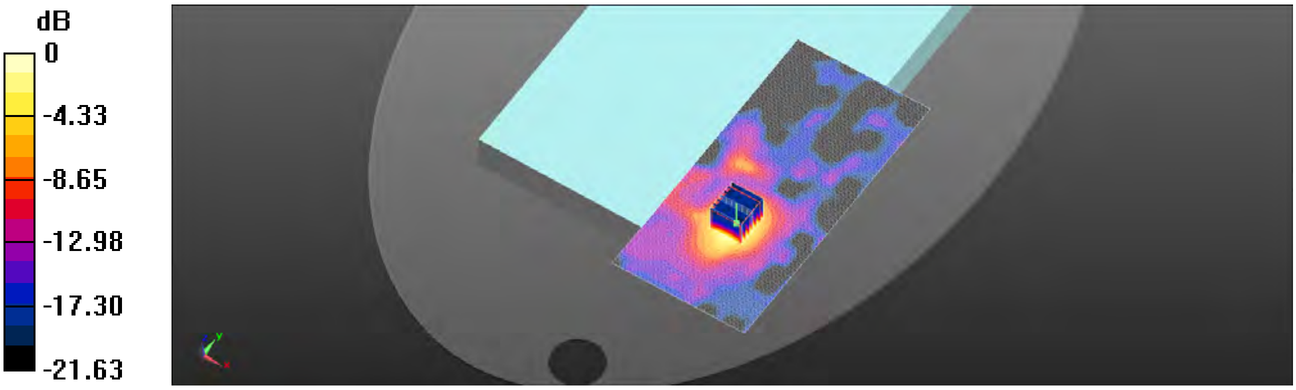
Communication System:WLAN 5G ; Frequency: 5720 MHz
Medium parameters used: f = 5720 MHz; σ = 5.928 S/m; ε_r = 47.12; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3578; ConvF(3.35, 3.35, 3.35); Calibrated: 2013/6/20;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2013/9/24
- Phantom: ELI v5.0
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/Lap-held/Area Scan (101x211x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 1.56 W/kg

Configuration/Lap-held/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 1.860 V/m; Power Drift = -0.14 dB
Peak SAR (extrapolated) = 3.01 W/kg
SAR(1 g) = 0.807 W/kg; SAR(10 g) = 0.308 W/kg
Maximum value of SAR (measured) = 1.52 W/kg



0 dB = 1.52 W/kg = 1.82 dBW/kg

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Date: 2014/4/17

WLAN802.11ac(40M)5.6G_Body_Back side_CH 142_Aux

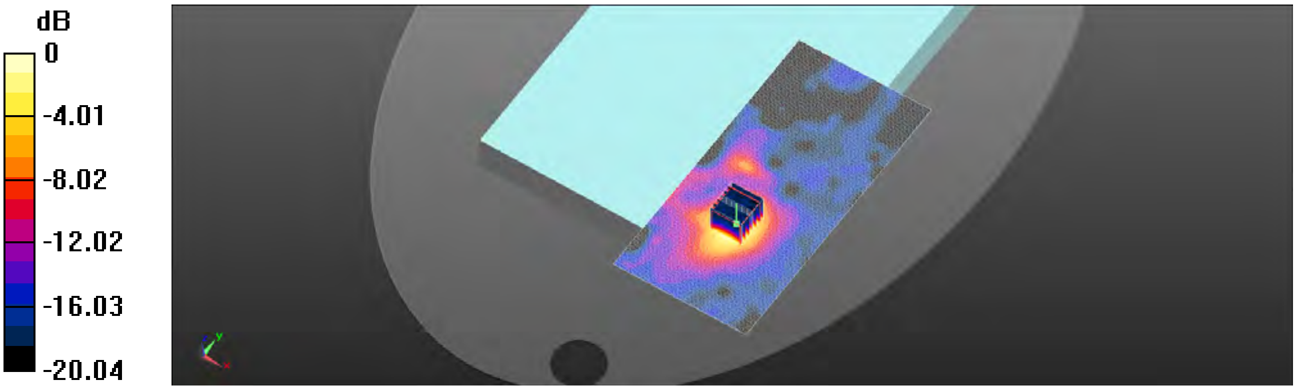
Communication System:WLAN 5G ; Frequency: 5710 MHz
Medium parameters used: f = 5710 MHz; σ = 5.912 S/m; ε_r = 47.155; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3578; ConvF(3.35, 3.35, 3.35); Calibrated: 2013/6/20;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2013/9/24
- Phantom: ELI v5.0
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/Lap-held/Area Scan (101x211x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 1.52 W/kg

Configuration/Lap-held/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 1.334 V/m; Power Drift = -0.19 dB
Peak SAR (extrapolated) = 2.67 W/kg
SAR(1 g) = 0.733 W/kg; SAR(10 g) = 0.282 W/kg
Maximum value of SAR (measured) = 1.36 W/kg



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

Date: 2014/4/17

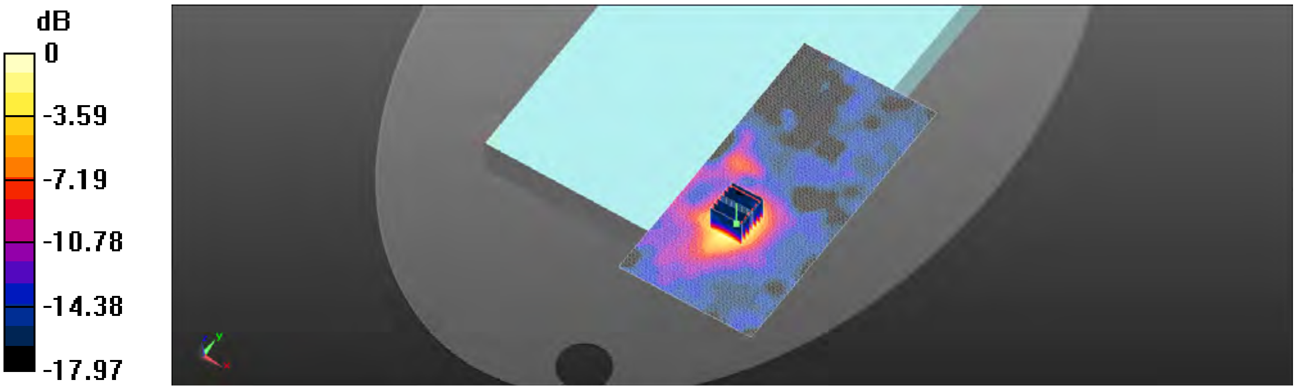
WLAN802.11ac(80M)5.6G_Body_Back side_CH 138_Aux
Communication System:WLAN 5G ; Frequency: 5690 MHz
Medium parameters used: f = 5690 MHz; σ = 5.884 S/m; ε_r = 47.212; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3578; ConvF(3.29, 3.29, 3.29); Calibrated: 2013/6/20;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2013/9/24
- Phantom: ELI v5.0
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/Lap-held/Area Scan (101x211x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 0.955 W/kg

Configuration/Lap-held/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 1.619 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 1.94 W/kg
SAR(1 g) = 0.496 W/kg; SAR(10 g) = 0.196 W/kg
Maximum value of SAR (measured) = 0.909 W/kg



0 dB = 0.909 W/kg = -0.41 dBW/kg

Date: 2014/4/18

WLAN802.11a5.8G_Body_Back side_CH 165_Aux_repeat SAR test at the highest SAR measurement

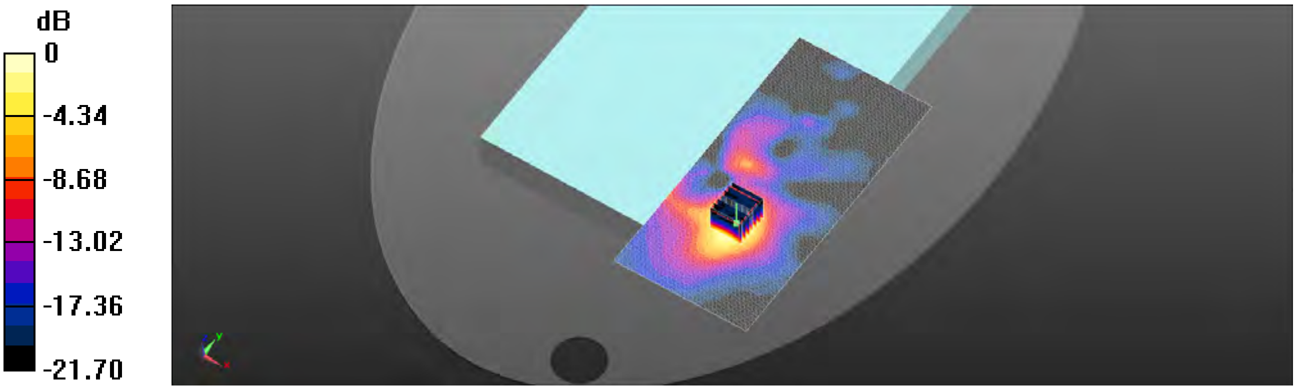
Communication System:WLAN 5G ; Frequency: 5825 MHz
Medium parameters used: f = 5825 MHz; σ = 6.081 S/m; ε_r = 46.864; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3578; ConvF(3.35, 3.35, 3.35); Calibrated: 2013/6/20;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2013/9/24
- Phantom: ELI v5.0
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/Lap-held/Area Scan (101x211x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 2.39 W/kg

Configuration/Lap-held/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 1.561 V/m; Power Drift = -0.16 dB
Peak SAR (extrapolated) = 4.46 W/kg
SAR(1 g) = 1.17 W/kg; SAR(10 g) = 0.434 W/kg
Maximum value of SAR (measured) = 2.17 W/kg



0 dB = 2.17 W/kg = 3.36 dBW/kg

Date: 2014/4/18

WLAN802.11ac(80M)5.8G_Body_Back side_CH 155_Aux

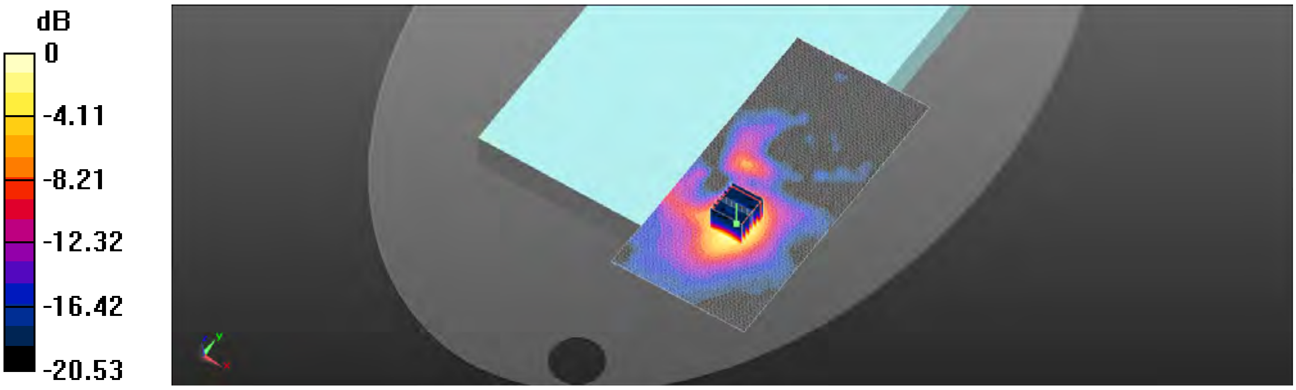
Communication System:WLAN 5G ; Frequency: 5775 MHz
Medium parameters used: f = 5775 MHz; σ = 6.013 S/m; ε_r = 46.997; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3578; ConvF(3.35, 3.35, 3.35); Calibrated: 2013/6/20;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2013/9/24
- Phantom: ELI v5.0
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/Lap-held/Area Scan (101x211x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 1.49 W/kg

Configuration/Lap-held/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 1.236 V/m; Power Drift = 0.15 dB
Peak SAR (extrapolated) = 2.98 W/kg
SAR(1 g) = 0.791 W/kg; SAR(10 g) = 0.301 W/kg
Maximum value of SAR (measured) = 1.48 W/kg



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

Date: 2014/4/12

WLAN802.11n(20M)_Body_Back side_CH 1_MIMO

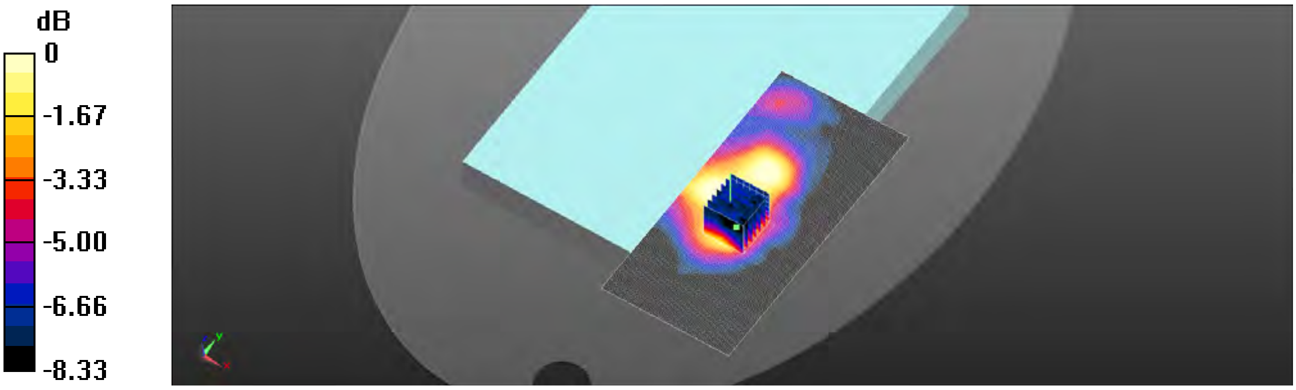
Communication System:WLAN 2.45G ; Frequency: 2412 MHz
Medium parameters used: f = 2412 MHz; σ = 1.932 S/m; εr = 53.078; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3578; ConvF(6.31, 6.31, 6.31); Calibrated: 2013/6/20;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2013/9/24
- Phantom: ELI v5.0
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/Lap-held/Area Scan (81x171x1): Interpolated grid: dx=12 mm, dy=12 mm
Maximum value of SAR (interpolated) = 0.161 W/kg

Configuration/Lap-held/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.332 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 0.199 W/kg
SAR(1 g) = 0.118 W/kg; SAR(10 g) = 0.079 W/kg
Maximum value of SAR (measured) = 0.158 W/kg



0 dB = 0.158 W/kg = -8.01 dBW/kg

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Date: 2014/4/13

WLAN802.11n(20M)5.2G_Body_Top side_CH 48_MIMO

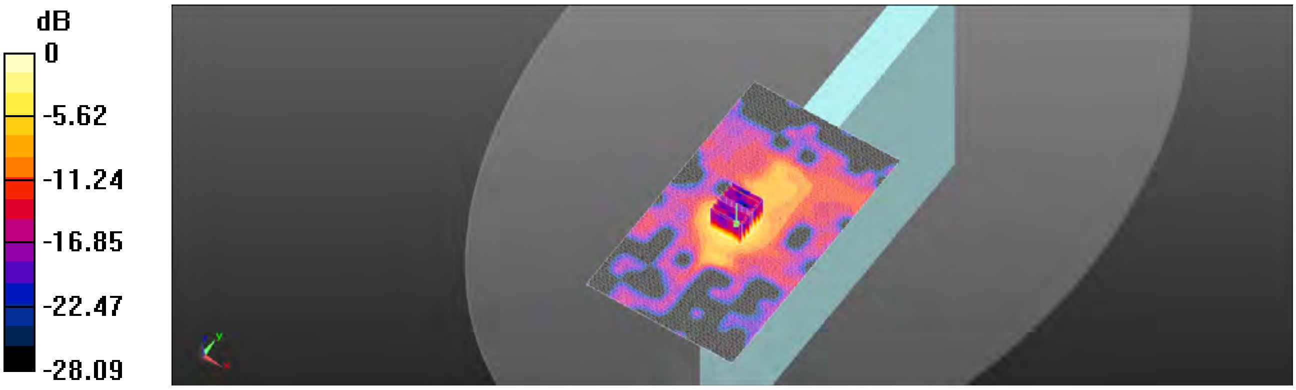
Communication System:WLAN 5G ; Frequency: 5240 MHz
Medium parameters used: f = 5240 MHz; σ = 5.227 S/m; ε_r = 48.36; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3578; ConvF(3.9, 3.9, 3.9); Calibrated: 2013/6/20;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2013/9/24
- Phantom: ELI v5.0
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/Top side/Area Scan (111x191x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 0.392 W/kg

Configuration/Top side/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 1.443 V/m; Power Drift = -0.11 dB
Peak SAR (extrapolated) = 1.34 W/kg
SAR(1 g) = 0.376 W/kg; SAR(10 g) = 0.139 W/kg
Maximum value of SAR (measured) = 0.707 W/kg



0 dB = 0.707 W/kg = -1.51 dBW/kg

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Date: 2014/4/13

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

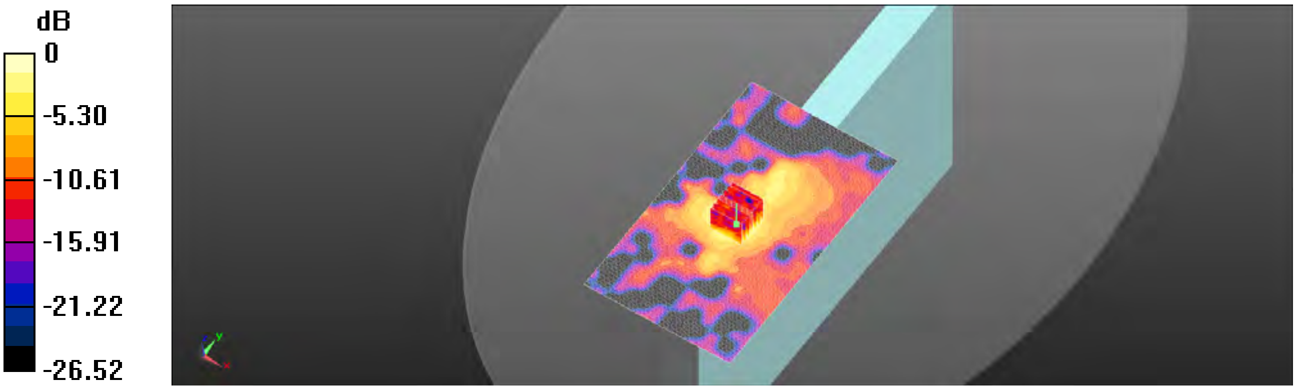
Communication System:WLAN 5G ; Frequency: 5230 MHz
Medium parameters used: f = 5230 MHz; σ = 5.212 S/m; ε_r = 48.382; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3578; ConvF(3.9, 3.9, 3.9); Calibrated: 2013/6/20;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2013/9/24
- Phantom: ELI v5.0
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/Top side/Area Scan (111x191x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 0.229 W/kg

Configuration/Top side/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 1.090 V/m; Power Drift = 0.18 dB
Peak SAR (extrapolated) = 0.486 W/kg
SAR(1 g) = 0.135 W/kg; SAR(10 g) = 0.054 W/kg
Maximum value of SAR (measured) = 0.246 W/kg



0 dB = 0.246 W/kg = -6.09 dBW/kg

Date: 2014/4/13

WLAN802.11ac(80M)5.2G_Body_Top side_CH 42_MIMO

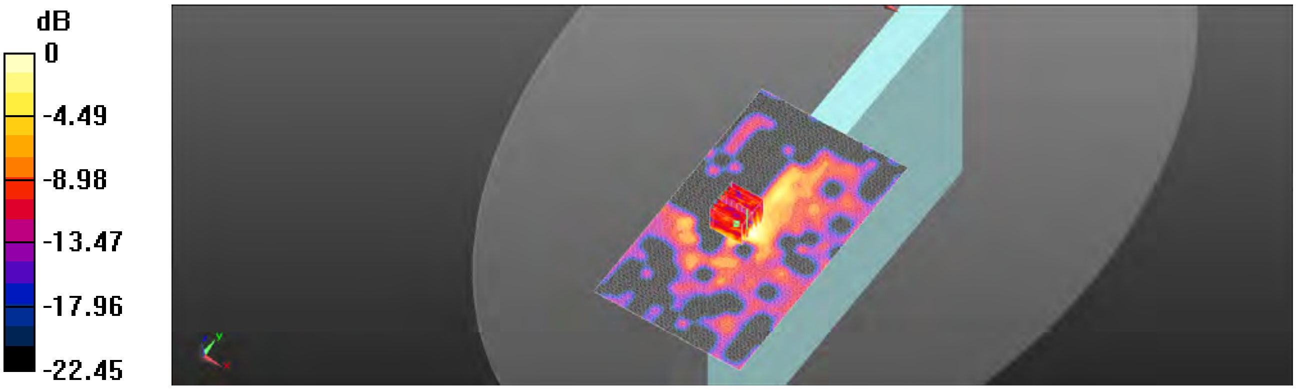
Communication System:WLAN 5G ; Frequency: 5210 MHz
Medium parameters used: f = 5210 MHz; σ = 5.181 S/m; ε_r = 48.435; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3578; ConvF(3.9, 3.9, 3.9); Calibrated: 2013/6/20;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2013/9/24
- Phantom: ELI v5.0
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/Top side/Area Scan (111x191x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 0.334 W/kg

Configuration/Top side/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 1.186 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 0.354 W/kg
SAR(1 g) = 0.095 W/kg; SAR(10 g) = 0.041 W/kg
Maximum value of SAR (measured) = 0.180 W/kg



0 dB = 0.180 W/kg = -7.45 dBW/kg

Date: 2014/4/15

WLAN802.11n(20M)5.3G_Body_Top side_CH 56_MIMO

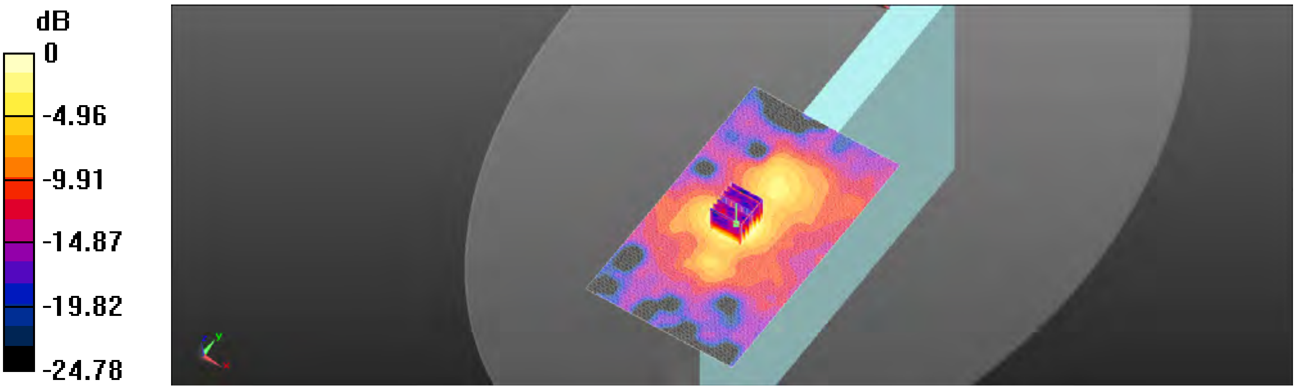
Communication System:WLAN 5G ; Frequency: 5280 MHz
Medium parameters used: f = 5280 MHz; σ = 5.287 S/m; ε_r = 48.251; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3578; ConvF(3.64, 3.64, 3.64); Calibrated: 2013/6/20;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2013/9/24
- Phantom: ELI v5.0
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/Top side/Area Scan (111x191x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 0.639 W/kg

Configuration/Top side/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 1.956 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 1.22 W/kg
SAR(1 g) = 0.349 W/kg; SAR(10 g) = 0.133 W/kg
Maximum value of SAR (measured) = 0.629 W/kg



0 dB = 0.629 W/kg = -2.01 dBW/kg

Date: 2014/4/15

WLAN802.11ac(80M)5.3G_Body_Top side_CH 58_MIMO

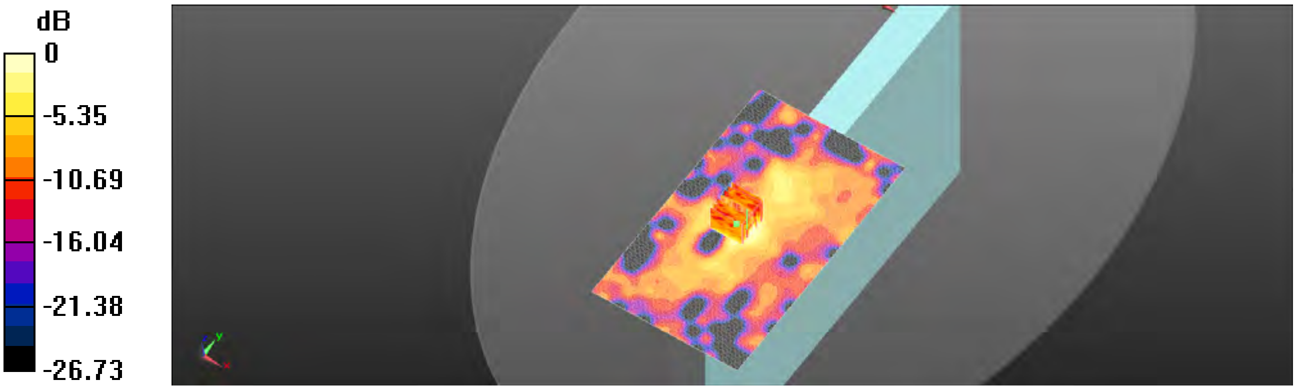
Communication System:WLAN 5G ; Frequency: 5290 MHz
Medium parameters used: f = 5290 MHz; σ = 5.299 S/m; ε_r = 48.226; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3578; ConvF(3.64, 3.64, 3.64); Calibrated: 2013/6/20;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2013/9/24
- Phantom: ELI v5.0
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/Top side/Area Scan (111x191x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 0.195 W/kg

Configuration/Top side/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 1.136 V/m; Power Drift = 0.13 dB
Peak SAR (extrapolated) = 0.287 W/kg
SAR(1 g) = 0.089 W/kg; SAR(10 g) = 0.040 W/kg
Maximum value of SAR (measured) = 0.155 W/kg



0 dB = 0.155 W/kg = -8.10 dBW/kg

Date: 2014/4/16

WLAN802.11n(20M)5.6G_Body_Back side_CH 136_MIMO

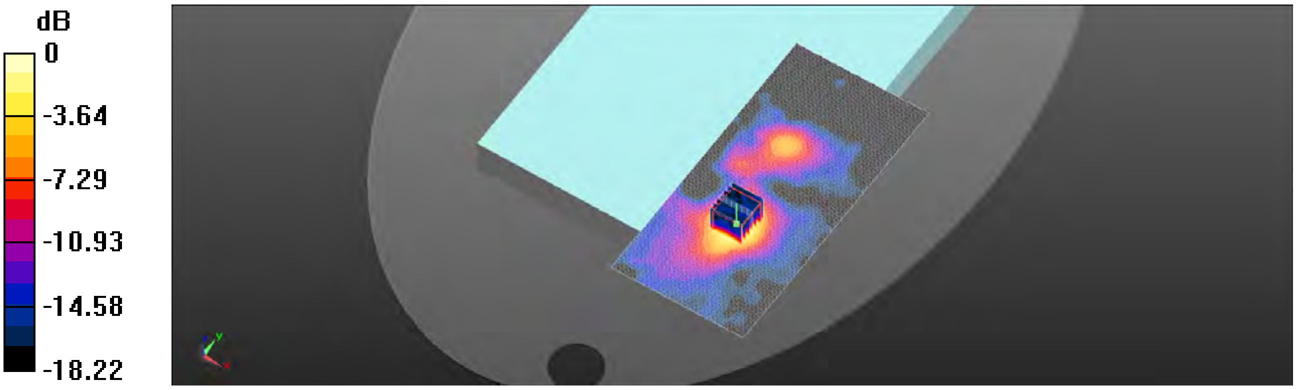
Communication System:WLAN 5G ; Frequency: 5680 MHz
Medium parameters used: f = 5680 MHz; σ = 5.874 S/m; ε_r = 47.233; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3578; ConvF(3.29, 3.29, 3.29); Calibrated: 2013/6/20;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2013/9/24
- Phantom: ELI v5.0
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/Lap-held/Area Scan (101x211x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 0.975 W/kg

Configuration/Lap-held/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 0.861 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 1.91 W/kg
SAR(1 g) = 0.501 W/kg; SAR(10 g) = 0.195 W/kg
Maximum value of SAR (measured) = 0.924 W/kg



0 dB = 0.924 W/kg = -0.34 dBW/kg

Date: 2014/4/16

WLAN802.11ac(20M)5.6G_Body_Back side_CH 144_MIMO

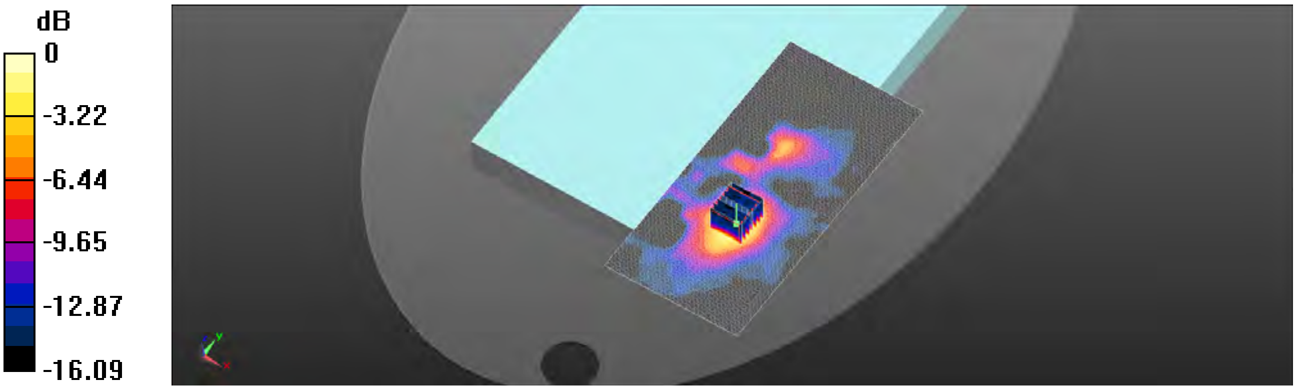
Communication System:WLAN 5G ; Frequency: 5720 MHz
Medium parameters used: f = 5720 MHz; σ = 5.928 S/m; ε_r = 47.12; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3578; ConvF(3.35, 3.35, 3.35); Calibrated: 2013/6/20;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2013/9/24
- Phantom: ELI v5.0
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/Lap-held/Area Scan (101x211x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 0.541 W/kg

Configuration/Lap-held/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 1.007 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 1.11 W/kg
SAR(1 g) = 0.285 W/kg; SAR(10 g) = 0.114 W/kg
Maximum value of SAR (measured) = 0.520 W/kg



0 dB = 0.520 W/kg = -2.84 dBW/kg

Date: 2014/4/17

WLAN802.11ac(40M)5.6G_Body_Back side_CH 142_MIMO

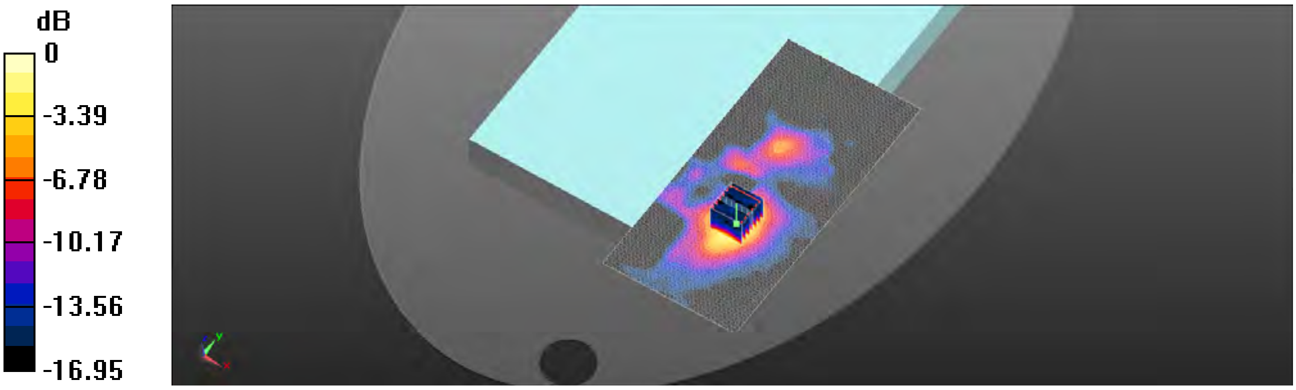
Communication System:WLAN 5G ; Frequency: 5710 MHz
Medium parameters used: f = 5710 MHz; σ = 5.912 S/m; ε_r = 47.155; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3578; ConvF(3.35, 3.35, 3.35); Calibrated: 2013/6/20;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2013/9/24
- Phantom: ELI v5.0
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/Lap-held/Area Scan (101x211x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 0.641 W/kg

Configuration/Lap-held/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 0.497 V/m; Power Drift = 0.14 dB
Peak SAR (extrapolated) = 1.29 W/kg
SAR(1 g) = 0.347 W/kg; SAR(10 g) = 0.138 W/kg
Maximum value of SAR (measured) = 0.645 W/kg



0 dB = 0.645 W/kg = -1.90 dBW/kg

Date: 2014/4/17

WLAN802.11ac(80M)5.6G_Body_Back side_CH 138_MIMO

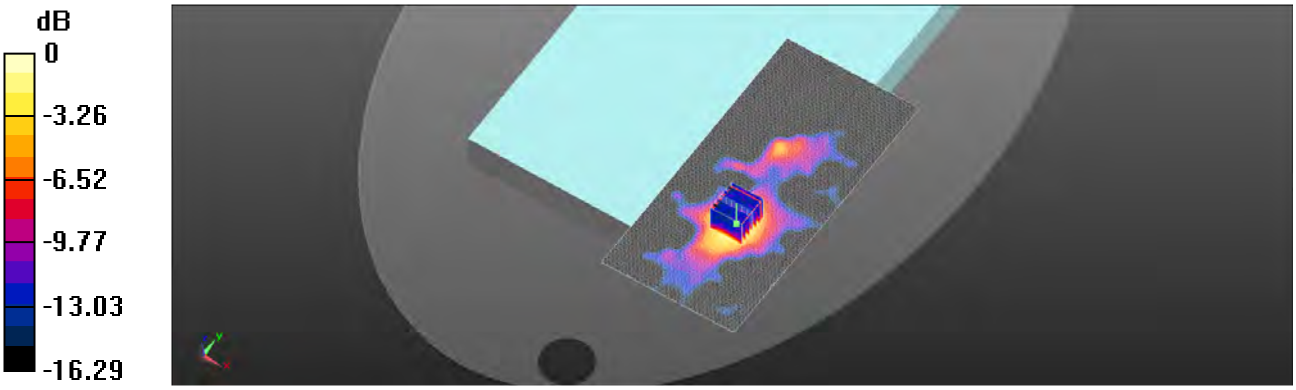
Communication System:WLAN 5G ; Frequency: 5690 MHz
Medium parameters used: f = 5690 MHz; σ = 5.884 S/m; ε_r = 47.212; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3578; ConvF(3.29, 3.29, 3.29); Calibrated: 2013/6/20;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2013/9/24
- Phantom: ELI v5.0
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/Lap-held/Area Scan (101x211x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 0.327 W/kg

Configuration/Lap-held/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 0 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 0.684 W/kg
SAR(1 g) = 0.170 W/kg; SAR(10 g) = 0.071 W/kg
Maximum value of SAR (measured) = 0.308 W/kg



0 dB = 0.308 W/kg = -5.11 dBW/kg

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Date: 2014/4/18

WLAN802.11n(20M)5.8G_Body_Back side_CH 161_MIMO

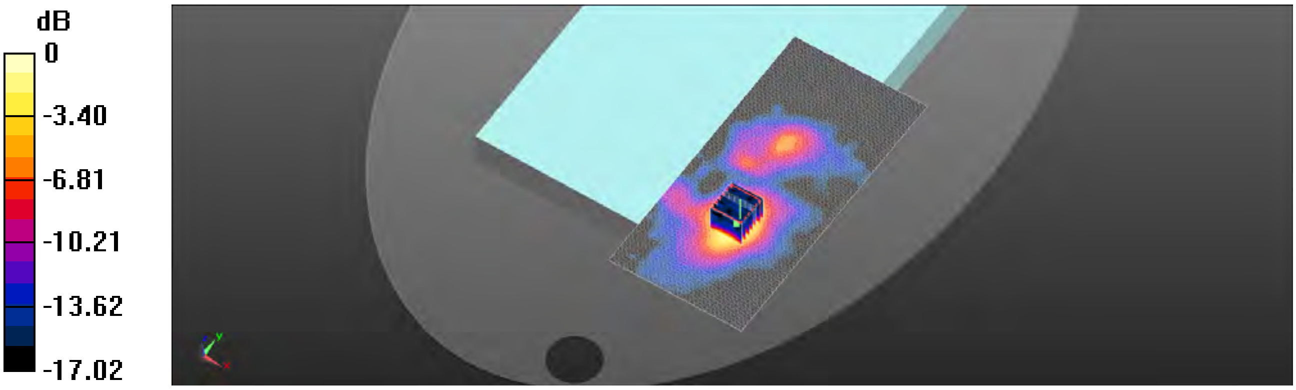
Communication System:WLAN 5G ; Frequency: 5805 MHz
Medium parameters used: f = 5805 MHz; σ = 6.05 S/m; ε_r = 46.93; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3578; ConvF(3.35, 3.35, 3.35); Calibrated: 2013/6/20;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2013/9/24
- Phantom: ELI v5.0
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/Lap-held/Area Scan (101x211x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 0.734 W/kg

Configuration/Lap-held/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 0.848 V/m; Power Drift = 0.19 dB
Peak SAR (extrapolated) = 1.50 W/kg
SAR(1 g) = 0.392 W/kg; SAR(10 g) = 0.156 W/kg
Maximum value of SAR (measured) = 0.712 W/kg



0 dB = 0.712 W/kg = -1.48 dBW/kg

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Date: 2014/4/18

WLAN802.11ac(80M)5.8G_Body_Back side_CH 155_MIMO

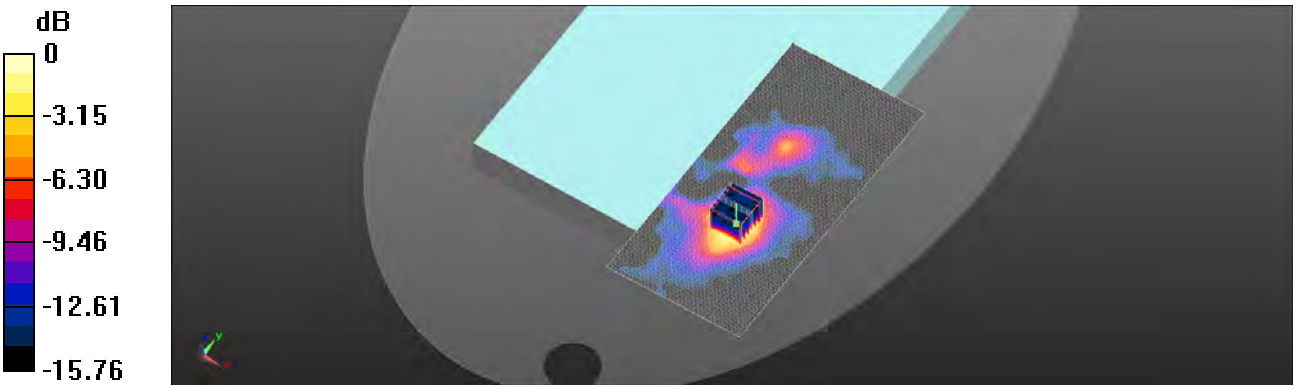
Communication System:WLAN 5G ; Frequency: 5775 MHz
Medium parameters used: f = 5775 MHz; σ = 6.013 S/m; ε_r = 46.997; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3578; ConvF(3.35, 3.35, 3.35); Calibrated: 2013/6/20;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2013/9/24
- Phantom: ELI v5.0
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/Lap-held/Area Scan (101x211x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 0.547 W/kg

Configuration/Lap-held/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 0.562 V/m; Power Drift = 0.19 dB
Peak SAR (extrapolated) = 1.10 W/kg
SAR(1 g) = 0.298 W/kg; SAR(10 g) = 0.122 W/kg
Maximum value of SAR (measured) = 0.543 W/kg



0 dB = 0.543 W/kg = -2.65 dBW/kg

6. SAR System Performance Verification

Date: 4/26/2014

Dipole 750 MHz_SN:1015_Body

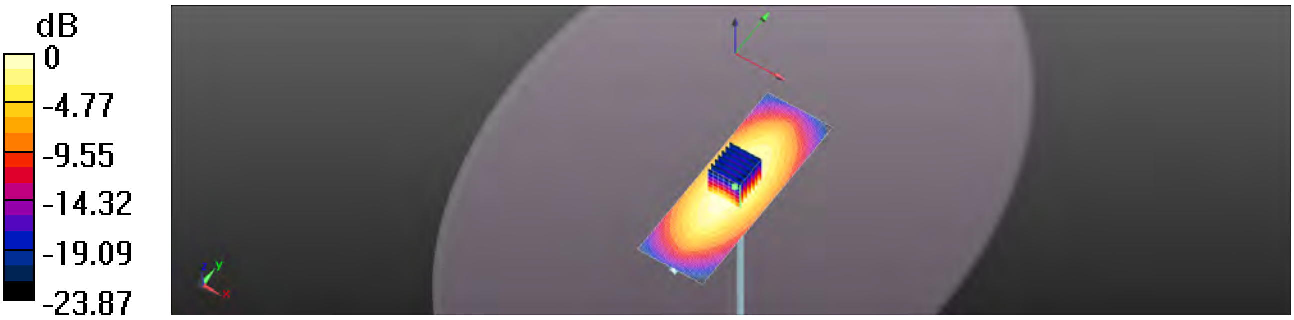
Communication System: CW ; Frequency: 750 MHz
Medium parameters used: f = 750 MHz; σ = 0.993 S/m; ε_r = 53.397; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3979; ConvF(9.44, 9.44, 9.44); Calibrated: 3/4/2014;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/23/2013
- Phantom: SAM2
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/d=15mm, Pin=250mW, dist=2mm: Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 2.68 W/kg

Configuration/d=15mm, Pin=250mW, dist=2mm: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 52.651 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 3.21 W/kg
SAR(1 g) = 2.17 W/kg; SAR(10 g) = 1.44 W/kg
Maximum value of SAR (measured) = 2.69 W/kg



0 dB = 2.68 W/kg = 4.29 dBW/kg

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Date: 4/23/2014

Dipole 835 MHz_SN:4d156_Body

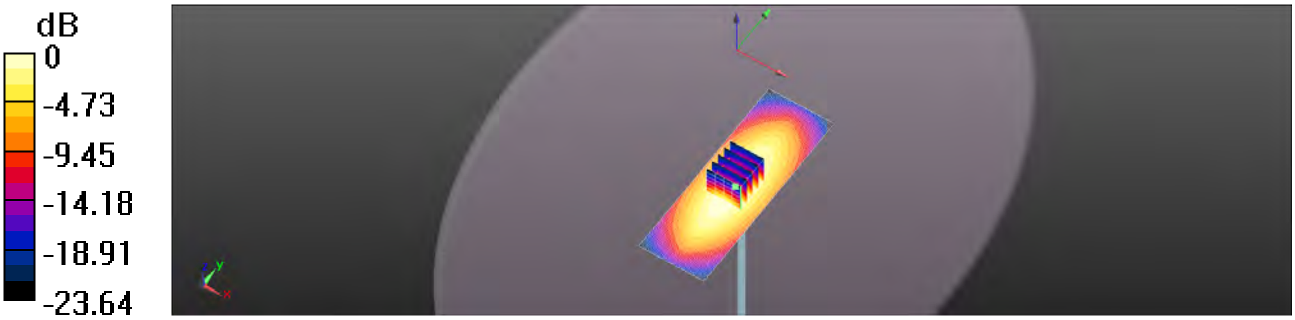
Communication System: CW; Frequency: 835 MHz
Medium parameters used: f = 835 MHz; σ = 1.008 S/m; ε_r = 53.776; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3979; ConvF(7.71, 7.71, 7.71); Calibrated: 3/4/2014;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/23/2013
- Phantom: SAM2
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/d=15mm, Pin=250mW, dist=2mm: Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 3.02 W/kg

Configuration/d=15mm, Pin=250mW, dist=2mm: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 55.706 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 3.61 W/kg
SAR(1 g) = 2.37 W/kg; SAR(10 g) = 1.54 W/kg
Maximum value of SAR (measured) = 3.03 W/kg



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

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Date: 4/28/2014

Dipole 835 MHz_SN:4d156_Body

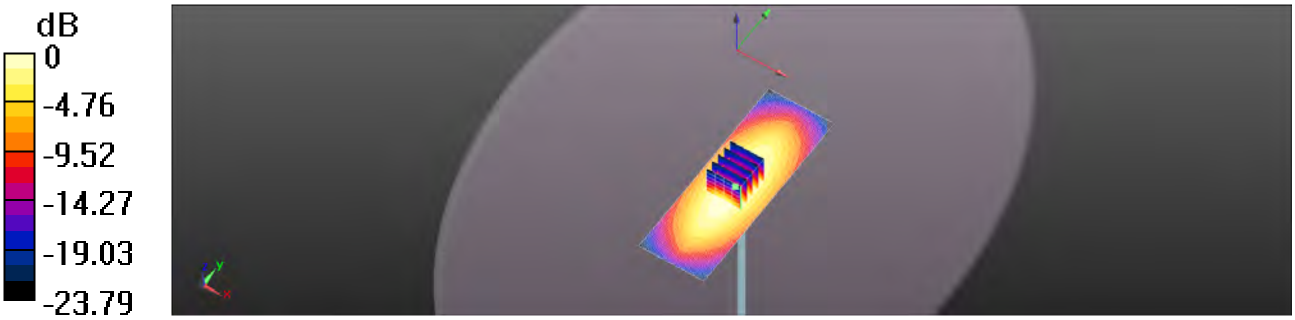
Communication System: CW; Frequency: 835 MHz
Medium parameters used: f = 835 MHz; σ = 1.001 S/m; ε_r = 53.763; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3979; ConvF(7.71, 7.71, 7.71); Calibrated: 3/4/2014;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/23/2013
- Phantom: SAM2
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/d=15mm, Pin=250mW, dist=2mm: Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 2.97 W/kg

Configuration/d=15mm, Pin=250mW, dist=2mm: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 55.198 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 3.54 W/kg
SAR(1 g) = 2.35 W/kg; SAR(10 g) = 1.51 W/kg
Maximum value of SAR (measured) = 2.97 W/kg



0 dB = 2.97 W/kg = 4.73 dBW/kg

Date: 6/4/2014

Dipole 835 MHz_SN:4d156_Body

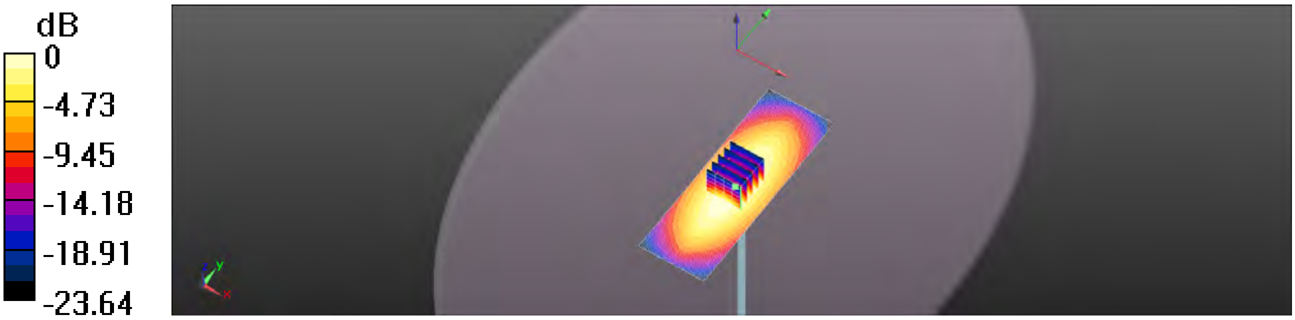
Communication System: CW; Frequency: 835 MHz
Medium parameters used: f = 835 MHz; σ = 0.998 S/m; ε_r = 53.766; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3979; ConvF(9.21, 9.21, 9.21); Calibrated: 3/4/2014;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/23/2013
- Phantom: ELI v5.0 ; Type: QDOVA002AA; Serial: TP:xxxx
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/d=15mm, Pin=250mW, dist=2mm: Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 3.02 W/kg

Configuration/d=15mm, Pin=250mW, dist=2mm: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 55.706 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 3.61 W/kg
SAR(1 g) = 2.34 W/kg; SAR(10 g) = 1.52 W/kg
Maximum value of SAR (measured) = 3.03 W/kg



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

Date: 4/24/2014

Dipole 1750 MHz_SN:1095_Body

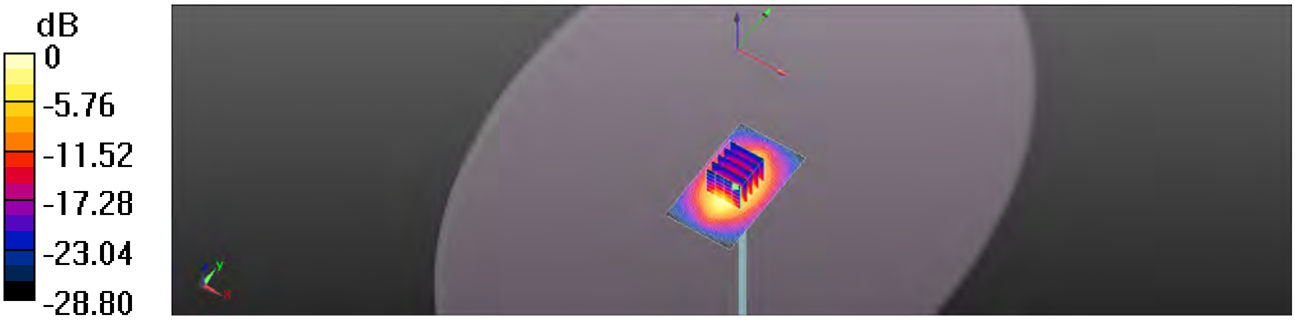
Communication System: CW; Frequency: 1750 MHz
Medium parameters used: f = 1750 MHz; σ = 1.442 S/m; ε_r = 53.784; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3979; ConvF(7.71, 7.71, 7.71); Calibrated: 3/4/2014;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/23/2013
- Phantom: SAM2
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/d=10mm, Pin=250mW, dist=2mm: Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 13.6 W/kg

Configuration/d=10mm, Pin=250mW, dist=2mm: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 96.717 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 16.2 W/kg
SAR(1 g) = 9.24 W/kg; SAR(10 g) = 4.92 W/kg
Maximum value of SAR (measured) = 13.0 W/kg



0 dB = 13.6 W/kg = 11.35 dBW/kg

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Date: 6/4/2014

Dipole 1750 MHz_SN:1095_Body

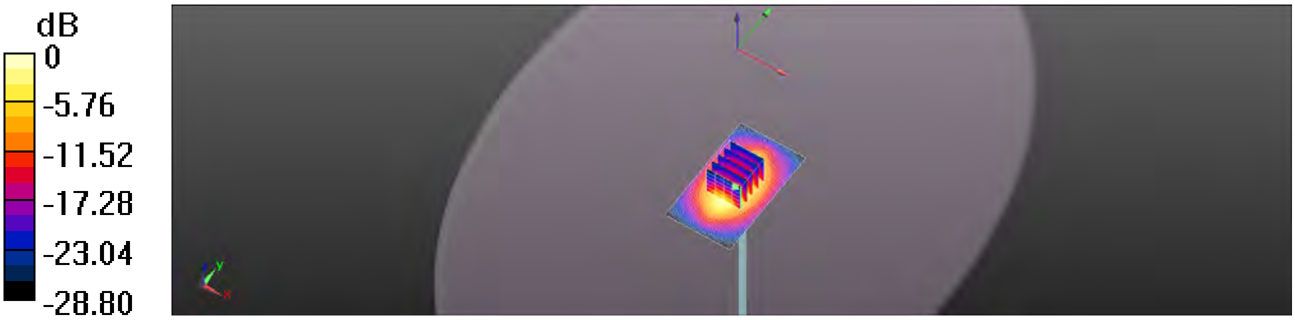
Communication System: CW; Frequency: 1750 MHz
Medium parameters used: f = 1750 MHz; σ = 1.432 S/m; ε_r = 53.774; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3979; ConvF(8.12, 8.12, 8.12); Calibrated: 3/4/2014;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/23/2013
- Phantom: ELI v5.0 ; Type: QDOVA002AA; Serial: TP:xxxx
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/d=10mm, Pin=250mW, dist=2mm: Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 13.6 W/kg

Configuration/d=10mm, Pin=250mW, dist=2mm: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 96.717 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 16.2 W/kg
SAR(1 g) = 9.21 W/kg; SAR(10 g) = 4.90 W/kg
Maximum value of SAR (measured) = 13.0 W/kg



0 dB = 13.6 W/kg = 11.35 dBW/kg

Date: 4/25/2014

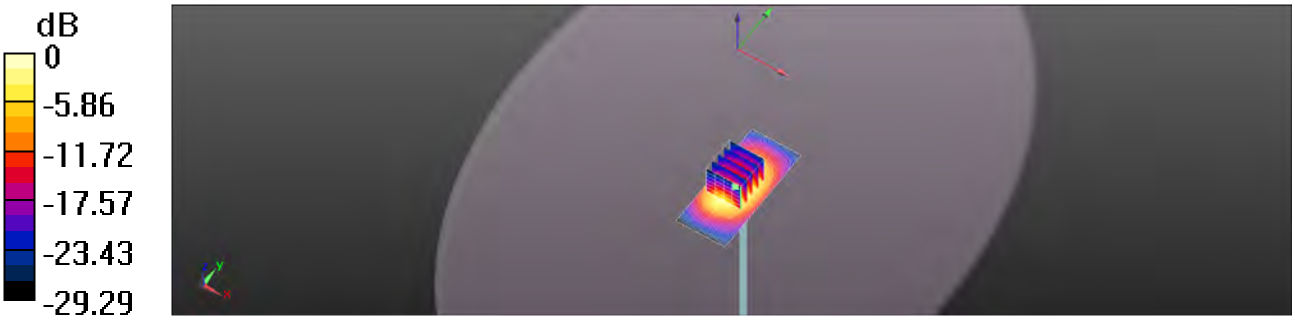
Dipole 1900 MHz_SN:5d173_Body
Communication System: CW; Frequency: 1900 MHz
Medium parameters used: f = 1900 MHz; σ = 1.534 S/m; ε_r = 54.069; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3979; ConvF(7.71, 7.71, 7.71); Calibrated: 3/4/2014;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/23/2013
- Phantom: SAM2
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/d=10mm, Pin=250mW, dist=2mm: Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 15.2 W/kg

Configuration/d=10mm, Pin=250mW, dist=2mm: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 99.620 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 18.2 W/kg
SAR(1 g) = 10.2 W/kg; SAR(10 g) = 5.3 W/kg
Maximum value of SAR (measured) = 14.5 W/kg



0 dB = 15.2 W/kg = 11.83 dBW/kg

Date: 4/27/2014

Dipole 1900 MHz_SN:5d173_Body

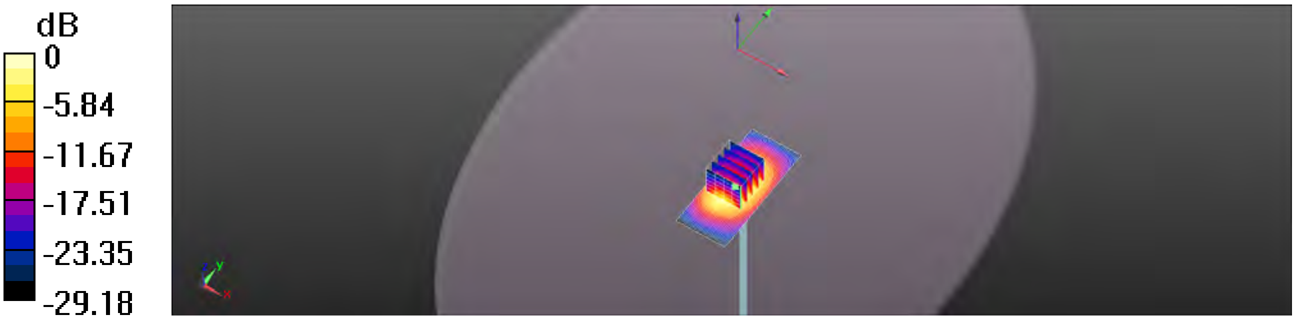
Communication System: CW; Frequency: 1900 MHz
Medium parameters used: f = 1900 MHz; σ = 1.533 S/m; ε_r = 54.079; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3979; ConvF(7.71, 7.71, 7.71); Calibrated: 3/4/2014;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/23/2013
- Phantom: SAM2
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/d=10mm, Pin=250mW, dist=2mm: Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 14.9 W/kg

Configuration/d=10mm, Pin=250mW, dist=2mm: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 98.566 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 17.8 W/kg
SAR(1 g) = 9.97 W/kg; SAR(10 g) = 5.19 W/kg
Maximum value of SAR (measured) = 14.2 W/kg



0 dB = 14.9 W/kg = 11.74 dBW/kg

Date: 6/4/2014

Dipole 1900 MHz_SN:5d173_Body

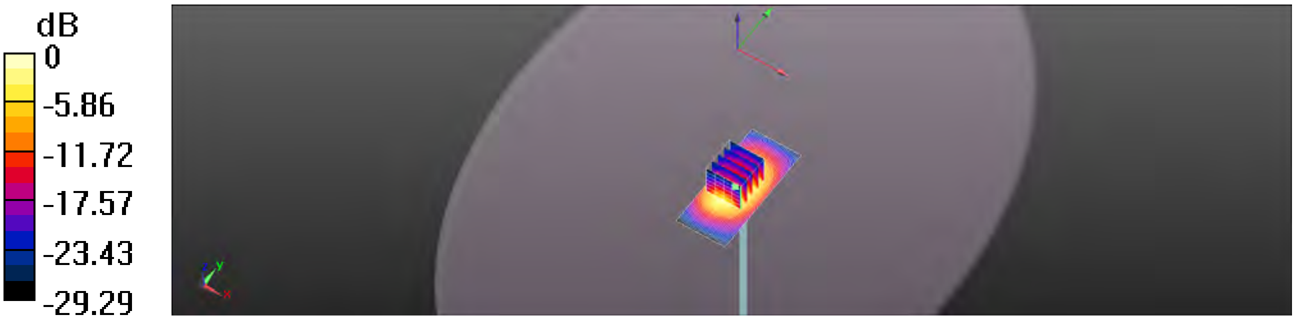
Communication System: CW; Frequency: 1900 MHz
Medium parameters used: f = 1900 MHz; σ = 1.524 S/m; ε_r = 54.059; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3979; ConvF(7.71, 7.71, 7.71); Calibrated: 3/4/2014;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/23/2013
- Phantom: ELI v5.0 ; Type: QDOVA002AA; Serial: TP:xxxx
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/d=10mm, Pin=250mW, dist=2mm: Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 15.2 W/kg

Configuration/d=10mm, Pin=250mW, dist=2mm: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 99.620 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 18.2 W/kg
SAR(1 g) = 10.4 W/kg; SAR(10 g) = 5.25 W/kg
Maximum value of SAR (measured) = 14.5 W/kg



0 dB = 15.2 W/kg = 11.83 dBW/kg

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Date: 2014/4/11

Dipole 2450 MHz_SN:727_Body

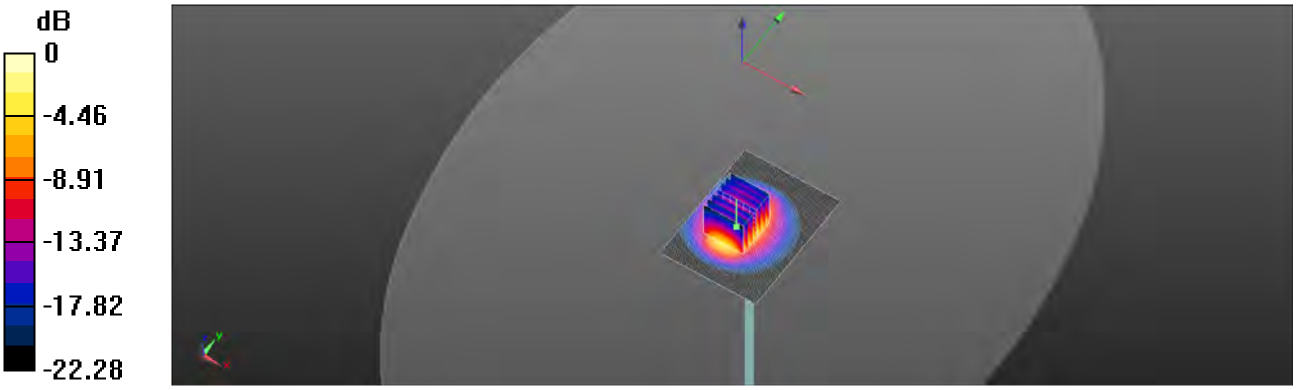
Communication System: CW; Frequency: 2450 MHz
Medium parameters used: f = 2450 MHz; σ = 1.979 S/m; ε_r = 52.953; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3578; ConvF(6.31, 6.31, 6.31); Calibrated: 2013/6/20;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2013/9/24
- Phantom: ELI v5.0;
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Dipole Calibration for Body Tissue/Pin=250mW, d=10mm/Area Scan (61x81x1): Interpolated grid: dx=12 mm, dy=12 mm
Maximum value of SAR (interpolated) = 19.4 W/kg

Dipole Calibration for Body Tissue/Pin=250mW, d=10mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 94.888 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 24.9 W/kg
SAR(1 g) = 12.1 W/kg; SAR(10 g) = 5.61 W/kg
Maximum value of SAR (measured) = 18.3 W/kg



0 dB = 18.3 W/kg = 12.62 dBW/kg

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Date: 2014/4/12

Dipole 2450 MHz_SN:727_Body

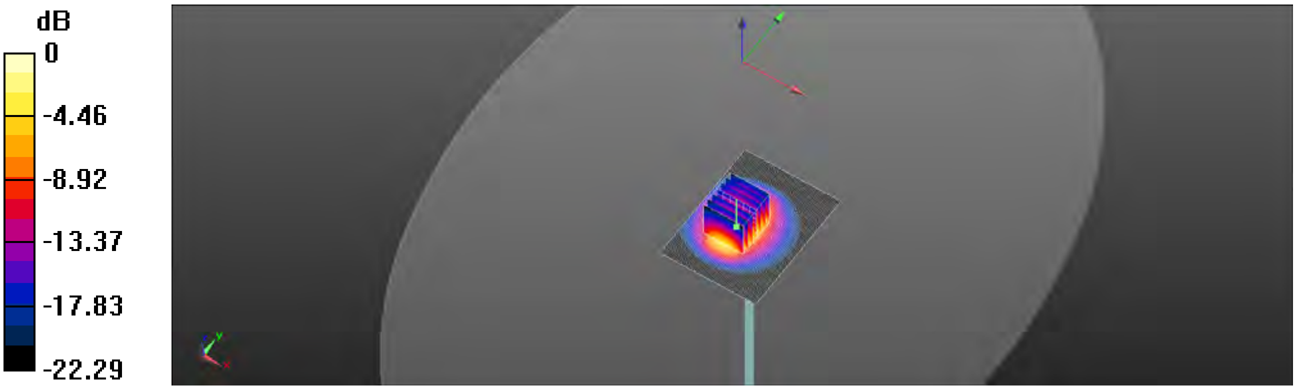
Communication System: CW; Frequency: 2450 MHz
Medium parameters used: f = 2450 MHz; σ = 1.974 S/m; ε_r = 52.965; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3578; ConvF(6.31, 6.31, 6.31); Calibrated: 2013/6/20;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2013/9/24
- Phantom: ELI v5.0;
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Dipole Calibration for Body Tissue/Pin=250mW, d=10mm/Area Scan (61x81x1): Interpolated grid: dx=12 mm, dy=12 mm
Maximum value of SAR (interpolated) = 19.5 W/kg

Dipole Calibration for Body Tissue/Pin=250mW, d=10mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 95.229 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 25.1 W/kg
SAR(1 g) = 12.2 W/kg; SAR(10 g) = 5.65 W/kg
Maximum value of SAR (measured) = 18.5 W/kg



0 dB = 18.5 W/kg = 12.67 dBW/kg

Dipole 5.2 GHz_SN:1023_Body

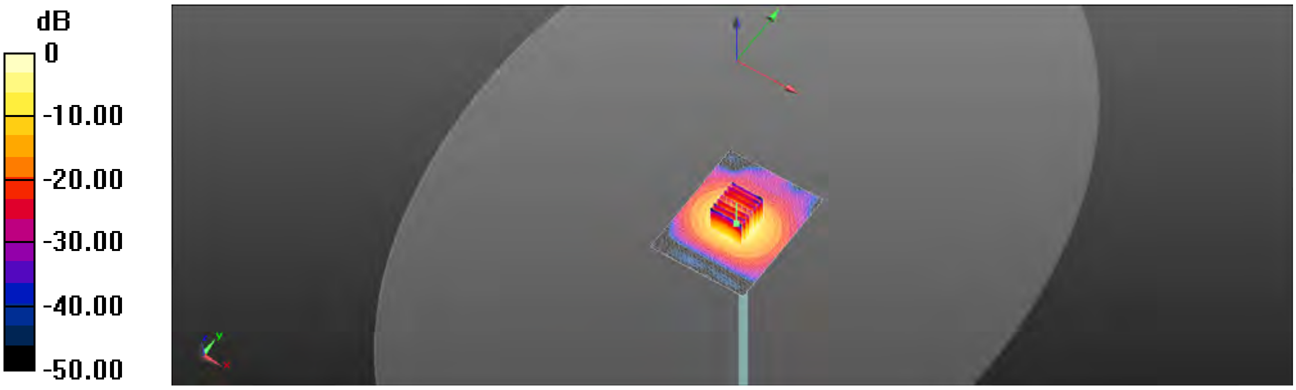
Communication System: CW; Frequency: 5200 MHz
Medium parameters used: f = 5200 MHz; σ = 5.163 S/m; ε_r = 48.467; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3578; ConvF(3.9, 3.9, 3.9); Calibrated: 2013/6/20;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2013/9/24
- Phantom: ELI v5.0;
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Dipole Calibration for Body Tissue/Pin=100mW, d=10mm/Area Scan (71x91x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 14.5 W/kg

Dipole Calibration for Body Tissue/Pin=100mW, d=10mm/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 56.704 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 22.6 W/kg
SAR(1 g) = 7.01 W/kg; SAR(10 g) = 2.07 W/kg
Maximum value of SAR (measured) = 13.6 W/kg



0 dB = 13.6 W/kg = 11.34 dBW/kg

Date: 2014/4/14

Dipole 5.2 GHz_SN:1023_Body

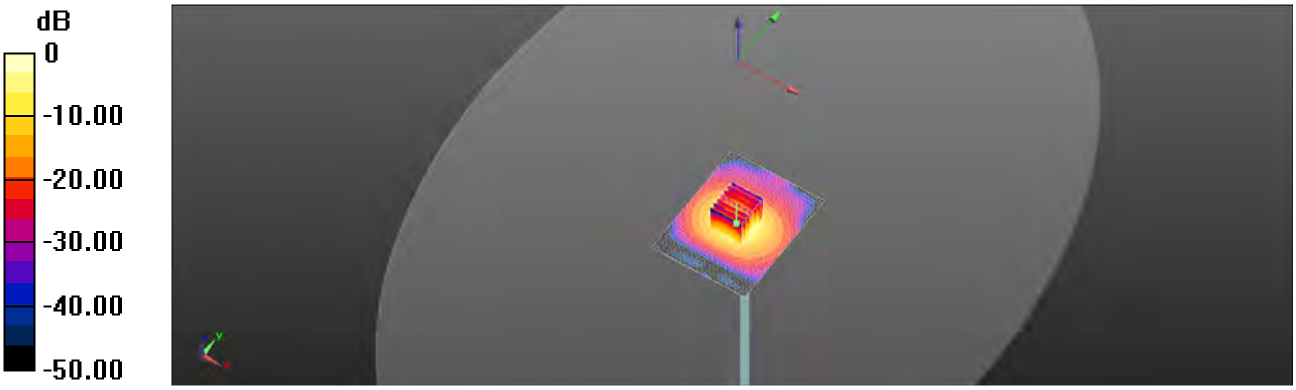
Communication System: CW; Frequency: 5200 MHz
Medium parameters used: f = 5200 MHz; σ = 5.174 S/m; ε_r = 48.463; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3578; ConvF(3.9, 3.9, 3.9); Calibrated: 2013/6/20;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2013/9/24
- Phantom: ELI v5.0;
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Dipole Calibration for Body Tissue/Pin=100mW, d=10mm/Area Scan (71x91x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 14.4 W/kg

Dipole Calibration for Body Tissue/Pin=100mW, d=10mm/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 56.647 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 22.5 W/kg
SAR(1 g) = 7.04 W/kg; SAR(10 g) = 2.08 W/kg
Maximum value of SAR (measured) = 13.6 W/kg



0 dB = 13.6 W/kg = 11.34 dBW/kg

Date: 2014/4/15

Dipole 5.3 GHz_SN:1023_Body

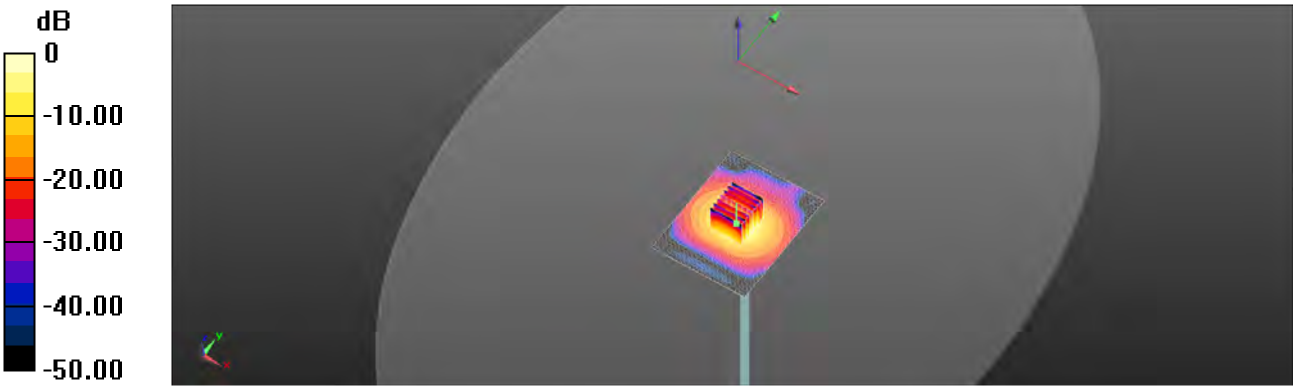
Communication System: CW; Frequency: 5300 MHz
Medium parameters used: f = 5300 MHz; σ = 5.31 S/m; ε_r = 48.202; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3578; ConvF(3.64, 3.64, 3.64); Calibrated: 2013/6/20;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2013/9/24
- Phantom: ELI v5.0;
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Dipole Calibration for Body Tissue/Pin=100mW, d=10mm/Area Scan (71x91x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 15.7 W/kg

Dipole Calibration for Body Tissue/Pin=100mW, d=10mm/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 58.387 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 25.0 W/kg
SAR(1 g) = 7.62 W/kg; SAR(10 g) = 2.24 W/kg
Maximum value of SAR (measured) = 14.9 W/kg



0 dB = 14.9 W/kg = 11.73 dBW/kg

Date: 2014/4/16

Dipole 5.6 GHz_SN:1023_Body

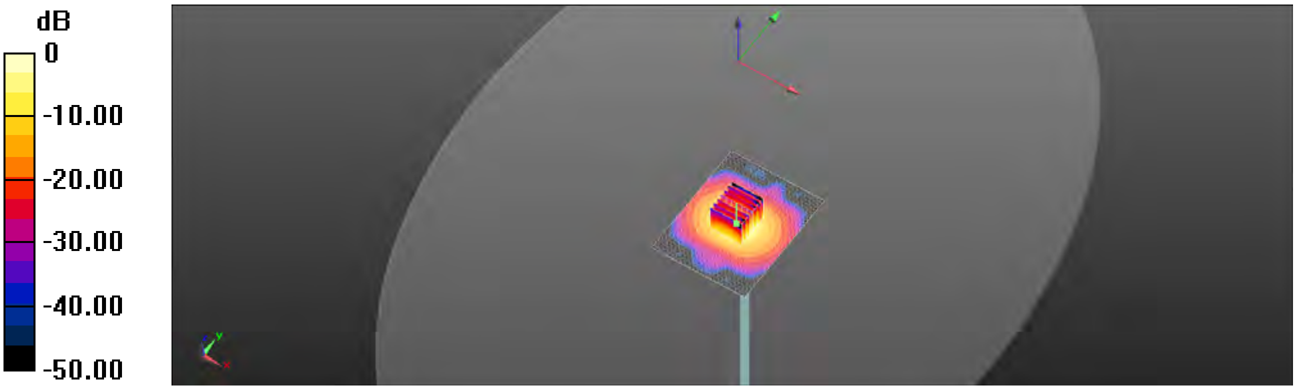
Communication System: CW; Frequency: 5600 MHz
Medium parameters used: f = 5600 MHz; σ = 5.75 S/m; ε_r = 47.446; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3578; ConvF(3.29, 3.29, 3.29); Calibrated: 2013/6/20;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2013/9/24
- Phantom: ELI v5.0;
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Dipole Calibration for Body Tissue/Pin=100mW, d=10mm/Area Scan (71x91x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 17.6 W/kg

Dipole Calibration for Body Tissue/Pin=100mW, d=10mm/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 59.001 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 29.5 W/kg
SAR(1 g) = 8.5 W/kg; SAR(10 g) = 2.46 W/kg
Maximum value of SAR (measured) = 16.9 W/kg



0 dB = 16.9 W/kg = 12.28 dBW/kg

Dipole 5.6 GHz_SN:1023_Body

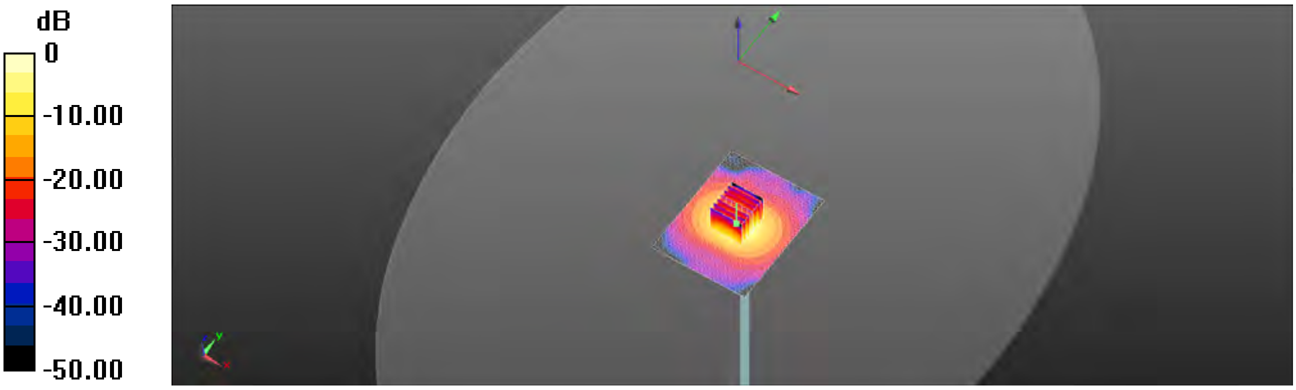
Communication System: CW; Frequency: 5600 MHz
Medium parameters used: f = 5600 MHz; σ = 5.738 S/m; ε_r = 47.432; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3578; ConvF(3.29, 3.29, 3.29); Calibrated: 2013/6/20;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2013/9/24
- Phantom: ELI v5.0;
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Dipole Calibration for Body Tissue/Pin=100mW, d=10mm/Area Scan (71x91x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 17.0 W/kg

Dipole Calibration for Body Tissue/Pin=100mW, d=10mm/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 57.801 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 28.0 W/kg
SAR(1 g) = 8.02 W/kg; SAR(10 g) = 2.33 W/kg
Maximum value of SAR (measured) = 16.0 W/kg



0 dB = 16.0 W/kg = 12.04 dBW/kg

Date: 2014/4/18

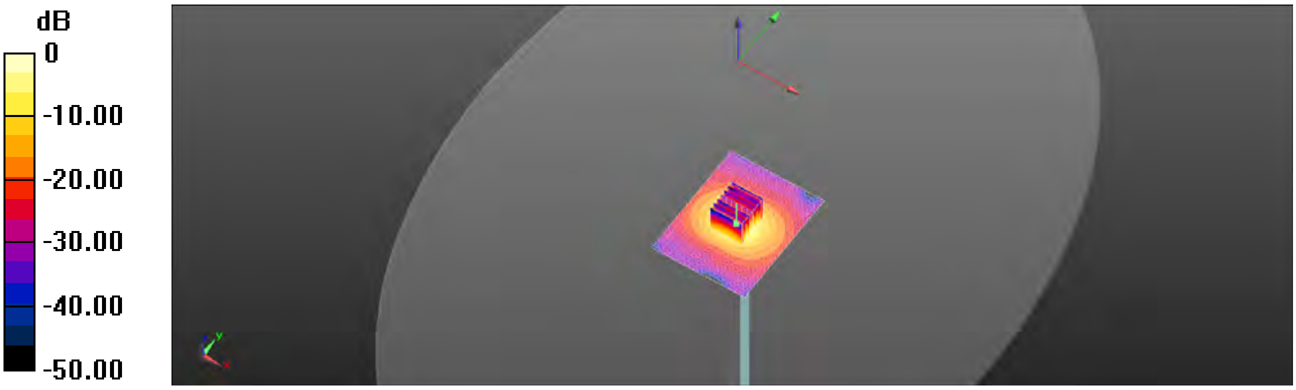
Dipole 5.8 GHz_SN:1023_Body
Communication System: CW; Frequency: 5800 MHz
Medium parameters used: f = 5800 MHz; σ = 6.042 S/m; ε_r = 46.948; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3578; ConvF(3.35, 3.35, 3.35); Calibrated: 2013/6/20;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2013/9/24
- Phantom: ELI v5.0;
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Dipole Calibration for Body Tissue/Pin=100mW, d=10mm/Area Scan (71x91x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 17.6 W/kg

Dipole Calibration for Body Tissue/Pin=100mW, d=10mm/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 58.601 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 30.9 W/kg
SAR(1 g) = 8.06 W/kg; SAR(10 g) = 2.26 W/kg
Maximum value of SAR (measured) = 16.8 W/kg



0 dB = 16.8 W/kg = 12.25 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
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: DAE4-1336_Sep13

CALIBRATION CERTIFICATE

Object	DAE4 - SD 000 D04 BM - SN: 1336
Calibration procedure(s)	QA CAL-06.v26 Calibration procedure for the data acquisition electronics (DAE)
Calibration date:	September 24, 2013

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
Keithley Multimeter Type 2001	SN: 0810278	02-Oct-12 (No:12728)	Oct-13
Secondary Standards	**ID #**	**Check Date (in house)**	**Scheduled Check**
Auto DAE Calibration Unit	SE UWS 053 AA 1001	07-Jan-13 (in house check)	In house check: Jan-14
Calibrator Box V2.1	SE UMS 006 AA 1002	07-Jan-13 (in house check)	In house check: Jan-14

	Name	Function	Signature
Calibrated by:	R.Mayoraz	Technician	
Approved by:	Fin Bomholt	Deputy Technical Manager	

Issued: September 24, 2013

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

Certificate No: DAE4-1336_Sep13   Page 1 of 5

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

S Schweizerischer Kalibrierdienst
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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**

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 = 6.1μV , full range = -100...+300 mV

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

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

Calibration Factors	X	Y	Z
High Range	403.237 ± 0.02% (k=2)	403.535 ± 0.02% (k=2)	403.020 ± 0.02% (k=2)
Low Range	3.94960 ± 1.50% (k=2)	3.98537 ± 1.50% (k=2)	3.98528 ± 1.50% (k=2)

Connector Angle

Connector Angle to be used in DASY system	122.0 ° ± 1 °

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Appendix

1. DC Voltage Linearity

High Range		Reading (μV)	Difference (μV)	Error (%)
Channel X	+ Input	199994.85	-1.00	-0.00
Channel X	+ Input	20000.28	0.26	0.00
Channel X	- Input	-20000.96	0.29	-0.00
Channel Y	+ Input	199996.21	0.09	0.00
Channel Y	+ Input	19997.62	-2.55	-0.01
Channel Y	- Input	-20001.68	-0.35	0.00
Channel Z	+ Input	199997.48	1.52	0.00
Channel Z	+ Input	19999.63	-0.39	-0.00
Channel Z	- Input	-20002.39	-0.92	0.00

Low Range		Reading (μV)	Difference (μV)	Error (%)
Channel X	+ Input	2000.21	0.11	0.01
Channel X	+ Input	200.88	0.37	0.18
Channel X	- Input	-198.82	0.54	-0.27
Channel Y	+ Input	2000.00	-0.03	-0.00
Channel Y	+ Input	199.76	-0.69	-0.35
Channel Y	- Input	-200.27	-0.83	0.41
Channel Z	+ Input	2000.02	0.03	0.00
Channel Z	+ Input	199.72	-0.71	-0.36
Channel Z	- Input	-200.25	-0.80	0.40

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	6.37	4.62
	- 200	-3.40	-4.67
Channel Y	200	-3.98	-4.36
	- 200	2.07	2.00
Channel Z	200	22.00	21.75
	- 200	-23.78	-23.80

3. Channel separation

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

	Input Voltage (mV)	Channel X (μV)	Channel Y (μV)	Channel Z (μV)
Channel X	200	-	5.20	-1.05
Channel Y	200	8.91	-	7.14
Channel Z	200	9.03	6.60	-

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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	15652	15053
Channel Y	15907	15561
Channel Z	15891	15503

5. Input Offset Measurement

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

	Average (μV)	min. Offset (μV)	max. Offset (μV)	Std. Deviation (μV)
Channel X	0.97	0.18	1.87	0.34
Channel Y	0.06	-1.23	0.94	0.40
Channel Z	1.25	0.46	2.02	0.34

6. Input Offset Current

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

7. Input Resistance (Typical values for information)

	Zeroing (kOhm)	Measuring (MOhm)
Channel X	200	200
Channel Y	200	200
Channel Z	200	200

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

Typical values	Alarm Level (VDC)
Supply (+ Vcc)	+7.9
Supply (- Vcc)	-7.6

9. Power Consumption (Typical values for information)

Typical values	Switched off (mA)	Stand by (mA)	Transmitting (mA)
Supply (+ Vcc)	+0.01	+6	+14
Supply (- Vcc)	-0.01	-8	-9

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Accreditation No.: **SCS 108**

Client **SGS-TW (Auden)**

Certificate No: **DAE4-856_May13**

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:	May 23, 2013

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
Keithley Multimeter Type 2001	SN: 0810278	02-Oct-12 (No:12728)	Oct-13
Secondary Standards	**ID #**	**Check Date (in house)**	**Scheduled Check**
Auto DAE Calibration Unit	SE UWS 053 AA 1001	07-Jan-13 (in house check)	In house check: Jan-14
Calibrator Box V2.1	SE UMS 006 AA 1002	07-Jan-13 (in house check)	In house check: Jan-14

	Name	Function	Signature
Calibrated by:	Eric Hainfeld	Technician	
Approved by:	Fin Bomholt	Deputy Technical Manager	i.V.

Issued: May 23, 2013

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Certificate No: DAE4-856_May13 Page 1 of 5

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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 = 6.1μV , full range = -100...+300 mV

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

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

Calibration Factors	X	Y	Z
High Range	403.416 ± 0.02% (k=2)	404.540 ± 0.02% (k=2)	403.867 ± 0.02% (k=2)
Low Range	3.97422 ± 1.50% (k=2)	3.97703 ± 1.50% (k=2)	3.97733 ± 1.50% (k=2)

Connector Angle

Connector Angle to be used in DASY system	52.5 ° ± 1 °

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Appendix

1. DC Voltage Linearity

High Range		Reading (μV)	Difference (μV)	Error (%)
Channel X	+ Input	199987.92	-6.55	-0.00
Channel X	+ Input	19997.24	-3.32	-0.02
Channel X	- Input	-19998.80	1.29	-0.01
Channel Y	+ Input	199992.46	-2.23	-0.00
Channel Y	+ Input	19997.79	-2.80	-0.01
Channel Y	- Input	-19998.99	1.02	-0.01
Channel Z	+ Input	199989.59	-5.43	-0.00
Channel Z	+ Input	19995.44	-5.08	-0.03
Channel Z	- Input	-20001.02	-0.96	0.00

Low Range		Reading (μV)	Difference (μV)	Error (%)
Channel X	+ Input	2001.12	0.11	0.01
Channel X	+ Input	202.01	0.43	0.21
Channel X	- Input	-199.13	-0.70	0.35
Channel Y	+ Input	2001.13	0.10	0.00
Channel Y	+ Input	200.48	-1.04	-0.52
Channel Y	- Input	-199.06	-0.54	0.27
Channel Z	+ Input	2001.11	0.21	0.01
Channel Z	+ Input	200.59	-0.87	-0.43
Channel Z	- Input	-199.44	-0.99	0.50

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	-15.25	-16.64
	- 200	18.50	16.42
Channel Y	200	-1.88	-1.90
	- 200	1.30	0.86
Channel Z	200	10.99	10.38
	- 200	-13.49	-12.90

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	-	2.15	-3.07
Channel Y	200	7.09	-	3.02
Channel Z	200	8.11	5.37	-

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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	16270	16836
Channel Y	15934	16230
Channel Z	15862	15687

5. Input Offset Measurement

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

	Average (μV)	min. Offset (μV)	max. Offset (μV)	Std. Deviation (μV)
Channel X	0.87	-0.19	2.70	0.40
Channel Y	-0.41	-1.96	0.66	0.46
Channel Z	-0.75	-1.60	0.05	0.32

6. Input Offset Current

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

7. Input Resistance (Typical values for information)

	Zeroing (kOhm)	Measuring (MOhm)
Channel X	200	200
Channel Y	200	200
Channel Z	200	200

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

Typical values	Alarm Level (VDC)
Supply (+ Vcc)	+7.9
Supply (- Vcc)	-7.6

9. Power Consumption (Typical values for information)

Typical values	Switched off (mA)	Stand by (mA)	Transmitting (mA)
Supply (+ Vcc)	+0.01	+6	+14
Supply (- Vcc)	-0.01	-8	-9

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Accreditation No.: **SCS 108**

Client **Auden**

Certificate No: **EX3-3578_Jun13**

CALIBRATION CERTIFICATE

Object	EX3DV4 - SN:3578
Calibration procedure(s)	QA CAL-01.v8, QA CAL-14.v3, QA CAL-23.v4, QA CAL-25.v4 Calibration procedure for dosimetric E-field probes
Calibration date:	June 20, 2013

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	04-Apr-13 (No. 217-01733)	Apr-14
Power sensor E4412A	MY41498087	04-Apr-13 (No. 217-01733)	Apr-14
Reference 3 dB Attenuator	SN: S5054 (3c)	04-Apr-13 (No. 217-01737)	Apr-14
Reference 20 dB Attenuator	SN: S5277 (20x)	04-Apr-13 (No. 217-01735)	Apr-14
Reference 30 dB Attenuator	SN: S5129 (30b)	04-Apr-13 (No. 217-01738)	Apr-14
Reference Probe ES3DV2	SN: 3013	28-Dec-12 (No. ES3-3013_Dec12)	Dec-13
DAE4	SN: 660	31-Jan-13 (No. DAE4-660_Jan13)	Jan-14
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-15
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-12)	In house check: Oct-13

	Name	Function	Signature
Calibrated by:	Israe El-Naouq	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: June 20, 2013

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Glossary:

TSL	tissue simulating liquid
NORMx,y,z	sensitivity in free space
ConvF	sensitivity in TSL / NORMx,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., ϑ = 0 is normal to probe axis

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
b) IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005

Methods Applied and Interpretation of Parameters:

- *NORMx,y,z:* Assessed for E-field polarization ϑ = 0 (f ≤ 900 MHz in TEM-cell; f > 1800 MHz: R22 waveguide). NORMx,y,z are only intermediate values, i.e., the uncertainties of NORMx,y,z does not affect the E^2-field uncertainty inside TSL (see below *ConvF*).
- *NORM(f)x,y,z = NORMx,y,z * frequency_response* (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of *ConvF*.
- *DCPx,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.
- *Ax,y,z; Bx,y,z; Cx,y,z; Dx,y,z; VRx,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 ≤ 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 *NORMx,y,z * ConvF* whereby the uncertainty corresponds to that given for *ConvF*. A frequency dependent *ConvF* is used in DASY version 4.4 and higher which allows extending the validity from ± 50 MHz to ± 100 MHz.
- *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.

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Probe EX3DV4

SN:3578

Manufactured: November 4, 2005
Calibrated: June 20, 2013

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

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DASY/EASY - Parameters of Probe: EX3DV4 - SN:3578

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu V/(V/m)^2$)[A]	0.53	0.50	0.56	± 10.1 %
DCP (mV)[B]	100.0	100.4	100.7	

Modulation Calibration Parameters

UID	Communication System Name		A dB	B $dB\sqrt{\mu V}$	C	D dB	VR mV	Unc[E] (k=2)
0	CW	X	0.0	0.0	1.0	0.00	166.0	±3.3 %
		Y	0.0	0.0	1.0		167.7	
		Z	0.0	0.0	1.0		173.2	

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 E^2 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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DASY/EASY - Parameters of Probe: EX3DV4 - SN:3578

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	Depth (mm)	Unct. (k=2)
750	41.9	0.89	8.85	8.85	8.85	0.26	1.13	± 12.0 %
835	41.5	0.90	8.41	8.41	8.41	0.25	1.18	± 12.0 %
900	41.5	0.97	8.29	8.29	8.29	0.19	1.45	± 12.0 %
1750	40.1	1.37	7.53	7.53	7.53	0.47	0.82	± 12.0 %
1900	40.0	1.40	7.17	7.17	7.17	0.59	0.75	± 12.0 %
2000	40.0	1.40	7.11	7.11	7.11	0.45	0.90	± 12.0 %
2450	39.2	1.80	6.39	6.39	6.39	0.61	0.76	± 12.0 %
5200	36.0	4.66	4.44	4.44	4.44	0.40	1.80	± 13.1 %
5300	35.9	4.76	4.26	4.26	4.26	0.40	1.80	± 13.1 %
5500	35.6	4.96	4.02	4.02	4.02	0.45	1.80	± 13.1 %
5600	35.5	5.07	3.92	3.92	3.92	0.40	1.80	± 13.1 %
5800	35.3	5.27	3.77	3.77	3.77	0.50	1.80	± 13.1 %

[C] Frequency validity 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.
[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.

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DASY/EASY - Parameters of Probe: EX3DV4 - SN:3578

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	Depth (mm)	Unct. (k=2)
750	55.5	0.96	8.68	8.68	8.68	0.52	0.80	± 12.0 %
835	55.2	0.97	8.50	8.50	8.50	0.25	1.24	± 12.0 %
900	55.0	1.05	8.43	8.43	8.43	0.56	0.76	± 12.0 %
1750	53.4	1.49	7.18	7.18	7.18	0.44	0.89	± 12.0 %
1900	53.3	1.52	6.78	6.78	6.78	0.61	0.76	± 12.0 %
2000	53.3	1.52	6.87	6.87	6.87	0.45	0.83	± 12.0 %
2450	52.7	1.95	6.31	6.31	6.31	0.80	0.62	± 12.0 %
5200	49.0	5.30	3.90	3.90	3.90	0.50	1.90	± 13.1 %
5300	48.9	5.42	3.64	3.64	3.64	0.50	1.90	± 13.1 %
5500	48.6	5.65	3.39	3.39	3.39	0.55	1.90	± 13.1 %
5600	48.5	5.77	3.29	3.29	3.29	0.50	1.90	± 13.1 %
5800	48.2	6.00	3.35	3.35	3.35	0.55	1.90	± 13.1 %

[C] Frequency validity 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.
[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.

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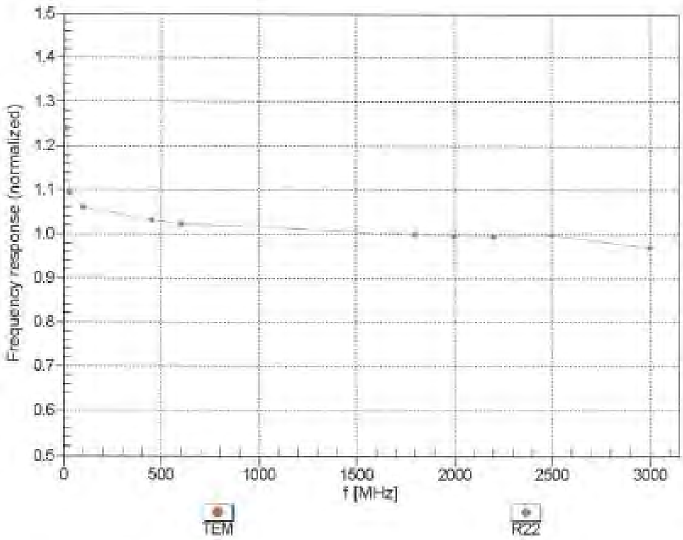
Frequency Response of E-Field

(TEM-Cell:ifi110 EXX, Waveguide: R22)



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

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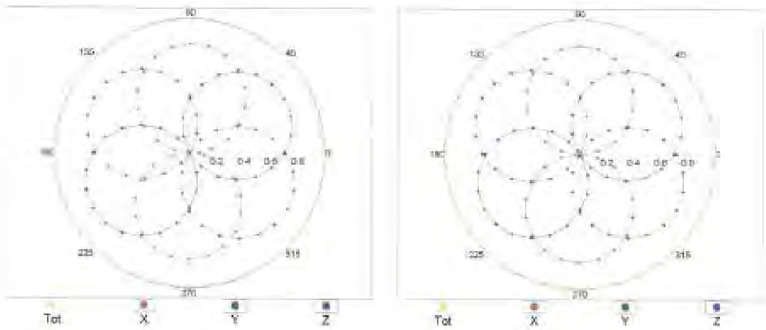
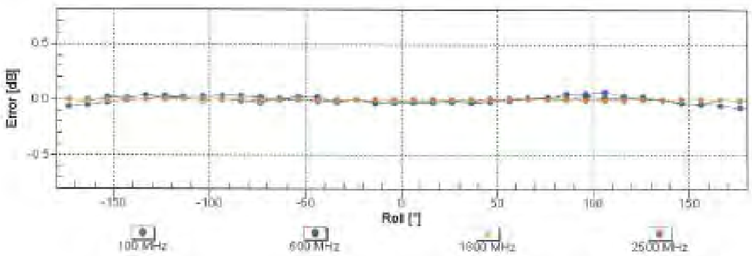
Receiving Pattern (ϕ), $\vartheta = 0°$

f=600 MHz,TEM f=1800 MHz,R22





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

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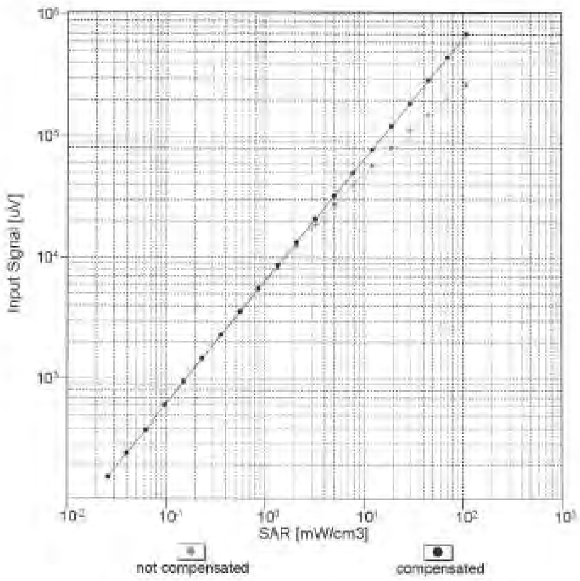
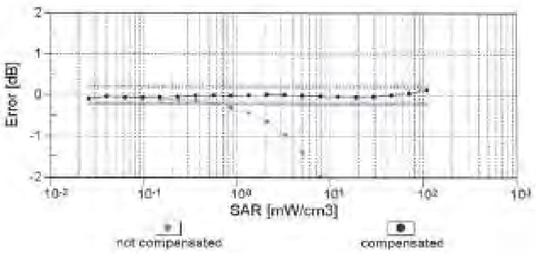
Dynamic Range f(SAR_{head})

(TEM cell , f = 900 MHz)





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

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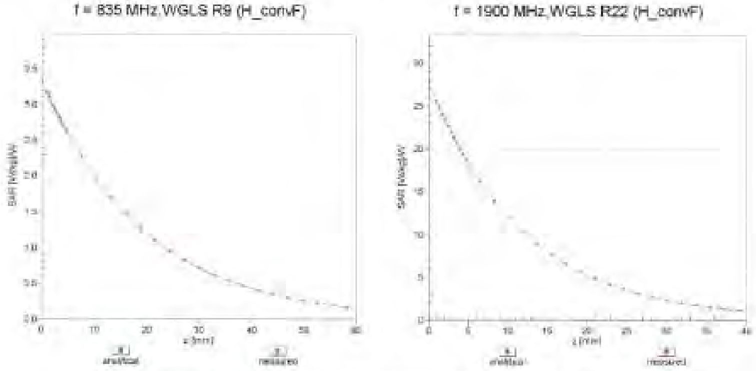
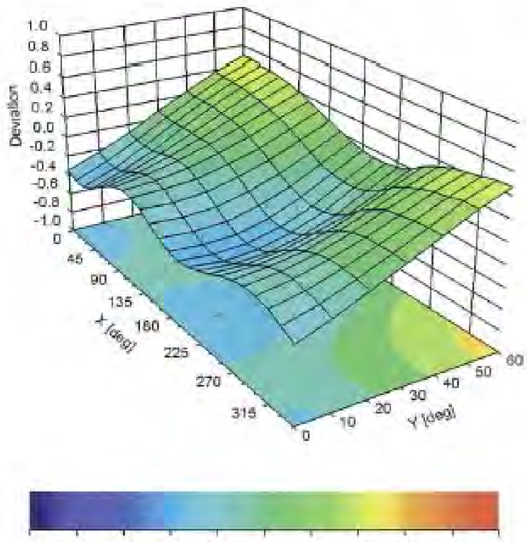
EX3DV4– SN:3578 June 20, 2013

Conversion Factor Assessment



Deviation from Isotropy in Liquid

Error (φ, θ), f = 900 MHz



Uncertainty of Spherical Isotropy Assessment: ± 2.6% (k=2)

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DASY/EASY - Parameters of Probe: EX3DV4 - SN:3578

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	-113.6
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	9 mm
Tip Diameter	2.5 mm
Probe Tip to Sensor X Calibration Point	1 mm
Probe Tip to Sensor Y Calibration Point	1 mm
Probe Tip to Sensor Z Calibration Point	1 mm
Recommended Measurement Distance from Surface	2 mm

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

ilac-MRA

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Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Client **Demen SH (Auden)**

Certificate No: **EX3-3979_Mar14**

CALIBRATION CERTIFICATE

Object: EX3DV4 - SN:3979

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: March 4, 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&TE critical for calibration)

Primary Standards	ID	Cal Date (Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	04-Apr-13 (No. 217-01733)	Apr-14
Power sensor E4412A	MY41498087	04-Apr-13 (No. 217-01733)	Apr-14
Reference 3 dB Attenuator	SN: S5054 (3c)	04-Apr-13 (No. 217-01737)	Apr-14
Reference 20 dB Attenuator	SN: S5277 (20x)	04-Apr-13 (No. 217-01735)	Apr-14
Reference 30 dB Attenuator	SN: S5129 (30b)	04-Apr-13 (No. 217-01738)	Apr-14
Reference Probe ES3DV2	SN: 3013	30-Dec-13 (No. ES3-3013_Dec13)	Dec-14
DAE4	SN: 660	13-Dec-13 (No. DAE4-660_Dec13)	Dec-14
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-13)	In house check: Oct-14

	Name	Function	Signature
Calibrated by:	Leif Klysner	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: March 4, 2014

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

Certificate No: EX3-3979_Mar14 Page 1 of 11

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Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Glossary:

TSL	tissue simulating liquid
NORMx,y,z	sensitivity in free space
ConvF	sensitivity in TSL / NORMx,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., ϑ = 0 is normal to probe axis
Connector Angle	information used in DASY system to align probe sensor X to the robot coordinate system

Calibration is Performed According to the Following Standards:

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

Methods Applied and Interpretation of Parameters:

- *NORMx,y,z:* Assessed for E-field polarization ϑ = 0 (f ≤ 900 MHz in TEM-cell; f > 1800 MHz: R22 waveguide). NORMx,y,z are only intermediate values, i.e., the uncertainties of NORMx,y,z does not affect the E^2-field uncertainty inside TSL (see below *ConvF*).
- *NORM(f)x,y,z = NORMx,y,z * frequency_response* (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of *ConvF*.
- *DCPx,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
- *Ax,y,z; Bx,y,z; Cx,y,z; Dx,y,z; VRx,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 ≤ 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 *NORMx,y,z * ConvF* whereby the uncertainty corresponds to that given for *ConvF*. A frequency dependent *ConvF* is used in DASY version 4.4 and higher which allows extending the validity from ± 50 MHz to ± 100 MHz.
- *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 *NORMx* (no uncertainty required).

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Probe EX3DV4

SN:3979

Manufactured: November 5, 2013
Calibrated: March 4, 2014

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

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DASY/EASY - Parameters of Probe: EX3DV4 - SN:3979

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu V/(V/m)^2$)[A]	0.48	0.50	0.48	± 10.1 %
DCP (mV)[B]	100.3	101.1	100.0	

Modulation Calibration Parameters

UID	Communication System Name		A dB	B dB$\sqrt{\mu V}$	C	D dB	VR mV	Unc[E] (k=2)
0	CW	X	0.0	0.0	1.0	0.00	137.1	±3.5 %
		Y	0.0	0.0	1.0		141.2	
		Z	0.0	0.0	1.0		133.2	

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 E^2-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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DASY/EASY - Parameters of Probe: EX3DV4 - SN:3979

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	9.93	9.93	9.93	0.22	1.39	± 12.0 %
900	41.5	0.97	9.42	9.42	9.42	0.46	0.80	± 12.0 %
1750	40.1	1.37	8.21	8.21	8.21	0.76	0.62	± 12.0 %
1900	40.0	1.40	8.01	8.01	8.01	0.48	0.76	± 12.0 %
2100	39.8	1.49	8.03	8.03	8.03	0.72	0.62	± 12.0 %
2450	39.2	1.80	7.02	7.02	7.02	0.32	0.92	± 12.0 %
5200	36.0	4.66	4.83	4.83	4.83	0.30	1.80	± 13.1 %
5500	35.6	4.96	4.67	4.67	4.67	0.35	1.80	± 13.1 %
5800	35.3	5.27	4.39	4.39	4.39	0.35	1.80	± 13.1 %

[C] Frequency validity 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.
[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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DASY/EASY - Parameters of Probe: EX3DV4 - SN:3979

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 [G] (mm)	Unct. (k=2)
750	55.5	0.96	9.44	9.44	9.44	0.64	0.71	± 12.0 %
900	55.0	1.05	9.21	9.21	9.21	0.80	0.62	± 12.0 %
1750	53.4	1.49	8.12	8.12	8.12	0.44	0.88	± 12.0 %
1900	53.3	1.52	7.71	7.71	7.71	0.44	0.88	± 12.0 %
2100	53.2	1.62	7.92	7.92	7.92	0.36	0.91	± 12.0 %
2450	52.7	1.95	7.08	7.08	7.08	0.80	0.58	± 12.0 %
5200	49.0	5.30	4.61	4.61	4.61	0.40	1.90	± 13.1 %
5500	48.6	5.65	4.02	4.02	4.02	0.45	1.90	± 13.1 %
5800	48.2	6.00	4.28	4.28	4.28	0.45	1.90	± 13.1 %

[C] Frequency validity 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.
[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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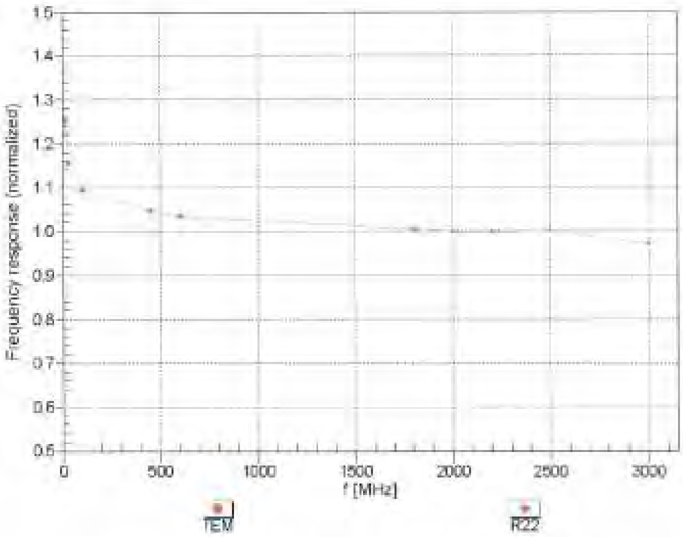
EX3DV4– SN:3979 March 4, 2014

Frequency Response of E-Field

(TEM-Cell:ifi110 EXX, Waveguide: R22)



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

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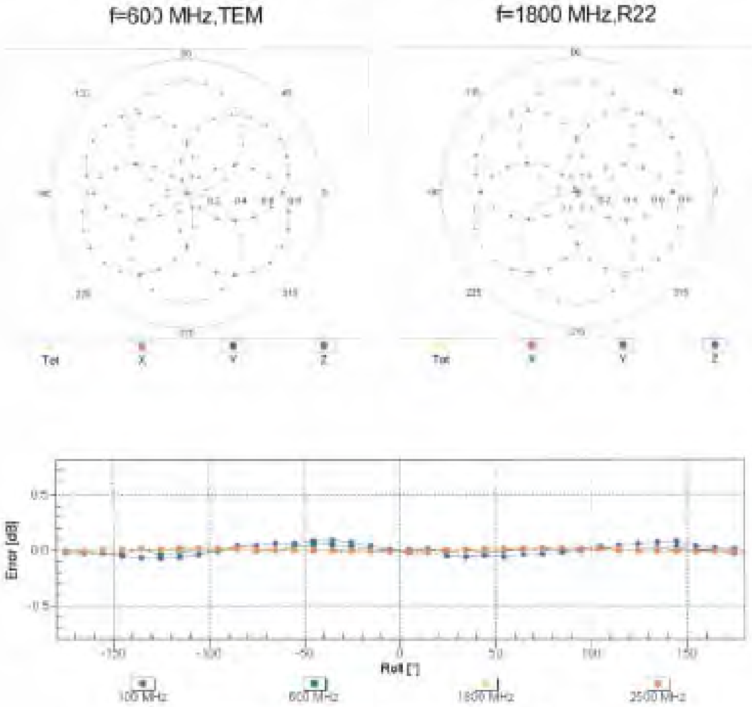
EX3DV4– SN:3979 March 4, 2014

Receiving Pattern (ϕ), ϑ = 0°



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

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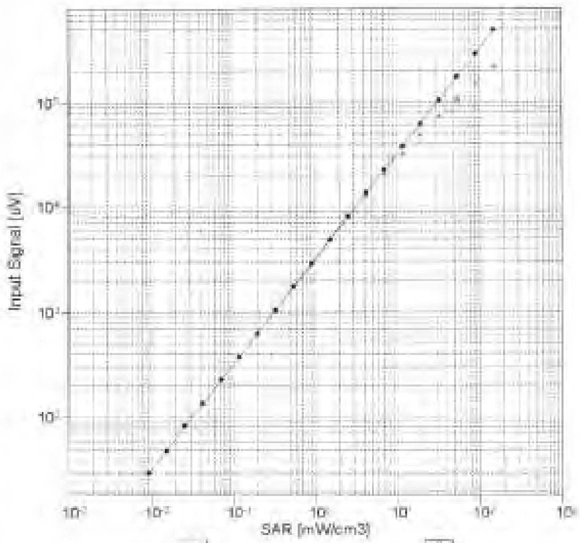
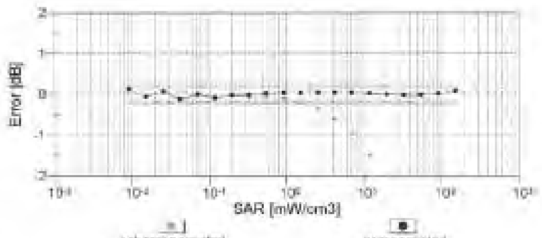
Dynamic Range f(SAR_{head})

(TEM cell , f_{eval}= 1900 MHz)





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

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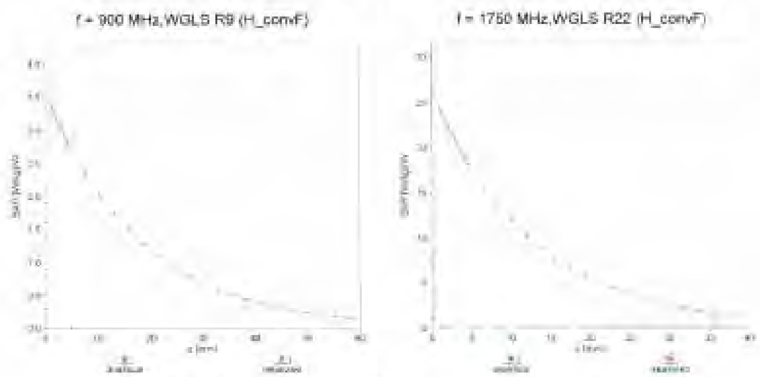
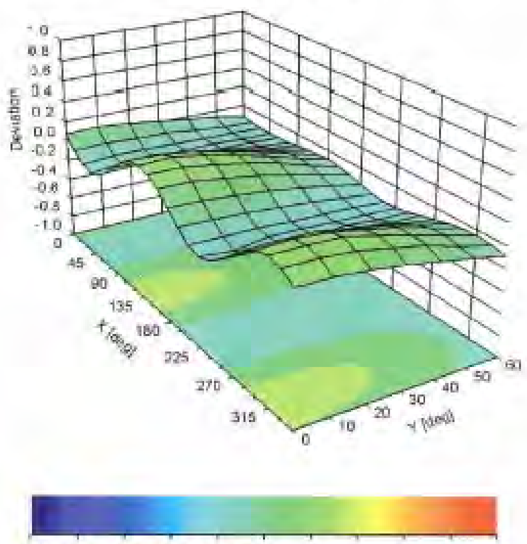
Conversion Factor Assessment



Deviation from Isotropy in Liquid

Error (φ, ϑ), f = 900 MHz



Uncertainty of Spherical Isotropy Assessment: ± 2.6% (k=2)

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DASY/EASY - Parameters of Probe: EX3DV4 - SN:3979

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	-45.3
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	2 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 Distributioi	Div	Div Value	ci (1g)	ci (10g)	Standard uncertainty	Standard uncertainty	vi, or Veff
Measurement system									
Probe calibration	6.55%	N	1	1	1	1	6.55%	6.55%	∞
Isotropy , Axial	3.50%	R	√3	1.732	1	1	2.02%	2.02%	∞
Isotropy, Hemispherical	9.60%	R	√3	1.732	1	1	5.54%	5.54%	∞
Boundary Effect	1.00%	R	√3	1.732	1	1	0.58%	0.58%	∞
Linearity	4.70%	R	√3	1.732	1	1	2.71%	2.71%	∞
Detection Limits	1.00%	R	√3	1.732	1	1	0.58%	0.58%	∞
Readout Electronics	0.30%	N	1	1	1	1	0.30%	0.30%	∞
Response time	0.80%	R	√3	1.732	1	1	0.46%	0.46%	∞
Integration Time	2.60%	R	√3	1.732	1	1	1.50%	1.50%	∞
Measurement drift (class A evaluation)	1.75%	R	√3	1.732	1	1	1.01%	1.01%	∞
RF ambient condition - noise	3.00%	R	√3	1.732	1	1	1.73%	1.73%	∞
RF ambient conditions - reflections	3.00%	R	√3	1.732	1	1	1.73%	1.73%	∞
Probe positioner Mechanical restrictions	0.40%	R	√3	1.732	1	1	0.23%	0.23%	∞
Probe Positioning with respect to phantom shell	2.90%	R	√3	1.732	1	1	1.67%	1.67%	∞
Post-processing	1.00%	R	√3	1.732	1	1	0.58%	0.58%	∞
Max SAR Eval	1.00%	R	√3	1.732	1	1	0.58%	0.58%	∞
Test Sample related									
Test sample positioning	2.90%	N	1	1	1	1	2.90%	2.90%	M-1
Device Holder Uncertainty	3.60%	N	1	1	1	1	3.60%	3.60%	M-1
Drift of output power	5.00%	R	√3	1.732	1	1	2.89%	2.89%	∞
Phantom and Setup									
Phantom Uncertainty	4.00%	R	√3	1.732	1	1	2.31%	2.31%	∞
Deviation from reference liquid target ε 'r(Body)	3.84%	N	1	1	0.64	0.43	2.46%	1.65%	M
Deviation from reference liquid target σ (Body)	4.85%	N	1	1	0.6	0.49	2.91%	2.38%	M
Combined standard uncertainty		RSS					12.18%	11.93%	
Expant uncertainty (95% confidence interval), K=2							24.36%	23.85%	

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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 Zürich 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	6mm +/- 0.2mm at ERP	First article, All 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.	DEGMBE 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 < 0.8% if filled with 155mm of HSL900 and without DUT below	Prototypes, Sample testing

Standards

[1] CENELEC EN 50361
[2] IEEE Std 1528-2003
[3] IEC 62209 Part I
[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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Phone +41 1 245 9700, Fax +41 1 245 9779
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Doc No 881 – QD 000 P40 C – F Page 1 (1)

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
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_Aug13**

CALIBRATION CERTIFICATE

Object	D750V3 - SN: 1015
Calibration procedure(s)	QA CAL-05.v9 Calibration procedure for dipole validation kits above 700 MHz
Calibration date	August 26, 2013

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	01-Nov-12 (No. 217-01640)	Oct-13
Power sensor HP 8481A	US37292783	01-Nov-12 (No. 217-01640)	Oct-13
Reference 20 dB Attenuator	SN: 5058 (20k)	04-Apr-13 (No. 217-01736)	Apr-14
Type-N mismatch combination	SN: 5047.3 / 06327	04-Apr-13 (No. 217-01739)	Apr-14
Reference Probe ES3DV3	SN: 3205	28-Dec-12 (No. ES3-3205_Dec12)	Dec-13
DAE4	SN: 601	25-Apr-13 (No. DAE4-601_Apr13)	Apr-14

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-11)	In house check: Oct-13
RF generator R&S SMT-06	100005	04-Aug-99 (in house check Oct-11)	In house check: Oct-13
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-12)	In house check: Oct-13

	Name	Function	Signature
Calibrated by:	Leif Klysner	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: August 26, 2013

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

Certificate No: D750V3-1015_Aug13 Page 1 of 8

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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:

a) IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
b) IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
c) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

d) 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	V52.8.7
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	15 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	750 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	41.9	0.89 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	41.7 ± 6 %	0.90 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.14 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**8.48 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.39 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**5.52 W/kg ± 16.5 % (k=2)**

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Body TSL parameters	22.0 °C	55.5	0.96 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	54.5 ± 6 %	0.98 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	2.23 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**8.75 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	250 mW input power	1.46 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**5.75 W/kg ± 16.5 % (k=2)**

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Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	52.8 Ω - 0.3 jΩ
Return Loss	- 31.2 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	48.4 Ω - 2.6 jΩ
Return Loss	- 30.1 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.036 ns

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

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	March 22, 2010

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DASY5 Validation Report for Head TSL

Date: 26.08.2013

Test Laboratory: SPEAG, Zurich, Switzerland

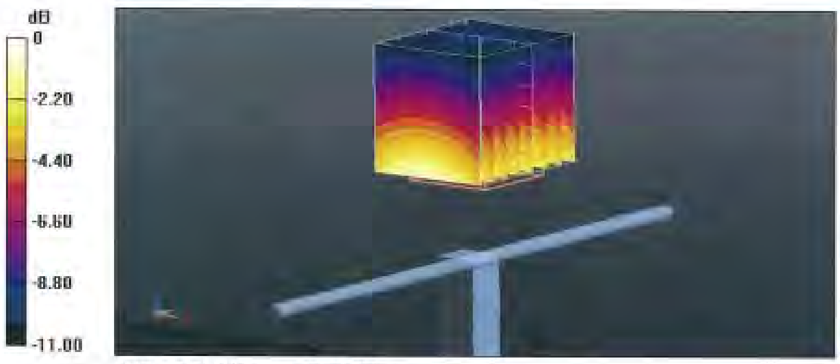
DUT: Dipole 750 MHz; Type: D750V3; Serial: D750V3 - SN: 1015

Communication System: UID 0 - CW ; Frequency: 750 MHz
Medium parameters used: f = 750 MHz; σ = 0.9 S/m; ε_r = 41.7; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(6.28, 6.28, 6.28); Calibrated: 28.12.2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 25.04.2013
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Dipole Calibration for Head Tissue/Pin=250 mW, d=15mm/Zoom Scan (7x8x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 53.165 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 3.27 W/kg
SAR(1 g) = 2.14 W/kg; SAR(10 g) = 1.39 W/kg
Maximum value of SAR (measured) = 2.51 W/kg



0 dB = 2.51 W/kg = 4.00 dBW/kg

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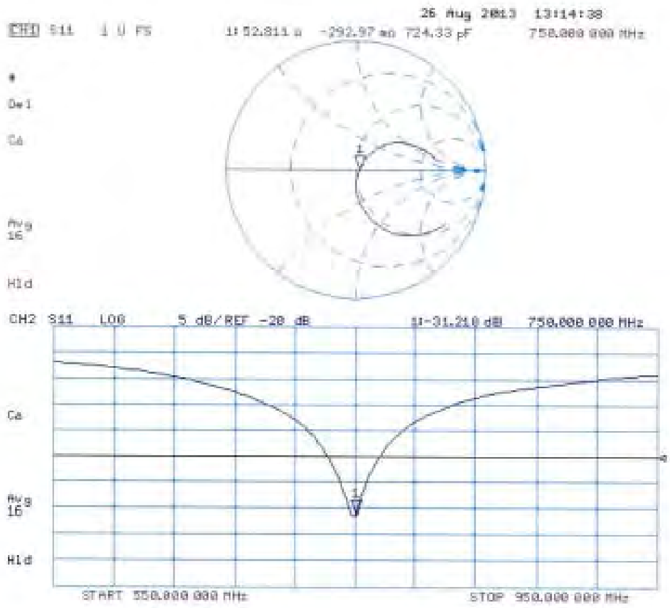
Impedance Measurement Plot for Head TSL



Certificate No: D750V3-1015_Aug13 Page 6 of 8

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DASY5 Validation Report for Body TSL

Date: 26.08.2013

Test Laboratory: SPEAG, Zurich, Switzerland

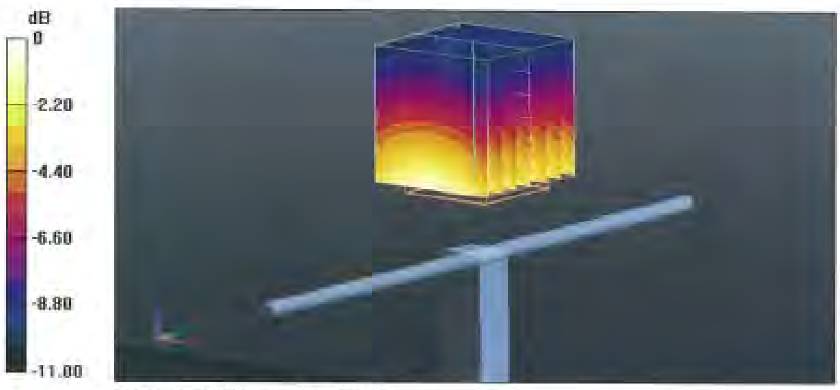
DUT: Dipole 750 MHz; Type: D750V3; Serial: D750V3 - SN: 1015

Communication System: UID 0 - CW ; Frequency: 750 MHz
Medium parameters used: f = 750 MHz; σ = 0.98 S/m; ε_r = 54.5; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(6.11, 6.11, 6.11); Calibrated: 28.12.2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 25.04.2013
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

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 = 53.165 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 3.28 W/kg
SAR(1 g) = 2.23 W/kg; SAR(10 g) = 1.46 W/kg
Maximum value of SAR (measured) = 2.60 W/kg



0 dB = 2.60 W/kg = 4.15 dBW/kg

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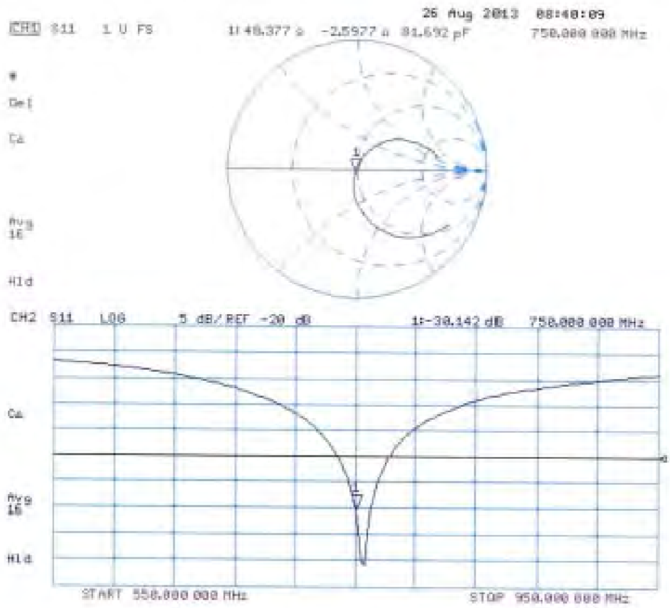
Impedance Measurement Plot for Body TSL



Certificate No: D750V3-1015_Aug13 Page 8 of 8

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Accreditation No.: **SCS 108**

Client **SGS-TW (Auden)**

Certificate No: **D835V2-4d156_Jun13**

CALIBRATION CERTIFICATE

Object	D835V2 - SN: 4d156
Calibration procedure(s)	QA CAL-05.v9 Calibration procedure for dipole validation kits above 700 MHz
Calibration date:	June 06, 2013

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	01-Nov-12 (No. 217-01640)	Oct-13
Power sensor HP 8481A	US37292783	01-Nov-12 (No. 217-01640)	Oct-13
Reference 20 dB Attenuator	SN: 5058 (20k)	04-Apr-13 (No. 217-01736)	Apr-14
Type-N mismatch combination	SN: 5047.3 / 06327	04-Apr-13 (No. 217-01739)	Apr-14
Reference Probe ES3DV3	SN: 3205	28-Dec-12 (No. ES3-3205_Dec12)	Dec-13
DAE4	SN: 601	25-Apr-13 (No. DAE4-601_Apr13)	Apr-14

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-11)	In house check: Oct-13
RF generator R&S SMT-06	100005	04-Aug-99 (in house check Oct-11)	In house check: Oct-13
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-12)	In house check: Oct-13

	Name	Function	Signature
Calibrated by:	Leif Klysner	Laboratory Technician	Leif Klysner
Approved by:	Katja Pokovic	Technical Manager	K. Pokovic

Issued: June 6, 2013

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Accredited by the Swiss Accreditation Service (SAS)
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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:

a) IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
b) IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
c) Federal Communications Commission Office of Engineering & Technology (FCC OET), "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions", Supplement C (Edition 01-01) to Bulletin 65

Additional Documentation:

d) 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	V52.8.6
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	15 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	835 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	41.5	0.90 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	40.4 ± 6 %	0.94 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.48 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**9.54 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.60 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**6.21 W/kg ± 16.5 % (k=2)**

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	55.2	0.97 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	54.5 ± 6 %	1.00 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	2.46 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**9.59 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	250 mW input power	1.60 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**6.27 W/kg ± 16.5 % (k=2)**

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Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	52.0 Ω - 2.4 jΩ
Return Loss	- 30.3 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	47.4 Ω - 4.6 jΩ
Return Loss	- 25.3 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.430 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 28, 2012

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DASY5 Validation Report for Head TSL

Date: 06.06.2013

Test Laboratory: SPEAG, Zurich, Switzerland

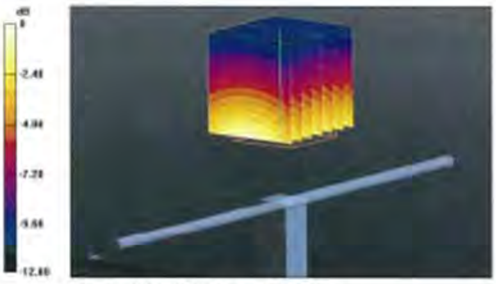
DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 4d156

Communication System: UID 0 - CW ; Frequency: 835 MHz
Medium parameters used: f = 835 MHz; σ = 0.94 S/m; ε_r = 40.4; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(6.05, 6.05, 6.05); Calibrated: 28.12.2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 25.04.2013
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- DASY52 52.8.6(1115); SEMCAD X 14.6.9(7117)

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 = 57.269 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 3.78 W/kg
SAR(1 g) = 2.48 W/kg; SAR(10 g) = 1.6 W/kg
Maximum value of SAR (measured) = 2.92 W/kg



0 dB = 2.92 W/kg = 4.65 dBW/kg

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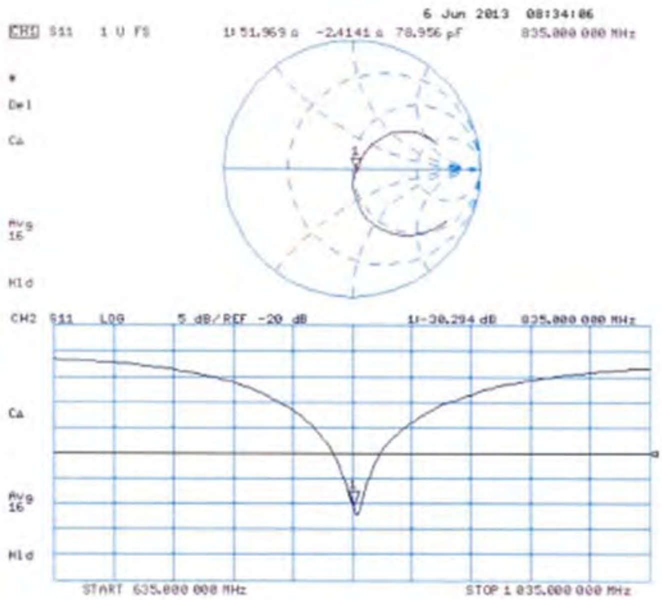
Impedance Measurement Plot for Head TSL



Certificate No: D835V2-4d156_Jun13 Page 6 of 8

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DASY5 Validation Report for Body TSL

Date: 05.06.2013

Test Laboratory: SPEAG, Zurich, Switzerland

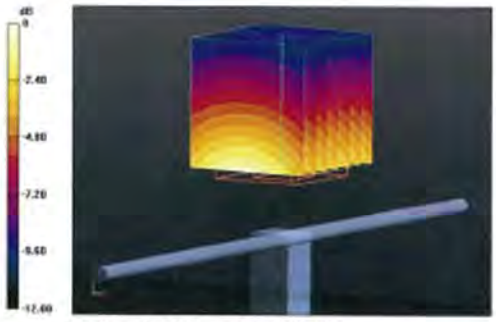
DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 4d156

Communication System: UID 0 - CW ; Frequency: 835 MHz
Medium parameters used: f = 835 MHz; σ = 1 S/m; ε_r = 54.5; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(6.04, 6.04, 6.04); Calibrated: 28.12.2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 25.04.2013
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- DASY52 52.8.6(1115); SEMCAD X 14.6.9(7117)

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 = 55.321 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 3.64 W/kg
SAR(1 g) = 2.46 W/kg; SAR(10 g) = 1.6 W/kg
Maximum value of SAR (measured) = 2.87 W/kg



0 dB = 2.87 W/kg = 4.58 dBW/kg

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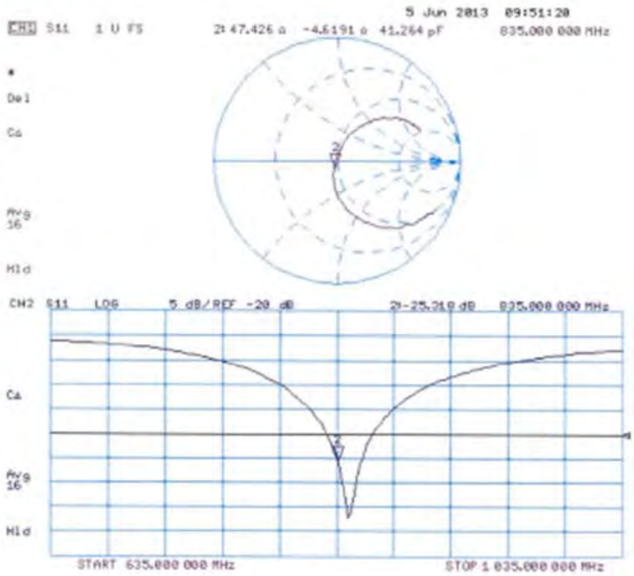
Impedance Measurement Plot for Body TSL



Certificate No: D835V2-4d156_Jun13 Page 8 of 8

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Accreditation No.: **SCS 108**

Client **SGS-TW (Auden)**

Certificate No: **D1750V2-1095_Jun13**

CALIBRATION CERTIFICATE

Object	D1750V2 - SN: 1095
Calibration procedure(s)	QA CAL-05.v9 Calibration procedure for dipole validation kits above 700 MHz
Calibration date:	June 06, 2013

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	01-Nov-12 (No. 217-01640)	Oct-13
Power sensor HP 8481A	US37292783	01-Nov-12 (No. 217-01640)	Oct-13
Reference 20 dB Attenuator	SN: 5058 (20k)	04-Apr-13 (No. 217-01736)	Apr-14
Type-N mismatch combination	SN: 5047.3 / 06327	04-Apr-13 (No. 217-01739)	Apr-14
Reference Probe ES3DV3	SN: 3205	28-Dec-12 (No. ES3-3205_Dec12)	Dec-13
DAE4	SN: 601	25-Apr-13 (No. DAE4-601_Apr13)	Apr-14

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-11)	In house check: Oct-13
RF generator R&S SMT-06	100005	04-Aug-99 (in house check Oct-11)	In house check: Oct-13
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-12)	In house check: Oct-13

	Name	Function	Signature
Calibrated by:	Leif Klysner	Laboratory Technician	Leif Klysner
Approved by:	Katja Pokovic	Technical Manager	K. Pokovic

Issued: June 6, 2013

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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:

a) IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
b) IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
c) Federal Communications Commission Office of Engineering & Technology (FCC OET), "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions", Supplement C (Edition 01-01) to Bulletin 65

Additional Documentation:

d) 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	V52.8.6
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 ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	40.1	1.37 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	39.1 ± 6 %	1.32 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	9.01 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**36.7 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	4.80 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**19.4 W/kg ± 16.5 % (k=2)**

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	53.4	1.49 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	51.7 ± 6 %	1.47 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	9.50 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**38.0 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	250 mW input power	5.09 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**20.4 W/kg ± 16.5 % (k=2)**

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Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	48.9 Ω + 0.4 jΩ
Return Loss	- 38.3 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	44.9 Ω + 0.2 jΩ
Return Loss	- 25.4 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.217 ns

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

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	November 07, 2012

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DASY5 Validation Report for Head TSL

Date: 06.06.2013

Test Laboratory: SPEAG, Zurich, Switzerland

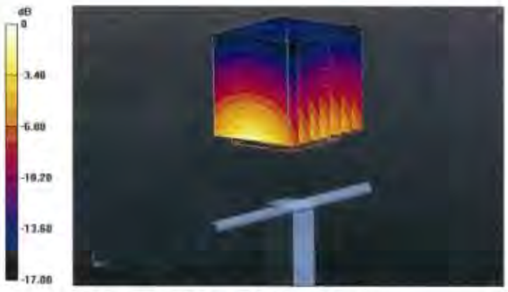
DUT: Dipole 1750 MHz; Type: D1750V2; Serial: D1750V2 - SN: 1095

Communication System: UID 0 - CW ; Frequency: 1750 MHz
Medium parameters used: f = 1750 MHz; σ = 1.32 S/m; ε_r = 39.1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(5.18, 5.18, 5.18); Calibrated: 28.12.2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 25.04.2013
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.8.6(1115); SEMCAD X 14.6.9(7117)

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 = 93.648 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 16.2 W/kg
SAR(1 g) = 9.01 W/kg; SAR(10 g) = 4.8 W/kg
Maximum value of SAR (measured) = 11.2 W/kg



0 dB = 11.2 W/kg = 10.49 dBW/kg

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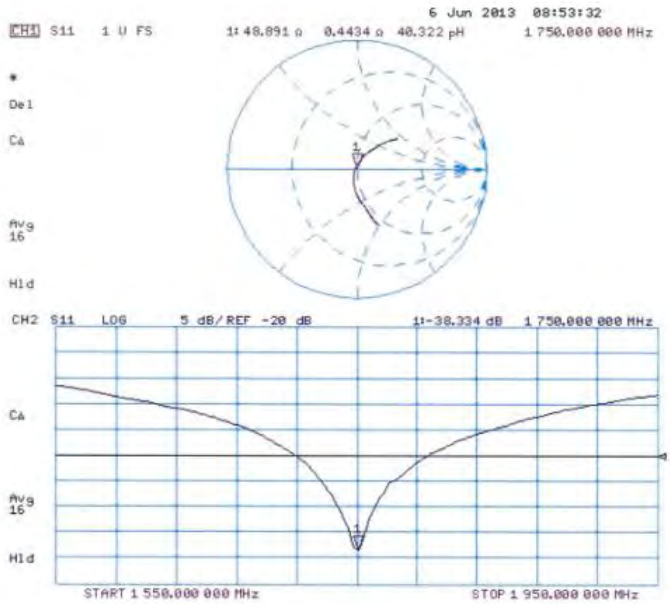
Impedance Measurement Plot for Head TSL



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DASY5 Validation Report for Body TSL

Date: 05.06.2013

Test Laboratory: SPEAG, Zurich, Switzerland

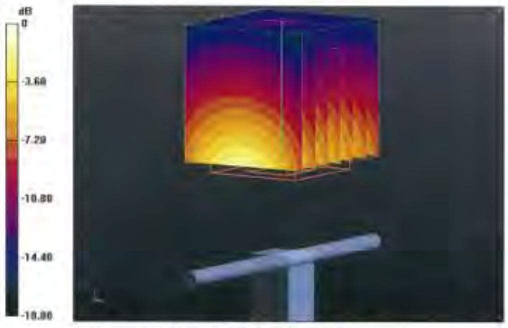
DUT: Dipole 1750 MHz; Type: D1750V2; Serial: D1750V2 - SN: 1095

Communication System: UID 0 - CW ; Frequency: 1750 MHz
Medium parameters used: f = 1750 MHz; σ = 1.47 S/m; ε_r = 51.7; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.83, 4.83, 4.83); Calibrated: 28.12.2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 25.04.2013
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.8.6(1115); SEMCAD X 14.6.9(7117)

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 = 93.648 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 16.4 W/kg
SAR(1 g) = 9.5 W/kg; SAR(10 g) = 5.09 W/kg
Maximum value of SAR (measured) = 11.9 W/kg



0 dB = 11.9 W/kg = 10.76 dBW/kg

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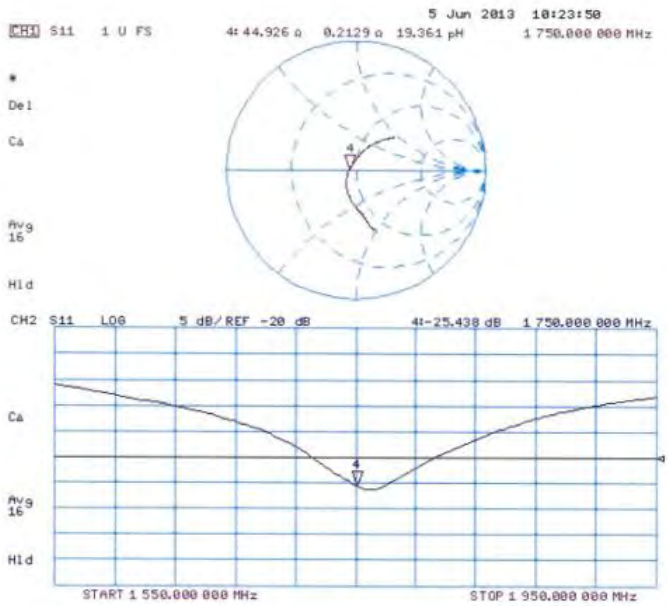
Impedance Measurement Plot for Body TSL



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Accreditation No.: **SCS 108**

Client **SGS-TW (Auden)**

Certificate No: **D1900V2-5d173_Jun13**

CALIBRATION CERTIFICATE

Object	D1900V2 - SN: 5d173
Calibration procedure(s)	QA CAL-05.v9 Calibration procedure for dipole validation kits above 700 MHz
Calibration date:	June 10, 2013

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	01-Nov-12 (No. 217-01640)	Oct-13
Power sensor HP 8481A	US37292783	01-Nov-12 (No. 217-01640)	Oct-13
Reference 20 dB Attenuator	SN: 5058 (20k)	04-Apr-13 (No. 217-01736)	Apr-14
Type-N mismatch combination	SN: 5047.3 / 06327	04-Apr-13 (No. 217-01739)	Apr-14
Reference Probe ES3DV3	SN: 3205	28-Dec-12 (No. ES3-3205_Dec12)	Dec-13
DAE4	SN: 601	25-Apr-13 (No. DAE4-601_Apr13)	Apr-14

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-11)	In house check: Oct-13
RF generator R&S SMT-06	100005	04-Aug-99 (in house check Oct-11)	In house check: Oct-13
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-12)	In house check: Oct-13

	Name	Function	Signature
Calibrated by:	Jeton Kastrati	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: June 11, 2013

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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:

a) IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
b) IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
c) Federal Communications Commission Office of Engineering & Technology (FCC OET), "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions", Supplement C (Edition 01-01) to Bulletin 65

Additional Documentation:

d) 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	V52.8.7
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	1900 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	40.0	1.40 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	39.3 ± 6 %	1.34 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	9.82 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**40.2 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	5.17 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**21.0 W/kg ± 16.5 % (k=2)**

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Body TSL parameters	22.0 °C	53.3	1.52 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	53.7 ± 6 %	1.50 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	10.1 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**40.8 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	250 mW input power	5.42 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**21.8 W/kg ± 16.5 % (k=2)**

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Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	52.2 Ω + 5.4 jΩ
Return Loss	- 24.8 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	47.3 Ω + 5.8 jΩ
Return Loss	- 23.6 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.200 ns

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

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	June 08, 2012

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DASY5 Validation Report for Head TSL

Date: 10.06.2013

Test Laboratory: SPEAG, Zurich, Switzerland

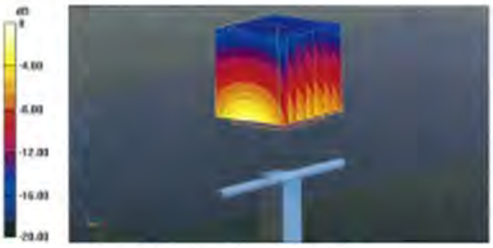
DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 5d173

Communication System: UID 0 - CW ; Frequency: 1900 MHz
Medium parameters used: f = 1900 MHz; σ = 1.34 S/m; ε_r = 39.3; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.98, 4.98, 4.98); Calibrated: 28.12.2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 25.04.2013
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

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 = 96.647 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 17.8 W/kg
SAR(1 g) = 9.82 W/kg; SAR(10 g) = 5.17 W/kg
Maximum value of SAR (measured) = 12.2 W/kg



0 dB = 12.2 W/kg = 10.86 dBW/kg

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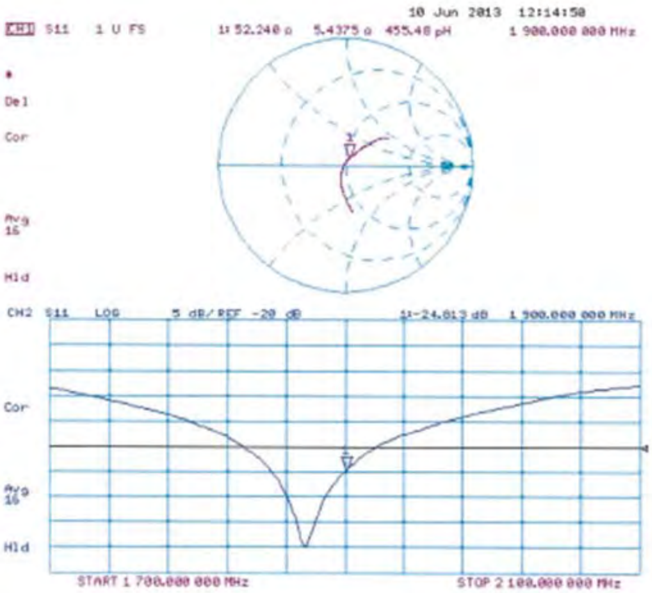
Impedance Measurement Plot for Head TSL



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DASY5 Validation Report for Body TSL

Date: 10.06.2013

Test Laboratory: SPEAG, Zurich, Switzerland

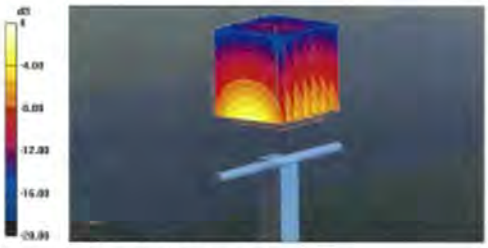
DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 5d173

Communication System: UID 0 - CW ; Frequency: 1900 MHz
Medium parameters used: f = 1900 MHz; σ = 1.5 S/m; ε_r = 53.7; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.6, 4.6, 4.6); Calibrated: 28.12.2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 25.04.2013
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

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 = 96.647 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 17.3 W/kg
SAR(1 g) = 10.1 W/kg; SAR(10 g) = 5.42 W/kg
Maximum value of SAR (measured) = 12.8 W/kg



0 dB = 12.8 W/kg = 11.07 dBW/kg

Certificate No: D1900V2-5d173_Jun13 Page 7 of 8

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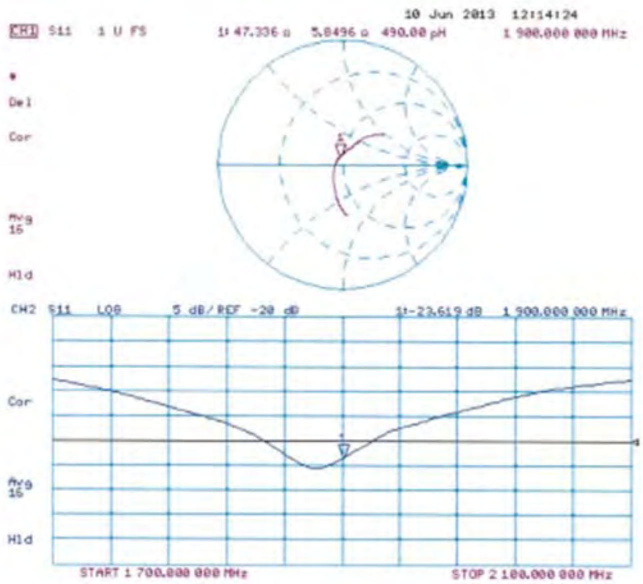
Impedance Measurement Plot for Body TSL



Certificate No: D1900V2-5d173_Jun13 Page 8 of 8

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Accreditation No.: SCS 108

Client SGS-TW (Auden)

Certificate No: D2450V2-727_May13

CALIBRATION CERTIFICATE

Object	D2450V2 - SN: 727
Calibration procedure(s)	QA CAL-05.v9 Calibration procedure for dipole validation kits above 700 MHz
Calibration date:	May 02, 2013

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	01-Nov-12 (No. 217-01640)	Oct-13
Power sensor HP 8481A	US37292783	01-Nov-12 (No. 217-01640)	Oct-13
Reference 20 dB Attenuator	SN: 5058 (20k)	04-Apr-13 (No. 217-01736)	Apr-14
Type-N mismatch combination	SN: 5047.3 / 06327	04-Apr-13 (No. 217-01739)	Apr-14
Reference Probe ES3DV3	SN: 3205	28-Dec-12 (No. ES3-3205_Dec12)	Dec-13
DAE4	SN: 601	25-Apr-13 (No. DAE4-601_Apr13)	Apr-14
Secondary Standards	**ID #**	**Check Date (in house)**	**Scheduled Check**
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-11)	In house check: Oct-13
RF generator R&S SMT-06	100005	04-Aug-99 (in house check Oct-11)	In house check: Oct-13
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-12)	In house check: Oct-13

	Name	Function	Signature
Calibrated by:	Claudio Leubler	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: May 2, 2013

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

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Glossary:

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

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
b) IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
c) Federal Communications Commission Office of Engineering & Technology (FCC OET), "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions", Supplement C (Edition 01-01) to Bulletin 65

Additional Documentation:

d) 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	V52.8.6
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	2450 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	39.2	1.80 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	37.7 ± 6 %	1.83 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

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

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	6.35 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**25.1 W/kg ± 16.5 % (k=2)**

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	52.7	1.95 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	51.2 ± 6 %	2.03 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	13.2 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**51.5 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	250 mW input power	6.09 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**24.0 W/kg ± 16.5 % (k=2)**

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Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	55.6 Ω + 1.9 jΩ
Return Loss	- 25.0 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	51.9 Ω + 4.0 jΩ
Return Loss	- 27.2 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.150 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: 02.05.2013

Test Laboratory: SPEAG, Zurich, Switzerland

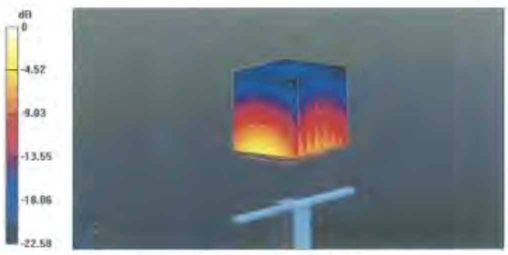
DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN: 727

Communication System: UID 0 - CW; Frequency: 2450 MHz
Medium parameters used: f = 2450 MHz; σ = 1.83 S/m; ε_r = 37.7; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.52, 4.52, 4.52); Calibrated: 28.12.2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 25.04.2013
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.8.6(1115); SEMCAD X 14.6.9(7117)

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 = 95.668 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 28.6 W/kg
SAR(1 g) = 13.7 W/kg; SAR(10 g) = 6.35 W/kg
Maximum value of SAR (measured) = 17.5 W/kg



0 dB = 17.5 W/kg = 12.43 dBW/kg

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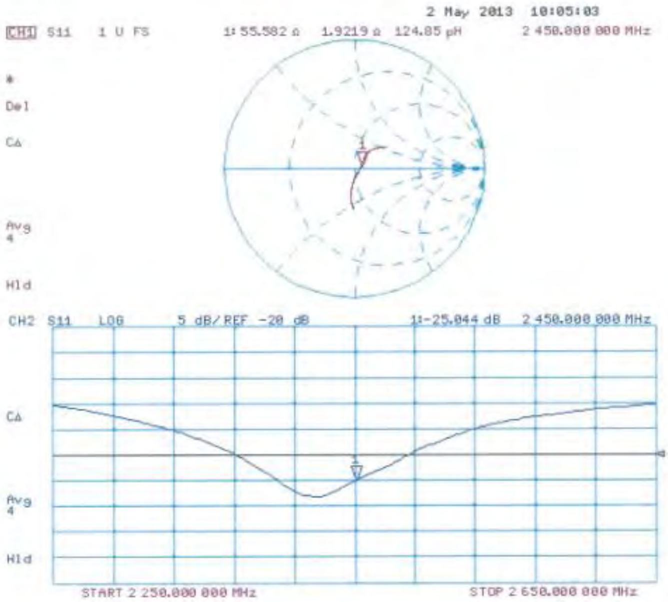
Impedance Measurement Plot for Head TSL



Certificate No: D2450V2-727_May13 Page 6 of 8

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DASY5 Validation Report for Body TSL

Date: 02.05.2013

Test Laboratory: SPEAG, Zurich, Switzerland

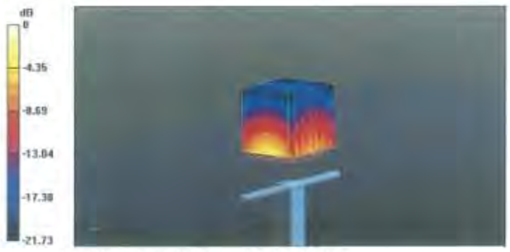
DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN: 727

Communication System: UID 0 - CW; Frequency: 2450 MHz
Medium parameters used: f = 2450 MHz; σ = 2.03 S/m; ε_r = 51.2; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

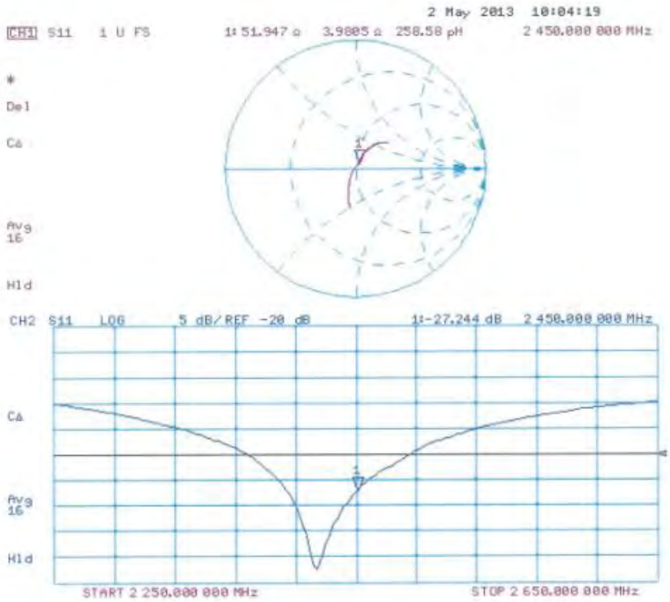
- Probe: ES3DV3 - SN3205; ConvF(4.42, 4.42, 4.42); Calibrated: 28.12.2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 25.04.2013
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.8.6(1115); SEMCAD X 14.6.9(7117)

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 = 95.668 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 27.5 W/kg
SAR(1 g) = 13.2 W/kg; SAR(10 g) = 6.09 W/kg
Maximum value of SAR (measured) = 17.5 W/kg



0 dB = 17.5 W/kg = 12.43 dBW/kg

Impedance Measurement Plot for Body TSL



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Accreditation No.: SCS 108

Client SGS-TW (Auden)

Certificate No: D5GHzV2-1023_Jan14

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 30, 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&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	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)	04-Apr-13 (No. 217-01736)	Apr-14
Type-N mismatch combination	SN: 5047.3 / 06327	04-Apr-13 (No. 217-01739)	Apr-14
Reference Probe EX3DV4	SN: 3503	30-Dec-13 (No. EX3-3503_Dec13)	Dec-14
DAE4	SN: 601	25-Apr-13 (No. DAE4-601_Apr13)	Apr-14

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-13)	In house check: Oct-14

	Name	Function	Signature
Calibrated by:	Jeton Kastrati	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: January 31, 2014

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

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Calibration Laboratory of
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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**

Glossary:

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

Calibration is Performed According to the Following Standards:

a) 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
b) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"
c) 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:

d) 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	V52.8.7
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom V5.0	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy = 4.0 mm, dz = 1.4 mm	Graded Ratio = 1.4 (Z direction)
Frequency	5200 MHz ± 1 MHz 5300 MHz ± 1 MHz 5600 MHz ± 1 MHz 5800 MHz ± 1 MHz	

Head TSL parameters at 5200 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	36.0	4.66 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	37.2 ± 6 %	4.54 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL at 5200 MHz

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	7.67 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**77.2 W/kg ± 19.9 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.19 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**22.1 W/kg ± 19.5 % (k=2)**

Head TSL parameters at 5300 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.9	4.76 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	37.0 ± 6 %	4.65 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL at 5300 MHz

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	8.14 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**81.6 W / kg ± 19.9 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.32 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**23.4 W/kg ± 19.5 % (k=2)**

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Head TSL parameters at 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	36.6 ± 6 %	4.96 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	8.09 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**81.3 W/kg ± 19.9 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.30 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**23.2 W/kg ± 19.5 % (k=2)**

Head TSL parameters at 5800 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.3	5.27 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	36.3 ± 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^3 (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	7.77 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**78.1 W/kg ± 19.9 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.20 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**22.1 W/kg ± 19.5 % (k=2)**

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Body TSL parameters at 5200 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	49.0	5.30 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	47.8 ± 6 %	5.40 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	7.39 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**73.6 W/kg ± 19.9 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.06 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**20.5 W/kg ± 19.5 % (k=2)**

Body TSL parameters at 5300 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	48.9	5.42 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	47.6 ± 6 %	5.53 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL at 5300 MHz

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	7.62 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**75.8 W/kg ± 19.9 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.13 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**21.2 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	47.1 ± 6 %	5.93 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	8.04 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**80.0 W/kg ± 19.9 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.23 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**22.2 W/kg ± 19.5 % (k=2)**

Body TSL parameters at 5800 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	48.2	6.00 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	46.8 ± 6 %	6.21 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	7.44 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**74.1 W/kg ± 19.9 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.05 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**20.4 W/kg ± 19.5 % (k=2)**

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Appendix

Antenna Parameters with Head TSL at 5200 MHz

Impedance, transformed to feed point	49.9 Ω - 7.7 jΩ
Return Loss	- 22.3 dB

Antenna Parameters with Head TSL at 5300 MHz

Impedance, transformed to feed point	51.2 Ω - 4.0 jΩ
Return Loss	- 27.6 dB

Antenna Parameters with Head TSL at 5600 MHz

Impedance, transformed to feed point	53.8 Ω - 2.5 jΩ
Return Loss	- 27.1 dB

Antenna Parameters with Head TSL at 5800 MHz

Impedance, transformed to feed point	56.5 Ω + 0.5 jΩ
Return Loss	- 24.3 dB

Antenna Parameters with Body TSL at 5200 MHz

Impedance, transformed to feed point	50.0 Ω - 6.1 jΩ
Return Loss	- 24.3 dB

Antenna Parameters with Body TSL at 5300 MHz

Impedance, transformed to feed point	51.3 Ω - 1.9 jΩ
Return Loss	- 32.7 dB

Antenna Parameters with Body TSL at 5600 MHz

Impedance, transformed to feed point	54.3 Ω - 0.4 jΩ
Return Loss	- 27.6 dB

Antenna Parameters with Body TSL at 5800 MHz

Impedance, transformed to feed point	57.1 Ω + 3.3 jΩ
Return Loss	- 22.7 dB

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General Antenna Parameters and Design

Electrical Delay (one direction)	1.199 ns

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

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	February 05, 2004

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DASY5 Validation Report for Head TSL

Date: 30.01.2014

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: 5500 MHz, Frequency: 5600 MHz, Frequency: 5800 MHz
Medium parameters used: f = 5200 MHz; σ = 4.54 S/m; ε_r = 37.2; ρ = 1000 kg/m^3 , Medium parameters used: f = 5300 MHz; σ = 4.65 S/m; ε_r = 37; ρ = 1000 kg/m^3 , Medium parameters used: f = 5600 MHz; σ = 4.96 S/m; ε_r = 36.6; ρ = 1000 kg/m^3 , Medium parameters used: f = 5800 MHz; σ = 5.18 S/m; ε_r = 36.3; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: EX3DV4 - SN3503; ConvF(5.52, 5.52, 5.52); Calibrated: 30.12.2013, ConvF(5.2, 5.2, 5.2); Calibrated: 30.12.2013, ConvF(4.86, 4.86, 4.86); Calibrated: 30.12.2013, ConvF(4.91, 4.91, 4.91); Calibrated: 30.12.2013;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 25.04.2013
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

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 = 62.583 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 28.2 W/kg
SAR(1 g) = 7.67 W/kg; SAR(10 g) = 2.19 W/kg
Maximum value of SAR (measured) = 18.2 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 = 63.619 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 30.8 W/kg
SAR(1 g) = 8.14 W/kg; SAR(10 g) = 2.32 W/kg
Maximum value of SAR (measured) = 19.4 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 = 61.852 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 32.3 W/kg
SAR(1 g) = 8.09 W/kg; SAR(10 g) = 2.3 W/kg
Maximum value of SAR (measured) = 19.7 W/kg

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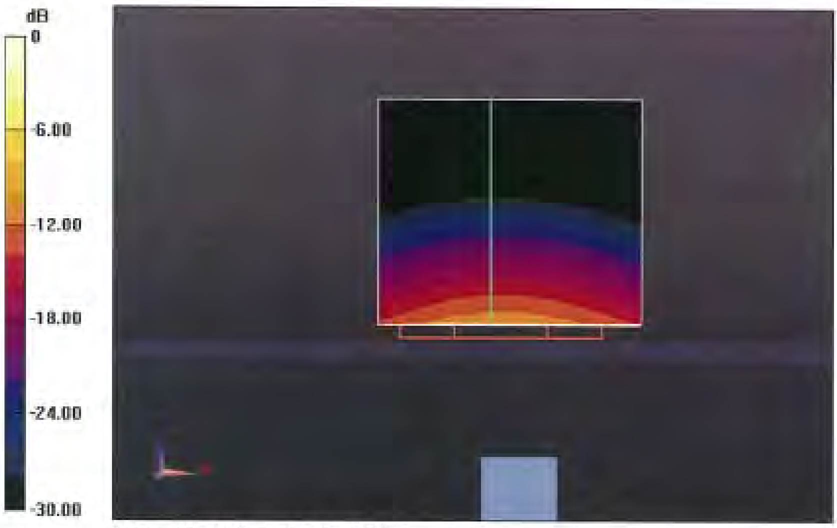
Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5800 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 59.398 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 32.6 W/kg
SAR(1 g) = 7.77 W/kg; SAR(10 g) = 2.2 W/kg
Maximum value of SAR (measured) = 19.2 W/kg



0 dB = 19.2 W/kg = 12.83 dBW/kg

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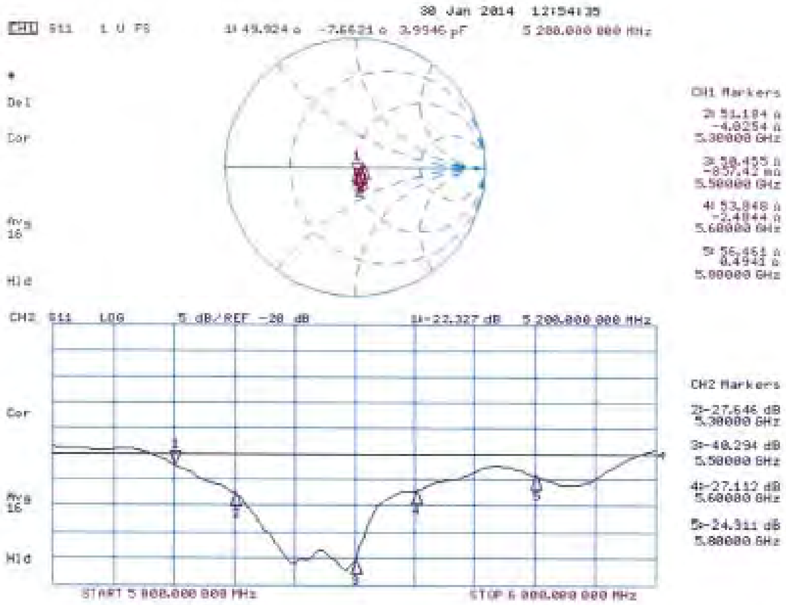
Impedance Measurement Plot for Head TSL



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DASY5 Validation Report for Body TSL

Date: 29.01.2014

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: 5500 MHz, Frequency: 5600 MHz, Frequency: 5800 MHz
Medium parameters used: f = 5200 MHz; σ = 5.4 S/m; ε_r = 47.8; ρ = 1000 kg/m^3 , Medium parameters used: f = 5300 MHz; σ = 5.53 S/m; ε_r = 47.6; ρ = 1000 kg/m^3, Medium parameters used: f = 5600 MHz; σ = 5.93 S/m; ε_r = 47.1; ρ = 1000 kg/m^3 , Medium parameters used: f = 5800 MHz; σ = 6.21 S/m; ε_r = 46.8; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: EX3DV4 - SN3503; ConvF(5.01, 5.01, 5.01); Calibrated: 30.12.2013, ConvF(4.76, 4.76, 4.76); Calibrated: 30.12.2013, ConvF(4.3, 4.3, 4.3); Calibrated: 30.12.2013, ConvF(4.47, 4.47, 4.47); Calibrated: 30.12.2013;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 25.04.2013
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

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 = 57.977 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 29.2 W/kg
SAR(1 g) = 7.39 W/kg; SAR(10 g) = 2.06 W/kg
Maximum value of SAR (measured) = 17.6 W/kg

Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5300 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 58.404 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 30.9 W/kg
SAR(1 g) = 7.62 W/kg; SAR(10 g) = 2.13 W/kg
Maximum value of SAR (measured) = 18.5 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 = 58.115 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 35.7 W/kg
SAR(1 g) = 8.04 W/kg; SAR(10 g) = 2.23 W/kg
Maximum value of SAR (measured) = 20.0 W/kg

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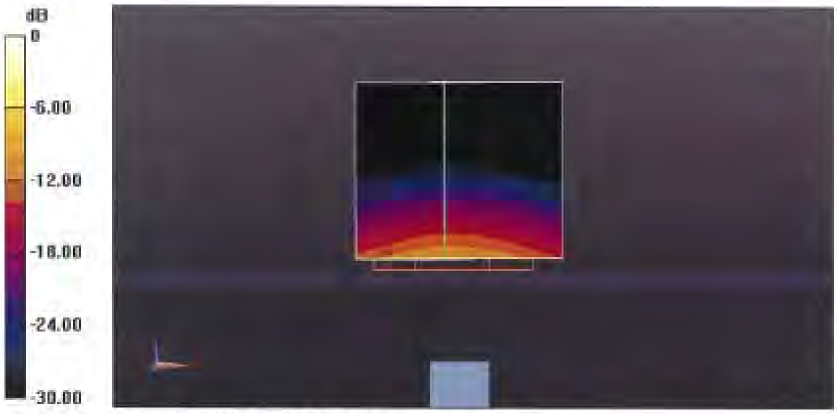
Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5800 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 54.877 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 34.9 W/kg
SAR(1 g) = 7.44 W/kg; SAR(10 g) = 2.05 W/kg
Maximum value of SAR (measured) = 19.0 W/kg



0 dB = 19.0 W/kg = 12.79 dBW/kg

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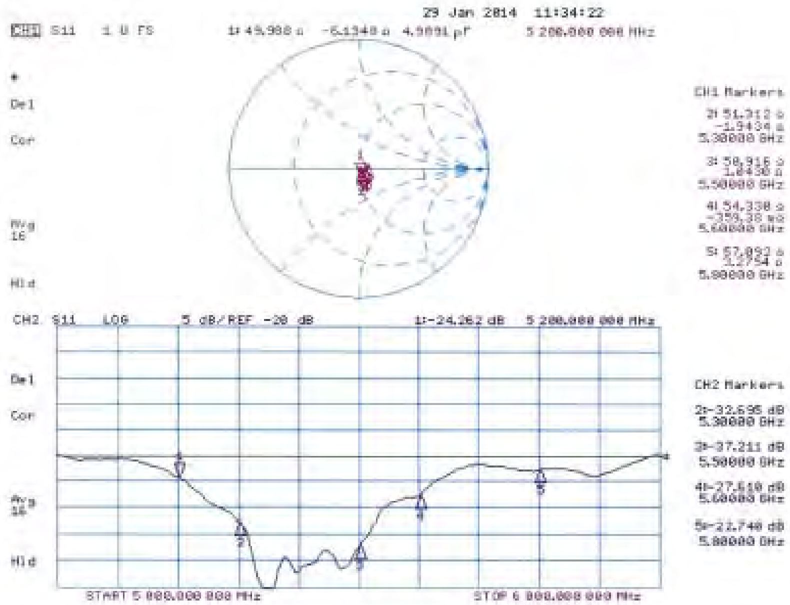
Impedance Measurement Plot for Body TSL



- End of 1st part of report -

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