SAR TEST REPORT

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

Equipment Under Test	Clover Flex
Brand Name	clover
Model No.	C403
Company Name	Quanta Computer Inc.
Company Address	No. 188, Wenhua 2nd Road, Guishan District, Taoyuan City 33377, Taiwan
Standards	IEEE/ANSI C95.1-1992, IEEE 1528-2013, KDB865664D01v01r04,KDB865664D02v01r02, KDB941225D05v02r05,KDB447498D01v06, KDB248227D01v02r02
FCC ID	HFS-C403U
Date of Receipt	Aug. 01, 2019
Date of Test(s)	Aug. 16, 2019 ~ Aug. 23, 2019
Date of Issue	Sep. 11, 2019

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

Remarks:

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

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

Signed on behalf of SGS

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

Date: Sep. 11, 2019

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Revision History

Report Number	Revision	Description	Issue Date
EN/2019/80001	Rev.00	Initial creation of document	Aug. 30, 2019
EN/2019/80001	Rev.01	Add NFC	Sep. 09, 2019
EN/2019/80001	Rev.02	Modify max SAR	Sep. 11, 2019

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No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路 134 號
t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
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1. General Information

1.1 Testing Laboratory

SGS Taiwan Ltd. Electronics & Communication Laboratory	
1F, No. 8, Alley 15, Lane 120, Sec. 1, NeiHu Road, Neihu District, Taipei City, 11493, Taiwan	
Tel	+886-2-2299-3279
Fax	+886-2-2298-0488
Internet	http://www.tw.sgs.com/

1.2 Details of Applicant

Company Name	Quanta Computer Inc.
Company Address	No. 188, Wenhua 2nd Road, Guishan District, Taoyuan City 33377, Taiwan

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1.3 Description of EUT

Equipment Under Test	Clover Flex			
Brand Name	clover			
Model No.	C403			
FCC ID	HFS-C403U			
Mode of Operation	☒LTE FDD ☒WLAN802.11 a/b/g/n(20M/40M)/ac(20M/40M/80M) ☒Bluetooth ☒NFC			
Duty Cycle	WCDMA	1		
	LTE FDD	1		
	WLAN802.11 a/b/g/n(20M/40M)/ac(20M/40M/80M)	1		
	Bluetooth	1		
TX Frequency Range (MHz)	LTE FDD Band 2	1850	–	1910
	LTE FDD Band 4	1710	–	1755
	LTE FDD Band 12	699	–	716
	WLAN802.11 b/g/n(20M)	2412	–	2462
	WLAN802.11 n(40M)	2422	–	2452
	WLAN802.11 a/n(20M)/ac(20M) 5.2G	5180	–	5240
	WLAN802.11 n(40M)/ac(40M) 5.2G	5190	–	5230
	WLAN802.11 ac(80M) 5.2G	5210		
	WLAN802.11 a/n(20M)/ac(20M) 5.3G	5260	–	5320
	WLAN802.11 n(40M)/ac(40M) 5.3G	5270	–	5310
	WLAN802.11 ac(80M) 5.3G	5290		
	WLAN802.11 a/n/ac(20M) 5.6G	5500	–	5720
	WLAN802.11 n/ac(40M) 5.6G	5510	–	5710
	WLAN802.11 ac(80M) 5.6G	5530	–	5690

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TX Frequency Range (MHz)	WLAN802.11 a/n(20M)/ac(20M) 5.8G	5745	–	5825
	WLAN802.11 n(40M)/ac(40M) 5.8G	5755	–	5795
	WLAN802.11 ac(80M) 5.8G	5775		
	Bluetooth	2402	–	2480
Channel Number (ARFCN)	LTE FDD Band 2	18607	–	19193
	LTE FDD Band 4	19957	–	20393
	LTE FDD Band 12	23017	–	23173
	WLAN802.11 b/g/n(20M)	1	–	11
	WLAN802.11 n(40M)	3	–	9
	WLAN802.11 a/n(20M)/ac(20M) 5.2G	36	–	48
	WLAN802.11 n(40M)/ac(40M) 5.2G	38	–	46
	WLAN802.11 ac(80M) 5.2G	42		
	WLAN802.11 a/n(20M)/ac(20M) 5.3G	52	–	64
	WLAN802.11 n(40M)/ac(40M) 5.3G	54	–	62
	WLAN802.11 ac(80M) 5.3G	58		
	WLAN802.11 a/n/ac(20M) 5.6G	100	–	144
	WLAN802.11 n/ac(40M) 5.6G	102	–	142
	WLAN802.11 ac(80M) 5.6G	106	–	138
	WLAN802.11 a/n(20M)/ac(20M) 5.8G	149	–	165
	WLAN802.11 n(40M)/ac(40M) 5.8G	151	–	159
	WLAN802.11 ac(80M) 5.8G	155		
	Bluetooth	0	–	78

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Body

Max. SAR (1 g) (Unit: W/Kg)				
Band	Measured	Reported	Channel	Position
LTE FDD Band 2	0.81	1.07	19100	Right side
LTE FDD Band 4	0.51	0.65	20300	Right side
LTE FDD Band 12	0.31	0.38	23060	Right side
WLAN 802.11b	0.08	0.09	11	Front side
Bluetooth(GFSK)	0.01	0.01	78	Front side
WLAN 802.11n(20M) 5.2G	0.62	0.63	40	Top side
WLAN 802.11n(40M) 5.2G	0.62	0.62	46	Top side
WLAN 802.11n(20M) 5.3G	0.73	0.73	60	Top side
WLAN 802.11n(20M) 5.6G	1.17	1.19	120	Top side
WLAN 802.11n(20M) 5.8G	1.32	1.33	157	Top side
WLAN 802.11ac(20M) 5.8G	1.16	1.17	157	Top side

Extremity

Max. SAR (10 g) (Unit: W/Kg)				
Band	Measured	Reported	Channel	Position
LTE FDD Band 2	1.91	2.54	19100	Right side
LTE FDD Band 4	1.35	1.73	20300	Right side
LTE FDD Band 12	0.89	1.14	23130	Right side
WLAN 802.11b	0.21	0.22	11	Front side
Bluetooth(GFSK)	0.01	0.01	78	Front side
WLAN 802.11n(20M) 5.2G	0.84	0.85	40	Top side
WLAN 802.11n(40M) 5.2G	0.82	0.83	46	Top side
WLAN 802.11n(20M) 5.3G	0.94	0.94	60	Top side
WLAN 802.11n(20M) 5.6G	1.18	1.20	120	Top side
WLAN 802.11n(20M) 5.8G	1.49	1.50	157	Top side

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LTE FDD Band 2 / Band 4 / Band 12 power table :

FDD Band 2								
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
20	QPSK	1 RB	0	1860	18700	21.36	22.5	0
				1880	18900	21.70	22.5	0
				1900	19100	21.26	22.5	0
			50	1860	18700	21.08	22.5	0
				1880	18900	20.83	22.5	0
				1900	19100	20.90	22.5	0
			99	1860	18700	20.66	22.5	0
				1880	18900	20.60	22.5	0
				1900	19100	20.68	22.5	0
		50 RB	0	1860	18700	20.21	21.5	0-1
				1880	18900	20.30	21.5	0-1
				1900	19100	20.24	21.5	0-1
			25	1860	18700	20.08	21.5	0-1
				1880	18900	20.06	21.5	0-1
				1900	19100	20.00	21.5	0-1
			50	1860	18700	20.01	21.5	0-1
				1880	18900	19.92	21.5	0-1
				1900	19100	20.04	21.5	0-1
		100RB		1860	18700	20.34	21.5	0-1
				1880	18900	20.16	21.5	0-1
				1900	19100	20.02	21.5	0-1
	16-QAM	1 RB	0	1860	18700	20.59	21.5	0-1
				1880	18900	20.46	21.5	0-1
				1900	19100	20.60	21.5	0-1
			50	1860	18700	20.36	21.5	0-1
				1880	18900	20.19	21.5	0-1
				1900	19100	20.34	21.5	0-1
			99	1860	18700	20.06	21.5	0-1
				1880	18900	20.01	21.5	0-1
				1900	19100	20.07	21.5	0-1
		50 RB	0	1860	18700	19.32	20.5	0-2
				1880	18900	19.31	20.5	0-2
				1900	19100	19.32	20.5	0-2
			25	1860	18700	18.97	20.5	0-2
				1880	18900	19.04	20.5	0-2
				1900	19100	19.03	20.5	0-2
			50	1860	18700	19.03	20.5	0-2
				1880	18900	18.95	20.5	0-2
				1900	19100	19.00	20.5	0-2
		100RB		1860	18700	19.08	20.5	0-2
				1880	18900	19.18	20.5	0-2
				1900	19100	18.95	20.5	0-2

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FDD Band 2								
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
15	QPSK	1 RB	0	1857.5	18675	21.52	22.5	0
				1880	18900	21.69	22.5	0
				1902.5	19125	21.50	22.5	0
			36	1857.5	18675	21.07	22.5	0
				1880	18900	21.09	22.5	0
				1902.5	19125	21.19	22.5	0
			74	1857.5	18675	21.15	22.5	0
				1880	18900	20.92	22.5	0
				1902.5	19125	21.09	22.5	0
		36 RB	0	1857.5	18675	20.27	21.5	0-1
				1880	18900	20.31	21.5	0-1
				1902.5	19125	20.29	21.5	0-1
			18	1857.5	18675	20.16	21.5	0-1
				1880	18900	20.09	21.5	0-1
				1902.5	19125	20.13	21.5	0-1
			37	1857.5	18675	20.15	21.5	0-1
				1880	18900	20.11	21.5	0-1
				1902.5	19125	20.13	21.5	0-1
		75RB		1857.5	18675	20.21	21.5	0-1
				1880	18900	20.23	21.5	0-1
				1902.5	19125	20.23	21.5	0-1
	16-QAM	1 RB	0	1857.5	18675	20.73	21.5	0-1
				1880	18900	20.99	21.5	0-1
				1902.5	19125	20.62	21.5	0-1
			36	1857.5	18675	20.21	21.5	0-1
				1880	18900	20.27	21.5	0-1
				1902.5	19125	20.12	21.5	0-1
			74	1857.5	18675	20.19	21.5	0-1
				1880	18900	20.29	21.5	0-1
				1902.5	19125	20.42	21.5	0-1
		36 RB	0	1857.5	18675	19.34	20.5	0-2
				1880	18900	19.44	20.5	0-2
				1902.5	19125	19.13	20.5	0-2
			18	1857.5	18675	19.19	20.5	0-2
				1880	18900	19.08	20.5	0-2
				1902.5	19125	19.17	20.5	0-2
			37	1857.5	18675	19.02	20.5	0-2
				1880	18900	19.23	20.5	0-2
				1902.5	19125	19.21	20.5	0-2
		75RB		1857.5	18675	19.11	20.5	0-2
				1880	18900	19.29	20.5	0-2
				1902.5	19125	19.22	20.5	0-2

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FDD Band 2								
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
10	QPSK	1 RB	0	1855	18650	21.31	22.5	0
				1880	18900	21.26	22.5	0
				1905	19150	21.09	22.5	0
			25	1855	18650	20.94	22.5	0
				1880	18900	21.01	22.5	0
				1905	19150	21.03	22.5	0
			49	1855	18650	21.01	22.5	0
				1880	18900	20.97	22.5	0
				1905	19150	21.03	22.5	0
		25 RB	0	1855	18650	20.11	21.5	0-1
				1880	18900	20.25	21.5	0-1
				1905	19150	20.19	21.5	0-1
			12	1855	18650	19.96	21.5	0-1
				1880	18900	20.08	21.5	0-1
				1905	19150	20.14	21.5	0-1
			25	1855	18650	20.00	21.5	0-1
				1880	18900	20.05	21.5	0-1
				1905	19150	20.08	21.5	0-1
		50RB		1855	18650	20.04	21.5	0-1
				1880	18900	20.12	21.5	0-1
				1905	19150	20.14	21.5	0-1
	16-QAM	1 RB	0	1855	18650	20.40	21.5	0-1
				1880	18900	20.56	21.5	0-1
				1905	19150	20.37	21.5	0-1
			25	1855	18650	20.21	21.5	0-1
				1880	18900	20.32	21.5	0-1
				1905	19150	20.52	21.5	0-1
			49	1855	18650	20.29	21.5	0-1
				1880	18900	20.00	21.5	0-1
				1905	19150	19.99	21.5	0-1
		25 RB	0	1855	18650	19.14	20.5	0-2
				1880	18900	19.21	20.5	0-2
				1905	19150	19.22	20.5	0-2
			12	1855	18650	19.12	20.5	0-2
				1880	18900	19.02	20.5	0-2
				1905	19150	18.97	20.5	0-2
			25	1855	18650	19.05	20.5	0-2
				1880	18900	19.12	20.5	0-2
				1905	19150	19.15	20.5	0-2
		50RB		1855	18650	19.08	20.5	0-2
				1880	18900	19.15	20.5	0-2
				1905	19150	19.18	20.5	0-2

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FDD Band 2								
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
5	QPSK	1 RB	0	1855	18650	21.31	22.5	0
				1880	18900	21.26	22.5	0
				1905	19150	21.09	22.5	0
			12	1855	18650	20.94	22.5	0
				1880	18900	21.01	22.5	0
				1905	19150	21.03	22.5	0
			24	1855	18650	21.01	22.5	0
				1880	18900	20.97	22.5	0
				1905	19150	21.03	22.5	0
		12 RB	0	1855	18650	20.11	21.5	0-1
				1880	18900	20.25	21.5	0-1
				1905	19150	20.19	21.5	0-1
			6	1855	18650	19.96	21.5	0-1
				1880	18900	20.08	21.5	0-1
				1905	19150	20.14	21.5	0-1
			13	1855	18650	20.00	21.5	0-1
				1880	18900	20.05	21.5	0-1
				1905	19150	20.08	21.5	0-1
		25RB		1855	18650	20.04	21.5	0-1
				1880	18900	20.12	21.5	0-1
				1905	19150	20.14	21.5	0-1
	16-QAM	1 RB	0	1855	18650	20.40	21.5	0-1
				1880	18900	20.56	21.5	0-1
				1905	19150	20.37	21.5	0-1
			12	1855	18650	20.21	21.5	0-1
				1880	18900	20.32	21.5	0-1
				1905	19150	20.52	21.5	0-1
			24	1855	18650	20.29	21.5	0-1
				1880	18900	20.00	21.5	0-1
				1905	19150	19.99	21.5	0-1
		12 RB	0	1855	18650	19.14	20.5	0-2
				1880	18900	19.21	20.5	0-2
				1905	19150	19.22	20.5	0-2
			6	1855	18650	19.12	20.5	0-2
				1880	18900	19.02	20.5	0-2
				1905	19150	18.97	20.5	0-2
			13	1855	18650	19.05	20.5	0-2
				1880	18900	19.12	20.5	0-2
				1905	19150	19.15	20.5	0-2
		25RB		1855	18650	19.08	20.5	0-2
				1880	18900	19.15	20.5	0-2
				1905	19150	19.18	20.5	0-2

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FDD Band 2								
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
3	QPSK	1 RB	0	1851.5	18615	21.14	22.5	0
				1880	18900	21.15	22.5	0
				1908.5	19185	21.09	22.5	0
			7	1851.5	18615	20.93	22.5	0
				1880	18900	21.04	22.5	0
				1908.5	19185	21.06	22.5	0
			14	1851.5	18615	21.04	22.5	0
				1880	18900	21.04	22.5	0
				1908.5	19185	21.06	22.5	0
		8 RB	0	1851.5	18615	20.08	21.5	0-1
				1880	18900	20.17	21.5	0-1
				1908.5	19185	20.08	21.5	0-1
			4	1851.5	18615	20.02	21.5	0-1
				1880	18900	20.12	21.5	0-1
				1908.5	19185	20.23	21.5	0-1
			7	1851.5	18615	19.99	21.5	0-1
				1880	18900	20.06	21.5	0-1
				1908.5	19185	20.05	21.5	0-1
		15RB		1851.5	18615	20.04	21.5	0-1
				1880	18900	20.06	21.5	0-1
				1908.5	19185	20.13	21.5	0-1
	16-QAM	1 RB	0	1851.5	18615	20.20	21.5	0-1
				1880	18900	20.52	21.5	0-1
				1908.5	19185	20.06	21.5	0-1
			7	1851.5	18615	20.32	21.5	0-1
				1880	18900	20.27	21.5	0-1
				1908.5	19185	20.70	21.5	0-1
			14	1851.5	18615	20.16	21.5	0-1
				1880	18900	20.18	21.5	0-1
				1908.5	19185	20.18	21.5	0-1
		8 RB	0	1851.5	18615	19.14	20.5	0-2
				1880	18900	19.15	20.5	0-2
				1908.5	19185	18.98	20.5	0-2
			4	1851.5	18615	19.04	20.5	0-2
				1880	18900	19.17	20.5	0-2
				1908.5	19185	19.15	20.5	0-2
			7	1851.5	18615	19.09	20.5	0-2
				1880	18900	19.22	20.5	0-2
				1908.5	19185	19.16	20.5	0-2
		15RB		1851.5	18615	19.03	20.5	0-2
				1880	18900	19.16	20.5	0-2
				1908.5	19185	19.19	20.5	0-2

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FDD Band 2								
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
1.4	QPSK	1 RB	0	1850.7	18607	21.15	22.5	0
				1880	18900	21.07	22.5	0
				1909.3	19193	21.19	22.5	0
			2	1850.7	18607	20.96	22.5	0
				1880	18900	21.09	22.5	0
				1909.3	19193	21.00	22.5	0
			5	1850.7	18607	21.16	22.5	0
				1880	18900	21.05	22.5	0
				1909.3	19193	21.11	22.5	0
		3 RB	0	1850.7	18607	21.05	22.5	0
				1880	18900	21.10	22.5	0
				1909.3	19193	21.04	22.5	0
			2	1850.7	18607	20.97	22.5	0
				1880	18900	21.07	22.5	0
				1909.3	19193	21.16	22.5	0
			3	1850.7	18607	21.02	22.5	0
				1880	18900	21.07	22.5	0
				1909.3	19193	21.14	22.5	0
		6RB		1850.7	18607	19.98	21.5	0-1
				1880	18900	20.11	21.5	0-1
				1909.3	19193	20.09	21.5	0-1
	16-QAM	1 RB	0	1850.7	18607	20.06	21.5	0-1
				1880	18900	20.57	21.5	0-1
				1909.3	19193	20.74	21.5	0-1
			2	1850.7	18607	20.29	21.5	0-1
				1880	18900	20.28	21.5	0-1
				1909.3	19193	20.34	21.5	0-1
			5	1850.7	18607	20.25	21.5	0-1
				1880	18900	20.55	21.5	0-1
				1909.3	19193	20.29	21.5	0-1
		3 RB	0	1850.7	18607	20.26	21.5	0-1
				1880	18900	20.24	21.5	0-1
				1909.3	19193	20.27	21.5	0-1
			2	1850.7	18607	20.15	21.5	0-1
				1880	18900	20.25	21.5	0-1
				1909.3	19193	20.21	21.5	0-1
			3	1850.7	18607	20.03	21.5	0-1
				1880	18900	20.07	21.5	0-1
				1909.3	19193	20.24	21.5	0-1
		6RB		1850.7	18607	18.96	20.5	0-2
				1880	18900	19.04	20.5	0-2
				1909.3	19193	19.06	20.5	0-2

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FDD Band 4								
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
20	QPSK	1 RB	0	1720	20050	21.50	22.5	0
				1732.5	20175	21.34	22.5	0
				1745	20300	21.43	22.5	0
			50	1720	20050	20.85	22.5	0
				1732.5	20175	20.99	22.5	0
				1745	20300	21.08	22.5	0
			99	1720	20050	20.95	22.5	0
				1732.5	20175	20.74	22.5	0
				1745	20300	21.09	22.5	0
		50 RB	0	1720	20050	20.20	21.5	0-1
				1732.5	20175	20.34	21.5	0-1
				1745	20300	20.25	21.5	0-1
			25	1720	20050	20.01	21.5	0-1
				1732.5	20175	20.08	21.5	0-1
				1745	20300	20.10	21.5	0-1
			50	1720	20050	19.93	21.5	0-1
				1732.5	20175	19.95	21.5	0-1
				1745	20300	20.08	21.5	0-1
		100RB		1720	20050	20.22	21.5	0-1
				1732.5	20175	20.15	21.5	0-1
				1745	20300	20.18	21.5	0-1
	16-QAM	1 RB	0	1720	20050	20.38	21.5	0-1
				1732.5	20175	20.55	21.5	0-1
				1745	20300	20.99	21.5	0-1
			50	1720	20050	20.46	21.5	0-1
				1732.5	20175	20.59	21.5	0-1
				1745	20300	20.44	21.5	0-1
			99	1720	20050	20.48	21.5	0-1
				1732.5	20175	19.70	21.5	0-1
				1745	20300	20.15	21.5	0-1
		50 RB	0	1720	20050	19.36	20.5	0-2
				1732.5	20175	19.52	20.5	0-2
				1745	20300	19.40	20.5	0-2
			25	1720	20050	19.18	20.5	0-2
				1732.5	20175	19.18	20.5	0-2
				1745	20300	19.12	20.5	0-2
			50	1720	20050	19.03	20.5	0-2
				1732.5	20175	19.09	20.5	0-2
				1745	20300	19.17	20.5	0-2
		100RB		1720	20050	19.26	20.5	0-2
				1732.5	20175	19.21	20.5	0-2
				1745	20300	19.31	20.5	0-2

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FDD Band 4								
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
15	QPSK	1 RB	0	1717.5	20025	21.49	22.5	0
				1732.5	20175	21.44	22.5	0
				1747.5	20325	21.48	22.5	0
			36	1717.5	20025	21.31	22.5	0
				1732.5	20175	21.26	22.5	0
				1747.5	20325	21.20	22.5	0
			74	1717.5	20025	20.98	22.5	0
				1732.5	20175	21.16	22.5	0
				1747.5	20325	21.32	22.5	0
		36 RB	0	1717.5	20025	20.23	21.5	0-1
				1732.5	20175	20.41	21.5	0-1
				1747.5	20325	20.27	21.5	0-1
			18	1717.5	20025	20.13	21.5	0-1
				1732.5	20175	20.16	21.5	0-1
				1747.5	20325	20.08	21.5	0-1
			37	1717.5	20025	20.12	21.5	0-1
				1732.5	20175	20.09	21.5	0-1
				1747.5	20325	20.16	21.5	0-1
		75RB		1717.5	20025	20.19	21.5	0-1
				1732.5	20175	20.23	21.5	0-1
				1747.5	20325	20.17	21.5	0-1
	16-QAM	1 RB	0	1717.5	20025	20.60	21.5	0-1
				1732.5	20175	20.74	21.5	0-1
				1747.5	20325	20.94	21.5	0-1
			36	1717.5	20025	20.71	21.5	0-1
				1732.5	20175	20.62	21.5	0-1
				1747.5	20325	20.69	21.5	0-1
			74	1717.5	20025	20.10	21.5	0-1
				1732.5	20175	20.36	21.5	0-1
				1747.5	20325	20.20	21.5	0-1
		36 RB	0	1717.5	20025	19.30	20.5	0-2
				1732.5	20175	19.46	20.5	0-2
				1747.5	20325	19.39	20.5	0-2
			18	1717.5	20025	19.26	20.5	0-2
				1732.5	20175	19.21	20.5	0-2
				1747.5	20325	19.22	20.5	0-2
			37	1717.5	20025	19.23	20.5	0-2
				1732.5	20175	19.23	20.5	0-2
				1747.5	20325	19.30	20.5	0-2
		75RB		1717.5	20025	19.16	20.5	0-2
				1732.5	20175	19.38	20.5	0-2
				1747.5	20325	19.27	20.5	0-2

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FDD Band 4								
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
10	QPSK	1 RB	0	1715	20000	21.43	22.5	0
				1732.5	20175	21.45	22.5	0
				1750	20350	21.49	22.5	0
			25	1715	20000	21.08	22.5	0
				1732.5	20175	21.27	22.5	0
				1750	20350	21.16	22.5	0
			49	1715	20000	21.11	22.5	0
				1732.5	20175	20.97	22.5	0
				1750	20350	21.21	22.5	0
		25 RB	0	1715	20000	20.09	21.5	0-1
				1732.5	20175	20.24	21.5	0-1
				1750	20350	20.20	21.5	0-1
			12	1715	20000	20.03	21.5	0-1
				1732.5	20175	20.06	21.5	0-1
				1750	20350	20.15	21.5	0-1
			25	1715	20000	20.02	21.5	0-1
				1732.5	20175	20.11	21.5	0-1
				1750	20350	20.11	21.5	0-1
		50RB		1715	20000	19.99	21.5	0-1
				1732.5	20175	20.10	21.5	0-1
				1750	20350	20.20	21.5	0-1
	16-QAM	1 RB	0	1715	20000	20.41	21.5	0-1
				1732.5	20175	20.59	21.5	0-1
				1750	20350	20.58	21.5	0-1
			25	1715	20000	20.21	21.5	0-1
				1732.5	20175	20.63	21.5	0-1
				1750	20350	20.62	21.5	0-1
			49	1715	20000	20.42	21.5	0-1
				1732.5	20175	20.58	21.5	0-1
				1750	20350	20.33	21.5	0-1
		25 RB	0	1715	20000	19.21	20.5	0-2
				1732.5	20175	19.36	20.5	0-2
				1750	20350	19.30	20.5	0-2
			12	1715	20000	19.12	20.5	0-2
				1732.5	20175	19.26	20.5	0-2
				1750	20350	19.20	20.5	0-2
			25	1715	20000	19.19	20.5	0-2
				1732.5	20175	19.15	20.5	0-2
				1750	20350	19.27	20.5	0-2
		50RB		1715	20000	19.17	20.5	0-2
				1732.5	20175	19.34	20.5	0-2
				1750	20350	19.35	20.5	0-2

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FDD Band 4								
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
5	QPSK	1 RB	0	1712.5	19975	21.08	22.5	0
				1732.5	20175	21.39	22.5	0
				1752.5	20375	21.31	22.5	0
			12	1712.5	19975	21.07	22.5	0
				1732.5	20175	21.17	22.5	0
				1752.5	20375	21.34	22.5	0
			24	1712.5	19975	20.96	22.5	0
				1732.5	20175	21.04	22.5	0
				1752.5	20375	21.29	22.5	0
		12 RB	0	1712.5	19975	20.06	21.5	0-1
				1732.5	20175	20.18	21.5	0-1
				1752.5	20375	20.24	21.5	0-1
			6	1712.5	19975	19.97	21.5	0-1
				1732.5	20175	20.09	21.5	0-1
				1752.5	20375	20.19	21.5	0-1
			13	1712.5	19975	19.89	21.5	0-1
				1732.5	20175	20.02	21.5	0-1
				1752.5	20375	20.22	21.5	0-1
		25RB		1712.5	19975	19.96	21.5	0-1
				1732.5	20175	20.02	21.5	0-1
				1752.5	20375	20.24	21.5	0-1
	16-QAM	1 RB	0	1712.5	19975	20.04	21.5	0-1
				1732.5	20175	20.24	21.5	0-1
				1752.5	20375	20.46	21.5	0-1
			12	1712.5	19975	20.23	21.5	0-1
				1732.5	20175	20.80	21.5	0-1
				1752.5	20375	20.32	21.5	0-1
			24	1712.5	19975	20.09	21.5	0-1
				1732.5	20175	20.41	21.5	0-1
				1752.5	20375	20.74	21.5	0-1
		12 RB	0	1712.5	19975	19.24	20.5	0-2
				1732.5	20175	19.30	20.5	0-2
				1752.5	20375	19.35	20.5	0-2
			6	1712.5	19975	19.09	20.5	0-2
				1732.5	20175	19.27	20.5	0-2
				1752.5	20375	19.22	20.5	0-2
			13	1712.5	19975	18.97	20.5	0-2
				1732.5	20175	19.26	20.5	0-2
				1752.5	20375	19.34	20.5	0-2
		25RB		1712.5	19975	19.08	20.5	0-2
				1732.5	20175	19.22	20.5	0-2
				1752.5	20375	19.35	20.5	0-2

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FDD Band 4								
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
3	QPSK	1 RB	0	1711.5	19965	21.09	22.5	0
				1732.5	20175	21.38	22.5	0
				1753.5	20385	21.26	22.5	0
			7	1711.5	19965	21.11	22.5	0
				1732.5	20175	21.25	22.5	0
				1753.5	20385	21.31	22.5	0
			14	1711.5	19965	21.00	22.5	0
				1732.5	20175	21.23	22.5	0
				1753.5	20385	21.26	22.5	0
		8 RB	0	1711.5	19965	19.99	21.5	0-1
				1732.5	20175	20.14	21.5	0-1
				1753.5	20385	20.24	21.5	0-1
			4	1711.5	19965	20.03	21.5	0-1
				1732.5	20175	20.12	21.5	0-1
				1753.5	20385	20.22	21.5	0-1
			7	1711.5	19965	19.95	21.5	0-1
				1732.5	20175	20.07	21.5	0-1
				1753.5	20385	20.15	21.5	0-1
		15RB		1711.5	19965	20.03	21.5	0-1
				1732.5	20175	20.12	21.5	0-1
				1753.5	20385	20.24	21.5	0-1
	16-QAM	1 RB	0	1711.5	19965	20.43	21.5	0-1
				1732.5	20175	20.34	21.5	0-1
				1753.5	20385	20.78	21.5	0-1
			7	1711.5	19965	20.10	21.5	0-1
				1732.5	20175	20.29	21.5	0-1
				1753.5	20385	20.41	21.5	0-1
			14	1711.5	19965	20.32	21.5	0-1
				1732.5	20175	20.33	21.5	0-1
				1753.5	20385	20.14	21.5	0-1
		8 RB	0	1711.5	19965	19.20	20.5	0-2
				1732.5	20175	19.30	20.5	0-2
				1753.5	20385	19.39	20.5	0-2
			4	1711.5	19965	19.08	20.5	0-2
				1732.5	20175	19.26	20.5	0-2
				1753.5	20385	19.39	20.5	0-2
			7	1711.5	19965	19.06	20.5	0-2
				1732.5	20175	19.28	20.5	0-2
				1753.5	20385	19.37	20.5	0-2
		15RB		1711.5	19965	19.29	20.5	0-2
				1732.5	20175	19.16	20.5	0-2
				1753.5	20385	19.41	20.5	0-2

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FDD Band 4								
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
1.4	QPSK	1 RB	0	1710.7	19957	21.13	22.5	0
				1732.5	20175	21.11	22.5	0
				1754.3	20393	21.43	22.5	0
			2	1710.7	19957	21.15	22.5	0
				1732.5	20175	21.14	22.5	0
				1754.3	20393	21.43	22.5	0
			5	1710.7	19957	21.09	22.5	0
				1732.5	20175	21.22	22.5	0
				1754.3	20393	21.43	22.5	0
		3 RB	0	1710.7	19957	21.04	22.5	0
				1732.5	20175	21.20	22.5	0
				1754.3	20393	21.35	22.5	0
			2	1710.7	19957	21.06	22.5	0
				1732.5	20175	21.17	22.5	0
				1754.3	20393	21.40	22.5	0
			3	1710.7	19957	21.12	22.5	0
				1732.5	20175	21.10	22.5	0
				1754.3	20393	21.38	22.5	0
		6RB		1710.7	19957	19.96	21.5	0-1
				1732.5	20175	20.00	21.5	0-1
				1754.3	20393	20.18	21.5	0-1
	16-QAM	1 RB	0	1710.7	19957	20.30	21.5	0-1
				1732.5	20175	20.73	21.5	0-1
				1754.3	20393	20.39	21.5	0-1
			2	1710.7	19957	20.29	21.5	0-1
				1732.5	20175	20.57	21.5	0-1
				1754.3	20393	20.46	21.5	0-1
			5	1710.7	19957	20.19	21.5	0-1
				1732.5	20175	20.65	21.5	0-1
				1754.3	20393	20.79	21.5	0-1
		3 RB	0	1710.7	19957	20.12	21.5	0-1
				1732.5	20175	20.12	21.5	0-1
				1754.3	20393	20.31	21.5	0-1
			2	1710.7	19957	20.02	21.5	0-1
				1732.5	20175	20.19	21.5	0-1
				1754.3	20393	20.14	21.5	0-1
			3	1710.7	19957	20.10	21.5	0-1
				1732.5	20175	20.16	21.5	0-1
				1754.3	20393	20.28	21.5	0-1
		6RB		1710.7	19957	19.29	20.5	0-2
				1732.5	20175	19.22	20.5	0-2
				1754.3	20393	19.48	20.5	0-2

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FDD Band 12								
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
10	QPSK	1 RB	0	704	23060	22.09	22.5	0
				707.5	23095	21.67	22.5	0
				711	23130	21.84	22.5	0
			25	704	23060	21.64	22.5	0
				707.5	23095	21.82	22.5	0
				711	23130	21.89	22.5	0
			49	704	23060	21.88	22.5	0
				707.5	23095	21.60	22.5	0
				711	23130	21.86	22.5	0
		25 RB	0	704	23060	20.81	21.5	0-1
				707.5	23095	20.81	21.5	0-1
				711	23130	20.88	21.5	0-1
			12	704	23060	20.78	21.5	0-1
				707.5	23095	20.79	21.5	0-1
				711	23130	20.78	21.5	0-1
			25	704	23060	20.73	21.5	0-1
				707.5	23095	20.83	21.5	0-1
				711	23130	20.91	21.5	0-1
		50RB		704	23060	20.74	21.5	0-1
				707.5	23095	20.71	21.5	0-1
				711	23130	20.82	21.5	0-1
	16-QAM	1 RB	0	704	23060	21.32	21.5	0-1
				707.5	23095	21.02	21.5	0-1
				711	23130	20.97	21.5	0-1
			25	704	23060	21.02	21.5	0-1
				707.5	23095	21.00	21.5	0-1
				711	23130	21.11	21.5	0-1
			49	704	23060	20.95	21.5	0-1
				707.5	23095	20.90	21.5	0-1
				711	23130	21.49	21.5	0-1
		25 RB	0	704	23060	19.88	20.5	0-2
				707.5	23095	20.02	20.5	0-2
				711	23130	19.84	20.5	0-2
			12	704	23060	19.87	20.5	0-2
				707.5	23095	19.88	20.5	0-2
				711	23130	20.00	20.5	0-2
			25	704	23060	19.85	20.5	0-2
				707.5	23095	19.84	20.5	0-2
				711	23130	19.91	20.5	0-2
		500RB		704	23060	19.79	20.5	0-2
				707.5	23095	19.79	20.5	0-2
				711	23130	19.96	20.5	0-2

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FDD Band 12								
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
5	QPSK	1 RB	0	701.5	23035	21.69	22.5	0
				707.5	23095	21.80	22.5	0
				713.5	23155	21.72	22.5	0
			12	701.5	23035	21.81	22.5	0
				707.5	23095	21.86	22.5	0
				713.5	23155	21.75	22.5	0
			24	701.5	23035	21.67	22.5	0
				707.5	23095	21.78	22.5	0
				713.5	23155	21.99	22.5	0
		12 RB	0	701.5	23035	20.84	21.5	0-1
				707.5	23095	20.90	21.5	0-1
				713.5	23155	20.79	21.5	0-1
			6	701.5	23035	20.88	21.5	0-1
				707.5	23095	20.86	21.5	0-1
				713.5	23155	20.87	21.5	0-1
			13	701.5	23035	20.63	21.5	0-1
				707.5	23095	20.88	21.5	0-1
				713.5	23155	20.91	21.5	0-1
		25RB		701.5	23035	20.82	21.5	0-1
				707.5	23095	20.74	21.5	0-1
				713.5	23155	20.92	21.5	0-1
	16-QAM	1 RB	0	701.5	23035	21.38	21.5	0-1
				707.5	23095	20.85	21.5	0-1
				713.5	23155	21.22	21.5	0-1
			12	701.5	23035	20.91	21.5	0-1
				707.5	23095	21.21	21.5	0-1
				713.5	23155	20.79	21.5	0-1
			24	701.5	23035	20.85	21.5	0-1
				707.5	23095	21.15	21.5	0-1
				713.5	23155	20.83	21.5	0-1
		12 RB	0	701.5	23035	20.05	20.5	0-2
				707.5	23095	19.86	20.5	0-2
				713.5	23155	19.87	20.5	0-2
			6	701.5	23035	19.99	20.5	0-2
				707.5	23095	19.88	20.5	0-2
				713.5	23155	19.81	20.5	0-2
			13	701.5	23035	19.82	20.5	0-2
				707.5	23095	19.93	20.5	0-2
				713.5	23155	19.90	20.5	0-2
		25RB		701.5	23035	19.93	20.5	0-2
				707.5	23095	19.69	20.5	0-2
				713.5	23155	20.02	20.5	0-2

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FDD Band 12								
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
3	QPSK	1 RB	0	700.5	23025	21.82	22.5	0
				707.5	23095	21.64	22.5	0
				714.5	23165	21.79	22.5	0
			7	700.5	23025	21.91	22.5	0
				707.5	23095	21.88	22.5	0
				714.5	23165	21.85	22.5	0
			14	700.5	23025	21.83	22.5	0
				707.5	23095	21.82	22.5	0
				714.5	23165	21.96	22.5	0
		8 RB	0	700.5	23025	20.82	21.5	0-1
				707.5	23095	20.80	21.5	0-1
				714.5	23165	20.84	21.5	0-1
			4	700.5	23025	20.90	21.5	0-1
				707.5	23095	20.74	21.5	0-1
				714.5	23165	20.94	21.5	0-1
			7	700.5	23025	20.90	21.5	0-1
				707.5	23095	20.74	21.5	0-1
				714.5	23165	20.92	21.5	0-1
		15RB		700.5	23025	20.81	21.5	0-1
				707.5	23095	20.76	21.5	0-1
				714.5	23165	20.88	21.5	0-1
	16-QAM	1 RB	0	700.5	23025	21.25	21.5	0-1
				707.5	23095	20.70	21.5	0-1
				714.5	23165	21.04	21.5	0-1
			7	700.5	23025	20.86	21.5	0-1
				707.5	23095	21.16	21.5	0-1
				714.5	23165	21.10	21.5	0-1
			14	700.5	23025	21.34	21.5	0-1
				707.5	23095	20.88	21.5	0-1
				714.5	23165	21.45	21.5	0-1
		8 RB	0	700.5	23025	20.00	20.5	0-2
				707.5	23095	19.82	20.5	0-2
				714.5	23165	19.91	20.5	0-2
			4	700.5	23025	20.00	20.5	0-2
				707.5	23095	19.94	20.5	0-2
				714.5	23165	19.94	20.5	0-2
			7	700.5	23025	19.99	20.5	0-2
				707.5	23095	19.84	20.5	0-2
				714.5	23165	20.00	20.5	0-2
		15RB		700.5	23025	19.91	20.5	0-2
				707.5	23095	19.88	20.5	0-2
				714.5	23165	19.95	20.5	0-2

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FDD Band 12								
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
1.4	QPSK	1 RB	0	699.7	23017	21.99	22.5	0
				707.5	23095	21.81	22.5	0
				715.3	23173	21.91	22.5	0
			2	699.7	23017	21.83	22.5	0
				707.5	23095	21.84	22.5	0
				715.3	23173	22.03	22.5	0
			5	699.7	23017	21.95	22.5	0
				707.5	23095	21.85	22.5	0
				715.3	23173	22.02	22.5	0
		3 RB	0	699.7	23017	21.90	22.5	0
				707.5	23095	21.90	22.5	0
				715.3	23173	21.99	22.5	0
			2	699.7	23017	21.93	22.5	0
				707.5	23095	21.80	22.5	0
				715.3	23173	21.95	22.5	0
			3	699.7	23017	21.86	22.5	0
				707.5	23095	21.81	22.5	0
				715.3	23173	22.08	22.5	0
		6RB		699.7	23017	20.79	21.5	0-1
				707.5	23095	20.76	21.5	0-1
				715.3	23173	20.88	21.5	0-1
	16-QAM	1 RB	0	699.7	23017	21.10	21.5	0-1
				707.5	23095	20.94	21.5	0-1
				715.3	23173	20.85	21.5	0-1
			2	699.7	23017	20.82	21.5	0-1
				707.5	23095	21.21	21.5	0-1
				715.3	23173	21.50	21.5	0-1
			5	699.7	23017	21.14	21.5	0-1
				707.5	23095	21.40	21.5	0-1
				715.3	23173	21.46	21.5	0-1
		3 RB	0	699.7	23017	21.02	21.5	0-1
				707.5	23095	20.78	21.5	0-1
				715.3	23173	20.91	21.5	0-1
			2	699.7	23017	20.95	21.5	0-1
				707.5	23095	20.85	21.5	0-1
				715.3	23173	21.01	21.5	0-1
			3	699.7	23017	20.97	21.5	0-1
				707.5	23095	20.92	21.5	0-1
				715.3	23173	21.11	21.5	0-1
		6RB		699.7	23017	19.89	20.5	0-2
				707.5	23095	19.81	20.5	0-2
				715.3	23173	20.08	20.5	0-2

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

Band	Mode	Channel	Frequency (MHz)	Data Rate	Max. Rated Avg. Power + Max. Tolerance (dBm)	Average power (dBm)
2450 MHz	802.11b	1	2412	1Mbps	17.50	17.10
		6	2437		17.50	17.04
		11	2462		17.50	17.19
	802.11g	1	2412	6Mbps	16.50	16.46
		6	2437		16.50	16.42
		11	2462		16.50	16.47
	802.11n20-HT0	1	2412	MCS0	17.00	16.92
		6	2437		17.00	16.84
		11	2462		17.00	16.90
	802.11n40-HT0	3	2422	MCS0	16.00	15.99
		6	2437		16.00	15.93
		9	2452		16.00	15.94

Band	Mode	Channel	Frequency (MHz)	Data Rate	Max. Rated Avg. Power + Max. Tolerance (dBm)	Average power (dBm)
5.15-5.25 GHz	802.11a	36	5180	6Mbps	13.00	12.76
		40	5200		16.50	16.46
		44	5220		13.00	12.54
		48	5240		13.00	12.72
	802.11n20-HT0	36	5180	MCS0	14.00	13.59
		40	5200		17.50	17.47
		44	5220		13.50	13.42
		48	5240		13.50	13.46
	802.11ac20-VHT0	36	5180	MCS0	13.50	13.45
		40	5200		17.50	17.46
		44	5220		13.50	13.32
		48	5240		13.50	13.28
	802.11n40-HT0	38	5190	MCS0	16.50	16.45
		46	5230		16.50	16.46
	802.11ac40-VHT0	38	5190	MCS0	16.50	16.32
		46	5230		16.50	16.22
	802.11ac80-VHT0	42	5210	MCS0	15.50	15.48

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Band	Mode	Channel	Frequency (MHz)	Data Rate	Max. Rated Avg. Power + Max. Tolerance (dBm)	Average power (dBm)
5.25-5.35 GHz	802.11a	52	5260	6Mbps	16.50	16.34
		56	5280		16.50	16.27
		60	5300		16.50	16.31
		64	5320		16.50	16.25
	802.11n20-HT0	52	5260	MCS0	17.50	17.43
		56	5280		17.50	17.47
		60	5300		17.50	17.50
		64	5320		17.50	17.24
	802.11ac20-VHT0	52	5260	MCS0	17.50	17.33
		56	5280		17.50	17.45
		60	5300		17.50	17.48
		64	5320		17.50	17.22
	802.11n40-HT0	54	5270	MCS0	16.50	16.42
		62	5310		16.50	16.47
	802.11ac40-VHT0	54	5270	MCS0	16.50	16.36
		62	5310		16.50	16.32
	802.11ac80-VHT0	58	5290	MCS0	15.50	15.33

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Band	Mode	Channel	Frequency (MHz)	Data Rate	Max. Rated Avg. Power + Max. Tolerance (dBm)	Average power (dBm)
5600 MHz	802.11a	100	5500	6Mbps	16.50	16.42
		120	5600		16.50	16.42
		124	5620		17.50	16.18
		144	5720		16.50	16.38
	802.11n20-HT0	100	5500	MCS0	17.50	17.40
		120	5600		17.50	17.44
		124	5620		17.50	17.19
		144	5720		17.50	16.91
	802.11ac20-VHT0	100	5500	MCS0	17.50	17.40
		120	5600		17.50	17.35
		124	5620		17.50	16.69
		144	5720		17.50	16.70
	802.11n40-HT0	102	5510	MCS0	16.50	16.23
		110	5550		16.50	16.49
		118	5590		16.50	16.48
		134	5670		16.50	16.23
	802.11ac40-VHT0	102	5510	MCS0	16.50	16.22
		110	5550		16.50	16.48
		118	5590		16.50	16.47
		134	5670		16.50	16.18
		142	5710		16.50	16.45
	802.11ac80-VHT0	106	5530	MCS0	15.50	15.49
		122	5610		15.50	15.10
		138	5690		15.50	15.49

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Mode	Mode	Channel	Frequency (MHz)	Data Rate	Max. Rated Avg. Power + Max. Tolerance (dBm)	Average power (dBm)
5800 MHz	802.11a	149	5745	6Mbps	16.50	16.37
		153	5765		16.50	16.44
		157	5785		16.50	16.39
		161	5805		16.50	16.24
		165	5825		16.50	16.35
	802.11n20-HT0	149	5745	MCS0	17.50	17.29
		153	5765		17.50	17.24
		157	5785		17.50	17.46
		161	5805		17.50	17.32
		165	5825		17.50	17.39
	802.11ac20-VHT0	149	5745	MCS0	17.50	17.29
		153	5765		17.50	17.21
		157	5785		17.50	17.46
		161	5805		17.50	17.31
		165	5825		17.50	17.38
	802.11n40-HT0	151	5755	MCS0	16.50	16.29
		159	5795		16.50	16.44
	802.11ac40-VHT0	151	5755	MCS0	16.50	16.27
		159	5795		16.50	16.42
	802.11ac80-VHT0	155	5775	MCS0	15.50	15.29

Bluetooth conducted power table:

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)			Max. Rated Avg. Power + Max. Tolerance (dBm)		
			1Mbps	2Mbps	3Mbps	1Mbps	2Mbps	3Mbps
BR/EDR	CH 00	2402	5.56	2.40	2.44	6.50	4.50	4.50
	CH 39	2441	5.53	1.98	1.91			
	CH 78	2480	6.50	3.33	3.24			

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)	Max. Rated Avg. Power + Max. Tolerance (dBm)
			GFSK	
LE	CH 00	2402	0.78	1.5
	CH 19	2440	0.77	
	CH 39	2480	1.20	

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1.4 Test Environment

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

1.5 Operation Description

For WWAN, the EUT is controlled by using a Radio Communication Tester, and the communication between the EUT and the tester is established by air link.
For WLAN, using chipset specific software to control the EUT, and makes it transmit in maximum power. The EUT is set to maximum power level during all tests, and at the beginning of each test the battery is fully charged.

Per FCC guidance, the device was tested as below.

Body SAR

Test it on all surfaces/edges with a transmitting antenna located at 25 mm from that surface/edge, at 10 mm test separation distance.

Extremity SAR

Test it on all surfaces/edges with a transmitting antenna located at 25 mm from that surface/edge, at 0 mm test separation distance.

All SAR test was measured with silicone sleeve attached.

Note:

1. During the SAR testing, the DASY 5 system checks power drift by comparing the e-field strength of one specific location measured at the beginning with that measured at the end of the SAR testing.
2. LTE modes test according to **KDB 941225D05v02r05.**
   a. Per Section 5.2.1, the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation.
   - Using the RB offset and required test channel combination with the highest

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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

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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.

802.11b DSSS SAR Test Requirements:

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

802.11g/n OFDM SAR Test Exclusion Requirements:

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

Initial Test Configuration:

6. An initial test configuration is determined for OFDM transmission modes according to the channel bandwidth, modulation and data rate combination(s) with the highest maximum output power specified for production units in each standalone and aggregated frequency band.
7. SAR is measured using the highest measured maximum output power channel. When the reported SAR of the initial test configuration is > 0.8 W/kg, SAR measurement is required for the subsequent next highest measured output

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power channel(s) in the initial test configuration until the reported SAR is ≤ 1.2 W/kg or all required channels are tested.

8. When the highest reported SAR for the initial test configuration is adjusted by the ratio of the subsequent test configuration to initial test configuration specified maximum output power and the adjusted SAR is > 1.2 W/kg, SAR is required for subsequent test configuration.
9. According to KDB447498D01v06, testing of other required channels is not required when the reported 1-g SAR for the highest output channel is ≤ 0.8 W/kg, when the transmission band is ≤ 100 MHz.
10. According to KDB865664D01v01r04, SAR measurement variability must be assessed for each frequency band. When the original highest measured SAR is ≥ 0.8 W/kg, repeated that measurement once. Perform a second repeated measurement only if the ratio of largest to smallest SAR for the original and first repeated measurements is > 1.20 or when the original or repeated measurement is ≥ 1.45 W/kg (~ 10% from the 1-g SAR limit)
11. NFC is categorically excluded from routine environmental evaluation for RF exposure, also, the NFC hardware is built-in as an integral part of the device, device with built-in NFC function that do not require separate SAR testing for these specific capabilities can generally be tested according to the SAR measurement procedures normally required for the device. Influences of the hardware introduced by these built-in NFC and functions are inherently considered through testing of the other transmitters that require SAR evaluation.

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1.6 The SAR Measurement System

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

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

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

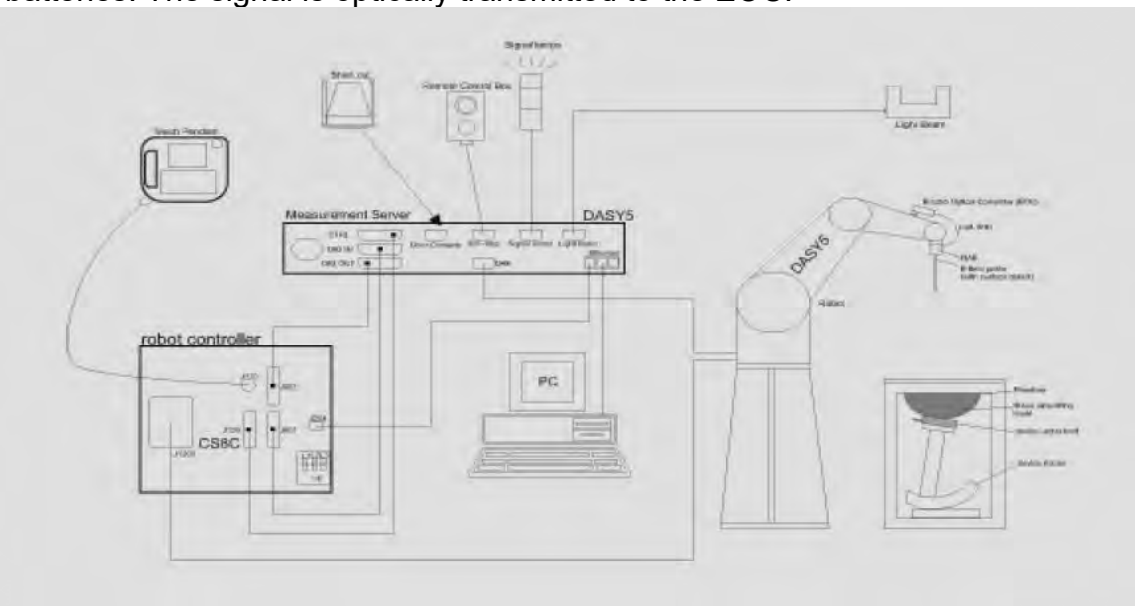

Fig. a The block diagram of SAR system

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

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1.7 System Components

EX3DV4 E-Field Probe

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

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PHANTOM

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

DEVICE HOLDER

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

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1.8 SAR System Verification

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

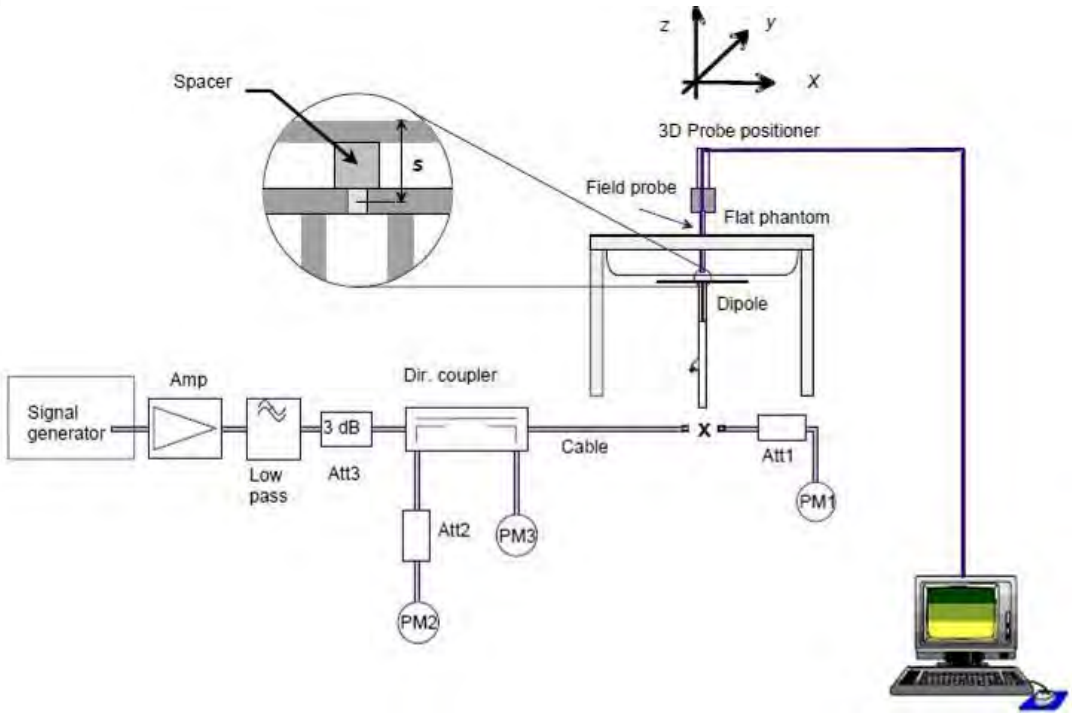

Fig. b The block diagram of system verification

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Validation Kit	S/N	Frequency (MHz)		1W Target SAR-1g (mW/g)	pin=250mW Measured SAR-1g (mW/g)	Measured SAR-1g normalized to 1W (mW/g)	Deviation (%)	Measured Date
D750V3	1015	750	Head	8.23	2.08	8.32	1.09%	Aug. 16, 2019
D1750V2	1008	1750	Head	36.5	9.03	36.12	-1.04%	Aug. 17, 2019
D1900V2	5d173	1900	Head	40.2	9.97	39.88	-0.80%	Aug. 18, 2019
D2450V2	727	2450	Head	53	13.10	52.40	-1.13%	Aug. 19, 2019
Validation Kit	S/N	Frequency (MHz)		1W Target SAR-1g (mW/g)	Pin=100mW Measured SAR-1g (mW/g)	Measured SAR-1g normalized to 1W (mW/g)	Deviation (%)	Measured Date
D5GHzV2	1023	5200	Head	79.2	7.88	78.8	-0.51%	Aug. 20, 2019
		5300	Head	82.6	8.24	82.4	-0.24%	Aug. 21, 2019
		5600	Head	85.7	8.51	85.1	-0.70%	Aug. 22, 2019
		5800	Head	80.4	8.05	80.5	0.12%	Aug. 23, 2019

Validation Kit	S/N	Frequency (MHz)		1W Target SAR-10g (mW/g)	pin=250mW Measured SAR-10g (mW/g)	Measured SAR-10g normalized to 1W (mW/g)	Deviation (%)	Measured Date
D750V3	1015	750	Head	5.34	1.39	5.56	4.12%	Aug. 16, 2019
D1750V2	1008	1750	Head	19.3	4.81	19.24	-0.31%	Aug. 17, 2019
D1900V2	5d173	1900	Head	21	5.25	21.00	0.00%	Aug. 18, 2019
D2450V2	727	2450	Head	24.7	6.27	25.08	1.54%	Aug. 19, 2019
Validation Kit	S/N	Frequency (MHz)		1W Target SAR-10g (mW/g)	Pin=100mW Measured SAR-10g (mW/g)	Measured SAR-10g normalized to 1W (mW/g)	Deviation (%)	Measured Date
D5GHzV2	1023	5200	Head	22.5	2.26	22.6	0.44%	Aug. 20, 2019
		5300	Head	23.5	2.37	23.7	0.85%	Aug. 21, 2019
		5600	Head	24.4	2.45	24.5	0.41%	Aug. 22, 2019
		5800	Head	22.7	2.26	22.6	-0.44%	Aug. 23, 2019

Table 1. Results of system verification

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1.9 Tissue Simulant Fluid for the Frequency Band

The dielectric properties for this Head-simulant fluid were measured by using the Agilent Model 85070E Dielectric Probe (rates frequency band 200 MHz to 20 GHz) in conjunction with Network Analyzer.
All dielectric parameters of tissue simulates were measured within 24 hours of SAR measurements. The measured conductivity and permittivity are all within ± 5% of the target values.

Tissue Type	Measurement Date	Measured Frequency (MHz)	Target Dielectric Constant, εr	Target Conductivity, σ (S/m)	Measured Dielectric Constant, εr	Measured Conductivity, σ (S/m)	% dev εr	% dev σ
Head	Aug, 16, 2019	704	42.181	0.890	43.003	0.884	1.95%	-0.65%
		707.5	42.162	0.890	43.001	0.885	1.99%	-0.57%
		711	42.144	0.890	42.974	0.886	1.97%	-0.49%
		750	41.942	0.893	42.768	0.888	1.97%	-0.60%
	Aug, 17, 2019	1720	40.126	1.354	41.338	1.338	3.02%	-1.16%
		1732.5	40.107	1.361	41.294	1.346	2.96%	-1.10%
		1745	40.087	1.368	41.289	1.353	3.00%	-1.11%
		1750	40.079	1.371	41.269	1.356	2.97%	-1.10%
	Aug, 18, 2019	1860	40.000	1.400	41.200	1.383	3.00%	-1.21%
		1880	40.000	1.400	41.184	1.384	2.96%	-1.14%
		1900	40.000	1.400	41.180	1.385	2.95%	-1.07%
	Aug, 19, 2019	2402	39.285	1.757	40.279	1.726	2.53%	-1.78%
		2412	39.268	1.766	40.241	1.735	2.48%	-1.77%
		2437	39.223	1.788	40.200	1.757	2.49%	-1.76%
		2441	39.216	1.792	40.192	1.760	2.49%	-1.79%
		2450	39.200	1.800	40.180	1.768	2.50%	-1.78%
		2462	39.185	1.813	40.160	1.781	2.49%	-1.77%
		2480	39.162	1.827	40.137	1.793	2.49%	-1.84%
	Aug, 20, 2019	5180	36.009	4.635	36.599	4.525	1.64%	-2.36%
		5200	35.986	4.655	36.554	4.545	1.58%	-2.36%
		5220	35.963	4.676	36.524	4.562	1.56%	-2.43%
		5230	35.951	4.686	36.524	4.577	1.59%	-2.33%
		5240	35.940	4.696	36.523	4.582	1.62%	-2.43%
	Aug, 21, 2019	5260	35.917	4.717	36.522	4.602	1.68%	-2.43%
		5280	35.894	4.737	36.520	4.621	1.74%	-2.45%
		5300	35.871	4.758	36.506	4.645	1.77%	-2.36%
		5320	35.849	4.778	36.476	4.661	1.75%	-2.45%
	Aug, 22, 2019	5500	35.643	4.963	36.463	4.817	2.30%	-2.93%
		5500	35.643	4.963	36.462	4.821	2.30%	-2.85%
		5520	35.620	4.983	36.461	4.839	2.36%	-2.89%
		5540	35.597	5.004	36.460	4.860	2.42%	-2.87%
		5560	35.574	5.024	36.421	4.877	2.38%	-2.93%
		5580	35.551	5.045	36.419	4.896	2.44%	-2.94%
		5600	35.529	5.065	35.960	4.917	1.21%	-2.92%
		5660	35.460	5.127	35.953	4.976	1.39%	-2.94%
		5680	35.437	5.147	35.930	5.011	1.39%	-2.64%
		5700	35.414	5.168	35.900	5.018	1.37%	-2.89%
	Aug, 23, 2019	5720	35.391	5.188	35.887	5.025	1.40%	-3.14%
		5745	35.363	5.214	35.886	5.035	1.48%	-3.43%
		5765	35.340	5.234	35.841	5.044	1.42%	-3.63%
		5785	35.317	5.255	35.797	5.068	1.36%	-3.55%
		5800	35.300	5.270	35.753	5.082	1.28%	-3.57%
		5805	35.294	5.275	35.744	5.084	1.27%	-3.62%
		5825	35.271	5.296	35.717	5.106	1.26%	-3.58%

Table 2. Dielectric Parameters of Tissue Simulant Fluid

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The composition of the body tissue simulating liquid:

Frequency (MHz)	Mode	Ingredient						Total amount
		DGMBE	Water	Salt	Preventol D-7	Cellulose	Sugar	
750	Head	—	532.98 g	18.3 g	2.4 g	3.2 g	766 g	1.3L(Kg)
1750	Head	444.52 g	552.42 g	3.06 g	—	—	—	1.0L(Kg)
1900	Head	444.52 g	552.42 g	3.06 g	—	—	—	1.0L(Kg)
2450	Head	550ml	450ml	—	—	—	—	1.0L(Kg)

Simulating Liquids for 5 GHz, Manufactured by SPEAG:

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

Table 3. Recipes for Tissue Simulating Liquid

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1.10 Evaluation Procedures

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

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

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

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

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

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The measured volume of 30x30x30mm contains about 30g of tissue.
The first procedure is an extrapolation (incl. Boundary correction) to get the points between the lowest measured plane and the surface. The next step uses 3D interpolation to get all points within the measured volume. In the last step, a 1g cube is placed numerically into the volume and its averaged SAR is calculated. This cube is 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.

1.11 Probe Calibration Procedures

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

1.11.1 Transfer Calibration with Temperature Probes

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

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

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

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

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

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

1.11.2 Calibration with Analytical Fields

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

1. The setup must enable accurate determination of the incident power.
2. The accuracy of the calculated field strength will depend on the

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assessment of the dielectric parameters of the liquid.

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

References

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3. K. Jokela, P. Hyysalo, and L. Puranen, \Calibration of specific absorption rate (SAR) probes in waveguide at 900 MHz", *IEEE Transactions on Instrumentation and Measurements*, vol. 47, no. 2, pp. 432{438, Apr. 1998.

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1.12 Test Standards and Limits

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

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

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

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

Table 4. RF exposure limits

Notes:

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

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2. Summary of Results

2.1 Decision rules

Reported measurement data comply with IEEE 1528-2013:

Determining compliance shall be based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

2.2 Summary of Results

LTE FDD Band 2

Mode	Bandwidth (MHz)	Modulation	RB Size	RB start	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg.Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page
												Measured	Reported	
Body	20MHz	QPSK	1 RB	0	Front side	10	18900	1880	22.5	21.70	20.23%	0.159	0.191	-
					Back side	10	18900	1880	22.5	21.70	20.23%	0.164	0.197	-
					Back curve side	10	18900	1880	22.5	21.70	20.23%	0.122	0.147	-
					Top side	10	18900	1880	22.5	21.70	20.23%	0.239	0.287	-
					Bottom side	10	18900	1880	22.5	21.70	20.23%	0.001	0.002	-
					Right side	10	18700	1860	22.5	21.36	30.02%	0.682	0.887	-
					Right side	10	18900	1880	22.5	21.70	20.23%	0.798	0.959	-
					Right side	10	19100	1900	22.5	21.26	33.05%	0.805	1.071	71
					Right side*	10	19100	1900	22.5	21.26	33.05%	0.801	1.066	-
					Left side	10	18900	1880	22.5	21.70	20.23%	0.024	0.029	-
			50 RB	0	Front side	10	18900	1880	21.5	20.30	31.83%	0.118	0.156	-
					Back side	10	18900	1880	21.5	20.30	31.83%	0.121	0.160	-
					Back curve side	10	18900	1880	21.5	20.30	31.83%	0.101	0.133	-
					Top side	10	18900	1880	21.5	20.30	31.83%	0.177	0.233	-
					Bottom side	10	18900	1880	21.5	20.30	31.83%	0.001	0.001	-
					Right side	10	18900	1880	21.5	20.30	31.83%	0.590	0.778	-
					Left side	10	18900	1880	21.5	20.30	31.83%	0.018	0.024	-
			100 RB		Front side	10	18700	1860	21.5	20.34	30.62%	0.114	0.149	-
					Back side	10	18700	1860	21.5	20.34	30.62%	0.118	0.154	-
					Back curve side	10	18700	1860	21.5	20.34	30.62%	0.108	0.141	-
					Top side	10	18700	1860	21.5	20.34	30.62%	0.171	0.223	-
					Bottom side	10	18700	1860	21.5	20.34	30.62%	0.001	0.001	-
					Right side	10	18700	1860	21.5	20.34	30.62%	0.572	0.747	-
					Left side	10	18700	1860	21.5	20.34	30.62%	0.017	0.022	-

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

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LTE FDD Band 2

Mode	Bandwidth (MHz)	Modulation	RB Size	RB start	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg.Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 10g (W/kg)		Plot page
												Measured	Reported	
Limb	20MHz	QPSK	1 RB	0	Front side	0	18900	1880	22.5	21.70	20.23%	0.330	0.397	-
					Back side	0	18900	1880	22.5	21.70	20.23%	0.115	0.138	-
					Back curve side	0	18900	1880	22.5	21.70	20.23%	0.167	0.201	-
					Top side	0	18900	1880	22.5	21.70	20.23%	0.400	0.481	-
					Bottom side	0	18900	1880	22.5	21.70	20.23%	0.002	0.002	-
					Right side	0	18700	1860	22.5	21.36	30.02%	1.790	2.327	-
					Right side	0	18900	1880	22.5	21.70	20.23%	1.880	2.260	-
					Right side	0	19100	1900	22.5	21.26	33.05%	1.910	2.541	72
					Left side	0	18900	1880	22.5	21.70	20.23%	0.038	0.046	-
			50 RB	0	Front side	0	18900	1880	21.5	20.30	31.83%	0.251	0.331	-
					Back side	0	18900	1880	21.5	20.30	31.83%	0.087	0.115	-
					Back curve side	0	18900	1880	21.5	20.30	31.83%	0.133	0.175	-
					Top side	0	18900	1880	21.5	20.30	31.83%	0.304	0.401	-
					Bottom side	0	18900	1880	21.5	20.30	31.83%	0.002	0.002	-
					Right side	0	18700	1860	21.5	20.21	34.59%	1.370	1.844	-
					Right side	0	18900	1880	21.5	20.30	31.83%	1.430	1.885	-
					Right side	0	19100	1900	21.5	20.24	33.66%	1.490	1.992	-
					Left side	0	18900	1880	21.5	20.30	31.83%	0.029	0.038	-
			100 RB		Front side	0	18700	1860	21.5	20.34	30.62%	0.241	0.315	-
					Back side	0	18700	1860	21.5	20.34	30.62%	0.083	0.108	-
					Back curve side	0	18700	1860	21.5	20.34	30.62%	0.128	0.167	-
					Top side	0	18700	1860	21.5	20.34	30.62%	0.294	0.384	-
					Bottom side	0	18700	1860	21.5	20.34	30.62%	0.002	0.002	-
					Right side	0	18700	1860	21.5	20.34	30.62%	1.380	1.803	-
					Right side	0	18900	1880	21.5	20.16	36.14%	1.400	1.906	-
					Right side	0	19100	1900	21.5	20.02	40.60%	1.500	2.109	-
					Left side	0	18700	1860	21.5	20.34	30.62%	0.027	0.035	-

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LTE FDD Band 4

Mode	Bandwidth (MHz)	Modulation	RB Size	RB start	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg.Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page
												Measured	Reported	
Body	20MHz	QPSK	1 RB	0	Front side	10	20050	1720	22.5	21.50	25.89%	0.195	0.245	-
					Back side	10	20050	1720	22.5	21.50	25.89%	0.063	0.079	-
					Back curve side	10	20050	1720	22.5	21.50	25.89%	0.074	0.093	-
					Top side	10	20050	1720	22.5	21.50	25.89%	0.114	0.144	-
					Bottom side	10	20050	1720	22.5	21.50	25.89%	0.006	0.007	-
					Right side	10	20050	1720	22.5	21.50	25.89%	0.446	0.561	-
					Right side	10	20175	1732.5	22.5	21.34	30.62%	0.474	0.619	-
					Right side	10	20300	1745	22.5	21.43	27.94%	0.508	0.650	73
					Left side	10	20050	1720	22.5	21.50	25.89%	0.028	0.035	-
			50 RB	0	Front side	10	20175	1732.5	21.5	20.34	30.62%	0.154	0.201	-
					Back side	10	20175	1732.5	21.5	20.34	30.62%	0.050	0.065	-
					Back curve side	10	20175	1732.5	21.5	20.34	30.62%	0.058	0.076	-
					Top side	10	20175	1732.5	21.5	20.34	30.62%	0.090	0.118	-
					Bottom side	10	20175	1732.5	21.5	20.34	30.62%	0.004	0.006	-
					Right side	10	20175	1732.5	21.5	20.34	30.62%	0.353	0.461	-
					Left side	10	20175	1732.5	21.5	20.34	30.62%	0.023	0.030	-
			100 RB		Front side	10	20050	1720	21.5	20.22	34.28%	0.153	0.205	-
					Back side	10	20050	1720	21.5	20.22	34.28%	0.048	0.064	-
					Back curve side	10	20050	1720	21.5	20.22	34.28%	0.059	0.079	-
					Top side	10	20050	1720	21.5	20.22	34.28%	0.088	0.118	-
					Bottom side	10	20050	1720	21.5	20.22	34.28%	0.004	0.006	-
					Right side	10	20050	1720	21.5	20.22	34.28%	0.350	0.470	-
					Left side	10	20050	1720	21.5	20.22	34.28%	0.021	0.028	-

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 10g (W/kg)		Plot page
												Measured	Reported	
Limb	20MHz	QPSK	1 RB	0	Front side	0	20050	1720	22.5	21.50	25.89%	0.357	0.449	-
					Back side	0	20050	1720	22.5	21.50	25.89%	0.093	0.117	-
					Back curve side	0	20050	1720	22.5	21.50	25.89%	0.129	0.162	-
					Top side	0	20050	1720	22.5	21.50	25.89%	0.331	0.417	-
					Bottom side	0	20050	1720	22.5	21.50	25.89%	0.007	0.009	-
					Right side	0	20050	1720	22.5	21.50	25.89%	1.130	1.423	-
					Right side	0	20175	1732.5	22.5	21.34	30.62%	1.260	1.646	-
					Right side	0	20300	1745	22.5	21.43	27.94%	1.350	1.727	74
					Left side	0	20050	1720	22.5	21.50	25.89%	0.061	0.077	-
			50 RB	0	Front side	0	20175	1732.5	21.5	20.34	30.62%	0.321	0.419	-
					Back side	0	20175	1732.5	21.5	20.34	30.62%	0.085	0.111	-
					Back curve side	0	20175	1732.5	21.5	20.34	30.62%	0.117	0.153	-
					Top side	0	20175	1732.5	21.5	20.34	30.62%	0.301	0.393	-
					Bottom side	0	20175	1732.5	21.5	20.34	30.62%	0.007	0.009	-
					Right side	0	20050	1720	21.5	20.20	34.90%	0.922	1.244	-
					Right side	0	20175	1732.5	21.5	20.34	30.62%	1.020	1.332	-
					Right side	0	20300	1745	21.5	20.25	33.35%	1.080	1.440	-
					Left side	0	20175	1732.5	21.5	20.34	30.62%	0.055	0.072	-
			100 RB		Front side	0	20050	1720	21.5	20.22	34.28%	0.287	0.385	-
					Back side	0	20050	1720	21.5	20.22	34.28%	0.074	0.099	-
					Back curve side	0	20050	1720	21.5	20.22	34.28%	0.104	0.140	-
					Top side	0	20050	1720	21.5	20.22	34.28%	0.266	0.357	-
					Bottom side	0	20050	1720	21.5	20.22	34.28%	0.006	0.008	-
					Right side	0	20050	1720	21.5	20.22	34.28%	0.904	1.214	-
					Right side	0	20175	1732.5	21.5	20.15	36.46%	1.020	1.392	-
					Right side	0	20300	1745	21.5	20.18	35.52%	1.070	1.450	-
					Left side	0	20050	1720	21.5	20.22	34.28%	0.048	0.064	-

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LTE FDD Band 12

Mode	Bandwidth (MHz)	Modulation	RB Size	RB start	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg.Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page
												Measured	Reported	
Body	10MHz	QPSK	1 RB	0	Front side	10	23060	704	23	22.09	23.31%	0.092	0.113	-
					Back side	10	23060	704	23	22.09	23.31%	0.086	0.106	-
					Back curve side	10	23060	704	23	22.09	23.31%	0.098	0.120	-
					Top side	10	23060	704	23	22.09	23.31%	0.034	0.042	-
					Bottom side	10	23060	704	23	22.09	23.31%	0.005	0.006	-
					Right side	10	23060	704	23	22.09	23.31%	0.305	0.376	75
					Left side	10	23060	704	23	22.09	23.31%	0.017	0.020	-
				25	Right side	10	23095	707.5	23	21.82	31.22%	0.256	0.336	-
					Right side	10	23130	711	23	21.89	29.12%	0.260	0.336	-
			25 RB	25	Front side	10	23130	711	22	20.91	28.53%	0.079	0.102	-
					Back side	10	23130	711	22	20.91	28.53%	0.075	0.096	-
					Back curve side	10	23130	711	22	20.91	28.53%	0.085	0.109	-
					Top side	10	23130	711	22	20.91	28.53%	0.029	0.037	-
					Bottom side	10	23130	711	22	20.91	28.53%	0.004	0.005	-
					Right side	10	23130	711	22	20.91	28.53%	0.265	0.341	-
					Left side	10	23130	711	22	20.91	28.53%	0.015	0.019	-
			50 RB		Front side	10	23130	711	22	20.82	31.22%	0.078	0.102	-
					Back side	10	23130	711	22	20.82	31.22%	0.073	0.096	-
					Back curve side	10	23130	711	22	20.82	31.22%	0.084	0.110	-
					Top side	10	23130	711	22	20.82	31.22%	0.028	0.037	-
					Bottom side	10	23130	711	22	20.82	31.22%	0.004	0.005	-
					Right side	10	23130	711	22	20.82	31.22%	0.259	0.340	-
					Left side	10	23130	711	22	20.82	31.22%	0.014	0.018	-

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 10g (W/kg)		Plot page
												Measured	Reported	
Limb	10MHz	QPSK	1 RB	0	Front side	0	23060	704	23	22.09	23.31%	0.178	0.219	-
					Back side	0	23060	704	23	22.09	23.31%	0.138	0.170	-
					Back curve side	0	23060	704	23	22.09	23.31%	0.150	0.185	-
					Top side	0	23060	704	23	22.09	23.31%	0.065	0.080	-
					Bottom side	0	23060	704	23	22.09	23.31%	0.004	0.005	-
					Right side	0	23060	704	23	22.09	23.31%	0.745	0.919	-
					Left side	0	23060	704	23	22.09	23.31%	0.015	0.018	-
				25	Right side	0	23095	707.5	23	21.82	31.22%	0.787	1.033	-
					Right side	0	23130	711	23	21.89	29.12%	0.886	1.144	76
			25 RB	25	Front side	0	23130	711	22	20.91	28.53%	0.155	0.199	-
					Back side	0	23130	711	22	20.91	28.53%	0.121	0.156	-
					Back curve side	0	23130	711	22	20.91	28.53%	0.129	0.166	-
					Top side	0	23130	711	22	20.91	28.53%	0.057	0.073	-
					Bottom side	0	23130	711	22	20.91	28.53%	0.004	0.005	-
					Right side	0	23130	711	22	20.91	28.53%	0.647	0.832	-
					Left side	0	23130	711	22	20.91	28.53%	0.014	0.018	-
			50 RB		Front side	0	23130	711	22	20.82	31.22%	0.153	0.201	-
					Back side	0	23130	711	22	20.82	31.22%	0.119	0.156	-
					Back curve side	0	23130	711	22	20.82	31.22%	0.129	0.169	-
					Top side	0	23130	711	22	20.82	31.22%	0.057	0.075	-
					Bottom side	0	23130	711	22	20.82	31.22%	0.004	0.005	-
					Right side	0	23130	711	22	20.82	31.22%	0.641	0.841	-
					Left side	0	23130	711	22	20.82	31.22%	0.013	0.017	-

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WLAN 802.11b

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	
Body	Front side	10	11	2462	17.5	17.19	107.40%	0.082	0.088	77
	Back side	10	11	2462	17.5	17.19	107.40%	0.027	0.029	-
	Back curve side	10	11	2462	17.5	17.19	107.40%	0.001	0.001	-
	Top side	10	11	2462	17.5	17.19	107.40%	0.075	0.081	-
	Bottom side	10	11	2462	17.5	17.19	107.40%	0.001	0.001	-
	Right side	10	11	2462	17.5	17.19	107.40%	0.009	0.010	-
	Left side	10	11	2462	17.5	17.19	107.40%	0.038	0.041	-

Mode	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 10g (W/kg)		Plot page
								Measured	Reported	
Limb	Front side	0	11	2462	17.5	17.19	107.40%	0.209	0.224	78
	Back side	0	11	2462	17.5	17.19	107.40%	0.033	0.035	-
	Back curve side	0	11	2462	17.5	17.19	107.40%	0.002	0.003	-
	Top side	0	11	2462	17.5	17.19	107.40%	0.191	0.205	-
	Bottom side	0	11	2462	17.5	17.19	107.40%	0.001	0.001	-
	Right side	0	11	2462	17.5	17.19	107.40%	0.034	0.036	-
	Left side	0	11	2462	17.5	17.19	107.40%	0.083	0.089	-

Bluetooth(GFSK)

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	
Body	Front side	10	78	2480	6.5	6.50	100.00%	0.006	0.006	79
	Back side	10	78	2480	6.5	6.50	100.00%	0.002	0.002	-
	Back curve side	10	78	2480	6.5	6.50	100.00%	0.001	0.001	-
	Top side	10	78	2480	6.5	6.50	100.00%	0.005	0.005	-
	Bottom side	10	78	2480	6.5	6.50	100.00%	0.001	0.001	-
	Right side	10	78	2480	6.5	6.50	100.00%	0.001	0.001	-
	Left side	10	78	2480	6.5	6.50	100.00%	0.003	0.003	-

Mode	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 10g (W/kg)		Plot page
								Measured	Reported	
Limb	Front side	0	78	2480	6.5	6.50	100.00%	0.006	0.006	80
	Back side	0	78	2480	6.5	6.50	100.00%	0.002	0.002	-
	Back curve side	0	78	2480	6.5	6.50	100.00%	0.000	0.000	-
	Top side	0	78	2480	6.5	6.50	100.00%	0.005	0.005	-
	Bottom side	0	78	2480	6.5	6.50	100.00%	0.001	0.001	-
	Right side	0	78	2480	6.5	6.50	100.00%	0.002	0.002	-
	Left side	0	78	2480	6.5	6.50	100.00%	0.004	0.004	-

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WLAN 802.11n(20M) 5.2G

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	
Body	Front side	10	40	5200	17.5	17.47	100.67%	0.161	0.162	-
	Back side	10	40	5200	17.5	17.47	100.67%	0.013	0.013	-
	Back curve side	10	40	5200	17.5	17.47	100.67%	0.003	0.003	-
	Top side	10	40	5200	17.5	17.47	100.67%	0.624	0.628	81
	Bottom side	10	40	5200	17.5	17.47	100.67%	0.001	0.001	-
	Right side	10	40	5200	17.5	17.47	100.67%	0.001	0.001	-
	Left side	10	40	5200	17.5	17.47	100.67%	0.192	0.193	-

Mode	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 10g (W/kg)		Plot page
								Measured	Reported	
Limb	Front side	0	40	5200	17.5	17.47	100.67%	0.265	0.267	-
	Back side	0	40	5200	17.5	17.47	100.67%	0.013	0.013	-
	Back curve side	0	40	5200	17.5	17.47	100.67%	0.012	0.012	-
	Top side	0	40	5200	17.5	17.47	100.67%	0.844	0.850	82
	Bottom side	0	40	5200	17.5	17.47	100.67%	0.001	0.001	-
	Right side	0	40	5200	17.5	17.47	100.67%	0.001	0.001	-
	Left side	0	40	5200	17.5	17.47	100.67%	0.198	0.199	-

WLAN 802.11n(40M) 5.2G

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	
Body	Front side	10	46	5230	16.5	16.46	100.84%	0.155	0.156	-
	Back side	10	46	5230	16.5	16.46	100.84%	0.011	0.011	-
	Back curve side	10	46	5230	16.5	16.46	100.84%	0.003	0.003	-
	Top side	10	46	5230	16.5	16.46	100.84%	0.617	0.622	83
	Bottom side	10	46	5230	16.5	16.46	100.84%	0.001	0.001	-
	Right side	10	46	5230	16.5	16.46	100.84%	0.001	0.001	-
	Left side	10	46	5230	16.5	16.46	100.84%	0.188	0.190	-

Mode	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 10g (W/kg)		Plot page
								Measured	Reported	
Limb	Front side	0	46	5230	16.5	16.46	100.84%	0.255	0.257	-
	Back side	0	46	5230	16.5	16.46	100.84%	0.011	0.011	-
	Back curve side	0	46	5230	16.5	16.46	100.84%	0.010	0.010	-
	Top side	0	46	5230	16.5	16.46	100.84%	0.818	0.825	84
	Bottom side	0	46	5230	16.5	16.46	100.84%	0.001	0.001	-
	Right side	0	46	5230	16.5	16.46	100.84%	0.001	0.001	-
	Left side	0	46	5230	16.5	16.46	100.84%	0.188	0.190	-

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WLAN 802.11n(20M) 5.3G

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	
Body	Front side	10	60	5300	17.5	17.50	100.00%	0.197	0.197	-
	Back side	10	60	5300	17.5	17.50	100.00%	0.016	0.016	-
	Back curve side	10	60	5300	17.5	17.50	100.00%	0.003	0.003	-
	Top side	10	60	5300	17.5	17.50	100.00%	0.727	0.727	85
	Bottom side	10	60	5300	17.5	17.50	100.00%	0.001	0.001	-
	Right side	10	60	5300	17.5	17.50	100.00%	0.091	0.091	-
	Left side	10	60	5300	17.5	17.50	100.00%	0.233	0.233	-

Mode	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 10g (W/kg)		Plot page
								Measured	Reported	
Limb	Front side	0	60	5300	17.5	17.50	100.00%	0.301	0.301	-
	Back side	0	60	5300	17.5	17.50	100.00%	0.014	0.014	-
	Back curve side	0	60	5300	17.5	17.50	100.00%	0.013	0.013	-
	Top side	0	60	5300	17.5	17.50	100.00%	0.939	0.939	86
	Bottom side	0	60	5300	17.5	17.50	100.00%	0.001	0.001	-
	Right side	0	60	5300	17.5	17.50	100.00%	0.001	0.001	-
	Left side	0	60	5300	17.5	17.50	100.00%	0.229	0.229	-

WLAN 802.11n(20M) 5.6G

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	
Body	Front side	10	120	5600	17.5	17.44	101.39%	0.319	0.323	-
	Back side	10	120	5600	17.5	17.44	101.39%	0.026	0.026	-
	Back curve side	10	120	5600	17.5	17.44	101.39%	0.006	0.007	-
	Top side	10	100	5500	17.5	17.40	102.33%	1.130	1.156	-
	Top side	10	120	5600	17.5	17.44	101.39%	1.170	1.186	87
	Top side*	10	120	5600	17.5	17.44	101.39%	1.150	1.166	-
	Top side	10	124	5620	17.5	17.19	107.40%	1.050	1.128	-
	Top side	10	144	5720	17.5	17.20	107.15%	1.090	1.168	-
	Bottom side	10	120	5600	17.5	17.44	101.39%	0.001	0.001	-
	Right side	10	120	5600	17.5	17.44	101.39%	0.146	0.148	-
	Left side	10	120	5600	17.5	17.44	101.39%	0.375	0.380	-

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

Mode	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 10g (W/kg)		Plot page
								Measured	Reported	
Limb	Front side	0	120	5600	17.5	17.44	101.39%	0.366	0.371	-
	Back side	0	120	5600	17.5	17.44	101.39%	0.017	0.017	-
	Back curve side	0	120	5600	17.5	17.44	101.39%	0.016	0.016	-
	Top side	0	120	5600	17.5	17.44	101.39%	1.180	1.196	88
	Bottom side	0	120	5600	17.5	17.44	101.39%	0.001	0.001	-
	Right side	0	120	5600	17.5	17.44	101.39%	0.002	0.002	-
	Left side	0	120	5600	17.5	17.44	101.39%	0.278	0.282	-

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WLAN 802.11n(20M) 5.8G

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	
Body	Front side	10	157	5785	17.5	17.46	100.93%	0.357	0.360	-
	Back side	10	157	5785	17.5	17.46	100.93%	0.030	0.030	-
	Back curve side	10	157	5785	17.5	17.46	100.93%	0.006	0.006	-
	Top side	10	157	5785	17.5	17.46	100.93%	1.320	1.332	89
	Top side*	10	157	5785	17.5	17.46	100.93%	1.300	1.312	-
	Top side	10	165	5825	17.5	17.39	102.57%	1.120	1.149	-
	Bottom side	10	157	5785	17.5	17.46	100.93%	0.001	0.001	-
	Right side	10	157	5785	17.5	17.46	100.93%	0.177	0.179	-
	Left side	10	157	5785	17.5	17.46	100.93%	0.433	0.437	-

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

Mode	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 10g (W/kg)		Plot page
								Measured	Reported	
Limb	Front side	0	157	5785	17.5	17.46	100.93%	0.485	0.489	-
	Back side	0	157	5785	17.5	17.46	100.93%	0.024	0.024	-
	Back curve side	0	157	5785	17.5	17.46	100.93%	0.022	0.022	-
	Top side	0	157	5785	17.5	17.46	100.93%	1.490	1.504	90
	Bottom side	0	157	5785	17.5	17.46	100.93%	0.001	0.001	-
	Right side	0	157	5785	17.5	17.46	100.93%	0.002	0.002	-
	Left side	0	157	5785	17.5	17.46	100.93%	0.364	0.367	-

WLAN 802.11ac(20M) 5.8G

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	
Body	Front side	10	157	5785	17.5	17.46	100.96%	0.314	0.317	-
	Back side	10	157	5785	17.5	17.46	100.96%	0.026	0.026	-
	Back curve side	10	157	5785	17.5	17.46	100.96%	0.005	0.005	-
	Top side	10	157	5785	17.5	17.46	100.96%	1.160	1.171	91
	Top side*	10	157	5785	17.5	17.46	100.93%	1.100	1.110	-
	Top side	10	165	5825	17.5	17.38	102.83%	1.040	1.069	-
	Bottom side	10	157	5785	17.5	17.46	100.96%	0.001	0.001	-
	Right side	10	157	5785	17.5	17.46	100.96%	0.156	0.157	-
	Left side	10	157	5785	17.5	17.46	100.96%	0.381	0.385	-

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

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Note:

Scaling = $\frac{\text{reported SAR}}{\text{measured SAR}} = \frac{P2(mW)}{P1(mW)} = 10^{\left(\frac{P_2-P_1}{10}\right)(dBm)}$

Reported SAR = measured SAR * (scaling)

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

2.3 Reporting statements of conformity

The conformity statement in this report is based solely on the test results, measurement uncertainty is excluded.

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3. Simultaneous Transmission Analysis

Simultaneous Transmission Scenarios:

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

Note :
1) LTE and WLAN can't transmit simultaneously.
2) Bluetooth and WLAN share the same antenna path.
3) Bluetooth can transmit with WLAN simultaneously.

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3.1 Estimated SAR calculation

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

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

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

3.2 SPLSR evaluation and analysis

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

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

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

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

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

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Body

Front side BT + 2.4GHz WLAN

No.	Position	Conditions	Distance (mm)	WWAN	BT	Max. WLAN	SAR Sum	SPLSR
1	Front side	LTE Band 2	10	-	0.006	0.088	0.094	ΣSAR<1.6, Not required
		LTE Band 4	10	-	0.006	0.088	0.094	ΣSAR<1.6, Not required
		LTE Band 12	10	-	0.006	0.088	0.094	ΣSAR<1.6, Not required

Back side BT + 2.4GHz WLAN

No.	Position	Conditions	Distance (mm)	WWAN	BT	Max. WLAN	SAR Sum	SPLSR
2	Back side	LTE Band 2	10	-	0.002	0.029	0.031	ΣSAR<1.6, Not required
		LTE Band 4	10	-	0.002	0.029	0.031	ΣSAR<1.6, Not required
		LTE Band 12	10	-	0.002	0.029	0.031	ΣSAR<1.6, Not required

Back curve side BT + 2.4GHz WLAN

No.	Position	Conditions	Distance (mm)	WWAN	BT	Max. WLAN	SAR Sum	SPLSR
3	Back curve side	LTE Band 2	10	-	0.001	0.001	0.002	ΣSAR<1.6, Not required
		LTE Band 4	10	-	0.001	0.001	0.002	ΣSAR<1.6, Not required
		LTE Band 12	10	-	0.001	0.001	0.002	ΣSAR<1.6, Not required

Top side BT + 2.4GHz WLAN

No.	Position	Conditions	Distance (mm)	WWAN	BT	Max. WLAN	SAR Sum	SPLSR
4	Top side	LTE Band 2	10	-	0.005	0.081	0.086	ΣSAR<1.6, Not required
		LTE Band 4	10	-	0.005	0.081	0.086	ΣSAR<1.6, Not required
		LTE Band 12	10	-	0.005	0.081	0.086	ΣSAR<1.6, Not required

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Bottom side BT + 2.4GHz WLAN

No.	Position	Conditions	Distance (mm)	WWAN	BT	Max. WLAN	SAR Sum	SPLSR
5	Bottom side	LTE Band 2	10	-	0.001	0.001	0.002	ΣSAR<1.6, Not required
		LTE Band 4	10	-	0.001	0.001	0.002	ΣSAR<1.6, Not required
		LTE Band 12	10	-	0.001	0.001	0.002	ΣSAR<1.6, Not required

Right side BT + 2.4GHz WLAN

No.	Position	Conditions	Distance (mm)	WWAN	BT	Max. WLAN	SAR Sum	SPLSR
6	Right side	LTE Band 2	10	-	0.001	0.010	0.011	ΣSAR<1.6, Not required
		LTE Band 4	10	-	0.001	0.010	0.011	ΣSAR<1.6, Not required
		LTE Band 12	10	-	0.001	0.010	0.011	ΣSAR<1.6, Not required

Left side BT + 2.4GHz WLAN

No.	Position	Conditions	Distance (mm)	WWAN	BT	Max. WLAN	SAR Sum	SPLSR
7	Left side	LTE Band 2	10	-	0.003	0.041	0.044	ΣSAR<1.6, Not required
		LTE Band 4	10	-	0.003	0.041	0.044	ΣSAR<1.6, Not required
		LTE Band 12	10	-	0.003	0.041	0.044	ΣSAR<1.6, Not required

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Front side BT + 5GHz WLAN

No.	Position	Conditions	Distance (mm)	WWAN	BT	Max. WLAN	SAR Sum	SPLSR
8	Front side	LTE Band 2	10	-	0.006	0.360	0.366	ΣSAR<1.6, Not required
		LTE Band 4	10	-	0.006	0.360	0.366	ΣSAR<1.6, Not required
		LTE Band 12	10	-	0.006	0.360	0.366	ΣSAR<1.6, Not required

Back side BT + 5GHz WLAN

No.	Position	Conditions	Distance (mm)	WWAN	BT	Max. WLAN	SAR Sum	SPLSR
9	Back side	LTE Band 2	10	-	0.002	0.030	0.032	ΣSAR<1.6, Not required
		LTE Band 4	10	-	0.002	0.030	0.032	ΣSAR<1.6, Not required
		LTE Band 12	10	-	0.002	0.030	0.032	ΣSAR<1.6, Not required

Back curve side BT + 5GHz WLAN

No.	Position	Conditions	Distance (mm)	WWAN	BT	Max. WLAN	SAR Sum	SPLSR
10	Back curve side	LTE Band 2	10	-	0.001	0.007	0.008	ΣSAR<1.6, Not required
		LTE Band 4	10	-	0.001	0.007	0.008	ΣSAR<1.6, Not required
		LTE Band 12	10	-	0.001	0.007	0.008	ΣSAR<1.6, Not required

Top side BT + 5GHz WLAN

No.	Position	Conditions	Distance (mm)	WWAN	BT	Max. WLAN	SAR Sum	SPLSR
11	Top side	LTE Band 2	10	-	0.005	1.332	1.337	ΣSAR<1.6, Not required
		LTE Band 4	10	-	0.005	1.332	1.337	ΣSAR<1.6, Not required
		LTE Band 12	10	-	0.005	1.332	1.337	ΣSAR<1.6, Not required

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Bottom side BT + 5GHz WLAN

No.	Position	Conditions	Distance (mm)	WWAN	BT	Max. WLAN	SAR Sum	SPLSR
12	Bottom side	LTE Band 2	10	-	0.001	0.001	0.002	ΣSAR<1.6, Not required
		LTE Band 4	10	-	0.001	0.001	0.002	ΣSAR<1.6, Not required
		LTE Band 12	10	-	0.001	0.001	0.002	ΣSAR<1.6, Not required

Right side BT + 5GHz WLAN

No.	Position	Conditions	Distance (mm)	WWAN	BT	Max. WLAN	SAR Sum	SPLSR
13	Right side	LTE Band 2	10	-	0.001	0.179	0.180	ΣSAR<1.6, Not required
		LTE Band 4	10	-	0.001	0.179	0.180	ΣSAR<1.6, Not required
		LTE Band 12	10	-	0.001	0.179	0.180	ΣSAR<1.6, Not required

Left side BT + 5GHz WLAN

No.	Position	Conditions	Distance (mm)	WWAN	BT	Max. WLAN	SAR Sum	SPLSR
14	Left side	LTE Band 2	10	-	0.003	0.437	0.440	ΣSAR<1.6, Not required
		LTE Band 4	10	-	0.003	0.437	0.440	ΣSAR<1.6, Not required
		LTE Band 12	10	-	0.003	0.437	0.440	ΣSAR<1.6, Not required

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Front side WWAN + BT

No.	Position	Conditions	Distance (mm)	Max. WWAN	BT	Max. WLAN	SAR Sum	SPLSR
15	Front side	LTE Band 2	10	0.191	0.006	-	0.197	ΣSAR<1.6, Not required
		LTE Band 4	10	0.245	0.006	-	0.251	ΣSAR<1.6, Not required
		LTE Band 12	10	0.113	0.006	-	0.119	ΣSAR<1.6, Not required

Back side WWAN + BT

No.	Position	Conditions	Distance (mm)	Max. WWAN	BT	Max. WLAN	SAR Sum	SPLSR
16	Back side	LTE Band 2	10	0.197	0.002	-	0.199	ΣSAR<1.6, Not required
		LTE Band 4	10	0.079	0.002	-	0.081	ΣSAR<1.6, Not required
		LTE Band 12	10	0.106	0.002	-	0.108	ΣSAR<1.6, Not required

Back curve side WWAN + BT

No.	Position	Conditions	Distance (mm)	Max. WWAN	BT	Max. WLAN	SAR Sum	SPLSR
17	Back curve side	LTE Band 2	10	0.147	0.001	-	0.148	ΣSAR<1.6, Not required
		LTE Band 4	10	0.093	0.001	-	0.094	ΣSAR<1.6, Not required
		LTE Band 12	10	0.120	0.001	-	0.121	ΣSAR<1.6, Not required

Top side WWAN + BT

No.	Position	Conditions	Distance (mm)	Max. WWAN	BT	Max. WLAN	SAR Sum	SPLSR
18	Top side	LTE Band 2	10	0.287	0.005	-	0.292	ΣSAR<1.6, Not required
		LTE Band 4	10	0.144	0.005	-	0.149	ΣSAR<1.6, Not required
		LTE Band 12	10	0.042	0.005	-	0.047	ΣSAR<1.6, Not required

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Bottom side WWAN + BT

No.	Position	Conditions	Distance (mm)	Max. WWAN	BT	Max. WLAN	SAR Sum	SPLSR
19	Bottom side	LTE Band 2	10	0.002	0.001	-	0.003	ΣSAR<1.6, Not required
		LTE Band 4	10	0.007	0.001	-	0.008	ΣSAR<1.6, Not required
		LTE Band 12	10	0.006	0.001	-	0.007	ΣSAR<1.6, Not required

Right side WWAN + BT

No.	Position	Conditions	Distance (mm)	Max. WWAN	BT	Max. WLAN	SAR Sum	SPLSR
20	Right side	LTE Band 2	10	1.071	0.001	-	1.072	ΣSAR<1.6, Not required
		LTE Band 4	10	0.650	0.001	-	0.651	ΣSAR<1.6, Not required
		LTE Band 12	10	0.376	0.001	-	0.377	ΣSAR<1.6, Not required

Left side WWAN + BT

No.	Position	Conditions	Distance (mm)	Max. WWAN	BT	Max. WLAN	SAR Sum	SPLSR
21	Left side	LTE Band 2	10	0.029	0.003	-	0.032	ΣSAR<1.6, Not required
		LTE Band 4	10	0.035	0.003	-	0.038	ΣSAR<1.6, Not required
		LTE Band 12	10	0.020	0.003	-	0.023	ΣSAR<1.6, Not required

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Limb

Front side BT + 2.4GHz WLAN

No.	Position	Conditions	Distance (mm)	WWAN	BT	Max. WLAN	SAR Sum	SPLSR
1	Front side	LTE Band 2	0	-	0.006	0.224	0.230	ΣSAR<4, Not required
		LTE Band 4	0	-	0.006	0.224	0.230	ΣSAR<4, Not required
		LTE Band 12	0	-	0.006	0.224	0.230	ΣSAR<4, Not required

Back side BT + 2.4GHz WLAN

No.	Position	Conditions	Distance (mm)	WWAN	BT	Max. WLAN	SAR Sum	SPLSR
2	Back side	LTE Band 2	0	-	0.002	0.035	0.037	ΣSAR<4, Not required
		LTE Band 4	0	-	0.002	0.035	0.037	ΣSAR<4, Not required
		LTE Band 12	0	-	0.002	0.035	0.037	ΣSAR<4, Not required

Back curve side BT + 2.4GHz WLAN

No.	Position	Conditions	Distance (mm)	WWAN	BT	Max. WLAN	SAR Sum	SPLSR
3	Back curve side	LTE Band 2	0	-	0.000	0.003	0.003	ΣSAR<4, Not required
		LTE Band 4	0	-	0.000	0.003	0.003	ΣSAR<4, Not required
		LTE Band 12	0	-	0.000	0.003	0.003	ΣSAR<4, Not required

Top side BT + 2.4GHz WLAN

No.	Position	Conditions	Distance (mm)	WWAN	BT	Max. WLAN	SAR Sum	SPLSR
4	Top side	LTE Band 2	0	-	0.005	0.205	0.210	ΣSAR<4, Not required
		LTE Band 4	0	-	0.005	0.205	0.210	ΣSAR<4, Not required
		LTE Band 12	0	-	0.005	0.205	0.210	ΣSAR<4, Not required

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Bottom side BT + 2.4GHz WLAN

No.	Position	Conditions	Distance (mm)	WWAN	BT	Max. WLAN	SAR Sum	SPLSR
5	Bottom side	LTE Band 2	0	-	0.001	0.001	0.002	ΣSAR<4, Not required
		LTE Band 4	0	-	0.001	0.001	0.002	ΣSAR<4, Not required
		LTE Band 12	0	-	0.001	0.001	0.002	ΣSAR<4, Not required

Right side BT + 2.4GHz WLAN

No.	Position	Conditions	Distance (mm)	WWAN	BT	Max. WLAN	SAR Sum	SPLSR
6	Right side	LTE Band 2	0	-	0.002	0.036	0.038	ΣSAR<4, Not required
		LTE Band 4	0	-	0.002	0.036	0.038	ΣSAR<4, Not required
		LTE Band 12	0	-	0.002	0.036	0.038	ΣSAR<4, Not required

Left side BT + 2.4GHz WLAN

No.	Position	Conditions	Distance (mm)	WWAN	BT	Max. WLAN	SAR Sum	SPLSR
7	Left side	LTE Band 2	0	-	0.004	0.089	0.093	ΣSAR<4, Not required
		LTE Band 4	0	-	0.004	0.089	0.093	ΣSAR<4, Not required
		LTE Band 12	0	-	0.004	0.089	0.093	ΣSAR<4, Not required

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Front side BT + 5GHz WLAN

No.	Position	Conditions	Distance (mm)	WWAN	BT	Max. WLAN	SAR Sum	SPLSR
8	Front side	LTE Band 2	0	-	0.006	0.489	0.495	ΣSAR<4, Not required
		LTE Band 4	0	-	0.006	0.489	0.495	ΣSAR<4, Not required
		LTE Band 12	0	-	0.006	0.489	0.495	ΣSAR<4, Not required

Back side BT + 5GHz WLAN

No.	Position	Conditions	Distance (mm)	WWAN	BT	Max. WLAN	SAR Sum	SPLSR
9	Back side	LTE Band 2	0	-	0.002	0.024	0.026	ΣSAR<4, Not required
		LTE Band 4	0	-	0.002	0.024	0.026	ΣSAR<4, Not required
		LTE Band 12	0	-	0.002	0.024	0.026	ΣSAR<4, Not required

Back curve side BT + 5GHz WLAN

No.	Position	Conditions	Distance (mm)	WWAN	BT	Max. WLAN	SAR Sum	SPLSR
10	Back curve side	LTE Band 2	0	-	0.000	0.022	0.022	ΣSAR<4, Not required
		LTE Band 4	0	-	0.000	0.022	0.022	ΣSAR<4, Not required
		LTE Band 12	0	-	0.000	0.022	0.022	ΣSAR<4, Not required

Top side BT + 5GHz WLAN

No.	Position	Conditions	Distance (mm)	WWAN	BT	Max. WLAN	SAR Sum	SPLSR
11	Top side	LTE Band 2	0	-	0.005	1.504	1.509	ΣSAR<4, Not required
		LTE Band 4	0	-	0.005	1.504	1.509	ΣSAR<4, Not required
		LTE Band 12	0	-	0.005	1.504	1.509	ΣSAR<4, Not required

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Bottom side BT + 5GHz WLAN

No.	Position	Conditions	Distance (mm)	WWAN	BT	Max. WLAN	SAR Sum	SPLSR
12	Bottom side	LTE Band 2	0	-	0.001	0.001	0.002	ΣSAR<4, Not required
		LTE Band 4	0	-	0.001	0.001	0.002	ΣSAR<4, Not required
		LTE Band 12	0	-	0.001	0.001	0.002	ΣSAR<4, Not required

Right side BT + 5GHz WLAN

No.	Position	Conditions	Distance (mm)	WWAN	BT	Max. WLAN	SAR Sum	SPLSR
13	Right side	LTE Band 2	0	-	0.002	0.002	0.004	ΣSAR<4, Not required
		LTE Band 4	0	-	0.002	0.002	0.004	ΣSAR<4, Not required
		LTE Band 12	0	-	0.002	0.002	0.004	ΣSAR<4, Not required

Left side BT + 5GHz WLAN

No.	Position	Conditions	Distance (mm)	WWAN	BT	Max. WLAN	SAR Sum	SPLSR
14	Left side	LTE Band 2	0	-	0.004	0.367	0.371	ΣSAR<4, Not required
		LTE Band 4	0	-	0.004	0.367	0.371	ΣSAR<4, Not required
		LTE Band 12	0	-	0.004	0.367	0.371	ΣSAR<4, Not required

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Front side WWAN + BT

No.	Position	Conditions	Distance (mm)	Max. WWAN	BT	Max. WLAN	SAR Sum	SPLSR
15	Front side	LTE Band 2	0	0.397	0.006	-	0.403	ΣSAR<4, Not required
		LTE Band 4	0	0.449	0.006	-	0.455	ΣSAR<4, Not required
		LTE Band 12	0	0.219	0.006	-	0.225	ΣSAR<4, Not required

Back side WWAN + BT

No.	Position	Conditions	Distance (mm)	Max. WWAN	BT	Max. WLAN	SAR Sum	SPLSR
16	Back side	LTE Band 2	0	0.138	0.002	-	0.140	ΣSAR<4, Not required
		LTE Band 4	0	0.117	0.002	-	0.119	ΣSAR<4, Not required
		LTE Band 12	0	0.170	0.002	-	0.172	ΣSAR<4, Not required

Back curve side WWAN + BT

No.	Position	Conditions	Distance (mm)	Max. WWAN	BT	Max. WLAN	SAR Sum	SPLSR
17	Back curve side	LTE Band 2	0	0.201	0.000	-	0.201	ΣSAR<4, Not required
		LTE Band 4	0	0.162	0.000	-	0.162	ΣSAR<4, Not required
		LTE Band 12	0	0.185	0.000	-	0.185	ΣSAR<4, Not required

Top side WWAN + BT

No.	Position	Conditions	Distance (mm)	Max. WWAN	BT	Max. WLAN	SAR Sum	SPLSR
18	Top side	LTE Band 2	0	0.481	0.005	-	0.486	ΣSAR<4, Not required
		LTE Band 4	0	0.417	0.005	-	0.422	ΣSAR<4, Not required
		LTE Band 12	0	0.080	0.005	-	0.085	ΣSAR<4, Not required

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Bottom side WWAN + BT

No.	Position	Conditions	Distance (mm)	Max. WWAN	BT	Max. WLAN	SAR Sum	SPLSR
19	Bottom side	LTE Band 2	0	0.002	0.001	-	0.003	ΣSAR<4, Not required
		LTE Band 4	0	0.009	0.001	-	0.010	ΣSAR<4, Not required
		LTE Band 12	0	0.005	0.001	-	0.006	ΣSAR<4, Not required

Right side WWAN + BT

No.	Position	Conditions	Distance (mm)	Max. WWAN	BT	Max. WLAN	SAR Sum	SPLSR
20	Right side	LTE Band 2	0	2.541	0.002	-	2.543	ΣSAR<4, Not required
		LTE Band 4	0	1.727	0.002	-	1.729	ΣSAR<4, Not required
		LTE Band 12	0	1.144	0.002	-	1.146	ΣSAR<4, Not required

Left side WWAN + BT

No.	Position	Conditions	Distance (mm)	Max. WWAN	BT	Max. WLAN	SAR Sum	SPLSR
21	Left side	LTE Band 2	0	0.046	0.004	-	0.050	ΣSAR<4, Not required
		LTE Band 4	0	0.077	0.004	-	0.081	ΣSAR<4, Not required
		LTE Band 12	0	0.018	0.004	-	0.022	ΣSAR<4, Not required

Conclusion:

Simultaneous transmission SAR measurement (Volume Scan) is not required because either the sum of the 1-g SAR is < 1.6 W/kg (and/or 10-g SAR is < 4.0 W/kg) or the SPLSR is ≦ 0.04 for all circumstances that require SPLSR calculation.

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4. Instruments List

Manufacturer	Device	Type	Serial number	Date of last calibration	Date of next calibration
SPEAG	Dosimetric E-Field Probe	EX3DV4	7509	Mar.25,2019	Mar.24,2020
SPEAG	System Validation Dipole	D750V3	1015	Aug.23,2018	Aug.22,2019
		D1750V2	1008	Aug.30,2018	Aug.29,2019
		D1900V2	5d173	Apr.23,2019	Apr.22,2020
		D2450V2	727	Apr.24,2019	Apr.23,2020
		D5GHzV2	1023	Jan.30,2019	Jan.29,2020
SPEAG	Data acquisition Electronics	DAE4	877	Mar.22,2019	Mar.21,2020
SPEAG	Software	DASY 52 V52.10.1	N/A	Calibration not required	Calibration not required
SPEAG	Phantom	ELI	N/A	Calibration not required	Calibration not required
Agilent	Network Analyzer	E5071C	MY46107530	Feb.23,2019	Feb.22,2020
Agilent	Dielectric Probe Kit	85070E	MY44300677	Calibration not required	Calibration not required
Agilent	Dual-directional coupler	772D	MY46151242	Aug.28,2018	Aug.27,2019
		778D	MY48220468	Aug.28,2018	Aug.27,2019
Agilent	RF Signal Generator	N5181A	MY50141235	Apr.22,2019	Apr.21,2020
Agilent	Power Meter	E4417A	MY51410006	Feb.19,2019	Feb.18,2020
Agilent	Power Sensor	E9301H	MY51470001	Feb.19,2019	Feb.18,2020
			MY51470002	Feb.19,2019	Feb.18,2020

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Manufacturer	Device	Type	Serial number	Date of last calibration	Date of next calibration
TECPEL	Digital thermometer	DTM-303A	TP130074	Mar.26,2019	Mar.25,2020
Anritsu	Radio Communication Test	MT8820C	6201061049	Dec.27,2018	Dec.26,2019
R&S	Radio Communication Test	CMW 500	125470	Nov.04,2018	Nov.03,2019

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5. Measurements

Date: 2019/8/18

LTE Band 2 (20MHz)_Body_Right side_CH 19100_QPSK_1-0_10mm

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

Medium parameters used: f = 1900 MHz; σ = 1.385 S/m; ε_r = 41.18; ρ = 1000 kg/m^3

Phantom section: Flat Section

Ambient temperature: 22.1°C; Liquid temperature: 21.7°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7509; ConvF(8.5, 8.5, 8.5); Calibrated: 2019/3/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn877; Calibrated: 2019/3/22
- Phantom: ELI
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

Area Scan (61x161x1): Interpolated grid: dx=15 mm, dy=15 mm

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

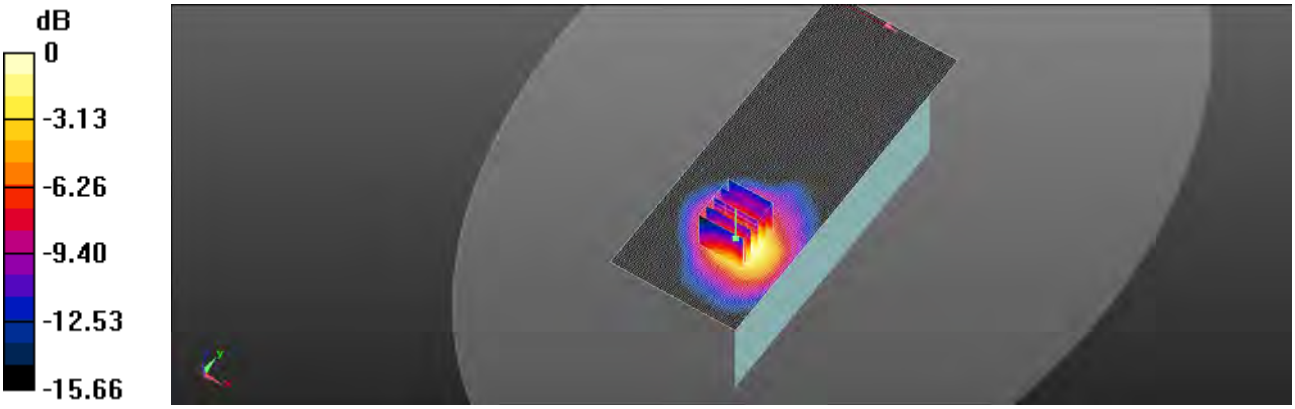
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 2.884 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 1.20 W/kg

SAR(1 g) = 0.805 W/kg; SAR(10 g) = 0.475 W/kg

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



0 dB = 1.03 W/kg = 0.12 dBW/kg

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Date: 2019/8/18

LTE Band 2 (20MHz)_Product specific 10g-SAR_Right side _CH 19100_QPSK_1-0_0mm

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

Medium parameters used: f = 1900 MHz; σ = 1.385 S/m; ε_r = 41.18; ρ = 1000 kg/m^3

Phantom section: Flat Section

Ambient temperature: 22.1°C; Liquid temperature: 21.7°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7509; ConvF(8.5, 8.5, 8.5); Calibrated: 2019/3/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn877; Calibrated: 2019/3/22
- Phantom: ELI
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

Area Scan (81x161x1): Interpolated grid: dx=15 mm, dy=15 mm

Maximum value of SAR (interpolated) = 5.67 W/kg

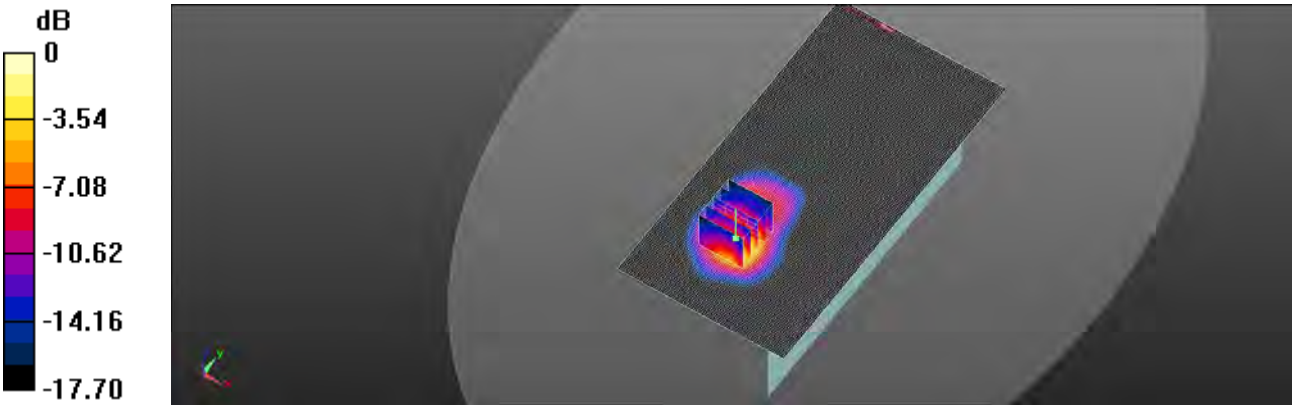
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 3.440 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 6.71 W/kg

SAR(1 g) = 3.89 W/kg; SAR(10 g) = 1.91 W/kg

Maximum value of SAR (measured) = 5.51 W/kg



0 dB = 5.51 W/kg = 7.41 dBW/kg

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Date: 2019/8/17

LTE Band 4 (20MHz)_Body_Right side_CH 20300_QPSK_1-0_10mm

Communication System: LTE; Frequency: 1745 MHz; Duty Cycle: 1:1

Medium parameters used: f = 1745 MHz; σ = 1.353 S/m; ε_r = 41.289; ρ = 1000 kg/m^3

Phantom section: Flat Section

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

DASY5 Configuration:

- Probe: EX3DV4 - SN7509; ConvF(8.84, 8.84, 8.84); Calibrated: 2019/3/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn877; Calibrated: 2019/3/22
- Phantom: ELI
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

Area Scan (61x161x1): Interpolated grid: dx=15 mm, dy=15 mm

Maximum value of SAR (interpolated) = 0.673 W/kg

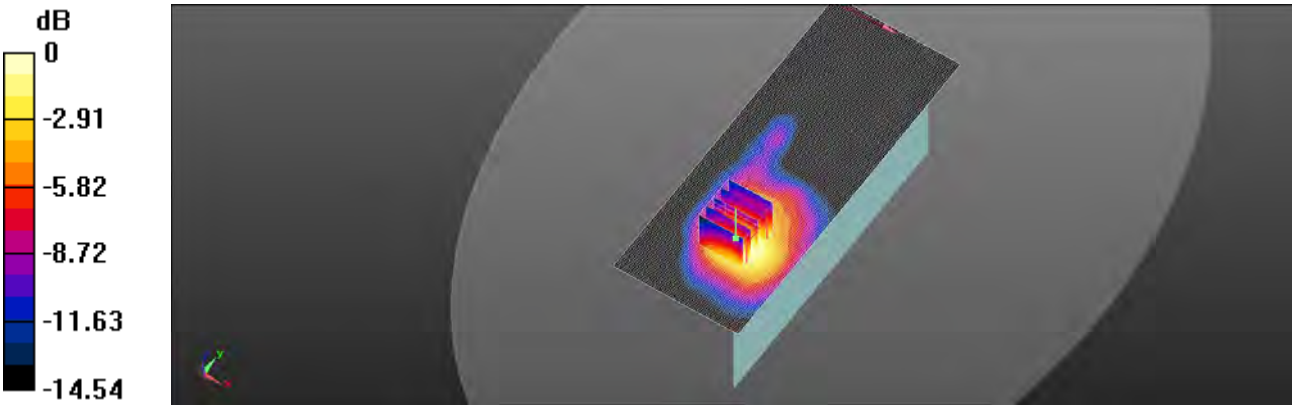
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 1.701 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 0.697 W/kg

SAR(1 g) = 0.508 W/kg; SAR(10 g) = 0.319 W/kg

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



0 dB = 0.624 W/kg = -2.05 dBW/kg

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Date: 2019/8/17

LTE Band 4 (20MHz)_Product specific 10g-SAR_Right side _CH 20300_QPSK_1-0_0mm

Communication System: LTE; Frequency: 1745 MHz; Duty Cycle: 1:1

Medium parameters used: f = 1745 MHz; σ = 1.353 S/m; ε_r = 41.289; ρ = 1000 kg/m^3

Phantom section: Flat Section

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

DASY5 Configuration:

- Probe: EX3DV4 - SN7509; ConvF(8.84, 8.84, 8.84); Calibrated: 2019/3/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn877; Calibrated: 2019/3/22
- Phantom: ELI
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

Area Scan (81x161x1): Interpolated grid: dx=15 mm, dy=15 mm

Maximum value of SAR (interpolated) = 3.49 W/kg

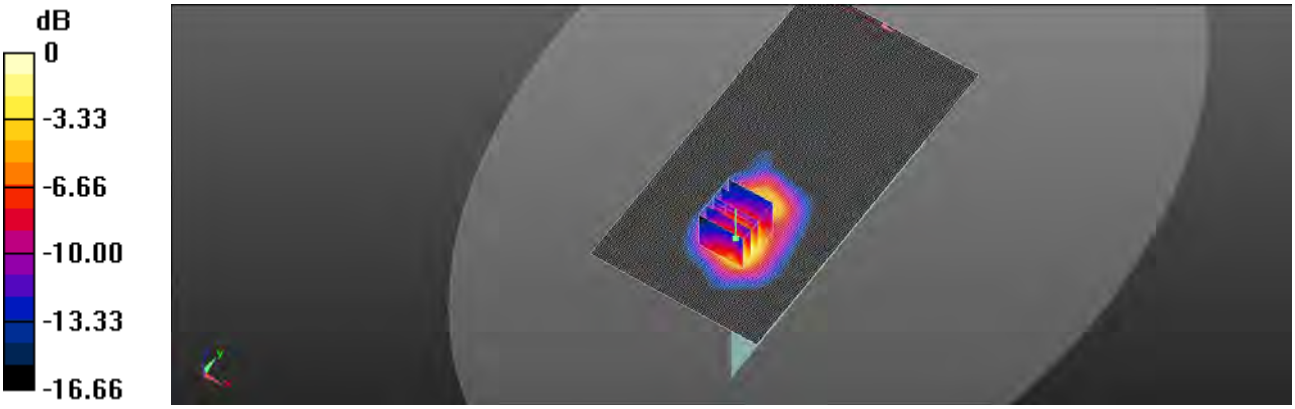
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 3.462 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 3.91 W/kg

SAR(1 g) = 2.52 W/kg; SAR(10 g) = 1.35 W/kg

Maximum value of SAR (measured) = 3.42 W/kg



0 dB = 3.42 W/kg = 5.34 dBW/kg

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Date: 2019/8/16

LTE Band 12 (10MHz)_Body_Right side_CH 23060_QPSK_1-0_10mm

Communication System: LTE; Frequency: 704 MHz; Duty Cycle: 1:1

Medium parameters used: f = 704 MHz; σ = 0.884 S/m; ε_r = 43.003; ρ = 1000 kg/m^3

Phantom section: Flat Section

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

DASY5 Configuration:

- Probe: EX3DV4 - SN7509; ConvF(10.41, 10.41, 10.41); Calibrated: 2019/3/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn877; Calibrated: 2019/3/22
- Phantom: ELI
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

Area Scan (71x171x1): Interpolated grid: dx=15 mm, dy=15 mm

Maximum value of SAR (interpolated) = 0.382 W/kg

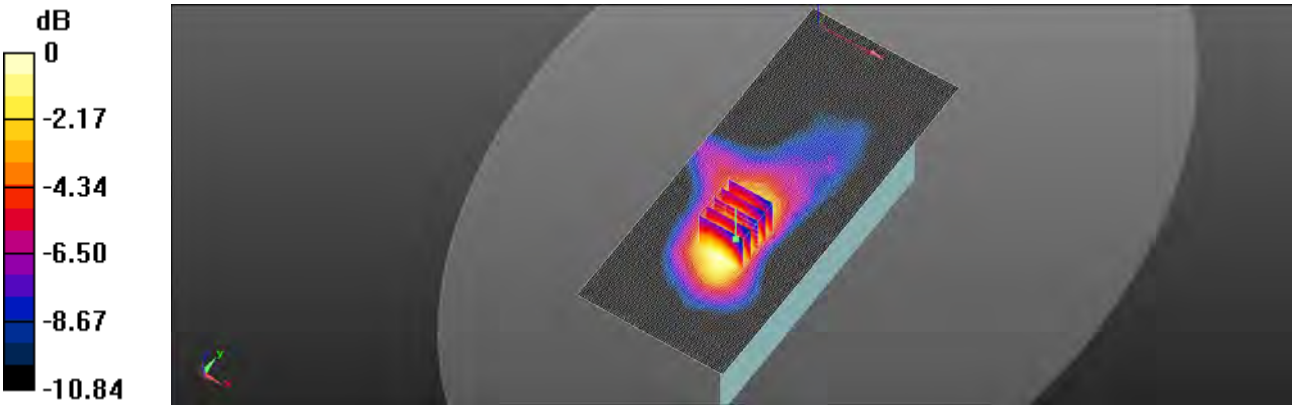
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 7.112 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 0.370 W/kg

SAR(1 g) = 0.305 W/kg; SAR(10 g) = 0.219 W/kg

Maximum value of SAR (measured) = 0.345 W/kg



0 dB = 0.345 W/kg = -4.62 dBW/kg

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Date: 2019/8/16

LTE Band 12 (10MHz)_Product specific 10g-SAR_Right side _CH 23130_QPSK_1-25_0mm

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

Medium parameters used: f = 711 MHz; σ = 0.884 S/m; ε_r = 43.003; ρ = 1000 kg/m^3

Phantom section: Flat Section

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

DASY5 Configuration:

- Probe: EX3DV4 - SN7509; ConvF(10.41, 10.41, 10.41); Calibrated: 2019/3/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn877; Calibrated: 2019/3/22
- Phantom: ELI
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

Area Scan (71x171x1): Interpolated grid: dx=15 mm, dy=15 mm

Maximum value of SAR (interpolated) = 1.86 W/kg

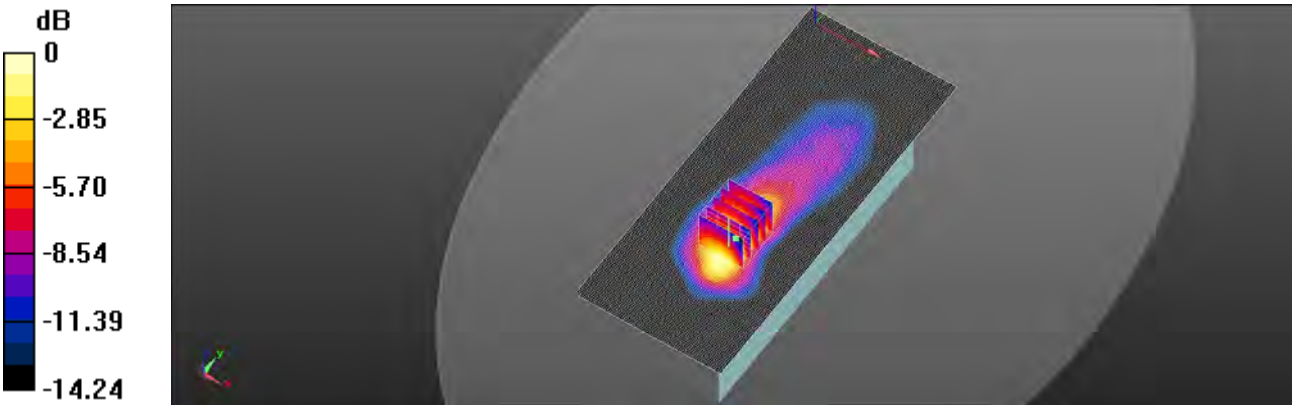
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 13.03 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 2.03 W/kg

SAR(1 g) = 1.42 W/kg; SAR(10 g) = 0.886 W/kg

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



0 dB = 1.76 W/kg = 2.45 dBW/kg

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Date: 2019/8/19

WLAN 802.11b_Body_Front side_CH 11_10mm

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

Medium parameters used: f = 2462 MHz; σ = 1.781 S/m; ε_r = 40.16; ρ = 1000 kg/m^3

Phantom section: Flat Section

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

DASY5 Configuration:

- Probe: EX3DV4 - SN7509; ConvF(7.79, 7.79, 7.79); Calibrated: 2019/3/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn877; Calibrated: 2019/3/22
- Phantom: ELI
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

Area Scan (101x191x1): Interpolated grid: dx=12 mm, dy=12 mm

Maximum value of SAR (interpolated) = 0.114 W/kg

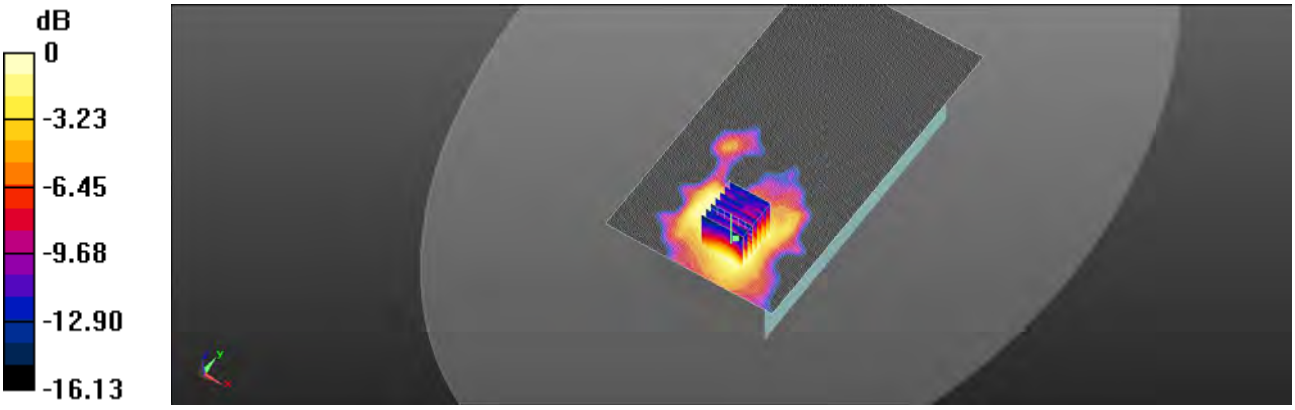
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 0.9600 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 0.125 W/kg

SAR(1 g) = 0.082 W/kg; SAR(10 g) = 0.048 W/kg

Maximum value of SAR (measured) = 0.106 W/kg



0 dB = 0.106 W/kg = -9.74 dBW/kg

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Date: 2019/8/19

WLAN 802.11b_Product specific 10g-SAR_Front side_CH 11_0mm

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

Medium parameters used: f = 2462 MHz; σ = 1.781 S/m; ε_r = 40.16; ρ = 1000 kg/m^3

Phantom section: Flat Section

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

DASY5 Configuration:

- Probe: EX3DV4 - SN7509; ConvF(7.79, 7.79, 7.79); Calibrated: 2019/3/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn877; Calibrated: 2019/3/22
- Phantom: ELI
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

Area Scan (101x191x1): Interpolated grid: dx=12 mm, dy=12 mm

Maximum value of SAR (interpolated) = 0.653 W/kg

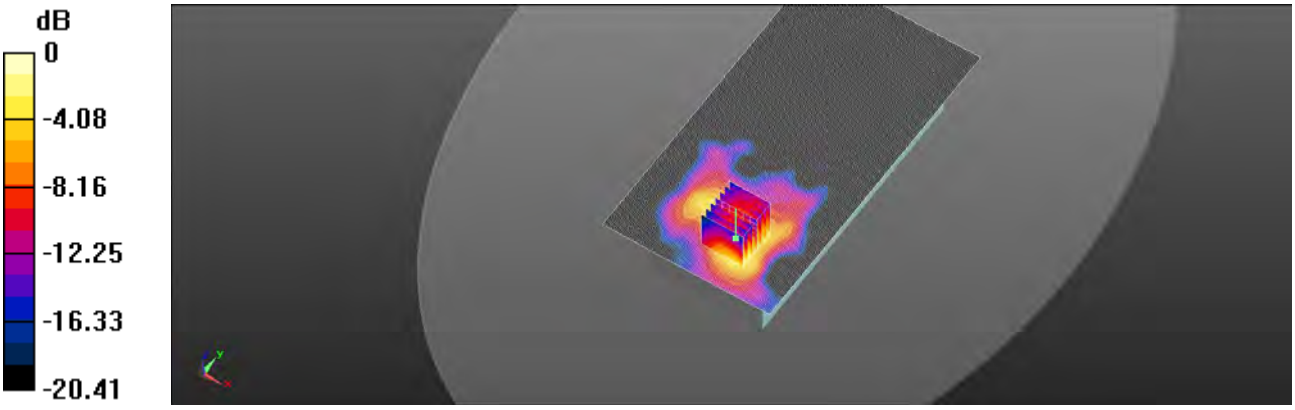
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 0.9030 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.654 W/kg

SAR(1 g) = 0.407 W/kg; SAR(10 g) = 0.209 W/kg

Maximum value of SAR (measured) = 0.563 W/kg



0 dB = 0.563 W/kg = -2.50 dBW/kg

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Date: 2019/8/19

Bluetooth(GFSK)_Body_Front side_CH 78_10mm

Communication System: Bluetooth; Frequency: 2480 MHz; Duty Cycle: 1:1

Medium parameters used: f = 2480 MHz; σ = 1.793 S/m; ε_r = 40.137; ρ = 1000 kg/m^3

Phantom section: Flat Section

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

DASY5 Configuration:

- Probe: EX3DV4 - SN7509; ConvF(7.79, 7.79, 7.79); Calibrated: 2019/3/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn877; Calibrated: 2019/3/22
- Phantom: ELI
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

Area Scan (101x191x1): Interpolated grid: dx=12 mm, dy=12 mm

Maximum value of SAR (interpolated) = 0.00814 W/kg

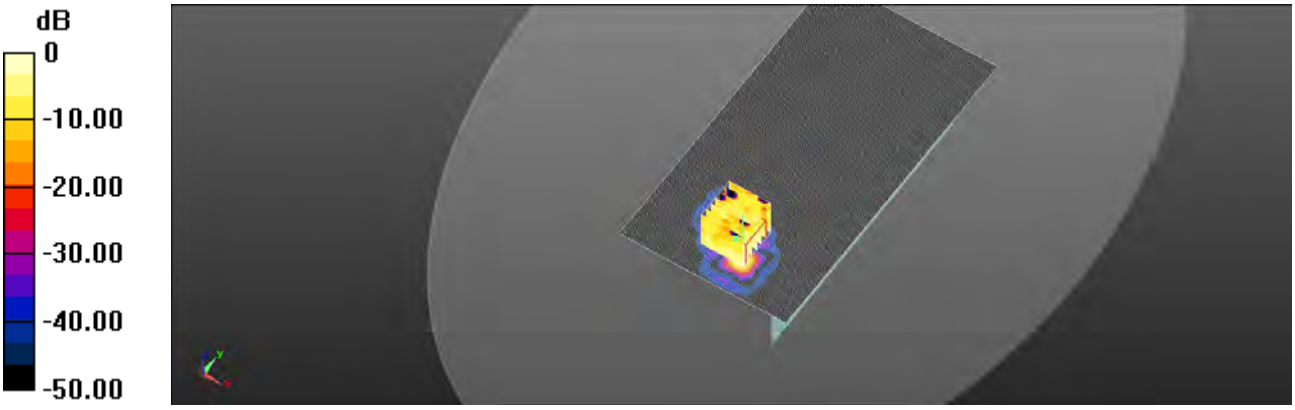
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 1.103 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 0.0150 W/kg

SAR(1 g) = 0.00577 W/kg; SAR(10 g) = 0.00148 W/kg

Maximum value of SAR (measured) = 0.00863 W/kg



0 dB = 0.00863 W/kg = -20.64 dBW/kg

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Date: 2019/8/19

Bluetooth(GFSK)_Product specific 10g-SAR_Front side_CH 78_0mm

Communication System: Bluetooth; Frequency: 2480 MHz; Duty Cycle: 1:1

Medium parameters used: f = 2480 MHz; σ = 1.793 S/m; ε_r = 40.137; ρ = 1000 kg/m^3

Phantom section: Flat Section

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

DASY5 Configuration:

- Probe: EX3DV4 - SN7509; ConvF(7.79, 7.79, 7.79); Calibrated: 2019/3/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn877; Calibrated: 2019/3/22
- Phantom: ELI
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

Area Scan (101x191x1): Interpolated grid: dx=12 mm, dy=12 mm

Maximum value of SAR (interpolated) = 0.0938 W/kg

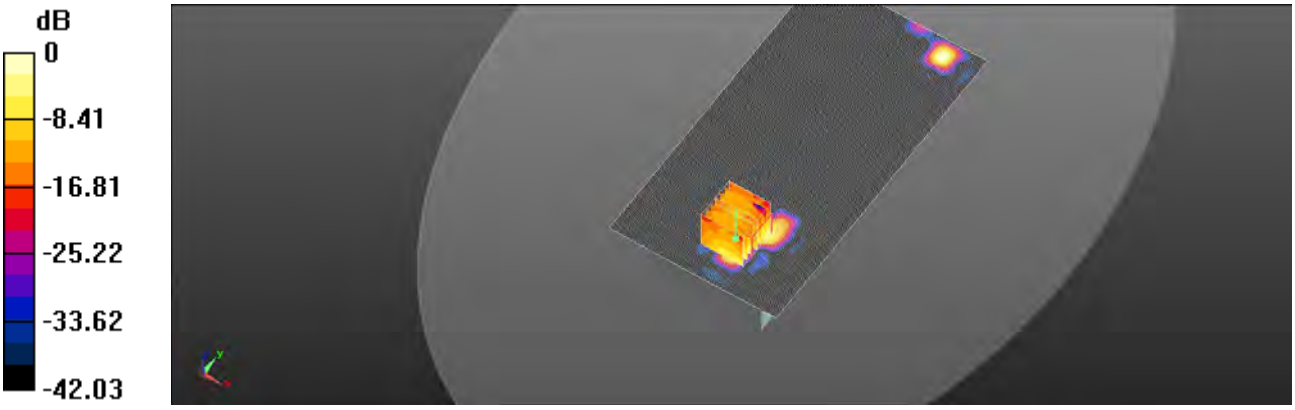
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 0 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.170 W/kg

SAR(1 g) = 0.020 W/kg; SAR(10 g) = 0.00579 W/kg

Maximum value of SAR (measured) = 0.0616 W/kg



0 dB = 0.0616 W/kg = -12.10 dBW/kg

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Date: 2019/8/20

WLAN 802.11n(20M) 5.2G_Body_Top side_CH 40_10mm

Communication System: WLAN 5G; Frequency: 5200 MHz; Duty Cycle: 1:1

Medium parameters used: f = 5200 MHz; σ = 4.545 S/m; ε_r = 36.554; ρ = 1000 kg/m^3

Phantom section: Flat Section

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

DASY5 Configuration:

- Probe: EX3DV4 - SN7509; ConvF(5.46, 5.46, 5.46); Calibrated: 2019/3/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn877; Calibrated: 2019/3/22
- Phantom: ELI
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

Area Scan (141x141x1): Interpolated grid: dx=10 mm, dy=10 mm

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

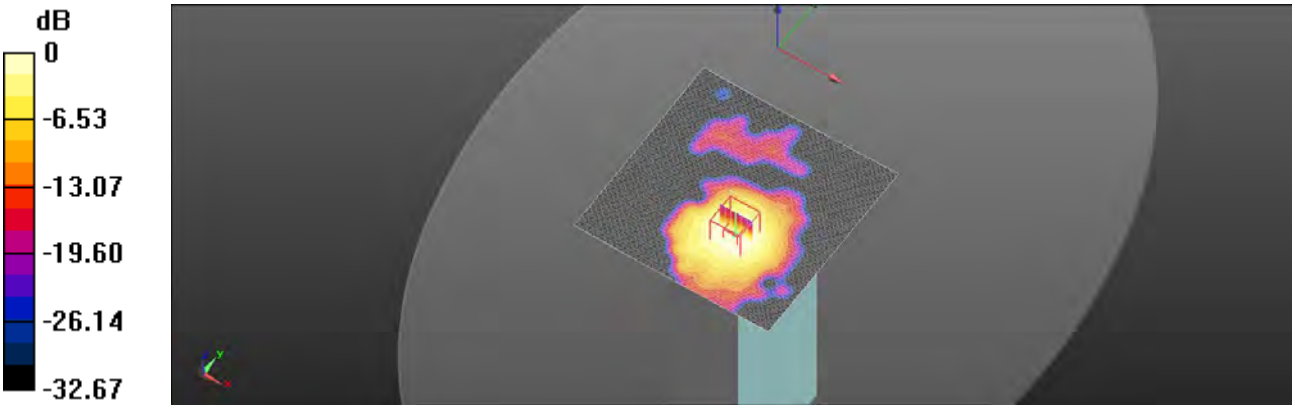
Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 5.330 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 1.55 W/kg

SAR(1 g) = 0.624 W/kg; SAR(10 g) = 0.264 W/kg

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



0 dB = 1.06 W/kg = 0.23 dBW/kg

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Date: 2019/8/20

WLAN 802.11n(20M) 5.2G_Product specific 10g-SAR_Top side_CH 40_0mm

Communication System: WLAN 5G; Frequency: 5200 MHz; Duty Cycle: 1:1

Medium parameters used: f = 5200 MHz; σ = 4.545 S/m; ε_r = 36.554; ρ = 1000 kg/m^3

Phantom section: Flat Section

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

DASY5 Configuration:

- Probe: EX3DV4 - SN7509; ConvF(5.46, 5.46, 5.46); Calibrated: 2019/3/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn877; Calibrated: 2019/3/22
- Phantom: ELI
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

Area Scan (141x141x1): Interpolated grid: dx=10 mm, dy=10 mm

Maximum value of SAR (interpolated) = 4.56 W/kg

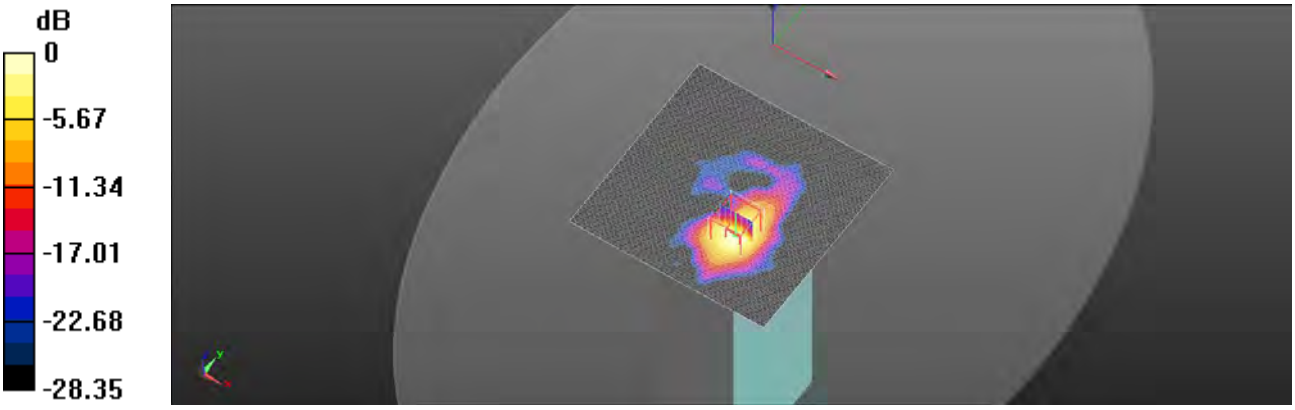
Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 7.720 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 6.75 W/kg

SAR(1 g) = 2.52 W/kg; SAR(10 g) = 0.844 W/kg

Maximum value of SAR (measured) = 4.66 W/kg



0 dB = 4.66 W/kg = 6.69 dBW/kg

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Date: 2019/8/20

WLAN 802.11n(40M) 5.2G_Body_Top side_CH 46_10mm

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

Medium parameters used: f = 5230 MHz; σ = 4.577 S/m; ε_r = 36.524; ρ = 1000 kg/m^3

Phantom section: Flat Section

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

DASY5 Configuration:

- Probe: EX3DV4 - SN7509; ConvF(5.46, 5.46, 5.46); Calibrated: 2019/3/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn877; Calibrated: 2019/3/22
- Phantom: ELI
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

Area Scan (141x141x1): Interpolated grid: dx=10 mm, dy=10 mm

Maximum value of SAR (interpolated) = 1.07 W/kg

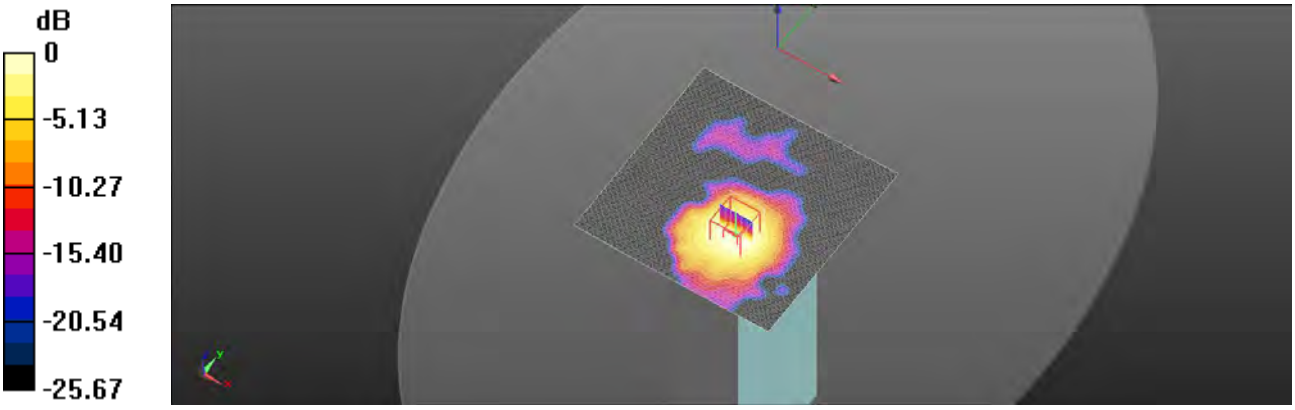
Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 5.374 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 1.58 W/kg

SAR(1 g) = 0.617 W/kg; SAR(10 g) = 0.261 W/kg

Maximum value of SAR (measured) = 1.08 W/kg



0 dB = 1.08 W/kg = 0.32 dBW/kg

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Date: 2019/8/20

WLAN 802.11n(40M) 5.2G_Product specific 10g-SAR_Top side_CH 46_0mm

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

Medium parameters used: f = 5230 MHz; σ = 4.577 S/m; ε_r = 36.524; ρ = 1000 kg/m^3

Phantom section: Flat Section

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

DASY5 Configuration:

- Probe: EX3DV4 - SN7509; ConvF(5.46, 5.46, 5.46); Calibrated: 2019/3/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn877; Calibrated: 2019/3/22
- Phantom: ELI
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

Area Scan (141x141x1): Interpolated grid: dx=10 mm, dy=10 mm

Maximum value of SAR (interpolated) = 4.55 W/kg

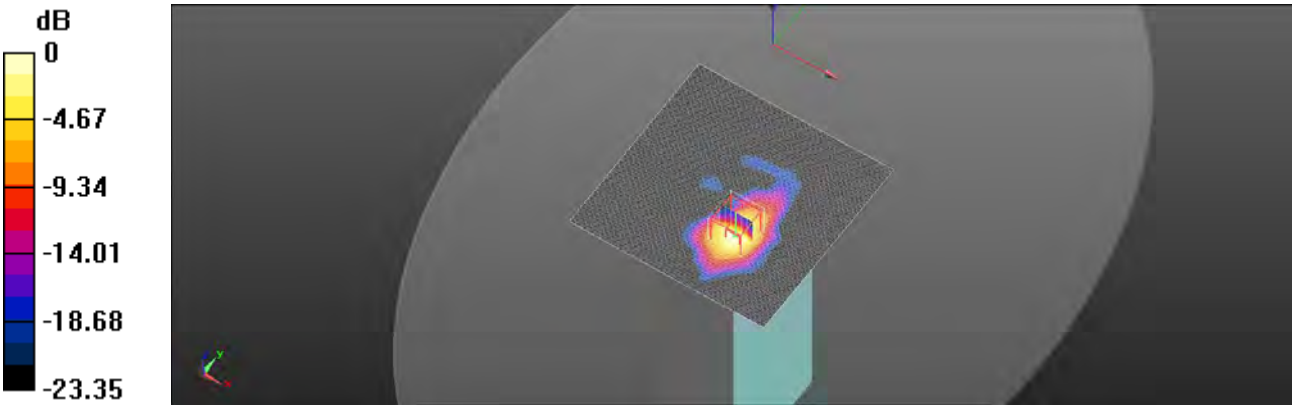
Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 7.784 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 6.73 W/kg

SAR(1 g) = 2.44 W/kg; SAR(10 g) = 0.818 W/kg

Maximum value of SAR (measured) = 4.65 W/kg



0 dB = 4.65 W/kg = 6.68 dBW/kg

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Date: 2019/8/21

WLAN 802.11n(20M) 5.3G_Body_Top side_CH 60_10mm

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

Medium parameters used: f = 5300 MHz; σ = 4.645 S/m; ε_r = 36.506; ρ = 1000 kg/m^3

Phantom section: Flat Section

Ambient temperature: 22.4°C; Liquid temperature: 21.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7509; ConvF(5.2, 5.2, 5.2); Calibrated: 2019/3/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn877; Calibrated: 2019/3/22
- Phantom: ELI
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

Area Scan (141x141x1): Interpolated grid: dx=10 mm, dy=10 mm

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

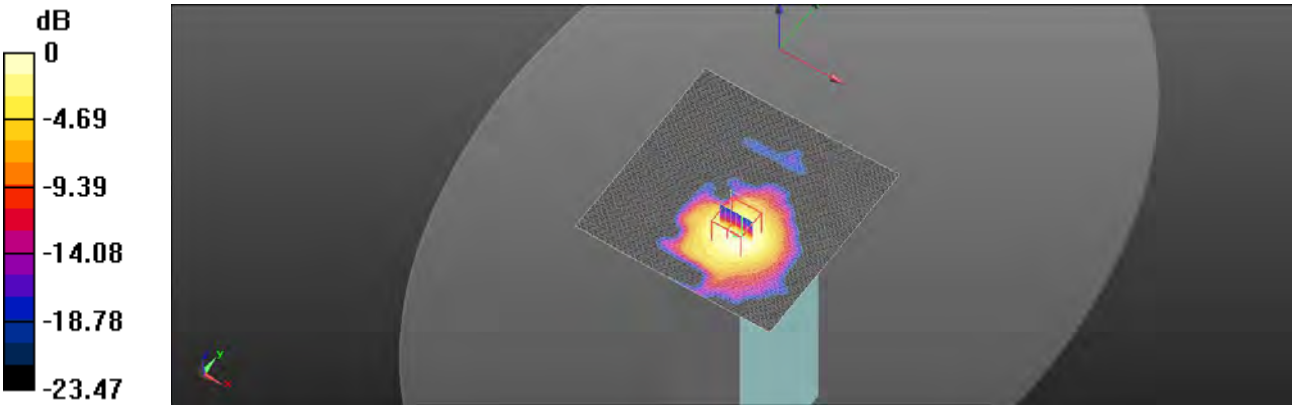
Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 6.447 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 1.92 W/kg

SAR(1 g) = 0.727 W/kg; SAR(10 g) = 0.307 W/kg

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



0 dB = 1.29 W/kg = 1.11 dBW/kg

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Date: 2019/8/21

WLAN 802.11n(20M) 5.3G_Product specific 10g-SAR_Top side_CH 60_0mm

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

Medium parameters used: f = 5300 MHz; σ = 4.645 S/m; ε_r = 36.506; ρ = 1000 kg/m^3

Phantom section: Flat Section

Ambient temperature: 22.4°C; Liquid temperature: 21.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7509; ConvF(5.2, 5.2, 5.2); Calibrated: 2019/3/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn877; Calibrated: 2019/3/22
- Phantom: ELI
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

Area Scan (141x141x1): Interpolated grid: dx=10 mm, dy=10 mm

Maximum value of SAR (interpolated) = 5.02 W/kg

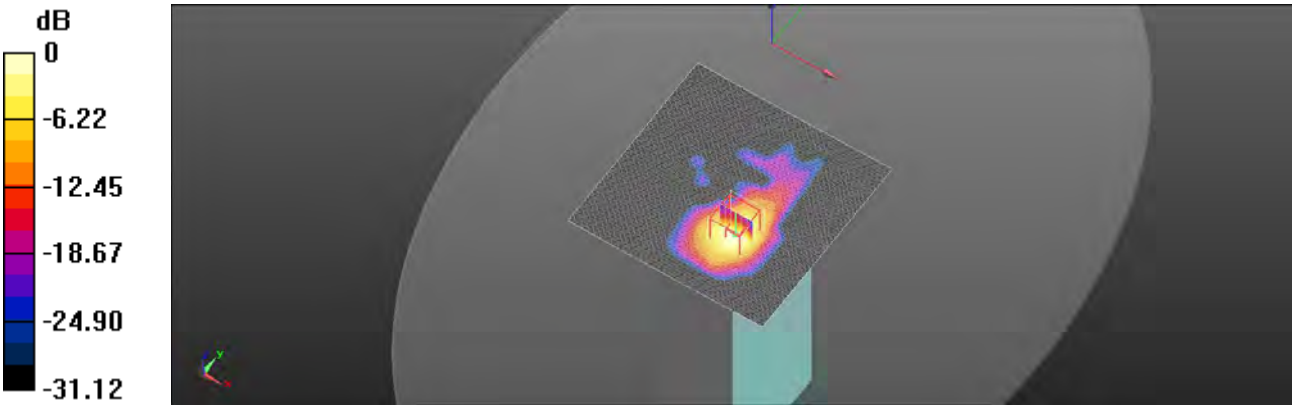
Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 8.204 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 7.70 W/kg

SAR(1 g) = 2.79 W/kg; SAR(10 g) = 0.939 W/kg

Maximum value of SAR (measured) = 5.46 W/kg



0 dB = 5.46 W/kg = 7.37 dBW/kg

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Date: 2019/8/22

WLAN 802.11n(20M) 5.6G_Body_Top side_CH 120_10mm

Communication System: WLAN 5G; Frequency: 5600 MHz; Duty Cycle: 1:1

Medium parameters used: f = 5600 MHz; σ = 4.917 S/m; ε_r = 35.96; ρ = 1200 kg/m^3

Phantom section: Flat Section

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

DASY5 Configuration:

- Probe: EX3DV4 - SN7509; ConvF(4.77, 4.77, 4.77); Calibrated: 2019/3/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn877; Calibrated: 2019/3/22
- Phantom: ELI
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

Area Scan (141x141x1): Interpolated grid: dx=10 mm, dy=10 mm

Maximum value of SAR (interpolated) = 1.96 W/kg

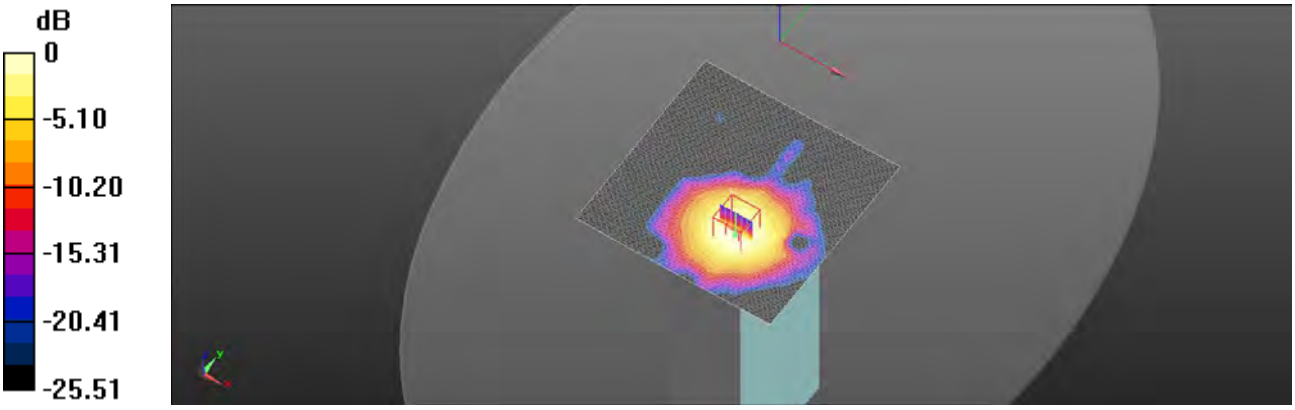
Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 9.041 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 3.08 W/kg

SAR(1 g) = 1.17 W/kg; SAR(10 g) = 0.524 W/kg

Maximum value of SAR (measured) = 1.99 W/kg



0 dB = 1.99 W/kg = 2.99 dBW/kg

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Date: 2019/8/22

WLAN 802.11n(20M) 5.6G_Product specific 10g-SAR_Top side_CH 120 _0mm

Communication System: WLAN 5G; Frequency: 5600 MHz; Duty Cycle: 1:1

Medium parameters used: f = 5600 MHz; σ = 4.917 S/m; ε_r = 35.96; ρ = 1000 kg/m^3

Phantom section: Flat Section

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

DASY5 Configuration:

- Probe: EX3DV4 - SN7509; ConvF(4.77, 4.77, 4.77); Calibrated: 2019/3/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn877; Calibrated: 2019/3/22
- Phantom: ELI
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

Area Scan (141x141x1): Interpolated grid: dx=10 mm, dy=10 mm

Maximum value of SAR (interpolated) = 7.43 W/kg

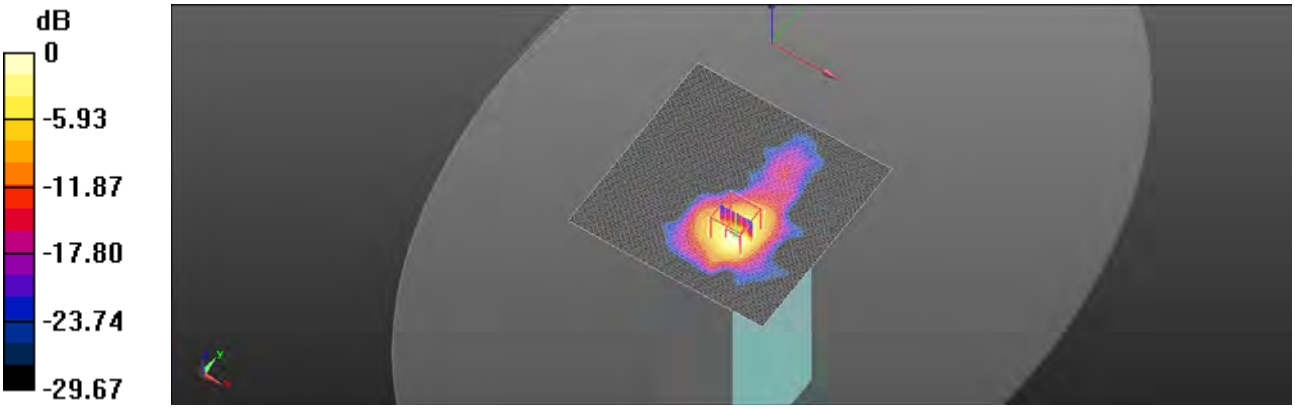
Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 11.01 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 12.6 W/kg

SAR(1 g) = 3.39 W/kg; SAR(10 g) = 1.18 W/kg

Maximum value of SAR (measured) = 8.14 W/kg



0 dB = 8.14 W/kg = 9.10 dBW/kg

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Date: 2019/8/23

WLAN 802.11n(20M) 5.8G_Body_Top side_CH 157_10mm

Communication System: WLAN 5G; Frequency: 5785 MHz; Duty Cycle: 1:1

Medium parameters used: f = 5785 MHz; σ = 5.068 S/m; ε_r = 35.797; ρ = 1000 kg/m^3

Phantom section: Flat Section

Ambient temperature: 22.5°C; Liquid temperature: 21.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7509; ConvF(4.94, 4.94, 4.94); Calibrated: 2019/3/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn877; Calibrated: 2019/3/22
- Phantom: ELI
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

Area Scan (141x141x1): Interpolated grid: dx=10 mm, dy=10 mm

Maximum value of SAR (interpolated) = 2.36 W/kg

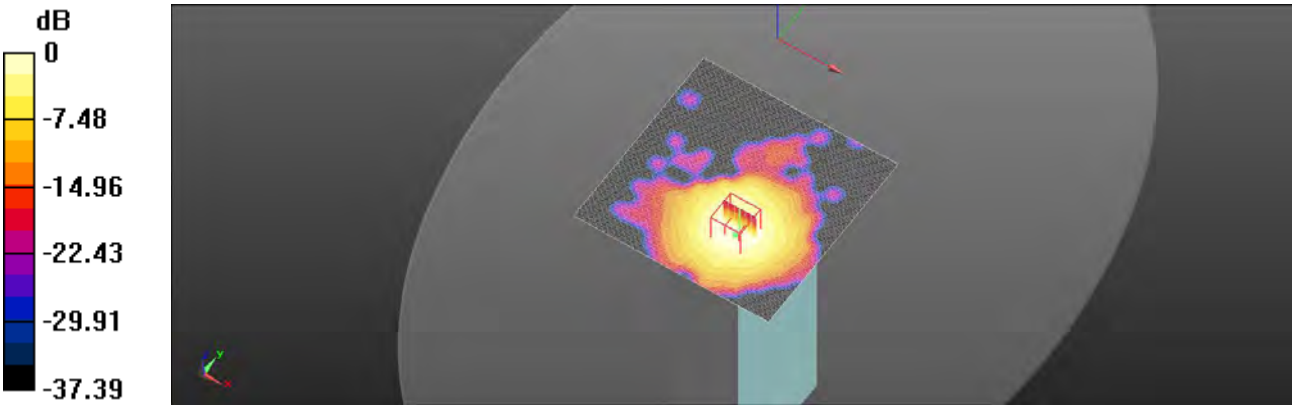
Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 9.516 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 3.70 W/kg

SAR(1 g) = 1.32 W/kg; SAR(10 g) = 0.574 W/kg

Maximum value of SAR (measured) = 2.38 W/kg



0 dB = 2.38 W/kg = 3.77 dBW/kg

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Date: 2019/8/23

WLAN 802.11n(20M) 5.8G_Product specific 10g-SAR_Top side _CH 157_0mm

Communication System: WLAN 5G; Frequency: 5785 MHz; Duty Cycle: 1:1

Medium parameters used: f = 5785 MHz; σ = 5.068 S/m; ε_r = 35.797; ρ = 1000 kg/m^3

Phantom section: Flat Section

Ambient temperature: 22.5°C; Liquid temperature: 21.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7509; ConvF(4.94, 4.94, 4.94); Calibrated: 2019/3/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn877; Calibrated: 2019/3/22
- Phantom: ELI
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

Area Scan (141x141x1): Interpolated grid: dx=10 mm, dy=10 mm

Maximum value of SAR (interpolated) = 8.11 W/kg

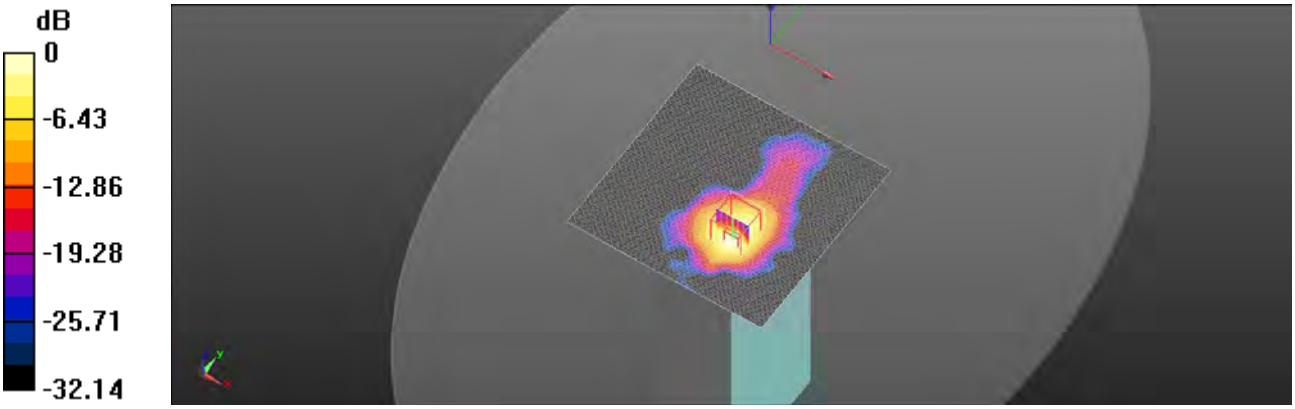
Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 12.23 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 13.1 W/kg

SAR(1 g) = 4.46 W/kg; SAR(10 g) = 1.49 W/kg

Maximum value of SAR (measured) = 8.64 W/kg



0 dB = 8.64 W/kg = 9.36 dBW/kg

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Date: 2019/8/23

WLAN 802.11ac(20M) 5.8G_Body_Top side_CH 157_10mm

Communication System: WLAN 5G; Frequency: 5785 MHz; Duty Cycle: 1:1

Medium parameters used: f = 5785 MHz; σ = 5.068 S/m; ε_r = 35.797; ρ = 1200 kg/m^3

Phantom section: Flat Section

Ambient temperature: 22.5°C; Liquid temperature: 21.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7509; ConvF(4.94, 4.94, 4.94); Calibrated: 2019/3/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn877; Calibrated: 2019/3/22
- Phantom: ELI
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

Area Scan (141x141x1): Interpolated grid: dx=10 mm, dy=10 mm

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

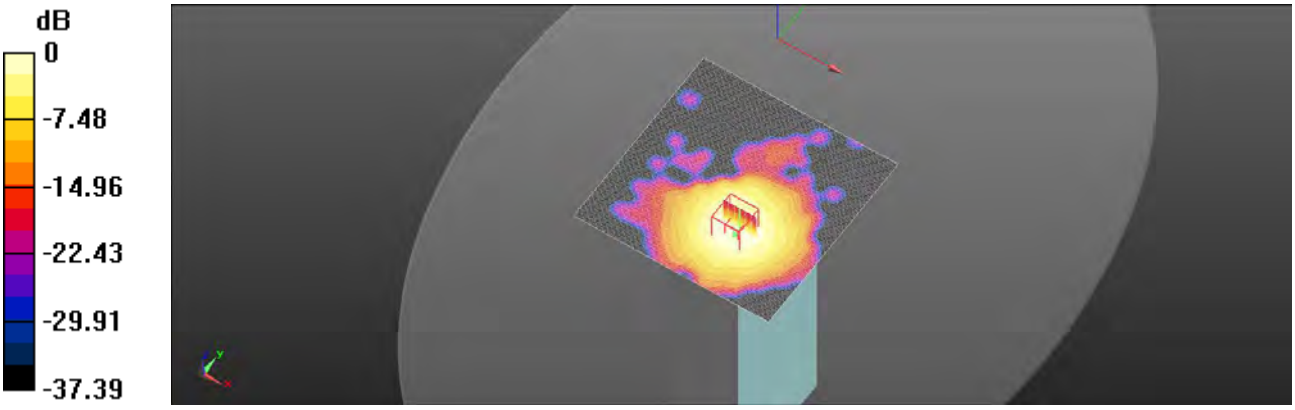
Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 9.516 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 3.08 W/kg

SAR(1 g) = 1.16 W/kg; SAR(10 g) = 0.519 W/kg

Maximum value of SAR (measured) = 1.98 W/kg



0 dB = 1.98 W/kg = 2.98 dBW/kg

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6. SAR System Performance Verification

Date: 2019/8/16

Dipole 750 MHz_SN:1015

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

Medium parameters used: f = 750 MHz; σ = 0.888 S/m; ε_r = 42.768; ρ = 1000 kg/m^3

Phantom section: Flat Section

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

DASY5 Configuration:

- Probe: EX3DV4 - SN7509; ConvF(10.41, 10.41, 10.41); Calibrated: 2019/3/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn877; Calibrated: 2019/3/22
- Phantom: ELI
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

Area Scan (51x71x1): Interpolated grid: dx=15 mm, dy=15 mm

Maximum value of SAR (interpolated) = 2.57 W/kg

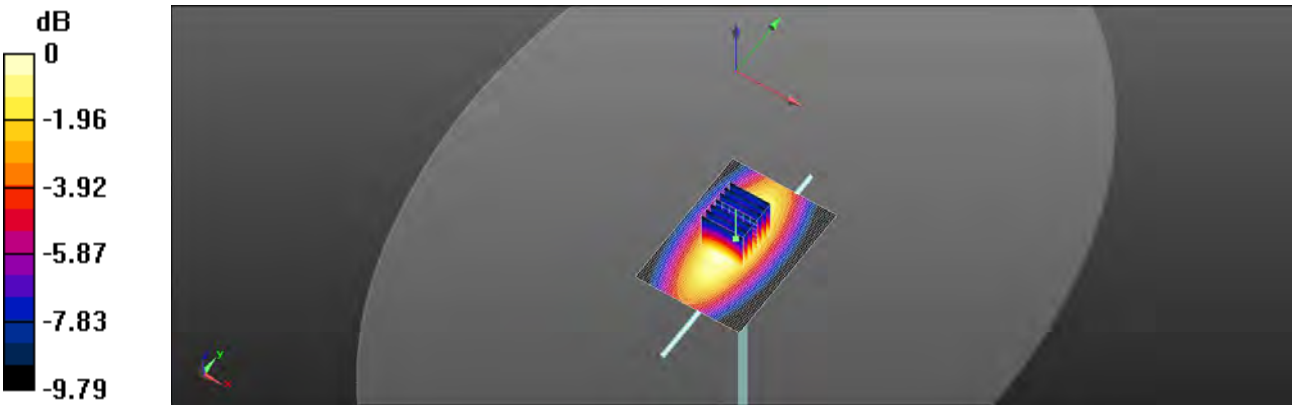
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 55.60 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 3.05 W/kg

SAR(1 g) = 2.08 W/kg; SAR(10 g) = 1.39 W/kg

Maximum value of SAR (measured) = 2.61 W/kg



0 dB = 2.61 W/kg = 4.17 dBW/kg

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Date: 2019/8/17

Dipole 1750 MHz_SN:1008

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

Medium parameters used: f = 1750 MHz; σ = 1.356 S/m; ε_r = 41.269; ρ = 1000 kg/m^3

Phantom section: Flat Section

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

DASY5 Configuration:

- Probe: EX3DV4 - SN7509; ConvF(8.84, 8.84, 8.84); Calibrated: 2019/3/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn877; Calibrated: 2019/3/22
- Phantom: ELI
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

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

Maximum value of SAR (interpolated) = 12.0 W/kg

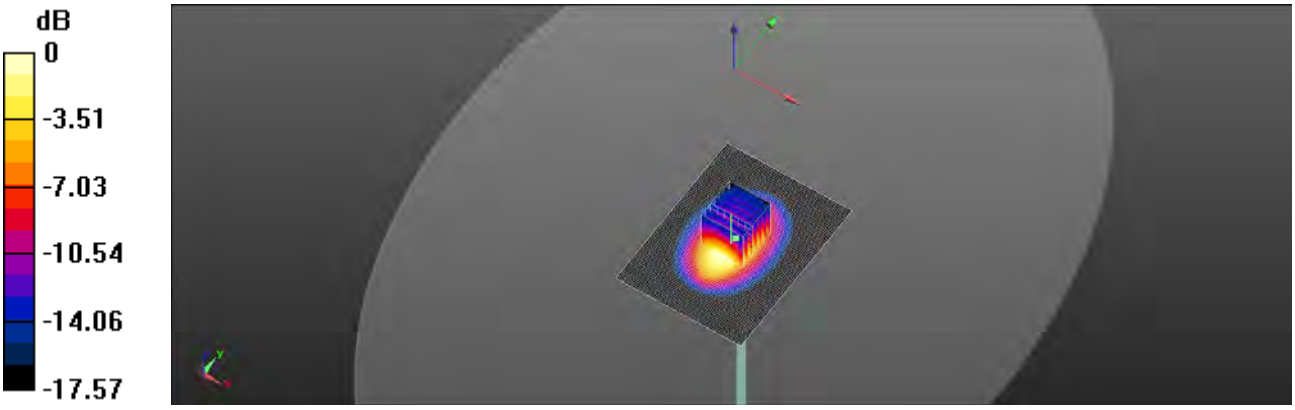
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 95.98 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 15.3 W/kg

SAR(1 g) = 9.03 W/kg; SAR(10 g) = 4.81 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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Date: 2019/8/18

Dipole 1900 MHz_SN:5d173

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

Medium parameters used: f = 1900 MHz; σ = 1.385 S/m; ε_r = 41.18; ρ = 1000 kg/m^3

Phantom section: Flat Section

Ambient temperature: 22.1°C; Liquid temperature: 21.7°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7509; ConvF(8.5, 8.5, 8.5); Calibrated: 2019/3/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn877; Calibrated: 2019/3/22
- Phantom: ELI
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

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

Maximum value of SAR (interpolated) = 17.5 W/kg

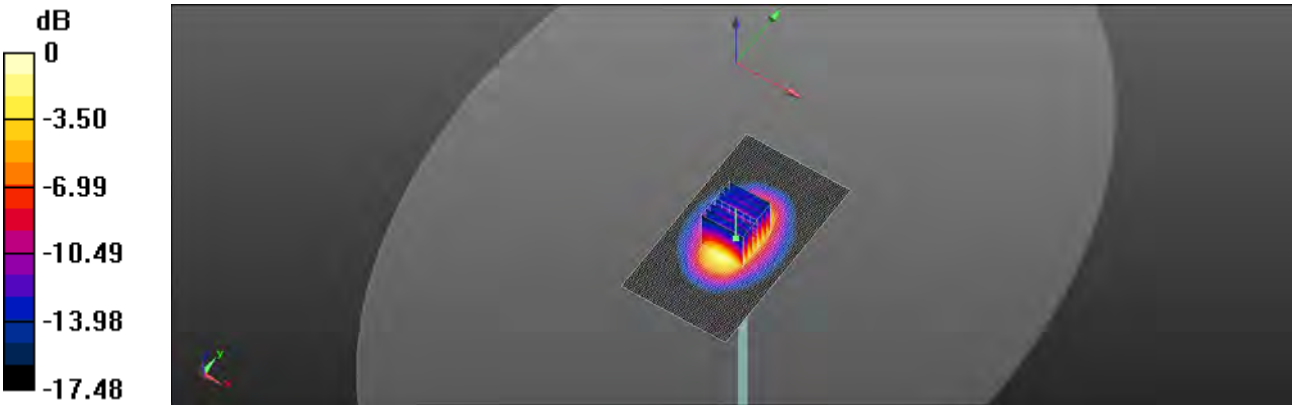
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 109.0 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 21.7 W/kg

SAR(1 g) = 9.97 W/kg; SAR(10 g) = 5.25 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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Date: 2019/8/19

Dipole 2450 MHz_SN:727

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

Medium parameters used: f = 2450 MHz; σ = 1.768 S/m; ε_r = 40.18; ρ = 1000 kg/m^3

Phantom section: Flat Section

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

DASY5 Configuration:

- Probe: EX3DV4 - SN7509; ConvF(7.79, 7.79, 7.79); Calibrated: 2019/3/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn877; Calibrated: 2019/3/22
- Phantom: ELI
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

Area Scan (71x91x1): Interpolated grid: dx=12 mm, dy=12 mm

Maximum value of SAR (interpolated) = 19.4 W/kg

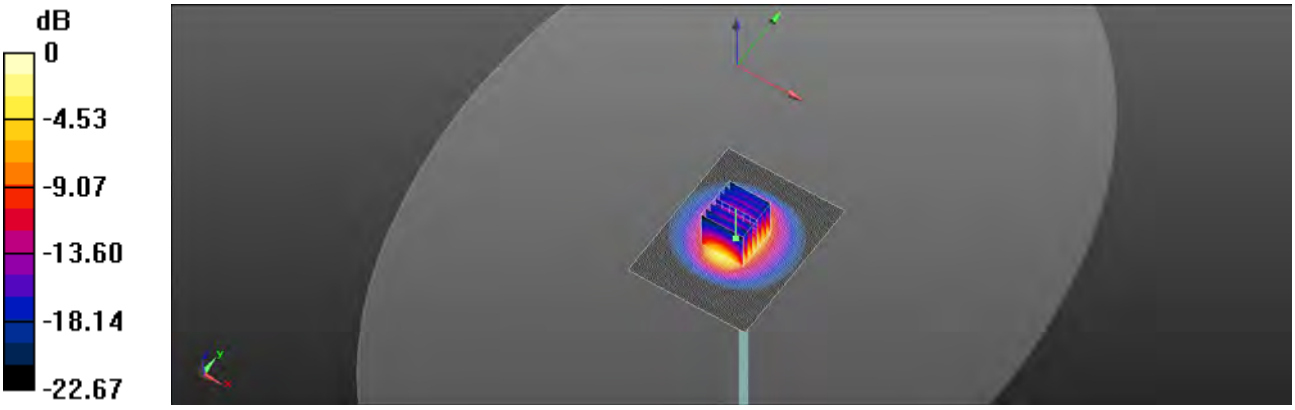
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 103.3 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 25.5 W/kg

SAR(1 g) = 13.1 W/kg; SAR(10 g) = 6.27 W/kg

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



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

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Date: 2019/8/20

Dipole 5200 MHz_SN:1023

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

Medium parameters used: f = 5200 MHz; σ = 4.545 S/m; ε_r = 34.554; ρ = 1000 kg/m^3

Phantom section: Flat Section

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

DASY5 Configuration:

- Probe: EX3DV4 - SN7509; ConvF(5.46, 5.46, 5.46); Calibrated: 2019/3/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn877; Calibrated: 2019/3/22
- Phantom: ELI
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

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

Maximum value of SAR (interpolated) = 18.5 W/kg

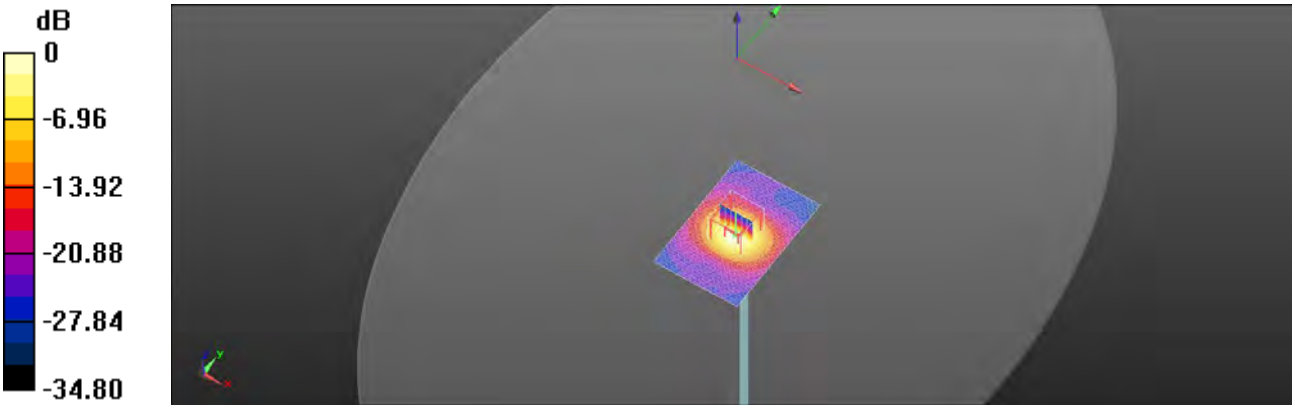
Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 65.45 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 33.7 W/kg

SAR(1 g) = 7.88 W/kg; SAR(10 g) = 2.26 W/kg

Maximum value of SAR (measured) = 18.0 W/kg



0 dB = 18.0 W/kg = 12.56 dBW/kg

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Date: 2019/8/21

Dipole 5300 MHz_SN:1023

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

Medium parameters used: f = 5300 MHz; σ = 4.645 S/m; ε_r = 36.506; ρ = 1000 kg/m^3

Phantom section: Flat Section

Ambient temperature: 22.4°C; Liquid temperature: 21.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7509; ConvF(5.2, 5.2, 5.2); Calibrated: 2019/3/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn877; Calibrated: 2019/3/22
- Phantom: ELI
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

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

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

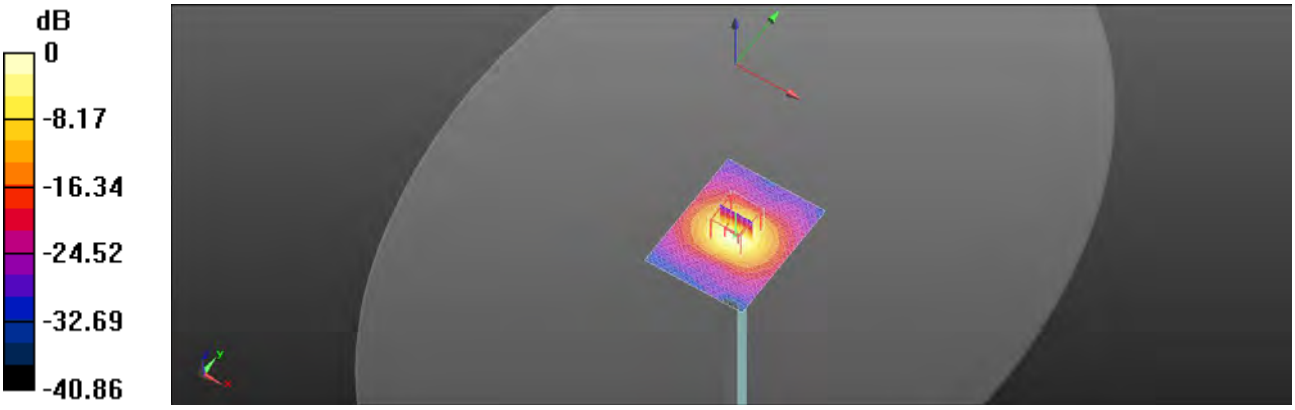
Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 63.39 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 31.0 W/kg

SAR(1 g) = 8.24 W/kg; SAR(10 g) = 2.37 W/kg

Maximum value of SAR (measured) = 17.6 W/kg



0 dB = 17.6 W/kg = 12.46 dBW/kg

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Date: 2019/8/22

Dipole 5600 MHz_SN:1023

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

Medium parameters used: f = 5600 MHz; σ = 4.917 S/m; ε_r = 35.96; ρ = 1000 kg/m^3

Phantom section: Flat Section

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

DASY5 Configuration:

- Probe: EX3DV4 - SN7509; ConvF(4.77, 4.77, 4.77); Calibrated: 2019/3/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn877; Calibrated: 2019/3/22
- Phantom: ELI
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

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

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

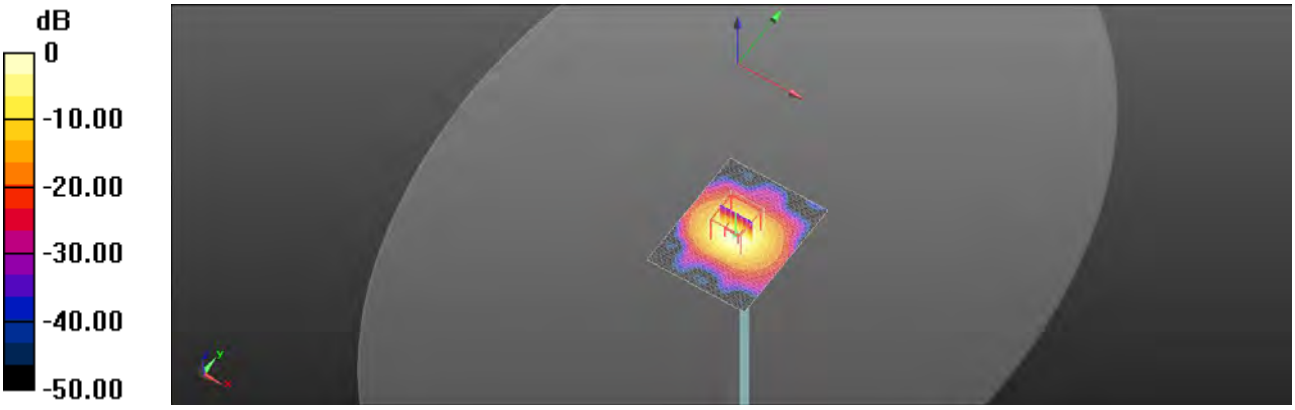
Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 61.92 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 33.7 W/kg

SAR(1 g) = 8.51 W/kg; SAR(10 g) = 2.45 W/kg

Maximum value of SAR (measured) = 17.9 W/kg



0 dB = 17.9 W/kg = 12.52 dBW/kg

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Date: 2019/8/23

Dipole 5800 MHz_SN:1023

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

Medium parameters used: f = 5800 MHz; σ = 5.082 S/m; ε_r = 35.753; ρ = 1000 kg/m^3

Phantom section: Flat Section

Ambient temperature: 22.5°C; Liquid temperature: 21.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7509; ConvF(4.94, 4.94, 4.94); Calibrated: 2019/3/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn877; Calibrated: 2019/3/22
- Phantom: ELI
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

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

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

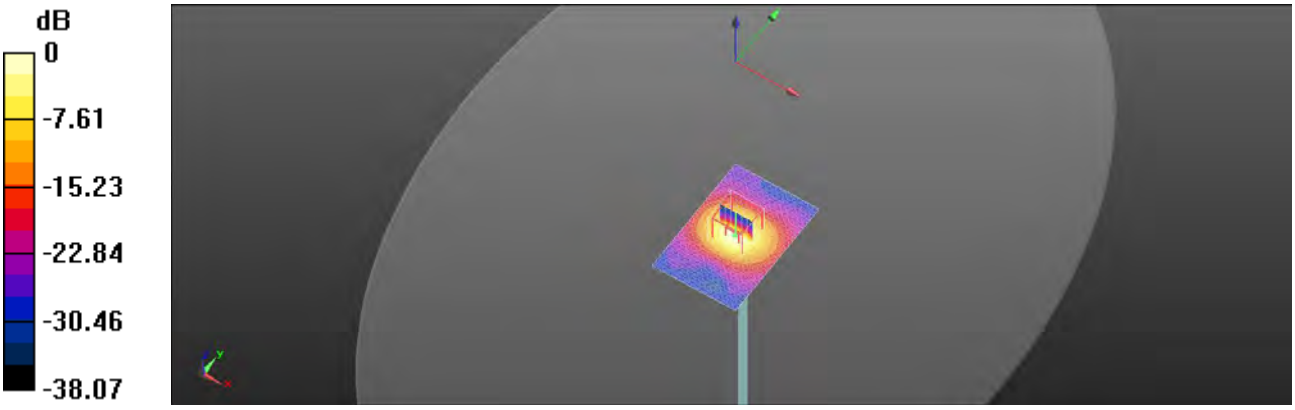
Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 58.69 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 40.5 W/kg

SAR(1 g) = 8.05 W/kg; SAR(10 g) = 2.26 W/kg

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



0 dB = 17.4 W/kg = 12.41 dBW/kg

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7. Uncertainty Budget

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

A	c	D	e		f	g	h=c * f / e	i=c * g / e	k
Source of Uncertainty	Tolerance/ Uncertainty	Probability	Div	Div Value	ci (1g)	ci (10g)	Standard uncertainty	Standard uncertainty	vi, or Veff
Measurement system									
Probe calibration	6.55%	N	1	1	1	1	6.55%	6.55%	∞
Isotropy , Axial	3.50%	R	√3	1.732	1	1	2.02%	2.02%	∞
Isotropy, Hemispherical	9.60%	R	√3	1.732	1	1	5.54%	5.54%	∞
Modulation Response	2.40%	R	√3	1.732	1	1	1.40%	1.40%	∞
Boundary Effect	1.00%	R	√3	1.732	1	1	0.58%	0.58%	∞
Linearity	4.70%	R	√3	1.732	1	1	2.71%	2.71%	∞
Detection Limits	1.00%	R	√3	1.732	1	1	0.58%	0.58%	∞
Readout Electronics	0.30%	N	1	1	1	1	0.30%	0.30%	∞
Response time	0.80%	R	√3	1.732	1	1	0.46%	0.46%	∞
Integration Time	2.60%	R	√3	1.732	1	1	1.50%	1.50%	∞
Measurement drift (class A evaluation)	1.75%	R	√3	1.732	1	1	1.01%	1.01%	∞
RF ambient condition - noise	3.00%	R	√3	1.732	1	1	1.73%	1.73%	∞
RF ambient conditions - reflections	3.00%	R	√3	1.732	1	1	1.73%	1.73%	∞
Probe positioner Mechanical restrictions	0.40%	R	√3	1.732	1	1	0.23%	0.23%	∞
Probe Positioning with respect to phantom	2.90%	R	√3	1.732	1	1	1.67%	1.67%	∞
Post-processing	1.00%	R	√3	1.732	1	1	0.58%	0.58%	∞
Max SAR Eval	1.00%	R	√3	1.732	1	1	0.58%	0.58%	∞
Test Sample related									
Test sample positioning	2.90%	N	1	1	1	1	2.90%	2.90%	M-1
Device Holder Uncertainty	3.60%	N	1	1	1	1	3.60%	3.60%	M-1
Drift of output power	5.00%	R	√3	1.732	1	1	2.89%	2.89%	∞
Phantom and Setup									
Phantom Uncertainty	4.00%	R	√3	1.732	1	1	2.31%	2.31%	∞
Liquid permittivity (mea.)	2.44%	N	1	1	0.64	0.43	1.56%	1.05%	M
Liquid Conductivity (mea.)	3.63%	N	1	1	0.6	0.49	2.18%	1.78%	M
Combined standard uncertainty		RSS					12.02%	11.89%	
Expant uncertainty (95% confidence							24.04%	23.77%	

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

A	c	D	e		f	g	h=c * f / e	i=c * g / e	k
Source of Uncertainty	Tolerance/ Uncertainty	Probability	Div	Div Value	ci (1g)	ci (10g)	Standard uncertainty	Standard uncertainty	vi, or Veff
Measurement system									
Probe calibration	6.00%	N	1	1	1	1	6.00%	6.00%	∞
Isotropy , Axial	3.50%	R	√3	1.732	1	1	2.02%	2.02%	∞
Isotropy, Hemispherical	9.60%	R	√3	1.732	1	1	5.54%	5.54%	∞
Modulation Response	2.40%	R	√3	1.732	1	1	1.40%	1.40%	∞
Boundary Effect	1.00%	R	√3	1.732	1	1	0.58%	0.58%	∞
Linearity	4.70%	R	√3	1.732	1	1	2.71%	2.71%	∞
Detection Limits	1.00%	R	√3	1.732	1	1	0.58%	0.58%	∞
Readout Electronics	0.30%	N	1	1	1	1	0.30%	0.30%	∞
Response time	0.80%	R	√3	1.732	1	1	0.46%	0.46%	∞
Integration Time	2.60%	R	√3	1.732	1	1	1.50%	1.50%	∞
Measurement drift (class A evaluation)	1.75%	R	√3	1.732	1	1	1.01%	1.01%	∞
RF ambient condition - noise	3.00%	R	√3	1.732	1	1	1.73%	1.73%	∞
RF ambient conditions - reflections	3.00%	R	√3	1.732	1	1	1.73%	1.73%	∞
Probe positioner Mechanical restrictions	0.40%	R	√3	1.732	1	1	0.23%	0.23%	∞
Probe Positioning with respect to phantom	2.90%	R	√3	1.732	1	1	1.67%	1.67%	∞
Post-processing	1.00%	R	√3	1.732	1	1	0.58%	0.58%	∞
Max SAR Eval	1.00%	R	√3	1.732	1	1	0.58%	0.58%	∞
Test Sample related									
Test sample positioning	2.90%	N	1	1	1	1	2.90%	2.90%	M-1
Device Holder Uncertainty	3.60%	N	1	1	1	1	3.60%	3.60%	M-1
Drift of output power	5.00%	R	√3	1.732	1	1	2.89%	2.89%	∞
Phantom and Setup									
Phantom Uncertainty	4.00%	R	√3	1.732	1	1	2.31%	2.31%	∞
Liquid permittivity (mea.)	3.02%	N	1	1	0.64	0.43	1.93%	1.30%	M
Liquid Conductivity (mea.)	1.84%	N	1	1	0.6	0.49	1.10%	0.90%	M
Combined standard uncertainty		RSS					11.63%	11.52%	

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Appendixes

Refer to separated files for the following appendixes.

EN201980001 SAR_Appendix A Photographs

EN201980001 SAR_Appendix B DAE & Probe Cal. Certificate

EN201980001 SAR_Appendix C Phantom Description & Dipole Cal. Certificate

- End of Report -

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