SAR TEST REPORT

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

Equipment Under Test	Notebook Computer
Brand Name	acer
Model No.	N20Q8
Company Name	Acer Incorporated
Company Address	8F., No. 88, Sec. 1, Xintai 5th Rd., Xizhi, New Taipei City 22181, Taiwan (R.O.C)
Standards	IEEE/ANSI C95.1-1992, IEEE 1528-2013
FCC ID	HLZQSIP7180
Date of Receipt	Dec. 10, 2020
Date of Test(s)	Jan. 11, 2021 ~ Jan. 21, 2021
Date of Issue	Feb. 04, 2021

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 Ltd. Central RF Lab or testing done by SGS Taiwan Ltd. Central RF Lab in connection with distribution or use of the product described in this report must be approved by SGS Taiwan Ltd. Central RF Lab in writing.

Signed on behalf of SGS

Clerk / Ruby Ou	Engineer / Kiki Lin	Asst. Manager / John Yeh
Ruby Ou	Kiki Lin	John Yeh

Date: Feb. 04, 2021

Revision History

Report Number	Revision	Description	Issue Date
ES/2020/C0011	Rev.00	Initial creation of document	Feb. 04, 2021

Contents

0. Guidance applied

The SAR testing method and procedure for this device is in accordance with the following standards:

IEEE/ANSI C95.1-1992
IEEE 1528-2013
KDB616217D04v01r02
KDB865664D01v01r04
KDB865664D02v01r02
KDB941225D01v03r01
KDB941225D05v02r05
KDB941225D05Av01r02
KDB447498D01v06
KDB248227D01v02r02

1. General Information

1.1 Testing Laboratory

SGS Taiwan Ltd. Central RF Lab	
No.134, Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan	
FCC Designation Number	TW0027
Tel	+886-2-2299-3279
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Internet	http://www.tw.sgs.com/

1.2 Details of Applicant

Company Name	Acer Incorporated
Company Address	8F., No. 88, Sec. 1, Xintai 5th Rd., Xizhi, New Taipei City 22181, Taiwan (R.O.C)

1.3 Description of EUT

Equipment Under Test	Notebook Computer		
Brand Name	acer		
Model No.	N20Q8		
FCC ID	HLZQSIP7180		
Mode of Operation	☒WCDMA ☒HSDPA ☒HSUPA ☒LTE FDD ☒LTE TDD ☒WLAN802.11 a/b/g/n(20M/40M)/ac(20M/40M/80M) ☒Bluetooth ☒NFC		
Duty Cycle	WCDMA	100%	
	LTE FDD	100%	
	LTE TDD power class 3	63.3%	
	LTE TDD power class 2	43.3%	
	WLAN802.11 a/b/g/n/ac(20M/40M/80M)	Refer to page 56-58	
	Bluetooth	77.2%	
TX Frequency Range (MHz)	WCDMA Band II	1850	– 1910
	WCDMA Band V	824	– 849
	LTE FDD Band 2	1850	– 1910
	LTE FDD Band 4	1710	– 1755
	LTE FDD Band 5	824	– 849
	LTE FDD Band 7	2500	– 2570
	LTE FDD Band 12	699	– 716
	LTE FDD Band 13	777	– 787
	LTE FDD Band 14	788	– 798
	LTE FDD Band 17	704	– 716
	LTE FDD Band 25	1850	– 1915
	LTE FDD Band 26	814	– 849
	LTE FDD Band 30	2305	– 2315

TX Frequency Range (MHz)	LTE TDD Band 38	2570	–	2620
	LTE TDD Band 41 Power Class 2/3	2496	–	2690
	LTE FDD Band 66	1710	–	1780
	LTE FDD Band 71	663	–	698
	WLAN802.11 b/g/n/ac(20M)	2412	–	2472
	WLAN802.11 n(40M)	2422	–	2462
	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
	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)	WCDMA Band II	9262	–	9538
	WCDMA Band V	4132	–	4233
	LTE FDD Band 2	18607	–	19193
	LTE FDD Band 4	19957	–	20393
	LTE FDD Band 5	20407	–	20643
	LTE FDD Band 7	20775	–	21425
	LTE FDD Band 12	23017	–	23173
	LTE FDD Band 13	23205	–	23255
	LTE FDD Band 14	23305	–	23355
	LTE FDD Band 17	23755	–	23825
	LTE FDD Band 25	26047	–	26683

Channel Number (ARFCN)	LTE FDD Band 26	26697	—	27033
	LTE FDD Band 30	27685	—	27735
	LTE TDD Band 38	37775	—	38225
	LTE TDD Band 41 Power Class 2/3	39675	—	41565
	LTE FDD Band 66	131979	—	132665
	LTE FDD Band 71	133147	—	133447
	WLAN802.11 b/g/n/ac(20M)	1	—	13
	WLAN802.11 n(40M)	3	—	11
	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

Notebook mode

Max. SAR (1 g) (Unit: W/Kg)				
Band	Measured	Reported	Channel	Position
WCDMA Band II	0.00	0.00	9262	Bottom side
WCDMA Band V	0.01	0.02	4132	Bottom side
LTE FDD Band 2	0.00	0.01	18700	Bottom side
LTE FDD Band 4	0.01	0.01	20175	Bottom side
LTE FDD Band 5	0.02	0.02	20600	Bottom side
LTE FDD Band 7	0.06	0.09	21100	Bottom side
LTE FDD Band 12	0.02	0.02	23060	Bottom side
LTE FDD Band 13	0.03	0.04	23230	Bottom side
LTE FDD Band 14	0.03	0.04	23330	Bottom side
LTE FDD Band 17	0.02	0.02	23790	Bottom side
LTE FDD Band 25	0.01	0.01	26365	Bottom side
LTE FDD Band 26	0.02	0.03	26765	Bottom side
LTE FDD Band 30	0.08	0.08	27710	Bottom side
LTE TDD Band 38	0.01	0.01	37850	Bottom side
LTE TDD Band 41	0.03	0.04	41490	Bottom side
LTE TDD Band 41(HPUE)	0.01	0.02	41055	Bottom side
LTE FDD Band 66	0.01	0.01	132072	Bottom side
LTE FDD Band 71	0.01	0.02	133222	Bottom side

Notebook mode

Max. SAR (1g) (Unit: W/Kg)					
Antenna	Band	Measured	Reported	Channel	Position
Main	WLAN 802.11b	0.01	0.01	1	Bottom side
	Bluetooth (GFSK)	0.01	0.01	39	Bottom side
	WLAN 802.11n(40M) 5.2G	0.02	0.03	46	Bottom side
	WLAN 802.11n(40M) 5.3G	0.02	0.02	54	Bottom side
	WLAN 802.11ac(80M) 5.6G	0.03	0.03	122	Bottom side
	WLAN 802.11ac(80M) 5.8G	0.02	0.03	155	Bottom side
Aux	WLAN 802.11b	0.03	0.03	1	Bottom side
	WLAN 802.11n(40M) 5.2G	0.05	0.06	46	Bottom side
	WLAN 802.11n(40M) 5.3G	0.05	0.06	54	Bottom side
	WLAN 802.11ac(80M) 5.6G	0.00	0.00	138	Bottom side
	WLAN 802.11ac(80M) 5.8G	0.03	0.03	155	Bottom side

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

Unit: dBm

Band		WCDMA II		
TX Channel		9262	9400	9538
Frequency (MHz)		1852.4	1880	1907.6
Max. Rated Avg. Power+Max. Tolerance (dBm)		**25.70**		
3GPP Rel 99	RMC 12.2Kbps	24.27	23.87	23.85
3GPP Rel 5	HSDPA Subtest-1	23.27	22.88	23.84
	HSDPA Subtest-2	23.28	22.87	23.87
	HSDPA Subtest-3	22.78	22.42	23.32
	HSDPA Subtest-4	22.75	22.43	23.39
3GPP Rel 6	HSUPA Subtest-1	23.28	22.89	23.82
	HSUPA Subtest-2	22.78	22.39	23.37
	HSUPA Subtest-3	23.28	22.90	23.83
	HSUPA Subtest-4	23.26	22.87	23.81
	HSUPA Subtest-5	23.27	22.86	23.70

Band		WCDMA V		
TX Channel		4132	4183	4233
Frequency (MHz)		826.4	836.6	846.6
Max. Rated Avg. Power+Max. Tolerance (dBm)		**25.20**		
3GPP Rel 99	RMC 12.2Kbps	24.02	23.91	23.99
3GPP Rel 5	HSDPA Subtest-1	22.98	22.88	22.98
	HSDPA Subtest-2	23.00	22.89	22.97
	HSDPA Subtest-3	22.53	22.35	22.50
	HSDPA Subtest-4	22.48	22.33	22.36
3GPP Rel 6	HSUPA Subtest-1	23.03	22.88	23.01
	HSUPA Subtest-2	22.50	22.43	22.41
	HSUPA Subtest-3	23.04	22.85	22.97
	HSUPA Subtest-4	22.98	22.86	22.95
	HSUPA Subtest-5	22.97	22.90	22.98

Sub-Test for HSDPA

SUB-TEST	β_c	β_d	β_d *(SF)*	β_c/β_d	β_{HS} *(Note1, Note 2)*	CM (dB) *(Note 3)*	MPR (dB) *(Note 3)*
1	2/15	15/15	64	2/15	4/15	0.0	0.0
2	12/15	15/15	64	12/15	24/15	1.0	0.0
3	15/15	8/15	64	15/8	30/15	1.5	0.5
4	15/15	4/15	64	15/4	30/15	1.5	0.5

Sub-Test for HSUPA

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

Band 2 / Band 4 / Band 5 / Band 7 / Band 12 / Band 13 / Band 14 / Band 17 / Band 25 / Band 26 / Band 30 / Band 66 / Band 71 power table:

LTE Band 2								
BW(Mhz)	Modulation	RB Size	RB Offset	Conducted power (dBm)			Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
Frequency (MHz)				1860	1880	1900		
Channel				18700	18900	19100		
20	QPSK	1	0	24.23	24.00	23.87	25.70	0
		1	50	24.09	23.98	23.88	25.70	0
		1	99	23.91	23.85	23.77	25.70	0
		50	0	22.71	22.78	22.98	24.70	0-1
		50	25	22.79	22.89	22.73	24.70	0-1
		50	50	22.82	22.95	23.00	24.70	0-1
		100	0	22.75	22.93	22.70	24.70	0-1
	16-QAM	1	0	22.89	22.95	22.85	24.70	0-1
		1	50	22.83	22.89	22.84	24.70	0-1
		1	99	22.98	22.81	22.93	24.70	0-1
		50	0	21.93	21.90	21.97	23.70	0-2
		50	25	21.84	21.87	21.94	23.70	0-2
		50	50	21.80	21.81	21.82	23.70	0-2
		100	0	21.87	21.91	21.96	23.70	0-2
	64-QAM	1	0	21.99	21.87	21.86	23.70	0-2
		1	50	21.83	21.88	21.81	23.70	0-2
		1	99	21.82	21.91	21.95	23.70	0-2
		50	0	20.85	20.86	20.97	22.70	0-3
		50	25	20.93	20.83	20.91	22.70	0-3
		50	50	20.94	20.97	20.98	22.70	0-3
		100	0	20.92	20.91	20.91	22.70	0-3
BW(Mhz)	Modulation	RB Size	RB Offset	Conducted power (dBm)			Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
Frequency (MHz)				1857.5	1880	1902.5		
Channel				18675	18900	19125		
15	QPSK	1	0	23.95	23.97	23.96	25.70	0
		1	36	23.94	23.80	23.84	25.70	0
		1	74	23.83	23.85	23.92	25.70	0
		36	0	22.93	22.96	22.98	24.70	0-1
		36	18	22.90	22.92	22.83	24.70	0-1
		36	37	22.83	22.84	22.87	24.70	0-1
		75	0	22.97	22.96	22.86	24.70	0-1
	16-QAM	1	0	22.96	22.85	22.93	24.70	0-1
		1	36	22.95	22.85	22.86	24.70	0-1
		1	74	22.81	22.96	22.88	24.70	0-1
		36	0	21.89	21.88	21.83	23.70	0-2
		36	18	21.97	21.88	21.82	23.70	0-2
		36	37	21.82	21.95	21.92	23.70	0-2
		75	0	21.97	21.90	21.91	23.70	0-2
	64-QAM	1	0	21.88	21.92	21.95	23.70	0-2
		1	36	21.97	21.98	21.92	23.70	0-2
		1	74	21.99	21.97	21.97	23.70	0-2
		36	0	20.95	20.93	20.86	22.70	0-3
		36	18	20.96	20.98	20.81	22.70	0-3
		36	37	20.83	21.00	20.98	22.70	0-3
		75	0	20.84	20.85	20.97	22.70	0-3

LTE Band 2								
BW(Mhz)	Modulation	RB Size	RB Offset	Conducted power (dBm)			Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
Frequency (MHz)				1855	1880	1905		
Channel				18650	18900	19150		
10	QPSK	1	0	23.84	23.96	23.97	25.70	0
		1	25	23.94	23.98	23.95	25.70	0
		1	49	23.83	23.93	23.90	25.70	0
		25	0	22.95	22.83	22.92	24.70	0-1
		25	12	23.00	22.94	22.84	24.70	0-1
		25	25	22.82	22.83	22.92	24.70	0-1
		50	0	22.81	22.93	22.86	24.70	0-1
	16-QAM	1	0	22.89	22.89	22.97	24.70	0-1
		1	25	22.90	22.85	22.90	24.70	0-1
		1	49	22.81	22.90	22.91	24.70	0-1
		25	0	21.84	21.96	21.83	23.70	0-2
		25	12	21.95	21.95	21.87	23.70	0-2
		25	25	21.85	21.88	21.98	23.70	0-2
		50	0	22.00	21.89	21.92	23.70	0-2
	64-QAM	1	0	21.88	21.91	21.89	23.70	0-2
		1	25	21.82	21.91	21.81	23.70	0-2
		1	49	21.86	21.98	21.95	23.70	0-2
		25	0	20.98	20.86	20.83	22.70	0-3
		25	12	21.00	21.00	20.81	22.70	0-3
		25	25	20.84	20.97	20.98	22.70	0-3
		50	0	20.97	20.84	20.85	22.70	0-3
Frequency (MHz)				1852.5	1880	1907.5	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
Channel				18625	18900	19175		
5	QPSK	1	0	23.90	23.81	23.94	25.70	0
		1	12	23.81	23.90	24.00	25.70	0
		1	24	23.86	23.86	23.83	25.70	0
		12	0	22.97	22.95	22.83	24.70	0-1
		12	6	22.96	22.98	22.93	24.70	0-1
		12	13	22.89	22.83	22.83	24.70	0-1
		25	0	22.88	22.90	22.82	24.70	0-1
	16-QAM	1	0	22.86	22.96	22.88	24.70	0-1
		1	12	23.00	22.85	22.96	24.70	0-1
		1	24	22.96	22.92	22.96	24.70	0-1
		12	0	21.97	21.86	21.88	23.70	0-2
		12	6	21.93	21.88	21.85	23.70	0-2
		12	13	21.91	21.98	21.84	23.70	0-2
		25	0	21.82	21.82	21.87	23.70	0-2
	64-QAM	1	0	21.87	22.00	21.88	23.70	0-2
		1	12	21.89	21.94	21.92	23.70	0-2
		1	24	21.86	21.83	21.95	23.70	0-2
		12	0	20.82	20.90	20.92	22.70	0-3
		12	6	20.89	20.93	20.93	22.70	0-3
		12	13	20.97	20.91	20.89	22.70	0-3
		25	0	20.94	20.98	20.83	22.70	0-3

LTE Band 2								
BW(Mhz)	Modulation	RB Size	RB Offset	Conducted power (dBm)			Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
Frequency (MHz)				1851.5	1880	1908.5		
Channel				18615	18900	19185		
3	QPSK	1	0	23.94	23.95	23.82	25.70	0
		1	7	23.84	23.85	23.92	25.70	0
		1	14	23.95	23.89	23.81	25.70	0
		8	0	23.00	22.87	22.86	24.70	0-1
		8	4	22.94	22.98	22.99	24.70	0-1
		8	7	22.88	22.97	22.97	24.70	0-1
		15	0	22.88	22.97	22.83	24.70	0-1
	16-QAM	1	0	22.87	22.95	22.87	24.70	0-1
		1	7	22.94	22.85	22.98	24.70	0-1
		1	14	22.84	22.87	22.87	24.70	0-1
		8	0	21.87	21.83	21.87	23.70	0-2
		8	4	21.86	21.94	21.85	23.70	0-2
		8	7	21.97	21.99	21.83	23.70	0-2
		15	0	21.88	21.97	21.89	23.70	0-2
	64-QAM	1	0	21.91	21.88	21.94	23.70	0-2
		1	7	21.85	21.99	21.97	23.70	0-2
		1	14	21.82	21.89	21.85	23.70	0-2
		8	0	20.94	20.98	20.91	22.70	0-3
		8	4	20.97	20.99	20.82	22.70	0-3
		8	7	20.81	20.90	20.83	22.70	0-3
		15	0	20.82	21.00	20.98	22.70	0-3
Frequency (MHz)				1850.7	1880	1909.3	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
Channel				18607	18900	19193		
1.4	QPSK	1	0	23.97	23.88	23.99	25.70	0
		1	2	23.95	23.91	23.99	25.70	0
		1	5	23.99	23.89	23.95	25.70	0
		3	0	23.91	23.83	23.86	25.70	0
		3	2	23.85	23.94	23.94	25.70	0
		3	3	23.91	23.91	23.83	25.70	0
		6	0	22.97	22.88	22.88	24.70	0-1
	16-QAM	1	0	22.83	22.94	22.87	24.70	0-1
		1	2	22.97	22.83	22.82	24.70	0-1
		1	5	22.93	22.95	22.84	24.70	0-1
		3	0	22.89	22.93	22.95	24.70	0-1
		3	2	22.97	22.85	22.86	24.70	0-1
		3	3	22.90	22.99	22.90	24.70	0-1
		6	0	21.97	21.85	21.94	23.70	0-2
	64-QAM	1	0	21.84	21.89	21.99	23.70	0-2
		1	2	21.85	21.93	21.91	23.70	0-2
		1	5	21.83	21.85	21.90	23.70	0-2
		3	0	21.85	21.82	21.90	23.70	0-2
		3	2	21.93	21.95	21.97	23.70	0-2
		3	3	21.86	21.95	21.95	23.70	0-2
		6	0	20.82	20.86	20.95	22.70	0-3

LTE Band 4								
BW(Mhz)	Modulation	RB Size	RB Offset	Conducted power (dBm)			Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
Frequency (MHz)				1720	1732.5	1745		
Channel				20050	20175	20300		
20	QPSK	1	0	24.13	24.22	24.12	25.70	0
		1	50	24.11	24.08	24.14	25.70	0
		1	99	24.01	24.02	24.06	25.70	0
		50	0	22.94	22.95	22.82	24.70	0-1
		50	25	22.87	22.97	23.00	24.70	0-1
		50	50	22.93	22.82	22.85	24.70	0-1
		100	0	22.90	22.92	22.99	24.70	0-1
	16-QAM	1	0	22.97	22.98	22.95	24.70	0-1
		1	50	22.87	22.98	22.91	24.70	0-1
		1	99	22.96	22.86	22.92	24.70	0-1
		50	0	21.89	21.86	21.94	23.70	0-2
		50	25	21.83	21.80	21.82	23.70	0-2
		50	50	21.85	21.92	21.87	23.70	0-2
		100	0	21.99	21.81	21.88	23.70	0-2
	64-QAM	1	0	21.90	22.00	21.85	23.70	0-2
		1	50	21.99	21.88	21.97	23.70	0-2
		1	99	21.92	21.99	21.83	23.70	0-2
		50	0	20.97	20.86	20.98	22.70	0-3
		50	25	20.92	21.00	20.90	22.70	0-3
		50	50	20.94	20.85	20.84	22.70	0-3
		100	0	20.90	20.89	20.98	22.70	0-3
Frequency (MHz)				1717.5	1732.5	1747.5	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
Channel				20025	20175	20325		
15	QPSK	1	0	24.01	23.87	23.83	25.70	0
		1	36	23.94	23.99	23.86	25.70	0
		1	74	24.00	23.93	23.84	25.70	0
		36	0	22.82	22.90	22.83	24.70	0-1
		36	18	22.98	22.95	22.86	24.70	0-1
		36	37	22.85	22.91	22.88	24.70	0-1
		75	0	22.86	22.88	22.91	24.70	0-1
	16-QAM	1	0	22.88	22.89	22.94	24.70	0-1
		1	36	22.96	22.91	22.86	24.70	0-1
		1	74	22.95	22.90	22.89	24.70	0-1
		36	0	21.91	21.88	21.94	23.70	0-2
		36	18	21.95	21.91	21.93	23.70	0-2
		36	37	21.88	21.85	21.99	23.70	0-2
		75	0	21.97	21.85	21.92	23.70	0-2
	64-QAM	1	0	21.83	22.00	21.82	23.70	0-2
		1	36	21.97	21.89	22.00	23.70	0-2
		1	74	21.90	21.94	21.88	23.70	0-2
		36	0	21.00	20.94	20.94	22.70	0-3
		36	18	20.94	21.00	20.98	22.70	0-3
		36	37	21.00	20.99	20.98	22.70	0-3
		75	0	20.92	20.97	20.93	22.70	0-3

LTE Band 4								
BW(Mhz)	Modulation	RB Size	RB Offset	Conducted power (dBm)			Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
Frequency (MHz)				1715	1732.5	1750		
Channel				20000	20175	20350		
10	QPSK	1	0	23.83	23.81	23.96	25.70	0
		1	25	23.97	23.86	23.85	25.70	0
		1	49	23.83	23.88	23.87	25.70	0
		25	0	22.99	22.94	22.83	24.70	0-1
		25	12	23.00	22.85	22.81	24.70	0-1
		25	25	22.83	22.95	22.90	24.70	0-1
		50	0	22.98	22.85	22.94	24.70	0-1
	16-QAM	1	0	22.84	22.84	22.81	24.70	0-1
		1	25	22.98	23.00	22.85	24.70	0-1
		1	49	22.95	22.99	23.00	24.70	0-1
		25	0	21.95	21.96	21.99	23.70	0-2
		25	12	21.91	21.93	21.93	23.70	0-2
		25	25	21.90	21.88	21.92	23.70	0-2
		50	0	21.99	21.92	21.87	23.70	0-2
	64-QAM	1	0	21.88	21.97	21.87	23.70	0-2
		1	25	21.90	21.84	21.86	23.70	0-2
		1	49	21.81	21.93	21.98	23.70	0-2
		25	0	20.91	20.87	20.84	22.70	0-3
		25	12	20.91	20.82	20.81	22.70	0-3
		25	25	20.84	20.82	20.95	22.70	0-3
		50	0	20.88	20.82	20.89	22.70	0-3
Frequency (MHz)				1712.5	1732.5	1752.5	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
Channel				19975	20175	20375		
5	QPSK	1	0	23.87	23.83	23.81	25.70	0
		1	12	23.91	23.90	23.94	25.70	0
		1	24	23.90	23.99	23.86	25.70	0
		12	0	22.84	22.84	22.95	24.70	0-1
		12	6	22.82	22.92	22.91	24.70	0-1
		12	13	22.90	22.86	22.90	24.70	0-1
		25	0	22.83	22.82	22.86	24.70	0-1
	16-QAM	1	0	23.00	22.96	22.98	24.70	0-1
		1	12	22.86	22.86	22.91	24.70	0-1
		1	24	22.96	22.96	22.96	24.70	0-1
		12	0	21.84	21.94	21.97	23.70	0-2
		12	6	21.85	21.93	21.92	23.70	0-2
		12	13	21.92	21.87	21.99	23.70	0-2
		25	0	21.95	21.85	21.90	23.70	0-2
	64-QAM	1	0	21.84	21.98	21.84	23.70	0-2
		1	12	21.86	21.93	21.85	23.70	0-2
		1	24	21.88	21.89	21.82	23.70	0-2
		12	0	21.00	20.95	20.89	22.70	0-3
		12	6	21.00	20.87	20.91	22.70	0-3
		12	13	20.88	20.83	20.86	22.70	0-3
		25	0	20.81	20.84	20.97	22.70	0-3

LTE Band 4								
BW(Mhz)	Modulation	RB Size	RB Offset	Conducted power (dBm)			Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
Frequency (MHz)				1711.5	1732.5	1753.5		
Channel				19965	20175	20385		
3	QPSK	1	0	23.82	23.97	24.00	25.70	0
		1	7	23.92	23.82	23.86	25.70	0
		1	14	23.86	23.95	23.96	25.70	0
		8	0	22.97	22.87	22.85	24.70	0-1
		8	4	22.94	22.94	22.99	24.70	0-1
		8	7	22.86	22.81	22.90	24.70	0-1
		15	0	22.91	22.87	23.00	24.70	0-1
	16-QAM	1	0	22.85	22.87	22.92	24.70	0-1
		1	7	22.84	22.81	23.00	24.70	0-1
		1	14	22.81	22.86	22.84	24.70	0-1
		8	0	21.89	21.90	21.88	23.70	0-2
		8	4	21.81	21.83	21.85	23.70	0-2
		8	7	21.91	22.00	21.83	23.70	0-2
		15	0	21.90	21.94	21.96	23.70	0-2
	64-QAM	1	0	21.87	21.83	21.94	23.70	0-2
		1	7	21.93	21.86	21.94	23.70	0-2
		1	14	21.97	22.00	21.83	23.70	0-2
		8	0	20.85	20.82	20.84	22.70	0-3
		8	4	20.87	20.81	20.85	22.70	0-3
		8	7	20.89	20.83	20.88	22.70	0-3
		15	0	20.89	20.99	20.90	22.70	0-3
Frequency (MHz)				1710.7	1732.5	1754.3	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
Channel				19957	20175	20393		
1.4	QPSK	1	0	23.95	23.95	23.89	25.70	0
		1	2	23.96	23.84	23.89	25.70	0
		1	5	23.89	23.98	23.92	25.70	0
		3	0	23.90	23.83	23.92	25.70	0
		3	2	23.82	23.82	23.82	25.70	0
		3	3	23.92	23.94	23.93	25.70	0
		6	0	22.98	22.97	22.81	24.70	0-1
	16-QAM	1	0	22.83	22.89	22.93	24.70	0-1
		1	2	22.88	22.83	22.91	24.70	0-1
		1	5	22.91	23.00	22.83	24.70	0-1
		3	0	22.89	22.99	22.98	24.70	0-1
		3	2	22.99	22.88	22.96	24.70	0-1
		3	3	22.99	22.90	22.91	24.70	0-1
		6	0	21.88	21.92	21.99	23.70	0-2
	64-QAM	1	0	21.91	21.88	21.85	23.70	0-2
		1	2	21.93	21.89	21.81	23.70	0-2
		1	5	21.96	21.86	21.87	23.70	0-2
		3	0	21.85	21.97	21.95	23.70	0-2
		3	2	21.89	21.87	21.88	23.70	0-2
		3	3	21.96	21.96	21.98	23.70	0-2
		6	0	20.81	20.85	20.91	22.70	0-3

LTE Band 5								
BW(Mhz)	Modulation	RB Size	RB Offset	Conducted power (dBm)			Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
Frequency (MHz)				829	836.5	844		
Channel				20450	20525	20600		
10	QPSK	1	0	23.64	23.66	23.67	25.20	0
		1	25	23.58	23.59	23.62	25.20	0
		1	49	23.65	23.61	23.63	25.20	0
		25	0	22.34	22.31	22.32	24.20	0-1
		25	12	22.40	22.47	22.33	24.20	0-1
		25	25	22.50	22.45	22.49	24.20	0-1
		50	0	22.33	22.41	22.36	24.20	0-1
	16-QAM	1	0	22.36	22.32	22.44	24.20	0-1
		1	25	22.40	22.47	22.34	24.20	0-1
		1	49	22.44	22.42	22.32	24.20	0-1
		25	0	21.43	21.30	21.35	23.20	0-2
		25	12	21.48	21.46	21.44	23.20	0-2
		25	25	21.34	21.46	21.32	23.20	0-2
		50	0	21.31	21.33	21.38	23.20	0-2
	64-QAM	1	0	21.43	21.34	21.36	23.20	0-2
		1	25	21.42	21.46	21.35	23.20	0-2
		1	49	21.44	21.47	21.44	23.20	0-2
		25	0	20.49	20.48	20.38	22.20	0-3
		25	12	20.47	20.38	20.49	22.20	0-3
		25	25	20.31	20.31	20.39	22.20	0-3
		50	0	20.42	20.34	20.34	22.20	0-3
Frequency (MHz)				826.5	836.5	846.5	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
Channel				20425	20525	20625		
5	QPSK	1	0	23.40	23.45	23.33	25.20	0
		1	12	23.41	23.42	23.33	25.20	0
		1	24	23.42	23.44	23.38	25.20	0
		12	0	22.34	22.44	22.32	24.20	0-1
		12	6	22.31	22.45	22.38	24.20	0-1
		12	13	22.36	22.41	22.41	24.20	0-1
		25	0	22.50	22.37	22.41	24.20	0-1
	16-QAM	1	0	22.36	22.42	22.38	24.20	0-1
		1	12	22.48	22.48	22.36	24.20	0-1
		1	24	22.42	22.41	22.36	24.20	0-1
		12	0	21.35	21.32	21.35	23.20	0-2
		12	6	21.36	21.45	21.50	23.20	0-2
		12	13	21.39	21.33	21.48	23.20	0-2
		25	0	21.50	21.37	21.36	23.20	0-2
	64-QAM	1	0	21.31	21.31	21.45	23.20	0-2
		1	12	21.47	21.46	21.39	23.20	0-2
		1	24	21.47	21.32	21.34	23.20	0-2
		12	0	20.44	20.43	20.32	22.20	0-3
		12	6	20.47	20.43	20.46	22.20	0-3
		12	13	20.39	20.41	20.50	22.20	0-3
		25	0	20.35	20.50	20.38	22.20	0-3

LTE Band 5								
BW(Mhz)	Modulation	RB Size	RB Offset	Conducted power (dBm)			Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
Frequency (MHz)				825.5	836.5	847.5		
Channel				20415	20525	20635		
3	QPSK	1	0	23.40	23.49	23.47	25.20	0
		1	7	23.32	23.50	23.31	25.20	0
		1	14	23.33	23.44	23.49	25.20	0
		8	0	22.36	22.34	22.35	24.20	0-1
		8	4	22.36	22.48	22.47	24.20	0-1
		8	7	22.45	22.38	22.44	24.20	0-1
		15	0	22.42	22.38	22.50	24.20	0-1
	16-QAM	1	0	22.35	22.35	22.46	24.20	0-1
		1	7	22.40	22.46	22.50	24.20	0-1
		1	14	22.35	22.42	22.47	24.20	0-1
		8	0	21.37	21.50	21.39	23.20	0-2
		8	4	21.46	21.39	21.50	23.20	0-2
		8	7	21.41	21.38	21.33	23.20	0-2
		15	0	21.39	21.48	21.33	23.20	0-2
	64-QAM	1	0	21.33	21.44	21.33	23.20	0-2
		1	7	21.37	21.32	21.49	23.20	0-2
		1	14	21.36	21.47	21.31	23.20	0-2
		8	0	20.38	20.47	20.34	22.20	0-3
		8	4	20.31	20.50	20.34	22.20	0-3
		8	7	20.37	20.34	20.43	22.20	0-3
		15	0	20.43	20.49	20.34	22.20	0-3
Frequency (MHz)				1710.7	1732.5	1754.3	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
Channel				19957	20175	20393		
1.4	QPSK	1	0	23.38	23.35	23.41	25.20	0
		1	2	23.37	23.38	23.49	25.20	0
		1	5	23.49	23.49	23.41	25.20	0
		3	0	23.46	23.46	23.31	25.20	0
		3	2	23.49	23.46	23.36	25.20	0
		3	3	23.45	23.37	23.44	25.20	0
		6	0	22.49	22.34	22.32	24.20	0-1
	16-QAM	1	0	22.45	22.38	22.38	24.20	0-1
		1	2	22.36	22.39	22.44	24.20	0-1
		1	5	22.33	22.34	22.48	24.20	0-1
		3	0	22.47	22.43	22.43	24.20	0-1
		3	2	22.45	22.32	22.42	24.20	0-1
		3	3	22.41	22.44	22.45	24.20	0-1
		6	0	21.42	21.36	21.34	23.20	0-2
	64-QAM	1	0	21.36	21.39	21.45	23.20	0-2
		1	2	21.35	21.47	21.42	23.20	0-2
		1	5	21.42	21.39	21.32	23.20	0-2
		3	0	21.41	21.33	21.41	23.20	0-2
		3	2	21.50	21.50	21.49	23.20	0-2
		3	3	21.48	21.42	21.31	23.20	0-2
		6	0	20.40	20.38	20.47	22.20	0-3

LTE Band 7								
BW(Mhz)	Modulation	RB Size	RB Offset	Conducted power (dBm)			Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
Frequency (MHz)				2510	2535	2560		
Channel				20850	21100	21350		
20	QPSK	1	0	23.34	23.36	23.32	25.20	0
		1	50	23.53	23.63	23.56	25.20	0
		1	99	23.41	23.42	23.46	25.20	0
		50	0	22.93	22.86	22.81	24.20	0-1
		50	25	22.85	22.93	22.97	24.20	0-1
		50	50	22.87	22.95	22.91	24.20	0-1
		100	0	22.89	22.94	22.83	24.20	0-1
	16-QAM	1	0	22.86	22.93	22.95	24.20	0-1
		1	50	22.81	22.99	22.85	24.20	0-1
		1	99	22.94	22.89	22.91	24.20	0-1
		50	0	21.88	21.97	21.84	23.20	0-2
		50	25	21.86	21.90	21.92	23.20	0-2
		50	50	21.85	21.96	21.94	23.20	0-2
		100	0	21.83	21.91	21.87	23.20	0-2
	64-QAM	1	0	21.84	21.95	21.86	23.20	0-2
		1	50	21.88	21.92	21.99	23.20	0-2
		1	99	22.00	21.87	21.94	23.20	0-2
		50	0	20.92	20.83	20.90	22.20	0-3
		50	25	20.91	20.82	20.93	22.20	0-3
		50	50	20.81	20.85	20.89	22.20	0-3
		100	0	20.93	20.84	20.79	22.20	0-3
Frequency (MHz)				2507.5	2535	2562.5	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
Channel				20825	21100	21375		
15	QPSK	1	0	23.28	23.36	23.37	25.20	0
		1	36	23.25	23.24	23.29	25.20	0
		1	74	23.22	23.29	23.39	25.20	0
		36	0	22.87	22.95	22.97	24.20	0-1
		36	18	22.90	22.99	22.91	24.20	0-1
		36	37	22.89	22.86	22.86	24.20	0-1
		75	0	22.98	22.89	22.90	24.20	0-1
	16-QAM	1	0	23.00	22.93	22.91	24.20	0-1
		1	36	22.95	22.94	22.83	24.20	0-1
		1	74	22.87	22.96	22.90	24.20	0-1
		36	0	21.96	21.95	21.88	23.20	0-2
		36	18	21.95	21.84	21.94	23.20	0-2
		36	37	22.00	21.82	21.95	23.20	0-2
		75	0	21.84	21.86	21.83	23.20	0-2
	64-QAM	1	0	22.00	21.82	21.88	23.20	0-2
		1	36	21.96	21.87	21.91	23.20	0-2
		1	74	21.95	21.99	21.93	23.20	0-2
		36	0	20.86	20.97	20.92	22.20	0-3
		36	18	20.86	20.98	20.93	22.20	0-3
		36	37	20.81	20.93	20.85	22.20	0-3
		75	0	20.85	20.95	20.91	22.20	0-3

LTE Band 7								
BW(Mhz)	Modulation	RB Size	RB Offset	Conducted power (dBm)			Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
Frequency (MHz)				2505	2535	2565		
Channel				20800	21100	21400		
10	QPSK	1	0	23.37	23.22	23.36	25.20	0
		1	25	23.38	23.29	23.34	25.20	0
		1	49	23.30	23.20	23.39	25.20	0
		25	0	22.82	22.90	22.84	24.20	0-1
		25	12	22.91	22.84	22.87	24.20	0-1
		25	25	22.81	22.99	22.98	24.20	0-1
		50	0	22.91	22.87	22.97	24.20	0-1
	16-QAM	1	0	22.94	22.95	22.97	24.20	0-1
		1	25	22.84	22.81	22.96	24.20	0-1
		1	49	22.93	22.97	22.99	24.20	0-1
		25	0	21.95	21.82	21.90	23.20	0-2
		25	12	21.94	21.83	21.97	23.20	0-2
		25	25	21.93	21.88	21.92	23.20	0-2
		50	0	21.85	21.82	21.88	23.20	0-2
	64-QAM	1	0	21.99	21.98	21.84	23.20	0-2
		1	25	21.87	21.85	21.90	23.20	0-2
		1	49	21.85	21.85	21.91	23.20	0-2
		25	0	20.83	20.86	20.85	22.20	0-3
		25	12	20.93	20.87	21.00	22.20	0-3
		25	25	20.87	20.95	20.90	22.20	0-3
		50	0	20.89	20.93	20.91	22.20	0-3
Frequency (MHz)				2502.5	2535	2567.5	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
Channel				20775	21100	21425		
5	QPSK	1	0	23.20	23.33	23.28	25.20	0
		1	12	23.29	23.34	23.25	25.20	0
		1	24	23.34	23.38	23.30	25.20	0
		12	0	22.84	22.88	23.00	24.20	0-1
		12	6	22.92	22.94	22.99	24.20	0-1
		12	13	22.92	22.85	22.85	24.20	0-1
		25	0	22.92	22.95	22.83	24.20	0-1
	16-QAM	1	0	22.84	22.98	22.99	24.20	0-1
		1	12	22.88	22.83	22.83	24.20	0-1
		1	24	22.98	22.98	22.91	24.20	0-1
		12	0	22.00	21.91	21.97	23.20	0-2
		12	6	21.85	21.90	21.89	23.20	0-2
		12	13	21.89	21.84	21.81	23.20	0-2
		25	0	21.85	21.88	21.85	23.20	0-2
	64-QAM	1	0	21.97	21.95	21.92	23.20	0-2
		1	12	21.96	21.98	21.83	23.20	0-2
		1	24	21.89	21.90	21.84	23.20	0-2
		12	0	20.83	20.84	20.87	22.20	0-3
		12	6	20.81	20.85	20.91	22.20	0-3
		12	13	20.91	20.91	20.84	22.20	0-3
		25	0	20.82	20.97	20.88	22.20	0-3

LTE Band 12								
BW(Mhz)	Modulation	RB Size	RB Offset	Conducted power (dBm)			Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
Frequency (MHz)				704	707.5	711		
Channel				23060	23095	23130		
10	QPSK	1	0	23.55	23.50	23.49	25.20	0
		1	25	23.65	23.69	23.48	25.20	0
		1	49	23.74	23.51	23.68	25.20	0
		25	0	23.20	23.11	23.17	24.20	0-1
		25	12	23.18	23.14	23.01	24.20	0-1
		25	25	23.15	23.19	23.08	24.20	0-1
		50	0	23.13	23.18	23.10	24.20	0-1
	16-QAM	1	0	23.15	23.11	23.07	24.20	0-1
		1	25	23.10	23.04	23.15	24.20	0-1
		1	49	23.08	23.16	23.09	24.20	0-1
		25	0	22.02	22.05	22.04	23.20	0-2
		25	12	22.13	22.16	22.01	23.20	0-2
		25	25	22.17	22.09	22.20	23.20	0-2
		50	0	22.06	22.01	22.02	23.20	0-2
	64-QAM	1	0	22.10	22.05	22.03	23.20	0-2
		1	25	22.16	22.11	22.04	23.20	0-2
		1	49	22.01	22.13	22.15	23.20	0-2
		25	0	21.14	21.15	21.10	22.20	0-3
		25	12	21.01	21.02	21.03	22.20	0-3
		25	25	21.04	21.09	21.13	22.20	0-3
		50	0	21.14	21.04	21.18	22.20	0-3
Frequency (MHz)				701.5	707.5	713.5	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
Channel				23035	23095	23155		
5	QPSK	1	0	23.21	23.35	23.20	25.20	0
		1	12	23.36	23.23	23.29	25.20	0
		1	24	23.20	23.40	23.24	25.20	0
		12	0	23.22	23.05	23.20	24.20	0-1
		12	6	23.11	23.07	23.04	24.20	0-1
		12	13	23.09	23.19	23.02	24.20	0-1
		25	0	23.12	23.02	23.19	24.20	0-1
	16-QAM	1	0	23.19	23.05	23.11	24.20	0-1
		1	12	23.10	23.07	23.15	24.20	0-1
		1	24	23.11	23.06	23.10	24.20	0-1
		12	0	22.01	22.15	22.05	23.20	0-2
		12	6	22.14	22.14	22.14	23.20	0-2
		12	13	22.18	22.03	22.08	23.20	0-2
		25	0	22.02	22.19	22.13	23.20	0-2
	64-QAM	1	0	22.07	22.07	22.14	23.20	0-2
		1	12	22.06	22.07	22.05	23.20	0-2
		1	24	22.15	22.13	22.01	23.20	0-2
		12	0	21.02	21.17	21.11	22.20	0-3
		12	6	21.09	21.16	21.17	22.20	0-3
		12	13	21.11	21.13	21.09	22.20	0-3
		25	0	21.13	21.17	21.14	22.20	0-3

LTE Band 12								
BW(Mhz)	Modulation	RB Size	RB Offset	Conducted power (dBm)			Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
Frequency (MHz)				700.5	707.5	714.5		
Channel				23025	23095	23165		
3	QPSK	1	0	23.39	23.33	23.31	25.20	0
		1	7	23.37	23.21	23.37	25.20	0
		1	14	23.39	23.23	23.38	25.20	0
		8	0	23.08	23.14	23.13	24.20	0-1
		8	4	23.02	23.09	23.02	24.20	0-1
		8	7	23.17	23.14	23.03	24.20	0-1
		15	0	23.10	23.05	23.11	24.20	0-1
	16-QAM	1	0	23.19	23.10	23.19	24.20	0-1
		1	7	23.12	23.06	23.07	24.20	0-1
		1	14	23.10	23.14	23.11	24.20	0-1
		8	0	22.14	22.18	22.16	23.20	0-2
		8	4	22.16	22.15	22.13	23.20	0-2
		8	7	22.08	22.04	22.07	23.20	0-2
		15	0	22.09	22.01	22.11	23.20	0-2
	64-QAM	1	0	22.18	22.05	22.01	23.20	0-2
		1	7	22.15	22.03	22.17	23.20	0-2
		1	14	22.17	22.08	22.17	23.20	0-2
		8	0	21.08	21.13	21.09	22.20	0-3
		8	4	21.02	21.17	21.07	22.20	0-3
		8	7	21.12	21.12	21.10	22.20	0-3
		15	0	21.10	21.05	21.02	22.20	0-3
Frequency (MHz)				699.7	707.5	715.3	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
Channel				23017	23095	23173		
1.4	QPSK	1	0	23.39	23.21	23.40	25.20	0
		1	2	23.37	23.35	23.32	25.20	0
		1	5	23.26	23.25	23.23	25.20	0
		3	0	24.17	24.16	24.02	25.20	0
		3	2	24.19	24.07	24.07	25.20	0
		3	3	24.14	24.19	24.10	25.20	0
		6	0	23.09	23.01	23.14	24.20	0-1
	16-QAM	1	0	23.18	23.12	23.18	24.20	0-1
		1	2	23.08	23.04	23.04	24.20	0-1
		1	5	23.11	23.18	23.17	24.20	0-1
		3	0	23.09	23.11	23.02	24.20	0-1
		3	2	23.11	23.08	23.13	24.20	0-1
		3	3	23.02	23.19	23.14	24.20	0-1
		6	0	22.08	22.02	22.05	23.20	0-2
	64-QAM	1	0	22.14	22.11	22.10	23.20	0-2
		1	2	22.20	22.15	22.19	23.20	0-2
		1	5	22.16	22.13	22.01	23.20	0-2
		3	0	22.13	22.02	22.09	23.20	0-2
		3	2	22.09	22.09	22.06	23.20	0-2
		3	3	22.15	22.07	22.09	23.20	0-2
		6	0	21.04	21.12	21.07	22.20	0-3

LTE Band 13								
BW(Mhz)	Modulation	RB Size	RB Offset	Conducted power (dBm)			Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
Frequency (MHz)				782	782	782		
Channel				23230	23230	23230		
10	QPSK	1	0	23.82			25.20	0
		1	25	23.99			25.20	0
		1	49	23.85			25.20	0
		25	0	22.60			24.20	0-1
		25	12	22.52			24.20	0-1
		25	25	22.70			24.20	0-1
		50	0	22.66			24.20	0-1
	16-QAM	1	0	22.67			24.20	0-1
		1	25	22.61			24.20	0-1
		1	49	22.70			24.20	0-1
		25	0	21.67			23.20	0-2
		25	12	21.55			23.20	0-2
		25	25	21.64			23.20	0-2
		50	0	21.69			23.20	0-2
	64-QAM	1	0	21.59			23.20	0-2
		1	25	21.53			23.20	0-2
		1	49	21.60			23.20	0-2
		25	0	20.69			22.20	0-3
		25	12	20.55			22.20	0-3
		25	25	20.54			22.20	0-3
		50	0	20.64			22.20	0-3
Frequency (MHz)				779.5	782	784.5	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
Channel				23205	23230	23255		
5	QPSK	1	0	23.88	23.69	23.85	25.20	0
		1	12	23.70	23.70	23.74	25.20	0
		1	24	23.87	23.57	23.80	25.20	0
		12	0	22.85	22.55	22.80	24.20	0-1
		12	6	22.84	22.51	22.78	24.20	0-1
		12	13	22.69	22.64	22.88	24.20	0-1
		25	0	22.78	22.66	22.83	24.20	0-1
	16-QAM	1	0	22.80	22.70	22.88	24.20	0-1
		1	12	22.81	22.66	22.70	24.20	0-1
		1	24	22.83	22.56	22.79	24.20	0-1
		12	0	21.73	21.66	21.81	23.20	0-2
		12	6	21.83	21.67	21.78	23.20	0-2
		12	13	21.73	21.55	21.78	23.20	0-2
		25	0	21.84	21.69	21.74	23.20	0-2
	64-QAM	1	0	21.74	21.66	21.76	23.20	0-2
		1	12	21.69	21.65	21.79	23.20	0-2
		1	24	21.83	21.65	21.81	23.20	0-2
		12	0	20.81	20.59	20.78	22.20	0-3
		12	6	20.72	20.54	20.81	22.20	0-3
		12	13	20.81	20.70	20.72	22.20	0-3
		25	0	20.70	20.55	20.81	22.20	0-3

LTE Band 14								
BW(Mhz)	Modulation	RB Size	RB Offset	Conducted power (dBm)			Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
Frequency (MHz)				793	793	793		
Channel				23330	23330	23330		
10	QPSK	1	0	23.92			25.20	0
		1	25	23.77			25.20	0
		1	49	23.76			25.20	0
		25	0	22.67			24.20	0-1
		25	12	22.62			24.20	0-1
		25	25	22.53			24.20	0-1
		50	0	22.70			24.20	0-1
	16-QAM	1	0	22.58			24.20	0-1
		1	25	22.63			24.20	0-1
		1	49	22.62			24.20	0-1
		25	0	21.68			23.20	0-2
		25	12	21.60			23.20	0-2
		25	25	21.69			23.20	0-2
		50	0	21.52			23.20	0-2
	64-QAM	1	0	21.51			23.20	0-2
		1	25	21.59			23.20	0-2
		1	49	21.63			23.20	0-2
		25	0	20.66			22.20	0-3
		25	12	20.57			22.20	0-3
		25	25	20.58			22.20	0-3
		50	0	20.63			22.20	0-3
Frequency (MHz)				790.5	793	795.5	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
Channel				23305	23330	23355		
5	QPSK	1	0	23.89	23.59	23.85	25.20	0
		1	12	23.76	23.66	23.87	25.20	0
		1	24	23.72	23.63	23.86	25.20	0
		12	0	22.86	22.60	22.71	24.20	0-1
		12	6	22.74	22.53	22.72	24.20	0-1
		12	13	22.89	22.65	22.74	24.20	0-1
		25	0	22.77	22.67	22.70	24.20	0-1
	16-QAM	1	0	22.78	22.51	22.82	24.20	0-1
		1	12	22.77	22.68	22.81	24.20	0-1
		1	24	22.82	22.55	22.76	24.20	0-1
		12	0	21.89	21.53	21.78	23.20	0-2
		12	6	21.87	21.54	21.87	23.20	0-2
		12	13	21.82	21.62	21.88	23.20	0-2
		25	0	21.83	21.62	21.73	23.20	0-2
	64-QAM	1	0	21.72	21.67	21.85	23.20	0-2
		1	12	21.89	21.58	21.80	23.20	0-2
		1	24	21.76	21.64	21.79	23.20	0-2
		12	0	20.81	20.53	20.77	22.20	0-3
		12	6	20.84	20.60	20.83	22.20	0-3
		12	13	20.73	20.52	20.89	22.20	0-3
		25	0	20.72	20.53	20.76	22.20	0-3

LTE Band 17								
BW(Mhz)	Modulation	RB Size	RB Offset	Conducted power (dBm)			Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
Frequency (MHz)				709	710	711		
Channel				23780	23790	23800		
10	QPSK	1	0	23.61	23.65	23.68	25.20	0
		1	25	23.77	23.75	23.70	25.20	0
		1	49	23.88	23.89	23.76	25.20	0
		25	0	22.43	22.49	22.46	24.20	0-1
		25	12	22.57	22.55	22.60	24.20	0-1
		25	25	22.45	22.53	22.48	24.20	0-1
		50	0	22.52	22.51	22.49	24.20	0-1
	16-QAM	1	0	22.59	22.51	22.43	24.20	0-1
		1	25	22.50	22.44	22.41	24.20	0-1
		1	49	22.58	22.57	22.51	24.20	0-1
		25	0	21.43	21.57	21.46	23.20	0-2
		25	12	21.42	21.41	21.58	23.20	0-2
		25	25	21.54	21.45	21.50	23.20	0-2
		50	0	21.54	21.44	21.41	23.20	0-2
	64-QAM	1	0	21.56	21.51	21.56	23.20	0-2
		1	25	21.50	21.47	21.43	23.20	0-2
		1	49	21.51	21.55	21.47	23.20	0-2
		25	0	20.55	20.42	20.54	22.20	0-3
		25	12	20.51	20.46	20.44	22.20	0-3
		25	25	20.47	20.56	20.60	22.20	0-3
		50	0	20.58	20.41	20.43	22.20	0-3
Frequency (MHz)				706.5	710	713.5	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
Channel				23755	23790	23825		
5	QPSK	1	0	23.52	23.51	23.55	25.20	0
		1	12	23.60	23.50	23.42	25.20	0
		1	24	23.50	23.58	23.44	25.20	0
		12	0	22.58	22.53	22.41	24.20	0-1
		12	6	22.59	22.53	22.50	24.20	0-1
		12	13	22.44	22.48	22.42	24.20	0-1
		25	0	22.43	22.56	22.40	24.20	0-1
	16-QAM	1	0	22.45	22.49	22.43	24.20	0-1
		1	12	22.57	22.57	22.57	24.20	0-1
		1	24	22.46	22.42	22.41	24.20	0-1
		12	0	21.58	21.58	21.41	23.20	0-2
		12	6	21.46	21.48	21.53	23.20	0-2
		12	13	21.56	21.47	21.58	23.20	0-2
		25	0	21.55	21.58	21.43	23.20	0-2
	64-QAM	1	0	21.58	21.47	21.56	23.20	0-2
		1	12	21.56	21.47	21.51	23.20	0-2
		1	24	21.49	21.50	21.47	23.20	0-2
		12	0	20.53	20.55	20.51	22.20	0-3
		12	6	20.53	20.46	20.52	22.20	0-3
		12	13	20.48	20.45	20.56	22.20	0-3
		25	0	20.43	20.54	20.51	22.20	0-3

LTE Band 25								
BW(Mhz)	Modulation	RB Size	RB Offset	Conducted power (dBm)			Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
Frequency (MHz)				1860	1882.5	1905		
Channel				26140	26365	26590		
20	QPSK	1	0	24.06	24.12	24.02	25.70	0
		1	50	24.08	24.00	24.03	25.70	0
		1	99	24.01	24.04	24.05	25.70	0
		50	0	22.83	22.80	22.87	24.70	0-1
		50	25	22.82	22.96	22.84	24.70	0-1
		50	50	22.88	22.81	22.85	24.70	0-1
		100	0	22.89	22.92	22.87	24.70	0-1
	16-QAM	1	0	22.95	22.90	22.82	24.70	0-1
		1	50	23.00	22.91	22.86	24.70	0-1
		1	99	22.92	22.87	22.93	24.70	0-1
		50	0	21.99	21.83	21.90	23.70	0-2
		50	25	21.86	21.85	21.91	23.70	0-2
		50	50	21.84	21.95	21.95	23.70	0-2
		100	0	21.87	21.87	21.94	23.70	0-2
	64-QAM	1	0	21.93	21.99	21.95	23.70	0-2
		1	50	21.99	21.94	21.88	23.70	0-2
		1	99	21.98	21.84	21.98	23.70	0-2
		50	0	20.93	20.96	21.00	22.70	0-3
		50	25	20.89	20.87	20.84	22.70	0-3
		50	50	20.95	20.98	20.92	22.70	0-3
		100	0	20.93	20.90	20.94	22.70	0-3
BW(Mhz)	Modulation	RB Size	RB Offset	Conducted power (dBm)			Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
Frequency (MHz)				1857.5	1882.5	1907.5		
Channel				26115	26365	26615		
15	QPSK	1	0	23.94	23.87	23.90	25.70	0
		1	36	23.91	23.81	23.82	25.70	0
		1	74	23.92	23.95	23.85	25.70	0
		36	0	23.00	22.89	22.94	24.70	0-1
		36	18	22.92	22.99	22.96	24.70	0-1
		36	37	22.92	22.95	22.81	24.70	0-1
		75	0	22.94	22.93	22.94	24.70	0-1
	16-QAM	1	0	22.96	22.98	22.91	24.70	0-1
		1	36	22.81	22.94	22.82	24.70	0-1
		1	74	22.82	22.87	22.95	24.70	0-1
		36	0	21.90	21.86	22.00	23.70	0-2
		36	18	21.89	21.88	21.96	23.70	0-2
		36	37	21.92	21.95	21.87	23.70	0-2
		75	0	21.86	21.82	21.85	23.70	0-2
	64-QAM	1	0	21.93	21.94	21.96	23.70	0-2
		1	36	21.85	21.97	22.00	23.70	0-2
		1	74	21.82	21.91	21.98	23.70	0-2
		36	0	20.88	20.88	20.97	22.70	0-3
		36	18	20.81	20.86	20.95	22.70	0-3
		36	37	20.95	20.90	21.00	22.70	0-3
		75	0	20.85	20.92	20.91	22.70	0-3

LTE Band 25								
BW(Mhz)	Modulation	RB Size	RB Offset	Conducted power (dBm)			Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
Frequency (MHz)				1855	1882.5	1910		
Channel				26090	26365	26640		
10	QPSK	1	0	23.91	23.88	23.83	25.70	0
		1	25	23.81	24.00	23.89	25.70	0
		1	49	23.92	23.82	23.87	25.70	0
		25	0	22.94	22.84	22.89	24.70	0-1
		25	12	22.97	22.88	22.94	24.70	0-1
		25	25	22.88	22.99	22.82	24.70	0-1
		50	0	22.91	22.86	22.95	24.70	0-1
	16-QAM	1	0	22.91	22.86	22.95	24.70	0-1
		1	25	22.81	22.90	22.94	24.70	0-1
		1	49	22.97	22.89	22.83	24.70	0-1
		25	0	21.98	21.90	21.91	23.70	0-2
		25	12	21.94	21.91	21.95	23.70	0-2
		25	25	21.86	21.97	21.85	23.70	0-2
		50	0	21.90	21.83	21.89	23.70	0-2
	64-QAM	1	0	21.95	21.88	21.89	23.70	0-2
		1	25	21.82	21.97	21.88	23.70	0-2
		1	49	21.88	21.81	22.00	23.70	0-2
		25	0	20.96	20.84	20.89	22.70	0-3
		25	12	20.85	20.95	20.96	22.70	0-3
		25	25	21.00	20.91	20.98	22.70	0-3
		50	0	20.95	20.93	20.94	22.70	0-3
Frequency (MHz)				1852.5	1882.5	1912.5	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
Channel				26065	26365	26665		
5	QPSK	1	0	23.96	23.90	23.95	25.70	0
		1	12	23.98	23.82	23.89	25.70	0
		1	24	23.96	23.89	23.98	25.70	0
		12	0	22.88	22.88	22.96	24.70	0-1
		12	6	22.81	22.99	22.92	24.70	0-1
		12	13	22.89	22.94	23.00	24.70	0-1
		25	0	22.95	22.89	23.00	24.70	0-1
	16-QAM	1	0	22.87	22.90	22.90	24.70	0-1
		1	12	22.89	22.99	22.92	24.70	0-1
		1	24	22.96	22.84	22.91	24.70	0-1
		12	0	21.89	21.95	21.84	23.70	0-2
		12	6	21.85	21.99	21.95	23.70	0-2
		12	13	21.90	21.88	22.00	23.70	0-2
		25	0	21.85	21.82	21.87	23.70	0-2
	64-QAM	1	0	22.00	21.83	21.88	23.70	0-2
		1	12	21.91	21.87	21.98	23.70	0-2
		1	24	21.81	21.88	21.93	23.70	0-2
		12	0	20.82	20.81	20.87	22.70	0-3
		12	6	20.86	20.84	20.84	22.70	0-3
		12	13	20.90	20.87	20.86	22.70	0-3
		25	0	20.86	20.87	20.83	22.70	0-3

LTE Band 25								
BW(Mhz)	Modulation	RB Size	RB Offset	Conducted power (dBm)			Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
Frequency (MHz)				1851.5	1882.5	1913.5		
Channel				26055	26365	26675		
3	QPSK	1	0	23.96	23.99	23.89	25.70	0
		1	7	23.97	23.88	23.94	25.70	0
		1	14	23.81	23.97	23.81	25.70	0
		8	0	22.83	22.83	22.85	24.70	0-1
		8	4	22.85	22.99	22.98	24.70	0-1
		8	7	22.81	22.94	22.85	24.70	0-1
		15	0	23.00	22.97	22.87	24.70	0-1
	16-QAM	1	0	22.82	23.00	22.90	24.70	0-1
		1	7	22.89	22.88	22.87	24.70	0-1
		1	14	22.92	22.82	22.84	24.70	0-1
		8	0	21.97	21.87	21.82	23.70	0-2
		8	4	21.94	21.99	21.91	23.70	0-2
		8	7	21.92	21.98	21.83	23.70	0-2
		15	0	21.86	22.00	21.96	23.70	0-2
	64-QAM	1	0	21.98	21.95	21.86	23.70	0-2
		1	7	21.83	21.89	21.90	23.70	0-2
		1	14	21.98	21.92	21.95	23.70	0-2
		8	0	20.93	20.86	20.93	22.70	0-3
		8	4	20.85	20.85	20.90	22.70	0-3
		8	7	20.96	20.95	20.97	22.70	0-3
		15	0	20.94	20.88	20.83	22.70	0-3
Frequency (MHz)				1850.7	1882.5	1914.3	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
Channel				26047	26365	26683		
1.4	QPSK	1	0	23.91	23.83	23.83	25.70	0
		1	2	23.84	23.86	23.82	25.70	0
		1	5	23.92	23.94	23.93	25.70	0
		3	0	23.83	23.91	23.99	25.70	0
		3	2	23.99	23.98	23.83	25.70	0
		3	3	23.92	23.92	24.00	25.70	0
		6	0	22.95	23.00	22.97	24.70	0-1
	16-QAM	1	0	22.85	22.84	22.92	24.70	0-1
		1	2	22.92	22.92	22.87	24.70	0-1
		1	5	22.82	22.94	22.97	24.70	0-1
		3	0	22.99	22.90	22.91	24.70	0-1
		3	2	22.95	22.98	22.81	24.70	0-1
		3	3	22.99	22.83	22.96	24.70	0-1
		6	0	21.81	21.88	21.83	23.70	0-2
	64-QAM	1	0	21.98	21.99	21.91	23.70	0-2
		1	2	21.98	21.89	21.92	23.70	0-2
		1	5	21.96	21.86	21.92	23.70	0-2
		3	0	21.84	21.95	21.99	23.70	0-2
		3	2	21.99	21.92	21.96	23.70	0-2
		3	3	21.98	21.86	21.83	23.70	0-2
		6	0	20.85	20.93	20.92	22.70	0-3

LTE Band 26								
BW(Mhz)	Modulation	RB Size	RB Offset	Conducted power (dBm)			Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
Frequency (MHz)				821.5	831.5	841.5		
Channel				26765	26865	26965		
15	QPSK	1	0	23.58	23.57	23.47	25.20	0
		1	36	23.53	23.52	23.48	25.20	0
		1	74	23.51	23.45	23.42	25.20	0
		36	0	22.37	22.35	22.29	24.20	0-1
		36	18	22.25	22.27	22.22	24.20	0-1
		36	37	22.30	22.34	22.28	24.20	0-1
		75	0	22.36	22.39	22.24	24.20	0-1
	16-QAM	1	0	22.38	22.37	22.36	24.20	0-1
		1	36	22.29	22.23	22.35	24.20	0-1
		1	74	22.36	22.33	22.21	24.20	0-1
		36	0	21.34	21.25	21.30	23.20	0-2
		36	18	21.37	21.40	21.28	23.20	0-2
		36	37	21.25	21.31	21.27	23.20	0-2
		75	0	21.22	21.22	21.24	23.20	0-2
	64-QAM	1	0	21.35	21.26	21.34	23.20	0-2
		1	36	21.26	21.30	21.24	23.20	0-2
		1	74	21.29	21.25	21.32	23.20	0-2
		36	0	20.35	20.29	20.38	22.20	0-3
		36	18	20.26	20.24	20.32	22.20	0-3
		36	37	20.28	20.35	20.24	22.20	0-3
		75	0	20.39	20.24	20.22	22.20	0-3
Frequency (MHz)				819	831.5	844	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
Channel				26740	26865	26990		
10	QPSK	1	0	23.22	23.33	23.26	25.20	0
		1	25	23.29	23.34	23.37	25.20	0
		1	49	23.24	23.39	23.30	25.20	0
		25	0	22.29	22.34	22.38	24.20	0-1
		25	12	22.37	22.21	22.22	24.20	0-1
		25	25	22.25	22.21	22.26	24.20	0-1
		50	0	22.34	22.37	22.40	24.20	0-1
	16-QAM	1	0	22.31	22.26	22.29	24.20	0-1
		1	25	22.33	22.24	22.38	24.20	0-1
		1	49	22.36	22.27	22.25	24.20	0-1
		25	0	21.30	21.30	21.36	23.20	0-2
		25	12	21.28	21.38	21.23	23.20	0-2
		25	25	21.21	21.35	21.36	23.20	0-2
		50	0	21.32	21.29	21.31	23.20	0-2
	64-QAM	1	0	21.22	21.35	21.23	23.20	0-2
		1	25	21.37	21.36	21.26	23.20	0-2
		1	49	21.25	21.37	21.37	23.20	0-2
		25	0	20.27	20.30	20.33	22.20	0-3
		25	12	20.21	20.34	20.29	22.20	0-3
		25	25	20.29	20.30	20.21	22.20	0-3
		50	0	20.24	20.26	20.35	22.20	0-3

LTE Band 26								
BW(Mhz)	Modulation	RB Size	RB Offset	Conducted power (dBm)			Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
Frequency (MHz)				816.5	831.5	846.5		
Channel				26715	26865	27015		
5	QPSK	1	0	23.30	23.33	23.37	25.20	0
		1	12	23.29	23.36	23.30	25.20	0
		1	24	23.22	23.39	23.22	25.20	0
		12	0	22.27	22.40	22.35	24.20	0-1
		12	6	22.21	22.27	22.30	24.20	0-1
		12	13	22.30	22.36	22.30	24.20	0-1
		25	0	22.29	22.39	22.35	24.20	0-1
	16-QAM	1	0	22.37	22.37	22.37	24.20	0-1
		1	12	22.39	22.39	22.26	24.20	0-1
		1	24	22.38	22.34	22.30	24.20	0-1
		12	0	21.26	21.26	21.26	23.20	0-2
		12	6	21.40	21.34	21.39	23.20	0-2
		12	13	21.38	21.32	21.24	23.20	0-2
		25	0	21.37	21.23	21.29	23.20	0-2
	64-QAM	1	0	21.31	21.40	21.28	23.20	0-2
		1	12	21.27	21.24	21.22	23.20	0-2
		1	24	21.33	21.38	21.26	23.20	0-2
		12	0	20.26	20.25	20.28	22.20	0-3
		12	6	20.30	20.37	20.33	22.20	0-3
		12	13	20.39	20.35	20.40	22.20	0-3
		25	0	20.35	20.24	20.33	22.20	0-3
Frequency (MHz)				815.5	831.5	847.5	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
Channel				26705	26865	27025		
3	QPSK	1	0	23.35	23.28	23.21	25.20	0
		1	7	23.24	23.30	23.40	25.20	0
		1	14	23.30	23.30	23.40	25.20	0
		8	0	22.36	22.35	22.22	24.20	0-1
		8	4	22.30	22.35	22.26	24.20	0-1
		8	7	22.24	22.23	22.38	24.20	0-1
		15	0	22.23	22.21	22.32	24.20	0-1
	16-QAM	1	0	22.37	22.33	22.27	24.20	0-1
		1	7	22.36	22.23	22.28	24.20	0-1
		1	14	22.32	22.28	22.36	24.20	0-1
		8	0	21.27	21.21	21.31	23.20	0-2
		8	4	21.25	21.34	21.28	23.20	0-2
		8	7	21.37	21.23	21.25	23.20	0-2
		15	0	21.36	21.22	21.28	23.20	0-2
	64-QAM	1	0	21.22	21.38	21.35	23.20	0-2
		1	7	21.21	21.24	21.28	23.20	0-2
		1	14	21.40	21.27	21.25	23.20	0-2
		8	0	20.23	20.28	20.31	22.20	0-3
		8	4	20.23	20.33	20.21	22.20	0-3
		8	7	20.39	20.23	20.30	22.20	0-3
		15	0	20.32	20.33	20.34	22.20	0-3

LTE Band 26								
BW(Mhz)	Modulation	RB Size	RB Offset	Conducted power (dBm)			Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
Frequency (MHz)				814.7	831.5	848.3		
Channel				26697	26865	27033		
1.4	QPSK	1	0	23.38	23.21	23.23	25.20	0
		1	2	23.28	23.35	23.35	25.20	0
		1	5	23.24	23.21	23.28	25.20	0
		3	0	23.38	23.39	23.28	25.20	0
		3	2	23.35	23.24	23.39	25.20	0
		3	3	23.26	23.30	23.35	25.20	0
		6	0	22.21	22.31	22.39	24.20	0-1
	16-QAM	1	0	22.27	22.36	22.30	24.20	0-1
		1	2	22.24	22.34	22.23	24.20	0-1
		1	5	22.28	22.28	22.38	24.20	0-1
		3	0	22.30	22.35	22.29	24.20	0-1
		3	2	22.38	22.31	22.39	24.20	0-1
		3	3	22.29	22.38	22.28	24.20	0-1
		6	0	21.38	21.22	21.28	23.20	0-2
	64-QAM	1	0	21.24	21.31	21.39	23.20	0-2
		1	2	21.40	21.36	21.26	23.20	0-2
		1	5	21.21	21.40	21.35	23.20	0-2
		3	0	21.40	21.39	21.37	23.20	0-2
		3	2	21.35	21.21	21.29	23.20	0-2
		3	3	21.24	21.27	21.22	23.20	0-2
		6	0	20.27	20.21	20.29	22.20	0-3

LTE Band 30								
BW(Mhz)	Modulation	RB Size	RB Offset	Conducted power (dBm)			Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
Frequency (MHz)				2310	2310	2310		
Channel				27710	27710	27710		
10	QPSK	1	0	22.81			24.00	0
		1	25	23.79			24.00	0
		1	49	22.76			24.00	0
		25	0	21.54			23.00	0-1
		25	12	21.61			23.00	0-1
		25	25	21.66			23.00	0-1
		50	0	21.56			23.00	0-1
	16-QAM	1	0	21.58			23.00	0-1
		1	25	21.69			23.00	0-1
		1	49	21.67			23.00	0-1
		25	0	20.57			22.00	0-2
		25	12	20.70			22.00	0-2
		25	25	20.64			22.00	0-2
		50	0	20.57			22.00	0-2
	64-QAM	1	0	20.55			22.00	0-2
		1	25	20.69			22.00	0-2
		1	49	20.63			22.00	0-2
		25	0	19.65			21.00	0-3
		25	12	19.56			21.00	0-3
		25	25	19.63			21.00	0-3
		50	0	19.54			21.00	0-3
Frequency (MHz)				2307.5	2310	2312.5	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
Channel				27685	27710	27735		
5	QPSK	1	0	22.71	22.60	22.62	24.00	0
		1	12	22.62	22.70	22.65	24.00	0
		1	24	22.73	22.53	22.70	24.00	0
		12	0	21.67	21.60	21.61	23.00	0-1
		12	6	21.59	21.55	21.61	23.00	0-1
		12	13	21.70	21.57	21.60	23.00	0-1
		25	0	21.67	21.58	21.73	23.00	0-1
	16-QAM	1	0	21.73	21.52	21.65	23.00	0-1
		1	12	21.65	21.56	21.63	23.00	0-1
		1	24	21.64	21.61	21.73	23.00	0-1
		12	0	20.66	20.57	20.62	22.00	0-2
		12	6	20.68	20.63	20.65	22.00	0-2
		12	13	20.71	20.69	20.78	22.00	0-2
		25	0	20.69	20.66	20.63	22.00	0-2
	64-QAM	1	0	20.66	20.67	20.73	22.00	0-2
		1	12	20.60	20.67	20.78	22.00	0-2
		1	24	20.66	20.60	20.71	22.00	0-2
		12	0	19.64	19.51	19.65	21.00	0-3
		12	6	19.74	19.62	19.67	21.00	0-3
		12	13	19.66	19.53	19.60	21.00	0-3
		25	0	19.66	19.54	19.75	21.00	0-3

LTE Band 66								
BW(Mhz)	Modulation	RB Size	RB Offset	Conducted power (dBm)			Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
Frequency (MHz)				1720	1745	1770		
Channel				132072	132322	132572		
20	QPSK	1	0	24.20	24.00	24.18	25.20	0
		1	50	24.02	23.92	24.01	25.20	0
		1	99	24.05	23.90	23.98	25.20	0
		50	0	22.79	22.83	22.82	24.20	0-1
		50	25	22.75	22.76	22.85	24.20	0-1
		50	50	22.86	22.73	22.87	24.20	0-1
		100	0	22.85	22.89	22.88	24.20	0-1
	16-QAM	1	0	22.83	22.82	22.76	24.20	0-1
		1	50	22.73	22.86	22.72	24.20	0-1
		1	99	22.80	22.74	22.70	24.20	0-1
		50	0	21.84	21.72	21.79	23.20	0-2
		50	25	21.89	21.78	21.82	23.20	0-2
		50	50	21.79	21.76	21.86	23.20	0-2
		100	0	21.86	21.73	21.70	23.20	0-2
	64-QAM	1	0	21.89	21.71	21.85	23.20	0-2
		1	50	21.87	21.75	21.78	23.20	0-2
		1	99	21.78	21.89	21.69	23.20	0-2
		50	0	20.87	20.84	20.89	22.20	0-3
		50	25	20.79	20.82	20.77	22.20	0-3
		50	50	20.87	20.89	20.76	22.20	0-3
		100	0	20.73	20.78	20.72	22.20	0-3
Frequency (MHz)				1717.5	1745	1772.5	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
Channel				132047	132322	132597		
15	QPSK	1	0	23.82	23.83	23.77	25.20	0
		1	36	23.75	23.80	23.81	25.20	0
		1	74	23.87	23.79	23.84	25.20	0
		36	0	22.82	22.86	22.72	24.20	0-1
		36	18	22.85	22.83	22.81	24.20	0-1
		36	37	22.76	22.88	22.89	24.20	0-1
		75	0	22.82	22.70	22.85	24.20	0-1
	16-QAM	1	0	22.84	22.73	22.75	24.20	0-1
		1	36	22.75	22.79	22.75	24.20	0-1
		1	74	22.77	22.74	22.79	24.20	0-1
		36	0	21.83	21.73	21.73	23.20	0-2
		36	18	21.70	21.79	21.73	23.20	0-2
		36	37	21.84	21.73	21.88	23.20	0-2
		75	0	21.89	21.75	21.79	23.20	0-2
	64-QAM	1	0	21.87	21.86	21.75	23.20	0-2
		1	36	21.85	21.76	21.77	23.20	0-2
		1	74	21.88	21.79	21.83	23.20	0-2
		36	0	20.73	20.82	20.75	22.20	0-3
		36	18	20.81	20.87	20.89	22.20	0-3
		36	37	20.81	20.72	20.70	22.20	0-3
		75	0	20.86	20.86	20.73	22.20	0-3

LTE Band 66								
BW(Mhz)	Modulation	RB Size	RB Offset	Conducted power (dBm)			Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
Frequency (MHz)				1715	1745	1775		
Channel				132022	132322	132622		
10	QPSK	1	0	23.70	23.89	23.82	25.20	0
		1	25	23.79	23.83	23.86	25.20	0
		1	49	23.82	23.80	23.84	25.20	0
		25	0	22.89	22.72	22.70	24.20	0-1
		25	12	22.77	22.76	22.86	24.20	0-1
		25	25	22.72	22.70	22.87	24.20	0-1
		50	0	22.81	22.79	22.86	24.20	0-1
	16-QAM	1	0	22.82	22.76	22.79	24.20	0-1
		1	25	22.73	22.83	22.80	24.20	0-1
		1	49	22.73	22.89	22.75	24.20	0-1
		25	0	21.72	21.75	21.88	23.20	0-2
		25	12	21.89	21.77	21.74	23.20	0-2
		25	25	21.71	21.86	21.82	23.20	0-2
		50	0	21.74	21.72	21.84	23.20	0-2
	64-QAM	1	0	21.88	21.89	21.78	23.20	0-2
		1	25	21.87	21.87	21.79	23.20	0-2
		1	49	21.87	21.75	21.82	23.20	0-2
		25	0	20.79	20.77	20.75	22.20	0-3
		25	12	20.77	20.79	20.71	22.20	0-3
		25	25	20.87	20.81	20.86	22.20	0-3
		50	0	20.82	20.82	20.78	22.20	0-3
Frequency (MHz)				1712.5	1745	1777.5	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
Channel				131997	132322	132647		
5	QPSK	1	0	23.84	23.70	23.74	25.20	0
		1	12	23.75	23.68	23.76	25.20	0
		1	24	23.78	23.59	23.73	25.20	0
		12	0	22.82	22.71	22.75	24.20	0-1
		12	6	22.72	22.75	22.70	24.20	0-1
		12	13	22.85	22.81	22.81	24.20	0-1
		25	0	22.89	22.76	22.80	24.20	0-1
	16-QAM	1	0	22.89	22.73	22.71	24.20	0-1
		1	12	22.88	22.74	22.80	24.20	0-1
		1	24	22.86	22.77	22.72	24.20	0-1
		12	0	21.78	21.87	21.70	23.20	0-2
		12	6	21.88	21.89	21.82	23.20	0-2
		12	13	21.79	21.78	21.78	23.20	0-2
		25	0	21.70	21.73	21.75	23.20	0-2
	64-QAM	1	0	21.70	21.84	21.89	23.20	0-2
		1	12	21.75	21.89	21.81	23.20	0-2
		1	24	21.78	21.85	21.83	23.20	0-2
		12	0	20.82	20.71	20.79	22.20	0-3
		12	6	20.77	20.89	20.84	22.20	0-3
		12	13	20.74	20.76	20.81	22.20	0-3
		25	0	20.70	20.73	20.77	22.20	0-3

LTE Band 66								
BW(Mhz)	Modulation	RB Size	RB Offset	Conducted power (dBm)			Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
Frequency (MHz)				1711.5	1745	1778.5		
Channel				131987	132322	132657		
3	QPSK	1	0	23.71	23.84	23.89	25.20	0
		1	7	23.80	23.75	23.70	25.20	0
		1	14	23.82	23.85	23.87	25.20	0
		8	0	22.83	22.77	22.79	24.20	0-1
		8	4	22.76	22.72	22.75	24.20	0-1
		8	7	22.84	22.74	22.78	24.20	0-1
		15	0	22.85	22.85	22.87	24.20	0-1
	16-QAM	1	0	22.89	22.70	22.81	24.20	0-1
		1	7	22.76	22.80	22.79	24.20	0-1
		1	14	22.75	22.81	22.83	24.20	0-1
		8	0	21.74	21.79	21.81	23.20	0-2
		8	4	21.70	21.75	21.71	23.20	0-2
		8	7	21.87	21.75	21.72	23.20	0-2
		15	0	21.85	21.89	21.76	23.20	0-2
	64-QAM	1	0	21.88	21.79	21.75	23.20	0-2
		1	7	21.77	21.86	21.71	23.20	0-2
		1	14	21.85	21.85	21.89	23.20	0-2
		8	0	20.76	20.74	20.77	22.20	0-3
		8	4	20.70	20.87	20.78	22.20	0-3
		8	7	20.77	20.85	20.82	22.20	0-3
		15	0	20.82	20.70	20.80	22.20	0-3
Frequency (MHz)				1710.7	1745	1779.3	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
Channel				131979	132322	132665		
1.4	QPSK	1	0	23.79	23.80	23.81	25.20	0
		1	2	23.72	23.89	23.76	25.20	0
		1	5	23.78	23.84	23.83	25.20	0
		3	0	23.81	23.77	23.88	25.20	0
		3	2	23.87	23.76	23.79	25.20	0
		3	3	23.84	23.88	23.85	25.20	0
		6	0	22.81	22.86	22.76	24.20	0-1
	16-QAM	1	0	22.78	22.80	22.82	24.20	0-1
		1	2	22.70	22.87	22.73	24.20	0-1
		1	5	22.73	22.82	22.72	24.20	0-1
		3	0	22.73	22.73	22.74	24.20	0-1
		3	2	22.73	22.83	22.79	24.20	0-1
		3	3	22.80	22.71	22.74	24.20	0-1
		6	0	21.70	21.83	21.74	23.20	0-2
	64-QAM	1	0	21.72	21.72	21.85	23.20	0-2
		1	2	21.70	21.71	21.84	23.20	0-2
		1	5	21.77	21.84	21.88	23.20	0-2
		3	0	21.86	21.83	21.83	23.20	0-2
		3	2	21.78	21.79	21.71	23.20	0-2
		3	3	21.86	21.74	21.87	23.20	0-2
		6	0	20.89	20.79	20.80	22.20	0-3

LTE Band 71								
BW(Mhz)	Modulation	RB Size	RB Offset	Conducted power (dBm)			Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
Frequency (MHz)				673	680.5	688		
Channel				133222	133297	133372		
20	QPSK	1	0	23.87	23.60	23.62	25.20	0
		1	50	23.68	23.51	23.49	25.20	0
		1	99	23.53	23.46	23.43	25.20	0
		50	0	22.28	22.39	22.29	24.20	0-1
		50	25	22.36	22.34	22.35	24.20	0-1
		50	50	22.33	22.28	22.37	24.20	0-1
		100	0	22.27	22.29	22.26	24.20	0-1
	16-QAM	1	0	22.38	22.26	22.32	24.20	0-1
		1	50	22.21	22.29	22.26	24.20	0-1
		1	99	22.29	22.33	22.33	24.20	0-1
		50	0	21.29	21.31	21.35	23.20	0-2
		50	25	21.37	21.39	21.40	23.20	0-2
		50	50	21.23	21.25	21.27	23.20	0-2
		100	0	21.33	21.23	21.24	23.20	0-2
	64-QAM	1	0	21.37	21.40	21.35	23.20	0-2
		1	50	21.28	21.28	21.22	23.20	0-2
		1	99	21.36	21.22	21.30	23.20	0-2
		50	0	20.21	20.24	20.37	22.20	0-3
		50	25	20.31	20.25	20.21	22.20	0-3
		50	50	20.29	20.35	20.33	22.20	0-3
		100	0	20.26	20.23	20.34	22.20	0-3
Frequency (MHz)				670.5	680.5	690.5	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
Channel				133197	133297	133397		
15	QPSK	1	0	23.40	23.21	23.37	25.20	0
		1	36	23.39	23.24	23.32	25.20	0
		1	74	23.21	23.27	23.25	25.20	0
		36	0	22.23	22.23	22.25	24.20	0-1
		36	18	22.24	22.22	22.31	24.20	0-1
		36	37	22.27	22.39	22.38	24.20	0-1
		75	0	22.22	22.26	22.21	24.20	0-1
	16-QAM	1	0	22.21	22.33	22.31	24.20	0-1
		1	36	22.39	22.35	22.38	24.20	0-1
		1	74	22.25	22.30	22.24	24.20	0-1
		36	0	21.30	21.25	21.40	23.20	0-2
		36	18	21.33	21.29	21.32	23.20	0-2
		36	37	21.31	21.38	21.31	23.20	0-2
		75	0	21.32	21.38	21.27	23.20	0-2
	64-QAM	1	0	21.33	21.28	21.37	23.20	0-2
		1	36	21.32	21.33	21.38	23.20	0-2
		1	74	21.34	21.26	21.39	23.20	0-2
		36	0	20.36	20.35	20.32	22.20	0-3
		36	18	20.40	20.21	20.33	22.20	0-3
		36	37	20.26	20.29	20.27	22.20	0-3
		75	0	20.34	20.37	20.22	22.20	0-3

LTE Band 71								
BW(Mhz)	Modulation	RB Size	RB Offset	Conducted power (dBm)			Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
Frequency (MHz)				668	680.5	693		
Channel				133172	133297	133422		
10	QPSK	1	0	23.31	23.25	23.32	25.20	0
		1	25	23.39	23.30	23.22	25.20	0
		1	49	23.30	23.26	23.26	25.20	0
		25	0	22.44	22.35	22.40	24.20	0-1
		25	12	22.30	22.31	22.37	24.20	0-1
		25	25	22.37	22.29	22.40	24.20	0-1
		50	0	22.30	22.23	22.35	24.20	0-1
	16-QAM	1	0	22.33	22.29	22.40	24.20	0-1
		1	25	22.37	22.26	22.26	24.20	0-1
		1	49	22.23	22.23	22.22	24.20	0-1
		25	0	21.33	21.32	21.37	23.20	0-2
		25	12	21.28	21.34	21.24	23.20	0-2
		25	25	21.40	21.25	21.39	23.20	0-2
		50	0	21.32	21.32	21.23	23.20	0-2
	64-QAM	1	0	21.30	21.39	21.22	23.20	0-2
		1	25	21.27	21.25	21.21	23.20	0-2
		1	49	21.36	21.32	21.39	23.20	0-2
		25	0	20.23	20.25	20.32	22.20	0-3
		25	12	20.25	20.37	20.21	22.20	0-3
		25	25	20.39	20.36	20.21	22.20	0-3
		50	0	20.30	20.26	20.30	22.20	0-3
Frequency (MHz)				665.5	680.5	695.5	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
Channel				133147	133297	133447		
5	QPSK	1	0	23.34	23.28	23.31	25.20	0
		1	12	23.39	23.38	23.35	25.20	0
		1	24	23.37	23.40	23.36	25.20	0
		12	0	22.24	22.34	22.30	24.20	0-1
		12	6	22.35	22.26	22.28	24.20	0-1
		12	13	22.30	22.31	22.23	24.20	0-1
		25	0	22.24	22.22	22.34	24.20	0-1
	16-QAM	1	0	22.34	22.36	22.28	24.20	0-1
		1	12	22.30	22.38	22.37	24.20	0-1
		1	24	22.28	22.26	22.34	24.20	0-1
		12	0	21.27	21.38	21.29	23.20	0-2
		12	6	21.27	21.21	21.26	23.20	0-2
		12	13	21.37	21.27	21.23	23.20	0-2
		25	0	21.36	21.39	21.23	23.20	0-2
	64-QAM	1	0	21.31	21.30	21.38	23.20	0-2
		1	12	21.28	21.25	21.24	23.20	0-2
		1	24	21.23	21.34	21.38	23.20	0-2
		12	0	20.31	20.30	20.26	22.20	0-3
		12	6	20.36	20.22	20.29	22.20	0-3
		12	13	20.22	20.29	20.23	22.20	0-3
		25	0	20.33	20.37	20.21	22.20	0-3

LTE TDD Band 38 / Band 41 power table:

LTE Band 38								
BW(Mhz)	Modulation	RB Size	RB Offset	Conducted power (dBm)			Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
Frequency (MHz)				2580	2595	2610		
Channel				37850	38000	38150		
20	QPSK	1	0	23.58	23.53	23.50	25.20	0
		1	50	23.65	23.59	23.51	25.20	0
		1	99	23.68	23.57	23.52	25.20	0
		50	0	22.32	22.22	22.24	24.20	0-1
		50	25	22.20	22.24	22.37	24.20	0-1
		50	50	22.22	22.38	22.39	24.20	0-1
		100	0	22.26	22.21	22.33	24.20	0-1
	16-QAM	1	0	22.27	22.23	22.35	24.20	0-1
		1	50	22.31	22.40	22.29	24.20	0-1
		1	99	22.33	22.40	22.28	24.20	0-1
		50	0	21.38	21.35	21.30	23.20	0-2
		50	25	21.40	21.21	21.28	23.20	0-2
		50	50	21.21	21.20	21.36	23.20	0-2
		100	0	21.25	21.26	21.35	23.20	0-2
	64-QAM	1	0	21.24	21.29	21.36	23.20	0-2
		1	50	21.23	21.25	21.22	23.20	0-2
		1	99	21.32	21.37	21.27	23.20	0-2
		50	0	20.40	20.23	20.39	22.20	0-3
		50	25	20.31	20.29	20.22	22.20	0-3
		50	50	20.35	20.23	20.35	22.20	0-3
		100	0	20.31	20.40	20.31	22.20	0-3
Frequency (MHz)				2577.5	2595	2612.5	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
Channel				37825	38000	38175		
15	QPSK	1	0	23.32	23.38	23.23	25.20	0
		1	36	23.33	23.36	23.26	25.20	0
		1	74	23.30	23.24	23.37	25.20	0
		36	0	22.34	22.24	22.31	24.20	0-1
		36	18	22.39	22.30	22.22	24.20	0-1
		36	37	22.31	22.31	22.27	24.20	0-1
		75	0	22.30	22.36	22.24	24.20	0-1
	16-QAM	1	0	22.38	22.36	22.26	24.20	0-1
		1	36	22.32	22.21	22.21	24.20	0-1
		1	74	22.24	22.26	22.36	24.20	0-1
		36	0	21.29	21.25	21.21	23.20	0-2
		36	18	21.33	21.22	21.34	23.20	0-2
		36	37	21.29	21.22	21.40	23.20	0-2
		75	0	21.23	21.37	21.24	23.20	0-2
	64-QAM	1	0	21.37	21.39	21.35	23.20	0-2
		1	36	21.22	21.32	21.39	23.20	0-2
		1	74	21.23	21.24	21.38	23.20	0-2
		36	0	20.35	20.31	20.31	22.20	0-3
		36	18	20.40	20.39	20.26	22.20	0-3
		36	37	20.33	20.30	20.25	22.20	0-3
		75	0	20.29	20.23	20.31	22.20	0-3

LTE Band 38								
BW(Mhz)	Modulation	RB Size	RB Offset	Conducted power (dBm)			Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
Frequency (MHz)				2575	2595	2615		
Channel				37800	38000	38200		
10	QPSK	1	0	23.31	23.24	23.28	25.20	0
		1	25	23.27	23.31	23.36	25.20	0
		1	49	23.39	23.33	23.36	25.20	0
		25	0	22.27	22.22	22.25	24.20	0-1
		25	12	22.27	22.32	22.34	24.20	0-1
		25	25	22.30	22.26	22.26	24.20	0-1
		50	0	22.40	22.30	22.34	24.20	0-1
	16-QAM	1	0	22.28	22.33	22.35	24.20	0-1
		1	25	22.21	22.31	22.39	24.20	0-1
		1	49	22.30	22.24	22.35	24.20	0-1
		25	0	21.29	21.28	21.33	23.20	0-2
		25	12	21.37	21.39	21.37	23.20	0-2
		25	25	21.27	21.35	21.32	23.20	0-2
		50	0	21.30	21.27	21.33	23.20	0-2
	64-QAM	1	0	21.31	21.25	21.28	23.20	0-2
		1	25	21.37	21.35	21.34	23.20	0-2
		1	49	21.36	21.29	21.24	23.20	0-2
		25	0	20.32	20.40	20.30	22.20	0-3
		25	12	20.21	20.36	20.27	22.20	0-3
		25	25	20.29	20.25	20.28	22.20	0-3
		50	0	20.34	20.32	20.38	22.20	0-3
Frequency (MHz)				2572.5	2595	2617.5	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
Channel				37775	38000	38225		
5	QPSK	1	0	23.25	23.24	23.31	25.20	0
		1	12	23.23	23.26	23.25	25.20	0
		1	24	23.26	23.35	23.37	25.20	0
		12	0	22.24	22.30	22.25	24.20	0-1
		12	6	22.25	22.37	22.21	24.20	0-1
		12	13	22.24	22.38	22.22	24.20	0-1
		25	0	22.33	22.22	22.31	24.20	0-1
	16-QAM	1	0	22.24	22.34	22.31	24.20	0-1
		1	12	22.24	22.34	22.32	24.20	0-1
		1	24	22.22	22.28	22.29	24.20	0-1
		12	0	21.32	21.24	21.39	23.20	0-2
		12	6	21.40	21.28	21.26	23.20	0-2
		12	13	21.37	21.28	21.33	23.20	0-2
		25	0	21.31	21.36	21.38	23.20	0-2
	64-QAM	1	0	21.37	21.34	21.23	23.20	0-2
		1	12	21.22	21.38	21.26	23.20	0-2
		1	24	21.36	21.25	21.21	23.20	0-2
		12	0	20.24	20.36	20.25	22.20	0-3
		12	6	20.27	20.25	20.32	22.20	0-3
		12	13	20.28	20.28	20.25	22.20	0-3
		25	0	20.32	20.40	20.37	22.20	0-3

LTE Band 41											
BW(Mhz)	Modulation	RB Size	RB Offset	Conducted power (dBm)					Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
Frequency (MHz)				2506	2549.5	2593	2636.5	2680		
Channel				39750	40185	40620	41055	41490		
20	QPSK	1	0	23.49	23.57	23.61	23.82	23.73	25.20	0
		1	50	23.48	23.55	23.54	23.87	23.89	25.20	0
		1	99	23.45	23.58	23.52	23.67	23.60	25.20	0
		50	0	22.34	22.26	22.25	22.35	22.33	24.20	0-1
		50	25	22.36	22.29	22.33	22.24	22.39	24.20	0-1
		50	50	22.33	22.35	22.24	22.38	22.25	24.20	0-1
		100	0	22.32	22.29	22.22	22.36	22.35	24.20	0-1
	16-QAM	1	0	22.27	22.29	22.35	22.28	22.30	24.20	0-1
		1	50	22.28	22.40	22.23	22.26	22.31	24.20	0-1
		1	99	22.34	22.39	22.25	22.33	22.25	24.20	0-1
		50	0	21.27	21.40	21.21	21.32	21.23	23.20	0-2
		50	25	21.39	21.29	21.25	21.39	21.36	23.20	0-2
		50	50	21.39	21.38	21.35	21.36	21.24	23.20	0-2
		100	0	21.34	21.32	21.29	21.34	21.39	23.20	0-2
	64-QAM	1	0	21.31	21.27	21.25	21.33	21.30	23.20	0-2
		1	50	21.33	21.39	21.34	21.29	21.24	23.20	0-2
		1	99	21.30	21.28	21.36	21.31	21.32	23.20	0-2
		50	0	20.24	20.39	20.34	20.25	20.32	22.20	0-3
		50	25	20.22	20.38	20.31	20.35	20.31	22.20	0-3
		50	50	20.24	20.32	20.21	20.27	20.34	22.20	0-3
		100	0	20.28	20.28	20.31	20.36	20.38	22.20	0-3
Frequency (MHz)				2503.5	2548.3	2593	2637.8	2682.5	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
Channel				39725	40173	40620	41068	41515		
15	QPSK	1	0	23.31	23.23	23.29	23.27	23.27	25.20	0
		1	36	23.26	23.38	23.25	23.40	23.40	25.20	0
		1	74	23.30	23.23	23.33	23.27	23.23	25.20	0
		36	0	22.25	22.30	22.34	22.40	22.26	24.20	0-1
		36	18	22.21	22.40	22.31	22.28	22.26	24.20	0-1
		36	37	22.38	22.30	22.34	22.38	22.25	24.20	0-1
		75	0	22.37	22.30	22.40	22.35	22.29	24.20	0-1
	16-QAM	1	0	22.33	22.38	22.37	22.23	22.39	24.20	0-1
		1	36	22.34	22.35	22.22	22.33	22.31	24.20	0-1
		1	74	22.38	22.38	22.26	22.29	22.34	24.20	0-1
		36	0	21.22	21.22	21.27	21.33	21.34	23.20	0-2
		36	18	21.25	21.37	21.25	21.25	21.25	23.20	0-2
		36	37	21.36	21.32	21.29	21.36	21.32	23.20	0-2
		75	0	21.29	21.33	21.32	21.37	21.39	23.20	0-2
	64-QAM	1	0	21.37	21.35	21.23	21.21	21.30	23.20	0-2
		1	36	21.24	21.33	21.21	21.37	21.27	23.20	0-2
		1	74	21.36	21.25	21.39	21.34	21.38	23.20	0-2
		36	0	20.21	20.33	20.25	20.31	20.25	22.20	0-3
		36	18	20.28	20.39	20.26	20.29	20.32	22.20	0-3
		36	37	20.35	20.33	20.30	20.29	20.38	22.20	0-3
		75	0	20.39	20.30	20.37	20.22	20.40	22.20	0-3

LTE Band 41										
BW(Mhz)	Modulation	RB Size	RB Offset	Conducted power (dBm)					Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
Frequency (MHz)				2501	2547	2593	2639	2685		
Channel				39700	40160	40620	41080	41540		
10	QPSK	1	0	23.28	23.24	23.29	23.22	23.22	25.20	0
		1	25	23.31	23.31	23.34	23.24	23.32	25.20	0
		1	49	23.36	23.40	23.32	23.32	23.23	25.20	0
		25	0	22.28	22.31	22.35	22.34	22.36	24.20	0-1
		25	12	22.24	22.35	22.32	22.37	22.28	24.20	0-1
		25	25	22.27	22.22	22.34	22.24	22.25	24.20	0-1
		50	0	22.37	22.23	22.22	22.39	22.23	24.20	0-1
	16-QAM	1	0	22.39	22.29	22.35	22.33	22.36	24.20	0-1
		1	25	22.38	22.31	22.24	22.29	22.25	24.20	0-1
		1	49	22.27	22.25	22.40	22.27	22.30	24.20	0-1
		25	0	21.22	21.26	21.32	21.40	21.23	23.20	0-2
		25	12	21.40	21.35	21.23	21.37	21.25	23.20	0-2
		25	25	21.37	21.31	21.27	21.21	21.31	23.20	0-2
		50	0	21.26	21.37	21.38	21.22	21.30	23.20	0-2
	64-QAM	1	0	21.24	21.34	21.32	21.35	21.27	23.20	0-2
		1	25	21.31	21.25	21.33	21.36	21.23	23.20	0-2
		1	49	21.27	21.37	21.27	21.23	21.29	23.20	0-2
		25	0	20.22	20.25	20.37	20.26	20.33	22.20	0-3
		25	12	20.35	20.22	20.24	20.40	20.22	22.20	0-3
		25	25	20.35	20.28	20.21	20.27	20.34	22.20	0-3
		50	0	20.39	20.31	20.24	20.25	20.25	22.20	0-3
Frequency (MHz)				2498.5	2547.8	2593	2640.3	2687.5	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
Channel				39675	40148	40620	41093	41565		
5	QPSK	1	0	23.29	23.36	23.26	23.26	23.29	25.20	0
		1	12	23.40	23.27	23.39	23.26	23.37	25.20	0
		1	24	23.33	23.28	23.39	23.22	23.26	25.20	0
		12	0	22.25	22.31	22.26	22.37	22.27	24.20	0-1
		12	6	22.29	22.38	22.28	22.36	22.26	24.20	0-1
		12	13	22.36	22.37	22.30	22.40	22.32	24.20	0-1
		25	0	22.34	22.25	22.31	22.33	22.37	24.20	0-1
	16-QAM	1	0	22.32	22.33	22.38	22.26	22.28	24.20	0-1
		1	12	22.40	22.33	22.22	22.40	22.30	24.20	0-1
		1	24	22.24	22.24	22.31	22.30	22.21	24.20	0-1
		12	0	21.24	21.35	21.22	21.23	21.32	23.20	0-2
		12	6	21.22	21.33	21.39	21.34	21.27	23.20	0-2
		12	13	21.26	21.22	21.26	21.22	21.24	23.20	0-2
		25	0	21.26	21.22	21.39	21.35	21.32	23.20	0-2
	64-QAM	1	0	21.36	21.23	21.34	21.21	21.25	23.20	0-2
		1	12	21.31	21.37	21.35	21.33	21.27	23.20	0-2
		1	24	21.39	21.37	21.39	21.30	21.37	23.20	0-2
		12	0	20.30	20.38	20.24	20.39	20.38	22.20	0-3
		12	6	20.25	20.39	20.22	20.25	20.23	22.20	0-3
		12	13	20.31	20.34	20.30	20.21	20.34	22.20	0-3
		25	0	20.37	20.38	20.40	20.37	20.33	22.20	0-3

LTE Band 41(HPUE)										
BW(Mhz)	Modulation	RB Size	RB Offset	Conducted power (dBm)					Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
Frequency (MHz)				2506	2549.5	2593	2636.5	2680		
Channel				39750	40185	40620	41055	41490		
20	QPSK	1	0	25.48	25.33	25.40	25.69	25.44	27.20	0
		1	50	25.34	25.45	25.37	25.59	25.64	27.20	0
		1	99	25.38	25.34	25.35	25.54	25.59	27.20	0
		50	0	24.20	24.31	24.30	24.26	24.25	26.20	0-1
		50	25	24.22	24.27	24.31	24.39	24.30	26.20	0-1
		50	50	24.30	24.36	24.23	24.25	24.35	26.20	0-1
		100	0	24.39	24.37	24.28	24.29	24.38	26.20	0-1
	16-QAM	1	0	24.31	24.24	24.36	24.37	24.21	26.20	0-1
		1	50	24.28	24.38	24.23	24.29	24.31	26.20	0-1
		1	99	24.38	24.39	24.25	24.26	24.35	26.20	0-1
		50	0	23.32	23.31	23.29	23.35	23.32	25.20	0-2
		50	25	23.37	23.36	23.39	23.34	23.35	25.20	0-2
		50	50	23.22	23.26	23.28	23.34	23.25	25.20	0-2
		100	0	23.31	23.37	23.38	23.21	23.40	25.20	0-2
	64-QAM	1	0	23.37	23.30	23.34	23.39	23.30	25.20	0-2
		1	50	23.25	23.35	23.28	23.38	23.26	25.20	0-2
		1	99	23.40	23.39	23.21	23.24	23.39	25.20	0-2
		50	0	22.28	22.32	22.21	22.38	22.30	24.20	0-3
		50	25	22.21	22.36	22.25	22.28	22.33	24.20	0-3
		50	50	22.35	22.22	22.30	22.22	22.37	24.20	0-3
		100	0	22.33	22.25	22.34	22.38	22.31	24.20	0-3
Frequency (MHz)				2503.5	2548.3	2593	2637.8	2682.5	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
Channel				39725	40173	40620	41068	41515		
15	QPSK	1	0	25.30	25.34	25.25	25.24	25.25	27.20	0
		1	36	25.28	25.23	25.36	25.30	25.37	27.20	0
		1	74	25.32	25.21	25.22	25.26	25.40	27.20	0
		36	0	24.24	24.36	24.21	24.26	24.24	26.20	0-1
		36	18	24.31	24.38	24.36	24.24	24.35	26.20	0-1
		36	37	24.34	24.25	24.23	24.34	24.39	26.20	0-1
		75	0	24.23	24.34	24.38	24.22	24.30	26.20	0-1
	16-QAM	1	0	24.30	24.21	24.36	24.40	24.25	26.20	0-1
		1	36	24.35	24.21	24.31	24.26	24.31	26.20	0-1
		1	74	24.38	24.38	24.25	24.29	24.34	26.20	0-1
		36	0	23.32	23.35	23.38	23.38	23.33	25.20	0-2
		36	18	23.38	23.22	23.21	23.33	23.35	25.20	0-2
		36	37	23.33	23.26	23.26	23.21	23.37	25.20	0-2
		75	0	23.22	23.27	23.39	23.22	23.30	25.20	0-2
	64-QAM	1	0	23.29	23.35	23.40	23.24	23.37	25.20	0-2
		1	36	23.39	23.35	23.28	23.37	23.36	25.20	0-2
		1	74	23.33	23.23	23.22	23.36	23.21	25.20	0-2
		36	0	22.36	22.28	22.30	22.27	22.38	24.20	0-3
		36	18	22.32	22.38	22.38	22.26	22.24	24.20	0-3
		36	37	22.21	22.26	22.29	22.35	22.28	24.20	0-3
		75	0	22.34	22.38	22.39	22.26	22.38	24.20	0-3

LTE Band 41 (HPUE)											
BW(Mhz)	Modulation	RB Size	RB Offset	Conducted power (dBm)					Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
Frequency (MHz)				2501	2547	2593	2639	2685		
Channel				39700	40160	40620	41080	41540		
10	QPSK	1	0	25.22	25.38	25.39	25.40	25.32	27.20	0
		1	25	25.39	25.35	25.40	25.24	25.27	27.20	0
		1	49	25.32	25.34	25.36	25.23	25.39	27.20	0
		25	0	24.30	24.21	24.37	24.23	24.39	26.20	0-1
		25	12	24.25	24.36	24.33	24.31	24.22	26.20	0-1
		25	25	24.37	24.39	24.36	24.25	24.38	26.20	0-1
		50	0	24.21	24.26	24.25	24.26	24.40	26.20	0-1
	16-QAM	1	0	24.34	24.25	24.36	24.33	24.36	26.20	0-1
		1	25	24.39	24.30	24.25	24.30	24.23	26.20	0-1
		1	49	24.23	24.22	24.21	24.26	24.40	26.20	0-1
		25	0	23.38	23.34	23.25	23.40	23.35	25.20	0-2
		25	12	23.28	23.37	23.31	23.23	23.24	25.20	0-2
		25	25	23.24	23.40	23.34	23.21	23.25	25.20	0-2
		50	0	23.32	23.27	23.40	23.38	23.28	25.20	0-2
	64-QAM	1	0	23.21	23.34	23.33	23.29	23.37	25.20	0-2
		1	25	23.28	23.32	23.33	23.22	23.30	25.20	0-2
		1	49	23.34	23.37	23.29	23.37	23.21	25.20	0-2
		25	0	22.33	22.36	22.34	22.21	22.30	24.20	0-3
		25	12	22.27	22.38	22.34	22.22	22.21	24.20	0-3
		25	25	22.25	22.22	22.28	22.32	22.37	24.20	0-3
		50	0	22.30	22.21	22.21	22.21	22.22	24.20	0-3
Frequency (MHz)				2498.5	2547.8	2593	2640.3	2687.5	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
Channel				39675	40148	40620	41093	41565		
5	QPSK	1	0	25.36	25.36	25.24	25.40	25.29	27.20	0
		1	12	25.31	25.30	25.23	25.32	25.31	27.20	0
		1	24	25.31	25.21	25.34	25.32	25.38	27.20	0
		12	0	24.21	24.21	24.26	24.31	24.35	26.20	0-1
		12	6	24.27	24.25	24.33	24.40	24.21	26.20	0-1
		12	13	24.26	24.21	24.33	24.39	24.28	26.20	0-1
		25	0	24.38	24.24	24.29	24.29	24.35	26.20	0-1
	16-QAM	1	0	24.21	24.29	24.22	24.33	24.31	26.20	0-1
		1	12	24.26	24.25	24.29	24.27	24.26	26.20	0-1
		1	24	24.24	24.30	24.22	24.29	24.36	26.20	0-1
		12	0	23.33	23.23	23.35	23.35	23.36	25.20	0-2
		12	6	23.28	23.38	23.38	23.37	23.34	25.20	0-2
		12	13	23.38	23.29	23.37	23.28	23.32	25.20	0-2
		25	0	23.34	23.31	23.24	23.34	23.33	25.20	0-2
	64-QAM	1	0	23.27	23.22	23.31	23.40	23.24	25.20	0-2
		1	12	23.37	23.35	23.22	23.29	23.28	25.20	0-2
		1	24	23.39	23.34	23.22	23.33	23.25	25.20	0-2
		12	0	22.30	22.27	22.23	22.29	22.26	24.20	0-3
		12	6	22.24	22.25	22.35	22.35	22.21	24.20	0-3
		12	13	22.21	22.21	22.40	22.25	22.35	24.20	0-3
		25	0	22.37	22.21	22.36	22.40	22.22	24.20	0-3

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

Antenna / Band	SISO		MIMO
	Main	Aux	Main + Aux
WLAN802.11b	V	V	-
WLAN802.11g	V	V	-
WLAN802.11n(20M)	V	V	V
WLAN802.11n(40M)	V	V	V
WLAN802.11a	V	V	-
WLAN802.11n(20M) 5G	V	V	V
WLAN802.11n(40M) 5G	V	V	V
WLAN802.11ac(20M) 5G	V	V	V
WLAN802.11ac(40M) 5G	V	V	V
WLAN802.11ac(80M) 5G	V	V	V

Main

Main Antenna						
Band	Mode	Channel	Frequency (MHz)	Data Rate	Max. Rated Avg. Power + Max. Tolerance (dBm)	Average power (dBm)
2450 MHz	802.11b	1	2412	1Mbps	18.00	17.95
		2	2417		18.00	17.89
		6	2437		18.00	17.84
		10	2457		18.00	17.66
		11	2462		17.00	16.82
		12	2467		17.00	16.85
		13	2472		15.00	14.88
	802.11g	1	2412	6Mbps	15.50	15.35
		2	2417		18.00	17.72
		6	2437		18.00	17.99
		10	2457		17.50	17.31
		11	2462		15.50	15.39
		12	2467		12.50	12.48
		13	2472		3.00	2.98
	802.11n20-HT0	1	2412	MCS0	15.50	15.23
		2	2417		18.00	17.54
		6	2437		18.00	17.91
		10	2457		17.50	17.25
		11	2462		15.50	15.46
		12	2467		12.50	12.48
		13	2472		3.00	2.97
	802.11n40-HT0	3	2422	MCS0	13.50	13.16
		4	2427		17.00	16.96
		6	2437		17.00	16.75
		8	2447		14.50	14.25
		9	2452		13.50	13.34
		10	2457		7.00	6.73
		11	2462		0.50	0.27

Main Antenna						
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	17.50	17.27
		40	5200		18.00	17.78
		44	5220		18.00	17.82
		48	5240		18.00	17.86
	802.11n20-HT0	36	5180	MCS0	17.50	17.39
		40	5200		18.00	17.66
		44	5220		18.00	17.71
		48	5240		18.00	17.82
	802.11ac20-VHT0	36	5180	MCS0	17.50	17.31
		40	5200		18.00	17.52
		44	5220		18.00	17.60
		48	5240		18.00	17.73
	802.11n40-HT0	38	5190	MCS0	14.00	13.71
		46	5230		18.00	17.76
	802.11ac40-VHT0	38	5190	MCS0	14.00	13.60
		46	5230		18.00	17.65
	802.11ac80-VHT0	42	5210	MCS0	12.50	12.48

Main Antenna						
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	18.00	17.64
		56	5280		18.00	17.62
		60	5300		18.00	17.69
		64	5320		17.50	17.31
	802.11n20-HT0	52	5260	MCS0	18.00	17.79
		56	5280		18.00	17.82
		60	5300		18.00	17.85
		64	5320		17.50	17.47
	802.11ac20-VHT0	52	5260	MCS0	18.00	17.67
		56	5280		18.00	17.70
		60	5300		18.00	17.72
		64	5320		17.50	17.33
	802.11n40-HT0	54	5270	MCS0	18.00	17.84
		62	5310		11.00	10.95
	802.11ac40-VHT0	54	5270	MCS0	18.00	17.73
		62	5310		11.00	10.82
	802.11ac80-VHT0	58	5290	MCS0	11.50	11.35

Main Antenna						
Band	Mode	Channel	Frequency (MHz)	Data Rate	Max. Rated Avg. Power + Max. Tolerance (dBm)	Average power (dBm)
5600 MHz	802.11a	100	5500	6Mbps	17.00	16.78
		104	5520		17.00	16.72
		116	5580		17.00	16.80
		120	5600		17.00	16.76
		136	5680		17.00	16.75
		140	5700		17.00	16.83
		144	5720		17.00	16.95
	802.11n20-HT0	100	5500	MCS0	18.00	17.70
		104	5520		18.00	17.74
		116	5580		18.00	17.98
		120	5600		18.00	17.86
		136	5680		18.00	17.81
		140	5700		16.50	16.45
		144	5720		17.50	17.31
	802.11ac20-VHT0	100	5500	MCS0	18.00	17.62
		104	5520		18.00	17.73
		116	5580		18.00	17.87
		120	5600		18.00	17.85
		136	5680		18.00	17.79
		140	5700		16.50	16.31
		144	5720		17.50	17.22
	802.11n40-HT0	102	5510	MCS0	15.50	15.16
		110	5550		18.00	17.74
		118	5590		18.00	17.59
		134	5670		17.50	17.31
		142	5710		18.00	17.54
	802.11ac40-VHT0	102	5510	MCS0	15.50	15.07
		110	5550		18.00	17.60
		118	5590		18.00	17.53
		134	5670		17.50	17.15
		142	5710		18.00	17.51
	802.11ac80-VHT0	106	5530	MCS0	13.00	12.67
		122	5610		18.00	17.58
		138	5690		18.00	17.54

Main Antenna						
Mode	Mode	Channel	Frequency (MHz)	Data Rate	Max. Rated Avg. Power + Max. Tolerance (dBm)	Average power (dBm)
5800 MHz	802.11a	149	5745	6Mbps	18.00	17.90
		157	5785		18.00	17.75
		165	5825		18.00	17.97
	802.11n20-HT0	149	5745	MCS0	18.00	17.95
		157	5785		18.00	17.75
		165	5825		18.00	17.77
	802.11ac20-VHT0	149	5745	MCS0	18.00	17.83
		157	5785		18.00	17.71
		165	5825		18.00	17.68
	802.11n40-HT0	151	5755	MCS0	18.00	17.77
		159	5795		18.00	17.60
	802.11ac40-VHT0	151	5755	MCS0	18.00	17.66
		159	5795		18.00	17.53
	802.11ac80-VHT0	155	5775	MCS0	18.00	17.61

Aux

Aux Antenna						
Band	Mode	Channel	Frequency (MHz)	Data Rate	Max. Rated Avg. Power + Max. Tolerance (dBm)	Average power (dBm)
2450 MHz	802.11b	1	2412	1Mbps	18.00	17.91
		2	2417		18.00	17.85
		6	2437		18.00	17.60
		10	2457		18.00	17.83
		11	2462		17.00	16.77
		12	2467		17.00	16.69
		13	2472		15.00	14.73
	802.11g	1	2412	6Mbps	15.50	15.26
		2	2417		18.00	17.81
		6	2437		18.00	17.60
		10	2457		17.50	17.43
		11	2462		15.50	15.21
		12	2467		12.50	12.15
		13	2472		3.00	2.16
	802.11n20-HT0	1	2412	MCS0	15.50	15.21
		2	2417		18.00	17.69
		6	2437		18.00	17.70
		10	2457		17.50	17.16
		11	2462		15.50	15.26
		12	2467		12.50	12.19
		13	2472		3.00	2.55
	802.11n40-HT0	3	2422	MCS0	13.50	12.87
		4	2427		17.00	16.50
		6	2437		17.00	16.64
		8	2447		14.50	14.18
		9	2452		13.50	13.20
		10	2457		7.00	6.52
		11	2462		0.50	-0.33

Aux Antenna						
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	17.50	17.35
		40	5200		18.00	17.29
		44	5220		18.00	17.56
		48	5240		18.00	17.65
	802.11n20-HT0	36	5180	MCS0	17.50	17.30
		40	5200		18.00	17.75
		44	5220		18.00	17.82
		48	5240		18.00	17.65
	802.11ac20-VHT0	36	5180	MCS0	17.50	17.25
		40	5200		18.00	17.52
		44	5220		18.00	17.75
		48	5240		18.00	17.61
	802.11n40-HT0	38	5190	MCS0	14.00	13.59
		46	5230		18.00	17.74
	802.11ac40-VHT0	38	5190	MCS0	14.00	13.51
		46	5230		18.00	17.65
	802.11ac80-VHT0	42	5210	MCS0	12.50	12.34

Aux Antenna						
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	18.00	17.70
		56	5280		18.00	17.66
		60	5300		18.00	17.73
		64	5320		17.50	17.32
	802.11n20-HT0	52	5260	MCS0	18.00	17.80
		56	5280		18.00	17.55
		60	5300		18.00	17.67
		64	5320		17.50	17.21
	802.11ac20-VHT0	52	5260	MCS0	18.00	17.73
		56	5280		18.00	17.52
		60	5300		18.00	17.61
		64	5320		17.50	17.14
	802.11n40-HT0	54	5270	MCS0	18.00	17.64
		62	5310		11.00	10.54
	802.11ac40-VHT0	54	5270	MCS0	18.00	17.54
		62	5310		11.00	10.51
	802.11ac80-VHT0	58	5290	MCS0	11.50	11.38

Aux Antenna						
Band	Mode	Channel	Frequency (MHz)	Data Rate	Max. Rated Avg. Power + Max. Tolerance (dBm)	Average power (dBm)
5600 MHz	802.11a	100	5500	6Mbps	17.00	16.96
		104	5520		17.00	16.82
		116	5580		17.00	16.74
		120	5600		17.00	16.71
		136	5680		17.00	16.53
		140	5700		17.00	16.84
		144	5720		17.00	16.61
	802.11n20-HT0	100	5500	MCS0	18.00	17.84
		104	5520		18.00	17.79
		116	5580		18.00	17.91
		120	5600		18.00	17.75
		136	5680		18.00	17.68
		140	5700		16.50	16.31
		144	5720		17.50	17.34
	802.11ac20-VHT0	100	5500	MCS0	18.00	17.73
		104	5520		18.00	17.70
		116	5580		18.00	17.84
		120	5600		18.00	17.78
		136	5680		18.00	17.75
		140	5700		16.50	16.22
		144	5720		17.50	17.27
	802.11n40-HT0	102	5510	MCS0	15.50	15.30
		110	5550		18.00	17.88
		118	5590		18.00	17.80
		134	5670		17.50	17.45
		142	5710		18.00	17.86
	802.11ac40-VHT0	102	5510	MCS0	15.50	15.21
		110	5550		18.00	17.77
		118	5590		18.00	17.68
		134	5670		17.50	17.39
		142	5710		18.00	17.77
	802.11ac80-VHT0	106	5530	MCS0	13.00	12.86
		122	5610		18.00	17.61
		138	5690		18.00	17.96

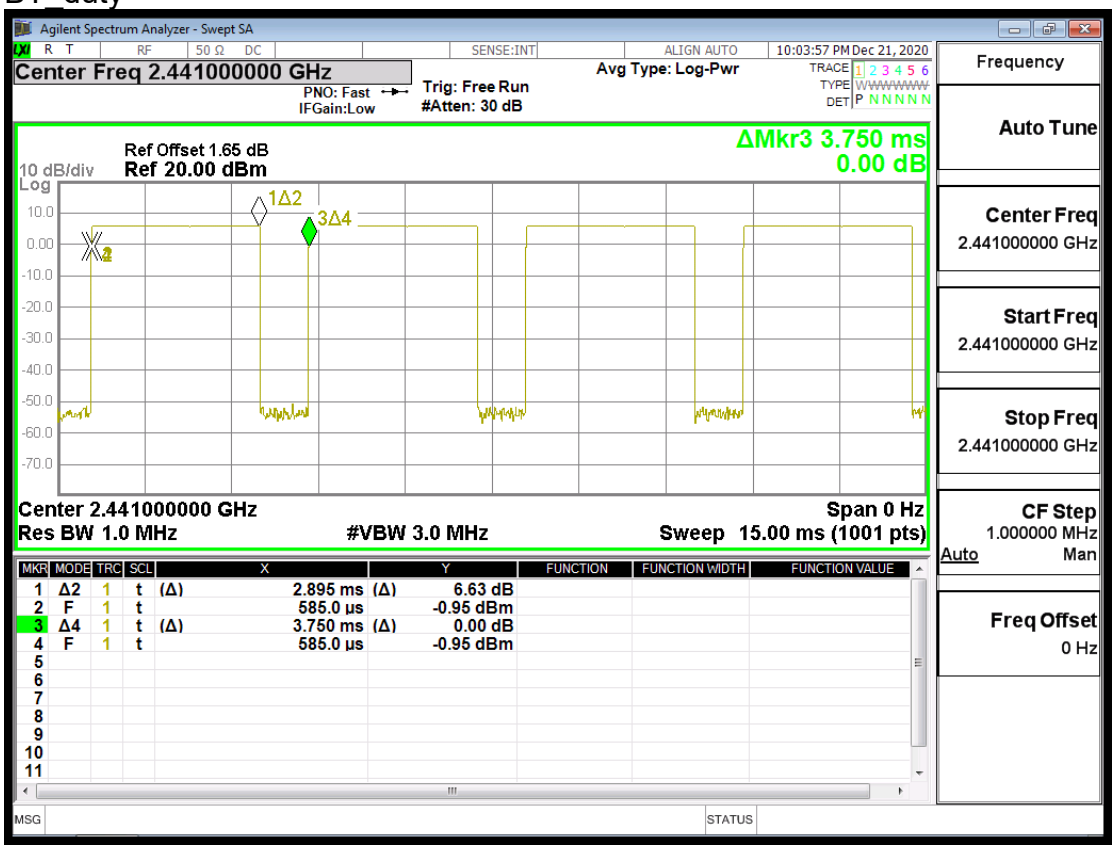
Aux Antenna						
Mode	Mode	Channel	Frequency (MHz)	Data Rate	Max. Rated Avg. Power + Max. Tolerance (dBm)	Average power (dBm)
5800 MHz	802.11a	149	5745	6Mbps	18.00	17.86
		157	5785		18.00	17.92
		165	5825		18.00	17.66
	802.11n20-HT0	149	5745	MCS0	18.00	17.93
		157	5785		18.00	17.77
		165	5825		18.00	17.89
	802.11ac20-VHT0	149	5745	MCS0	18.00	17.93
		157	5785		18.00	17.77
		165	5825		18.00	17.89
	802.11n40-HT0	151	5755	MCS0	18.00	17.63
		159	5795		18.00	17.88
	802.11ac40-VHT0	151	5755	MCS0	18.00	17.54
		159	5795		18.00	17.81
	802.11ac80-VHT0	155	5775	MCS0	18.00	17.72

Bluetooth conducted power table:

Mode	Channel	Frequency (MHz)	1Mbps		2Mbps		3Mbps	
			Max. Rated Avg. Power + Max. Tolerance (dBm)	Average power (dBm)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Average power (dBm)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Average power (dBm)
BR/EDR	CH 00	2402	12.00	9.26	12.00	8.91	12.00	8.93
	CH 39	2441	12.00	10.63	12.00	10.04	12.00	10.06
	CH 78	2480	12.00	9.81	12.00	9.46	12.00	9.41

Mode	Channel	Frequency (MHz)	GFSK	
			Max. Rated Avg.Power + Max. Tolerance (dBm)	Average Output Power (dBm)
BLE_1M	CH 37	2402	5.00	1.70
	CH 17	2440	5.00	3.42
	CH 39	2480	5.00	2.63
BLE_2M	CH 00	2402	5.00	1.52
	CH 19	2440	5.00	3.35
	CH 39	2480	5.00	2.45

BT_duty



Total time

3.750ms

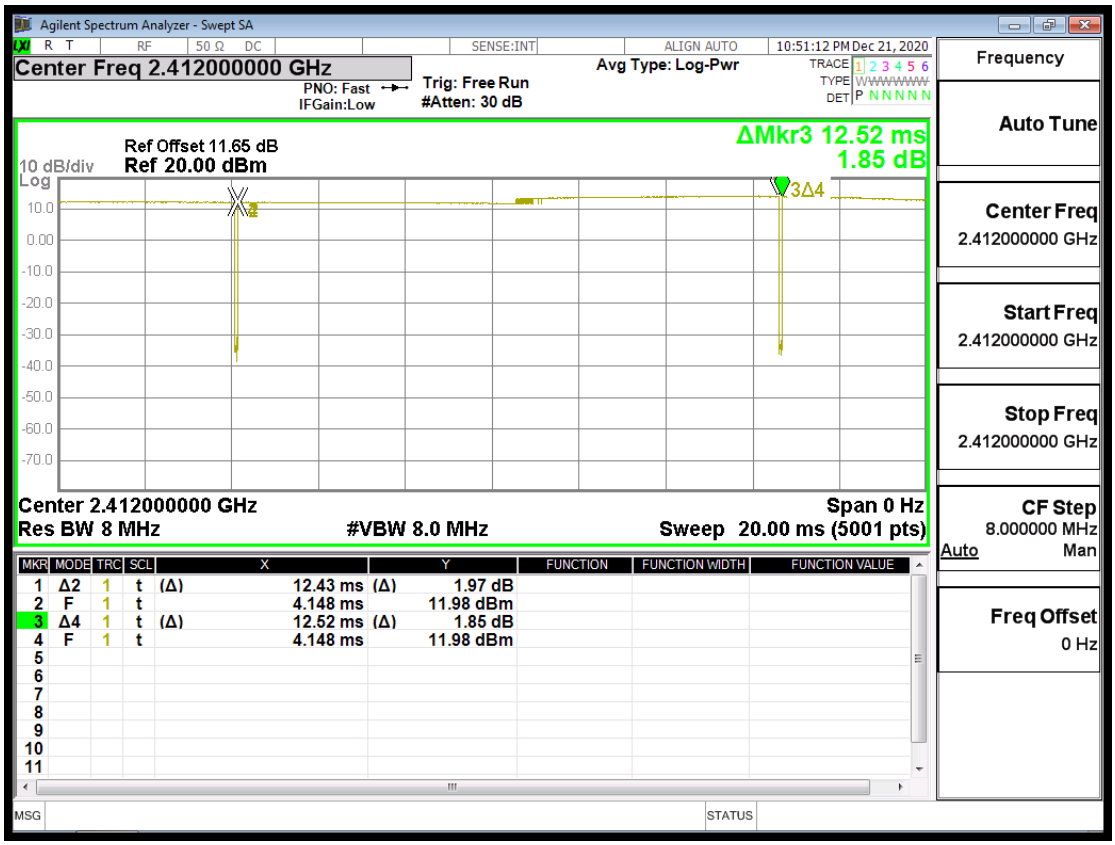
Operating time

2.895ms

Duty cycle

(2.895/3.750)×100%=77.2%

2.4G b



Total time

12.52ms

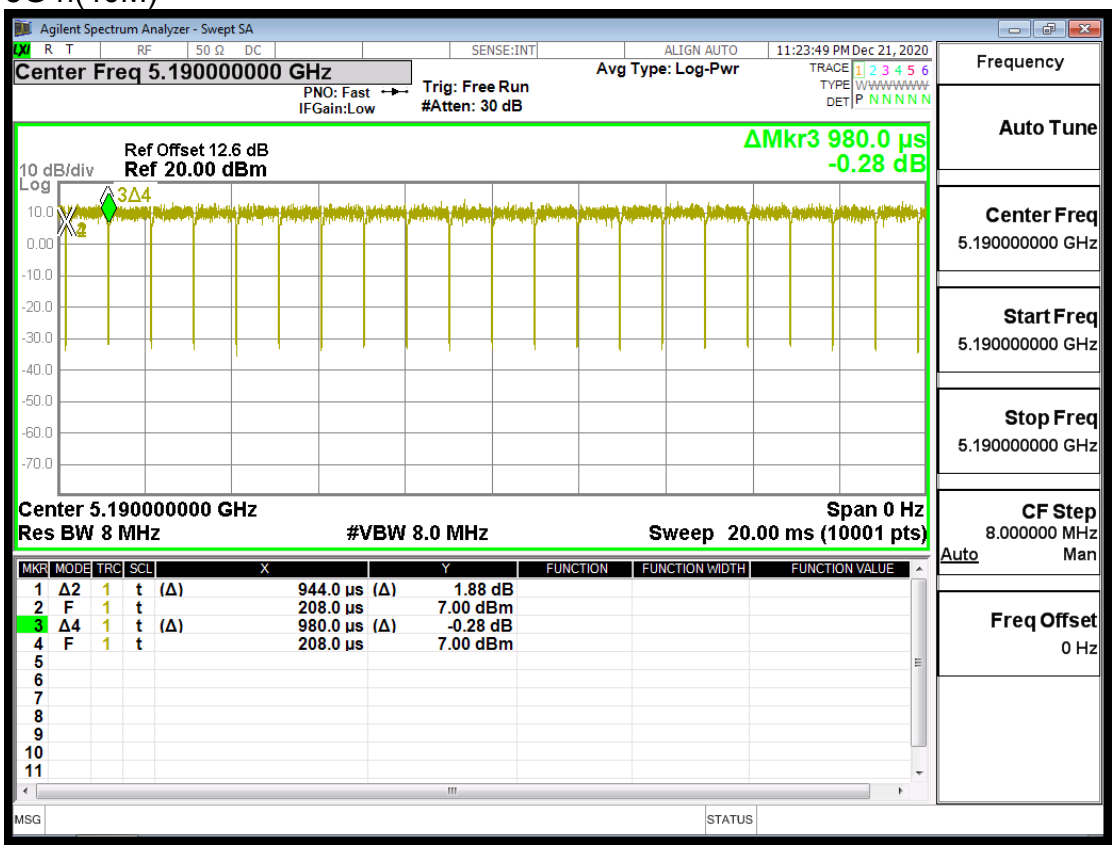
Operating time

12.43ms

Duty cycle

(12.43/12.52)×100%=99.2%

5G n(40M)



Total time

980 µs

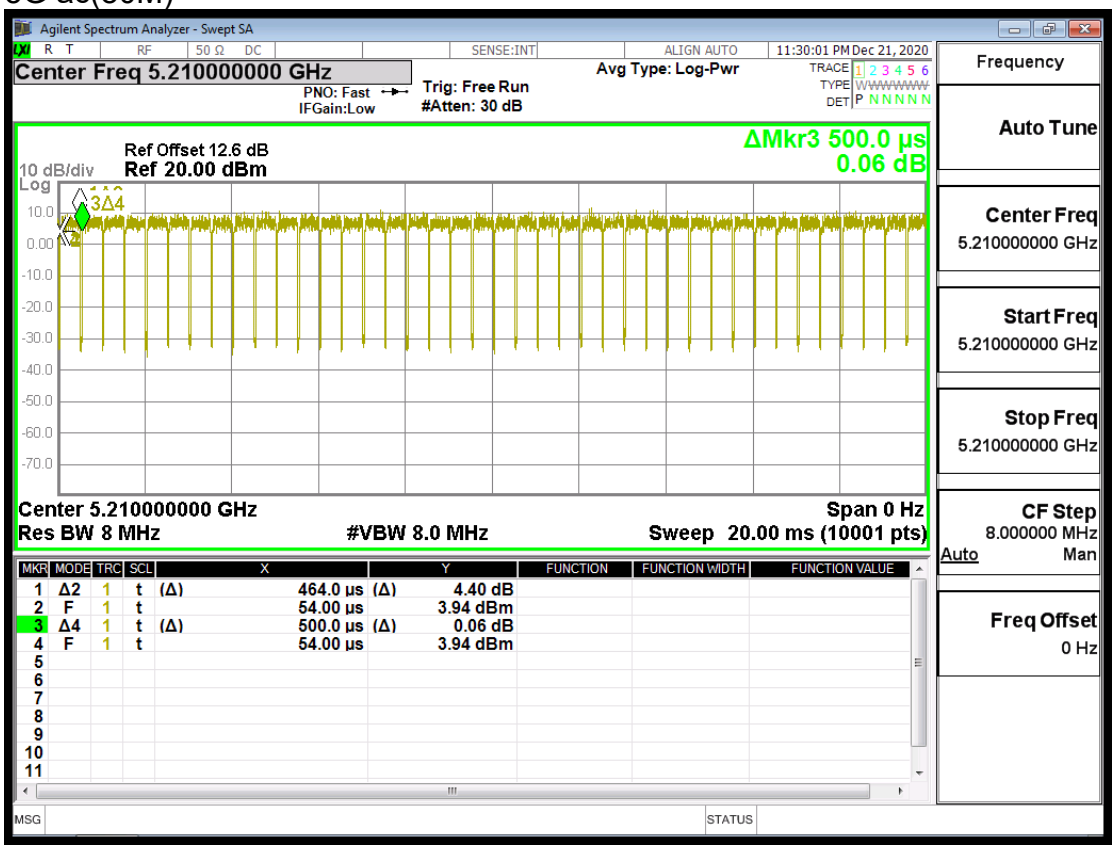
Operating time

944 µs

Duty cycle

(944/980)×100%=96.3%

5G ac(80M)



Total time

500 µs

Operating time

464 µs

Duty cycle

(464/500)×100%=92.8%

1.3.1 Uplink CA

CA_7C													
Combination 100RB + 100RB (20MHz + 20MHz)													
PCC						SCC						MPR (dB)	UL CA power	
Bandwidth [MHz]	Modulation	Frequency [MHz]	Channel	RB size	RB Offset	Bandwidth [MHz]	Modulation	Frequency [MHz]	Channel	RB size	RB Offset		Measured (dBm)	Tune-up limit (dBm)
20	QPSK	2560	21350	1	50	20	QPSK	2540.2	21152	1	99	0	23.53	25.20
20	QPSK	2510	20850	1	50	20	QPSK	2529.8	21048	1	0	0	23.49	25.20

CA_7C													
Combination 75RB + 100RB (15MHz + 20MHz)													
PCC						SCC						MPR (dB)	UL CA power	
Bandwidth [MHz]	Modulation	Frequency [MHz]	Channel	RB size	RB Offset	Bandwidth [MHz]	Modulation	Frequency [MHz]	Channel	RB size	RB Offset		Measured (dBm)	Tune-up limit (dBm)
20	QPSK	2560	21350	1	50	15	QPSK	2542.9	21179	1	74	0	23.45	25.20
20	QPSK	2510	20850	1	50	15	QPSK	2527.1	21021	1	0	0	23.42	25.20

CA_7C													
Combination 75RB + 75RB (15MHz + 15MHz)													
PCC						SCC						MPR (dB)	UL CA power	
Bandwidth [MHz]	Modulation	Frequency [MHz]	Channel	RB size	RB Offset	Bandwidth [MHz]	Modulation	Frequency [MHz]	Channel	RB size	RB Offset		Measured (dBm)	Tune-up limit (dBm)
15	QPSK	2562.5	21375	1	74	15	QPSK	2547.5	21225	1	0	0	23.36	25.20
15	QPSK	2507.5	20825	1	0	15	QPSK	2522.5	20975	1	74	0	23.24	25.20

CA_7C													
Combination 75RB + 50RB (15MHz + 10MHz)													
PCC						SCC						MPR (dB)	UL CA power	
Bandwidth [MHz]	Modulation	Frequency [MHz]	Channel	RB size	RB Offset	Bandwidth [MHz]	Modulation	Frequency [MHz]	Channel	RB size	RB Offset		Measured (dBm)	Tune-up limit (dBm)
15	QPSK	2562.5	21375	1	74	10	QPSK	2519.5	20945	1	0	0	23.33	25.20

CA_7C													
Combination 50RB + 100RB (10MHz + 20MHz)													
PCC						SCC						MPR (dB)	UL CA power	
Bandwidth [MHz]	Modulation	Frequency [MHz]	Channel	RB size	RB Offset	Bandwidth [MHz]	Modulation	Frequency [MHz]	Channel	RB size	RB Offset		Measured (dBm)	Tune-up limit (dBm)
20	QPSK	2560	21350	1	50	10	QPSK	2524.4	20994	1	0	0	23.32	25.20

CA_38C													
Combination 100RB + 100RB (20MHz + 20MHz)													
PCC						SCC						MPR (dB)	UL CA power	
Bandwidth [MHz]	Modulation	Frequency [MHz]	Channel	RB size	RB Offset	Bandwidth [MHz]	Modulation	Frequency [MHz]	Channel	RB size	RB Offset		Measured (dBm)	Tune-up limit (dBm)
20	QPSK	2580	37850	1	99	20	QPSK	2599.8	38048	1	0	0	23.56	25.20
20	QPSK	2610	38150	1	99	20	QPSK	2590.2	37952	1	0	0	23.43	25.20

CA_38C													
Combination 75RB + 75RB (15MHz + 15MHz)													
PCC						SCC						MPR (dB)	UL CA power	
Bandwidth [MHz]	Modulation	Frequency [MHz]	Channel	RB size	RB Offset	Bandwidth [MHz]	Modulation	Frequency [MHz]	Channel	RB size	RB Offset		Measured (dBm)	Tune-up limit (dBm)
15	QPSK	2612.5	38175	1	74	15	QPSK	2597.5	38025	1	0	0	23.32	25.20
15	QPSK	2577.5	37825	1	36	15	QPSK	2592.5	37975	1	74	0	23.29	25.20

CA_41C														
Combination 100RB + 100RB (20MHz + 20MHz)														
PCC						SCC						MPR (dB)	UL CA power	
Bandwidth [MHz]	Modulation	Frequency [MHz]	Channel	RB size	RB Offset	Bandwidth [MHz]	Modulation	Frequency [MHz]	Channel	RB size	RB Offset		Measured (dBm)	Tune-up limit (dBm)
20	QPSK	2680	41490	1	50	20	QPSK	2660.2	41292	1	0	0	23.84	25.20
20	QPSK	2506	39750	1	0	20	QPSK	2525.8	39948	1	99	0	23.43	25.20

CA_41C														
Combination 75RB + 100RB (15MHz + 20MHz)														
PCC						SCC						MPR (dB)	UL CA power	
Bandwidth [MHz]	Modulation	Frequency [MHz]	Channel	RB size	RB Offset	Bandwidth [MHz]	Modulation	Frequency [MHz]	Channel	RB size	RB Offset		Measured (dBm)	Tune-up limit (dBm)
20	QPSK	2680	41490	1	50	15	QPSK	2662.9	41319	1	0	0	23.81	25.20
20	QPSK	2506	39750	1	0	15	QPSK	2523.1	39921	1	74	0	23.42	25.20

CA_41C														
Combination 75RB + 75RB (15MHz + 15MHz)														
PCC						SCC						MPR (dB)	UL CA power	
Bandwidth [MHz]	Modulation	Frequency [MHz]	Channel	RB size	RB Offset	Bandwidth [MHz]	Modulation	Frequency [MHz]	Channel	RB size	RB Offset		Measured (dBm)	Tune-up limit (dBm)
15	QPSK	2682.5	41515	1	36	15	QPSK	2667.5	41365	1	0	0	23.37	25.20
15	QPSK	2503.5	39725	1	0	15	QPSK	2518.5	39875	1	74	0	23.26	25.20

CA_41C														
Combination 50RB + 100RB (10MHz + 20MHz)														
PCC						SCC						MPR (dB)	UL CA power	
Bandwidth [MHz]	Modulation	Frequency [MHz]	Channel	RB size	RB Offset	Bandwidth [MHz]	Modulation	Frequency [MHz]	Channel	RB size	RB Offset		Measured (dBm)	Tune-up limit (dBm)
20	QPSK	2680	41490	1	50	10	QPSK	2665.6	41346	1	0	0	23.72	25.20
20	QPSK	2506	39750	1	0	10	QPSK	2520.4	39894	1	49	0	23.38	25.20

CA_41C														
Combination 50RB + 75RB (10MHz + 15MHz)														
PCC						SCC						MPR (dB)	UL CA power	
Bandwidth [MHz]	Modulation	Frequency [MHz]	Channel	RB size	RB Offset	Bandwidth [MHz]	Modulation	Frequency [MHz]	Channel	RB size	RB Offset		Measured (dBm)	Tune-up limit (dBm)
15	QPSK	2682.5	41515	1	36	10	QPSK	2670.5	41395	1	0	0	23.34	25.20
15	QPSK	2503.5	39725	1	0	10	QPSK	2515.5	39845	1	49	0	23.22	25.20

CA_41C														
Combination 25RB + 100RB (5MHz + 20MHz)														
PCC						SCC						MPR (dB)	UL CA power	
Bandwidth [MHz]	Modulation	Frequency [MHz]	Channel	RB size	RB Offset	Bandwidth [MHz]	Modulation	Frequency [MHz]	Channel	RB size	RB Offset		Measured (dBm)	Tune-up limit (dBm)
20	QPSK	2680	41490	1	50	5	QPSK	2668.3	41373	1	0	0	23.66	25.20
20	QPSK	2506	39750	1	0	5	QPSK	2517.7	39867	1	24	0	23.27	25.20

CA_41C(HPUE)														
Combination 100RB + 100RB (20MHz + 20MHz)														
PCC						SCC						MPR (dB)	UL CA power	
Bandwidth [MHz]	Modulation	Frequency [MHz]	Channel	RB size	RB Offset	Bandwidth [MHz]	Modulation	Frequency [MHz]	Channel	RB size	RB Offset		Measured (dBm)	Tune-up limit (dBm)
20	QPSK	2680	41490	1	50	20	QPSK	2660.2	41292	1	0	0	25.58	27.20
20	QPSK	2506	39750	1	0	20	QPSK	2525.8	39948	1	99	0	25.43	27.20

CA_41C(HPUE)														
Combination 75RB + 100RB (15MHz + 20MHz)														
PCC						SCC						MPR (dB)	UL CA power	
Bandwidth [MHz]	Modulation	Frequency [MHz]	Channel	RB size	RB Offset	Bandwidth [MHz]	Modulation	Frequency [MHz]	Channel	RB size	RB Offset		Measured (dBm)	Tune-up limit (dBm)
20	QPSK	2680	41490	1	50	15	QPSK	2662.9	41319	1	0	0	25.51	27.20
20	QPSK	2506	39750	1	0	15	QPSK	2523.1	39921	1	74	0	25.37	27.20

CA_41C(HPUE)														
Combination 75RB + 75RB (15MHz + 15MHz)														
PCC						SCC						MPR (dB)	UL CA power	
Bandwidth [MHz]	Modulation	Frequency [MHz]	Channel	RB size	RB Offset	Bandwidth [MHz]	Modulation	Frequency [MHz]	Channel	RB size	RB Offset		Measured (dBm)	Tune-up limit (dBm)
15	QPSK	2682.5	41515	1	74	15	QPSK	2667.5	41365	1	0	0	25.37	27.20
15	QPSK	2503.5	39725	1	74	15	QPSK	2518.5	39875	1	0	0	25.30	27.20

CA_41C(HPUE)														
Combination 50RB + 100RB (10MHz + 20MHz)														
PCC						SCC						MPR (dB)	UL CA power	
Bandwidth [MHz]	Modulation	Frequency [MHz]	Channel	RB size	RB Offset	Bandwidth [MHz]	Modulation	Frequency [MHz]	Channel	RB size	RB Offset		Measured (dBm)	Tune-up limit (dBm)
20	QPSK	2680	41490	1	50	10	QPSK	2665.6	41346	1	0	0	25.45	27.20
20	QPSK	2506	39750	1	0	10	QPSK	2520.4	39894	1	49	0	25.33	27.20

CA_41C(HPUE)														
Combination 50RB + 75RB (10MHz + 15MHz)														
PCC						SCC						MPR (dB)	UL CA power	
Bandwidth [MHz]	Modulation	Frequency [MHz]	Channel	RB size	RB Offset	Bandwidth [MHz]	Modulation	Frequency [MHz]	Channel	RB size	RB Offset		Measured (dBm)	Tune-up limit (dBm)
15	QPSK	2682.5	41515	1	74	10	QPSK	2670.5	41395	1	0	0	25.34	27.20
15	QPSK	2503.5	39725	1	74	10	QPSK	2515.5	39845	1	0	0	25.25	27.20

CA_41C(HPUE)														
Combination 25RB + 100RB (5MHz + 20MHz)														
PCC						SCC						MPR (dB)	UL CA power	
Bandwidth [MHz]	Modulation	Frequency [MHz]	Channel	RB size	RB Offset	Bandwidth [MHz]	Modulation	Frequency [MHz]	Channel	RB size	RB Offset		Measured (dBm)	Tune-up limit (dBm)
20	QPSK	2680	41490	1	50	5	QPSK	2668.3	41373	1	0	0	25.41	27.20
20	QPSK	2506	39750	1	0	5	QPSK	2517.7	39867	1	24	0	25.31	27.20

1.3.2 LTE Downlink CA specification

LTE Downlink 2CA conducted power table

Two Component Carrier Maximum Conducted Power															
PCC									SCC				Power		Configurations
PCC Band	PCC Bandwidth [MHz]	PCC (UL) Channel	PCC (UL) Frequency [MHz]	Modulation	PCC (UL) RB	PCC (UL) RB Offset	PCC (DL) Channel	PCC (DL) Frequency [MHz]	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	LTE Tx.Power with DL CA active (dBm)	LTE Tx.Power with DL CA inactive (dBm)	
LTE B2	20	18700	1860	QPSK	1	0	700	1940	LTE B2	20	1100	1980	24.11	24.23	CA_2A-2A
LTE B2	20	18700	1860	QPSK	1	0	700	1940	LTE B4	20	2175	2132.5	24.14	24.23	CA_2A-4A
LTE B2	20	18700	1860	QPSK	1	0	700	1940	LTE B5	10	2450	874	24.09	24.23	CA_2A-5A
LTE B2	20	18700	1860	QPSK	1	0	700	1940	LTE B12	10	5130	741	24.04	24.23	CA_2A-12A
LTE B2	20	18700	1860	QPSK	1	0	700	1940	LTE B13	10	5230	751	24.17	24.23	CA_2A-13A
LTE B2	20	18700	1860	QPSK	1	0	700	1940	LTE B14	10	5330	763	24.16	24.23	CA_2A-14A
LTE B2	20	18700	1860	QPSK	1	0	700	1940	LTE B66	20	66536	2120	24.13	24.23	CA_2A-66A
LTE B2	20	18700	1860	QPSK	1	0	700	1940	LTE B71	20	68836	642	24.20	24.23	CA_2A-71A
LTE B4	20	20175	1732.5	QPSK	1	0	2175	2132.5	LTE B2	20	1100	1980	24.14	24.22	CA_4A-2A
LTE B4	20	20050	1720	QPSK	1	0	2050	2120	LTE B4	20	2300	2145	23.92	24.13	CA_4A-4A
LTE B4	20	20175	1732.5	QPSK	1	0	2175	2132.5	LTE B5	10	2450	874	24.10	24.22	CA_4A-5A
LTE B4	20	20175	1732.5	QPSK	1	0	2175	2132.5	LTE B7	20	3100	2655	24.02	24.22	CA_4A-7A
LTE B4	20	20175	1732.5	QPSK	1	0	2175	2132.5	LTE B12	10	5130	741	24.11	24.22	CA_4A-12A
LTE B4	20	20175	1732.5	QPSK	1	0	2175	2132.5	LTE B13	10	5230	751	24.02	24.22	CA_4A-13A
LTE B4	20	20175	1732.5	QPSK	1	0	2175	2132.5	LTE B66	20	66536	2120	24.06	24.22	CA_4A-66A
LTE B4	20	20175	1732.5	QPSK	1	0	2175	2132.5	LTE B71	20	68836	642	24.09	24.22	CA_4A-71A
LTE B5	10	20600	844	QPSK	1	0	2600	889	LTE B2	20	1100	1980	23.57	23.67	CA_5A-2A
LTE B5	10	20600	844	QPSK	1	0	2600	889	LTE B4	20	2175	2132.5	23.65	23.67	CA_5A-4A
LTE B5	10	20450	829	QPSK	1	49	2450	874	LTE B5	10	2600	889	23.46	23.65	CA_5A-5A
LTE B5	10	20600	844	QPSK	1	0	2600	889	LTE B7	20	3100	2655	23.59	23.67	CA_5A-7A
LTE B5	10	20600	844	QPSK	1	0	2600	889	LTE B30	10	9820	2355	23.48	23.67	CA_5A-30A
LTE B5	10	20600	844	QPSK	1	0	2600	889	LTE B41	20	41490	2680	23.56	23.67	CA_5A-41A
LTE B5	10	20600	844	QPSK	1	0	2600	889	LTE B66	20	66536	2120	23.60	23.67	CA_5A-66A
LTE B7	20	21100	2535	QPSK	1	50	3100	2655	LTE B4	20	2175	2132.5	23.56	23.63	CA_7A-4A
LTE B7	20	21100	2535	QPSK	1	50	3100	2655	LTE B5	10	2450	874	23.47	23.63	CA_7A-5A
LTE B7	20	21100	2535	QPSK	1	50	3100	2655	LTE B66	20	66536	2120	23.59	23.63	CA_7A-66A
LTE B12	10	23060	704	QPSK	1	49	5060	734	LTE B2	20	1100	1980	23.53	23.74	CA_12A-2A
LTE B12	10	23060	704	QPSK	1	49	5060	734	LTE B4	20	2175	2132.5	23.56	23.74	CA_12A-4A
LTE B12	10	23060	704	QPSK	1	49	5060	734	LTE B66	20	66536	2120	23.62	23.74	CA_12A-66A
LTE B13	10	23230	782	QPSK	1	25	5230	751	LTE B2	20	1100	1980	23.96	23.99	CA_13A-2A
LTE B13	10	23230	782	QPSK	1	25	5230	751	LTE B4	20	2175	2132.5	23.80	23.99	CA_13A-4A
LTE B13	10	23230	782	QPSK	1	25	5230	751	LTE B66	20	66536	2120	23.89	23.99	CA_13A-66A
LTE B14	10	23330	793	QPSK	1	0	5330	763	LTE B2	20	1100	1980	23.85	23.92	CA_14A-2A
LTE B14	10	23330	793	QPSK	1	0	5330	763	LTE B30	10	9820	2355	23.77	23.92	CA_14A-30A
LTE B14	10	23330	793	QPSK	1	0	5330	763	LTE B66	20	66536	2120	23.80	23.92	CA_14A-66A
LTE B25	20	26140	1860	QPSK	1	50	8140	1940	LTE B25	20	859	1985	23.97	24.08	CA_25A-25A
LTE B25	20	26365	1882.5	QPSK	1	0	8365	1962.5	LTE B26	15	8765	866.5	23.94	24.12	CA_25A-26A
LTE B26	15	26765	821.5	QPSK	1	0	8765	866.5	LTE B25	20	8590	1985	23.54	23.58	CA_26A-25A
LTE B26	15	26765	821.5	QPSK	1	0	8765	866.5	LTE B41	20	41490	2680	23.49	23.58	CA_26A-41A
LTE B30	10	27710	2310	QPSK	1	25	9820	2355	LTE B5	10	2450	874	23.67	23.79	CA_30A-5A
LTE B30	10	27710	2310	QPSK	1	25	9820	2355	LTE B14	10	5330	763	23.69	23.79	CA_30A-14A
LTE B30	10	27710	2310	QPSK	1	25	9820	2355	LTE B66	20	66536	2120	23.59	23.79	CA_30A-66A
LTE B41	20	39750	2506	QPSK	1	0	39750	2506	LTE B41	20	41490	2680	23.42	23.49	CA_41A-41A
LTE B41_HPUE	20	39750	2506	QPSK	1	0	39750	2506	LTE B41	20	41490	2680	25.31	25.48	CA_41A-41A
LTE B66	20	132072	1720	QPSK	1	0	66536	2120	LTE B2	20	1100	1980	24.13	24.20	CA_66A-2A
LTE B66	20	132072	1720	QPSK	1	0	66536	2120	LTE B5	10	2450	874	24.07	24.20	CA_66A-5A
LTE B66	20	132072	1720	QPSK	1	0	66536	2120	LTE B7	20	3100	2655	24.09	24.20	CA_66A-7A
LTE B66	20	132072	1720	QPSK	1	0	66536	2120	LTE B12	10	5130	741	24.12	24.20	CA_66A-12A
LTE B66	20	132072	1720	QPSK	1	0	66536	2120	LTE B13	10	5230	751	24.02	24.20	CA_66A-13A
LTE B66	20	132072	1720	QPSK	1	0	66536	2120	LTE B14	10	5330	763	24.14	24.20	CA_66A-14A
LTE B66	20	132072	1720	QPSK	1	0	66536	2120	LTE B30	10	9820	2355	24.05	24.20	CA_66A-30A
LTE B66	20	132072	1720	QPSK	1	0	66536	2120	LTE B66	20	2300	2145	24.16	24.20	CA_66A-66A
LTE B66	20	132072	1720	QPSK	1	0	66536	2120	LTE B71	20	68836	642	24.04	24.20	CA_66A-71A
LTE B71	20	133222	673	QPSK	1	0	68836	642	LTE B4	20	2175	2132.5	23.74	23.87	CA_71A-4A
LTE B71	20	133222	673	QPSK	1	0	68836	642	LTE B66	20	66536	2120	23.72	23.87	CA_71A-66A
LTE B2	20	18700	1860	QPSK	1	0	700	1940	LTE B2	20	898	1959.8	24.10	24.23	CA_2C
LTE B2	20	19100	1900	QPSK	1	50	1100	1980	LTE B2	20	902	1960.2	23.80	23.88	CA_2C
LTE B5	10	20450	829	QPSK	1	49	2450	874	LTE B5	10	2549	833.9	23.59	23.65	CA_5B
LTE B5	10	20600	844	QPSK	1	0	2600	889	LTE B5	10	2501	879.1	23.56	23.67	CA_5B
LTE B38	20	37850	2580	QPSK	1	99	37850	2580	LTE B38	20	38048	2599.8	23.60	23.68	CA_38C
LTE B38	20	38150	2610	QPSK	1	99	38150	2610	LTE B38	20	37952	2590.2	23.43	23.52	CA_38C
LTE B41	20	39750	2506	QPSK	1	0	39750	2506	LTE B41	20	39948	2525.8	23.34	23.49	CA_41C
LTE B41	20	41490	2680	QPSK	1	50	41490	2680	LTE B41	20	41292	2660.2	23.72	23.89	CA_41C
LTE B41_HPUE	20	39750	2506	QPSK	1	0	39750	2506	LTE B41	20	39948	2525.8	25.43	25.48	CA_41C
LTE B41_HPUE	20	41490	2680	QPSK	1	50	41490	2680	LTE B41	20	41292	2660.2	25.56	25.64	CA_41C
LTE B66	20	132072	1720	QPSK	1	0	66536	2120	LTE B66	20	66734	2139.8	24.13	24.20	CA_66C
LTE B66	20	132572	1770	QPSK	1	0	67036	2170	LTE B66	20	67234	2189.8	23.97	24.18	CA_66C

LTE Downlink 3CA conducted power table

Three Component Carrier Maximum Conducted Power_sensor off																			
PCC									SCC 1				SCC 2				Power		
PCC Band	PCC Bandwidth [MHz]	PCC (UL) Channel	PCC (UL) Frequency [MHz]	Modulation	PCC (UL) RB	PCC (UL) RB Offset	PCC (DL) Channel	PCC (DL) Frequency [MHz]	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	LTE Tx.Power with DL CA active (dBm)	LTE Tx.Power with DL CA inactive (dBm)	Configurations
LTE B41	20	39750	2506	QPSK	1	0	39750	2506	LTE B41	20	39948	2525.8	LTE B41	20	40146	2545.6	23.28	23.49	CA_41D
LTE B41	20	40620	2593	QPSK	1	0	40620	2593	LTE B41	20	40818	2612.8	LTE B41	20	40422	2573.2	23.55	23.61	CA_41D
LTE B41	20	41490	2680	QPSK	1	50	41490	2680	LTE B41	20	41094	2640.4	LTE B41	20	41292	2660.2	23.77	23.89	CA_41D
LTE B41_HPUE	20	39750	2506	QPSK	1	0	39750	2506	LTE B41	20	39948	2525.8	LTE B41	20	40146	2545.6	25.37	25.48	CA_41D
LTE B41_HPUE	20	40620	2593	QPSK	1	0	40620	2593	LTE B41	20	40818	2612.8	LTE B41	20	40422	2573.2	25.24	25.40	CA_41D
LTE B41_HPUE	20	41490	2680	QPSK	1	50	41490	2680	LTE B41	20	41094	2640.4	LTE B41	20	41292	2660.2	25.53	25.64	CA_41D
LTE B66	20	132072	1720	QPSK	1	0	66536	2120	LTE B66	20	66734	2139.8	LTE B66	20	66932	2159.6	24.00	24.20	CA_66D

LTE CA information

A)

The device supports downlink LTE Carrier Aggregation (CA) only. It supports a maximum of 3 carriers in the downlink. Other Release 10 features or higher features are not supported, including Enhanced SC-FDMA, Uplink MIMO or other antenna diversity configurations etc. All uplink communications are identical to the Release 8 Specifications.

The possible downlink LTE CA combinations supported by this device are as below tables per 3GPP TS 36.521-1 V16.6.0. The conducted power measurement results of downlink LTE CA are provided as above per 3GPP TS 36.521-1 V16.6.0. According to KDB 941225 D05A and RF exposure procedures in TCB workshop April 2018, the downlink LTE CA SAR test is not required.

B)

CA combination table

Index	2CC	Restriction	Completely Covered by Measurement Superset	Index	3CC	Restriction	Completely Covered by Measurement Superset
2CC #1	CA_2A-2A		No	3CC #62	CA_41D		No
2CC #2	CA_2A-4A		No	3CC #63	CA_66D		No
2CC #3	CA_2A-5A		No				
2CC #4	CA_2A-12A		No				
2CC #5	CA_2A-13A		No				
2CC #6	CA_2A-14A		No				
2CC #7	CA_2A-66A		No				
2CC #8	CA_2A-71A		No				
2CC #9	CA_4A-2A		No				
2CC #10	CA_4A-4A		No				
2CC #11	CA_4A-5A		No				
2CC #12	CA_4A-7A		No				
2CC #13	CA_4A-12A		No				
2CC #14	CA_4A-13A		No				
2CC #15	CA_4A-66A		No				
2CC #16	CA_4A-71A		No				
2CC #17	CA_5A-2A		No				
2CC #18	CA_5A-4A		No				
2CC #19	CA_5A-5A		No				
2CC #20	CA_5A-7A		No				
2CC #21	CA_5A-30A		No				
2CC #22	CA_5A-41A		No				
2CC #23	CA_5A-66A		No				
2CC #24	CA_7A-4A		No				
2CC #25	CA_7A-5A		No				
2CC #26	CA_7A-66A		No				
2CC #27	CA_12A-2A		No				
2CC #28	CA_12A-4A		No				
2CC #29	CA_12A-66A		No				
2CC #30	CA_13A-2A		No				
2CC #31	CA_13A-4A		No				
2CC #32	CA_13A-66A		No				
2CC #33	CA_14A-2A		No				
2CC #34	CA_14A-30A		No				
2CC #35	CA_14A-66A		No				
2CC #36	CA_25A-25A		No				
2CC #37	CA_25A-26A		No				
2CC #38	CA_26A-25A		No				
2CC #39	CA_26A-41A		No				
2CC #40	CA_30A-5A		No				
2CC #41	CA_30A-14A		No				
2CC #42	CA_30A-66A		No				
2CC #43	CA_41A-41A		No				
2CC #44	CA_41A-41A		No				
2CC #45	CA_66A-2A		No				
2CC #46	CA_66A-5A		No				
2CC #47	CA_66A-7A		No				
2CC #48	CA_66A-12A		No				
2CC #49	CA_66A-13A		No				
2CC #50	CA_66A-14A		No				
2CC #51	CA_66A-30A		No				
2CC #52	CA_66A-66A		No				
2CC #53	CA_66A-71A		No				
2CC #54	CA_71A-4A		No				
2CC #55	CA_71A-66A		No				
2CC #56	CA_2C		No				
2CC #57	CA_5B		No				
2CC #58	CA_38C		No				
2CC #59	CA_41C		No				
2CC #60	CA_41C		No				
2CC #61	CA_66C		No				

Note:

1) The channel spacing and aggregated channel bandwidth for CA are identical to the associated specification in 3GPP TS 36.521-1 V16.6.0.

2) The reference test frequencies for CA refers to 3GPP TS 36.508 V16.6.0

3) Testing is not required in bands or modes not intended/allowed for US operation

4) Based on TCB workshop April 2018, only indicate “No” in CA combination table need power measurement

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.

WWAN / WLAN

Notebook mode

SAR is measured with display screen open at 90 degree and bottom side of keyboard touch against the flat phantom.

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. **UMTS:** The 3G SAR test reduction procedure is applied to HSDPA with 12.2 kbps RMC as the primary mode. Since the maximum output power in a secondary mode (HSDPA) is ≤ ¼ dB higher than the primary mode (WCDMA), SAR measurement is not required for the secondary mode (HSDPA). The following 4 sub-tests were completed according to Release 5 procedures in section 5.2 of 3GPP TS 34.121. A summary of these setting are illustrated below:

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	β_{hs} (1)	CM (dB)(2)
1	2/15	15/15	64	2/15	4/15	0.0
2	12/15(3)	15/15(3)	64	12/15(3)	24/15	1.0
3	15/15	8/15	64	15/8	30/15	1.5
4	15/15	4/15	64	15/4	30/15	1.5

Note 1: Δ_{ACK}, Δ_{NACK} and $\Delta_{CQI} = 8 \Leftrightarrow A_{hs} = \beta_{hs}/\beta_c = 30/15 \Leftrightarrow \beta_{hs} = 30/15 * \beta_c$
Note 2: CM = 1 for β_c/β_d =12/15, β_{hs}/β_c=24/15.
Note 3: For subtest 2 the β_c/β_d ratio of 12/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signaled gain factors for the reference TFC (TF1, TF1) to β_c = 11/15 and β_d = 15/15.

3. **UMTS:** The 3G SAR test reduction procedure is applied to HSPA (HSUPA/HSDPA with RMC) with 12.2 kbps RMC as the primary mode. Since the maximum output power in a secondary mode (HSPA) is ≤ ¼ dB higher than the primary mode (WCDMA), SAR measurement is not required for the secondary mode (HSPA). The following 5 sub-tests were completed according to Release 6 procedures in section 5.2 of 3GPP TS 34.121. A summary of these setting are illustrated below:

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	β_{hs}(1)	β_{ec}	β_{ed}	β_{ed} (SF)	β_{ed} (codes)	CM(2) (dB)	MPR (dB)	AG(4) Index	E-TFCI
1	11/15(3)	15/15(3)	64	11/15(3)	22/15	209/225	1039/225	4	1	1.0	0.0	20	75
2	6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67
3	15/15	9/15	64	15/9	30/15	30/15	β_{ed1}: 47/15 β_{ed2}: 47/15	4	2	2.0	1.0	15	92
4	2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71
5	15/15(4)	15/15(4)	64	15/15(4)	30/15	24/15	134/15	4	1	1.0	0.0	21	81

Note 1: Δ_{ACK}, Δ_{NACK} and $\Delta_{CQI} = 8 \Leftrightarrow A_{hs} = \beta_{hs}/\beta_c = 30/15 \Leftrightarrow \beta_{hs} = 30/15 * \beta_c$.
Note 2: CM = 1 for β_c/β_d =12/15, β_{hs}/β_c=24/15. For all other combinations of DPDCH, DPCCH, HS- DPCCH, E-DPDCH and E-DPCCH the MPR is based on the relative CM difference.
Note 3: For subtest 1 the β_c/β_d ratio of 11/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signaled gain factors for the reference TFC (TF1, TF1) to β_c = 10/15 and β_d = 15/15.
Note 4: For subtest 5 the β_c/β_d ratio of 15/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signaled gain factors for the reference TFC (TF1, TF1) to β_c = 14/15 and β_d = 15/15.
Note 5: Testing UE using E-DPDCH Physical Layer category 1 Sub-test 3 is not required according to TS 25.306 Table 5.1g.
Note 6: β_{ed} cannot be set directly; it is set by Absolute Grant Value.

4. **UMTS:** The 3G SAR test reduction procedure is applied to HSPA+ with 12.2 kbps RMC as the primary mode. Since the maximum output power in a secondary mode (HSPA+) is ≤ ¼ dB higher than the primary mode (WCDMA), SAR measurement is not required for the secondary mode (HSPA+). The following 1 sub-test was completed according to Release 7 procedures in section 5.2 of 3GPP TS34.121. A summary of these settings are illustrated below:

Table C.11.1.4: β values for transmitter characteristics tests with HS-DPCCH and E-DCH with 16QAM

Sub-test	β_c (Note3)	β_d	β_{HS} (Note1)	β_{ec}	β_{ed} (2xSF2) (Note 4)	β_{ed} (2xSF4) (Note 4)	CM (dB) (Note 2)	MPR (dB) (Note 2)	AG Index (Note 4)	E-TFCI (Note 5)	E-TFCI (boost)
1	1	0	30/15	30/15	β_{ed}1: 30/15 β_{ed}2: 30/15	β_{ed}3: 24/15 β_{ed}4: 24/15	3.5	2.5	14	105	105

Note 1: Δ_{ACK}, Δ_{NACK} and Δ_{CQI} = 30/15 with $\beta_{hs} = 30/15 * \beta_c$.
Note 2: CM = 3.5 and the MPR is based on the relative CM difference, MPR = MAX(CM-1,0).
Note 3: DPDCH is not configured, therefore the β_c is set to 1 and β_d = 0 by default.
Note 4: β_{ed} can not be set directly; it is set by Absolute Grant Value.
Note 5: All the sub-tests require the UE to transmit 2SF2+2SF4 16QAM EDCH and they apply for UE using E-DPDCH category 7. E-DCH TTI is set to 2ms TTI and E-DCH table index = 2. To support these E-DCH configurations DPDCH is not allocated. The UE is signalled to use the extrapolation algorithm.

5. **UMTS:** The 3G SAR test reduction procedure is applied to DC-HSDPA with 12.2 kbps RMC as the primary mode. Power is measured for DC-HSDPA according to the H-Set 12, FRC configuration in Table C.8.1.12 of 3GPP TS 34.121-1 to determine SAR test reduction. A primary and a secondary serving HS-DSCH Cell are required to perform the power measurement and for the results to be acceptable. Since the maximum output power in a secondary mode (DC-HSDPA) is ≤ ¼ dB higher than the primary mode (WCDMA), SAR measurement is not required for the secondary mode (DC-HSDPA). The following tests were completed according to procedures in section 7.3.13 of 3GPP TS 34.108 v9.5.0. A summary of these setting are illustrated below:

   The configurations of the fixed reference channels for HSDPA RF tests are described in 3GPP TS 34.121, annex C for FDD and 3GPP TS 34.122

Table C.8.1.12: Fixed Reference Channel H-Set 12

Parameter	Unit	Value
Nominal Avg. Inf. Bit Rate	kbps	60
Inter-TTI Distance	TTI's	1
Number of HARQ Processes	Processes	6
Information Bit Payload (N_{INF})	Bits	120
Number Code Blocks	Blocks	1
Binary Channel Bits Per TTI	Bits	960
Total Available SML's in UE	SML's	19200
Number of SML's per HARQ Proc.	SML's	3200
Coding Rate		0.15
Number of Physical Channel Codes	Codes	1
Modulation		QPSK
Note 1: The RMC is intended to be used for DC-HSDPA mode and both cells shall transmit with identical parameters as listed in the table.		
Note 2: Maximum number of transmission is limited to 1, i.e., retransmission is not allowed. The redundancy and constellation version 0 shall be used.		

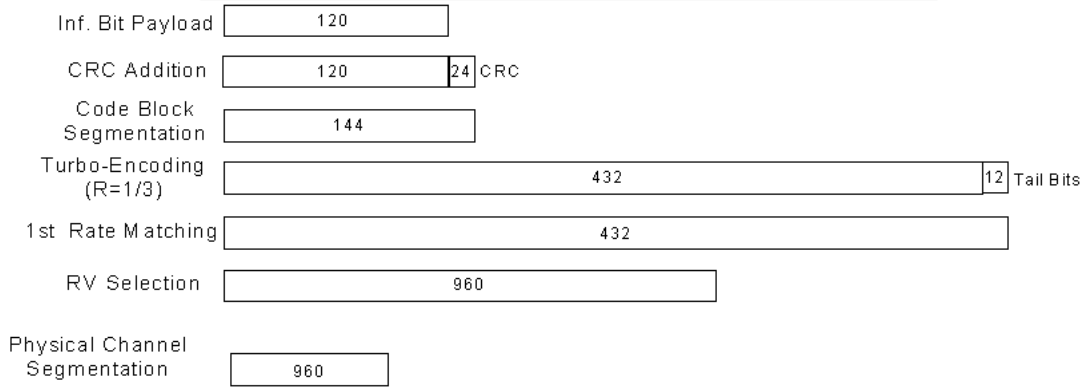


Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)

The following 4 sub-tests for HSDPA were completed according to Release 8 procedures in section 5.2 of 3GPP TS34.121. A summary of subtest settings are illustrated below:

Sub-test	β_c	β_d	β_d *(SF)*	β_c/β_d	β_{hs} (1)	CM (dB) (2)
1	2/15	15/15	64	2/15	4/15	0.0
2	12/15 (3)	15/15 (3)	64	12/15 (3)	24/15	1.0
3	15/15	8/15	64	15/8	30/15	1.5
4	15/15	4/15	64	15/4	30/15	1.5

Note 1: Δ_{ACK}, Δ_{NACK} and $\Delta_{CQI} = 8 \Leftrightarrow A_{hs} = \beta_{hs}/\beta_c = 30/15 \Leftrightarrow \beta_{hs} = 30/15 * \beta_c$
Note 2: CM = 1 for β_c/β_d =12/15, β_{hs}/β_c=24/15.
Note 3: For subtest 2 the β_c/β_d ratio of 12/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signaled gain factors for the reference TFC (TF1, TF1) to β_c = 11/15 and β_d = 15/15.

6. **LTE:** LTE modes test according to **KDB 941225D05v02r05.**

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

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

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

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

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

- For QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation in 5.2.1 and 5.2.2 are ≤ 0.8 W/kg.
- Otherwise, SAR is measured for the highest output power channel and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.

d. Per Section 5.2.4, Higher order modulations

- For each modulation besides QPSK; e.g., 16-QAM, 64-QAM, apply the QPSK procedures in sections 5.2.1, 5.2.2 and 5.2.3 to determine the QAM configurations that may need SAR measurement. For each configuration identified as required for testing, SAR is required only when the highest maximum output power for the configuration in the higher order modulation is > ½ dB higher than the same configuration in QPSK or when the reported SAR for the QPSK configuration is > 1.45 W/kg.

e. Per Section 5.3, other channel bandwidth standalone SAR test requirements

- For the other channel bandwidths used by the device in a frequency band, apply all the procedures required for the largest channel bandwidth in section 5.2 to determine the channels and RB configurations that need SAR testing and only measure SAR when the highest maximum output power of a configuration requiring testing in the smaller channel bandwidth is > ½ dB higher than the equivalent channel configurations in the largest channel bandwidth configuration or the reported SAR of a configuration for the largest channel bandwidth is > 1.45 W/kg. The equivalent channel configuration for the RB allocation, RB offset and modulation etc. is determined for the smaller channel bandwidth according to the same number of RB allocated in the largest channel bandwidth.
- TDD LTE was tested at highest duty factor using UL-DL configuration 0 with 6 UL subframes and 2 special subframes using extended cyclic prefix only and special subframe configuration 6. SAR tests were performed at maximum output power and worst-case transmission duty factor in extended cyclic prefix. Per 3GPP 36.211 Section 4.2, the duty factor for UL-DL configuration 0/special subframe configuration 6 using extended cyclic prefix is 0.633.

According to KDB 941225 D05, SAR testing for TDD LTE must be tested using a fixed periodic duty factor according to the highest transmission duty factor implemented for the device and supported by the defined 3GPP TDD LTE configurations. The TDD-LTE of this device supports frame structure type 2 defined in 3GPP TS 36.211 section 4.2, and the frame structure configuration can be tabulated as below.

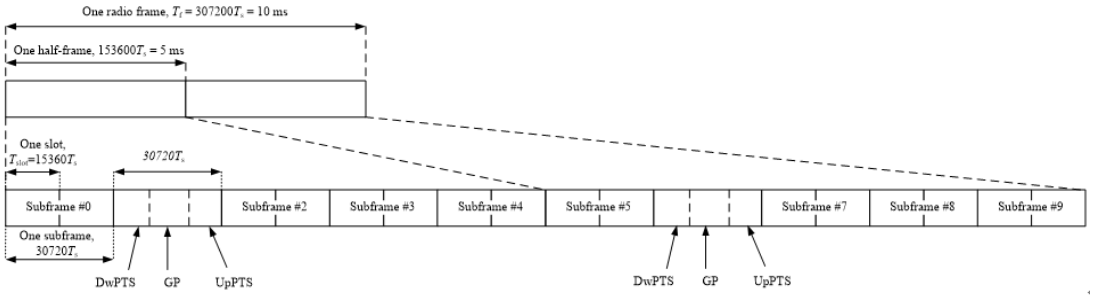


Figure 4.2-1: Frame structure type 2 (for 5 ms switch-point periodicity)

Table 4.2-1: Configuration of special subframe (lengths of DwPTS/GP/UpPTS)

Special subframe configuration	Normal cyclic prefix in downlink			Extended cyclic prefix in downlink		
	DwPTS	UpPTS		DwPTS	UpPTS	
		Normal cyclic prefix in uplink	Extended cyclic prefix in uplink		Normal cyclic prefix in uplink	Extended cyclic prefix in uplink
0	$6592 \cdot T_s$	$(1+X) \cdot 2192 \cdot T_s$	$(1+X) \cdot 2560 \cdot T_s$	$7680 \cdot T_s$	$(1+X) \cdot 2192 \cdot T_s$	$(1+X) \cdot 2560 \cdot T_s$
1	$19760 \cdot T_s$			$20480 \cdot T_s$		
2	$21952 \cdot T_s$			$23040 \cdot T_s$		
3	$24144 \cdot T_s$			$25600 \cdot T_s$		
4	$26336 \cdot T_s$			$7680 \cdot T_s$	$(2+X) \cdot 2192 \cdot T_s$	$(2+X) \cdot 2560 \cdot T_s$
5	$6592 \cdot T_s$	$(2+X) \cdot 2192 \cdot T_s$	$(2+X) \cdot 2560 \cdot T_s$	$20480 \cdot T_s$		
6	$19760 \cdot T_s$			$23040 \cdot T_s$		
7	$21952 \cdot T_s$			$12800 \cdot T_s$		
8	$24144 \cdot T_s$			-	-	-
9	$13168 \cdot T_s$			-	-	-

Table 4.2-2: Uplink-downlink configurations

Uplink-downlink configuration	Downlink-to-Uplink Switch-point periodicity	Subframe number									
		0	1	2	3	4	5	6	7	8	9
0	5 ms	D	S	U	U	U	D	S	U	U	U
1	5 ms	D	S	U	U	D	D	S	U	U	D
2	5 ms	D	S	U	D	D	D	S	U	D	D
3	10 ms	D	S	U	U	U	D	D	D	D	D
4	10 ms	D	S	U	U	D	D	D	D	D	D
5	10 ms	D	S	U	D	D	D	D	D	D	D
6	5 ms	D	S	U	U	U	D	S	U	U	D

Considering the highest transmission duty cycle, TDD LTE power class 3 was tested using Uplink-Downlink configuration 0 with 6 uplink subframe and 2 special subframe. The special subframe was set to special subframe configuration 6 using extended cyclic prefix uplink. Therefore, SAR testing for TDD LTE was measured at the maximum output power with highest transmission duty cycle of 63.33%. Also, TDD LTE power class 2 was tested using Uplink-Downlink configuration 1 with 4 uplink subframe and 2 special subframe. The special subframe was set to special subframe configuration 6 using extended cyclic prefix uplink. Therefore, SAR testing for TDD LTE was measured at the maximum output power with highest transmission duty cycle of 43.33%

7. **LTE downlink CA:** The device supports a maximum of 3 carriers in the downlink.

All uplink communications are identical to the Release 8 specifications. Uplink maximum output power is measured with downlink carrier aggregation active, only for the channel with highest measured maximum output power when downlink carrier aggregation is inactive, to confirm that when downlink carrier aggregation is active uplink maximum output power remains within the specified tune-up tolerance limits and not more than ¼ dB higher than the maximum output power measured when downlink carrier aggregation inactive. The downlink channels selected to perform the uplink power measurement must satisfy 3GPP channel spacing (5.4.1A of 3GPP TS 36.521 or equivalent) and channel bandwidth (5.4.2A) requirements. The nominal channel spacing is determined by [BW1 + BW2 – 0.1*|BW1 – BW2|]/2 MHz, where BW1 and BW2 are the channel bandwidths of the CC in a 2-CC aggregation configuration. The downlink PCC channel should be paired with the uplink channel according to normal configurations, as if there is no carrier aggregation. The downlink SCC should be adjacent to the PCC and remain within the downlink transmission band for contiguous intra-band CA. For non-contiguous intra-band CA, the SCC should be selected to provide maximum separation from the PCC and must remain fully within the downlink transmission band. For inter-band CA, the SCC should be near the middle of its transmission band. When downlink carrier aggregation is active uplink maximum output power remain within the specified tune-up tolerance limits and not more than ¼ dB higher than the maximum output power measured when downlink carrier aggregation inactive, so SAR evaluation is not required for downlink carrier aggregation.

8. **LTE intra-band UL CA (contiguous):** The device supports LTE intra-band contiguous 2 UL CA for CA_7C, CA_38C, CA_41C. The maximum output power is measured for each UL CA configuration for the required test channels. UL PCC configuration is determined by the required test channel. SCC and subsequent CCs are added alternatively to either side of the PCC or within the transmission band for channels at the ends of a frequency band. SAR for UL CA is required in highest standalone test position and frequency band combination. Since the maximum output for UL CA is ≦ standalone LTE mode (without CA), PCC is configured according to the highest standalone SAR configuration tested, SCC and subsequent CCs are configured according to procedures used for power

measurement and parameters (BW, RB etc.) similar to that used for the PCC.

9. **General:** 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. 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).

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.

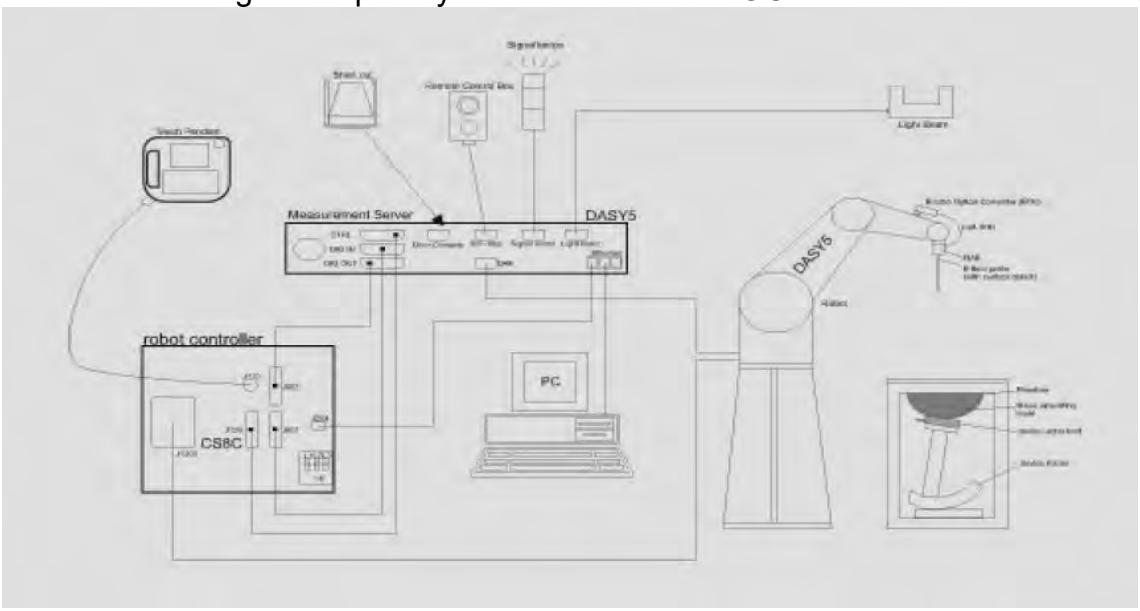


Fig. a The block diagram of SAR system

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. Tissue simulating liquid mixed according to the given recipes.
11. Validation dipole kits allowing to validate the proper functioning of the system.

1.7 System Components

EX3DV4 E-Field Probe

Construction	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)	
Calibration	Basic Broad Band Calibration in air Conversion Factors (CF) for HSL 750/835/1750/1900/2300/2450/2600 /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%.	

PHANTOM

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

DEVICE HOLDER

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

1.8 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 750/835/1750/1900/2300/2450/ 2600/5200/5300/5600/5800MHz. 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 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.

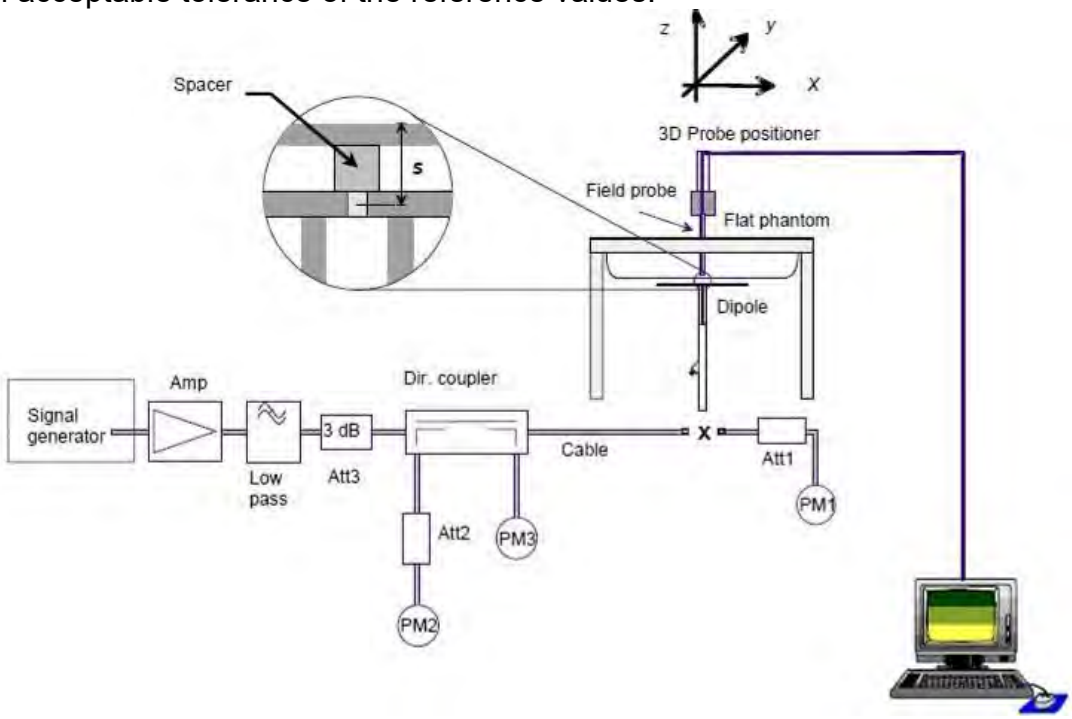


Fig. b The block diagram of system verification

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	8.48	2.14	8.56	0.94%	Jan. 16, 2021
D835V2	4d063	835	Head	9.52	2.24	8.96	-5.88%	Jan. 17, 2021
D1750V2	1008	1750	Head	36.00	8.68	34.72	-3.56%	Jan. 18, 2021
D1900V2	5d173	1900	Head	39.40	9.87	39.48	0.20%	Jan. 19, 2021
D2300V2	1023	2300	Head	49.00	12.20	48.80	-0.41%	Jan. 20, 2021
D2600V2	1005	2600	Head	57.30	14.30	57.20	-0.17%	Jan. 21, 2021
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
D2450V2	727	2450	Head	52.6	13.90	55.6	5.70%	Jan. 11, 2021
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	80.1	7.77	77.7	-3.00%	Jan. 12, 2021
		5300	Head	82.8	7.82	78.2	-5.56%	Jan. 13, 2021
		5600	Head	83.1	8.89	88.9	6.98%	Jan. 14, 2021
		5800	Head	81.4	8.56	85.6	5.16%	Jan. 15, 2021

Table 1. Results of system verification

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.
The depth of the tissue simulant in the flat section of the phantom was ≥ 15 cm ± 5 mm (Frequency ≤3G) or ≥ 10 cm ± 5 mm (Frequency >3G) during all tests. (Fig. 2)

Tissue Type	Measurement Date	Measured Frequency (MHz)	Target Dielectric Constant, εr	Target Conductivity, σ (S/m)	Measured Dielectric Constant, εr	Measured Conductivity, σ (S/m)	% dev εr	% dev σ
Head	Jan, 11. 2021	2402	39.285	1.757	40.160	1.816	2.23%	3.34%
		2412	39.268	1.766	40.140	1.829	2.22%	3.55%
		2437	39.223	1.788	40.010	1.857	2.01%	3.83%
		2441	39.216	1.792	39.988	1.863	1.97%	3.96%
		2450	39.200	1.800	39.950	1.874	1.91%	4.11%
		2457	39.191	1.808	39.930	1.894	1.89%	4.78%
		2480	39.162	1.833	39.830	1.915	1.71%	4.49%
	Jan, 12. 2021	5190	35.997	4.645	36.950	4.593	2.65%	-1.11%
		5200	35.986	4.655	36.850	4.595	2.40%	-1.29%
		5230	35.951	4.686	36.680	4.680	2.03%	-0.12%
	Jan, 13. 2021	5270	35.906	4.727	36.733	4.734	2.30%	0.15%
		5300	35.871	4.758	36.554	4.741	1.90%	-0.35%
		5310	35.860	4.768	36.460	4.775	1.67%	0.15%
	Jan, 14. 2021	5530	35.609	4.993	35.770	5.048	0.45%	1.10%
		5600	35.529	5.065	35.699	5.102	0.48%	0.73%
		5610	35.517	5.075	35.608	5.124	0.26%	0.96%
		5690	35.426	5.157	35.463	5.262	0.11%	2.03%
	Jan, 15. 2021	5775	35.329	5.244	35.178	5.392	-0.43%	2.81%
		5800	35.300	5.270	34.686	5.424	-1.74%	2.92%

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	Jan, 16. 2021	673.00	42.342	0.887	43.195	0.848	2.02%	-4.44%
		680.50	42.279	0.888	43.090	0.854	1.92%	-3.86%
		688.00	42.264	0.889	43.000	0.859	1.74%	-3.33%
		704.00	42.181	0.890	42.986	0.862	1.91%	-3.12%
		707.50	42.162	0.890	42.900	0.876	1.75%	-1.58%
		709.00	42.155	0.890	42.880	0.877	1.72%	-1.48%
		710.00	42.149	0.890	42.857	0.880	1.68%	-1.15%
		711.00	42.144	0.890	42.840	0.898	1.65%	0.86%
		750.00	41.942	0.893	42.826	0.908	2.11%	1.64%
		782.00	41.775	0.896	42.812	0.911	2.48%	1.69%
		793.00	41.718	0.897	42.805	0.916	2.61%	2.15%
	Jan, 17. 2021	821.50	41.570	0.899	42.427	0.922	2.06%	2.56%
		826.40	41.545	0.899	42.322	0.924	1.87%	2.74%
		826.50	41.544	0.899	42.360	0.926	1.96%	2.96%
		829.00	41.531	0.900	42.340	0.935	1.95%	3.94%
		831.50	41.518	0.900	42.300	0.940	1.88%	4.48%
		835.00	41.500	0.900	42.263	0.941	1.84%	4.56%
		836.60	41.500	0.902	42.260	0.943	1.83%	4.58%
		841.50	41.500	0.907	42.190	0.944	1.66%	4.08%
		844.00	41.500	0.910	42.173	0.948	1.62%	4.21%
		846.60	41.500	0.912	42.110	0.956	1.47%	4.77%
	Jan, 18. 2021	1720.00	40.126	1.354	38.867	1.316	-3.14%	-2.78%
		1732.50	40.107	1.361	38.852	1.326	-3.13%	-2.57%
		1745.00	40.087	1.368	38.810	1.335	-3.19%	-2.42%
		1750.00	40.079	1.371	38.781	1.339	-3.24%	-2.34%
		1770.00	40.047	1.383	38.730	1.354	-3.29%	-2.07%
	Jan, 19. 2021	1852.40	40.000	1.400	38.451	1.421	-3.87%	1.50%
		1860.00	40.000	1.400	38.411	1.426	-3.97%	1.86%
		1880.00	40.000	1.400	38.360	1.439	-4.10%	2.79%
		1882.50	40.000	1.400	38.314	1.443	-4.22%	3.07%
		1900.00	40.000	1.400	38.308	1.452	-4.23%	3.71%
		1905.00	40.000	1.400	38.280	1.457	-4.30%	4.07%
		1907.60	40.000	1.400	38.260	1.461	-4.35%	4.36%
	Jan, 20. 2021	2300.00	39.467	1.667	38.212	1.691	-3.18%	1.46%
		2310.00	39.449	1.676	38.106	1.701	-3.40%	1.52%
	Jan, 21. 2021	2506.00	39.129	1.861	37.871	1.946	-3.21%	4.56%
		2510.00	39.124	1.865	37.812	1.950	-3.35%	4.53%
		2535.00	39.092	1.893	37.787	1.976	-3.34%	4.40%
		2549.50	39.073	1.909	37.744	1.984	-3.40%	3.95%
		2560.00	39.060	1.920	37.710	1.996	-3.46%	3.96%
		2580.00	39.035	1.942	37.688	2.022	-3.45%	4.13%
		2593.00	39.018	1.956	37.652	2.031	-3.50%	3.83%
		2595.00	39.015	1.958	37.623	2.048	-3.57%	4.59%
		2600.00	39.009	1.964	37.601	2.055	-3.61%	4.65%
		2610.00	38.996	1.975	37.578	2.059	-3.64%	4.28%
		2636.50	38.963	2.003	37.511	2.089	-3.73%	4.27%
		2680.00	38.907	2.051	37.449	2.145	-3.75%	4.59%

Table 2. Dielectric Parameters of Tissue Simulant Fluid

The composition of the body tissue simulating liquid:

Frequency (MHz)	Mode	Ingredient						Total amount
		DGMBE	Water	Salt	Preventol D-7	Cellulose	Sugar	
750	Head	—	532.98 g	18.3 g	2.4 g	3.2 g	766 g	1.3L(Kg)
850	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)
2300	Head	550ml	450ml	—	—	—	—	1.0L(Kg)
2450	Head	550ml	450ml	—	—	—	—	1.0L(Kg)
2600	Head	550ml	450ml	—	—	—	—	1.0L(Kg)

Body Simulating Liquids for 5 GHz, Manufactured by SPEAG:

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

Table 3. Recipes for Tissue Simulating Liquid

1.10 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.

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:

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 assessment of the dielectric parameters of the liquid.

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

References

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

1.12 Test Standards and Limits

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

1. Limits for Occupational/Controlled exposure: 0.4 W/kg as averaged over the whole-body and spatial peak SAR not exceeding 8 W/kg as averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube). Exceptions are the hands, wrists, feet and ankles where the spatial peak SAR shall not exceed 20 W/kg, as averaged over an 10 grams of tissue (defined as a tissue volume in the shape of a cube).
2. Occupational/Controlled limits apply when persons are exposed as a consequence of their employment provided these persons are fully aware of and exercise control over their exposure. Awareness of exposure can be accomplished by use of warning labels or by specific training or education through appropriate means, such as an RF safety program in a work environment.
3. Limits for General Population/Uncontrolled exposure: 0.08 W/kg as averaged over the whole-body and spatial peak SAR not exceeding 1.6 W/kg as averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube). Exceptions are the hands, wrists, feet and ankles where the spatial peak SAR shall not exceed 4 W/kg, as averaged over any 10 grams of

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

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

Table 4. RF exposure limits

Notes:

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

2. Summary of Results

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

Notebook mode

WCDMA Band II / Band V

Band	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page
								Measured	Reported	
WCDMA Band II	Bottom side	0	9262	1852.4	25.7	24.27	139.00%	0.003	0.004	98
WCDMA Band V	Bottom side	0	4132	826.4	25.2	24.02	131.22%	0.014	0.018	99

LTE FDD Band 2 / Band 4 / Band 5 / Band 7 / Band 12 / Band 13 / Band 14 / Band 17 / Band 25 / Band 26 / Band 30 / LTE TDD Band 38 / Band 41 / LTE FDD Band 66 / Band 71

Band	Bandwidth (MHz)	Modulation	RB Size	RB start	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page
												Measured	Reported	
LTE Band 2	20MHz	QPSK	1 RB	0	Bottom side	0	18700	1860	25.7	24.23	140.28%	0.004	0.006	100
			50 RB	0	Bottom side	0	19100	1900	24.7	23.00	147.91%	0.003	0.005	-
			100 RB		Bottom side	0	18900	1880	24.7	22.93	150.31%	0.003	0.005	-
LTE Band 4	20MHz	QPSK	1 RB	0	Bottom side	0	20175	1732.5	25.7	24.22	140.60%	0.008	0.011	101
			50 RB	25	Bottom side	0	20300	1745	24.7	23.00	147.91%	0.004	0.006	-
			100 RB		Bottom side	0	20300	1745	24.7	22.99	148.25%	0.004	0.006	-
LTE Band 5	10MHz	QPSK	1 RB	0	Bottom side	0	20600	844	25.2	23.67	142.23%	0.015	0.021	102
			25 RB	25	Bottom side	0	20450	829	24.2	22.50	147.91%	0.012	0.017	-
			50 RB		Bottom side	0	20525	826.5	24.2	22.41	151.01%	0.010	0.016	-
LTE Band 7	20MHz	QPSK	1 RB	50	Bottom side	0	21100	2535	25.2	23.63	143.55%	0.061	0.088	103
			50 RB	25	Bottom side	0	21350	2560	24.2	22.97	132.74%	0.043	0.056	-
			100 RB		Bottom side	0	21100	2535	24.2	22.94	133.66%	0.039	0.052	-
7C	20MHz	QPSK	1 RB	50	Bottom side	0	21350	2560	25.2	23.53	146.89%	0.060	0.088	-
LTE Band 12	10MHz	QPSK	1 RB	49	Bottom side	0	23060	704	25.2	23.74	139.96%	0.017	0.023	104
			25 RB	0	Bottom side	0	23060	704	24.2	23.20	125.89%	0.015	0.019	-
			50 RB		Bottom side	0	23095	707.5	24.2	23.18	126.47%	0.014	0.017	-
LTE Band 13	10MHz	QPSK	1 RB	25	Bottom side	0	23230	782	25.2	23.99	132.13%	0.027	0.036	105
			25 RB	25	Bottom side	0	23230	782	24.2	22.70	141.25%	0.019	0.027	-
			50 RB		Bottom side	0	23230	782	24.2	22.66	142.56%	0.017	0.024	-
LTE Band 14	10MHz	QPSK	1 RB	0	Bottom side	0	23330	793	25.2	23.92	134.28%	0.028	0.038	106
			25 RB	0	Bottom side	0	23330	793	24.2	22.67	142.23%	0.020	0.028	-
			50 RB		Bottom side	0	23330	793	24.2	22.70	141.25%	0.022	0.031	-
LTE Band 17	10MHz	QPSK	1 RB	49	Bottom side	0	23790	710	25.2	23.89	135.21%	0.018	0.024	107
			25 RB	12	Bottom side	0	23800	711	24.2	22.60	144.54%	0.015	0.022	-
			50 RB		Bottom side	0	23780	709	24.2	22.52	147.23%	0.012	0.018	-
LTE Band 25	20MHz	QPSK	1 RB	0	Bottom side	0	26365	1882.5	25.7	24.12	143.88%	0.009	0.013	108
			50 RB	25	Bottom side	0	26365	1882.5	24.7	22.96	149.28%	0.007	0.010	-
			100 RB		Bottom side	0	26365	1882.5	24.7	22.92	150.66%	0.006	0.009	-
LTE Band 26	15MHz	QPSK	1 RB	0	Bottom side	0	26765	821.5	25.2	23.58	145.21%	0.018	0.026	109
			36 RB	0	Bottom side	0	26765	821.5	24.2	22.37	152.41%	0.016	0.024	-
			75 RB		Bottom side	0	26865	831.5	24.2	22.39	151.71%	0.013	0.020	-
LTE Band 30	10MHz	QPSK	1 RB	25	Bottom side	0	27710	2310	24	23.79	104.95%	0.078	0.082	110
			25 RB	25	Bottom side	0	27710	2310	23	21.66	136.14%	0.052	0.071	-
			50 RB		Bottom side	0	27710	2310	23	21.56	139.32%	0.047	0.065	-
LTE Band 38	20MHz	QPSK	1 RB	99	Bottom side	0	37850	2580	25.2	23.68	141.91%	0.009	0.013	111
			50 RB	49	Bottom side	0	38150	2610	24.2	22.39	151.71%	0.007	0.011	-
			100 RB		Bottom side	0	38150	2610	24.2	22.33	153.82%	0.005	0.008	-
38C	20MHz	QPSK	1 RB	99	Bottom side	0	37850	2580	25.2	23.56	145.88%	0.008	0.012	-
LTE Band 41	20MHz	QPSK	1 RB	50	Bottom side	0	41490	2680	25.2	23.89	135.21%	0.030	0.041	112
			50 RB	25	Bottom side	0	41490	2680	24.2	22.39	151.71%	0.026	0.039	-
			100 RB		Bottom side	0	41055	2636.5	24.2	22.36	152.76%	0.025	0.038	-
41C	20MHz	QPSK	1 RB	50	Bottom side	0	41490	2680	25.2	23.84	136.77%	0.029	0.040	-
LTE Band 41 (HPUE)	20MHz	QPSK	1 RB	0	Bottom side	0	41055	2636.5	27.2	25.69	141.58%	0.012	0.017	113
			50 RB	25	Bottom side	0	41055	2636.5	26.2	24.39	151.71%	0.009	0.014	-
			100 RB		Bottom side	0	39750	2506	26.2	24.39	151.71%	0.008	0.012	-
41C	20MHz	QPSK	1 RB	0	Bottom side	0	41490	2680	27.2	25.58	145.21%	0.010	0.015	-
LTE Band 66	20MHz	QPSK	1 RB	0	Bottom side	0	132072	1720	25.2	24.20	125.89%	0.011	0.014	114
			50 RB	49	Bottom side	0	132572	1770	24.2	22.87	135.83%	0.009	0.012	-
			100 RB		Bottom side	0	132322	1745	24.2	22.89	135.21%	0.006	0.008	-
LTE Band 71	20MHz	QPSK	1 RB	0	Bottom side	0	133222	673	25.2	23.87	135.83%	0.014	0.019	115
			50 RB	0	Bottom side	0	133297	680.5	24.2	22.39	151.71%	0.011	0.017	-
			100 RB		Bottom side	0	133297	680.5	24.2	22.29	155.24%	0.008	0.012	-

* - Uplink CA

WLAN Aux Antenna

Antenna	Mode	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Duty cycle scaling	Power scaling	Averaged SAR over 1g (W/kg)		Plot page
										Measured	Reported	
Aux	WLAN 802.11b	Bottom side	0	1	2412	18.00	17.91	1.008	102.09%	0.028	0.029	116
	WLAN 802.11n(40M) 5.2G	Bottom side	0	46	5230	18.00	17.74	1.038	106.17%	0.054	0.060	117
	WLAN 802.11n(40M) 5.3G	Bottom side	0	54	5270	18.00	17.64	1.038	108.64%	0.051	0.058	118
	WLAN 802.11ac(80M) 5.6G	Bottom side	0	138	5690	18.00	17.96	1.078	100.93%	0.001	0.001	119
	WLAN 802.11ac(80M) 5.8G	Bottom side	0	155	5775	18.00	17.72	1.078	106.66%	0.025	0.029	120

WLAN Main Antenna

Antenna	Mode	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Duty cycle scaling	Power scaling	Averaged SAR over 1g (W/kg)		Plot page
										Measured	Reported	
Main	WLAN 802.11b	Bottom side	0	1	2412	18.00	17.95	1.008	101.16%	0.007	0.007	121
	Bluetooth(GFSK)	Bottom side	0	39	2441	12.00	10.63	1.295	137.09%	0.006	0.011	122
	WLAN 802.11n(40M) 5.2G	Bottom side	0	46	5230	18.00	17.76	1.038	105.68%	0.024	0.026	123
	WLAN 802.11n(40M) 5.3G	Bottom side	0	54	5270	18.00	17.84	1.038	103.75%	0.019	0.020	124
	WLAN 802.11ac(80M) 5.6G	Bottom side	0	122	5610	18.00	17.58	1.078	110.15%	0.029	0.034	125
	WLAN 802.11ac(80M) 5.8G	Bottom side	0	155	5775	18.00	17.61	1.078	109.40%	0.023	0.027	126

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.

3. Simultaneous Transmission Analysis

Simultaneous Transmission Scenarios:

NO.	Simultaneous Transmit Configurations	Body
1	WWAN + WLAN 2.4GHz MIMO	YES
2	WWAN + WLAN 5GHz MIMO	YES
3	WWAN + BT Main + WLAN 2.4GHz Main + WLAN 2.4GHz Aux	YES
4	WWAN + BT Main + WLAN 5GHz Main + WLAN 5GHz Aux	YES

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:

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

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.

The simultaneous Transmission conditions (Notebook mode)

Exposure position 1g(W/kg)	Exposure position 1g(W/kg)	0	1	2	3	4	5	Scenario 1	Scenario 2	Scenario 3	Scenario 4	SPLSR
		WWAN	WLAN 2.4GHz Main	WLAN 2.4GHz Aux	WLAN 5GHz Main	WLAN 5GHz Aux	BT (Main)	0+1+2 Sum	0+3+4 Sum	0+1+2+5 Sum	0+3+4+5 Sum	
WCDMA Band II	Laptop_Bottom	0.004	0.007	0.029	0.034	0.060	0.011	0.040	0.098	0.051	0.109	ΣSAR<1.6, Not required
WCDMA Band V	Laptop_Bottom	0.018	0.007	0.029	0.034	0.060	0.011	0.054	0.112	0.065	0.123	ΣSAR<1.6, Not required
LTE Band 2	Laptop_Bottom	0.006	0.007	0.029	0.034	0.060	0.011	0.042	0.100	0.053	0.111	ΣSAR<1.6, Not required
LTE Band 4	Laptop_Bottom	0.011	0.007	0.029	0.034	0.060	0.011	0.047	0.105	0.058	0.116	ΣSAR<1.6, Not required
LTE Band 5	Laptop_Bottom	0.021	0.007	0.029	0.034	0.060	0.011	0.057	0.115	0.068	0.126	ΣSAR<1.6, Not required
LTE Band 7	Laptop_Bottom	0.088	0.007	0.029	0.034	0.060	0.011	0.124	0.182	0.135	0.193	ΣSAR<1.6, Not required
LTE Band 12	Laptop_Bottom	0.023	0.007	0.029	0.034	0.060	0.011	0.059	0.117	0.070	0.128	ΣSAR<1.6, Not required
LTE Band 13	Laptop_Bottom	0.036	0.007	0.029	0.034	0.060	0.011	0.072	0.130	0.083	0.141	ΣSAR<1.6, Not required
LTE Band 14	Laptop_Bottom	0.038	0.007	0.029	0.034	0.060	0.011	0.074	0.132	0.085	0.143	ΣSAR<1.6, Not required
LTE Band 17	Laptop_Bottom	0.024	0.007	0.029	0.034	0.060	0.011	0.060	0.118	0.071	0.129	ΣSAR<1.6, Not required
LTE Band 25	Laptop_Bottom	0.013	0.007	0.029	0.034	0.060	0.011	0.049	0.107	0.060	0.118	ΣSAR<1.6, Not required
LTE Band 26	Laptop_Bottom	0.026	0.007	0.029	0.034	0.060	0.011	0.062	0.120	0.073	0.131	ΣSAR<1.6, Not required
LTE Band 30	Laptop_Bottom	0.082	0.007	0.029	0.034	0.060	0.011	0.118	0.176	0.129	0.187	ΣSAR<1.6, Not required
LTE Band 38	Laptop_Bottom	0.013	0.007	0.029	0.034	0.060	0.011	0.049	0.107	0.060	0.118	ΣSAR<1.6, Not required
LTE Band 41	Laptop_Bottom	0.041	0.007	0.029	0.034	0.060	0.011	0.077	0.135	0.088	0.146	ΣSAR<1.6, Not required
LTE Band 41 (HPUE)	Laptop_Bottom	0.017	0.007	0.029	0.034	0.060	0.011	0.053	0.111	0.064	0.122	ΣSAR<1.6, Not required
LTE Band 66	Laptop_Bottom	0.014	0.007	0.029	0.034	0.060	0.011	0.050	0.108	0.061	0.119	ΣSAR<1.6, Not required
LTE Band 71	Laptop_Bottom	0.019	0.007	0.029	0.034	0.060	0.011	0.055	0.113	0.066	0.124	ΣSAR<1.6, Not required

Conclusion:

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

4. Instruments List

Manufacturer	Device	Type	Serial number	Date of last calibration	Date of next calibration
SPEAG	Dosimetric E-Field Probe	EX3DV4	7509	Mar.25,2020	Mar.24,2021
SPEAG	System Validation Dipole	D750V3	1015	Aug.13,2020	Aug.12,2021
		D835V2	4d063	Aug.13,2020	Aug.12,2021
		D1750V2	1008	Aug.14,2020	Aug.13,2021
		D1900V2	5d173	Apr.22,2020	Apr.21,2021
		D2300V2	1023	Aug.13,2020	Aug.12,2021
		D2450V2	727	Apr.22,2020	Apr.21,2021
		D2600V2	1005	Jan.29,2020	Jan.28,2021
		D5GHzV2	1023	Jan.28,2020	Jan.27,2021
SPEAG	Data acquisition Electronics	DAE4	877	Mar.17,2020	Mar.16,2021
SPEAG	Software	DASY 52 V52.10.4	N/A	Calibration not required	Calibration not required
SPEAG	Phantom	ELI	N/A	Calibration not required	Calibration not required
SPEAG	Dielectric Assessment Kit	DAKS-3.5	1053	Jan.28,2020	Jan.27,2021
Agilent	Dual-directional coupler	772D	MY46151242	Aug.17,2020	Aug.16,2021
		778D	MY48220468	Aug.17,2020	Aug.16,2021
Agilent	RF Signal Generator	N5181A	MY50141235	May.04,2020	May.03,2021
Agilent	Power Meter	E4417A	MY51410006	Mar.09,2020	Mar.08,2021
Agilent	Power Sensor	E9301H	MY51470001	Mar.09,2020	Mar.08,2021
			MY51470002	Mar.09,2020	Mar.08,2021

Manufacturer	Device	Type	Serial number	Date of last calibration	Date of next calibration
TECPEL	Digital thermometer	DTM-303A	TP130074	Apr.10,2020	Apr.09,2021
Anritsu	Radio Communication Test	MT8820C	6201061014	Apr.28,2020	Apr.27,2021
Anritsu	Radio Communication Test	MT8821C	6262044739	Dec.02.2020	Dec.01.2021

5. Measurements

Date: 2021/1/19

Report No. :ES/2020/C0011

WCDMA Band II_Body_Bottom side_CH 9262_0mm

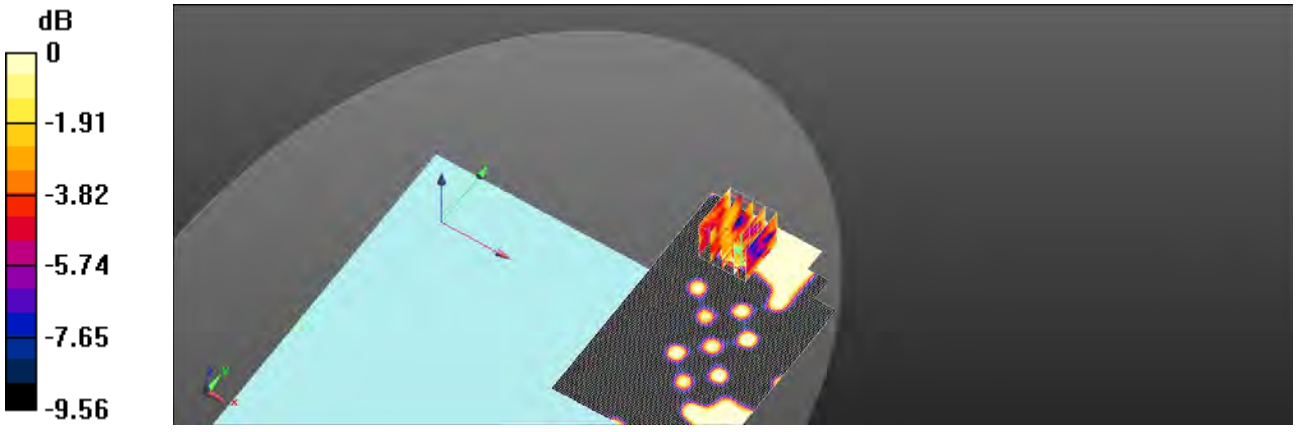
Communication System: WCDMA; Frequency: 1852.4 MHz; Duty cycle= 1:1
Medium parameters used: f = 1852.4 MHz; σ = 1.421 S/m; ε_r = 38.451; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 21.8°C; Liquid temperature: 22.0°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7509; ConvF(8.07, 8.07, 8.07) @ 1852.4 MHz; Calibrated: 2020/03/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn877; Calibrated: 2020/03/17
- Phantom: ELI
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Area Scan (71x111x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 0.0116 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.437 V/m; Power Drift = 0.17 dB
Peak SAR (extrapolated) = 0.00519 W/kg
SAR(1 g) = 0.00266 W/kg; SAR(10 g) = 0.00149 W/kg
Smallest distance from peaks to all points 3 dB below: Larger than measurement grid
Ratio of SAR at M2 to SAR at M1 = 59.7%
Maximum value of SAR (measured) = 0.00359 W/kg



0 dB = 0.00359 W/kg = -24.45 dBW/kg

Date: 2021/1/17

Report No. :ES/2020/C0011

WCDMA Band V_Body_Bottom side_CH 4132_0mm

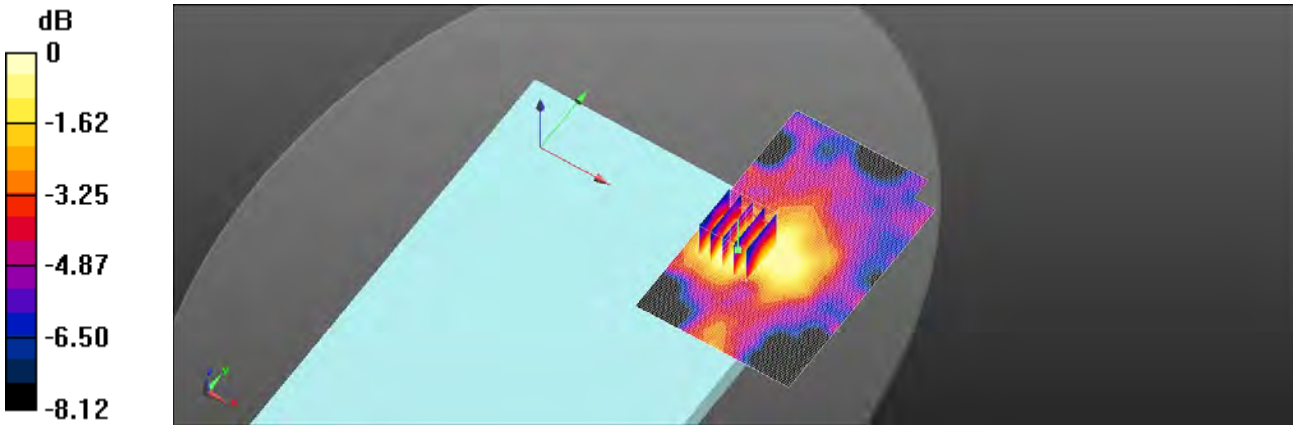
Communication System: WCDMA; Frequency: 826.4 MHz; Duty cycle= 1:1
Medium parameters used: f = 826.4 MHz; σ = 0.924 S/m; ε_r = 42.322; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 22.2°C; Liquid temperature: 22.3°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7509; ConvF(9.73, 9.73, 9.73) @ 826.4 MHz; Calibrated: 2020/03/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn877; Calibrated: 2020/03/17
- Phantom: ELI
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Area Scan (71x111x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 0.0162 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.714 V/m; Power Drift = -0.12 dB
Peak SAR (extrapolated) = 0.0180 W/kg
SAR(1 g) = 0.014 W/kg; SAR(10 g) = 0.011 W/kg
Smallest distance from peaks to all points 3 dB below: Larger than measurement grid
Ratio of SAR at M2 to SAR at M1 = 81.7%
Maximum value of SAR (measured) = 0.0167 W/kg



0 dB = 0.0167 W/kg = -17.77 dBW/kg

Date: 2021/1/19

Report No. :ES/2020/C0011

LTE Band 2 (20MHz)_Body_Bottom side_CH 18700_QPSK_1-0_0mm

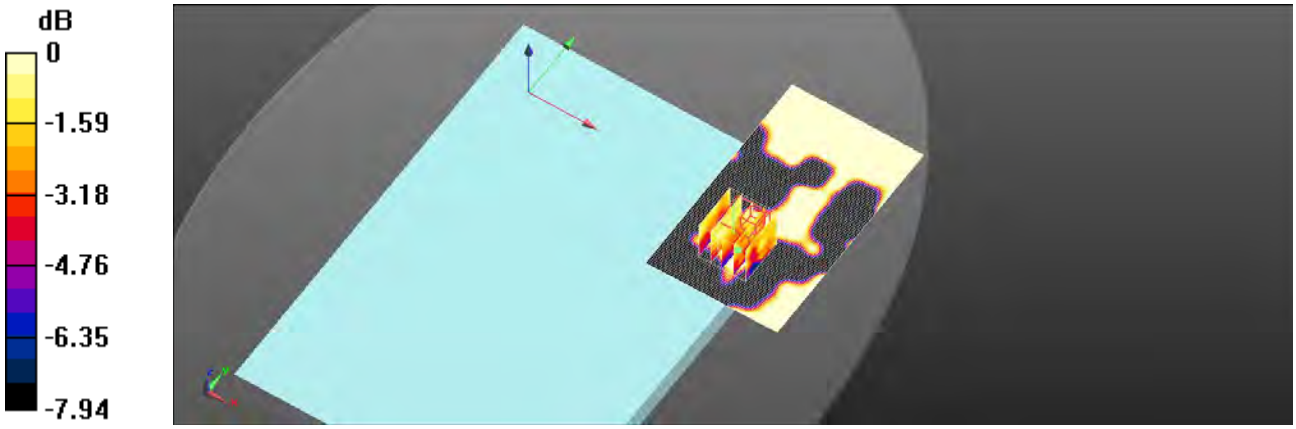
Communication System: LTE; Frequency: 1860 MHz; Duty cycle= 1:1
Medium parameters used: f = 1860 MHz; σ = 1.426 S/m; ε_r = 38.411; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 21.8°C; Liquid temperature: 22.0℃

DASY5 Configuration:

- Probe: EX3DV4 - SN7509; ConvF(8.07, 8.07, 8.07) @ 1860 MHz; Calibrated: 2020/03/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn877; Calibrated: 2020/03/17
- Phantom: ELI
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Area Scan (61x101x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 0.0172 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.574 V/m; Power Drift = 0.16 dB
Peak SAR (extrapolated) = 0.00672 W/kg
SAR(1 g) = 0.00443 W/kg; SAR(10 g) = 0.00278 W/kg
Smallest distance from peaks to all points 3 dB below: Larger than measurement grid
Ratio of SAR at M2 to SAR at M1 = 84.6%
Maximum value of SAR (measured) = 0.00474 W/kg



0 dB = 0.00474 W/kg = -23.25 dBW/kg

Date: 2021/1/18

Report No. :ES/2020/C0011

LTE Band 4 (20MHz)_Body_Bottom side_CH 20175_QPSK_1-0_0mm

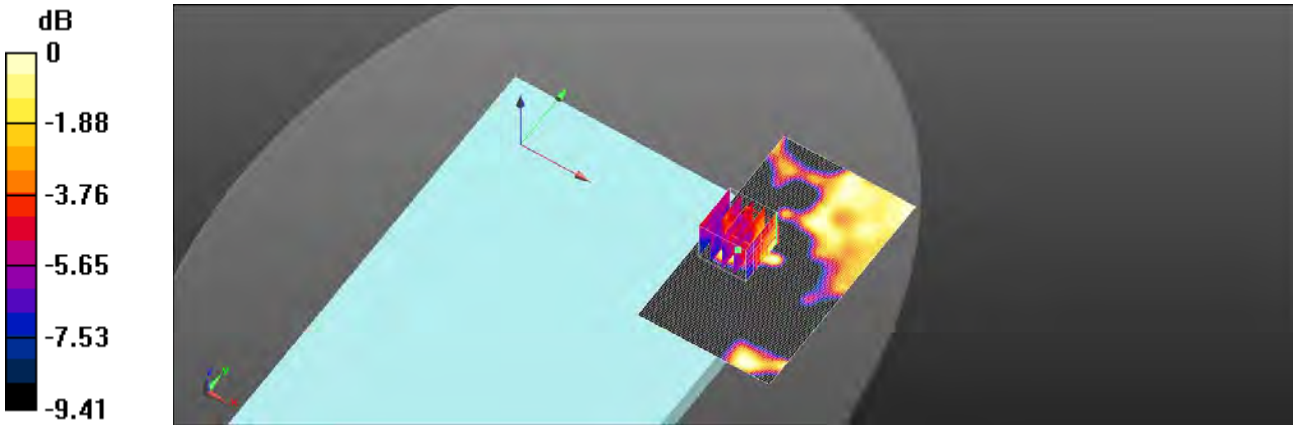
Communication System: LTE; Frequency: 1732.5 MHz; Duty cycle= 1:1
Medium parameters used: f = 1732.5 MHz; σ = 1.326 S/m; ε_r = 38.852; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 21.7°C; Liquid temperature: 21.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7509; ConvF(8.34, 8.34, 8.34) @ 1732.5 MHz; Calibrated: 2020/03/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn877; Calibrated: 2020/03/17
- Phantom: ELI
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Area Scan (61x101x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 0.0182 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.738 V/m; Power Drift = 0.18 dB
Peak SAR (extrapolated) = 0.0100 W/kg
SAR(1 g) = 0.0077 W/kg; SAR(10 g) = 0.00413 W/kg
Smallest distance from peaks to all points 3 dB below: Larger than measurement grid
Ratio of SAR at M2 to SAR at M1 = 80%
Maximum value of SAR (measured) = 0.0102 W/kg



0 dB = 0.0102 W/kg = -19.91 dBW/kg

Date: 2021/1/17

Report No. :ES/2020/C0011

LTE Band 5 (10MHz)_Body_Bottom side_CH 20600_QPSK_1-0_0mm

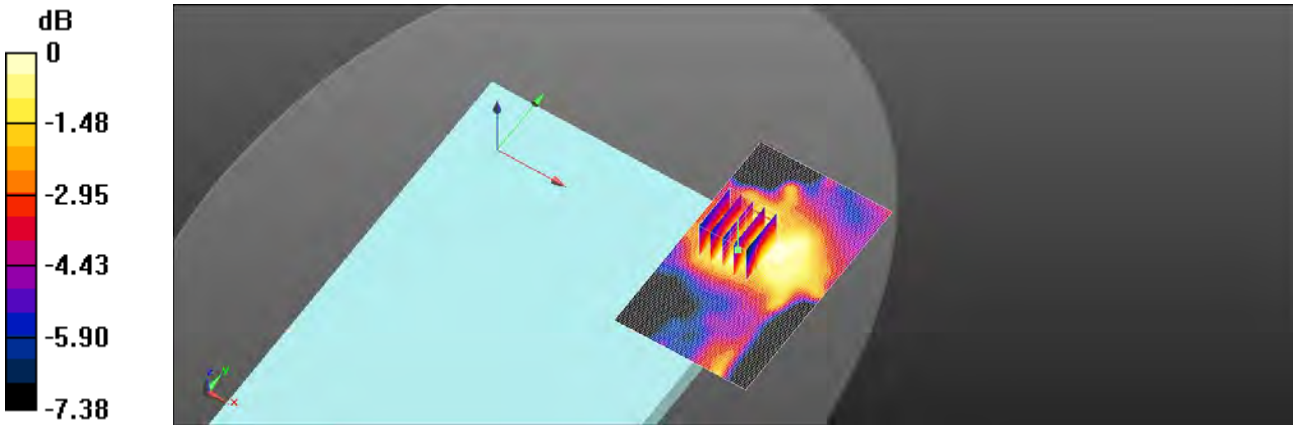
Communication System: LTE; Frequency: 844 MHz; Duty cycle= 1:1
Medium parameters used: f = 844 MHz; σ = 0.948 S/m; ε_r = 42.173; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 22.2°C; Liquid temperature: 22.3°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7509; ConvF(9.73, 9.73, 9.73) @ 844 MHz; Calibrated: 2020/03/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn877; Calibrated: 2020/03/17
- Phantom: ELI
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Area Scan (61x101x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 0.0178 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.922 V/m; Power Drift = 0.15 dB
Peak SAR (extrapolated) = 0.0180 W/kg
SAR(1 g) = 0.015 W/kg; SAR(10 g) = 0.012 W/kg
Smallest distance from peaks to all points 3 dB below: Larger than measurement grid
Ratio of SAR at M2 to SAR at M1 = 83.2%
Maximum value of SAR (measured) = 0.0165 W/kg



0 dB = 0.0165 W/kg = -17.81 dBW/kg

Date: 2021/1/21

Report No. :ES/2020/C0011

LTE Band 7 (20MHz)_Body_Bottom side_CH 21100_QPSK_1-50_0mm

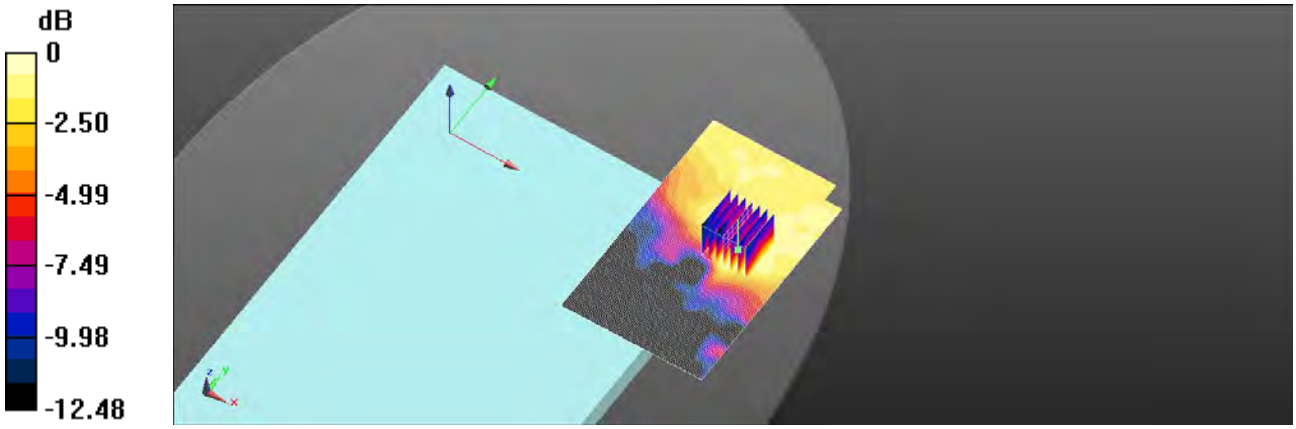
Communication System: LTE; Frequency: 2535 MHz; Duty cycle= 1:1
Medium parameters used: f = 2535 MHz; σ = 1.976 S/m; ε_r = 37.787; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 21.8°C; Liquid temperature: 22.4°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7509; ConvF(7.23, 7.23, 7.23) @ 2535 MHz; Calibrated: 2020/03/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn877; Calibrated: 2020/03/17
- Phantom: ELI
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Area Scan (81x131x1): Interpolated grid: dx=12 mm, dy=12 mm
Maximum value of SAR (interpolated) = 0.0873 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 1.856 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 0.0980 W/kg
SAR(1 g) = 0.061 W/kg; SAR(10 g) = 0.038 W/kg
Smallest distance from peaks to all points 3 dB below: Larger than measurement grid
Ratio of SAR at M2 to SAR at M1 = 62.2%
Maximum value of SAR (measured) = 0.0804 W/kg



0 dB = 0.0804 W/kg = -10.95 dBW/kg

Date: 2021/1/16

Report No. :ES/2020/C0011

LTE Band 12 (10MHz)_Body_Bottom side_CH 23060_QPSK_1-49_0mm

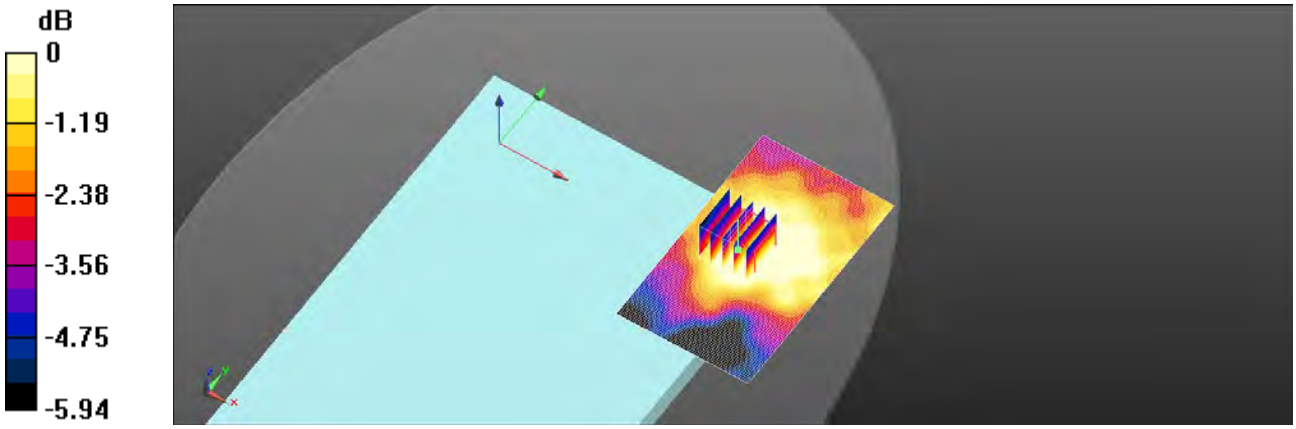
Communication System: LTE; Frequency: 704 MHz; Duty cycle= 1:1
Medium parameters used: f = 704 MHz; σ = 0.862 S/m; ε_r = 42.986; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 22.1°C; Liquid temperature: 22.0°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7509; ConvF(9.94, 9.94, 9.94) @ 704 MHz; Calibrated: 2020/03/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn877; Calibrated: 2020/03/17
- Phantom: ELI
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Area Scan (61x101x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 0.0220 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.414 V/m; Power Drift = 0.13 dB
Peak SAR (extrapolated) = 0.0190 W/kg
SAR(1 g) = 0.017 W/kg; SAR(10 g) = 0.014 W/kg
Smallest distance from peaks to all points 3 dB below: Larger than measurement grid
Ratio of SAR at M2 to SAR at M1 = 86.8%
Maximum value of SAR (measured) = 0.0180 W/kg



0 dB = 0.0180 W/kg = -17.44 dBW/kg

Date: 2021/1/16

Report No. :ES/2020/C0011

LTE Band 13 (10MHz)_Body_Bottom side_CH 23230_QPSK_1-25_0mm

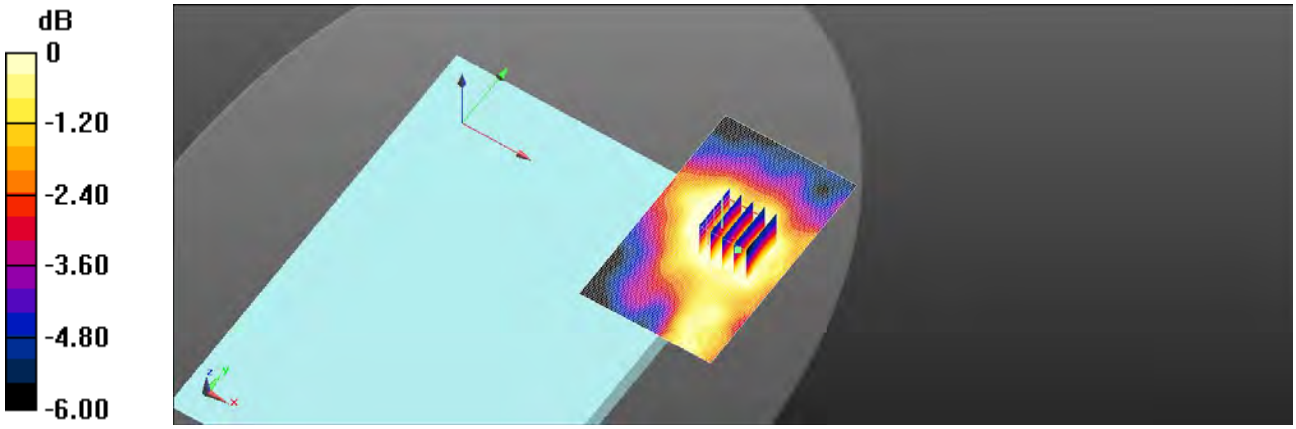
Communication System: LTE; Frequency: 782 MHz; Duty cycle= 1:1
Medium parameters used: f = 782 MHz; σ = 0.911 S/m; ε_r = 42.812; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 22.1°C; Liquid temperature: 22.0°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7509; ConvF(9.94, 9.94, 9.94) @ 782 MHz; Calibrated: 2020/03/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn877; Calibrated: 2020/03/17
- Phantom: ELI
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Area Scan (61x101x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 0.0368 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.878 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 0.0310 W/kg
SAR(1 g) = 0.027 W/kg; SAR(10 g) = 0.022 W/kg
Smallest distance from peaks to all points 3 dB below: Larger than measurement grid
Ratio of SAR at M2 to SAR at M1 = 91.1%
Maximum value of SAR (measured) = 0.0299 W/kg



0 dB = 0.0299 W/kg = -15.24 dBW/kg

Date: 2021/1/16

Report No. :ES/2020/C0011

LTE Band 14 (10MHz)_Body_Bottom side_CH 23330_QPSK_1-0_0mm

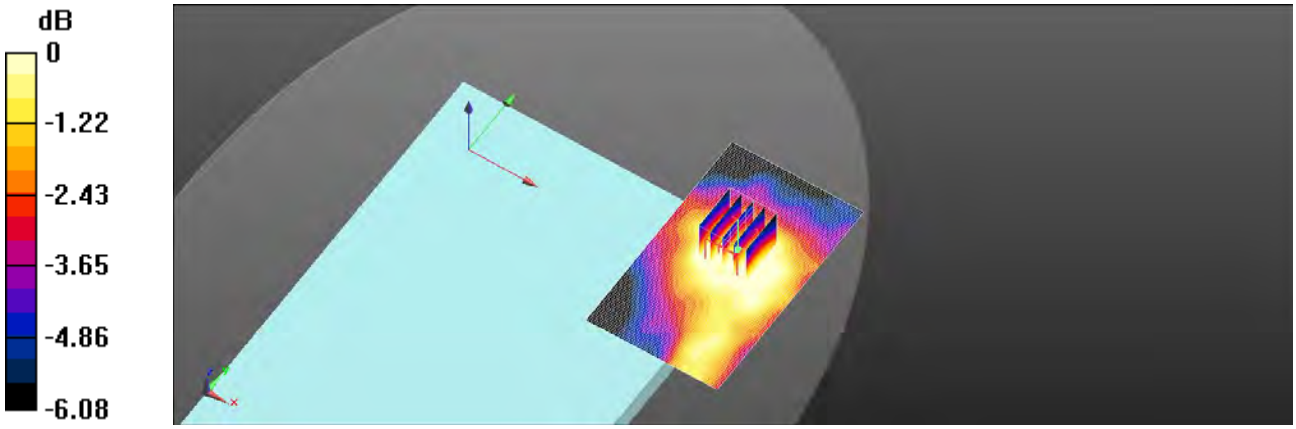
Communication System: LTE; Frequency: 793 MHz; Duty cycle= 1:1
Medium parameters used: f = 793 MHz; σ = 0.916 S/m; ε_r = 42.805; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 22.1°C; Liquid temperature: 22.0°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7509; ConvF(9.94, 9.94, 9.94) @ 793 MHz; Calibrated: 2020/03/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn877; Calibrated: 2020/03/17
- Phantom: ELI
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Area Scan (61x101x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 0.0378 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.362 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 0.0310 W/kg
SAR(1 g) = 0.028 W/kg; SAR(10 g) = 0.022 W/kg
Smallest distance from peaks to all points 3 dB below: Larger than measurement grid
Ratio of SAR at M2 to SAR at M1 = 88.6%
Maximum value of SAR (measured) = 0.0302 W/kg



0 dB = 0.0302 W/kg = -15.20 dBW/kg

Date: 2021/1/16

Report No. :ES/2020/C0011

LTE Band 17 (10MHz)_Body_Bottom side_CH 23790_QPSK_1-49_0mm

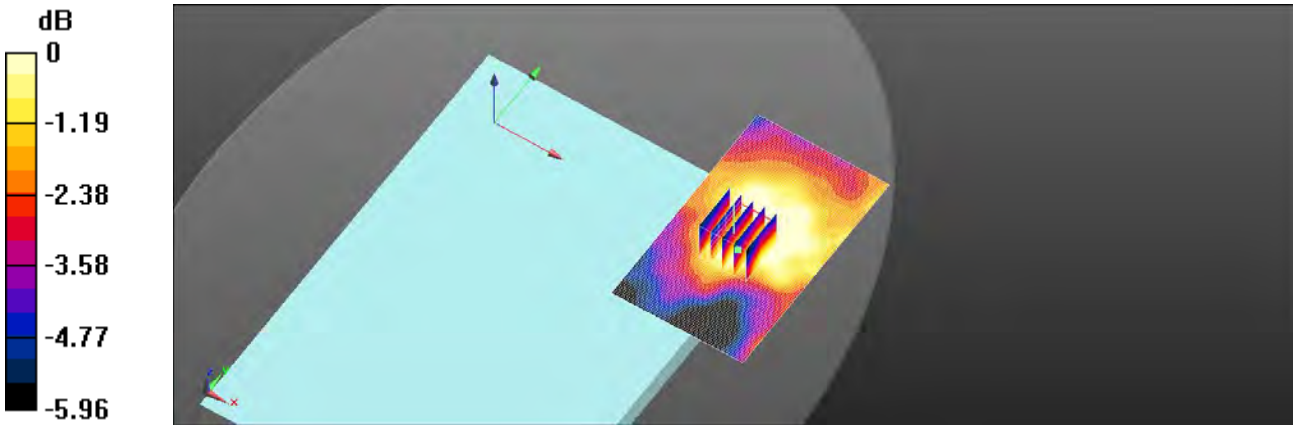
Communication System: LTE; Frequency: 710 MHz; Duty cycle= 1:1
Medium parameters used: f = 710 MHz; σ = 0.88 S/m; ε_r = 42.857; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 22.1°C; Liquid temperature: 22.0°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7509; ConvF(9.94, 9.94, 9.94) @ 710 MHz; Calibrated: 2020/03/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn877; Calibrated: 2020/03/17
- Phantom: ELI
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Area Scan (61x101x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 0.0232 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.039 V/m; Power Drift = 0.14 dB
Peak SAR (extrapolated) = 0.0210 W/kg
SAR(1 g) = 0.018 W/kg; SAR(10 g) = 0.015 W/kg
Smallest distance from peaks to all points 3 dB below: Larger than measurement grid
Ratio of SAR at M2 to SAR at M1 = 89.8%
Maximum value of SAR (measured) = 0.0199 W/kg



0 dB = 0.0199 W/kg = -17.01 dBW/kg

Date: 2021/1/19

Report No. :ES/2020/C0011

LTE Band 25 (20MHz)_Body_Bottom side_CH 26365_QPSK_1-0_0mm

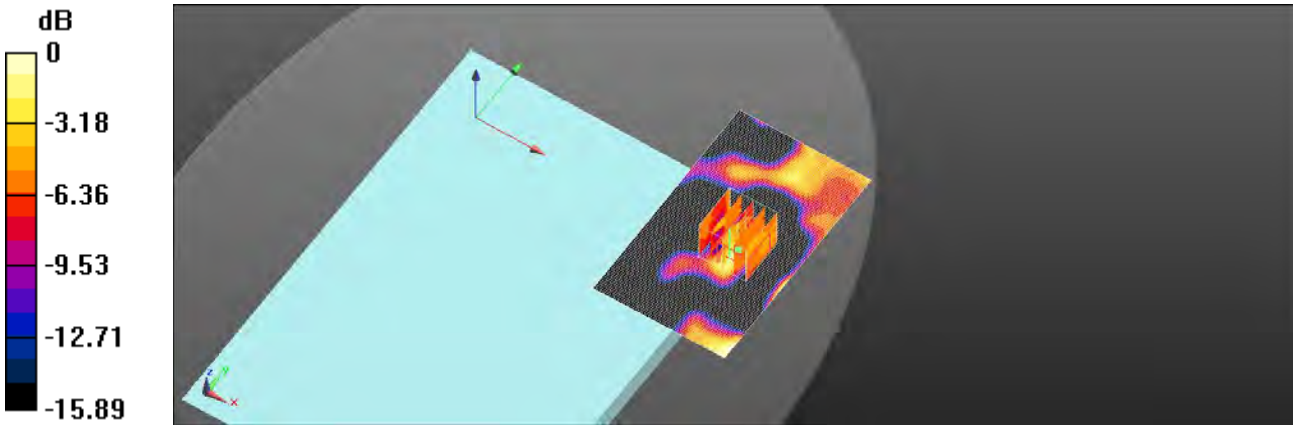
Communication System: LTE; Frequency: 1882.5 MHz; Duty cycle= 1:1
Medium parameters used: f = 1882.5 MHz; σ = 1.443 S/m; ε_r = 38.314; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 21.8°C; Liquid temperature: 22.0°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7509; ConvF(8.07, 8.07, 8.07) @ 1882.5 MHz; Calibrated: 2020/03/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn877; Calibrated: 2020/03/17
- Phantom: ELI
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Area Scan (61x101x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 0.0224 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.913 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 0.0240 W/kg
SAR(1 g) = 0.00925 W/kg; SAR(10 g) = 0.00603 W/kg
Smallest distance from peaks to all points 3 dB below: Larger than measurement grid
Ratio of SAR at M2 to SAR at M1 = 83.2%
Maximum value of SAR (measured) = 0.0193 W/kg



0 dB = 0.0193 W/kg = -17.15 dBW/kg

Date: 2021/1/17

Report No. :ES/2020/C0011

LTE Band 26 (15MHz)_Body_Bottom side_CH 26765_QPSK_1-0_0mm

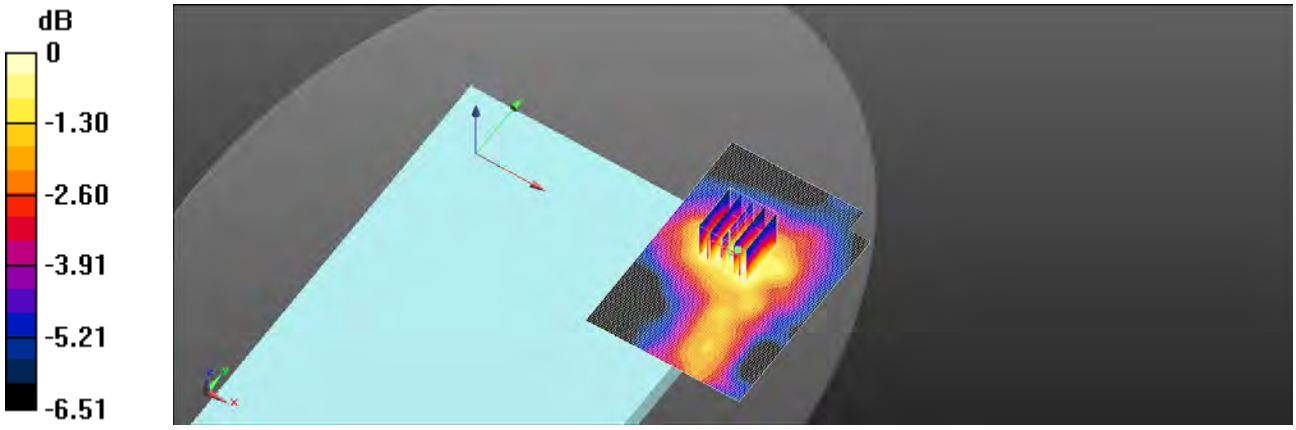
Communication System: LTE; Frequency: 821.5 MHz; Duty cycle= 1:1
Medium parameters used: f = 821.5 MHz; σ = 0.922 S/m; ε_r = 42.427; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 22.2°C; Liquid temperature: 22.3°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7509; ConvF(9.73, 9.73, 9.73) @ 821.5 MHz; Calibrated: 2020/03/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn877; Calibrated: 2020/03/17
- Phantom: ELI
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Area Scan (71x101x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 0.0210 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.702 V/m; Power Drift = 0.14 dB
Peak SAR (extrapolated) = 0.0210 W/kg
SAR(1 g) = 0.018 W/kg; SAR(10 g) = 0.014 W/kg
Smallest distance from peaks to all points 3 dB below: Larger than measurement grid
Ratio of SAR at M2 to SAR at M1 = 90.6%
Maximum value of SAR (measured) = 0.0197 W/kg



0 dB = 0.0197 W/kg = -17.06 dBW/kg

Date: 2021/1/20

Report No. :ES/2020/C0011

LTE Band 30 (10MHz)_Body_Bottom side_CH 27710_QPSK_1-25_0mm

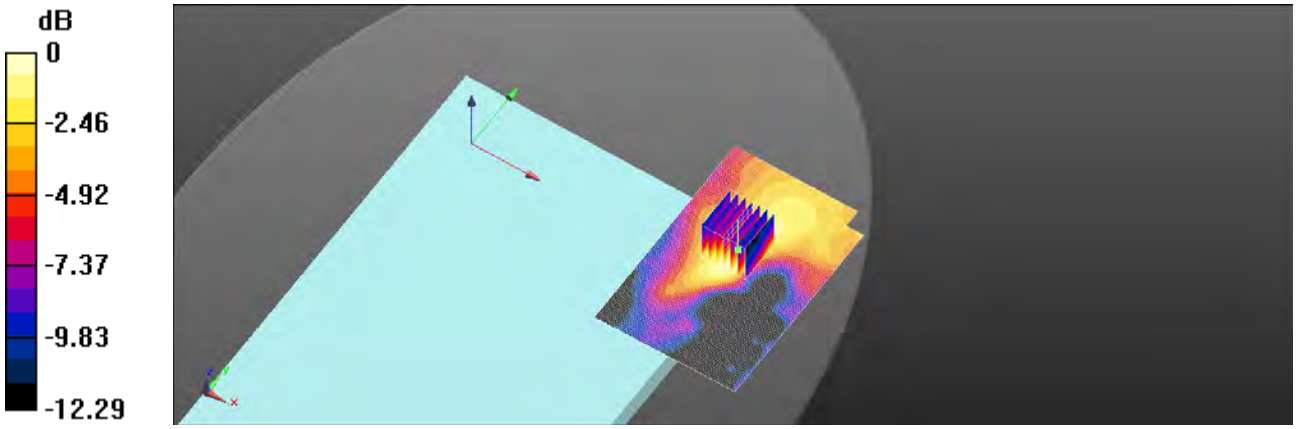
Communication System: LTE; Frequency: 2310 MHz; Duty cycle= 1:1
Medium parameters used: f = 2310 MHz; σ = 1.701 S/m; ε_r = 38.106; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 22.4°C; Liquid temperature: 21.7°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7509; ConvF(7.76, 7.76, 7.76) @ 2310 MHz; Calibrated: 2020/03/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn877; Calibrated: 2020/03/17
- Phantom: ELI
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Area Scan (81x121x1): Interpolated grid: dx=12 mm, dy=12 mm
Maximum value of SAR (interpolated) = 0.107 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 1.862 V/m; Power Drift = -0.11 dB
Peak SAR (extrapolated) = 0.127 W/kg
SAR(1 g) = 0.078 W/kg; SAR(10 g) = 0.048 W/kg
Smallest distance from peaks to all points 3 dB below = 11.4 mm
Ratio of SAR at M2 to SAR at M1 = 62.1%
Maximum value of SAR (measured) = 0.104 W/kg



0 dB = 0.104 W/kg = -9.83 dBW/kg

Date: 2021/1/21

Report No. :ES/2020/C0011

LTE Band 38 (20MHz)_Body_Bottom side_CH 37850_QPSK_1-99_0mm

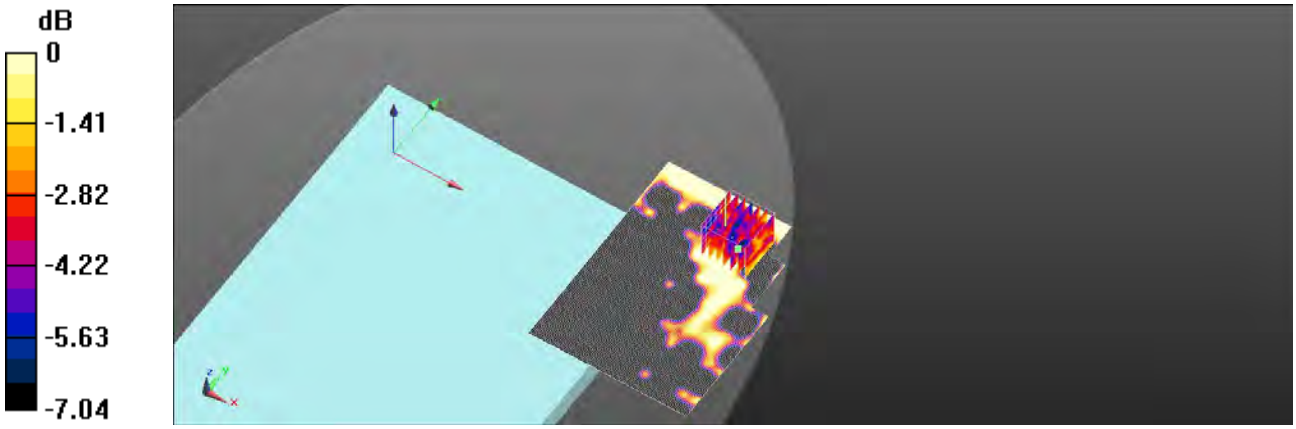
Communication System: LTE; Frequency: 2580 MHz; Duty cycle= 1:1.59956
Medium parameters used: f = 2580 MHz; σ = 2.022 S/m; ε_r = 37.688; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 21.8°C; Liquid temperature: 22.4°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7509; ConvF(7.23, 7.23, 7.23) @ 2580 MHz; Calibrated: 2020/03/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn877; Calibrated: 2020/03/17
- Phantom: ELI
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Area Scan (91x121x1): Interpolated grid: dx=12 mm, dy=12 mm
Maximum value of SAR (interpolated) = 0.0295 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.489 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 0.0160 W/kg
SAR(1 g) = 0.00947 W/kg; SAR(10 g) = 0.00742 W/kg
Smallest distance from peaks to all points 3 dB below: Larger than measurement grid
Ratio of SAR at M2 to SAR at M1 = 65.5%
Maximum value of SAR (measured) = 0.0135 W/kg



0 dB = 0.0135 W/kg = -18.70 dBW/kg

Date: 2021/1/21

Report No. :ES/2020/C0011

LTE Band 41 (20MHz)_Body_Bottom side_CH 41490_QPSK_1-50_0mm

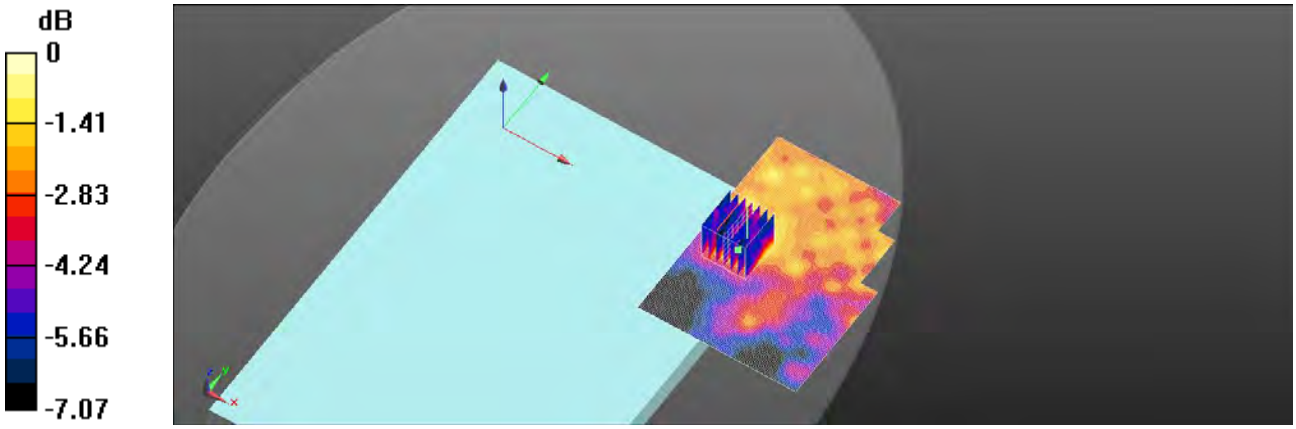
Communication System: LTE; Frequency: 2680 MHz; Duty cycle= 1:1.59956
Medium parameters used: f = 2680 MHz; σ = 2.145 S/m; ε_r = 37.449; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 21.8°C; Liquid temperature: 22.4°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7509; ConvF(7.23, 7.23, 7.23) @ 2680 MHz; Calibrated: 2020/03/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn877; Calibrated: 2020/03/17
- Phantom: ELI
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Area Scan (91x121x1): Interpolated grid: dx=12 mm, dy=12 mm
Maximum value of SAR (interpolated) = 0.0361 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.726 V/m; Power Drift = -0.17 dB
Peak SAR (extrapolated) = 0.0450 W/kg
SAR(1 g) = 0.030 W/kg; SAR(10 g) = 0.020 W/kg
Smallest distance from peaks to all points 3 dB below: Larger than measurement grid
Ratio of SAR at M2 to SAR at M1 = 74.2%
Maximum value of SAR (measured) = 0.0368 W/kg



0 dB = 0.0368 W/kg = -14.34 dBW/kg

Date: 2021/1/21

Report No. :ES/2020/C0011

LTE Band 41 (20MHz)_Body_Bottom side_CH 41055_QPSK_1-0_0mm_HPUE

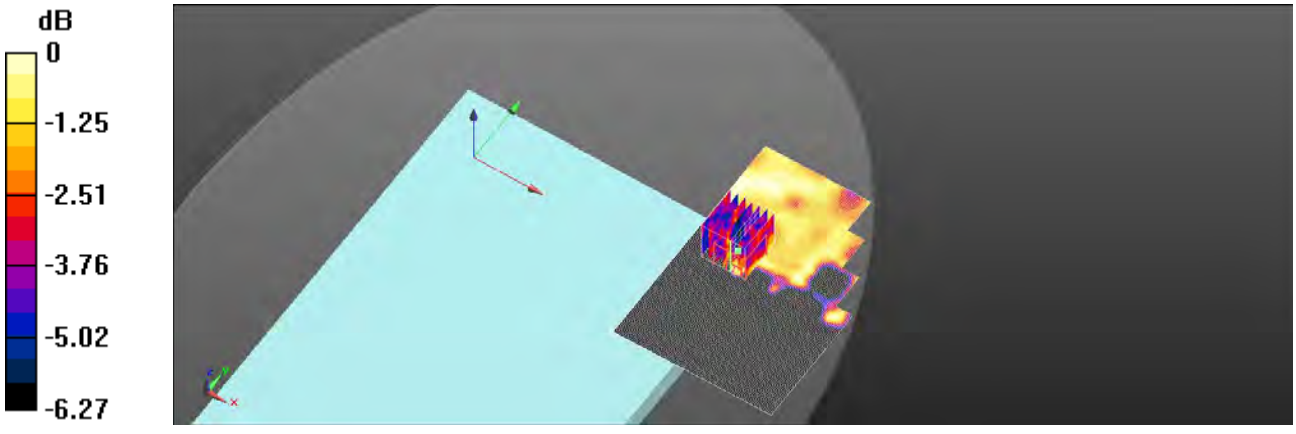
Communication System: LTE; Frequency: 2636.5 MHz; Duty cycle= 1:2.31
Medium parameters used: f = 2636.5 MHz; σ = 2.089 S/m; ε_r = 37.511; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 21.8°C; Liquid temperature: 22.4°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7509; ConvF(7.23, 7.23, 7.23) @ 2636.5 MHz; Calibrated: 2020/03/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn877; Calibrated: 2020/03/17
- Phantom: ELI
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Area Scan (91x131x1): Interpolated grid: dx=12 mm, dy=12 mm
Maximum value of SAR (interpolated) = 0.0214 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.364 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 0.0190 W/kg
SAR(1 g) = 0.012 W/kg; SAR(10 g) = 0.00828 W/kg
Smallest distance from peaks to all points 3 dB below: Larger than measurement grid
Ratio of SAR at M2 to SAR at M1 = 80.2%
Maximum value of SAR (measured) = 0.0161 W/kg



0 dB = 0.0161 W/kg = -17.93 dBW/kg

Date: 2021/1/18

Report No. :ES/2020/C0011

LTE Band 66 (20MHz)_Body_Bottom side_CH 132072_QPSK_1-0_0mm

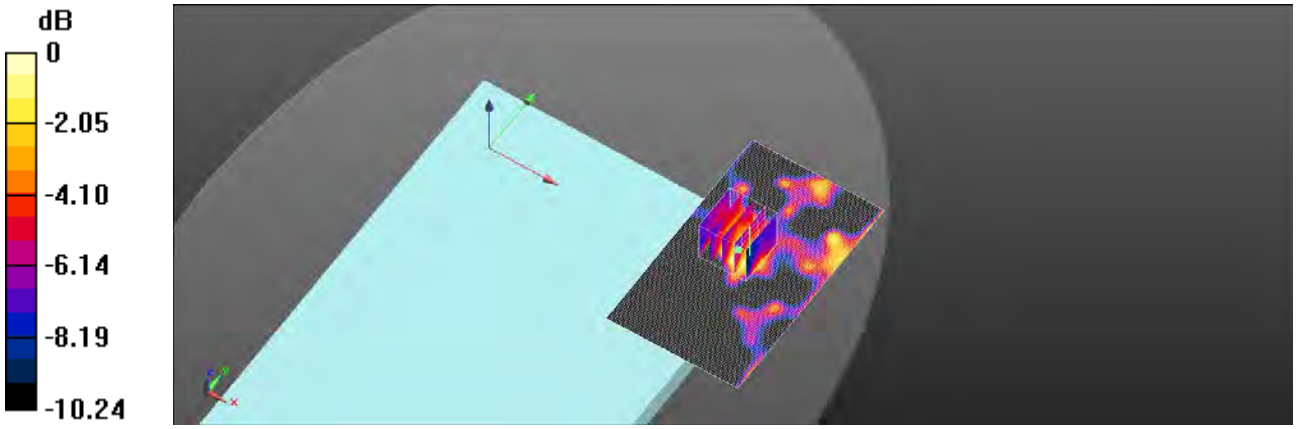
Communication System: LTE; Frequency: 1720 MHz; Duty cycle= 1:1
Medium parameters used: f = 1720 MHz; σ = 1.316 S/m; ε_r = 38.867; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 21.7°C; Liquid temperature: 21.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7509; ConvF(8.34, 8.34, 8.34) @ 1720 MHz; Calibrated: 2020/03/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn877; Calibrated: 2020/03/17
- Phantom: ELI
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Area Scan (61x101x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 0.0275 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.675 V/m; Power Drift = 0.19 dB
Peak SAR (extrapolated) = 0.0160 W/kg
SAR(1 g) = 0.011 W/kg; SAR(10 g) = 0.0073 W/kg
Smallest distance from peaks to all points 3 dB below: Larger than measurement grid
Ratio of SAR at M2 to SAR at M1 = 73.6%
Maximum value of SAR (measured) = 0.0134 W/kg



0 dB = 0.0134 W/kg = -18.72 dBW/kg

Date: 2021/1/16

Report No. :ES/2020/C0011

LTE Band 71 (20MHz)_Body_Bottom side_CH 133222_QPSK_1-0_0mm

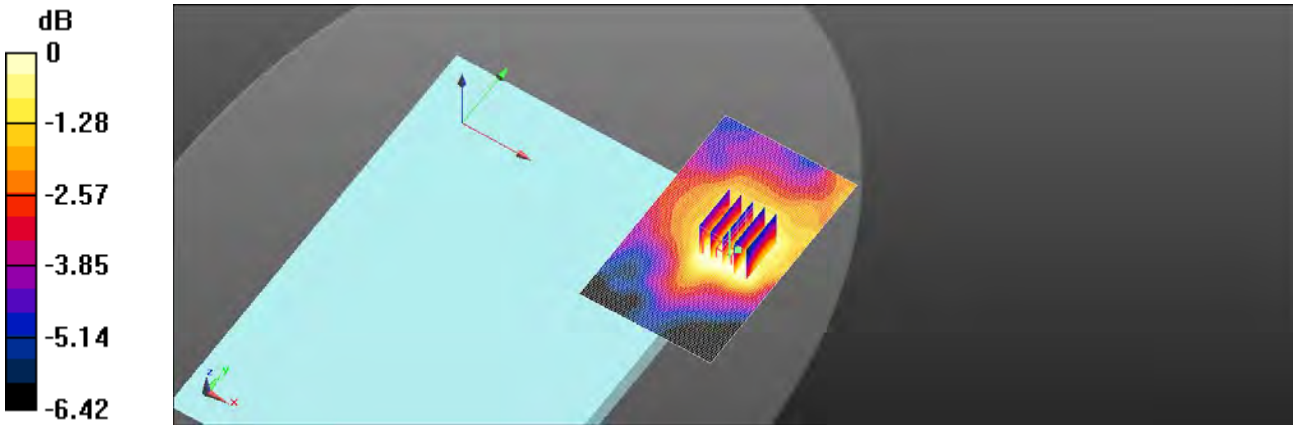
Communication System: LTE; Frequency: 673 MHz; Duty cycle= 1:1
Medium parameters used: f = 673 MHz; σ = 0.848 S/m; ε_r = 43.195; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 22.1°C; Liquid temperature: 22.0°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7509; ConvF(9.94, 9.94, 9.94) @ 673 MHz; Calibrated: 2020/03/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn877; Calibrated: 2020/03/17
- Phantom: ELI
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Area Scan (61x101x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 0.0182 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.424 V/m; Power Drift = -0.15 dB
Peak SAR (extrapolated) = 0.0170 W/kg
SAR(1 g) = 0.014 W/kg; SAR(10 g) = 0.011 W/kg
Smallest distance from peaks to all points 3 dB below: Larger than measurement grid
Ratio of SAR at M2 to SAR at M1 = 84.7%
Maximum value of SAR (measured) = 0.0157 W/kg



0 dB = 0.0157 W/kg = -18.04 dBW/kg

Date: 2021/1/11

Report No. :ES/2020/C0011

WLAN 802.11b_Body_Bottom side_CH 1_Aux_0mm

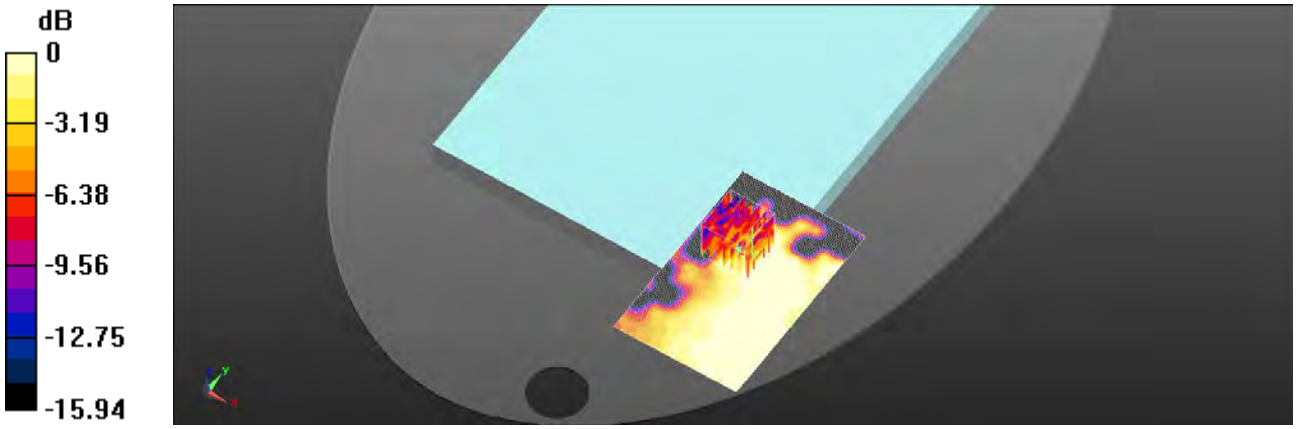
Communication System: WLAN 2.45G; Frequency: 2412 MHz; Duty cycle= 1:1.008
Medium parameters used: f = 2412 MHz; σ = 1.829 S/m; ε_r = 40.14; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 21.5°C; Liquid temperature: 21.7°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7509; ConvF(7.51, 7.51, 7.51) @ 2412 MHz; Calibrated: 2020/03/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn877; Calibrated: 2020/03/17
- Phantom: ELI
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Area Scan (71x111x1): Interpolated grid: dx=12 mm, dy=12 mm
Maximum value of SAR (interpolated) = 0.0502 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 1.049 V/m; Power Drift = 0.14 dB
Peak SAR (extrapolated) = 0.0490 W/kg
SAR(1 g) = 0.028 W/kg; SAR(10 g) = 0.017 W/kg
Smallest distance from peaks to all points 3 dB below: Larger than measurement grid
Ratio of SAR at M2 to SAR at M1 = 76.3%
Maximum value of SAR (measured) = 0.0363 W/kg



0 dB = 0.0363 W/kg = -14.40 dBW/kg

Date: 2021/1/12

Report No. :ES/2020/C0011

WLAN 802.11n(40M) 5.2G_Body_Bottom side_CH 46_Aux_0mm

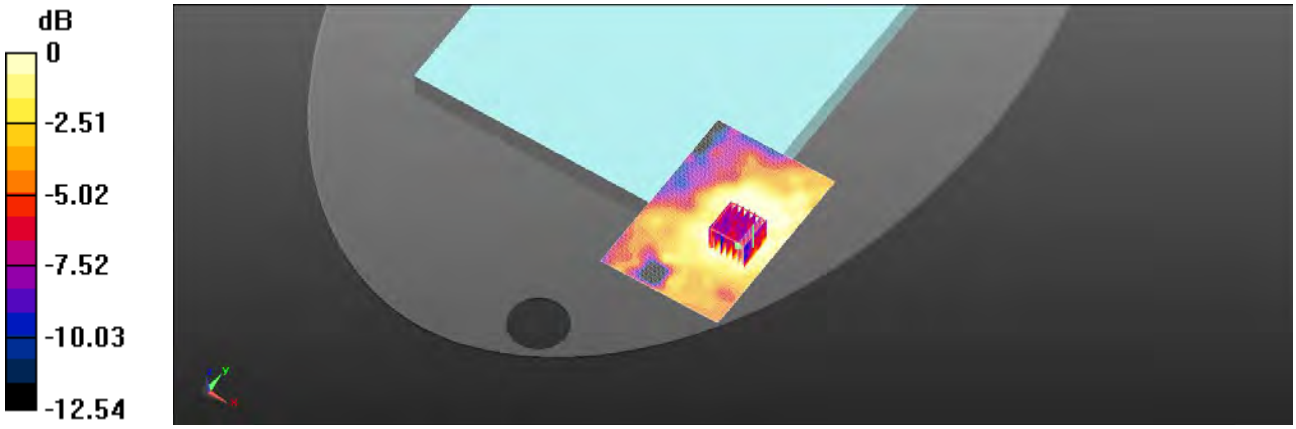
Communication System: WLAN 5G; Frequency: 5230 MHz; Duty cycle= 1:1.038
Medium parameters used: f = 5230 MHz; σ = 4.68 S/m; ε_r = 36.68; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 22.6°C; Liquid temperature: 21.9°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7509; ConvF(5.33, 5.33, 5.33) @ 5230 MHz; Calibrated: 2020/03/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn877; Calibrated: 2020/03/17
- Phantom: ELI
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Area Scan (81x121x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 0.0980 W/kg

Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 2.681 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 0.186 W/kg
SAR(1 g) = 0.054 W/kg; SAR(10 g) = 0.034 W/kg
Smallest distance from peaks to all points 3 dB below: Larger than measurement grid
Ratio of SAR at M2 to SAR at M1 = 62.6%
Maximum value of SAR (measured) = 0.0888 W/kg



0 dB = 0.0888 W/kg = -10.52 dBW/kg

Date: 2021/1/13

Report No. :ES/2020/C0011

WLAN 802.11n(40M) 5.3G_Body_Bottom side_CH 54_Aux_0mm

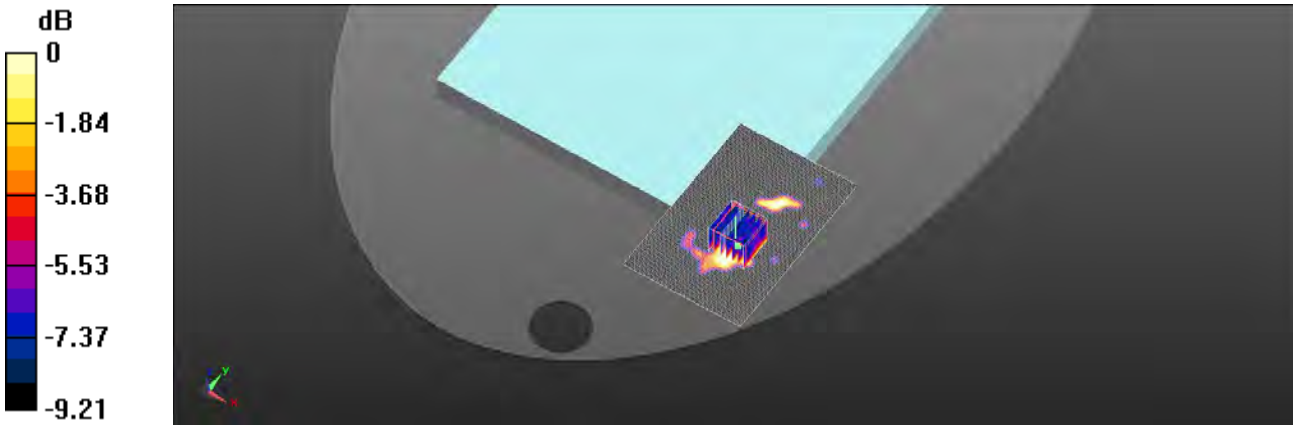
Communication System: WLAN 5G; Frequency: 5270 MHz; Duty cycle= 1:1.038
Medium parameters used: f = 5270 MHz; σ = 4.734 S/m; ε_r = 36.733; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 22.4°C; Liquid temperature: 21.9°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7509; ConvF(5.23, 5.23, 5.23) @ 5270 MHz; Calibrated: 2020/03/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn877; Calibrated: 2020/03/17
- Phantom: ELI
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Area Scan (81x121x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 0.185 W/kg

Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 4.747 V/m; Power Drift = 0.16 dB
Peak SAR (extrapolated) = 0.162 W/kg
SAR(1 g) = 0.051 W/kg; SAR(10 g) = 0.031 W/kg
Smallest distance from peaks to all points 3 dB below: Larger than measurement grid
Ratio of SAR at M2 to SAR at M1 = 59.1%
Maximum value of SAR (measured) = 0.0866 W/kg



0 dB = 0.0866 W/kg = -10.63 dBW/kg

Date: 2021/1/14

Report No. : ES/2020/C0011

WLAN 802.11ac(80M) 5.6G_Body_Bottom side_CH 138_Aux_0mm

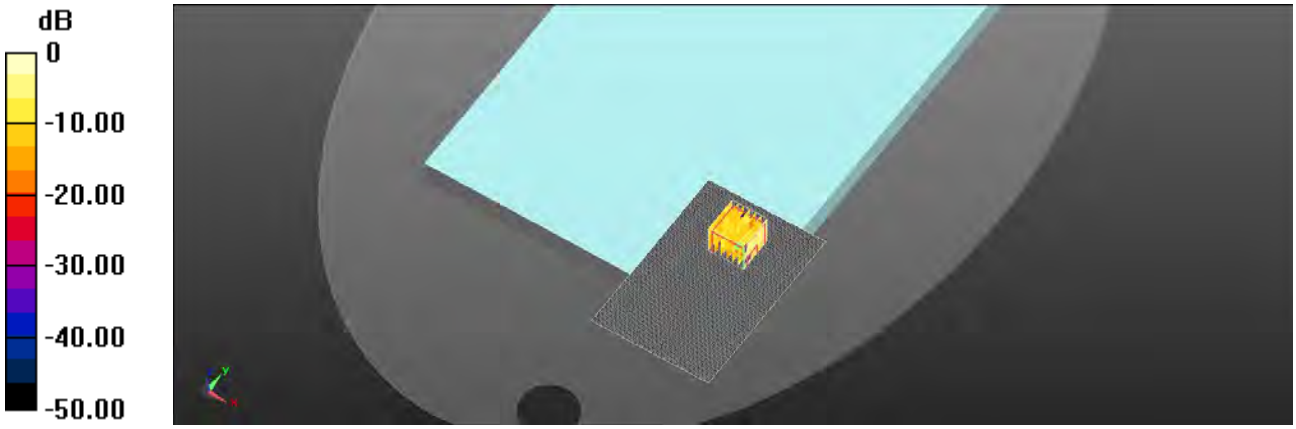
Communication System: WLAN 5G; Frequency: 5690 MHz; Duty cycle= 1:1.078
Medium parameters used: f = 5690 MHz; σ = 5.262 S/m; ε_r = 35.463; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 21.8°C; Liquid temperature: 22.0°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7509; ConvF(4.64, 4.64, 4.64) @ 5690 MHz; Calibrated: 2020/03/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn877; Calibrated: 2020/03/17
- Phantom: ELI
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Area Scan (81x121x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 0.00480 W/kg

Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 3.686 V/m; Power Drift = 0.14 dB
Peak SAR (extrapolated) = 0.403 W/kg
SAR(1 g) = 0.00107 W/kg; SAR(10 g) = 0.000119 W/kg
Smallest distance from peaks to all points 3 dB below: Larger than measurement grid
Ratio of SAR at M2 to SAR at M1 = 43.3%
Maximum value of SAR (measured) = 0.300 W/kg



0 dB = 0.300 W/kg = -5.23 dBW/kg

Date: 2021/1/15

Report No. :ES/2020/C0011

WLAN 802.11ac(80M) 5.8G_Body_Bottom side_CH 155_Aux_0mm

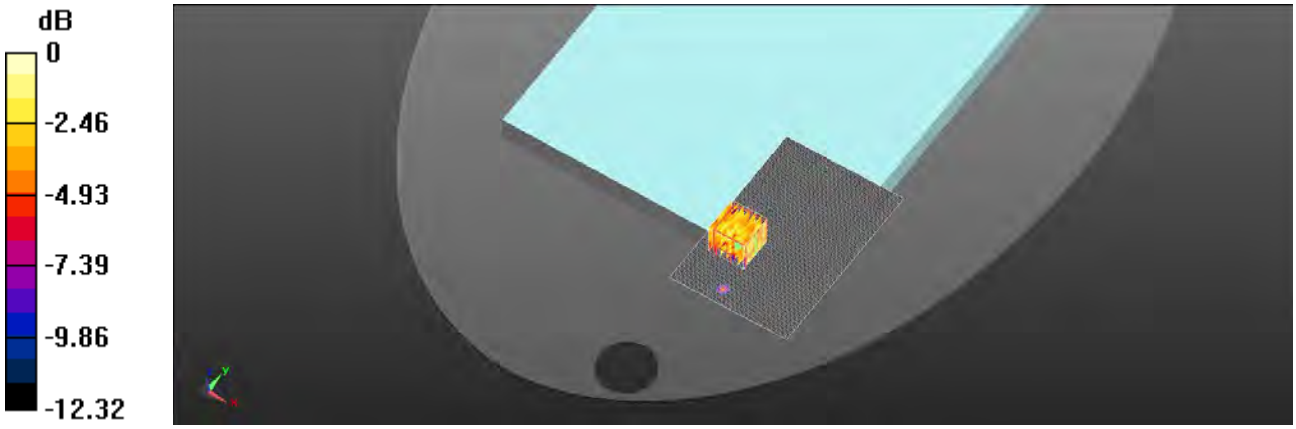
Communication System: WLAN 5G; Frequency: 5775 MHz; Duty cycle= 1:1.078
Medium parameters used: f = 5775 MHz; σ = 5.392 S/m; ε_r = 35.178; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 21.5°C; Liquid temperature: 22.2°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7509; ConvF(4.85, 4.85, 4.85) @ 5775 MHz; Calibrated: 2020/03/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn877; Calibrated: 2020/03/17
- Phantom: ELI
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Area Scan (81x121x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 0.0226 W/kg

Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 6.726 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 0.241 W/kg
SAR(1 g) = 0.025 W/kg; SAR(10 g) = 0.013 W/kg
Smallest distance from peaks to all points 3 dB below: Larger than measurement grid
Ratio of SAR at M2 to SAR at M1 = 65%
Maximum value of SAR (measured) = 0.0589 W/kg



0 dB = 0.0589 W/kg = -12.30 dBW/kg

Date: 2021/1/11

Report No. :ES/2020/C0011

WLAN 802.11b_Body_Bottom side_CH 1_Main_0mm

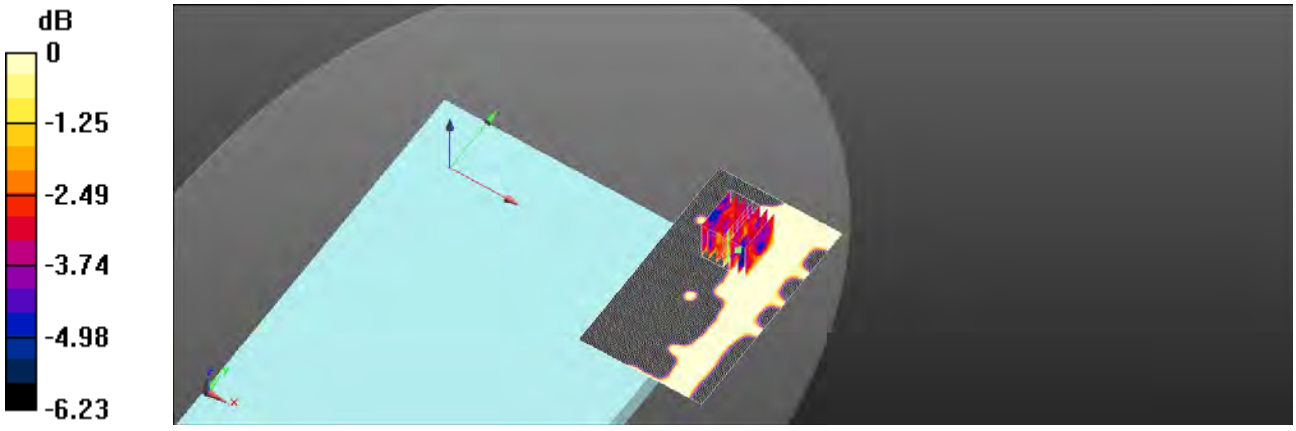
Communication System: WLAN 2.45G; Frequency: 2412 MHz; Duty cycle= 1:1.008
Medium parameters used: f = 2412 MHz; σ = 1.829 S/m; ε_r = 40.14; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 21.5°C; Liquid temperature: 21.7°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7509; ConvF(7.51, 7.51, 7.51) @ 2412 MHz; Calibrated: 2020/03/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn877; Calibrated: 2020/03/17
- Phantom: ELI
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Area Scan (71x121x1): Interpolated grid: dx=12 mm, dy=12 mm
Maximum value of SAR (interpolated) = 0.0415 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.511 V/m; Power Drift = 0.15 dB
Peak SAR (extrapolated) = 0.0130 W/kg
SAR(1 g) = 0.00706 W/kg; SAR(10 g) = 0.00551 W/kg
Smallest distance from peaks to all points 3 dB below: Larger than measurement grid
Ratio of SAR at M2 to SAR at M1 = 73.9%
Maximum value of SAR (measured) = 0.00920 W/kg



0 dB = 0.00920 W/kg = -20.36 dBW/kg

Date: 2021/1/11

Report No. :ES/2020/C0011

Bluetooth(GFSK)_Body_Bottom side_CH 39_Main_0mm

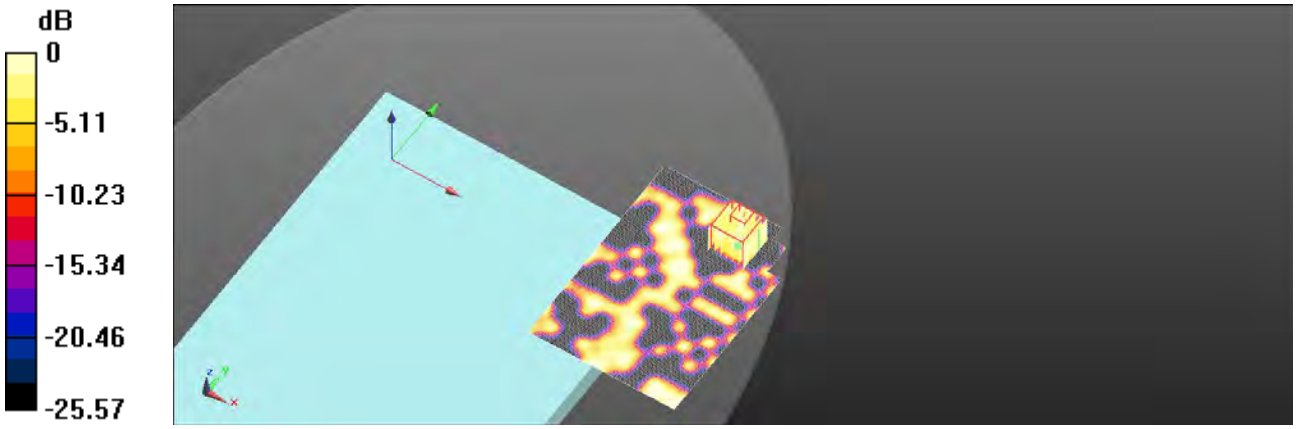
Communication System: Bluetooth; Frequency: 2441 MHz; Duty cycle= 1:1.295
Medium parameters used: f = 2441 MHz; σ = 1.863 S/m; ε_r = 39.988; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 21.5°C; Liquid temperature: 21.7°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7509; ConvF(7.51, 7.51, 7.51) @ 2441 MHz; Calibrated: 2020/03/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn877; Calibrated: 2020/03/17
- Phantom: ELI
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Area Scan (101x141x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 0.0232 W/kg

Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 3.725 V/m; Power Drift = 0.17 dB
Peak SAR (extrapolated) = 0.0300 W/kg
SAR(1 g) = 0.00606 W/kg; SAR(10 g) = 0.00507 W/kg
Smallest distance from peaks to all points 3 dB below: Larger than measurement grid
Ratio of SAR at M2 to SAR at M1 = 62.4%
Maximum value of SAR (measured) = 0.00886 W/kg



0 dB = 0.00886 W/kg = -20.52 dBW/kg

Date: 2021/1/12

Report No. :ES/2020/C0011

WLAN 802.11n(40M) 5.2G_Body_Bottom side_CH 46_Main_0mm

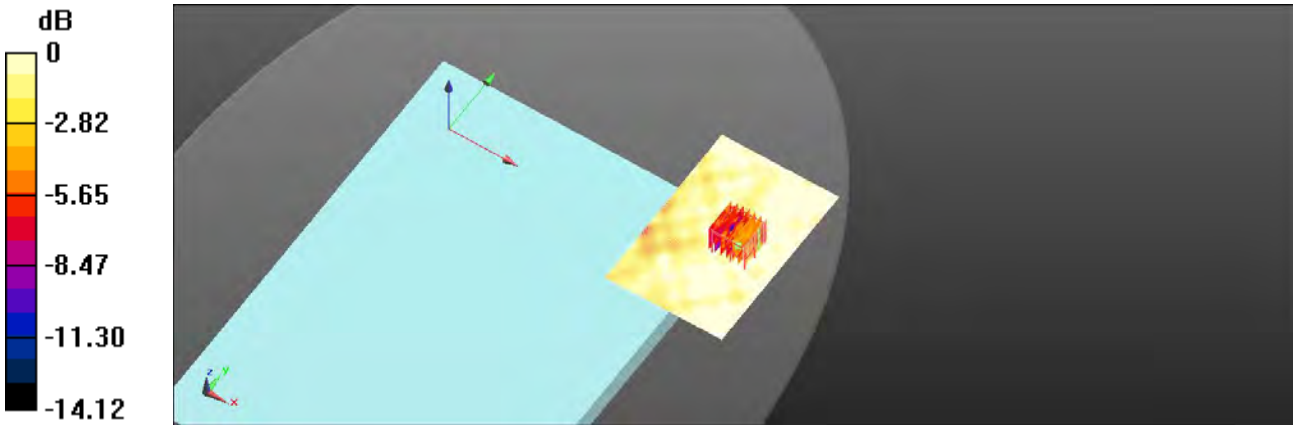
Communication System: WLAN 5G; Frequency: 5230 MHz; Duty cycle= 1:1.038
Medium parameters used: f = 5230 MHz; σ = 4.68 S/m; ε_r = 36.68; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 22.6°C; Liquid temperature: 21.9°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7509; ConvF(5.33, 5.33, 5.33) @ 5230 MHz; Calibrated: 2020/03/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn877; Calibrated: 2020/03/17
- Phantom: ELI
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Area Scan (81x121x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 0.0697 W/kg

Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 2.562 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 0.105 W/kg
SAR(1 g) = 0.024 W/kg; SAR(10 g) = 0.016 W/kg
Smallest distance from peaks to all points 3 dB below: Larger than measurement grid
Ratio of SAR at M2 to SAR at M1 = 60.4%
Maximum value of SAR (measured) = 0.0528 W/kg



0 dB = 0.0528 W/kg = -12.77 dBW/kg

Date: 2021/1/13

Report No. :ES/2020/C0011

WLAN 802.11n(40M) 5.3G_Body_Bottom side_CH 54_Main_0mm

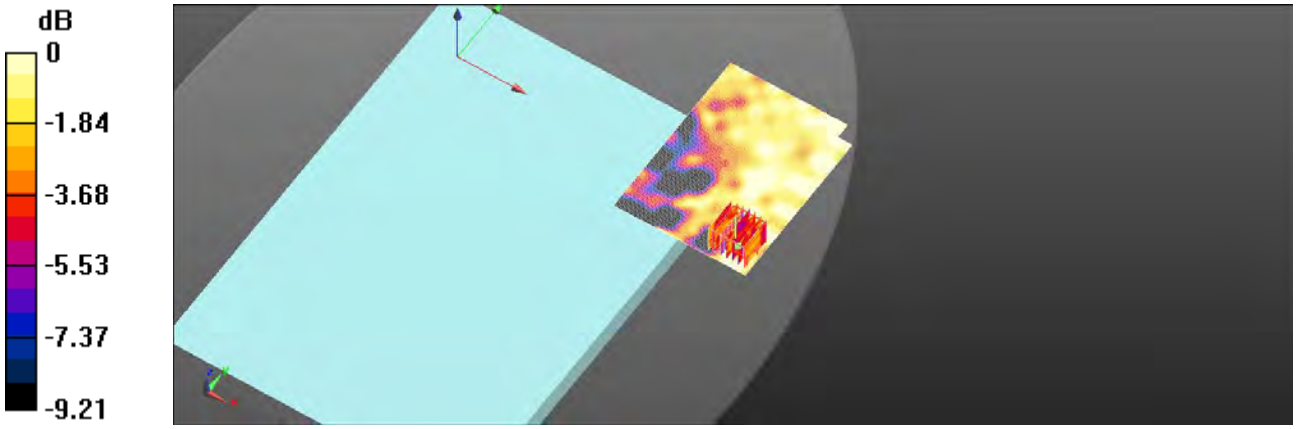
Communication System: WLAN 5G; Frequency: 5270 MHz; Duty cycle= 1:1.038
Medium parameters used: f = 5270 MHz; σ = 4.734 S/m; ε_r = 36.733; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 22.4°C; Liquid temperature: 21.9°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7509; ConvF(5.23, 5.23, 5.23) @ 5270 MHz; Calibrated: 2020/03/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn877; Calibrated: 2020/03/17
- Phantom: ELI
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Area Scan (91x121x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 0.0630 W/kg

Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 1.673 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 0.0700 W/kg
SAR(1 g) = 0.019 W/kg; SAR(10 g) = 0.015 W/kg
Smallest distance from peaks to all points 3 dB below: Larger than measurement grid
Ratio of SAR at M2 to SAR at M1 = 64.6%
Maximum value of SAR (measured) = 0.0354 W/kg



0 dB = 0.0354 W/kg = -14.51 dBW/kg

Date: 2021/1/14

Report No. : ES/2020/C0011

WLAN 802.11ac(80M) 5.6G_Body_Bottom side_CH 122_Main_0mm

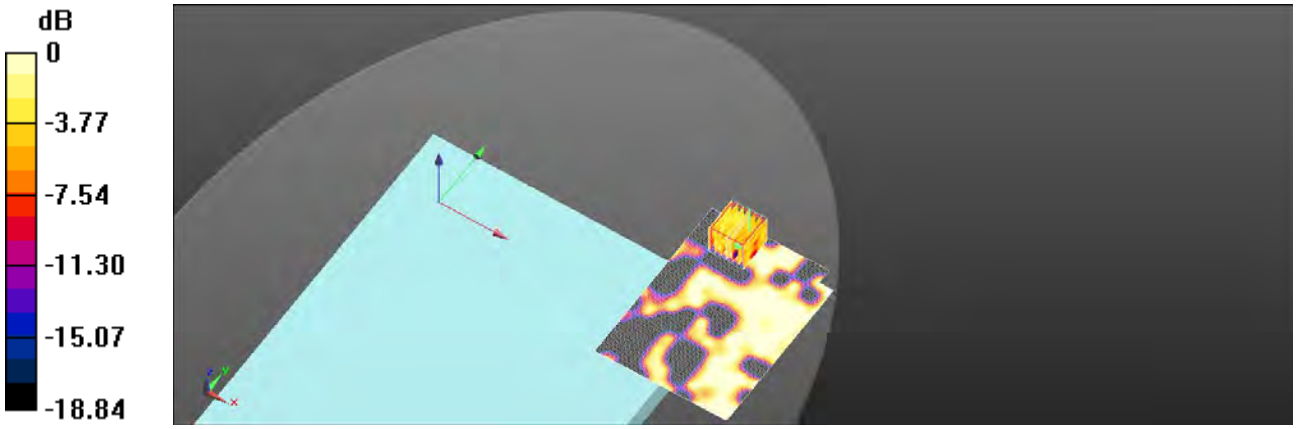
Communication System: WLAN 5G; Frequency: 5610 MHz; Duty cycle= 1:1.078
Medium parameters used: f = 5610 MHz; σ = 5.124 S/m; ε_r = 35.608; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 21.8°C; Liquid temperature: 22.0°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7509; ConvF(4.64, 4.64, 4.64) @ 5610 MHz; Calibrated: 2020/03/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn877; Calibrated: 2020/03/17
- Phantom: ELI
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Area Scan (91x121x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 0.115 W/kg

Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 4.246 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 0.120 W/kg
SAR(1 g) = 0.024 W/kg; SAR(10 g) = 0.019 W/kg
Smallest distance from peaks to all points 3 dB below: Larger than measurement grid
Ratio of SAR at M2 to SAR at M1 = 68.3%
Maximum value of SAR (measured) = 0.0448 W/kg



0 dB = 0.0448 W/kg = -13.49 dBW/kg

Date: 2021/1/15

Report No. :ES/2020/C0011

WLAN 802.11ac(80M) 5.8G_Body_Bottom side_CH 155_Main_0mm

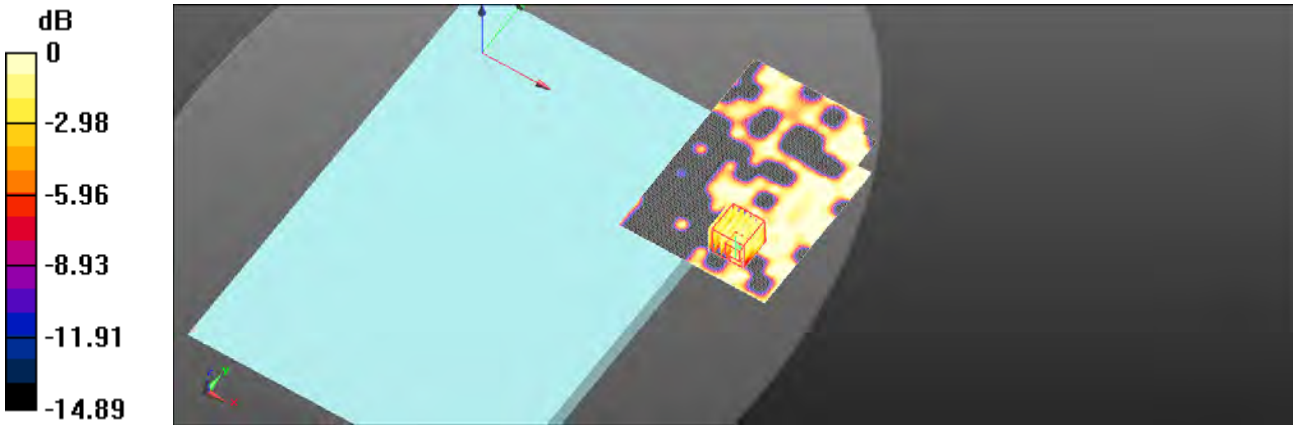
Communication System: WLAN 5G; Frequency: 5775 MHz; Duty cycle= 1:1.078
Medium parameters used: f = 5775 MHz; σ = 5.392 S/m; ε_r = 35.178; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 21.5°C; Liquid temperature: 22.2°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7509; ConvF(4.85, 4.85, 4.85) @ 5775 MHz; Calibrated: 2020/03/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn877; Calibrated: 2020/03/17
- Phantom: ELI
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Area Scan (101x141x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 0.0784 W/kg

Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 3.155 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 0.0480 W/kg
SAR(1 g) = 0.023 W/kg; SAR(10 g) = 0.016 W/kg
Smallest distance from peaks to all points 3 dB below: Larger than measurement grid
Ratio of SAR at M2 to SAR at M1 = 77.9%
Maximum value of SAR (measured) = 0.0351 W/kg



0 dB = 0.0351 W/kg = -14.54 dBW/kg

6. SAR System Performance Verification

Date: 2021/1/16

Report No. :ES/2020/C0011

Dipole 750 MHz_SN:1015

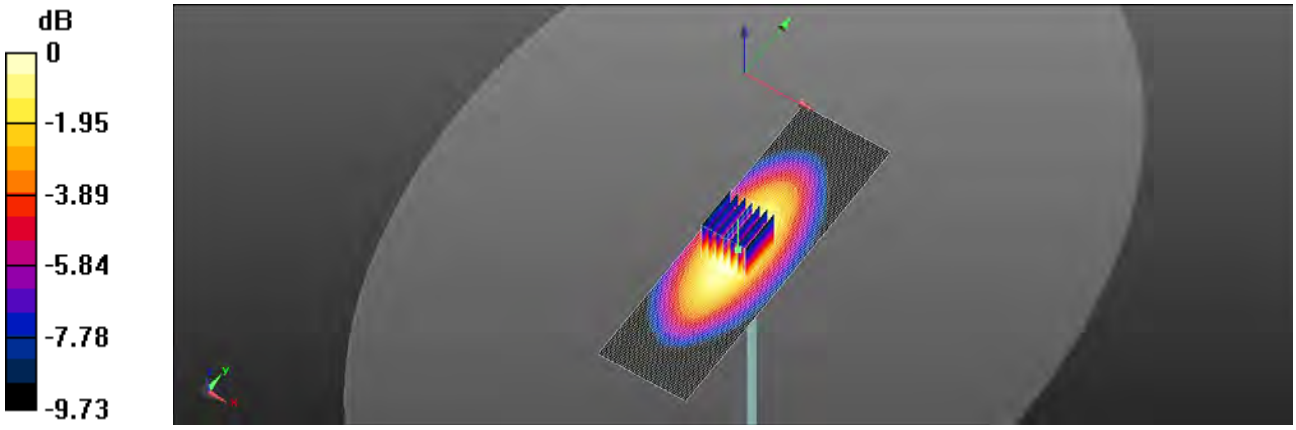
Communication System: CW; Frequency: 750 MHz; Duty cycle= 1:1
Medium parameters used: f = 750 MHz; σ = 0.908 S/m; ε_r = 42.826; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 22.1°C; Liquid temperature: 22.0℃

DASY5 Configuration:

- Probe: EX3DV4 - SN7509; ConvF(9.94, 9.94, 9.94) @ 750 MHz; Calibrated: 2020/03/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn877; Calibrated: 2020/03/17
- Phantom: ELI
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Pin=250mW/Area Scan (41x141x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 2.64 W/kg

Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 53.98 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 3.14 W/kg
SAR(1 g) = 2.14 W/kg; SAR(10 g) = 1.44 W/kg
Smallest distance from peaks to all points 3 dB below: Larger than measurement grid
Ratio of SAR at M2 to SAR at M1 = 68.5%
Maximum value of SAR (measured) = 2.69 W/kg



0 dB = 2.69 W/kg = 4.30 dBW/kg

Date: 2021/1/17

Report No. :ES/2020/C0011

Dipole 835 MHz_SN:4d063

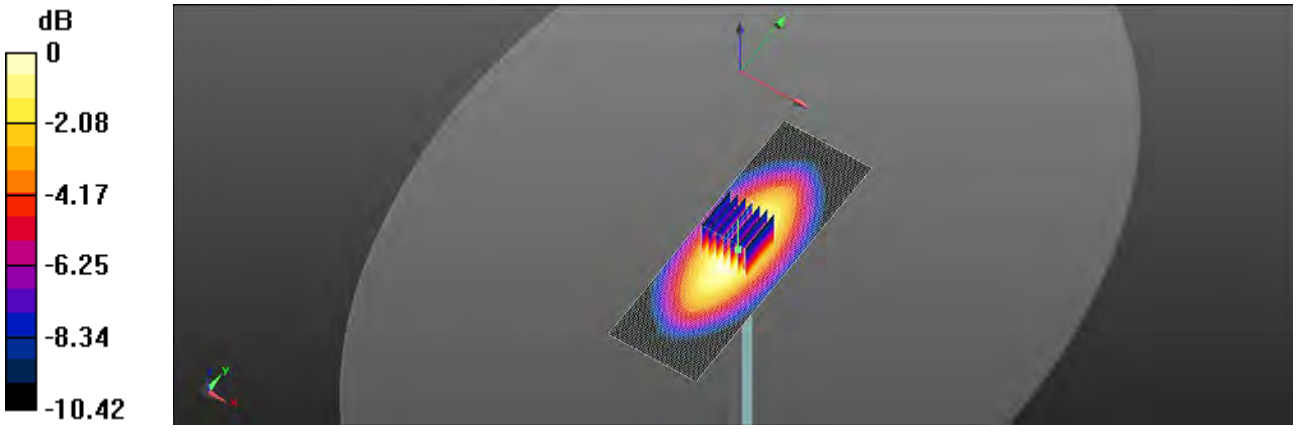
Communication System: CW; Frequency: 835 MHz; Duty cycle= 1:1
Medium parameters used: f = 835 MHz; σ = 0.941 S/m; ε_r = 42.263; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 22.2°C; Liquid temperature: 22.3°C

DASY5 Configuration:

- Probe: EX3DV4 – SN7509; ConvF(9.73, 9.73, 9.73) @ 835 MHz; Calibrated: 2020/03/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn877; Calibrated: 2020/03/17
- Phantom: ELI
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Pin=250mW/Area Scan (41x121x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 2.82 W/kg

Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 58.26 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 3.30 W/kg
SAR(1 g) = 2.24 W/kg; SAR(10 g) = 1.47 W/kg
Smallest distance from peaks to all points 3 dB below = 21.9 mm
Ratio of SAR at M2 to SAR at M1 = 67.7%
Maximum value of SAR (measured) = 2.83 W/kg



0 dB = 2.83 W/kg = 4.52 dBW/kg

Date: 2021/1/18

Report No. :ES/2020/C0011

Dipole 1750 MHz_SN:1008

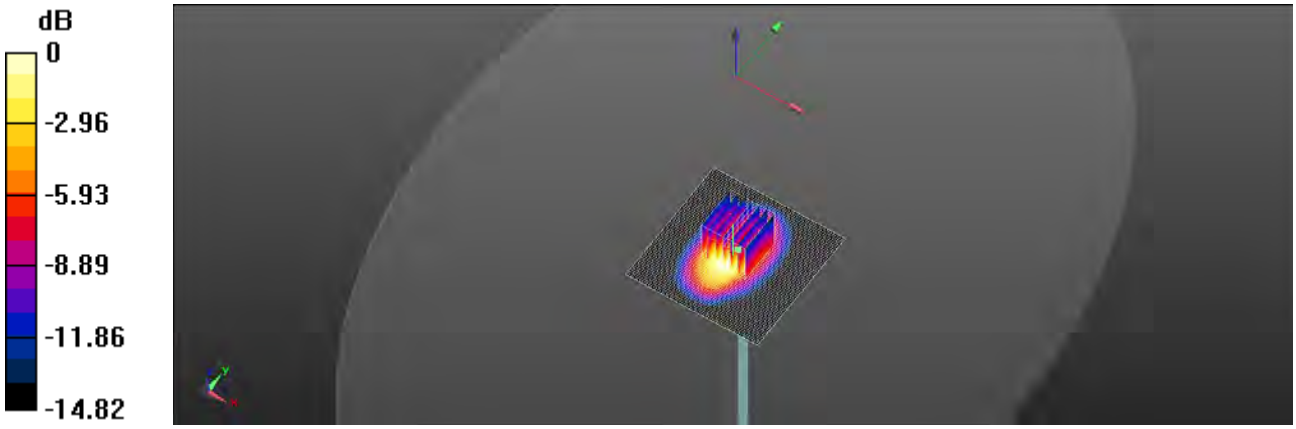
Communication System: CW; Frequency: 1750 MHz; Duty cycle= 1:1
Medium parameters used: f = 1750 MHz; σ = 1.339 S/m; ε_r = 38.781; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 21.7°C; Liquid temperature: 21.8°C

DASY5 Configuration:

- Probe: EX3DV4 – SN7509; ConvF(8.34, 8.34, 8.34) @ 1750 MHz; Calibrated: 2020/03/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn877; Calibrated: 2020/03/17
- Phantom: ELI
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 11.8 W/kg

Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 99.22 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 14.3 W/kg
SAR(1 g) = 8.68 W/kg; SAR(10 g) = 5.01 W/kg
Smallest distance from peaks to all points 3 dB below = 10.8 mm
Ratio of SAR at M2 to SAR at M1 = 61.3%
Maximum value of SAR (measured) = 11.6 W/kg



0 dB = 11.6 W/kg = 10.64 dBW/kg

Date: 2021/1/19

Report No. :ES/2020/C0011

Dipole 1900 MHz_SN:5d173

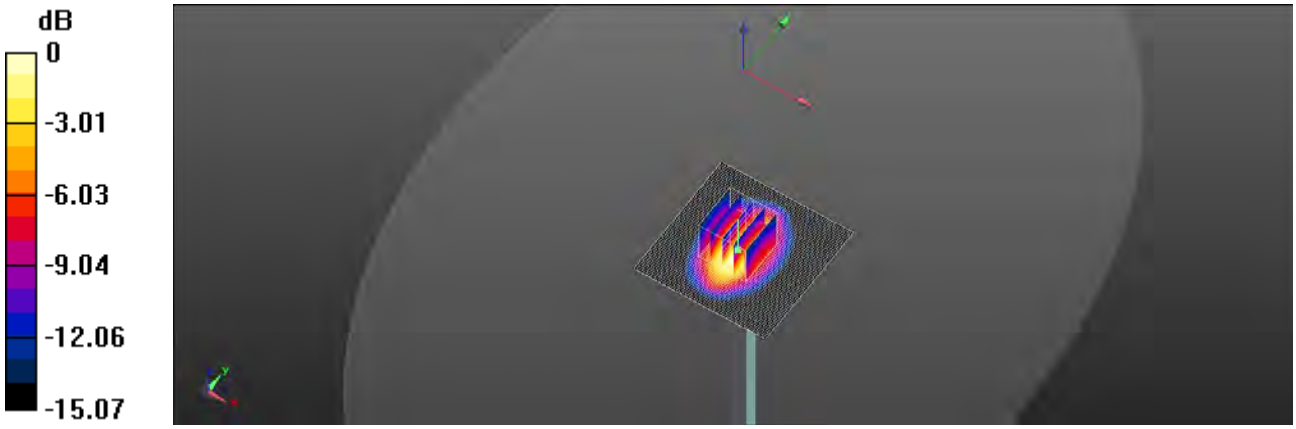
Communication System: CW; Frequency: 1900 MHz; Duty cycle= 1:1
Medium parameters used: f = 1900 MHz; σ = 1.452 S/m; ε_r = 38.308; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 21.8°C; Liquid temperature: 22.0℃

DASY5 Configuration:

- Probe: EX3DV4 – SN7509; ConvF(8.07, 8.07, 8.07) @ 1900 MHz; Calibrated: 2020/03/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn877; Calibrated: 2020/03/17
- Phantom: ELI
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 13.5 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 95.83 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 16.7 W/kg
SAR(1 g) = 9.87 W/kg; SAR(10 g) = 5.49 W/kg
Smallest distance from peaks to all points 3 dB below = 9.6 mm
Ratio of SAR at M2 to SAR at M1 = 60.1%
Maximum value of SAR (measured) = 13.6 W/kg



0 dB = 13.6 W/kg = 11.34 dBW/kg

Date: 2021/1/20

Report No. :ES/2020/C0011

Dipole 2300 MHz_SN:1023

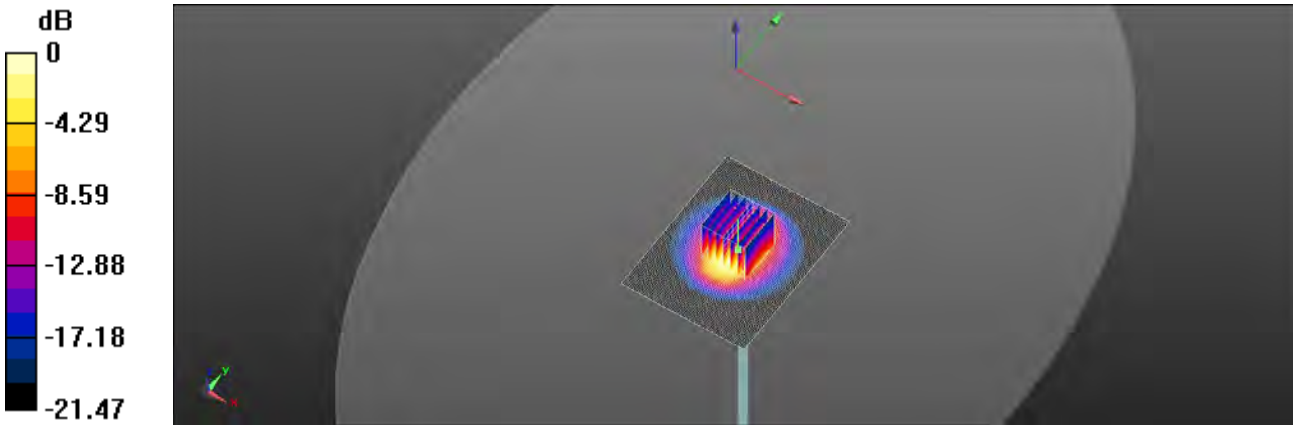
Communication System: CW; Frequency: 2300 MHz; Duty cycle= 1:1
Medium parameters used: f = 2300 MHz; σ = 1.691 S/m; ε_r = 38.212; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 22.4°C; Liquid temperature: 21.7°C

DASY5 Configuration:

- Probe: EX3DV4 – SN7509; ConvF(7.76, 7.76, 7.76) @ 2300 MHz; Calibrated: 2020/03/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn877; Calibrated: 2020/03/17
- Phantom: ELI
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Pin=250mW/Area Scan (71x91x1): Interpolated grid: dx=12 mm, dy=12 mm
Maximum value of SAR (interpolated) = 19.3 W/kg

Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 104.9 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 25.0 W/kg
SAR(1 g) = 12.2 W/kg; SAR(10 g) = 5.73 W/kg
Smallest distance from peaks to all points 3 dB below = 9 mm
Ratio of SAR at M2 to SAR at M1 = 49.3%
Maximum value of SAR (measured) = 18.5 W/kg



0 dB = 18.5 W/kg = 12.67 dBW/kg

Date: 2021/1/11

Report No. :ES/2020/C0011

Dipole 2450 MHz_SN:727

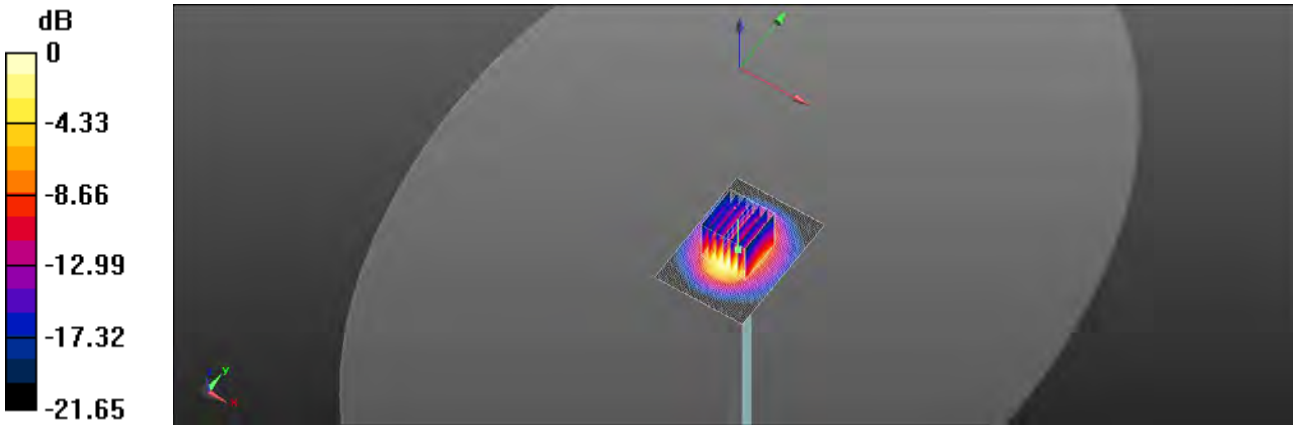
Communication System: CW; Frequency: 2450 MHz; Duty cycle= 1:1
Medium parameters used: f = 2450 MHz; σ = 1.874 S/m; ε_r = 39.95; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 21.5°C; Liquid temperature: 21.7°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7509; ConvF(7.51, 7.51, 7.51) @ 2450 MHz; Calibrated: 2020/03/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn877; Calibrated: 2020/03/17
- Phantom: ELI
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Pin=250mW/Area Scan (51x71x1): Interpolated grid: dx=12 mm, dy=12 mm
Maximum value of SAR (interpolated) = 24.1 W/kg

Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 113.5 V/m; Power Drift = -0.19 dB
Peak SAR (extrapolated) = 28.8 W/kg
SAR(1 g) = 13.9 W/kg; SAR(10 g) = 6.41 W/kg
Smallest distance from peaks to all points 3 dB below = 9 mm
Ratio of SAR at M2 to SAR at M1 = 49%
Maximum value of SAR (measured) = 21.4 W/kg



0 dB = 21.4 W/kg = 13.30 dBW/kg

Date: 2021/1/21

Report No. :ES/2020/C0011

Dipole 2600 MHz_SN:1005

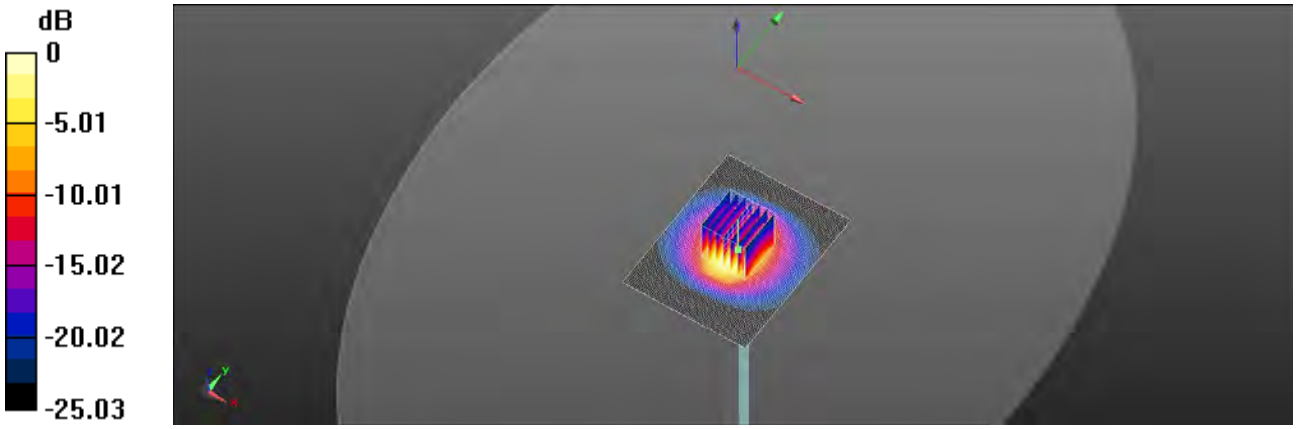
Communication System: CW; Frequency: 2600 MHz; Duty cycle= 1:1
Medium parameters used: f = 2600 MHz; σ = 2.055 S/m; ε_r = 37.601; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 21.8°C; Liquid temperature: 22.4°C

DASY5 Configuration:

- Probe: EX3DV4 – SN7509; ConvF(7.23, 7.23, 7.23) @ 2600 MHz; Calibrated: 2020/03/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn877; Calibrated: 2020/03/17
- Phantom: ELI
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Pin=250mW/Area Scan (71x91x1): Interpolated grid: dx=12 mm, dy=12 mm
Maximum value of SAR (interpolated) = 24.1 W/kg

Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 107.2 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 32.2 W/kg
SAR(1 g) = 14.3 W/kg; SAR(10 g) = 6.26 W/kg
Smallest distance from peaks to all points 3 dB below = 9 mm
Ratio of SAR at M2 to SAR at M1 = 44.5%
Maximum value of SAR (measured) = 22.8 W/kg



0 dB = 22.8 W/kg = 13.58 dBW/kg

Date: 2021/1/12

Report No. :ES/2020/C0011

Dipole 5200 MHz_SN:1023

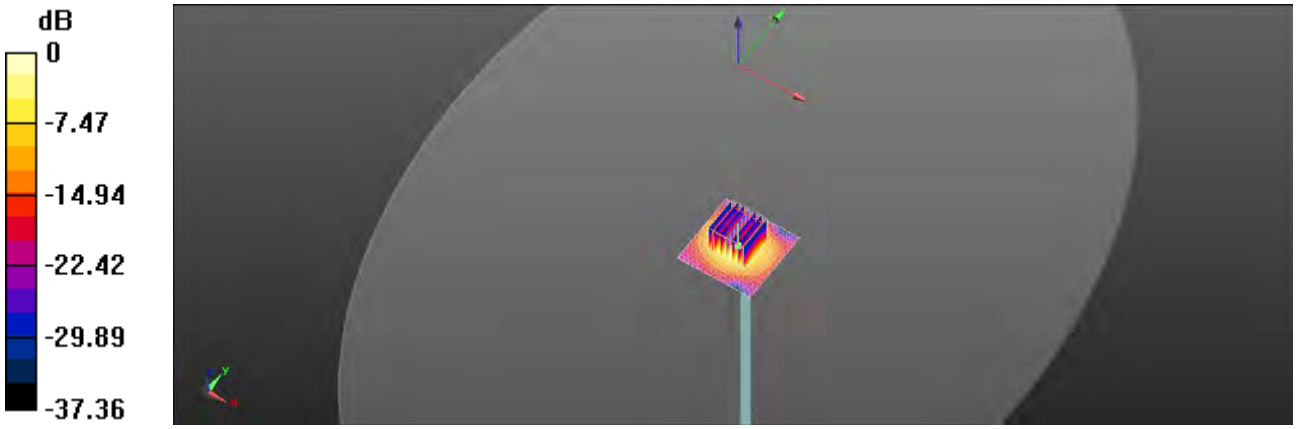
Communication System: CW; Frequency: 5200 MHz; Duty cycle= 1:1
Medium parameters used: f = 5200 MHz; σ = 4.595 S/m; ε_r = 36.85; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 22.6°C; Liquid temperature: 21.9°C

DASY5 Configuration:

- Probe: EX3DV4 – SN7509; ConvF(5.33, 5.33, 5.33) @ 5200 MHz; Calibrated: 2020/03/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn877; Calibrated: 2020/03/17
- Phantom: ELI
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Pin=100mW/Area Scan (51x51x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 14.4 W/kg

Pin=100mW/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 67.73 V/m; Power Drift = -0.17 dB
Peak SAR (extrapolated) = 28.2 W/kg
SAR(1 g) = 7.77 W/kg; SAR(10 g) = 2.35 W/kg
Smallest distance from peaks to all points 3 dB below = 7.2 mm
Ratio of SAR at M2 to SAR at M1 = 56.2%
Maximum value of SAR (measured) = 14.9 W/kg



0 dB = 14.9 W/kg = 11.73 dBW/kg

Date: 2021/1/13

Report No. :ES/2020/C0011

Dipole 5300 MHz_SN:1023

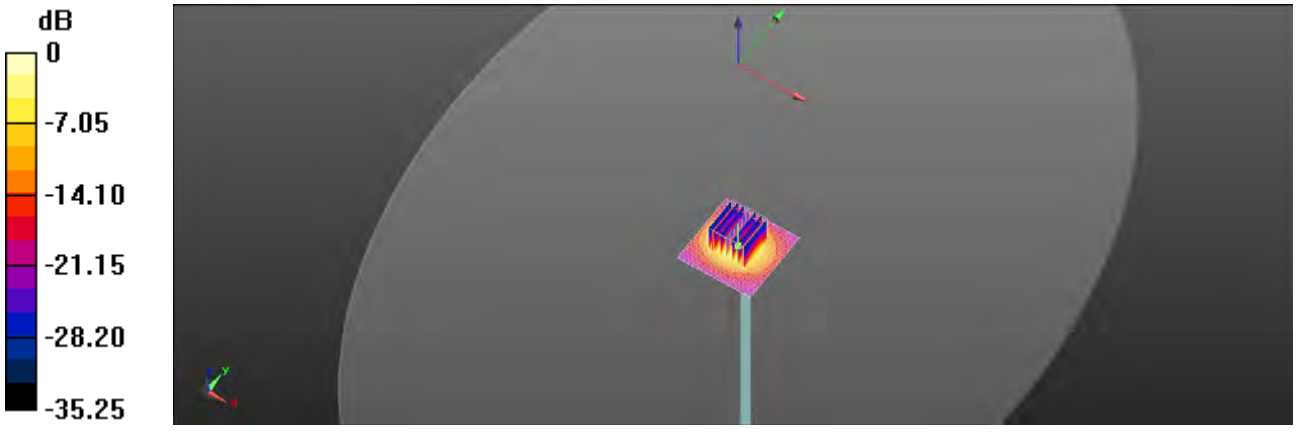
Communication System: CW; Frequency: 5300 MHz; Duty cycle= 1:1
Medium parameters used: f = 5300 MHz; σ = 4.741 S/m; ε_r = 36.554; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 22.4°C; Liquid temperature: 21.9°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7509; ConvF(5.23, 5.23, 5.23) @ 5300 MHz; Calibrated: 2020/03/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn877; Calibrated: 2020/03/17
- Phantom: ELI
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Pin=100mW/Area Scan (51x51x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 15.3 W/kg

Pin=100mW/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 65.22 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 28.8 W/kg
SAR(1 g) = 7.82 W/kg; SAR(10 g) = 2.36 W/kg
Smallest distance from peaks to all points 3 dB below = 7.2 mm
Ratio of SAR at M2 to SAR at M1 = 55.5%
Maximum value of SAR (measured) = 15.1 W/kg



0 dB = 15.1 W/kg = 11.79 dBW/kg

Date: 2021/1/14

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Dipole 5600 MHz_SN:1023

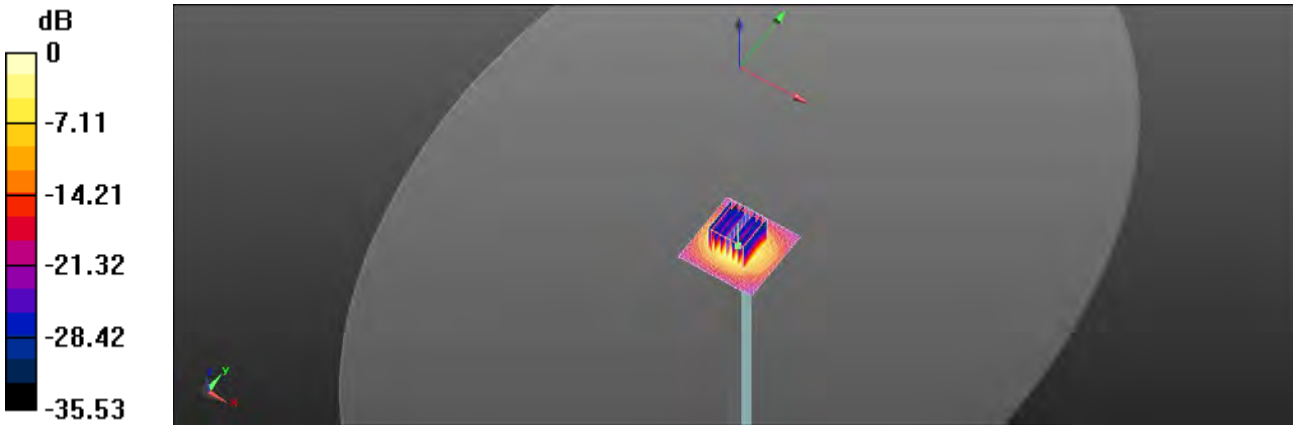
Communication System: CW; Frequency: 5600 MHz; Duty cycle= 1:1
Medium parameters used: f = 5600 MHz; σ = 5.102 S/m; ε_r = 35.699; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 21.8; Liquid temperature: 22.0°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7509; ConvF(4.64, 4.64, 4.64) @ 5600 MHz; Calibrated: 2020/03/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn877; Calibrated: 2020/03/17
- Phantom: ELI
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Pin=100mW/Area Scan (51x51x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 19.1 W/kg

Pin=100mW/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 65.01 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 40.9 W/kg
SAR(1 g) = 8.89 W/kg; SAR(10 g) = 2.52 W/kg
Smallest distance from peaks to all points 3 dB below = 7.6 mm
Ratio of SAR at M2 to SAR at M1 = 50.3%
Maximum value of SAR (measured) = 19.0 W/kg



0 dB = 19.0 W/kg = 12.79 dBW/kg

Report No. :ES/2020/C0011

Dipole 5800 MHz_SN:1023

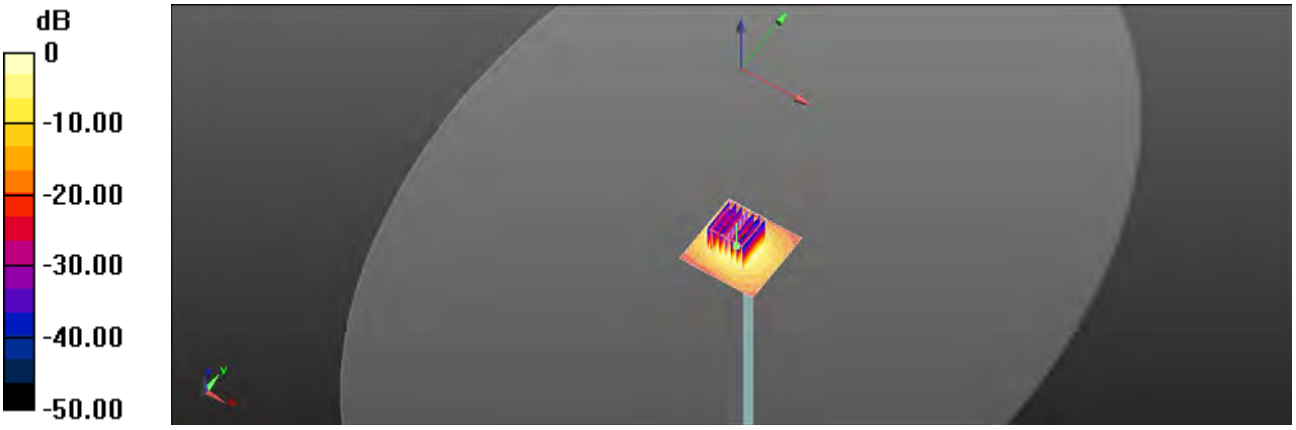
Communication System: CW; Frequency: 5800 MHz; Duty cycle= 1:1
Medium parameters used: f = 5800 MHz; σ = 5.424 S/m; ε_r = 34.686; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 21.5°C; Liquid temperature: 22.2°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7509; ConvF(4.85, 4.85, 4.85) @ 5800 MHz; Calibrated: 2020/03/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn877; Calibrated: 2020/03/17
- Phantom: ELI
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Pin=100mW/Area Scan (51x51x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 18.9 W/kg

Pin=100mW/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 59.36 V/m; Power Drift = 0.14 dB
Peak SAR (extrapolated) = 43.4 W/kg
SAR(1 g) = 8.56 W/kg; SAR(10 g) = 2.43 W/kg
Smallest distance from peaks to all points 3 dB below = 7.9 mm
Ratio of SAR at M2 to SAR at M1 = 46.5%
Maximum value of SAR (measured) = 18.4 W/kg



0 dB = 18.4 W/kg = 12.65 dBW/kg

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.)	2.65%	N	1	1	0.64	0.43	1.70%	1.14%	M
Liquid Conductivity (mea.)	2.92%	N	1	1	0.6	0.49	1.75%	1.43%	M
Combined standard uncertainty		RSS					11.97%	11.85%	
Expant uncertainty (95% confidence							23.93%	23.70%	

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 Distributio	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 shell	2.90%	R	√3	1.732	1	1	1.67%	1.67%	∞
Post-processing	1.00%	R	√3	1.732	1	1	0.58%	0.58%	∞
Max SAR Eval	1.00%	R	√3	1.732	1	1	0.58%	0.58%	∞
Test Sample related									
Test sample positioning	2.90%	N	1	1	1	1	2.90%	2.90%	M-1
Device Holder Uncertainty	3.60%	N	1	1	1	1	3.60%	3.60%	M-1
Drift of output power	5.00%	R	√3	1.732	1	1	2.89%	2.89%	∞
Phantom and Setup									
Phantom Uncertainty	4.00%	R	√3	1.732	1	1	2.31%	2.31%	∞
Liquid permittivity (mea.)	4.35%	N	1	1	0.64	0.43	2.78%	1.87%	M
Liquid Conductivity (mea.)	4.78%	N	1	1	0.6	0.49	2.87%	2.34%	M
Combined standard uncertainty		RSS					12.10%	11.80%	
Expant uncertainty (95% confidence interval), K=2							24.19%	23.59%	

Appendixes

Refer to separated files for the following appendixes.

ES2020C0011 SAR_Appendix A Photographs

ES2020C0011 SAR_Appendix B DAE & Probe Cal. Certificate

ES2020C0011 SAR_Appendix C Phantom Description & Dipole Cal. Certificate

- End of report -