

## SAR TEST REPORT



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

<b>Equipment Under Test</b>	Notebook Computer
<b>Brand Name</b>	HP
<b>Model No.</b>	HSN-I41C
<b>Company Name</b>	HP Inc.
<b>Company Address</b>	1501 Page Mill Road, Palo Alto CA 94304 USA
<b>Standards</b>	IEEE/ANSI C95.1-1992, IEEE 1528-2013
<b>FCC ID</b>	ZMOL850GL
<b>Date of Receipt</b>	Aug. 27, 2020
<b>Date of Test(s)</b>	Sep. 08, 2020 ~ Sep. 17, 2020
<b>Date of Issue</b>	Oct. 08, 2020

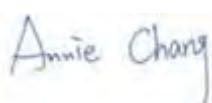

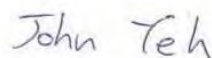
In the configuration tested, the EUT complied with the standards specified above.

**Remarks:**

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

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**Signed on behalf of SGS**

Clerk / Annie Chang	Engineer / Bond Tsai	Asst. Manager / John Yeh
		

Date: Oct. 08, 2020

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## Revision History

Report Number	Revision	Description	Issue Date
ES/2020/80007	Rev.00	Initial creation of document	Oct. 08, 2020

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## 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

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# 1. General Information

## 1.1 Testing Laboratory

SGS Taiwan Ltd. Central RF Lab	
No. 2, Keji 1st Rd., Guishan Township, Taoyuan County, 33383, Taiwan	
Tel	+886-2-2299-3279
Fax	+886-2-2298-0488
Internet	<a href="http://www.tw.sgs.com/">http://www.tw.sgs.com/</a>

## 1.2 Details of Applicant

Company Name	HP Inc.
Company Address	1501 Page Mill Road, Palo Alto CA 94304 USA

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### 1.3 Description of EUT

Equipment Under Test	Notebook Computer			
Brand Name	HP			
Model No.	HSN-I41C			
FCC ID	ZMOL850GL			
Integrated Module	WLAN	Brand Name : Intel Model Name : AX201NGW		
	WWAN	Brand Name : Fibocom Model Name : L850-GL		
	NFC	Brand Name : WNC Model Name : XRAV-1		
Mode of Operation	<input checked="" type="checkbox"/> WCDMA <input checked="" type="checkbox"/> HSDPA <input checked="" type="checkbox"/> HSUPA <input checked="" type="checkbox"/> HSPA+ <input checked="" type="checkbox"/> DC-HSDPA <input checked="" type="checkbox"/> LTE FDD <input checked="" type="checkbox"/> LTE TDD <input checked="" type="checkbox"/> WLAN802.11 a/b/g/n/ac/ax(20M/40M/80M/160M) <input checked="" type="checkbox"/> Bluetooth <input checked="" type="checkbox"/> NFC			
Duty Cycle	WCDMA	100%		
	LTE FDD	100%		
	LTE TDD	63.3%		
	WLAN802.11 a/b/g/n/ac/ax(20M/40M/80M/160M)	100%		
	Bluetooth	100%		
TX Frequency Range (MHz)	WCDMA Band II	1850	—	1910
	WCDMA Band IV	1710	—	1755
	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

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TX Frequency Range (MHz)	LTE FDD Band 12	699	—	716
	LTE FDD Band 13	777	—	787
	LTE FDD Band 17	704	—	716
	LTE FDD Band 26	814	—	849
	LTE FDD Band 30	2305	—	2315
	LTE TDD Band 38	2570	—	2620
	LTE TDD Band 41	2496	—	2690
	LTE FDD Band 66	1710	—	1780
	WLAN802.11 b/g/n/ax(20M)	2412	—	2472
	WLAN802.11 n/ax(40M)	2422	—	2462
	WLAN802.11 a/n/ac/ax(20M) 5.2G	5180	—	5240
	WLAN802.11 n/ac/ax(40M) 5.2G	5190	—	5230
	WLAN802.11 ac/ax(80M) 5.2G	5210		
	WLAN802.11 ac/ax(160M) 5.2G	5250		
	WLAN802.11 a/n/ac/ax(20M) 5.3G	5260	—	5320
	WLAN802.11 n/ac/ax(40M) 5.3G	5270	—	5310
	WLAN802.11 ac/ax(80M) 5.3G	5290		
	WLAN802.11 a/n/ac/ax(20M) 5.6G	5500	—	5720
	WLAN802.11 n/ac/ax(40M) 5.6G	5510	—	5710
	WLAN802.11 ac/ax(80M) 5.6G	5530	—	5690
	WLAN802.11 ac/ax(160M) 5.6G	5570		
	WLAN802.11 a/n/ac/ax(20M) 5.8G	5745	—	5825
	WLAN802.11 n/ac/ax(40M) 5.8G	5755	—	5795
	WLAN802.11 ac/ax(80M) 5.8G	5775		
	Bluetooth	2402	—	2480
Channel Number (ARFCN)	WCDMA Band II	9262	—	9538
	WCDMA Band IV	1312	—	1513
	WCDMA Band V	4132	—	4233

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Channel Number (ARFCN)	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 17	23755	—	23825
	LTE FDD Band 26	26697	—	27033
	LTE FDD Band 30	27685	—	27735
	LTE TDD Band 38	37775	—	38225
	LTE TDD Band 41	39675	—	41565
	LTE FDD Band 66	131979	—	132665
	WLAN802.11 b/g/n/ax(20M)	1	—	13
	WLAN802.11 n/ax(40M)	3	—	11
	WLAN802.11 a/n/ac/ax(20M) 5.2G	36	—	48
	WLAN802.11 n/ac/ax(40M) 5.2G	38	—	46
	WLAN802.11 ac/ax(80M) 5.2G	42		
	WLAN802.11 ac/ax(160M) 5.2G	50		
	WLAN802.11 a/n/ac/ax(20M) 5.3G	52	—	64
	WLAN802.11 n/ac/ax(40M) 5.3G	54	—	62
	WLAN802.11 ac/ax(80M) 5.3G	58		
	WLAN802.11 a/n/ac/ax(20M) 5.6G	100	—	144
	WLAN802.11 n/ac/ax(40M) 5.6G	102	—	142
	WLAN802.11 ac/ax(80M) 5.6G	106	—	138
	WLAN802.11 ac/ax(160M) 5.6G	114		
	WLAN802.11 a/n/ac/ax(20M) 5.8G	149	—	165
	WLAN802.11 n/ac/ax(40M) 5.8G	151	—	159
	WLAN802.11 ac/ax(80M) 5.8G	155		
	Bluetooth	0	—	78

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### Notebook mode (Tx5)

Max. SAR (1 g) (Unit: W/Kg)				
Band	Measured	Reported	Channel	Position
WCDMA Band II	0.02	0.03	9400	Bottom side
WCDMA Band IV	0.05	0.06	1513	Bottom side
WCDMA Band V	0.01	0.01	4183	Bottom side
LTE FDD Band 2	0.02	0.02	18900	Bottom side
LTE FDD Band 4	0.04	0.04	20300	Bottom side
LTE FDD Band 5	0.01	0.01	20525	Bottom side
LTE FDD Band 7	0.01	0.01	20850	Bottom side
LTE FDD Band 12	0.00	0.01	23060	Bottom side
LTE FDD Band 13	0.01	0.01	23230	Bottom side
LTE FDD Band 17	0.00	0.00	23780	Bottom side
LTE FDD Band 26	0.01	0.01	26865	Bottom side
LTE FDD Band 30	0.01	0.01	27710	Bottom side
LTE TDD Band 38	0.00	0.01	38150	Bottom side
LTE TDD Band 41	0.00	0.01	41055	Bottom side
LTE FDD Band 66	0.04	0.05	132322	Bottom side

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## Antenna Information

### WWAN

Vendor	WNC					
Antenna	Main					
Antenna Type	PIFA					
Part Number	6036B0253201 (81EABB15.G35)					
Frequency	750	835	1750	1900	2300	2600
Gain (dBi)	-1.17	0.08	-0.85	0.31	3.45	-0.19
Vendor	HONG-BO					
Antenna	Main					
Antenna Type	PIFA					
Part Number	6036B0257701 (260-27365)					
Frequency	750	835	1750	1900	2300	2600
Gain (dBi)	-1.20	-0.78	-0.98	-0.77	0.53	0.22
Vendor	AWAN					
Antenna	Main					
Antenna Type	PIFA					
Part Number	6036B0255901 (AUP6Y-100025)					
Frequency	750	835	1750	1900	2300	2600
Gain (dBi)	-1.02	-3.45	-0.69	1.68	1.88	-0.38

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## Tx5-WCDMA Band II / Band IV / Band V - HSDPA / HSUPA / HSPA+ / DC-HSDPA 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)		24.50		
3GPP Rel 99	RMC 12.2Kbps	23.43	23.49	23.36
3GPP Rel 5	HSDPA Subtest-1	23.32	23.45	23.34
	HSDPA Subtest-2	22.44	22.40	22.33
	HSDPA Subtest-3	21.95	21.99	21.82
	HSDPA Subtest-4	21.74	21.83	21.59
3GPP Rel 6	HSUPA Subtest-1	22.55	22.77	22.37
	HSUPA Subtest-2	20.33	20.61	20.17
	HSUPA Subtest-3	20.96	21.31	20.84
	HSUPA Subtest-4	20.48	20.78	20.38
	HSUPA Subtest-5	22.51	22.61	22.41
3GPP Rel 7	HSPA+	23.37	23.32	23.35
3GPP Rel 8	DC-HSDPA Subtest-1	23.19	23.34	23.26
	DC-HSDPA Subtest-2	22.36	22.38	22.29
	DC-HSDPA Subtest-3	21.45	21.45	21.14
	DC-HSDPA Subtest-4	21.08	21.29	21.05
Band		WCDMA IV		
TX Channel		1312	1412	1513
Frequency (MHz)		1712.4	1732.4	1752.6
Max. Rated Avg. Power+Max. Tolerance (dBm)		24.50		
3GPP Rel 99	RMC 12.2Kbps	23.21	23.27	23.49
3GPP Rel 5	HSDPA Subtest-1	23.17	23.22	23.33
	HSDPA Subtest-2	22.22	22.23	22.67
	HSDPA Subtest-3	21.64	21.71	22.16
	HSDPA Subtest-4	21.44	21.45	21.92
3GPP Rel 6	HSUPA Subtest-1	22.21	22.19	22.59
	HSUPA Subtest-2	19.95	19.97	20.42
	HSUPA Subtest-3	20.72	20.71	21.11
	HSUPA Subtest-4	20.21	20.19	20.63
	HSUPA Subtest-5	22.22	22.21	22.62
3GPP Rel 7	HSPA+	23.15	23.09	23.44
3GPP Rel 8	DC-HSDPA Subtest-1	23.12	23.20	23.26
	DC-HSDPA Subtest-2	22.19	22.20	22.50
	DC-HSDPA Subtest-3	20.99	21.04	21.48
	DC-HSDPA Subtest-4	20.85	20.77	21.31
Band		WCDMA V		
TX Channel		4132	4183	4233
Frequency (MHz)		826.4	836.6	846.6
Max. Rated Avg. Power+Max. Tolerance (dBm)		24.50		
3GPP Rel 99	RMC 12.2Kbps	23.20	23.44	23.09
3GPP Rel 5	HSDPA Subtest-1	23.12	23.29	23.03
	HSDPA Subtest-2	22.10	22.36	22.01
	HSDPA Subtest-3	21.99	22.23	21.90
	HSDPA Subtest-4	21.84	22.08	21.83
3GPP Rel 6	HSUPA Subtest-1	22.09	22.92	21.89
	HSUPA Subtest-2	19.92	20.62	19.69
	HSUPA Subtest-3	20.62	21.45	20.47
	HSUPA Subtest-4	20.15	20.99	19.95
	HSUPA Subtest-5	22.11	22.92	22.01
3GPP Rel 7	HSPA+	23.03	23.43	22.95
3GPP Rel 8	DC-HSDPA Subtest-1	23.03	23.18	22.85
	DC-HSDPA Subtest-2	21.90	22.19	21.81
	DC-HSDPA Subtest-3	21.46	21.71	21.40
	DC-HSDPA Subtest-4	21.22	21.40	21.27

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### Sub-Test for HSDPA

SUB-TEST	$\beta_c$	$\beta_d$	$\beta_d$ (SF)	$\beta_c/\beta_d$	$\beta_{HS}$ (Note 1, Note 2)	CM (dB) (Note 3)	MPR (dB) (Note 3)
1	2/15	15/15	64	2/15	4/15	0.0	0.0
2	12/15	15/15	64	12/15	24/15	1.0	0.0
3	15/15	8/15	64	15/8	30/15	1.5	0.5
4	15/15	4/15	64	15/4	30/15	1.5	0.5

### Sub-Test for HSUPA

SUB-TEST	$\beta_c$	$\beta_d$	$\beta_d$ (SF)	$\beta_c/\beta_d$	$\beta_{HS}$ (Note 1)	$\beta_{ec}$	$\beta_{ed}$ (Note 5) (Note 6)	$\beta_{ed}$ (SF)	$\beta_{ed}$ (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	$\beta_{ed1}$ : 47/15 $\beta_{ed2}$ : 47/15	4 4	2	2.0	1.0	15	92
4	2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71
5	15/15	15/15	64	15/15	30/15	24/15	134/15	4	1	1.0	0.0	21	81

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### Tx5-LTE FDD Band 2 / Band 4 / Band 5 / Band 7 / Band 12 / Band 13 / Band 14 / Band 17 / Band 25 / Band 26 / Band 30 / Band 66 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	23.22	23.33	23.02	24.00	0
		1	50	23.14	23.57	23.10	24.00	0
		1	99	23.48	23.23	23.11	24.00	0
		50	0	22.12	22.40	22.06	23.00	0-1
		50	25	22.19	22.38	22.10	23.00	0-1
		50	50	22.27	22.31	22.05	23.00	0-1
		100	0	22.36	22.51	22.31	23.00	0-1
	16-QAM	1	0	22.83	22.51	22.29	23.00	0-1
		1	50	22.02	22.27	22.42	23.00	0-1
		1	99	22.22	22.52	22.15	23.00	0-1
		50	0	21.23	21.41	21.12	22.00	0-2
		50	25	21.18	21.45	21.20	22.00	0-2
		50	50	21.23	21.36	21.16	22.00	0-2
		100	0	21.31	21.52	21.38	22.00	0-2
	64-QAM	1	0	20.59	20.43	20.40	22.00	0-2
		1	50	20.50	20.52	20.42	22.00	0-2
		1	99	20.51	20.61	20.35	22.00	0-2
		50	0	19.52	19.36	19.50	21.00	0-3
		50	25	19.33	19.63	19.33	21.00	0-3
		50	50	19.55	19.42	19.59	21.00	0-3
		100	0	19.47	19.48	19.37	21.00	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	23.11	23.45	22.83	24.00	0
		1	36	22.85	23.39	23.00	24.00	0
		1	74	22.98	23.05	22.91	24.00	0
		36	0	21.85	22.35	21.98	23.00	0-1
		36	18	21.80	22.32	22.04	23.00	0-1
		36	37	21.90	22.28	21.94	23.00	0-1
		75	0	21.87	22.33	22.14	23.00	0-1
	16-QAM	1	0	22.05	22.50	21.88	23.00	0-1
		1	36	22.12	22.20	22.20	23.00	0-1
		1	74	22.04	22.21	22.14	23.00	0-1
		36	0	20.90	21.34	21.07	22.00	0-2
		36	18	20.86	21.43	21.05	22.00	0-2
		36	37	21.04	21.35	20.98	22.00	0-2
		75	0	21.02	21.35	21.07	22.00	0-2
	64-QAM	1	0	20.51	20.38	20.38	22.00	0-2
		1	36	20.45	20.45	20.36	22.00	0-2
		1	74	20.41	20.54	20.22	22.00	0-2
		36	0	19.37	19.32	19.43	21.00	0-3
		36	18	19.20	19.48	19.33	21.00	0-3
		36	37	19.47	19.30	19.55	21.00	0-3
		75	0	19.45	19.43	19.29	21.00	0-3

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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	22.95	23.34	22.97	24.00	0
		1	25	22.78	23.41	23.15	24.00	0
		1	49	23.04	23.27	22.86	24.00	0
		25	0	21.93	22.43	21.95	23.00	0-1
		25	12	21.89	22.35	21.97	23.00	0-1
		25	25	21.85	22.32	21.97	23.00	0-1
	16-QAM	50	0	21.90	22.31	21.98	23.00	0-1
		1	0	22.04	22.99	22.12	23.00	0-1
		1	25	22.28	22.46	22.10	23.00	0-1
		1	49	22.01	22.26	22.05	23.00	0-1
		25	0	20.99	21.38	21.00	22.00	0-2
		25	12	20.90	21.40	21.03	22.00	0-2
	64-QAM	25	25	20.92	21.38	21.00	22.00	0-2
		50	0	20.98	21.35	21.08	22.00	0-2
		1	0	20.51	20.37	20.32	22.00	0-2
		1	25	20.44	20.47	20.28	22.00	0-2
		1	49	20.48	20.54	20.32	22.00	0-2
		25	0	19.51	19.32	19.46	21.00	0-3
		25	12	19.31	19.56	19.25	21.00	0-3
		25	25	19.46	19.28	19.47	21.00	0-3
		50	0	19.33	19.39	19.23	21.00	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	23.00	23.39	22.92	24.00	0
		1	12	22.93	23.38	22.98	24.00	0
		1	24	22.88	23.27	22.84	24.00	0
		12	0	21.95	22.27	21.90	23.00	0-1
		12	6	21.88	22.27	21.87	23.00	0-1
		12	13	21.87	22.29	21.79	23.00	0-1
	16-QAM	25	0	21.89	22.32	21.84	23.00	0-1
		1	0	22.24	22.61	22.09	23.00	0-1
		1	12	22.00	22.34	22.30	23.00	0-1
		1	24	22.16	22.46	22.01	23.00	0-1
		12	0	20.92	21.38	20.90	22.00	0-2
		12	6	20.97	21.32	20.81	22.00	0-2
	64-QAM	12	13	20.88	21.45	20.87	22.00	0-2
		25	0	20.94	21.35	20.83	22.00	0-2
		1	0	20.52	20.37	20.34	22.00	0-2
		1	12	20.41	20.42	20.36	22.00	0-2
		1	24	20.38	20.59	20.22	22.00	0-2
		12	0	19.48	19.25	19.39	21.00	0-3
	12	6	19.28	19.51	19.24	21.00	0-3	
	12	13	19.47	19.32	19.51	21.00	0-3	
	25	0	19.39	19.45	19.26	21.00	0-3	

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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	23.06	23.05	22.86	24.00	0	
		1	50	23.09	22.90	23.09	24.00	0	
		1	99	22.76	22.93	23.45	24.00	0	
		50	0	22.14	21.79	21.92	23.00	0-1	
		50	25	22.07	21.83	22.09	23.00	0-1	
		50	50	21.93	21.85	22.25	23.00	0-1	
	16-QAM	100	0	22.18	21.93	22.25	23.00	0-1	
		1	0	22.23	22.47	22.25	23.00	0-1	
		1	50	22.46	21.80	21.89	23.00	0-1	
		1	99	21.71	22.04	22.47	23.00	0-1	
		50	0	21.19	20.79	20.99	22.00	0-2	
		50	25	21.10	20.86	21.16	22.00	0-2	
	64-QAM	50	50	21.07	20.87	21.34	22.00	0-2	
		100	0	21.12	20.92	21.28	22.00	0-2	
		1	0	20.23	20.32	20.42	22.00	0-2	
		1	50	20.34	20.29	20.21	22.00	0-2	
		1	99	20.19	20.32	20.28	22.00	0-2	
		50	0	19.26	19.21	19.27	21.00	0-3	
		50	25	19.26	19.22	19.32	21.00	0-3	
		50	50	19.40	19.38	19.26	21.00	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	22.87	23.00	22.75	24.00	0
			1	36	23.16	22.73	23.17	24.00	0
1			74	22.85	22.93	23.42	24.00	0	
36			0	22.01	21.78	21.98	23.00	0-1	
36			18	22.17	21.70	22.24	23.00	0-1	
36			37	22.02	21.77	22.32	23.00	0-1	
16-QAM		75	0	22.15	21.83	22.24	23.00	0-1	
		1	0	22.04	21.99	22.26	23.00	0-1	
		1	36	22.07	22.15	22.31	23.00	0-1	
		1	74	21.85	22.24	22.42	23.00	0-1	
		36	0	21.05	20.88	21.05	22.00	0-2	
		36	18	21.20	20.76	21.26	22.00	0-2	
64-QAM		36	37	21.10	20.85	21.38	22.00	0-2	
		75	0	21.16	20.90	21.33	22.00	0-2	
		1	0	20.16	20.26	20.38	22.00	0-2	
		1	36	20.29	20.23	20.10	22.00	0-2	
		1	74	20.11	20.31	20.22	22.00	0-2	
		36	0	19.21	19.19	19.17	21.00	0-3	
		36	18	19.22	19.18	19.29	21.00	0-3	
		36	37	19.39	19.37	19.14	21.00	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	22.87	23.00	22.75	24.00	0
			1	36	23.16	22.73	23.17	24.00	0
	1		74	22.85	22.93	23.42	24.00	0	
	36		0	22.01	21.78	21.98	23.00	0-1	
	36		18	22.17	21.70	22.24	23.00	0-1	
	36		37	22.02	21.77	22.32	23.00	0-1	
	16-QAM	75	0	22.15	21.83	22.24	23.00	0-1	
		1	0	22.04	21.99	22.26	23.00	0-1	
		1	36	22.07	22.15	22.31	23.00	0-1	
		1	74	21.85	22.24	22.42	23.00	0-1	
		36	0	21.05	20.88	21.05	22.00	0-2	
		36	18	21.20	20.76	21.26	22.00	0-2	
	64-QAM	36	37	21.10	20.85	21.38	22.00	0-2	
		75	0	21.16	20.90	21.33	22.00	0-2	
		1	0	20.16	20.26	20.38	22.00	0-2	
		1	36	20.29	20.23	20.10	22.00	0-2	
		1	74	20.11	20.31	20.22	22.00	0-2	
		36	0	19.21	19.19	19.17	21.00	0-3	
		36	18	19.22	19.18	19.29	21.00	0-3	
		36	37	19.39	19.37	19.14	21.00	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	22.87	23.00	22.75	24.00	0
			1	36	23.16	22.73	23.17	24.00	0
1			74	22.85	22.93	23.42	24.00	0	
36			0	22.01	21.78	21.98	23.00	0-1	
36			18	22.17	21.70	22.24	23.00	0-1	
36			37	22.02	21.77	22.32	23.00	0-1	
16-QAM		75	0	22.15	21.83	22.24	23.00	0-1	
		1	0	22.04	21.99	22.26	23.00	0-1	
		1	36	22.07	22.15	22.31	23.00	0-1	
		1	74	21.85	22.24	22.42	23.00	0-1	
		36	0	21.05	20.88	21.05	22.00	0-2	
		36	18	21.20	20.76	21.26	22.00	0-2	
64-QAM		36	37	21.10	20.85	21.38	22.00	0-2	
		75	0	21.16	20.90	21.33	22.00	0-2	
		1	0	20.16	20.26	20.38	22.00	0-2	
		1	36	20.29	20.23	20.10	22.00	0-2	
		1	74	20.11	20.31	20.22	22.00	0-2	
		36	0	19.21	19.19	19.17	21.00	0-3	
		36	18	19.22	19.18	19.29	21.00	0-3	
		36	37	19.39	19.37	19.14	21.00	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	22.87	23.00	22.75	24.00	0
			1	36	23.16	22.73	23.17	24.00	0
	1		74	22.85	22.93	23.42	24.00	0	
	36		0	22.01	21.78	21.98	23.00	0-1	
	36		18	22.17	21.70	22.24	23.00	0-1	
	36		37	22.02	21.77	22.32	23.00	0-1	
	16-QAM	75	0	22.15	21.83	22.24	23.00	0-1	
		1	0	22.04	21.99	22.26	23.00	0-1	
		1	36	22.07	22.15	22.31	23.00	0-1	
		1	74	21.85	22.24	22.42	23.00	0-1	
		36	0	21.05	20.88	21.05	22.00	0-2	
		36	18	21.20	20.76	21.26	22.00	0-2	
	64-QAM	36	37	21.10	20.85	21.38	22.00	0-2	
		75	0	21.16	20.90	21.33	22.00	0-2	
		1	0	20.16	20.26	20.38	22.00	0-2	
		1	36	20.29	20.23	20.10	22.00	0-2	
		1	74	20.11	20.31	20.22	22.00	0-2	
		36	0	19.21	19.19	19.17	21.00	0-3	
		36	18	19.22	19.18	19.29	21.00	0-3	
		36	37	19.39	19.37	19.14	21.00	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	22.87	23.00	22.75	24.00	0
			1	36	23.16	22.73	23.17	24.00	0
1			74	22.85	22.93	23.42	24.00	0	
36			0	22.01	21.78	21.98	23.00	0-1	
36			18	22.17	21.70	22.24	23.00	0-1	
36			37	22.02	21.77	22.32	23.00	0-1	
16-QAM		75	0	22.15	21.83	22.24	23.00	0-1	
		1	0	22.04	21.99	22.26	23.00	0-1	
		1	36	22.07	22.15	22.31	23.00	0-1	
		1	74	21.85	22.24	22.42	23.00	0-1	
		36	0	21.05	20.88	21.05	22.00	0-2	
		36	18	21.20	20.76	21.26	22.00	0-2	
64-QAM		36	37	21.10	20.85	21.38	22.00	0-2	
		75	0	21.16	20.90	21.33	22.00	0-2	
		1	0	20.16	20.26	20.38	22.00	0-2	
		1	36	20.29	20.23	20.10	22.00	0-2	
		1	74	20.11	20.31	20.22	22.00	0-2	
		36	0	19.21	19.19	19.17	21.00	0-3	
		36	18	19.22	19.18	19.29	21.00	0-3	
		36	37	19.39	19.37	19.14	21.00	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	22.87	23.00	22.75	24.00	0
			1	36	23.16	22.73	23.17	24.00	0
	1		74	22.85	22.93	23.42	24.00	0	
	36		0	22.01	21.78	21.98	23.00	0-1	
	36		18	22.17	21.70	22.24	23.00	0-1	
	36		37	22.02	21.77	22.32	23.00	0-1	
	16-QAM	75	0	22.15	21.83	22.24	23.00	0-1	
		1	0	22.04	21.99	22.26	23.00	0-1	
		1	36	22.07	22.15	22.31	23.00	0-1	
		1	74	21.85	22.24	22.42	23.00	0-1	
		36	0	21.05	20.88	21.05	22.00	0-2	
		36	18	21.20	20.76	21.26	22.00	0-2	
	64-QAM	36	37	21.10	20.85	21.38	22.00	0-2	
		75	0	21.16	20.90	21.33	22.00	0-2	
		1	0	20.16	20.26	20.38	22.00	0-2	
		1	36	20.29	20.23	20.10	22.00	0-2	
		1	74	20.11	20.31	20.22	22.00	0-2	
		36	0	19.21	19.19	19.17	21.00	0-3	
		36	18	19.22	19.18	19.29	21.00	0-3	
		36	37	19.39	19.37	19.14	21.00	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	22.87	23.00	22.75	24.00	0
			1	36	23.16	22.73	23.17	24.00	0
1			74	22.85	22.93	23.42	24.00	0	
36			0	22.01	21.78	21.98	23.00	0-1	
36			18	22.17	21.70	22.24	23.00	0-1	
36			37	22.02	21.77	22.32	23.00	0-1	
16-QAM		75	0	22.15	21.83	22.24	23.00	0-1	
		1	0	22.04	21.99	22.26	23.00	0-1	
		1	36	22.07	22.15	22.31	23.00	0-1	
		1	74	21.85	22.24	22.42	23.00	0-1	
		36	0	21.05	20.88	21.05	22.00	0-2	
		36	18	21.20	20.76	21.26	22.00	0-2	
64-QAM		36	37	21.10	20.85	21.38	22.00	0-2	
		75	0	21.16	20.90	21.33	22.00	0-2	
		1	0	20.16	20.26	20.38	22.00	0-2	
		1	36	20.29	20.23	20.10	22.00	0-2	
		1	74	20.11	20.31	20.22	22.00	0-2	
		36	0	19.21	19.19	19.17	21.00	0-3	
		36	18	19.22	19.18	19.29	21.00	0-3	
		36	37	19.39	19.37	19.14	21.00	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	22.87	23.00	22.75	24.00	0
			1	36	23.16	22.73	23.17	24.00	0
	1		74	22.85	22.93	23.42	24.00	0	
	36		0	22.01	21.78	21.98	23.00	0-1	
	36		18	22.17	21.70	22.24	23.00	0-1	
	36		37	22.02	21.77	22.32	23.00	0-1	
	16-QAM	75	0						

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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	22.99	22.96	23.17	24.00	0
		1	25	23.12	22.90	23.39	24.00	0
		1	49	23.07	23.08	23.34	24.00	0
		25	0	22.00	21.90	22.30	23.00	0-1
		25	12	22.05	21.83	22.39	23.00	0-1
		25	25	22.16	21.83	22.44	23.00	0-1
	16-QAM	50	0	22.08	21.91	22.40	23.00	0-1
		1	0	22.04	22.43	22.26	23.00	0-1
		1	25	22.18	22.01	23.00	23.00	0-1
		1	49	21.96	22.36	22.99	23.00	0-1
		25	0	21.03	20.98	21.33	22.00	0-2
		25	12	21.20	20.81	21.49	22.00	0-2
	64-QAM	25	25	21.28	20.94	21.38	22.00	0-2
		50	0	21.16	20.94	21.36	22.00	0-2
		1	0	20.13	20.26	20.35	22.00	0-2
		1	25	20.21	20.20	20.12	22.00	0-2
		1	49	20.15	20.26	20.18	22.00	0-2
		25	0	19.24	19.13	19.20	21.00	0-3
		25	12	19.23	19.09	19.20	21.00	0-3
		25	25	19.37	19.29	19.18	21.00	0-3
		50	0	19.28	19.31	19.19	21.00	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	22.93	22.79	23.37	24.00	0
		1	12	22.86	22.85	23.23	24.00	0
		1	24	23.13	22.80	23.33	24.00	0
		12	0	21.94	21.79	22.25	23.00	0-1
		12	6	21.94	21.73	22.29	23.00	0-1
		12	13	21.99	21.79	22.30	23.00	0-1
	16-QAM	25	0	21.98	21.81	22.31	23.00	0-1
		1	0	22.25	22.07	22.35	23.00	0-1
		1	12	21.93	21.68	22.68	23.00	0-1
		1	24	22.02	22.24	22.85	23.00	0-1
		12	0	20.98	20.90	21.30	22.00	0-2
		12	6	21.11	20.72	21.48	22.00	0-2
	64-QAM	12	13	21.04	20.94	21.34	22.00	0-2
		25	0	20.99	20.81	21.33	22.00	0-2
		1	0	20.01	20.25	20.35	22.00	0-2
		1	12	20.12	20.15	20.10	22.00	0-2
		1	24	20.10	20.19	20.16	22.00	0-2
		12	0	19.13	19.00	19.18	21.00	0-3
		12	6	19.18	19.02	19.12	21.00	0-3
		12	13	19.34	19.18	19.06	21.00	0-3
		25	0	19.19	19.18	19.12	21.00	0-3

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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	22.85	22.91	23.36	24.00	0	
		1	7	22.96	22.83	23.29	24.00	0	
		1	14	22.94	22.75	23.28	24.00	0	
		8	0	21.89	21.78	22.36	23.00	0-1	
		8	4	21.92	21.77	22.26	23.00	0-1	
		8	7	21.94	21.76	22.28	23.00	0-1	
	16-QAM	15	0	21.90	21.79	22.26	23.00	0-1	
		1	0	21.76	22.28	22.49	23.00	0-1	
		1	7	21.98	21.95	22.18	23.00	0-1	
		1	14	21.81	22.20	22.49	23.00	0-1	
		8	0	20.91	20.77	21.35	22.00	0-2	
		8	4	20.93	20.89	21.36	22.00	0-2	
	64-QAM	8	7	20.88	20.89	21.37	22.00	0-2	
		15	0	20.84	20.75	21.29	22.00	0-2	
		1	0	20.02	20.20	20.25	22.00	0-2	
		1	7	20.11	20.19	20.12	22.00	0-2	
		1	14	20.13	20.13	20.05	22.00	0-2	
		8	0	19.15	19.06	19.14	21.00	0-3	
		8	4	19.19	19.01	19.07	21.00	0-3	
		8	7	19.32	19.25	19.05	21.00	0-3	
		15	0	19.14	19.24	19.13	21.00	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	22.95	22.77	23.27	24.00	0	
		1	2	22.76	22.81	23.33	24.00	0	
		1	5	22.97	22.78	23.32	24.00	0	
		3	0	22.86	22.73	22.93	23.00	0-1	
		3	2	22.86	22.77	22.97	23.00	0-1	
		3	3	22.94	22.77	22.93	23.00	0-1	
	16-QAM	6	0	21.86	21.80	22.30	23.00	0-1	
		1	0	21.95	21.78	22.40	23.00	0-1	
		1	2	21.79	21.78	22.56	23.00	0-1	
		1	5	22.20	21.91	22.42	23.00	0-1	
		3	0	21.91	21.73	21.94	22.00	0-2	
		3	2	21.91	21.90	21.93	22.00	0-2	
	64-QAM	3	3	21.67	21.93	21.92	22.00	0-2	
		6	0	21.01	20.95	21.35	22.00	0-2	
		1	0	20.08	20.12	20.28	22.00	0-2	
		1	2	20.07	20.16	20.01	22.00	0-2	
		1	5	20.10	20.19	20.04	22.00	0-2	
		3	0	19.14	19.04	19.14	21.00	0-3	
		3	2	19.08	19.03	19.18	21.00	0-3	
		3	3	19.34	19.16	19.11	21.00	0-3	
		6	0	19.27	19.19	19.06	21.00	0-3	

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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	23.36	23.38	23.26	25.00	0	
		1	25	23.34	23.42	23.36	25.00	0	
		1	49	23.33	23.60	23.39	25.00	0	
		25	0	22.35	22.41	22.43	24.00	0-1	
		25	12	22.29	22.33	22.43	24.00	0-1	
		25	25	22.30	22.44	22.40	24.00	0-1	
	16-QAM	50	0	22.43	22.42	22.41	24.00	0-1	
		1	0	22.65	22.66	22.70	24.00	0-1	
		1	25	22.73	22.84	22.42	24.00	0-1	
		1	49	22.46	22.73	22.53	24.00	0-1	
		25	0	21.59	21.49	21.56	23.00	0-2	
		25	12	21.43	21.47	21.47	23.00	0-2	
	64-QAM	25	25	21.36	21.36	21.35	23.00	0-2	
		50	0	21.44	21.45	21.60	23.00	0-2	
		1	0	21.25	21.25	21.13	23.00	0-2	
		1	25	21.12	21.28	21.17	23.00	0-2	
		1	49	21.16	21.27	21.13	23.00	0-2	
		25	0	20.32	20.15	20.29	22.00	0-3	
		25	12	20.35	20.17	20.30	22.00	0-3	
		25	25	20.17	20.18	20.20	22.00	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	23.20	23.21	23.23	25.00	0
			1	12	23.24	23.25	23.16	25.00	0
1			24	23.18	23.24	23.22	25.00	0	
12			0	22.26	22.17	22.20	24.00	0-1	
12			6	22.23	22.21	22.20	24.00	0-1	
12			13	22.22	22.18	22.25	24.00	0-1	
16-QAM		25	0	22.16	22.18	22.21	24.00	0-1	
		1	0	22.21	22.23	22.23	24.00	0-1	
		1	12	22.21	22.23	22.26	24.00	0-1	
		1	24	22.19	22.22	22.22	24.00	0-1	
		12	0	21.25	21.21	21.23	23.00	0-2	
		12	6	21.24	21.21	21.22	23.00	0-2	
64-QAM		12	13	21.24	21.22	21.19	23.00	0-2	
		25	0	21.17	21.25	21.25	23.00	0-2	
		1	0	21.18	21.20	21.19	23.00	0-2	
		1	12	21.18	21.17	21.18	23.00	0-2	
		1	24	21.16	21.17	21.20	23.00	0-2	
		12	0	20.25	20.16	20.21	22.00	0-3	
		12	6	20.16	20.17	20.20	22.00	0-3	
		12	13	20.25	20.22	20.25	22.00	0-3	
Frequency (MHz)			829	836.5	844	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)		
Channel			20450	20525	20600				
10		QPSK	1	0	23.36	23.38	23.26	25.00	0
			1	25	23.34	23.42	23.36	25.00	0
	1		49	23.33	23.60	23.39	25.00	0	
	25		0	22.35	22.41	22.43	24.00	0-1	
	25		12	22.29	22.33	22.43	24.00	0-1	
	25		25	22.30	22.44	22.40	24.00	0-1	
	16-QAM	50	0	22.43	22.42	22.41	24.00	0-1	
		1	0	22.65	22.66	22.70	24.00	0-1	
		1	25	22.73	22.84	22.42	24.00	0-1	
		1	49	22.46	22.73	22.53	24.00	0-1	
		25	0	21.59	21.49	21.56	23.00	0-2	
		25	12	21.43	21.47	21.47	23.00	0-2	
	64-QAM	25	25	21.36	21.36	21.35	23.00	0-2	
		50	0	21.44	21.45	21.60	23.00	0-2	
		1	0	21.25	21.25	21.13	23.00	0-2	
		1	25	21.12	21.28	21.17	23.00	0-2	
		1	49	21.16	21.27	21.13	23.00	0-2	
		25	0	20.32	20.15	20.29	22.00	0-3	
		25	12	20.35	20.17	20.30	22.00	0-3	
		25	25	20.17	20.18	20.20	22.00	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	23.20	23.21	23.23	25.00	0
			1	12	23.24	23.25	23.16	25.00	0
1			24	23.18	23.24	23.22	25.00	0	
12			0	22.26	22.17	22.20	24.00	0-1	
12			6	22.23	22.21	22.20	24.00	0-1	
12			13	22.22	22.18	22.25	24.00	0-1	
16-QAM		25	0	22.16	22.18	22.21	24.00	0-1	
		1	0	22.21	22.23	22.23	24.00	0-1	
		1	12	22.21	22.23	22.26	24.00	0-1	
		1	24	22.19	22.22	22.22	24.00	0-1	
		12	0	21.25	21.21	21.23	23.00	0-2	
		12	6	21.24	21.21	21.22	23.00	0-2	
64-QAM		12	13	21.24	21.22	21.19	23.00	0-2	
		25	0	21.17	21.25	21.25	23.00	0-2	
		1	0	21.18	21.20	21.19	23.00	0-2	
		1	12	21.18	21.17	21.18	23.00	0-2	
		1	24	21.16	21.17	21.20	23.00	0-2	
		12	0	20.25	20.16	20.21	22.00	0-3	
		12	6	20.16	20.17	20.20	22.00	0-3	
		12	13	20.25	20.22	20.25	22.00	0-3	
Frequency (MHz)			829	836.5	844	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)		
Channel			20450	20525	20600				

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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	23.24	23.21	23.18	25.00	0
		1	7	23.19	23.20	23.17	25.00	0
		1	14	23.24	23.24	23.23	25.00	0
		8	0	22.22	22.18	22.22	24.00	0-1
		8	4	22.23	22.21	22.17	24.00	0-1
		8	7	22.16	22.21	22.26	24.00	0-1
	16-QAM	15	0	22.18	22.25	22.19	24.00	0-1
		1	0	22.24	22.24	22.17	24.00	0-1
		1	7	22.17	22.16	22.26	24.00	0-1
		1	14	22.17	22.18	22.26	24.00	0-1
		8	0	21.18	21.23	21.21	23.00	0-2
		8	4	21.20	21.23	21.25	23.00	0-2
	64-QAM	8	7	21.18	21.24	21.22	23.00	0-2
		15	0	21.23	21.26	21.17	23.00	0-2
		1	0	21.23	21.18	21.21	23.00	0-2
		1	7	21.21	21.26	21.23	23.00	0-2
		1	14	21.16	21.25	21.25	23.00	0-2
		8	0	20.17	20.23	20.22	22.00	0-3
		8	4	20.22	20.25	20.23	22.00	0-3
		8	7	20.24	20.18	20.21	22.00	0-3
		15	0	20.20	20.17	20.24	22.00	0-3
Frequency (MHz)				824.7	836.5	848.3	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
Channel				20407	20525	20643		
1.4	QPSK	1	0	23.25	23.19	23.22	25.00	0
		1	2	23.22	23.17	23.23	25.00	0
		1	5	23.26	23.16	23.19	25.00	0
		3	0	22.23	22.16	22.18	24.00	0-1
		3	2	22.18	22.21	22.20	24.00	0-1
		3	3	22.17	22.25	22.18	24.00	0-1
	16-QAM	6	0	22.16	22.26	22.21	24.00	0-1
		1	0	22.22	22.17	22.20	24.00	0-1
		1	2	22.19	22.17	22.17	24.00	0-1
		1	5	22.19	22.24	22.21	24.00	0-1
		3	0	21.18	21.23	21.21	23.00	0-2
		3	2	21.21	21.20	21.23	23.00	0-2
	64-QAM	3	3	21.23	21.18	21.26	23.00	0-2
		6	0	21.19	21.22	21.17	23.00	0-2
		1	0	21.16	21.25	21.17	23.00	0-2
		1	2	21.18	21.22	21.19	23.00	0-2
		1	5	21.17	21.23	21.20	23.00	0-2
		3	0	20.21	20.19	20.20	22.00	0-3
		3	2	20.25	20.22	20.26	22.00	0-3
		3	3	20.17	20.23	20.23	22.00	0-3
		6	0	20.19	20.21	20.21	22.00	0-3

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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	22.89	22.60	22.51	24.00	0
		1	50	22.94	22.66	22.49	24.00	0
		1	99	22.91	22.87	22.70	24.00	0
		50	0	22.00	21.62	21.56	23.00	0-1
		50	25	21.94	21.71	21.62	23.00	0-1
		50	50	21.98	21.80	21.80	23.00	0-1
	16-QAM	100	0	21.90	21.85	21.68	23.00	0-1
		1	0	21.85	21.89	21.16	23.00	0-1
		1	50	21.92	21.57	21.64	23.00	0-1
		1	99	21.99	21.95	21.93	23.00	0-1
		50	0	20.96	20.62	20.60	22.00	0-2
		50	25	20.96	20.68	20.61	22.00	0-2
	64-QAM	50	50	20.94	20.74	20.87	22.00	0-2
		100	0	20.89	20.88	20.75	22.00	0-2
		1	0	20.37	20.39	20.22	22.00	0-2
		1	50	20.39	20.31	20.36	22.00	0-2
		1	99	20.39	20.45	20.46	22.00	0-2
		50	0	19.47	19.38	19.38	21.00	0-3
		50	25	19.40	19.52	19.35	21.00	0-3
		50	50	19.50	19.39	19.45	21.00	0-3
		100	0	19.34	19.45	19.39	21.00	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	22.75	22.43	22.44	24.00	0
		1	36	22.78	22.61	22.67	24.00	0
		1	74	22.81	22.68	22.74	24.00	0
		36	0	21.97	21.60	21.50	23.00	0-1
		36	18	21.97	21.58	21.54	23.00	0-1
		36	37	21.89	21.70	21.71	23.00	0-1
	16-QAM	75	0	21.86	21.65	21.68	23.00	0-1
		1	0	21.91	21.92	21.48	23.00	0-1
		1	36	21.77	21.60	21.77	23.00	0-1
		1	74	21.89	21.96	21.87	23.00	0-1
		36	0	20.98	20.60	20.54	22.00	0-2
		36	18	20.97	20.67	20.70	22.00	0-2
	64-QAM	36	37	20.90	20.76	20.78	22.00	0-2
		75	0	20.97	20.66	20.71	22.00	0-2
		1	0	20.22	20.32	20.12	22.00	0-2
		1	36	20.27	20.27	20.22	22.00	0-2
		1	74	20.39	20.45	20.41	22.00	0-2
		36	0	19.38	19.36	19.35	21.00	0-3
	36	18	19.31	19.47	19.32	21.00	0-3	
	36	37	19.49	19.30	19.37	21.00	0-3	
	75	0	19.30	19.44	19.29	21.00	0-3	

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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	22.76	22.45	22.51	24.00	0
		1	25	22.90	22.44	22.55	24.00	0
		1	49	22.87	22.63	22.64	24.00	0
		25	0	21.91	21.50	21.59	23.00	0-1
		25	12	21.93	21.55	21.64	23.00	0-1
		25	25	21.95	21.61	21.71	23.00	0-1
	16-QAM	50	0	21.93	21.56	21.74	23.00	0-1
		1	0	21.87	21.50	21.36	23.00	0-1
		1	25	21.89	21.47	21.89	23.00	0-1
		1	49	21.67	21.80	21.81	23.00	0-1
		25	0	20.97	20.52	20.65	22.00	0-2
		25	12	20.96	20.62	20.69	22.00	0-2
	64-QAM	25	25	20.94	20.68	20.75	22.00	0-2
		50	0	20.99	20.62	20.70	22.00	0-2
		1	0	20.22	20.31	20.13	22.00	0-2
		1	25	20.25	20.20	20.32	22.00	0-2
		1	49	20.35	20.34	20.37	22.00	0-2
		25	0	19.43	19.26	19.32	21.00	0-3
		25	12	19.30	19.38	19.30	21.00	0-3
		25	25	19.49	19.27	19.41	21.00	0-3
		50	0	19.30	19.37	19.25	21.00	0-3
	Frequency (MHz)				2502.5	2535	2567.5	Target Power + Max. Tolerance (dBm)
	Channel				20775	21100	21425	
5	QPSK	1	0	22.86	22.54	22.50	24.00	0
		1	12	22.79	22.51	22.60	24.00	0
		1	24	22.89	22.56	22.56	24.00	0
		12	0	21.85	21.51	21.56	23.00	0-1
		12	6	21.84	21.49	21.53	23.00	0-1
		12	13	21.90	21.56	21.55	23.00	0-1
	16-QAM	25	0	21.80	21.55	21.60	23.00	0-1
		1	0	21.78	21.23	21.84	23.00	0-1
		1	12	21.88	21.70	21.70	23.00	0-1
		1	24	21.60	21.70	21.70	23.00	0-1
		12	0	20.98	20.53	20.64	22.00	0-2
		12	6	20.90	20.46	20.52	22.00	0-2
	64-QAM	12	13	20.89	20.54	20.63	22.00	0-2
		25	0	20.90	20.54	20.57	22.00	0-2
		1	0	20.15	20.31	20.04	22.00	0-2
		1	12	20.16	20.10	20.30	22.00	0-2
		1	24	20.31	20.29	20.30	22.00	0-2
		12	0	19.34	19.24	19.22	21.00	0-3
		12	6	19.29	19.29	19.25	21.00	0-3
		12	13	19.48	19.20	19.35	21.00	0-3
		25	0	19.26	19.33	19.23	21.00	0-3

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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	22.48	22.24	22.03	24.00	0
		1	25	22.26	22.20	22.25	24.00	0
		1	49	22.40	22.44	22.09	24.00	0
		25	0	21.22	21.28	21.32	23.00	0-1
		25	12	21.13	21.24	21.22	23.00	0-1
		25	25	21.42	21.39	21.21	23.00	0-1
	16-QAM	50	0	21.25	21.36	21.17	23.00	0-1
		1	0	21.38	21.74	21.37	23.00	0-1
		1	25	21.39	21.46	21.82	23.00	0-1
		1	49	21.29	21.46	21.34	23.00	0-1
		25	0	20.35	20.29	20.38	22.00	0-2
		25	12	20.23	20.31	20.37	22.00	0-2
	64-QAM	25	25	20.47	20.50	20.24	22.00	0-2
		50	0	20.29	20.47	20.40	22.00	0-2
		1	0	20.26	20.21	20.29	22.00	0-2
		1	25	20.09	20.14	20.30	22.00	0-2
		1	49	20.28	20.38	20.10	22.00	0-2
		25	0	19.84	19.79	19.79	21.00	0-3
		25	12	19.93	19.80	19.84	21.00	0-3
		25	25	19.81	19.77	19.75	21.00	0-3
		50	0	19.88	19.90	19.96	21.00	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	22.12	22.23	22.06	24.00	0
		1	12	22.18	22.35	22.14	24.00	0
		1	24	22.15	22.28	22.26	24.00	0
		12	0	21.28	21.13	21.10	23.00	0-1
		12	6	21.18	21.20	21.07	23.00	0-1
		12	13	21.21	21.25	21.22	23.00	0-1
	16-QAM	25	0	21.13	21.18	21.01	23.00	0-1
		1	0	21.67	21.58	21.69	23.00	0-1
		1	12	21.30	21.46	21.47	23.00	0-1
		1	24	21.31	21.58	21.46	23.00	0-1
		12	0	20.31	20.29	20.35	22.00	0-2
		12	6	20.25	20.39	20.14	22.00	0-2
	64-QAM	12	13	20.21	20.43	20.09	22.00	0-2
		25	0	20.22	20.16	20.11	22.00	0-2
		1	0	20.20	20.12	20.25	22.00	0-2
		1	12	20.09	20.13	20.21	22.00	0-2
		1	24	20.23	20.37	20.03	22.00	0-2
		12	0	19.93	19.86	19.86	21.00	0-3
		12	6	19.86	19.84	19.86	21.00	0-3
		12	13	19.82	19.93	19.97	21.00	0-3
		25	0	19.84	19.85	19.91	21.00	0-3

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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	22.12	22.19	22.16	24.00	0	
		1	7	22.32	22.34	22.04	24.00	0	
		1	14	22.21	22.11	22.17	24.00	0	
		8	0	21.24	21.15	21.05	23.00	0-1	
		8	4	21.23	21.18	21.07	23.00	0-1	
		8	7	21.18	21.08	21.09	23.00	0-1	
	16-QAM	15	0	21.24	21.18	21.07	23.00	0-1	
		1	0	21.25	21.37	21.59	23.00	0-1	
		1	7	21.52	21.43	21.41	23.00	0-1	
		1	14	21.13	21.92	21.19	23.00	0-1	
		8	0	20.24	20.26	20.15	22.00	0-2	
		8	4	20.16	20.22	20.21	22.00	0-2	
	64-QAM	8	7	20.25	20.25	20.06	22.00	0-2	
		15	0	20.22	20.15	20.03	22.00	0-2	
		1	0	20.22	20.17	20.20	22.00	0-2	
		1	7	20.01	20.04	20.26	22.00	0-2	
		1	14	20.24	20.32	20.09	22.00	0-2	
		8	0	19.98	19.94	19.97	21.00	0-3	
		8	4	19.84	19.89	19.92	21.00	0-3	
		8	7	19.83	19.35	19.96	21.00	0-3	
		15	0	19.86	19.83	19.94	21.00	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	22.32	22.07	22.14	24.00	0	
		1	2	22.18	22.14	22.03	24.00	0	
		1	5	22.30	22.10	22.07	24.00	0	
		3	0	21.86	21.76	21.67	23.00	0-1	
		3	2	21.92	21.78	21.68	23.00	0-1	
		3	3	21.97	21.78	21.77	23.00	0-1	
	16-QAM	6	0	21.18	21.12	21.01	23.00	0-1	
		1	0	21.30	21.36	21.47	23.00	0-1	
		1	2	21.73	21.52	21.32	23.00	0-1	
		1	5	21.36	21.56	21.44	23.00	0-1	
		3	0	20.81	20.98	20.65	22.00	0-2	
		3	2	20.96	20.81	20.72	22.00	0-2	
	64-QAM	3	3	20.94	20.98	20.68	22.00	0-2	
		6	0	20.25	20.21	20.05	22.00	0-2	
		1	0	20.15	20.13	20.14	22.00	0-2	
		1	2	20.03	20.00	20.17	22.00	0-2	
		1	5	20.18	20.31	20.00	22.00	0-2	
		3	0	19.82	19.97	19.91	21.00	0-3	
		3	2	19.82	19.90	19.83	21.00	0-3	
		3	3	19.96	19.89	19.91	21.00	0-3	
		6	0	19.97	19.76	19.87	21.00	0-3	

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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	22.69			24.00	0
		1	25	22.78			24.00	0
		1	49	22.73			24.00	0
		25	0	21.80			23.00	0-1
		25	12	21.78			23.00	0-1
		25	25	21.63			23.00	0-1
	16-QAM	50	0	21.85			23.00	0-1
		1	0	21.89			23.00	0-1
		1	25	21.90			23.00	0-1
		1	49	21.70			23.00	0-1
		25	0	20.88			22.00	0-2
		25	12	20.77			22.00	0-2
	64-QAM	25	25	20.74			22.00	0-2
		50	0	20.96			22.00	0-2
		1	0	20.42			22.00	0-2
		1	25	20.41			22.00	0-2
		1	49	20.45			22.00	0-2
		25	0	19.42			21.00	0-3
		25	12	19.50			21.00	0-3
		25	25	19.40			21.00	0-3
		50	0	19.44			21.00	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	22.58	22.58	22.63	24.00	0
		1	12	22.52	22.60	22.55	24.00	0
		1	24	22.56	22.61	22.52	24.00	0
		12	0	21.54	21.68	21.67	23.00	0-1
		12	6	21.49	21.60	21.57	23.00	0-1
		12	13	21.60	21.55	21.58	23.00	0-1
	16-QAM	25	0	21.61	21.59	21.56	23.00	0-1
		1	0	21.83	21.92	21.83	23.00	0-1
		1	12	21.93	21.52	21.94	23.00	0-1
		1	24	21.92	21.70	21.96	23.00	0-1
		12	0	20.69	20.83	20.78	22.00	0-2
		12	6	20.62	20.81	20.68	22.00	0-2
	64-QAM	12	13	20.72	20.54	20.63	22.00	0-2
		25	0	20.62	20.77	20.71	22.00	0-2
		1	0	20.51	20.79	20.71	22.00	0-2
		1	12	20.49	20.81	20.52	22.00	0-2
		1	24	20.54	20.54	20.59	22.00	0-2
		12	0	19.64	19.82	19.76	21.00	0-3
		12	6	19.59	19.73	19.60	21.00	0-3
		12	13	19.69	19.49	19.62	21.00	0-3
		25	0	19.54	19.68	19.71	21.00	0-3

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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	22.11	22.25	22.18	24.00	0	
		1	25	22.15	22.24	22.25	24.00	0	
		1	49	22.34	22.28	22.22	24.00	0	
		25	0	21.31	21.30	21.30	23.00	0-1	
		25	12	21.35	21.27	21.28	23.00	0-1	
		25	25	21.40	21.30	21.15	23.00	0-1	
	16-QAM	50	0	21.31	21.34	21.26	23.00	0-1	
		1	0	21.89	21.62	21.00	23.00	0-1	
		1	25	21.71	21.53	21.84	23.00	0-1	
		1	49	21.53	21.52	21.39	23.00	0-1	
		25	0	20.47	20.37	20.41	22.00	0-2	
		25	12	20.52	20.40	20.46	22.00	0-2	
	64-QAM	25	25	20.27	20.39	20.21	22.00	0-2	
		50	0	20.51	20.46	20.44	22.00	0-2	
		1	0	20.25	20.18	20.26	22.00	0-2	
		1	25	20.17	20.33	20.23	22.00	0-2	
		1	49	20.17	20.15	20.30	22.00	0-2	
		25	0	19.39	19.41	19.33	21.00	0-3	
		25	12	19.25	19.49	19.37	21.00	0-3	
		25	25	19.51	19.25	19.45	21.00	0-3	
		50	0	19.42	19.32	19.33	21.00	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	22.05	22.30	22.06	24.00	0	
		1	12	22.16	22.20	22.15	24.00	0	
		1	24	22.27	22.23	22.19	24.00	0	
		12	0	21.12	21.18	21.19	23.00	0-1	
		12	6	21.16	21.16	21.07	23.00	0-1	
		12	13	21.22	21.21	21.19	23.00	0-1	
	16-QAM	25	0	21.21	21.16	21.10	23.00	0-1	
		1	0	21.65	21.82	21.60	23.00	0-1	
		1	12	21.41	21.86	21.63	23.00	0-1	
		1	24	21.33	21.54	21.54	23.00	0-1	
		12	0	20.27	20.50	20.35	22.00	0-2	
		12	6	20.38	20.30	20.25	22.00	0-2	
	64-QAM	12	13	20.34	20.43	20.34	22.00	0-2	
		25	0	20.27	20.27	20.06	22.00	0-2	
		1	0	20.18	20.18	20.16	22.00	0-2	
		1	12	20.08	20.26	20.19	22.00	0-2	
		1	24	20.11	20.02	20.20	22.00	0-2	
		12	0	19.28	19.38	19.21	21.00	0-3	
	12	6	19.20	19.36	19.32	21.00	0-3		
	12	13	19.48	19.25	19.38	21.00	0-3		
	25	0	19.31	19.17	19.23	21.00	0-3		

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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	22.42	22.43	22.36	24.00	0
		1	36	22.40	22.33	22.41	24.00	0
		1	74	22.53	22.58	22.27	24.00	0
		36	0	21.41	21.41	21.43	23.00	0-1
		36	18	21.55	21.43	21.36	23.00	0-1
		36	37	21.37	21.46	21.37	23.00	0-1
	16-QAM	75	0	21.62	21.43	21.56	23.00	0-1
		1	0	21.88	21.45	21.40	23.00	0-1
		1	36	21.94	21.38	21.91	23.00	0-1
		1	74	21.61	21.67	21.37	23.00	0-1
		36	0	20.41	20.46	20.57	22.00	0-2
		36	18	20.48	20.45	20.53	22.00	0-2
	64-QAM	36	37	20.58	20.53	20.44	22.00	0-2
		75	0	20.75	20.56	20.78	22.00	0-2
		1	0	20.41	20.30	20.38	22.00	0-2
		1	36	20.30	20.23	20.29	22.00	0-2
		1	74	20.27	20.41	20.47	22.00	0-2
		36	0	19.34	19.35	19.23	21.00	0-3
		36	18	19.29	19.38	19.35	21.00	0-3
		36	37	19.30	19.35	19.48	21.00	0-3
		75	0	19.40	19.34	19.35	21.00	0-3
	Frequency (MHz)				819	831.5	844	Target Power + Max. Tolerance (dBm)
	Channel				26740	26865	26990	
10	QPSK	1	0	22.45	22.50	22.54	24.00	0
		1	25	22.44	22.34	22.34	24.00	0
		1	49	22.51	22.38	22.32	24.00	0
		25	0	21.36	21.49	21.54	23.00	0-1
		25	12	21.44	21.41	21.46	23.00	0-1
		25	25	21.51	21.40	21.34	23.00	0-1
	16-QAM	50	0	21.63	21.38	21.42	23.00	0-1
		1	0	21.61	21.93	21.81	23.00	0-1
		1	25	21.87	21.65	21.57	23.00	0-1
		1	49	21.89	21.67	21.23	23.00	0-1
		25	0	20.47	20.56	20.60	22.00	0-2
		25	12	20.53	20.48	20.52	22.00	0-2
	64-QAM	25	25	20.49	20.53	20.48	22.00	0-2
		50	0	20.47	20.52	20.65	22.00	0-2
		1	0	20.31	20.25	20.33	22.00	0-2
		1	25	20.21	20.08	20.25	22.00	0-2
		1	49	20.19	20.33	20.34	22.00	0-2
		25	0	19.32	19.27	19.14	21.00	0-3
		25	12	19.27	19.33	19.33	21.00	0-3
		25	25	19.18	19.25	19.40	21.00	0-3
		50	0	19.28	19.25	19.26	21.00	0-3

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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	22.46	22.35	22.36	24.00	0
		1	12	22.25	22.25	22.16	24.00	0
		1	24	22.49	22.36	22.27	24.00	0
		12	0	21.35	21.31	21.19	23.00	0-1
		12	6	21.29	21.28	21.10	23.00	0-1
		12	13	21.34	21.40	21.14	23.00	0-1
	16-QAM	25	0	21.34	21.34	21.12	23.00	0-1
		1	0	21.59	21.70	21.50	23.00	0-1
		1	12	21.51	21.85	21.12	23.00	0-1
		1	24	21.47	21.82	21.50	23.00	0-1
		12	0	20.43	20.45	20.25	22.00	0-2
		12	6	20.39	20.32	20.37	22.00	0-2
	64-QAM	12	13	20.46	20.42	20.39	22.00	0-2
		25	0	20.33	20.53	20.25	22.00	0-2
		1	0	20.40	20.19	20.24	22.00	0-2
		1	12	20.24	20.21	20.25	22.00	0-2
		1	24	20.23	20.37	20.47	22.00	0-2
		12	0	19.24	19.27	19.12	21.00	0-3
		12	6	19.21	19.30	19.25	21.00	0-3
		12	13	19.29	19.21	19.42	21.00	0-3
		25	0	19.36	19.26	19.35	21.00	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	22.40	22.47	22.32	24.00	0
		1	7	22.45	22.43	22.31	24.00	0
		1	14	22.32	22.42	22.19	24.00	0
		8	0	21.45	21.46	21.26	23.00	0-1
		8	4	21.43	21.33	21.22	23.00	0-1
		8	7	21.34	21.30	21.28	23.00	0-1
	16-QAM	15	0	21.45	21.30	21.18	23.00	0-1
		1	0	21.73	21.58	21.53	23.00	0-1
		1	7	21.92	21.85	21.78	23.00	0-1
		1	14	21.78	21.69	21.39	23.00	0-1
		8	0	20.33	20.53	20.30	22.00	0-2
		8	4	20.50	20.29	20.27	22.00	0-2
	64-QAM	8	7	20.50	20.46	20.13	22.00	0-2
		15	0	20.51	20.46	20.28	22.00	0-2
		1	0	20.30	20.10	20.23	22.00	0-2
		1	7	20.20	20.18	20.25	22.00	0-2
		1	14	20.19	20.28	20.45	22.00	0-2
		8	0	19.20	19.19	19.03	21.00	0-3
		8	4	19.12	19.25	19.25	21.00	0-3
		8	7	19.23	19.14	19.33	21.00	0-3
		15	0	19.36	19.16	19.26	21.00	0-3

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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	22.50	22.33	22.22	24.00	0
		1	2	22.46	22.32	22.11	24.00	0
		1	5	22.44	22.38	22.13	24.00	0
		3	0	21.97	21.86	21.77	23.00	0-1
		3	2	21.96	21.87	21.72	23.00	0-1
		3	3	21.95	21.90	21.76	23.00	0-1
	16-QAM	6	0	21.37	21.31	21.25	23.00	0-1
		1	0	21.52	21.61	21.48	23.00	0-1
		1	2	21.68	21.80	21.72	23.00	0-1
		1	5	21.93	21.82	21.72	23.00	0-1
		3	0	20.95	20.98	20.84	22.00	0-2
		3	2	20.99	20.95	20.69	22.00	0-2
	64-QAM	3	3	20.81	20.83	20.69	22.00	0-2
		6	0	20.60	20.28	20.12	22.00	0-2
		1	0	20.31	20.13	20.17	22.00	0-2
		1	2	20.18	20.15	20.19	22.00	0-2
		1	5	20.13	20.37	20.40	22.00	0-2
		3	0	19.17	19.26	19.03	21.00	0-3
		3	2	19.17	19.21	19.20	21.00	0-3
		3	3	19.27	19.17	19.40	21.00	0-3
		6	0	19.30	19.22	19.28	21.00	0-3

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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	22.82			24.00	0
		1	25	22.89			24.00	0
		1	49	22.99			24.00	0
		25	0	21.89			23.00	0-1
		25	12	21.94			23.00	0-1
		25	25	21.91			23.00	0-1
	16-QAM	50	0	21.94			23.00	0-1
		1	0	21.98			23.00	0-1
		1	25	21.78			23.00	0-1
		1	49	21.96			23.00	0-1
		25	0	20.93			22.00	0-2
		25	12	20.99			22.00	0-2
	64-QAM	25	25	20.91			22.00	0-2
		50	0	20.87			22.00	0-2
		1	0	20.62			22.00	0-2
		1	25	20.71			22.00	0-2
		1	49	20.63			22.00	0-2
		25	0	19.59			21.00	0-3
		25	12	19.64			21.00	0-3
		25	25	19.67			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	22.83	22.93	22.81	24.00	0
		1	12	22.94	22.87	22.89	24.00	0
		1	24	22.91	22.94	22.97	24.00	0
		12	0	21.78	21.96	21.81	23.00	0-1
		12	6	21.84	21.99	21.85	23.00	0-1
		12	13	21.90	21.89	21.89	23.00	0-1
	16-QAM	25	0	21.93	21.94	21.93	23.00	0-1
		1	0	21.92	21.87	21.94	23.00	0-1
		1	12	22.00	21.82	21.88	23.00	0-1
		1	24	21.81	21.74	21.71	23.00	0-1
		12	0	20.93	20.98	20.82	22.00	0-2
		12	6	21.00	20.94	20.89	22.00	0-2
	64-QAM	12	13	20.99	20.97	20.99	22.00	0-2
		25	0	20.96	20.87	20.95	22.00	0-2
		1	0	20.65	20.70	20.57	22.00	0-2
		1	12	20.57	20.60	20.63	22.00	0-2
		1	24	20.47	20.61	20.65	22.00	0-2
		12	0	19.53	19.65	19.73	21.00	0-3
		12	6	19.60	19.66	19.64	21.00	0-3
		12	13	19.68	19.58	19.70	21.00	0-3
		25	0	19.50	19.71	19.65	21.00	0-3

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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	23.01	23.04	23.41	24.00	0
		1	50	23.18	23.25	23.02	24.00	0
		1	99	22.64	23.53	23.06	24.00	0
		50	0	22.18	22.05	22.24	23.00	0-1
		50	25	22.12	22.20	22.10	23.00	0-1
		50	50	21.92	22.37	22.18	23.00	0-1
	16-QAM	100	0	22.27	22.42	22.33	23.00	0-1
		1	0	22.33	22.00	22.57	23.00	0-1
		1	50	22.26	22.38	22.32	23.00	0-1
		1	99	22.21	22.96	22.56	23.00	0-1
		50	0	21.11	21.02	21.24	22.00	0-2
		50	25	21.06	21.15	21.11	22.00	0-2
	64-QAM	50	50	20.87	21.33	21.19	22.00	0-2
		100	0	21.20	21.30	21.33	22.00	0-2
		1	0	21.29	21.40	21.27	22.00	0-2
		1	50	21.30	21.33	21.32	22.00	0-2
		1	99	21.36	21.38	21.30	22.00	0-2
		50	0	20.41	20.26	20.32	21.00	0-3
		50	25	20.24	20.33	20.38	21.00	0-3
		50	50	20.43	20.35	20.39	21.00	0-3
		100	0	20.28	20.36	20.37	21.00	0-3
	Frequency (MHz)				1717.5	1745	1772.5	Target Power + Max. Tolerance (dBm)
	Channel				132047	132322	132597	
15	QPSK	1	0	22.92	22.61	23.24	24.00	0
		1	36	23.25	23.18	23.19	24.00	0
		1	74	22.62	23.44	23.09	24.00	0
		36	0	22.06	21.97	21.96	23.00	0-1
		36	18	22.08	22.11	22.02	23.00	0-1
		36	37	22.07	22.26	22.05	23.00	0-1
	16-QAM	75	0	22.21	22.22	22.17	23.00	0-1
		1	0	22.09	22.28	22.54	23.00	0-1
		1	36	22.62	22.32	22.50	23.00	0-1
		1	74	22.11	22.69	22.58	23.00	0-1
		36	0	20.95	20.99	20.85	22.00	0-2
		36	18	21.00	21.13	20.89	22.00	0-2
	64-QAM	36	37	21.11	21.20	21.05	22.00	0-2
		75	0	21.23	21.26	21.16	22.00	0-2
		1	0	21.25	21.26	21.22	22.00	0-2
		1	36	21.22	21.23	21.31	22.00	0-2
		1	74	21.35	21.35	21.28	22.00	0-2
		36	0	20.27	20.17	20.23	21.00	0-3
		36	18	20.23	20.22	20.33	21.00	0-3
		36	37	20.28	20.23	20.29	21.00	0-3
		75	0	20.15	20.28	20.30	21.00	0-3

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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	22.95	23.11	22.82	24.00	0
		1	25	23.24	23.17	23.21	24.00	0
		1	49	23.03	23.41	23.10	24.00	0
		25	0	21.91	22.01	21.92	23.00	0-1
		25	12	22.02	22.09	22.04	23.00	0-1
		25	25	22.04	22.19	22.19	23.00	0-1
	16-QAM	50	0	22.16	22.16	22.26	23.00	0-1
		1	0	22.24	22.55	22.22	23.00	0-1
		1	25	22.64	22.34	22.49	23.00	0-1
		1	49	22.78	22.51	22.99	23.00	0-1
		25	0	20.85	20.91	20.96	22.00	0-2
		25	12	20.99	20.90	21.05	22.00	0-2
	64-QAM	25	25	21.06	21.07	21.12	22.00	0-2
		50	0	21.03	21.08	21.13	22.00	0-2
		1	0	21.23	21.24	21.22	22.00	0-2
		1	25	21.17	21.22	21.25	22.00	0-2
		1	49	21.35	21.27	21.27	22.00	0-2
		25	0	20.27	20.12	20.23	21.00	0-3
		25	12	20.14	20.21	20.30	21.00	0-3
		25	25	20.26	20.20	20.22	21.00	0-3
		50	0	20.12	20.20	20.23	21.00	0-3
	Frequency (MHz)				1712.5	1745	1777.5	Target Power + Max. Tolerance (dBm)
	Channel				131997	132322	132647	
5	QPSK	1	0	22.55	23.21	23.04	24.00	0
		1	12	23.10	23.13	23.31	24.00	0
		1	24	23.16	23.09	23.44	24.00	0
		12	0	21.64	21.90	21.87	23.00	0-1
		12	6	21.80	21.91	21.98	23.00	0-1
		12	13	21.90	21.88	22.12	23.00	0-1
	16-QAM	25	0	21.91	22.03	22.18	23.00	0-1
		1	0	21.52	22.46	22.47	23.00	0-1
		1	12	22.44	22.43	22.74	23.00	0-1
		1	24	22.27	22.42	22.44	23.00	0-1
		12	0	20.42	20.80	21.12	22.00	0-2
		12	6	20.50	20.90	21.09	22.00	0-2
	64-QAM	12	13	20.54	20.88	21.00	22.00	0-2
		25	0	20.87	20.94	20.96	22.00	0-2
		1	0	21.18	21.25	21.20	22.00	0-2
		1	12	21.16	21.14	21.22	22.00	0-2
		1	24	21.29	21.33	21.19	22.00	0-2
		12	0	20.20	20.07	20.16	21.00	0-3
		12	6	20.13	20.15	20.29	21.00	0-3
		12	13	20.25	20.17	20.22	21.00	0-3
		25	0	20.15	20.22	20.29	21.00	0-3

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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	22.85	23.01	23.33	24.00	0	
		1	7	22.96	23.00	23.20	24.00	0	
		1	14	22.87	23.07	23.04	24.00	0	
		8	0	21.74	21.93	21.95	23.00	0-1	
		8	4	21.81	21.98	21.96	23.00	0-1	
		8	7	21.81	21.99	22.03	23.00	0-1	
	16-QAM	15	0	21.78	22.01	22.11	23.00	0-1	
		1	0	22.40	22.26	22.66	23.00	0-1	
		1	7	22.18	22.37	22.23	23.00	0-1	
		1	14	22.03	22.30	22.86	23.00	0-1	
		8	0	20.75	20.72	20.98	22.00	0-2	
		8	4	20.75	20.93	21.04	22.00	0-2	
	64-QAM	8	7	20.70	20.77	21.02	22.00	0-2	
		15	0	20.67	20.90	21.07	22.00	0-2	
		1	0	21.09	21.18	21.13	22.00	0-2	
		1	7	21.07	21.07	21.15	22.00	0-2	
		1	14	21.24	21.30	21.18	22.00	0-2	
		8	0	20.18	20.05	20.09	21.00	0-3	
		8	4	20.08	20.10	20.25	21.00	0-3	
		8	7	20.14	20.05	20.18	21.00	0-3	
		15	0	20.15	20.17	20.18	21.00	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	22.97	23.26	23.44	24.00	0	
		1	2	23.00	23.12	22.91	24.00	0	
		1	5	22.55	22.83	23.42	24.00	0	
		3	0	22.78	22.85	22.92	23.00	0-1	
		3	2	22.91	22.79	22.99	23.00	0-1	
		3	3	22.83	22.92	22.94	23.00	0-1	
	16-QAM	6	0	21.70	21.95	22.30	23.00	0-1	
		1	0	22.45	22.36	22.63	23.00	0-1	
		1	2	22.35	22.23	22.58	23.00	0-1	
		1	5	21.92	22.67	22.61	23.00	0-1	
		3	0	21.79	21.95	21.97	22.00	0-2	
		3	2	21.56	21.84	21.93	22.00	0-2	
	64-QAM	3	3	21.79	21.82	21.92	22.00	0-2	
		6	0	20.41	20.94	21.27	22.00	0-2	
		1	0	21.07	21.08	21.01	22.00	0-2	
		1	2	21.07	21.03	21.08	22.00	0-2	
		1	5	21.10	21.17	21.06	22.00	0-2	
		3	0	20.09	19.98	19.99	21.00	0-3	
		3	2	19.93	20.09	20.23	21.00	0-3	
		3	3	20.08	20.05	20.12	21.00	0-3	
		6	0	20.10	20.02	20.04	21.00	0-3	

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### Tx5-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	22.62	22.69	22.74	24.00	0
		1	50	22.52	22.65	22.71	24.00	0
		1	99	22.61	22.68	22.75	24.00	0
		50	0	21.48	21.47	21.53	23.00	0-1
		50	25	21.43	21.44	21.54	23.00	0-1
		50	50	21.41	21.45	21.55	23.00	0-1
	16-QAM	100	0	21.43	21.46	21.56	23.00	0-1
		1	0	21.75	21.73	21.82	23.00	0-1
		1	50	21.63	21.73	21.84	23.00	0-1
		1	99	21.71	21.80	21.90	23.00	0-1
		50	0	20.53	20.55	20.63	22.00	0-2
		50	25	20.50	20.55	20.63	22.00	0-2
	64-QAM	50	50	20.46	20.58	20.67	22.00	0-2
		100	0	20.48	20.56	20.62	22.00	0-2
		1	0	20.46	20.49	20.32	22.00	0-2
		1	50	20.43	20.57	20.48	22.00	0-2
		1	99	20.43	20.36	20.34	22.00	0-2
		50	0	19.49	19.43	19.40	21.00	0-3
		50	25	19.41	19.49	19.36	21.00	0-3
		50	50	19.54	19.45	19.55	21.00	0-3
		100	0	19.46	19.62	19.54	21.00	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	22.68	22.66	22.62	24.00	0
		1	36	22.66	22.64	22.63	24.00	0
		1	74	22.61	22.61	22.66	24.00	0
		36	0	21.50	21.49	21.52	23.00	0-1
		36	18	21.50	21.50	21.53	23.00	0-1
		36	37	21.47	21.47	21.52	23.00	0-1
	16-QAM	75	0	21.45	21.46	21.48	23.00	0-1
		1	0	21.76	21.75	21.74	23.00	0-1
		1	36	21.74	21.74	21.75	23.00	0-1
		1	74	21.71	21.74	21.78	23.00	0-1
		36	0	20.46	20.45	20.48	22.00	0-2
		36	18	20.42	20.47	20.51	22.00	0-2
	64-QAM	36	37	20.46	20.45	20.51	22.00	0-2
		75	0	20.55	20.51	20.56	22.00	0-2
		1	0	20.46	20.40	20.27	22.00	0-2
		1	36	20.31	20.45	20.34	22.00	0-2
		1	74	20.35	20.35	20.20	22.00	0-2
		36	0	19.41	19.42	19.27	21.00	0-3
		36	18	19.30	19.35	19.22	21.00	0-3
		36	37	19.42	19.45	19.51	21.00	0-3
		75	0	19.38	19.59	19.42	21.00	0-3

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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	22.70	22.65	22.64	24.00	0
		1	25	22.66	22.66	22.63	24.00	0
		1	49	22.66	22.66	22.67	24.00	0
		25	0	21.54	21.48	21.53	23.00	0-1
		25	12	21.51	21.45	21.53	23.00	0-1
		25	25	21.53	21.46	21.53	23.00	0-1
	16-QAM	50	0	21.43	21.38	21.42	23.00	0-1
		1	0	21.77	21.71	21.72	23.00	0-1
		1	25	21.72	21.68	21.72	23.00	0-1
		1	49	21.75	21.70	21.73	23.00	0-1
		25	0	20.52	20.47	20.54	22.00	0-2
		25	12	20.48	20.44	20.52	22.00	0-2
	64-QAM	25	25	20.49	20.46	20.52	22.00	0-2
		50	0	20.46	20.42	20.48	22.00	0-2
		1	0	20.39	20.36	20.26	22.00	0-2
		1	25	20.22	20.41	20.27	22.00	0-2
		1	49	20.31	20.34	20.17	22.00	0-2
		25	0	19.33	19.41	19.25	21.00	0-3
		25	12	19.27	19.35	19.18	21.00	0-3
		25	25	19.39	19.39	19.49	21.00	0-3
		50	0	19.37	19.51	19.36	21.00	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	22.63	22.60	22.66	24.00	0
		1	12	22.61	22.57	22.63	24.00	0
		1	24	22.59	22.58	22.61	24.00	0
		12	0	21.52	21.53	21.62	23.00	0-1
		12	6	21.48	21.52	21.60	23.00	0-1
		12	13	21.49	21.53	21.63	23.00	0-1
	16-QAM	25	0	21.54	21.55	21.64	23.00	0-1
		1	0	21.68	21.66	21.75	23.00	0-1
		1	12	21.68	21.62	21.69	23.00	0-1
		1	24	21.68	21.66	21.75	23.00	0-1
		12	0	20.69	20.64	20.71	22.00	0-2
		12	6	20.69	20.62	20.70	22.00	0-2
	64-QAM	12	13	20.72	20.63	20.71	22.00	0-2
		25	0	20.55	20.48	20.60	22.00	0-2
		1	0	20.43	20.36	20.18	22.00	0-2
		1	12	20.24	20.35	20.33	22.00	0-2
		1	24	20.26	20.32	20.13	22.00	0-2
		12	0	19.38	19.39	19.19	21.00	0-3
		12	6	19.27	19.34	19.20	21.00	0-3
		12	13	19.34	19.40	19.50	21.00	0-3
		25	0	19.37	19.50	19.38	21.00	0-3

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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	22.68	22.73	22.68	22.88	22.77	24.00	0
		1	50	22.55	22.57	22.63	22.76	22.70	24.00	0
		1	99	22.57	22.58	22.75	22.79	22.83	24.00	0
		50	0	21.59	21.49	21.44	21.62	21.49	23.00	-0.1
		50	25	21.50	21.40	21.44	21.54	21.54	23.00	-0.1
		50	50	21.49	21.41	21.42	21.52	21.61	23.00	-0.1
	16-QAM	100	0	21.54	21.43	21.44	21.55	21.64	23.00	-0.1
		1	0	21.71	21.77	21.70	21.86	21.80	23.00	-0.1
		1	50	21.60	21.60	21.63	21.77	21.76	23.00	-0.1
		1	99	21.62	21.61	21.73	21.79	21.86	23.00	-0.1
		50	0	20.64	20.58	20.49	20.69	20.57	22.00	-0.2
		50	25	20.59	20.47	20.48	20.61	20.62	22.00	-0.2
		50	50	20.57	20.48	20.49	20.62	20.71	22.00	-0.2
		100	0	20.59	20.46	20.44	20.57	20.65	22.00	-0.2
		1	0	20.45	20.37	20.45	20.44	20.37	22.00	-0.2
		1	50	20.27	20.31	20.50	20.44	20.34	22.00	-0.2
	64-QAM	1	99	20.40	20.40	20.43	20.43	20.35	22.00	-0.2
		50	0	19.37	19.34	19.45	19.50	19.48	21.00	-0.3
		50	25	19.50	19.48	19.41	19.35	19.38	21.00	-0.3
		50	50	19.25	19.33	19.41	19.38	19.40	21.00	-0.3
		100	0	19.44	19.46	19.38	19.44	19.27	21.00	-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	22.53	22.52	22.44	22.61	22.52	24.00	0
		1	36	22.48	22.47	22.44	22.52	22.56	24.00	0
		1	74	22.45	22.38	22.44	22.52	22.69	24.00	0
		36	0	21.58	21.50	21.47	21.64	21.64	23.00	-0.1
		36	18	21.55	21.50	21.48	21.57	21.65	23.00	-0.1
		36	37	21.51	21.43	21.46	21.56	21.71	23.00	-0.1
	16-QAM	75	0	21.55	21.47	21.44	21.54	21.62	23.00	-0.1
		1	0	21.69	21.70	21.67	21.80	21.72	23.00	-0.1
		1	36	21.63	21.64	21.66	21.75	21.78	23.00	-0.1
		1	74	21.62	21.56	21.63	21.76	21.87	23.00	-0.1
		36	0	20.63	20.53	20.50	20.65	20.61	22.00	-0.2
		36	18	20.60	20.54	20.46	20.60	20.60	22.00	-0.2
		36	37	20.55	20.46	20.47	20.58	20.67	22.00	-0.2
		75	0	20.71	20.56	20.48	20.60	20.62	22.00	-0.2
		1	0	20.36	20.24	20.40	20.36	20.34	22.00	-0.2
		1	36	20.24	20.23	20.48	20.30	20.29	22.00	-0.2
	64-QAM	1	74	20.27	20.38	20.34	20.30	20.28	22.00	-0.2
		36	0	19.30	19.34	19.39	19.48	19.40	21.00	-0.3
		36	18	19.43	19.42	19.33	19.22	19.37	21.00	-0.3
		36	37	19.19	19.28	19.29	19.24	19.27	21.00	-0.3
		75	0	19.37	19.35	19.27	19.39	19.24	21.00	-0.3

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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	22.68	22.72	22.66	22.83	22.81	24.00	0	
		1	25	22.62	22.62	22.64	22.76	22.80	24.00	0	
		1	49	22.64	22.59	22.64	22.77	22.82	24.00	0	
		25	0	21.71	21.58	21.55	21.67	21.71	23.00	-0.1	
		25	12	21.67	21.57	21.55	21.66	21.75	23.00	-0.1	
		25	25	21.68	21.52	21.53	21.66	21.77	23.00	-0.1	
	16-QAM	50	0	21.57	21.48	21.44	21.54	21.65	23.00	-0.1	
		1	0	21.74	21.74	21.67	21.87	21.84	23.00	-0.1	
		1	25	21.68	21.64	21.65	21.77	21.85	23.00	-0.1	
		1	49	21.67	21.60	21.65	21.79	21.94	23.00	-0.1	
		25	0	20.60	20.50	20.45	20.59	20.62	22.00	-0.2	
		25	12	20.56	20.49	20.42	20.58	20.67	22.00	-0.2	
		25	25	20.55	20.42	20.44	20.56	20.70	22.00	-0.2	
		50	0	20.65	20.56	20.49	20.63	20.77	22.00	-0.2	
		64-QAM	1	0	20.39	20.31	20.36	20.30	20.25	22.00	-0.2
			1	25	20.16	20.17	20.37	20.31	20.20	22.00	-0.2
			1	49	20.39	20.38	20.35	20.30	20.34	22.00	-0.2
			25	0	19.25	19.29	19.37	19.40	19.39	21.00	-0.3
	25		12	19.38	19.48	19.41	19.31	19.30	21.00	-0.3	
	25		25	19.21	19.31	19.29	19.37	19.34	21.00	-0.3	
	50	0	19.32	19.40	19.36	19.31	19.22	21.00	-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	22.53	22.50	22.48	22.64	22.75	24.00	0
			1	12	22.47	22.48	22.45	22.58	22.75	24.00	0
			1	24	22.46	22.48	22.48	22.62	22.81	24.00	0
			12	0	21.52	21.43	21.39	21.50	21.69	23.00	-0.1
			12	6	21.51	21.41	21.38	21.51	21.69	23.00	-0.1
			12	13	21.48	21.42	21.40	21.51	21.69	23.00	-0.1
		16-QAM	25	0	21.57	21.45	21.38	21.52	21.66	23.00	-0.1
1			0	21.64	21.56	21.55	21.70	21.79	23.00	-0.1	
1			12	21.58	21.54	21.54	21.67	21.78	23.00	-0.1	
1			24	21.59	21.55	21.54	21.69	21.88	23.00	-0.1	
12			0	20.67	20.58	20.48	20.62	20.77	22.00	-0.2	
12			6	20.65	20.52	20.48	20.61	20.79	22.00	-0.2	
64-QAM		12	13	20.62	20.56	20.47	20.64	20.80	22.00	-0.2	
		25	0	20.58	20.48	20.42	20.56	20.72	22.00	-0.2	
		1	0	20.29	20.31	20.33	20.22	20.22	22.00	-0.2	
		1	12	20.07	20.11	20.34	20.28	20.17	22.00	-0.2	
		1	24	20.30	20.28	20.34	20.21	20.29	22.00	-0.2	
		12	0	19.19	19.27	19.35	19.38	19.32	21.00	-0.3	
		12	6	19.33	19.45	19.38	19.28	19.27	21.00	-0.3	
		12	13	19.16	19.31	19.22	19.33	19.30	21.00	-0.3	
		25	0	19.27	19.36	19.27	19.27	19.18	21.00	-0.3	

## 1.3.1 LTE Downlink CA specification

## LTE Downlink 2CA conducted power table

Two Component Carrier Maximum Conducted Power															
PCC									SCC				Power		Configuration
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	18900	1880	QPSK	1	50	900	1960	LTE B17	10	739	5780	23.51	23.57	CA 2A-17A
LTE B17	10	23780	709	QPSK	1	49	739	5780	LTE B2	20	900	1960	22.30	22.34	CA 2A-17A
LTE B4	20	20300	1745	QPSK	1	99	2300	2145	LTE B17	10	739	5780	23.30	23.45	CA 4A-17A
LTE B17	10	23780	709	QPSK	1	49	739	5780	LTE B4	20	2300	2145	22.29	22.34	CA 4A-17A
LTE B5	10	20525	836.5	QPSK	1	49	2525	881.5	LTE B7	20	2850	2630	23.54	23.60	CA 5A-7A
LTE B7	20	20850	2510	QPSK	1	50	2850	2630	LTE B5	10	2525	881.5	22.84	22.94	CA 5A-7A
LTE B7	15	20825	2507.5	QPSK	75	0	2825	2627.5	LTE B7	5	2918	2636.8	21.67	21.86	CA 7B
LTE B7	20	20850	2510	QPSK	50	0	2850	2630	LTE B7	20	3048	2649.8	21.86	22.00	CA 7C
LTE B7	20	21350	2560	QPSK	1	0	3350	2680	LTE B7	20	3152	2660.2	22.49	22.51	CA 7C
LTE B7	20	21350	2560	QPSK	1	0	3350	2680	LTE B7	20	2850	2630	22.45	22.51	CA 7A-7A
LTE B41	20	39750	2506	QPSK	1	0	39750	2506	LTE B41	20	41490	2680	22.49	22.68	CA 41A-41A
LTE B41	20	41490	2680	QPSK	100	0	41490	2680	LTE B41	20	39750	2506	21.48	21.64	CA 41A-41A

## LTE Downlink 3CA conducted power table

Three Component Carrier Maximum Conducted Power																			
PCC								SCC 1				SCC 2				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	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)		
LTE B2	20	18900	1880	QPSK	1	50	900	1960	LTE B2	20	900	1960	LTE B5	10	2525	881.5	23.40	23.57	CA 2A-2A-5A
LTE B2	20	18900	1880	QPSK	1	50	900	1960	LTE B2	20	900	1960	LTE B5	10	2525	881.5	23.40	23.57	CA 2A-2A-5A
LTE B5	10	20525	836.5	QPSK	1	49	2525	881.5	LTE B2	20	900	1960	LTE B2	20	900	1960	23.49	23.60	CA 2A-2A-5A
LTE B2	20	18900	1880	QPSK	1	50	900	1960	LTE B2	20	900	1960	LTE B13	10	5230	751	23.47	23.57	CA 2A-2A-13A
LTE B2	20	18900	1880	QPSK	1	50	900	1960	LTE B2	20	900	1960	LTE B13	10	5230	751	23.44	23.57	CA 2A-2A-13A
LTE B13	10	23230	782	QPSK	1	25	5230	751	LTE B2	20	900	1960	LTE B2	10	900	1960	22.69	22.78	CA 2A-2A-13A
LTE B2	20	18900	1880	QPSK	1	50	900	1960	LTE B4	20	2300	2145	LTE B5	10	2525	881.5	23.56	23.57	CA 2A-4A-5A
LTE B4	20	20300	1745	QPSK	1	99	2300	2145	LTE B2	20	900	1960	LTE B5	10	2525	881.5	23.38	23.45	CA 2A-4A-5A
LTE B5	10	20525	836.5	QPSK	1	49	2525	881.5	LTE B2	20	900	1960	LTE B4	20	2300	2145	23.47	23.60	CA 2A-4A-5A
LTE B2	20	18900	1880	QPSK	1	50	900	1960	LTE B4	20	2300	2145	LTE B5	10	2525	881.5	23.47	23.57	CA 2A-4A-5A
LTE B4	20	20300	1745	QPSK	1	99	2300	2145	LTE B2	20	900	1960	LTE B5	10	2525	881.5	23.41	23.45	CA 2A-4A-13A
LTE B13	10	23230	782	QPSK	1	25	5230	751	LTE B2	20	900	1960	LTE B4	20	2300	2145	22.67	22.78	CA 2A-4A-13A
LTE B2	20	18900	1880	QPSK	1	50	900	1960	LTE B5	10	2525	881.5	LTE B30	10	9820	2355	23.38	23.57	CA 2A-5A-30A
LTE B5	10	20525	836.5	QPSK	1	49	2525	881.5	LTE B2	20	900	1960	LTE B30	10	9820	2355	23.43	23.60	CA 2A-5A-30A
LTE B30	10	27710	2310	QPSK	1	49	9820	2355	LTE B2	20	900	1960	LTE B5	10	2525	881.5	22.89	22.99	CA 2A-5A-30A
LTE B2	20	18900	1880	QPSK	1	50	900	1960	LTE B5	10	2525	881.5	LTE B66	20	66786	2145	23.46	23.57	CA 2A-5A-66A
LTE B5	10	20525	836.5	QPSK	1	49	2525	881.5	LTE B2	20	900	1960	LTE B66	20	66786	2145	23.54	23.60	CA 2A-5A-66A
LTE B66	20	132322	1745	QPSK	1	99	66786	2145	LTE B2	20	900	1960	LTE B5	10	2525	881.5	23.48	23.53	CA 2A-5A-66A
LTE B2	20	18900	1880	QPSK	1	50	900	1960	LTE B12	10	5060	734	LTE B30	10	9820	2355	23.50	23.57	CA 2A-12A-30A
LTE B12	10	23060	704	QPSK	1	0	5060	734	LTE B2	20	900	1960	LTE B30	10	9820	2355	22.46	22.48	CA 2A-12A-30A
LTE B30	10	27710	2310	QPSK	1	49	9820	2355	LTE B12	10	5060	734	LTE B2	20	900	1960	22.89	22.99	CA 2A-12A-30A
LTE B2	20	18900	1880	QPSK	1	50	900	1960	LTE B13	10	5230	751	LTE B66	20	66786	2145	23.45	23.57	CA 2A-13A-66A
LTE B13	10	23230	782	QPSK	1	25	5230	751	LTE B2	20	900	1960	LTE B66	20	66786	2145	22.59	22.78	CA 2A-13A-66A
LTE B66	20	132322	1745	QPSK	1	99	66786	2145	LTE B2	20	900	1960	LTE B13	10	5230	751	23.34	23.53	CA 2A-13A-66A
LTE B2	20	18900	1880	QPSK	1	50	900	1960	LTE B29	10	9715	722.5	LTE B30	10	9820	2355	23.39	23.57	CA 2A-29A-30A
LTE B30	10	27710	2310	QPSK	1	49	9820	2355	LTE B2	20	900	1960	LTE B29	10	9715	722.5	22.81	22.99	CA 2A-29A-30A
LTE B2	20	18900	1880	QPSK	1	50	900	1960	LTE B2	20	900	1960	LTE B29	10	9715	722.5	23.45	23.57	CA 2C-29A
LTE B2	20	18900	1880	QPSK	1	50	900	1960	LTE B2	20	900	1960	LTE B29	10	9715	722.5	23.51	23.57	CA 2C-29A
LTE B2	20	18900	1880	QPSK	1	50	900	1960	LTE B66	20	66786	2145	LTE B66	20	66786	2145	23.49	23.57	CA 2A-66B
LTE B66	20	132322	1745	QPSK	1	99	66786	2145	LTE B66	20	66786	2145	LTE B2	20	900	1960	23.41	23.53	CA 2A-66B
LTE B2	20	18900	1880	QPSK	1	50	900	1960	LTE B66	20	66786	2145	LTE B66	20	66786	2145	23.40	23.57	CA 2A-66C
LTE B66	20	132322	1745	QPSK	1	99	66786	2145	LTE B66	20	66786	2145	LTE B2	20	900	1960	23.43	23.53	CA 2A-66C
LTE B4	20	20300	1745	QPSK	1	99	2300	2145	LTE B4	20	2300	2145	LTE B5	10	2525	881.5	23.44	23.45	CA 4A-4A-5A
LTE B4	20	20300	1745	QPSK	1	99	2300	2145	LTE B4	20	2300	2145	LTE B5	10	2525	881.5	23.33	23.45	CA 4A-4A-5A
LTE B5	10	20525	836.5	QPSK	1	49	2525	881.5	LTE B4	20	2300	2145	LTE B4	20	2300	2145	23.45	23.60	CA 4A-4A-5A
LTE B4	20	20300	1745	QPSK	1	99	2300	2145	LTE B4	20	2300	2145	LTE B13	10	5230	751	23.36	23.45	CA 4A-4A-13A
LTE B4	20	20300	1745	QPSK	1	99	2300	2145	LTE B4	20	2300	2145	LTE B13	10	5230	751	23.30	23.45	CA 4A-4A-13A
LTE B13	10	23230	782	QPSK	1	25	5230	751	LTE B4	20	2300	2145	LTE B4	20	2300	2145	22.77	22.78	CA 4A-4A-13A
LTE B4	20	20300	1745	QPSK	1	99	2300	2145	LTE B5	10	2525	881.5	LTE B30	10	9820	2355	23.44	23.45	CA 4A-5A-30A
LTE B5	10	20525	836.5	QPSK	1	49	2525	881.5	LTE B4	20	2300	2145	LTE B30	10	9820	2355	23.54	23.60	CA 4A-5A-30A
LTE B30	10	27710	2310	QPSK	1	49	9820	2355	LTE B4	20	2300	2145	LTE B5	10	2525	881.5	22.96	22.99	CA 4A-5A-30A
LTE B4	20	20300	1745	QPSK	1	99	2300	2145	LTE B12	10	5060	734	LTE B30	10	9820	2355	23.43	23.45	CA 4A-12A-30A
LTE B12	10	23060	704	QPSK	1	0	5060	734	LTE B4	20	2300	2145	LTE B30	10	9820	2355	22.39	22.48	CA 4A-12A-30A
LTE B30	10	27710	2310	QPSK	1	49	9820	2355	LTE B4	20	2300	2145	LTE B12	10	5060	734	22.81	22.99	CA 4A-12A-30A
LTE B4	20	20300	1745	QPSK	1	99	2300	2145	LTE B29	10	9715	722.5	LTE B30	10	9820	2355	23.33	23.45	CA 4A-29A-30A
LTE B30	10	27710	2310	QPSK	1	49	9820	2355	LTE B4	20	2300	2145	LTE B29	10	9715	722.5	22.88	22.98	CA 4A-29A-30A
LTE B5	10	20525	836.5	QPSK	1	49	2525	881.5	LTE B66	20	66786	2145	LTE B66	20	66786	2145	23.43	23.60	CA 5A-66B
LTE B66	20	132322	1745	QPSK	1	99	66786	2145	LTE B66	20	66786	2145	LTE B5	10	2525	881.5	23.48	23.53	CA 5A-66B
LTE B5	10	20525	836.5	QPSK	1	49	2525	881.5	LTE B66	20	66786	2145	LTE B66	20	66786	2145	23.50	23.60	CA 5A-66C
LTE B66	20	132322	1745	QPSK	1	99	66786	2145	LTE B66	20	66786	2145	LTE B5	10	2525	881.5	23.38	23.53	CA 5A-66C
LTE B13	10	23230	782	QPSK	1	25	5230	751	LTE B66	20	66786	2145	LTE B66	20	66786	2145	22.74	22.78	CA 13A-66B
LTE B66	20	132322	1745	QPSK	1	99	66786	2145	LTE B66	20	66786	2145	LTE B13	10	5230	751	23.45	23.53	CA 13A-66B
LTE B13	10	23230	782	QPSK	1	25	5230	751	LTE B66	20	66786	2145	LTE B66	20	66786	2145	22.58	22.78	CA 13A-66C
LTE B66	20	132322	1745	QPSK	1	99	66786	2145	LTE B66	20	66786	2145	LTE B13	10	5230	751	23.43	23.53	CA 13A-66C
LTE B30	10	27710	2310	QPSK	1	49	9820	2355	LTE B11	10	4680	2593	LTE A41	20	41490	2680	22.59	22.68	CA 4A-41A
LTE B41	20	39750	2593	QPSK	1	0	40620	2593	LTE B41	20	39750	2506	LTE B41	20	41490	2680	22.53	22.68	CA 4A-41D
LTE B41	20	41490	2680	QPSK	100	0	41490	2680	LTE B41	20	39750	2506	LTE B41	20	40620	2593	21.59	21.64	CA 4A-41D
LTE B41	20	39750	2506	QPSK	1	0	39750	2506	LTE B41	20	41292	2660.2	LTE B41	20	41490	2680	22.58	22.68	CA 4A-41C
LTE B41	20	41490	2680	QPSK	100	0	41490	2680	LTE B41	20	39750	2506	LTE B41	20	41292	2660.2	21.44	21.64	CA 4A-41C
LTE B66	20	132322	1720	QPSK	100	0	66536	2120	LTE B66	20	67334	2139.8	LTE B66	20	66932	2159.6	22.10	22.27	CA 66B
LTE B66	20	132322	1720	QPSK	100	0	66536	2120	LTE B66	20	67334	2139.8	LTE B66	20	66932	2159.6	22.10	22.27	CA 66B
LTE B66	20	132322	1720	QPSK	100	0	66536	2120	LTE B66	20	67334	2139.8	LTE B66	20	66932	2159.6	22.10	22.27	CA 66B
LTE B66	20	132322	1720	QPSK	100	0	66536	2120	LTE B66	20	67334	2139.8	LTE B66	20	66932	2159.6	22.10	22.27	CA 66B

### LTE Downlink MIMO conducted power table

DL MIMO maximum power verification								
PCC							TX power	
UL							DL MIMO active	DL MIMO inactive
Band	Bandwidth [MHz]	Channel	Frequency [MHz]	Modulation	RB	RB Offset		
LTE B2	20	18900	1880	QPSK	1	50	23.48	23.57
LTE B4	20	20300	1745	QPSK	1	99	23.37	23.45
LTE B5	10	20525	836.5	QPSK	1	49	23.41	23.60
LTE B7	20	20850	2510	QPSK	1	50	22.83	22.94
LTE B12	10	23060	704	QPSK	1	0	22.30	22.48
LTE B13	10	23230	782	QPSK	1	25	22.64	22.78
LTE B17	10	23780	709	QPSK	1	49	23.32	23.34
LTE B26	15	26865	831.5	QPSK	1	74	22.39	22.58
LTE B30	10	27710	2310	QPSK	1	49	22.86	22.99
LTE B66	20	132322	1745	QPSK	1	99	23.52	23.53
LTE B38	20	38150	2610	QPSK	1	99	22.59	22.75
LTE B41	20	41055	2636.5	QPSK	1	0	22.80	22.88

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

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## 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 Uplink Carrier Aggregation, Enhanced SC-FDMA and 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 V16.5.0. The conducted power measurement results of downlink LTE CA are provided as above per 3GPP TS 36.521-1 V16.5.0. 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 2C		3CC #10	3CC #1	CA 2A-2A-5A		No
2CC #2	CA 2A-2A		3CC #1	3CC #2	CA 2A-2A-13A		No
2CC #3	CA 2A-4A		3CC #3	3CC #3	CA 2A-4A-5A		No
2CC #4	CA 2A-5A		3CC #3	3CC #4	CA 2A-4A-13A		No
2CC #5	CA 2A-12A		3CC #7	3CC #5	CA 2A-5A-30A		No
2CC #6	CA 2A-13A		3CC #8	3CC #6	CA 2A-5A-66A		No
2CC #7	CA 2A-17A		No	3CC #7	CA 2A-12A-30A		No
2CC #8	CA 2A-29A	B29 SCC only	3CC #9	3CC #8	CA 2A-13A-66A		No
2CC #9	CA 2A-30A		3CC #5	3CC #9	CA 2A-29A-30A	B29 SCC only	No
2CC #10	CA 2A-66A		3CC #6	3CC #10	CA 2C-29A	B29 SCC only	No
2CC #11	CA 4A-4A		3CC #13	3CC #11	CA 2A-66B		No
2CC #12	CA 4A-5A		3CC #15	3CC #12	CA 2A-66C		No
2CC #13	CA 4A-12A		3CC #16	3CC #13	CA 4A-4A-5A		No
2CC #14	CA 4A-13A		3CC #14	3CC #14	CA 4A-4A-13A		No
2CC #15	CA 4A-17A		No	3CC #15	CA 4A-5A-30A		No
2CC #16	CA 4A-29A	B29 SCC only	3CC #17	3CC #16	CA 4A-12A-30A		No
2CC #17	CA 4A-30A		3CC #17	3CC #17	CA 4A-29A-30A	B29 SCC only	No
2CC #18	CA 5A-7A		No	3CC #18	CA 5A-66B		No
2CC #19	CA 5A-30A		3CC #5	3CC #19	CA 5A-66C		No
2CC #20	CA 5A-66A		3CC #6	3CC #20	CA 13A-66B		No
2CC #21	CA-7B		No	3CC #21	CA 13A-66C		No
2CC #22	CA-7C		No	3CC #22	CA 41D		No
2CC #23	CA-7A-7A		No	3CC #23	CA 41A-41C		No
2CC #24	CA 12A-30A		3CC #7	3CC #24	CA 66D		No
2CC #25	CA 13A-66A		3CC #8	3CC #25	CA 66A-66B		No
2CC #26	CA 29A-30A	B29 SCC only	3CC #9	3CC #26	CA 66A-66C		No
2CC #27	CA 41C		3CC #23				
2CC #28	CA 41A-41A		No				

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# Note:

- 1 ) For the inter-band CA combinations, except B29 can't be PCC, all the listed bands above can be used as PCC or SCC.
- 2) The channel spacing and aggregated channel bandwidth for CA are identical to the associated specification in 3GPP TS 36.521-1 V16.5.0.
- 3) The reference test frequencies for CA refers to 3GPP TS 36.508 V16.6.0
- 4) Testing is not required in bands or modes not intended/allowed for US operation
- 5) Based on TCB workshop April 2018, only indicate "No" in CA combination table need power measurement

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## 1.4 Test Environment

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

## 1.5 Operation Description

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. Also, the device is a laptop computer with notebook mode only, so SAR measurement for notebook mode is required.

### 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  $\leq \frac{1}{4}$  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:

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Sub-test	$\beta_c$	$\beta_d$	$\beta_d$ (SF)	$\beta_c/\beta_d$	$\beta_{hs}^{(1)}$	CM (dB) <sup>(2)</sup>
1	2/15	15/15	64	2/15	4/15	0.0
2	12/15 <sup>(3)</sup>	15/15 <sup>(3)</sup>	64	12/15 <sup>(3)</sup>	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:  $\Delta_{ACK}$ ,  $\Delta_{NACK}$  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  $\beta_c/\beta_d = 12/15$ ,  $\beta_{hs}/\beta_c = 24/15$ .  
Note 3: For subtest 2 the  $\beta_c/\beta_d$  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  $\beta_c = 11/15$  and  $\beta_d = 15/15$ .

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  $\leq \frac{1}{4}$  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 settings are illustrated below:

Sub-test	$\beta_c$	$\beta_d$	$\beta_d$ (SF)	$\beta_c/\beta_d$	$\beta_{hs}^{(1)}$	$\beta_{ec}$	$\beta_{ed}$	$\beta_{ed}$ (SF)	$\beta_{ed}$ (codes)	CM <sup>(2)</sup> (dB)	MPR (dB)	AG <sup>(4)</sup> Index	E-TFCI
1	11/15 <sup>(3)</sup>	15/15 <sup>(3)</sup>	64	11/15 <sup>(3)</sup>	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	$\beta_{ed1}: 47/15$ $\beta_{ed2}: 47/15$	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 <sup>(4)</sup>	15/15 <sup>(4)</sup>	64	15/15 <sup>(4)</sup>	30/15	24/15	134/15	4	1	1.0	0.0	21	81

Note 1:  $\Delta_{ACK}$ ,  $\Delta_{NACK}$  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  $\beta_c/\beta_d = 12/15$ ,  $\beta_{hs}/\beta_c = 24/15$ . 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  $\beta_c/\beta_d$  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  $\beta_c = 10/15$  and  $\beta_d = 15/15$ .  
Note 4: For subtest 5 the  $\beta_c/\beta_d$  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  $\beta_c = 14/15$  and  $\beta_d = 15/15$ .  
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:  $\beta_{ed}$  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  $\leq \frac{1}{4}$  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:

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

Sub-test	$\beta_c$ (Note 3)	$\beta_d$	$\beta_{HS}$ (Note 1)	$\beta_{ec}$	$\beta_{ed}$ (2xSF2) (Note 4)	$\beta_{ed}$ (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	$\beta_{ed1}$ : 30/15 $\beta_{ed2}$ : 30/15	$\beta_{ed3}$ : 24/15 $\beta_{ed4}$ : 24/15	3.5	2.5	14	105	105
<p>Note 1: <math>\Delta_{ACK}</math>, <math>\Delta_{NACK}</math> and <math>\Delta_{CQI}</math> = 30/15 with <math>\beta_{hs} = 30/15 * \beta_c</math></p> <p>Note 2: CM = 3.5 and the MPR is based on the relative CM difference, <math>MPR = \text{MAX}(CM-1, 0)</math></p> <p>Note 3: DPDCH is not configured, therefore the <math>\beta_c</math> is set to 1 and <math>\beta_d = 0</math> by default</p> <p>Note 4: <math>\beta_{ed}</math> can not be set directly; it is set by Absolute Grant Value</p> <p>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</p>											

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  $\leq 1/4$  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

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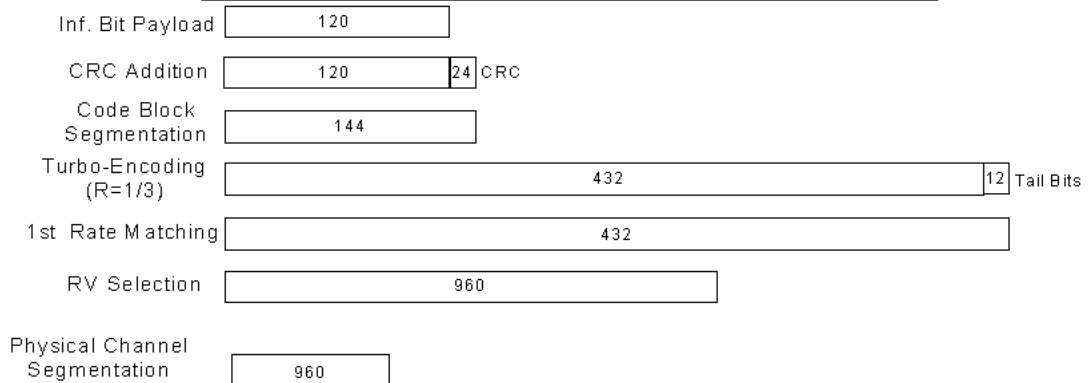
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Table C.8.1.12: Fixed Reference Channel H-Set 12<sup>1</sup>

Parameter <sup>2</sup>	Unit <sup>2</sup>	Value <sup>2</sup>
Nominal Avg. Inf. Bit Rate <sup>2</sup>	kbps <sup>2</sup>	60 <sup>2</sup>
Inter-TTI Distance <sup>2</sup>	TTI's <sup>2</sup>	1 <sup>2</sup>
Number of HARQ Processes <sup>2</sup>	Processes <sup>2</sup>	6 <sup>2</sup>
Information Bit Payload ( $N_{\text{INF}}$ ) <sup>2</sup>	Bits <sup>2</sup>	120 <sup>2</sup>
Number Code Blocks <sup>2</sup>	Blocks <sup>2</sup>	1 <sup>2</sup>
Binary Channel Bits Per TTI <sup>2</sup>	Bits <sup>2</sup>	960 <sup>2</sup>
Total Available SML's in UE <sup>2</sup>	SML's <sup>2</sup>	19200 <sup>2</sup>
Number of SML's per HARQ Proc. <sup>2</sup>	SML's <sup>2</sup>	3200 <sup>2</sup>
Coding Rate <sup>2</sup>		0.15 <sup>2</sup>
Number of Physical Channel Codes <sup>2</sup>	Codes <sup>2</sup>	1 <sup>2</sup>
Modulation <sup>2</sup>		QPSK <sup>2</sup>
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. <sup>2</sup> 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. <sup>2</sup>		


Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)<sup>2</sup>

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	$\beta_c$	$\beta_d$	$\beta_d$ (SF)	$\beta_c/\beta_d$	$\beta_{hs}^{(1)}$	CM (dB) <sup>(2)</sup>
1	2/15	15/15	64	2/15	4/15	0.0
2	12/15 <sup>(3)</sup>	15/15 <sup>(3)</sup>	64	12/15 <sup>(3)</sup>	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: $\Delta_{ACK}, \Delta_{NACK}$ 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 $\beta_c/\beta_d = 12/15$ , $\beta_{hs}/\beta_c = 24/15$ . Note 3: For subtest 2 the $\beta_c/\beta_d$ 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 $\beta_c = 11/15$ and $\beta_d = 15/15$ .						

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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  $\leq 0.8$  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  $\leq 0.8$  W/kg.
- Otherwise, SAR is measured for the highest output power channel and if the reported SAR is  $> 1.45$  W/kg, the remaining required test channels must also be tested.

d. Per Section 5.2.4, Higher order modulations

- For each modulation besides QPSK; e.g., 16-QAM, 64-QAM, apply the QPSK procedures in sections 5.2.1, 5.2.2 and 5.2.3 to determine the QAM configurations that may need SAR measurement. For each configuration identified as required for testing, SAR is required only when the highest maximum output power for the configuration in the higher order modulation is  $> \frac{1}{2}$  dB higher than the same configuration in QPSK or when the reported SAR for the QPSK configuration is  $> 1.45$  W/kg.

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

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- For the other channel bandwidths used by the device in a frequency band, apply all the procedures required for the largest channel bandwidth in section 5.2 to determine the channels and RB configurations that need SAR testing and only measure SAR when the highest maximum output power of a configuration requiring testing in the smaller channel bandwidth is  $> \frac{1}{2}$  dB higher than the equivalent channel configurations in the largest channel bandwidth configuration or the reported SAR of a configuration for the largest channel bandwidth is  $> 1.45$  W/kg. The equivalent channel configuration for the RB allocation, RB offset and modulation etc. is determined for the smaller channel bandwidth according to the same number of RB allocated in the largest channel bandwidth.
- 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.

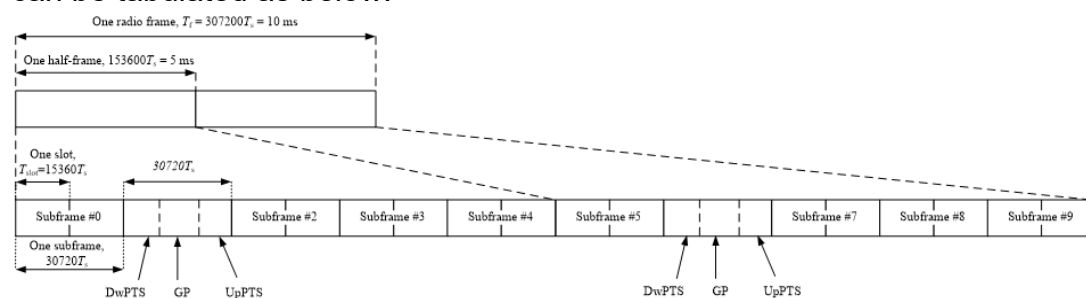


Figure 4.2-1: Frame structure type 2 (for 5 ms switch-point periodicity)

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

Special subframe configuration n	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	$26336 \cdot T_s$			$7680 \cdot T_s$		
5	$6592 \cdot T_s$	$(2+X) \cdot 2192 \cdot T_s$	$(2+X) \cdot 2560 \cdot T_s$	$20480 \cdot T_s$	$(2+X) \cdot 2192 \cdot T_s$	$(2+X) \cdot 2560 \cdot T_s$
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 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%.

- 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

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tune-up tolerance limits and not more than  $\frac{1}{4}$  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  $[BW1 + BW2 - 0.1 \cdot |BW1 - BW2|]/2$  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  $\frac{1}{4}$  dB higher than the maximum output power measured when downlink carrier aggregation inactive, so SAR evaluation is not required for downlink carrier aggregation.

8. **General:** According to KDB447498D01v06, testing of other required channels is not required when the reported 1-g SAR for the highest output channel is  $\leq 0.8$  W/kg, when the transmission band is  $\leq 100$  MHz. According to KDB865664D01v01r04, SAR measurement variability must be assessed for each frequency band. When the original highest measured SAR is  $\geq 0.8$  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  $\geq 1.45$  W/kg ( $\sim 10\%$  from the 1-g SAR limit).
9. There are three antenna vendors for WWAN antenna, and they were measured fully and separately.

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## 1.6 The SAR Measurement System

A block diagram of the SAR measurement System is given in Fig. a. This SAR Measurement System uses a Computer-controlled 3-D stepper motor system (SPEAG DASY 5 professional system). The model EX3DV4 field probe is used to determine the internal electric fields. The SAR can be obtained from the equation  $SAR = \sigma (|E|^2) / \rho$  where  $\sigma$  and  $\rho$  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 in tissue simulating liquid. The probe is equipped with an optical surface detector system.
3. A data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.

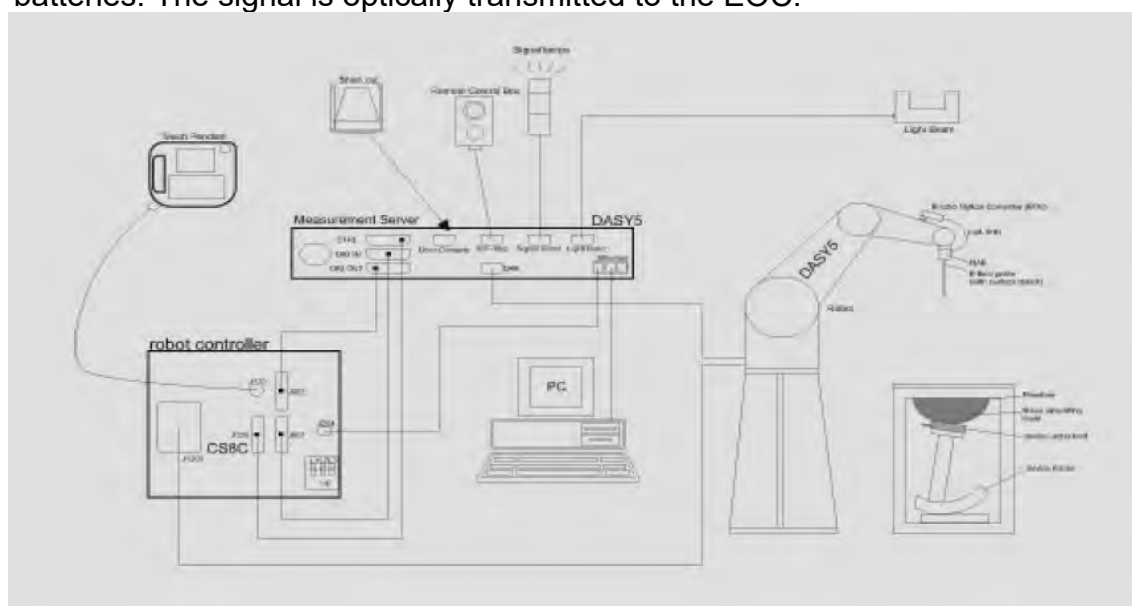


Fig. a The block diagram of SAR system

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


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## 1.7 System Components

### EX3DV4 E-Field Probe

Construction	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)		
Calibration	Basic Broad Band Calibration in air Conversion Factors (CF) for HSL 750/835/1750/1900/2300/2600MHz Additional CF for other liquids and frequencies upon request		
Frequency	10 MHz to > 6 GHz		
Directivity	± 0.3 dB in HSL (rotation around probe axis) ± 0.5 dB in tissue material (rotation normal to probe axis)		
Dynamic Range	10 µW/g to > 100 mW/g Linearity: ± 0.2 dB (noise: typically < 1 µW/g)		
Dimensions	Tip diameter: 2.5 mm		
Application	High precision dosimetric measurements in any exposure scenario (e.g., very strong gradient fields). Only probe which enables compliance testing for frequencies up to 6 GHz with precision of better 30%.		

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## PHANTOM

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



## DEVICE HOLDER

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

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## 1.8 SAR System Verification

The microwave circuit arrangement for system verification is sketched in Fig. b. The daily system accuracy verification occurs within the flat section of the SAM phantom. A SAR measurement was performed to see if the measured SAR was within  $\pm 10\%$  from the target SAR values. These tests were done at 750/835/1750/1900/2300/2600 MHz. The tests were conducted on the same days as the measurement of the DUT. The obtained results from the system accuracy verification are displayed in the table 1 (SAR values are normalized to 1W forward power delivered to the dipole). During the tests, the liquid depth above the ear reference points was  $\geq 15 \text{ cm} \pm 5 \text{ mm}$  (frequency  $\leq 3 \text{ GHz}$ ) or  $\geq 10 \text{ cm} \pm 5 \text{ mm}$  (frequency  $> 3 \text{ GHz}$ ) in all the cases. It is seen that the system is operating within its specification, as the results are within acceptable tolerance of the reference values.

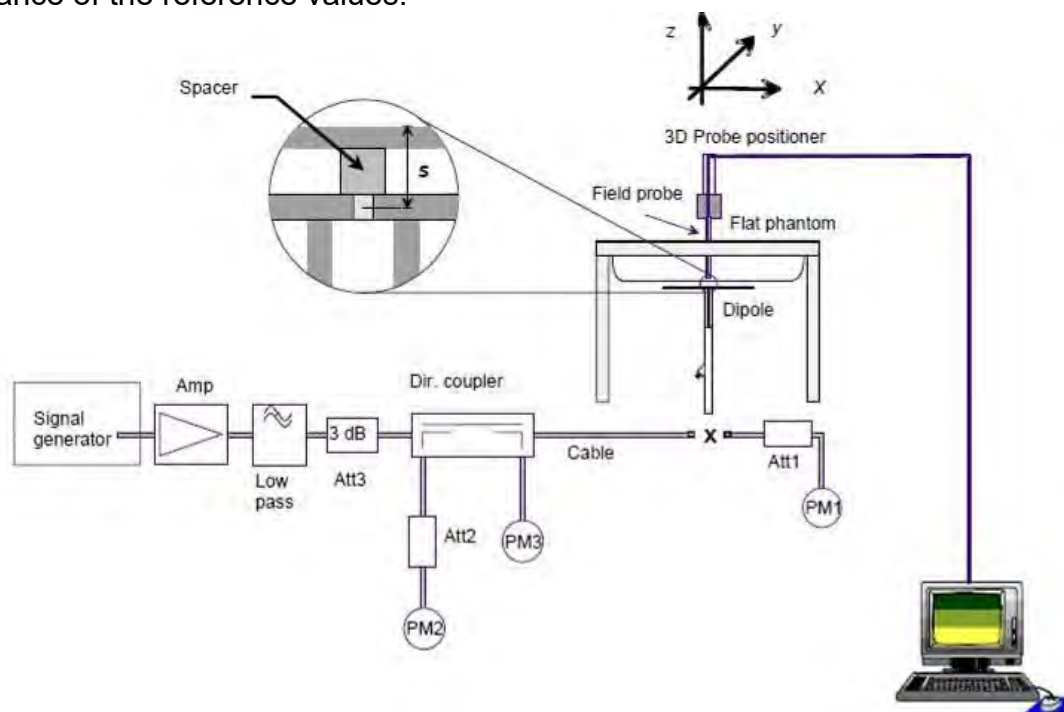


Fig. b The block diagram of system verification

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Validation Kit	S/N	Frequency (MHz)		1W Target SAR-1g (mW/g)	pin=250mW Measured SAR-1g (mW/g)	Measured SAR-1g normalized to 1W (mW/g)	Deviation (%)	Measured Date
D750V3	1015	750	Head	8.48	2.17	8.68	2.36%	Sep. 16, 2020
D750V3	1015	750	Head	8.48	2.14	8.56	0.94%	Sep. 17, 2020
D835V2	4d063	835	Head	9.52	2.46	9.84	3.36%	Sep. 15, 2020
D835V2	4d063	835	Head	9.52	2.46	9.84	3.36%	Sep. 16, 2020
D1750V2	1008	1750	Head	36.00	9.01	36.04	0.11%	Sep. 13, 2020
D1750V2	1008	1750	Head	36.00	9.05	36.20	0.56%	Sep. 14, 2020
D1900V2	5d173	1900	Head	39.40	9.87	39.48	0.20%	Sep. 12, 2020
D2300V2	1023	2300	Head	49.00	12.10	48.40	-1.22%	Sep. 11, 2020
D2600V2	1005	2600	Head	57.30	14.40	57.60	0.52%	Sep. 08, 2020
D2600V2	1005	2600	Head	57.30	14.50	58.00	1.22%	Sep. 09, 2020
D2600V2	1005	2600	Head	57.30	14.40	57.60	0.52%	Sep. 10, 2020

Table 1. Results of system verification

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### 1.9 Tissue Simulant Fluid for the Frequency Band

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

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

The depth of the tissue simulant in the flat section of the phantom was  $\geq 15 \text{ cm} \pm 5 \text{ mm}$  (Frequency  $\leq 3\text{G}$ ) or  $\geq 10 \text{ cm} \pm 5 \text{ mm}$  (Frequency  $> 3\text{G}$ ) during all tests. (Fig. 2)

Tissue Type	Measurement Date	Measured Frequency (MHz)	Target Dielectric Constant, $\epsilon_r$	Target Conductivity, $\sigma$ (S/m)	Measured Dielectric Constant, $\epsilon_r$	Measured Conductivity, $\sigma$ (S/m)	% dev $\epsilon_r$	% dev $\sigma$
Head	Sep, 17. 2020	704	42.181	0.890	41.945	0.881	-0.56%	-0.99%
		707.5	42.162	0.890	41.930	0.882	-0.55%	-0.91%
		750	41.942	0.893	41.698	0.885	-0.58%	-0.94%
		782	41.775	0.896	41.529	0.887	-0.59%	-0.99%
	Sep, 16. 2020	709	42.155	0.890	41.918	0.881	-0.56%	-1.03%
		710	42.149	0.890	41.901	0.882	-0.59%	-0.93%
		750	41.942	0.893	41.702	0.885	-0.57%	-0.94%
		831.5	41.518	0.900	41.290	0.891	-0.55%	-0.97%
		835	41.500	0.900	41.239	0.892	-0.63%	-0.89%
		836.5	41.500	0.902	41.230	0.893	-0.65%	-0.96%
	Sep, 15. 2020	841.5	41.500	0.907	41.228	0.898	-0.66%	-0.99%
		829	41.531	0.900	41.261	0.890	-0.65%	-1.06%
		835	41.500	0.900	41.259	0.891	-0.58%	-1.00%
		836.5	41.500	0.902	41.230	0.892	-0.65%	-1.07%
	Sep, 14. 2020	836.6	41.500	0.902	41.227	0.893	-0.66%	-0.97%
		1745	40.087	1.368	40.576	1.384	1.22%	1.16%
	Sep, 13. 2020	1750	40.079	1.371	40.556	1.386	1.19%	1.09%
		1745	40.087	1.368	40.578	1.383	1.23%	1.08%
		1750	40.079	1.371	40.572	1.386	1.23%	1.09%
	Sep, 12. 2020	1752.6	40.075	1.373	40.564	1.387	1.22%	1.05%
		1880	40.000	1.400	40.472	1.415	1.18%	1.07%
	Sep, 11. 2020	1900	40.000	1.400	40.462	1.416	1.16%	1.14%
		2300	39.467	1.667	39.115	1.650	-0.89%	-1.00%
	Sep, 10. 2020	2310	39.449	1.676	39.086	1.658	-0.92%	-1.05%
		2510	39.124	1.865	38.768	1.847	-0.91%	-0.99%
	Sep, 09. 2020	2600	39.009	1.964	38.662	1.943	-0.89%	-1.05%
		2600	39.009	1.964	38.639	1.945	-0.95%	-0.95%
	Sep, 08. 2020	2610	38.996	1.975	38.630	1.955	-0.94%	-0.99%
		2600	39.009	1.964	38.666	1.944	-0.88%	-1.00%
		2636.5	38.963	2.003	38.631	1.984	-0.85%	-0.97%
		2680	38.907	2.051	38.545	2.031	-0.93%	-0.97%

Table 2. Dielectric Parameters of Tissue Simulant Fluid

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The composition of the body tissue simulating liquid:

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

Table 3. Recipes for Tissue Simulating Liquid

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### 1.10 Evaluation Procedures

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

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

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

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

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

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

The first procedure is an extrapolation (incl. Boundary correction) to get the points

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

## 1.11 Probe Calibration Procedures

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

### 1.11.1 Transfer Calibration with Temperature Probes

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

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

whereby  $\sigma$  is the conductivity,  $\rho$  the density and  $c$  the heat capacity of the liquid.

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

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1. The temperature gradient is not directly measurable but must be evaluated from temperature measurements at different time steps. Special precaution is necessary to avoid measurement errors caused by temperature gradients due to energy equalizing effects or convection currents in the liquid. Such effects cannot be completely avoided, as the measured field itself destroys the thermal equilibrium in the liquid. With a careful setup these errors can be kept small.
2. The measured volume around the temperature probe is not well defined. It is difficult to calculate the energy transfer from a surrounding gradient temperature field into the probe. These effects must be considered, since temperature probes are calibrated in liquid with homogeneous temperatures. There is no traceable standard for temperature rise measurements.
3. The calibration depends on the assessment of the specific density, the heat capacity and the conductivity of the medium. While the specific density and heat capacity can be measured accurately with standardized procedures ( $\sim 2\%$  for  $c$ ; much better for  $\rho$ ), there is no standard for the measurement of the conductivity. Depending on the method and liquid, the error can well exceed  $\pm 5\%$ .
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  $\pm 10\%$  (RSS) [2]. Recently, a setup which is a combination of the waveguide techniques and the thermal measurements was presented in [3]. The estimated uncertainty of the setup is  $\pm 5\%$  (RSS) when the same liquid is used for the calibration and for actual measurements and  $\pm 7-9\%$  (RSS) when not, which is in good agreement with the estimates given in [2].

### 1.11.2 Calibration with Analytical Fields

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

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

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.

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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.

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## 1.12 Test Standards and Limits

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

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

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

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

Table 4. RF exposure limits

Notes:

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

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## 2. Summary of Results

### 2.1 Decision rules

Reported measurement data comply with IEEE 1528-2013:

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

### 2.2 Summary of Results

#### Notebook mode

#### Tx5-WCDMA Band II / Band IV / Band V

Antenna									WNC		HB		AWAN	
Plot page	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)		Averaged SAR over 1g (W/kg)		Averaged SAR over 1g (W/kg)	
									Measured	Reported	Measured	Reported	Measured	Reported
70	WCDMA Band II	Bottom side	0	9400	1880	24.5	23.49	126.18%	0.020	0.025	0.018	0.023	0.019	0.024
71	WCDMA Band IV	Bottom side	0	1513	1752.6	24.5	23.49	126.18%	0.048	0.061	0.043	0.054	0.047	0.059
72	WCDMA Band V	Bottom side	0	4183	836.6	24.5	23.44	127.64%	0.005	0.007	0.005	0.006	0.005	0.007

#### Tx5-LTE FDD Band 2 / Band 4 / Band 5 / Band 7 / Band 12 / Band 13 / Band 17 / Band 26 / Band 30

Antenna													WNC		HB		AWAN	
Plot page	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)		Averaged SAR over 1g (W/kg)		Averaged SAR over 1g (W/kg)	
													Measured	Reported	Measured	Reported	Measured	Reported
73	LTE Band 2	20MHz	QPSK	1 RB	50	Bottom side	0	18900	1880	24	23.57	110.41%	0.016	0.018	0.016	0.018	0.016	0.018
-				50 RB	0	Bottom side	0	18900	1880	23	22.40	114.82%	0.014	0.016	0.013	0.015	0.013	0.015
-				100 RB		Bottom side	0	18900	1880	23	22.51	111.94%	0.012	0.013	0.011	0.012	0.012	0.013
74	LTE Band 4	20MHz	QPSK	1 RB	99	Bottom side	0	20300	1745	24	23.45	113.50%	0.039	0.044	0.036	0.041	0.038	0.043
-				50 RB	50	Bottom side	0	20300	1745	23	22.25	118.85%	0.032	0.038	0.031	0.037	0.029	0.034
-				100 RB		Bottom side	0	20300	1745	23	22.25	118.85%	0.033	0.039	0.033	0.039	0.033	0.039
75	LTE Band 5	10MHz	QPSK	1 RB	49	Bottom side	0	20525	836.5	24	22.60	138.04%	0.005	0.007	0.005	0.007	0.005	0.007
-				25 RB	25	Bottom side	0	20525	836.5	23	21.44	143.22%	0.004	0.006	0.004	0.006	0.004	0.006
-				50 RB		Bottom side	0	20450	829	23	21.43	143.55%	0.004	0.006	0.003	0.005	0.004	0.005
76	LTE Band 7	20MHz	QPSK	1 RB	50	Bottom side	0	20850	2510	24	22.94	127.64%	0.005	0.006	0.005	0.006	0.005	0.006
-				50 RB	0	Bottom side	0	20850	2510	23	22.00	125.89%	0.004	0.005	0.004	0.005	0.004	0.005
-				100 RB		Bottom side	0	20850	2510	23	22.02	125.31%	0.004	0.005	0.004	0.005	0.004	0.005
77	LTE Band 12	10MHz	QPSK	1 RB	0	Bottom side	0	23060	704	24	22.48	141.91%	0.004	0.006	0.004	0.006	0.004	0.006
-				25 RB	25	Bottom side	0	23060	704	23	21.42	143.88%	0.004	0.006	0.004	0.005	0.004	0.005
-				50 RB		Bottom side	0	23095	707.5	23	21.36	145.88%	0.003	0.004	0.003	0.004	0.003	0.004
78	LTE Band 13	10MHz	QPSK	1 RB	25	Bottom side	0	23230	782	24	22.78	132.43%	0.007	0.009	0.006	0.009	0.006	0.008
-				25 RB	0	Bottom side	0	23230	782	23	21.80	131.83%	0.006	0.008	0.006	0.008	0.006	0.008
-				50 RB		Bottom side	0	23230	782	23	21.85	130.32%	0.006	0.008	0.006	0.008	0.006	0.008
79	LTE Band 17	10MHz	QPSK	1 RB	49	Bottom side	0	23780	709	24	22.34	146.55%	0.003	0.004	0.003	0.004	0.003	0.004
-				25 RB	25	Bottom side	0	23780	709	23	21.40	144.54%	0.002	0.003	0.002	0.003	0.001	0.001
-				50 RB		Bottom side	0	23790	710	23	21.34	146.55%	0.002	0.003	0.002	0.003	0.002	0.003
80	LTE Band 26	15MHz	QPSK	1 RB	74	Bottom side	0	26865	831.5	24	22.58	138.68%	0.006	0.008	0.005	0.007	0.005	0.007
-				36 RB	18	Bottom side	0	26765	821.5	23	21.55	139.64%	0.005	0.007	0.004	0.006	0.005	0.006
-				75 RB		Bottom side	0	26765	821.5	23	21.62	137.40%	0.005	0.007	0.004	0.005	0.005	0.007
81	LTE Band 30	10MHz	QPSK	1 RB	49	Bottom side	0	27710	2310	24	22.99	126.18%	0.004	0.005	0.004	0.005	0.004	0.005
-				25 RB	12	Bottom side	0	27710	2310	23	22.06	124.17%	0.004	0.005	0.003	0.004	0.004	0.005
-				50 RB		Bottom side	0	27710	2310	23	22.06	124.17%	0.004	0.005	0.003	0.004	0.004	0.004

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**Tx5-LTE TDD Band 38 / Band 41 / LTE FDD Band 66**

Antenna													WNC		HB		AWAN	
Plot page	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)		Averaged SAR over 1g (W/kg)		Averaged SAR over 1g (W/kg)	
													Measured	Reported	Measured	Reported	Measured	Reported
82	LTE Band 38	20MHz	QPSK	1 RB	99	Bottom side	0	38150	2610	24	22.75	133.35%	0.004	0.005	0.004	0.005	0.003	0.004
-				50 RB	50	Bottom side	0	38150	2610	23	21.55	139.64%	0.003	0.004	0.003	0.004	0.003	0.004
-				100 RB		Bottom side	0	38150	2610	23	21.56	139.32%	0.003	0.004	0.003	0.004	0.003	0.004
83	LTE Band 41	20MHz	QPSK	1 RB	0	Bottom side	0	41055	2636.5	24	22.88	129.42%	0.004	0.006	0.004	0.005	0.003	0.004
-				50 RB	0	Bottom side	0	41055	2636.5	23	21.62	137.40%	0.004	0.005	0.003	0.004	0.003	0.004
-				100 RB		Bottom side	0	41490	2680	23	21.64	136.77%	0.004	0.005	0.003	0.004	0.003	0.004
84	LTE Band 66	20MHz	QPSK	1 RB	99	Bottom side	0	132322	1745	24	23.53	111.43%	0.040	0.045	0.036	0.040	0.037	0.041
-				50 RB	50	Bottom side	0	132322	1745	23	22.37	115.61%	0.031	0.036	0.028	0.032	0.031	0.036
-				100 RB		Bottom side	0	132322	1745	23	22.42	114.29%	0.032	0.037	0.029	0.033	0.029	0.033

Note:

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

Reported SAR = measured SAR \* (scaling)

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

### 2.3 Reporting statements of conformity

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

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### 3. Simultaneous Transmission Analysis

#### Simultaneous Transmission Scenarios:

NO.	Simultaneous Transmit Configurations	Body
1	WWAN + 2.4GHz MIMO	YES
2	WWAN + 5GHz MIMO	YES
3	WWAN + BT + 5GHz MIMO	YES
4	WWAN + 2.4GHz WLAN Tx1	YES
5	WWAN + 2.4GHz WLAN Tx2 + BT Tx1	YES
6	WWAN + 5GHz WLAN Tx2 + BT Tx1	YES
7	WWAN + 5GHz WLAN Tx1 + BT Tx1	YES

#### Note :

1. The Intel AX201NGW WLAN/BT module is also integrated into this host, WLAN/BT power and WLAN SAR testing data, which can be referred to Intel SAR test report, Report No.:200525-01.TR01(FCC ID:PD9AX201NG) and these results are used for simultaneous transmission analysis.
2. According to Intel SAR report, the test positions and 1g SAR result used for the testing below are based on the SISO standalone WLAN SAR result. When the MIMO operation active will be reduced by 3dB within each SISO operation, therefore the MIMO SAR was estimated based on SISO standalone results to perform the simultaneous transmission analysis with WWAN operation.

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### 3.1 Estimated SAR calculation

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

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

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

### 3.2 SPLSR evaluation and analysis

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

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

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

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

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

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## Tx5 antenna

WWAN	Exposure position 1g(W/kg)	1	2	3	4	5	6	7	8	9	10	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5	Scenario 6	Scenario 7
		WWAN Ant 5	WLAN 2.4GHz Main(Tx2)	WLAN 2.4GHz Aux(Tx1)	WLAN 5GHz Main(Tx2)	WLAN 5GHz Aux(Tx1)	BT Aux (Tx1)	WLAN 2.4GHz MIMO(Tx2)	WLAN 2.4GHz MIMO(Tx1)	WLAN 5GHz MIMO(Tx2)	WLAN 5GHz MIMO(Tx1)	1+7+8 Sum	1+9+10 Sum	1+6+9+10 Sum	1+3 Sum	1+2+6 Sum	1+4+6 Sum	1+5+6 Sum
WCDMA II	Laptop Bottom	0.025	0.600	0.960	0.940	0.840	0.070	0.300	0.480	0.470	0.420	0.805	0.915	0.985	0.985	0.695	1.035	0.935
WCDMA IV	Laptop Bottom	0.061	0.600	0.960	0.940	0.840	0.070	0.300	0.480	0.470	0.420	0.841	0.951	1.021	1.021	0.731	1.071	0.971
WCDMA V	Laptop Bottom	0.007	0.600	0.960	0.940	0.840	0.070	0.300	0.480	0.470	0.420	0.767	0.897	0.967	0.967	0.677	1.017	0.917
LTE B2	Laptop Bottom	0.018	0.600	0.960	0.940	0.840	0.070	0.300	0.480	0.470	0.420	0.798	0.908	0.978	0.978	0.688	1.028	0.928
LTE B4	Laptop Bottom	0.044	0.600	0.960	0.940	0.840	0.070	0.300	0.480	0.470	0.420	0.824	0.934	1.004	1.004	0.714	1.054	0.954
LTE B5	Laptop Bottom	0.007	0.600	0.960	0.940	0.840	0.070	0.300	0.480	0.470	0.420	0.787	0.897	0.967	0.967	0.677	1.017	0.917
LTE B7	Laptop Bottom	0.006	0.600	0.960	0.940	0.840	0.070	0.300	0.480	0.470	0.420	0.786	0.896	0.966	0.966	0.676	1.016	0.916
LTE B12	Laptop Bottom	0.006	0.600	0.960	0.940	0.840	0.070	0.300	0.480	0.470	0.420	0.786	0.896	0.966	0.966	0.676	1.016	0.916
LTE B13	Laptop Bottom	0.009	0.600	0.960	0.940	0.840	0.070	0.300	0.480	0.470	0.420	0.789	0.899	0.969	0.969	0.679	1.019	0.919
LTE B17	Laptop Bottom	0.004	0.600	0.960	0.940	0.840	0.070	0.300	0.480	0.470	0.420	0.784	0.894	0.964	0.964	0.674	1.014	0.914
LTE B26	Laptop Bottom	0.008	0.600	0.960	0.940	0.840	0.070	0.300	0.480	0.470	0.420	0.788	0.898	0.968	0.968	0.678	1.018	0.918
LTE B30	Laptop Bottom	0.005	0.600	0.960	0.940	0.840	0.070	0.300	0.480	0.470	0.420	0.785	0.895	0.965	0.965	0.675	1.015	0.915
LTE B38	Laptop Bottom	0.005	0.600	0.960	0.940	0.840	0.070	0.300	0.480	0.470	0.420	0.785	0.895	0.965	0.965	0.675	1.015	0.915
LTE B41	Laptop Bottom	0.006	0.600	0.960	0.940	0.840	0.070	0.300	0.480	0.470	0.420	0.786	0.896	0.966	0.966	0.676	1.016	0.916
LTE B66	Laptop Bottom	0.045	0.600	0.960	0.940	0.840	0.070	0.300	0.480	0.470	0.420	0.825	0.935	1.005	1.005	0.715	1.055	0.955

## 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  $\leq 0.04$  for all circumstances that require SPLSR calculation.

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## 4. Instruments List

Manufacturer	Device	Type	Serial number	Date of last calibration	Date of next calibration
SPEAG	Dosimetric E-Field Probe	EX3DV4	7466	Feb.04,2020	Feb.03,2021
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
		D2600V2	1005	Jan.29,2020	Jan.28,2021
SPEAG	Data acquisition Electronics	DAE4	1336	Aug.13,2020	Aug.12,2021
SPEAG	Software	DASY 52 V52.10.3	N/A	Calibration not required	Calibration not required
SPEAG	Phantom	ELI	N/A	Calibration not required	Calibration not required
Agilent	Network Analyzer	E5071C	MY46100433	Dec.13,2019	Dec.12,2020
Agilent	Dielectric Probe Kit	85070E	MY44300677	Calibration not required	Calibration not required
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

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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
R&S	Radio Communication Test	CMW 500	125470	Dec.11,2019	Dec.11,2020

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## 5. Measurements

Date: 2020/9/12

**Report No. : ES/2020/80007****WCDMA Band II\_Body\_Bottom side\_CH 9400\_0mm\_TX5**

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

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.415$  S/m;  $\epsilon_r = 40.472$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

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

DASY5 Configuration:

- Probe: EX3DV4 – SN7466; ConvF(8.56, 8.56, 8.56); Calibrated: 2020/2/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2020/8/13
- Phantom: ELI
- DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474)

**Area Scan (81x101x1):** Interpolated grid: dx=15 mm, dy=15 mm

Maximum value of SAR (interpolated) = 0.0266 W/kg

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

Reference Value = 0.4457 V/m; Power Drift = 0.02 dB

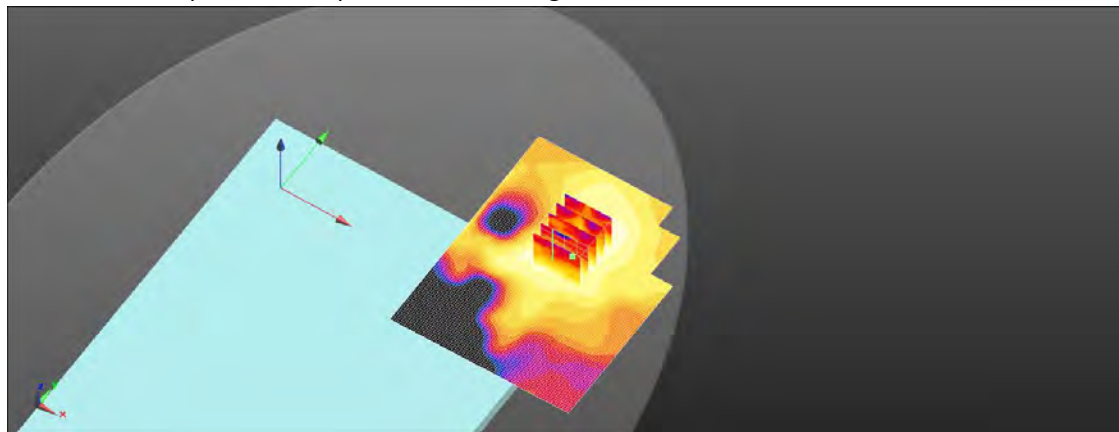
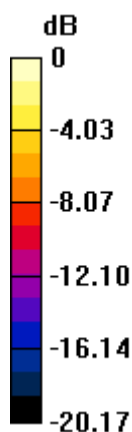
Peak SAR (extrapolated) = 0.0350 W/kg

**SAR(1 g) = 0.020 W/kg; SAR(10 g) = 0.013 W/kg**

Smallest distance from peaks to all points 3 dB below = 9.2 mm

Ratio of SAR at M2 to SAR at M1 = 55%

Maximum value of SAR (measured) = 0.0268 W/kg



0 dB = 0.0268 W/kg = -15.73 dBW/kg

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Date: 2020/9/13

**Report No. : ES/2020/80007****WCDMA Band IV\_Body\_Bottom side\_CH 1513\_0mm\_TX5**

Communication System: WCDMA; Frequency: 1752.6 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 1753$  MHz;  $\sigma = 1.387$  S/m;  $\epsilon_r = 40.564$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Ambient temperature: 22.5°C; Liquid temperature: 21.9°C

DASY5 Configuration:

- Probe: EX3DV4 – SN7466; ConvF(8.94, 8.94, 8.94); Calibrated: 2020/2/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2020/8/13
- Phantom: ELI
- DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474)

**Area Scan (81x101x1):** Interpolated grid: dx=15 mm, dy=15 mm

Maximum value of SAR (interpolated) = 0.0676 W/kg

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

Reference Value = 0.5597 V/m; Power Drift = 0.04 dB

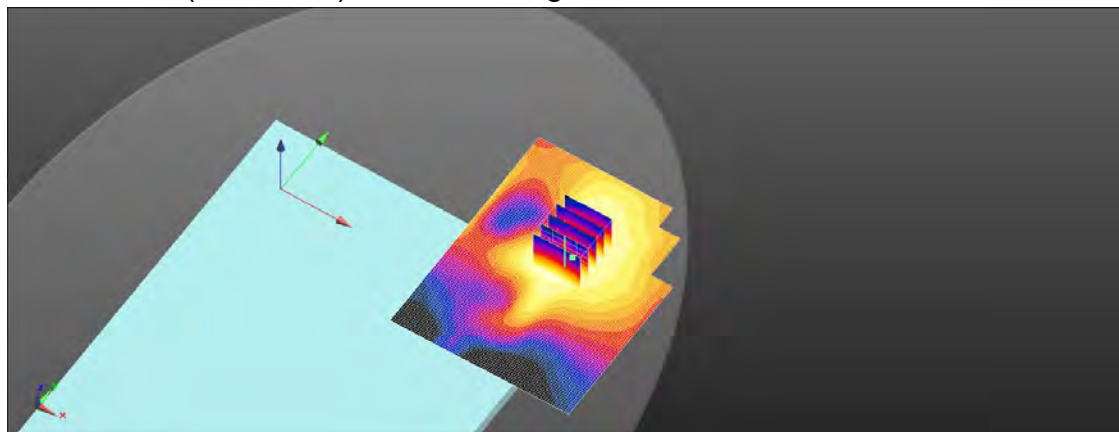
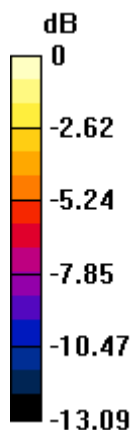
Peak SAR (extrapolated) = 0.0760 W/kg

**SAR(1 g) = 0.048 W/kg; SAR(10 g) = 0.031 W/kg**

Smallest distance from peaks to all points 3 dB below = 10.3 mm

Ratio of SAR at M2 to SAR at M1 = 62.6%

Maximum value of SAR (measured) = 0.0615 W/kg



0 dB = 0.0615 W/kg = -12.11 dBW/kg

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Date: 2020/9/15

**Report No. : ES/2020/80007****WCDMA Band V\_Body\_Bottom side\_CH 4183\_0mm\_TX5**

Communication System: WCDMA; Frequency: 836.6 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 837$  MHz;  $\sigma = 0.893$  S/m;  $\epsilon_r = 41.227$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Ambient temperature: 22.3°C; Liquid temperature: 21.7°C

DASY5 Configuration:

- Probe: EX3DV4 – SN7466; ConvF(10.32, 10.32, 10.32); Calibrated: 2020/2/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2020/8/13
- Phantom: ELI
- DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474)

**Area Scan (81x101x1):** Interpolated grid: dx=15 mm, dy=15 mm

Maximum value of SAR (interpolated) = 0.0113 W/kg

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

Reference Value = 0.2245 V/m; Power Drift = 0.04 dB

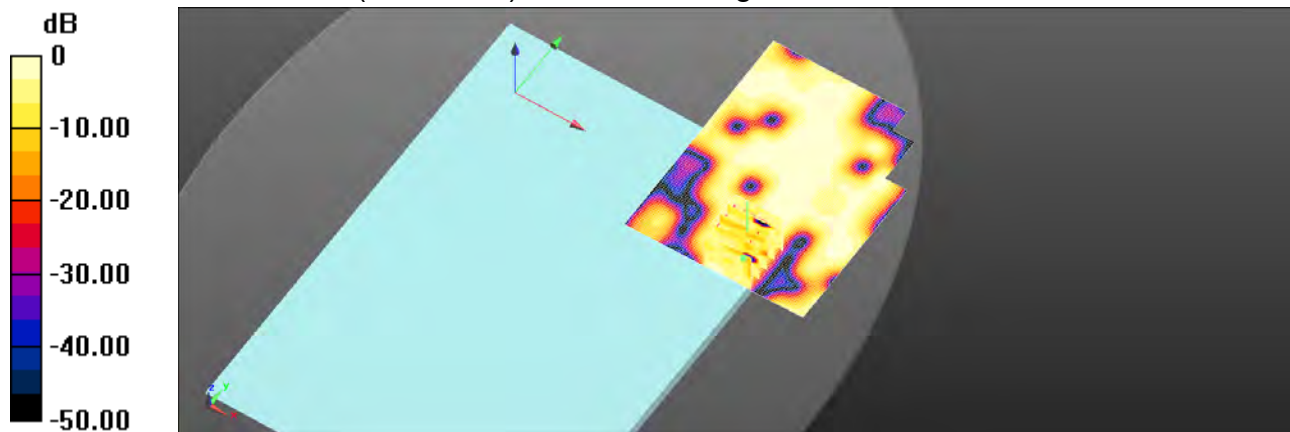
Peak SAR (extrapolated) = 0.00959 W/kg

**SAR(1 g) = 0.00524 W/kg; SAR(10 g) = 0.00269 W/kg**

Smallest distance from peaks to all points 3 dB below = 13.1 mm

Ratio of SAR at M2 to SAR at M1 = 70.6%

Maximum value of SAR (measured) = 0.00806 W/kg



0 dB = 0.00806 W/kg = -20.94 dBW/kg

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Date: 2020/9/12

**Report No. : ES/2020/80007****LTE Band 2 (20MHz)\_Body\_Bottom side\_CH 18900\_QPSK\_1-50\_0mm\_TX5**

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

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.415$  S/m;  $\epsilon_r = 40.472$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

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

**DASY5 Configuration:**

- Probe: EX3DV4 – SN7466; ConvF(8.56, 8.56, 8.56); Calibrated: 2020/2/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2020/8/13
- Phantom: ELI
- DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474)

**Area Scan (81x101x1):** 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 = 0.6658 V/m; Power Drift = 0.02 dB

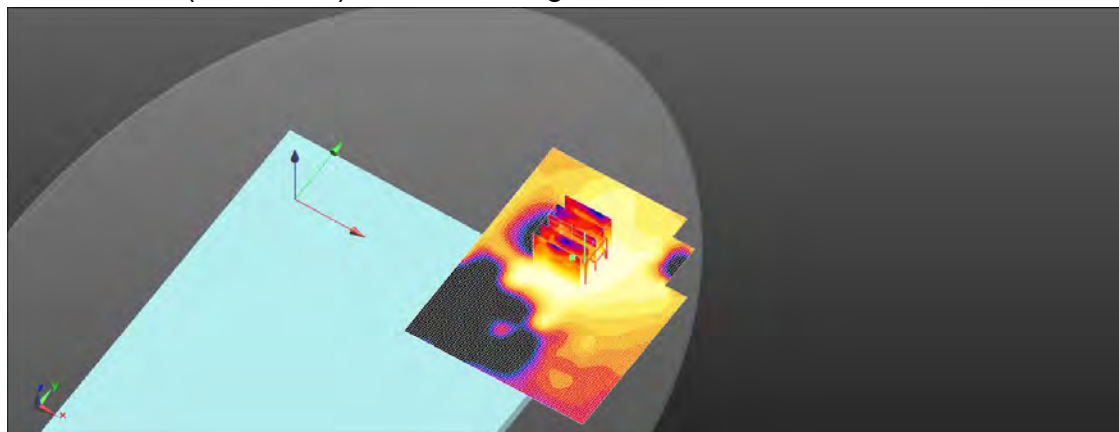
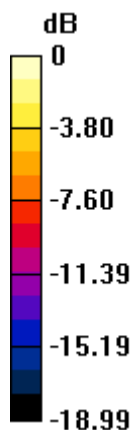
Peak SAR (extrapolated) = 0.0280 W/kg

**SAR(1 g) = 0.016 W/kg; SAR(10 g) = 0.010 W/kg**

Smallest distance from peaks to all points 3 dB below = 9.6 mm

Ratio of SAR at M2 to SAR at M1 = 59.7%

Maximum value of SAR (measured) = 0.0205 W/kg



0 dB = 0.0205 W/kg = -16.88 dBW/kg

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Date: 2020/9/13

**Report No. : ES/2020/80007****LTE Band 4 (20MHz)\_Body\_Bottom side\_CH 20300\_QPSK\_1-99\_0mm\_TX5**

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

Medium parameters used:  $f = 1745$  MHz;  $\sigma = 1.383$  S/m;  $\epsilon_r = 40.578$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Ambient temperature: 22.5°C; Liquid temperature: 21.9°C

**DASY5 Configuration:**

- Probe: EX3DV4 – SN7466; ConvF(8.94, 8.94, 8.94); Calibrated: 2020/2/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2020/8/13
- Phantom: ELI
- DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474)

**Area Scan (81x101x1):** Interpolated grid: dx=15 mm, dy=15 mm

Maximum value of SAR (interpolated) = 0.0512 W/kg

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

Reference Value = 0.9954 V/m; Power Drift = 0.03 dB

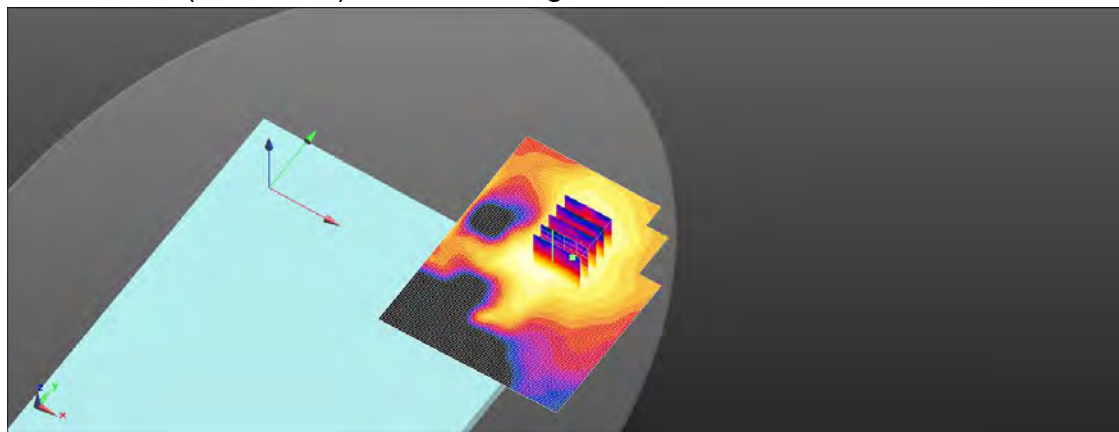
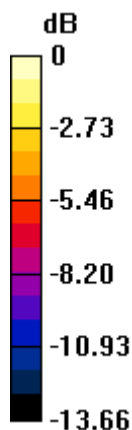
Peak SAR (extrapolated) = 0.0640 W/kg

**SAR(1 g) = 0.039 W/kg; SAR(10 g) = 0.026 W/kg**

Smallest distance from peaks to all points 3 dB below = 9.4 mm

Ratio of SAR at M2 to SAR at M1 = 58.4%

Maximum value of SAR (measured) = 0.0520 W/kg



0 dB = 0.0520 W/kg = -12.84 dBW/kg

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Date: 2020/9/15

**Report No. : ES/2020/80007****LTE Band 5 (10MHz)\_Body\_Bottom side\_CH 20525\_QPSK\_1-49\_0mm\_TX5**

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

Medium parameters used:  $f = 836.5$  MHz;  $\sigma = 0.892$  S/m;  $\epsilon_r = 41.23$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Ambient temperature: 22.3°C; Liquid temperature: 21.7°C

**DASY5 Configuration:**

- Probe: EX3DV4 – SN7466; ConvF(10.32, 10.32, 10.32); Calibrated: 2020/2/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2020/8/13
- Phantom: ELI
- DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474)

**Area Scan (81x101x1):** Interpolated grid: dx=15 mm, dy=15 mm

Maximum value of SAR (interpolated) = 0.00912 W/kg

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

Reference Value = 0.4548 V/m; Power Drift = 0.04 dB

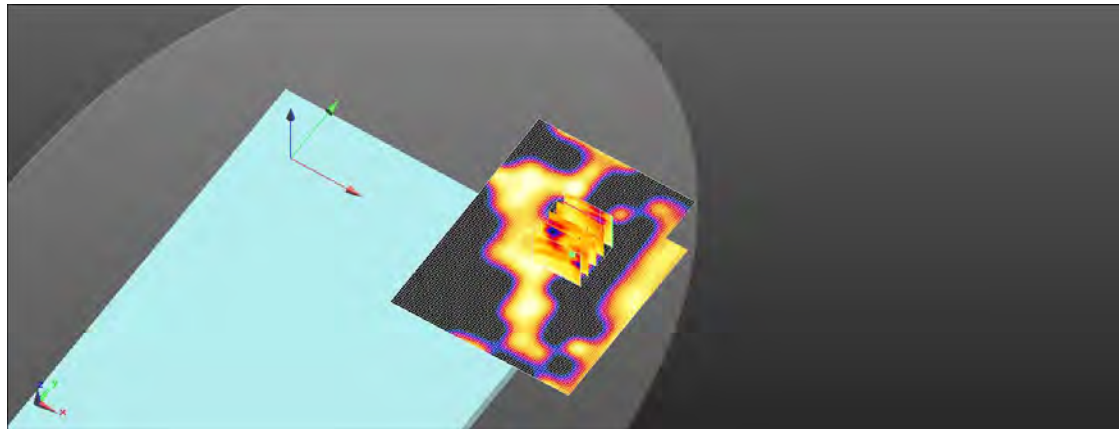
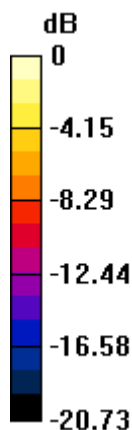
Peak SAR (extrapolated) = 0.00760 W/kg

**SAR(1 g) = 0.00516 W/kg; SAR(10 g) = 0.00352 W/kg**

Smallest distance from peaks to all points 3 dB below = 10.3 mm

Ratio of SAR at M2 to SAR at M1 = 66%

Maximum value of SAR (measured) = 0.00695 W/kg



0 dB = 0.00695 W/kg = -21.58 dBW/kg

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Date: 2020/9/10

**Report No. : ES/2020/80007****LTE Band 7 (20MHz)\_Body\_Bottom side\_CH 20850\_QPSK\_1-50\_0mm\_TX5**

Communication System: LTE; Frequency: 2510 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 2510$  MHz;  $\sigma = 1.847$  S/m;  $\epsilon_r = 38.768$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

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

**DASY5 Configuration:**

- Probe: EX3DV4 – SN7466; ConvF(7.53, 7.53, 7.53); Calibrated: 2020/2/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2020/8/13
- Phantom: ELI
- DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474)

**Area Scan (91x121x1):** Interpolated grid: dx=12 mm, dy=12 mm

Maximum value of SAR (interpolated) = 0.0103 W/kg

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

Reference Value = 0.3321 V/m; Power Drift = 0.02 dB

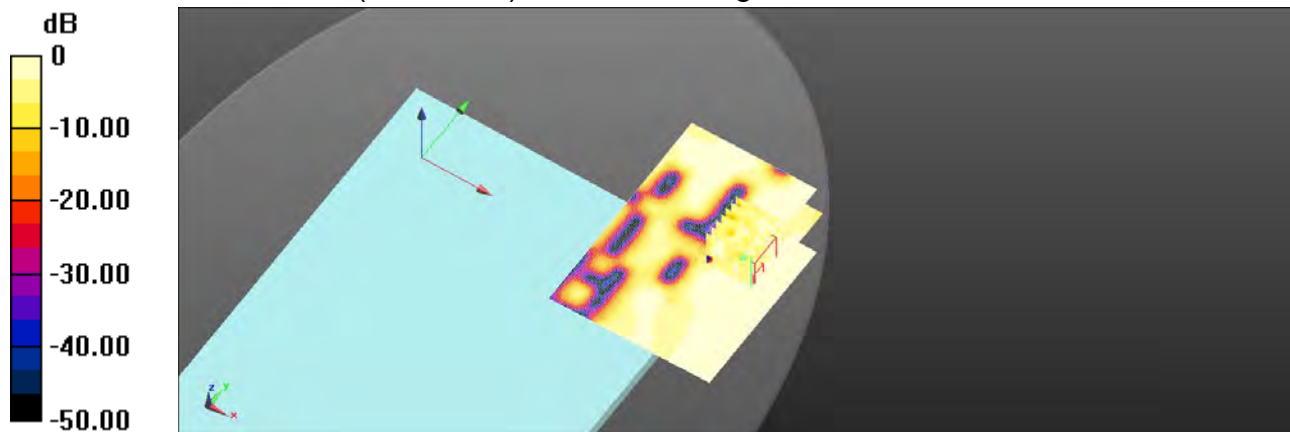
Peak SAR (extrapolated) = 0.0110 W/kg

**SAR(1 g) = 0.00504 W/kg; SAR(10 g) = 0.0038 W/kg**

Smallest distance from peaks to all points 3 dB below = 9.5 mm

Ratio of SAR at M2 to SAR at M1 = 56.3%

Maximum value of SAR (measured) = 0.00810 W/kg



0 dB = 0.00810 W/kg = -20.91 dBW/kg

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Date: 2020/9/17

**Report No. : ES/2020/80007****LTE Band 12 (10MHz)\_Body\_Bottom side\_CH 23060\_QPSK\_1-0\_0mm\_TX5**

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

Medium parameters used:  $f = 704 \text{ MHz}$ ;  $\sigma = 0.881 \text{ S/m}$ ;  $\epsilon_r = 41.945$ ;  $\rho = 1000 \text{ kg/m}^3$ 

Phantom section: Flat Section

Ambient temperature: 22.4°C; Liquid temperature: 21.6°C

**DASY5 Configuration:**

- Probe: EX3DV4 – SN7466; ConvF(10.56, 10.56, 10.56); Calibrated: 2020/2/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2020/8/13
- Phantom: ELI
- DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474)

**Area Scan (81x101x1):** Interpolated grid: dx=15 mm, dy=15 mm

Maximum value of SAR (interpolated) = 0.00363 W/kg

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

Reference Value = 0.5654 V/m; Power Drift = 0.03 dB

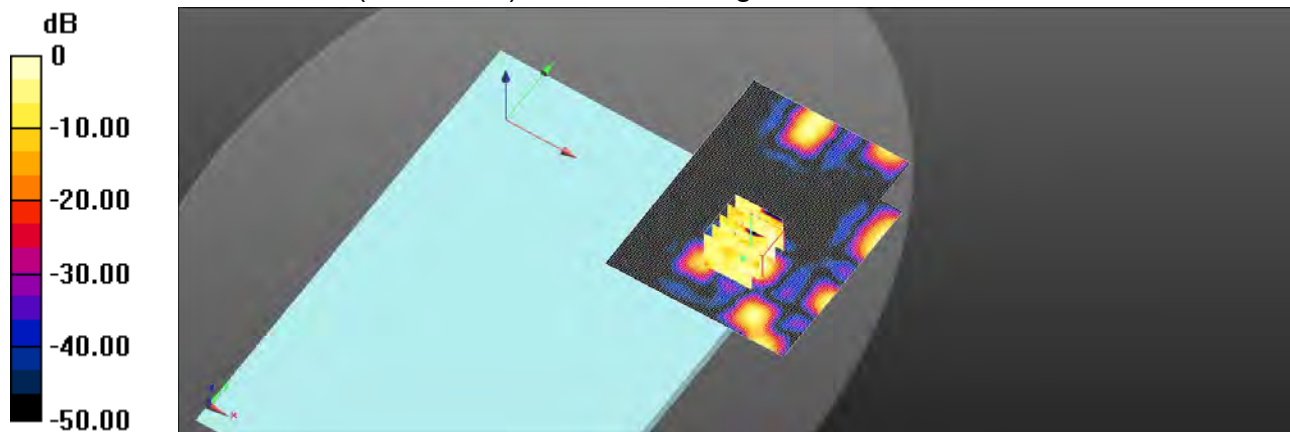
Peak SAR (extrapolated) = 0.00819 W/kg

**SAR(1 g) = 0.00436 W/kg; SAR(10 g) = 0.00262 W/kg**

Smallest distance from peaks to all points 3 dB below = 12.4 mm

Ratio of SAR at M2 to SAR at M1 = 73%

Maximum value of SAR (measured) = 0.00589 W/kg



0 dB = 0.00589 W/kg = -22.30 dBW/kg

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Date: 2020/9/17

**Report No. : ES/2020/80007****LTE Band 13 (10MHz)\_Body\_Bottom side\_CH 23230\_QPSK\_1-25\_0mm\_TX5**

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

Medium parameters used:  $f = 782 \text{ MHz}$ ;  $\sigma = 0.887 \text{ S/m}$ ;  $\epsilon_r = 41.529$ ;  $\rho = 1000 \text{ kg/m}^3$ 

Phantom section: Flat Section

Ambient temperature: 22.4°C; Liquid temperature: 21.6°C

**DASY5 Configuration:**

- Probe: EX3DV4 – SN7466; ConvF(10.56, 10.56, 10.56); Calibrated: 2020/2/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2020/8/13
- Phantom: ELI
- DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474)

**Area Scan (81x101x1):** Interpolated grid:  $dx=15 \text{ mm}$ ,  $dy=15 \text{ mm}$ 

Maximum value of SAR (interpolated) = 0.0206 W/kg

**Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$ 

Reference Value = 0.3232 V/m; Power Drift = 0.04 dB

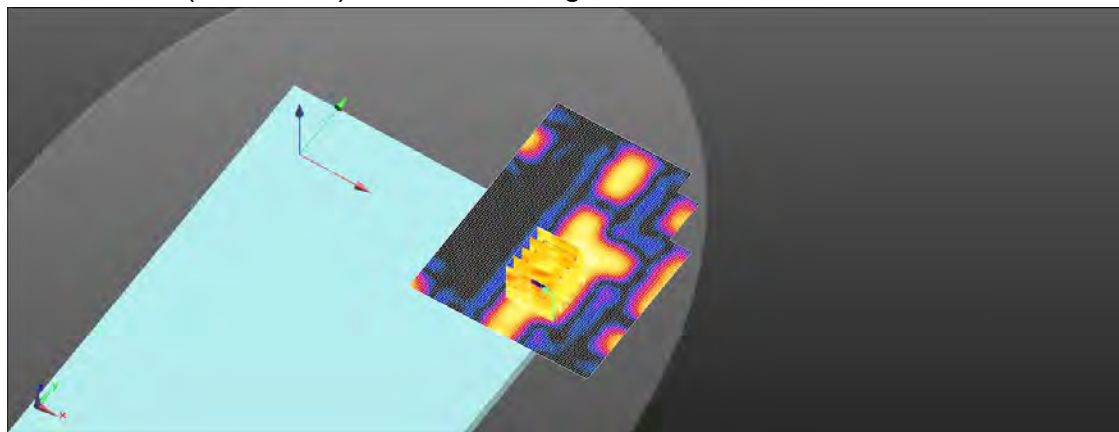
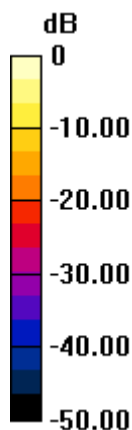
Peak SAR (extrapolated) = 0.0220 W/kg

**SAR(1 g) = 0.00661 W/kg; SAR(10 g) = 0.00385 W/kg**

Smallest distance from peaks to all points 3 dB below = 10.5 mm

Ratio of SAR at M2 to SAR at M1 = 66.6%

Maximum value of SAR (measured) = 0.00795 W/kg



0 dB = 0.00795 W/kg = -20.46 dBW/kg

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Date: 2020/9/16

**Report No. : ES/2020/80007**
**LTE Band 17 (10MHz)\_Body\_Bottom side\_CH 23780\_QPSK\_1\_49\_0mm\_TX5**

Communication System: LTE; Frequency: 709 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 709 \text{ MHz}$ ;  $\sigma = 0.881 \text{ S/m}$ ;  $\epsilon_r = 41.918$ ;  $\rho = 1000 \text{ kg/m}^3$ 

Phantom section: Flat Section

Ambient temperature: 22.3°C; Liquid temperature: 21.9°C

**DASY5 Configuration:**

- Probe: EX3DV4 – SN7466; ConvF(10.56, 10.56, 10.56); Calibrated: 2020/2/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2020/8/13
- Phantom: ELI
- DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474)

**Area Scan (81x101x1):** Interpolated grid:  $dx=15 \text{ mm}$ ,  $dy=15 \text{ mm}$ 

Maximum value of SAR (interpolated) = 0.00728 W/kg

**Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$ 

Reference Value = 0.4145 V/m; Power Drift = 0.05 dB

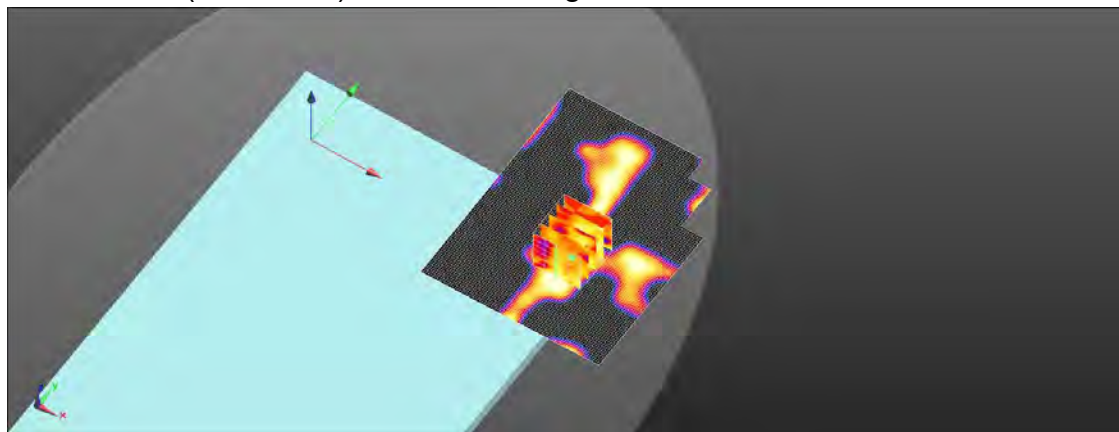
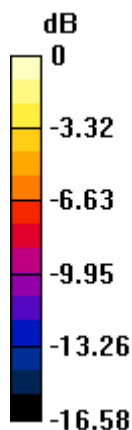
Peak SAR (extrapolated) = 0.00830 W/kg

**SAR(1 g) = 0.00297 W/kg; SAR(10 g) = 0.00179 W/kg**

Smallest distance from peaks to all points 3 dB below = 9.7 mm

Ratio of SAR at M2 to SAR at M1 = 59.8%

Maximum value of SAR (measured) = 0.00419 W/kg



0 dB = 0.00419 W/kg = -23.78 dBW/kg

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Date: 2020/9/16

**Report No. : E5/2020/80007****LTE Band 26 (15MHz)\_Body\_Bottom side\_CH 26865\_QPSK\_1-74\_0mm\_TX5**

Communication System: LTE; Frequency: 831.5 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 831.5$  MHz;  $\sigma = 0.891$  S/m;  $\epsilon_r = 41.29$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

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

**DASY5 Configuration:**

- Probe: EX3DV4 – SN7466; ConvF(10.32, 10.32, 10.32); Calibrated: 2020/2/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2020/8/13
- Phantom: ELI
- DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474)

**Area Scan (81x101x1):** Interpolated grid: dx=15 mm, dy=15 mm

Maximum value of SAR (interpolated) = 0.0119 W/kg

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

Reference Value = 0.3222 V/m; Power Drift = 0.06 dB

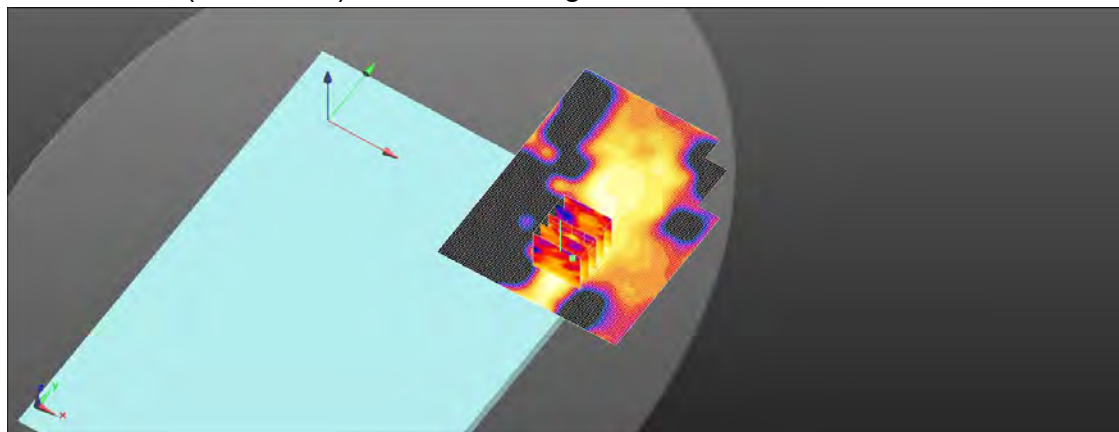
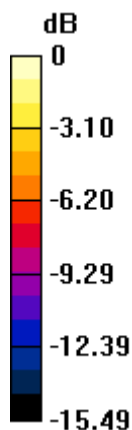
Peak SAR (extrapolated) = 0.0120 W/kg

**SAR(1 g) = 0.00584 W/kg; SAR(10 g) = 0.0038 W/kg**

Smallest distance from peaks to all points 3 dB below = 9.4 mm

Ratio of SAR at M2 to SAR at M1 = 56.8%

Maximum value of SAR (measured) = 0.00739 W/kg



0 dB = 0.00739 W/kg = -21.31 dBW/kg

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Date: 2020/9/11

**Report No. : ES/2020/80007****LTE Band 30 (10MHz)\_Body\_Bottom side\_CH 27710\_QPSK\_1-49\_0mm\_TX5**

Communication System: LTE; Frequency: 2310 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 2310$  MHz;  $\sigma = 1.658$  S/m;  $\epsilon_r = 39.086$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

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

**DASY5 Configuration:**

- Probe: EX3DV4 – SN7466; ConvF(8.08, 8.08, 8.08); Calibrated: 2020/2/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2020/8/13
- Phantom: ELI
- DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474)

**Area Scan (91x121x1):** Interpolated grid: dx=12 mm, dy=12 mm

Maximum value of SAR (interpolated) = 0.0128 W/kg

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

Reference Value = 0.2154 V/m; Power Drift = 0.05 dB

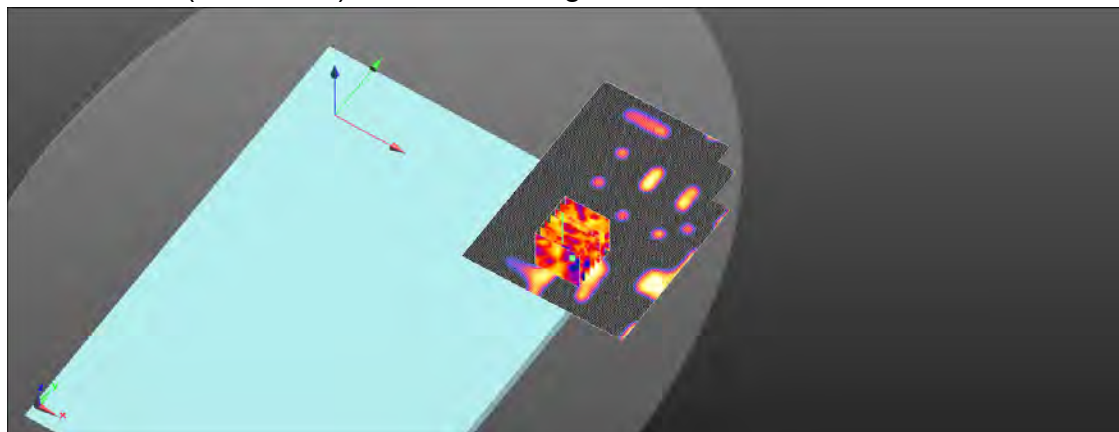
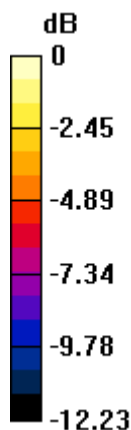
Peak SAR (extrapolated) = 0.00913 W/kg

**SAR(1 g) = 0.00426 W/kg; SAR(10 g) = 0.00301 W/kg**

Smallest distance from peaks to all points 3 dB below = 9.6 mm

Ratio of SAR at M2 to SAR at M1 = 58.3%

Maximum value of SAR (measured) = 0.00747 W/kg



0 dB = 0.00747 W/kg = -21.26 dBW/kg

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Date: 2020/9/9

**Report No. : ES/2020/80007**
**LTE Band 38 (20MHz)\_Body\_Bottom side\_CH 38150\_QPSK\_1-99\_0mm\_TX5**

Communication System: LTE; Frequency: 2610 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 2610 \text{ MHz}$ ;  $\sigma = 1.955 \text{ S/m}$ ;  $\epsilon_r = 38.63$ ;  $\rho = 1000 \text{ kg/m}^3$ 

Phantom section: Flat Section

Ambient temperature:  $22.3^\circ\text{C}$ ; Liquid temperature:  $21.7^\circ\text{C}$ 
**DASY5 Configuration:**

- Probe: EX3DV4 – SN7466; ConvF(7.53, 7.53, 7.53); Calibrated: 2020/2/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2020/8/13
- Phantom: ELI
- DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474)

**Area Scan (91x121x1):** Interpolated grid:  $dx=12 \text{ mm}$ ,  $dy=12 \text{ mm}$ 

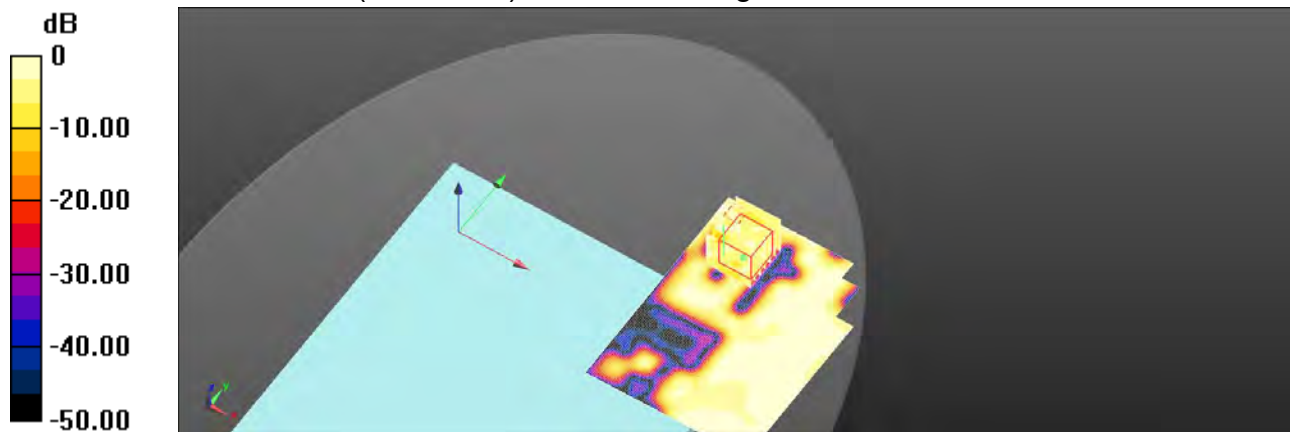
Maximum value of SAR (interpolated) =  $0.0120 \text{ W/kg}$ 
**Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$ 

Reference Value =  $0.4548 \text{ V/m}$ ; Power Drift =  $0.04 \text{ dB}$ 

Peak SAR (extrapolated) =  $0.0130 \text{ W/kg}$ 
**SAR(1 g) =  $0.00355 \text{ W/kg}$ ; SAR(10 g) =  $0.0022 \text{ W/kg}$** 

Smallest distance from peaks to all points 3 dB below =  $8.8 \text{ mm}$ 

Ratio of SAR at M2 to SAR at M1 =  $50.1\%$ 

Maximum value of SAR (measured) =  $0.00781 \text{ W/kg}$ 

 $0 \text{ dB} = 0.00781 \text{ W/kg} = -21.07 \text{ dBW/kg}$ 

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Date: 2020/9/8

**Report No. : ES/2020/80007****LTE Band 41 (20MHz)\_Body\_Bottom side\_CH 41055\_QPSK\_1-0\_0mm\_TX5**

Communication System: LTE; Frequency: 2636.5 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 2636.5$  MHz;  $\sigma = 1.984$  S/m;  $\epsilon_r = 38.631$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Ambient temperature: 22.4°C; Liquid temperature: 21.9°C

**DASY5 Configuration:**

- Probe: EX3DV4 – SN7466; ConvF(7.53, 7.53, 7.53); Calibrated: 2020/2/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2020/8/13
- Phantom: ELI
- DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474)

**Area Scan (91x121x1):** Interpolated grid: dx=12 mm, dy=12 mm

Maximum value of SAR (interpolated) = 0.0125 W/kg

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

Reference Value = 0.3620 V/m; Power Drift = 0.05 dB

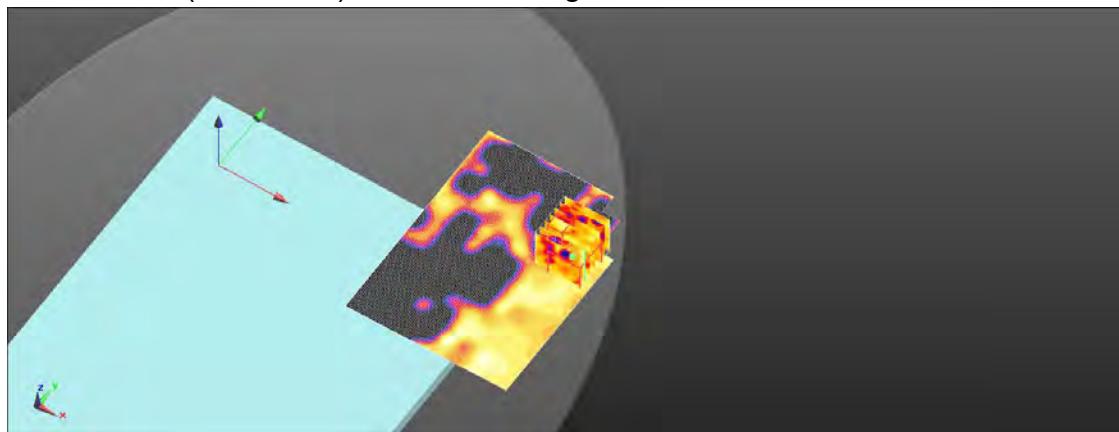
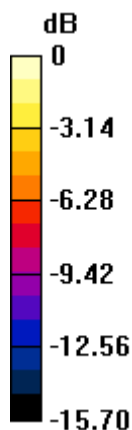
Peak SAR (extrapolated) = 0.0120 W/kg

**SAR(1 g) = 0.00432 W/kg; SAR(10 g) = 0.00291 W/kg**

Smallest distance from peaks to all points 3 dB below = 11.1 mm

Ratio of SAR at M2 to SAR at M1 = 65.1%

Maximum value of SAR (measured) = 0.00902 W/kg



0 dB = 0.00902 W/kg = -20.45 dBW/kg

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Date: 2020/9/14

**Report No. : ES/2020/80007**
**LTE Band 66 (20MHz)\_Body\_Bottom side\_CH 132322\_QPSK\_1-99\_0mm\_TX5**

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

Medium parameters used:  $f = 1745 \text{ MHz}$ ;  $\sigma = 1.384 \text{ S/m}$ ;  $\epsilon_r = 40.576$ ;  $\rho = 1000 \text{ kg/m}^3$ 

Phantom section: Flat Section

Ambient temperature:  $22.2^\circ\text{C}$ ; Liquid temperature:  $21.6^\circ\text{C}$ 
**DASY5 Configuration:**

- Probe: EX3DV4 – SN7466; ConvF(8.94, 8.94, 8.94); Calibrated: 2020/2/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2020/8/13
- Phantom: ELI
- DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474)

**Area Scan (81x101x1):** Interpolated grid:  $dx=15 \text{ mm}$ ,  $dy=15 \text{ mm}$ 

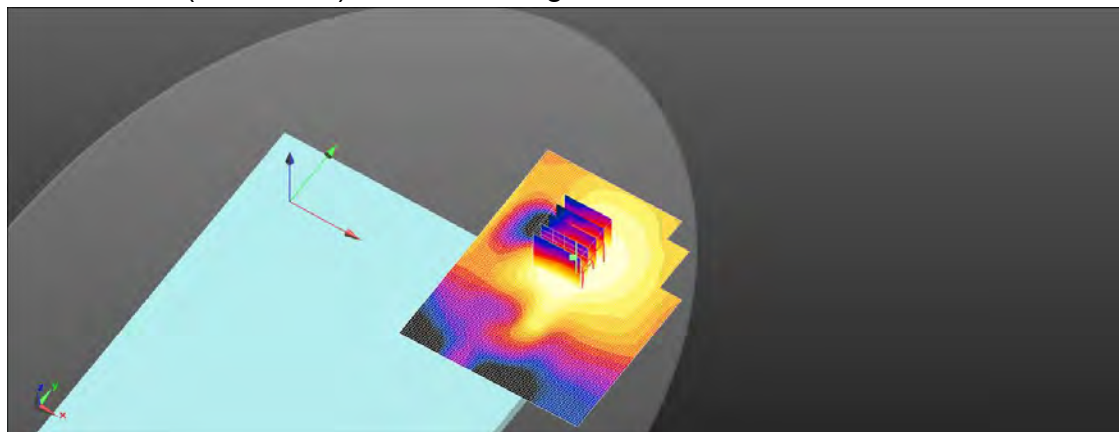
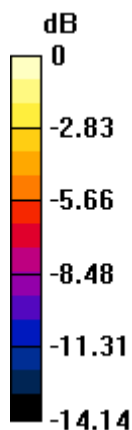
Maximum value of SAR (interpolated) =  $0.0557 \text{ W/kg}$ 
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$ 

Reference Value =  $0.5858 \text{ V/m}$ ; Power Drift =  $0.04 \text{ dB}$ 

Peak SAR (extrapolated) =  $0.0610 \text{ W/kg}$ 
**SAR(1 g) =  $0.040 \text{ W/kg}$ ; SAR(10 g) =  $0.027 \text{ W/kg}$** 

Smallest distance from peaks to all points 3 dB below =  $10.8 \text{ mm}$ 

Ratio of SAR at M2 to SAR at M1 =  $63.2\%$ 

Maximum value of SAR (measured) =  $0.0508 \text{ W/kg}$ 

 $0 \text{ dB} = 0.0508 \text{ W/kg} = -12.94 \text{ dBW/kg}$ 

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## 6. SAR System Performance Verification

Date: 2020/9/16

Report No. : ES/2020/80007

Dipole 750 MHz\_SN:1015

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

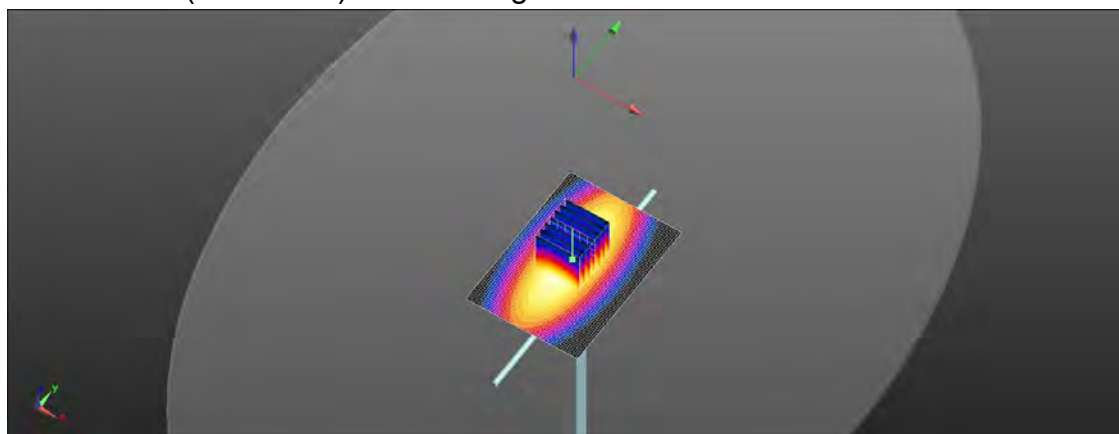
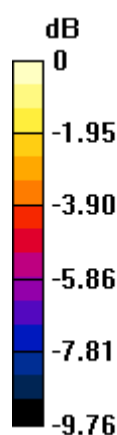
Medium parameters used:  $f = 750 \text{ MHz}$ ;  $\sigma = 0.885 \text{ S/m}$ ;  $\epsilon_r = 41.702$ ;  $\rho = 1000 \text{ kg/m}^3$ 

Phantom section: Flat Section

Ambient temperature:  $22.3^\circ\text{C}$ ; Liquid temperature:  $21.9^\circ\text{C}$ 

DASY5 Configuration:

- Probe: EX3DV4 – SN7466; ConvF(10.56, 10.56, 10.56); Calibrated: 2020/2/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2020/8/13
- Phantom: ELI
- DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474)

**Area Scan (51x71x1):** Interpolated grid:  $dx=15 \text{ mm}$ ,  $dy=15 \text{ mm}$ Maximum value of SAR (interpolated) =  $2.50 \text{ W/kg}$ **Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$ Reference Value =  $60.32 \text{ V/m}$ ; Power Drift =  $0.04 \text{ dB}$ Peak SAR (extrapolated) =  $2.94 \text{ W/kg}$ **SAR(1 g) =  $2.17 \text{ W/kg}$ ; SAR(10 g) =  $1.42 \text{ W/kg}$** Smallest distance from peaks to all points 3 dB below =  $14.1 \text{ mm}$ Ratio of SAR at M2 to SAR at M1 =  $68.7\%$ Maximum value of SAR (measured) =  $2.53 \text{ W/kg}$  $0 \text{ dB} = 2.53 \text{ W/kg} = 4.03 \text{ dBW/kg}$ 

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Date: 2020/9/17

## Report No. : ES/2020/80007

### Dipole 750 MHz\_SN:1015

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

Medium parameters used:  $f = 750 \text{ MHz}$ ;  $\sigma = 0.885 \text{ S/m}$ ;  $\epsilon_r = 41.698$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Ambient temperature:  $22.4^\circ\text{C}$ ; Liquid temperature:  $21.6^\circ\text{C}$

### DASY5 Configuration:

- Probe: EX3DV4 – SN7466; ConvF(10.56, 10.56, 10.56); Calibrated: 2020/2/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2020/8/13
- Phantom: ELI
- DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474)

### Area Scan (51x71x1): Interpolated grid: $dx=15 \text{ mm}$ , $dy=15 \text{ mm}$

Maximum value of SAR (interpolated) =  $2.32 \text{ W/kg}$

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

Reference Value =  $66.71 \text{ V/m}$ ; Power Drift =  $0.03 \text{ dB}$

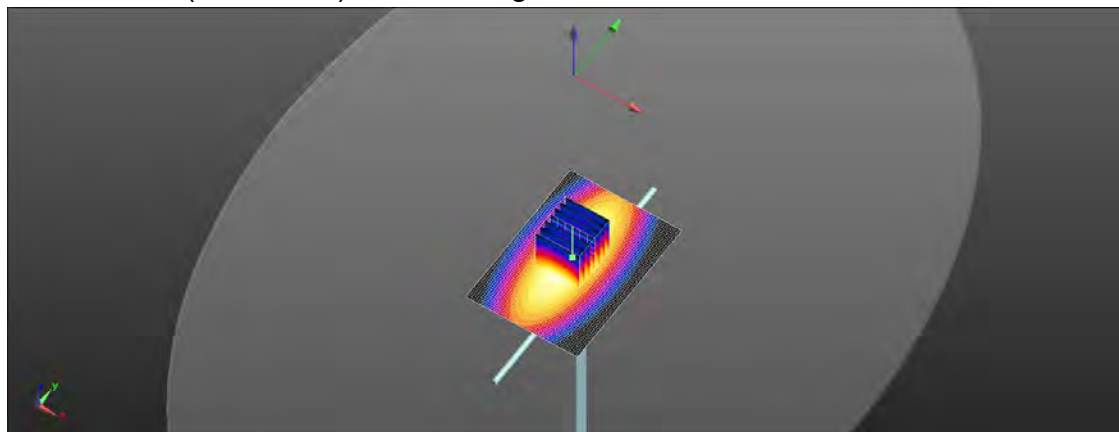
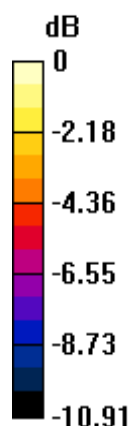
Peak SAR (extrapolated) =  $2.87 \text{ W/kg}$

**SAR(1 g) =  $2.14 \text{ W/kg}$ ; SAR(10 g) =  $1.41 \text{ W/kg}$**

Smallest distance from peaks to all points 3 dB below =  $13.8 \text{ mm}$

Ratio of SAR at M2 to SAR at M1 =  $65.5\%$

Maximum value of SAR (measured) =  $2.29 \text{ W/kg}$



0 dB =  $2.29 \text{ W/kg}$  =  $3.98 \text{ dBW/kg}$

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

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Date: 2020/9/15

**Report No. : ES/2020/80007**
**Dipole 835 MHz\_SN: 4d063**

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

Medium parameters used:  $f = 835 \text{ MHz}$ ;  $\sigma = 0.891 \text{ S/m}$ ;  $\epsilon_r = 41.259$ ;  $\rho = 1000 \text{ kg/m}^3$ 

Phantom section: Flat Section

Ambient temperature:  $22.3^\circ\text{C}$ ; Liquid temperature:  $21.7^\circ\text{C}$ 
**DASY5 Configuration:**

- Probe: EX3DV4 – SN7466; ConvF(10.32, 10.32, 10.32); Calibrated: 2020/2/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2020/8/13
- Phantom: ELI
- DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474)

**Area Scan (61x121x1):** Interpolated grid:  $dx=15 \text{ mm}$ ,  $dy=15 \text{ mm}$ 

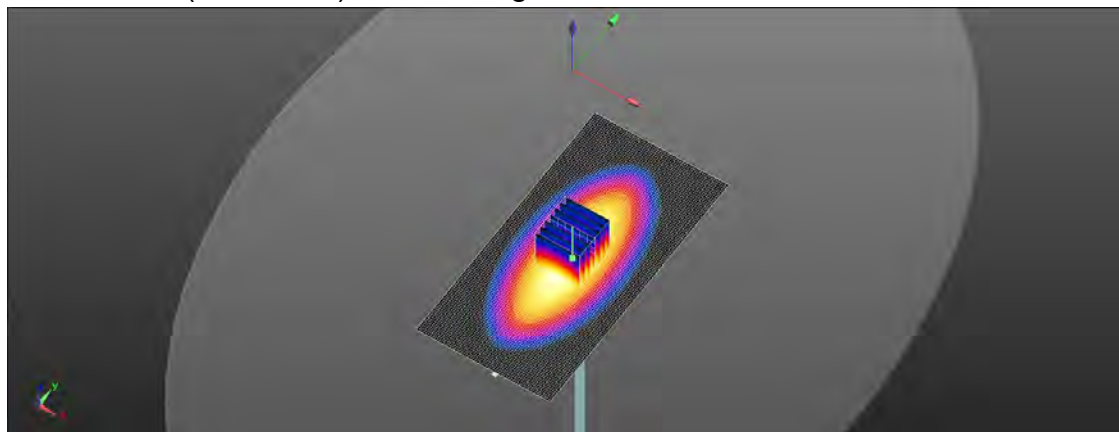
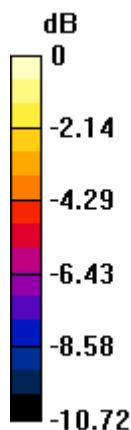
Maximum value of SAR (interpolated) =  $3.48 \text{ W/kg}$ 
**Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$ 

Reference Value =  $52.38 \text{ V/m}$ ; Power Drift =  $0.02 \text{ dB}$ 

Peak SAR (extrapolated) =  $4.09 \text{ W/kg}$ 
**SAR(1 g) =  $2.46 \text{ W/kg}$ ; SAR(10 g) =  $1.61 \text{ W/kg}$** 

Smallest distance from peaks to all points 3 dB below =  $13.8 \text{ mm}$ 

Ratio of SAR at M2 to SAR at M1 =  $66.7\%$ 

Maximum value of SAR (measured) =  $3.48 \text{ W/kg}$ 

 $0 \text{ dB} = 3.48 \text{ W/kg} = 5.41 \text{ dBW/kg}$ 

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Date: 2020/9/16

**Report No. : ES/2020/80007****Dipole 835 MHz\_SN: 4d063**

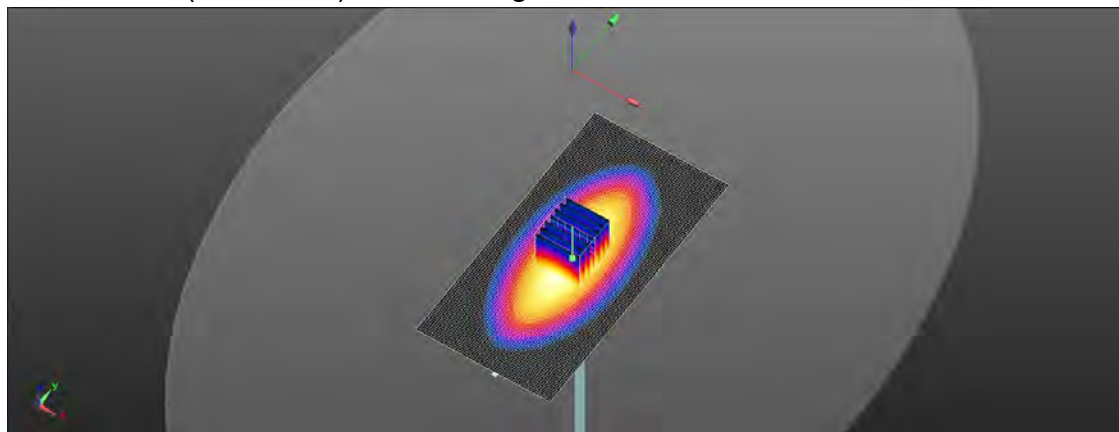
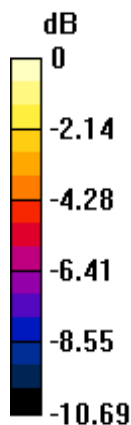
Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 835 \text{ MHz}$ ;  $\sigma = 0.892 \text{ S/m}$ ;  $\epsilon_r = 41.239$ ;  $\rho = 1000 \text{ kg/m}^3$ 

Phantom section: Flat Section

Ambient temperature:  $22.1^\circ\text{C}$ ; Liquid temperature:  $21.8^\circ\text{C}$ **DASY5 Configuration:**

- Probe: EX3DV4 – SN7466; ConvF(10.32, 10.32, 10.32); Calibrated: 2020/2/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2020/8/13
- Phantom: ELI
- DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474)

**Area Scan (61x121x1):** Interpolated grid:  $dx=15 \text{ mm}$ ,  $dy=15 \text{ mm}$ Maximum value of SAR (interpolated) =  $3.12 \text{ W/kg}$ **Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$ Reference Value =  $49.33 \text{ V/m}$ ; Power Drift =  $0.05 \text{ dB}$ Peak SAR (extrapolated) =  $4.12 \text{ W/kg}$ **SAR(1 g) =  $2.46 \text{ W/kg}$ ; SAR(10 g) =  $1.62 \text{ W/kg}$** Smallest distance from peaks to all points 3 dB below =  $14.1 \text{ mm}$ Ratio of SAR at M2 to SAR at M1 =  $68.2\%$ Maximum value of SAR (measured) =  $3.56 \text{ W/kg}$  $0 \text{ dB} = 3.56 \text{ W/kg} = 5.55 \text{ dBW/kg}$ 

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Date: 2020/9/13

**Report No. : ES/2020/80007**
**Dipole 1750 MHz\_SN:1008**

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

Medium parameters used:  $f = 1750 \text{ MHz}$ ;  $\sigma = 1.386 \text{ S/m}$ ;  $\epsilon_r = 40.572$ ;  $\rho = 1000 \text{ kg/m}^3$ 

Phantom section: Flat Section

Ambient temperature: 22.5°C; Liquid temperature: 21.9°C

**DASY5 Configuration:**

- Probe: EX3DV4 – SN7466; ConvF(8.94, 8.94, 8.94); Calibrated: 2020/2/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2020/8/13
- Phantom: ELI
- DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474)

**Area Scan (51x91x1):** Interpolated grid:  $dx=15 \text{ mm}$ ,  $dy=15 \text{ mm}$ 

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

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

Reference Value = 103.2 V/m; Power Drift = -0.01 dB

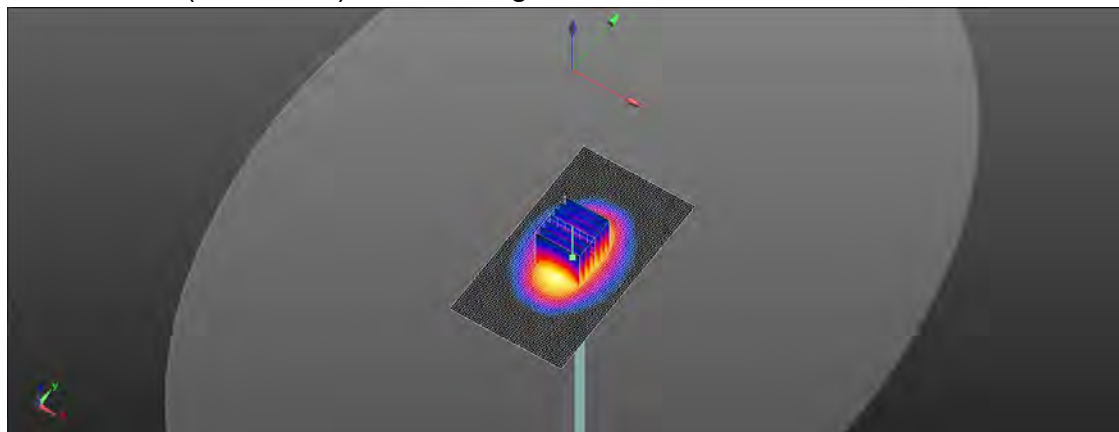
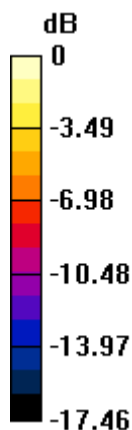
Peak SAR (extrapolated) = 17.0 W/kg

**SAR(1 g) = 9.01 W/kg; SAR(10 g) = 4.62 W/kg**

Smallest distance from peaks to all points 3 dB below = 11.3 mm

Ratio of SAR at M2 to SAR at M1 = 54.9%

Maximum value of SAR (measured) = 13.3 W/kg



0 dB = 13.3 W/kg = 11.24 dBW/kg

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Date: 2020/9/14

## Report No. : ES/2020/80007

### Dipole 1750 MHz\_SN:1008

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

Medium parameters used:  $f = 1750 \text{ MHz}$ ;  $\sigma = 1.386 \text{ S/m}$ ;  $\epsilon_r = 40.556$ ;  $\rho = 1000 \text{ kg/m}^3$ 

Phantom section: Flat Section

Ambient temperature:  $22.2^\circ\text{C}$ ; Liquid temperature:  $21.6^\circ\text{C}$ 

#### DASY5 Configuration:

- Probe: EX3DV4 – SN7466; ConvF(8.94, 8.94, 8.94); Calibrated: 2020/2/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2020/8/13
- Phantom: ELI
- DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474)

### Area Scan (51x91x1): Interpolated grid: $dx=15 \text{ mm}$ , $dy=15 \text{ mm}$

Maximum value of SAR (interpolated) =  $15.3 \text{ W/kg}$ 

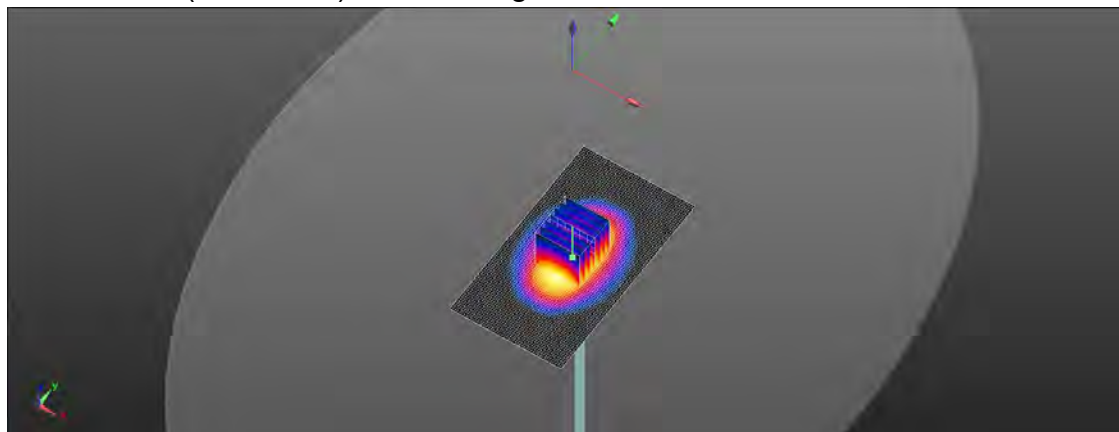
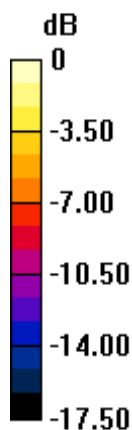
### Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$ , $dy=5\text{mm}$ , $dz=5\text{mm}$

Reference Value =  $104.4 \text{ V/m}$ ; Power Drift =  $-0.03 \text{ dB}$ 

Peak SAR (extrapolated) =  $18.1 \text{ W/kg}$ 
**SAR(1 g) =  $9.05 \text{ W/kg}$ ; SAR(10 g) =  $4.65 \text{ W/kg}$** 

Smallest distance from peaks to all points 3 dB below =  $11.2 \text{ mm}$ 

Ratio of SAR at M2 to SAR at M1 =  $53.5\%$ 

Maximum value of SAR (measured) =  $14.5 \text{ W/kg}$ 

 $0 \text{ dB} = 14.5 \text{ W/kg} = 11.66 \text{ dBW/kg}$ 

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Date: 2020/9/12

**Report No. : ES/2020/80007**
**Dipole 1900 MHz\_SN: 5d173**

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

Medium parameters used:  $f = 1900 \text{ MHz}$ ;  $\sigma = 1.416 \text{ S/m}$ ;  $\epsilon_r = 40.462$ ;  $\rho = 1000 \text{ kg/m}^3$ 

Phantom section: Flat Section

Ambient temperature:  $22.1^\circ\text{C}$ ; Liquid temperature:  $21.8^\circ\text{C}$ 
**DASY5 Configuration:**

- Probe: EX3DV4 – SN7466; ConvF(8.56, 8.56, 8.56); Calibrated: 2020/2/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2020/8/13
- Phantom: ELI
- DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474)

**Area Scan (61x81x1):** Interpolated grid:  $dx=15 \text{ mm}$ ,  $dy=15 \text{ mm}$ 

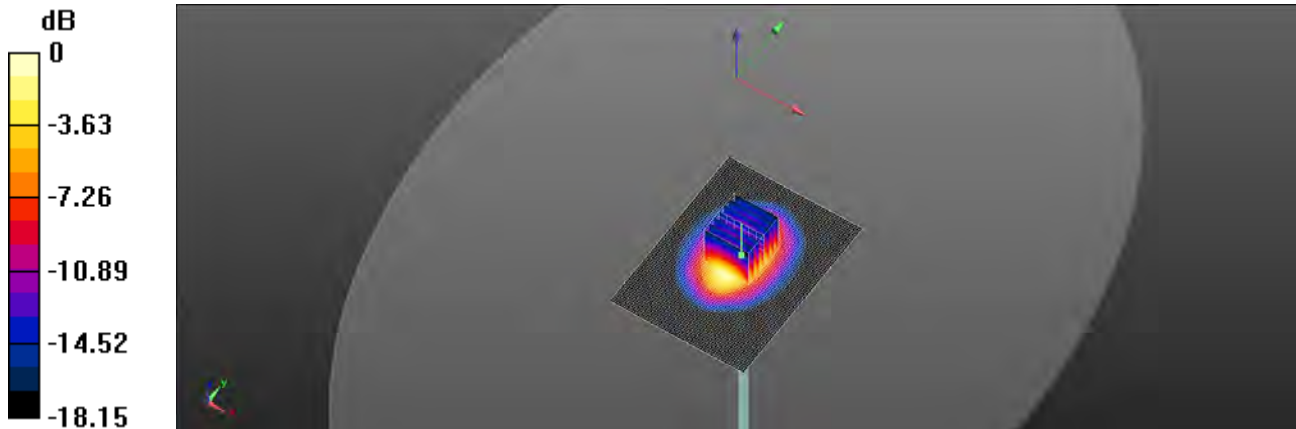
Maximum value of SAR (interpolated) =  $15.6 \text{ W/kg}$ 
**Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$ 

Reference Value =  $111.8 \text{ V/m}$ ; Power Drift =  $0.03 \text{ dB}$ 

Peak SAR (extrapolated) =  $19.0 \text{ W/kg}$ 
**SAR(1 g) =  $9.87 \text{ W/kg}$ ; SAR(10 g) =  $5.17 \text{ W/kg}$** 

Smallest distance from peaks to all points 3 dB below =  $10.2 \text{ mm}$ 

Ratio of SAR at M2 to SAR at M1 =  $53.3\%$ 

Maximum value of SAR (measured) =  $14.8 \text{ W/kg}$ 

 $0 \text{ dB} = 14.8 \text{ W/kg} = 11.69 \text{ dBW/kg}$ 

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Date: 2020/9/11

**Report No. : ES/2020/80007****Dipole 2300 MHz\_SN:1023**

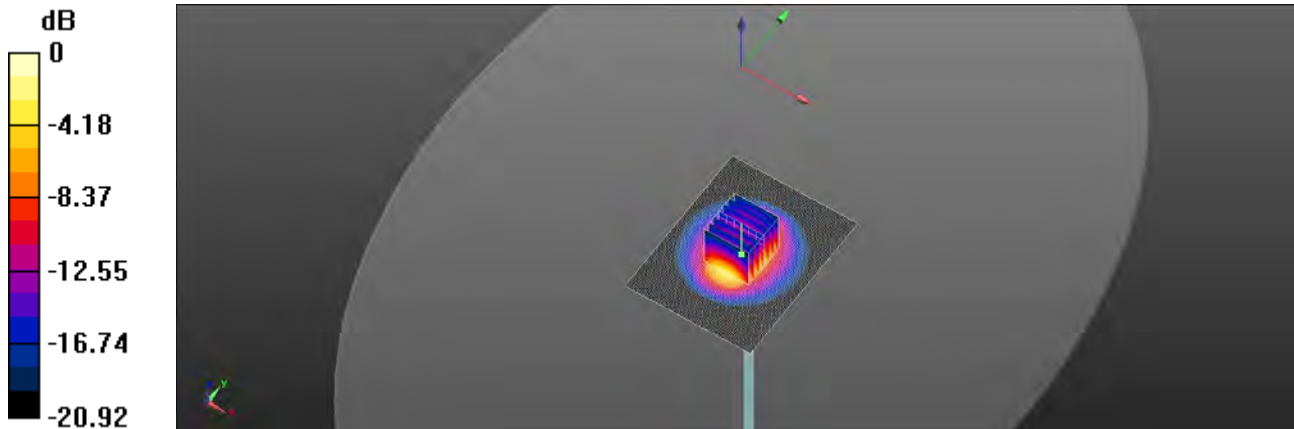
Communication System: CW; Frequency: 2300 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 2300 \text{ MHz}$ ;  $\sigma = 1.65 \text{ S/m}$ ;  $\epsilon_r = 39.115$ ;  $\rho = 1000 \text{ kg/m}^3$ 

Phantom section: Flat Section

Ambient temperature:  $22.1^\circ\text{C}$ ; Liquid temperature:  $21.7^\circ\text{C}$ **DASY5 Configuration:**

- Probe: EX3DV4 – SN7466; ConvF(8.08, 8.08, 8.08); Calibrated: 2020/2/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2020/8/13
- Phantom: ELI
- DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474)

**Area Scan (71x91x1):** Interpolated grid:  $dx=12 \text{ mm}$ ,  $dy=12 \text{ mm}$ Maximum value of SAR (interpolated) =  $18.9 \text{ W/kg}$ **Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$ Reference Value =  $106.4 \text{ V/m}$ ; Power Drift =  $0.01 \text{ dB}$ Peak SAR (extrapolated) =  $23.9 \text{ W/kg}$ **SAR(1 g) =  $12.1 \text{ W/kg}$ ; SAR(10 g) =  $5.87 \text{ W/kg}$** Smallest distance from peaks to all points 3 dB below =  $9 \text{ mm}$ Ratio of SAR at M2 to SAR at M1 =  $51.2\%$ Maximum value of SAR (measured) =  $18.0 \text{ W/kg}$  $0 \text{ dB} = 18.0 \text{ W/kg} = 12.56 \text{ dBW/kg}$ 

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Date: 2020/9/8

**Report No. : ES/2020/80007****Dipole 2600 MHz\_SN:1005**

Communication System: CW; Frequency: 2600 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 2600$  MHz;  $\sigma = 1.944$  S/m;  $\epsilon_r = 38.666$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Ambient temperature: 22.4°C; Liquid temperature: 21.9°C

**DASY5 Configuration:**

- Probe: EX3DV4 – SN7466; ConvF(7.53, 7.53, 7.53); Calibrated: 2020/2/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2020/8/13
- Phantom: ELI
- DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474)

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

Maximum value of SAR (interpolated) = 22.4 W/kg

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

Reference Value = 116.0 V/m; Power Drift = -0.02 dB

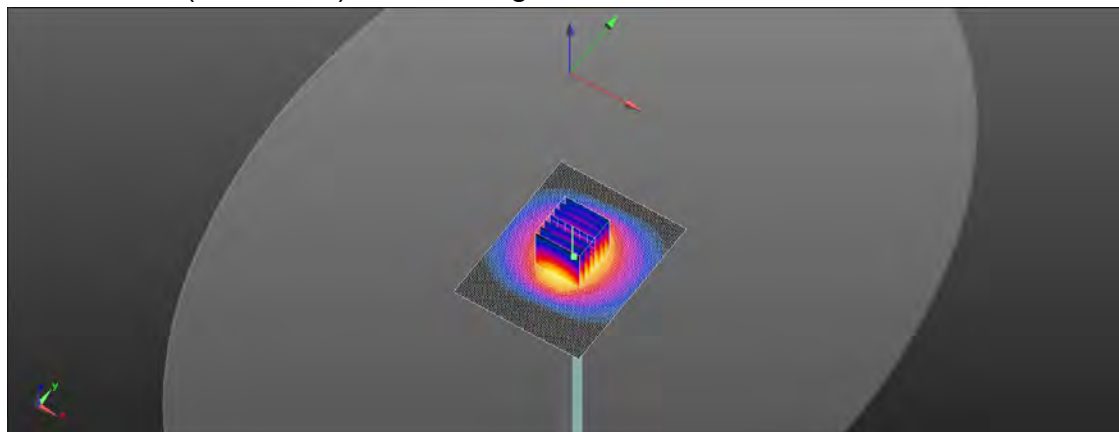
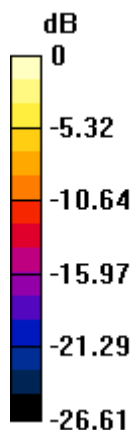
Peak SAR (extrapolated) = 30.8 W/kg

**SAR(1 g) = 14.4 W/kg; SAR(10 g) = 6.35 W/kg**

Smallest distance from peaks to all points 3 dB below = 9.8 mm

Ratio of SAR at M2 to SAR at M1 = 43.3%

Maximum value of SAR (measured) = 21.4 W/kg



0 dB = 21.4 W/kg = 13.31 dBW/kg

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Date: 2020/9/9

## Report No. : ES/2020/80007

### Dipole 2600 MHz\_SN:1005

Communication System: CW; Frequency: 2600 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 2600 \text{ MHz}$ ;  $\sigma = 1.945 \text{ S/m}$ ;  $\epsilon_r = 38.639$ ;  $\rho = 1000 \text{ kg/m}^3$ 

Phantom section: Flat Section

Ambient temperature:  $22.3^\circ\text{C}$ ; Liquid temperature:  $21.7^\circ\text{C}$ 

### DASY5 Configuration:

- Probe: EX3DV4 – SN7466; ConvF(7.53, 7.53, 7.53); Calibrated: 2020/2/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2020/8/13
- Phantom: ELI
- DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474)

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

Maximum value of SAR (interpolated) =  $24.4 \text{ W/kg}$ 

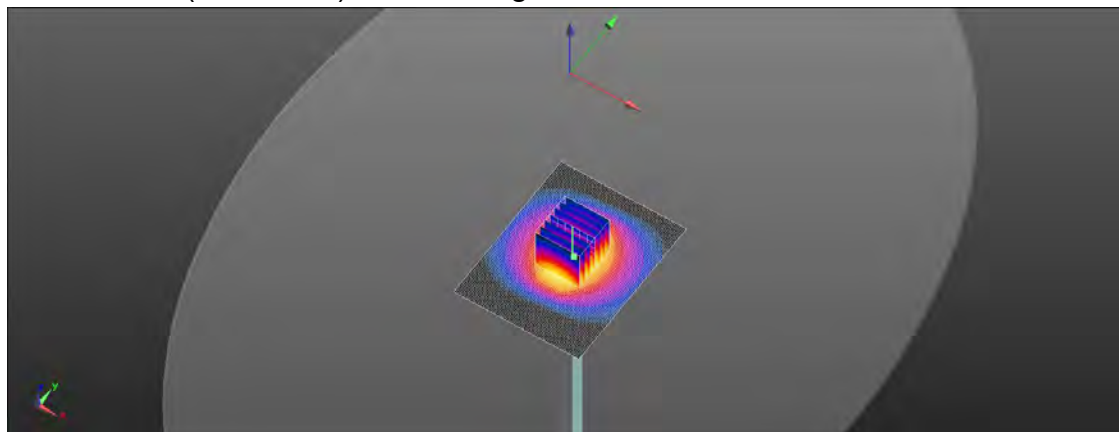
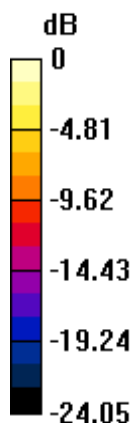
### Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$ , $dy=5\text{mm}$ , $dz=5\text{mm}$

Reference Value =  $108.4 \text{ V/m}$ ; Power Drift =  $-0.04 \text{ dB}$ 

Peak SAR (extrapolated) =  $31.1 \text{ W/kg}$ 
**SAR(1 g) =  $14.5 \text{ W/kg}$ ; SAR(10 g) =  $6.41 \text{ W/kg}$** 

Smallest distance from peaks to all points 3 dB below =  $10.2 \text{ mm}$ 

Ratio of SAR at M2 to SAR at M1 =  $47.4\%$ 

Maximum value of SAR (measured) =  $22.4 \text{ W/kg}$ 

 $0 \text{ dB} = 22.4 \text{ W/kg} = 13.57 \text{ dBW/kg}$ 

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Date: 2020/9/10

**Report No. : ES/2020/80007****Dipole 2600 MHz\_SN:1005**

Communication System: CW; Frequency: 2600 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 2600$  MHz;  $\sigma = 1.943$  S/m;  $\epsilon_r = 38.662$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

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

**DASY5 Configuration:**

- Probe: EX3DV4 – SN7466; ConvF(7.53, 7.53, 7.53); Calibrated: 2020/2/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2020/8/13
- Phantom: ELI
- DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474)

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

Maximum value of SAR (interpolated) = 23.7 W/kg

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

Reference Value = 121.4 V/m; Power Drift = -0.05 dB

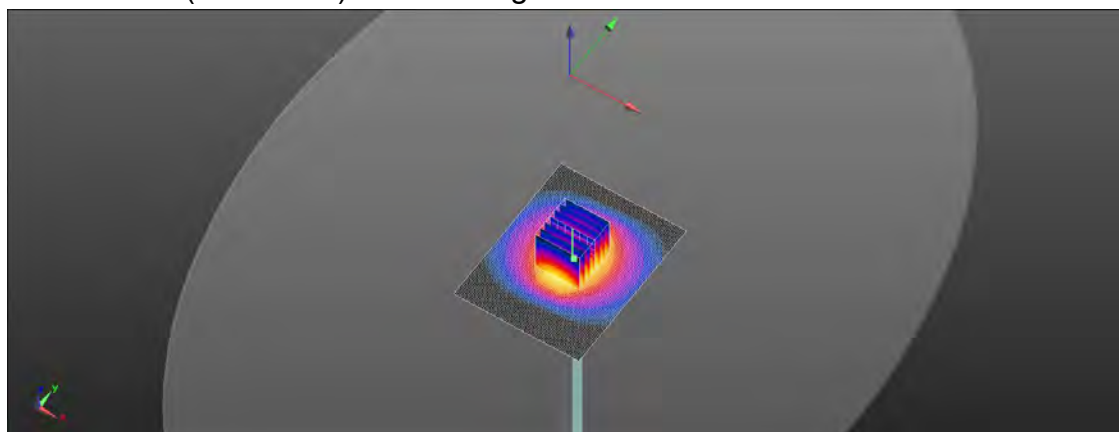
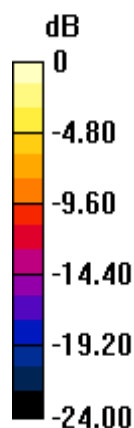
Peak SAR (extrapolated) = 31.5 W/kg

**SAR(1 g) = 14.4 W/kg; SAR(10 g) = 6.36 W/kg**

Smallest distance from peaks to all points 3 dB below = 10.1 mm

Ratio of SAR at M2 to SAR at M1 = 45.1%

Maximum value of SAR (measured) = 21.7 W/kg



0 dB = 21.7 W/kg = 13.46 dBW/kg

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## 7. Uncertainty Budget

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	Probabilit y	Div	Div Value	ci (1g)	ci (10g)	Standard uncertainty	Standard uncertainty	vi, or Veff
<b>Measurement system</b>									
Probe calibration	6.00%	N	1	1	1	1	6.00%	6.00%	∞
<i>Isotropy , Axial</i>	3.50%	R	$\sqrt{3}$	1.732	1	1	2.02%	2.02%	∞
<i>Isotropy, Hemispherical</i>	9.60%	R	$\sqrt{3}$	1.732	1	1	5.54%	5.54%	∞
Modulation Response	2.40%	R	$\sqrt{3}$	1.732	1	1	1.40%	1.40%	∞
Boundary Effect	1.00%	R	$\sqrt{3}$	1.732	1	1	0.58%	0.58%	∞
Linearity	4.70%	R	$\sqrt{3}$	1.732	1	1	2.71%	2.71%	∞
Detection Limits	1.00%	R	$\sqrt{3}$	1.732	1	1	0.58%	0.58%	∞
Readout Electronics	0.30%	N	1	1	1	1	0.30%	0.30%	∞
Response time	0.80%	R	$\sqrt{3}$	1.732	1	1	0.46%	0.46%	∞
Integration Time	2.60%	R	$\sqrt{3}$	1.732	1	1	1.50%	1.50%	∞
<b>Measurement drift (class A evaluation)</b>	1.75%	R	$\sqrt{3}$	1.732	1	1	1.01%	1.01%	∞
RF ambient condition - noise	3.00%	R	$\sqrt{3}$	1.732	1	1	1.73%	1.73%	∞
RF ambient conditions - reflections	3.00%	R	$\sqrt{3}$	1.732	1	1	1.73%	1.73%	∞
Probe positioner Mechanical restrictions	0.40%	R	$\sqrt{3}$	1.732	1	1	0.23%	0.23%	∞
Probe Positioning with respect to phantom	2.90%	R	$\sqrt{3}$	1.732	1	1	1.67%	1.67%	∞
Post-processing	1.00%	R	$\sqrt{3}$	1.732	1	1	0.58%	0.58%	∞
Max SAR Eval	1.00%	R	$\sqrt{3}$	1.732	1	1	0.58%	0.58%	∞
<b>Test Sample related</b>									
Test sample positioning	2.90%	N	1	1	1	1	2.90%	2.90%	M-1
Device Holder Uncertainty	3.60%	N	1	1	1	1	3.60%	3.60%	M-1
Drift of output power	5.00%	R	$\sqrt{3}$	1.732	1	1	2.89%	2.89%	∞
<b>Phantom and Setup</b>									
Phantom Uncertainty	4.00%	R	$\sqrt{3}$	1.732	1	1	2.31%	2.31%	∞
Liquid permittivity (mea.)	1.23%	N	1	1	0.64	0.43	0.79%	0.53%	M
Liquid Conductivity (mea.)	1.16%	N	1	1	0.6	0.49	0.70%	0.57%	M
Combined standard uncertainty		RSS					11.47%	11.43%	
Expant uncertainty (95% confidence)							22.93%	22.87%	

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## Appendixes

**Refer to separated files for the following appendixes.**

**ES202080007 SAR\_Appendix A Photographs**

**ES202080007 SAR\_Appendix B DAE & Probe Cal. Certificate**

**ES202080007 SAR\_Appendix C Phantom Description & Dipole Cal. Certificate**

**- End of report -**

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