FCC SAR TEST REPORT

FCC ID	:	**2AQ68T99W175-L1**
Equipment	:	**5G WWAN Module**
Brand Name	:	**Foxconn**
Model Name	:	**T99W175**
Applicant	:	**Hon Lin Technology Co., Ltd. 11F, No. 32, Jihu Rd., Neihu Dist., Taipei City 114, Taiwan**
Standard	:	**FCC 47 CFR Part 2 (2.1093) ANSI/IEEE C95.1-1992 IEEE 1528-2013**

Equipment: Foxconn T99W175 tested inside of Lenovo Notebook Computer

The product was received on Jul. 10, 2020 and testing was started from Jul. 28, 2020 and completed on Aug. 26, 2020. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.

Approved by: Cona Huang / Deputy Manager

SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory

Table of Contents

History of this test report

Report No.	Version	Description	Issued Date
FA063017	01	Initial issue of report	Sep. 23, 2020

1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for Hon Lin Technology Co., Ltd., 5G WWAN Module, T99W175, are as follows.

Equipment Class	Frequency Band	Highest SAR Summary Body 1g SAR (W/kg)	Highest Simultaneous Transmission 1g SAR (W/kg)
Licensed	WCDMA II	1.169	1.593
	WCDMA IV	1.153	
	WCDMA V	1.103	
	LTE Band 2	0.734	
	LTE Band 7	1.152	
	LTE Band 12 / 17	1.161	
	LTE Band 13	1.101	
	LTE Band 14	1.190	
	LTE Band 25	1.089	
	LTE Band 5 / 26	1.181	
	LTE Band 30	1.165	
	LTE Band 38 / 41	1.077	
	LTE Band 48	1.126	
	LTE Band 4/ 66	1.153	
	LTE Band 71	1.151	
	FR1 n2	0.937	
	FR1 n5	0.657	
	FR1 n7	0.904	
	FR1 n12	0.605	
	FR1 n41	1.141	
	FR1 n66	0.837	
	FR1 n71	0.694	
Date of Testing:		2020/7/28 ~ 2020/8/26	

Sporton Lab is accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code: 1190) and the FCC designation No. TW1190 under the FCC 2.948(e) by Mutual Recognition Agreement (MRA) in FCC test. This device is in compliance with Specific Absorption Rate (SAR) for general population/uncontrolled exposure limits (1.6 W/kg) specified in FCC 47 CFR part 2 (2.1093) and ANSI/IEEE C95.1-1992, and had been tested in accordance with the measurement methods and procedures specified in IEEE 1528-2013 and FCC KDB publications.

Reviewed by: Jason Wang
Report Producer: Daisy Peng

2. Guidance Applied

The Specific Absorption Rate (SAR) testing specification, method, and procedure for this device is in accordance with the following standards:

- FCC 47 CFR Part 2 (2.1093)
- ANSI/IEEE C95.1-1992
- IEEE 1528-2013
- FCC KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz v01r04
- FCC KDB 865664 D02 SAR Reporting v01r02
- FCC KDB 447498 D01 General RF Exposure Guidance v06
- FCC KDB 248227 D01 802.11 Wi-Fi SAR v02r02
- FCC KDB 616217 D04 SAR for laptop and tablets v01r02
- FCC KDB 941225 D01 3G SAR Procedures v03r01
- FCC KDB 941225 D05 SAR for LTE Devices v02r05
- FCC KDB 941225 D05A Rel.10 LTE SAR Test Guidance v01r02

3. Equipment Under Test (EUT) Information

3.1 General Information

Product Feature & Specification	
Equipment Name	5G WWAN Module
Brand Name	Foxconn
Model Name	T99W175
FCC ID	2AQ68T99W175-L1
Wireless Technology and Frequency Range	WCDMA Band II: 1850 MHz ~ 1910 MHz WCDMA Band IV: 1710 MHz ~ 1755 MHz WCDMA Band V: 824 MHz ~ 849 MHz LTE Band 2: 1850 MHz ~ 1910 MHz LTE Band 4: 1710 MHz ~ 1755 MHz LTE Band 5: 824 MHz ~ 849 MHz LTE Band 7: 2500 MHz ~ 2570 MHz LTE Band 12: 699 MHz ~ 716 MHz LTE Band 13: 777 MHz ~ 787 MHz LTE Band 14: 788 MHz ~ 798 MHz LTE Band 17: 704 MHz ~ 716 MHz LTE Band 25: 1850 MHz ~ 1915 MHz LTE Band 26: 814 MHz ~ 849 MHz LTE Band 30: 2305 MHz ~ 2315 MHz LTE Band 38: 2570 MHz ~ 2620 MHz LTE Band 41: 2496 MHz ~ 2690 MHz LTE Band 48: 3550 MHz ~ 3700 MHz LTE Band 66: 1710 MHz ~ 1780 MHz LTE Band 71: 663 MHz ~ 698 MHz 5G NR n2 : 1850 MHz ~ 1910 MHz 5G NR n5 : 824 MHz ~ 849 MHz 5G NR n7 : 2500 MHz ~ 2570 MHz 5G NR n12 : 699 MHz ~ 716 MHz 5G NR n41 : 2496 MHz ~ 2690 MHz 5G NR n66 : 1710 MHz ~ 1780 MHz 5G NR n71: 663 MHz ~ 698 MHz
Mode	RMC 12.2Kbps HSDPA HSUPA DC-HSDPA LTE: QPSK, 16QAM, 64QAM 5G NR: DFT-s-OFDM/CP-OFDM, Pi/2 BPSK/QPSK/16QAM/64QAM/256QAM
EUT Stage	Production Unit

Host information	
Equipment Name	Notebook Computer
Brand Name	Lenovo
Model Name	TP00123A
Integrated WLAN Module	Brand Name: Intel Model Name: AX201D2W
Wireless Technology and Frequency Range	WLAN 2.4GHz Band: 2400 MHz ~ 2483.5 MHz WLAN 5.2GHz Band: 5150 MHz ~ 5250 MHz WLAN 5.3GHz Band: 5250 MHz ~ 5350 MHz WLAN 5.6GHz Band: 5470 MHz ~ 5725 MHz WLAN 5.8GHz Band: 5725 MHz ~ 5825 MHz Bluetooth: 2400 MHz ~ 2483.5 MHz
Mode	WLAN: 802.11a/b/g/n/ac/ax HT20/HT40/VHT20/VHT40/VHT80/VHT160/HE20/HE40/HE80/HE160 Bluetooth BR/EDR/LE
Remark: 1. The Intel AX201D2W is also integrated into this host, the WLAN and Bluetooth SAR results are referenced to FCC ID: PD9AX201D2, report no.: 180717-03.TR11 and the results are used to perform simultaneous transmission analysis.	

WWAN Antenna Information				
Main Antenna	Manufacturer	Amphenol	Peak gain (dbi)	2.49
	Part number	TKB368-12-000-C	Type	PIFA
MIMO2 Antenna	Manufacturer	Amphenol	Peak gain (dbi)	1.93
	Part number	TKB364-16-000-C	Type	PIFA
Main Antenna	Manufacturer	Hong-Bo	Peak gain (dbi)	0.57
	Part number	00-260274250T	Type	PIFA
MIMO2 Antenna	Manufacturer	Hong-Bo	Peak gain (dbi)	0.13
	Part number	00-260274270T	Type	PIFA

3.2 General 5GNR and LTE SAR Test and Reporting Considerations

<table>
<tr><th colspan="2">LTE Information</th></tr>
<tr><td>FCC ID</td><td>2AQ68T99W175-L1</td></tr>
<tr><td>Equipment Name</td><td>5G WWAN Module</td></tr>
<tr><td>Operating Frequency Range of each LTE transmission band</td><td>LTE Band 2: 1850 MHz ~ 1910 MHz
LTE Band 4: 1710 MHz ~ 1755 MHz
LTE Band 5: 824 MHz ~ 849 MHz
LTE Band 7: 2500 MHz ~ 2570 MHz
LTE Band 12: 699 MHz ~ 716 MHz
LTE Band 13: 777 MHz ~ 787 MHz
LTE Band 14: 788 MHz ~ 798 MHz
LTE Band 17: 704 MHz ~ 716 MHz
LTE Band 25: 1850 MHz ~ 1915 MHz
LTE Band 26: 814 MHz ~ 849 MHz
LTE Band 30: 2305 MHz ~ 2315 MHz
LTE Band 38: 2570 MHz ~ 2620 MHz
LTE Band 41: 2496 MHz ~ 2690 MHz
LTE Band 48: 3550 MHz ~ 3700 MHz
LTE Band 66: 1710 MHz ~ 1780 MHz
LTE Band 71: 663 MHz ~ 698 MHz</td></tr>
<tr><td>Channel Bandwidth</td><td>LTE Band 02:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz
LTE Band 04:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz
LTE Band 05:1.4MHz, 3MHz, 5MHz, 10MHz
LTE Band 07: 5MHz, 10MHz, 15MHz, 20MHz
LTE Band 12:1.4MHz, 3MHz, 5MHz, 10MHz
LTE Band 13: 5MHz, 10MHz
LTE Band 14: 5MHz, 10MHz
LTE Band 17: 5MHz, 10MHz
LTE Band 25:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz
LTE Band 26:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz
LTE Band 30: 5MHz, 10MHz
LTE Band 38: 5MHz, 10MHz, 15MHz, 20MHz
LTE Band 41: 5MHz, 10MHz, 15MHz, 20MHz
LTE Band 48: 5MHz, 10MHz, 15MHz, 20MHz
LTE Band 66:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz
LTE Band 71: 5MHz, 10MHz, 15MHz, 20MHz</td></tr>
<tr><td>uplink modulations used</td><td>QPSK / 16QAM / 64QAM</td></tr>
<tr><td>LTE Voice / Data requirements</td><td>Data only</td></tr>
<tr><td>LTE MPR permanently built-in by design</td><td>Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 1, 2 and 3
<table>
<tr><th rowspan="2">Modulation</th><th colspan="6">Channel bandwidth / Transmission bandwidth (N_{RB})</th><th rowspan="2">MPR (dB)</th></tr>
<tr><th>1.4 MHz</th><th>3.0 MHz</th><th>5 MHz</th><th>10 MHz</th><th>15 MHz</th><th>20 MHz</th></tr>
<tr><td>QPSK</td><td>> 5</td><td>> 4</td><td>> 8</td><td>> 12</td><td>> 16</td><td>> 18</td><td>≤ 1</td></tr>
<tr><td>16 QAM</td><td>≤ 5</td><td>≤ 4</td><td>≤ 8</td><td>≤ 12</td><td>≤ 16</td><td>≤ 18</td><td>≤ 1</td></tr>
<tr><td>16 QAM</td><td>> 5</td><td>> 4</td><td>> 8</td><td>> 12</td><td>> 16</td><td>> 18</td><td>≤ 2</td></tr>
<tr><td>64 QAM</td><td>≤ 5</td><td>≤ 4</td><td>≤ 8</td><td>≤ 12</td><td>≤ 16</td><td>≤ 18</td><td>≤ 2</td></tr>
<tr><td>64 QAM</td><td>> 5</td><td>> 4</td><td>> 8</td><td>> 12</td><td>> 16</td><td>> 18</td><td>≤ 3</td></tr>
<tr><td>256 QAM</td><td colspan="6">≥ 1</td><td>≤ 5</td></tr>
</table></td></tr>
<tr><td>LTE A-MPR</td><td>In the base station simulator configuration, Network Setting value is set to NS_01 to disable A-MPR during SAR testing and the LTE SAR tests was transmitting on all TTI frames (Maximum TTI)</td></tr>
<tr><td>Spectrum plots for RB configuration</td><td>A properly configured base station simulator was used for the SAR and power measurement; therefore, spectrum plots for each RB allocation and offset configuration are not included in the SAR report.</td></tr>
<tr><td>Power reduction applied to satisfy SAR compliance</td><td>Yes, Proximity Sensor.</td></tr>
<tr><td>LTE Carrier Aggregation Combinations</td><td>Inter-Band and Intra-Band possible combinations and the detail power measurement please referred to section 12</td></tr>
<tr><td>LTE Carrier Aggregation Additional Information</td><td>This device supports maximum of 6 carriers in the downlink and 2 carriers in the uplink. Additional following LTE Release features are not supported: Relay, HetNet, Enhanced MIMO, eICI, WiFi Offloading, MDH, eMBMA, Cross-Carrier Scheduling, Enhanced SC-FDMA.</td></tr>
</table>

Transmission (H, M, L) channel numbers and frequencies in each LTE band												
LTE Band 2												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	18607	1850.7	18615	1851.5	18625	1852.5	18650	1855	18675	1857.5	18700	1860
M	18900	1880	18900	1880	18900	1880	18900	1880	18900	1880	18900	1880
H	19193	1909.3	19185	1908.5	19175	1907.5	19150	1905	19125	1902.5	19100	1900
LTE Band 4												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	19957	1710.7	19965	1711.5	19975	1712.5	20000	1715	20025	1717.5	20050	1720
M	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5
H	20393	1754.3	20385	1753.5	20375	1752.5	20350	1750	20325	1747.5	20300	1745
LTE Band 5								
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	20407	824.7	20415	825.5	20425	826.5	20450	829
M	20525	836.5	20525	836.5	20525	836.5	20525	836.5
H	20643	848.3	20635	847.5	20625	846.5	20600	844
LTE Band 7								
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	20775	2502.5	20800	2505	20825	2507.5	20850	2510
M	21100	2535	21100	2535	21100	2535	21100	2535
H	21425	2567.5	21400	2565	21375	2562.5	21350	2560
LTE Band 12								
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	23017	699.7	23025	700.5	23035	701.5	23060	704
M	23095	707.5	23095	707.5	23095	707.5	23095	707.5
H	23173	715.3	23165	714.5	23155	713.5	23130	711
LTE Band 13				
	Bandwidth 5 MHz		Bandwidth 10 MHz	
	Channel #	Freq.(MHz)	Channel #	Freq.(MHz)
L	23205	779.5	23230	782
M	23230	782		
H	23255	784.5		
LTE Band 14				
	Bandwidth 5 MHz		Bandwidth 10 MHz	
	Channel #	Channel #	Channel #	Freq.(MHz)
L	23305	790.5	23330	793
M	23330	793		
H	23355	795.5		
LTE Band 17				
	Bandwidth 5 MHz		Bandwidth 10 MHz	
	Channel #	Freq.(MHz)	Channel #	Freq. (MHz)
L	23755	706.5	23780	709
M	23790	710	23790	710
H	23825	713.5	23800	711

LTE Band 25												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	26047	1850.7	26055	1851.5	26065	1852.5	26090	1855	26115	1857.5	26140	1860
M	26340	1880	26340	1880	26340	1880	26340	1880	26340	1880	26340	1880
H	26683	1914.3	26675	1913.5	26665	1912.5	26640	1910	26615	1907.5	26590	1905

LTE Band 26										
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	26697	814.7	26705	815.5	26715	816.5	26740	819	26765	821.5
M	26865	831.5	26865	831.5	26865	831.5	26865	831.5	26865	831.5
H	27033	848.3	27025	847.5	27015	846.5	26990	844	26965	841.5

LTE Band 30				
	Bandwidth 5 MHz		Bandwidth 10 MHz	
	Channel #	Freq.(MHz)	Channel #	Freq.(MHz)
L	27685	2307.5	27710	2310
M	27710	2310		
H	27735	2312.5		

LTE Band 38								
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	37775	2572.5	37800	2575	37825	2577.5	37850	2580
M	38000	2595	38000	2595	38000	2595	38000	2595
H	38225	2617.5	38200	2615	38175	2612.5	38150	2610

LTE Band 41								
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	39675	2498.5	39700	2501	39725	2503.5	39750	2506
L M	40148	2545.8	40160	2547	40173	2548.3	40185	2549.5
M	40620	2593	40620	2593	40620	2593	40620	2593
H M	41093	2640.3	41080	2639	41068	2637.8	41055	2636.5
H	41565	2687.5	41540	2685	41515	2682.5	41490	2680

LTE Band 66												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	131979	1710.7	131987	1711.5	131997	1712.5	132022	1715	132047	1717.5	132072	1720
M	132322	1745	132322	1745	132322	1745	132322	1745	132322	1745	132322	1745
H	132665	1779.3	132657	1778.5	132647	1777.5	132622	1775	132597	1772.5	132572	1770

LTE Band 71								
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	133147	665.5	133172	668	133197	670.5	133222	673
M	133297	680.5	133297	680.5	133297	680.5	133297	680.5
H	133447	695.5	133422	693	133397	690.5	133372	688

LTE Band 48								
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	55265	3552.5	55290	3555	55315	3557.5	55340	3560
L M	55810	3607	55815	3607.5	55820	3608	55830	3609
M H	56170	3643	56165	3642.5	56160	3642	56150	3641
H	56715	3697.5	56690	3695	56665	3692.5	56640	3690

5G NR Information	
FCC	2AQ68T99W175-L1
Equipment Name	5G WWAN Module
Operating Frequency Range of each 5G NR transmission band	5G NR n2 : 1850 MHz ~ 1910 MHz 5G NR n5 : 824 MHz ~ 849 MHz 5G NR n7 : 2500 MHz ~ 2570 MHz 5G NR n12 : 699 MHz ~ 716 MHz 5G NR n41 : 2496 MHz ~ 2690 MHz 5G NR n66 : 1710 MHz ~ 1780 MHz 5G NR n71 : 663 MHz ~ 698 MHz
Channel Bandwidth	5G NR n2: 5MHz, 10MHz, 15MHz, 20MHz 5G NR n5: 5MHz, 10MHz, 15MHz, 20MHz 5G NR n7: 5MHz, 10MHz, 15MHz, 20MHz 5G NR n12: 5MHz, 10MHz, 15MHz 5G NR n41: 20MHz, 40MHz, 50MHz, 60MHz, 80MHz, 90MHz, 100MHz 5G NR n66: 5MHz, 10MHz, 15MHz, 20MHz 5G NR n71: 5MHz, 10MHz, 15MHz, 20MHz
SCS	FDD: SCS15KHz, TDD: SCS30KHz
uplink modulations used	DFT-s-OFDM: PI/2 BPSK / QPSK / 16QAM / 64QAM / 256QAM CP-OFDM QPSK / 16QAM / 64QAM / 256QAM
A-MPR (Additional MPR) disabled for SAR Testing?	Yes
LTE Anchor Bands for n2	LTE B5/12/13/30/48/66
LTE Anchor Bands for n5	LTE B2/7/12/48/66
LTE Anchor Bands for n7	LTE B5/12
LTE Anchor Bands for n12	LTE B2/66
LTE Anchor Bands for n41	LTE B2/25/26/66
LTE Anchor Bands for n66	LTE B5/12/13/30/48/71
LTE Anchor Bands for n71	LTE B2/7/66

Transmission (H, M, L) channel numbers and frequencies in each 5G NR band

NR Band 2

	Bandwidth 5MHz		Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	370500	1852.5	371000	1855	371500	1857.5	372000	1860
M	376000	1880	376000	1880	376000	1880	376000	1880
H	381500	1907.5	381000	1905	380500	1902.5	380000	1900

NR Band 5

	Bandwidth 5MHz		Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	165300	826.5	165800	829	166300	831.5	166800	834
M	167300	836.5	167300	836.5	167300	836.5	167300	836.5
H	169300	846.5	168800	844	168300	841.5	167800	839

NR Band 7

	Bandwidth 5MHz		Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	500500	2502.5	501000	2505	501500	2507.5	502000	2510
M	507000	2535	507000	2535	507000	2535	507000	2535
H	513500	2567.5	513000	2565	512500	2562.5	512000	2560

NR Band 12

	Bandwidth 5MHz		Bandwidth 10MHz		Bandwidth 15MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	140300	701.5	140800	704	141300	706.5
M	141500	707.5	141500	707.5	141500	707.5
H	142700	713.5	142200	711	141700	708.5

NR Band 41														
	Bandwidth 20MHz		Bandwidth 40MHz		Bandwidth 50MHz		Bandwidth 60MHz		Bandwidth 80MHz		Bandwidth 90MHz		Bandwidth 100MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	501204	2506.02	503202	2516.01	504204	2521.02	505200	2526	507204	2536.02	508200	2541	509202	2546.01
M	518598	2592.99	518598	2592.99	518598	2592.99	518598	2592.99	518598	2592.99	518598	2592.99	518598	2592.99
H	535998	2679.99	534000	2670	532998	2664.99	531996	2659.98	529998	2649.99	528996	2644.98	528000	2640

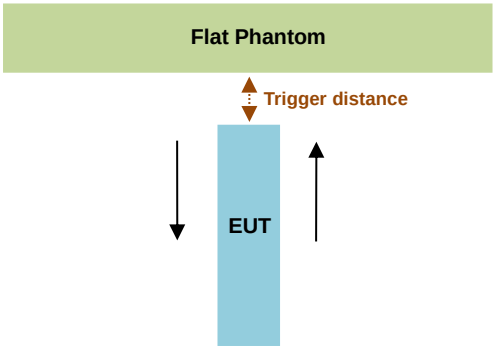
NR Band 66								
	Bandwidth 5MHz		Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	342500	1712.5	343000	1715	343500	1717.5	344000	1720
M	349000	1745	349000	1745	349000	1745	349000	1745
H	355500	1777.5	355000	1775	354500	1772.5	354000	1770

NR Band 71								
	Bandwidth 5MHz		Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	133100	665.5	133600	668	13410	670.5	134600	673
M	136100	680.5	136100	680.5	136100	680.5	136100	680.5
H	139100	695.5	138600	693	13810	690.5	137600	688

4. Proximity Sensor Triggering Test

<Proximity Sensor Triggering Distance (KDB 616217 D04 section 6.2)>:

For the device is fully integrated, touch sensing capacitive sensor. It uses a charge transfer capacitive acquisition method that is capable of near range proximity detection. In this device offers a state of the art capacitive sensing engine with an embedded sampling capacitor and voltage regulator allowing the overall solution cost to be reduced and improving system immunity in noisy environments.
Proximity sensor triggering distance testing was performed according to the procedures outlined in KDB 616217 D04 section 6.2, and EUT moving further away from the flat phantom and EUT moving toward the flat phantom were both assessed. The details are illustrated as following, and the shortest triggering distances were reported and used for SAR assessment.
In the preliminary triggering distance testing, the tissue-equivalent medium for different frequency bands were used for verification; no other frequency bands tissue-equivalent medium was found to result in shortest triggering distance than that for 1900MHz, and the tissue-equivalent medium for 1900MHz was used for formal proximity sensor triggering testing.



Proximity Sensor Trigger Distance (mm)	
Position	Bottom of Laptop for Main antenna
Minimum	17

Proximity Sensor Trigger Distance (mm)	
Position	Bottom of Laptop_MIMO2 antenna
Minimum	14

<Proximity Sensor Triggering Coverage (KDB 616217 D04 section 6.3)>:

The sensor pad in the operational description exhibit, Since the antenna and sensor are collocated and all of the peak SAR location is overlapping with the sensor pad for this device, therefore, According to KDB 616217 section6.3, these procedures do not apply and are not required for Bottom of Laptop due to the antenna and sensor are collocated and the peak SAR location is overlapping with the sensor on this device.

Proximity sensor power reduction

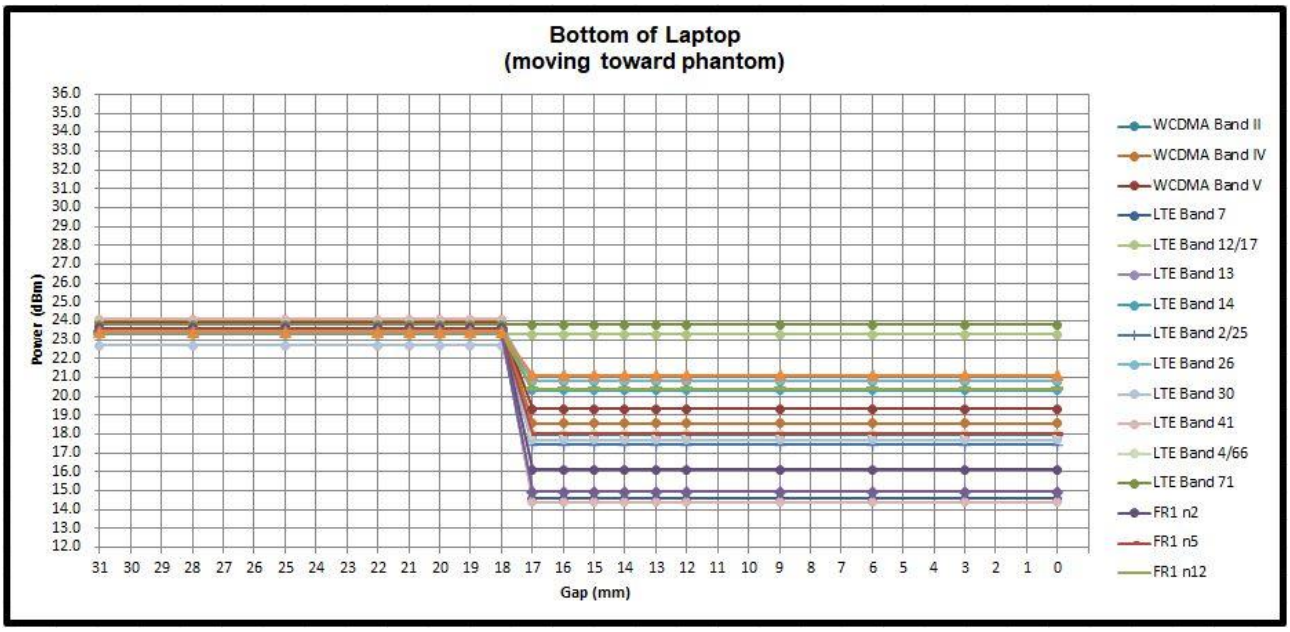
Exposure Position / wireless mode	Bottom of Laptop(1)
WCDMA Band V_Main	4.5 dB
WCDMA Band II_Main	6 dB
WCDMA Band IV_Main	5.5 dB
LTE Band 2_Main	6 dB
LTE Band 2_MOMO 2	7 dB
LTE Band 7_Main	9 dB
LTE Band 7_MOMO 2	8 dB
LTE Band 12 / 17_Main	0 dB
LTE Band 13_Main	2.5 dB
LTE Band 14_Main	3 dB
LTE Band 25_Main	6 dB
LTE Band 5 / 26_Main	3 dB
LTE Band 30_Main	5 dB
LTE Band 38 / 41_Main	8.5 dB
LTE Band 41_HPUE	8 dB
LTE Band 48_MOMO2	5 dB
LTE Band 4/ 66_Main	5.5 dB
LTE Band 66_MOMO 2	7 dB
LTE Band 71_Main	0 dB
FR1 n2_Main	7.5 dB
FR1 n2_MOTO 2	9 dB
FR1 n5_Main	5.5 dB
FR1 n7_MOMO 2	11 dB
FR1 n12_Main	3 dB
FR1 n41_MOMO 2	11 dB
FR1 n66_Main	8.5 dB
FR1 n66_MOMO 2	9 dB
FR1 n71_Main	2.5 dB

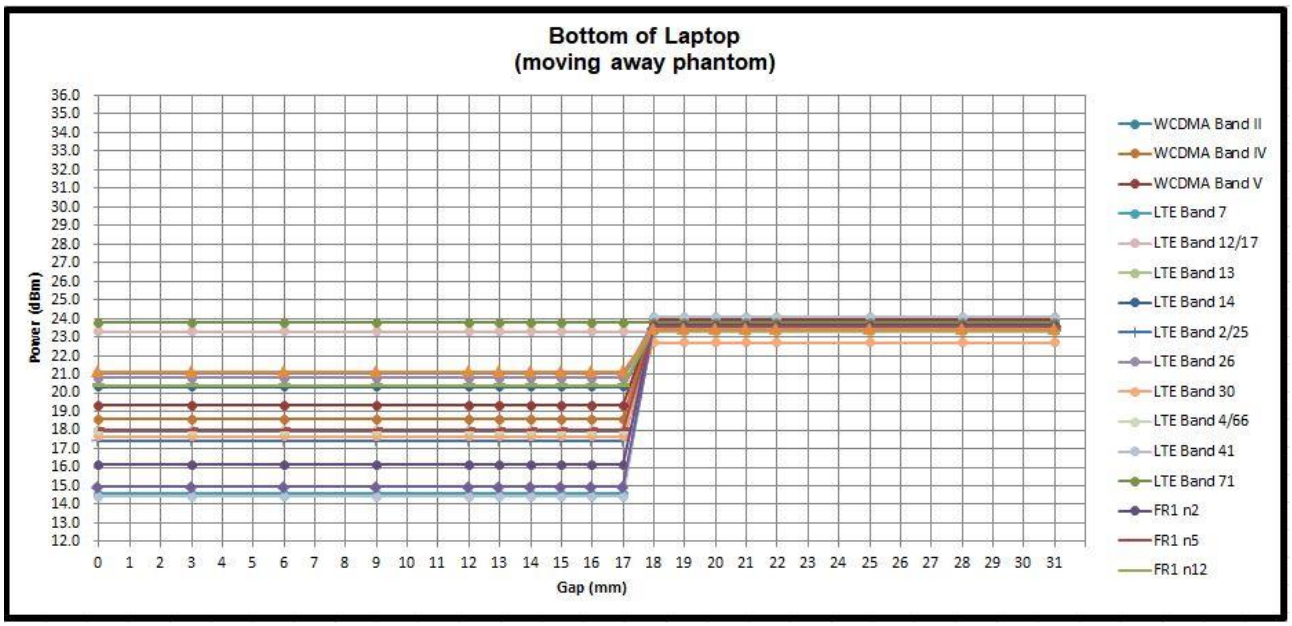
Remark:

1. (1): Reduced maximum limit applied by activation of proximity sensor.
2. Tests were performed in accordance with KDB 616217 D04 section 6.1, 6.2, 6.3, 6.4 and 6.5 and compliant results are shown and described in exhibit “P-Sensor operational description
3. For verification of compliance of power reduction scheme, additional SAR testing with EUT transmitting at full RF power at a conservative trigger distance was performed:
   - Bottom of Laptop: 14 mm for MIMO2 antenna and 17mm for Main antenna

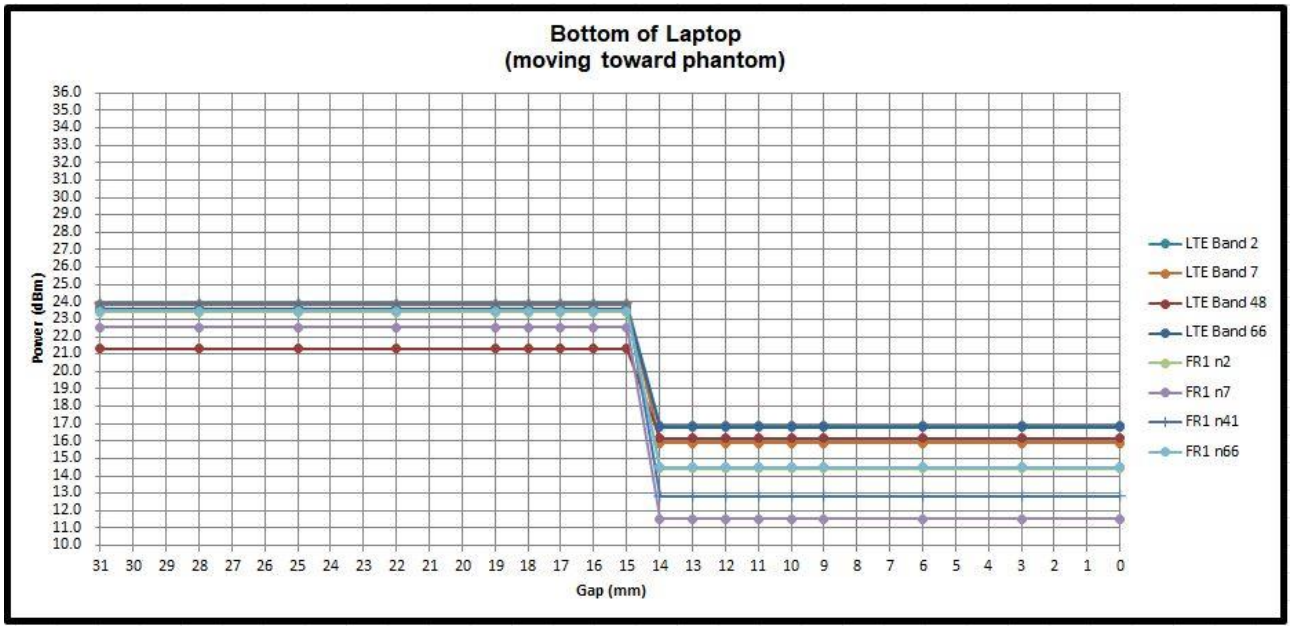
Power Measurement during Sensor Trigger distance testing

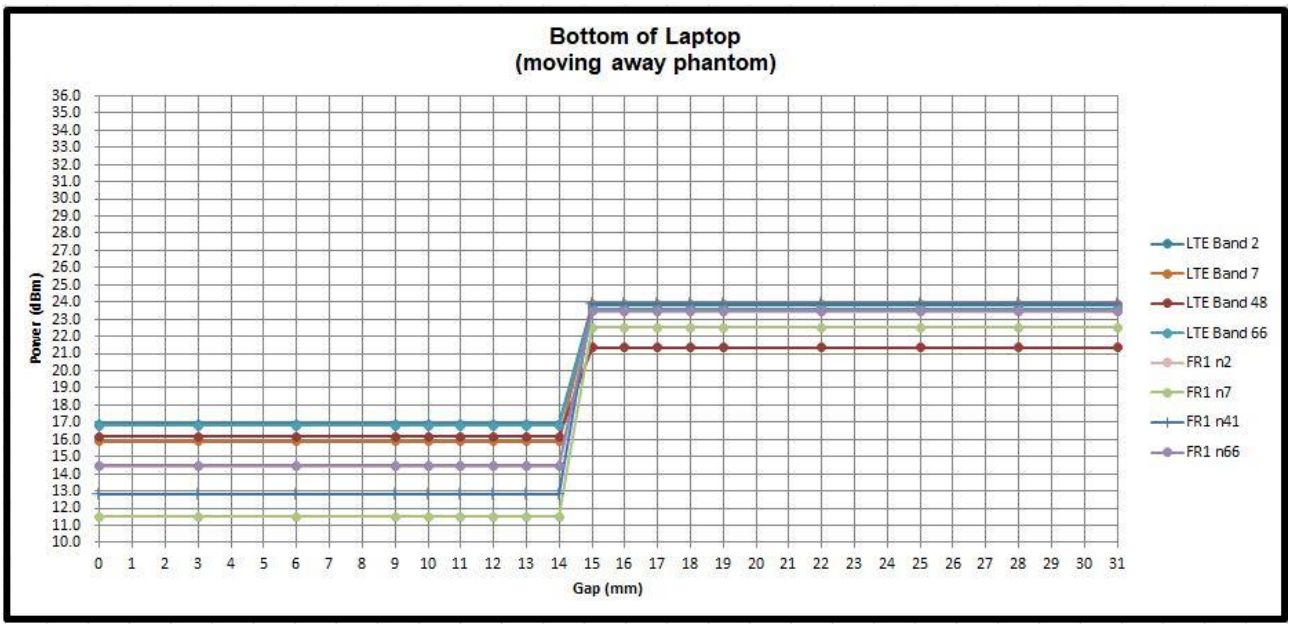
Main Antenna





MIMO2 Antenna





5. RF Exposure Limits

5.1 Uncontrolled Environment

Uncontrolled Environments are defined as locations where there is the exposure of individuals who have no knowledge or control of their exposure. The general population/uncontrolled exposure limits are applicable to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Members of the general public would come under this category when exposure is not employment-related; for example, in the case of a wireless transmitter that exposes persons in its vicinity.

5.2 Controlled Environment

Controlled Environments are defined as locations where there is exposure that may be incurred by persons who are aware of the potential for exposure, (i.e. as a result of employment or occupation). In general, occupational/controlled exposure limits are applicable to situations in which persons are exposed as a consequence of their employment, who have been made fully aware of the potential for exposure and can exercise control over their exposure. The exposure category is also applicable when the exposure is of a transient nature due to incidental passage through a location where the exposure levels may be higher than the general population/uncontrolled limits, but the exposed person is fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Limits for Occupational/Controlled Exposure (W/kg)

Whole-Body	Partial-Body	Hands, Wrists, Feet and Ankles
0.4	8.0	20.0

Limits for General Population/Uncontrolled Exposure (W/kg)

Whole-Body	Partial-Body	Hands, Wrists, Feet and Ankles
0.08	1.6	4.0

1. Whole-Body SAR is averaged over the entire body, partial-body SAR is averaged over any 1gram of tissue defined as a tissue volume in the shape of a cube. SAR for hands, wrists, feet and ankles is averaged over any 10 grams of tissue defined as a tissue volume in the shape of a cube.

6. Specific Absorption Rate (SAR)

6.1 Introduction

SAR is related to the rate at which energy is absorbed per unit mass in an object exposed to a radio field. The SAR distribution in a biological body is complicated and is usually carried out by experimental techniques or numerical modeling. The standard recommends limits for two tiers of groups, occupational/controlled and general population/uncontrolled, based on a person's awareness and ability to exercise control over his or her exposure. In general, occupational/controlled exposure limits are higher than the limits for general population/uncontrolled.

6.2 SAR Definition

The SAR definition is the time derivative (rate) of the incremental energy (dW) absorbed by (dissipated in) an incremental mass (dm) contained in a volume element (dv) of a given density (ρ). The equation description is as below:

$$\mathbf{SAR} = \frac{\mathbf{d}}{\mathbf{dt}}\left(\frac{\mathbf{dW}}{\mathbf{dm}}\right) = \frac{\mathbf{d}}{\mathbf{dt}}\left(\frac{\mathbf{dW}}{\boldsymbol{\rho}\mathbf{dv}}\right)$$

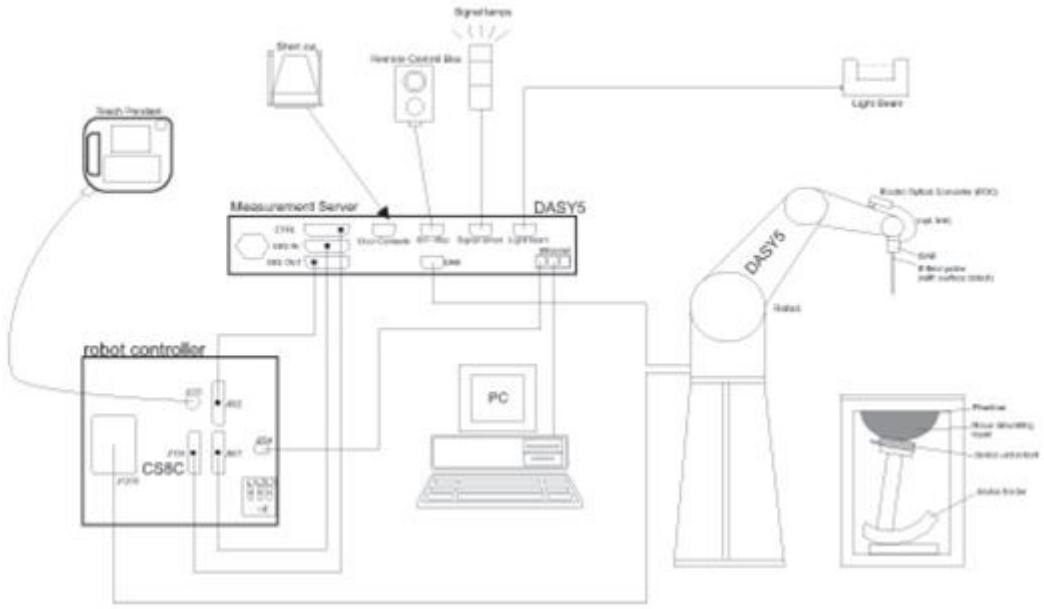
SAR is expressed in units of Watts per kilogram (W/kg)

$$\mathbf{SAR} = \frac{\boldsymbol{\sigma}|\mathbf{E}|^{\mathbf{2}}}{\boldsymbol{\rho}}$$

Where: σ is the conductivity of the tissue, ρ is the mass density of the tissue and E is the RMS electrical field strength.

7. System Description and Setup

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



- A standard high precision 6-axis robot with controller, teach pendant and software. An arm extension for accommodating the data acquisition electronics (DAE).
- An isotropic Field probe optimized and calibrated for the targeted measurement.
- 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.
- The Electro-optical converter (EOC) performs the conversion from optical to electrical signals for the digital communication to the DAE. To use optical surface detection, a special version of the EOC is required. The EOC signal is transmitted to the measurement server.
- The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- The Light Beam used is for probe alignment. This improves the (absolute) accuracy of the probe positioning.
- A computer running WinXP or Win7 and the DASY5 software.
- Remote control and teach pendant as well as additional circuitry for robot safety such as warning lamps, etc.
- The phantom, the device holder and other accessories according to the targeted measurement.

7.1 Test Side Location

Sporton Lab and below test site location are accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code: 1190 and 0007) and the FCC designation No. TW1190 and TW0007 under the FCC 2.948(e) by Mutual Recognition Agreement (MRA) in FCC test.

Test Side	SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory			
Test Site Location	TW1190 No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333, CHINESE TAIPEI		TW0007 No. 58, Aly. 75, Ln. 564, Wehnua 3rd, Rd., Guishan Dist., Taoyuan City, CHINESE TAIPEI	
Test Site No.	SAR01-HY	SAR03-HY	SAR08-HY	SAR09-HY
	SAR04-HY	SAR05-HY	SAR11-HY	SAR12-HY
	SAR06-HY	SAR10-HY		

7.2 E-Field Probe

The SAR measurement is conducted with the dosimetric probe (manufactured by SPEAG).The probe is specially designed and calibrated for use in liquid with high permittivity. The dosimetric probe has special calibration in liquid at different frequency. This probe has a built in optical surface detection system to prevent from collision with phantom.

<ES3DV3 Probe>

Construction	Symmetric design with triangular core Interleaved sensors Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)	
Frequency	10 MHz – 4 GHz; Linearity: ±0.2 dB (30 MHz – 4 GHz)	
Directivity	±0.2 dB in TSL (rotation around probe axis) ±0.3 dB in TSL (rotation normal to probe axis)	
Dynamic Range	5 µW/g – >100 mW/g; Linearity: ±0.2 dB	
Dimensions	Overall length: 337 mm (tip: 20 mm) Tip diameter: 3.9 mm (body: 12 mm) Distance from probe tip to dipole centers: 3.0 mm	

<EX3DV4 Probe>

Construction	Symmetric design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)	
Frequency	10 MHz – >6 GHz Linearity: ±0.2 dB (30 MHz – 6 GHz)	
Directivity	±0.3 dB in TSL (rotation around probe axis) ±0.5 dB in TSL (rotation normal to probe axis)	
Dynamic Range	10 µW/g – >100 mW/g Linearity: ±0.2 dB (noise: typically <1 µW/g)	
Dimensions	Overall length: 337 mm (tip: 20 mm) Tip diameter: 2.5 mm (body: 12 mm) Typical distance from probe tip to dipole centers: 1 mm	

7.3 Data Acquisition Electronics (DAE)

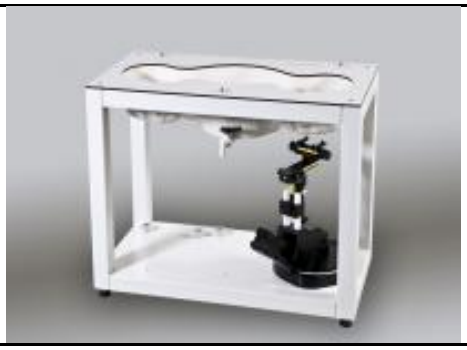
The data acquisition electronics (DAE) consists of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16 bit AD-converter and a command decoder and control logic unit. Transmission to the measurement server is accomplished through an optical downlink for data and status information as well as an optical uplink for commands and the clock.

The input impedance of the DAE is 200 MOhm; the inputs are symmetrical and floating. Common mode rejection is above 80 dB.

Fig 5.1 Photo of DAE

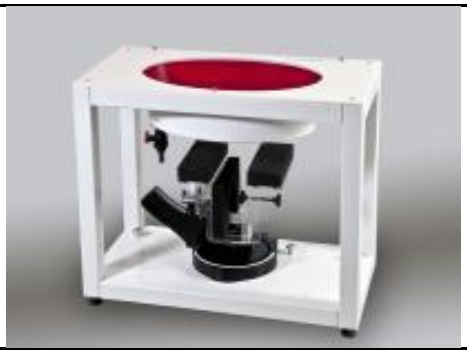
7.4 Phantom

<SAM Twin Phantom>

Shell Thickness	2 ± 0.2 mm; Center ear point: 6 ± 0.2 mm	
Filling Volume	Approx. 25 liters	
Dimensions	Length: 1000 mm; Width: 500 mm; Height: adjustable feet	
Measurement Areas	Left Hand, Right Hand, Flat Phantom	

The bottom plate contains three pair of bolts for locking the device holder. The device holder positions are adjusted to the standard measurement positions in the three sections. A white cover is provided to tap the phantom during off-periods to prevent water evaporation and changes in the liquid parameters. On the phantom top, three reference markers are provided to identify the phantom position with respect to the robot.

<ELI Phantom>

Shell Thickness	2 ± 0.2 mm (sagging: <1%)	
Filling Volume	Approx. 30 liters	
Dimensions	Major ellipse axis: 600 mm Minor axis: 400 mm	

The ELI phantom is intended for compliance testing of handheld and body-mounted wireless devices in the frequency range of 30 MHz to 6 GHz. ELI4 is fully compatible with standard and all known tissue simulating liquids.

7.5 Device Holder

<Mounting Device for Hand-Held Transmitter>

In combination with the Twin SAM V5.0/V5.0c or ELI phantoms, the Mounting Device for Hand-Held Transmitters enables rotation of the mounted transmitter device to specified spherical coordinates. At the heads, the rotation axis is at the ear opening. Transmitter devices can be easily and accurately positioned according to IEC 62209-1, IEEE 1528, FCC, or other specifications. The device holder can be locked for positioning at different phantom sections (left head, right head, flat). And upgrade kit to Mounting Device to enable easy mounting of wider devices like big smart-phones, e-books, small tablets, etc. It holds devices with width up to 140 mm.

Mounting Device for Hand-Held Transmitters

Mounting Device Adaptor for Wide-Phones

<Mounting Device for Laptops and other Body-Worn Transmitters>

The extension is lightweight and made of POM, acrylic glass and foam. It fits easily on the upper part of the mounting device in place of the phone positioned. The extension is fully compatible with the SAM Twin and ELI phantoms.

Mounting Device for Laptops

8. Measurement Procedures

The measurement procedures are as follows:

<Conducted power measurement>

(a) For WWAN power measurement, use base station simulator to configure EUT WWAN transmission in conducted connection with RF cable, at maximum power in each supported wireless interface and frequency band.
(b) Read the WWAN RF power level from the base station simulator.
(c) For WLAN/BT power measurement, use engineering software to configure EUT WLAN/BT continuously transmission, at maximum RF power in each supported wireless interface and frequency band
(d) Connect EUT RF port through RF cable to the power meter, and measure WLAN/BT output power

<SAR measurement>

(a) Use base station simulator to configure EUT WWAN transmission in radiated connection, and engineering software to configure EUT WLAN/BT continuously transmission, at maximum RF power, in the highest power channel.
(b) Place the EUT in the positions as Appendix D demonstrates.
(c) Set scan area, grid size and other setting on the DASY software.
(d) Measure SAR results for the highest power channel on each testing position.
(e) Find out the largest SAR result on these testing positions of each band
(f) Measure SAR results for other channels in worst SAR testing position if the reported SAR of highest power channel is larger than 0.8 W/kg

According to the test standard, the recommended procedure for assessing the peak spatial-average SAR value consists of the following steps:

(a) Power reference measurement
(b) Area scan
(c) Zoom scan
(d) Power drift measurement

8.1 Spatial Peak SAR Evaluation

The procedure for spatial peak SAR evaluation has been implemented according to the test standard. It can be conducted for 1g and 10g, as well as for user-specific masses. The DASY software includes all numerical procedures necessary to evaluate the spatial peak SAR value.

The base for the evaluation is a "cube" measurement. The measured volume must include the 1g and 10g cubes with the highest averaged SAR values. For that purpose, the center of the measured volume is aligned to the interpolated peak SAR value of a previously performed area scan.

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 1g and 10g cubes. The algorithm to find the cube with highest averaged SAR is divided into the following stages:

(a) Extraction of the measured data (grid and values) from the Zoom Scan
(b) Calculation of the SAR value at every measurement point based on all stored data (A/D values and measurement parameters)
(c) Generation of a high-resolution mesh within the measured volume
(d) Interpolation of all measured values form the measurement grid to the high-resolution grid
(e) Extrapolation of the entire 3-D field distribution to the phantom surface over the distance from sensor to surface
(f) Calculation of the averaged SAR within masses of 1g and 10g

8.2 Power Reference Measurement

The Power Reference Measurement and Power Drift Measurements are for monitoring the power drift of the device under test in the batch process. The minimum distance of probe sensors to surface determines the closest measurement point to phantom surface. This distance cannot be smaller than the distance of sensor calibration points to probe tip as defined in the probe properties.

8.3 Area Scan

The area scan is used as a fast scan in two dimensions to find the area of high field values, before doing a fine measurement around the hot spot. The sophisticated interpolation routines implemented in DASY software can find the maximum found in the scanned area, within a range of the global maximum. The range (in dB0 is specified in the standards for compliance testing. For example, a 2 dB range is required in IEEE standard 1528 and IEC 62209 standards, whereby 3 dB is a requirement when compliance is assessed in accordance with the ARIB standard (Japan), if only one zoom scan follows the area scan, then only the absolute maximum will be taken as reference. For cases where multiple maximums are detected, the number of zoom scans has to be increased accordingly.

Area scan parameters extracted from FCC KDB 865664 D01v01r04 SAR measurement 100 MHz to 6 GHz.

	≤ 3 GHz	> 3 GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface	5 ± 1 mm	½·δ·ln(2) ± 0.5 mm
Maximum probe angle from probe axis to phantom surface normal at the measurement location	30° ± 1°	20° ± 1°
Maximum area scan spatial resolution: Δx_{Area}, Δy_{Area}	≤ 2 GHz: ≤ 15 mm 2 – 3 GHz: ≤ 12 mm	3 – 4 GHz: ≤ 12 mm 4 – 6 GHz: ≤ 10 mm
	When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be ≤ the corresponding x or y dimension of the test device with at least one measurement point on the test device.	

8.4 Zoom Scan

Zoom scans are used assess the peak spatial SAR values within a cubic averaging volume containing 1 gram and 10 gram of simulated tissue. The zoom scan measures points (refer to table below) within a cube shoes base faces are centered on the maxima found in a preceding area scan job within the same procedure. When the measurement is done, the zoom scan evaluates the averaged SAR for 1 gram and 10 gram and displays these values next to the job's label.

Zoom scan parameters extracted from FCC KDB 865664 D01v01r04 SAR measurement 100 MHz to 6 GHz.

			≤ 3 GHz	> 3 GHz
Maximum zoom scan spatial resolution: Δx_{Zoom}, Δy_{Zoom}			≤ 2 GHz: ≤ 8 mm 2 – 3 GHz: ≤ 5 mm*	3 – 4 GHz: ≤ 5 mm* 4 – 6 GHz: ≤ 4 mm*
Maximum zoom scan spatial resolution, normal to phantom surface	uniform grid: $\Delta z_{Zoom}(n)$		≤ 5 mm	3 – 4 GHz: ≤ 4 mm 4 – 5 GHz: ≤ 3 mm 5 – 6 GHz: ≤ 2 mm
	graded grid	$\Delta z_{Zoom}(1)$: between 1st two points closest to phantom surface	≤ 4 mm	3 – 4 GHz: ≤ 3 mm 4 – 5 GHz: ≤ 2.5 mm 5 – 6 GHz: ≤ 2 mm
		$\Delta z_{Zoom}(n>1)$: between subsequent points	≤ 1.5·$\Delta z_{Zoom}(n-1)$	
Minimum zoom scan volume	x, y, z		≥ 30 mm	3 – 4 GHz: ≥ 28 mm 4 – 5 GHz: ≥ 25 mm 5 – 6 GHz: ≥ 22 mm

Note: δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see draft standard IEEE P1528-2011 for details.

* When zoom scan is required and the *reported* SAR from the *area scan based 1-g SAR estimation* procedures of KDB 447498 is ≤ 1.4 W/kg, ≤ 8 mm, ≤ 7 mm and ≤ 5 mm zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.

8.5 Volume Scan Procedures

The volume scan is used for assess overlapping SAR distributions for antennas transmitting in different frequency bands. It is equivalent to an oversized zoom scan used in standalone measurements. The measurement volume will be used to enclose all the simultaneous transmitting antennas. For antennas transmitting simultaneously in different frequency bands, the volume scan is measured separately in each frequency band. In order to sum correctly to compute the 1g aggregate SAR, the EUT remain in the same test position for all measurements and all volume scan use the same spatial resolution and grid spacing. When all volume scan were completed, the software, SEMCAD postprocessor can combine and subsequently superpose these measurement data to calculating the multiband SAR.

8.6 Power Drift Monitoring

All SAR testing is under the EUT install full charged battery and transmit maximum output power. In DASY measurement software, the power reference measurement and power drift measurement procedures are used for monitoring the power drift of EUT during SAR test. Both these procedures measure the field at a specified reference position before and after the SAR testing. The software will calculate the field difference in dB. If the power drifts more than 5%, the SAR will be retested.

9. Test Equipment List

Manufacturer	Name of Equipment	Type/Model	Serial Number	Calibration	
				Last Cal.	Due Date
SPEAG	750MHz System Validation Kit(2)	D750V3	1107	Mar. 08, 2019	Mar. 06, 2021
SPEAG	835MHz System Validation Kit	D835V2	4d167	Nov. 25, 2019	Nov. 24, 2020
SPEAG	1750MHz System Validation Kit(2)	D1750V2	1112	Mar. 07, 2019	Mar. 05, 2021
SPEAG	1900MHz System Validation Kit(2)	D1900V2	5d041	Sep. 11, 2018	Sep. 09, 2020
SPEAG	2300MHz System Validation Kit(2)	D2300V2	1006	Jan. 28, 2019	Jan. 26, 2021
SPEAG	2600MHz System Validation Kit(2)	D2600V2	1078	Mar. 06, 2019	Mar. 04, 2021
SPEAG	3500MHz System Validation Kit(2)	D3500V2	1014	Jan. 29, 2019	Jan. 27, 2021
SPEAG	3700MHz System Validation Kit(2)	D3700V2	1006	Mar. 05, 2019	Mar. 03, 2021
SPEAG	Data Acquisition Electronics	DAE4	679	May. 06, 2020	May. 05, 2021
SPEAG	Data Acquisition Electronics	DAE4	778	Jun. 04, 2020	Jun. 03, 2021
SPEAG	Data Acquisition Electronics	DAE4	853	Jul. 23, 2020	Jul. 22, 2021
SPEAG	Data Acquisition Electronics	DAE4	854	May. 26, 2020	May. 25, 2021
SPEAG	Dosimetric E-Field Probe	EX3DV4	3642	Apr. 29, 2020	Apr. 28, 2021
SPEAG	Dosimetric E-Field Probe	EX3DV4	3925	Sep. 20, 2019	Sep. 19, 2020
SPEAG	Dosimetric E-Field Probe	EX3DV4	3931	Sep. 26, 2019	Sep. 25, 2020
SPEAG	Dosimetric E-Field Probe	EX3DV4	7306	Jul. 24, 2020	Jul. 23, 2021
SPEAG	Dosimetric E-Field Probe	EX3DV4	7515	Oct. 22, 2019	Oct. 21, 2020
RCPTWN	Thermometer	HTC-1	TM685-1	Nov. 12, 2019	Nov. 11, 2020
RCPTWN	Thermometer	HTC-1	TM560-2	Nov. 12, 2019	Nov. 11, 2020
Anritsu	Radio Communication Analyzer	MT8821C	6201341950	Oct. 31, 2019	Oct. 30, 2020
Agilent	Wireless Communication Test Set	E5515C	MY50267236	Mar. 18, 2020	Mar. 17, 2021
SPEAG	Device Holder	N/A	N/A	N/A	N/A
Anritsu	Signal Generator	MG3710A	6201502524	Nov. 20, 2019	Nov. 19, 2020
Agilent	ENA Network Analyzer	E5071C	MY46104758	Sep. 06, 2019	Sep. 05, 2020
SPEAG	Dielectric Probe Kit	DAK-3.5	1126	Sep. 18, 2019	Sep. 17, 2020
LINE SEIKI	Digital Thermometer	DTM3000-spezial	2942	Nov. 18, 2019	Nov. 17, 2020
Anritsu	Power Meter	ML2495A	932001	Oct. 03, 2019	Oct. 02, 2020
Anritsu	Power Sensor	MA2411B	846202	Oct. 03, 2019	Oct. 02, 2020
Anritsu	Power Meter	ML2495A	1218006	Oct. 14, 2019	Oct. 13, 2020
Anritsu	Power Sensor	MA2411B	1207363	Oct. 14, 2019	Oct. 13, 2020
Anritsu	Spectrum Analyzer	MS2830A	6201396378	Jun. 30, 2020	Jun. 29, 2021
Anritsu	Spectrum Analyzer	N9010A	MY53470118	Mar. 12, 2020	Mar. 11, 2021
Mini-Circuits	Power Amplifier	ZVE-8G+	6418	Oct. 16, 2019	Oct. 15, 2020
Mini-Circuits	Power Amplifier	ZHL-42W+	715701915	May. 07, 2020	May. 06, 2021
ATM	Dual Directional Coupler	C122H-10	P610410z-02	Note 1	
Woken	Attenuator 1	WK0602-XX	N/A	Note 1	
PE	Attenuator 2	PE7005-10	N/A	Note 1	
PE	Attenuator 3	PE7005- 3	N/A	Note 1	

General Note:

1. Prior to system verification and validation, the path loss from the signal generator to the system check source and the power meter, which includes the amplifier, cable, attenuator and directional coupler, was measured by the network analyzer. The reading of the power meter was offset by the path loss difference between the path to the power meter and the path to the system check source to monitor the actual power level fed to the system check source.
2. The dipole calibration interval can be extended to 3 years with justification according to KDB 865664 D01. The dipoles are also not physically damaged, or repaired during the interval. The justification data in appendix C can be found which the return loss is < -20dB, within 20% of prior calibration, the impedance is within 5 ohm of prior calibration for each dipole.

10. System Verification

10.1 Tissue Simulating Liquids

For the measurement of the field distribution inside the SAM phantom with DASY, the phantom must be filled with around 25 liters of homogeneous body tissue simulating liquid. For head SAR testing, the liquid height from the ear reference point (ERP) of the phantom to the liquid top surface is larger than 15 cm, which is shown in Fig. 10.1. For body SAR testing, the liquid height from the center of the flat phantom to the liquid top surface is larger than 15 cm, which is shown in Fig. 10.2.

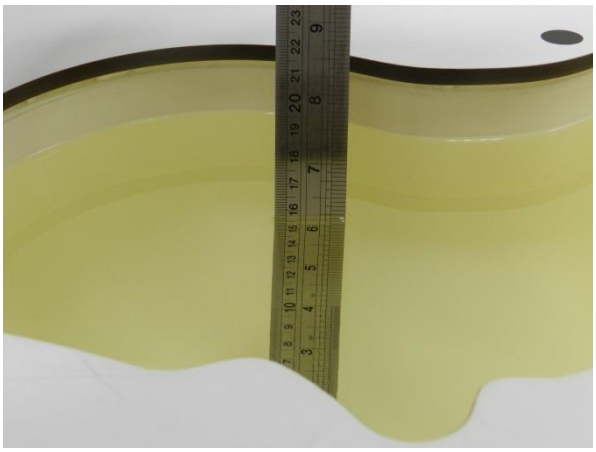


Fig 10.1Photo of Liquid Height for Head SAR

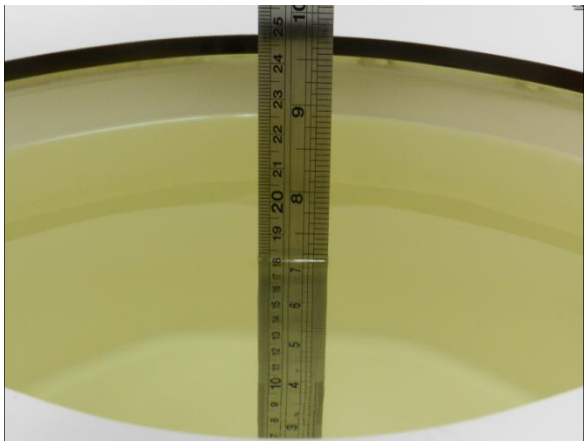


Fig 10.2 Photo of Liquid Height for Body SAR

10.2 Tissue Verification

The following tissue formulations are provided for reference only as some of the parameters have not been thoroughly verified. The composition of ingredients may be modified accordingly to achieve the desired target tissue parameters required for routine SAR evaluation.

Frequency (MHz)	Water (%)	Sugar (%)	Cellulose (%)	Salt (%)	Preventol (%)	DGBE (%)	Conductivity (σ)	Permittivity (εr)
750	41.1	57.0	0.2	1.4	0.2	0	0.89	41.9
835	40.3	57.9	0.2	1.4	0.2	0	0.90	41.5
900	40.3	57.9	0.2	1.4	0.2	0	0.97	41.5
1800, 1900, 2000	55.2	0	0	0.3	0	44.5	1.40	40.0
2450	55.0	0	0	0	0	45.0	1.80	39.2
2600	54.8	0	0	0.1	0	45.1	1.96	39.0

Simulating Liquid for 5GHz, Manufactured by SPEAG

Ingredients	(% by weight)
Water	64~78%
Mineral oil	11~18%
Emulsifiers	9~15%
Additives and Salt	2~3%

<Tissue Dielectric Parameter Check Results>

Frequency (MHz)	Liquid Temp. (℃)	Conductivity (σ)	Permittivity (ε_r)	Conductivity Target (σ)	Permittivity Target (ε_r)	Delta (σ) (%)	Delta (ε_r) (%)	Limit (%)	Date
750	22.2	0.891	42.996	0.89	41.90	0.11	2.62	±5	2020/8/7
750	22.1	0.890	42.883	0.89	41.90	0.00	2.35	±5	2020/8/19
750	22.1	0.889	42.793	0.89	41.90	-0.11	2.13	±5	2020/8/21
750	22.4	0.888	42.895	0.89	41.90	-0.22	2.37	±5	2020/8/26
835	22.2	0.926	42.700	0.90	41.50	2.89	2.89	±5	2020/8/7
835	22.1	0.925	42.587	0.90	41.50	2.78	2.62	±5	2020/8/19
835	22.1	0.923	42.497	0.90	41.50	2.56	2.40	±5	2020/8/21
835	22.4	0.922	42.599	0.90	41.50	2.44	2.65	±5	2020/8/26
1750	22.2	1.352	40.458	1.37	40.10	-1.31	0.89	±5	2020/7/28
1750	22.1	1.353	40.294	1.37	40.10	-1.24	0.48	±5	2020/8/20
1750	22.1	1.353	40.294	1.37	40.10	-1.24	0.48	±5	2020/8/20
1750	22.4	1.348	40.163	1.37	40.10	-1.61	0.16	±5	2020/8/26
1900	22.2	1.429	38.910	1.40	40.00	2.07	-2.73	±5	2020/7/28
1900	22.1	1.428	38.746	1.40	40.00	2.00	-3.13	±5	2020/8/20
1900	22.1	1.428	38.746	1.40	40.00	2.00	-3.13	±5	2020/8/20
1900	22.4	1.423	38.615	1.40	40.00	1.64	-3.46	±5	2020/8/26
2300	22.2	1.671	39.026	1.67	39.50	0.06	-1.20	±5	2020/8/5
2300	22.4	1.637	39.350	1.67	39.50	-1.98	-0.38	±5	2020/8/26
2600	22.2	1.995	37.914	1.96	39.00	1.79	-2.78	±5	2020/8/5
2600	22.1	1.942	38.570	1.96	39.00	-0.92	-1.10	±5	2020/8/21
2600	22.1	1.993	38.287	1.96	39.00	1.68	-1.83	±5	2020/8/21
2600	22.4	1.981	38.165	1.96	39.00	1.07	-2.14	±5	2020/8/26
3500	22.5	2.936	37.527	2.91	37.90	0.89	-0.98	±5	2020/8/15
3500	22.2	2.950	38.103	2.91	37.90	1.37	0.54	±5	2020/8/24
3500	22.4	2.925	37.444	2.91	37.90	0.52	-1.20	±5	2020/8/26
3700	22.5	3.121	37.228	3.12	37.70	0.03	-1.25	±5	2020/8/15
3700	22.2	3.160	37.901	3.12	37.70	1.28	0.53	±5	2020/8/24
3700	22.4	3.109	37.145	3.12	37.70	-0.35	-1.47	±5	2020/8/26

10.3 System Performance Check Results

Comparing to the original SAR value provided by SPEAG, the verification data should be within its specification of 10 %. Below table shows the target SAR and measured SAR after normalized to 1W input power. The table below indicates the system performance check can meet the variation criterion and the plots can be referred to Appendix A of this report.

Date	Frequency (MHz)	Input Power (mW)	Dipole S/N	Probe S/N	DAE S/N	Measured 1g SAR (W/kg)	Targeted 1g SAR (W/kg)	Normalized 1g SAR (W/kg)	Deviation (%)
2020/8/7	750	250	D750V3-1107	EX3DV4 - SN7515	DAE4 Sn679	1.93	8.32	7.72	-7.21
2020/8/19	750	250	D750V3-1107	EX3DV4 - SN3642	DAE4 Sn853	2.17	8.32	8.68	4.33
2020/8/21	750	250	D750V3-1107	EX3DV4 - SN7306	DAE4 Sn854	2.22	8.32	8.88	6.73
2020/8/26	750	250	D750V3-1107	EX3DV4 - SN3931	DAE4 Sn853	2.20	8.32	8.8	5.77
2020/8/7	835	250	D835V2-4d167	EX3DV4 - SN7515	DAE4 Sn679	2.57	9.55	10.28	7.64
2020/8/19	835	250	D835V2-4d167	EX3DV4 - SN3642	DAE4 Sn853	2.52	9.55	10.08	5.55
2020/8/21	835	250	D835V2-4d167	EX3DV4 - SN7306	DAE4 Sn854	2.53	9.55	10.12	5.97
2020/8/26	835	250	D835V2-4d167	EX3DV4 - SN3931	DAE4 Sn853	2.42	9.55	9.68	1.36
2020/7/28	1750	250	D1750V2-1112	EX3DV4 - SN7515	DAE4 Sn679	8.54	36.70	34.16	-6.92
2020/8/20	1750	50	D1750V2-1112	EX3DV4 - SN7306	DAE4 Sn854	1.78	36.70	35.6	-3.00
2020/8/20	1750	250	D1750V2-1112	EX3DV4 - SN3642	DAE4 Sn853	9.11	36.70	36.44	-0.71
2020/8/26	1750	250	D1750V2-1112	EX3DV4 - SN3931	DAE4 Sn853	9.21	36.70	36.84	0.38
2020/7/28	1900	250	D1900V2-5d041	EX3DV4 - SN7515	DAE4 Sn679	9.83	40.20	39.32	-2.19
2020/8/20	1900	50	D1900V2-5d041	EX3DV4 - SN7306	DAE4 Sn854	2.02	40.20	40.4	0.50
2020/8/20	1900	250	D1900V2-5d041	EX3DV4 - SN3642	DAE4 Sn853	10.00	40.20	40	-0.50
2020/8/26	1900	250	D1900V2-5d041	EX3DV4 - SN3931	DAE4 Sn853	10.50	40.20	42	4.48
2020/8/5	2300	250	D2300V2-1006	EX3DV4 - SN7515	DAE4 Sn679	12.30	48.70	49.2	1.03
2020/8/26	2300	250	D2300V2-1006	EX3DV4 - SN3931	DAE4 Sn853	11.20	48.70	44.8	-8.01
2020/8/5	2600	250	D2600V2-1078	EX3DV4 - SN7515	DAE4 Sn679	14.40	57.60	57.6	0.00
2020/8/21	2600	250	D2600V2-1078	EX3DV4 - SN3642	DAE4 Sn853	13.10	57.60	52.4	-9.03
2020/8/21	2600	250	D2600V2-1078	EX3DV4 - SN7306	DAE4 Sn854	15.10	57.60	60.4	4.86
2020/8/26	2600	250	D2600V2-1078	EX3DV4 - SN3931	DAE4 Sn853	14.40	57.60	57.6	0.00
2020/8/15	3500	100	D3500V2-1014	EX3DV4 - SN3925	DAE4 Sn778	6.51	67.90	65.1	-4.12
2020/8/24	3500	100	D3500V2-1014	EX3DV4 - SN3931	DAE4 Sn853	6.70	67.90	67	-1.33
2020/8/26	3500	100	D3500V2-1014	EX3DV4 - SN3931	DAE4 Sn853	6.64	67.90	66.4	-2.21
2020/8/15	3700	100	D3700V2-1006	EX3DV4 - SN3925	DAE4 Sn778	6.84	67.30	68.4	1.63
2020/8/24	3700	100	D3700V2-1006	EX3DV4 - SN3931	DAE4 Sn853	6.82	67.30	68.2	1.34
2020/8/26	3700	100	D3700V2-1006	EX3DV4 - SN3931	DAE4 Sn853	6.71	67.30	67.1	-0.30

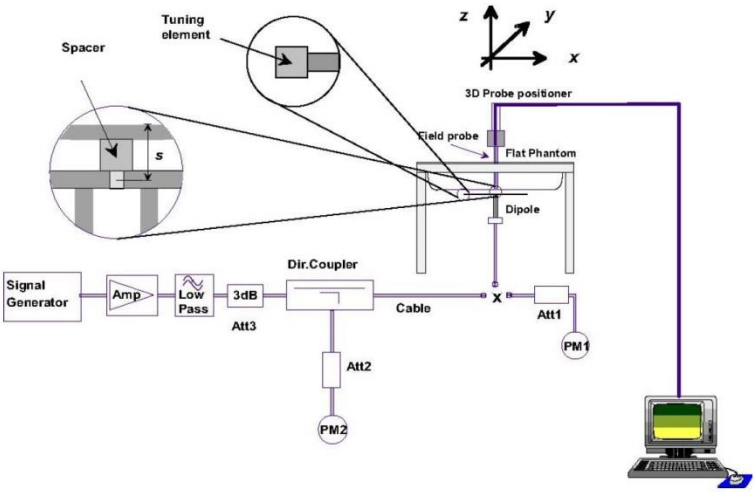


Fig 8.3.1 System Performance Check Setup

Fig 8.3.2 Setup Photo

11. Measurement procedure for output power and SAR

Power measurements for licensed transmitters are performed using a base station simulator under digital average power, and the detail output power measurement include in appendix D

<GSM Note>

1. Per KDB 941225 D01v03r01, for SAR test reduction for GSM / GPRS / EDGE modes is determined by the source-based time-averaged output power including tune-up tolerance. The mode with highest specified time-averaged output power should be tested for SAR compliance in the applicable exposure conditions. For modes with the same specified maximum output power and tolerance, the higher number time-slot configuration should be tested.
2. Other configurations of GSM / GPRS / EDGE are considered as secondary modes. The 3G SAR test reduction procedure is applied, when the maximum output power and tune-up tolerance specified for production units in a secondary mode is ≤ ¼ dB higher than the primary mode, SAR measurement is not required for the secondary mode.

<WCDMA Note>

1. Per KDB 941225 D01v03r01, for SAR testing is measured using a 12.2 kbps RMC with TPC bits configured to all “1’s”.
2. Per KDB 941225 D01v03r01, RMC 12.2kbps setting is used to evaluate SAR. The maximum output power and tune-up tolerance specified for production units in HSDPA / HSUPA / DC-HSDPA is ≤ ¼ dB higher than RMC 12.2Kbps or when the highest reported SAR of the RMC12.2Kbps is scaled by the ratio of specified maximum output power and tune-up tolerance of HSDPA / HSUPA / DC-HSDPA to RMC12.2Kbps and the adjusted SAR is ≤ 1.2 W/kg, SAR measurement is not required for HSDPA / HSUPA / DC-HSDPA, and according to the following RF output power, the output power results of the secondary modes (HSUPA, HSDPA, DC-HSDPA) are less than ¼ dB higher than the primary modes; therefore, SAR measurement is not required for HSDPA / HSUPA / DC-HSDPA.
3. The following tests were conducted according to the test requirements outlines in 3GPP TS 34.121 specification.
4. The procedures in KDB 941225 D01v03r01 are applied for 3GPP Rel. 6 HSPA to configure the device in the required sub-test mode(s) to determine SAR test exclusion.
5. For DC-HSDPA, the device was configured according to the H-Set 12, Fixed Reference Channel (FRC) configuration in Table C.8.1.12 of 3GPP TS 34.121-1, with the primary and the secondary serving HS-DSCH Cell enabled during the power measurement.

A summary of these settings are illustrated below:

HSDPA Setup Configuration:

a. The EUT was connected to Base Station Agilent E5515C referred to the Setup Configuration.
b. The RF path losses were compensated into the measurements.
c. A call was established between EUT and Base Station with following setting:
   i. Set Gain Factors (β_c and β_d) and parameters were set according to each
   ii. Specific sub-test in the following table, C10.1.4, quoted from the TS 34.121
   iii. Set RMC 12.2Kbps + HSDPA mode.
   iv. Set Cell Power = -86 dBm
   v. Set HS-DSCH Configuration Type to FRC (H-set 1, QPSK)
   vi. Select HSDPA Uplink Parameters
   vii. Set Delta ACK, Delta NACK and Delta CQI = 8
   viii. Set Ack-Nack Repetition Factor to 3
   ix. Set CQI Feedback Cycle (k) to 4 ms
   x. Set CQI Repetition Factor to 2
   xi. Power Ctrl Mode = All Up bits
d. The transmitted maximum output power was recorded.

Table C.10.1.4: β values for transmitter characteristics tests with HS-DPCCH

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	β_{HS} (Note1, Note 2)	CM (dB) (Note 3)	MPR (dB) (Note 3)
1	2/15	15/15	64	2/15	4/15	0.0	0.0
2	12/15 (Note 4)	15/15 (Note 4)	64	12/15 (Note 4)	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

Note 1: Δ_{ACK}, Δ_{NACK} and Δ_{CQI} = 30/15 with β_{hs} = 30/15 * β_c.

Note 2: For the HS-DPCCH power mask requirement test in clause 5.2C, 5.7A, and the Error Vector Magnitude (EVM) with HS-DPCCH test in clause 5.13.1A, and HSDPA EVM with phase discontinuity in clause 5.13.1AA, Δ_{ACK} and Δ_{NACK} = 30/15 with β_{hs} = 30/15 * β_c, and Δ_{CQI} = 24/15 with β_{hs} = 24/15 * β_c.

Note 3: CM = 1 for β_c/β_d =12/15, β_{hs}/β_c=24/15. For all other combinations of DPDCH, DPCCH and HS-DPCCH the MPR is based on the relative CM difference. This is applicable for only UEs that support HSDPA in release 6 and later releases.

Note 4: For subtest 2 the β_c/β_d ratio of 12/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to β_c = 11/15 and β_d = 15/15.

Setup Configuration

HSUPA Setup Configuration:

a. The EUT was connected to Base Station Agilent E5515C referred to the Setup Configuration.
b. The RF path losses were compensated into the measurements.
c. A call was established between EUT and Base Station with following setting * :
   i. Call Configs = 5.2B, 5.9B, 5.10B, and 5.13.2B with QPSK
   ii. Set the Gain Factors (β_c and β_d) and parameters (AG Index) were set according to each specific sub-test in the following table, C11.1.3, quoted from the TS 34.121
   iii. Set Cell Power = -86 dBm
   iv. Set Channel Type = 12.2k + HSPA
   v. Set UE Target Power
   vi. Power Ctrl Mode= Alternating bits
   vii. Set and observe the E-TFCI
   viii. Confirm that E-TFCI is equal to the target E-TFCI of 75 for sub-test 1, and other subtest's E-TFCI
d. The transmitted maximum output power was recorded.

Table C.11.1.3: β values for transmitter characteristics tests with HS-DPCCH and E-DCH

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	β_{HS} (Note1)	β_{ec}	β_{ed} (Note 4) (Note 5)	β_{ed} (SF)	β_{ed} (Codes)	CM (dB) (Note 2)	MPR (dB) (Note 2) (Note 6)	AG Index (Note 5)	E-TFCI
1	11/15 (Note 3)	15/15 (Note 3)	64	11/15 (Note 3)	22/15	209/225	1309/225	4	1	1.0	0.0	20	75
2	6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67
3	15/15	9/15	64	15/9	30/15	30/15	$\beta_{ed}1$: 47/15 $\beta_{ed}2$: 47/15	4 4	2	2.0	1.0	15	92
4	2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71
5	15/15	0	-	-	5/15	5/15	47/15	4	1	1.0	0.0	12	67

Note 1: For sub-test 1 to 4, Δ_{ACK}, Δ_{NACK} and Δ_{CQI} = 30/15 with β_{hs} = 30/15 * β_c. For sub-test 5, Δ_{ACK}, Δ_{NACK} and Δ_{CQI} = 5/15 with β_{hs} = 5/15 * β_c.

Note 2: CM = 1 for β_c/β_d =12/15, β_{hs}/β_c=24/15. For all other combinations of DPDCH, DPCCH, HS- DPCCH, E-DPDCH and E-DPCCH the MPR is based on the relative CM difference.

Note 3: For subtest 1 the β_c/β_d ratio of 11/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to β_c = 10/15 and β_d = 15/15.

Note 4: In case of testing by UE using E-DPDCH Physical Layer category 1, Sub-test 3 is omitted according to TS25.306 Table 5.1g.

Note 5: β_{ed} can not be set directly; it is set by Absolute Grant Value.

Note 6: For subtests 2, 3 and 4, UE may perform E-DPDCH power scaling at max power which could results in slightly smaller MPR values.

Setup Configuration

DC-HSDPA 3GPP release 8 Setup Configuration:

a. The EUT was connected to Base Station Agilent E5515C referred to the Setup Configuration below
b. The RF path losses were compensated into the measurements.
c. A call was established between EUT and Base Station with following setting:
   i. Set RMC 12.2Kbps + HSDPA mode.
   ii. Set Cell Power = -25 dBm
   iii. Set HS-DSCH Configuration Type to FRC (H-set 12, QPSK)
   iv. Select HSDPA Uplink Parameters
   v. Set Gain Factors (β_c and β_d) and parameters were set according to each Specific sub-test in the following table, C10.1.4, quoted from the TS 34.121
      a). Subtest 1: β_c/β_d=2/15
      b). Subtest 2: β_c/β_d=12/15
      c). Subtest 3: β_c/β_d=15/8
      d). Subtest 4: β_c/β_d=15/4
   vi. Set Delta ACK, Delta NACK and Delta CQI = 8
   vii. Set Ack-Nack Repetition Factor to 3
   viii. Set CQI Feedback Cycle (k) to 4 ms
   ix. Set CQI Repetition Factor to 2
   x. Power Ctrl Mode = All Up bits
d. The transmitted maximum output power was recorded.

The following tests were conducted according to the test requirements outlines in 3GPP TS 34.121 specification.
A summary of these settings are illustrated below:

C.8.1.12 Fixed Reference Channel Definition H-Set 12

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

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

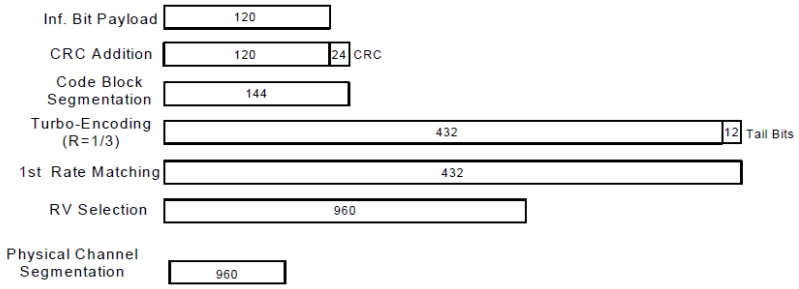
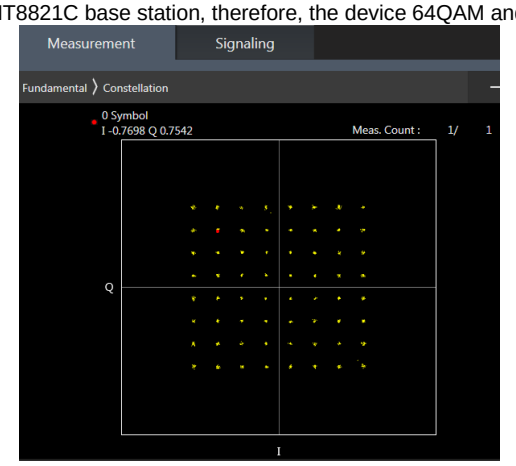


Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)

Setup Configuration

<LTE Note>

1. Anritsu MT8821C base station simulator was used to setup the connection with EUT; the frequency band, channel bandwidth, RB allocation configuration, modulation type are set in the base station simulator to configure EUT transmitting at maximum power and at different configurations which are requested to be reported to FCC, for conducted power measurement and SAR testing.
2. Per KDB 941225 D05v02r05, when a properly configured base station simulator is used for the SAR and power measurements, spectrum plots for each RB allocation and offset configuration is not required.
3. Per KDB 941225 D05v02r05, start with 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.
4. Per KDB 941225 D05v02r05, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
5. Per KDB 941225 D05v02r05, 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 are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
6. Per KDB 941225 D05v02r05, 16QAM output power for each RB allocation configuration is > not ½ dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, 16QAM SAR testing is not required.
7. Per KDB 941225 D05v02r05, Smaller bandwidth output power for each RB allocation configuration is > not ½ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, smaller bandwidth SAR testing is not required.
8. For LTE B12/B26/B71 the maximum bandwidth does not support three non-overlapping channels, per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.
9. LTE B4/B5/B17/B38 SAR test was covered by B12/B26/B66/B41; according to TCB workshop, SAR test for overlapping LTE bands can be reduced if
   a. the maximum output power, including tolerance, for the smaller band is ≤ the larger band to qualify for the SAR test exclusion
   b. the channel bandwidth and other operating parameters for the smaller band are fully supported by the larger band
10. According to 2017 TCB workshop, for 64 QAM and 16 QAM should be verified by checking the signal constellation with a call box to avoid incorrect maximum power levels due to MPR and other requirements associated with signal modulation, and the following figure is taken from the "Fundamental Measurement >> Modulation Analysis >> constellation" mode of the device connect to the MT8821C base station, therefore, the device 64QAM and 16QAM signal modulation are correct.



64QAM

16QAM

<Additional information for TDD LTE>

TDD LTE configuration setup for SAR measurement

SAR was tested with a fixed periodic duty factor according to the highest transmission duty factor implemented for the device and supported by 3GPP.

a. 3GPP TS 36.211 section 4.2 for Type 2 Frame Structure and Table 4.2-2 for uplink-downlink configurations
b. "special subframe S" contains both uplink and downlink transmissions, it has been taken into consideration to determine the transmission duty factor according to the worst case uplink and downlink cyclic prefix requirements for UpPTS
c. Establishing connections with base station simulators ensure a consistent means for testing SAR and recommended for evaluating SAR. The Anritsu MT8820C (firmware: #22.52#004) was used for LTE output power measurements and SAR testing.

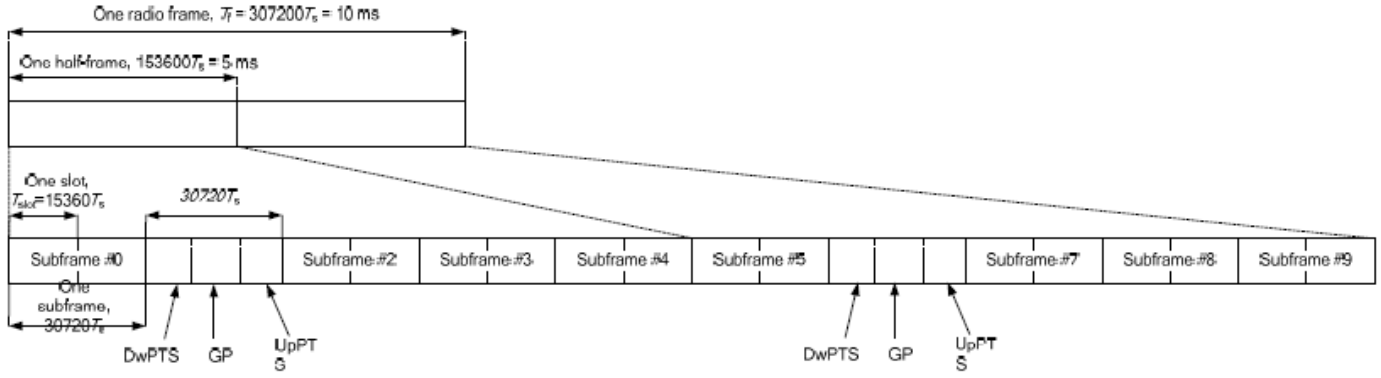


Figure 4.2-1: Frame structure type 2 (for 5 ms switch-point periodicity).

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

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

Special subframe configuration	Normal cyclic prefix in downlink			Extended cyclic prefix in downlink		
	DwPTS	UpPTS		DwPTS	UpPTS	
		Normal cyclic prefix in uplink	Extended cyclic prefix in uplink		Normal cyclic prefix in uplink	Extended cyclic prefix in uplink
0	$6592 \cdot T_s$	$2192 \cdot T_s$	$2560 \cdot T_s$	$7680 \cdot T_s$	$2192 \cdot T_s$	$2560 \cdot T_s$
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	$26336 \cdot T_s$			$7680 \cdot T_s$	$4384 \cdot T_s$	$5120 \cdot T_s$
5	$6592 \cdot T_s$	$4384 \cdot T_s$	$5120 \cdot T_s$	$20480 \cdot T_s$		
6	$19760 \cdot T_s$			$23040 \cdot T_s$		
7	$21952 \cdot T_s$			$12800 \cdot T_s$		
8	$24144 \cdot T_s$			-	-	-
9	$13168 \cdot T_s$			-	-	-

Special subframe (30720·T_s): Normal cyclic prefix in downlink (UpPTS)			
	Special subframe configuration	**Normal cyclic prefix in uplink**	**Extended cyclic prefix in uplink**
Uplink duty factor in one special subframe	**0~4**	7.13%	8.33%
	5~9	14.3%	16.7%

Special subframe(30720·T_s): Extended cyclic prefix in downlink (UpPTS)			
	Special subframe configuration	**Normal cyclic prefix in uplink**	**Extended cyclic prefix in uplink**
Uplink duty factor in one special subframe	**0~3**	7.13%	8.33%
	4~7	14.3%	16.7%

The highest duty factor is resulted from:

i. Uplink-downlink configuration: 0. In a half-frame consisted of 5 subfames, uplink operation is in 3 uplink subframes and 1 special subframe.

ii. special subframe configuration: 5-9 for normal cyclic prefix in downlink, 4-7 for extended cyclic prefix in downlink

iii. for special subframe with extended cyclic prefix in uplink, the total uplink duty factor in one half-frame is: (3+0.167)/5 = 63.3%

iv. for special subframe with normal cyclic prefix in uplink, the total uplink duty factor in one half-frame is: (3+0.143)/5 = 62.9%

v. For TDD LTE SAR measurement, the duty cycle 1:1.59 (62.9 %) was used perform testing and considering the theoretical duty cycle of 63.3% for extended cyclic prefix in the uplink, and the theoretical duty cycle of 62.9% for normal cyclic prefix in uplink, a scaling factor of extended cyclic prefix 63.3%/62.9% = 1.006 is applied to scale-up the measured SAR result. The scaled TDD LTE SAR = measured SAR (W/kg)* Tune-up Scaling Factor* scaling factor for extended cyclic prefix.

vi. The device supports Power Class 3 uplink-downlink configurations 0 and 6, and Power Class 2 uplink-downlink configurations 1 to 5.

vii. The highest available duty cycle for Power Class 2 operation is 43.3% using UL-DL configuration 1, for Power Class 3 operation is 63.3% using UL-DL configuration 0. Per FCC Guidance, all SAR tests were performed using Power Class 3. SAR with Power Class 2 at the available duty factor was additionally performed for the Power Class 3 configuration with the highest SAR among all exposure condition.

<5G FR1 Note>

1. NR implementation of n2, n5, n7, n12, n41 n66 and n71 is limited to EN-DC operations only (NSA), with LTE Bands 2/5/7/12/13/25/26/30/48/66/71 acting as anchor bands, SAR tests for NR Bands and LTE Anchors Bands were performed separately due to limitations in SAR probe calibration factors.
2. Following 5G NR support SCS 15 KHz/ 30KHz, DFT-s/CP-OFDM, PI/2 BPSK/QPSK/16QAM/64QAM/256QAM and support Bandwidth include as below EN-DC combination.
3. For 5G NR test procedure was following step similar FCC KDB 941225 D05:
   a. For DFT-s-OFDM and CP-OFDM output power measurement reduction, according to 38.101 maximum power reduction for power class 2 and 3, the CP-OFDM mode will not higher than DFT-s-OFDM mode, therefore, similar FCC KDB 941225 D05 procedure for other modulation output power for each RB allocation configuration is > not ½ dB higher than the same configuration in DFT-s-Pi/2 BPSK and the reported SAR for the DFT-s-Pi/2 BPSK configuration is ≤ 1.45 W/kg; CP-OFDM measurement is unnecessary.
   b. For DFT-s-OFDM output power measurement reduction, according to 38.101 maximum power reduction for power class 3, full measurement on Pi/2 BPSK/QPSK with larger bandwidth, for16QAM/64QMA/256QAM spot check 1RB 1offset configuration to ensure the output power will not ½ dB higher than Pi/2 BPSK and QPSK, for smaller bandwidth output power also spot check 1RB 1offset configuration at Pi/2 BPSK to ensure output power will not ½ dB higher than largest supported bandwidth.
   c. SAR testing start with the largest channel bandwidth and measure SAR for PI/2 BPSK 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.
   d. 50% RB allocation for PI/2 BPSK SAR testing follows 1RB PI/2 BPSK allocation procedure
   e. PI/2 BPSK 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 are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
   f. QPSK/16QAM/64QAM/256QAM output powers are not ½ dB higher than the same configuration in PI/2 BPSK, also reported SAR for the PI/2 BPSK configuration is less than 1.45 W/kg, QPSK/16QAM/64QAM/256QAM SAR testing are not required.
   g. Smaller bandwidth output power for each RB allocation configuration for this device will not ½ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg, smaller bandwidth SAR testing is not required for this device

<3GPP 38.101 MPR for EN-DC>

Table 6.2.2-1 Maximum power reduction (MPR) for power class 3

Modulation		MPR (dB)		
		Edge RB allocations	Outer RB allocations	Inner RB allocations
DFT-s-OFDM	Pi/2 BPSK	≤ 3.5[1] ≤ 0.5[2]	≤ 1.2[1] ≤ 0.5[2]	≤ 0.2[1] 0[2]
	QPSK	≤ 1		0
	16 QAM	≤ 2		≤ 1
	64 QAM	≤ 2.5		
	256 QAM	≤ 4.5		
CP-OFDM	QPSK	≤ 3		≤ 1.5
	16 QAM	≤ 3		≤ 2
	64 QAM	≤ 3.5		
	256 QAM	≤ 6.5		
NOTE 1: Applicable for UE operating in TDD mode with Pi/2 BPSK modulation and UE indicates support for UE capability *powerBoosting-pi2BPSK* and if the IE *powerBoostPi2BPSK* is set to 1 and 40 % or less slots in radio frame are used for UL transmission for bands n40, n41, n77, n78 and n79. The reference power of 0 dB MPR is 26 dBm. NOTE 2: Applicable for UE operating in FDD mode, or in TDD mode in bands other than n40, n41, n77, n78 and n79 with Pi/2 BPSK modulation and if the IE *powerBoostPi2BPSK* is set to 0 and if more than 40 % of slots in radio frame are used for UL transmission for bands n40, n41, n77, n78 and n79.				

Table 6.2.2-2 Maximum power reduction (MPR) for power class 2

Modulation		MPR (dB)		
		Edge RB allocations	Outer RB allocations	Inner RB allocations
DFT-s-OFDM	Pi/2 BPSK	≤ 3.5	≤ 0.5	0
	QPSK	≤ 3.5	≤ 1	0
	16 QAM	≤ 3.5	≤ 2	≤ 1
	64 QAM	≤ 3.5	≤ 2.5	
	256 QAM	≤ 4.5		
CP-OFDM	QPSK	≤ 3.5	≤ 3	≤ 1.5
	16 QAM	≤ 3.5	≤ 3	≤ 2
	64 QAM	≤ 3.5		
	256 QAM	≤ 6.5		

12. DL/UL carrier aggregation

<LTE Carrier Aggregation combinations>

General Note:

1. This device supports Carrier Aggregation on downlink for inter and intra band. For the device supports combination bands and configurations are according to 3GPP.
2. In applying the existing power measurement procedure of KDB 941225 D05A for DL CA SAR test exclusion, only the subset with the largest number of combinations of the frequency band and CCs in each row need consideration, and that configurations require power measurement should be highlighted in the below table.

2CC Downlink Carrier Aggregation			3CC Downlink Carrier Aggregation			4CC Downlink Carrier Aggregation		
Number	Combination	Covered by Measurement Superset	Number	Combination	Covered by Measurement Superset	Number	Combination	Covered by Measurement Superset
1	12A-12A	3CC-87	69	12A-30A-66A	4CC-191	191	12A-30A-66A-66A	5CC-338
2	12A-25A		70	12A-66A-66A	4CC-192	192	12B-66A-66A	5CC-402
3	12A-30A	3CC-69	71	12A-66C	4CC-210	193	13A-48A-48A-66A	5CC-339
4	12A-66A	3CC-70	72	12B-66A	4CC-192	194	13A-48A-48C	5CC-329
5	12B	3CC-72	73	13A-48A-48A	4CC-194	195	13A-48A-66B	
6	13A-48A	3CC-73	74	13A-48A-66A	4CC-196	196	13A-48A-66C	
7	13A-66A	3CC-76	75	13A-48C	4CC-197	197	13A-48C-66A	5CC-341
8	14A-30A	3CC-79	76	13A-66A-66A	4CC-199	198	13A-48D	5CC-334
9	14A-66A	3CC-80	77	13A-66B	4CC-195	199	13A-66A-66A-66A	
10	25A-25A	3CC-81	78	13A-66C	4CC-196	200	13A-66A-66B	5CC-343
11	25A-26A	3CC-82	79	14A-30A-66A	4CC-203	201	13A-66A-66C	5CC-344
12	25A-41A	3CC-83	80	14A-66A-66A	4CC-204	202	13A-66D	5CC-345
13	26A-41A	3CC-86	81	25A-25A-25A		203	14A-30A-66A-66A	5CC-346
14	2A-12A	3CC-87	82	25A-25A-26A		204	14A-66A-66A-66A	5CC-347
15	2A-13A	3CC-91	83	25A-25A-41A		205	25A-25A-41C	
16	2A-14A	3CC-93	84	25A-26A-41A		206	25A-26A-41C	
17	2A-2A	3CC-95	85	25A-41C	4CC-205	207	25A-41D	5CC-336
18	2A-30A	3CC-98	86	26A-41C	4CC-206	208	2A-12A-30A-66A	5CC-338
19	2A-48A	3CC-105	87	2A-12A-12A	4CC-219	209	2A-12A-66A-66A	5CC-349
20	2A-4A	3CC-108	88	2A-12A-30A	4CC-220	210	2A-12A-66C	
21	2A-5A	3CC-115	89	2A-12A-66A	4CC-210	211	2A-13A-48A-48A	5CC-339
22	2A-66A	3CC-120	90	2A-12B	4CC-222	212	2A-13A-48A-66A	5CC-339
23	2A-71A	3CC-102	91	2A-13A-48A	4CC-211	213	2A-13A-48C	5CC-341
24	2A-7A	3CC-126	92	2A-13A-66A	4CC-214	214	2A-13A-66A-66A	5CC-351
25	2C	3CC-128	93	2A-14A-30A	4CC-217	215	2A-13A-66B	5CC-352
26	30A-66A	3CC-132	94	2A-14A-66A	4CC-218	216	2A-13A-66C	5CC-344
27	38A-40A	3CC-133	95	2A-2A-12A	4CC-219	217	2A-14A-30A-66A	5CC-346
28	38C		96	2A-2A-13A	4CC-223	218	2A-14A-66A-66A	5CC-347
29	41A-41A	3CC-134	97	2A-2A-14A	4CC-224	219	2A-2A-12A-12A	
30	41A-42A	3CC-137	98	2A-2A-30A	4CC-226	220	2A-2A-12A-30A	5CC-348
31	41A-48A		99	2A-2A-4A	4CC-228	221	2A-2A-12A-66A	5CC-349
32	41C	5CC-380	100	2A-2A-5A	4CC-231	222	2A-2A-12B	5CC-350
33	42A-42A	3CC-136	101	2A-2A-66A	4CC-234	223	2A-2A-13A-66A	5CC-351
34	42C	5CC-379	102	2A-2A-71A	4CC-235	224	2A-2A-14A-30A	5CC-353
35	48A-48A	3CC-142	103	2A-2A-7A	4CC-238	225	2A-2A-14A-66A	5CC-354
36	48A-66A	3CC-142	104	2A-30A-66A	4CC-226	226	2A-2A-30A-66A	5CC-355
37	48A-71A	3CC-149	105	2A-48A-48A	4CC-240	227	2A-2A-4A-12A	
38	48C	3CC-107	106	2A-48A-66A	4CC-240	228	2A-2A-4A-4A	
39	4A-12A	3CC-108	107	2A-48C	4CC-242	229	2A-2A-4A-5A	
40	4A-13A	3CC-109	108	2A-4A-12A	4CC-244	230	2A-2A-4A-71A	
41	4A-30A	3CC-110	109	2A-4A-13A		231	2A-2A-5A-30A	5CC-355
42	4A-48A		110	2A-4A-30A	4CC-249	232	2A-2A-5A-66A	5CC-356
43	4A-4A	3CC-111	111	2A-4A-4A	4CC-247	233	2A-2A-5B	5CC-359

44	4A-5A	3CC-112	112	2A-4A-5A	4CC-249	234	2A-2A-66A-66A	
45	4A-71A	3CC-113	113	2A-4A-71A	4CC-230	235	2A-2A-66A-71A	
46	4A-7A	3CC-114	114	2A-4A-7A	4CC-251	236	2A-2A-66B	5CC-360
47	5A-25A		115	2A-5A-30A	4CC-254	237	2A-2A-66C	5CC-361
48	5A-30A	3CC-115	116	2A-5A-48A	4CC-255	238	2A-2A-7A-66A	5CC-362
49	5A-38A		117	2A-5A-66A	4CC-256	239	2A-30A-66A-66A	5CC-338
50	5A-40A	3CC-166	118	2A-5A-7A		240	2A-48A-48A-66A	5CC-370
51	5A-41A		119	2A-5B	4CC-233	241	2A-48A-48C	5CC-363
52	5A-48A	3CC-116	120	2A-66A-66A	4CC-234	242	2A-48C-66A	5CC-363
53	5A-5A	3CC-169	121	2A-66A-71A	4CC-235	243	2A-48D	5CC-366
54	5A-66A	3CC-170	122	2A-66B	4CC-236	244	2A-4A-12A-12A	
55	5A-7A	3CC-173	123	2A-66C	4CC-237	245	2A-4A-12A-30A	
56	5B	3CC-119	124	2A-7A-12A	4CC-251	246	2A-4A-12B	
57	66A-66A	3CC-132	125	2A-7A-66A	4CC-238	247	2A-4A-4A-12A	
58	66A-71A	3CC-121	126	2A-7A-7A	4CC-252	248	2A-4A-4A-5A	
59	66B	3CC-145	127	2A-7C	4CC-253	249	2A-4A-5A-30A	
60	66C	3CC-146	128	2C-12A	4CC-272	250	2A-4A-5B	5CC-368
61	7A-12A	3CC-124	129	2C-30A	4CC-261	251	2A-4A-7A-12A	
62	7A-42A		130	2C-5A	4CC-273	252	2A-4A-7A-7A	
63	7A-66A	3CC-125	131	2C-66A	4CC-274	253	2A-4A-7C	
64	7A-7A	3CC-126	132	30A-66A-66A	4CC-239	254	2A-5A-30A-66A	5CC-369
65	7B		133	41A-41A-41A	4CC-275	255	2A-5A-48A-48A	5CC-370
66	7C	3CC-127	134	41A-41C	4CC-275	256	2A-5A-48A-66A	5CC-370
67	4A-17A		135	41A-42A-42A	4CC-277	257	2A-5A-48C	5CC-372
68	2A-17A		136	41A-42C	4CC-277	258	2A-5A-66A-66A	5CC-356
			137	41C-42A	4CC-280	259	2A-5A-66B	5CC-357
			138	41D	4CC-276	260	2A-5A-66C	5CC-358
			139	42A-42C	4CC-277	261	2A-5B-30A	5CC-374
			140	42D	4CC-278	262	2A-5B-66A	5CC-375
			141	48A-48A-66A	4CC-286	263	2A-66A-66A-66A	5CC-347
			142	48A-48A-71A		264	2A-66A-66A-71A	
			143	48A-48C	4CC-289	265	2A-66A-66B	5CC-360
			144	48A-66A-66A	4CC-286	266	2A-66A-66C	5CC-361
			145	48A-66B	4CC-287	267	2A-66C-71A	
			146	48A-66C	4CC-288	268	2A-66D	5CC-345
			147	48C-66A	4CC-289	269	2A-7A-12A-66A	5CC-362
			148	48C-71A		270	2A-7A-12B	5CC-378
			149	48D	4CC-290	271	2A-7A-66A-66A	5CC-404
			150	4A-12A-12A	4CC-299	272	2C-12A-30A	
			151	4A-12A-30A	4CC-300	273	2C-5A-30A	
			152	4A-12B	4CC-301	274	2C-66A-66A	
			153	4A-48C		275	41A-41A-41C	
			154	4A-4A-12A	4CC-299	276	41A-41D	
			155	4A-4A-13A		277	41A-42A-42C	
			156	4A-4A-30A	4CC-300	278	41A-42D	
			157	4A-4A-5A	4CC-303	279	41C-41C	
			158	4A-4A-71A		280	41C-42C	5CC-382
			159	4A-4A-7A		281	41D-42A	
			160	4A-5A-30A	4CC-302	282	41E	5CC-337
			161	4A-5B	4CC-303	283	42A-42D	
			162	4A-7A-12A	4CC-251	284	42C-42C	5CC-380
			163	4A-7A-7A	4CC-252	285	42E	
			164	4A-7C	4CC-253	286	48A-48A-66A-66A	
			165	5A-30A-66A	4CC-305	287	48A-48A-66B	
			166	5A-48A-48A	4CC-306	288	48A-48A-66C	
			167	5A-48A-66A	4CC-306	289	48A-48C-66A	5CC-394

			168	5A-48C	4CC-308	290	48A-48D	5CC-400
			169	5A-5A-66A	4CC-310	291	48A-66A-66A-66A	
			170	5A-66A-66A	4CC-310	292	48C-48C	5CC-395
			171	5A-66B	4CC-311	293	48C-66A-66A	
			172	5A-66C	4CC-312	294	48C-66B	5CC-384
			173	5A-7A-7A		295	48C-66C	5CC-385
			174	5A-7C		296	48D-66A	5CC-401
			175	5B-30A	4CC-316	297	48E	5CC-396
			176	5B-66A	4CC-317	298	4A-48D	
			177	66A-66A-66A	4CC-263	299	4A-4A-12A-12A	
			178	66A-66A-71A	4CC-264	300	4A-4A-12A-30A	
			179	66A-66B	4CC-313	301	4A-4A-12B	
			180	66A-66C	4CC-314	302	4A-4A-5A-30A	
			181	66C-71A	4CC-267	303	4A-4A-5B	5CC-393
			182	66D	4CC-268	304	4A-5B-30A	5CC-393
			183	7A-12A-66A	4CC-269	305	5A-30A-66A-66A	5CC-369
			184	7A-12B	4CC-320	306	5A-48A-48A-66A	5CC-370
			185	7A-66A-66A	4CC-326	307	5A-48A-48C	5CC-371
			186	7C-66A	4CC-321	308	5A-48C-66A	5CC-372
			187	2A-48A-66A	4CC-325	309	5A-48D	5CC-373
			188	48A-66B	4CC-195	310	5A-5A-66A-66A	
			189	7A-7A-66A	4CC-326	311	5A-5A-66B	
			190	7A-7A-13A	4CC-328	312	5A-5A-66C	
						313	5A-66A-66B	
						314	5A-66A-66C	
						315	5A-66D	
						316	5B-30A-66A	5CC-397
						317	5B-66A-66A	5CC-397
						318	5B-66B	5CC-376
						319	5B-66C	5CC-377
						320	7A-12B-66A	5CC-378
						321	7C-66A-66A	5CC-403
						322	2A-12B-66A	5CC-350
						323	2A-7A-7A-66A	5CC-404
						324	2A-7C-66A	5CC-403
						325	2A-48A-66A-66A	
						326	7A-7A-66A-66A	5CC-404
						327	2A-2A-7A-12A	5CC-362
						328	2A-7A-7A-13A	

5CC Downlink Carrier Aggregation			6CC Downlink Carrier Aggregation		
Number	Combination	Covered by Measurement Superset	Number	Combination	Covered by Measurement Superset
329	13A-48A-48C-66A		405	2A-48E-66A	
330	13A-48A-48D		406	41C-42C-42C	
331	13A-48C-48C		407	13A-48E-66A	
332	13A-48C-66B				
333	13A-48C-66C				
334	13A-48D-66A				
335	13A-48E	5CC-407			
336	25A-25A-41D				
337	25A-41E				
338	2A-12A-30A-66A-66A				
339	2A-13A-48A-48A-66A				
340	2A-13A-48A-48C				
341	2A-13A-48C-66A				
342	2A-13A-48D				
343	2A-13A-66A-66B				
344	2A-13A-66A-66C				
345	2A-13A-66D				
346	2A-14A-30A-66A-66A				
347	2A-14A-66A-66A-66A				
348	2A-2A-12A-30A-66A				
349	2A-2A-12A-66A-66A				
350	2A-2A-12B-66A				
351	2A-2A-13A-66A-66A				
352	2A-2A-13A-66B				
353	2A-2A-14A-30A-66A				
354	2A-2A-14A-66A-66A				
355	2A-2A-5A-30A-66A				
356	2A-2A-5A-66A-66A				
357	2A-2A-5A-66B				
358	2A-2A-5A-66C				
359	2A-2A-5B-66A				
360	2A-2A-66A-66B				
361	2A-2A-66A-66C				
362	2A-2A-7A-12A-66A				
363	2A-48A-48C-66A				
364	2A-48A-48D				
365	2A-48C-48C				
366	2A-48D-66A				
367	2A-48E	5CC-405			
368	2A-4A-5B-30A				
369	2A-5A-30A-66A-66A				
370	2A-5A-48A-48A-66A				
371	2A-5A-48A-48C				
372	2A-5A-48C-66A				
373	2A-5A-48D				
374	2A-5B-30A-66A				
375	2A-5B-66A-66A				
376	2A-5B-66B				
377	2A-5B-66C				
378	2A-7A-12B-66A				
379	2C-5B-30A				
380	41A-42C-42C				
381	41C-41D				

382	41C-42A-42C				
383	41D-42C				
384	48A-48C-66B				
385	48A-48C-66C				
386	48A-48D-66A				
387	48C-48C-66A				
388	48C-48D				
389	48C-66A-66A-66A				
390	48E-66A				
391	48F				
392	4A-48E				
393	4A-4A-5B-30A				
394	5A-48A-48C-66A				
395	5A-48C-48C				
396	5A-48E				
397	5B-30A-66A-66A				
398	5B-66A-66B				
399	5B-66A-66C				
400	5A-48A-48D				
401	5A-48D-66A				
402	2A-12B-66A-66A				
403	2A-7C-66A-66A				
404	2A-7A-7A-66A-66A				

<Power verification when LTE Carrier Aggregation Active>

General Note:

i. According to KDB941225 D05A v01r02, Uplink maximum output power measurement with downlink carrier aggregation active should be measured, using the highest output channel measured without downlink carrier aggregation, to confirm that uplink maximum output power with downlink carrier aggregation active remains within the specified tune-up tolerance limits and not more than ¼ dB higher than the maximum output measured without downlink carrier aggregation active.

ii. Uplink maximum output power with downlink carrier aggregation active does not show more than ¼ dB higher than the maximum output power without downlink carrier aggregation active, therefore SAR evaluation with downlink carrier aggregation active can be excluded.

iii. The device supports downlink two carrier aggregation. For power measurement were control and acknowledge data is sent on uplink channels that operate identical to specifications when downlink carrier aggregation is inactive.

iv. Selected highest measured power when downlink carrier aggregation is inactive for conducted power comparison with downlink carrier aggregation is active, to confirm that when downlink carrier aggregation is active uplink maximum output power remains within the specified tune-up tolerance limits and not more than ¼ dB higher than the maximum output power measured when downlink carrier aggregation inactive.

v. For non-contiguous intra-band CA, the SCC selected to provide maximum separation from the PCC and must remain fully within the downlink transmission band.

vi. For Intra-band, contiguous CA, 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.

$$\text{Nominal channel spacing} = \left\lfloor \frac{BW_{Channel(1)} + BW_{Channel(2)} - 0.1\left|BW_{Channel(1)} - BW_{Channel(2)}\right|}{0.6} \right\rfloor 0.3 \ \text{[MHz]}$$

<Two Carrier power verification>

Configure		PCC							SCC				Power	
		LTE Band	BW (MHz)	UL Freq. (MHz)	UL Channel	Mod.	UL# RB	UL RB Offset	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	With CA Tx.Power (dBm)	W/O CA Tx.Power (dBm)
Inter-Band		2	20	1860	18700	QPSK	1	0	17	10	740	5790	17.33	17.36
		4	20	1720	20050	QPSK	1	0	17	10	740	5790	18.02	18.03
		4	20	1720	20050	QPSK	1	0	48	20	3609	55830	17.93	18.03
		5	10	829	20450	QPSK	1	0	25	20	1960	8340	20.58	20.66
		5	10	829	20450	QPSK	1	0	38	20	2595	38000	20.61	20.66
		5	10	829	20450	QPSK	1	0	41	20	2593	40620	20.61	20.66
		7	20	2510	20850	QPSK	1	0	42	20	3575	43340	14.58	14.58
		12	10	704	23060	QPSK	1	0	25	20	1960	8340	23.28	23.33
		41	20	2593	40620	QPSK	1	0	48	20	3609	55830	14.33	14.41
Intra-Band	Contiguous	7	15	2507.5	20825	QPSK	1	0	7	5	2636.80	2918	23.50	23.53
		38	20	2595	38000	QPSK	1	0	38	20	2614.80	38198	15.28	15.36

<Three Carrier power verification>

Configure		PCC							SCC1				SCC2				Power	
		LTE Band	BW (MHz)	UL Freq. (MHz)	UL Channel	Mod.	UL# RB	UL RB Offset	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	With CA Tx.Power (dBm)	W/O CA Tx.Power (dBm)
Inter-Band		2	20	1860	18700	QPSK	1	0	4	20	2132.5	2175	13	10	751	5230	17.36	17.36
		2	20	1860	18700	QPSK	1	0	5	10	881.5	2525	7	20	2655	3100	17.28	17.36
		4	20	1720	20050	QPSK	1	0	4	5	2112.5	1975	7	20	2655	3100	17.97	18.03
		4	20	1720	20050	QPSK	1	0	4	5	2112.5	1975	13	10	751	5230	17.95	18.03
		4	20	1720	20050	QPSK	1	0	4	5	2112.5	1975	71	20	637	68786	17.98	18.03
		4	20	1720	20050	QPSK	1	0	48	20	3609	55830	48	20	3628.8	56028	18.03	18.03
		5	10	829	20450	QPSK	1	0	7	20	2655	3100	7	5	2622.5	2775	20.62	20.66
		5	10	829	20450	QPSK	1	0	7	20	2655	3100	7	20	2674.8	3298	20.56	20.66
		25	20	1860	26140	QPSK	1	0	25	5	1992.5	8665	25	20	1985	8590	17.40	17.43
		25	20	1860	26140	QPSK	1	0	25	5	1992.5	8665	26	15	876.5	8865	17.33	17.43
		25	20	1860	26140	QPSK	1	0	25	5	1992.5	8665	41	20	2593	40620	17.40	17.43
		25	20	1860	26140	QPSK	1	0	26	15	876.5	8865	41	20	2593	40620	17.41	17.43
		48	20	3560	55340	QPSK	1	0	48	5	3697.5	56715	71	20	637	68786	16.13	16.17
		48	20	3560	55340	QPSK	1	0	48	20	3579.8	55538	71	20	637	68786	16.13	16.17

<Four Carrier power verification>

Configure	PCC							SCC1				SCC2				SCC3				Power	
	LTE Band	BW (MHz)	UL Freq. (MHz)	UL Channel	Mod.	UL# RB	UL RB Offset	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	With CA Tx.Power (dBm)	W/O CA Tx.Power (dBm)
Inter-Band	2	20	1860	18700	QPSK	1	0	2	5	1987.5	1175	4	20	2132.5	2175	12	10	737.5	5095	17.29	17.36
	2	20	1860	18700	QPSK	1	0	2	5	1987.5	1175	4	20	2132.5	2175	4	5	2112.5	1975	17.31	17.36
	2	20	1860	18700	QPSK	1	0	2	5	1987.5	1175	4	20	2132.5	2175	5	10	881.5	2525	17.32	17.36
	2	20	1860	18700	QPSK	1	0	2	5	1987.5	1175	4	20	2132.5	2175	71	20	637	68786	17.36	17.36
	2	20	1860	18700	QPSK	1	0	2	5	1987.5	1175	12	5	737.5	5095	12	5	731.5	5035	17.26	17.36
	2	20	1860	18700	QPSK	1	0	2	5	1987.5	1175	66	20	2155	66886	66	5	2112.5	66461	17.29	17.36
	2	20	1860	18700	QPSK	1	0	2	5	1987.5	1175	66	20	2155	66886	71	20	637	68786	17.36	17.36
	2	20	1860	18700	QPSK	1	0	4	20	2132.5	2175	4	5	2112.5	1975	5	10	881.5	2525	17.29	17.36
	2	20	1860	18700	QPSK	1	0	4	20	2132.5	2175	4	5	2112.5	1975	12	10	737.5	5095	17.30	17.36
	2	20	1860	18700	QPSK	1	0	4	20	2132.5	2175	5	10	881.5	2525	30	10	9820	2355	17.27	17.36
	2	20	1860	18700	QPSK	1	0	4	20	2132.5	2175	7	20	2655	3100	7	5	2622.5	2775	17.31	17.36
	2	20	1860	18700	QPSK	1	0	4	20	2132.5	2175	7	20	2655	3100	12	10	737.5	5095	17.32	17.36
	2	20	1860	18700	QPSK	1	0	4	20	2132.5	2175	7	20	2655	3100	7	20	2674.8	3298	17.34	17.36
	2	20	1860	18700	QPSK	1	0	4	20	2132.5	2175	12	5	737.5	5095	12	5	731.5	5035	17.33	17.36
	2	20	1860	18700	QPSK	1	0	4	20	2132.5	2175	12	10	737.5	5095	30	10	9820	2355	17.28	17.36
	2	20	1860	18700	QPSK	1	0	4	20	2132.5	2175	12	5	737.5	5095	12	10	744.7	5167	17.35	17.36
	2	20	1860	18700	QPSK	1	0	12	10	737.5	5095	66	20	2155	66886	66	20	2174.8	67084	17.34	17.36
	2	20	1860	18700	QPSK	1	0	7	20	2655	3100	7	5	2622.5	2775	13	10	751	5230	17.28	17.36
	2	20	1860	18700	QPSK	1	0	48	20	3697.5	56715	66	20	2155	66886	66	5	2112.5	66461	17.27	17.36
	2	20	1860	18700	QPSK	1	0	66	20	2155	66886	66	5	2112.5	66461	71	20	637	68786	17.30	17.36
	2	20	1860	18700	QPSK	1	0	66	20	2155	66886	66	20	2174.8	67084	71	20	637	68786	17.31	17.36
	2	20	1860	18700	QPSK	1	0	2	20	1959.8	898	5	10	881.5	2525	30	10	9820	2355	17.34	17.36
	2	20	1860	18700	QPSK	1	0	2	20	1959.8	898	12	10	737.5	5095	30	10	9820	2355	17.31	17.36
	2	20	1860	18700	QPSK	1	0	2	20	1959.8	898	66	20	2155	66886	66	5	2112.5	66461	17.33	17.36
	4	20	1720	20050	QPSK	1	0	4	5	2112.5	1975	5	10	881.5	2525	30	10	9820	2355	17.96	18.03
	4	20	1720	20050	QPSK	1	0	4	5	2112.5	1975	12	5	737.5	5095	12	5	731.5	5035	17.99	18.03
	4	20	1720	20050	QPSK	1	0	4	5	2112.5	1975	12	10	737.5	5095	30	10	9820	2355	18.02	18.03
	4	20	1720	20050	QPSK	1	0	4	5	2112.5	1975	12	5	737.5	5095	12	10	744.7	5167	18.03	18.03
	4	20	1720	20050	QPSK	1	0	48	20	3697.5	56715	48	20	3717.3	56913	48	20	3737.1	57111	18.00	18.03
	5	10	829	20450	QPSK	1	0	5	5	891.5	2625	66	20	2155	66886	66	5	2112.5	66461	20.61	20.66
	5	10	829	20450	QPSK	1	0	5	5	891.5	2625	66	15	2155	66886	66	5	2164.3	66979	20.58	20.66
	5	10	829	20450	QPSK	1	0	5	5	891.5	2625	66	20	2155	66886	66	20	2174.8	67084	20.59	20.66
	5	10	829	20450	QPSK	1	0	66	20	2155	66886	66	5	2112.5	66461	66	15	2121.8	66554	20.58	20.66
	5	10	829	20450	QPSK	1	0	66	20	2155	66886	66	5	2112.5	66461	66	20	2124.2	66578	20.64	20.66
	5	10	829	20450	QPSK	1	0	66	20	2155	66886	66	20	2174.8	67084	66	20	2194.6	67282	20.61	20.66
	13	10	782	23230	QPSK	1	0	48	20	3697.5	56715	66	15	2155	66886	66	5	2164.3	66979	20.70	20.79
	13	10	782	23230	QPSK	1	0	48	20	3697.5	56715	66	20	2155	66886	66	20	2174.8	67084	20.74	20.79
	13	10	782	23230	QPSK	1	0	66	20	2155	66886	66	5	2112.5	66461	66	20	2190	67236	20.79	20.79
	25	20	1860	26140	QPSK	1	0	25	5	1992.5	8665	41	20	2593	40620	41	20	2612.8	40818	17.43	17.43
	25	20	1860	26140	QPSK	1	0	26	15	1960	8340	41	20	2593	40620	41	20	2612.8	40818	17.38	17.43
	41	20	2593	40620	QPSK	1	0	41	5	2687.5	41565	41	20	2506	39750	41	20	2525.8	39948	14.35	14.41
	41	20	2593	40620	QPSK	1	0	41	5	2687.5	41565	41	20	2699.2	41682	41	20	2719	41880	14.41	14.41
	41	20	2593	40620	QPSK	1	0	42	20	3575	43340	42	5	3552.5	43115	42	20	3564.2	43232	14.38	14.41
	41	20	2593	40620	QPSK	1	0	42	20	3575	43340	42	20	3594.8	43538	42	20	3614.6	43736	14.41	14.41
	41	20	2593	40620	QPSK	1	0	41	20	2612.8	40818	41	5	2687.5	41565	41	20	2699.2	41682	14.34	14.41
	41	20	2593	40620	QPSK	1	0	41	20	2612.8	40818	41	20	2632.6	41016	42	20	3575	43340	14.35	14.41
	42	20	3590	43490	QPSK	1	0	42	5	3552.5	43115	42	20	3564.2	43232	42	20	3584	43430	16.56	16.61
	42	20	3590	43490	QPSK	1	0	42	20	3570.2	43292	42	20	3550.4	43094	42	20	3530.6	42896	16.52	16.61
	48	20	3560	55340	QPSK	1	0	48	5	3697.5	56715	66	20	2155	66886	66	5	2112.5	66461	16.10	16.17
	48	20	3560	55340	QPSK	1	0	48	5	3697.5	56715	66	15	2155	66886	66	5	2164.3	66979	16.13	16.17
	48	20	3560	55340	QPSK	1	0	48	5	3697.5	56715	66	20	2155	66886	66	20	2174.8	67084	16.17	16.17
	48	20	3560	55340	QPSK	1	0	66	20	2155	66886	66	5	2112.5	66461	66	20	2190	67236	16.16	16.17
	48	20	3560	55340	QPSK	1	0	48	20	3579.8	55538	66	20	2155	66886	66	5	2112.5	66461	16.16	16.17

<Five Carrier power verification>

Configure	PCC							SCC1				SCC2				SCC3				SCC4				Power	
	LTE Band	BW (MHz)	UL Freq. (MHz)	UL Channel	Mod.	UL# RB	UL RB Offset	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	With CA Tx.Power (dBm)	W/O CA Tx.Power (dBm)
Inter-Band	2	20	1860	18700	QPSK	1	0	2	5	1987.5	1175	12	10	737.5	5095	30	10	2355	9820	66	20	2155	66886	17.36	17.36
	2	20	1860	18700	QPSK	1	0	2	5	1987.5	1175	12	10	737.5	5095	66	20	2155	66886	66	5	2112.5	66461	17.28	17.36
	2	20	1860	18700	QPSK	1	0	2	5	1987.5	1175	12	5	737.5	5095	12	10	744.7	5167	66	20	2155	66886	17.26	17.36
	2	20	1860	18700	QPSK	1	0	2	5	1987.5	1175	13	10	751	5230	66	20	2155	66886	66	5	2112.5	66461	17.28	17.36
	2	20	1860	18700	QPSK	1	0	2	5	1987.5	1175	13	10	751	5230	66	15	2155	66886	66	5	2164.3	66979	17.30	17.36
	2	20	1860	18700	QPSK	1	0	2	5	1987.5	1175	14	10	763	5330	30	10	2355	9820	66	20	2155	66886	17.34	17.36
	2	20	1860	18700	QPSK	1	0	2	5	1987.5	1175	14	10	763	5330	66	20	2155	66886	66	5	2112.5	66461	17.29	17.36
	2	20	1860	18700	QPSK	1	0	2	5	1987.5	1175	5	10	881.5	2525	30	10	2355	9820	66	20	2155	66886	17.27	17.36
	2	20	1860	18700	QPSK	1	0	2	5	1987.5	1175	5	10	881.5	2525	66	20	2155	66886	66	5	2112.5	66461	17.33	17.36
	2	20	1860	18700	QPSK	1	0	2	5	1987.5	1175	5	10	881.5	2525	66	15	2155	66886	66	5	2164.3	66979	17.34	17.36
	2	20	1860	18700	QPSK	1	0	2	5	1987.5	1175	5	10	881.5	2525	66	20	2155	66886	66	20	2174.8	67084	17.26	17.36
	2	20	1860	18700	QPSK	1	0	2	5	1987.5	1175	5	10	881.5	2525	5	10	891.4	2624	66	20	2155	66886	17.29	17.36
	2	20	1860	18700	QPSK	1	0	2	5	1987.5	1175	66	20	2155	66886	66	5	2112.5	66461	66	15	2121.8	66554	17.31	17.36
	2	20	1860	18700	QPSK	1	0	2	5	1987.5	1175	66	20	2155	66886	66	5	2112.5	66461	66	20	2124.2	66578	17.34	17.36
	2	20	1860	18700	QPSK	1	0	2	5	1987.5	1175	7	20	2655	3100	12	10	737.5	5095	66	20	2155	66886	17.36	17.36
	2	20	1860	18700	QPSK	1	0	2	20	1959.8	898	5	10	881.5	2525	5	10	891.4	2624	30	10	2355	9820	17.26	17.36
	2	20	1860	18700	QPSK	1	0	4	20	2132.5	2175	5	10	881.5	2525	5	10	891.4	2624	30	10	2355	9820	17.36	17.36
	2	20	1860	18700	QPSK	1	0	5	10	881.5	2525	30	10	2355	9820	66	20	2155	66886	66	5	2112.5	66461	17.35	17.36
	2	20	1860	18700	QPSK	1	0	5	10	881.5	2525	48	20	3609	55830	48	5	3697.5	56715	66	20	2155	66886	17.32	17.36
	2	20	1860	18700	QPSK	1	0	5	10	881.5	2525	48	20	3609	55830	48	5	3697.5	56715	48	20	3709.2	56832	17.34	17.36
	2	20	1860	18700	QPSK	1	0	5	10	881.5	2525	48	20	3609	55830	48	20	3628.8	56028	66	20	2155	66886	17.36	17.36
	2	20	1860	18700	QPSK	1	0	5	10	881.5	2525	48	20	3609	55830	48	20	3628.8	56028	48	20	3648.6	56226	17.29	17.36
	2	20	1860	18700	QPSK	1	0	5	10	881.5	2525	5	10	891.4	2624	30	10	2355	9820	66	20	2155	66886	17.33	17.36
	2	20	1860	18700	QPSK	1	0	5	10	881.5	2525	5	10	891.4	2624	66	20	2155	66886	66	5	2112.5	66461	17.33	17.36
	2	20	1860	18700	QPSK	1	0	5	10	881.5	2525	5	10	891.4	2624	66	15	2155	66886	66	5	2164.3	66979	17.32	17.36
	2	20	1860	18700	QPSK	1	0	5	10	881.5	2525	5	10	891.4	2624	66	20	2155	66886	66	20	2174.8	67084	17.35	17.36
	2	20	1860	18700	QPSK	1	0	7	20	2655	3100	12	5	737.5	5095	12	10	744.7	5167	66	20	2155	66886	17.27	17.36
	2	20	1860	18700	QPSK	1	0	7	20	2655	3100	7	20	2674.8	3298	66	20	2155	66886	66	5	2112.5	66461	17.30	17.36
	2	20	1860	18700	QPSK	1	0	7	20	2655	3100	7	5	2622.5	2775	66	20	2155	66886	66	5	2112.5	66461	17.26	17.36
	2	20	1860	18700	QPSK	1	0	12	5	737.5	5095	12	10	744.7	5167	66	20	2155	66886	66	5	2112.5	66461	17.34	17.36
	2	20	1860	18700	QPSK	1	0	12	10	737.5	5095	30	10	2355	9820	66	20	2155	66886	66	5	2112.5	66461	17.35	17.36
	2	20	1860	18700	QPSK	1	0	13	10	751	5230	48	20	3609	55830	48	5	3697.5	56715	66	20	2155	66886	17.36	17.36
	2	20	1860	18700	QPSK	1	0	13	10	751	5230	48	20	3609	55830	48	5	3697.5	56715	48	20	3709.2	56832	17.30	17.36
	2	20	1860	18700	QPSK	1	0	13	10	751	5230	48	20	3609	55830	48	20	3628.8	56028	66	20	2155	66886	17.31	17.36
	2	20	1860	18700	QPSK	1	0	13	10	751	5230	48	20	3609	55830	48	20	3628.8	56028	48	20	3648.6	56226	17.34	17.36
	2	20	1860	18700	QPSK	1	0	13	10	751	5230	66	20	2155	66886	66	5	2112.5	66461	66	15	2121.8	66554	17.29	17.36
	2	20	1860	18700	QPSK	1	0	13	10	751	5230	66	20	2155	66886	66	5	2112.5	66461	66	20	2124.2	66578	17.36	17.36
	2	20	1860	18700	QPSK	1	0	13	10	751	5230	66	20	2155	66886	66	20	2174.8	67084	66	20	2194.6	67282	17.34	17.36
	2	20	1860	18700	QPSK	1	0	14	10	763	5330	30	10	2355	9820	66	20	2155	66886	66	5	2112.5	66461	17.31	17.36
	2	20	1860	18700	QPSK	1	0	14	10	763	5330	66	20	2155	66886	66	5	2112.5	66461	66	20	2190	67236	17.34	17.36
	2	20	1860	18700	QPSK	1	0	48	20	3609	55830	48	5	3697.5	56715	48	20	3709.2	56832	66	20	2155	66886	17.30	17.36
	2	20	1860	18700	QPSK	1	0	48	20	3609	55830	48	5	3697.5	56715	48	20	3709.2	56832	48	20	3729	57030	17.35	17.36
	2	20	1860	18700	QPSK	1	0	48	20	3609	55830	48	20	3628.8	56028	48	5	3697.5	56715	48	20	3709.2	56832	17.29	17.36
	2	20	1860	18700	QPSK	1	0	48	20	3609	55830	48	20	3628.8	56028	48	20	3648.6	56226	66	20	2155	66886	17.32	17.36
	4	20	1720	20050	QPSK	1	0	4	5	2112.5	1975	5	10	881.5	2525	5	10	891.4	2624	30	10	2355	9820	18.00	18.03
	4	20	1720	20050	QPSK	1	0	48	20	3609	55830	48	20	3628.8	56028	48	20	3648.6	56226	48	20	3668.4	56424	17.94	18.03
	5	10	829	20450	QPSK	1	0	5	10	883.9	2549	66	20	2155	66886	66	5	2112.5	66461	66	15	2121.8	66554	20.57	20.66
	5	10	829	20450	QPSK	1	0	5	10	883.9	2549	66	20	2155	66886	66	5	2112.5	66461	66	20	2124.2	66578	20.57	20.66
	5	10	829	20450	QPSK	1	0	5	10	883.9	2549	30	10	2355	9820	66	20	2155	66886	66	5	2112.5	66461	20.63	20.66
	5	10	829	20450	QPSK	1	0	48	20	3609	55830	48	5	3697.5	56715	48	20	3709.2	56832	66	20	2155	66886	20.63	20.66
	5	10	829	20450	QPSK	1	0	48	20	3609	55830	48	20	3628.8	56028	48	5	3697.5	56715	48	20	3709.2	56832	20.65	20.66
	5	10	829	20450	QPSK	1	0	48	20	3609	55830	48	20	3628.8	56028	48	20	3648.6	56226	48	20	3668.4	56424	20.62	20.66
	5	10	829	20450	QPSK	1	0	48	20	3609	55830	48	5	3697.5	56715	48	20	3709.2	56832	48	20	3729	57030	20.65	20.66
	5	10	829	20450	QPSK	1	0	48	20	3609	55830	48	20	3628.8	56028	48	20	3648.6	56226	66	20	2155	66886	20.60	20.66
	13	10	782	23230	QPSK	1	0	48	20	3609	55830	48	5	3697.5	56715	48	20	3709.2	56832	66	20	2155	66886	20.76	20.79
	13	10	782	23230	QPSK	1	0	48	20	3609	55830	48	5	3697.5	56715	48	20	3709.2	56832	48	20	3729	57030	20.71	20.79
	13	10	782	23230	QPSK	1	0	48	20	3609	55830	48	20	3628.8	56028	48	5	3697.5	56715	48	20	3709.2	56832	20.75	20.79
	13	10	782	23230	QPSK	1	0	48	20	3609	55830	48	20	3628.8	56028	66	15	2155	66886	66	5	2164.3	66979	20.76	20.79
	13	10	782	23230	QPSK	1	0	48	20	3609	55830	48	20	3628.8	56028	66	20	2155	66886	66	20	2174.8	67084	20.77	20.79
	13	10	782	23230	QPSK	1	0	48	20	3609	55830	48	20	3628.8	56028	48	20	3648.6	56226	66	20	2155	66886	20.72	20.79

	25	20	1860	26140	QPSK	1	0	25	5	1932.5	8065	41	20	2593	40620	41	20	2612.8	40818	41	20	2632.6	41016	17.41	17.43
	25	20	1860	26140	QPSK	1	0	41	20	2593	40620	41	20	2612.8	40818	41	20	2632.6	41016	41	20	2652.4	41214	17.36	17.43
	41	20	2593	40620	QPSK	1	0	41	20	2612.8	40818	41	5	2687.5	41565	41	20	2667.7	41367	41	20	2647.9	41169	14.34	14.41
	41	20	2593	40620	QPSK	1	0	41	20	2612.8	40818	42	20	3575	43340	42	5	3552.5	43115	42	20	3564.2	43232	14.37	14.41
	41	20	2593	40620	QPSK	1	0	41	20	2612.8	40818	41	20	2632.6	41016	42	20	3575	43340	42	20	3594.8	43538	14.38	14.41
	41	20	2593	40620	QPSK	1	0	42	20	3575	43340	42	20	3594.8	43538	42	5	3552.5	43115	42	20	3564.2	43232	14.35	14.41
	48	20	3560	55340	QPSK	1	0	48	5	3697.5	56715	48	20	3709.2	56832	66	15	2155	66886	66	5	2164.3	66979	16.16	16.17
	48	20	3560	55340	QPSK	1	0	48	5	3697.5	56715	48	20	3709.2	56832	66	20	2155	66886	66	20	2174.8	67084	16.16	16.17
	48	20	3560	55340	QPSK	1	0	48	5	3697.5	56715	48	20	3709.2	56832	48	20	3729	57030	66	20	2155	66886	16.16	16.17
	48	20	3560	55340	QPSK	1	0	48	20	3579.8	55538	48	5	3697.5	56715	48	20	3709.2	56832	66	20	2155	66886	16.15	16.17
	48	20	3560	55340	QPSK	1	0	48	20	3579.8	55538	48	5	3697.5	56715	48	20	3709.2	56832	48	20	3729	57030	16.13	16.17
	48	20	3560	55340	QPSK	1	0	48	20	3579.8	55538	66	20	2155	66886	66	5	2112.5	66461	66	20	2190	67236	16.08	16.17
	48	20	3560	55340	QPSK	1	0	48	20	3579.8	55538	48	20	3599.6	55736	48	20	3619.4	55934	66	20	2155	66886	16.13	16.17
	48	20	3560	55340	QPSK	1	0	48	20	3579.8	55538	48	20	3599.6	55736	48	20	3619.4	55934	48	20	3639.2	56132	16.10	16.17

<Six Carrier power verification>

Configure	PCC							SCC1				SCC2				SCC3				SCC4				SCC5				Power	
	LTE Band	BW (MHz)	UL Freq. (MHz)	UL Channel	Mod.	UL# RB	UL RB Offset	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	With CA Tx.Power (dBm)	W/O CA Tx.Power (dBm)
Inter-Band	2	20	1860	18700	QPSK	1	0	48	20	3609	55830	48	20	3628.8	56028	48	20	3648.6	56226	48	20	3648.6	56226	66	20	2155	66886	17.35	17.36
	13	10	782	23230	QPSK	1	0	48	20	3609	55830	48	20	3628.8	56028	48	20	3648.6	56226	48	20	3648.6	56226	66	20	2155	66886	20.75	20.79
	41	20	2593	40620	QPSK	1	0	41	20	2612.8	40818	42	20	3575	43340	42	20	3594.8	43538	42	5	3552.5	43115	42	20	3564.2	43232	14.37	14.41

<LTE Uplink carrier aggregation>

2CC Uplink Carrier Aggregation	
Number	Combination
1	5B
2	7C
3	66B
4	66C
5	38C
6	41C
7	48C

<Intra-band>

General Note:

i. The device supports intra-band uplink carrier aggregation for LTE B5/B7/B66/B38/B41/B48 with a maximum of two 20MHz component carriers. For intra band contiguous carrier aggregation scenarios, 3GPP 36.101 table 6.2.2A-1 specifies that the aggregate maximum allowed output power is equivalent to the single carrier scenario. 3GPP 36.101 6.2.3A allows for several dB of MPR to be applied when not-contiguous RB allocation is implemented. The conducted power and MPR setting in this device are permanently implemented pre 3GPP requirement.

ii. The device supports uplink carrier aggregation with a maximum of two 20MHz component carriers. For intra band contiguous carrier aggregation scenarios, 3GPP 36.101 table 6.2.2A-1 specifies that the aggregate maximum allowed output power is equivalent to the single carrier scenario. 3GPP 36.101 6.2.3A allows for several dB of MPR to be applied when not-contiguous RB allocation is implemented. The conducted power and MPR setting in this device are permanently implemented pre the 3GPP requirement.

iii. According TCB workshop, the output power with uplink CA active was measured for the configuration with the highest reported SAR with single carrier for each exposure condition. The power was measured with wideband signal integration over both component carriers.

iv. According TCB workshop, the output power with uplink CA active was measured for the configuration with the highest reported SAR with single carrier for each exposure condition. The power was measured with wideband signal integration over both component carriers.

v. Additional SAR measurement for LTE UL CA whit other DL CA combinations active were not required since the maximum output power for this configuration was not > 0.25dB higher than the maximum output power for UL CA active.

CA_5B										
Combination 10MHz+10MHz (50RB+50RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		Total RB Size	Target MPR Level (dB)	Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
20450	20549	QPSK	1	0	0	0	1	0	20.68	21.5
20525	20426	QPSK	1	0	1	49	2	0	20.65	21.5
20600	20501	QPSK	1	0	1	49	2	0	20.61	21.5

CA_7C										
Combination 20MHz+20MHz (100RB+100RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		Total RB Size	Target MPR Level (dB)	Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
20850	21048	QPSK	1	0	0	0	1	0	14.55	15
21100	20902	QPSK	1	0	1	99	2	0	14.59	15
21350	21152	QPSK	1	0	1	99	2	0	14.49	15

CA_66B										
Combination 15MHz+5MHz (75RB+25RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		Total RB Size	Target MPR Level (dB)	Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
132047	132140	QPSK	1	0	0	0	1	0	17.92	18.5
132322	132229	QPSK	1	0	1	24	2	0	17.75	18.5
132572	132479	QPSK	1	0	1	24	2	0	17.63	18.5

CA_66C										
Combination 20MHz+20MHz (100RB+100RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		Total RB Size	Target MPR Level (dB)	Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
132072	132270	QPSK	1	0	0	0	1	0	17.98	18.5
132322	132124	QPSK	1	0	1	99	2	0	17.73	18.5
132572	132374	QPSK	1	0	1	99	2	0	17.71	18.5

CA_38C										
Combination 20MHz+20MHz (100RB+100RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		Total RB Size	Target MPR Level (dB)	Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
37850	38048	QPSK	1	0	0	0	1	0	15.31	16
37901	38099	QPSK	1	0	0	0	1	0	15.42	16
38150	37952	QPSK	1	0	1	99	2	0	15.23	16

CA_41C										
Combination 20MHz+20MHz (100RB+100RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		Total RB Size	Target MPR Level (dB)	Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
39750	39948	QPSK	1	0	0	0	1	0	14.45	16
40185	39987	QPSK	1	0	1	99	2	0	14.32	16
40620	40422	QPSK	1	0	1	99	2	0	14.46	16
41055	40857	QPSK	1	0	1	99	2	0	14.35	16
41490	41292	QPSK	1	0	1	99	2	0	14.26	16

CA_48C										
Combination 20MHz+20MHz (100RB+100RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		Total RB Size	Target MPR Level (dB)	Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
55340	55538	QPSK	1	0	0	0	1	0	16.22	17
55830	55632	QPSK	1	0	1	99	2	0	16.2	17
56150	55952	QPSK	1	0	1	99	2	0	16.18	17
56640	56442	QPSK	1	0	1	99	2	0	16.15	17

13. SAR Test Results

General Note:

1. Per KDB 447498 D01v06, the reported SAR is the measured SAR value adjusted for maximum tune-up tolerance.
   a. Tune-up scaling Factor = tune-up limit power (mW) / EUT RF power (mW), where tune-up limit is the maximum rated power among all production units.
   b. For WWAN: Reported SAR(W/kg)= Measured SAR(W/kg)*Tune-up Scaling Factor
   c. For TDD LTE SAR measurement, the duty cycle 1:1.59 (62.9 %) was used perform testing and considering the theoretical duty cycle of 63.3% for extended cyclic prefix in the uplink, and the theoretical duty cycle of 62.9% for normal cyclic prefix in uplink, a scaling factor of extended cyclic prefix 63.3%/62.9% = 1.006 is applied to scale-up the measured SAR result. The Reported TDD LTE SAR = measured SAR (W/kg)* Tune-up Scaling Factor* scaling factor for extended cyclic prefix.
2. Per KDB 447498 D01v06, for each exposure position, testing of other required channels within the operating mode of a frequency band is not required when the *reported* 1-g or 10-g SAR for the mid-band or highest output power channel is:
   - ≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100 MHz
   - ≤ 0.6 W/kg or 1.5 W/kg, for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz
   - ≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz
3. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required only when the measured SAR is ≥0.8W/kg.
4. For the exposure positions that proximity sensor power reduction is applied for SAR compliance, additional SAR testing with EUT transmitting full power in sensor trigger distance was performed; 16mm for bottom face of main antenna, 13mm for bottom face of MIMO2 antenna. These test results just verification the sensor trigger distance to meet KDB 616217 requirement, when in normal usage will not operate at trigger distance, therefore, these results were not using performed Sim-Tx analysis

UMTS Note:

1. Per KDB 941225 D01v03r01, for SAR testing is measured using a 12.2 kbps RMC with TPC bits configured to all “1’s”.
2. Per KDB 941225 D01v03r01, RMC 12.2kbps setting is used to evaluate SAR. The maximum output power and tune-up tolerance specified for production units in HSDPA / HSUPA / DC-HSDPA is ≤ ¼ dB higher than RMC 12.2Kbps or when the highest reported SAR of the RMC12.2Kbps is scaled by the ratio of specified maximum output power and tune-up tolerance of HSDPA / HSUPA / DC-HSDPA to RMC12.2Kbps and the adjusted SAR is ≤ 1.2 W/kg, SAR measurement is not required for HSDPA / HSUPA / DC-HSDPA, and according to the following RF output power, the output power results of the secondary modes (HSUPA, HSDPA, DC-HSDPA) are less than ¼ dB higher than the primary modes; therefore, SAR measurement is not required for HSDPA / HSUPA / DC-HSDPA.

LTE Note:

1. Per KDB 941225 D05v02r05, start with 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.
2. Per KDB 941225 D05v02r05, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
3. Per KDB 941225 D05v02r05, 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 are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
4. Per KDB 941225 D05v02r05, 16QAM output power for each RB allocation configuration is > not ½ dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, 16QAM SAR testing is not required.
5. Per KDB 941225 D05v02r05, Smaller bandwidth output power for each RB allocation configuration is > not ½ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, smaller bandwidth SAR testing is not required.
6. For LTE B12/B26/B71 the maximum bandwidth does not support three non-overlapping channels, per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.
7. LTE B4/B5/B17/B38 SAR test was covered by B12/B26/B66/B41; according to TCB workshop, SAR test for overlapping LTE bands can be reduced if
   c. the maximum output power, including tolerance, for the smaller band is ≤ the larger band to qualify for the SAR test exclusion
   d. the channel bandwidth and other operating parameters for the smaller band are fully supported by the larger band

5G NR Note:

1. For 5G NR test procedure was following step similar FCC KDB 941225 D05:
   a. SAR testing start with the largest channel bandwidth and measure SAR for PI/2 BPSK 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.
   b. 50% RB allocation for PI/2 BPSK SAR testing follows 1RB PI/2 BPSK allocation procedure
   c. PI/2 BPSK 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 are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
   d. QPSK/16QAM/64QAM/256QAM output powers are not ½ dB higher than the same configuration in PI/2 BPSK, also reported SAR for the PI/2 BPSK configuration is less than 1.45 W/kg, QPSK/16QAM/64QAM/256QAM SAR testing are not required.
   e. Smaller bandwidth output power for each RB allocation configuration for this device will not ½ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg, smaller bandwidth SAR testing is not required for this device
   f. For 5G FR1 n2/n5/n7/n12/n41/n66/n71 the maximum bandwidth does not support three non-overlapping channels, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.

13.1 Body SAR

<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna Vendor	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
01	WCDMA II	RMC 12.2Kbps	Bottom of Laptop	0mm	AMP	ON	9262	1852.4	17.95	18.50	1.135	-0.17	1.030	1.169
	WCDMA II	RMC 12.2Kbps	Bottom of Laptop	0mm	AMP	ON	9400	1880	17.86	18.50	1.159	0.05	0.920	1.066
	WCDMA II	RMC 12.2Kbps	Bottom of Laptop	0mm	AMP	ON	9538	1907.6	17.92	18.50	1.143	0.09	0.944	1.079
	WCDMA II	RMC 12.2Kbps	Bottom of Laptop	16mm	AMP	OFF	9262	1852.4	23.97	24.50	1.130	0	0.581	0.656
	WCDMA II	RMC 12.2Kbps	Bottom of Laptop	0mm	HB	ON	9262	1852.4	17.95	18.50	1.135	-0.02	0.986	1.119
	WCDMA IV	RMC 12.2Kbps	Bottom of Laptop	0mm	AMP	ON	1413	1732.6	18.57	19.00	1.104	0.05	0.925	1.021
	WCDMA IV	RMC 12.2Kbps	Bottom of Laptop	0mm	AMP	ON	1312	1712.4	18.31	19.00	1.172	-0.05	0.804	0.942
02	WCDMA IV	RMC 12.2Kbps	Bottom of Laptop	0mm	AMP	ON	1513	1752.6	18.25	19.00	1.189	-0.16	0.970	1.153
	WCDMA IV	RMC 12.2Kbps	Bottom of Laptop	16mm	AMP	OFF	1413	1732.6	24.02	24.50	1.117	-0.14	0.558	0.623
	WCDMA IV	RMC 12.2Kbps	Bottom of Laptop	0mm	HB	ON	1513	1752.6	18.25	19.00	1.189	-0.01	0.925	1.099
03	WCDMA V	RMC 12.2Kbps	Bottom of Laptop	0mm	AMP	ON	4132	826.4	19.32	20.00	1.169	-0.03	0.943	1.103
	WCDMA V	RMC 12.2Kbps	Bottom of Laptop	0mm	AMP	ON	4182	836.4	19.08	20.00	1.236	0.05	0.881	1.089
	WCDMA V	RMC 12.2Kbps	Bottom of Laptop	0mm	AMP	ON	4233	846.6	19.20	20.00	1.202	-0.09	0.895	1.076
	WCDMA V	RMC 12.2Kbps	Bottom of Laptop	16mm	AMP	OFF	4132	826.4	23.92	24.50	1.143	-0.12	0.374	0.427
	WCDMA V	RMC 12.2Kbps	Bottom of Laptop	0mm	HB	ON	4132	826.4	19.32	20.00	1.169	0.01	0.921	1.077

<FDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Antenna Vendor	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
04	LTE Band 2_MIMO2	20M	QPSK	1	0	Bottom of Laptop	0mm	AMP	ON	19100	1900	16.87	17.00	1.030	-0.09	0.712	0.734
	LTE Band 2_MIMO2	20M	QPSK	1	0	Bottom of Laptop	0mm	AMP	ON	18700	1860	16.44	17.00	1.138	0.02	0.550	0.626
	LTE Band 2_MIMO2	20M	QPSK	1	0	Bottom of Laptop	0mm	AMP	ON	18900	1880	16.65	17.00	1.084	0.01	0.669	0.725
	LTE Band 2_MIMO2	20M	QPSK	50	0	Bottom of Laptop	0mm	AMP	ON	19100	1900	15.86	16.00	1.033	-0.02	0.564	0.582
	LTE Band 2_MIMO2	20M	QPSK	1	0	Bottom of Laptop	13mm	AMP	OFF	19100	1900	23.81	24.00	1.045	-0.13	0.511	0.534
	LTE Band 2_MIMO2	20M	QPSK	50	0	Bottom of Laptop	13mm	AMP	OFF	19100	1900	22.81	23.00	1.045	-0.15	0.419	0.438
	LTE Band 2_MIMO2	20M	QPSK	1	0	Bottom of Laptop	0mm	HB	ON	19100	1900	16.87	17.00	1.030	0.04	0.700	0.721
	LTE Band 7	20M	QPSK	1	0	Bottom of Laptop	0mm	AMP	ON	20850	2510	14.58	15.00	1.102	0.09	0.968	1.066
	LTE Band 7	20M	QPSK	1	0	Bottom of Laptop	0mm	AMP	ON	21100	2535	14.56	15.00	1.107	-0.05	1.020	1.129
05	LTE Band 7	20M	QPSK	1	0	Bottom of Laptop	0mm	AMP	ON	21350	2560	14.43	15.00	1.140	-0.05	1.010	1.152
	LTE Band 7	20M	QPSK	50	0	Bottom of Laptop	0mm	AMP	ON	20850	2510	13.77	14.00	1.054	0.06	0.803	0.847
	LTE Band 7	20M	QPSK	50	0	Bottom of Laptop	0mm	AMP	ON	21350	2560	13.72	14.00	1.067	-0.03	0.841	0.897
	LTE Band 7	20M	QPSK	50	0	Bottom of Laptop	0mm	AMP	ON	21350	2560	13.68	14.00	1.076	0.05	0.850	0.915
	LTE Band 7	20M	QPSK	100	0	Bottom of Laptop	0mm	AMP	ON	20850	2510	13.82	14.00	1.042	0.01	0.871	0.908
	LTE Band 7	20M	QPSK	1	0	Bottom of Laptop	16mm	AMP	OFF	20850	2510	23.58	24.00	1.102	0.03	0.840	0.925
	LTE Band 7	20M	QPSK	1	0	Bottom of Laptop	16mm	AMP	OFF	21100	2535	23.46	24.00	1.132	0.05	0.885	1.002
	LTE Band 7	20M	QPSK	1	0	Bottom of Laptop	16mm	AMP	OFF	21350	2560	23.37	24.00	1.156	0.07	0.876	1.013
	LTE Band 7	20M	QPSK	50	0	Bottom of Laptop	16mm	AMP	OFF	20850	2510	22.81	23.00	1.045	-0.03	0.703	0.734
	LTE Band 7	20M	QPSK	100	0	Bottom of Laptop	16mm	AMP	OFF	20850	2510	22.89	23.00	1.026	-0.09	0.698	0.716
	LTE Band 7C	20M	QPSK	1	0	Bottom of Laptop	0mm	AMP	ON	21100	2535	14.59	15.00	1.099	-0.12	0.958	1.053
	LTE Band 7	20M	QPSK	1	0	Bottom of Laptop	0mm	HB	ON	21350	2560	14.43	15.00	1.140	0.11	0.981	1.119
	LTE Band 7_MIMO2	20M	QPSK	1	0	Bottom of Laptop	0mm	AMP	ON	20850	2510	15.90	16.00	1.023	-0.08	0.668	0.684
	LTE Band 7_MIMO2	20M	QPSK	1	0	Bottom of Laptop	0mm	AMP	ON	21100	2535	15.59	16.00	1.099	-0.02	0.539	0.592
	LTE Band 7_MIMO2	20M	QPSK	1	0	Bottom of Laptop	0mm	AMP	ON	21350	2560	15.19	16.00	1.205	0.04	0.438	0.528
	LTE Band 7_MIMO2	20M	QPSK	50	0	Bottom of Laptop	0mm	AMP	ON	20850	2510	14.88	15.00	1.028	-0.09	0.528	0.543
	LTE Band 7_MIMO2	20M	QPSK	1	0	Bottom of Laptop	13mm	AMP	OFF	20850	2510	23.86	24.00	1.033	-0.13	0.574	0.593
	LTE Band 7_MIMO2	20M	QPSK	50	0	Bottom of Laptop	13mm	AMP	OFF	20850	2510	22.83	23.00	1.040	-0.02	0.581	0.604
	LTE Band 7_MIMO2	20M	QPSK	1	0	Bottom of Laptop	0mm	HB	ON	20850	2510	15.90	16.00	1.023	0.09	0.620	0.634
06	LTE Band 12	10M	QPSK	1	0	Bottom of Laptop	0mm	AMP	OFF	23095	707.5	23.30	24.50	1.318	-0.05	0.881	1.161
	LTE Band 12	10M	QPSK	25	0	Bottom of Laptop	0mm	AMP	OFF	23095	707.5	22.39	23.50	1.291	0.06	0.715	0.923
	LTE Band 12	10M	QPSK	50	0	Bottom of Laptop	0mm	AMP	OFF	23095	707.5	22.49	23.50	1.262	0.03	0.814	1.027
	LTE Band 12	10M	QPSK	1	0	Bottom of Laptop	0mm	HB	OFF	23095	707.5	23.30	24.50	1.318	-0.06	0.740	0.976
07	LTE Band 13	10M	QPSK	1	0	Bottom of Laptop	0mm	AMP	ON	23230	782	20.79	22.00	1.321	0.04	0.833	1.101
	LTE Band 13	10M	QPSK	25	0	Bottom of Laptop	0mm	AMP	ON	23230	782	19.83	21.00	1.309	-0.03	0.664	0.869
	LTE Band 13	10M	QPSK	50	0	Bottom of Laptop	0mm	AMP	ON	23230	782	19.82	21.00	1.312	0.01	0.651	0.854
	LTE Band 13	10M	QPSK	1	0	Bottom of Laptop	16mm	AMP	OFF	23230	782	23.31	24.50	1.315	-0.11	0.212	0.279
	LTE Band 13	10M	QPSK	25	0	Bottom of Laptop	16mm	AMP	OFF	23230	782	22.40	23.50	1.288	0.09	0.172	0.222
	LTE Band 13	10M	QPSK	1	0	Bottom of Laptop	0mm	HB	ON	23230	782	20.79	22.00	1.321	0.05	0.785	1.037
08	LTE Band 14	10M	QPSK	1	0	Bottom of Laptop	0mm	AMP	ON	23330	793	20.33	21.50	1.309	-0.02	0.909	1.190
	LTE Band 14	10M	QPSK	25	0	Bottom of Laptop	0mm	AMP	ON	23330	793	19.47	20.50	1.268	0.03	0.746	0.946
	LTE Band 14	10M	QPSK	50	0	Bottom of Laptop	0mm	AMP	ON	23330	793	19.36	20.50	1.300	-0.09	0.691	0.898
	LTE Band 14	10M	QPSK	1	0	Bottom of Laptop	16mm	AMP	OFF	23330	793	23.42	24.50	1.282	-0.02	0.256	0.328
	LTE Band 14	10M	QPSK	25	0	Bottom of Laptop	16mm	AMP	OFF	23330	793	22.47	23.50	1.268	0.08	0.206	0.261
	LTE Band 14	10M	QPSK	1	0	Bottom of Laptop	0mm	HB	ON	23330	793	20.33	21.50	1.309	-0.05	0.842	1.102
09	LTE Band 25	20M	QPSK	1	0	Bottom of Laptop	0mm	AMP	ON	26140	1860	17.43	18.00	1.140	-0.08	0.955	1.089
	LTE Band 25	20M	QPSK	1	0	Bottom of Laptop	0mm	AMP	ON	26340	1880	17.34	18.00	1.164	0.05	0.881	1.026
	LTE Band 25	20M	QPSK	1	0	Bottom of Laptop	0mm	AMP	ON	26590	1905	17.26	18.00	1.186	-0.02	0.734	0.870
	LTE Band 25	20M	QPSK	50	0	Bottom of Laptop	0mm	AMP	ON	26140	1860	16.65	17.00	1.084	0.05	0.798	0.865
	LTE Band 25	20M	QPSK	50	0	Bottom of Laptop	0mm	AMP	ON	26340	1880	16.45	17.00	1.135	0.01	0.718	0.815
	LTE Band 25	20M	QPSK	50	0	Bottom of Laptop	0mm	AMP	ON	26590	1905	16.39	17.00	1.151	-0.05	0.601	0.692
	LTE Band 25	20M	QPSK	100	0	Bottom of Laptop	0mm	AMP	ON	26140	1860	16.61	17.00	1.094	0.06	0.781	0.854
	LTE Band 25	20M	QPSK	1	0	Bottom of Laptop	16mm	AMP	OFF	26140	1860	23.42	24.00	1.143	-0.09	0.576	0.658
	LTE Band 25	20M	QPSK	50	0	Bottom of Laptop	16mm	AMP	OFF	26140	1860	22.68	23.00	1.076	-0.05	0.486	0.523
	LTE Band 25	20M	QPSK	1	0	Bottom of Laptop	0mm	HB	ON	26140	1860	17.43	18.00	1.140	-0.12	0.901	1.027

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Antenna Vendor	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
10	LTE Band 26	15M	QPSK	1	0	Bottom of Laptop	0mm	AMP	ON	26865	831.5	20.82	21.50	1.169	-0.06	1.010	1.181
	LTE Band 26	15M	QPSK	36	0	Bottom of Laptop	0mm	AMP	ON	26865	831.5	19.94	20.50	1.138	0.03	0.824	0.937
	LTE Band 26	15M	QPSK	75	0	Bottom of Laptop	0mm	AMP	ON	26865	831.5	19.89	20.50	1.151	-0.05	0.784	0.902
	LTE Band 26	15M	QPSK	1	0	Bottom of Laptop	16mm	AMP	OFF	26865	831.5	23.79	24.50	1.178	-0.05	0.435	0.512
	LTE Band 26	15M	QPSK	36	0	Bottom of Laptop	16mm	AMP	OFF	26865	831.5	22.89	23.50	1.151	0.1	0.352	0.405
	LTE Band 5B	10M	QPSK	1	0	Bottom of Laptop	0mm	AMP	ON	20450	829	20.68	21.50	1.208	-0.09	0.940	1.135
	LTE Band 26	15M	QPSK	1	0	Bottom of Laptop	0mm	HB	ON	26865	831.5	20.82	21.50	1.169	0.05	0.946	1.106
11	LTE Band 30	10M	QPSK	1	0	Bottom of Laptop	0mm	AMP	ON	27710	2310	17.67	18.00	1.079	-0.11	1.080	1.165
	LTE Bnad 30	10M	QPSK	25	0	Bottom of Laptop	0mm	AMP	ON	27710	2310	16.69	17.00	1.074	0.03	0.862	0.926
	LTE Bnad 30	10M	QPSK	50	0	Bottom of Laptop	0mm	AMP	ON	27710	2310	16.71	17.00	1.069	-0.05	0.856	0.915
	LTE Band 30	10M	QPSK	1	0	Bottom of Laptop	16mm	AMP	OFF	27710	2310	22.69	23.00	1.074	-0.01	0.464	0.498
	LTE Bnad 30	10M	QPSK	25	0	Bottom of Laptop	16mm	AMP	OFF	27710	2310	21.75	22.00	1.059	-0.12	0.375	0.397
	LTE Bnad 30	10M	QPSK	1	0	Bottom of Laptop	0mm	HB	ON	27710	2310	17.67	18.00	1.079	0.05	1.020	1.101
	LTE Band 66	20M	QPSK	1	0	Bottom of Laptop	0mm	AMP	ON	132072	1720	18.00	18.50	1.122	0.05	0.861	0.966
	LTE Band 66	20M	QPSK	1	0	Bottom of Laptop	0mm	AMP	ON	132322	1745	17.77	18.50	1.183	-0.09	0.953	1.127
12	LTE Band 66	20M	QPSK	1	0	Bottom of Laptop	0mm	AMP	ON	132572	1770	17.69	18.50	1.205	-0.07	0.957	1.153
	LTE Band 66	20M	QPSK	50	0	Bottom of Laptop	0mm	AMP	ON	132072	1720	17.06	17.50	1.107	0.05	0.693	0.767
	LTE Band 66	20M	QPSK	50	0	Bottom of Laptop	0mm	AMP	ON	132322	1745	16.88	17.50	1.153	0.06	0.777	0.896
	LTE Band 66	20M	QPSK	50	0	Bottom of Laptop	0mm	AMP	ON	132572	1770	16.75	17.50	1.189	0.03	0.771	0.916
	LTE Band 66	20M	QPSK	100	0	Bottom of Laptop	0mm	AMP	ON	132072	1720	16.91	17.50	1.146	-0.04	0.754	0.864
	LTE Band 66	20M	QPSK	1	0	Bottom of Laptop	16mm	AMP	OFF	132072	1720	23.48	24.00	1.127	-0.11	0.513	0.578
	LTE Band 66	20M	QPSK	50	0	Bottom of Laptop	16mm	AMP	OFF	132072	1720	22.63	23.00	1.089	0.03	0.422	0.460
	LTE Band 66C	20M	QPSK	1	0	Bottom of Laptop	0mm	AMP	ON	132072	1720	17.98	18.50	1.127	-0.09	0.960	1.082
	LTE Band 66	20M	QPSK	1	0	Bottom of Laptop	0mm	HB	ON	132572	1770	17.69	18.50	1.205	0.02	0.925	1.115
	LTE Band 66_MIMO2	20M	QPSK	1	0	Bottom of Laptop	0mm	AMP	ON	132322	1745	16.81	17.00	1.045	-0.03	0.661	0.691
	LTE Band 66_MIMO2	20M	QPSK	50	0	Bottom of Laptop	0mm	AMP	ON	132322	1745	15.81	16.00	1.045	0.07	0.573	0.599
	LTE Band 66_MIMO2	20M	QPSK	1	0	Bottom of Laptop	13mm	AMP	OFF	132072	1720	23.58	24.00	1.102	0.05	0.777	0.856
	LTE Band 66_MIMO2	20M	QPSK	1	0	Bottom of Laptop	13mm	AMP	OFF	132322	1745	23.26	24.00	1.186	-0.15	0.493	0.585
	LTE Band 66_MIMO2	20M	QPSK	1	0	Bottom of Laptop	13mm	AMP	OFF	132572	1770	23.12	24.00	1.225	-0.02	0.803	0.983
	LTE Band 66_MIMO2	20M	QPSK	50	0	Bottom of Laptop	13mm	AMP	OFF	132072	1720	22.58	23.00	1.102	-0.1	0.684	0.753
	LTE Band 66_MIMO2	20M	QPSK	100	0	Bottom of Laptop	13mm	AMP	OFF	132072	1720	22.48	23.00	1.127	-0.09	0.635	0.716
	LTE Band 66_MIMO2	20M	QPSK	1	0	Bottom of Laptop	13mm	HB	OFF	132572	1770	23.12	24.00	1.225	-0.02	0.795	0.974
13	LTE Band 71	20M	QPSK	1	0	Bottom of Laptop	0mm	AMP	OFF	133322	683	23.79	24.50	1.178	-0.06	0.977	1.151
	LTE Band 71	20M	QPSK	50	0	Bottom of Laptop	0mm	AMP	OFF	133322	683	22.83	23.50	1.167	0.01	0.783	0.914
	LTE Band 71	20M	QPSK	100	0	Bottom of Laptop	0mm	AMP	OFF	133322	683	22.76	23.50	1.186	-0.06	0.743	0.881
	LTE Band 71	20M	QPSK	1	0	Bottom of Laptop	0mm	HB	OFF	133322	683	23.79	24.50	1.178	0.03	0.934	1.100

<TDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Antenna Vendor	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 41	20M	QPSK	1	0	Bottom of Laptop	0mm	AMP	ON	40620	2593	14.41	16.00	1.442	62.9	1.006	-0.07	0.601	0.872
	LTE Band 41	20M	QPSK	1	0	Bottom of Laptop	0mm	AMP	ON	39750	2506	14.40	16.00	1.445	62.9	1.006	-0.01	0.592	0.861
	LTE Band 41	20M	QPSK	1	0	Bottom of Laptop	0mm	AMP	ON	40185	2549.5	14.27	16.00	1.489	62.9	1.006	0.01	0.574	0.860
	LTE Band 41	20M	QPSK	1	0	Bottom of Laptop	0mm	AMP	ON	41055	2636.5	14.30	16.00	1.479	62.9	1.006	0.02	0.571	0.850
	LTE Band 41	20M	QPSK	1	0	Bottom of Laptop	0mm	AMP	ON	41490	2680	14.19	16.00	1.517	62.9	1.006	-0.09	0.558	0.852
	LTE Band 41	20M	QPSK	50	0	Bottom of Laptop	0mm	AMP	ON	40620	2593	13.58	15.00	1.387	62.9	1.006	0.08	0.528	0.737
	LTE Band 41	20M	QPSK	50	0	Bottom of Laptop	0mm	AMP	ON	39750	2506	13.57	15.00	1.390	62.9	1.006	-0.01	0.494	0.691
	LTE Band 41	20M	QPSK	50	0	Bottom of Laptop	0mm	AMP	ON	40185	2549.5	13.51	15.00	1.409	62.9	1.006	0.06	0.500	0.709
	LTE Band 41	20M	QPSK	50	0	Bottom of Laptop	0mm	AMP	ON	41055	2636.5	13.39	15.00	1.449	62.9	1.006	-0.04	0.478	0.697
	LTE Band 41	20M	QPSK	50	0	Bottom of Laptop	0mm	AMP	ON	41490	2680	13.43	15.00	1.435	62.9	1.006	0.02	0.481	0.695
	LTE Band 41	20M	QPSK	100	0	Bottom of Laptop	0mm	AMP	ON	40620	2593	13.56	15.00	1.393	62.9	1.006	0.01	0.501	0.702
	LTE Band 41	20M	QPSK	1	0	Bottom of Laptop	16mm	AMP	OFF	40620	2593	24.08	24.50	1.102	62.9	1.006	-0.07	0.517	0.573
	LTE Band 41	20M	QPSK	50	0	Bottom of Laptop	16mm	AMP	OFF	40620	2593	23.12	23.50	1.091	62.9	1.006	-0.12	0.456	0.501
14	LTE Band 41_HPUE	20M	QPSK	1	0	Bottom of Laptop	0mm	AMP	ON	40620	2593	17.83	19.00	1.309	42.9	1.009	-0.01	0.815	1.077
	LTE Band 41C	20M	QPSK	1	0	Bottom of Laptop	0mm	AMP	ON	40620	2593	14.46	16.00	1.426	62.9	1.006	-0.01	0.598	0.858
	LTE Band 41_HPUE	20M	QPSK	1	0	Bottom of Laptop	0mm	HB	ON	40620	2593	17.83	19.00	1.309	42.9	1.009	0.09	0.781	1.032
	LTE Band 48_MIMO2	20M	QPSK	1	0	Bottom of Laptop	0mm	AMP	ON	55340	3560	16.17	17.00	1.211	62.9	1.006	0.09	0.902	1.099
15	LTE Band 48_MIMO2	20M	QPSK	1	0	Bottom of Laptop	0mm	AMP	ON	55830	3609	16.15	17.00	1.216	62.9	1.006	-0.08	0.920	1.126
	LTE Band 48_MIMO2	20M	QPSK	1	0	Bottom of Laptop	0mm	AMP	ON	56150	3641	16.14	17.00	1.219	62.9	1.006	-0.01	0.915	1.122
	LTE Band 48_MIMO2	20M	QPSK	1	0	Bottom of Laptop	0mm	AMP	ON	56640	3690	16.10	17.00	1.230	62.9	1.006	-0.06	0.906	1.121
	LTE Band 48_MIMO2	20M	QPSK	50	0	Bottom of Laptop	0mm	AMP	ON	55340	3560	15.20	16.00	1.202	62.9	1.006	0.1	0.726	0.878
	LTE Band 48_MIMO2	20M	QPSK	50	0	Bottom of Laptop	0mm	AMP	ON	55830	3609	15.18	16.00	1.208	62.9	1.006	-0.09	0.740	0.899
	LTE Band 48_MIMO2	20M	QPSK	50	0	Bottom of Laptop	0mm	AMP	ON	56150	3641	15.17	16.00	1.211	62.9	1.006	0.02	0.736	0.896
	LTE Band 48_MIMO2	20M	QPSK	50	0	Bottom of Laptop	0mm	AMP	ON	56640	3690	15.13	16.00	1.222	62.9	1.006	0.1	0.729	0.896
	LTE Band 48_MIMO2	20M	QPSK	100	0	Bottom of Laptop	0mm	AMP	ON	55340	3560	15.18	16.00	1.208	62.9	1.006	-0.03	0.715	0.869
	LTE Band 48_MIMO2	20M	QPSK	1	0	Bottom of Laptop	13mm	AMP	OFF	55340	3560	21.33	22.00	1.167	62.9	1.006	0.01	0.274	0.322
	LTE Band 48_MIMO2	20M	QPSK	50	0	Bottom of Laptop	13mm	AMP	OFF	55340	3560	20.46	21.00	1.132	62.9	1.006	-0.02	0.224	0.255
	LTE Band 48C_MIMO2	20M	QPSK	1	0	Bottom of Laptop	0mm	AMP	ON	55340	3560	16.22	17.00	1.197	62.9	1.006	-0.11	0.900	1.084
	LTE Band 48_MIMO2	20M	QPSK	1	0	Bottom of Laptop	0mm	HB	ON	55830	3609	16.15	17.00	1.216	62.9	1.006	0.04	0.908	1.111

<5G NR SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Antenna Vendor	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	FR1 n2	20M	BPSK	1	1	Bottom of Laptop	0mm	AMP	ON	380000	1900	16.12	16.50	1.091	-0.16	0.604	0.659
	FR1 n2	20M	BPSK	50	0	Bottom of Laptop	0mm	AMP	ON	380000	1900	16.02	16.50	1.117	0.06	0.584	0.652
	FR1 n2	20M	BPSK	1	1	Bottom of Laptop	16mm	AMP	OFF	372000	1860	23.62	24.00	1.091	-0.02	0.696	0.760
	FR1 n2	20M	BPSK	1	1	Bottom of Laptop	16mm	AMP	OFF	376000	1880	23.32	24.00	1.169	0	0.635	0.743
	FR1 n2	20M	BPSK	1	1	Bottom of Laptop	16mm	AMP	OFF	380000	1900	23.53	24.00	1.114	-0.05	0.632	0.704
	FR1 n2	20M	BPSK	50	0	Bottom of Laptop	16mm	AMP	OFF	372000	1860	23.57	24.00	1.104	-0.12	0.591	0.653
	FR1 n2	20M	BPSK	1	1	Bottom of Laptop	16mm	HB	OFF	372000	1860	23.62	24.00	1.091	-0.05	0.683	0.745
	FR1 n2_MIMO2	20M	BPSK	1	1	Bottom of Laptop	0mm	AMP	ON	380000	1900	14.42	15.00	1.143	-0.04	0.554	0.633
	FR1 n2_MIMO2	20M	BPSK	50	0	Bottom of Laptop	0mm	AMP	ON	380000	1900	14.39	15.00	1.151	-0.1	0.545	0.627
	FR1 n2_MIMO2	20M	BPSK	1	1	Bottom of Laptop	13mm	AMP	OFF	380000	1900	23.42	24.00	1.143	-0.02	0.709	0.810
16	FR1 n2_MIMO2	20M	BPSK	1	1	Bottom of Laptop	13mm	AMP	OFF	372000	1860	23.08	24.00	1.236	-0.07	0.758	0.937
	FR1 n2_MIMO2	20M	BPSK	1	1	Bottom of Laptop	13mm	AMP	OFF	376000	1880	23.29	24.00	1.178	-0.06	0.640	0.754
	FR1 n2_MIMO2	20M	BPSK	50	0	Bottom of Laptop	13mm	AMP	OFF	380000	1900	23.41	24.00	1.146	-0.13	0.612	0.701
	FR1 n2_MIMO2	20M	BPSK	100	0	Bottom of Laptop	13mm	AMP	OFF	380000	1900	22.83	23.50	1.167	0.03	0.535	0.624
	FR1 n2_MIMO2	20M	BPSK	1	1	Bottom of Laptop	13mm	HB	OFF	372000	1860	14.08	15.00	1.236	0	0.722	0.892
17	FR1 n5	20M	BPSK	1	1	Bottom of Laptop	0mm	AMP	ON	167300	836.5	18.03	18.50	1.114	0	0.590	0.657
	FR1 n5	20M	BPSK	50	0	Bottom of Laptop	0mm	AMP	ON	167300	836.5	18.02	18.50	1.117	-0.01	0.563	0.629
	FR1 n5	20M	BPSK	1	1	Bottom of Laptop	16mm	AMP	OFF	167300	836.5	23.53	24.00	1.114	0.03	0.439	0.489
	FR1 n5	20M	BPSK	50	0	Bottom of Laptop	16mm	AMP	OFF	167300	836.5	23.52	24.00	1.117	0.01	0.365	0.408
	FR1 n5	20M	BPSK	1	1	Bottom of Laptop	0mm	HB	ON	167300	836.5	18.03	18.50	1.114	-0.07	0.566	0.631
	FR1 n7_MIMO2	20M	BPSK	1	1	Bottom of Laptop	0mm	AMP	ON	507000	2535	11.52	13.00	1.406	0.05	0.431	0.606
	FR1 n7_MIMO2	20M	BPSK	50	0	Bottom of Laptop	0mm	AMP	ON	507000	2535	11.46	13.00	1.426	-0.02	0.422	0.602
	FR1 n7_MIMO2	20M	BPSK	1	1	Bottom of Laptop	13mm	AMP	OFF	507000	2535	22.52	24.00	1.406	-0.07	0.628	0.883
18	FR1 n7_MIMO2	20M	BPSK	1	1	Bottom of Laptop	13mm	AMP	OFF	502000	2510	22.35	24.00	1.462	-0.01	0.618	0.904
	FR1 n7_MIMO2	20M	BPSK	1	1	Bottom of Laptop	13mm	AMP	OFF	512000	2560	22.13	24.00	1.538	0	0.568	0.874
	FR1 n7_MIMO2	20M	BPSK	50	0	Bottom of Laptop	13mm	AMP	OFF	507000	2535	22.50	24.00	1.413	0.04	0.611	0.863
	FR1 n7_MIMO2	20M	BPSK	1	1	Bottom of Laptop	13mm	AMP	OFF	502000	2510	22.28	24.00	1.486	0.09	0.601	0.893
	FR1 n7_MIMO2	20M	BPSK	1	1	Bottom of Laptop	13mm	AMP	OFF	512000	2560	22.06	24.00	1.563	0	0.551	0.861
	FR1 n7_MIMO2	20M	BPSK	100	0	Bottom of Laptop	13mm	AMP	OFF	507000	2535	22.00	23.50	1.413	0.06	0.570	0.805
	FR1 n7_MIMO2	20M	BPSK	1	1	Bottom of Laptop	13mm	HB	OFF	502000	2510	22.35	24.00	1.462	-0.1	0.600	0.877
19	FR1 n12	15M	BPSK	1	1	Bottom of Laptop	0mm	AMP	ON	141500	707.5	20.37	21.00	1.156	-0.08	0.523	0.605
	FR1 n12	15M	BPSK	36	0	Bottom of Laptop	0mm	AMP	ON	141500	707.5	20.35	21.00	1.161	0.07	0.519	0.603
	FR1 n12	15M	BPSK	1	1	Bottom of Laptop	16mm	AMP	OFF	141500	707.5	23.37	24.00	1.156	-0.07	0.165	0.191
	FR1 n12	15M	BPSK	36	0	Bottom of Laptop	16mm	AMP	OFF	141500	707.5	23.35	24.00	1.161	-0.12	0.105	0.122
	FR1 n12	15M	BPSK	1	1	Bottom of Laptop	0mm	HB	ON	141500	707.5	20.37	21.00	1.156	-0.1	0.504	0.583
	FR1 n41_MIMO2	100M	BPSK	1	1	Bottom of Laptop	0mm	AMP	ON	509202	2546.01	12.82	13.00	1.042	-0.04	0.624	0.650
	FR1 n41_MIMO2	100M	BPSK	135	0	Bottom of Laptop	0mm	AMP	ON	509202	2546.01	12.80	13.00	1.047	-0.06	0.600	0.628
20	FR1 n41_MIMO2	100M	BPSK	1	1	Bottom of Laptop	13mm	AMP	OFF	509202	2546.01	23.92	24.00	1.019	0.07	1.120	1.141
	FR1 n41_MIMO2	100M	BPSK	1	1	Bottom of Laptop	13mm	AMP	OFF	518598	2592.99	23.75	24.00	1.059	0.01	1.060	1.123
	FR1 n41_MIMO2	100M	BPSK	1	1	Bottom of Laptop	13mm	AMP	OFF	528000	2640	23.77	24.00	1.054	-0.07	1.080	1.139
	FR1 n41_MIMO2	100M	BPSK	135	0	Bottom of Laptop	13mm	AMP	OFF	509202	2546.01	23.90	24.00	1.023	0.06	1.100	1.126
	FR1 n41_MIMO2	100M	BPSK	135	0	Bottom of Laptop	13mm	AMP	OFF	518598	2592.99	23.72	24.00	1.067	-0.03	1.000	1.067
	FR1 n41_MIMO2	100M	BPSK	135	0	Bottom of Laptop	13mm	AMP	OFF	528000	2640	23.74	24.00	1.062	-0.1	1.030	1.094
	FR1 n41_MIMO2	100M	BPSK	270	0	Bottom of Laptop	13mm	AMP	OFF	509202	2546.01	23.33	23.50	1.040	0.04	0.980	1.019
	FR1 n41_MIMO2	100M	BPSK	1	1	Bottom of Laptop	13mm	HB	OFF	509202	2546.01	23.92	24.00	1.019	-0.01	1.060	1.080

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Antenna Vendor	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	FR1 n66	40M	BPSK	1	1	Bottom of Laptop	0mm	AMP	ON	352000	1760	14.96	15.50	1.132	0.05	0.559	0.633
	FR1 n66	40M	BPSK	1	1	Bottom of Laptop	0mm	AMP	ON	346000	1730	13.68	15.50	1.521	-0.03	0.327	0.497
	FR1 n66	40M	BPSK	1	1	Bottom of Laptop	0mm	AMP	ON	349000	1745	14.62	15.50	1.225	-0.11	0.523	0.640
	FR1 n66	40M	BPSK	108	0	Bottom of Laptop	0mm	AMP	ON	352000	1760	14.92	15.50	1.143	0.03	0.550	0.629
	FR1 n66	40M	BPSK	1	1	Bottom of Laptop	16mm	AMP	OFF	352000	1760	23.46	24.00	1.132	-0.1	0.421	0.477
	FR1 n66	40M	BPSK	108	0	Bottom of Laptop	16mm	AMP	OFF	352000	1760	23.45	24.00	1.135	-0.12	0.365	0.414
	FR1 n66	40M	BPSK	1	1	Bottom of Laptop	0mm	HB	ON	349000	1745	14.62	15.50	1.225	-0.08	0.508	0.622
	FR1 n66_MIMO2	40M	BPSK	1	1	Bottom of Laptop	0mm	AMP	ON	349000	1745	14.48	15.00	1.127	-0.05	0.614	0.692
	FR1 n66_MIMO2	40M	BPSK	108	0	Bottom of Laptop	0mm	AMP	ON	349000	1745	14.46	15.00	1.132	-0.02	0.600	0.679
	FR1 n66_MIMO2	40M	BPSK	1	1	Bottom of Laptop	13mm	AMP	OFF	349000	1745	23.48	24.00	1.127	0.13	0.741	0.835
	FR1 n66_MIMO2	40M	BPSK	1	1	Bottom of Laptop	13mm	AMP	OFF	346000	1730	22.54	24.00	1.400	-0.05	0.547	0.766
21	FR1 n66_MIMO2	40M	BPSK	1	1	Bottom of Laptop	13mm	AMP	OFF	352000	1760	22.23	24.00	1.503	-0.03	0.557	0.837
	FR1 n66_MIMO2	40M	BPSK	108	0	Bottom of Laptop	13mm	AMP	OFF	349000	1745	23.46	24.00	1.132	-0.09	0.680	0.770
	FR1 n66_MIMO2	40M	BPSK	216	0	Bottom of Laptop	13mm	AMP	OFF	349000	1745	22.91	23.50	1.146	-0.02	0.651	0.746
	FR1 n66_MIMO2	40M	BPSK	1	1	Bottom of Laptop	13mm	HB	OFF	352000	1760	22.23	24.00	1.503	0	0.518	0.779
22	FR1 n71	20M	BPSK	1	1	Bottom of Laptop	0mm	AMP	ON	136100	680.5	20.94	21.50	1.138	-0.13	0.610	0.694
	FR1 n71	20M	BPSK	50	0	Bottom of Laptop	0mm	AMP	ON	136100	680.5	20.94	21.50	1.138	-0.04	0.593	0.675
	FR1 n71	20M	BPSK	1	1	Bottom of Laptop	16mm	AMP	OFF	136100	680.5	23.44	24.00	1.138	-0.03	0.180	0.205
	FR1 n71	20M	BPSK	50	0	Bottom of Laptop	16mm	AMP	OFF	136100	680.5	23.40	24.00	1.148	0.08	0.101	0.116
	FR1 n71	20M	BPSK	1	1	Bottom of Laptop	0mm	HB	ON	136100	680.5	20.94	21.50	1.138	-0.03	0.553	0.629

13.2 Repeated SAR Measurement

No.	Band	Mode	Test Position	Gap (mm)	Antenna Vendor	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Ratio	Reported 1g SAR (W/kg)
1st	WCDMA II	RMC 12.2Kbps	Bottom of Laptop	0mm	AMP	ON	9262	1852.4	17.95	18.50	1.135	-	-	-0.17	1.030		1.169
2nd	WCDMA II	RMC 12.2Kbps	Bottom of Laptop	0mm	AMP	ON	9262	1852.4	17.95	18.50	1.135	-	-	-0.1	0.929	1.11	1.054
1st	WCDMA IV	RMC 12.2Kbps	Bottom of Laptop	0mm	AMP	ON	1513	1752.6	18.25	19.00	1.189	-	-	-0.16	0.970		1.153
2nd	WCDMA IV	RMC 12.2Kbps	Bottom of Laptop	0mm	AMP	ON	1513	1752.6	18.25	19.00	1.189	-	-	-0.09	0.871	1.11	1.035
1st	LTE Band 26	15M_QPSK_1_0	Bottom of Laptop	0mm	AMP	ON	26865	831.5	20.82	21.50	1.169	-	-	-0.06	1.010		1.181
2nd	LTE Band 26	15M_QPSK_1_0	Bottom of Laptop	0mm	AMP	ON	26865	831.5	20.82	21.50	1.169	-	-	-0.11	0.980	1.03	1.146
1st	LTE Band 30	10M_QPSK_1_0	Bottom of Laptop	0mm	AMP	ON	27710	2310	17.67	18.00	1.079	-	-	-0.11	1.080		1.165
2nd	LTE Band 30	10M_QPSK_1_0	Bottom of Laptop	0mm	AMP	ON	27710	2310	17.67	18.00	1.079	-	-	-0.01	1.060	1.02	1.144
1st	LTE Band 48_MIMO2	20M_QPSK_1_0	Bottom of Laptop	0mm	AMP	ON	55830	3609	16.15	17.00	1.216	62.9	1.006	-0.08	0.920		1.126
2nd	LTE Band 48_MIMO2	20M_QPSK_1_0	Bottom of Laptop	0mm	AMP	ON	55830	3609	16.15	17.00	1.216	62.9	1.006	-0.04	0.903	1.02	1.105
1st	LTE Band 71	20M_QPSK_1_0	Bottom of Laptop	0mm	AMP	OFF	133322	683	23.79	24.50	1.178	-	-	-0.06	0.977		1.151
2nd	LTE Band 71	20M_QPSK_1_0	Bottom of Laptop	0mm	AMP	OFF	133322	683	23.79	24.50	1.178	-	-	0.04	0.962	1.02	1.133
1st	FR1 n41_MIMO2	100M_BPSK_1_1	Bottom of Laptop	13mm	AMP	OFF	509202	2546.01	23.92	24.00	1.019	-	-	0.07	1.120		1.141
2nd	FR1 n41_MIMO2	100M_BPSK_1_1	Bottom of Laptop	13mm	AMP	OFF	509202	2546.01	23.92	24.00	1.019	-	-	-0.01	1.010	1.11	1.029

General Note:

1. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required only when the measured SAR is ≥0.8W/kg.
2. Per KDB 865664 D01v01r04, if the ratio among the repeated measurement is ≤ 1.2 and the measured SAR <1.45W/kg, only one repeated measurement is required.
3. The ratio is the difference in percentage between original and repeated *measured SAR*.
4. All measurement SAR result is scaled-up to account for tune-up tolerance and is compliant.

13.3 LTE Band 41 Power Class 2 and Power Class 3 Linearity

This device support Power Class 2 and Power Class 3 operations for LTE Band 41. The highest available duty cycle for Power Class 2 operation is 43.3% using UL-DL configuration 1. Per FCC Guidance based on the device behavior, all SAR tests were performed using Power Class 3. Power Class 2 is tested using the highest SAR test configuration in Power Class 3 for each LTE configuration and exposure condition combination, according to the highest time averaged power for all applicable uplink-downlink configurations in Power Class 2. When the reported SAR vs. output power is linearly scaled with < 10% discrepancy between power classes and all reported SAR are < 1.4 W/kg, Separate SAR testing for Power Class 2 is not required

	LTE Band 41 (Power Class 3)	LTE Band 41 (Power Class 2)
Maximum Tune up Power (dBm)	16	19
Reported 1g SAR (W/kg)	0.872	1.077
Duty Cycle	63.30%	43.30%
Frame Averaged (mW)	25.20	34.39
Linearity SAR(W/kg)	1.19	
% deviation from expected linearity		-9.51%

14. Simultaneous Transmission Analysis

NO.	Simultaneous Transmission Configurations	Body
1.	WWAN + WLAN2.4GHz Ant 1 + WLAN 2.4GHz Ant 2 + FR1	Yes
2.	WWAN + WLAN2.4GHz Ant 2 + Bluetooth Ant 1 + FR1	Yes
3.	WWAN + WLAN5GHz Ant 1 / WLAN5GHz Ant 2 + FR1	Yes
4.	WWAN + WLAN5GHz Ant 2 + Bluetooth Ant 1 + FR1	Yes
5.	WWAN + 2.4GHz WLAN Ant 1+2 + FR1	Yes
6.	WWAN + 5GHz WLAN Ant 1+2 + FR1	Yes
7.	WWAN + Bluetooth Ant 1 + 5GHz WLAN Ant 1+2 + FR1	Yes

General Note:

1. The Intel AX201D2W is also integrated into this host, the WLAN and Bluetooth SAR results are referenced to FCC ID: PD9AX201D2, report no.: 180717-03.TR11 and the results are used to perform simultaneous transmission analysis.
2. EUT will choose either WLAN 2.4GHz or WLAN 5GHz according to the network signal condition; therefore, 2.4GHz WLAN and 5GHz WLAN will not operate simultaneously at any moment.
3. The Scaled SAR summation is calculated based on the same configuration and test position.
4. Per KDB 447498 D01v06, simultaneous transmission SAR is compliant if,
   i) Scalar SAR summation < 1.6W/kg.
   ii) SPLSR = (SAR1 + SAR2)^1.5 / (min. separation distance, mm), and the peak separation distance is determined from the square root of [(x1-x2)2 + (y1-y2)2 + (z1-z2)2], where (x1, y1, z1) and (x2, y2, z2) are the coordinates of the extrapolated peak SAR locations in the zoom scan.
   iii) If SPLSR ≤ 0.04, simultaneously transmission SAR measurement is not necessary.
   iv) Simultaneously transmission SAR measurement, and the reported multi-band SAR < 1.6W/kg.

14.1 Body Exposure Conditions

<EN-DC non-Active>

WWAN Band	Exposure Position	0	3	4	5	6	7	0+3+4 Summed 1g SAR (W/kg)	0+4+7 Summed 1g SAR (W/kg)	0+5+6 Summed 1g SAR (W/kg)	0+6+7 Summed 1g SAR (W/kg)	0+5+6+7 Summed 1g SAR (W/kg)	SPLSR	Case No
		WWAN	2.4GHz WLAN Ant 1	2.4GHz WLAN Ant 2	5GHz WLAN Ant 1	5GHz WLAN Ant 2	Bluetooth Ant 1							
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)							
WCDMA II	Bottom of Laptop at 0mm	1.169	0.490	0.460	0.530	0.420	0.070	2.119	1.699	2.119	1.659	2.189	0.04	Case 1
WCDMA IV	Bottom of Laptop at 0mm	1.153	0.490	0.460	0.530	0.420	0.070	2.103	1.683	2.103	1.643	2.173	0.04	Case 2
WCDMA V	Bottom of Laptop at 0mm	1.103	0.490	0.460	0.530	0.420	0.070	2.053	1.633	2.053	1.593	2.123	0.03	Case 3
LTE Band 2_MIMO2	Bottom of Laptop at 0mm	0.734	0.490	0.460	0.530	0.420	0.070	1.684	1.264	1.684	1.224	1.754	0.01	Case 4
LTE Band 7	Bottom of Laptop at 0mm	1.152	0.490	0.460	0.530	0.420	0.070	2.102	1.682	2.102	1.642	2.172	0.03	Case 5
LTE Band 7_MIMO2	Bottom of Laptop at 0mm	0.684	0.490	0.460	0.530	0.420	0.070	1.634	1.214	1.634	1.174	1.704	0.01	Case 6
LTE Band 12	Bottom of Laptop at 0mm	1.161	0.490	0.460	0.530	0.420	0.070	2.111	1.691	2.111	1.651	2.181	0.04	Case 7
LTE Band 13	Bottom of Laptop at 0mm	1.101	0.490	0.460	0.530	0.420	0.070	2.051	1.631	2.051	1.591	2.121	0.03	Case 8
LTE Band 14	Bottom of Laptop at 0mm	1.190	0.490	0.460	0.530	0.420	0.070	2.140	1.720	2.140	1.680	2.210	0.03	Case 9
LTE Band 25	Bottom of Laptop at 0mm	1.089	0.490	0.460	0.530	0.420	0.070	2.039	1.619	2.039	1.579	2.109	0.04	Case 10
LTE Band 26	Bottom of Laptop at 0mm	1.181	0.490	0.460	0.530	0.420	0.070	2.131	1.711	2.131	1.671	2.201	0.03	Case 11
LTE Band 30	Bottom of Laptop at 0mm	1.165	0.490	0.460	0.530	0.420	0.070	2.115	1.695	2.115	1.655	2.185	0.04	Case 12
LTE Band 41	Bottom of Laptop at 0mm	1.077	0.490	0.460	0.530	0.420	0.070	2.027	1.607	2.027	1.567	2.097	0.03	Case 13
LTE Band 48_MIMO2	Bottom of Laptop at 0mm	1.126	0.490	0.460	0.530	0.420	0.070	2.076	1.656	2.076	1.616	2.146	0.02	Case 14
LTE Band 66	Bottom of Laptop at 0mm	1.153	0.490	0.460	0.530	0.420	0.070	2.103	1.683	2.103	1.643	2.173	0.04	Case 15
LTE Band 66_MIMO2	Bottom of Laptop at 0mm	0.691	0.490	0.460	0.530	0.420	0.070	1.641	1.221	1.641	1.181	1.711	0.01	Case 16
LTE Band 71	Bottom of Laptop at 0mm	1.151	0.490	0.460	0.530	0.420	0.070	2.101	1.681	2.101	1.641	2.171	0.04	Case 17

<When EN-DC is active>

<EN-DC combination and Maximum Power>

General Note:

1. Test positions and test channels used for the testing below are based on the standalone SAR result. When the EN-DC active the LTE Anchors Band output power is equal or less than the standalone output power for each frequency bands, therefore, LTE Anchors Band power and SAR was estimated based on standalone results to performed sim-Tx analysis with 5G NR and WiFi and Bluetooth.
2. The single uplink 1g SAR values for each LTE Anchors Bands and 5G NR are both less than 0.8W/kg and the algebraic summation of the 1g SAR value are less than 1.45W/kg, additional measurements are not required according to TCBC workshop guidance, the detail sim-Tx analysis as following.

Combination	Tech	Band	Tx ANT	Standalone w/ DPR (dBm)	EN-ED Active w/ DPR (dBm)
ENDC	LTE ENDC	2	MIMO2	17.0	17.0
	5G NSA	5	Main	18.5	18.5
ENDC	LTE ENDC	2	MIMO2	17.0	17.0
	5G NSA	12	Main	21.0	21.0
ENDC	LTE ENDC	2	Main	18.0	16.0
	5G NSA	41	MIMO2	13.0	13.0
ENDC	LTE ENDC	2	MIMO2	17.0	17.0
	5G NSA	71	Main	21.5	21.5
ENDC	LTE ENDC	5	Main	21.5	19.5
	5G NSA	2	MIMO2	15.0	15.0
ENDC	LTE ENDC	5	Main	21.5	19.5
	5G NSA	7	MIMO2	13.0	13.0
ENDC	LTE ENDC	5	Main	21.5	19.5
	5G NSA	66	MIMO2	15.0	15.0
ENDC	LTE ENDC	7	MIMO2	16.0	16.0
	5G NSA	5	Main	18.5	18.5
ENDC	LTE ENDC	7	MIMO2	16.0	16.0
	5G NSA	71	Main	21.5	21.5
ENDC	LTE ENDC	12	Main	24.5	22.5
	5G NSA	2	MIMO2	15.0	15.0
ENDC	LTE ENDC	12	Main	24.5	22.5
	5G NSA	7	MIMO2	13.0	13.0
ENDC	LTE ENDC	12	Main	24.5	22.5
	5G NSA	66	MIMO2	15.0	15.0
ENDC	LTE ENDC	13	Main	24.5	20.0
	5G NSA	2	MIMO2	15.0	15.0
ENDC	LTE ENDC	13	Main	24.5	20.0
	5G NSA	66	MIMO2	15.0	15.0
ENDC	LTE ENDC	25	Main	18.0	16.0
	5G NSA	41	MIMO2	13.0	13.0
ENDC	LTE ENDC	26	Main	21.5	19.5
	5G NSA	41	MIMO2	13.0	13.0
ENDC	LTE ENDC	48	MIMO2	17.0	15.0
	5G NSA	2	Main	16.5	16.5
ENDC	LTE ENDC	48	MIMO2	17.0	15.0
	5G NSA	5	Main	18.5	18.5
ENDC	LTE ENDC	48	MIMO2	17.0	15.0
	5G NSA	66	Main	15.5	15.5
ENDC	LTE ENDC	66	MIMO2	17.0	17.0
	5G NSA	5	Main	18.5	18.5
ENDC	LTE ENDC	66	MIMO2	17.0	17.0
	5G NSA	12	Main	21.0	21.0
ENDC	LTE ENDC	66	Main	18.5	16.5
	5G NSA	41	MIMO2	13.0	13.0
ENDC	LTE ENDC	66	MIMO2	17.0	17.0
	5G NSA	71	Main	21.5	21.5
ENDC	LTE ENDC	71	Main	24.5	22.5
	5G NSA	66	MIMO2	15.0	15.0

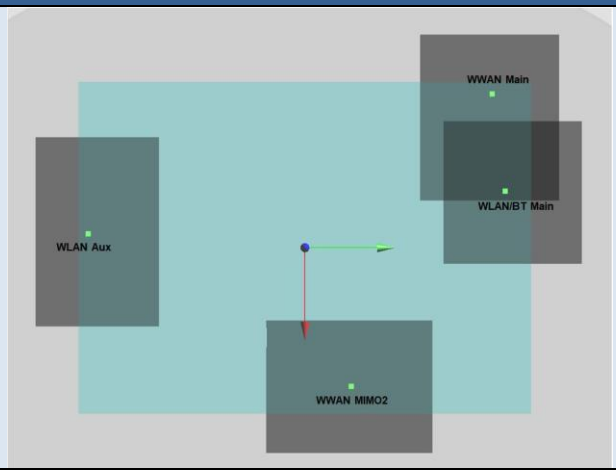
LTE Band	FR1 Band	Exposure Position	LTE Standalone Maximum Power (dBm)	0	EN-DC Active LTE Maximum Power (dBm)	1	2	3	4	5	6	7	1+2+3+4 Summed 1g SAR (W/kg)	1+2+4+7 Summed 1g SAR (W/kg)	1+2+5+6 Summed 1g SAR (W/kg)	1+2+6+7 Summed 1g SAR (W/kg)	1+2+5+6+7 Summed 1g SAR (W/kg)	SPLSR	Case No
				WWAN		EN-DC Active Estimated LTE	FR1	2.4GHz WLAN Ant 1	2.4GHz WLAN Ant 2	5GHz WLAN Ant 1	5GHz WLAN Ant 2	Bluetooth Ant 1							
				1g SAR (W/kg)		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)							
LTE Band 2_MIMO2	FR1 n5	Bottom of Laptop at 0mm	17.00	0.734	17.00	0.734	0.657	0.490	0.460	0.530	0.420	0.070	2.341	1.921	2.341	1.881	2.411	0.02	Case 18
	FR1 n12	Bottom of Laptop at 0mm	17.00	0.734	17.00	0.734	0.605	0.490	0.460	0.530	0.420	0.070	2.289	1.869	2.289	1.829	2.359	0.02	Case 19
	FR1 n71	Bottom of Laptop at 0mm	17.00	0.734	17.00	0.734	0.694	0.490	0.460	0.530	0.420	0.070	2.378	1.958	2.378	1.918	2.448	0.02	Case 20
LTE Band 5	FR1 n2_MIMO2	Bottom of Laptop at 0mm	21.50	1.181	19.50	0.745	0.633	0.490	0.460	0.530	0.420	0.070	2.328	1.908	2.328	1.868	2.398	0.02	Case 21
	FR1 n7_MIMO2	Bottom of Laptop at 0mm	21.50	1.181	19.50	0.745	0.606	0.490	0.460	0.530	0.420	0.070	2.301	1.881	2.301	1.841	2.371	0.02	Case 22
	FR1 n66_MIMO2	Bottom of Laptop at 0mm	21.50	1.181	19.50	0.745	0.692	0.490	0.460	0.530	0.420	0.070	2.387	1.967	2.387	1.927	2.457	0.02	Case 23
LTE Band 7_MIMO2	FR1 n5	Bottom of Laptop at 0mm	16.00	0.684	16.00	0.684	0.657	0.490	0.460	0.530	0.420	0.070	2.291	1.871	2.291	1.831	2.361	0.02	Case 24
	FR1 n71	Bottom of Laptop at 0mm	16.00	0.684	16.00	0.684	0.694	0.490	0.460	0.530	0.420	0.070	2.328	1.908	2.328	1.868	2.398	0.02	Case 25
LTE Band 12	FR1 n2_MIMO2	Bottom of Laptop at 0mm	24.50	1.161	22.50	0.733	0.633	0.490	0.460	0.530	0.420	0.070	2.316	1.896	2.316	1.856	2.386	0.02	Case 26
	FR1 n7_MIMO2	Bottom of Laptop at 0mm	24.50	1.161	22.50	0.733	0.606	0.490	0.460	0.530	0.420	0.070	2.289	1.869	2.289	1.829	2.359	0.02	Case 27
	FR1 n66_MIMO2	Bottom of Laptop at 0mm	24.50	1.161	22.50	0.733	0.692	0.490	0.460	0.530	0.420	0.070	2.375	1.955	2.375	1.915	2.445	0.02	Case 28
LTE Band 13	FR1 n2_MIMO2	Bottom of Laptop at 0mm	22.00	1.101	20.00	0.695	0.633	0.490	0.460	0.530	0.420	0.070	2.278	1.858	2.278	1.818	2.348	0.02	Case 29
	FR1 n66_MIMO2	Bottom of Laptop at 0mm	22.00	1.101	20.00	0.695	0.692	0.490	0.460	0.530	0.420	0.070	2.337	1.917	2.337	1.877	2.407	0.02	Case 30
LTE Band 25	FR1 n41_MIMO2	Bottom of Laptop at 0mm	18.00	1.089	16.00	0.687	0.650	0.490	0.460	0.530	0.420	0.070	2.287	1.867	2.287	1.827	2.357	0.03	Case 31
LTE Band 26	FR1 n41_MIMO2	Bottom of Laptop at 0mm	21.50	1.181	19.50	0.745	0.650	0.490	0.460	0.530	0.420	0.070	2.345	1.925	2.345	1.885	2.415	0.02	Case 32
LTE Band 48_MIMO2	FR1 n2	Bottom of Laptop at 0mm	17.00	1.126	15.00	0.710	0.659	0.490	0.460	0.530	0.420	0.070	2.319	1.899	2.319	1.859	2.389	0.02	Case 33
	FR1 n5	Bottom of Laptop at 0mm	17.00	1.126	15.00	0.710	0.657	0.490	0.460	0.530	0.420	0.070	2.317	1.897	2.317	1.857	2.387	0.02	Case 34
	FR1 n66	Bottom of Laptop at 0mm	17.00	1.126	15.00	0.710	0.640	0.490	0.460	0.530	0.420	0.070	2.300	1.880	2.300	1.840	2.370	0.02	Case 35
LTE Band 66	FR1 n41_MIMO2	Bottom of Laptop at 0mm	18.50	1.153	16.50	0.727	0.650	0.490	0.460	0.530	0.420	0.070	2.327	1.907	2.327	1.867	2.397	0.03	Case 36
LTE Band 66_MIMO2	FR1 n5	Bottom of Laptop at 0mm	17.00	0.691	17.00	0.691	0.657	0.490	0.460	0.530	0.420	0.070	2.298	1.878	2.298	1.838	2.368	0.02	Case 37
	FR1 n12	Bottom of Laptop at 0mm	17.00	0.691	17.00	0.691	0.605	0.490	0.460	0.530	0.420	0.070	2.246	1.826	2.246	1.786	2.316	0.02	Case 38
	FR1 n71	Bottom of Laptop at 0mm	17.00	0.691	17.00	0.691	0.694	0.490	0.460	0.530	0.420	0.070	2.335	1.915	2.335	1.875	2.405	0.02	Case 39
LTE Band 71	FR1 n66_MIMO2	Bottom of Laptop at 0mm	24.50	1.151	22.50	0.726	0.692	0.490	0.460	0.530	0.420	0.070	2.368	1.948	2.368	1.908	2.438	0.02	Case 40

14.2 SPLSR Evaluation and Analysis

General Note:

1. SPLSR = $(SAR_1 + SAR_2)^{1.5}$ / (*min. separation distance, mm*). If SPLSR ≤ 0.04, simultaneously transmission SAR measurement is not necessary
2. The detail hotspot point for each transmitter in each exposure condition are showing as below figure and the minimum 3D distance for each sum combination is used for SPLSR analysis.

Hotspot Point for each transmit antenna



	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case 1	WCDMA II	Bottom of Laptop	1.169	0mm	-94.3	123.1	1.17	58.5	1.66	0.04	Not required
	WLAN2.4G_Ant 1		0.49	0mm	-36	118	1.57				
	WCDMA II	Bottom of Laptop	1.169	0mm	-94.3	123.1	1.17	277.4	1.63	0.01	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	WLAN2.4G_Ant 1	Bottom of Laptop	0.49	0mm	-36	118	1.57	257.8	0.95	0.00	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	WLAN2.4G_Ant 2	Bottom of Laptop	0.46	0mm	2.2	-137	1.62	257.8	0.53	0.00	Not required
	BT_Ant 1		0.07	0mm	-36	118	1.57				
	WCDMA II	Bottom of Laptop	1.169	0mm	-94.3	123.1	1.17	277.4	1.59	0.01	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				
	WCDMA II	Bottom of Laptop	1.169	0mm	-94.3	123.1	1.17	58.5	1.77	0.04	Not required
	WLAN5G_Ant 1+BT_Ant 1		0.6	0mm	-36	118	1.57				
	WLAN5G_Ant 2	Bottom of Laptop	0.42	0mm	2.2	-137	1.62	257.8	1.02	0.00	Not required
	WLAN5G_Ant 1+BT_Ant 1		0.6	0mm	-36	118	1.57				

	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case 2	WCDMA IV	Bottom of Laptop	1.153	0mm	-94.2	123	1.17	58.4	1.64	0.04	Not required
	WLAN2.4G_Ant 1		0.49	0mm	-36	118	1.57				
	WCDMA IV	Bottom of Laptop	1.153	0mm	-94.2	123	1.17	277.3	1.61	0.01	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	WLAN2.4G_Ant 1	Bottom of Laptop	0.49	0mm	-36	118	1.57	257.8	0.95	0.00	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	WLAN2.4G_Ant 2	Bottom of Laptop	0.46	0mm	2.2	-137	1.62	257.8	0.53	0.00	Not required
	BT_Ant 1		0.07	0mm	-36	118	1.57				
	WCDMA IV	Bottom of Laptop	1.153	0mm	-94.2	123	1.17	277.3	1.57	0.01	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				
	WCDMA IV	Bottom of Laptop	1.153	0mm	-94.2	123	1.17	58.4	1.75	0.04	Not required
	WLAN5G_Ant 1+BT_Ant 1		0.6	0mm	-36	118	1.57				
	WLAN5G_Ant 2	Bottom of Laptop	0.42	0mm	2.2	-137	1.62	257.8	1.02	0.00	Not required
	WLAN5G_Ant 1+BT_Ant 1		0.6	0mm	-36	118	1.57				

	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case 3	WCDMA V	Bottom of Laptop	1.103	0mm	-103.5	119.9	1.06	67.5	1.59	0.03	Not required
	WLAN2.4G_Ant 1		0.49	0mm	-36	118	1.57				
	WCDMA V	Bottom of Laptop	1.103	0mm	-103.5	119.9	1.06	277.8	1.56	0.01	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	WLAN2.4G_Ant 1	Bottom of Laptop	0.49	0mm	-36	118	1.57	257.8	0.95	0.00	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	WLAN2.4G_Ant 2	Bottom of Laptop	0.46	0mm	2.2	-137	1.62	257.8	0.53	0.00	Not required
	BT_Ant 1		0.07	0mm	-36	118	1.57				
	WCDMA V	Bottom of Laptop	1.103	0mm	-103.5	119.9	1.06	277.8	1.52	0.01	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				
	WCDMA V	Bottom of Laptop	1.103	0mm	-103.5	119.9	1.06	67.5	1.70	0.03	Not required
	WLAN5G_Ant 1+BT_Ant 1		0.6	0mm	-36	118	1.57				
	WLAN5G_Ant 2	Bottom of Laptop	0.42	0mm	2.2	-137	1.62	257.8	1.02	0.00	Not required
	WLAN5G_Ant 1+BT_Ant 1		0.6	0mm	-36	118	1.57				

	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case 4	LTE Band 2 MIMO2	Bottom of Laptop	0.734	0mm	87	28.2	1.63	152.3	1.22	0.01	Not required
	WLAN2.4G_Ant 1		0.49	0mm	-36	118	1.57				
	LTE Band 2 MIMO2	Bottom of Laptop	0.734	0mm	87	28.2	1.63	185.7	1.19	0.01	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	WLAN2.4G_Ant 1	Bottom of Laptop	0.49	0mm	-36	118	1.57	257.8	0.95	0.00	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	WLAN2.4G_Ant 2	Bottom of Laptop	0.46	0mm	2.2	-137	1.62	257.8	0.53	0.00	Not required
	BT_Ant 1		0.07	0mm	-36	118	1.57				
	LTE Band 2 MIMO2	Bottom of Laptop	0.734	0mm	87	28.2	1.63	185.7	1.15	0.01	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				
	LTE Band 2 MIMO2	Bottom of Laptop	0.734	0mm	87	28.2	1.63	152.3	1.33	0.01	Not required
	WLAN5G_Ant 1+BT_Ant 1		0.6	0mm	-36	118	1.57				
	WLAN5G_Ant 2	Bottom of Laptop	0.42	0mm	2.2	-137	1.62	257.8	1.02	0.00	Not required
	WLAN5G_Ant 1+BT_Ant 1		0.6	0mm	-36	118	1.57				

	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case 5	LTE Band 7	Bottom of Laptop	1.152	0mm	-103.8	113	0.73	68.0	1.64	0.03	Not required
	WLAN2.4G_Ant 1		0.49	0mm	-36	118	1.57				
	LTE Band 7	Bottom of Laptop	1.152	0mm	-103.8	113	0.73	271.5	1.61	0.01	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	WLAN2.4G_Ant 1	Bottom of Laptop	0.49	0mm	-36	118	1.57	257.8	0.95	0.00	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	WLAN2.4G_Ant 2	Bottom of Laptop	0.46	0mm	2.2	-137	1.62	257.8	0.53	0.00	Not required
	BT_Ant 1		0.07	0mm	-36	118	1.57				
	LTE Band 7	Bottom of Laptop	1.152	0mm	-103.8	113	0.73	271.5	1.57	0.01	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				
	LTE Band 7	Bottom of Laptop	1.152	0mm	-103.8	113	0.73	68.0	1.75	0.03	Not required
	WLAN5G_Ant 1+BT_Ant 1		0.6	0mm	-36	118	1.57				
	WLAN5G_Ant 2	Bottom of Laptop	0.42	0mm	2.2	-137	1.62	257.8	1.02	0.00	Not required
	WLAN5G_Ant 1+BT_Ant 1		0.6	0mm	-36	118	1.57				

	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case 6	LTE Band 7 MIMO2	Bottom of Laptop	0.684	0mm	83	33.6	0.05	145.9	1.17	0.01	Not required
	WLAN2.4G_Ant 1		0.49	0mm	-36	118	1.57				
	LTE Band 7 MIMO2	Bottom of Laptop	0.684	0mm	83	33.6	0.05	188.8	1.14	0.01	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	WLAN2.4G_Ant 1	Bottom of Laptop	0.49	0mm	-36	118	1.57	257.8	0.95	0.00	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	WLAN2.4G_Ant 2	Bottom of Laptop	0.46	0mm	2.2	-137	1.62	257.8	0.53	0.00	Not required
	BT_Ant 1		0.07	0mm	-36	118	1.57				
	LTE Band 7 MIMO2	Bottom of Laptop	0.684	0mm	83	33.6	0.05	188.8	1.10	0.01	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				
	LTE Band 7 MIMO2	Bottom of Laptop	0.684	0mm	83	33.6	0.05	145.9	1.28	0.01	Not required
	WLAN5G_Ant 1+BT_Ant 1		0.6	0mm	-36	118	1.57				
	WLAN5G_Ant 2	Bottom of Laptop	0.42	0mm	2.2	-137	1.62	257.8	1.02	0.00	Not required
	WLAN5G_Ant 1+BT_Ant 1		0.6	0mm	-36	118	1.57				

	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case 7	LTE Band 12	Bottom of Laptop	1.161	0mm	-98.8	115.4	0.76	62.9	1.65	0.03	Not required
	WLAN2.4G_Ant 1		0.49	0mm	-36	118	1.57				
	LTE Band 12	Bottom of Laptop	1.161	0mm	-98.8	115.4	0.76	271.9	1.62	0.01	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	WLAN2.4G_Ant 1	Bottom of Laptop	0.49	0mm	-36	118	1.57	257.8	0.95	0.00	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	WLAN2.4G_Ant 2	Bottom of Laptop	0.46	0mm	2.2	-137	1.62	257.8	0.53	0.00	Not required
	BT_Ant 1		0.07	0mm	-36	118	1.57				
	LTE Band 12	Bottom of Laptop	1.161	0mm	-98.8	115.4	0.76	271.9	1.58	0.01	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				
	LTE Band 12	Bottom of Laptop	1.161	0mm	-98.8	115.4	0.76	62.9	1.76	0.04	Not required
	WLAN5G_Ant 1+BT_Ant 1		0.6	0mm	-36	118	1.57				
	WLAN5G_Ant 2	Bottom of Laptop	0.42	0mm	2.2	-137	1.62	257.8	1.02	0.00	Not required
	WLAN5G_Ant 1+BT_Ant 1		0.6	0mm	-36	118	1.57				

	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case 8	LTE Band 13	Bottom of Laptop	1.101	0mm	-102	117.1	0.73	66.0	1.59	0.03	Not required
	WLAN2.4G_Ant 1		0.49	0mm	-36	118	1.57				
	LTE Band 13	Bottom of Laptop	1.101	0mm	-102	117.1	0.73	274.6	1.56	0.01	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	WLAN2.4G_Ant 1	Bottom of Laptop	0.49	0mm	-36	118	1.57	257.8	0.95	0.00	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	WLAN2.4G_Ant 2	Bottom of Laptop	0.46	0mm	2.2	-137	1.62	257.8	0.53	0.00	Not required
	BT_Ant 1		0.07	0mm	-36	118	1.57				
	LTE Band 13	Bottom of Laptop	1.101	0mm	-102	117.1	0.73	274.6	1.52	0.01	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				
	LTE Band 13	Bottom of Laptop	1.101	0mm	-102	117.1	0.73	66.0	1.70	0.03	Not required
	WLAN5G_Ant 1+BT_Ant 1		0.6	0mm	-36	118	1.57				
	WLAN5G_Ant 2	Bottom of Laptop	0.42	0mm	2.2	-137	1.62	257.8	1.02	0.00	Not required
	WLAN5G_Ant 1+BT_Ant 1		0.6	0mm	-36	118	1.57				

	Band	Position	SAR (W/kg)	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				(mm)	X	Y	Z				
Case 9	LTE Band 14	Bottom of Laptop	1.19	0mm	-105.1	123.2	0.73	69.3	1.68	0.03	Not required
	WLAN2.4G_Ant 1		0.49	0mm	-36	118	1.57				
	LTE Band 14	Bottom of Laptop	1.19	0mm	-105.1	123.2	0.73	281.5	1.65	0.01	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	WLAN2.4G_Ant 1	Bottom of Laptop	0.49	0mm	-36	118	1.57	257.8	0.95	0.00	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	WLAN2.4G_Ant 2	Bottom of Laptop	0.46	0mm	2.2	-137	1.62	257.8	0.53	0.00	Not required
	BT_Ant 1		0.07	0mm	-36	118	1.57				
	LTE Band 14	Bottom of Laptop	1.19	0mm	-105.1	123.2	0.73	281.5	1.61	0.01	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				
	LTE Band 14	Bottom of Laptop	1.19	0mm	-105.1	123.2	0.73	69.3	1.79	0.03	Not required
	WLAN5G_Ant 1+BT_Ant 1		0.6	0mm	-36	118	1.57				
	WLAN5G_Ant 2	Bottom of Laptop	0.42	0mm	2.2	-137	1.62	257.8	1.02	0.00	Not required
	WLAN5G_Ant 1+BT_Ant 1		0.6	0mm	-36	118	1.57				

	Band	Position	SAR (W/kg)	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				(mm)	X	Y	Z				
Case 10	LTE Band 25	Bottom of Laptop	1.089	0mm	-92.7	123	0.82	56.9	1.58	0.03	Not required
	WLAN2.4G_Ant 1		0.49	0mm	-36	118	1.57				
	LTE Band 25	Bottom of Laptop	1.089	0mm	-92.7	123	0.82	276.8	1.55	0.01	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	WLAN2.4G_Ant 1	Bottom of Laptop	0.49	0mm	-36	118	1.57	257.8	0.95	0.00	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	WLAN2.4G_Ant 2	Bottom of Laptop	0.46	0mm	2.2	-137	1.62	257.8	0.53	0.00	Not required
	BT_Ant 1		0.07	0mm	-36	118	1.57				
	LTE Band 25	Bottom of Laptop	1.089	0mm	-92.7	123	0.82	276.8	1.51	0.01	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				
	LTE Band 25	Bottom of Laptop	1.089	0mm	-92.7	123	0.82	56.9	1.69	0.04	Not required
	WLAN5G_Ant 1+BT_Ant 1		0.6	0mm	-36	118	1.57				
	WLAN5G_Ant 2	Bottom of Laptop	0.42	0mm	2.2	-137	1.62	257.8	1.02	0.00	Not required
	WLAN5G_Ant 1+BT_Ant 1		0.6	0mm	-36	118	1.57				

	Band	Position	SAR (W/kg)	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				(mm)	X	Y	Z				
Case 11	LTE Band 26	Bottom of Laptop	1.181	0mm	-105.1	121.6	0.74	69.2	1.67	0.03	Not required
	WLAN2.4G_Ant 1		0.49	0mm	-36	118	1.57				
	LTE Band 26	Bottom of Laptop	1.181	0mm	-105.1	121.6	0.74	280.0	1.64	0.01	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	WLAN2.4G_Ant 1	Bottom of Laptop	0.49	0mm	-36	118	1.57	257.8	0.95	0.00	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	WLAN2.4G_Ant 2	Bottom of Laptop	0.46	0mm	2.2	-137	1.62	257.8	0.53	0.00	Not required
	BT_Ant 1		0.07	0mm	-36	118	1.57				
	LTE Band 26	Bottom of Laptop	1.181	0mm	-105.1	121.6	0.74	280.0	1.60	0.01	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				
	LTE Band 26	Bottom of Laptop	1.181	0mm	-105.1	121.6	0.74	69.2	1.78	0.03	Not required
	WLAN5G_Ant 1+BT_Ant 1		0.6	0mm	-36	118	1.57				
	WLAN5G_Ant 2	Bottom of Laptop	0.42	0mm	2.2	-137	1.62	257.8	1.02	0.00	Not required
	WLAN5G_Ant 1+BT_Ant 1		0.6	0mm	-36	118	1.57				

	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case 12	LTE Band 30	Bottom of Laptop	1.165	0mm	-93.4	121.2	0.84	57.5	1.66	0.04	Not required
	WLAN2.4G_Ant 1		0.49	0mm	-36	118	1.57				
	LTE Band 30	Bottom of Laptop	1.165	0mm	-93.4	121.2	0.84	275.3	1.63	0.01	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	WLAN2.4G_Ant 1	Bottom of Laptop	0.49	0mm	-36	118	1.57	257.8	0.95	0.00	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	WLAN2.4G_Ant 2	Bottom of Laptop	0.46	0mm	2.2	-137	1.62	257.8	0.53	0.00	Not required
	BT_Ant 1		0.07	0mm	-36	118	1.57				
	LTE Band 30	Bottom of Laptop	1.165	0mm	-93.4	121.2	0.84	275.3	1.59	0.01	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				
	LTE Band 30	Bottom of Laptop	1.165	0mm	-93.4	121.2	0.84	57.5	1.77	0.04	Not required
	WLAN5G_Ant 1+BT_Ant 1		0.6	0mm	-36	118	1.57				
	WLAN5G_Ant 2	Bottom of Laptop	0.42	0mm	2.2	-137	1.62	257.8	1.02	0.00	Not required
	WLAN5G_Ant 1+BT_Ant 1		0.6	0mm	-36	118	1.57				

	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case 13	LTE Band 41	Bottom of Laptop	1.077	0mm	-102.4	111.6	0.94	66.7	1.57	0.03	Not required
	WLAN2.4G_Ant 1		0.49	0mm	-36	118	1.57				
	LTE Band 41	Bottom of Laptop	1.077	0mm	-102.4	111.6	0.94	269.7	1.54	0.01	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	WLAN2.4G_Ant 1	Bottom of Laptop	0.49	0mm	-36	118	1.57	257.8	0.95	0.00	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	WLAN2.4G_Ant 2	Bottom of Laptop	0.46	0mm	2.2	-137	1.62	257.8	0.53	0.00	Not required
	BT_Ant 1		0.07	0mm	-36	118	1.57				
	LTE Band 41	Bottom of Laptop	1.077	0mm	-102.4	111.6	0.94	269.7	1.50	0.01	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				
	LTE Band 41	Bottom of Laptop	1.077	0mm	-102.4	111.6	0.94	66.7	1.68	0.03	Not required
	WLAN5G_Ant 1+BT_Ant 1		0.6	0mm	-36	118	1.57				
	WLAN5G_Ant 2	Bottom of Laptop	0.42	0mm	2.2	-137	1.62	257.8	1.02	0.00	Not required
	WLAN5G_Ant 1+BT_Ant 1		0.6	0mm	-36	118	1.57				

	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case 14	LTE Band 48 MIMO2	Bottom of Laptop	1.126	0mm	86.02	29.21	-0.04	150.9	1.62	0.01	Not required
	WLAN2.4G_Ant 1		0.49	0mm	-36	118	1.57				
	LTE Band 48 MIMO2	Bottom of Laptop	1.126	0mm	86.02	29.21	-0.04	186.2	1.59	0.01	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	WLAN2.4G_Ant 1	Bottom of Laptop	0.49	0mm	-36	118	1.57	257.8	0.95	0.00	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	WLAN2.4G_Ant 2	Bottom of Laptop	0.46	0mm	2.2	-137	1.62	257.8	0.53	0.00	Not required
	BT_Ant 1		0.07	0mm	-36	118	1.57				
	LTE Band 48 MIMO2	Bottom of Laptop	1.126	0mm	86.02	29.21	-0.04	186.2	1.55	0.01	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				
	LTE Band 48 MIMO2	Bottom of Laptop	1.126	0mm	86.02	29.21	-0.04	150.9	1.73	0.02	Not required
	WLAN5G_Ant 1+BT_Ant 1		0.6	0mm	-36	118	1.57				
	WLAN5G_Ant 2	Bottom of Laptop	0.42	0mm	2.2	-137	1.62	257.8	1.02	0.00	Not required
	WLAN5G_Ant 1+BT_Ant 1		0.6	0mm	-36	118	1.57				

	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case 15	LTE Band 66	Bottom of Laptop	1.153	0mm	-94.2	123	0.74	58.4	1.64	0.04	Not required
	WLAN2.4G_Ant 1		0.49	0mm	-36	118	1.57				
	LTE Band 66	Bottom of Laptop	1.153	0mm	-94.2	123	0.74	277.3	1.61	0.01	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	WLAN2.4G_Ant 1	Bottom of Laptop	0.49	0mm	-36	118	1.57	257.8	0.95	0.00	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	WLAN2.4G_Ant 2	Bottom of Laptop	0.46	0mm	2.2	-137	1.62	257.8	0.53	0.00	Not required
	BT_Ant 1		0.07	0mm	-36	118	1.57				
	LTE Band 66	Bottom of Laptop	1.153	0mm	-94.2	123	0.74	277.3	1.57	0.01	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				
	LTE Band 66	Bottom of Laptop	1.153	0mm	-94.2	123	0.74	58.4	1.75	0.04	Not required
	WLAN5G_Ant 1+BT_Ant 1		0.6	0mm	-36	118	1.57				
	WLAN5G_Ant 2	Bottom of Laptop	0.42	0mm	2.2	-137	1.62	257.8	1.02	0.00	Not required
	WLAN5G_Ant 1+BT_Ant 1		0.6	0mm	-36	118	1.57				

	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case 16	LTE Band 66 MIMO2	Bottom of Laptop	0.691	0mm	84	36	-1.37	145.4	1.18	0.01	Not required
	WLAN2.4G_Ant 1		0.49	0mm	-36	118	1.57				
	LTE Band 66 MIMO2	Bottom of Laptop	0.691	0mm	84	36	-1.37	191.4	1.15	0.01	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	WLAN2.4G_Ant 1	Bottom of Laptop	0.49	0mm	-36	118	1.57	257.8	0.95	0.00	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	WLAN2.4G_Ant 2	Bottom of Laptop	0.46	0mm	2.2	-137	1.62	257.8	0.53	0.00	Not required
	BT_Ant 1		0.07	0mm	-36	118	1.57				
	LTE Band 66 MIMO2	Bottom of Laptop	0.691	0mm	84	36	-1.37	191.4	1.11	0.01	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				
	LTE Band 66 MIMO2	Bottom of Laptop	0.691	0mm	84	36	-1.37	145.4	1.29	0.01	Not required
	WLAN5G_Ant 1+BT_Ant 1		0.6	0mm	-36	118	1.57				
	WLAN5G_Ant 2	Bottom of Laptop	0.42	0mm	2.2	-137	1.62	257.8	1.02	0.00	Not required
	WLAN5G_Ant 1+BT_Ant 1		0.6	0mm	-36	118	1.57				

	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case 17	LTE B71	Bottom of Laptop	1.151	0mm	-98.9	112.5	-0.11	63.2	1.64	0.03	Not required
	WLAN2.4G_Ant 1		0.49	0mm	-36	118	1.57				
	LTE B71	Bottom of Laptop	1.151	0mm	-98.9	112.5	-0.11	269.2	1.61	0.01	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	WLAN2.4G_Ant 1	Bottom of Laptop	0.49	0mm	-36	118	1.57	257.8	0.95	0.00	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	WLAN2.4G_Ant 2	Bottom of Laptop	0.46	0mm	2.2	-137	1.62	257.8	0.53	0.00	Not required
	BT_Ant 1		0.07	0mm	-36	118	1.57				
	LTE B71	Bottom of Laptop	1.151	0mm	-98.9	112.5	-0.11	269.2	1.57	0.01	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				
	LTE B71	Bottom of Laptop	1.151	0mm	-98.9	112.5	-0.11	63.2	1.75	0.04	Not required
	WLAN5G_Ant 1+BT_Ant 1		0.6	0mm	-36	118	1.57				
	WLAN5G_Ant 2	Bottom of Laptop	0.42	0mm	2.2	-137	1.62	257.8	1.02	0.00	Not required
	WLAN5G_Ant 1+BT_Ant 1		0.6	0mm	-36	118	1.57				

	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case 18	LTE Band 2 MIMO2	Bottom of Laptop	0.734	0mm	87	28.2	1.63	217.2	1.39	0.01	Not required
	FR1 n5		0.657	0mm	-106.7	126.4	0.4				
	LTE Band 2 MIMO2	Bottom of Laptop	0.734	0mm	87	28.2	1.63	152.3	1.22	0.01	Not required
	WLAN2.4G_Ant 1		0.49	0mm	-36	118	1.57				
	LTE Band 2 MIMO2	Bottom of Laptop	0.734	0mm	87	28.2	1.63	185.7	1.19	0.01	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	FR1 n5	Bottom of Laptop	0.657	0mm	-106.7	126.4	0.4	71.2	1.15	0.02	Not required
	WLAN2.4G_Ant 1		0.49	0mm	-36	118	1.57				
	FR1 n5	Bottom of Laptop	0.657	0mm	-106.7	126.4	0.4	285.0	1.12	0.00	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	WLAN2.4G_Ant 1	Bottom of Laptop	0.49	0mm	-36	118	1.57	257.8	0.95	0.00	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	LTE Band 2 MIMO2	Bottom of Laptop	0.734	0mm	87	28.2	1.63	185.7	1.15	0.01	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				
	FR1 n5	Bottom of Laptop	0.657	0mm	-106.7	126.4	0.4	285.0	1.08	0.00	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				
	WLAN2.4G_Ant 2	Bottom of Laptop	0.46	0mm	2.2	-137	1.62	257.8	0.53	0.00	Not required
	BT_Ant 1		0.07	0mm	-36	118	1.57				
	LTE Band 2 MIMO2	Bottom of Laptop	0.734	0mm	87	28.2	1.63	152.3	1.33	0.01	Not required
	WLAN5G_Ant 1+BT_Ant 1		0.6	0mm	-36	118	1.57				
	FR1 n5	Bottom of Laptop	0.657	0mm	-106.7	126.4	0.4	71.2	1.26	0.02	Not required
	WLAN5G_Ant 1+BT_Ant 1		0.6	0mm	-36	118	1.57				
	WLAN5G_Ant 1+BT_Ant 1	Bottom of Laptop	0.6	0mm	-36	118	1.57	257.8	1.02	0.00	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				

	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case 19	LTE Band 2 MIMO2	Bottom of Laptop	0.734	0mm	87	28.2	1.63	203.3	1.34	0.01	Not required
	FR1 n12		0.605	0mm	-98.9	110.6	0.57				
	LTE Band 2 MIMO2	Bottom of Laptop	0.734	0mm	87	28.2	1.63	152.3	1.22	0.01	Not required
	WLAN2.4G_Ant 1		0.49	0mm	-36	118	1.57				
	LTE Band 2 MIMO2	Bottom of Laptop	0.734	0mm	87	28.2	1.63	185.7	1.19	0.01	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	FR1 n12	Bottom of Laptop	0.605	0mm	-98.9	110.6	0.57	63.3	1.10	0.02	Not required
	WLAN2.4G_Ant 1		0.49	0mm	-36	118	1.57				
	FR1 n12	Bottom of Laptop	0.605	0mm	-98.9	110.6	0.57	267.4	1.07	0.00	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	WLAN2.4G_Ant 1	Bottom of Laptop	0.49	0mm	-36	118	1.57	257.8	0.95	0.00	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	LTE Band 2 MIMO2	Bottom of Laptop	0.734	0mm	87	28.2	1.63	185.7	1.15	0.01	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				
	FR1 n12	Bottom of Laptop	0.605	0mm	-98.9	110.6	0.57	267.4	1.03	0.00	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				
	WLAN2.4G_Ant 2	Bottom of Laptop	0.46	0mm	2.2	-137	1.62	257.8	0.53	0.00	Not required
	BT_Ant 1		0.07	0mm	-36	118	1.57				
	LTE Band 2 MIMO2	Bottom of Laptop	0.734	0mm	87	28.2	1.63	152.3	1.33	0.01	Not required
	WLAN5G_Ant 1+BT_Ant 1		0.6	0mm	-36	118	1.57				
	FR1 n12	Bottom of Laptop	0.605	0mm	-98.9	110.6	0.57	63.3	1.21	0.02	Not required
	WLAN5G_Ant 1+BT_Ant 1		0.6	0mm	-36	118	1.57				
	WLAN5G_Ant 1+BT_Ant 1	Bottom of Laptop	0.6	0mm	-36	118	1.57	257.8	1.02	0.00	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				

	Band	Position	SAR (W/kg)	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				(mm)	X	Y	Z				
Case 20	LTE Band 2 MIMO2	Bottom of Laptop	0.734	0mm	87	28.2	1.63	204.8	1.43	0.01	Not required
	FR1 n71		0.694	0mm	-99	113.9	0.58				
	LTE Band 2 MIMO2	Bottom of Laptop	0.734	0mm	87	28.2	1.63	152.3	1.22	0.01	Not required
	WLAN2.4G_Ant 1		0.49	0mm	-36	118	1.57				
	LTE Band 2 MIMO2	Bottom of Laptop	0.734	0mm	87	28.2	1.63	185.7	1.19	0.01	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	FR1 n71	Bottom of Laptop	0.694	0mm	-99	113.9	0.58	63.1	1.18	0.02	Not required
	WLAN2.4G_Ant 1		0.49	0mm	-36	118	1.57				
	FR1 n71	Bottom of Laptop	0.694	0mm	-99	113.9	0.58	270.5	1.15	0.00	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	WLAN2.4G_Ant 1	Bottom of Laptop	0.49	0mm	-36	118	1.57	257.8	0.95	0.00	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	LTE Band 2 MIMO2	Bottom of Laptop	0.734	0mm	87	28.2	1.63	185.7	1.15	0.01	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				
	FR1 n71	Bottom of Laptop	0.694	0mm	-99	113.9	0.58	270.5	1.11	0.00	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				
	WLAN2.4G_Ant 2	Bottom of Laptop	0.46	0mm	2.2	-137	1.62	257.8	0.53	0.00	Not required
	BT_Ant 1		0.07	0mm	-36	118	1.57				
	LTE Band 2 MIMO2	Bottom of Laptop	0.734	0mm	87	28.2	1.63	152.3	1.33	0.01	Not required
	WLAN5G_Ant 1+BT_Ant 1		0.6	0mm	-36	118	1.57				
	FR1 n71	Bottom of Laptop	0.694	0mm	-99	113.9	0.58	63.1	1.29	0.02	Not required
	WLAN5G_Ant 1+BT_Ant 1		0.6	0mm	-36	118	1.57				
	WLAN5G_Ant 1+BT_Ant 1	Bottom of Laptop	0.6	0mm	-36	118	1.57	257.8	1.02	0.00	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				

	Band	Position	SAR (W/kg)	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				(mm)	X	Y	Z				
Case 21	LTE Band 5	Bottom of Laptop	0.745	0mm	-98.8	115.4	0.76	207.3	1.38	0.01	Not required
	FR1 n2 MIMO2		0.633	0mm	88.6	26.7	-0.09				
	LTE Band 5	Bottom of Laptop	0.745	0mm	-98.8	115.4	0.76	62.9	1.24	0.02	Not required
	WLAN2.4G_Ant 1		0.49	0mm	-36	118	1.57				
	LTE Band 5	Bottom of Laptop	0.745	0mm	-98.8	115.4	0.76	271.9	1.21	0.00	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	FR1 n2 MIMO2	Bottom of Laptop	0.633	0mm	88.6	26.7	-0.09	154.5	1.12	0.01	Not required
	WLAN2.4G_Ant 1		0.49	0mm	-36	118	1.57				
	FR1 n2 MIMO2	Bottom of Laptop	0.633	0mm	88.6	26.7	-0.09	185.1	1.09	0.01	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	WLAN2.4G_Ant 1	Bottom of Laptop	0.49	0mm	-36	118	1.57	257.8	0.95	0.00	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	LTE Band 5	Bottom of Laptop	0.745	0mm	-98.8	115.4	0.76	271.9	1.17	0.00	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				
	FR1 n2 MIMO2	Bottom of Laptop	0.633	0mm	88.6	26.7	-0.09	185.1	1.05	0.01	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				
	WLAN2.4G_Ant 2	Bottom of Laptop	0.46	0mm	2.2	-137	1.62	257.8	0.53	0.00	Not required
	BT_Ant 1		0.07	0mm	-36	118	1.57				
	LTE Band 5	Bottom of Laptop	0.745	0mm	-98.8	115.4	0.76	62.9	1.35	0.02	Not required
	WLAN5G_Ant 1+BT_Ant 1		0.6	0mm	-36	118	1.57				
	FR1 n2 MIMO2	Bottom of Laptop	0.633	0mm	88.6	26.7	-0.09	154.5	1.23	0.01	Not required
	WLAN5G_Ant 1+BT_Ant 1		0.6	0mm	-36	118	1.57				
	WLAN5G_Ant 1+BT_Ant 1	Bottom of Laptop	0.6	0mm	-36	118	1.57	257.8	1.02	0.00	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				

	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case 22	LTE Band 5	Bottom of Laptop	0.745	0mm	-98.8	115.4	0.76	207.2	1.35	0.01	Not required
	FR1 n7 MIMO2		0.606	0mm	89.2	28.2	-0.05				
	LTE Band 5	Bottom of Laptop	0.745	0mm	-98.8	115.4	0.76	62.9	1.24	0.02	Not required
	WLAN2.4G_Ant 1		0.49	0mm	-36	118	1.57				
	LTE Band 5	Bottom of Laptop	0.745	0mm	-98.8	115.4	0.76	271.9	1.21	0.00	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	FR1 n7 MIMO2	Bottom of Laptop	0.606	0mm	89.2	28.2	-0.05	154.1	1.10	0.01	Not required
	WLAN2.4G_Ant 1		0.49	0mm	-36	118	1.57				
	FR1 n7 MIMO2	Bottom of Laptop	0.606	0mm	89.2	28.2	-0.05	186.7	1.07	0.01	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	WLAN2.4G_Ant 1	Bottom of Laptop	0.49	0mm	-36	118	1.57	257.8	0.95	0.00	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	LTE Band 5	Bottom of Laptop	0.745	0mm	-98.8	115.4	0.76	271.9	1.17	0.00	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				
	FR1 n7 MIMO2	Bottom of Laptop	0.606	0mm	89.2	28.2	-0.05	186.7	1.03	0.01	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				
	WLAN2.4G_Ant 2	Bottom of Laptop	0.46	0mm	2.2	-137	1.62	257.8	0.53	0.00	Not required
	BT_Ant 1		0.07	0mm	-36	118	1.57				
	LTE Band 5	Bottom of Laptop	0.745	0mm	-98.8	115.4	0.76	62.9	1.35	0.02	Not required
	WLAN5G_Ant 1+BT_Ant 1		0.6	0mm	-36	118	1.57				
	FR1 n7 MIMO2	Bottom of Laptop	0.606	0mm	89.2	28.2	-0.05	154.1	1.21	0.01	Not required
	WLAN5G_Ant 1+BT_Ant 1		0.6	0mm	-36	118	1.57				
	WLAN5G_Ant 1+BT_Ant 1	Bottom of Laptop	0.6	0mm	-36	118	1.57	257.8	1.02	0.00	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				

	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case 23	LTE Band 5	Bottom of Laptop	0.745	0mm	-98.8	115.4	0.76	205.2	1.44	0.01	Not required
	FR1 n66 MIMO2		0.692	0mm	87	28.2	-0.07				
	LTE Band 5	Bottom of Laptop	0.745	0mm	-98.8	115.4	0.76	62.9	1.24	0.02	Not required
	WLAN2.4G_Ant 1		0.49	0mm	-36	118	1.57				
	LTE Band 5	Bottom of Laptop	0.745	0mm	-98.8	115.4	0.76	271.9	1.21	0.00	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	FR1 n66 MIMO2	Bottom of Laptop	0.692	0mm	87	28.2	-0.07	152.3	1.18	0.01	Not required
	WLAN2.4G_Ant 1		0.49	0mm	-36	118	1.57				
	FR1 n66 MIMO2	Bottom of Laptop	0.692	0mm	87	28.2	-0.07	185.7	1.15	0.01	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	WLAN2.4G_Ant 1	Bottom of Laptop	0.49	0mm	-36	118	1.57	257.8	0.95	0.00	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	LTE Band 5	Bottom of Laptop	0.745	0mm	-98.8	115.4	0.76	271.9	1.17	0.00	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				
	FR1 n66 MIMO2	Bottom of Laptop	0.692	0mm	87	28.2	-0.07	185.7	1.11	0.01	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				
	WLAN2.4G_Ant 2	Bottom of Laptop	0.46	0mm	2.2	-137	1.62	257.8	0.53	0.00	Not required
	BT_Ant 1		0.07	0mm	-36	118	1.57				
	LTE Band 5	Bottom of Laptop	0.745	0mm	-98.8	115.4	0.76	62.9	1.35	0.02	Not required
	WLAN5G_Ant 1+BT_Ant 1		0.6	0mm	-36	118	1.57				
	FR1 n66 MIMO2	Bottom of Laptop	0.692	0mm	87	28.2	-0.07	152.3	1.29	0.01	Not required
	WLAN5G_Ant 1+BT_Ant 1		0.6	0mm	-36	118	1.57				
	WLAN5G_Ant 1+BT_Ant 1	Bottom of Laptop	0.6	0mm	-36	118	1.57	257.8	1.02	0.00	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				

	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case 24	LTE Band 7 MIMO2	Bottom of Laptop	0.684	0mm	83	33.6	0.05	211.2	1.34	0.01	Not required
	FR1 n5		0.657	0mm	-106.7	126.4	0.4				
	LTE Band 7 MIMO2	Bottom of Laptop	0.684	0mm	83	33.6	0.05	145.9	1.17	0.01	Not required
	WLAN2.4G_Ant 1		0.49	0mm	-36	118	1.57				
	LTE Band 7 MIMO2	Bottom of Laptop	0.684	0mm	83	33.6	0.05	188.8	1.14	0.01	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	FR1 n5	Bottom of Laptop	0.657	0mm	-106.7	126.4	0.4	71.2	1.15	0.02	Not required
	WLAN2.4G_Ant 1		0.49	0mm	-36	118	1.57				
	FR1 n5	Bottom of Laptop	0.657	0mm	-106.7	126.4	0.4	285.0	1.12	0.00	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	WLAN2.4G_Ant 1	Bottom of Laptop	0.49	0mm	-36	118	1.57	257.8	0.95	0.00	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	LTE Band 7 MIMO2	Bottom of Laptop	0.684	0mm	83	33.6	0.05	188.8	1.10	0.01	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				
	FR1 n5	Bottom of Laptop	0.657	0mm	-106.7	126.4	0.4	285.0	1.08	0.00	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				
	WLAN2.4G_Ant 2	Bottom of Laptop	0.46	0mm	2.2	-137	1.62	257.8	0.53	0.00	Not required
	BT_Ant 1		0.07	0mm	-36	118	1.57				
	LTE Band 7 MIMO2	Bottom of Laptop	0.684	0mm	83	33.6	0.05	145.9	1.28	0.01	Not required
	WLAN5G_Ant 1+BT_Ant 1		0.6	0mm	-36	118	1.57				
	FR1 n5	Bottom of Laptop	0.657	0mm	-106.7	126.4	0.4	71.2	1.26	0.02	Not required
	WLAN5G_Ant 1+BT_Ant 1		0.6	0mm	-36	118	1.57				
	WLAN5G_Ant 1+BT_Ant 1	Bottom of Laptop	0.6	0mm	-36	118	1.57	257.8	1.02	0.00	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				

	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case 25	LTE Band 7 MIMO2	Bottom of Laptop	0.684	0mm	83	33.6	0.05	198.9	1.38	0.01	Not required
	FR1 n71		0.694	0mm	-99	113.9	0.58				
	LTE Band 7 MIMO2	Bottom of Laptop	0.684	0mm	83	33.6	0.05	145.9	1.17	0.01	Not required
	WLAN2.4G_Ant 1		0.49	0mm	-36	118	1.57				
	LTE Band 7 MIMO2	Bottom of Laptop	0.684	0mm	83	33.6	0.05	188.8	1.14	0.01	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	FR1 n71	Bottom of Laptop	0.694	0mm	-99	113.9	0.58	63.1	1.18	0.02	Not required
	WLAN2.4G_Ant 1		0.49	0mm	-36	118	1.57				
	FR1 n71	Bottom of Laptop	0.694	0mm	-99	113.9	0.58	270.5	1.15	0.00	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	WLAN2.4G_Ant 1	Bottom of Laptop	0.49	0mm	-36	118	1.57	257.8	0.95	0.00	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	LTE Band 7 MIMO2	Bottom of Laptop	0.684	0mm	83	33.6	0.05	188.8	1.10	0.01	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				
	FR1 n71	Bottom of Laptop	0.694	0mm	-99	113.9	0.58	270.5	1.11	0.00	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				
	WLAN2.4G_Ant 2	Bottom of Laptop	0.46	0mm	2.2	-137	1.62	257.8	0.53	0.00	Not required
	BT_Ant 1		0.07	0mm	-36	118	1.57				
	LTE Band 7 MIMO2	Bottom of Laptop	0.684	0mm	83	33.6	0.05	145.9	1.28	0.01	Not required
	WLAN5G_Ant 1+BT_Ant 1		0.6	0mm	-36	118	1.57				
	FR1 n71	Bottom of Laptop	0.694	0mm	-99	113.9	0.58	63.1	1.29	0.02	Not required
	WLAN5G_Ant 1+BT_Ant 1		0.6	0mm	-36	118	1.57				
	WLAN5G_Ant 1+BT_Ant 1	Bottom of Laptop	0.6	0mm	-36	118	1.57	257.8	1.02	0.00	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				

	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case 26	LTE Band 12	Bottom of Laptop	0.733	0mm	-98.8	115.4	0.76	207.3	1.37	0.01	Not required
	FR1 n2 MIMO2		0.633	0mm	88.6	26.7	-0.09				
	LTE Band 12	Bottom of Laptop	0.733	0mm	-98.8	115.4	0.76	62.9	1.22	0.02	Not required
	WLAN2.4G_Ant 1		0.49	0mm	-36	118	1.57				
	LTE Band 12	Bottom of Laptop	0.733	0mm	-98.8	115.4	0.76	271.9	1.19	0.00	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	FR1 n2 MIMO2	Bottom of Laptop	0.633	0mm	88.6	26.7	-0.09	154.5	1.12	0.01	Not required
	WLAN2.4G_Ant 1		0.49	0mm	-36	118	1.57				
	FR1 n2 MIMO2	Bottom of Laptop	0.633	0mm	88.6	26.7	-0.09	185.1	1.09	0.01	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	WLAN2.4G_Ant 1	Bottom of Laptop	0.49	0mm	-36	118	1.57	257.8	0.95	0.00	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	LTE Band 12	Bottom of Laptop	0.733	0mm	-98.8	115.4	0.76	271.9	1.15	0.00	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				
	FR1 n2 MIMO2	Bottom of Laptop	0.633	0mm	88.6	26.7	-0.09	185.1	1.05	0.01	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				
	WLAN2.4G_Ant 2	Bottom of Laptop	0.46	0mm	2.2	-137	1.62	257.8	0.53	0.00	Not required
	BT_Ant 1		0.07	0mm	-36	118	1.57				
	LTE Band 12	Bottom of Laptop	0.733	0mm	-98.8	115.4	0.76	62.9	1.33	0.02	Not required
	WLAN5G_Ant 1+BT_Ant 1		0.6	0mm	-36	118	1.57				
	FR1 n2 MIMO2	Bottom of Laptop	0.633	0mm	88.6	26.7	-0.09	154.5	1.23	0.01	Not required
	WLAN5G_Ant 1+BT_Ant 1		0.6	0mm	-36	118	1.57				
	WLAN5G_Ant 1+BT_Ant 1	Bottom of Laptop	0.6	0mm	-36	118	1.57	257.8	1.02	0.00	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				

	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case 27	LTE Band 12	Bottom of Laptop	0.733	0mm	-98.8	115.4	0.76	207.2	1.34	0.01	Not required
	FR1 n7 MIMO2		0.606	0mm	89.2	28.2	-0.05				
	LTE Band 12	Bottom of Laptop	0.733	0mm	-98.8	115.4	0.76	62.9	1.22	0.02	Not required
	WLAN2.4G_Ant 1		0.49	0mm	-36	118	1.57				
	LTE Band 12	Bottom of Laptop	0.733	0mm	-98.8	115.4	0.76	271.9	1.19	0.00	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	FR1 n7 MIMO2	Bottom of Laptop	0.606	0mm	89.2	28.2	-0.05	154.1	1.10	0.01	Not required
	WLAN2.4G_Ant 1		0.49	0mm	-36	118	1.57				
	FR1 n7 MIMO2	Bottom of Laptop	0.606	0mm	89.2	28.2	-0.05	186.7	1.07	0.01	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	WLAN2.4G_Ant 1	Bottom of Laptop	0.49	0mm	-36	118	1.57	257.8	0.95	0.00	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	LTE Band 12	Bottom of Laptop	0.733	0mm	-98.8	115.4	0.76	271.9	1.15	0.00	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				
	FR1 n7 MIMO2	Bottom of Laptop	0.606	0mm	89.2	28.2	-0.05	186.7	1.03	0.01	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				
	WLAN2.4G_Ant 2	Bottom of Laptop	0.46	0mm	2.2	-137	1.62	257.8	0.53	0.00	Not required
	BT_Ant 1		0.07	0mm	-36	118	1.57				
	LTE Band 12	Bottom of Laptop	0.733	0mm	-98.8	115.4	0.76	62.9	1.33	0.02	Not required
	WLAN5G_Ant 1+BT_Ant 1		0.6	0mm	-36	118	1.57				
	FR1 n7 MIMO2	Bottom of Laptop	0.606	0mm	89.2	28.2	-0.05	154.1	1.21	0.01	Not required
	WLAN5G_Ant 1+BT_Ant 1		0.6	0mm	-36	118	1.57				
	WLAN5G_Ant 1+BT_Ant 1	Bottom of Laptop	0.6	0mm	-36	118	1.57	257.8	1.02	0.00	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				

	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case 28	LTE Band 12	Bottom of Laptop	0.733	0mm	-98.8	115.4	0.76	205.2	1.43	0.01	Not required
	FR1 n66 MIMO2		0.692	0mm	87	28.2	-0.07				
	LTE Band 12	Bottom of Laptop	0.733	0mm	-98.8	115.4	0.76	62.9	1.22	0.02	Not required
	WLAN2.4G_Ant 1		0.49	0mm	-36	118	1.57				
	LTE Band 12	Bottom of Laptop	0.733	0mm	-98.8	115.4	0.76	271.9	1.19	0.00	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	FR1 n66 MIMO2	Bottom of Laptop	0.692	0mm	87	28.2	-0.07	152.3	1.18	0.01	Not required
	WLAN2.4G_Ant 1		0.49	0mm	-36	118	1.57				
	FR1 n66 MIMO2	Bottom of Laptop	0.692	0mm	87	28.2	-0.07	185.7	1.15	0.01	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	WLAN2.4G_Ant 1	Bottom of Laptop	0.49	0mm	-36	118	1.57	257.8	0.95	0.00	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	LTE Band 12	Bottom of Laptop	0.733	0mm	-98.8	115.4	0.76	271.9	1.15	0.00	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				
	FR1 n66 MIMO2	Bottom of Laptop	0.692	0mm	87	28.2	-0.07	185.7	1.11	0.01	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				
	WLAN2.4G_Ant 2	Bottom of Laptop	0.46	0mm	2.2	-137	1.62	257.8	0.53	0.00	Not required
	BT_Ant 1		0.07	0mm	-36	118	1.57				
	LTE Band 12	Bottom of Laptop	0.733	0mm	-98.8	115.4	0.76	62.9	1.33	0.02	Not required
	WLAN5G_Ant 1+BT_Ant 1		0.6	0mm	-36	118	1.57				
	FR1 n66 MIMO2	Bottom of Laptop	0.692	0mm	87	28.2	-0.07	152.3	1.29	0.01	Not required
	WLAN5G_Ant 1+BT_Ant 1		0.6	0mm	-36	118	1.57				
	WLAN5G_Ant 1+BT_Ant 1	Bottom of Laptop	0.6	0mm	-36	118	1.57	257.8	1.02	0.00	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				

	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case 29	LTE Band 13	Bottom of Laptop	0.695	0mm	-102	117.1	0.73	211.0	1.33	0.01	Not required
	FR1 n2 MIMO2		0.633	0mm	88.6	26.7	-0.09				
	LTE Band 13	Bottom of Laptop	0.695	0mm	-102	117.1	0.73	66.0	1.19	0.02	Not required
	WLAN2.4G_Ant 1		0.49	0mm	-36	118	1.57				
	LTE Band 13	Bottom of Laptop	0.695	0mm	-102	117.1	0.73	274.6	1.16	0.00	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	FR1 n2 MIMO2	Bottom of Laptop	0.633	0mm	88.6	26.7	-0.09	154.5	1.12	0.01	Not required
	WLAN2.4G_Ant 1		0.49	0mm	-36	118	1.57				
	FR1 n2 MIMO2	Bottom of Laptop	0.633	0mm	88.6	26.7	-0.09	185.1	1.09	0.01	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	WLAN2.4G_Ant 1	Bottom of Laptop	0.49	0mm	-36	118	1.57	257.8	0.95	0.00	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	LTE Band 13	Bottom of Laptop	0.695	0mm	-102	117.1	0.73	274.6	1.12	0.00	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				
	FR1 n2 MIMO2	Bottom of Laptop	0.633	0mm	88.6	26.7	-0.09	185.1	1.05	0.01	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				
	WLAN2.4G_Ant 2	Bottom of Laptop	0.46	0mm	2.2	-137	1.62	257.8	0.53	0.00	Not required
	BT_Ant 1		0.07	0mm	-36	118	1.57				
	LTE Band 13	Bottom of Laptop	0.695	0mm	-102	117.1	0.73	66.0	1.30	0.02	Not required
	WLAN5G_Ant 1+BT_Ant 1		0.6	0mm	-36	118	1.57				
	FR1 n2 MIMO2	Bottom of Laptop	0.633	0mm	88.6	26.7	-0.09	154.5	1.23	0.01	Not required
	WLAN5G_Ant 1+BT_Ant 1		0.6	0mm	-36	118	1.57				
	WLAN5G_Ant 1+BT_Ant 1	Bottom of Laptop	0.6	0mm	-36	118	1.57	257.8	1.02	0.00	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				

	Band	Position	SAR (W/kg)	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				(mm)	X	Y	Z				
Case 30	LTE Band 13	Bottom of Laptop	0.695	0mm	-102	117.1	0.73	208.9	1.39	0.01	Not required
	FR1 n66 MIMO2		0.692	0mm	87	28.2	-0.07				
	LTE Band 13	Bottom of Laptop	0.695	0mm	-102	117.1	0.73	66.0	1.19	0.02	Not required
	WLAN2.4G_Ant 1		0.49	0mm	-36	118	1.57				
	LTE Band 13	Bottom of Laptop	0.695	0mm	-102	117.1	0.73	274.6	1.16	0.00	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	FR1 n66 MIMO2	Bottom of Laptop	0.692	0mm	87	28.2	-0.07	152.3	1.18	0.01	Not required
	WLAN2.4G_Ant 1		0.49	0mm	-36	118	1.57				
	FR1 n66 MIMO2	Bottom of Laptop	0.692	0mm	87	28.2	-0.07	185.7	1.15	0.01	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	WLAN2.4G_Ant 1	Bottom of Laptop	0.49	0mm	-36	118	1.57	257.8	0.95	0.00	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	LTE Band 13	Bottom of Laptop	0.695	0mm	-102	117.1	0.73	274.6	1.12	0.00	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				
	FR1 n66 MIMO2	Bottom of Laptop	0.692	0mm	87	28.2	-0.07	185.7	1.11	0.01	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				
	WLAN2.4G_Ant 2	Bottom of Laptop	0.46	0mm	2.2	-137	1.62	257.8	0.53	0.00	Not required
	BT_Ant 1		0.07	0mm	-36	118	1.57				
	LTE Band 13	Bottom of Laptop	0.695	0mm	-102	117.1	0.73	66.0	1.30	0.02	Not required
	WLAN5G_Ant 1+BT_Ant 1		0.6	0mm	-36	118	1.57				
	FR1 n66 MIMO2	Bottom of Laptop	0.692	0mm	87	28.2	-0.07	152.3	1.29	0.01	Not required
	WLAN5G_Ant 1+BT_Ant 1		0.6	0mm	-36	118	1.57				
	WLAN5G_Ant 1+BT_Ant 1	Bottom of Laptop	0.6	0mm	-36	118	1.57	257.8	1.02	0.00	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				

	Band	Position	SAR (W/kg)	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				(mm)	X	Y	Z				
Case 31	LTE Band 25	Bottom of Laptop	0.687	0mm	-92.7	123	0.82	204.1	1.34	0.01	Not required
	FR1 n41 MIMO2		0.65	0mm	88.2	28.4	-0.12				
	LTE Band 25	Bottom of Laptop	0.687	0mm	-92.7	123	0.82	56.9	1.18	0.02	Not required
	WLAN2.4G_Ant 1		0.49	0mm	-36	118	1.57				
	LTE Band 25	Bottom of Laptop	0.687	0mm	-92.7	123	0.82	276.8	1.15	0.00	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	FR1 n41 MIMO2	Bottom of Laptop	0.65	0mm	88.2	28.4	-0.12	153.2	1.14	0.01	Not required
	WLAN2.4G_Ant 1		0.49	0mm	-36	118	1.57				
	FR1 n41 MIMO2	Bottom of Laptop	0.65	0mm	88.2	28.4	-0.12	186.4	1.11	0.01	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	WLAN2.4G_Ant 1	Bottom of Laptop	0.49	0mm	-36	118	1.57	257.8	0.95	0.00	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	LTE Band 25	Bottom of Laptop	0.687	0mm	-92.7	123	0.82	276.8	1.11	0.00	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				
	FR1 n41 MIMO2	Bottom of Laptop	0.65	0mm	88.2	28.4	-0.12	186.4	1.07	0.01	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				
	WLAN2.4G_Ant 2	Bottom of Laptop	0.46	0mm	2.2	-137	1.62	257.8	0.53	0.00	Not required
	BT_Ant 1		0.07	0mm	-36	118	1.57				
	LTE Band 25	Bottom of Laptop	0.687	0mm	-92.7	123	0.82	56.9	1.29	0.03	Not required
	WLAN5G_Ant 1+BT_Ant 1		0.6	0mm	-36	118	1.57				
	FR1 n41 MIMO2	Bottom of Laptop	0.65	0mm	88.2	28.4	-0.12	153.2	1.25	0.01	Not required
	WLAN5G_Ant 1+BT_Ant 1		0.6	0mm	-36	118	1.57				
	WLAN5G_Ant 1+BT_Ant 1	Bottom of Laptop	0.6	0mm	-36	118	1.57	257.8	1.02	0.00	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				

	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case 32	LTE Band 26	Bottom of Laptop	0.745	0mm	-105.1	121.6	0.74	214.6	1.40	0.01	Not required
	FR1 n41 MIMO2		0.65	0mm	88.2	28.4	-0.12				
	LTE Band 26	Bottom of Laptop	0.745	0mm	-105.1	121.6	0.74	69.2	1.24	0.02	Not required
	WLAN2.4G_Ant 1		0.49	0mm	-36	118	1.57				
	LTE Band 26	Bottom of Laptop	0.745	0mm	-105.1	121.6	0.74	280.0	1.21	0.00	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	FR1 n41 MIMO2	Bottom of Laptop	0.65	0mm	88.2	28.4	-0.12	153.2	1.14	0.01	Not required
	WLAN2.4G_Ant 1		0.49	0mm	-36	118	1.57				
	FR1 n41 MIMO2	Bottom of Laptop	0.65	0mm	88.2	28.4	-0.12	186.4	1.11	0.01	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	WLAN2.4G_Ant 1	Bottom of Laptop	0.49	0mm	-36	118	1.57	257.8	0.95	0.00	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	LTE Band 26	Bottom of Laptop	0.745	0mm	-105.1	121.6	0.74	280.0	1.17	0.00	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				
	FR1 n41 MIMO2	Bottom of Laptop	0.65	0mm	88.2	28.4	-0.12	186.4	1.07	0.01	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				
	WLAN2.4G_Ant 2	Bottom of Laptop	0.46	0mm	2.2	-137	1.62	257.8	0.53	0.00	Not required
	BT_Ant 1		0.07	0mm	-36	118	1.57				
	LTE Band 26	Bottom of Laptop	0.745	0mm	-105.1	121.6	0.74	69.2	1.35	0.02	Not required
	WLAN5G_Ant 1+BT_Ant 1		0.6	0mm	-36	118	1.57				
	FR1 n41 MIMO2	Bottom of Laptop	0.65	0mm	88.2	28.4	-0.12	153.2	1.25	0.01	Not required
	WLAN5G_Ant 1+BT_Ant 1		0.6	0mm	-36	118	1.57				
	WLAN5G_Ant 1+BT_Ant 1	Bottom of Laptop	0.6	0mm	-36	118	1.57	257.8	1.02	0.00	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				

	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case 33	LTE Band 48 MIMO2	Bottom of Laptop	0.71	0mm	86.02	29.21	-0.04	203.4	1.37	0.01	Not required
	FR1 n2		0.659	0mm	-95.9	120.1	0.59				
	LTE Band 48 MIMO2	Bottom of Laptop	0.71	0mm	86.02	29.21	-0.04	150.9	1.20	0.01	Not required
	WLAN2.4G_Ant 1		0.49	0mm	-36	118	1.57				
	LTE Band 48 MIMO2	Bottom of Laptop	0.71	0mm	86.02	29.21	-0.04	186.2	1.17	0.01	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	FR1 n2	Bottom of Laptop	0.659	0mm	-95.9	120.1	0.59	59.9	1.15	0.02	Not required
	WLAN2.4G_Ant 1		0.49	0mm	-36	118	1.57				
	FR1 n2	Bottom of Laptop	0.659	0mm	-95.9	120.1	0.59	275.2	1.12	0.00	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	WLAN2.4G_Ant 1	Bottom of Laptop	0.49	0mm	-36	118	1.57	257.8	0.95	0.00	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	LTE Band 48 MIMO2	Bottom of Laptop	0.71	0mm	86.02	29.21	-0.04	186.2	1.13	0.01	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				
	FR1 n2	Bottom of Laptop	0.659	0mm	-95.9	120.1	0.59	275.2	1.08	0.00	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				
	WLAN2.4G_Ant 2	Bottom of Laptop	0.46	0mm	2.2	-137	1.62	257.8	0.53	0.00	Not required
	BT_Ant 1		0.07	0mm	-36	118	1.57				
	LTE Band 48 MIMO2	Bottom of Laptop	0.71	0mm	86.02	29.21	-0.04	150.9	1.31	0.01	Not required
	WLAN5G_Ant 1+BT_Ant 1		0.6	0mm	-36	118	1.57				
	FR1 n2	Bottom of Laptop	0.659	0mm	-95.9	120.1	0.59	59.9	1.26	0.02	Not required
	WLAN5G_Ant 1+BT_Ant 1		0.6	0mm	-36	118	1.57				
	WLAN5G_Ant 1+BT_Ant 1	Bottom of Laptop	0.6	0mm	-36	118	1.57	257.8	1.02	0.00	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				

	Band	Position	SAR (W/kg)	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				(mm)	X	Y	Z				
Case 34	LTE Band 48 MIMO2	Bottom of Laptop	0.71	0mm	86.02	29.21	-0.04	215.8	1.37	0.01	Not required
	FR1 n5		0.657	0mm	-106.7	126.4	0.4				
	LTE Band 48 MIMO2	Bottom of Laptop	0.71	0mm	86.02	29.21	-0.04	150.9	1.20	0.01	Not required
	WLAN2.4G_Ant 1		0.49	0mm	-36	118	1.57				
	LTE Band 48 MIMO2	Bottom of Laptop	0.71	0mm	86.02	29.21	-0.04	186.2	1.17	0.01	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	FR1 n5	Bottom of Laptop	0.657	0mm	-106.7	126.4	0.4	71.2	1.15	0.02	Not required
	WLAN2.4G_Ant 1		0.49	0mm	-36	118	1.57				
	FR1 n5	Bottom of Laptop	0.657	0mm	-106.7	126.4	0.4	285.0	1.12	0.00	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	WLAN2.4G_Ant 1	Bottom of Laptop	0.49	0mm	-36	118	1.57	257.8	0.95	0.00	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	LTE Band 48 MIMO2	Bottom of Laptop	0.71	0mm	86.02	29.21	-0.04	186.2	1.13	0.01	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				
	FR1 n5	Bottom of Laptop	0.657	0mm	-106.7	126.4	0.4	285.0	1.08	0.00	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				
	WLAN2.4G_Ant 2	Bottom of Laptop	0.46	0mm	2.2	-137	1.62	257.8	0.53	0.00	Not required
	BT_Ant 1		0.07	0mm	-36	118	1.57				
	LTE Band 48 MIMO2	Bottom of Laptop	0.71	0mm	86.02	29.21	-0.04	150.9	1.31	0.01	Not required
	WLAN5G_Ant 1+BT_Ant 1		0.6	0mm	-36	118	1.57				
	FR1 n5	Bottom of Laptop	0.657	0mm	-106.7	126.4	0.4	71.2	1.26	0.02	Not required
	WLAN5G_Ant 1+BT_Ant 1		0.6	0mm	-36	118	1.57				
	WLAN5G_Ant 1+BT_Ant 1	Bottom of Laptop	0.6	0mm	-36	118	1.57	257.8	1.02	0.00	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				

	Band	Position	SAR (W/kg)	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				(mm)	X	Y	Z				
Case 35	LTE Band 48 MIMO2	Bottom of Laptop	0.71	0mm	86.02	29.21	-0.04	203.9	1.35	0.01	Not required
	FR1 n66		0.64	0mm	-95.8	121.5	0.6				
	LTE Band 48 MIMO2	Bottom of Laptop	0.71	0mm	86.02	29.21	-0.04	150.9	1.20	0.01	Not required
	WLAN2.4G_Ant 1		0.49	0mm	-36	118	1.57				
	LTE Band 48 MIMO2	Bottom of Laptop	0.71	0mm	86.02	29.21	-0.04	186.2	1.17	0.01	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	FR1 n66	Bottom of Laptop	0.64	0mm	-95.8	121.5	0.6	59.9	1.13	0.02	Not required
	WLAN2.4G_Ant 1		0.49	0mm	-36	118	1.57				
	FR1 n66	Bottom of Laptop	0.64	0mm	-95.8	121.5	0.6	276.5	1.10	0.00	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	WLAN2.4G_Ant 1	Bottom of Laptop	0.49	0mm	-36	118	1.57	257.8	0.95	0.00	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	LTE Band 48 MIMO2	Bottom of Laptop	0.71	0mm	86.02	29.21	-0.04	186.2	1.13	0.01	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				
	FR1 n66	Bottom of Laptop	0.64	0mm	-95.8	121.5	0.6	276.5	1.06	0.00	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				
	WLAN2.4G_Ant 2	Bottom of Laptop	0.46	0mm	2.2	-137	1.62	257.8	0.53	0.00	Not required
	BT_Ant 1		0.07	0mm	-36	118	1.57				
	LTE Band 48 MIMO2	Bottom of Laptop	0.71	0mm	86.02	29.21	-0.04	150.9	1.31	0.01	Not required
	WLAN5G_Ant 1+BT_Ant 1		0.6	0mm	-36	118	1.57				
	FR1 n66	Bottom of Laptop	0.64	0mm	-95.8	121.5	0.6	59.9	1.24	0.02	Not required
	WLAN5G_Ant 1+BT_Ant 1		0.6	0mm	-36	118	1.57				
	WLAN5G_Ant 1+BT_Ant 1	Bottom of Laptop	0.6	0mm	-36	118	1.57	257.8	1.02	0.00	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				

	Band	Position	SAR (W/kg)	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				(mm)	X	Y	Z				
Case 36	LTE Band 66	Bottom of Laptop	0.727	0mm	-94.2	123	0.74	205.5	1.38	0.01	Not required
	FR1 n41 MIMO2		0.65	0mm	88.2	28.4	-0.12				
	LTE Band 66	Bottom of Laptop	0.727	0mm	-94.2	123	0.74	58.4	1.22	0.02	Not required
	WLAN2.4G_Ant 1		0.49	0mm	-36	118	1.57				
	LTE Band 66	Bottom of Laptop	0.727	0mm	-94.2	123	0.74	277.3	1.19	0.00	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	FR1 n41 MIMO2	Bottom of Laptop	0.65	0mm	88.2	28.4	-0.12	153.2	1.14	0.01	Not required
	WLAN2.4G_Ant 1		0.49	0mm	-36	118	1.57				
	FR1 n41 MIMO2	Bottom of Laptop	0.65	0mm	88.2	28.4	-0.12	186.4	1.11	0.01	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	WLAN2.4G_Ant 1	Bottom of Laptop	0.49	0mm	-36	118	1.57	257.8	0.95	0.00	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	LTE Band 66	Bottom of Laptop	0.727	0mm	-94.2	123	0.74	277.3	1.15	0.00	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				
	FR1 n41 MIMO2	Bottom of Laptop	0.65	0mm	88.2	28.4	-0.12	186.4	1.07	0.01	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				
	WLAN2.4G_Ant 2	Bottom of Laptop	0.46	0mm	2.2	-137	1.62	257.8	0.53	0.00	Not required
	BT_Ant 1		0.07	0mm	-36	118	1.57				
	LTE Band 66	Bottom of Laptop	0.727	0mm	-94.2	123	0.74	58.4	1.33	0.03	Not required
	WLAN5G_Ant 1+BT_Ant 1		0.6	0mm	-36	118	1.57				
	FR1 n41 MIMO2	Bottom of Laptop	0.65	0mm	88.2	28.4	-0.12	153.2	1.25	0.01	Not required
	WLAN5G_Ant 1+BT_Ant 1		0.6	0mm	-36	118	1.57				
	WLAN5G_Ant 1+BT_Ant 1	Bottom of Laptop	0.6	0mm	-36	118	1.57	257.8	1.02	0.00	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				

	Band	Position	SAR (W/kg)	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				(mm)	X	Y	Z				
Case 37	LTE Band 66 MIMO2	Bottom of Laptop	0.691	0mm	84	36	-1.37	211.0	1.35	0.01	Not required
	FR1 n5		0.657	0mm	-106.7	126.4	0.4				
	LTE Band 66 MIMO2	Bottom of Laptop	0.691	0mm	84	36	-1.37	145.4	1.18	0.01	Not required
	WLAN2.4G_Ant 1		0.49	0mm	-36	118	1.57				
	LTE Band 66 MIMO2	Bottom of Laptop	0.691	0mm	84	36	-1.37	191.4	1.15	0.01	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	FR1 n5	Bottom of Laptop	0.657	0mm	-106.7	126.4	0.4	71.2	1.15	0.02	Not required
	WLAN2.4G_Ant 1		0.49	0mm	-36	118	1.57				
	FR1 n5	Bottom of Laptop	0.657	0mm	-106.7	126.4	0.4	285.0	1.12	0.00	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	WLAN2.4G_Ant 1	Bottom of Laptop	0.49	0mm	-36	118	1.57	257.8	0.95	0.00	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	LTE Band 66 MIMO2	Bottom of Laptop	0.691	0mm	84	36	-1.37	191.4	1.11	0.01	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				
	FR1 n5	Bottom of Laptop	0.657	0mm	-106.7	126.4	0.4	285.0	1.08	0.00	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				
	WLAN2.4G_Ant 2	Bottom of Laptop	0.46	0mm	2.2	-137	1.62	257.8	0.53	0.00	Not required
	BT_Ant 1		0.07	0mm	-36	118	1.57				
	LTE Band 66 MIMO2	Bottom of Laptop	0.691	0mm	84	36	-1.37	145.4	1.29	0.01	Not required
	WLAN5G_Ant 1+BT_Ant 1		0.6	0mm	-36	118	1.57				
	FR1 n5	Bottom of Laptop	0.657	0mm	-106.7	126.4	0.4	71.2	1.26	0.02	Not required
	WLAN5G_Ant 1+BT_Ant 1		0.6	0mm	-36	118	1.57				
	WLAN5G_Ant 1+BT_Ant 1	Bottom of Laptop	0.6	0mm	-36	118	1.57	257.8	1.02	0.00	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				

	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case 38	LTE Band 66 MIMO2	Bottom of Laptop	0.691	0mm	84	36	-1.37	197.5	1.30	0.01	Not required
	FR1 n12		0.605	0mm	-98.9	110.6	0.57				
	LTE Band 66 MIMO2	Bottom of Laptop	0.691	0mm	84	36	-1.37	145.4	1.18	0.01	Not required
	WLAN2.4G_Ant 1		0.49	0mm	-36	118	1.57				
	LTE Band 66 MIMO2	Bottom of Laptop	0.691	0mm	84	36	-1.37	191.4	1.15	0.01	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	FR1 n12	Bottom of Laptop	0.605	0mm	-98.9	110.6	0.57	63.3	1.10	0.02	Not required
	WLAN2.4G_Ant 1		0.49	0mm	-36	118	1.57				
	FR1 n12	Bottom of Laptop	0.605	0mm	-98.9	110.6	0.57	267.4	1.07	0.00	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	WLAN2.4G_Ant 1	Bottom of Laptop	0.49	0mm	-36	118	1.57	257.8	0.95	0.00	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	LTE Band 66 MIMO2	Bottom of Laptop	0.691	0mm	84	36	-1.37	191.4	1.11	0.01	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				
	FR1 n12	Bottom of Laptop	0.605	0mm	-98.9	110.6	0.57	267.4	1.03	0.00	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				
	WLAN2.4G_Ant 2	Bottom of Laptop	0.46	0mm	2.2	-137	1.62	257.8	0.53	0.00	Not required
	BT_Ant 1		0.07	0mm	-36	118	1.57				
	LTE Band 66 MIMO2	Bottom of Laptop	0.691	0mm	84	36	-1.37	145.4	1.29	0.01	Not required
	WLAN5G_Ant 1+BT_Ant 1		0.6	0mm	-36	118	1.57				
	FR1 n12	Bottom of Laptop	0.605	0mm	-98.9	110.6	0.57	63.3	1.21	0.02	Not required
	WLAN5G_Ant 1+BT_Ant 1		0.6	0mm	-36	118	1.57				
	WLAN5G_Ant 1+BT_Ant 1	Bottom of Laptop	0.6	0mm	-36	118	1.57	257.8	1.02	0.00	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				

	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case 39	LTE Band 66 MIMO2	Bottom of Laptop	0.691	0mm	84	36	-1.37	198.9	1.39	0.01	Not required
	FR1 n71		0.694	0mm	-99	113.9	0.58				
	LTE Band 66 MIMO2	Bottom of Laptop	0.691	0mm	84	36	-1.37	145.4	1.18	0.01	Not required
	WLAN2.4G_Ant 1		0.49	0mm	-36	118	1.57				
	LTE Band 66 MIMO2	Bottom of Laptop	0.691	0mm	84	36	-1.37	191.4	1.15	0.01	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	FR1 n71	Bottom of Laptop	0.694	0mm	-99	113.9	0.58	63.1	1.18	0.02	Not required
	WLAN2.4G_Ant 1		0.49	0mm	-36	118	1.57				
	FR1 n71	Bottom of Laptop	0.694	0mm	-99	113.9	0.58	270.5	1.15	0.00	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	WLAN2.4G_Ant 1	Bottom of Laptop	0.49	0mm	-36	118	1.57	257.8	0.95	0.00	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	LTE Band 66 MIMO2	Bottom of Laptop	0.691	0mm	84	36	-1.37	191.4	1.11	0.01	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				
	FR1 n71	Bottom of Laptop	0.694	0mm	-99	113.9	0.58	270.5	1.11	0.00	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				
	WLAN2.4G_Ant 2	Bottom of Laptop	0.46	0mm	2.2	-137	1.62	257.8	0.53	0.00	Not required
	BT_Ant 1		0.07	0mm	-36	118	1.57				
	LTE Band 66 MIMO2	Bottom of Laptop	0.691	0mm	84	36	-1.37	145.4	1.29	0.01	Not required
	WLAN5G_Ant 1+BT_Ant 1		0.6	0mm	-36	118	1.57				
	FR1 n71	Bottom of Laptop	0.694	0mm	-99	113.9	0.58	63.1	1.29	0.02	Not required
	WLAN5G_Ant 1+BT_Ant 1		0.6	0mm	-36	118	1.57				
	WLAN5G_Ant 1+BT_Ant 1	Bottom of Laptop	0.6	0mm	-36	118	1.57	257.8	1.02	0.00	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				

	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case 40	LTE B71	Bottom of Laptop	0.726	0mm	-98.9	112.5	-0.11	204.1	1.42	0.01	Not required
	FR1 n66 MIMO2		0.692	0mm	87	28.2	-0.07				
	LTE B71	Bottom of Laptop	0.726	0mm	-98.9	112.5	-0.11	63.2	1.22	0.02	Not required
	WLAN2.4G_Ant 1		0.49	0mm	-36	118	1.57				
	LTE B71	Bottom of Laptop	0.726	0mm	-98.9	112.5	-0.11	269.2	1.19	0.00	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	FR1 n66 MIMO2	Bottom of Laptop	0.692	0mm	87	28.2	-0.07	152.3	1.18	0.01	Not required
	WLAN2.4G_Ant 1		0.49	0mm	-36	118	1.57				
	FR1 n66 MIMO2	Bottom of Laptop	0.692	0mm	87	28.2	-0.07	185.7	1.15	0.01	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	WLAN2.4G_Ant 1	Bottom of Laptop	0.49	0mm	-36	118	1.57	257.8	0.95	0.00	Not required
	WLAN2.4G_Ant 2		0.46	0mm	2.2	-137	1.62				
	LTE B71	Bottom of Laptop	0.726	0mm	-98.9	112.5	-0.11	269.2	1.15	0.00	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				
	FR1 n66 MIMO2	Bottom of Laptop	0.692	0mm	87	28.2	-0.07	185.7	1.11	0.01	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				
	WLAN2.4G_Ant 2	Bottom of Laptop	0.46	0mm	2.2	-137	1.62	257.8	0.53	0.00	Not required
	BT_Ant 1		0.07	0mm	-36	118	1.57				
	LTE B71	Bottom of Laptop	0.726	0mm	-98.9	112.5	-0.11	63.2	1.33	0.02	Not required
	WLAN5G_Ant 1+BT_Ant 1		0.6	0mm	-36	118	1.57				
	FR1 n66 MIMO2	Bottom of Laptop	0.692	0mm	87	28.2	-0.07	152.3	1.29	0.01	Not required
	WLAN5G_Ant 1+BT_Ant 1		0.6	0mm	-36	118	1.57				
	WLAN5G_Ant 1+BT_Ant 1	Bottom of Laptop	0.6	0mm	-36	118	1.57	257.8	1.02	0.00	Not required
	WLAN5G_Ant 2		0.42	0mm	2.2	-137	1.62				

Test Engineer： Bevis Chang, Willie Huang, Jay Jian and Tim Su

15. Uncertainty Assessment

Per KDB 865664 D01 SAR measurement 100MHz to 6GHz, when the highest measured 1-g SAR within a frequency band is < 1.5 W/kg and the measured 10-g SAR within a frequency band is < 3.75 W/kg. The expanded SAR measurement uncertainty must be ≤ 30%, for a confidence interval of k = 2. If these conditions are met, extensive SAR measurement uncertainty analysis described in IEEE Std 1528-2013 is not required in SAR reports submitted for equipment approval. For this device, the highest measured 1-g SAR is less 1.5W/kg. Therefore, the measurement uncertainty table is not required in this report.

16. References

[1] FCC 47 CFR Part 2 “Frequency Allocations and Radio Treaty Matters; General Rules and Regulations”

[2] ANSI/IEEE Std. C95.1-1992, “IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz”, September 1992

[3] IEEE Std. 1528-2013, “IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques”, Sep 2013

[4] SPEAG DASY System Handbook

[5] FCC KDB 248227 D01 v02r02, “SAR Guidance for IEEE 802.11 (WiFi) Transmitters”, Oct 2015.

[6] FCC KDB 447498 D01 v06, “Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies”, Oct 2015

[7] FCC KDB 941225 D01 v03r01, “3G SAR MEAUREMENT PROCEDURES”, Oct 2015

[8] FCC KDB 941225 D05 v02r05, “SAR Evaluation Considerations for LTE Devices”, Dec 2015

[9] FCC KDB 941225 D05A v01r02, “Rel. 10 LTE SAR Test Guidance and KDB Inquiries”, Oct 2015

[10] FCC KDB 616217 D04 v01r02, “SAR Evaluation Considerations for Laptop, Notebook, Netbook and Tablet Computers”, Oct 2015

[11] FCC KDB 865664 D01 v01r04, "SAR Measurement Requirements for 100 MHz to 6 GHz", Aug 2015.

[12] FCC KDB 865664 D02 v01r02, “RF Exposure Compliance Reporting and Documentation Considerations” Oct 2015.