FCC SAR Test Report

APPLICANT	:	Acer Incorporated
EQUIPMENT	:	Notebook computer
BRAND NAME	:	acer
MODEL NAME	:	N18H2
FCC ID	:	Contains FCC ID : HLZL850GLA
STANDARD	:	FCC 47 CFR Part 2 (2.1093) ANSI/IEEE C95.1-1992 IEEE 1528-2013

The product was installed WWAN and WLAN/Bluetooth module during the test: WWAN module: LTE module (Brand Name: Fibocom, Model Name: L850-GL, FCC ID: HLZL850GLA). WLAN/Bluetooth module: 802.11a/b/g/n/ac + BT 4.1 M.2 2230 Type Card (Brand Name: Qualcomm Atheros, Model Name: QCNFA344A, FCC ID: PPD-QCNFA344AH).

The product was received on Aug. 23, 2018 and testing was started from Nov. 12, 2018 and completed on Nov. 15, 2018. We, Sporton International (Shenzhen) Inc., would like to declare that the tested sample has been evaluated in accordance with the procedures and had 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 (Shenzhen) Inc., the test report shall not be reproduced except in full.

Mark Qu

Approved by: Mark Qu / Manager

TESTING
NVLAP LAB CODE 600156-0

Sporton International (Shenzhen) Inc.
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Revision History

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA882306B	Rev. 01	Initial issue of report	Nov. 28, 2018

1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for **Acer Incorporated, Notebook computer, N18H2,** are as follows.

Highest 1g SAR Summary				
Equipment Class	Frequency Band		Body 1g SAR (W/kg)	Highest Simultaneous Transmission 1g SAR (W/kg)
Licensed	WCDMA	Band V	1.10	1.59
		Band IV	1.14	
		Band II	**1.15**	
	LTE	Band 12/ Band 17	0.94	
		Band 13	1.09	
		Band 5	1.11	
		Band 26	1.13	
		Band 66/Band 4	1.12	
		Band 2	1.11	
		Band 30	1.13	
		Band 7	1.03	
		Band 41/Band 38	1.06	
DTS	WLAN	2.4GHz WLAN	0.71	1.59
NII		5GHz WLAN	0.94	1.15
DSS	Bluetooth	Bluetooth	<0.10	1.59
Date of Testing:		2018/11/12~2018/11/15		
Remark: This device supports LTE B4 / B17 / B38 and LTE B66 / B12 / B41. Since the supported frequency span for LTE B4 / B17 / B38 falls completely within the supports frequency span for LTE B66 / B12 / B41, both LTE bands have the same target power, and both LTE bands share the same transmission path; therefore, SAR was only assessed for LTE B66 / B12 / B41.				

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.

2. Administration Data

Testing Laboratory	
Test Site	Sporton International (Shenzhen) Inc.
Test Site Location	1/F, 2/F, Bldg 5, Shiling Industrial Zone, Xinwei Village, Xili, Nanshan, Shenzhen City, Guangdong Province 518055, China TEL: +86-755-8637-9589 FAX: +86-755-8637-9595

Applicant	
Company Name	Acer Incorporated
Address	8F ,88, Sec.1 Xintai 5th Rd. Xizhi, New Taipei City 221, Taiwan, R.O.C

Manufacturer	
Company Name	Acer Incorporated
Address	8F ,88, Sec.1 Xintai 5th Rd. Xizhi, New Taipei City 221, Taiwan, R.O.C

3. 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

4. Equipment Under Test (EUT) Information

4.1 General Information

Product Feature & Specification	
Equipment Name	Notebook computer
Brand Name	acer
Model Name	N18H2
FCC ID	Contains FCC ID : HLZL850GLA
Wireless Technology and Frequency Range	WCDMA Band II: 1852.4 MHz ~ 1907.6 MHz WCDMA Band IV: 1712.4 MHz ~ 1752.6 MHz WCDMA Band V: 826.4 MHz ~ 846.6 MHz LTE Band 2: 1850.7 MHz ~ 1909.3 MHz LTE Band 4: 1710.7 MHz ~ 1754.3 MHz LTE Band 5: 824.7 MHz ~ 848.3 MHz LTE Band 7: 2502.5 MHz ~ 2567.5 MHz LTE Band 12: 699.7 MHz ~ 715.3 MHz LTE Band 13: 779.5 MHz ~ 784.5 MHz LTE Band 17: 706.5 MHz ~ 713.5 MHz LTE Band 26: 814.7 MHz ~ 848.3 MHz LTE Band 30: 2307.5 MHz ~ 2312.5 MHz LTE Band 38: 2572.5 MHz ~ 2617.5 MHz LTE Band 41: 2498.5 MHz ~ 2687.5 MHz LTE Band 66: 1710.7 MHz ~ 1779.3 MHz WLAN 2.4GHz Band: 2412 MHz ~ 2462 MHz WLAN 5.2GHz Band: 5180 MHz ~ 5240 MHz WLAN 5.3GHz Band: 5260 MHz ~ 5320 MHz WLAN 5.5GHz Band: 5500 MHz ~ 5720 MHz WLAN 5.8GHz Band: 5745 MHz ~ 5825 MHz Bluetooth: 2402 MHz ~ 2480 MHz
Mode	RMC 12.2Kbps HSDPA HSUPA DC-HSDPA HSPA+ (16QAM uplink is not supported) LTE: QPSK, 16QAM WLAN 2.4GHz : 802.11b/g/n/ac HT20/HT40/VHT20/VHT40 WLAN 5GHz : 802.11a/n/ac HT20/HT40/VHT20/VHT40/VHT80 Bluetooth BR/EDR/LE
EUT Stage	Identical Prototype

Remark:

1. This device has no voice function.
2. This device implanted proximity sensor function at bottom of laptop, power reduction will be implemented immediately at WCDMA B2 / B4 / B5 and LTE B2 / B4 / B5 / B7 / B13 / B26 / B30 / B38 / B41 / B66.
3. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.
4. The modulation and bandwidth are similar for 802.11n mode for 20MHz (40MHz) and 802.11ac mode for 20MHz (40MHz), therefore investigated worst case which is 802.11 ac mode to representative mode in test report.
5. There are two samples. The differences are as below table. For SAR tests, we only evaluated sample 1 for full test, sample 2 only verified the worst case of sample 1.

WWAN Module Feature & Specification	
Equipment	LTE module
Brand Name	Fibocom
Model Name	L850-GL
FCC ID	HLZL850GLA

WLAN/Bluetooth Module Feature & Specification	
Equipment	802.11a/b/g/n/ac + BT 4.1 M.2 2230 Type Card
Brand Name	Qualcomm Atheros
Model Name	QCNFA344A
FCC ID	PPD-QCNFA344AH

4.2 General LTE SAR Test and Reporting Considerations

Summarized necessary items addressed in KDB 941225 D05 v02r05	
Equipment Name	Notebook computer
Operating Frequency Range of each LTE transmission band	LTE Band 2: 1850.7 MHz ~ 1909.3 MHz LTE Band 4: 1710.7 MHz ~ 1754.3 MHz LTE Band 5: 824.7 MHz ~ 848.3 MHz LTE Band 7: 2502.5 MHz ~ 2567.5 MHz LTE Band 12: 699.7 MHz ~ 715.3 MHz LTE Band 13: 779.5 MHz ~ 784.5 MHz LTE Band 17: 706.5 MHz ~ 713.5 MHz LTE Band 26: 814.7 MHz ~ 848.3 MHz LTE Band 30: 2307.5 MHz ~ 2312.5 MHz LTE Band 38: 2572.5 MHz ~ 2617.5 MHz LTE Band 41: 2498.5 MHz ~ 2687.5 MHz LTE Band 66: 1710.7 MHz ~ 1779.3 MHz
Channel Bandwidth	LTE Band 2:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 4:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 5:1.4MHz, 3MHz, 5MHz, 10MHz LTE Band 7: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 12:1.4MHz, 3MHz, 5MHz, 10MHz LTE Band 13: 5MHz, 10MHz LTE Band 17: 5MHz, 10MHz 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 66:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz
Uplink Modulations Used	QPSK / 16QAM
LTE Voice / Data requirements	Data only
LTE Release	R9, Cat9
CA Support	Not Supported
LTE MPR permanently built-in by design	**Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 1, 2 and 3**

Modulation	Channel bandwidth / Transmission bandwidth (N_{RB})						MPR (dB)
	1.4 MHz	3.0 MHz	5 MHz	10 MHz	15 MHz	20 MHz	
QPSK	> 5	> 4	> 8	> 12	> 16	> 18	≤ 1
16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 1
16 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 2
64 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 2
64 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 3
256 QAM	≥ 1						≤ 5

LTE A-MPR	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)
Spectrum plots for RB configuration	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.
Power reduction applied to satisfy SAR compliance	1. Yes, Proximity Sensor. 2. Power reduction will be active at WCDMA B2 / B4 / B5 and LTE B2 / B4 / B5 / B7 / B13 / B26 / B30 / B38 / B41 / B66.

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 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 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

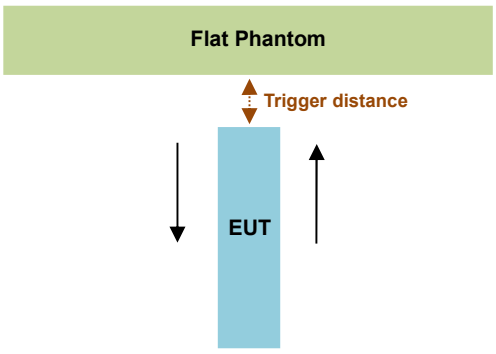
LTE Band 41								
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	39675	2498.5	39700	2501	39725	2503.5	39750	2506
LM	40148	2545.8	40160	2547	40173	2548.3	40185	2549.5
M	40620	2593	40620	2593	40620	2593	40620	2593
HM	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

5. Proximity Sensor Triggering Test

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

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 in the exhibit “P-Sensor operational description”, 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; and the tissue-equivalent medium for highest frequency (2600MHz) and lowest (850MHz) frequency was used for proximity sensor triggering testing.



Proximity Sensor Trigger Distance (mm)	
Position	Bottom of Laptop
Minimum	18

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

If a sensor is spatially offset from the antenna(s), it is necessary to verify sensor triggering for conditions where the antenna is next to the user but the sensor is laterally further away to ensure sensor coverage is sufficient for reducing the power to maintain compliance. For p-sensor coverage testing, the device is moved and “along the direction of maximum antenna and sensor offset”.
Illustrated in the internal photo exhibit, although the senor is spatially offset, there is no trigger condition where the antenna is next to the user but the sensor is laterally further away, therefore proximity sensor coverage testing is not required.
This procedure is not required because antenna and sensor are collocated and the peak SAR location is overlapping with the sensor.

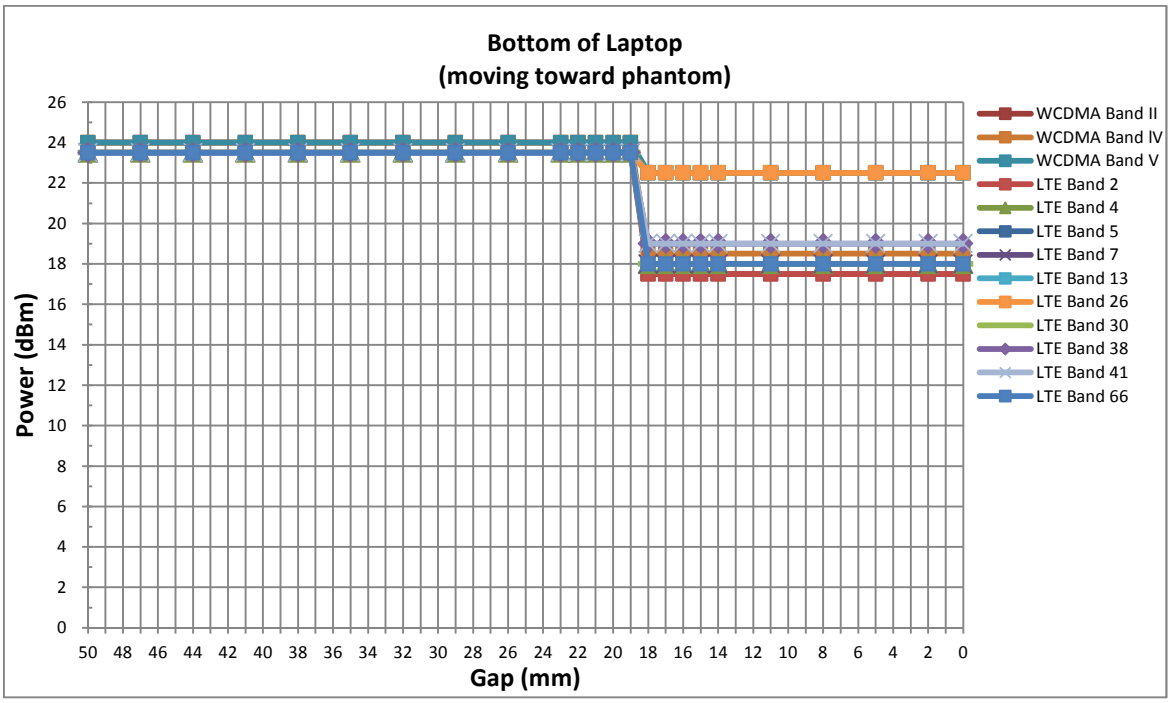
Proximity sensor power reduction

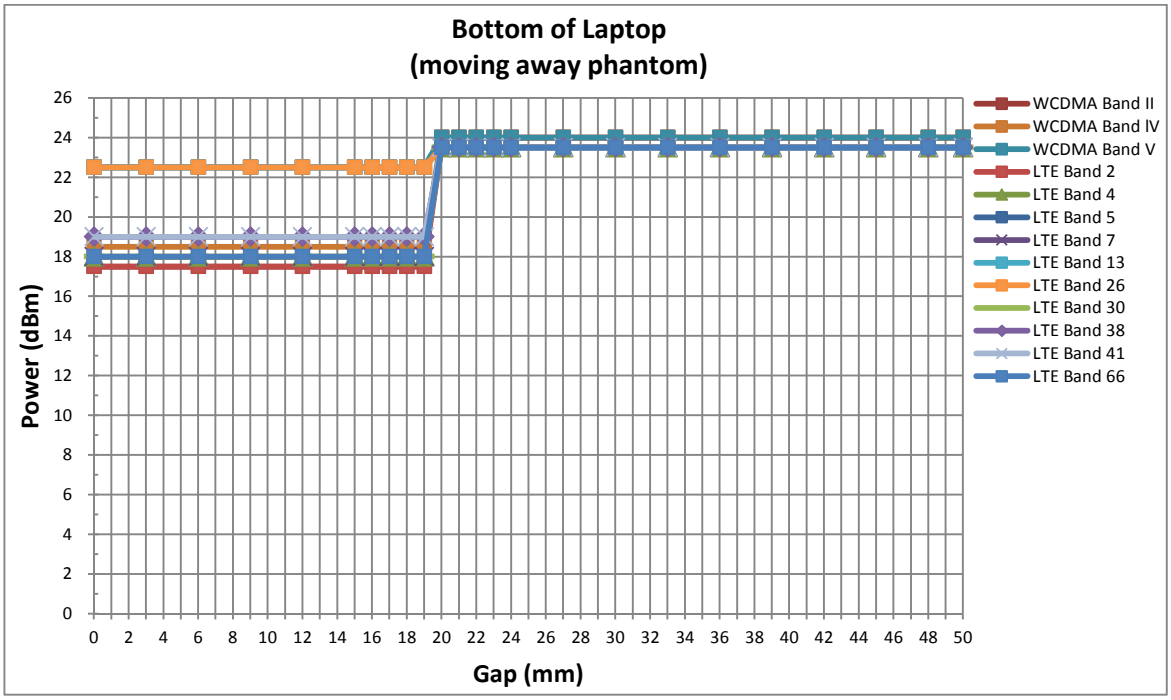
Exposure Position / wireless mode	Bottom of Laptop(1)
WCDMA Band II	6.5 dB
WCDMA Band IV	5.5 dB
WCDMA Band V	1.5 dB
LTE Band 2	6.0 dB
LTE Band 4	5.5 dB
LTE Band 5	1.0 dB
LTE Band 7	5.5 dB
LTE Band 13	1.0 dB
LTE Band 26	1.0 dB
LTE Band 30	5.5 dB
LTE Band 38	5.5 dB
LTE Band 41	4.5 dB
LTE Band 66	4.5 dB

1. (1): Reduced maximum limit applied by activation of proximity sensor.
2. Power reduction is not applicable for LTE Band 12/17 and WLAN/Bluetooth.
3. 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
4. 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: 18 mm

Power Measurement during Sensor Trigger distance testing

Band/Mode	Ch #	Measured power reduction (dBm)		Reduction Levels
		w/o power back-off	w/ power back-off	(dB)
WCDMA Band II (RMC 12.2Kbps)	9400	23.62	17.26	6.36
WCDMA Band IV (RMC 12.2Kbps)	1413	23.11	17.96	5.15
WCDMA Band V (RMC 12.2Kbps)	4182	23.72	22.23	1.49
LTE Band 2 (QPSK, 20M, 1RB 0Offset)	18900	22.72	17.27	5.45
LTE Band 4 (QPSK, 20M, 1RB 0Offset)	20175	22.99	17.49	5.50
LTE Band 5 (QPSK, 10M, 1RB 0Offset)	20525	22.54	21.91	0.63
LTE Band 7 (QPSK, 20M, 1RB 0Offset)	21100	22.36	17.48	4.88
LTE Band 13 (QPSK, 10M, 1RB 0Offset)	23230	22.67	21.84	0.83
LTE Band 26 (QPSK, 15M, 1RB 0Offset)	26865	22.31	21.88	0.43
LTE Band 30 (QPSK, 10M, 1RB 0Offset)	27710	22.39	17.07	5.32
LTE Band 38 (QPSK, 20M, 1RB 0Offset)	38000	22.09	18.25	3.84
LTE Band 41 (QPSK, 20M, 1RB 0Offset)	40620	22.15	17.95	4.20
LTE Band 66 (QPSK, 20M, 1RB 0Offset)	132322	22.72	17.37	5.35




Bottom of Laptop
(moving away phantom)
Power (dBm)
Gap (mm)
0
2
4
6
8
10
12
14
16
18
20
22
24
26
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50
WCDMA Band II
WCDMA Band IV
WCDMA Band V
LTE Band 2
LTE Band 4
LTE Band 5
LTE Band 7
LTE Band 13
LTE Band 26
LTE Band 30
LTE Band 38
LTE Band 41
LTE Band 66

6. RF Exposure Limits

6.1 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.

6.2 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

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.

7. Specific Absorption Rate (SAR)

7.1 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.

7.2 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:

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

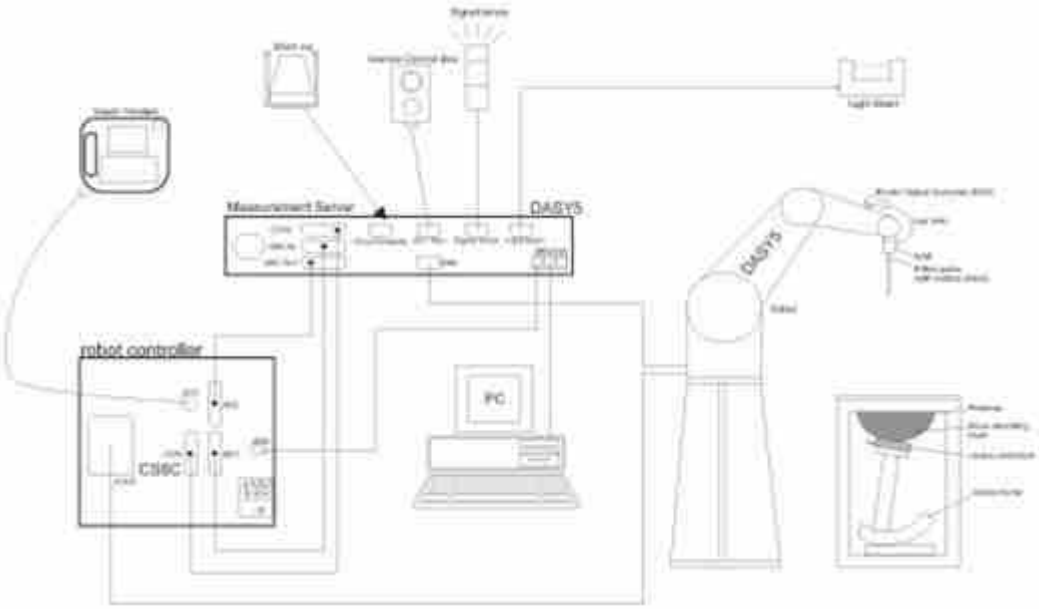
SAR is expressed in units of Watts per kilogram (W/kg)

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

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

8. 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.

8.1 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.

<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	

8.2 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.

Photo of DAE

8.3 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	

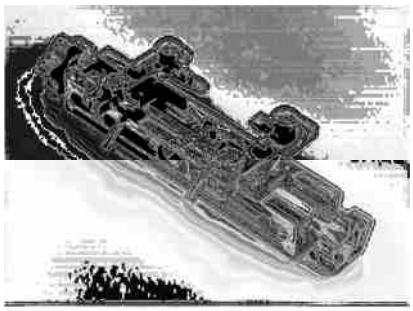
The ELI phantom is intended for compliance testing of handheld and body-mounted wireless devices in the frequency range of 30 MHz to 6 GHz. ELI4 is fully compatible with standard and all known tissue simulating liquids.

8.4 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

9. 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

9.1 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

9.2 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.

9.3 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.	

9.4 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	$\leq 1.5 \cdot \Delta z_{Zoom}(n-1)$	
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.

9.5 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.

9.6 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.

10. Test Equipment List

Manufacturer	Name of Equipment	Type/Model	Serial Number	Calibration	
				Last Cal.	Due Date
SPEAG	750MHz System Validation Kit	D750V3	1099	2017/12/4	2018/12/3
SPEAG	835MHz System Validation Kit	D835V2	4d162	2017/12/5	2018/12/4
SPEAG	1750MHz System Validation Kit	D1750V2	1137	2018/7/30	2019/7/29
SPEAG	1900MHz System Validation Kit	D1900V2	5d182	2017/12/6	2018/12/5
SPEAG	2300MHz System Validation Kit	D2300V2	1006	2018/1/17	2019/1/16
SPEAG	2450MHz System Validation Kit	D2450V2	924	2018/3/22	2019/3/21
SPEAG	2600MHz System Validation Kit	D2600V2	1070	2017/12/7	2018/12/6
SPEAG	5000MHz System Validation Kit	D5GHzV2	1167	2018/8/3	2019/8/2
SPEAG	Data Acquisition Electronics	DAE4	1437	2018/10/15	2019/10/14
SPEAG	Dosimetric E-Field Probe	EX3DV4	3819	2018/1/31	2019/1/30
SPEAG	ELI4 Phantom	QD OVA 002 AA	TP-1149	NCR	NCR
SPEAG	ELI4 Phantom	QD OVA 001 BB	TP-1233	NCR	NCR
SPEAG	Phone Positioner	N/A	N/A	NCR	NCR
Anritsu	Radio communication analyzer	MT8820C	6201300653	2018/7/18	2019/7/17
Agilent	ENA Series Network Analyzer	E5071C	MY46111157	2018/4/17	2019/4/16
SPEAG	Dielectric Assessment Kit	DAK-3.5	1071	2017/11/28	2018/11/27
Agilent	Signal Generator	N5181A	MY50145381	2017/12/26	2018/12/25
Anritsu	Power Senor	MA2411B	1306099	2018/7/30	2019/7/29
Anritsu	Power Meter	ML2495A	1349001	2018/7/26	2019/7/25
Anritsu	Power Senor	MA2411B	1207253	2017/12/26	2018/12/25
Anritsu	Power Meter	ML2495A	1218010	2017/12/26	2018/12/25
R&S	CBT BLUETOOTH TESTER	CBT	100963	2017/12/26	2018/12/25
R&S	Spectrum Analyzer	FSP7	100818	2018/7/18	2019/7/17
LKM electronic	Hygrometer	DTM3000	3241	2018/8/10	2019/8/9
Anymetre	Thermo-Hygrometer	JR593	2015030904	2018/4/19	2019/4/18
ARRA	Power Divider	A3200-2	N/A	Note	
MCL	Attenuation1	BW-S10W5+	N/A	Note	
MCL	Attenuation2	BW-S10W5+	N/A	Note	
MCL	Attenuation3	BW-S10W5+	N/A	Note	
AR	Amplifier	5S1G4	333096	Note	
mini-circuits	Amplifier	ZVE-3W-83+	162601250	Note	
Agilent	Dual Directional Coupler	778D	50422	Note	
PASTERNACK	Dual Directional Coupler	PE2214-10	N/A	Note	

Note:
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.

11. System Verification

11.1 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 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. 11.1.

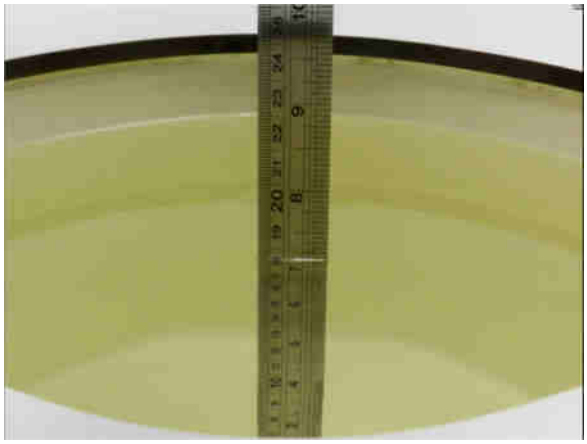


Fig 11.1 Photo of Liquid Height for Body SAR

11.2 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)
For Body								
750	51.7	47.2	0	0.9	0.1	0	0.96	55.5
835	50.8	48.2	0	0.9	0.1	0	0.97	55.2
1800, 1900, 2000	70.2	0	0	0.4	0	29.4	1.52	53.3
2450	68.6	0	0	0	0	31.4	1.95	52.7
2600	68.1	0	0	0.1	0	31.8	2.16	52.5

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)	Tissue Type	Liquid Temp. (℃)	Conductivity (σ)	Permittivity (ε_r)	Conductivity Target (σ)	Permittivity Target (ε_r)	Delta (σ) (%)	Delta (ε_r) (%)	Limit (%)	Date
750	Body	22.5	0.967	53.993	0.96	55.50	0.73	-2.72	±5	2018/11/15
835	Body	22.4	0.977	54.442	0.97	55.20	0.72	-1.37	±5	2018/11/15
1750	Body	22.6	1.511	51.994	1.49	53.40	1.41	-2.63	±5	2018/11/14
1900	Body	22.5	1.584	54.212	1.52	53.30	4.21	1.71	±5	2018/11/14
2300	Body	22.6	1.784	52.806	1.81	52.90	-1.44	-0.18	±5	2018/11/13
2450	Body	22.5	1.992	52.291	1.95	52.70	2.15	-0.78	±5	2018/11/13
2600	Body	22.6	2.205	50.654	2.16	52.50	2.08	-3.52	±5	2018/11/13
5250	Body	22.7	5.290	50.979	5.36	48.90	-1.31	4.25	±5	2018/11/12
5600	Body	22.7	5.884	50.353	5.77	48.50	1.98	3.82	±5	2018/11/12
5750	Body	22.7	6.115	50.005	5.94	48.30	2.95	3.53	±5	2018/11/12

11.3 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)	Tissue Type	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 (%)
2018/11/15	750	Body	250	1099	3819	1437	2.12	8.64	8.48	-1.85
2018/11/15	835	Body	250	4d162	3819	1437	2.38	9.56	9.52	-0.42
2018/11/14	1750	Body	250	1137	3819	1437	8.91	37.00	35.64	-3.68
2018/11/14	1900	Body	250	5d182	3819	1437	10.10	40.40	40.40	0.00
2018/11/13	2300	Body	250	1006	3819	1437	10.90	47.30	43.60	-7.82
2018/11/13	2450	Body	250	924	3819	1437	13.40	50.70	53.60	5.72
2018/11/13	2600	Body	250	1070	3819	1437	13.40	55.20	53.60	-2.90
2018/11/12	5250	Body	100	1167	3819	1437	7.42	74.40	74.20	-0.27
2018/11/12	5600	Body	100	1167	3819	1437	8.31	77.10	83.10	7.78
2018/11/12	5750	Body	100	1167	3819	1437	8.01	74.30	80.10	7.81

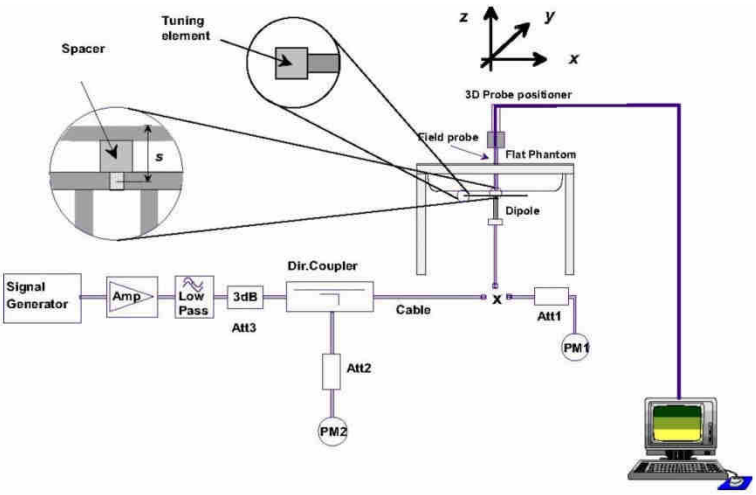


Fig 11.3.1 System Performance Check Setup

Fig 11.3.2 Setup Photo

12. RF Exposure Positions

This DUT was tested in two positions. It is Bottom of Laptop with phantom 0 mm gap, and back of display screen with phantom 25 mm gap.

<EUT Setup Photos>

Please refer to Appendix D for the test setup photos.

13. Conducted RF Output Power (Unit: dBm)

<WCDMA Conducted Power>

1. The following tests were conducted according to the test requirements outlines in 3GPP TS 34.121 specification.
2. 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.
3. 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 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 $\beta_{hs} = 30/15 * \beta_c$.

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 $\beta_{hs} = 30/15 * \beta_c$, and Δ_{CQI} = 24/15 with $\beta_{hs} = 24/15 * \beta_c$.

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

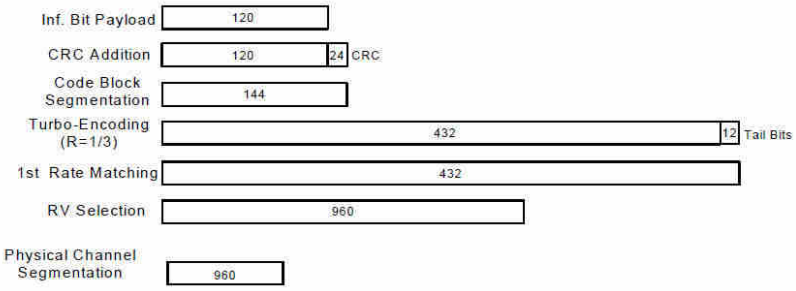


Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)

Setup Configuration

<WCDMA Conducted Power>

General 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.

<Maximum Average RF Power (Proximity Sensor Inactive)>

Band		WCDMA Band II			Tune-up Limit (dBm)	WCDMA Band IV			Tune-up Limit (dBm)	WCDMA Band V			Tune-up Limit (dBm)
Tx Channel		9262	9400	9538		1312	1413	1513		4132	4182	4233	
Rx Channel		9662	9800	9938		1537	1638	1738		4357	4407	4458	
Frequency (MHz)		1852.4	1880	1907.6		1712.4	1732.6	1752.6		826.4	836.4	846.6	
3GPP Rel 99	RMC 12.2Kbps	23.59	**23.62**	23.46	24.00	23.00	23.11	**23.44**	24.00	23.50	23.72	**23.75**	24.00
3GPP Rel 6	HSDPA Subtest-1	22.90	22.95	22.91	23.50	22.91	22.92	22.94	23.50	23.14	23.36	23.40	23.50
3GPP Rel 6	HSDPA Subtest-2	22.52	22.51	22.18	23.50	22.51	22.52	22.49	23.50	22.38	22.88	22.83	23.50
3GPP Rel 6	HSDPA Subtest-3	22.06	22.23	21.87	23.00	21.63	21.67	22.04	23.00	21.99	22.43	22.33	23.00
3GPP Rel 6	HSDPA Subtest-4	21.83	21.90	21.43	23.00	21.37	21.43	21.76	23.00	21.83	22.17	22.05	23.00
3GPP Rel 8	DC-HSDPA Subtest-1	22.86	22.89	22.81	23.50	22.90	22.91	22.95	23.50	23.21	23.31	23.35	23.50
3GPP Rel 8	DC-HSDPA Subtest-2	22.52	22.56	22.52	23.50	22.45	22.48	22.51	23.50	22.80	22.92	22.91	23.50
3GPP Rel 8	DC-HSDPA Subtest-3	22.15	22.14	22.13	23.00	22.03	22.02	22.03	23.00	22.03	22.41	22.39	23.00
3GPP Rel 8	DC-HSDPA Subtest-4	22.13	22.13	22.12	23.00	22.03	22.00	22.03	23.00	22.01	22.40	22.37	23.00
3GPP Rel 6	HSUPA Subtest-1	22.42	22.59	22.33	23.00	22.08	22.11	22.40	23.00	22.54	22.63	22.68	23.00
3GPP Rel 6	HSUPA Subtest-2	20.32	20.45	20.21	21.00	19.73	19.91	20.16	21.00	20.41	20.52	20.62	21.00
3GPP Rel 6	HSUPA Subtest-3	20.88	21.19	20.95	22.00	20.53	20.61	20.90	22.00	20.96	21.23	21.35	22.00
3GPP Rel 6	HSUPA Subtest-4	20.32	20.76	20.33	21.00	20.07	20.18	20.46	21.00	20.44	20.81	20.93	21.00
3GPP Rel 6	HSUPA Subtest-5	22.50	22.60	22.10	23.00	22.00	22.10	22.30	23.00	22.60	22.70	22.80	23.00

<Maximum Average RF Power (Proximity Sensor Active)>

Band		WCDMA Band II			Tune-up Limit (dBm)	WCDMA Band IV			Tune-up Limit (dBm)	WCDMA Band V			Tune-up Limit (dBm)
Tx Channel		9262	9400	9538		1312	1413	1513		4132	4182	4233	
Rx Channel		9662	9800	9938		1537	1638	1738		4357	4407	4458	
Frequency (MHz)		1852.4	1880	1907.6		1712.4	1732.6	1752.6		826.4	836.4	846.6	
3GPP Rel 99	RMC 12.2Kbps	17.14	**17.26**	17.07	17.50	17.89	17.96	**18.18**	18.50	22.01	22.23	**22.45**	22.50
3GPP Rel 6	HSDPA Subtest-1	17.04	17.20	16.84	17.50	17.67	17.70	18.02	18.50	21.90	22.07	22.37	22.50
3GPP Rel 6	HSDPA Subtest-2	17.05	17.18	16.84	17.50	17.63	17.76	18.03	18.50	21.94	22.13	22.40	22.50
3GPP Rel 6	HSDPA Subtest-3	17.05	17.20	16.83	17.50	17.65	17.79	17.99	18.50	21.99	22.14	22.41	22.50
3GPP Rel 6	HSDPA Subtest-4	17.02	17.23	16.81	17.50	17.64	17.78	18.00	18.50	21.74	22.15	22.18	22.50
3GPP Rel 8	DC-HSDPA Subtest-1	17.02	17.15	16.75	17.50	17.66	17.73	18.01	18.50	21.85	22.03	22.27	22.50
3GPP Rel 8	DC-HSDPA Subtest-2	16.95	17.13	16.78	17.50	17.62	17.72	18.06	18.50	21.92	22.11	22.35	22.50
3GPP Rel 8	DC-HSDPA Subtest-3	16.98	17.12	16.82	17.50	17.61	17.76	17.96	18.50	21.93	22.08	22.31	22.50
3GPP Rel 8	DC-HSDPA Subtest-4	16.96	17.22	16.75	17.50	17.66	17.72	18.05	18.50	21.74	22.13	22.15	22.50
3GPP Rel 6	HSUPA Subtest-1	17.05	17.17	16.69	17.50	17.65	17.72	17.91	18.50	21.89	22.07	22.18	22.50
3GPP Rel 6	HSUPA Subtest-2	17.02	17.15	16.77	17.50	17.65	17.78	18.03	18.50	20.16	20.93	20.53	22.50
3GPP Rel 6	HSUPA Subtest-3	17.09	17.10	16.72	17.50	17.65	17.76	17.95	18.50	21.14	21.92	21.47	22.50
3GPP Rel 6	HSUPA Subtest-4	17.11	17.20	16.70	17.50	17.68	17.71	17.99	18.50	20.43	21.23	20.86	22.50
3GPP Rel 6	HSUPA Subtest-5	17.00	17.20	16.80	17.50	17.60	17.70	18.00	18.50	21.90	22.10	22.30	22.50

<LTE Conducted Power>

General Note:

1. Anritsu MT8820C 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 B4 / B5 / B12 / B17 / B26 / B38 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 B 4 / 17 / B38 SAR test was covered by LTE B66 / B12 / B41; according to April 2015 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

<Maximum Average RF Power (Proximity Sensor Inactive)>

<LTE Band 2>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				18700	18900	19100		
Frequency (MHz)				1860	1880	1900		
20	QPSK	1	0	22.55	22.72	22.45	23.5	0
20	QPSK	1	49	22.45	22.64	22.44		
20	QPSK	1	99	22.35	22.64	22.36		
20	QPSK	50	0	21.97	22.13	21.98	22.5	1
20	QPSK	50	24	21.96	22.10	21.95		
20	QPSK	50	50	21.82	22.11	21.92		
20	QPSK	100	0	21.93	22.11	21.91		
20	16QAM	1	0	22.34	22.48	22.18	22.5	1
20	16QAM	1	49	22.31	22.39	22.17		
20	16QAM	1	99	22.19	22.41	22.09		
20	16QAM	50	0	21.06	21.19	20.96	21.5	2
20	16QAM	50	24	21.01	21.20	20.96		
20	16QAM	50	50	20.99	21.21	20.93		
20	16QAM	100	0	21.02	21.15	20.97		
Channel				18675	18900	19125	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1902.5		
15	QPSK	1	0	22.52	22.67	22.55	23.5	0
15	QPSK	1	37	22.35	22.58	22.39		
15	QPSK	1	74	22.37	22.43	22.32		
15	QPSK	36	0	21.77	22.08	21.96	22.5	1
15	QPSK	36	20	21.81	22.05	21.94		
15	QPSK	36	39	21.86	21.98	21.93		
15	QPSK	75	0	21.83	22.06	22.04		
15	16QAM	1	0	22.30	22.37	22.42	22.5	1
15	16QAM	1	37	22.18	22.39	22.24		
15	16QAM	1	74	22.20	22.22	22.14		
15	16QAM	36	0	20.80	21.12	20.97	21.5	2
15	16QAM	36	20	20.84	21.11	20.93		
15	16QAM	36	39	20.87	21.04	20.98		
15	16QAM	75	0	20.87	21.10	21.09		

Channel				18650	18900	19150	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1905		
10	QPSK	1	0	22.58	22.64	22.50	23.5	0
10	QPSK	1	25	22.39	22.59	22.39		
10	QPSK	1	49	22.44	22.56	22.45		
10	QPSK	25	0	21.92	22.15	21.78	22.5	1
10	QPSK	25	12	21.84	22.11	21.79		
10	QPSK	25	25	21.85	22.04	21.90		
10	QPSK	50	0	21.83	22.07	21.90		
10	16QAM	1	0	22.37	22.42	21.95	22.5	1
10	16QAM	1	25	22.13	22.40	21.99		
10	16QAM	1	49	22.21	22.40	21.96		
10	16QAM	25	0	20.99	21.21	21.00	21.5	2
10	16QAM	25	12	20.94	21.13	21.05		
10	16QAM	25	25	20.94	21.09	21.08		
10	16QAM	50	0	20.88	21.07	21.01		
Channel				18625	18900	19175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	QPSK	1	0	22.45	22.58	22.52	23.5	0
5	QPSK	1	12	22.22	22.52	22.45		
5	QPSK	1	24	22.36	22.30	22.35		
5	QPSK	12	0	21.68	22.03	22.02	22.5	1
5	QPSK	12	7	21.67	22.00	21.94		
5	QPSK	12	13	21.73	21.94	21.91		
5	QPSK	25	0	21.82	22.09	22.19		
5	16QAM	1	0	22.21	22.33	22.49	22.5	1
5	16QAM	1	12	22.02	22.24	22.19		
5	16QAM	1	24	22.10	22.07	22.13		
5	16QAM	12	0	20.77	21.06	21.05	21.5	2
5	16QAM	12	7	20.75	21.01	20.96		
5	16QAM	12	13	20.82	20.94	20.95		
5	16QAM	25	0	20.89	21.10	21.24		

Channel				18615	18900	19185	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1908.5		
3	QPSK	1	0	22.42	22.55	22.45	23.5	0
3	QPSK	1	8	22.45	22.61	22.41		
3	QPSK	1	14	22.33	22.58	22.30		
3	QPSK	8	0	21.96	22.10	21.88	22.5	1
3	QPSK	8	4	21.93	22.10	21.83		
3	QPSK	8	7	21.95	22.11	21.83		
3	QPSK	15	0	21.97	22.11	21.87		
3	16QAM	1	0	22.25	22.40	22.19	22.5	1
3	16QAM	1	8	22.29	22.46	22.17		
3	16QAM	1	14	22.22	22.42	22.11		
3	16QAM	8	0	21.05	21.20	20.91	21.5	2
3	16QAM	8	4	21.03	21.20	20.88		
3	16QAM	8	7	21.01	21.22	20.91		
3	16QAM	15	0	21.00	21.15	20.89		
Channel				18607	18900	19193	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1909.3		
1.4	QPSK	1	0	22.42	22.68	22.48	23.5	0
1.4	QPSK	1	3	22.49	22.66	22.38		
1.4	QPSK	1	5	22.52	22.71	22.37		
1.4	QPSK	3	0	22.46	22.68	22.39		
1.4	QPSK	3	1	22.43	22.69	22.38		
1.4	QPSK	3	3	22.45	22.64	22.36		
1.4	QPSK	6	0	21.92	22.12	21.88	22.5	1
1.4	16QAM	1	0	22.26	22.49	22.24	22.5	1
1.4	16QAM	1	3	22.26	22.45	22.18		
1.4	16QAM	1	5	22.32	22.49	22.17		
1.4	16QAM	3	0	22.05	22.32	21.94		
1.4	16QAM	3	1	22.05	22.30	22.00		
1.4	16QAM	3	3	22.07	22.32	21.93		
1.4	16QAM	6	0	21.08	21.18	20.91	21.5	2

<LTE Band 4>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				20050	20175	20300		
Frequency (MHz)				1720	1732.5	1745		
20	QPSK	1	0	22.89	22.99	22.86	23.5	0
20	QPSK	1	49	22.78	22.84	22.89		
20	QPSK	1	99	22.83	22.96	23.06		
20	QPSK	50	0	21.74	21.73	21.78	22.5	1
20	QPSK	50	24	21.73	21.64	21.85		
20	QPSK	50	50	21.82	21.94	22.12		
20	QPSK	100	0	21.82	21.93	22.08		
20	16QAM	1	0	22.02	22.10	22.07	22.5	1
20	16QAM	1	49	22.16	21.93	22.13		
20	16QAM	1	99	22.04	21.97	22.38		
20	16QAM	50	0	20.85	20.78	20.84	21.5	2
20	16QAM	50	24	20.87	20.70	20.93		
20	16QAM	50	50	20.71	20.69	21.09		
20	16QAM	100	0	20.85	20.75	21.16		
Channel				20025	20175	20325	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1732.5	1747.5		
15	QPSK	1	0	22.67	22.84	22.81	23.5	0
15	QPSK	1	37	22.82	22.63	22.89		
15	QPSK	1	74	22.64	22.69	22.95		
15	QPSK	36	0	21.76	21.71	21.86	22.5	1
15	QPSK	36	20	21.80	21.69	22.03		
15	QPSK	36	39	21.71	21.68	22.02		
15	QPSK	75	0	21.85	21.69	22.12		
15	16QAM	1	0	21.88	22.14	22.08	22.5	1
15	16QAM	1	37	22.07	21.97	22.19		
15	16QAM	1	74	21.92	21.93	22.37		
15	16QAM	36	0	20.83	20.75	20.92	21.5	2
15	16QAM	36	20	20.87	20.71	21.10		
15	16QAM	36	39	20.80	20.69	21.06		
15	16QAM	75	0	20.88	20.65	21.14		

Channel				20000	20175	20350	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1732.5	1750		
10	QPSK	1	0	22.73	22.78	22.99	23.5	0
10	QPSK	1	25	22.79	22.64	22.90		
10	QPSK	1	49	22.81	22.62	22.79		
10	QPSK	25	0	21.82	21.70	22.09	22.5	1
10	QPSK	25	12	21.86	21.70	22.07		
10	QPSK	25	25	21.83	21.69	22.09		
10	QPSK	50	0	21.75	21.67	22.08		
10	16QAM	1	0	22.01	22.09	22.24	22.5	1
10	16QAM	1	25	22.11	21.97	22.29		
10	16QAM	1	49	22.16	21.97	22.44		
10	16QAM	25	0	20.88	20.81	21.15	21.5	2
10	16QAM	25	12	20.91	20.79	21.15		
10	16QAM	25	25	20.91	20.80	21.19		
10	16QAM	50	0	20.83	20.73	21.13		
Channel				19975	20175	20375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1732.5	1752.5		
5	QPSK	1	0	22.62	22.67	23.01	23.5	0
5	QPSK	1	12	22.67	22.57	23.00		
5	QPSK	1	24	22.79	22.63	23.05		
5	QPSK	12	0	21.58	21.63	22.00	22.5	1
5	QPSK	12	7	21.62	21.67	22.03		
5	QPSK	12	13	21.65	21.63	22.02		
5	QPSK	25	0	21.66	21.66	22.06		
5	16QAM	1	0	22.01	21.94	22.39	22.5	1
5	16QAM	1	12	21.93	22.01	22.36		
5	16QAM	1	24	22.04	22.05	22.30		
5	16QAM	12	0	20.65	20.67	21.09	21.5	2
5	16QAM	12	7	20.75	20.69	21.13		
5	16QAM	12	13	20.77	20.67	21.12		
5	16QAM	25	0	20.77	20.65	21.10		

Channel				19965	20175	20385	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1732.5	1753.5		
3	QPSK	1	0	22.67	22.65	22.99	23.5	0
3	QPSK	1	8	22.69	22.65	23.01		
3	QPSK	1	14	22.73	22.63	23.02		
3	QPSK	8	0	21.67	21.69	22.05	22.5	1
3	QPSK	8	4	21.68	21.67	21.97		
3	QPSK	8	7	21.70	21.68	21.98		
3	QPSK	15	0	21.64	21.68	21.98		
3	16QAM	1	0	21.90	21.84	22.22	22.5	1
3	16QAM	1	8	21.93	21.93	22.27		
3	16QAM	1	14	22.01	21.98	22.25		
3	16QAM	8	0	20.70	20.75	21.09	21.5	2
3	16QAM	8	4	20.69	20.71	21.06		
3	16QAM	8	7	20.79	20.71	21.04		
3	16QAM	15	0	20.68	20.71	21.03		
Channel				19957	20175	20393	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1732.5	1754.3		
1.4	QPSK	1	0	22.50	22.69	22.95	23.5	0
1.4	QPSK	1	3	22.61	22.66	22.96		
1.4	QPSK	1	5	22.60	22.65	22.90		
1.4	QPSK	3	0	22.60	22.63	23.01		
1.4	QPSK	3	1	22.59	22.62	23.02		
1.4	QPSK	3	3	22.59	22.63	23.01		
1.4	QPSK	6	0	21.57	21.66	22.06	22.5	1
1.4	16QAM	1	0	22.10	22.00	22.28	22.5	1
1.4	16QAM	1	3	22.16	22.21	22.37		
1.4	16QAM	1	5	22.15	22.01	22.41		
1.4	16QAM	3	0	21.78	21.84	22.16		
1.4	16QAM	3	1	21.76	21.76	22.18		
1.4	16QAM	3	3	21.76	21.76	22.22		
1.4	16QAM	6	0	20.66	20.77	21.08	21.5	2

<LTE Band 5>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				20450	20525	20600		
Frequency (MHz)				829	836.5	844		
10	QPSK	1	0	22.48	22.54	22.66	23.5	0
10	QPSK	1	25	22.45	22.59	22.57		
10	QPSK	1	49	22.55	22.68	22.71		
10	QPSK	25	0	21.29	21.59	21.69	22.5	1
10	QPSK	25	12	21.41	21.63	21.64		
10	QPSK	25	25	21.60	21.68	21.69		
10	QPSK	50	0	21.53	21.63	21.70		
10	16QAM	1	0	21.74	21.91	22.08	22.5	1
10	16QAM	1	25	21.70	21.95	21.97		
10	16QAM	1	49	21.94	22.06	22.19		
10	16QAM	25	0	20.52	20.67	20.73	21.5	2
10	16QAM	25	12	20.49	20.69	20.72		
10	16QAM	25	25	20.69	20.75	20.85		
10	16QAM	50	0	20.58	20.68	20.85		
Channel				20425	20525	20625	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				826.5	836.5	846.5		
5	QPSK	1	0	22.38	22.61	22.60	23.5	0
5	QPSK	1	12	22.32	22.60	22.60		
5	QPSK	1	24	22.33	22.62	22.70		
5	QPSK	12	0	21.34	21.54	21.58	22.5	1
5	QPSK	12	7	21.30	21.55	21.57		
5	QPSK	12	13	21.28	21.58	21.62		
5	QPSK	25	0	21.34	21.58	21.62		
5	16QAM	1	0	21.76	21.94	21.94	22.5	1
5	16QAM	1	12	21.70	21.96	21.91		
5	16QAM	1	24	21.70	22.05	22.12		
5	16QAM	12	0	20.44	20.69	20.64	21.5	2
5	16QAM	12	7	20.39	20.65	20.64		
5	16QAM	12	13	20.38	20.65	20.75		
5	16QAM	25	0	20.37	20.60	20.68		

Channel				20415	20525	20635	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				825.5	836.5	847.5		
3	QPSK	1	0	22.28	22.49	22.53	23.5	0
3	QPSK	1	8	22.36	22.54	22.64		
3	QPSK	1	14	22.27	22.52	22.64		
3	QPSK	8	0	21.30	21.51	21.57	22.5	1
3	QPSK	8	4	21.33	21.51	21.61		
3	QPSK	8	7	21.34	21.54	21.67		
3	QPSK	15	0	21.36	21.50	21.67		
3	16QAM	1	0	21.67	21.84	21.90	22.5	1
3	16QAM	1	8	21.69	21.87	22.07		
3	16QAM	1	14	21.69	21.90	22.09		
3	16QAM	8	0	20.38	20.56	20.67	21.5	2
3	16QAM	8	4	20.40	20.56	20.74		
3	16QAM	8	7	20.41	20.56	20.80		
3	16QAM	15	0	20.38	20.54	20.69		
Channel				20407	20525	20643	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				824.7	836.5	848.3		
1.4	QPSK	1	0	22.42	22.48	22.63	23.5	0
1.4	QPSK	1	3	22.34	22.44	22.61		
1.4	QPSK	1	5	22.37	22.48	22.66		
1.4	QPSK	3	0	22.31	22.46	22.63		
1.4	QPSK	3	1	22.29	22.45	22.62		
1.4	QPSK	3	3	22.29	22.46	22.60		
1.4	QPSK	6	0	21.29	21.47	21.64	22.5	1
1.4	16QAM	1	0	21.74	21.87	21.98	22.5	1
1.4	16QAM	1	3	21.78	21.85	22.00		
1.4	16QAM	1	5	21.83	21.87	22.00		
1.4	16QAM	3	0	21.48	21.66	21.69		
1.4	16QAM	3	1	21.40	21.62	21.76		
1.4	16QAM	3	3	21.39	21.63	21.69		
1.4	16QAM	6	0	20.33	20.59	20.67	21.5	2

<LTE Band 7>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				20850	21100	21350		
Frequency (MHz)				2510	2535	2560		
20	QPSK	1	0	22.35	22.36	22.43	23.5	0
20	QPSK	1	49	22.39	22.59	22.44		
20	QPSK	1	99	22.51	22.62	22.58		
20	QPSK	50	0	21.51	21.62	21.49	22.5	1
20	QPSK	50	24	21.27	21.50	21.39		
20	QPSK	50	50	21.27	21.61	21.30		
20	QPSK	100	0	21.43	21.62	21.48		
20	16QAM	1	0	21.51	21.63	21.60	22.5	1
20	16QAM	1	49	21.43	21.60	21.55		
20	16QAM	1	99	21.53	21.80	21.43		
20	16QAM	50	0	20.31	20.48	20.49	21.5	2
20	16QAM	50	24	20.25	20.49	20.42		
20	16QAM	50	50	20.26	20.62	20.36		
20	16QAM	100	0	20.29	20.62	20.54		
Channel				20825	21100	21375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2507.5	2535	2562.5		
15	QPSK	1	0	22.21	22.36	22.33	23.5	0
15	QPSK	1	37	22.10	22.34	22.21		
15	QPSK	1	74	22.15	22.47	22.13		
15	QPSK	36	0	21.20	21.44	21.43	22.5	1
15	QPSK	36	20	21.17	21.47	21.36		
15	QPSK	36	39	21.20	21.55	21.32		
15	QPSK	75	0	21.15	21.44	21.34		
15	16QAM	1	0	21.35	21.46	21.60	22.5	1
15	16QAM	1	37	21.27	21.59	21.51		
15	16QAM	1	74	21.37	21.71	21.31		
15	16QAM	36	0	20.23	20.40	20.45	21.5	2
15	16QAM	36	20	20.20	20.44	20.36		
15	16QAM	36	39	20.20	20.52	20.33		
15	16QAM	75	0	20.14	20.46	20.37		

Channel				20800	21100	21400	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2505	2535	2565		
10	QPSK	1	0	22.17	22.33	22.37	23.5	0
10	QPSK	1	25	22.16	22.35	22.19		
10	QPSK	1	49	22.10	22.47	22.18		
10	QPSK	25	0	21.22	21.47	21.38	22.5	1
10	QPSK	25	12	21.15	21.49	21.26		
10	QPSK	25	25	21.13	21.52	21.29		
10	QPSK	50	0	21.17	21.50	21.27		
10	16QAM	1	0	21.37	21.60	21.63	22.5	1
10	16QAM	1	25	21.40	21.55	21.44		
10	16QAM	1	49	21.41	21.72	21.44		
10	16QAM	25	0	20.24	20.50	20.39	21.5	2
10	16QAM	25	12	20.24	20.52	20.33		
10	16QAM	25	25	20.16	20.55	20.35		
10	16QAM	50	0	20.20	20.51	20.33		
Channel				20775	21100	21425	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2502.5	2535	2567.5		
5	QPSK	1	0	22.14	22.35	22.23	23.5	0
5	QPSK	1	12	22.06	22.34	22.20		
5	QPSK	1	24	22.14	22.41	22.20		
5	QPSK	12	0	21.23	21.40	21.25	22.5	1
5	QPSK	12	7	21.13	21.40	21.24		
5	QPSK	12	13	21.14	21.41	21.18		
5	QPSK	25	0	21.14	21.43	21.26		
5	16QAM	1	0	21.31	21.52	21.50	22.5	1
5	16QAM	1	12	21.27	21.59	21.45		
5	16QAM	1	24	21.30	21.70	21.43		
5	16QAM	12	0	20.18	20.42	20.30	21.5	2
5	16QAM	12	7	20.09	20.43	20.28		
5	16QAM	12	13	20.15	20.43	20.21		
5	16QAM	25	0	20.13	20.43	20.28		

<LTE Band 12>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				23060	23095	23130		
Frequency (MHz)				704	707.5	711		
10	QPSK	1	0	22.71	22.74	22.71	23.5	0
10	QPSK	1	25	22.80	22.83	22.78		
10	QPSK	1	49	22.77	22.78	22.75		
10	QPSK	25	0	21.78	21.86	21.74	22.5	1
10	QPSK	25	12	21.86	21.88	21.72		
10	QPSK	25	25	21.87	21.79	21.81		
10	QPSK	50	0	21.86	21.87	21.85		
10	16QAM	1	0	21.98	22.10	22.10	22.5	1
10	16QAM	1	25	22.16	22.08	22.02		
10	16QAM	1	49	22.19	22.11	22.23		
10	16QAM	25	0	20.84	20.95	20.84	21.5	2
10	16QAM	25	12	20.92	20.90	20.80		
10	16QAM	25	25	20.96	20.85	20.92		
10	16QAM	50	0	20.94	20.92	20.93		
Channel				23035	23095	23155	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				701.5	707.5	713.5		
5	QPSK	1	0	22.70	22.81	22.67	23.5	0
5	QPSK	1	12	22.76	22.74	22.70		
5	QPSK	1	24	22.82	22.72	22.71		
5	QPSK	12	0	21.68	21.78	21.69	22.5	1
5	QPSK	12	7	21.72	21.79	21.69		
5	QPSK	12	13	21.80	21.77	21.62		
5	QPSK	25	0	21.74	21.82	21.72		
5	16QAM	1	0	22.00	22.25	22.01	22.5	1
5	16QAM	1	12	22.05	22.14	22.02		
5	16QAM	1	24	22.21	22.13	22.11		
5	16QAM	12	0	20.72	20.90	20.75	21.5	2
5	16QAM	12	7	20.81	20.90	20.80		
5	16QAM	12	13	20.93	20.80	20.81		
5	16QAM	25	0	20.79	20.83	20.78		

Channel				23025	23095	23165	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				700.5	707.5	714.5		
3	QPSK	1	0	22.62	22.76	22.70	23.5	0
3	QPSK	1	8	22.64	22.81	22.76		
3	QPSK	1	14	22.73	22.73	22.69		
3	QPSK	8	0	21.64	21.76	21.74	22.5	1
3	QPSK	8	4	21.58	21.76	21.66		
3	QPSK	8	7	21.67	21.71	21.73		
3	QPSK	15	0	21.61	21.76	21.69		
3	16QAM	1	0	21.98	22.11	22.01	22.5	1
3	16QAM	1	8	22.04	22.17	22.12		
3	16QAM	1	14	22.10	22.09	21.96		
3	16QAM	8	0	20.73	20.87	20.81	21.5	2
3	16QAM	8	4	20.71	20.86	20.78		
3	16QAM	8	7	20.79	20.83	20.86		
3	16QAM	15	0	20.69	20.88	20.78		
Channel				23017	23095	23173	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				699.7	707.5	715.3		
1.4	QPSK	1	0	22.74	22.80	22.68	23.5	0
1.4	QPSK	1	3	22.68	22.79	22.63		
1.4	QPSK	1	5	22.69	22.81	22.60		
1.4	QPSK	3	0	22.65	22.72	22.63		
1.4	QPSK	3	1	22.66	22.71	22.64		
1.4	QPSK	3	3	22.60	22.71	22.63		
1.4	QPSK	6	0	21.64	21.77	21.68	22.5	1
1.4	16QAM	1	0	22.16	22.11	22.07	22.5	1
1.4	16QAM	1	3	22.06	22.12	22.05		
1.4	16QAM	1	5	22.09	22.15	21.99		
1.4	16QAM	3	0	21.82	21.85	21.78		
1.4	16QAM	3	1	21.81	21.87	21.77		
1.4	16QAM	3	3	21.81	21.88	21.81		
1.4	16QAM	6	0	20.73	20.79	20.68	21.5	2

<LTE Band 13>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel					23230			
Frequency (MHz)					782			
10	QPSK	1	0		22.67		23.5	0
10	QPSK	1	25		22.78			
10	QPSK	1	49		22.67			
10	QPSK	25	0		22.76		23	0.5
10	QPSK	25	12		22.75			
10	QPSK	25	25		22.76			
10	QPSK	50	0		21.83			
10	16QAM	1	0		22.08		22.5	1
10	16QAM	1	25		22.18			
10	16QAM	1	49		22.10			
10	16QAM	25	0		21.91		22	1.5
10	16QAM	25	12		21.89			
10	16QAM	25	25		21.89			
10	16QAM	50	0		20.88			
Channel				23205	23230	23255	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				779.5	782	784.5		
5	QPSK	1	0	22.63	22.74	22.68	23.5	0
5	QPSK	1	12	22.77	22.67	22.72		
5	QPSK	1	24	22.70	22.76	22.61		
5	QPSK	12	0	21.75	21.66	21.61	23	0.5
5	QPSK	12	7	21.69	21.56	21.67		
5	QPSK	12	13	21.65	21.60	21.58		
5	QPSK	25	0	21.72	21.66	21.69		
5	16QAM	1	0	22.02	22.24	22.02	22.5	1
5	16QAM	1	12	22.19	22.13	22.09		
5	16QAM	1	24	22.09	22.18	21.95		
5	16QAM	12	0	20.83	20.71	20.73	22	1.5
5	16QAM	12	7	20.77	20.65	20.75		
5	16QAM	12	13	20.75	20.70	20.67		
5	16QAM	25	0	20.72	20.68	20.73		

<LTE Band 17>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				23780	23790	23800		
Frequency (MHz)				709	710	711		
10	QPSK	1	0	22.93	22.96	22.85	23.5	0
10	QPSK	1	25	22.91	22.83	22.74		
10	QPSK	1	49	23.00	22.99	22.90		
10	QPSK	25	0	22.00	22.01	21.88	22.5	1
10	QPSK	25	12	21.99	21.96	21.86		
10	QPSK	25	25	22.03	22.02	21.94		
10	QPSK	50	0	22.04	22.04	21.98		
10	16QAM	1	0	22.25	22.37	22.13	22.5	1
10	16QAM	1	25	22.23	22.22	22.04		
10	16QAM	1	49	22.36	22.34	22.29		
10	16QAM	25	0	21.14	21.03	20.91	21.5	2
10	16QAM	25	12	21.04	20.93	20.86		
10	16QAM	25	25	21.07	20.99	20.97		
10	16QAM	50	0	21.11	21.00	21.03		
Channel				23755	23790	23825	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				706.5	710	713.5		
5	QPSK	1	0	22.90	22.86	22.76	23.5	0
5	QPSK	1	12	22.89	22.77	22.77		
5	QPSK	1	24	22.89	22.84	22.80		
5	QPSK	12	0	21.99	21.81	21.76	22.5	1
5	QPSK	12	7	21.97	21.79	21.71		
5	QPSK	12	13	21.94	21.77	21.69		
5	QPSK	25	0	21.93	21.80	21.73		
5	16QAM	1	0	22.27	22.24	22.09	22.5	1
5	16QAM	1	12	22.28	22.17	22.13		
5	16QAM	1	24	22.20	22.16	22.12		
5	16QAM	12	0	21.07	20.90	20.74	21.5	2
5	16QAM	12	7	21.02	20.87	20.81		
5	16QAM	12	13	21.03	20.84	20.83		
5	16QAM	25	0	21.02	20.82	20.77		

<LTE Band 26>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				26765	26865	26965		
Frequency (MHz)				821.5	831.5	841.5		
15	QPSK	1	0	22.40	22.31	22.44	23.5	0
15	QPSK	1	37	22.26	22.39	22.54		
15	QPSK	1	74	22.28	22.50	22.71		
15	QPSK	36	0	21.18	21.21	21.48	22.5	1
15	QPSK	36	20	21.35	21.41	21.52		
15	QPSK	36	39	21.36	21.43	21.59		
15	QPSK	75	0	21.47	21.54	21.64		
15	16QAM	1	0	21.46	21.56	21.75	22.5	1
15	16QAM	1	37	21.67	21.76	21.81		
15	16QAM	1	74	21.56	21.91	21.93		
15	16QAM	36	0	20.23	20.26	20.57	21.5	2
15	16QAM	36	20	20.36	20.51	20.58		
15	16QAM	36	39	20.38	20.53	20.68		
15	16QAM	75	0	20.46	20.64	20.67		
Channel				26740	26865	26990	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				819	831.5	844		
10	QPSK	1	0	22.38	22.42	22.54	23.5	0
10	QPSK	1	25	22.34	22.45	22.46		
10	QPSK	1	49	22.26	22.54	22.67		
10	QPSK	25	0	21.16	21.45	21.55	22.5	1
10	QPSK	25	12	21.21	21.48	21.53		
10	QPSK	25	25	21.36	21.53	21.65		
10	QPSK	50	0	21.34	21.50	21.65		
10	16QAM	1	0	21.69	21.83	21.96	22.5	1
10	16QAM	1	25	21.58	21.87	21.84		
10	16QAM	1	49	21.63	21.96	22.11		
10	16QAM	25	0	20.24	20.58	20.61	21.5	2
10	16QAM	25	12	20.27	20.60	20.57		
10	16QAM	25	25	20.39	20.64	20.70		
10	16QAM	50	0	20.37	20.60	20.72		

Channel				26715	26865	27015	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				816.5	831.5	846.5		
5	QPSK	1	0	22.36	22.46	22.48	23.5	0
5	QPSK	1	12	22.39	22.46	22.48		
5	QPSK	1	24	22.18	22.54	22.64		
5	QPSK	12	0	21.27	21.41	21.51	22.5	1
5	QPSK	12	7	21.26	21.42	21.48		
5	QPSK	12	13	21.31	21.44	21.57		
5	QPSK	25	0	21.10	21.43	21.56		
5	16QAM	1	0	21.68	21.81	21.87	22.5	1
5	16QAM	1	12	21.60	21.84	21.88		
5	16QAM	1	24	21.57	21.92	22.09		
5	16QAM	12	0	20.41	20.53	20.57	21.5	2
5	16QAM	12	7	20.42	20.55	20.59		
5	16QAM	12	13	20.24	20.56	20.68		
5	16QAM	25	0	20.20	20.48	20.64		
Channel				26705	26865	27025	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				815.5	831.5	847.5		
3	QPSK	1	0	22.44	22.41	22.53	23.5	0
3	QPSK	1	8	22.26	22.46	22.64		
3	QPSK	1	14	22.08	22.45	22.63		
3	QPSK	8	0	21.32	21.44	21.51	22.5	1
3	QPSK	8	4	21.28	21.44	21.58		
3	QPSK	8	7	21.07	21.46	21.58		
3	QPSK	15	0	21.01	21.46	21.61		
3	16QAM	1	0	21.57	21.79	21.84	22.5	1
3	16QAM	1	8	21.43	21.82	21.97		
3	16QAM	1	14	21.46	21.85	21.97		
3	16QAM	8	0	20.48	20.57	20.60	21.5	2
3	16QAM	8	4	20.54	20.54	20.68		
3	16QAM	8	7	20.23	20.57	20.70		
3	16QAM	15	0	20.48	20.53	20.65		

Channel				26697	26865	27033	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				814.7	831.5	848.3		
1.4	QPSK	1	0	22.33	22.37	22.63	23.5	0
1.4	QPSK	1	3	22.26	22.37	22.60		
1.4	QPSK	1	5	22.28	22.38	22.67		
1.4	QPSK	3	0	22.38	22.38	22.61		
1.4	QPSK	3	1	22.38	22.36	22.56		
1.4	QPSK	3	3	22.29	22.36	22.55		
1.4	QPSK	6	0	21.20	21.37	21.56	22.5	1
1.4	16QAM	1	0	21.58	21.75	21.95	22.5	1
1.4	16QAM	1	3	21.63	21.71	21.96		
1.4	16QAM	1	5	21.49	21.82	22.04		
1.4	16QAM	3	0	21.52	21.53	21.65		
1.4	16QAM	3	1	21.52	21.55	21.61		
1.4	16QAM	3	3	21.17	21.55	21.74		
1.4	16QAM	6	0	20.10	20.40	20.60	21.5	2

<LTE Band 30>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel					27710			
Frequency (MHz)					2310			
10	QPSK	1	0		22.39		23.5	0
10	QPSK	1	25		22.40			
10	QPSK	1	49		22.55			
10	QPSK	25	0		21.51		22.5	1
10	QPSK	25	12		21.53			
10	QPSK	25	25		21.56			
10	QPSK	50	0		21.65			
10	16QAM	1	0		21.73		22.5	1
10	16QAM	1	25		21.69			
10	16QAM	1	49		21.65			
10	16QAM	25	0		20.50		21.5	2
10	16QAM	25	12		20.57			
10	16QAM	25	25		20.58			
10	16QAM	50	0		20.67			
Channel				27685	27710	27735	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2307.5	2310	2312.5		
5	QPSK	1	0	22.53	22.37	22.31	23.5	0
5	QPSK	1	12	22.46	22.40	22.20		
5	QPSK	1	24	22.46	22.37	22.24		
5	QPSK	12	0	21.49	21.37	21.21	22.5	1
5	QPSK	12	7	21.39	21.36	21.20		
5	QPSK	12	13	21.44	21.41	21.21		
5	QPSK	25	0	21.43	21.45	21.24		
5	16QAM	1	0	21.69	21.56	21.52	22.5	1
5	16QAM	1	12	21.56	21.64	21.43		
5	16QAM	1	24	21.66	21.56	21.47		
5	16QAM	12	0	20.44	20.30	20.27	21.5	2
5	16QAM	12	7	20.40	20.34	20.28		
5	16QAM	12	13	20.45	20.38	20.28		
5	16QAM	25	0	20.36	20.40	20.27		

<LTE Band 66>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				132072	132322	132572		
Frequency (MHz)				1720	1745	1770		
20	QPSK	1	0	22.65	22.72	22.88	23.5	0
20	QPSK	1	49	22.73	22.75	22.53		
20	QPSK	1	99	22.74	22.96	22.89		
20	QPSK	50	0	21.73	21.69	21.76	22.5	1
20	QPSK	50	24	21.75	21.77	21.59		
20	QPSK	50	50	21.76	22.00	21.78		
20	QPSK	100	0	21.96	22.01	21.84		
20	16QAM	1	0	21.93	22.15	22.32	22.5	1
20	16QAM	1	49	22.00	22.12	21.98		
20	16QAM	1	99	21.86	22.44	22.10		
20	16QAM	50	0	20.74	20.67	20.77	21.5	2
20	16QAM	50	24	20.71	20.73	20.58		
20	16QAM	50	50	20.62	20.95	20.60		
20	16QAM	100	0	20.91	20.98	20.82		
Channel				132047	132322	132597	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1745	1772.5		
15	QPSK	1	0	22.49	22.66	22.72	23.5	0
15	QPSK	1	37	22.72	22.69	22.46		
15	QPSK	1	74	22.61	22.94	22.73		
15	QPSK	36	0	21.65	21.60	21.49	22.5	1
15	QPSK	36	20	21.72	21.70	21.48		
15	QPSK	36	39	21.64	21.90	21.56		
15	QPSK	75	0	21.82	21.86	21.67		
15	16QAM	1	0	21.88	22.06	22.07	22.5	1
15	16QAM	1	37	22.11	22.07	21.84		
15	16QAM	1	74	21.98	22.35	22.06		
15	16QAM	36	0	20.58	20.55	20.43	21.5	2
15	16QAM	36	20	20.63	20.65	20.44		
15	16QAM	36	39	20.60	20.83	20.51		
15	16QAM	75	0	20.74	20.80	20.63		

Channel				132022	132322	132622	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1745	1775		
10	QPSK	1	0	22.61	22.68	22.53	23.5	0
10	QPSK	1	25	22.71	22.71	22.47		
10	QPSK	1	49	22.78	22.94	22.78		
10	QPSK	25	0	21.57	21.57	21.42	22.5	1
10	QPSK	25	12	21.59	21.62	21.44		
10	QPSK	25	25	21.66	21.73	21.55		
10	QPSK	50	0	21.72	21.76	21.60		
10	16QAM	1	0	21.88	22.01	21.87	22.5	1
10	16QAM	1	25	21.94	22.03	21.80		
10	16QAM	1	49	22.13	22.28	22.10		
10	16QAM	25	0	20.50	20.54	20.32	21.5	2
10	16QAM	25	12	20.54	20.58	20.34		
10	16QAM	25	25	20.59	20.69	20.50		
10	16QAM	50	0	20.67	20.70	20.57		
Channel				131997	132322	132647	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1745	1777.5		
5	QPSK	1	0	22.55	22.61	22.51	23.5	0
5	QPSK	1	12	22.59	22.70	22.59		
5	QPSK	1	24	22.66	22.80	22.74		
5	QPSK	12	0	21.35	21.38	21.27	22.5	1
5	QPSK	12	7	21.38	21.47	21.35		
5	QPSK	12	13	21.39	21.48	21.46		
5	QPSK	25	0	21.54	21.62	21.58		
5	16QAM	1	0	21.87	21.92	21.79	22.5	1
5	16QAM	1	12	21.87	21.98	21.94		
5	16QAM	1	24	21.96	22.08	22.13		
5	16QAM	12	0	20.28	20.39	20.32	21.5	2
5	16QAM	12	7	20.36	20.43	20.36		
5	16QAM	12	13	20.38	20.44	20.49		
5	16QAM	25	0	20.47	20.53	20.52		

Channel				131987	132322	132657	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1745	1778.5		
3	QPSK	1	0	22.47	22.57	22.57	23.5	0
3	QPSK	1	8	22.58	22.67	22.58		
3	QPSK	1	14	22.53	22.76	22.64		
3	QPSK	8	0	21.33	21.49	21.37	22.5	1
3	QPSK	8	4	21.32	21.49	21.41		
3	QPSK	8	7	21.40	21.51	21.49		
3	QPSK	15	0	21.44	21.60	21.50		
3	16QAM	1	0	21.84	21.93	21.86	22.5	1
3	16QAM	1	8	21.84	22.06	21.99		
3	16QAM	1	14	21.88	22.05	21.95		
3	16QAM	8	0	20.24	20.39	20.28	21.5	2
3	16QAM	8	4	20.28	20.37	20.34		
3	16QAM	8	7	20.35	20.41	20.40		
3	16QAM	15	0	20.29	20.42	20.41		
Channel				131979	132322	132665	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1745	1779.3		
1.4	QPSK	1	0	22.46	22.54	22.71	23.5	0
1.4	QPSK	1	3	22.39	22.53	22.77		
1.4	QPSK	1	5	22.48	22.70	22.82		
1.4	QPSK	3	0	22.36	22.53	22.58		
1.4	QPSK	3	1	22.23	22.24	22.75		
1.4	QPSK	3	3	22.18	22.55	22.57		
1.4	QPSK	6	0	21.26	21.49	21.57	22.5	1
1.4	16QAM	1	0	21.79	21.98	22.16	22.5	1
1.4	16QAM	1	3	21.68	22.05	22.17		
1.4	16QAM	1	5	21.79	22.11	22.17		
1.4	16QAM	3	0	21.41	21.65	21.70		
1.4	16QAM	3	1	21.39	21.69	21.74		
1.4	16QAM	3	3	21.37	21.60	21.71		
1.4	16QAM	6	0	20.22	20.50	20.50	21.5	2

<Maximum Average RF Power (Proximity Sensor Active)>

<LTE Band 2>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				18700	18900	19100		
Frequency (MHz)				1860	1880	1900		
20	QPSK	1	0	17.25	17.27	17.04	17.5	0
20	QPSK	1	49	17.02	17.20	16.99		
20	QPSK	1	99	17.17	17.02	16.95		
20	QPSK	50	0	17.09	17.17	16.92	17.5	0
20	QPSK	50	24	17.01	17.14	16.80		
20	QPSK	50	50	17.05	17.16	16.80		
20	QPSK	100	0	17.14	17.16	17.07		
20	16QAM	1	0	17.10	17.09	17.13	17.5	0
20	16QAM	1	49	17.11	17.23	17.00		
20	16QAM	1	99	17.12	17.12	17.02		
20	16QAM	50	0	17.11	17.14	16.99	17.5	0
20	16QAM	50	24	17.08	17.11	16.86		
20	16QAM	50	50	17.11	17.22	16.89		
20	16QAM	100	0	17.21	17.20	17.12		
Channel				18675	18900	19125	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1902.5		
15	QPSK	1	0	17.14	17.20	16.81	17.5	0
15	QPSK	1	37	17.01	17.16	16.70		
15	QPSK	1	74	17.01	17.05	16.70		
15	QPSK	36	0	17.05	17.25	16.79	17.5	0
15	QPSK	36	20	17.03	17.22	16.76		
15	QPSK	36	39	17.02	17.17	16.78		
15	QPSK	75	0	17.06	17.23	16.87		
15	16QAM	1	0	17.12	17.17	17.19	17.5	0
15	16QAM	1	37	17.21	17.22	16.99		
15	16QAM	1	74	17.17	17.11	17.01		
15	16QAM	36	0	17.07	17.12	16.87	17.5	0
15	16QAM	36	20	17.09	17.09	16.84		
15	16QAM	36	39	17.08	17.24	16.87		
15	16QAM	75	0	17.12	17.08	16.90		

Channel				18650	18900	19150	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1905		
10	QPSK	1	0	17.18	17.08	16.82	17.5	0
10	QPSK	1	25	17.03	17.25	16.78		
10	QPSK	1	49	17.05	17.24	16.79		
10	QPSK	25	0	17.16	17.18	16.79	17.5	0
10	QPSK	25	12	17.09	17.17	16.78		
10	QPSK	25	25	17.09	17.16	16.80		
10	QPSK	50	0	17.08	17.09	16.88		
10	16QAM	1	0	17.26	17.22	17.01	17.5	0
10	16QAM	1	25	17.23	17.24	16.92		
10	16QAM	1	49	17.23	17.26	16.96		
10	16QAM	25	0	17.18	17.21	16.98	17.5	0
10	16QAM	25	12	17.20	17.18	16.98		
10	16QAM	25	25	17.18	17.14	16.97		
10	16QAM	50	0	17.09	17.17	16.88		
Channel				18625	18900	19175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	QPSK	1	0	17.18	17.17	16.89	17.5	0
5	QPSK	1	12	17.13	17.21	16.77		
5	QPSK	1	24	17.03	17.19	16.78		
5	QPSK	12	0	17.16	17.24	16.79	17.5	0
5	QPSK	12	7	17.11	17.24	16.77		
5	QPSK	12	13	17.01	17.26	16.76		
5	QPSK	25	0	17.11	17.25	16.78		
5	16QAM	1	0	17.20	17.10	16.94	17.5	0
5	16QAM	1	12	17.16	17.23	16.98		
5	16QAM	1	24	17.18	17.22	16.93		
5	16QAM	12	0	17.18	17.18	16.85	17.5	0
5	16QAM	12	7	17.16	17.19	16.81		
5	16QAM	12	13	17.06	17.10	16.80		
5	16QAM	25	0	17.19	17.17	16.81		

Channel				18615	18900	19185	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1908.5		
3	QPSK	1	0	17.12	17.19	16.77	17.5	0
3	QPSK	1	8	17.07	17.22	16.75		
3	QPSK	1	14	17.05	17.22	16.74		
3	QPSK	8	0	17.13	17.25	16.78	17.5	0
3	QPSK	8	4	17.10	17.25	16.76		
3	QPSK	8	7	17.11	17.26	16.76		
3	QPSK	15	0	17.13	17.26	16.78		
3	16QAM	1	0	17.14	17.20	16.98	17.5	0
3	16QAM	1	8	17.16	17.22	17.00		
3	16QAM	1	14	17.15	17.26	16.98		
3	16QAM	8	0	17.19	17.11	16.85	17.5	0
3	16QAM	8	4	17.16	17.12	16.88		
3	16QAM	8	7	17.19	17.15	16.86		
3	16QAM	15	0	17.17	17.10	16.81		
Channel				18607	18900	19193	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1909.3		
1.4	QPSK	1	0	17.13	17.22	16.74	17.5	0
1.4	QPSK	1	3	17.09	17.20	16.77		
1.4	QPSK	1	5	17.12	17.21	16.73		
1.4	QPSK	3	0	17.12	17.20	16.73		
1.4	QPSK	3	1	17.12	17.20	16.72		
1.4	QPSK	3	3	17.11	17.21	16.72		
1.4	QPSK	6	0	17.13	17.25	16.78	17.5	0
1.4	16QAM	1	0	17.23	17.25	16.98	17.5	0
1.4	16QAM	1	3	17.26	17.25	16.91		
1.4	16QAM	1	5	17.09	17.20	16.95		
1.4	16QAM	3	0	17.23	17.25	16.76		
1.4	16QAM	3	1	17.24	17.24	16.75		
1.4	16QAM	3	3	17.23	17.21	16.75		
1.4	16QAM	6	0	17.21	17.09	16.80	17.5	0

<LTE Band 4>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				20050	20175	20300		
Frequency (MHz)				1720	1732.5	1745		
20	QPSK	1	0	17.49	17.49	17.53	18	0
20	QPSK	1	49	17.47	17.46	17.56		
20	QPSK	1	99	17.49	17.47	17.70		
20	QPSK	50	0	17.49	17.44	17.58	18	0
20	QPSK	50	24	17.51	17.40	17.63		
20	QPSK	50	50	17.43	17.43	17.56		
20	QPSK	100	0	17.58	17.47	17.58		
20	16QAM	1	0	17.68	17.59	17.60	18	0
20	16QAM	1	49	17.56	17.67	17.52		
20	16QAM	1	99	17.59	17.66	17.59		
20	16QAM	50	0	17.53	17.50	17.63	18	0
20	16QAM	50	24	17.55	17.46	17.69		
20	16QAM	50	50	17.45	17.49	17.52		
20	16QAM	100	0	17.55	17.51	17.56		
Channel				20025	20175	20325	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1732.5	1747.5		
15	QPSK	1	0	17.38	17.54	17.51	18	0
15	QPSK	1	37	17.49	17.43	17.52		
15	QPSK	1	74	17.40	17.43	17.52		
15	QPSK	36	0	17.48	17.45	17.61	18	0
15	QPSK	36	20	17.50	17.42	17.55		
15	QPSK	36	39	17.44	17.42	17.69		
15	QPSK	75	0	17.56	17.39	17.52		
15	16QAM	1	0	17.61	17.52	17.52	18	0
15	16QAM	1	37	17.52	17.62	17.50		
15	16QAM	1	74	17.68	17.62	17.59		
15	16QAM	36	0	17.55	17.47	17.66	18	0
15	16QAM	36	20	17.58	17.48	17.61		
15	16QAM	36	39	17.53	17.45	17.56		
15	16QAM	75	0	17.61	17.46	17.55		

Channel				20000	20175	20350	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1732.5	1750		
10	QPSK	1	0	17.37	17.52	17.50	18	0
10	QPSK	1	25	17.39	17.40	17.52		
10	QPSK	1	49	17.48	17.39	17.58		
10	QPSK	25	0	17.49	17.49	17.52	18	0
10	QPSK	25	12	17.51	17.47	17.59		
10	QPSK	25	25	17.53	17.46	17.59		
10	QPSK	50	0	17.47	17.46	17.58		
10	16QAM	1	0	17.59	17.61	17.50	18	0
10	16QAM	1	25	17.65	17.69	17.50		
10	16QAM	1	49	17.69	17.66	17.59		
10	16QAM	25	0	17.53	17.59	17.59	18	0
10	16QAM	25	12	17.54	17.57	17.58		
10	16QAM	25	25	17.57	17.57	17.57		
10	16QAM	50	0	17.50	17.51	17.61		
Channel				19975	20175	20375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1732.5	1752.5		
5	QPSK	1	0	17.34	17.48	17.50	18	0
5	QPSK	1	12	17.37	17.40	17.67		
5	QPSK	1	24	17.43	17.36	17.53		
5	QPSK	12	0	17.37	17.38	17.67	18	0
5	QPSK	12	7	17.42	17.37	17.52		
5	QPSK	12	13	17.45	17.41	17.50		
5	QPSK	25	0	17.44	17.40	17.50		
5	16QAM	1	0	17.56	17.51	17.60	18	0
5	16QAM	1	12	17.62	17.66	17.58		
5	16QAM	1	24	17.68	17.62	17.59		
5	16QAM	12	0	17.43	17.43	17.52	18	0
5	16QAM	12	7	17.49	17.47	17.55		
5	16QAM	12	13	17.52	17.47	17.53		
5	16QAM	25	0	17.43	17.45	17.51		

Channel				19965	20175	20385	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1732.5	1753.5		
3	QPSK	1	0	17.29	17.39	17.60	18	0
3	QPSK	1	8	17.32	17.43	17.64		
3	QPSK	1	14	17.37	17.42	17.66		
3	QPSK	8	0	17.35	17.45	17.51	18	0
3	QPSK	8	4	17.34	17.39	17.64		
3	QPSK	8	7	17.41	17.38	17.68		
3	QPSK	15	0	17.36	17.41	17.65		
3	16QAM	1	0	17.60	17.63	17.58	18	0
3	16QAM	1	8	17.62	17.51	17.59		
3	16QAM	1	14	17.69	17.67	17.59		
3	16QAM	8	0	17.41	17.48	17.57	18	0
3	16QAM	8	4	17.43	17.45	17.51		
3	16QAM	8	7	17.51	17.45	17.55		
3	16QAM	15	0	17.46	17.42	17.51		
Channel				19957	20175	20393	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1732.5	1754.3		
1.4	QPSK	1	0	17.36	17.44	17.69	18	0
1.4	QPSK	1	3	17.31	17.39	17.68		
1.4	QPSK	1	5	17.30	17.42	17.50		
1.4	QPSK	3	0	17.31	17.43	17.64		
1.4	QPSK	3	1	17.30	17.41	17.62		
1.4	QPSK	3	3	17.31	17.43	17.65		
1.4	QPSK	6	0	17.32	17.46	17.68	18	0
1.4	16QAM	1	0	17.61	17.60	17.59	18	0
1.4	16QAM	1	3	17.57	17.55	17.59		
1.4	16QAM	1	5	17.62	17.57	17.58		
1.4	16QAM	3	0	17.39	17.51	17.57		
1.4	16QAM	3	1	17.39	17.52	17.56		
1.4	16QAM	3	3	17.39	17.48	17.57		
1.4	16QAM	6	0	17.36	17.46	17.52	18	0

<LTE Band 5>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				20450	20525	20600		
Frequency (MHz)				829	836.5	844		
10	QPSK	1	0	21.78	21.91	22.05	22.5	0
10	QPSK	1	25	21.80	21.96	22.00		
10	QPSK	1	49	21.95	22.05	22.08		
10	QPSK	25	0	21.76	21.87	21.92	22.5	0
10	QPSK	25	12	21.71	21.90	21.91		
10	QPSK	25	25	21.89	21.94	22.03		
10	QPSK	50	0	21.83	21.92	22.07		
10	16QAM	1	0	22.05	22.02	22.03	22.5	0
10	16QAM	1	25	22.06	22.02	22.02		
10	16QAM	1	49	22.05	22.03	22.05		
10	16QAM	25	0	20.79	21.01	21.05	22.5	0
10	16QAM	25	12	20.78	21.04	21.01		
10	16QAM	25	25	20.98	21.09	21.12		
10	16QAM	50	0	20.93	21.01	21.13		
Channel				20425	20525	20625	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				826.5	836.5	846.5		
5	QPSK	1	0	21.74	21.90	21.98	22.5	0
5	QPSK	1	12	21.69	21.92	22.00		
5	QPSK	1	24	21.71	22.00	22.02		
5	QPSK	12	0	21.71	21.90	21.95	22.5	0
5	QPSK	12	7	21.66	21.91	21.97		
5	QPSK	12	13	21.65	21.94	22.03		
5	QPSK	25	0	21.69	21.92	22.02		
5	16QAM	1	0	22.07	22.03	22.06	22.5	0
5	16QAM	1	12	22.04	22.02	22.05		
5	16QAM	1	24	22.00	22.03	22.07		
5	16QAM	12	0	20.70	20.96	21.03	22.5	0
5	16QAM	12	7	20.66	20.96	21.05		
5	16QAM	12	13	20.66	20.98	21.15		
5	16QAM	25	0	20.67	20.94	21.03		

Channel				20415	20525	20635	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				825.5	836.5	847.5		
3	QPSK	1	0	21.67	21.85	21.88	22.5	0
3	QPSK	1	8	21.70	21.85	21.99		
3	QPSK	1	14	21.64	21.83	22.00		
3	QPSK	8	0	21.62	21.80	21.84	22.5	0
3	QPSK	8	4	21.65	21.81	21.91		
3	QPSK	8	7	21.64	21.83	21.93		
3	QPSK	15	0	21.67	21.83	21.92		
3	16QAM	1	0	22.07	22.04	22.01	22.5	0
3	16QAM	1	8	22.03	22.06	22.07		
3	16QAM	1	14	21.95	22.04	22.03		
3	16QAM	8	0	20.69	20.83	20.96	22.5	0
3	16QAM	8	4	20.71	20.85	21.04		
3	16QAM	8	7	20.69	20.85	21.07		
3	16QAM	15	0	20.65	20.83	21.00		
Channel				20407	20525	20643	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				824.7	836.5	848.3		
1.4	QPSK	1	0	21.76	21.91	22.07	22.5	0
1.4	QPSK	1	3	21.71	21.87	22.04		
1.4	QPSK	1	5	21.80	21.93	22.07		
1.4	QPSK	3	0	21.72	21.88	22.01		
1.4	QPSK	3	1	21.71	21.88	22.00		
1.4	QPSK	3	3	21.70	21.90	22.03		
1.4	QPSK	6	0	21.71	21.88	22.01	22.5	0
1.4	16QAM	1	0	22.07	22.06	22.02	22.5	0
1.4	16QAM	1	3	22.01	22.01	22.05		
1.4	16QAM	1	5	22.05	22.03	22.03		
1.4	16QAM	3	0	21.82	21.95	22.07		
1.4	16QAM	3	1	21.76	21.94	22.06		
1.4	16QAM	3	3	21.74	21.96	22.05		
1.4	16QAM	6	0	20.72	20.95	21.07	22.5	0

<LTE Band 7>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				20850	21100	21350		
Frequency (MHz)				2510	2535	2560		
20	QPSK	1	0	17.29	17.48	17.52	18	0
20	QPSK	1	49	17.22	17.46	17.42		
20	QPSK	1	99	17.36	17.66	17.37		
20	QPSK	50	0	17.31	17.56	17.58	18	0
20	QPSK	50	24	17.24	17.55	17.48		
20	QPSK	50	50	17.30	17.52	17.44		
20	QPSK	100	0	17.35	17.65	17.60		
20	16QAM	1	0	17.43	17.64	17.51	18	0
20	16QAM	1	49	17.44	17.58	17.62		
20	16QAM	1	99	17.54	17.52	17.56		
20	16QAM	50	0	17.33	17.56	17.58	18	0
20	16QAM	50	24	17.30	17.57	17.48		
20	16QAM	50	50	17.36	17.65	17.43		
20	16QAM	100	0	17.39	17.60	17.57		
Channel				20825	21100	21375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2507.5	2535	2562.5		
15	QPSK	1	0	17.22	17.42	17.50	18	0
15	QPSK	1	37	17.17	17.44	17.37		
15	QPSK	1	74	17.21	17.55	17.29		
15	QPSK	36	0	17.22	17.48	17.53	18	0
15	QPSK	36	20	17.22	17.52	17.44		
15	QPSK	36	39	17.24	17.58	17.39		
15	QPSK	75	0	17.24	17.56	17.40		
15	16QAM	1	0	17.40	17.55	17.58	18	0
15	16QAM	1	37	17.38	17.62	17.59		
15	16QAM	1	74	17.45	17.56	17.45		
15	16QAM	36	0	17.29	17.52	17.50	18	0
15	16QAM	36	20	17.27	17.55	17.44		
15	16QAM	36	39	17.30	17.64	17.39		
15	16QAM	75	0	17.24	17.57	17.45		

Channel				20800	21100	21400	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2505	2535	2565		
10	QPSK	1	0	17.18	17.42	17.40	18	0
10	QPSK	1	25	17.17	17.41	17.30		
10	QPSK	1	49	17.20	17.50	17.29		
10	QPSK	25	0	17.22	17.51	17.42	18	0
10	QPSK	25	12	17.23	17.53	17.37		
10	QPSK	25	25	17.22	17.53	17.40		
10	QPSK	50	0	17.23	17.53	17.39		
10	16QAM	1	0	17.41	17.59	17.63	18	0
10	16QAM	1	25	17.40	17.59	17.51		
10	16QAM	1	49	17.42	17.58	17.40		
10	16QAM	25	0	17.20	17.56	17.44	18	0
10	16QAM	25	12	17.24	17.56	17.40		
10	16QAM	25	25	17.23	17.59	17.41		
10	16QAM	50	0	17.24	17.54	17.38		
Channel				20775	21100	21425	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2502.5	2535	2567.5		
5	QPSK	1	0	17.09	17.43	17.28	18	0
5	QPSK	1	12	17.02	17.38	17.24		
5	QPSK	1	24	17.09	17.44	17.24		
5	QPSK	12	0	17.16	17.46	17.30	18	0
5	QPSK	12	7	17.09	17.45	17.31		
5	QPSK	12	13	17.12	17.44	17.26		
5	QPSK	25	0	17.13	17.43	17.33		
5	16QAM	1	0	17.28	17.56	17.57	18	0
5	16QAM	1	12	17.21	17.51	17.52		
5	16QAM	1	24	17.33	17.54	17.52		
5	16QAM	12	0	17.21	17.41	17.38	18	0
5	16QAM	12	7	17.12	17.40	17.36		
5	16QAM	12	13	17.14	17.42	17.32		
5	16QAM	25	0	17.12	17.43	17.37		

<LTE Band 13>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel					23230			
Frequency (MHz)					782			
10	QPSK	1	0		21.84		22.5	0
10	QPSK	1	25		21.88			
10	QPSK	1	49		21.75			
10	QPSK	25	0		21.87		22.5	0
10	QPSK	25	12		21.74			
10	QPSK	25	25		21.82			
10	QPSK	50	0		21.81			
10	16QAM	1	0		21.23		22.5	0
10	16QAM	1	25		21.20			
10	16QAM	1	49		21.15			
10	16QAM	25	0		21.01		22.5	0
10	16QAM	25	12		20.86			
10	16QAM	25	25		21.00			
10	16QAM	50	0		20.99			
Channel				23205	23230	23255	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				779.5	782	784.5		
5	QPSK	1	0	21.83	21.86	21.75	22.5	0
5	QPSK	1	12	21.82	21.77	21.80		
5	QPSK	1	24	21.79	21.85	21.70		
5	QPSK	12	0	21.81	21.71	21.68	22.5	0
5	QPSK	12	7	21.79	21.69	21.70		
5	QPSK	12	13	21.75	21.76	21.63		
5	QPSK	25	0	21.82	21.68	21.74		
5	16QAM	1	0	21.09	21.07	21.06	22.5	0
5	16QAM	1	12	21.09	21.19	21.11		
5	16QAM	1	24	21.21	21.21	21.03		
5	16QAM	12	0	20.95	20.74	20.81	22.5	0
5	16QAM	12	7	20.90	20.71	20.84		
5	16QAM	12	13	20.85	20.78	20.76		
5	16QAM	25	0	20.92	20.72	20.81		

<LTE Band 26>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				26765	26865	26965		
Frequency (MHz)				821.5	831.5	841.5		
15	QPSK	1	0	21.86	21.88	21.84	22.5	0
15	QPSK	1	37	21.82	21.86	21.93		
15	QPSK	1	74	21.89	21.89	22.11		
15	QPSK	36	0	21.61	21.56	21.90	22.5	0
15	QPSK	36	20	21.72	21.78	21.94		
15	QPSK	36	39	21.74	21.81	21.96		
15	QPSK	75	0	21.79	21.94	21.95		
15	16QAM	1	0	21.74	21.96	22.08	22.5	0
15	16QAM	1	37	22.01	22.09	22.08		
15	16QAM	1	74	21.94	22.07	22.04		
15	16QAM	36	0	20.61	20.65	20.93	22.5	0
15	16QAM	36	20	20.68	20.87	20.92		
15	16QAM	36	39	20.68	20.90	21.03		
15	16QAM	75	0	20.85	20.99	21.02		
Channel				26740	26865	26990	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				819	831.5	844		
10	QPSK	1	0	21.39	21.58	21.97	22.5	0
10	QPSK	1	25	21.62	21.75	21.94		
10	QPSK	1	49	21.67	21.84	22.07		
10	QPSK	25	0	21.48	21.67	21.87	22.5	0
10	QPSK	25	12	21.52	21.79	21.83		
10	QPSK	25	25	21.64	21.82	21.97		
10	QPSK	50	0	21.64	21.82	21.98		
10	16QAM	1	0	21.68	21.89	22.04	22.5	0
10	16QAM	1	25	21.94	22.07	22.06		
10	16QAM	1	49	21.98	22.09	22.01		
10	16QAM	25	0	20.59	20.76	20.95	22.5	0
10	16QAM	25	12	20.65	20.84	20.90		
10	16QAM	25	25	20.77	20.90	21.01		
10	16QAM	50	0	20.70	20.87	21.05		

Channel				26715	26865	27015	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				816.5	831.5	846.5		
5	QPSK	1	0	21.47	21.66	21.89	22.5	0
5	QPSK	1	12	21.57	21.74	21.88		
5	QPSK	1	24	21.61	21.79	22.01		
5	QPSK	12	0	21.42	21.69	21.85	22.5	0
5	QPSK	12	7	21.50	21.74	21.85		
5	QPSK	12	13	21.54	21.75	21.95		
5	QPSK	25	0	21.52	21.71	21.91		
5	16QAM	1	0	21.79	21.93	22.05	22.5	0
5	16QAM	1	12	21.94	22.01	22.05		
5	16QAM	1	24	21.96	22.03	22.07		
5	16QAM	12	0	20.50	20.67	20.92	22.5	0
5	16QAM	12	7	20.57	20.77	20.92		
5	16QAM	12	13	20.63	20.78	21.04		
5	16QAM	25	0	20.54	20.73	20.95		
Channel				26705	26865	27025	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				815.5	831.5	847.5		
3	QPSK	1	0	21.45	21.67	21.93	22.5	0
3	QPSK	1	8	21.59	21.77	22.02		
3	QPSK	1	14	21.59	21.76	22.03		
3	QPSK	8	0	21.45	21.65	21.84	22.5	0
3	QPSK	8	4	21.48	21.71	21.89		
3	QPSK	8	7	21.51	21.73	21.92		
3	QPSK	15	0	21.50	21.74	21.93		
3	16QAM	1	0	21.73	21.98	22.06	22.5	0
3	16QAM	1	8	21.91	22.01	22.08		
3	16QAM	1	14	21.87	22.01	22.02		
3	16QAM	8	0	20.55	20.77	20.97	22.5	0
3	16QAM	8	4	20.63	20.84	21.04		
3	16QAM	8	7	20.66	20.84	21.06		
3	16QAM	15	0	20.58	20.79	21.00		

Channel				26697	26865	27033	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				814.7	831.5	848.3		
1.4	QPSK	1	0	21.43	21.75	22.02	22.5	0
1.4	QPSK	1	3	21.44	21.74	21.93		
1.4	QPSK	1	5	21.47	21.75	21.96		
1.4	QPSK	3	0	21.34	21.71	21.91		
1.4	QPSK	3	1	21.32	21.71	21.92		
1.4	QPSK	3	3	21.41	21.72	21.94		
1.4	QPSK	6	0	21.41	21.72	21.91	22.5	0
1.4	16QAM	1	0	21.72	22.10	22.01	22.5	0
1.4	16QAM	1	3	21.82	22.02	22.01		
1.4	16QAM	1	5	21.89	22.09	22.07		
1.4	16QAM	3	0	21.49	21.88	22.07		
1.4	16QAM	3	1	21.49	21.90	22.07		
1.4	16QAM	3	3	21.50	21.88	22.01		
1.4	16QAM	6	0	20.55	20.79	20.98	22.5	0

<LTE Band 30>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel					27710			
Frequency (MHz)					2310			
10	QPSK	1	0		17.07		18	0
10	QPSK	1	25		17.12			
10	QPSK	1	49		17.37			
10	QPSK	25	0		17.11		18	0
10	QPSK	25	12		17.19			
10	QPSK	25	25		17.36			
10	QPSK	50	0		17.30			
10	16QAM	1	0		17.29		18	0
10	16QAM	1	25		17.35			
10	16QAM	1	49		17.31			
10	16QAM	25	0		17.10		18	0
10	16QAM	25	12		17.16			
10	16QAM	25	25		17.17			
10	16QAM	50	0		17.33			
Channel				27685	27710	27735	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2307.5	2310	2312.5		
5	QPSK	1	0	17.12	17.02	17.10	18	0
5	QPSK	1	12	17.03	17.13	17.03		
5	QPSK	1	24	17.05	17.08	17.13		
5	QPSK	12	0	17.07	17.07	17.08	18	0
5	QPSK	12	7	17.02	17.17	17.07		
5	QPSK	12	13	17.08	17.12	17.14		
5	QPSK	25	0	17.07	17.21	17.13		
5	16QAM	1	0	17.23	17.27	17.29	18	0
5	16QAM	1	12	17.14	17.32	17.26		
5	16QAM	1	24	17.19	17.26	17.28		
5	16QAM	12	0	17.08	17.08	17.07	18	0
5	16QAM	12	7	17.02	17.17	17.09		
5	16QAM	12	13	17.06	17.11	17.13		
5	16QAM	25	0	17.02	17.19	17.08		

<LTE Band 66>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				132072	132322	132572		
Frequency (MHz)				1720	1745	1770		
20	QPSK	1	0	17.26	17.37	17.51	18	0
20	QPSK	1	49	17.31	17.32	17.26		
20	QPSK	1	99	17.32	17.66	17.54		
20	QPSK	50	0	17.36	17.38	17.35	18	0
20	QPSK	50	24	17.38	17.42	17.27		
20	QPSK	50	50	17.39	17.53	17.37		
20	QPSK	100	0	17.51	17.54	17.50		
20	16QAM	1	0	17.57	17.49	17.62	18	0
20	16QAM	1	49	17.48	17.63	17.46		
20	16QAM	1	99	17.54	17.65	17.53		
20	16QAM	50	0	17.29	17.31	17.41	18	0
20	16QAM	50	24	17.29	17.35	17.24		
20	16QAM	50	50	17.19	17.57	17.24		
20	16QAM	100	0	17.45	17.59	17.48		
Channel				132047	132322	132597	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1745	1772.5		
15	QPSK	1	0	17.16	17.30	17.42	18	0
15	QPSK	1	37	17.25	17.31	17.21		
15	QPSK	1	74	17.18	17.51	17.36		
15	QPSK	36	0	17.26	17.30	17.23	18	0
15	QPSK	36	20	17.33	17.41	17.19		
15	QPSK	36	39	17.28	17.55	17.25		
15	QPSK	75	0	17.46	17.55	17.33		
15	16QAM	1	0	17.52	17.49	17.52	18	0
15	16QAM	1	37	17.65	17.50	17.50		
15	16QAM	1	74	17.56	17.49	17.65		
15	16QAM	36	0	17.22	17.24	17.19	18	0
15	16QAM	36	20	17.29	17.33	17.12		
15	16QAM	36	39	17.23	17.47	17.20		
15	16QAM	75	0	17.42	17.43	17.33		

Channel				132022	132322	132622	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1745	1775		
10	QPSK	1	0	17.26	17.37	17.29	18	0
10	QPSK	1	25	17.30	17.38	17.21		
10	QPSK	1	49	17.32	17.61	17.43		
10	QPSK	25	0	17.21	17.33	17.19	18	0
10	QPSK	25	12	17.24	17.34	17.15		
10	QPSK	25	25	17.30	17.43	17.29		
10	QPSK	50	0	17.36	17.47	17.36		
10	16QAM	1	0	17.52	17.51	17.50	18	0
10	16QAM	1	25	17.46	17.52	17.62		
10	16QAM	1	49	17.52	17.51	17.55		
10	16QAM	25	0	17.15	17.18	17.09	18	0
10	16QAM	25	12	17.16	17.23	17.05		
10	16QAM	25	25	17.22	17.30	17.21		
10	16QAM	50	0	17.31	17.39	17.31		
Channel				131997	132322	132647	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1745	1777.5		
5	QPSK	1	0	17.12	17.28	17.16	18	0
5	QPSK	1	12	17.13	17.30	17.26		
5	QPSK	1	24	17.21	17.41	17.42		
5	QPSK	12	0	16.91	17.06	16.99	18	0
5	QPSK	12	7	16.96	17.13	17.08		
5	QPSK	12	13	16.98	17.18	17.19		
5	QPSK	25	0	17.14	17.30	17.28		
5	16QAM	1	0	17.46	17.56	17.60	18	0
5	16QAM	1	12	17.51	17.60	17.48		
5	16QAM	1	24	17.56	17.52	17.50		
5	16QAM	12	0	16.83	17.02	16.99	18	0
5	16QAM	12	7	16.91	17.09	17.12		
5	16QAM	12	13	16.92	17.15	17.22		
5	16QAM	25	0	17.03	17.19	17.18		

Channel				131987	132322	132657	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1745	1778.5		
3	QPSK	1	0	17.10	17.28	17.21	18	0
3	QPSK	1	8	17.11	17.35	17.35		
3	QPSK	1	14	17.15	17.37	17.37		
3	QPSK	8	0	16.96	17.18	17.10	18	0
3	QPSK	8	4	16.95	17.15	17.15		
3	QPSK	8	7	17.03	17.15	17.20		
3	QPSK	15	0	17.08	17.25	17.31		
3	16QAM	1	0	17.49	17.65	17.47	18	0
3	16QAM	1	8	17.51	17.46	17.50		
3	16QAM	1	14	17.47	17.53	17.54		
3	16QAM	8	0	16.85	17.10	17.06	18	0
3	16QAM	8	4	16.82	17.09	17.08		
3	16QAM	8	7	16.90	17.12	17.15		
3	16QAM	15	0	16.94	17.21	17.15		
Channel				131979	132322	132665	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1745	1779.3		
1.4	QPSK	1	0	17.17	17.23	17.41	18	0
1.4	QPSK	1	3	17.06	17.20	17.40		
1.4	QPSK	1	5	17.13	17.32	17.37		
1.4	QPSK	3	0	16.99	17.15	17.22		
1.4	QPSK	3	1	16.99	17.15	17.26		
1.4	QPSK	3	3	17.01	17.20	17.29		
1.4	QPSK	6	0	17.04	17.12	17.30	18	0
1.4	16QAM	1	0	17.59	17.64	17.55	18	0
1.4	16QAM	1	3	17.50	17.62	17.51		
1.4	16QAM	1	5	17.47	17.60	17.50		
1.4	16QAM	3	0	16.95	17.25	17.24		
1.4	16QAM	3	1	16.98	17.24	17.27		
1.4	16QAM	3	3	16.96	17.19	17.22		
1.4	16QAM	6	0	16.75	17.09	17.20	18	0

<TDD LTE SAR Measurement>

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.

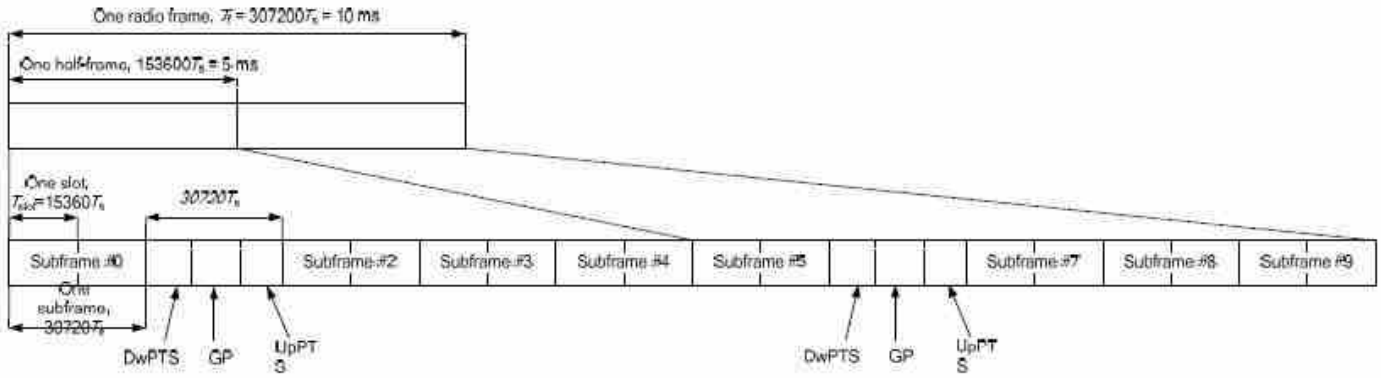


Figure 4.2-1: Frame structure type 2 (for 5 ms switch-point periodicity).

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.

<Maximum Average RF Power (Proximity Sensor Inactive)>

<LTE Band 38>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				37850	38000	38150		
Frequency (MHz)				2580	2595	2610		
20	QPSK	1	0	22.25	22.09	22.20	23.5	0
20	QPSK	1	49	22.24	22.09	22.19		
20	QPSK	1	99	22.43	22.18	22.27		
20	QPSK	50	0	21.12	21.04	21.15	22.5	1
20	QPSK	50	24	21.15	21.06	21.16		
20	QPSK	50	50	21.20	21.10	21.20		
20	QPSK	100	0	21.23	21.11	21.21		
20	16QAM	1	0	21.62	21.50	21.60	22.5	1
20	16QAM	1	49	21.63	21.52	21.60		
20	16QAM	1	99	21.72	21.61	21.68		
20	16QAM	50	0	20.26	20.14	20.29	21.5	2
20	16QAM	50	24	20.28	20.15	20.30		
20	16QAM	50	50	20.30	20.19	20.34		
20	16QAM	100	0	20.24	20.12	20.25		
Channel				37825	38000	38175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2577.5	2595	2612.5		
15	QPSK	1	0	22.32	22.11	22.19	23.5	0
15	QPSK	1	37	22.34	22.10	22.21		
15	QPSK	1	74	22.34	22.12	22.24		
15	QPSK	36	0	21.27	21.07	21.23	22.5	1
15	QPSK	36	20	21.32	21.10	21.24		
15	QPSK	36	39	21.33	21.11	21.22		
15	QPSK	75	0	21.32	21.11	21.19		
15	16QAM	1	0	21.69	21.47	21.56	22.5	1
15	16QAM	1	37	21.74	21.52	21.58		
15	16QAM	1	74	21.77	21.56	21.60		
15	16QAM	36	0	20.38	20.17	20.27	21.5	2
15	16QAM	36	20	20.42	20.21	20.29		
15	16QAM	36	39	20.43	20.22	20.31		
15	16QAM	75	0	20.33	20.14	20.22		

Channel				37800	38000	38200	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2575	2595	2615		
10	QPSK	1	0	22.33	22.10	22.25	23.5	0
10	QPSK	1	25	22.34	22.10	22.21		
10	QPSK	1	49	22.40	22.16	22.25		
10	QPSK	25	0	21.34	21.11	21.23	22.5	1
10	QPSK	25	12	21.30	21.12	21.23		
10	QPSK	25	25	21.32	21.14	21.25		
10	QPSK	50	0	21.27	21.08	21.22		
10	16QAM	1	0	21.70	21.52	21.63	22.5	1
10	16QAM	1	25	21.70	21.52	21.63		
10	16QAM	1	49	21.76	21.54	21.67		
10	16QAM	25	0	20.43	20.21	20.39	21.5	2
10	16QAM	25	12	20.43	20.21	20.40		
10	16QAM	25	25	20.46	20.24	20.41		
10	16QAM	50	0	20.39	20.15	20.33		
Channel				37775	38000	38225	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2572.5	2595	2617.5		
5	QPSK	1	0	22.29	22.03	22.26	23.5	0
5	QPSK	1	12	22.28	22.02	22.24		
5	QPSK	1	24	22.33	22.07	22.25		
5	QPSK	12	0	21.30	21.05	21.20	22.5	1
5	QPSK	12	7	21.31	21.05	21.20		
5	QPSK	12	13	21.32	21.06	21.21		
5	QPSK	25	0	21.30	21.05	21.20		
5	16QAM	1	0	21.73	21.48	21.62	22.5	1
5	16QAM	1	12	21.68	21.46	21.59		
5	16QAM	1	24	21.68	21.51	21.63		
5	16QAM	12	0	20.38	20.24	20.40	21.5	2
5	16QAM	12	7	20.33	20.23	20.40		
5	16QAM	12	13	20.27	20.24	20.42		
5	16QAM	25	0	20.31	20.15	20.35		

<LTE Band 41>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Low Middle Ch. / Freq.	Power Middle Ch. / Freq.	Power High Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				39750	40185	40620	41055	41490		
Frequency (MHz)				2506	2549.5	2593	2636.5	2680		
20	QPSK	1	0	22.31	22.59	22.15	22.31	22.32	23.5	0
20	QPSK	1	49	22.38	22.64	22.61	22.52	22.51		
20	QPSK	1	99	22.32	22.49	22.44	22.32	22.43		
20	QPSK	50	0	21.67	21.70	21.65	21.70	21.66	22.5	1
20	QPSK	50	24	21.72	21.77	21.75	21.72	21.66		
20	QPSK	50	50	21.73	21.92	21.76	21.74	21.68		
20	QPSK	100	0	21.74	21.76	21.64	21.62	21.64		
20	16QAM	1	0	21.67	21.93	21.55	21.63	21.74	22.5	1
20	16QAM	1	49	21.68	21.97	21.64	21.65	21.69		
20	16QAM	1	99	21.73	21.89	21.85	21.56	21.84		
20	16QAM	50	0	20.47	20.66	20.21	20.38	20.39	21.5	2
20	16QAM	50	24	20.43	20.71	20.29	20.39	20.38		
20	16QAM	50	50	20.47	20.68	20.40	20.34	20.48		
20	16QAM	100	0	20.47	20.66	20.26	20.31	20.47		
Channel				39725	40173	40620	41068	41515	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2503.5	2548.3	2593	2637.8	2682.5		
15	QPSK	1	0	22.12	22.37	22.03	22.11	22.15	23.5	0
15	QPSK	1	37	22.13	22.40	22.13	22.08	22.22		
15	QPSK	1	74	22.16	22.37	22.22	22.02	22.30		
15	QPSK	36	0	21.18	21.41	21.30	21.11	21.18	22.5	1
15	QPSK	36	20	21.15	21.43	21.35	21.14	21.28		
15	QPSK	36	39	21.10	21.49	21.30	21.08	21.30		
15	QPSK	75	0	21.17	21.40	21.35	21.11	21.35		
15	16QAM	1	0	21.43	21.80	21.39	21.49	21.57	22.5	1
15	16QAM	1	37	21.50	21.83	21.51	21.52	21.67		
15	16QAM	1	74	21.51	21.79	21.57	21.44	21.74		
15	16QAM	36	0	20.23	20.53	20.50	20.24	20.28	21.5	2
15	16QAM	36	20	20.26	20.55	20.15	20.25	20.38		
15	16QAM	36	39	20.21	20.60	20.23	20.19	20.39		
15	16QAM	75	0	20.17	20.42	20.09	20.14	20.40		

Channel				39700	40160	40620	41080	41540	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2501	2547	2593	2639	2685		
10	QPSK	1	0	21.99	22.45	21.99	22.09	22.16	23.5	0
10	QPSK	1	25	22.03	22.45	22.05	22.03	22.18		
10	QPSK	1	49	22.06	22.49	22.17	22.04	22.29		
10	QPSK	25	0	21.09	21.39	21.02	21.10	21.21	22.5	1
10	QPSK	25	12	21.09	21.38	21.02	21.11	21.21		
10	QPSK	25	25	21.12	21.45	21.04	21.06	21.22		
10	QPSK	50	0	21.09	21.35	20.98	21.02	21.18		
10	16QAM	1	0	21.42	21.75	21.37	21.48	21.61	22.5	1
10	16QAM	1	25	21.44	21.75	21.44	21.43	21.60		
10	16QAM	1	49	21.47	21.86	21.56	21.41	21.69		
10	16QAM	25	0	20.24	20.50	20.14	20.24	20.33	21.5	2
10	16QAM	25	12	20.24	20.50	20.14	20.24	20.33		
10	16QAM	25	25	20.27	20.57	20.18	20.17	20.35		
10	16QAM	50	0	20.23	20.46	20.09	20.12	20.29		
Channel				39675	40148	40620	41093	41565	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2498.5	2545.8	2593	2640.30	2687.5		
5	QPSK	1	0	21.96	22.38	22.04	22.09	22.13	23.5	0
5	QPSK	1	12	21.96	22.35	21.99	21.98	22.12		
5	QPSK	1	24	22.02	22.36	22.03	21.96	22.21		
5	QPSK	12	0	21.03	21.33	20.99	20.99	21.15	22.5	1
5	QPSK	12	7	21.04	21.32	21.00	21.00	21.15		
5	QPSK	12	13	21.05	21.33	21.02	21.01	21.16		
5	QPSK	25	0	21.06	21.32	21.00	21.00	21.15		
5	16QAM	1	0	21.40	21.73	21.43	21.47	21.58	22.5	1
5	16QAM	1	12	21.39	21.70	21.41	21.39	21.55		
5	16QAM	1	24	21.43	21.75	21.45	21.36	21.63		
5	16QAM	12	0	20.19	20.49	20.16	20.17	20.37	21.5	2
5	16QAM	12	7	20.18	20.48	20.16	20.17	20.37		
5	16QAM	12	13	20.19	20.49	20.17	20.17	20.37		
5	16QAM	25	0	20.12	20.45	20.53	20.13	20.20		

< Maximum Average RF Power (Proximity Sensor Active)>

<LTE Band 38>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				37850	38000	38150		
Frequency (MHz)				2580	2595	2610		
20	QPSK	1	0	18.40	18.25	18.24	19	0
20	QPSK	1	49	18.35	18.26	18.25		
20	QPSK	1	99	18.48	18.27	18.26		
20	QPSK	50	0	18.17	17.97	18.02	19	0
20	QPSK	50	24	18.19	17.98	18.02		
20	QPSK	50	50	18.22	18.02	18.05		
20	QPSK	100	0	18.23	18.03	18.06		
20	16QAM	1	0	18.33	18.40	18.46	19	0
20	16QAM	1	49	18.32	18.41	18.45		
20	16QAM	1	99	18.31	18.30	18.34		
20	16QAM	50	0	18.21	18.01	18.05	19	0
20	16QAM	50	24	18.22	18.02	18.06		
20	16QAM	50	50	18.25	18.05	18.09		
20	16QAM	100	0	18.28	18.01	18.11		
Channel				37825	38000	38175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2577.5	2595	2612.5		
15	QPSK	1	0	18.41	18.23	18.30	19	0
15	QPSK	1	37	18.44	18.24	18.33		
15	QPSK	1	74	18.47	18.25	18.32		
15	QPSK	36	0	18.23	17.99	18.07	19	0
15	QPSK	36	20	18.26	18.03	18.09		
15	QPSK	36	39	18.27	18.03	18.10		
15	QPSK	75	0	18.23	18.00	18.06		
15	16QAM	1	0	18.34	18.39	18.47	19	0
15	16QAM	1	37	18.37	18.44	18.32		
15	16QAM	1	74	18.30	18.47	18.34		
15	16QAM	36	0	18.39	18.17	18.24	19	0
15	16QAM	36	20	18.43	18.20	18.27		
15	16QAM	36	39	18.43	18.21	18.28		
15	16QAM	75	0	18.27	18.04	18.10		

Channel				37800	38000	38200	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2575	2595	2615		
10	QPSK	1	0	18.44	18.18	18.34	19	0
10	QPSK	1	25	18.43	18.18	18.33		
10	QPSK	1	49	18.29	18.23	18.39		
10	QPSK	25	0	18.32	18.07	18.19	19	0
10	QPSK	25	12	18.32	18.07	18.17		
10	QPSK	25	25	18.35	18.10	18.19		
10	QPSK	50	0	18.27	18.03	18.12		
10	16QAM	1	0	18.29	18.44	18.33	19	0
10	16QAM	1	25	18.29	18.45	18.34		
10	16QAM	1	49	18.45	18.30	18.29		
10	16QAM	25	0	18.43	18.18	18.28	19	0
10	16QAM	25	12	18.42	18.19	18.28		
10	16QAM	25	25	18.41	18.21	18.30		
10	16QAM	50	0	18.23	18.05	18.15		
Channel				37775	38000	38225	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2572.5	2595	2617.5		
5	QPSK	1	0	18.43	18.10	18.32	19	0
5	QPSK	1	12	18.38	18.10	18.30		
5	QPSK	1	24	18.41	18.14	18.34		
5	QPSK	12	0	18.36	18.08	18.26	19	0
5	QPSK	12	7	18.36	18.09	18.26		
5	QPSK	12	13	18.38	18.11	18.26		
5	QPSK	25	0	18.33	18.06	18.24		
5	16QAM	1	0	18.28	18.40	18.40	19	0
5	16QAM	1	12	18.35	18.39	18.29		
5	16QAM	1	24	18.47	18.44	18.41		
5	16QAM	12	0	18.42	18.20	18.32	19	0
5	16QAM	12	7	18.40	18.19	18.32		
5	16QAM	12	13	18.43	18.21	18.35		
5	16QAM	25	0	18.36	18.15	18.30		

<LTE Band 41>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Low Middle Ch. / Freq.	Power Middle Ch. / Freq.	Power High Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				39750	40185	40620	41055	41490		
Frequency (MHz)				2506	2549.5	2593	2636.5	2680		
20	QPSK	1	0	18.55	18.59	17.95	18.59	18.15	19	0
20	QPSK	1	49	18.56	18.70	18.07	18.60	18.21		
20	QPSK	1	99	18.55	18.67	18.05	18.48	18.20		
20	QPSK	50	0	18.35	18.67	17.83	18.36	17.96	19	0
20	QPSK	50	24	18.30	18.53	17.89	18.37	17.95		
20	QPSK	50	50	18.36	18.68	17.99	18.38	18.02		
20	QPSK	100	0	18.41	18.55	17.93	18.38	18.10		
20	16QAM	1	0	18.44	18.67	18.22	18.57	18.38	19	0
20	16QAM	1	49	18.42	18.66	18.28	18.56	18.35		
20	16QAM	1	99	18.48	18.65	18.52	18.45	18.47		
20	16QAM	50	0	18.36	18.69	17.85	18.40	17.92	19	0
20	16QAM	50	24	18.33	18.59	17.92	18.39	17.94		
20	16QAM	50	50	18.37	18.56	18.01	18.33	18.04		
20	16QAM	100	0	18.45	18.66	17.98	18.38	18.11		
Channel				39725	40173	40620	41068	41515	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2503.5	2548.3	2593	2637.8	2682.5		
15	QPSK	1	0	18.52	18.60	17.99	18.59	18.13	19	0
15	QPSK	1	37	18.56	18.61	18.08	18.61	18.20		
15	QPSK	1	74	18.58	18.55	18.18	18.51	18.30		
15	QPSK	36	0	18.36	18.38	17.82	18.35	17.94	19	0
15	QPSK	36	20	18.38	18.40	17.91	18.37	18.01		
15	QPSK	36	39	18.35	18.45	17.97	18.32	18.00		
15	QPSK	75	0	18.39	18.66	17.87	18.33	18.02		
15	16QAM	1	0	18.39	18.67	18.19	18.64	18.32	19	0
15	16QAM	1	37	18.43	18.66	18.30	18.67	18.40		
15	16QAM	1	74	18.44	18.65	18.41	18.58	18.50		
15	16QAM	36	0	18.16	18.53	17.97	18.53	18.09	19	0
15	16QAM	36	20	18.19	18.55	18.07	18.54	18.17		
15	16QAM	36	39	18.15	18.61	18.14	18.49	18.18		
15	16QAM	75	0	18.06	18.38	17.91	18.36	18.07		

Channel				39700	40160	40620	41080	41540	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2501	2547	2593	2639	2685		
10	QPSK	1	0	18.56	18.61	18.03	18.61	18.13	19	0
10	QPSK	1	25	18.51	18.61	18.11	18.52	18.14		
10	QPSK	1	49	18.54	18.67	18.17	18.50	18.25		
10	QPSK	25	0	18.42	18.47	17.96	18.44	18.03	19	0
10	QPSK	25	12	18.42	18.47	17.96	18.44	18.01		
10	QPSK	25	25	18.44	18.57	17.99	18.38	18.02		
10	QPSK	50	0	18.34	18.44	17.92	18.27	17.97		
10	16QAM	1	0	18.40	18.65	18.25	18.63	18.38	19	0
10	16QAM	1	25	18.43	18.64	18.32	18.57	18.39		
10	16QAM	1	49	18.43	18.63	18.45	18.55	18.49		
10	16QAM	25	0	18.46	18.56	18.06	18.46	18.14	19	0
10	16QAM	25	12	18.47	18.56	18.07	18.45	18.14		
10	16QAM	25	25	18.49	18.64	18.09	18.42	18.16		
10	16QAM	50	0	18.35	18.40	17.94	18.28	18.01		
Channel				39675	40148	40620	41093	41565	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2498.5	2545.8	2593	2640.30	2687.5		
5	QPSK	1	0	18.40	18.50	17.95	18.46	17.98	19	0
5	QPSK	1	12	18.35	18.48	17.94	18.37	17.96		
5	QPSK	1	24	18.37	18.50	17.97	18.35	18.07		
5	QPSK	12	0	18.29	18.42	17.91	18.30	17.97	19	0
5	QPSK	12	7	18.29	18.41	17.89	18.29	17.95		
5	QPSK	12	13	18.30	18.43	17.90	18.30	17.97		
5	QPSK	25	0	18.28	18.40	17.86	18.26	17.93		
5	16QAM	1	0	18.58	18.66	18.18	18.61	18.26	19	0
5	16QAM	1	12	18.59	18.65	18.17	18.63	18.24		
5	16QAM	1	24	18.64	18.64	18.22	18.63	18.35		
5	16QAM	12	0	18.39	18.50	17.98	18.38	18.07	19	0
5	16QAM	12	7	18.39	18.49	17.98	18.38	18.05		
5	16QAM	12	13	18.41	18.50	17.99	18.40	18.06		
5	16QAM	25	0	18.34	18.42	17.93	18.34	18.03		

<WLAN Conducted Power>

General Note:

1. The modulation and bandwidth are similar for 802.11n mode for 20MHz (40MHz) and 802.11ac mode for 20MHz (40MHz), therefore investigated worst case which is 802.11 ac mode to representative mode in test report.
2. For each antenna, transmit power in SISO operation is larger than (or equal to) the power in MIMO operation, RF exposure compliance of MIMO mode can be deduced from the compliance simultaneous transmission of antennas operating in SISO mode.
3. Per KDB 248227 D01v02r02, SAR test reduction is determined according to 802.11 transmission mode configurations and certain exposure conditions with multiple test positions. In the 2.4 GHz band, separate SAR procedures are applied to DSSS and OFDM configurations to simplify DSSS test requirements. For OFDM, in both 2.4 and 5 GHz bands, an initial test configuration must be determined for each standalone and aggregated frequency band, according to the transmission mode configuration with the highest maximum output power specified for production units to perform SAR measurements. If the same highest maximum output power applies to different combinations of channel bandwidths, modulations and data rates, additional procedures are applied to determine which test configurations require SAR measurement. When applicable, an initial test position may be applied to reduce the number of SAR measurements required for next to the ear, UMPC mini-tablet or hotspot mode configurations with multiple test positions.
4. For 2.4 GHz 802.11b DSSS, either the initial test position procedure for multiple exposure test positions or the DSSS procedure for fixed exposure position is applied; these are mutually exclusive. For 2.4 GHz and 5 GHz OFDM configurations, the initial test configuration is applied to measure SAR using either the initial test position procedure for multiple exposure test position configurations or the initial test configuration procedures for fixed exposure test conditions. Based on the reported SAR of the measured configurations and maximum output power of the transmission mode configurations that are not included in the initial test configuration, the subsequent test configuration and initial test position procedures are applied to determine if SAR measurements are required for the remaining OFDM transmission configurations. In general, the number of test channels that require SAR measurement is minimized based on maximum output power measured for the test sample(s).
5. For OFDM transmission configurations in the 2.4 GHz and 5 GHz bands, When the same maximum power is specified for multiple transmission modes in a frequency band, the largest channel bandwidth, lowest order modulation, lowest data rate and lowest order 802.11a/g/n/ac mode is used for SAR measurement, on the highest measured output power channel for each frequency band.
6. DSSS and OFDM configurations are considered separately according to the required SAR procedures. SAR is measured in the initial test position using the 802.11 transmission mode configuration required by the DSSS procedure or initial test configuration and subsequent test configuration(s) according to the OFDM procedures.18 The initial test position procedure is described in the following:
   a. When the reported SAR of the initial test position is ≤ 0.4 W/kg, further SAR measurement is not required for the other test positions in that exposure configuration and 802.11 transmission mode combinations within the frequency band or aggregated band.
   b. When the reported SAR of the test position is > 0.4 W/kg, SAR is repeated for the 802.11 transmission mode configuration tested in the initial test position to measure the subsequent next closet/smallest test separation distance and maximum coupling test position on the highest maximum output power channel, until the report SAR is ≤ 0.8 W/kg or all required test position are tested.
   c. For all positions/configurations, when the reported SAR is > 0.8 W/kg, SAR is measured for these test positions/configurations on the subsequent next highest measured output power channel(s) until the reported SAR is ≤ 1.2 W/kg or all required channels are tested.

<2.4GHz WLAN Ant.1>

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
2.4GHz WLAN Ant.1	802.11b	CH 1	2412	1Mbps	18.96	20.50	98.96
		CH 6	2437		**19.44**	20.50	
		CH 11	2462		19.01	20.50	
	802.11g	CH 1	2412	6Mbps	16.64	18.00	95.32
		CH 6	2437		18.42	19.50	
		CH 11	2462		16.23	18.00	
	802.11ac-VHT20	CH 1	2412	MCS0	15.13	17.00	94.66
		CH 6	2437		18.40	19.50	
		CH 11	2462		14.34	16.00	
	802.11ac-VHT40	CH 3	2422	MCS0	11.55	13.00	90.46
		CH 6	2437		17.22	18.50	
		CH 9	2452		9.25	11.00	

<2.4GHz WLAN Ant.2>

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
2.4GHz WLAN Ant.2	802.11b	CH 1	2412	1Mbps	18.64	20.50	99.31
		CH 6	2437		**19.47**	20.50	
		CH 11	2462		18.55	20.50	
	802.11g	CH 1	2412	6Mbps	16.16	18.00	95.32
		CH 6	2437		18.38	19.50	
		CH 11	2462		16.08	18.00	
	802.11ac-VHT20	CH 1	2412	MCS0	15.43	17.00	95.36
		CH 6	2437		19.10	19.50	
		CH 11	2462		14.72	16.00	
	802.11ac-VHT40	CH 3	2422	MCS0	11.05	13.00	90.50
		CH 6	2437		16.96	18.50	
		CH 9	2452		9.21	11.00	

<2.4GHz WLAN Ant.1+2>

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
2.4GHz WLAN Ant.1+2	802.11b	CH 1	2412	1Mbps	21.52	23.50	99.31
		CH 6	2437		22.09	23.50	
		CH 11	2462		22.00	23.50	
	802.11g	CH 1	2412	6Mbps	19.29	21.00	95.32
		CH 6	2437		21.19	22.50	
		CH 11	2462		17.79	21.00	
	802.11ac-VHT20	CH 1	2412	MCS0	16.81	20.00	95.36
		CH 6	2437		21.56	22.50	
		CH 11	2462		16.58	19.00	
	802.11ac-VHT40	CH 3	2422	MCS0	14.17	16.00	90.50
		CH 6	2437		20.10	21.50	
		CH 9	2452		11.82	14.00	

<5GHz WLAN Ant.1>

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.2GHz WLAN Ant.1	802.11a	CH 36	5180	6Mbps	13.22	15.00	95.00
		CH 40	5200		14.99	15.00	
		CH 44	5220		14.72	15.00	
		CH 48	5240		14.82	15.00	
	802.11ac-VHT20	CH 36	5180	MCS0	13.55	15.00	94.33
		CH 40	5200		14.66	15.00	
		CH 44	5220		14.15	15.00	
		CH 48	5240		14.86	15.00	
	802.11ac-VHT40	CH 38	5190	MCS0	8.68	11.50	90.03
		CH 46	5230		14.48	14.50	
	802.11ac-VHT80	CH 42	5210	MCS0	7.97	10.50	81.90

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.3GHz WLAN Ant.1	802.11a	CH 52	5260	6Mbps	14.94	15.00	95.00
		CH 56	5280		14.58	15.00	
		CH 60	5300		14.63	15.00	
		CH 64	5320		13.79	15.00	
	802.11ac-VHT20	CH 52	5260	MCS0	14.80	15.00	94.33
		CH 56	5280		13.82	15.00	
		CH 60	5300		14.50	15.00	
		CH 64	5320		14.16	15.00	
	802.11ac-VHT40	CH 54	5270	MCS0	14.46	14.50	90.03
		CH 62	5310		11.71	14.00	
	802.11ac-VHT80	CH 58	5290	MCS0	9.75	12.00	81.90

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.5GHz WLAN Ant.1	802.11a	CH 100	5500	6Mbps	13.30	15.00	95.00
		CH 116	5580		**14.80**	15.00	
		CH 124	5620		14.69	15.00	
		CH 132	5660		14.33	15.00	
		CH 140	5700		13.75	15.00	
		CH 144	5720		9.43	15.00	
	802.11ac-VHT20	CH 100	5500	MCS0	12.80	15.00	94.33
		CH 116	5580		14.68	15.00	
		CH 124	5620		14.36	15.00	
		CH 132	5660		14.48	15.00	
		CH 140	5700		13.65	15.00	
		CH 144	5720		9.83	15.00	
	802.11ac-VHT40	CH 102	5510	MCS0	9.06	11.50	90.03
		CH 110	5550		14.20	14.50	
		CH 126	5630		14.17	14.50	
		CH 134	5670		12.77	14.50	
		CH 142	5710		8.56	14.50	
	802.11ac-VHT80	CH 106	5530	MCS0	9.60	12.00	81.90
		CH 122	5610		13.34	14.50	
		CH 138	5690		8.05	14.50	

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN Ant.1	802.11a	CH 149	5745	6Mbps	13.56	15.00	95.00
		CH 157	5785		14.82	15.00	
		CH 165	5825		**14.97**	15.00	
	802.11ac-VHT20	CH 149	5745	MCS0	12.61	14.50	94.33
		CH 157	5785		14.75	15.00	
		CH 165	5825		14.45	15.00	
	802.11ac-VHT40	CH 151	5755	MCS0	9.76	11.50	90.03
		CH 159	5795		14.32	14.50	
	802.11ac-VHT80	CH 155	5775	MCS0	8.13	10.00	81.90

<5GHz WLAN Ant.2>

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.2GHz WLAN Ant.2	802.11a	CH 36	5180	6Mbps	14.05	15.00	94.77
		CH 40	5200		14.98	15.00	
		CH 44	5220		14.53	15.00	
		CH 48	5240		14.86	15.00	
	802.11ac-VHT20	CH 36	5180	MCS0	13.87	15.00	94.42
		CH 40	5200		14.73	15.00	
		CH 44	5220		14.21	15.00	
		CH 48	5240		14.72	15.00	
	802.11ac-VHT40	CH 38	5190	MCS0	9.39	11.50	89.88
		CH 46	5230		14.48	14.50	
	802.11ac-VHT80	CH 42	5210	MCS0	8.74	10.50	81.35

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.3GHz WLAN Ant.2	802.11a	CH 52	5260	6Mbps	14.73	15.00	94.77
		CH 56	5280		14.66	15.00	
		CH 60	5300		**14.77**	15.00	
		CH 64	5320		13.58	15.00	
	802.11ac-VHT20	CH 52	5260	MCS0	14.61	15.00	94.42
		CH 56	5280		14.24	15.00	
		CH 60	5300		14.53	15.00	
		CH 64	5320		14.25	15.00	
	802.11ac-VHT40	CH 54	5270	MCS0	14.43	14.50	89.88
		CH 62	5310		11.51	14.00	
	802.11ac-VHT80	CH 58	5290	MCS0	9.94	12.00	81.35

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.5GHz WLAN Ant.2	802.11a	CH 100	5500	6Mbps	13.84	15.00	94.77
		CH 116	5580		**14.98**	15.00	
		CH 124	5620		14.67	15.00	
		CH 132	5660		14.59	15.00	
		CH 140	5700		14.20	15.00	
		CH 144	5720		9.00	15.00	
	802.11ac-VHT20	CH 100	5500	MCS0	13.41	15.00	94.42
		CH 116	5580		14.95	15.00	
		CH 124	5620		14.75	15.00	
		CH 132	5660		14.81	15.00	
		CH 140	5700		13.83	15.00	
		CH 144	5720		9.57	15.00	
	802.11ac-VHT40	CH 102	5510	MCS0	9.66	11.50	89.88
		CH 110	5550		14.13	14.50	
		CH 126	5630		13.88	14.50	
		CH 134	5670		13.60	14.50	
		CH 142	5710		8.96	14.50	
	802.11ac-VHT80	CH 106	5530	MCS0	10.07	12.00	81.35
		CH 122	5610		13.55	14.50	
		CH 138	5690		7.90	14.50	

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN Ant.2	802.11a	CH 149	5745	6Mbps	13.07	15.00	94.77
		CH 157	5785		**14.81**	15.00	
		CH 165	5825		14.37	15.00	
	802.11ac-VHT20	CH 149	5745	MCS0	12.19	14.50	94.42
		CH 157	5785		14.80	15.00	
		CH 165	5825		14.35	15.00	
	802.11ac-VHT40	CH 151	5755	MCS0	9.29	11.50	89.88
		CH 159	5795		14.48	14.50	
	802.11ac-VHT80	CH 155	5775	MCS0	7.76	10.00	81.35

<5GHz WLAN Ant.1+2>

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.2GHz WLAN Ant.1+2	802.11a	CH 36	5180	6Mbps	16.05	18.00	95.77
		CH 40	5200		17.85	18.00	
		CH 44	5220		17.59	18.00	
		CH 48	5240		**17.92**	18.00	
	802.11ac-VHT20	CH 36	5180	MCS0	16.61	18.00	95.50
		CH 40	5200		17.34	18.00	
		CH 44	5220		16.93	18.00	
		CH 48	5240		17.81	18.00	
	802.11ac-VHT40	CH 38	5190	MCS0	12.07	14.50	91.25
		CH 46	5230		17.49	17.50	
	802.11ac-VHT80	CH 42	5210	MCS0	11.20	13.50	83.59

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.3GHz WLAN Ant.1+2	802.11a	CH 52	5260	6Mbps	**17.49**	18.00	95.77
		CH 56	5280		17.17	18.00	
		CH 60	5300		17.21	18.00	
		CH 64	5320		16.06	18.00	
	802.11ac-VHT20	CH 52	5260	MCS0	17.28	18.00	95.50
		CH 56	5280		16.95	18.00	
		CH 60	5300		17.32	18.00	
		CH 64	5320		16.72	18.00	
	802.11ac-VHT40	CH 54	5270	MCS0	16.70	17.50	91.25
		CH 62	5310		13.21	17.00	
	802.11ac-VHT80	CH 58	5290	MCS0	12.29	15.00	83.59

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.5GHz WLAN Ant.1+2	802.11a	CH 100	5500	6Mbps	16.14	18.00	95.77
		CH 116	5580		17.58	18.00	
		CH 124	5620		16.94	18.00	
		CH 132	5660		16.94	18.00	
		CH 140	5700		15.84	18.00	
		CH 144	5720		11.44	14.00	
	802.11ac-VHT20	CH 100	5500	MCS0	15.33	18.00	95.50
		CH 116	5580		17.56	18.00	
		CH 124	5620		17.33	18.00	
		CH 132	5660		17.44	18.00	
		CH 140	5700		15.59	18.00	
		CH 144	5720		11.98	18.00	
	802.11ac-VHT40	CH 102	5510	MCS0	11.70	14.50	91.25
		CH 110	5550		16.53	17.50	
		CH 126	5630		16.30	17.50	
		CH 134	5670		16.03	17.50	
		CH 142	5710		11.06	17.50	
	802.11ac-VHT80	CH 106	5530	MCS0	12.50	15.00	83.59
		CH 122	5610		15.41	17.50	
		CH 138	5690		10.08	17.50	

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN Ant.1+2	802.11a	CH 149	5745	6Mbps	16.02	18.00	95.77
		CH 157	5785		17.94	18.00	
		CH 165	5825		17.65	18.00	
	802.11ac-VHT20	CH 149	5745	MCS0	14.76	17.50	95.50
		CH 157	5785		17.82	18.00	
		CH 165	5825		17.06	18.00	
	802.11ac-VHT40	CH 151	5755	MCS0	11.08	14.50	91.25
		CH 159	5795		17.04	17.50	
	802.11ac-VHT80	CH 155	5775	MCS0	10.27	13.00	83.59

<2.4GHz Bluetooth>

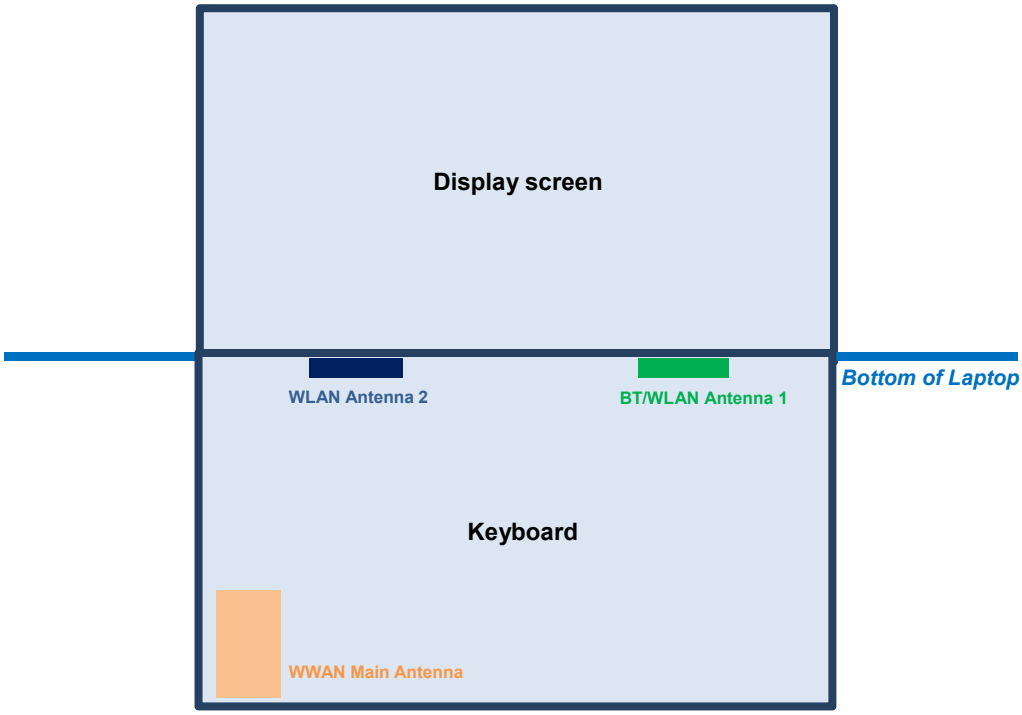
General Note:

1. For 2.4GHz Bluetooth SAR testing was selected 1Mbps, due to its highest average power.
2. The Bluetooth duty cycle is 76.83 %, according to 2016 Oct. TCB workshop for Bluetooth SAR scaling need further consideration and the theoretical duty cycle is 83.3%, therefore the actual duty cycle will be scaled up to the theoretical value of Bluetooth reported SAR calculation.

Mode	Channel	Frequency (MHz)	Average power (dBm)
			1Mbps
BR / EDR	CH 00	2402	6.04
	CH 39	2441	6.59
	CH 78	2480	**6.85**
Tune-up limit (dBm)			7.00

Mode	Channel	Frequency (MHz)	Average power (dBm)
			GFSK
LE	CH 00	2402	2.90
	CH 19	2440	**3.11**
	CH 39	2480	2.98
Tune-up limit (dBm)			4.50

14. Antenna Location



15. 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 SAR testing of WLAN signal with non-100% duty cycle, the measured SAR is scaled-up by the duty cycle scaling factor which is equal to "1/(duty cycle)"
   c. For WWAN: Reported SAR(W/kg)= Measured SAR(W/kg)*Tune-up Scaling Factor
   d. For WLAN/Bluetooth: Reported SAR(W/kg)= Measured SAR(W/kg)* Duty Cycle scaling factor * Tune-up scaling factor
   e. 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. This device implanted proximity sensor function at bottom of laptop; power reduction will be implemented immediately at WCDMA B2 / B4 / B5 and LTE B2 / B4 / B5 / B7 / B13 / B26 / B30 / B38 / B41 / B66.
5. WWAN antenna is far away from LCD panel, so no need to consider 25mm SAR testing for back of display screen.

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.

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 B4 / B5 / B12 / B17 / B26 / B38 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 B 4 / B17 / B38 SAR test was covered by LTE B66 / B12 / B41; according to April 2015 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

WLAN Note:

1. Per KDB 248227 D01v02r02, for 2.4GHz 802.11g/n SAR testing is not required when the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg.
2. Per KDB 248227 D01v02r02, U-NII-1 SAR testing is not required when the U-NII-2A band highest reported SAR for a test configuration is ≤ 1.2 W/kg, SAR is not required for U-NII-1 band.
3. When the reported SAR of the test position is > 0.4 W/kg, SAR is repeated for the 802.11 transmission mode configuration tested in the initial test position to measure the subsequent next closet/smallest test separation distance and maximum coupling test position on the highest maximum output power channel, until the report SAR is ≤ 0.8 W/kg or all required test position are tested.
4. For all positions / configurations, when the reported SAR is > 0.8 W/kg, SAR is measured for these test positions / configurations on the subsequent next highest measured output power channel(s) until the reported SAR is ≤ 1.2 W/kg or all required channels are tested.
5. For WLAN SAR testing was performed on single antenna RF power in SISO mode is larger or equal to the single antenna RF power in MIMO mode, and for RF exposure assessment of MIMO mode simultaneous transmission exclusion analysis was performed with SAR test results of each antenna in SISO mode.
6. During SAR testing the WLAN transmission was verified using a spectrum analyzer.
7. To evaluate BT/WLAN distance SAR with bottom of laptop at 17mm was used for the colocation with WWAN.

15.1 Body SAR

<WCDMA SAR>

Plot No.	Sample	Band	Mode	Test Position	Gap (mm)	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)
	1	WCDMA Band V	RMC 12.2Kbps	Bottom of Laptop	0	On	4233	846.6	22.45	22.50	1.012	0.09	1.060	1.072
01	1	WCDMA Band V	RMC 12.2Kbps	Bottom of Laptop	0	On	4132	826.4	22.01	22.50	1.119	-0.06	0.983	**1.100**
	1	WCDMA Band V	RMC 12.2Kbps	Bottom of Laptop	0	On	4182	836.4	22.23	22.50	1.064	0.05	0.940	1.000
	1	WCDMA Band V	RMC 12.2Kbps	Bottom of Laptop	17	Off	4233	846.6	23.75	24.00	1.059	0.02	0.263	0.279
	1	WCDMA Band V	RMC 12.2Kbps	Bottom of Laptop	17	Off	4132	826.4	23.50	24.00	1.122	0.01	0.231	0.259
	1	WCDMA Band V	RMC 12.2Kbps	Bottom of Laptop	17	Off	4182	836.4	23.72	24.00	1.067	0.06	0.252	0.269
02	1	WCDMA Band IV	RMC 12.2Kbps	Bottom of Laptop	0	On	1513	1752.6	18.18	18.50	1.076	0.02	1.060	**1.141**
	1	WCDMA Band IV	RMC 12.2Kbps	Bottom of Laptop	0	On	1413	1732.6	17.96	18.50	1.132	0.05	0.967	1.095
	1	WCDMA Band IV	RMC 12.2Kbps	Bottom of Laptop	0	On	1312	1712.4	17.89	18.50	1.151	0.03	0.937	1.078
	1	WCDMA Band IV	RMC 12.2Kbps	Bottom of Laptop	17	Off	1513	1752.6	23.44	24.00	1.138	0.02	0.430	0.489
	1	WCDMA Band IV	RMC 12.2Kbps	Bottom of Laptop	17	Off	1312	1712.4	23.00	24.00	1.259	-0.04	0.356	0.448
	1	WCDMA Band IV	RMC 12.2Kbps	Bottom of Laptop	17	Off	1413	1732.6	23.11	24.00	1.227	0.05	0.408	0.501
	1	WCDMA Band II	RMC 12.2Kbps	Bottom of Laptop	0	On	9400	1880	17.26	17.50	1.057	0.05	1.080	1.141
	1	WCDMA Band II	RMC 12.2Kbps	Bottom of Laptop	0	On	9262	1852.4	17.14	17.50	1.086	0.02	0.964	1.047
03	1	WCDMA Band II	RMC 12.2Kbps	Bottom of Laptop	0	On	9538	1907.6	17.07	17.50	1.104	0.08	1.040	**1.148**
	2	WCDMA Band II	RMC 12.2Kbps	Bottom of Laptop	0	On	9538	1907.6	17.07	17.50	1.104	0.05	0.812	0.897
	2	WCDMA Band II	RMC 12.2Kbps	Bottom of Laptop	0	On	9400	1880	17.26	17.50	1.057	0.01	0.823	0.870
	2	WCDMA Band II	RMC 12.2Kbps	Bottom of Laptop	0	On	9262	1852.4	17.14	17.50	1.086	0.06	0.781	0.848
	1	WCDMA Band II	RMC 12.2Kbps	Bottom of Laptop	17	Off	9400	1880	23.62	24.00	1.091	0.09	0.440	0.480
	1	WCDMA Band II	RMC 12.2Kbps	Bottom of Laptop	17	Off	9262	1852.4	23.59	24.00	1.099	0.01	0.407	0.447
	1	WCDMA Band II	RMC 12.2Kbps	Bottom of Laptop	17	Off	9538	1907.6	23.46	24.00	1.132	0.05	0.425	0.481

<FDD LTE SAR>

Plot No.	Sample	Band	BW (MHz)	Modulation	RB Size	RB Offset	Test Position	Gap (mm)	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	1	LTE Band 12	10M	QPSK	1	25	Bottom of Laptop	0	Off	23095	707.5	22.83	23.50	1.167	0.02	0.805	**0.939**
	1	LTE Band 12	10M	QPSK	25	12	Bottom of Laptop	0	Off	23095	707.5	21.88	22.50	1.153	0.07	0.678	0.782
	1	LTE Band 12	10M	QPSK	50	0	Bottom of Laptop	0	Off	23095	707.5	21.87	22.50	1.156	0.03	0.642	0.742
	1	LTE Band 13	10M	QPSK	1	25	Bottom of Laptop	0	On	23230	782	21.88	22.50	1.153	0.03	0.905	1.044
	1	LTE Band 13	10M	QPSK	1	25	Bottom of Laptop	17	Off	23230	782	22.78	23.50	1.180	0.05	0.190	0.224
05	1	LTE Band 13	10M	QPSK	25	0	Bottom of Laptop	0	On	23230	782	21.87	22.50	1.156	-0.07	0.945	**1.093**
	1	LTE Band 13	10M	QPSK	25	0	Bottom of Laptop	17	Off	23230	782	22.76	23.00	1.057	0.06	0.152	0.161
	1	LTE Band 13	10M	QPSK	50	0	Bottom of Laptop	0	On	23230	782	21.81	22.50	1.172	-0.02	0.931	1.091
	1	LTE Band 5	10M	QPSK	1	49	Bottom of Laptop	0	On	20525	836.5	22.05	22.50	1.109	0.08	0.994	1.103
	1	LTE Band 5	10M	QPSK	1	49	Bottom of Laptop	17	Off	20525	836.5	22.68	23.50	1.208	0.01	0.201	0.243
06	1	LTE Band 5	10M	QPSK	25	25	Bottom of Laptop	0	On	20525	836.5	21.94	22.50	1.138	-0.06	0.972	**1.106**
	1	LTE Band 5	10M	QPSK	25	25	Bottom of Laptop	17	Off	20525	836.5	21.68	22.50	1.208	0.03	0.159	0.192
	1	LTE Band 5	10M	QPSK	50	0	Bottom of Laptop	0	On	20525	836.5	21.92	22.50	1.143	-0.08	0.965	1.103
	1	LTE Band 26	15M	QPSK	1	74	Bottom of Laptop	0	On	26965	841.5	22.11	22.50	1.094	0.05	0.997	1.091
	1	LTE Band 26	15M	QPSK	1	74	Bottom of Laptop	0	On	26765	821.5	21.89	22.50	1.151	0.01	0.886	1.020
	1	LTE Band 26	15M	QPSK	1	74	Bottom of Laptop	0	On	26865	831.5	21.89	22.50	1.151	0.01	0.913	1.051
	1	LTE Band 26	15M	QPSK	1	74	Bottom of Laptop	17	Off	26965	841.5	22.71	23.50	1.199	0.06	0.167	0.200
	1	LTE Band 26	15M	QPSK	1	74	Bottom of Laptop	17	Off	26765	821.5	22.28	23.50	1.324	0.08	0.145	0.192
	1	LTE Band 26	15M	QPSK	1	74	Bottom of Laptop	17	Off	26865	831.5	22.50	23.50	1.259	-0.05	0.159	0.200
07	1	LTE Band 26	15M	QPSK	36	39	Bottom of Laptop	0	On	26965	841.5	21.96	22.50	1.132	0.07	1.000	**1.132**
	1	LTE Band 26	15M	QPSK	36	39	Bottom of Laptop	0	On	26765	821.5	21.74	22.50	1.191	0.03	0.906	1.079
	1	LTE Band 26	15M	QPSK	36	39	Bottom of Laptop	0	On	26865	831.5	21.81	22.50	1.172	-0.01	0.948	1.111
	1	LTE Band 26	15M	QPSK	36	39	Bottom of Laptop	17	Off	26965	841.5	21.59	22.50	1.233	0.08	0.162	0.200
	1	LTE Band 26	15M	QPSK	75	0	Bottom of Laptop	0	On	26965	841.5	21.95	22.50	1.135	0.07	0.984	1.117

Plot No.	Sample	Band	BW (MHz)	Modulation	RB Size	RB Offset	Test Position	Gap (mm)	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)
	1	LTE Band 66	20M	QPSK	1	99	Bottom of Laptop	0	On	132322	1745	17.66	18.00	1.081	0.03	0.883	0.955
	1	LTE Band 66	20M	QPSK	1	99	Bottom of Laptop	0	On	132072	1720	17.32	18.00	1.169	0.02	0.808	0.945
	1	LTE Band 66	20M	QPSK	1	99	Bottom of Laptop	0	On	132572	1770	17.54	18.00	1.112	0.02	0.934	1.038
	1	LTE Band 66	20M	QPSK	1	99	Bottom of Laptop	17	Off	132322	1745	22.96	23.50	1.132	0.04	0.379	0.429
	1	LTE Band 66	20M	QPSK	1	99	Bottom of Laptop	17	Off	132072	1720	22.74	23.50	1.191	0.08	0.339	0.404
	1	LTE Band 66	20M	QPSK	1	99	Bottom of Laptop	17	Off	132572	1770	22.89	23.50	1.151	-0.01	0.363	0.418
	1	LTE Band 66	20M	QPSK	50	50	Bottom of Laptop	0	On	132322	1745	17.53	18.00	1.114	-0.03	0.916	1.021
	1	LTE Band 66	20M	QPSK	50	50	Bottom of Laptop	0	On	132072	1720	17.39	18.00	1.151	0.02	0.889	1.023
08	1	LTE Band 66	20M	QPSK	50	50	Bottom of Laptop	0	On	132572	1770	17.37	18.00	1.156	0.04	0.965	**1.116**
	1	LTE Band 66	20M	QPSK	50	50	Bottom of Laptop	17	Off	132322	1745	22.00	22.50	1.122	0.09	0.291	0.327
	1	LTE Band 66	20M	QPSK	100	0	Bottom of Laptop	0	On	132322	1745	17.54	18.00	1.112	-0.03	0.951	1.057
	1	LTE Band 2	20M	QPSK	1	0	Bottom of Laptop	0	On	18900	1880	17.27	17.50	1.054	0.06	0.941	0.992
	1	LTE Band 2	20M	QPSK	1	0	Bottom of Laptop	0	On	18700	1860	17.25	17.50	1.059	0.02	0.852	0.902
	1	LTE Band 2	20M	QPSK	1	0	Bottom of Laptop	0	On	19100	1900	17.04	17.50	1.112	0.01	0.977	1.086
	1	LTE Band 2	20M	QPSK	1	0	Bottom of Laptop	17	Off	18900	1880	22.72	23.50	1.197	-0.03	0.375	0.449
	1	LTE Band 2	20M	QPSK	1	0	Bottom of Laptop	17	Off	18700	1860	22.55	23.50	1.245	0.05	0.357	0.444
	1	LTE Band 2	20M	QPSK	1	0	Bottom of Laptop	17	Off	19100	1900	22.45	23.50	1.274	0.02	0.381	0.485
	1	LTE Band 2	20M	QPSK	50	0	Bottom of Laptop	0	On	18900	1880	17.17	17.50	1.079	0.01	0.945	1.020
	1	LTE Band 2	20M	QPSK	50	0	Bottom of Laptop	0	On	18700	1860	17.09	17.50	1.099	0.06	0.857	0.942
09	1	LTE Band 2	20M	QPSK	50	0	Bottom of Laptop	0	On	19100	1900	16.92	17.50	1.143	0.02	0.968	**1.106**
	1	LTE Band 2	20M	QPSK	50	0	Bottom of Laptop	17	Off	18900	1880	22.13	22.50	1.089	0.06	0.300	0.327
	1	LTE Band 2	20M	QPSK	100	0	Bottom of Laptop	0	On	18900	1880	17.16	17.50	1.081	0.01	0.955	1.033
	1	LTE Band 30	10M	QPSK	1	49	Bottom of Laptop	0	On	27710	2310	17.37	18.00	1.156	0.01	0.930	1.075
	1	LTE Band 30	10M	QPSK	1	49	Bottom of Laptop	17	Off	27710	2310	22.55	23.50	1.245	0.07	0.359	0.447
	1	LTE Band 30	10M	QPSK	25	25	Bottom of Laptop	0	On	27710	2310	17.36	18.00	1.159	0.05	0.824	0.955
	1	LTE Band 30	10M	QPSK	25	25	Bottom of Laptop	17	Off	27710	2310	21.56	22.50	1.242	0.03	0.273	0.339
10	1	LTE Band 30	10M	QPSK	50	0	Bottom of Laptop	0	On	27710	2310	17.30	18.00	1.175	-0.06	0.960	**1.128**

Plot No.	Sample	Band	BW (MHz)	Modulation	RB Size	RB Offset	Test Position	Gap (mm)	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)
	1	LTE Band 7	20M	QPSK	1	99	Bottom of Laptop	0	On	21100	2535	17.66	18.00	1.081	0.01	0.900	0.973
11	1	LTE Band 7	20M	QPSK	1	99	Bottom of Laptop	0	On	20850	2510	17.36	18.00	1.159	0.07	0.889	**1.030**
	1	LTE Band 7	20M	QPSK	1	99	Bottom of Laptop	0	On	21350	2560	17.37	18.00	1.156	0.05	0.832	0.962
	1	LTE Band 7	20M	QPSK	1	99	Bottom of Laptop	17	Off	21100	2535	22.62	23.50	1.225	0.01	0.326	0.399
	1	LTE Band 7	20M	QPSK	1	99	Bottom of Laptop	17	Off	20850	2510	22.51	23.50	1.256	0.04	0.321	0.403
	1	LTE Band 7	20M	QPSK	1	99	Bottom of Laptop	17	Off	21350	2560	22.58	23.50	1.236	0.02	0.300	0.371
	1	LTE Band 7	20M	QPSK	50	0	Bottom of Laptop	0	On	21350	2560	17.58	18.00	1.102	0.02	0.845	0.931
	1	LTE Band 7	20M	QPSK	50	0	Bottom of Laptop	0	On	21100	2535	17.56	18.00	1.107	0.05	0.927	1.026
	1	LTE Band 7	20M	QPSK	50	0	Bottom of Laptop	0	On	20850	2510	17.31	18.00	1.172	0.06	0.844	0.989
	1	LTE Band 7	20M	QPSK	50	0	Bottom of Laptop	17	Off	21100	2535	21.62	22.50	1.225	0.05	0.267	0.327
	1	LTE Band 7	20M	QPSK	100	0	Bottom of Laptop	0	On	21100	2535	17.65	18.00	1.084	0.03	0.840	0.910

<TDD LTE SAR>

Plot No.	Sample	Band	BW (MHz)	Modulation	RB Size	RB Offset	Test Position	Gap (mm)	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)
	1	LTE Band 41	20M	QPSK	1	49	Bottom of Laptop	0	On	40185	2549.5	18.70	19.00	1.072	62.9	1.006	0.01	0.727	0.784
	1	LTE Band 41	20M	QPSK	1	49	Bottom of Laptop	0	On	39750	2506	18.56	19.00	1.107	62.9	1.006	0.05	0.667	0.743
	1	LTE Band 41	20M	QPSK	1	49	Bottom of Laptop	0	On	40620	2593	18.07	19.00	1.239	62.9	1.006	0.03	0.782	0.975
	1	LTE Band 41	20M	QPSK	1	49	Bottom of Laptop	0	On	41055	2636.5	18.60	19.00	1.096	62.9	1.006	0.04	0.686	0.757
	1	LTE Band 41	20M	QPSK	1	49	Bottom of Laptop	0	On	41490	2680	18.21	19.00	1.199	62.9	1.006	0.05	0.840	1.014
	1	LTE Band 41	20M	QPSK	1	49	Bottom of Laptop	17	Off	40185	2549.5	22.64	23.50	1.219	62.9	1.006	0.08	0.195	0.239
	1	LTE Band 41	20M	QPSK	1	49	Bottom of Laptop	17	Off	39750	2506	22.38	23.50	1.294	62.9	1.006	0.01	0.192	0.250
	1	LTE Band 41	20M	QPSK	1	49	Bottom of Laptop	17	Off	40620	2593	22.61	23.50	1.227	62.9	1.006	-0.02	0.218	0.269
	1	LTE Band 41	20M	QPSK	1	49	Bottom of Laptop	17	Off	41055	2636.5	22.52	23.50	1.253	62.9	1.006	0.01	0.209	0.263
	1	LTE Band 41	20M	QPSK	1	49	Bottom of Laptop	17	Off	41490	2680	22.51	23.50	1.256	62.9	1.006	-0.04	0.257	0.325
	1	LTE Band 41	20M	QPSK	50	50	Bottom of Laptop	0	On	40185	2549.5	18.68	19.00	1.076	62.9	1.006	0.03	0.743	0.805
	1	LTE Band 41	20M	QPSK	50	50	Bottom of Laptop	0	On	39750	2506	18.36	19.00	1.159	62.9	1.006	0.04	0.676	0.788
	1	LTE Band 41	20M	QPSK	50	50	Bottom of Laptop	0	On	40620	2593	17.99	19.00	1.262	62.9	1.006	0.01	0.789	1.002
	1	LTE Band 41	20M	QPSK	50	50	Bottom of Laptop	0	On	41055	2636.5	18.38	19.00	1.153	62.9	1.006	0.07	0.655	0.760
12	1	LTE Band 41	20M	QPSK	50	50	Bottom of Laptop	0	On	41490	2680	18.02	19.00	1.253	62.9	1.006	0.01	0.838	**1.056**
	1	LTE Band 41	20M	QPSK	50	50	Bottom of Laptop	17	Off	40185	2549.5	21.92	22.50	1.143	62.9	1.006	0.04	0.151	0.174
	1	LTE Band 41	20M	QPSK	100	0	Bottom of Laptop	0	On	40185	2549.5	18.55	19.00	1.109	62.9	1.006	0.06	0.780	0.870

<WLAN2.4GHz SAR>

Plot No.	Sample	Ant. Port	Band	Mode	Test Position	Gap (mm)	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)
	1	1	WLAN2.4GHz	802.11b 1Mbps	Bottom of Laptop	0	6	2437	19.44	20.50	1.278	98.96	1.011	0.09	0.546	0.705
	1	1	WLAN2.4GHz	802.11b 1Mbps	Back of Display Screen	25	6	2437	19.44	20.50	1.278	98.96	1.011	0.02	0.001	0.001
13	1	1	WLAN2.4GHz	802.11b 1Mbps	Bottom of Laptop	0	1	2412	18.96	20.50	1.427	98.96	1.011	0.05	0.493	**0.711**
	1	1	WLAN2.4GHz	802.11b 1Mbps	Bottom of Laptop	17	1	2412	18.96	20.50	1.427	98.96	1.011	0.08	0.072	0.104
	1	1	WLAN2.4GHz	802.11b 1Mbps	Bottom of Laptop	0	11	2462	19.01	20.50	1.411	98.96	1.011	0.03	0.497	0.709
	1	2	WLAN2.4GHz	802.11b 1Mbps	Bottom of Laptop	0	6	2437	19.47	20.50	1.268	99.31	1.007	0.05	0.487	0.622
	1	2	WLAN2.4GHz	802.11b 1Mbps	Back of Display Screen	25	6	2437	19.47	20.50	1.268	99.31	1.007	0	<0.001	<0.001
	1	2	WLAN2.4GHz	802.11b 1Mbps	Bottom of Laptop	17	6	2437	19.47	20.50	1.268	99.31	1.007	0.06	0.078	0.100
	1	2	WLAN2.4GHz	802.11b 1Mbps	Bottom of Laptop	0	1	2412	18.64	20.50	1.535	99.31	1.007	0.04	0.401	0.620
	1	2	WLAN2.4GHz	802.11b 1Mbps	Bottom of Laptop	0	11	2462	18.55	20.50	1.567	99.31	1.007	0.08	0.321	0.506

<WLAN5GHz SAR>

Plot No.	Sample	Ant. Port	Band	Mode	Test Position	Gap (mm)	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)
	1	1	WLAN5.3GHz	802.11a 6Mbps	Bottom of Laptop	0	52	5260	14.94	15.00	1.013	95.00	1.053	0.05	0.357	0.381
	1	1	WLAN5.3GHz	802.11a 6Mbps	Back of Display Screen	25	52	5260	14.94	15.00	1.013	95.00	1.053	0	<0.001	<0.001
	1	1	WLAN5.3GHz	802.11a 6Mbps	Bottom of Laptop	0	56	5280	14.58	15.00	1.102	95.00	1.053	0.04	0.272	0.315
	1	1	WLAN5.3GHz	802.11a 6Mbps	Bottom of Laptop	0	60	5300	14.63	15.00	1.088	95.00	1.053	0.08	0.263	0.301
	1	1	WLAN5.3GHz	802.11a 6Mbps	Bottom of Laptop	0	64	5320	13.79	15.00	1.320	95.00	1.053	0.09	0.224	0.311
	1	2	WLAN5.3GHz	802.11a 6Mbps	Bottom of Laptop	0	60	5300	14.77	15.00	1.054	94.77	1.055	0.09	0.383	0.426
	1	2	WLAN5.3GHz	802.11a 6Mbps	Back of Display Screen	25	60	5300	14.77	15.00	1.054	94.77	1.055	0	<0.001	<0.001
14	1	2	WLAN5.3GHz	802.11a 6Mbps	Bottom of Laptop	0	52	5260	14.73	15.00	1.063	94.77	1.055	0.02	0.512	**0.574**
	1	2	WLAN5.3GHz	802.11a 6Mbps	Bottom of Laptop	0	56	5280	14.66	15.00	1.081	94.77	1.055	0.05	0.420	0.479
	1	2	WLAN5.3GHz	802.11a 6Mbps	Bottom of Laptop	0	64	5320	13.58	15.00	1.386	94.77	1.055	0.04	0.293	0.428
	1	1	WLAN5.5GHz	802.11a 6Mbps	Bottom of Laptop	0	116	5580	14.80	15.00	1.046	95.00	1.053	0.09	0.586	0.646
	1	1	WLAN5.5GHz	802.11a 6Mbps	Back of Display Screen	25	116	5580	14.80	15.00	1.046	95.00	1.053	0	0.001	0.001
	1	1	WLAN5.5GHz	802.11a 6Mbps	Bottom of Laptop	0	100	5500	13.30	15.00	1.478	95.00	1.053	0.03	0.300	0.467
15	1	1	WLAN5.5GHz	802.11a 6Mbps	Bottom of Laptop	0	124	5620	14.69	15.00	1.074	95.00	1.053	0.04	0.778	**0.880**
	1	1	WLAN5.5GHz	802.11a 6Mbps	Bottom of Laptop	0	132	5660	14.33	15.00	1.167	95.00	1.053	0.06	0.486	0.597
	1	1	WLAN5.5GHz	802.11a 6Mbps	Bottom of Laptop	0	140	5700	13.75	15.00	1.333	95.00	1.053	0.06	0.557	0.782
	1	1	WLAN5.5GHz	802.11a 6Mbps	Bottom of Laptop	0	144	5720	9.43	15.00	3.604	95.00	1.053	0.01	0.203	0.770
	1	2	WLAN5.5GHz	802.11a 6Mbps	Bottom of Laptop	0	116	5580	14.98	15.00	1.004	94.77	1.055	0.03	0.686	0.727
	1	2	WLAN5.5GHz	802.11a 6Mbps	Back of Display Screen	25	116	5580	14.98	15.00	1.004	94.77	1.055	0.02	0.002	0.002
	1	2	WLAN5.5GHz	802.11a 6Mbps	Bottom of Laptop	17	116	5580	14.98	15.00	1.004	94.77	1.055	0.06	0.232	0.246
	1	2	WLAN5.5GHz	802.11a 6Mbps	Bottom of Laptop	0	100	5500	13.84	15.00	1.305	94.77	1.055	0.05	0.429	0.591
	1	2	WLAN5.5GHz	802.11a 6Mbps	Bottom of Laptop	0	124	5620	14.67	15.00	1.079	94.77	1.055	0.08	0.623	0.709
	1	2	WLAN5.5GHz	802.11a 6Mbps	Bottom of Laptop	0	132	5660	14.59	15.00	1.099	94.77	1.055	0.03	0.570	0.661
	1	2	WLAN5.5GHz	802.11a 6Mbps	Bottom of Laptop	0	140	5700	14.20	15.00	1.201	94.77	1.055	0.06	0.443	0.561
	1	2	WLAN5.5GHz	802.11a 6Mbps	Bottom of Laptop	0	144	5720	9.00	15.00	3.978	94.77	1.055	0.08	0.087	0.366
	1	1	WLAN5.8GHz	802.11a 6Mbps	Bottom of Laptop	0	165	5825	14.97	15.00	1.007	95.00	1.053	0.01	0.560	0.594
	1	1	WLAN5.8GHz	802.11a 6Mbps	Back of Display Screen	25	165	5825	14.97	15.00	1.007	95.00	1.053	0.07	0.001	0.001
16	1	1	WLAN5.8GHz	802.11a 6Mbps	Bottom of Laptop	0	149	5745	13.56	15.00	1.392	95.00	1.053	0.07	0.640	**0.938**
	1	1	WLAN5.8GHz	802.11a 6Mbps	Bottom of Laptop	17	149	5745	13.56	15.00	1.392	95.00	1.053	0.07	0.258	0.378
	1	1	WLAN5.8GHz	802.11a 6Mbps	Bottom of Laptop	0	157	5785	14.82	15.00	1.042	95.00	1.053	0.04	0.832	0.913
	1	2	WLAN5.8GHz	802.11a 6Mbps	Bottom of Laptop	0	157	5785	14.81	15.00	1.045	94.77	1.055	0.03	0.520	0.573
	1	2	WLAN5.8GHz	802.11a 6Mbps	Back of Display Screen	25	157	5785	14.81	15.00	1.045	94.77	1.055	0	<0.001	<0.001
	1	2	WLAN5.8GHz	802.11a 6Mbps	Bottom of Laptop	0	149	5745	13.07	15.00	1.558	94.77	1.055	0.06	0.387	0.636
	1	2	WLAN5.8GHz	802.11a 6Mbps	Bottom of Laptop	0	165	5825	14.37	15.00	1.155	94.77	1.055	0.05	0.463	0.564

<Bluetooth SAR>

Plot No.	Sample	Ant. Port	Band	Mode	Test Position	Gap (mm)	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)
17	1	1	Bluetooth	1Mbps	Bottom of Laptop	0	78	2480	6.85	7.00	1.034	76.83	1.084	0.06	0.022	**0.025**
	1	1	Bluetooth	1Mbps	Back of Display Screen	25	78	2480	6.85	7.00	1.034	76.83	1.084	0	<0.001	<0.001
	1	1	Bluetooth	1Mbps	Bottom of Laptop	17	78	2480	6.85	7.00	1.034	76.83	1.084	0	<0.001	<0.001
	1	1	Bluetooth	1Mbps	Bottom of Laptop	0	0	2402	6.04	7.00	1.034	76.83	1.084	0.05	0.015	0.020
	1	1	Bluetooth	1Mbps	Bottom of Laptop	0	39	2441	6.59	7.00	1.034	76.83	1.084	0.03	0.016	0.019

15.2 Repeated SAR Measurement

No.	Sample	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Sensor	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	1	WCDMA Band V	-	-	-	-	RMC 12.2Kbps	Bottom of Laptop	0	On	4233	846.6	22.45	22.50	1.012	-	-	0.09	1.060	1	1.072
2nd	1	WCDMA Band V	-	-	-	-	RMC 12.2Kbps	Bottom of Laptop	0	On	4233	846.6	22.45	22.50	1.012	-	-	0.02	1.010	1.050	1.022
1st	1	WCDMA Band IV	-	-	-	-	RMC 12.2Kbps	Bottom of Laptop	0	On	1513	1752.6	18.18	18.50	1.076	-	-	0.02	1.060	1	1.141
2nd	1	WCDMA Band IV	-	-	-	-	RMC 12.2Kbps	Bottom of Laptop	0	On	1513	1752.6	18.18	18.50	1.076	-	-	0.06	1.020	1.039	1.098
1st	1	WCDMA Band II	-	-	-	-	RMC 12.2Kbps	Bottom of Laptop	0	On	9400	1880	17.26	17.50	1.057	-	-	0.05	1.080	1	1.141
2nd	1	WCDMA Band II	-	-	-	-	RMC 12.2Kbps	Bottom of Laptop	0	On	9400	1880	17.26	17.50	1.057	-	-	0.01	1.040	1.038	1.099
1st	1	LTE Band 13	10M	QPSK	25	0	-	Bottom of Laptop	0	On	23230	782	21.87	22.50	1.156	-	-	-0.07	0.945	1	1.093
2nd	1	LTE Band 13	10M	QPSK	25	0	-	Bottom of Laptop	0	On	23230	782	21.87	22.50	1.156	-	-	-0.03	0.936	1.010	1.082
1st	1	LTE Band 30	10M	QPSK	50	0	-	Bottom of Laptop	0	On	27710	2310	17.30	18.00	1.175	-	-	-0.06	0.960	1	1.128
2nd	1	LTE Band 30	10M	QPSK	50	0	-	Bottom of Laptop	0	On	27710	2310	17.30	18.00	1.175	-	-	0.03	0.902	1.064	1.060
1st	1	LTE Band 7	20M	QPSK	50	0	-	Bottom of Laptop	0	On	21100	2535	17.56	18.00	1.107			0.05	0.927	1	1.026
2nd	1	LTE Band 7	20M	QPSK	50	0	-	Bottom of Laptop	0	On	21100	2535	17.56	18.00	1.107			0.07	0.915	1.013	1.013
1st	1	WLAN5.8GHz Ant.1	-	-	-	-	802.11a 6Mbps	Bottom of Laptop	0		157	5785	14.82	15.00	1.042	95.00	1.053	0.04	0.832	1	0.913
2nd	1	WLAN5.8GHz Ant.1	-	-	-	-	802.11a 6Mbps	Bottom of Laptop	0		157	5785	14.82	15.00	1.042	95.00	1.053	0.08	0.826	1.007	0.907

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.

16. Simultaneous Transmission Analysis

No.	Simultaneous Transmission Configurations	Body
1.	WCDMA(Data) + WLAN2.4GHz SISO(data)	Yes
2.	WCDMA(Data) + WLAN2.4GHz MIMO(data)	Yes
3.	WCDMA(Data) + WLAN5 GHz SISO(data)	Yes
4.	WCDMA(Data) + WLAN5 GHz MIMO(data)	Yes
5.	WCDMA(Data) + Bluetooth Ant.2(data)	Yes
6.	WCDMA(Data) + WLAN2.4GHz Ant.2(data) + Bluetooth Ant.1(data)	Yes
7.	WCDMA(Data) + WLAN5GHz Ant.2(data) + Bluetooth Ant.1(data)	Yes
8.	LTE (Data) + WLAN2.4GHz SISO(data)	Yes
9.	LTE (Data) + WLAN2.4GHz MIMO(data)	Yes
10.	LTE (Data) + WLAN5 GHz SISO(data)	Yes
11.	LTE (Data) + WLAN5 GHz MIMO(data)	Yes
12.	LTE (Data) + Bluetooth Ant.1(data)	Yes
13.	LTE (Data) + WLAN2.4GHz Ant.2(data) + Bluetooth Ant.1(data)	Yes
14.	LTE (Data) + WLAN5GHz Ant.2(data) + Bluetooth Ant.1(data)	Yes
15.	WLAN2.4GHz Ant.1(data) + WLAN2.4GHz Ant.2(data)	Yes
16.	WLAN5GHz Ant.1(data) + WLAN5GHz Ant.2(data)	Yes
17.	WLAN2.4GHz Ant.2(data) + Bluetooth Ant.1(data)	Yes
18.	WLAN5GHz Ant.2(data) + Bluetooth Ant.1(data)	Yes

General Note:

1. EUT will choose either WCDMA or LTE according to the network signal condition; therefore, they will not operate simultaneously at any moment.
2. WLAN Ant.1 and Bluetooth share the same antenna, and cannot transmit simultaneously.
3. 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.
4. For simultaneously analysis, since the SAR summation of 3 transmitters can cover others combination of 2 transmitters, therefore in this section did not additional to evaluate 2TX combination of simultaneously transmission.
5. For simultaneous transmission analysis for exposure position of bottom of laptop 17mm, WLAN SAR tested at 0mm separation is worse and the test data is used for conservative SAR summation.
6. The reported SAR summation is calculated based on the same configuration and test position.
7. The worst case 5 GHz WLAN reported SAR for each configuration was used for SAR summation.
8. 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.
   v) The SPLSR calculated results please refer to section 16.2.

16.1 Body Exposure Conditions

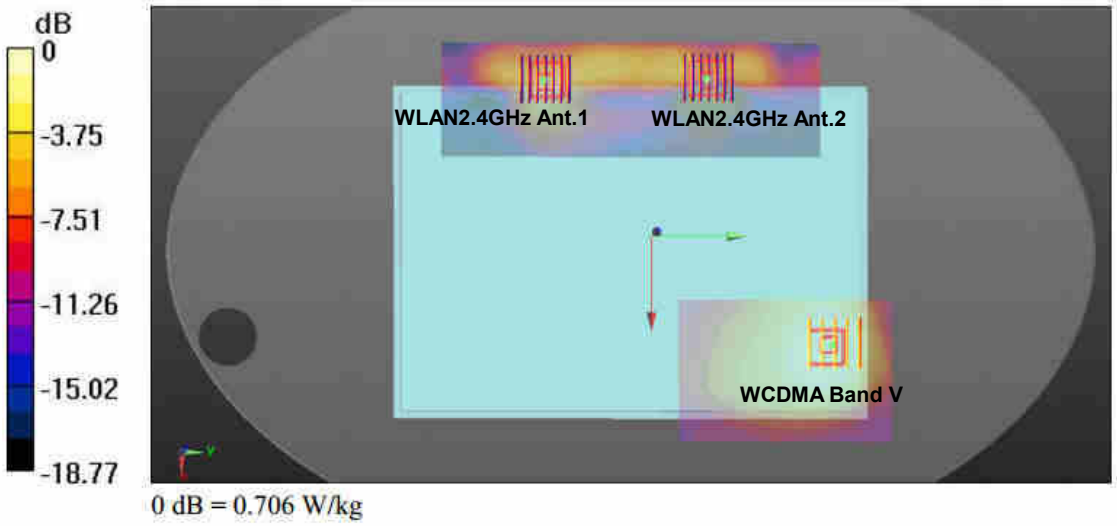
WWAN Band		Exposure Position	1	2	3	4	5	6	1+2+3			1+4+5			1+3+6			1+5+6		
			WWAN	2.4GHz WLAN Ant.1	2.4GHz WLAN Ant.2	5GHz WLAN Ant.1	5GHz WLAN Ant.2	Bluetooth Ant.1	Summed 1g SAR (W/kg)	SPLSR	Case No	Summed 1g SAR (W/kg)	SPLSR	Case No	Summed 1g SAR (W/kg)	SPLSR	Case No	Summed 1g SAR (W/kg)	SPLSR	Case No
			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	Band V	Bottom of Laptop at 0mm	1.100	0.711	0.622	0.938	0.727	0.025	**2.43**	**0.01**	**#1**	**2.77**	**0.03**	**#13**	**1.75**	**0.01**	**#25**	**1.85**	**0.01**	**#36**
		Bottom of Laptop at 17mm	0.279	0.104	0.100	0.378	0.246	<0.001	0.48			0.90			0.38			0.53		
	Band IV	Bottom of Laptop at 0mm	1.141	0.711	0.622	0.938	0.727	0.025	**2.47**	**0.01**	**#2**	**2.81**	**0.03**	**#14**	**1.79**	**0.01**	**#26**	**1.89**	**0.01**	**#37**
		Bottom of Laptop at 17mm	0.501	0.104	0.100	0.378	0.246	<0.001	0.71			1.13			0.60			0.75		
	Band II	Bottom of Laptop at 0mm	1.148	0.711	0.622	0.938	0.727	0.025	**2.48**	**0.01**	**#3**	**2.81**	**0.03**	**#15**	**1.80**	**0.01**	**#27**	**1.90**	**0.01**	**#38**
		Bottom of Laptop at 17mm	0.481	0.104	0.100	0.378	0.246	<0.001	0.69			1.11			0.58			0.73		
LTE	Band 12	Bottom of Laptop at 0mm	0.939	0.711	0.622	0.938	0.727	0.025	**2.27**	**0.01**	**#4**	**2.60**	**0.03**	**#16**	**1.59**			**1.69**	**0.01**	**#39**
	Band 13	Bottom of Laptop at 0mm	1.093	0.711	0.622	0.938	0.727	0.025	**2.43**	**0.01**	**#5**	**2.76**	**0.03**	**#17**	**1.74**	**0.01**	**#28**	**1.85**	**0.01**	**#40**
		Bottom of Laptop at 17mm	0.161	0.104	0.100	0.378	0.246	<0.001	0.37			0.79			0.26			0.41		
	Band 5	Bottom of Laptop at 0mm	1.106	0.711	0.622	0.938	0.727	0.025	**2.44**	**0.01**	**#6**	**2.77**	**0.03**	**#18**	**1.75**	**0.01**	**#29**	**1.86**	**0.01**	**#41**
		Bottom of Laptop at 17mm	0.192	0.104	0.100	0.378	0.246	<0.001	0.40			0.82			0.29			0.44		
	Band 26	Bottom of Laptop at 0mm	1.132	0.711	0.622	0.938	0.727	0.025	**2.47**	**0.01**	**#7**	**2.80**	**0.03**	**#19**	**1.78**	**0.01**	**#30**	**1.88**	**0.01**	**#42**
		Bottom of Laptop at 17mm	0.200	0.104	0.100	0.378	0.246	<0.001	0.40			0.82			0.30			0.45		
	Band 66	Bottom of Laptop at 0mm	1.116	0.711	0.622	0.938	0.727	0.025	**2.45**	**0.01**	**#8**	**2.78**	**0.03**	**#20**	**1.76**	**0.01**	**#31**	**1.87**	**0.01**	**#43**
		Bottom of Laptop at 17mm	0.429	0.104	0.100	0.378	0.246	<0.001	0.63			1.05			0.53			0.68		
	Band 2	Bottom of Laptop at 0mm	1.106	0.711	0.622	0.938	0.727	0.025	**2.44**	**0.01**	**#9**	**2.77**	**0.03**	**#21**	**1.75**	**0.01**	**#32**	**1.86**	**0.01**	**#44**
		Bottom of Laptop at 17mm	0.485	0.104	0.100	0.378	0.246	<0.001	0.69			1.11			0.59			0.73		
	Band 30	Bottom of Laptop at 0mm	1.128	0.711	0.622	0.938	0.727	0.025	**2.46**	**0.01**	**#10**	**2.79**	**0.03**	**#22**	**1.78**	**0.01**	**#33**	**1.88**	**0.01**	**#45**
		Bottom of Laptop at 17mm	0.447	0.104	0.100	0.378	0.246	<0.001	0.65			1.07			0.55			0.69		
	Band 7	Bottom of Laptop at 0mm	1.030	0.711	0.622	0.938	0.727	0.025	**2.36**	**0.01**	**#11**	**2.70**	**0.03**	**#23**	**1.68**	**0.01**	**#34**	**1.78**	**0.01**	**#46**
		Bottom of Laptop at 17mm	0.403	0.104	0.100	0.378	0.246	<0.001	0.61			1.03			0.50			0.65		
	Band 41	Bottom of Laptop at 0mm	1.056	0.711	0.622	0.938	0.727	0.025	**2.39**	**0.01**	**#12**	**2.72**	**0.03**	**#24**	**1.70**	**0.01**	**#35**	**1.81**	**0.01**	**#47**
		Bottom of Laptop at 17mm	0.325	0.104	0.100	0.378	0.246	<0.001	0.53			0.95			0.43			0.57		

16.2 SPLSR Evaluation and Analysis

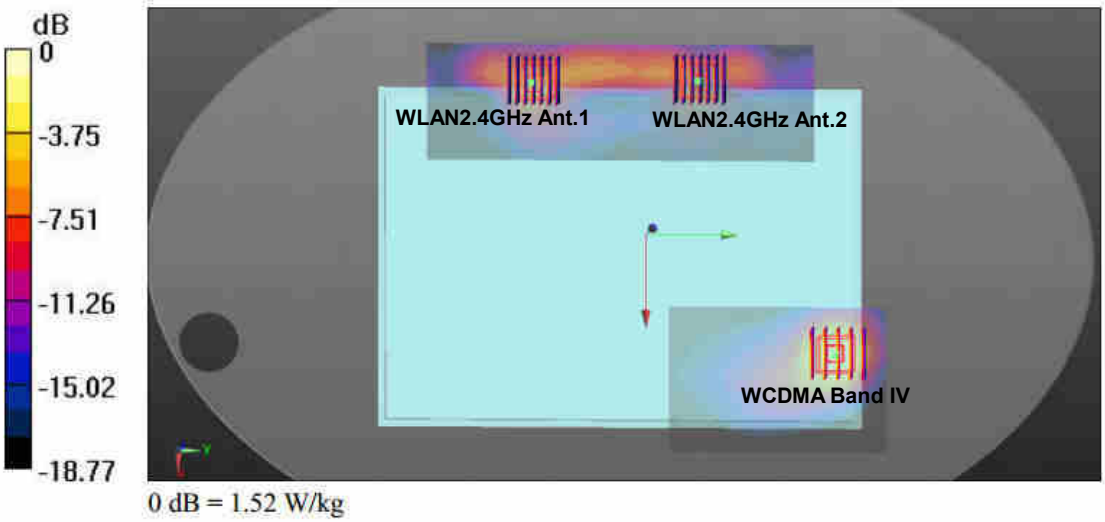
General Note:

1. When standalone SAR is measured for both antennas in the pair, the peak location separation distance is computed by the square root of [(x1−x2)2 + (y1−y2)2 + (z1−z2)2], where (x1, y1, z1) and (x2, y2, z2) are the coordinates in the area scans or extrapolated peak SAR locations in the zoom scans, as appropriate.
2. SPLSR = $(SAR_1 + SAR_2)^{1.5}$ / (*min. separation distance, mm*). If SPLSR ≤ 0.04, simultaneously transmission SAR measurement is not necessary.

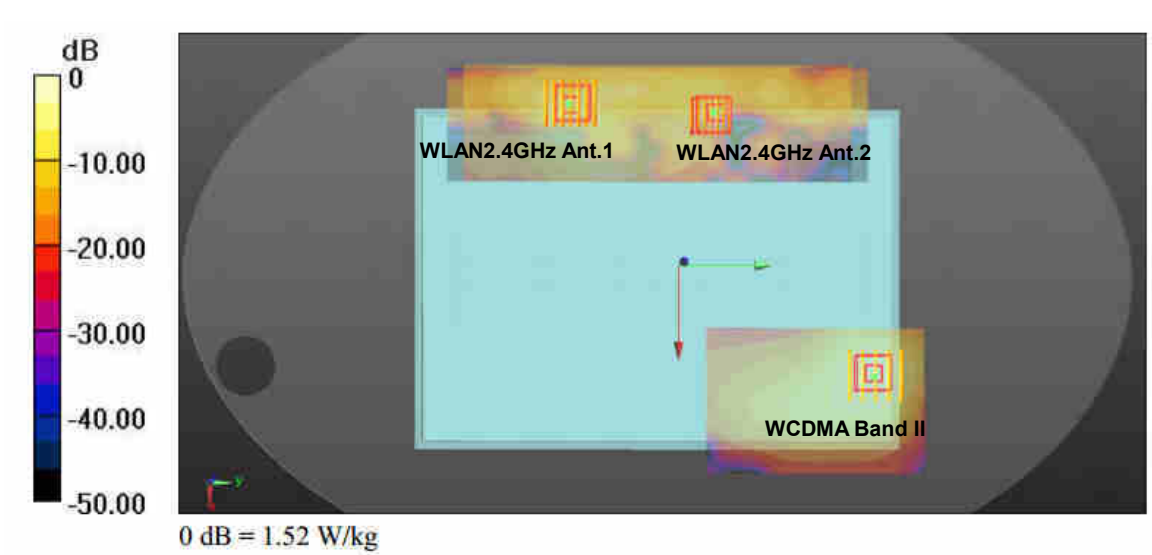
	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case #1	WCDMA Band V	Bottom of Laptop	1.100	0	0.0585	0.128	-0.18	247.6	1.81	0.01	Not required
	WLAN2.4GHz Ant.1		0.711	0	-0.108	-0.0552	-0.18				
	WCDMA Band V		1.100	0	0.0585	0.128	-0.18	185.6	1.72	0.01	Not required
	WLAN2.4GHz Ant.2		0.622	0	-0.109	0.048	-0.18				
	WLAN2.4GHz Ant.1		0.711	0	-0.108	-0.0552	-0.18	103.2	1.33	0.01	Not required
	WLAN2.4GHz Ant.2		0.622	0	-0.109	0.048	-0.18				



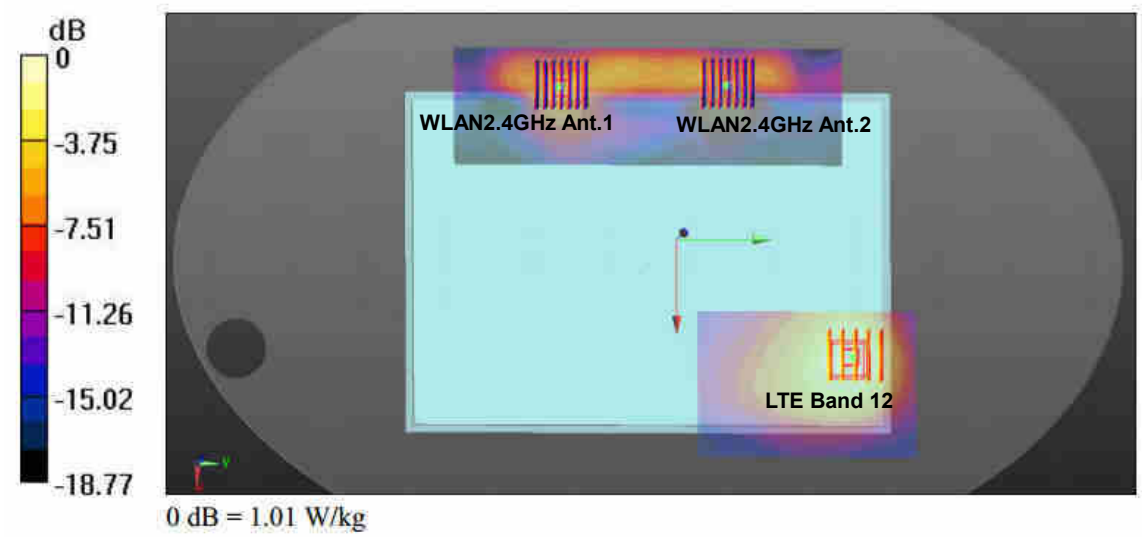
	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case #2	WCDMA Band IV	Bottom of Laptop	1.141	0	0.06	0.134	-0.18	253.0	1.85	0.01	Not required
	WLAN2.4GHz Ant.1		0.711	0	-0.108	-0.0552	-0.18				
	WCDMA Band IV		1.141	0	0.06	0.134	-0.18	189.6	1.76	0.01	Not required
	WLAN2.4GHz Ant.2		0.622	0	-0.109	0.048	-0.18				
	WLAN2.4GHz Ant.1		0.711	0	-0.108	-0.0552	-0.18	103.2	1.33	0.01	Not required
	WLAN2.4GHz Ant.2		0.622	0	-0.109	0.048	-0.18				



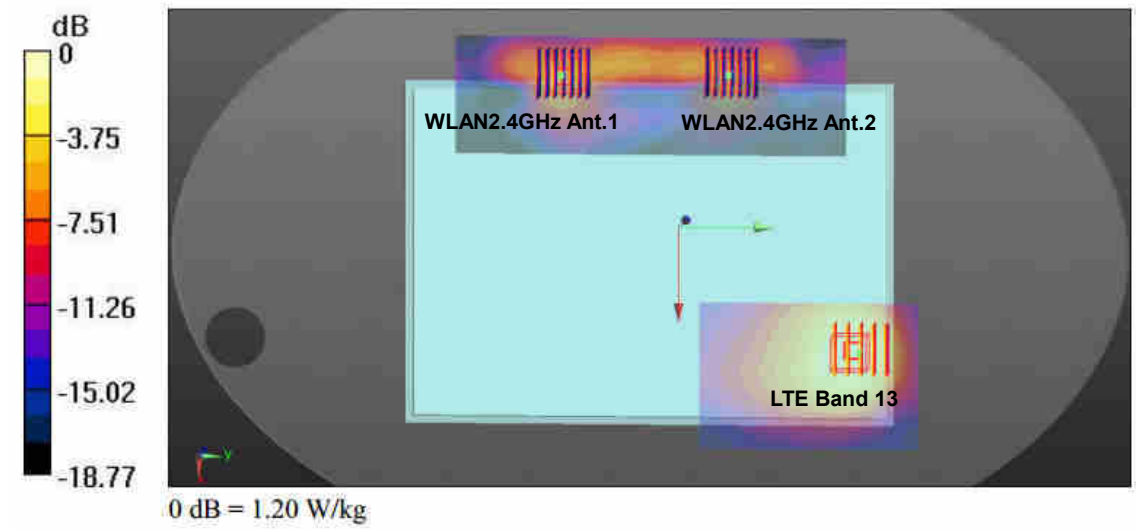
	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case #3	WCDMA Band II	Bottom of Laptop	1.148	0	0.06	0.134	-0.18	253.0	1.86	0.01	Not required
	WLAN2.4GHz Ant.1		0.711	0	-0.108	-0.0552	-0.18				
	WCDMA Band II		1.148	0	0.06	0.134	-0.18	189.6	1.77	0.01	Not required
	WLAN2.4GHz Ant.2		0.622	0	-0.109	0.048	-0.18				
	WLAN2.4GHz Ant.1		0.711	0	-0.108	-0.0552	-0.18	103.2	1.33	0.01	Not required
	WLAN2.4GHz Ant.2		0.622	0	-0.109	0.048	-0.18				



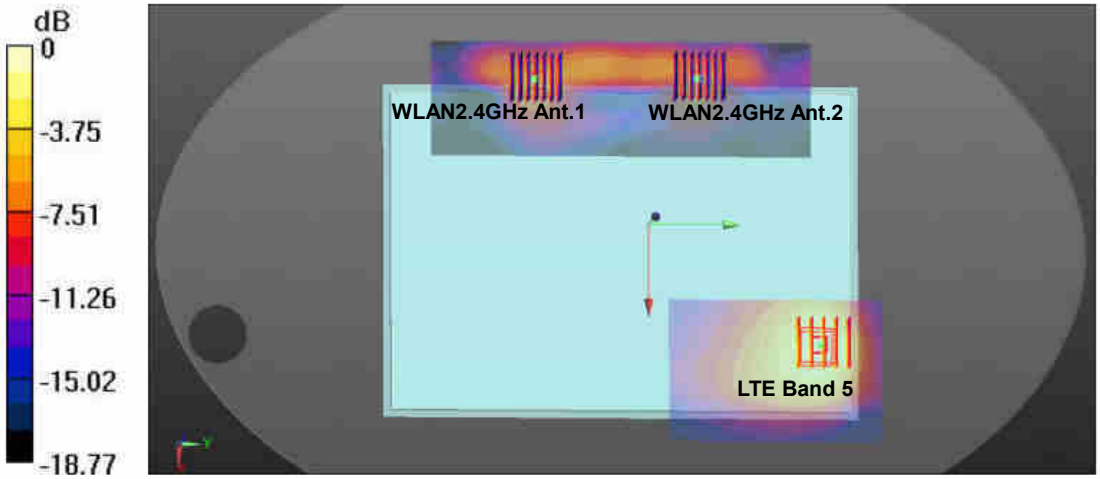
	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case #4	LTE Band 12	Bottom of Laptop	0.939	0	0.0585	0.126	-0.18	246.1	1.65	0.01	Not required
	WLAN2.4GHz Ant.1		0.711	0	-0.108	-0.0552	-0.18				
	LTE Band 12		0.939	0	0.0585	0.126	-0.18	184.8	1.56	0.01	Not required
	WLAN2.4GHz Ant.2		0.622	0	-0.109	0.048	-0.18				
	WLAN2.4GHz Ant.1		0.711	0	-0.108	-0.0552	-0.18	103.2	1.33	0.01	Not required
	WLAN2.4GHz Ant.2		0.622	0	-0.109	0.048	-0.18				



	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case #5	LTE Band 13	Bottom of Laptop	1.093	0	0.06	0.128	-0.18	248.6	1.80	0.01	Not required
	WLAN2.4GHz Ant.1		0.711	0	-0.108	-0.0552	-0.18				
	LTE Band 13		1.093	0	0.06	0.128	-0.18	187.0	1.72	0.01	Not required
	WLAN2.4GHz Ant.2		0.622	0	-0.109	0.048	-0.18				
	WLAN2.4GHz Ant.1		0.711	0	-0.108	-0.0552	-0.18	103.2	1.33	0.01	Not required
	WLAN2.4GHz Ant.2		0.622	0	-0.109	0.048	-0.18				

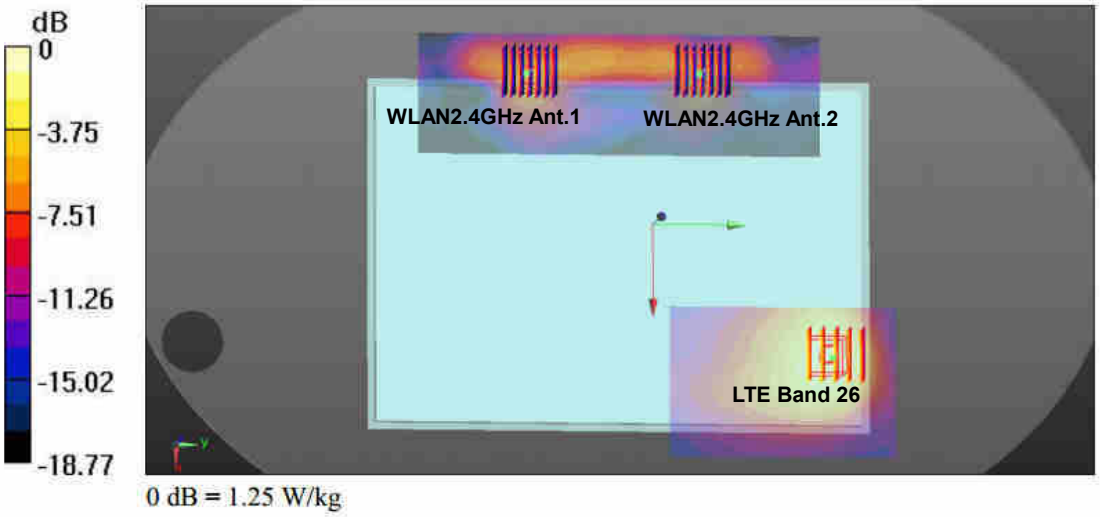


	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case #6	LTE Band 5	Bottom of Laptop	1.106	0	0.06	0.128	-0.18	248.6	1.82	0.01	Not required
	WLAN2.4GHz Ant.1		0.711	0	-0.108	-0.0552	-0.18				
	LTE Band 5		1.106	0	0.06	0.128	-0.18	187.0	1.73	0.01	Not required
	WLAN2.4GHz Ant.2		0.622	0	-0.109	0.048	-0.18				
	WLAN2.4GHz Ant.1		0.711	0	-0.108	-0.0552	-0.18	103.2	1.33	0.01	Not required
	WLAN2.4GHz Ant.2		0.622	0	-0.109	0.048	-0.18				

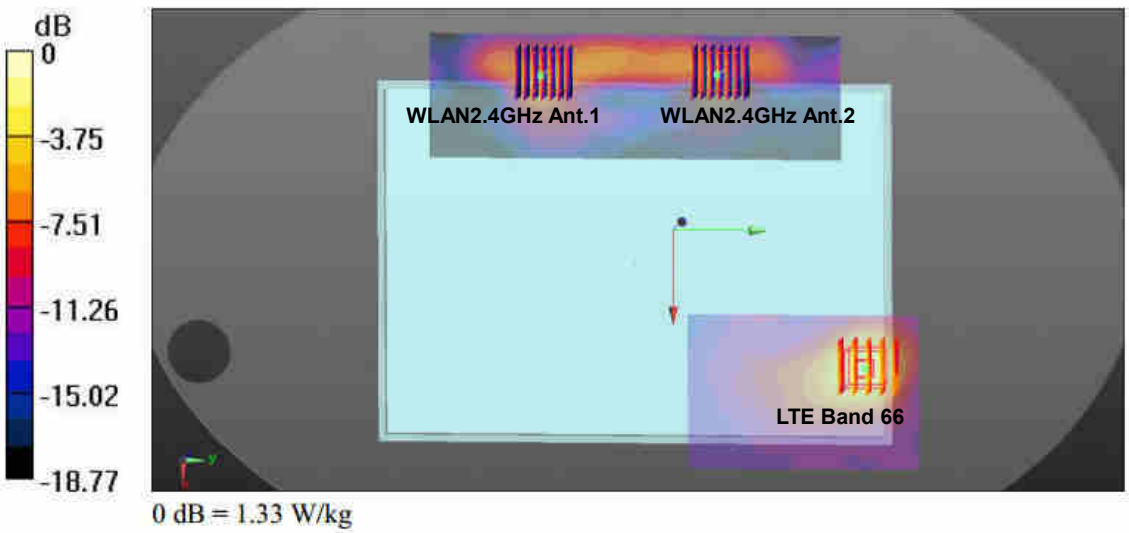


0 dB = 1.30 W/kg

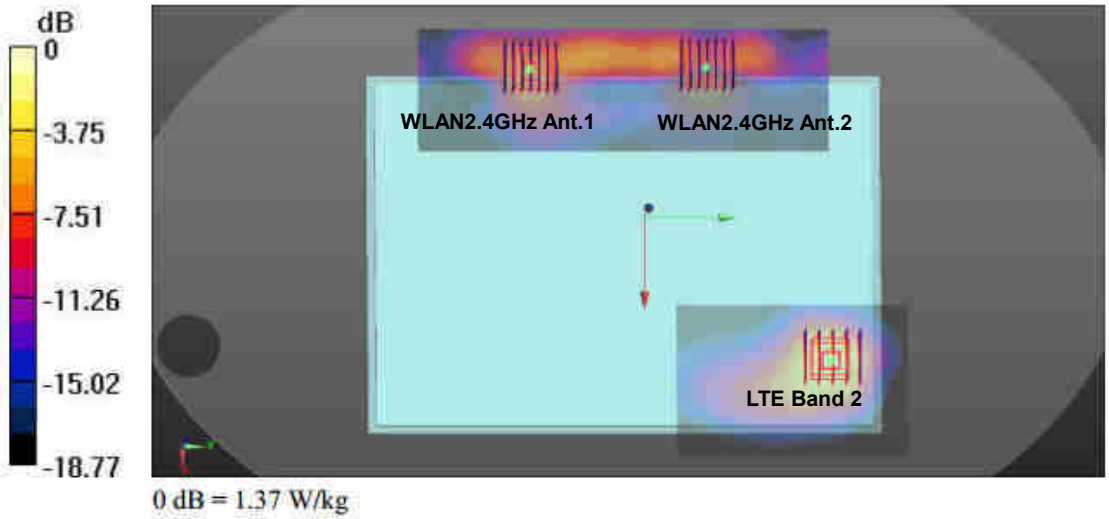
	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case #7	LTE Band 26	Bottom of Laptop	1.132	0	0.0585	0.126	-0.18	246.1	1.84	0.01	Not required
	WLAN2.4GHz Ant.1		0.711	0	-0.108	-0.0552	-0.18				
	LTE Band 26		1.132	0	0.0585	0.126	-0.18	184.8	1.75	0.01	Not required
	WLAN2.4GHz Ant.2		0.622	0	-0.109	0.048	-0.18				
	WLAN2.4GHz Ant.1		0.711	0	-0.108	-0.0552	-0.18	103.2	1.33	0.01	Not required
	WLAN2.4GHz Ant.2		0.622	0	-0.109	0.048	-0.18				



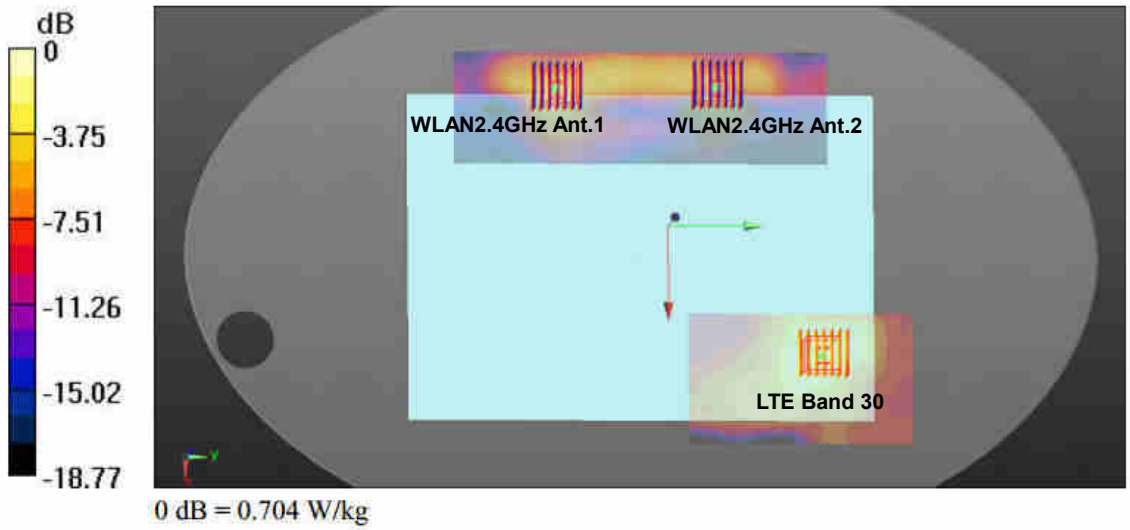
	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case #8	LTE Band 66	Bottom of Laptop	1.116	0	0.0615	0.134	-0.18	254.0	1.83	0.01	Not required
	WLAN2.4GHz Ant.1		0.711	0	-0.108	-0.0552	-0.18				
	LTE Band 66		1.116	0	0.0615	0.134	-0.18	191.0	1.74	0.01	Not required
	WLAN2.4GHz Ant.2		0.622	0	-0.109	0.048	-0.18				
	WLAN2.4GHz Ant.1		0.711	0	-0.108	-0.0552	-0.18	103.2	1.33	0.01	Not required
	WLAN2.4GHz Ant.2		0.622	0	-0.109	0.048	-0.18				



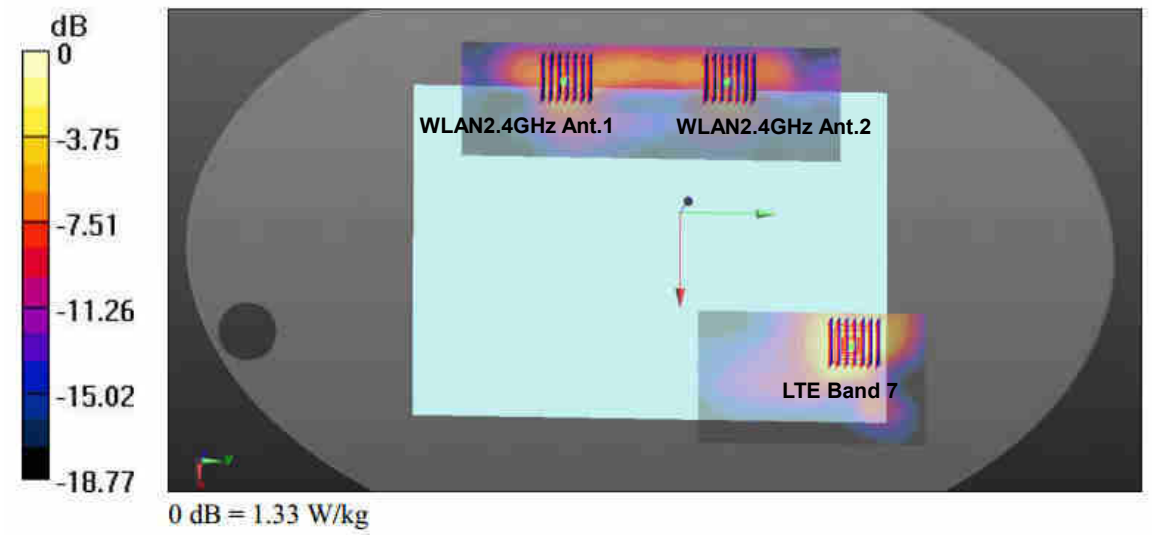
	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case #9	LTE Band 2	Bottom of Laptop	1.106	0	0.063	0.12	-0.18	244.8	1.82	0.01	Not required
	WLAN2.4GHz Ant.1		0.711	0	-0.108	-0.0552	-0.18				
	LTE Band 2		1.106	0	0.063	0.12	-0.18	186.5	1.73	0.01	Not required
	WLAN2.4GHz Ant.2		0.622	0	-0.109	0.048	-0.18				
	WLAN2.4GHz Ant.1		0.711	0	-0.108	-0.0552	-0.18	103.2	1.33	0.01	Not required
	WLAN2.4GHz Ant.2		0.622	0	-0.109	0.048	-0.18				



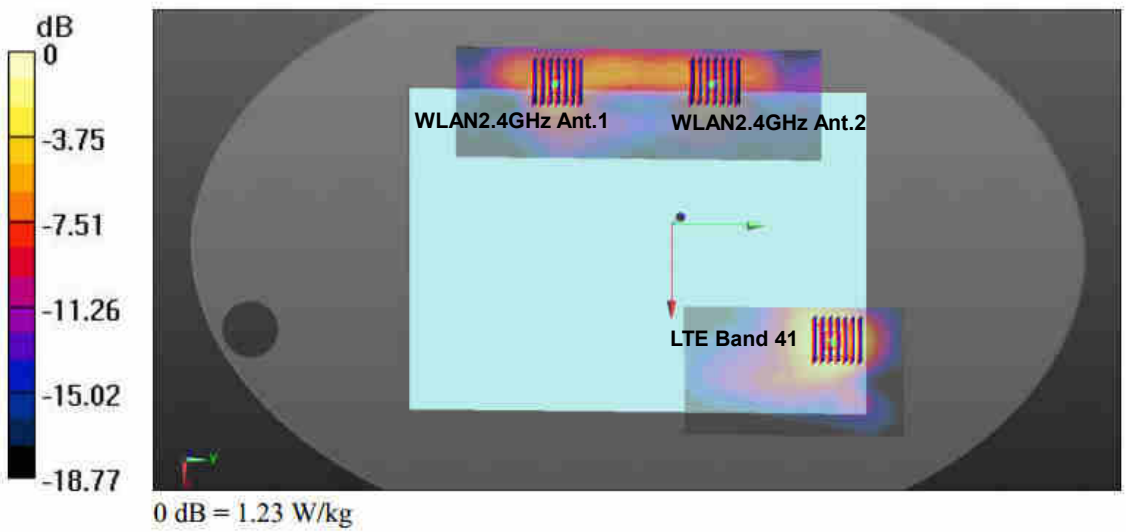
	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case #10	LTE Band 30	Bottom of Laptop	1.128	0	0.0636	0.115	-0.18	241.7	1.84	0.01	Not required
	WLAN2.4GHz Ant.1		0.711	0	-0.108	-0.0552	-0.18				
	LTE Band 30		1.128	0	0.0636	0.115	-0.18	185.1	1.75	0.01	Not required
	WLAN2.4GHz Ant.2		0.622	0	-0.109	0.048	-0.18				
	WLAN2.4GHz Ant.1		0.711	0	-0.108	-0.0552	-0.18	103.2	1.33	0.01	Not required
	WLAN2.4GHz Ant.2		0.622	0	-0.109	0.048	-0.18				



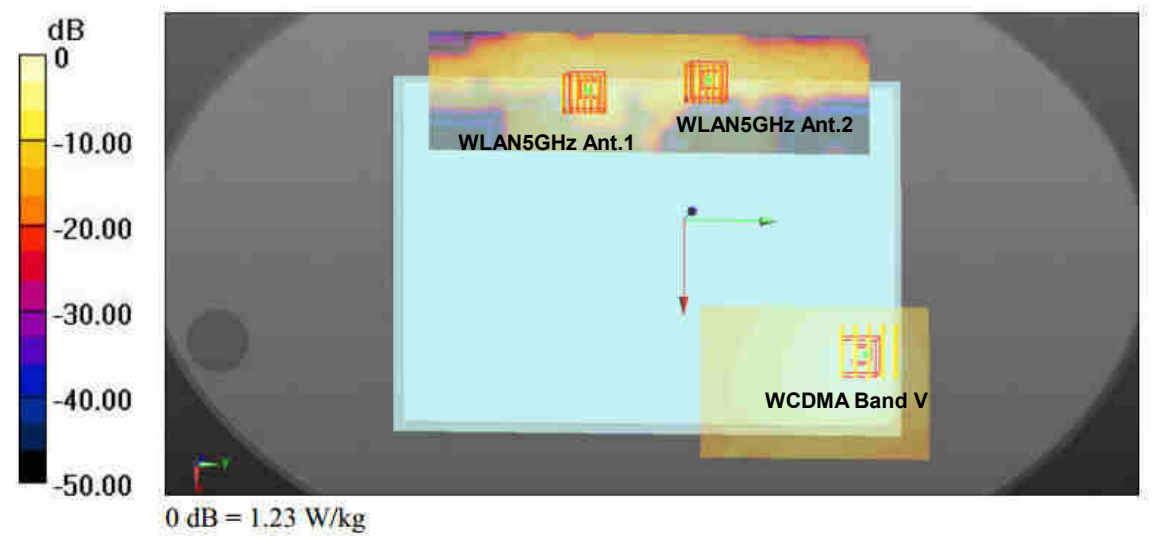
	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case #11	LTE Band 7	Bottom of Laptop	1.030	0	0.0576	0.127	-0.18	246.2	1.74	0.01	Not required
	WLAN2.4GHz Ant.1		0.711	0	-0.108	-0.0552	-0.18				
	LTE Band 7		1.030	0	0.0576	0.127	-0.18	184.4	1.65	0.01	Not required
	WLAN2.4GHz Ant.2		0.622	0	-0.109	0.048	-0.18				
	WLAN2.4GHz Ant.1		0.711	0	-0.108	-0.0552	-0.18	103.2	1.33	0.01	Not required
	WLAN2.4GHz Ant.2		0.622	0	-0.109	0.048	-0.18				



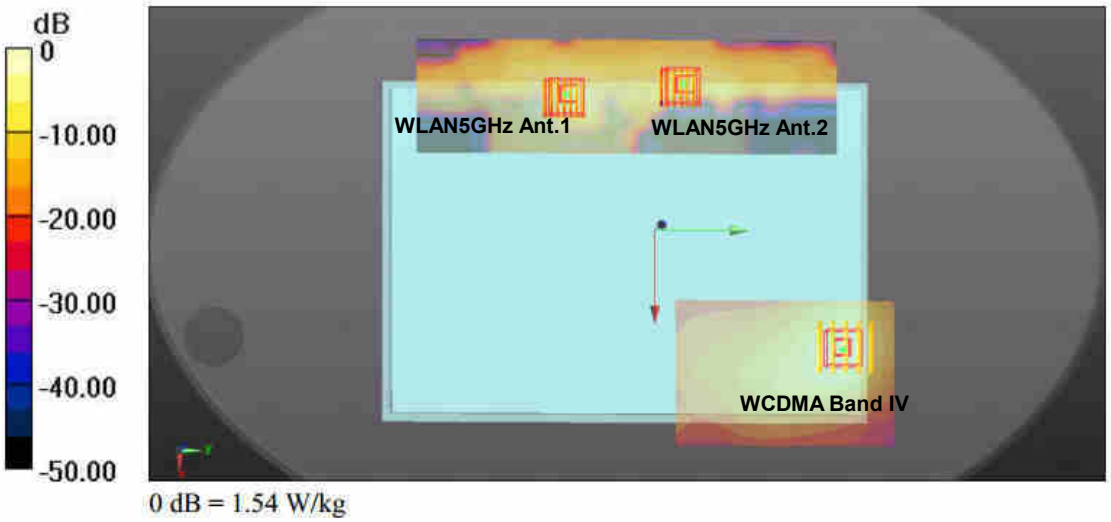
	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case #12	LTE Band 41	Bottom of Laptop	1.056	0	0.0588	0.123	-0.18	244.1	1.77	0.01	Not required
	WLAN2.4GHz Ant.1		0.711	0	-0.108	-0.0552	-0.18				
	LTE Band 41		1.056	0	0.0588	0.123	-0.18	183.8	1.68	0.01	Not required
	WLAN2.4GHz Ant.2		0.622	0	-0.109	0.048	-0.18				
	WLAN2.4GHz Ant.1		0.711	0	-0.108	-0.0552	-0.18	103.2	1.33	0.01	Not required
	WLAN2.4GHz Ant.2		0.622	0	-0.109	0.048	-0.18				



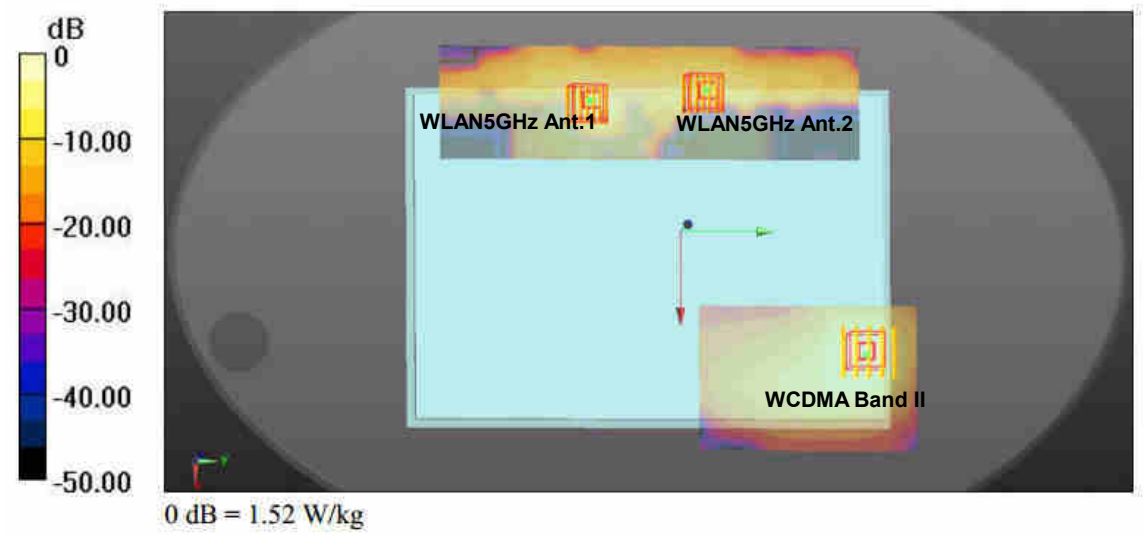
	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case #13	WCDMA Band V	Bottom of Laptop	1.100	0	0.0585	0.128	-0.18	226.0	2.04	0.01	Not required
	WLAN5GHz Ant.1		0.938	0	-0.097	-0.036	-0.18				
	WCDMA Band V		1.100	0	0.0585	0.128	-0.18	186.7	1.83	0.01	Not required
	WLAN5GHz Ant.2		0.727	0	-0.104	0.036	-0.18				
	WLAN5GHz Ant.1		0.938	0	-0.097	-0.036	-0.18	72.3	1.67	0.03	Not required
	WLAN5GHz Ant.2		0.727	0	-0.104	0.036	-0.18				



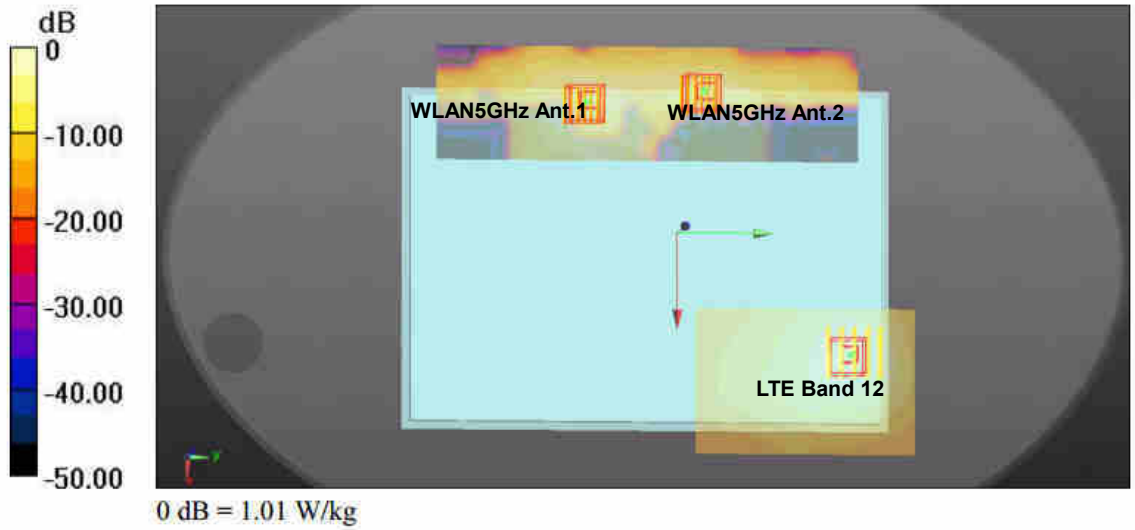
	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case #14	WCDMA Band IV	Bottom of Laptop	1.141	0	0.06	0.134	-0.18	231.4	2.08	0.01	Not required
	WLAN5GHz Ant.1		0.938	0	-0.097	-0.036	-0.18				
	WCDMA Band IV		1.141	0	0.06	0.134	-0.18	191.0	1.87	0.01	Not required
	WLAN5GHz Ant.2		0.727	0	-0.104	0.036	-0.18				
	WLAN5GHz Ant.1		0.938	0	-0.097	-0.036	-0.18	72.3	1.67	0.03	Not required
	WLAN5GHz Ant.2		0.727	0	-0.104	0.036	-0.18				



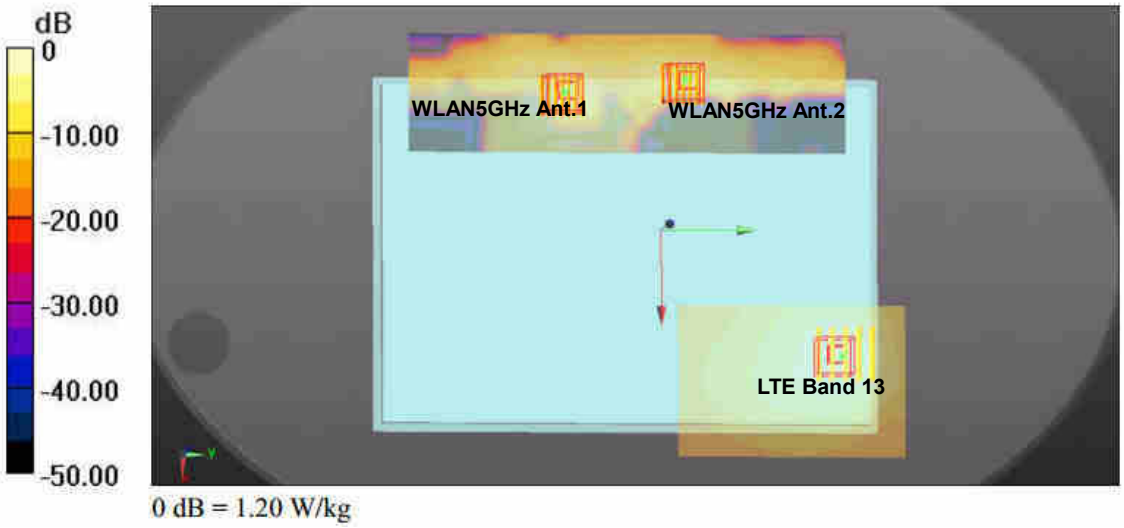
	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case #15	WCDMA Band II	Bottom of Laptop	1.148	0	0.06	0.134	-0.18	231.4	2.09	0.01	Not required
	WLAN5GHz Ant.1		0.938	0	-0.097	-0.036	-0.18				
	WCDMA Band II		1.148	0	0.06	0.134	-0.18	191.0	1.88	0.01	Not required
	WLAN5GHz Ant.2		0.727	0	-0.104	0.036	-0.18				
	WLAN5GHz Ant.1		0.938	0	-0.097	-0.036	-0.18	72.3	1.67	0.03	Not required
	WLAN5GHz Ant.2		0.727	0	-0.104	0.036	-0.18				



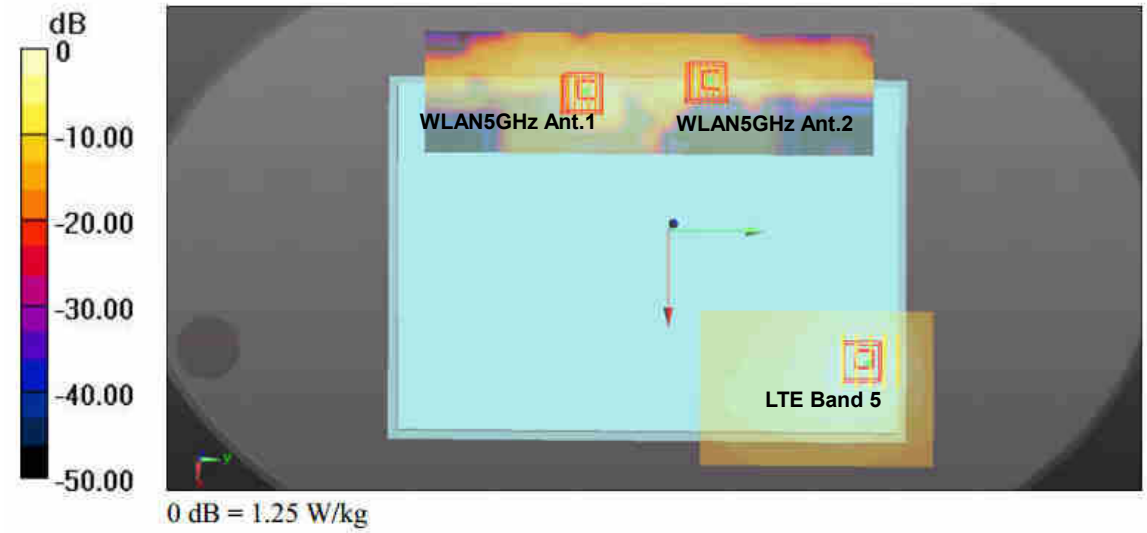
	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case #16	LTE Band 12	Bottom of Laptop	0.939	0	0.0585	0.126	-0.18	224.6	1.88	0.01	Not required
	WLAN5GHz Ant.1		0.938	0	-0.097	-0.036	-0.18				
	LTE Band 12		0.939	0	0.0585	0.126	-0.18	185.8	1.67	0.01	Not required
	WLAN5GHz Ant.2		0.727	0	-0.104	0.036	-0.18				
	WLAN5GHz Ant.1		0.938	0	-0.097	-0.036	-0.18	72.3	1.67	0.03	Not required
	WLAN5GHz Ant.2		0.727	0	-0.104	0.036	-0.18				



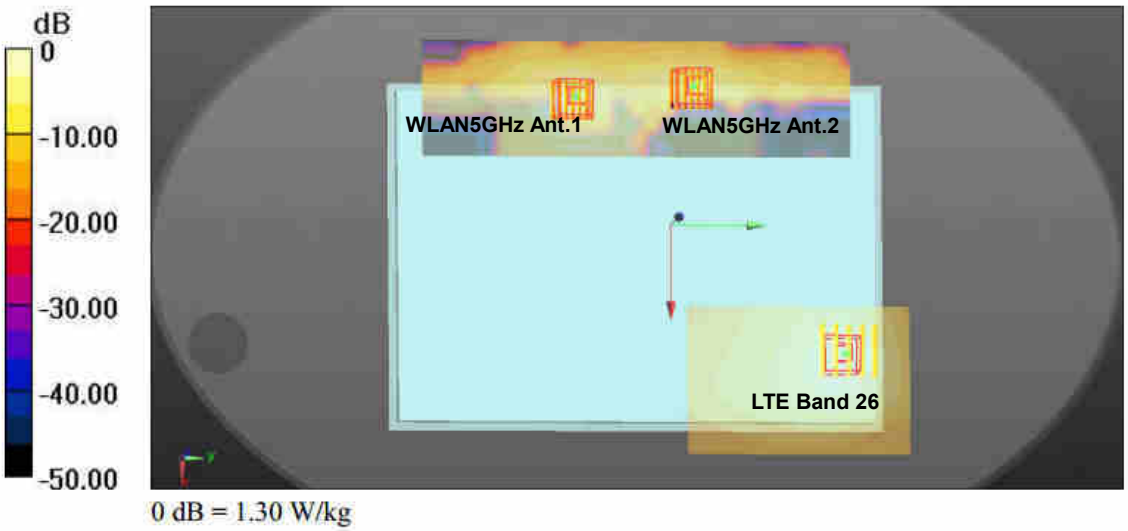
	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case #17	LTE Band 13	Bottom of Laptop	1.093	0	0.06	0.128	-0.18	227.0	2.03	0.01	Not required
	WLAN5GHz Ant.1		0.938	0	-0.097	-0.036	-0.18				
	LTE Band 13		1.093	0	0.06	0.128	-0.18	188.0	1.82	0.01	Not required
	WLAN5GHz Ant.2		0.727	0	-0.104	0.036	-0.18				
	WLAN5GHz Ant.1		0.938	0	-0.097	-0.036	-0.18	72.3	1.67	0.03	Not required
	WLAN5GHz Ant.2		0.727	0	-0.104	0.036	-0.18				



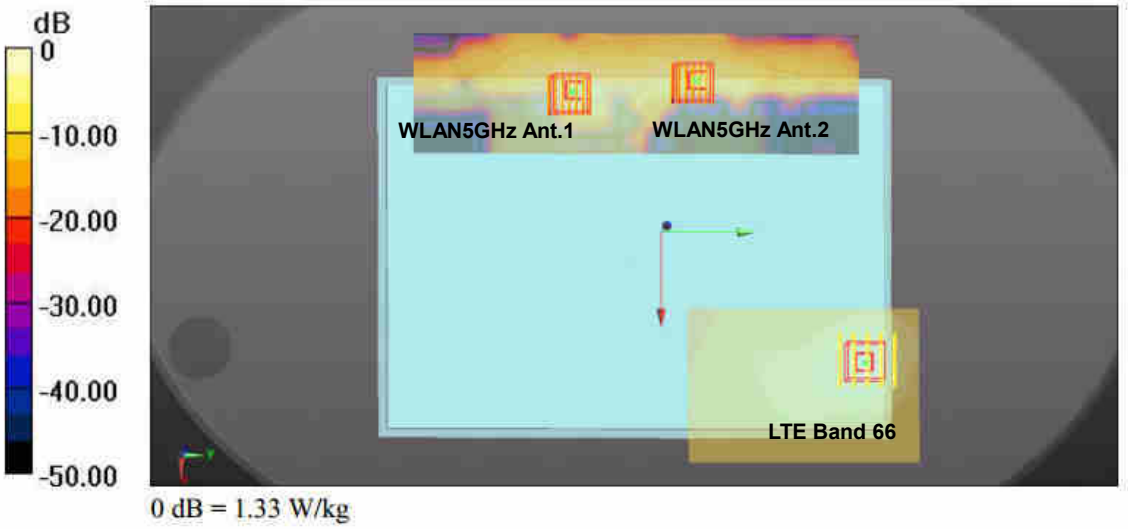
	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case #18	LTE Band 5	Bottom of Laptop	1.106	0	0.06	0.128	-0.18	227.0	2.04	0.01	Not required
	WLAN5GHz Ant.1		0.938	0	-0.097	-0.036	-0.18				
	LTE Band 5		1.106	0	0.06	0.128	-0.18	188.0	1.83	0.01	Not required
	WLAN5GHz Ant.2		0.727	0	-0.104	0.036	-0.18				
	WLAN5GHz Ant.1		0.938	0	-0.097	-0.036	-0.18	72.3	1.67	0.03	Not required
	WLAN5GHz Ant.2		0.727	0	-0.104	0.036	-0.18				



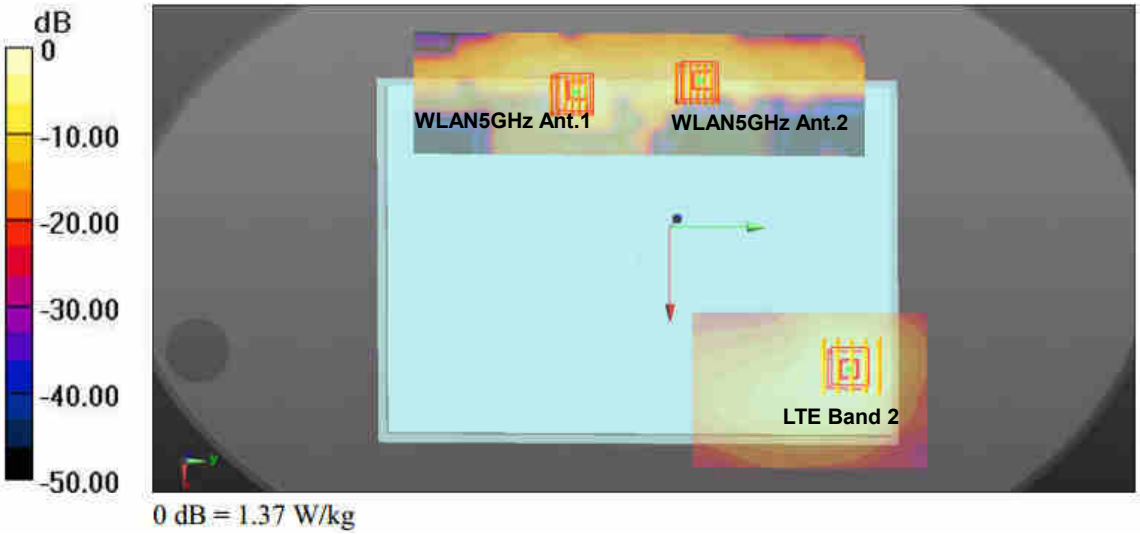
	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case #19	LTE Band 26	Bottom of Laptop	1.132	0	0.0585	0.126	-0.18	224.6	2.07	0.01	Not required
	WLAN5GHz Ant.1		0.938	0	-0.097	-0.036	-0.18				
	LTE Band 26		1.132	0	0.0585	0.126	-0.18	185.8	1.86	0.01	Not required
	WLAN5GHz Ant.2		0.727	0	-0.104	0.036	-0.18				
	WLAN5GHz Ant.1		0.938	0	-0.097	-0.036	-0.18	72.3	1.67	0.03	Not required
	WLAN5GHz Ant.2		0.727	0	-0.104	0.036	-0.18				



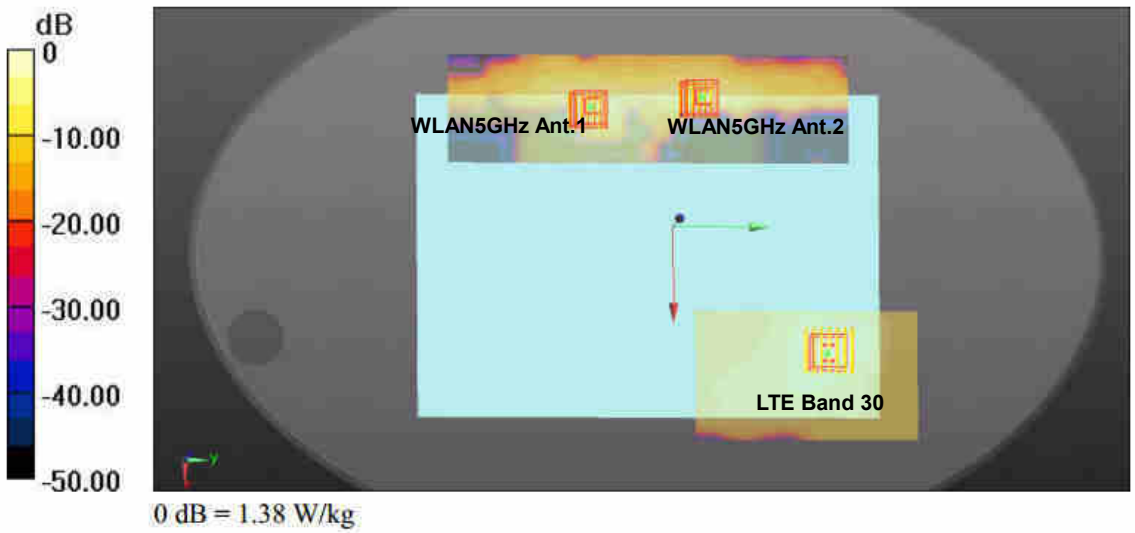
	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case #20	LTE Band 66	Bottom of Laptop	1.116	0	0.0615	0.134	-0.18	191.0	1.74	0.01	Not required
	WLAN5GHz Ant.1		0.938	0	-0.097	-0.036	-0.18				
	LTE Band 66		1.116	0	0.0615	0.134	-0.18	192.3	1.84	0.01	Not required
	WLAN5GHz Ant.2		0.727	0	-0.104	0.036	-0.18				
	WLAN5GHz Ant.1		0.938	0	-0.097	-0.036	-0.18	72.3	1.67	0.03	Not required
	WLAN5GHz Ant.2		0.727	0	-0.104	0.036	-0.18				



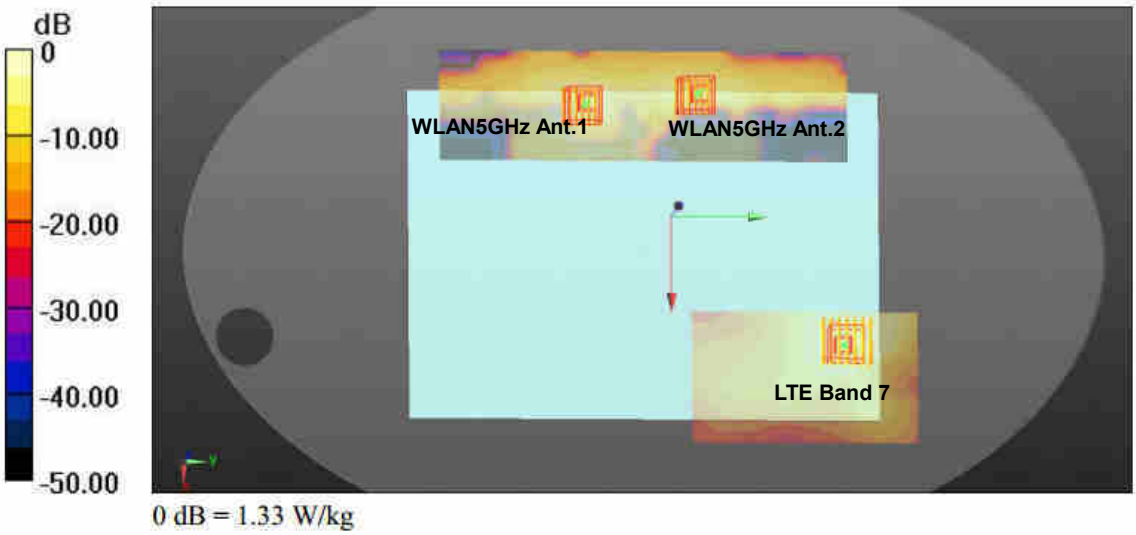
	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case #21	LTE Band 2	Bottom of Laptop	1.106	0	0.063	0.12	-0.18	223.5	2.04	0.01	Not required
	WLAN5GHz Ant.1		0.938	0	-0.097	-0.036	-0.18				
	LTE Band 2		1.106	0	0.063	0.12	-0.18	186.9	1.83	0.01	Not required
	WLAN5GHz Ant.2		0.727	0	-0.104	0.036	-0.18				
	WLAN5GHz Ant.1		0.938	0	-0.097	-0.036	-0.18	72.3	1.67	0.03	Not required
	WLAN5GHz Ant.2		0.727	0	-0.104	0.036	-0.18				



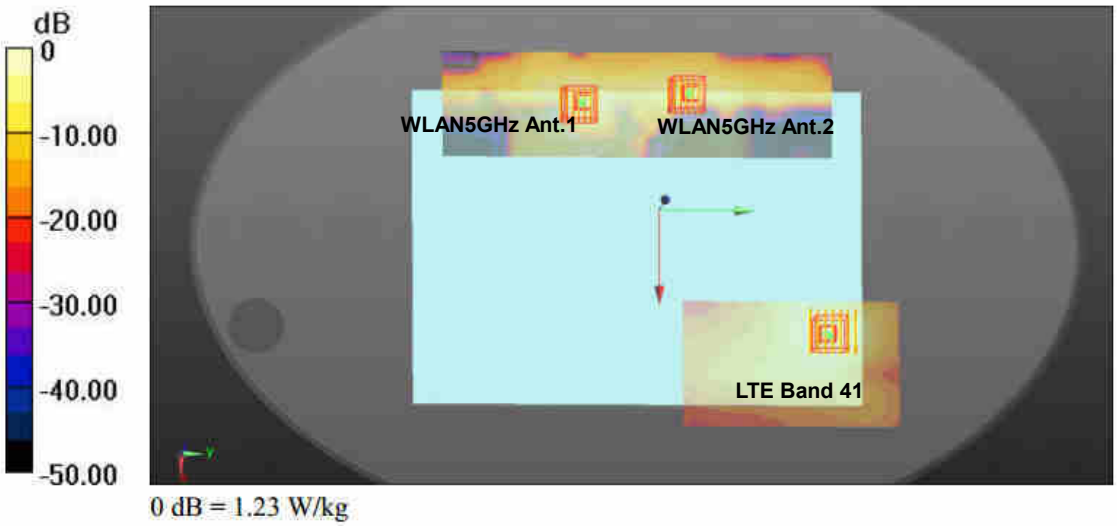
	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case #22	LTE Band 30	Bottom of Laptop	1.128	0	0.0636	0.115	-0.18	220.4	2.07	0.01	Not required
	WLAN5GHz Ant.1		0.938	0	-0.097	-0.036	-0.18				
	LTE Band 30		1.128	0	0.0636	0.115	-0.18	185.3	1.86	0.01	Not required
	WLAN5GHz Ant.2		0.727	0	-0.104	0.036	-0.18				
	WLAN5GHz Ant.1		0.938	0	-0.097	-0.036	-0.18	72.3	1.67	0.03	Not required
	WLAN5GHz Ant.2		0.727	0	-0.104	0.036	-0.18				



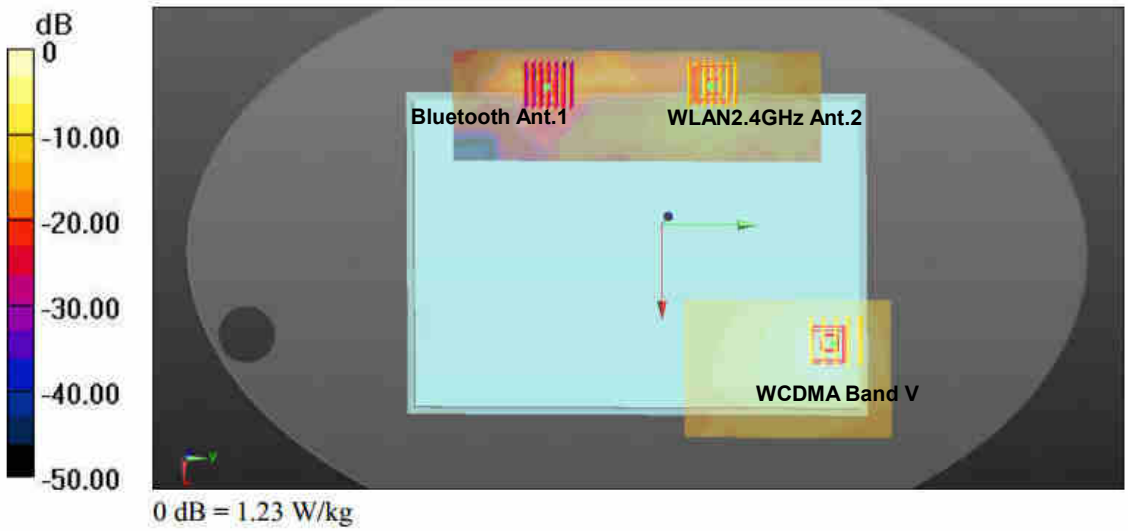
	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case #23	LTE Band 7	Bottom of Laptop	1.030	0	0.0576	0.127	-0.18	224.7	1.97	0.01	Not required
	WLAN5GHz Ant.1		0.938	0	-0.097	-0.036	-0.18				
	LTE Band 7		1.030	0	0.0576	0.127	-0.18	185.5	1.76	0.01	Not required
	WLAN5GHz Ant.2		0.727	0	-0.104	0.036	-0.18				
	WLAN5GHz Ant.1		0.938	0	-0.097	-0.036	-0.18	72.3	1.67	0.03	Not required
	WLAN5GHz Ant.2		0.727	0	-0.104	0.036	-0.18				



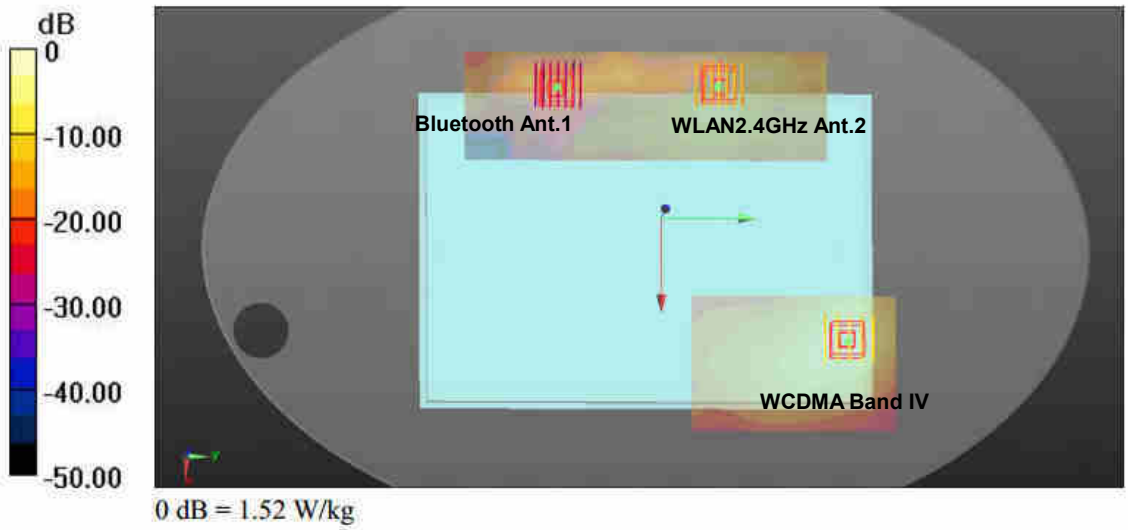
	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case #24	LTE Band 41	Bottom of Laptop	1.056	0	0.0588	0.123	-0.18	222.6	1.99	0.01	Not required
	WLAN5GHz Ant.1		0.938	0	-0.097	-0.036	-0.18				
	LTE Band 41		1.056	0	0.0588	0.123	-0.18	184.6	1.78	0.01	Not required
	WLAN5GHz Ant.2		0.727	0	-0.104	0.036	-0.18				
	WLAN5GHz Ant.1		0.938	0	-0.097	-0.036	-0.18	72.3	1.67	0.03	Not required
	WLAN5GHz Ant.2		0.727	0	-0.104	0.036	-0.18				



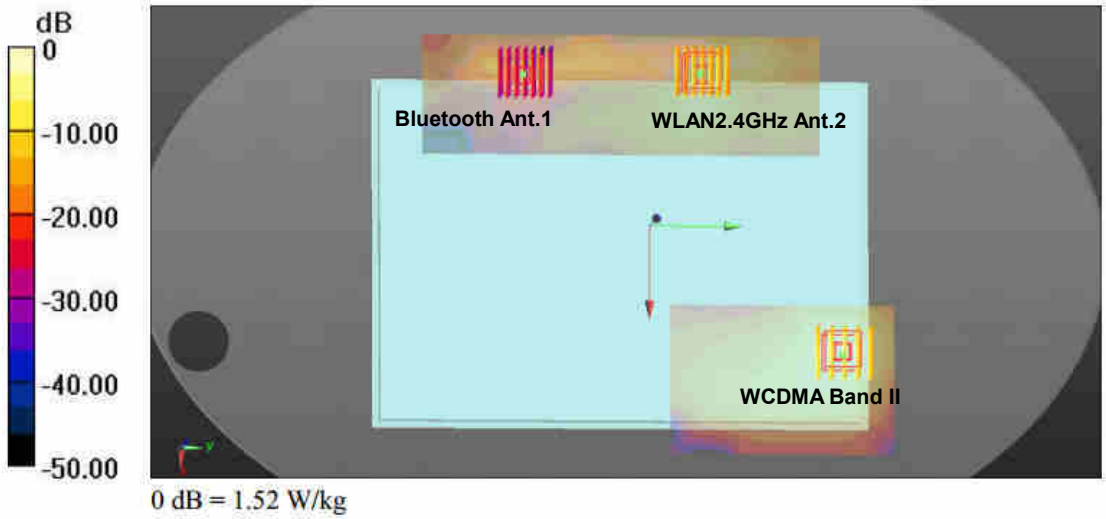
	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case #25	WCDMA Band V	Bottom of Laptop	1.100	0	0.0585	0.128	-0.18	185.6	1.72	0.01	Not required
	WLAN2.4GHz Ant.2		0.622	0	-0.109	0.048	-0.18				
	WCDMA Band V		1.100	0	0.0585	0.128	-0.18	250.2	1.13	0.00	Not required
	Bluetooth Ant.1		0.025	0	-0.108	-0.0588	-0.18				
	WLAN2.4GHz Ant.2		0.622	0	-0.109	0.048	-0.18	106.8	0.65	0.00	Not required
	Bluetooth Ant.1		0.025	0	-0.108	-0.0588	-0.18				



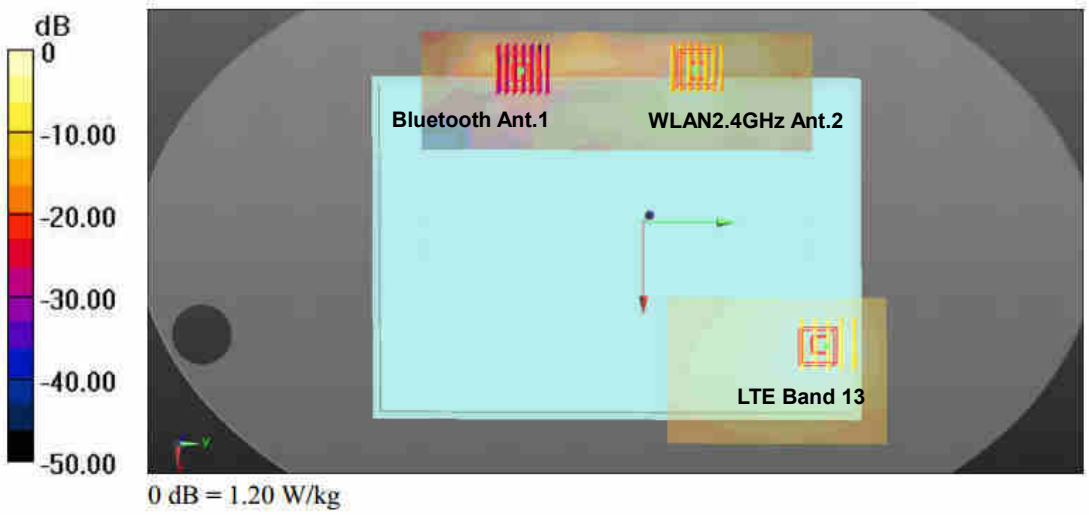
	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case #26	WCDMA Band IV	Bottom of Laptop	1.141	0	0.06	0.134	-0.18	189.6	1.76	0.01	Not required
	WLAN2.4GHz Ant.2		0.622	0	-0.109	0.048	-0.18				
	WCDMA Band IV		1.141	0	0.06	0.134	-0.18	255.7	1.17	0.00	Not required
	Bluetooth Ant.1		0.025	0	-0.108	-0.0588	-0.18				
	WLAN2.4GHz Ant.2		0.622	0	-0.109	0.048	-0.18	106.8	0.65	0.00	Not required
	Bluetooth Ant.1		0.025	0	-0.108	-0.0588	-0.18				



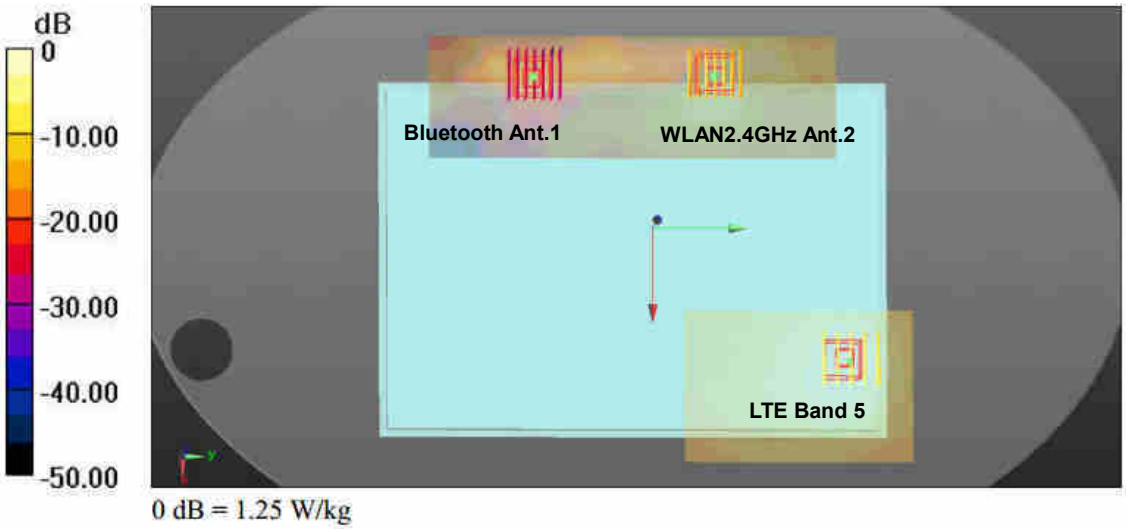
	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case #27	WCDMA Band II	Bottom of Laptop	1.148	0	0.06	0.134	-0.18	189.6	1.77	0.01	Not required
	WLAN2.4GHz Ant.2		0.622	0	-0.109	0.048	-0.18				
	WCDMA Band II		1.148	0	0.06	0.134	-0.18	255.7	1.17	0.00	Not required
	Bluetooth Ant.1		0.025	0	-0.108	-0.0588	-0.18				
	WLAN2.4GHz Ant.2		0.622	0	-0.109	0.048	-0.18	106.8	0.65	0.00	Not required
	Bluetooth Ant.1		0.025	0	-0.108	-0.0588	-0.18				



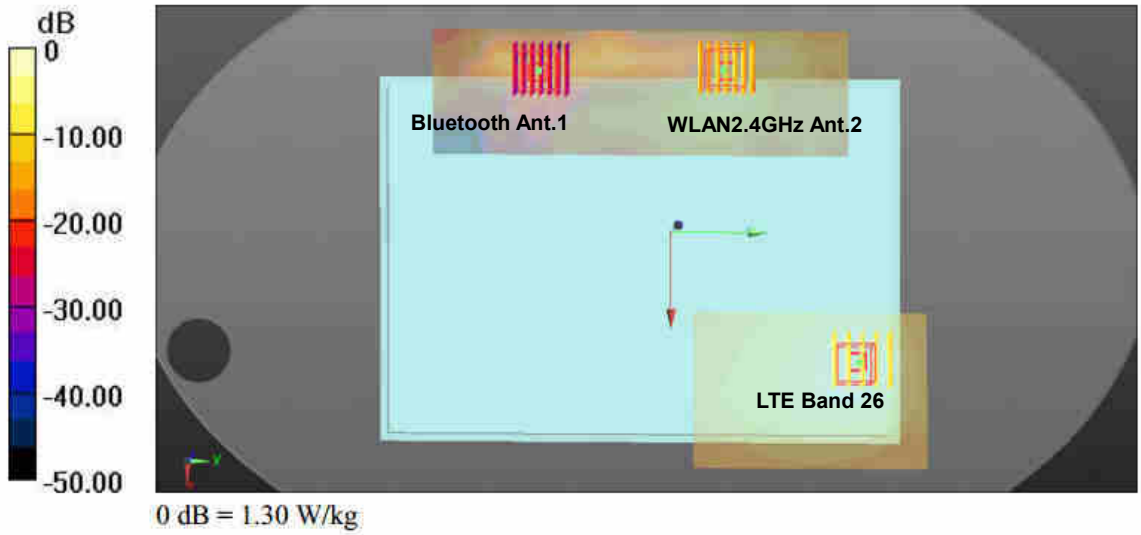
	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case #28	LTE Band 13	Bottom of Laptop	1.093	0	0.06	0.128	-0.18	187.0	1.72	0.01	Not required
	WLAN2.4GHz Ant.2		0.622	0	-0.109	0.048	-0.18				
	LTE Band 13		1.093	0	0.06	0.128	-0.18	251.2	1.12	0.00	Not required
	Bluetooth Ant.1		0.025	0	-0.108	-0.0588	-0.18				
	WLAN2.4GHz Ant.2		0.622	0	-0.109	0.048	-0.18	106.8	0.65	0.00	Not required
	Bluetooth Ant.1		0.025	0	-0.108	-0.0588	-0.18				



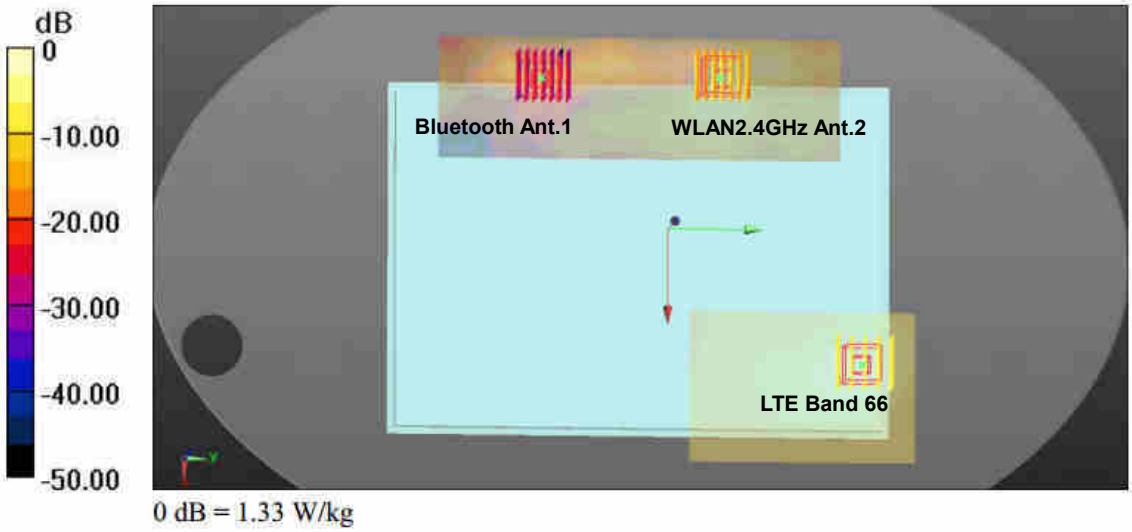
	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case #29	LTE Band 5	Bottom of Laptop	1.106	0	0.06	0.128	-0.18	187.0	1.73	0.01	Not required
	WLAN2.4GHz Ant.2		0.622	0	-0.109	0.048	-0.18				
	LTE Band 5		1.106	0	0.06	0.128	-0.18	251.2	1.13	0.00	Not required
	Bluetooth Ant.1		0.025	0	-0.108	-0.0588	-0.18				
	WLAN2.4GHz Ant.2		0.622	0	-0.109	0.048	-0.18	106.8	0.65	0.00	Not required
	Bluetooth Ant.1		0.025	0	-0.108	-0.0588	-0.18				



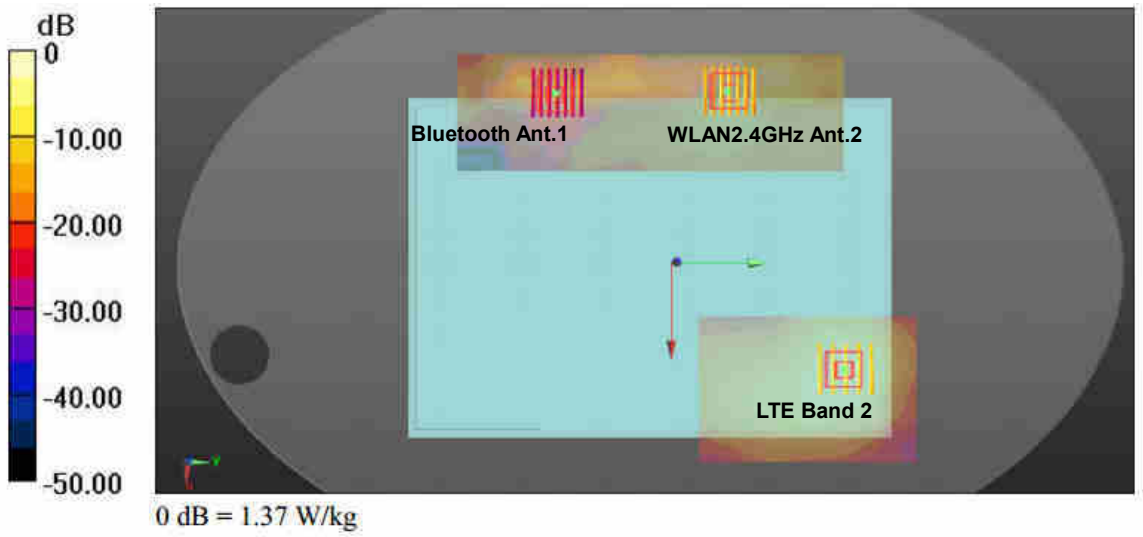
	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case #30	LTE Band 26	Bottom of Laptop	1.132	0	0.0585	0.126	-0.18	184.8	1.75	0.01	Not required
	WLAN2.4GHz Ant.2		0.622	0	-0.109	0.048	-0.18				
	LTE Band 26		1.132	0	0.0585	0.126	-0.18	248.7	1.16	0.01	Not required
	Bluetooth Ant.1		0.025	0	-0.108	-0.0588	-0.18				
	WLAN2.4GHz Ant.2		0.622	0	-0.109	0.048	-0.18	106.8	0.65	0.00	Not required
	Bluetooth Ant.1		0.025	0	-0.108	-0.0588	-0.18				



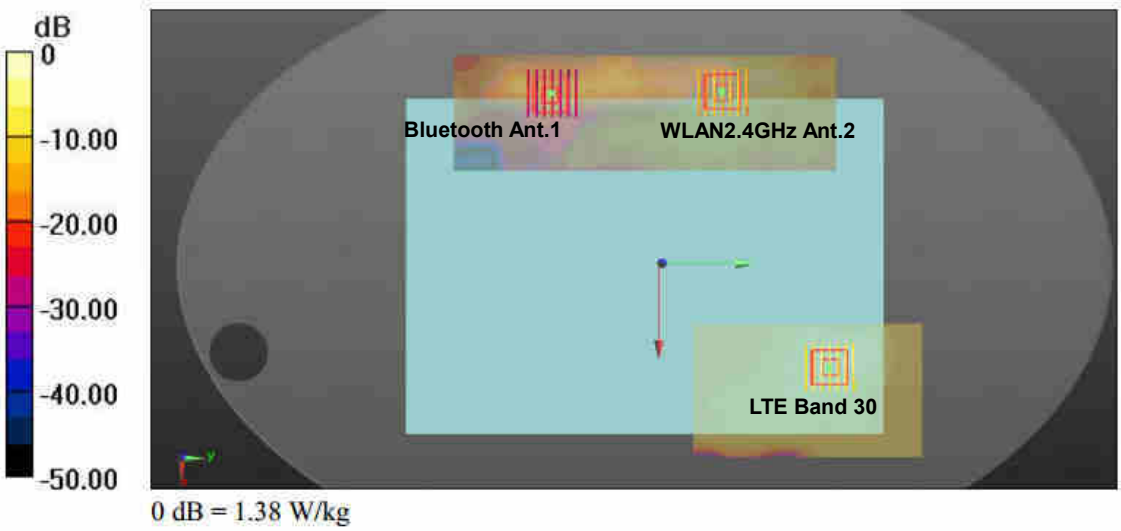
	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case #31	LTE Band 66	Bottom of Laptop	1.116	0	0.0615	0.134	-0.18	191.0	1.74	0.01	Not required
	WLAN2.4GHz Ant.2		0.622	0	-0.109	0.048	-0.18				
	LTE Band 66		1.116	0	0.0615	0.134	-0.18	256.7	1.14	0.00	Not required
	Bluetooth Ant.1		0.025	0	-0.108	-0.0588	-0.18				
	WLAN2.4GHz Ant.2		0.622	0	-0.109	0.048	-0.18	106.8	0.65	0.00	Not required
	Bluetooth Ant.1		0.025	0	-0.108	-0.0588	-0.18				



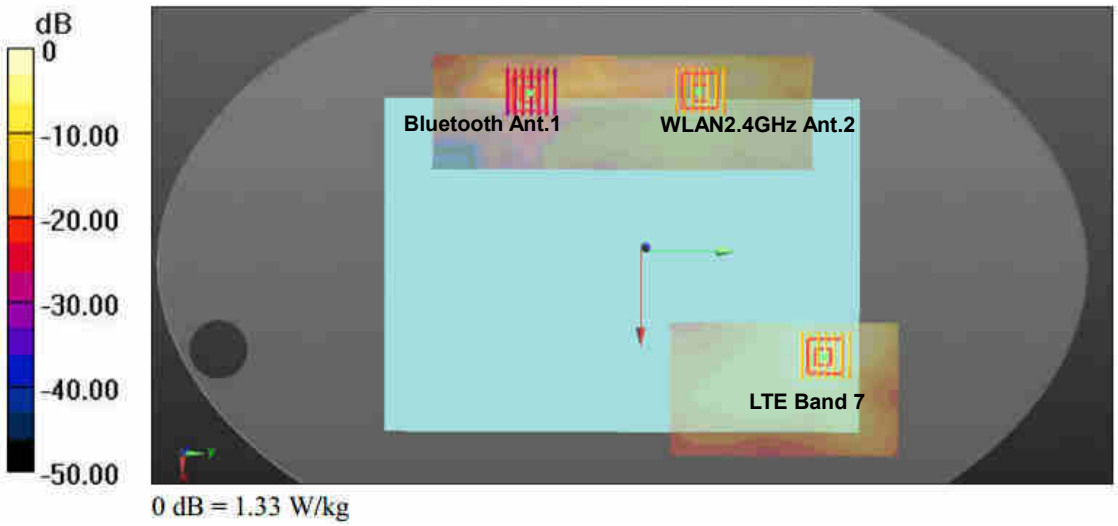
	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case #32	LTE Band 2	Bottom of Laptop	1.106	0	0.063	0.12	-0.18	186.5	1.73	0.01	Not required
	WLAN2.4GHz Ant.2		0.622	0	-0.109	0.048	-0.18				
	LTE Band 2		1.106	0	0.063	0.12	-0.18	247.4	1.13	0.00	Not required
	Bluetooth Ant.1		0.025	0	-0.108	-0.0588	-0.18				
	WLAN2.4GHz Ant.2		0.622	0	-0.109	0.048	-0.18	106.8	0.65	0.00	Not required
	Bluetooth Ant.1		0.025	0	-0.108	-0.0588	-0.18				



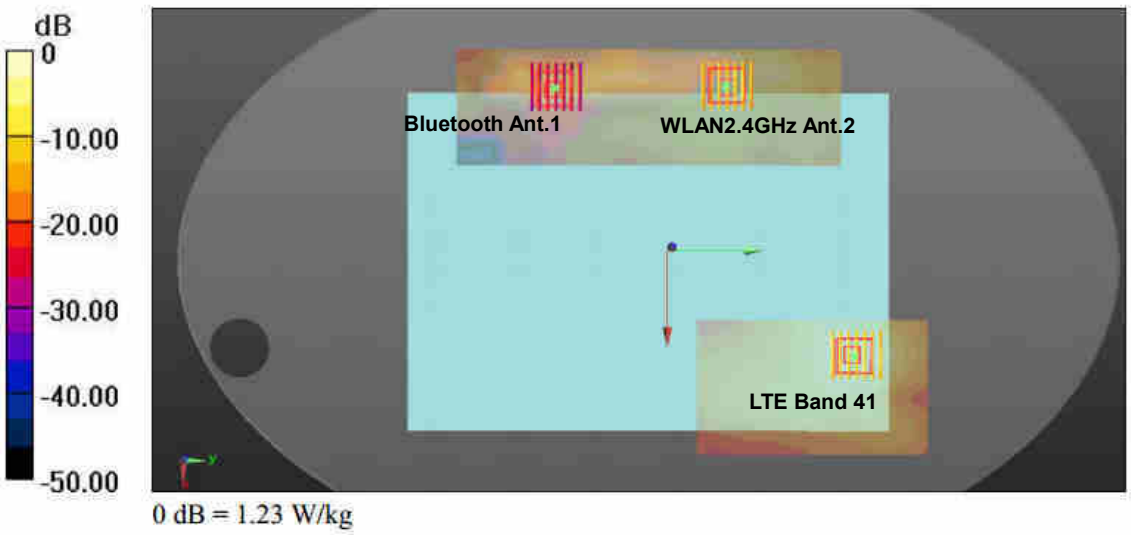
	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case #33	LTE Band 30	Bottom of Laptop	1.128	0	0.0636	0.115	-0.18	185.1	1.75	0.01	Not required
	WLAN2.4GHz Ant.2		0.622	0	-0.109	0.048	-0.18				
	LTE Band 30		1.128	0	0.0636	0.115	-0.18	244.2	1.15	0.01	Not required
	Bluetooth Ant.1		0.025	0	-0.108	-0.0588	-0.18				
	WLAN2.4GHz Ant.2		0.622	0	-0.109	0.048	-0.18	106.8	0.65	0.00	Not required
	Bluetooth Ant.1		0.025	0	-0.108	-0.0588	-0.18				



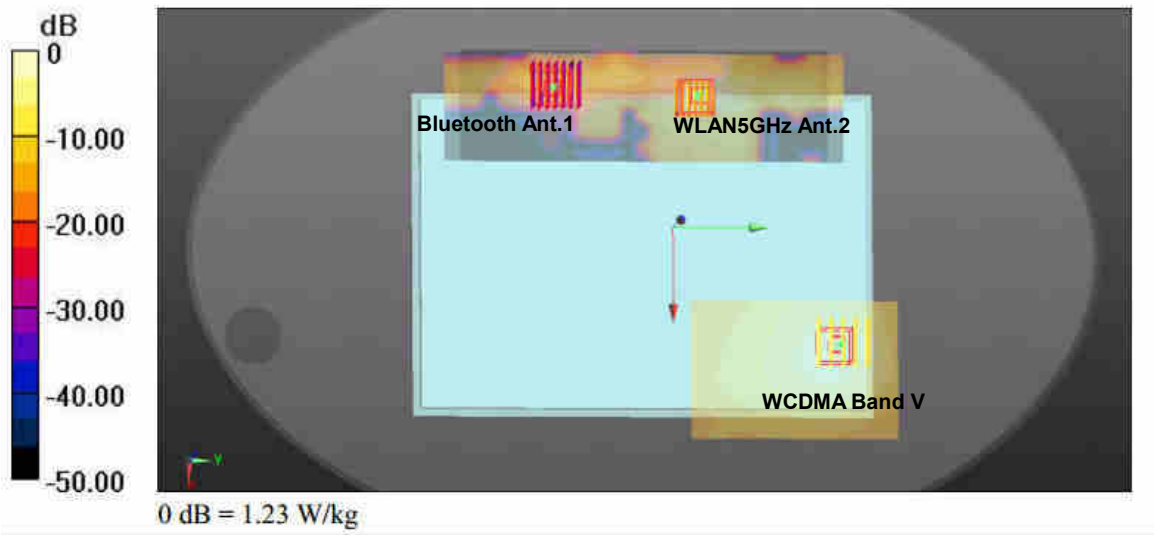
	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case #34	LTE Band 7	Bottom of Laptop	1.030	0	0.0576	0.127	-0.18	184.4	1.65	0.01	Not required
	WLAN2.4GHz Ant.2		0.622	0	-0.109	0.048	-0.18				
	LTE Band 7		1.030	0	0.0576	0.127	-0.18	248.9	1.06	0.00	Not required
	Bluetooth Ant.1		0.025	0	-0.108	-0.0588	-0.18				
	WLAN2.4GHz Ant.2		0.622	0	-0.109	0.048	-0.18	106.8	0.65	0.00	Not required
	Bluetooth Ant.1		0.025	0	-0.108	-0.0588	-0.18				



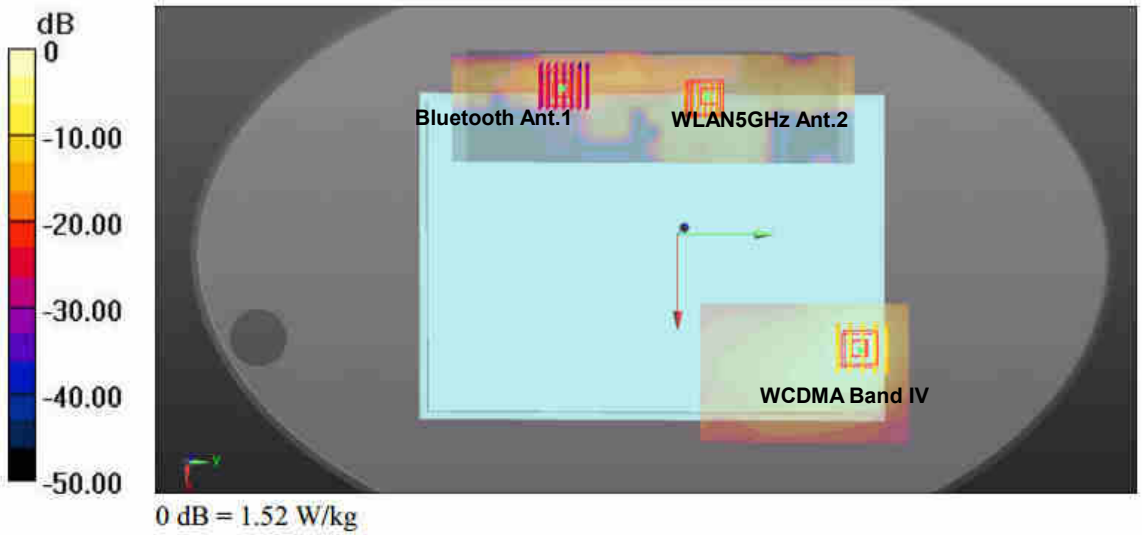
	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case #35	LTE Band 41	Bottom of Laptop	1.056	0	0.0588	0.123	-0.18	183.8	1.68	0.01	Not required
	WLAN2.4GHz Ant.2		0.622	0	-0.109	0.048	-0.18				
	LTE Band 41		1.056	0	0.0588	0.123	-0.18	246.7	1.08	0.00	Not required
	Bluetooth Ant.1		0.025	0	-0.108	-0.0588	-0.18				
	WLAN2.4GHz Ant.2		0.622	0	-0.109	0.048	-0.18	106.8	0.65	0.00	Not required
	Bluetooth Ant.1		0.025	0	-0.108	-0.0588	-0.18				



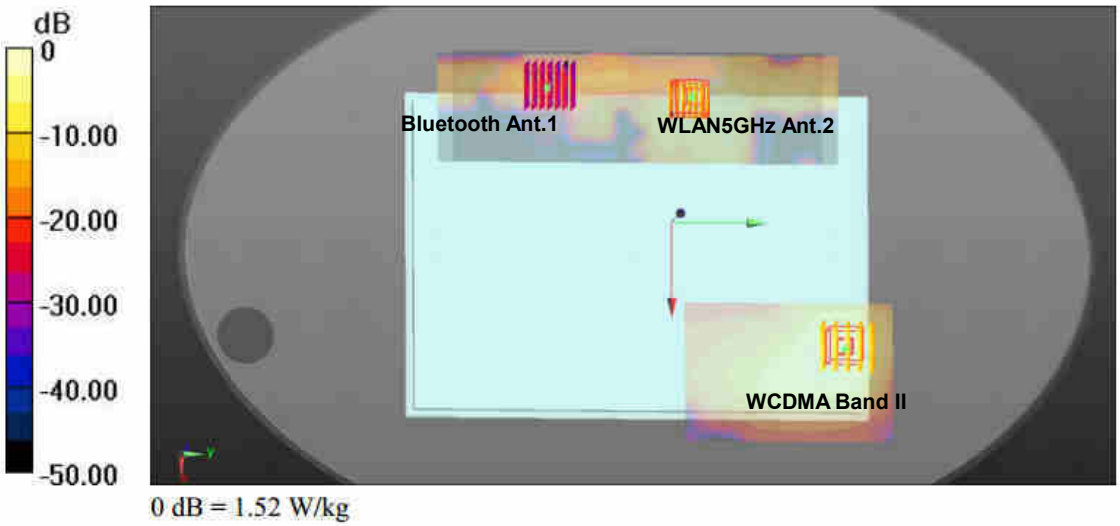
	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case #36	WCDMA Band V	Bottom of Laptop	1.100	0	0.0585	0.128	-0.18	186.7	1.83	0.01	Not required
	WLAN5GHz Ant.2		0.727	0	-0.104	0.036	-0.18				
	WCDMA Band V		1.100	0	0.0585	0.128	-0.18	250.2	1.13	0.00	Not required
	Bluetooth Ant.1		0.025	0	-0.108	-0.0588	-0.18				
	WLAN5GHz Ant.2		0.727	0	-0.104	0.036	-0.18	94.9	0.75	0.01	Not required
	Bluetooth Ant.1		0.025	0	-0.108	-0.0588	-0.18				



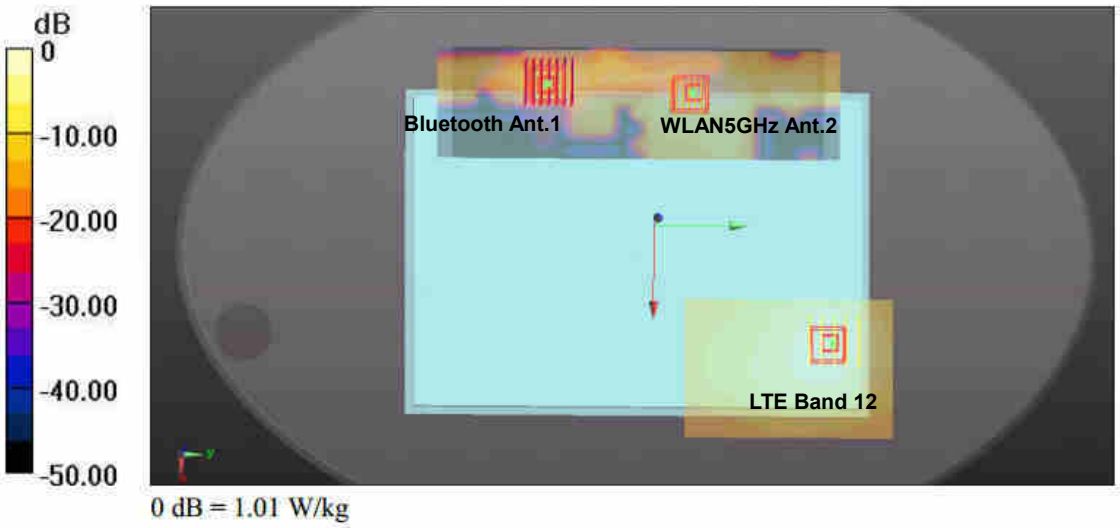
	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case #37	WCDMA Band IV	Bottom of Laptop	1.141	0	0.06	0.134	-0.18	191.0	1.87	0.01	Not required
	WLAN5GHz Ant.2		0.727	0	-0.104	0.036	-0.18				
	WCDMA Band IV		1.141	0	0.06	0.134	-0.18	255.7	1.17	0.00	Not required
	Bluetooth Ant.1		0.025	0	-0.108	-0.0588	-0.18				
	WLAN5GHz Ant.2		0.727	0	-0.104	0.036	-0.18	94.9	0.75	0.01	Not required
	Bluetooth Ant.1		0.025	0	-0.108	-0.0588	-0.18				



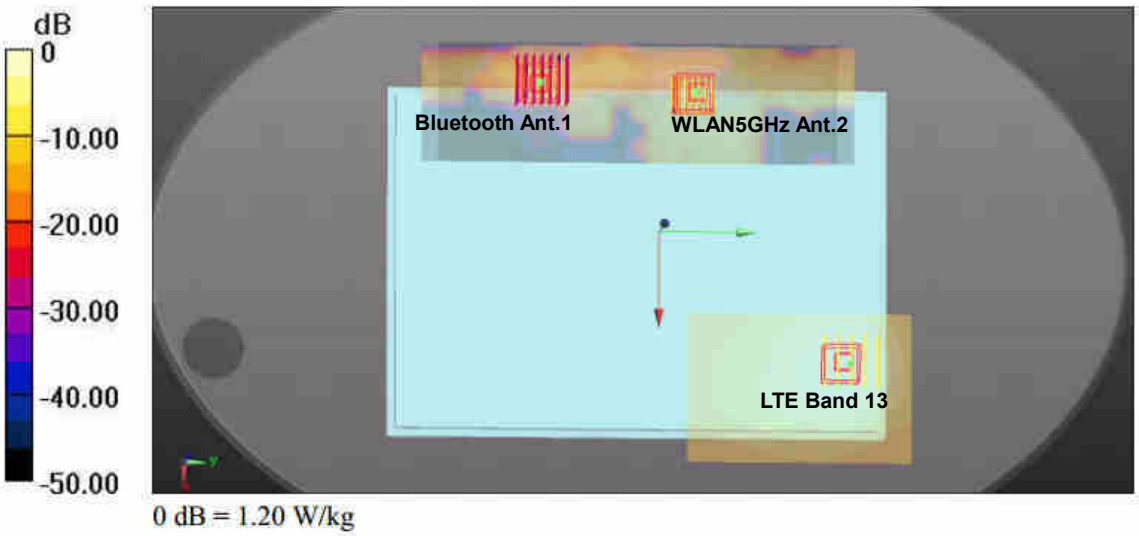
	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case #38	WCDMA Band II	Bottom of Laptop	1.148	0	0.06	0.134	-0.18	191.0	1.88	0.01	Not required
	WLAN5GHz Ant.2		0.727	0	-0.104	0.036	-0.18				
	WCDMA Band II		1.148	0	0.06	0.134	-0.18	255.7	1.17	0.00	Not required
	Bluetooth Ant.1		0.025	0	-0.108	-0.0588	-0.18				
	WLAN5GHz Ant.2		0.727	0	-0.104	0.036	-0.18	94.9	0.75	0.01	Not required
	Bluetooth Ant.1		0.025	0	-0.108	-0.0588	-0.18				



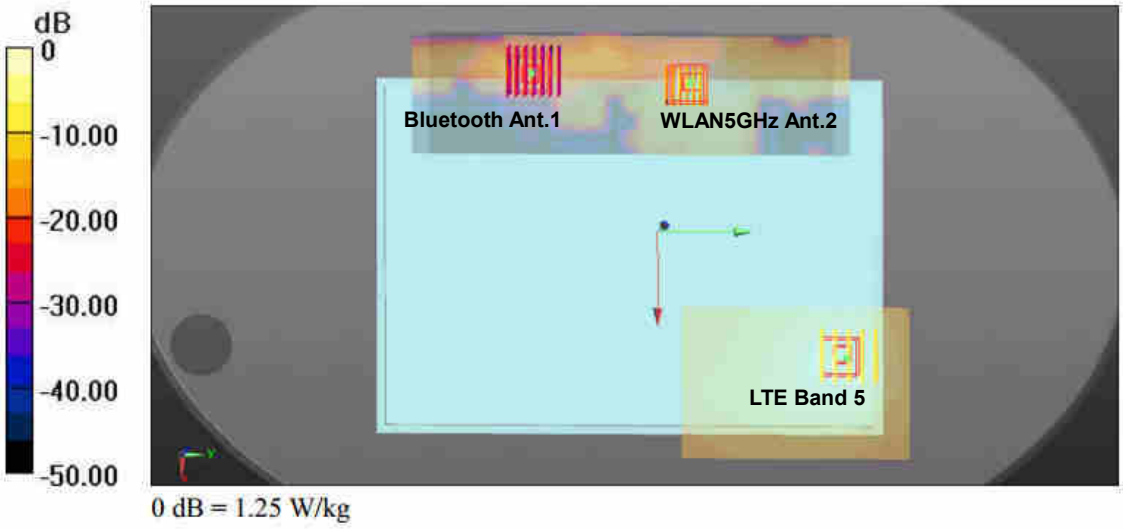
	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case #39	LTE Band 12	Bottom of Laptop	0.939	0	0.0585	0.126	-0.18	185.8	1.67	0.01	Not required
	WLAN5GHz Ant.2		0.727	0	-0.104	0.036	-0.18				
	LTE Band 12		0.939	0	0.0585	0.126	-0.18	248.7	0.96	0.00	Not required
	Bluetooth Ant.1		0.025	0	-0.108	-0.0588	-0.18				
	WLAN5GHz Ant.2		0.727	0	-0.104	0.036	-0.18	94.9	0.75	0.01	Not required
	Bluetooth Ant.1		0.025	0	-0.108	-0.0588	-0.18				



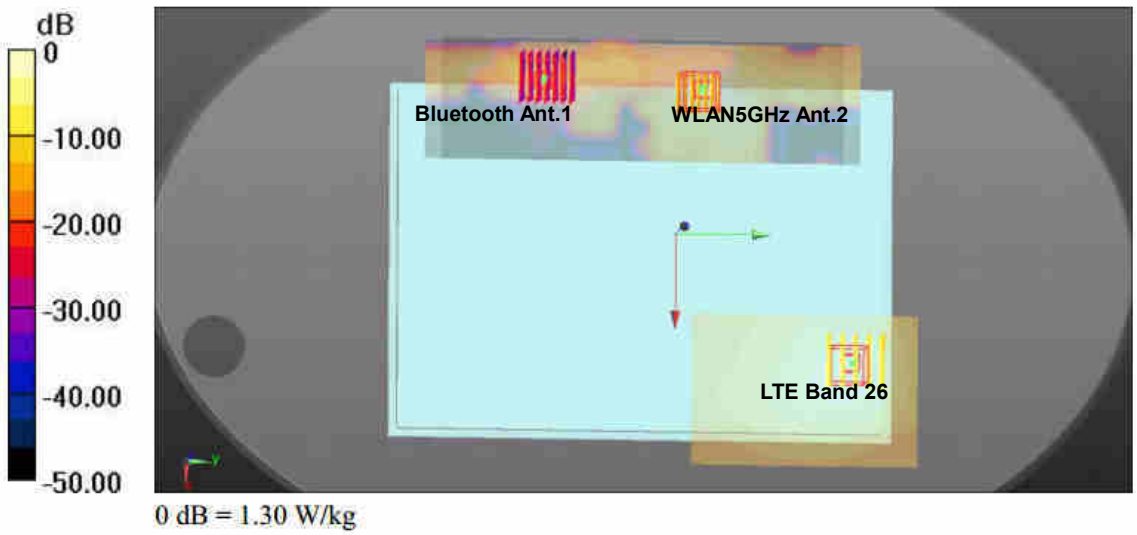
	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case # 40	LTE Band 13	Bottom of Laptop	1.093	0	0.06	0.128	-0.18	188.0	1.82	0.01	Not required
	WLAN5GHz Ant.2		0.727	0	-0.104	0.036	-0.18				
	LTE Band 13		1.093	0	0.06	0.128	-0.18	251.2	1.12	0.00	Not required
	Bluetooth Ant.1		0.025	0	-0.108	-0.0588	-0.18				
	WLAN5GHz Ant.2		0.727	0	-0.104	0.036	-0.18	94.9	0.75	0.01	Not required
	Bluetooth Ant.1		0.025	0	-0.108	-0.0588	-0.18				



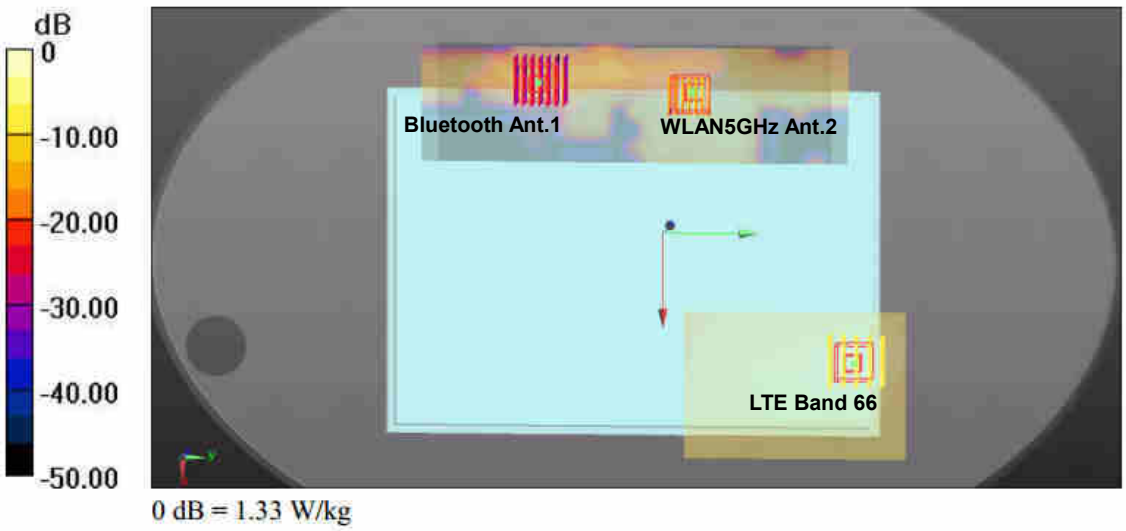
	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case #41	LTE Band 5	Bottom of Laptop	1.106	0	0.06	0.128	-0.18	188.0	1.83	0.01	Not required
	WLAN5GHz Ant.2		0.727	0	-0.104	0.036	-0.18				
	LTE Band 5		1.106	0	0.06	0.128	-0.18	251.2	1.13	0.00	Not required
	Bluetooth Ant.1		0.025	0	-0.108	-0.0588	-0.18				
	WLAN5GHz Ant.2		0.727	0	-0.104	0.036	-0.18	94.9	0.75	0.01	Not required
	Bluetooth Ant.1		0.025	0	-0.108	-0.0588	-0.18				



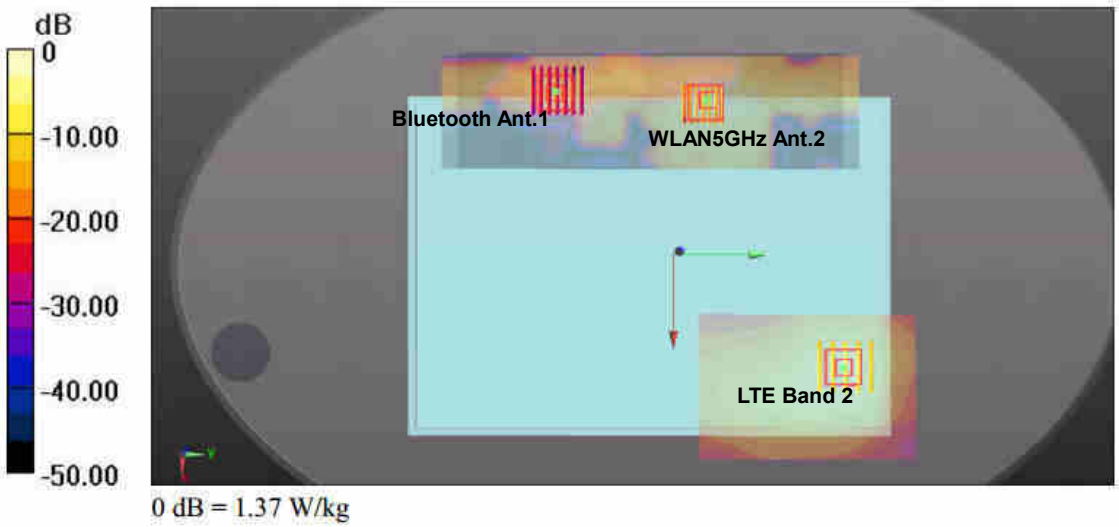
	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case #42	LTE Band 26	Bottom of Laptop	1.132	0	0.0585	0.126	-0.18	185.8	1.86	0.01	Not required
	WLAN5GHz Ant.2		0.727	0	-0.104	0.036	-0.18				
	LTE Band 26		1.132	0	0.0585	0.126	-0.18	248.7	1.16	0.01	Not required
	Bluetooth Ant.1		0.025	0	-0.108	-0.0588	-0.18				
	WLAN5GHz Ant.2		0.727	0	-0.104	0.036	-0.18	94.9	0.75	0.01	Not required
	Bluetooth Ant.1		0.025	0	-0.108	-0.0588	-0.18				



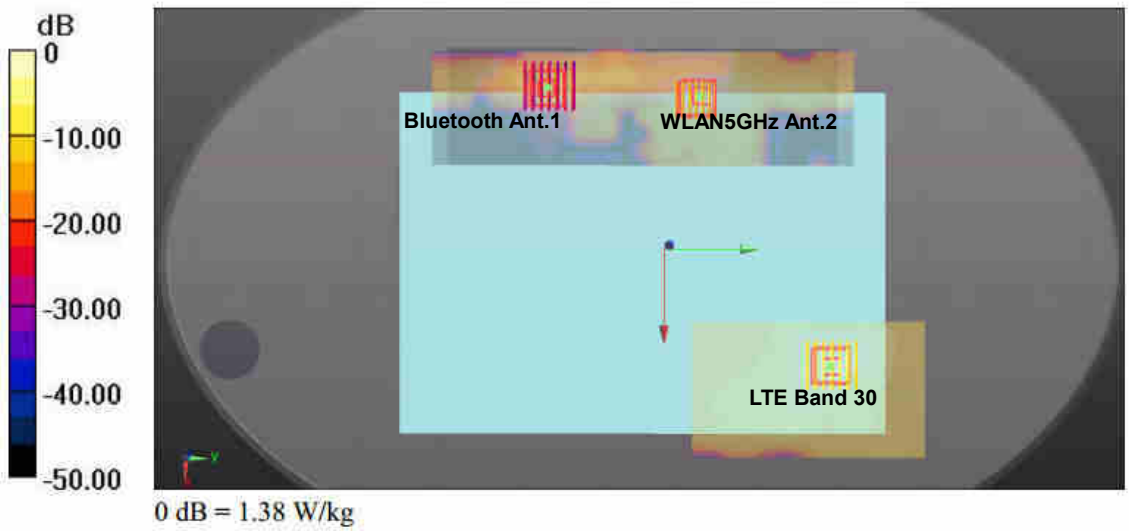
	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case #43	LTE Band 66	Bottom of Laptop	1.116	0	0.0615	0.134	-0.18	192.3	1.84	0.01	Not required
	WLAN5GHz Ant.2		0.727	0	-0.104	0.036	-0.18				
	LTE Band 66		1.116	0	0.0615	0.134	-0.18	256.7	1.14	0.00	Not required
	Bluetooth Ant.1		0.025	0	-0.108	-0.0588	-0.18				
	WLAN5GHz Ant.2		0.727	0	-0.104	0.036	-0.18	94.9	0.75	0.01	Not required
	Bluetooth Ant.1		0.025	0	-0.108	-0.0588	-0.18				



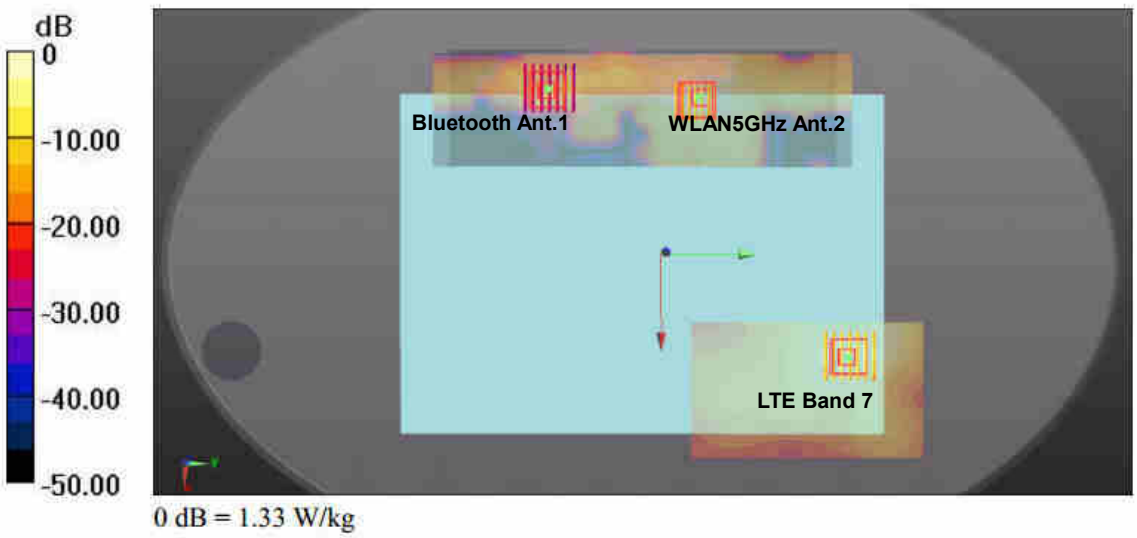
	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case #44	LTE Band 2	Bottom of Laptop	1.106	0	0.063	0.12	-0.18	186.9	1.83	0.01	Not required
	WLAN5GHz Ant.2		0.727	0	-0.104	0.036	-0.18				
	LTE Band 2		1.106	0	0.063	0.12	-0.18	247.4	1.13	0.00	Not required
	Bluetooth Ant.1		0.025	0	-0.108	-0.0588	-0.18				
	WLAN5GHz Ant.2		0.727	0	-0.104	0.036	-0.18	94.9	0.75	0.01	Not required
	Bluetooth Ant.1		0.025	0	-0.108	-0.0588	-0.18				



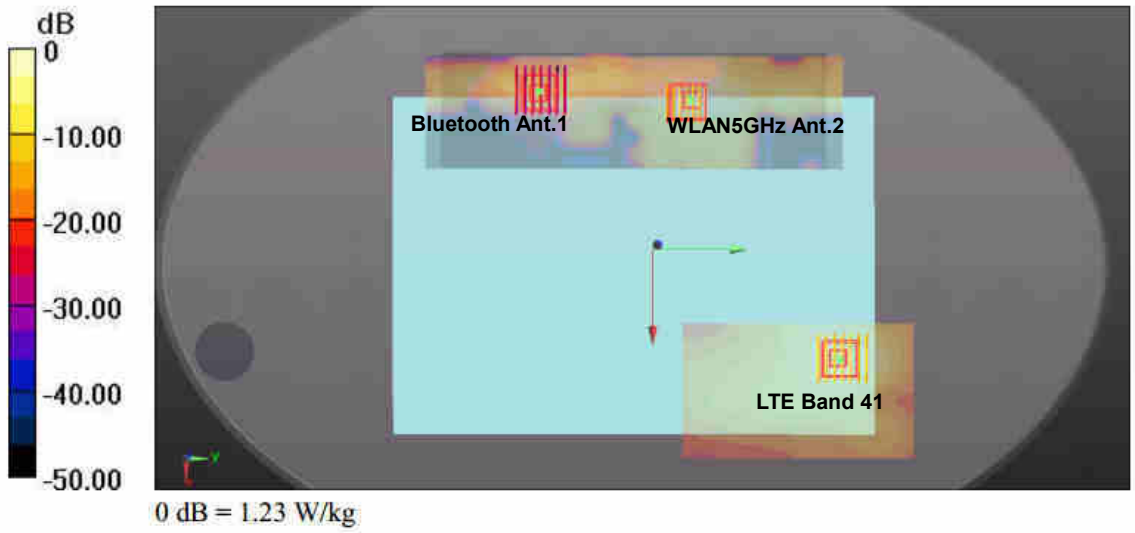
	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case #45	LTE Band 30	Bottom of Laptop	1.128	0	0.0636	0.115	-0.18	185.3	1.86	0.01	Not required
	WLAN5GHz Ant.2		0.727	0	-0.104	0.036	-0.18				
	LTE Band 30		1.128	0	0.0636	0.115	-0.18	244.2	1.15	0.01	Not required
	Bluetooth Ant.1		0.025	0	-0.108	-0.0588	-0.18				
	WLAN5GHz Ant.2		0.727	0	-0.104	0.036	-0.18	94.9	0.75	0.01	Not required
	Bluetooth Ant.1		0.025	0	-0.108	-0.0588	-0.18				



	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case #46	LTE Band 7	Bottom of Laptop	1.030	0	0.0576	0.127	-0.18	185.5	1.76	0.01	Not required
	WLAN5GHz Ant.2		0.727	0	-0.104	0.036	-0.18				
	LTE Band 7		1.030	0	0.0576	0.127	-0.18	248.9	1.06	0.00	Not required
	Bluetooth Ant.1		0.025	0	-0.108	-0.0588	-0.18				
	WLAN5GHz Ant.2		0.727	0	-0.104	0.036	-0.18	94.9	0.75	0.01	Not required
	Bluetooth Ant.1		0.025	0	-0.108	-0.0588	-0.18				



	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case #47	LTE Band 41	Bottom of Laptop	1.056	0	0.0588	0.123	-0.18	184.6	1.78	0.01	Not required
	WLAN5GHz Ant.2		0.727	0	-0.104	0.036	-0.18				
	LTE Band 41		1.056	0	0.0588	0.123	-0.18	246.7	1.08	0.00	Not required
	Bluetooth Ant.1		0.025	0	-0.108	-0.0588	-0.18				
	WLAN5GHz Ant.2		0.727	0	-0.104	0.036	-0.18	94.9	0.75	0.01	Not required
	Bluetooth Ant.1		0.025	0	-0.108	-0.0588	-0.18				



Engineer： Johnny Chen

17. 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. 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.

18. 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 865664 D01 v01r04, "SAR Measurement Requirements for 100 MHz to 6 GHz", Aug 2015.

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

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

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

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

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

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

Appendix A. Plots of System Performance Check

The plots are shown as follows.

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2018.11.15

System Check_Body_750MHz

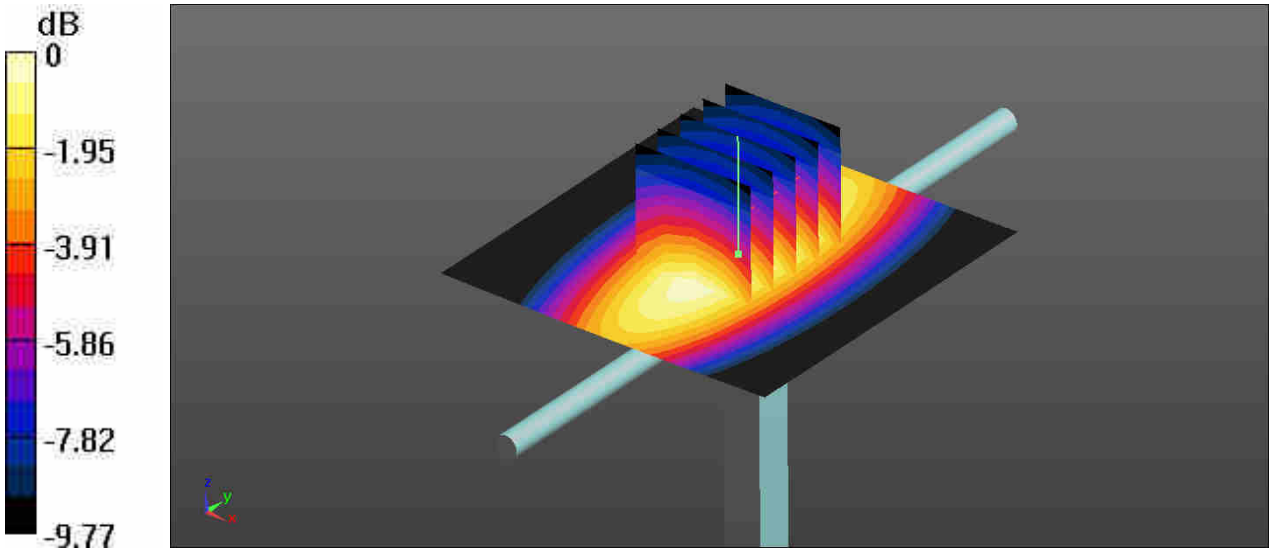
DUT: D750V3-SN:1099

Communication System: UID 0, CW (0); Frequency: 750 MHz;Duty Cycle: 1:1
Medium: MSL_750_181115 Medium parameters used: f = 750 MHz; σ = 0.967 S/m; ε_r = 53.993; ρ = 1000 kg/m^3
Ambient Temperature：23.4 ℃； Liquid Temperature：22.5 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3819; ConvF(9.7, 9.7, 9.7); Calibrated: 2018.01.31;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1437; Calibrated: 2018.10.15
- Phantom: SAM2; Type: QDOVA001BB; Serial: TP:1233
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 2.69 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 53.78 V/m; Power Drift = -0.13 dB
Peak SAR (extrapolated) = 3.09 W/kg
SAR(1 g) = 2.12 W/kg; SAR(10 g) = 1.42 W/kg
Maximum value of SAR (measured) = 2.66 W/kg



0 dB = 2.66 W/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2018.11.15

System Check_Body_835MHz

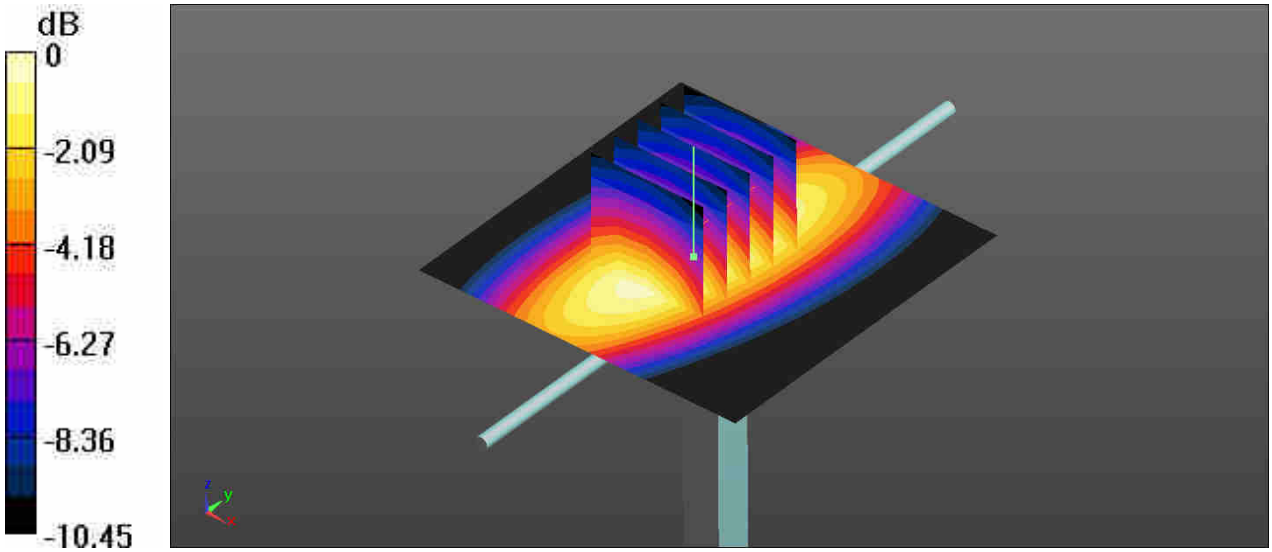
DUT: D835V2-SN:4d162

Communication System: UID 0, CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium: MSL_835_181115 Medium parameters used: f = 835 MHz; σ = 0.977 S/m; ε_r = 54.442; ρ = 1000 kg/m^3
Ambient Temperature：23.4 ℃； Liquid Temperature：22.4 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3819; ConvF(9.49, 9.49, 9.49); Calibrated: 2018.01.31;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1437; Calibrated: 2018.10.15
- Phantom: SAM2; Type: QDOVA001BB; Serial: TP:1233
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 3.00 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 56.77 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 3.45 W/kg
SAR(1 g) = 2.38 W/kg; SAR(10 g) = 1.58 W/kg
Maximum value of SAR (measured) = 2.98 W/kg



0 dB = 2.98 W/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2018.11.14

System Check_Body_1750MHz

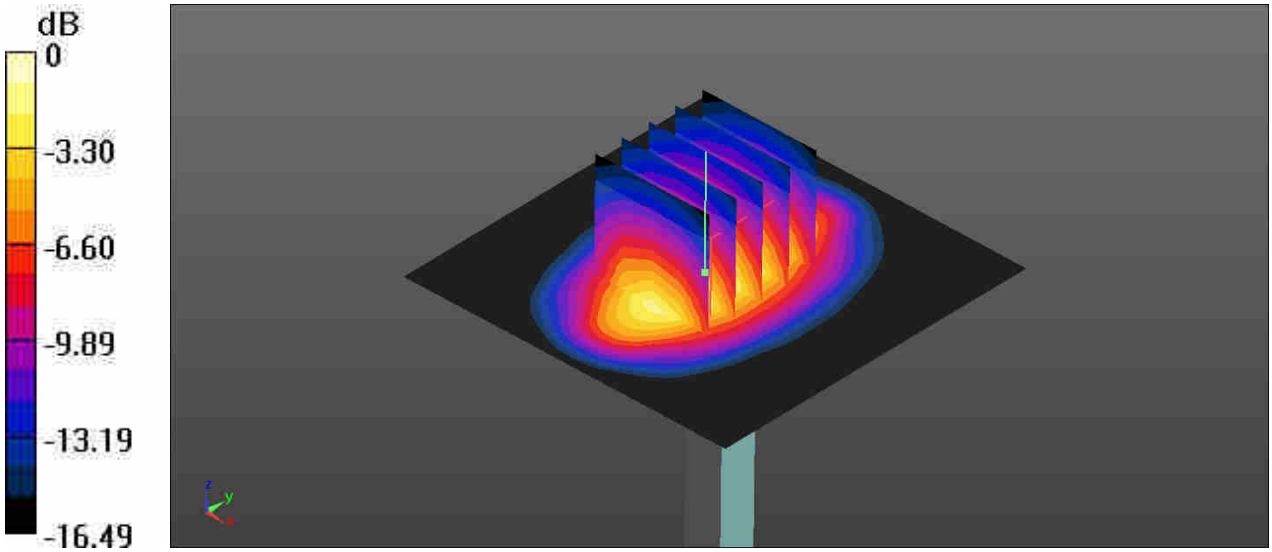
DUT: D1750V2-SN:1137

Communication System: UID 0, CW; Frequency: 1750 MHz;Duty Cycle: 1:1
Medium: MSL_1750_181114 Medium parameters used: f = 1750 MHz; σ = 1.511 S/m; ε_r = 51.994; ρ = 1000 kg/m^3
Ambient Temperature：23.4 ℃； Liquid Temperature：22.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3819; ConvF(7.93, 7.93, 7.93); Calibrated: 2018.01.31;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1437; Calibrated: 2018.10.15
- Phantom: SAM2; Type: QDOVA001BB; Serial: TP:1233
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 12.4 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 92.20 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 15.4 W/kg
SAR(1 g) = 8.91 W/kg; SAR(10 g) = 4.77 W/kg
Maximum value of SAR (measured) = 12.5 W/kg



0 dB = 12.5 W/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2018.11.14

System Check_Body_1900MHz

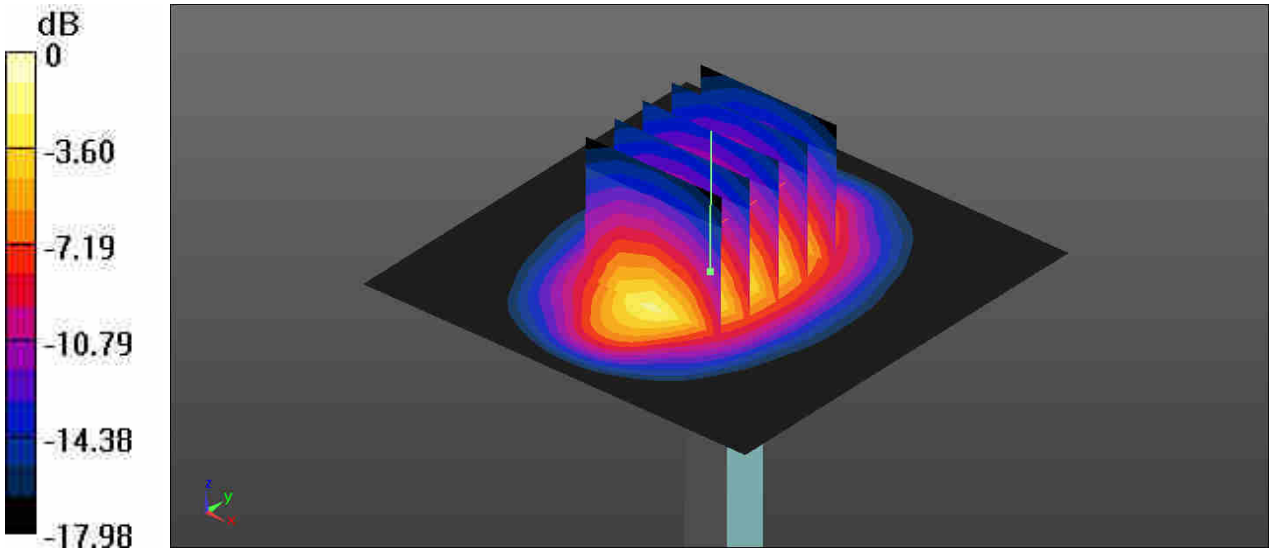
DUT: D1900V2-SN:5d182

Communication System: UID 0, CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium: MSL_1900_181114 Medium parameters used: f = 1900 MHz; σ = 1.584 S/m; ε_r = 54.212; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃； Liquid Temperature：22.5 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3819; ConvF(7.69, 7.69, 7.69); Calibrated: 2018.01.31;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1437; Calibrated: 2018.10.15
- Phantom: SAM2; Type: QDOVA001BB; Serial: TP:1233
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 14.3 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 85.08 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 18.2 W/kg
SAR(1 g) = 10.1 W/kg; SAR(10 g) = 5.18 W/kg
Maximum value of SAR (measured) = 14.5 W/kg



0 dB = 14.5 W/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2018.11.13

System Check_Body_2300MHz

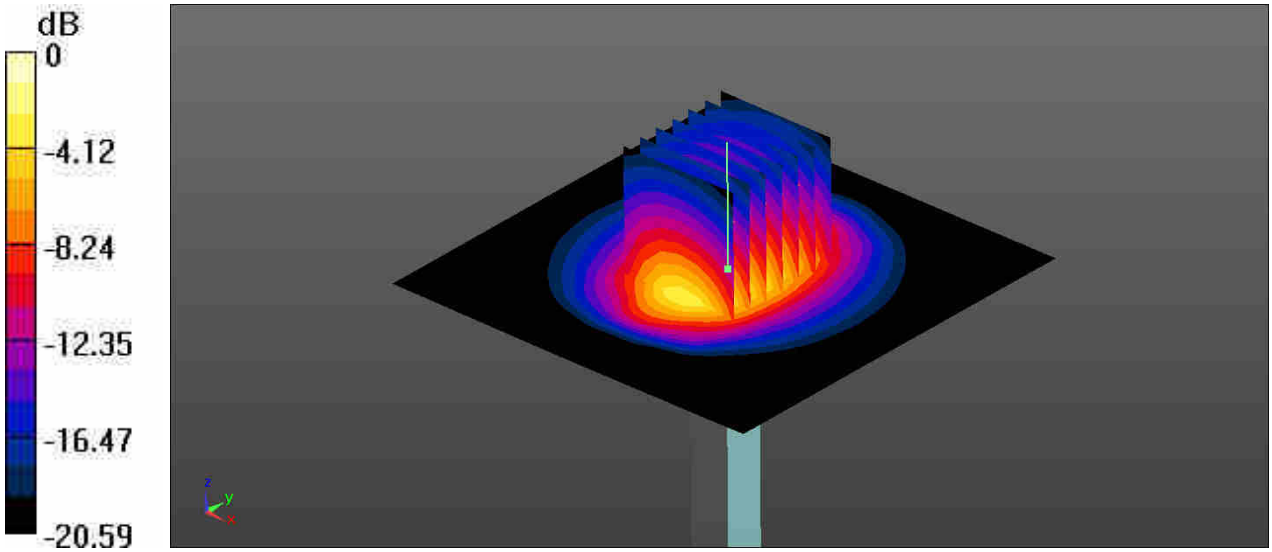
DUT: D2300V2-SN:1006

Communication System: UID 0, CW ; Frequency: 2300 MHz;Duty Cycle: 1:1
Medium: MSL_2300_181113 Medium parameters used: f = 2300 MHz; σ = 1.784 S/m; ε_r = 52.806; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature：22.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3819; ConvF(7.53, 7.53, 7.53); Calibrated: 2018.01.31;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1437; Calibrated: 2018.10.15
- Phantom: SAM2; Type: QDOVA001BB; Serial: TP:1233
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Pin=250mW/Area Scan (81x81x1): Interpolated grid: dx=12mm, dy=12mm
Maximum value of SAR (interpolated) = 15.7 W/kg

Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 94.07 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 21.3 W/kg
SAR(1 g) = 10.9 W/kg; SAR(10 g) = 5.25 W/kg
Maximum value of SAR (measured) = 16.0 W/kg



0 dB = 16.0 W/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2018.11.13

System Check_Body_2450MHz

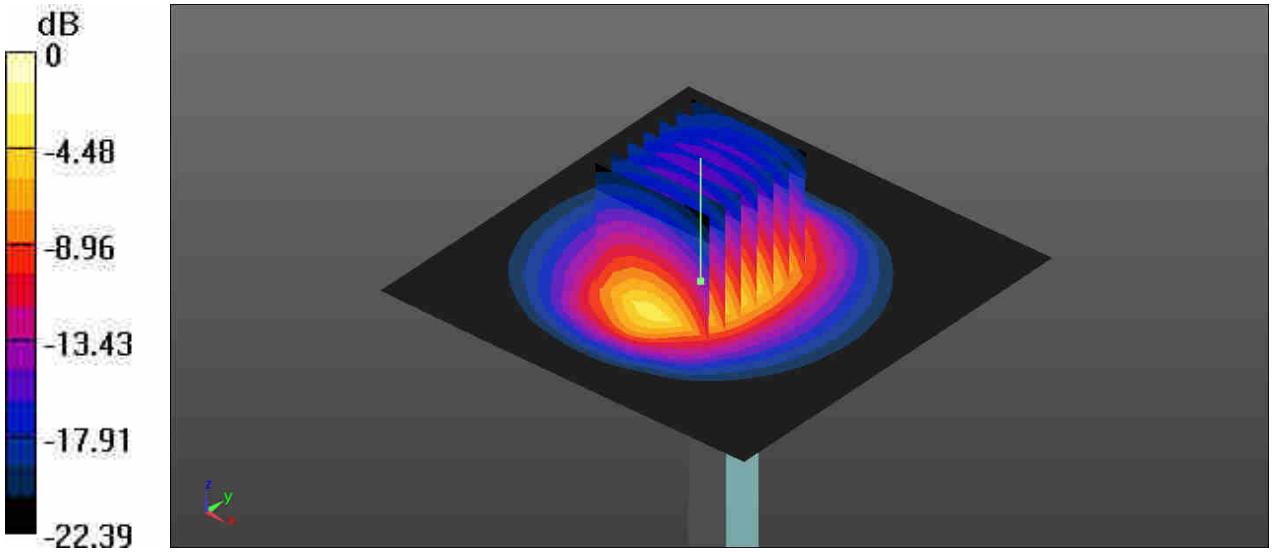
DUT: D2450V2-SN:924

Communication System: UID 0, CW; Frequency: 2450 MHz;Duty Cycle: 1:1
Medium: MSL_2450_181113 Medium parameters used: f = 2450 MHz; σ = 1.992 S/m; ε_r = 52.291; ρ = 1000 kg/m^3
Ambient Temperature：23.6 ℃； Liquid Temperature：22.5 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3819; ConvF(7.46, 7.46, 7.46); Calibrated: 2018.01.31;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1437; Calibrated: 2018.10.15
- Phantom: SAM2; Type: QDOVA001BB; Serial: TP:1233
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Pin=250mW/Area Scan (81x81x1): Interpolated grid: dx=12mm, dy=12mm
Maximum value of SAR (interpolated) = 20.6 W/kg

Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 86.88 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 27.7 W/kg
SAR(1 g) = 13.4 W/kg; SAR(10 g) = 6.17 W/kg
Maximum value of SAR (measured) = 20.5 W/kg



0 dB = 20.5 W/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2018.11.13

System Check_Body_2600MHz

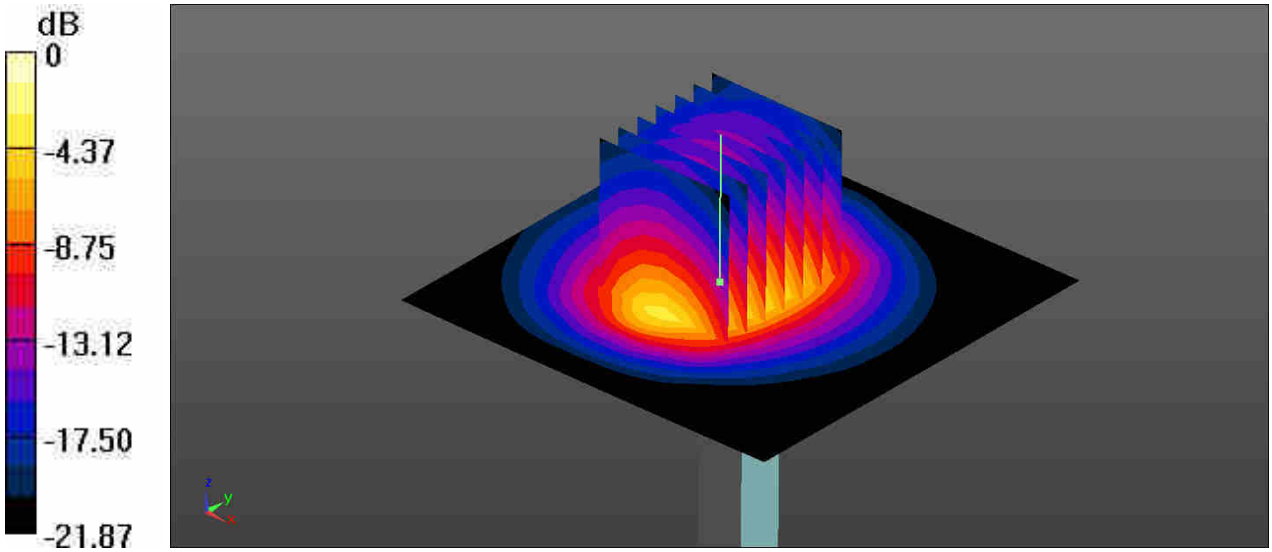
DUT: D2600V2-SN:1070

Communication System: UID 0, CW; Frequency: 2600 MHz;Duty Cycle: 1:1
Medium: MSL_2600_181113 Medium parameters used: f = 2600 MHz; σ = 2.205 S/m; ε_r = 50.654; ρ = 1000 kg/m^3
Ambient Temperature：23.6 ℃； Liquid Temperature：22.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3819; ConvF(6.92, 6.92, 6.92); Calibrated: 2018.01.31;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1437; Calibrated: 2018.10.15
- Phantom: SAM2; Type: QDOVA001BB; Serial: TP:1233
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Pin=250mW/Area Scan (71x71x1): Interpolated grid: dx=12mm, dy=12mm
Maximum value of SAR (interpolated) = 21.4 W/kg

Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 88.43 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 26.7 W/kg
SAR(1 g) = 13.4 W/kg; SAR(10 g) = 6.11 W/kg
Maximum value of SAR (measured) = 20.4 W/kg



0 dB = 20.4 W/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2018.11.12

System Check_Body_5250MHz

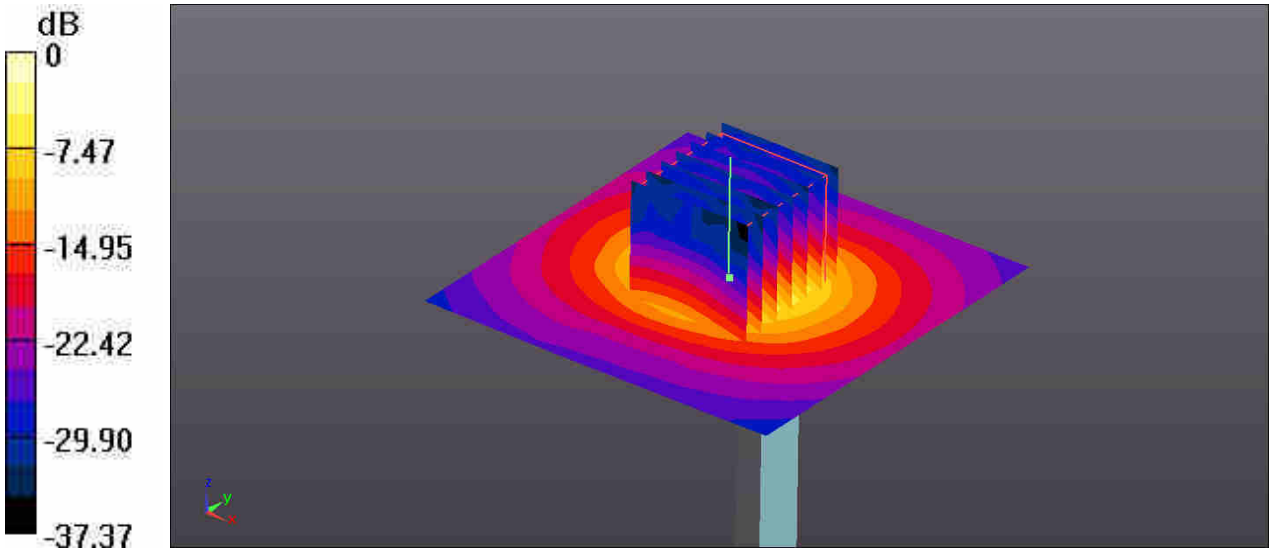
DUT: D5GHzV2-SN:1167

Communication System: UID 0, CW (0); Frequency: 5250 MHz;Duty Cycle: 1:1
Medium: MSL_5250_181112 Medium parameters used: f = 5250 MHz; σ = 5.29 S/m; ε_r = 50.979; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃； Liquid Temperature：22.7 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3819; ConvF(4.7, 4.7, 4.7); Calibrated: 2018.01.31;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1437; Calibrated: 2018.10.15
- Phantom: SAM3; Type: QDOVA002AA; Serial: TP:1149
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Pin=100mW/Area Scan (71x71x1): Interpolated grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 17.6 W/kg

Pin=100mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 46.44 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 33.1 W/kg
SAR(1 g) = 7.42 W/kg; SAR(10 g) = 2.01 W/kg
Maximum value of SAR (measured) = 18.4 W/kg



0 dB = 18.4 W/kg

System Check_Body_5600MHz

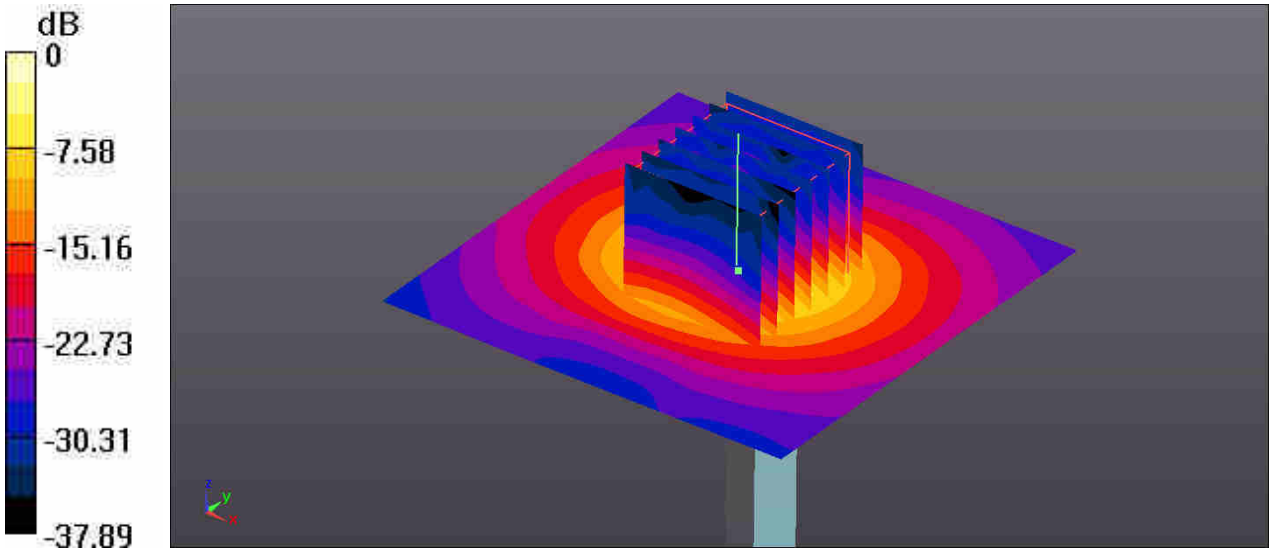
DUT: D5GHzV2-SN:1167

Communication System: UID 0, CW (0); Frequency: 5600 MHz;Duty Cycle: 1:1
Medium: MSL_5600_181112 Medium parameters used: f = 5600 MHz; σ = 5.884 S/m; ε_r = 50.353; ρ = 1000 kg/m^3
Ambient Temperature：23.6 ℃； Liquid Temperature：22.7 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3819; ConvF(4.18, 4.18, 4.18); Calibrated: 2018.01.31;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1437; Calibrated: 2018.10.15
- Phantom: SAM3; Type: QDOVA002AA; Serial: TP:1149
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Pin=100mW/Area Scan (71x71x1): Interpolated grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 20.7 W/kg

Pin=100mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 46.20 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 40.7 W/kg
SAR(1 g) = 8.31 W/kg; SAR(10 g) = 2.26 W/kg
Maximum value of SAR (measured) = 22.6 W/kg



0 dB = 22.6 W/kg

System Check_Body_5750MHz

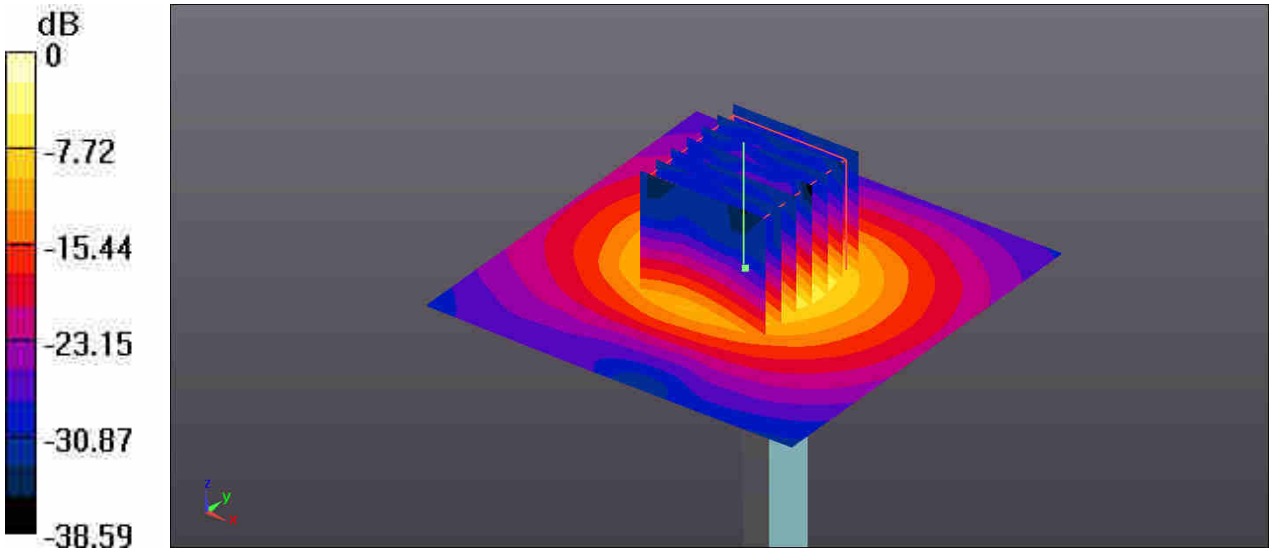
DUT: D5GHzV2-SN:1167

Communication System: UID 0, CW (0); Frequency: 5750 MHz;Duty Cycle: 1:1
Medium: MSL_5750_181112 Medium parameters used: f = 5750 MHz; σ = 6.115 S/m; ε_r = 50.005; ρ = 1000 kg/m^3
Ambient Temperature：23.7 ℃; Liquid Temperature：22.7 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3819; ConvF(4.32, 4.32, 4.32); Calibrated: 2018.01.31;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1437; Calibrated: 2018.10.15
- Phantom: SAM3; Type: QDOVA002AA; Serial: TP:1149
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Pin=100mW/Area Scan (71x71x1): Interpolated grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 19.8 W/kg

Pin=100mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 42.88 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 40.7 W/kg
SAR(1 g) = 8.01 W/kg; SAR(10 g) = 2.21 W/kg
Maximum value of SAR (measured) = 20.4 W/kg



0 dB = 20.4 W/kg

Appendix B. Plots of High SAR Measurement

The plots are shown as follows.

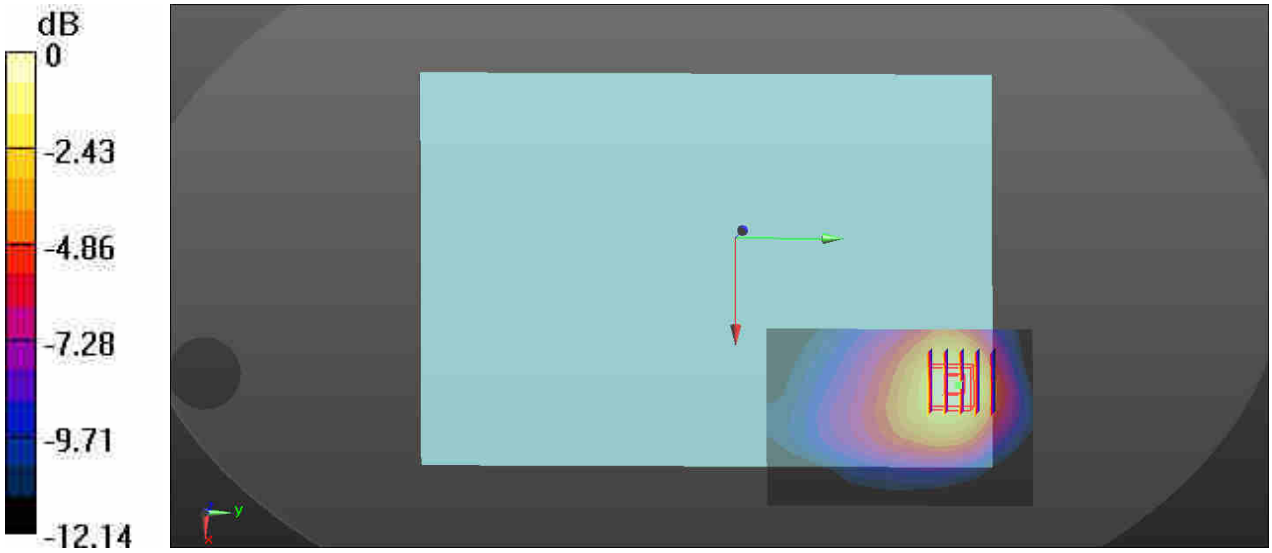
01_WCDMA Band V_RMC 12.2Kbps_Bottom of Laptop_0mm_Ch4132

Communication System: UID 0, UMTS (0); Frequency: 826.4 MHz;Duty Cycle: 1:1
Medium: MSL_835_181115 Medium parameters used: f = 826.4 MHz; σ = 0.967 S/m; ε_r = 54.537; ρ = 1000 kg/m^3
Ambient Temperature：23.4 ℃; Liquid Temperature：22.4 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3819; ConvF(9.49, 9.49, 9.49); Calibrated: 2018.01.31;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1437; Calibrated: 2018.10.15
- Phantom: SAM2; Type: QDOVA001BB; Serial: TP:1233
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch4132/Area Scan (61x91x1): Interpolated grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.23 W/kg

Ch4132/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.440 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 1.54 W/kg
SAR(1 g) = 0.983 W/kg; SAR(10 g) = 0.621 W/kg
Maximum value of SAR (measured) = 1.27 W/kg



0 dB = 1.23 W/kg

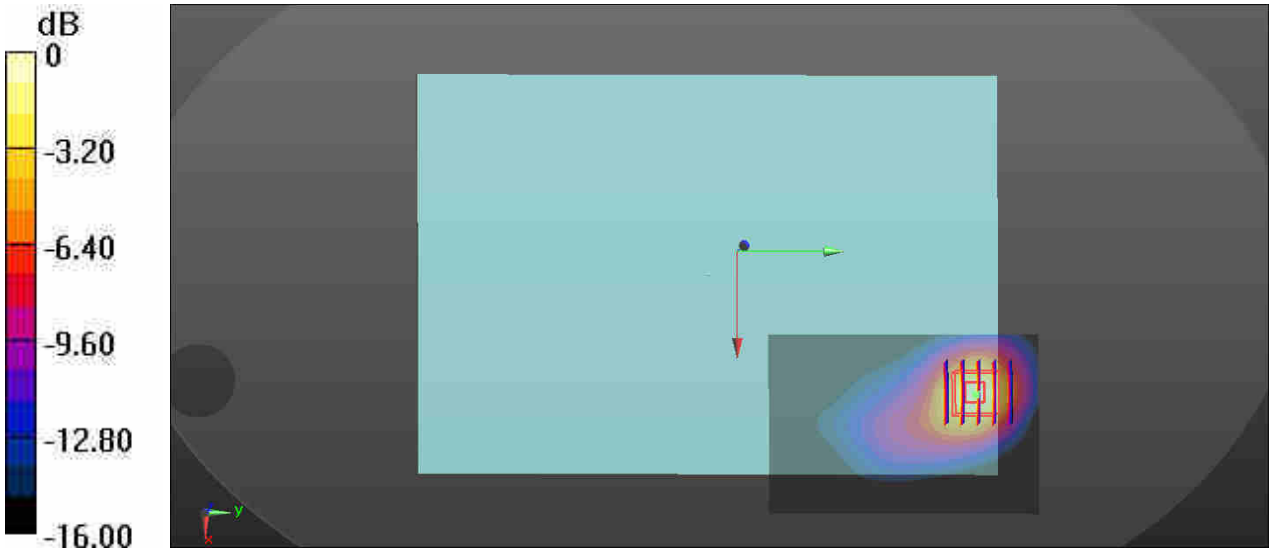
02_WCDMA Band IV_RMC 12.2Kbps_Bottom of Laptop_0mm_Ch1513

Communication System: UID 0, UMTS (0); Frequency: 1752.6 MHz;Duty Cycle: 1:1
Medium: MSL_1750_181114 Medium parameters used: f = 1752.6 MHz; σ = 1.514 S/m; ε_r = 51.988;ρ = 1000 kg/m^3
Ambient Temperature：23.4 ℃; Liquid Temperature：22.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3819; ConvF(7.93, 7.93, 7.93); Calibrated: 2018.01.31;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1437; Calibrated: 2018.10.15
- Phantom: SAM2; Type: QDOVA001BB; Serial: TP:1233
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch1513/Area Scan (61x91x1): Interpolated grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.52 W/kg

Ch1513/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.883 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 1.86 W/kg
SAR(1 g) = 1.06 W/kg; SAR(10 g) = 0.588 W/kg
Maximum value of SAR (measured) = 1.52 W/kg



0 dB = 1.52 W/kg

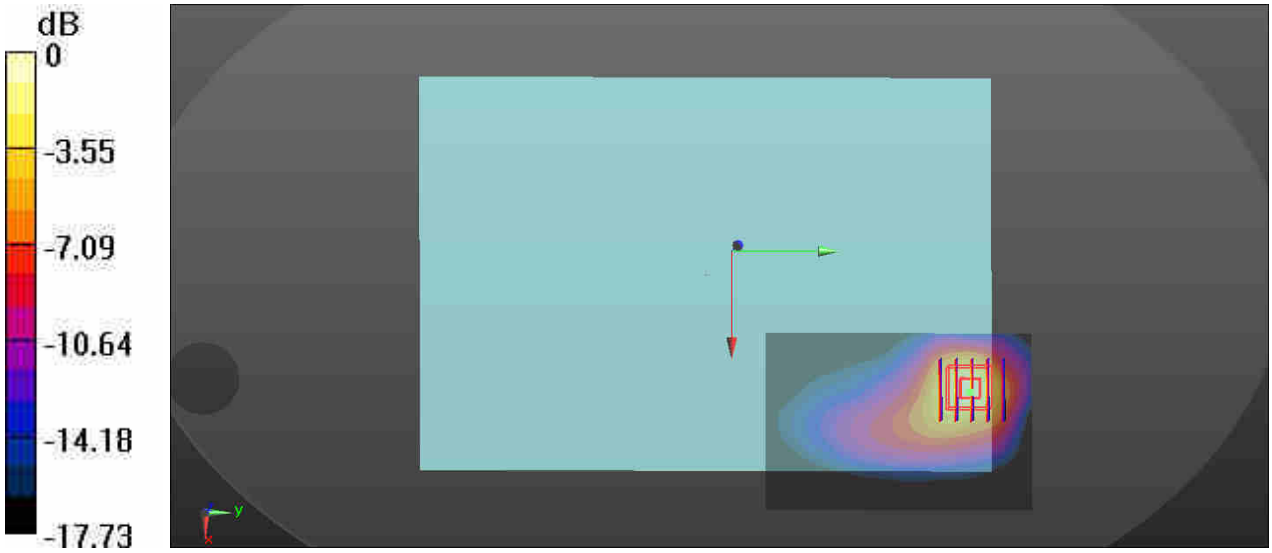
03_WCDMA Band II_RMC 12.2Kbps_Bottom of Laptop_0mm_Ch9538

Communication System: UID 0, UMTS (0); Frequency: 1907.6 MHz;Duty Cycle: 1:1
Medium: MSL_1900_181114 Medium parameters used: f = 1907.6 MHz; σ = 1.593 S/m; ε_r = 54.186;ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃； Liquid Temperature：22.5 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3819; ConvF(7.69, 7.69, 7.69); Calibrated: 2018.01.31;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1437; Calibrated: 2018.10.15
- Phantom: SAM2; Type: QDOVA001BB; Serial: TP:1233
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch9538/Area Scan (61x91x1): Interpolated grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.52 W/kg

Ch9538/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.945 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 1.90 W/kg
SAR(1 g) = 1.04 W/kg; SAR(10 g) = 0.565 W/kg
Maximum value of SAR (measured) = 1.50 W/kg



0 dB = 1.52 W/kg

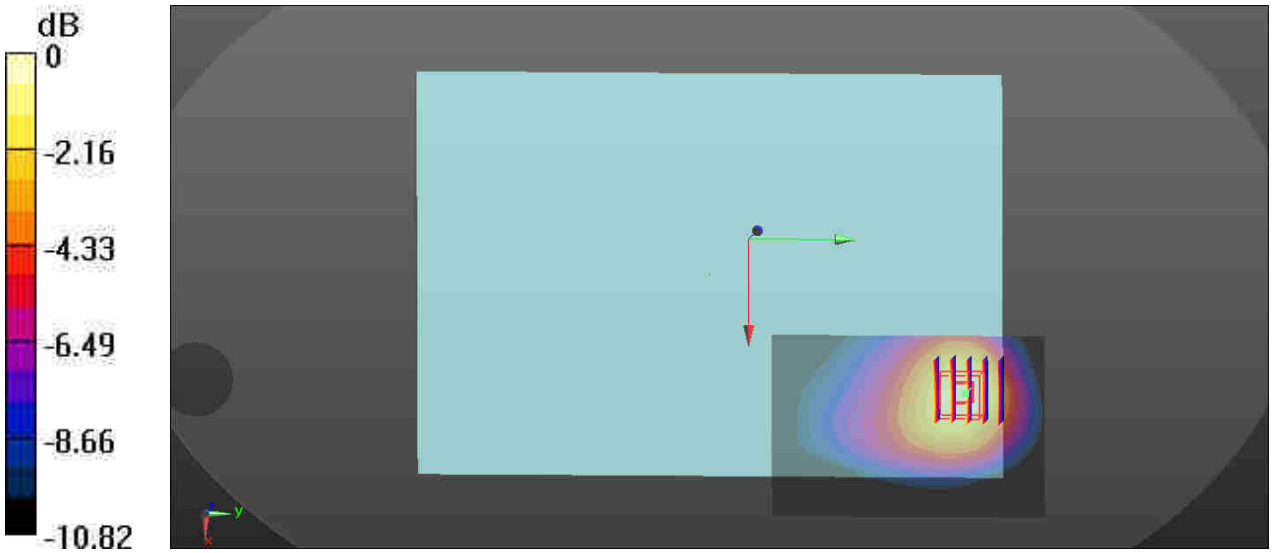
04_LTE Band 12_10M_QPSK_1RB_25Offset_Bottom of Laptop_0mm_Ch23095

Communication System: UID 0, LTE (0); Frequency: 707.5 MHz;Duty Cycle: 1:1
Medium: MSL_750_181115 Medium parameters used: f = 707.5 MHz; σ = 0.933 S/m; ε_r = 54.93; ρ = 1000 kg/m^3
Ambient Temperature：23.4 ℃； Liquid Temperature：22.5 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3819; ConvF(9.7, 9.7, 9.7); Calibrated: 2018.01.31;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1437; Calibrated: 2018.10.15
- Phantom: SAM2; Type: QDOVA001BB; Serial: TP:1233
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch23095/Area Scan (61x91x1): Interpolated grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.01 W/kg

Ch23095/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.036 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 1.21 W/kg
SAR(1 g) = 0.805 W/kg; SAR(10 g) = 0.528 W/kg
Maximum value of SAR (measured) = 1.02 W/kg



0 dB = 1.01 W/kg

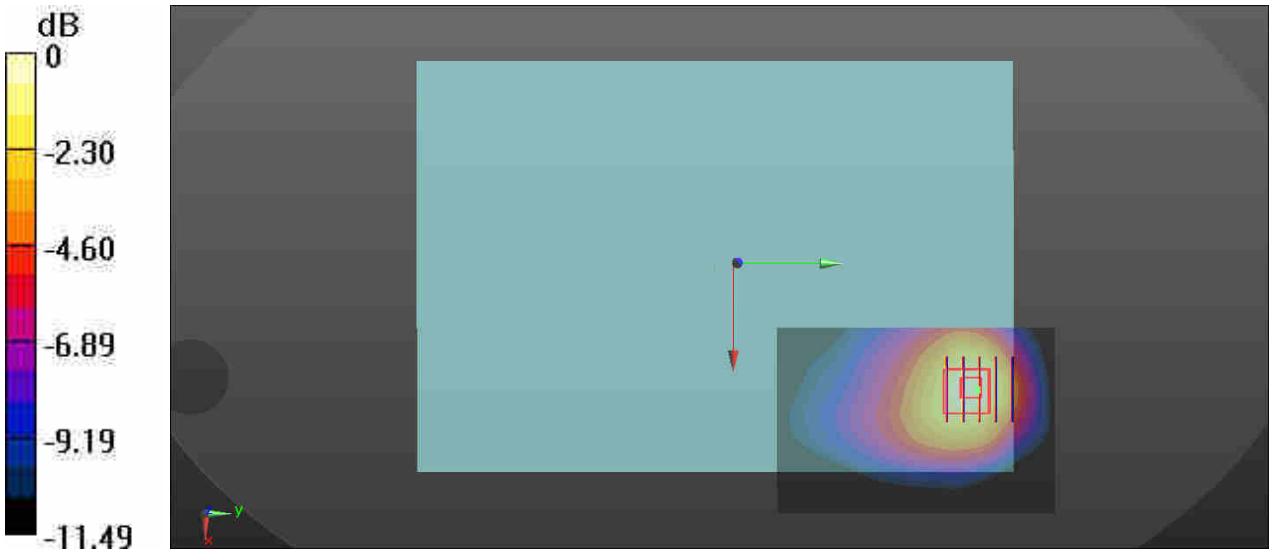
05_LTE Band 13_10M_QPSK_25RB_0Offset_Bottom of Laptop_0mm_Ch23230

Communication System: UID 0, LTE (0); Frequency: 782 MHz;Duty Cycle: 1:1
Medium: MSL_750_181115 Medium parameters used: f = 782 MHz; σ = 0.993 S/m; ε_r = 53.334; ρ = 1000 kg/m^3
Ambient Temperature：23.4 ℃； Liquid Temperature：22.5 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3819; ConvF(9.7, 9.7, 9.7); Calibrated: 2018.01.31;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1437; Calibrated: 2018.10.15
- Phantom: SAM2; Type: QDOVA001BB; Serial: TP:1233
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch23230/Area Scan (61x91x1): Interpolated grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.20 W/kg

Ch23230/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.385 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 1.45 W/kg
SAR(1 g) = 0.945 W/kg; SAR(10 g) = 0.609 W/kg
Maximum value of SAR (measured) = 1.18 W/kg



0 dB = 1.20 W/kg

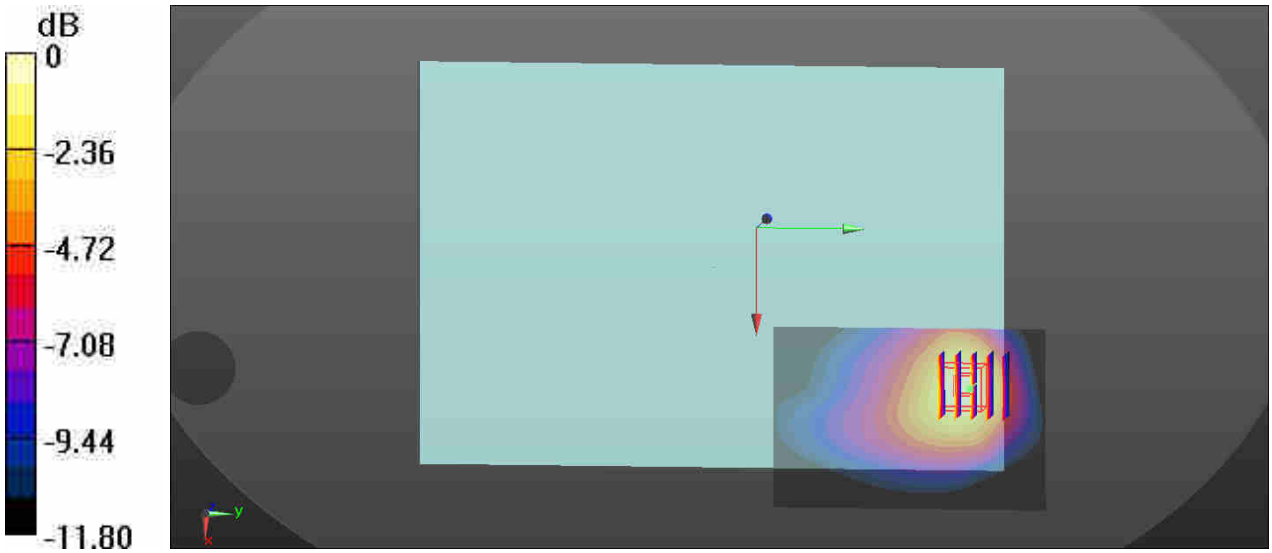
06_LTE Band 5_10M_QPSK_25RB_25Offset_Bottom of Laptop_0mm_Ch20525

Communication System: UID 0, LTE (0); Frequency: 836.5 MHz;Duty Cycle: 1:1
Medium: MSL_835_181115 Medium parameters used: f = 836.5 MHz; σ = 0.979 S/m; ε_r = 54.428; ρ = 1000 kg/m^3
Ambient Temperature：23.4 ℃； Liquid Temperature：22.4 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3819; ConvF(9.49, 9.49, 9.49); Calibrated: 2018.01.31;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1437; Calibrated: 2018.10.15
- Phantom: SAM2; Type: QDOVA001BB; Serial: TP:1233
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch20525/Area Scan (61x91x1): Interpolated grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.25 W/kg

Ch20525/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.938 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 1.54 W/kg
SAR(1 g) = 0.972 W/kg; SAR(10 g) = 0.612 W/kg
Maximum value of SAR (measured) = 1.24 W/kg



0 dB = 1.25 W/kg