FCC SAR Test Report

APPLICANT	:	FUJITSU LIMITED
EQUIPMENT	:	PCS/GSM/EDGE/CDMA/WCDMA/LTE Module
BRAND NAME	:	FUJITSU LIMITED
MODEL NAME	:	EM7355
FCC ID	:	EJE-EM7355D3
STANDARD	:	FCC 47 CFR Part 2 (2.1093) ANSI/IEEE C95.1-1992 IEEE 1528-2013

The product was installed into FUJITSU STYLISTIC Q series (Brand Name: FUJITSU, Model Name: Q616, FCC ID: EJE-WB0099) during test.

We, SPORTON INTERNATIONAL 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 INC., the test report shall not be reproduced except in full.

Reviewed by: Eric Huang / Deputy Manager

Approved by: Jones Tsai / Manager

Testing Laboratory
1190

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Revision History

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA5N1313-01	Rev. 01	Initial issue of report	Jan. 22, 2016

1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for **FUJITSU LIMITED, PCS/GSM/EDGE/CDMA/WCDMA/LTE Module, EM7355**, are as follows.

Equipment Class	Frequency Band	Highest SAR Summary	
		Body 1g SAR (W/kg)	Simultaneous Transmission (Sum of SAR) 1g SAR (W/kg)
PCB	GSM850	**1.45**	1.59
	GSM1900	1.45	
	WCDMA Band V	1.16	
	WCDMA Band IV	1.29	
	WCDMA Band II	1.36	
	CDMA 2000 BC10	1.23	
	CDMA 2000 BC0	1.28	
	CDMA 2000 BC1	1.14	
	LTE Band 17	1.20	
	LTE Band 13	1.28	
	LTE Band 5	1.02	
	LTE Band 4	1.20	
	LTE Band 2	1.30	
	LTE Band 25	1.30	
Date of Testing:		2015/04/14 ~ 2016/01/08	

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 INC.
Test Site Location	No.52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan District, Taoyuan City, Taiwan (R.O.C.) TEL: +886-3-327-3456 FAX: +886-3-328-4978

Applicant	
Company Name	FUJITSU LIMITED
Address	1-1, Kamikodanaka 4-chome, Nakahara-ku, Kawasaki, 211-8588 Japan

Manufacturer	
Company Name	FUJITSU LIMITED
Address	1-1, Kamikodanaka 4-chome, Nakahara-ku, Kawasaki, 211-8588 Japan

3. Guidance Standard

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)

4.1 General Information

Product Feature & Specification	
Equipment Name	PCS/GSM/EDGE/CDMA/WCDMA/LTE Module
Brand Name	FUJITSU LIMITED
Model Name	EM7355
FCC ID	EJE-EM7355D3
IMEI Code	356196050749452
Wireless Technology and Frequency Range	GSM850: 824.2 MHz ~ 848.8 MHz GSM1900: 1850.2 MHz ~ 1909.8 MHz WCDMA Band V: 826.4 MHz ~ 846.6 MHz WCDMA Band IV: 1712.4 MHz ~ 1752.6 MHz WCDMA Band II: 1852.4 MHz ~ 1907.6 MHz CDMA 2000 BC10: 817.9 MHz ~ 823.1 MHz CDMA2000 BC0: 824.7 MHz ~ 848.31 MHz CDMA 2000 BC1: 1851.25 MHz ~ 1908.75 MHz LTE Band 17: 706.5 MHz ~ 713.5 MHz LTE Band 13: 779.5 MHz ~ 784.5 MHz LTE Band 5: 824.7 MHz ~ 848.3 MHz LTE Band 4: 1710.7 MHz ~ 1754.3 MHz LTE Band 2: 1850.7 MHz ~ 1909.3 MHz LTE Band 25: 1850.7 MHz ~ 1914.3 MHz
Mode	· GSM/GPRS/EGPRS · RMC/AMR 12.2Kbps · HSDPA · HSUPA · DC-HSDPA · CDMA2000 : 1xRTT/1xEv-Do(Rev.0)/1xEv-Do(Rev.A) · LTE: QPSK, 16QAM
EUT Stage	Pre-Production Unit

Remark:

1. The Host Q616 with WWAN module is identical to the previously certified Q665 under FCC ID: EJE-EM7355D2, Report No: FA532514-01. The only difference is: The INTEL WiFi module “7265NGW” that was used in Host Q665 is now replaced with INTEL module “8260NGW in the new Host Q616. The Antenna types, Antenna locations, proximity sensors and the whole mechanical construction are identical in both Q665 and Q616.
2. Full SAR test was performed on WiFi module for Q616 and simultaneous SAR results are reported here.
3. For WWAN, SAR tests were performed to verify WWAN compliance and combined worst case results between Q665 and Q616 are reported here.

Host Information	
Host Name	STYLISTIC Q series
Brand Name	FUJITSU
Model Name	Q616
FCC ID	EJE-WB0099
Integrated WLAN Module	Brand Name: Intel Model Name: 8260NGW
Integrated NFC Module	Brand Name: Sony EMCS Corporation Model Name: RC-S650/IA
Wireless Technology	· 802.11a/b/g/n/ac HT20/HT40/VHT20/VHT40/VHT80 · Bluetooth v3.0+EDR，Bluetooth v4.0-LE · NFC:ASK

WWAN Antenna Information		
Manufacturer	NISSEI ELECTRIC CO., LTD.	
Peak gain	750MHz: -0.22dBi 850MHz: -1.02dBi 1750MHz: 3.18dBi 1900MHz: 3.51dBi	
WLAN Antenna Information		
Manufacturer	NISSEI ELECTRIC CO., LTD.	
Antenna Type	Main: PIFA Antenna	Aux: PIFA Antenna
Peak gain	Main Antenna :	Aux Antenna :
	WLAN(2.4GHz):-2.60dBi	WLAN(2.4GHz): -1.36dBi BT :-1.36dBi
	WLAN(5GHz):0.35dBi	WLAN(5GHz):-2.27dBi

Battery Information			
Brand Name:	Fujitsu	Model Name:	FPB0326S
Power Rating:	3450mAh, 11.1V (38Wh)	Type:	Li-ion

4.2 General LTE SAR Test and Reporting Considerations

Summarized necessary items addressed in KDB 941225 D05 v02r05	
FCC ID	EJE-EM7355D3
Equipment Name	PCS/GSM/EDGE/CDMA/WCDMA/LTE Module
Operating Frequency Range of each LTE transmission band	LTE Band 17: 706.5 MHz ~ 713.5 MHz LTE Band 13: 779.5 MHz ~ 784.5 MHz LTE Band 05: 824.7 MHz ~ 848.3 MHz LTE Band 04: 1710.7 MHz ~ 1754.3 MHz LTE Band 02: 1850.7 MHz ~ 1909.3 MHz LTE Band 25: 1850.7 MHz ~ 1914.3 MHz
Channel Bandwidth	LTE Band 17: 5MHz, 10MHz LTE Band 13: 5MHz, 10MHz LTE Band 05: 5MHz, 10MHz LTE Band 04: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 02: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 25: 5MHz, 10MHz, 15MHz, 20MHz
uplink modulations used	QPSK, and 16QAM
LTE Voice / Data requirements	Data only
LTE MPR permanently built-in by design	**Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 3**
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	Yes, proximity sensor.

Modulation	Channel bandwidth / Transmission bandwidth (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

Transmission (H, M, L) channel numbers and frequencies in each LTE band

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 13

	Bandwidth 5 MHz		Bandwidth 10 MHz	
	Channel #	Freq.(MHz)	Channel #	Freq.(MHz)
L	23205	779.5		
M	23230	782	23230	782
H	23255	784.5		

LTE Band 5

	Bandwidth 5 MHz		Bandwidth 10 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	20425	826.5	20450	829
M	20525	836.5	20525	836.5
H	20625	846.5	20600	844

LTE Band 4								
	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	19975	1712.5	20000	1715	20025	1717.5	20050	1720
M	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5
H	20375	1752.5	20350	1750	20325	1747.5	20300	1745
LTE Band 2								
	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	18625	1852.5	18650	1855	18675	1857.5	18700	1860
M	18900	1880	18900	1880	18900	1880	18900	1880
H	19175	1907.5	19150	1905	19125	1902.5	19100	1900
LTE Band 25								
	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	26065	1852.5	26090	1855	26115	1857.5	26140	1860
M	26340	1880	26340	1880	26340	1880	26340	1880
H	26665	1912.5	26640	1910	26615	1907.5	26590	1905

5. Proximity Sensor Triggering Test

Proximity sensor power reduction

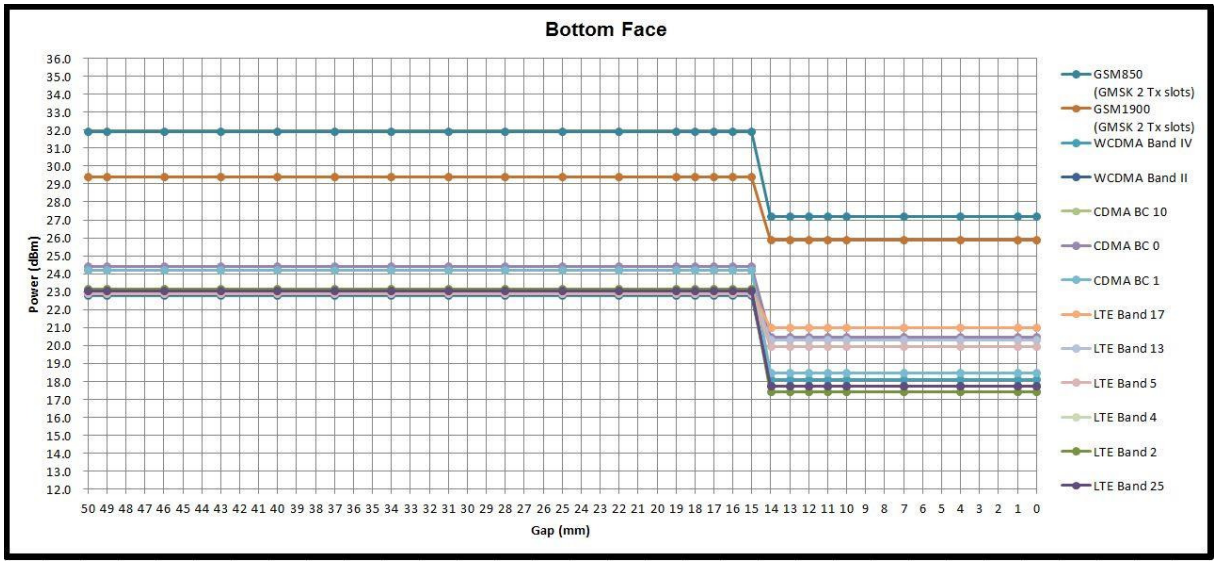
Exposure Position / wireless mode	Bottom Face(1)	Edge 1(1)	Edge 2	Edge 3	Edge 4
GSM850 GPRS (GMSK 1 Tx slot) - CS1	5.0 dB	5.0 dB	0 dB	0 dB	0 dB
GSM850 GPRS (GMSK 2 Tx slot) - CS1	5.0 dB	5.0 dB			
GSM850 EDGE (8PSK 1 Tx slot) - MCS5	0.0 dB	0.0 dB			
GSM850 EDGE (8PSK 2 Tx slot) - MCS5	0.0 dB	0.0 dB			
GSM850 EDGE (8PSK 3 Tx slot) - MCS5	1.0 dB	1.0 dB			
GSM850 EDGE (8PSK 4 Tx slot) - MCS5	3.0 dB	3.0 dB			
GSM1900 GPRS (GMSK 1 Tx slot) - CS1	3.5 dB	3.5 dB			
GSM1900 GPRS (GMSK 2 Tx slot) - CS1	3.5 dB	3.5 dB			
GSM1900 EDGE (8PSK 1 Tx slot) - MCS5	0.0 dB	0.0 dB			
GSM1900 EDGE (8PSK 2 Tx slot) - MCS5	0.0 dB	0.0 dB			
GSM1900 EDGE (8PSK 3 Tx slot) - MCS5	1.5 dB	1.5 dB			
GSM1900 EDGE (8PSK 4 Tx slot) - MCS5	3.5 dB	3.5 dB			
WCDMA Band V	3.0 dB	3.0 dB			
WCDMA Band II	5.0 dB	5.0 dB			
WCDMA Band IV	5.0 dB	5.0 dB			
CDMA2000 BC10	3.0 dB	3.0 dB			
CDMA2000 BC0	3.0 dB	3.0 dB			
CDMA2000 BC1	6.0 dB	6.0 dB			
LTE Band 17	2.0 dB	2.0 dB			
LTE Band 13	3.5 dB	3.5 dB			
LTE Band 5	3.5 dB	3.5 dB			
LTE Band 4	6.0 dB	6.0 dB			
LTE Band 2	5.0 dB	5.0 dB			
LTE Band 25	5.0 dB	5.0 dB			

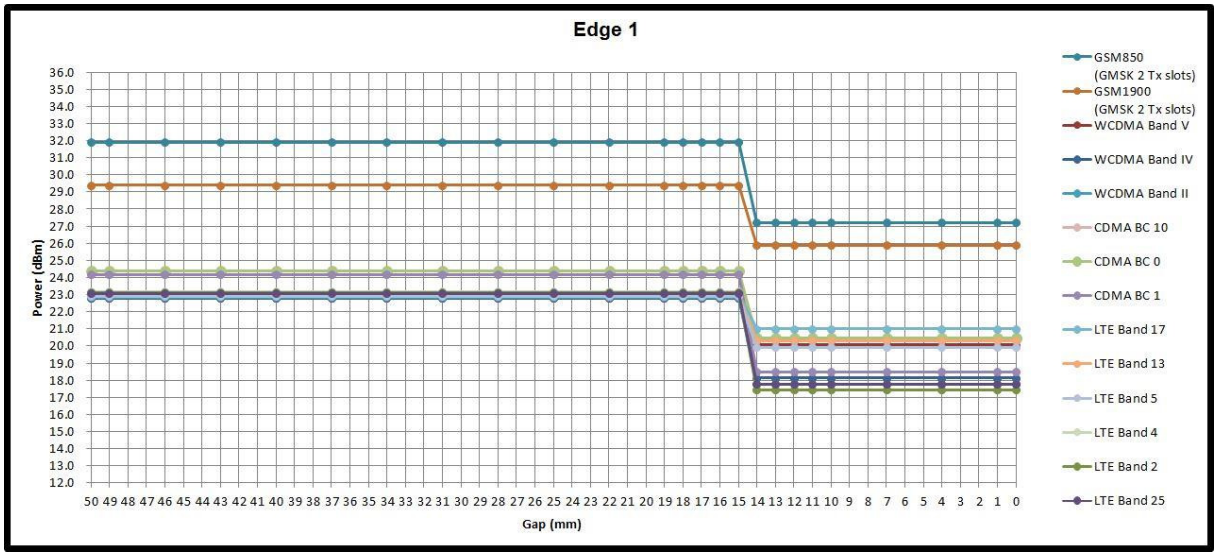
Remark:

1. (1): Reduced maximum limit applied by activation of proximity sensor.
2. Power reduction is not applicable for WLAN and 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 Face: 13 mm
   - Edge1: 13 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)
GSM850	128	31.89	27.20	4.69
GSM1900	661	29.38	25.88	3.50
WCDMA Band V	4182	22.81	20.05	2.76
WCDMA Band IV	1413	22.79	18.12	4.67
WCDMA Band II	9262	22.84	17.74	5.10
CDMA BC10	684	24.18	20.34	3.84
CDMA BC0	384	24.40	20.48	3.92
CDMA BC1	25	23.86	18.50	5.36
LTE Band 17	23790	23.02	20.99	2.03
LTE Band 13	23230	22.97	20.31	2.66
LTE Band 5	20525	22.88	19.93	2.95
LTE Band 4	20175	23.16	17.43	5.73
LTE Band 2	18900	23.14	17.44	5.70
LTE Band 25	26340	23.06	17.75	5.31





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

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

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:

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

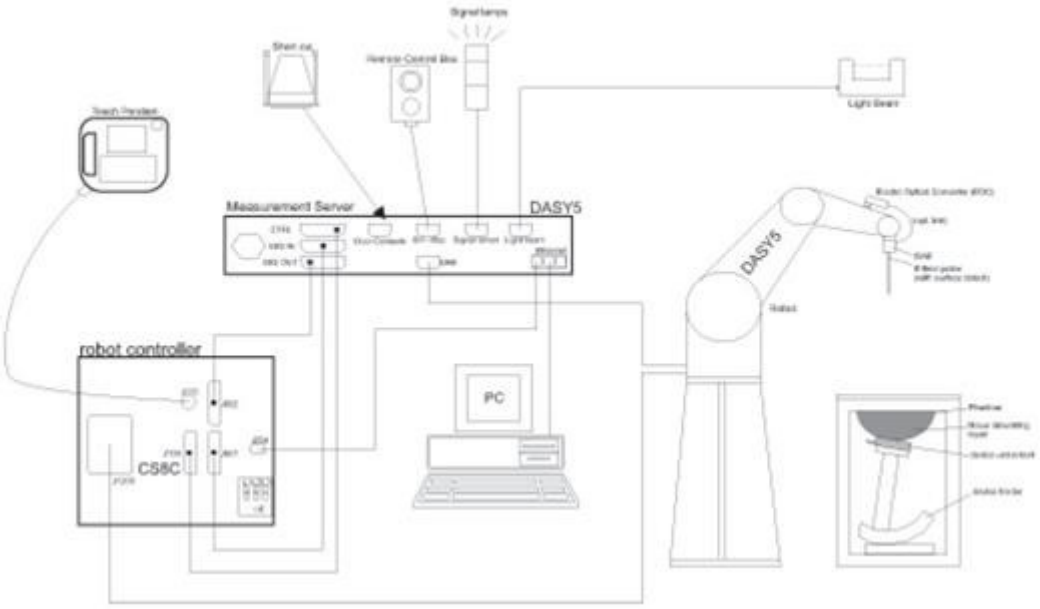
SAR is expressed in units of Watts per kilogram (W/kg)

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

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.

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	≤ 1.5·$\Delta z_{Zoom}(n-1)$	
Minimum zoom scan volume	x, y, z		≥ 30 mm	3 – 4 GHz: ≥ 28 mm 4 – 5 GHz: ≥ 25 mm 5 – 6 GHz: ≥ 22 mm

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

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

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	Nov. 19, 2014	Nov. 18, 2015
SPEAG	750MHz System Validation Kit	D750V3	1012	May. 28, 2015	May. 27, 2016
SPEAG	835MHz System Validation Kit	D835V2	4d092	Jun. 23, 2014	Jun. 22, 2015
SPEAG	835MHz System Validation Kit	D835V2	499	Mar. 20, 2015	Mar. 19, 2016
SPEAG	1750MHz System Validation Kit	D1750V2	1068	Nov. 14, 2014	Nov. 13, 2015
SPEAG	1750MHz System Validation Kit	D1750V2	1068	Nov. 23, 2015	Nov. 22, 2016
SPEAG	1900MHz System Validation Kit	D1900V2	5d182	Nov. 14, 2014	Nov. 13, 2015
SPEAG	1900MHz System Validation Kit	D1900V2	5d210	Aug. 19, 2015	Aug. 18, 2016
SPEAG	2450MHz System Validation Kit	D2450V2	924	Nov. 19, 2014	Nov. 18, 2015
SPEAG	2450MHz System Validation Kit	D2450V2	926	Jul. 24, 2015	Jul. 23, 2016
SPEAG	5GHz System Validation Kit	D5GHzV2	1128	Jul. 20, 2015	Jul. 19, 2016
SPEAG	Data Acquisition Electronics	DAE4	1279	Jul. 23, 2014	Jul. 22, 2015
SPEAG	Data Acquisition Electronics	DAE4	1399	Nov. 13, 2014	Nov. 12, 2015
SPEAG	Data Acquisition Electronics	DAE3	495	May. 22, 2015	May. 21, 2016
SPEAG	Data Acquisition Electronics	DAE3	577	Sep. 24, 2015	Sep. 23, 2016
SPEAG	Dosimetric E-Field Probe	EX3DV4	3954	Nov. 21, 2014	Nov. 20, 2015
SPEAG	Dosimetric E-Field Probe	EX3DV4	3955	Nov. 21, 2014	Nov. 20, 2015
SPEAG	Dosimetric E-Field Probe	EX3DV4	3931	Oct. 01, 2015	Sep. 30, 2016
SPEAG	Dosimetric E-Field Probe	EX3DV4	3925	May. 27, 2015	May. 26, 2016
Wisewind	Thermometer	HTC-1	TM281	Oct. 21, 2014	Oct. 20, 2015
H.M.IRIS	Thermometer	TH-08	TM658	Oct. 21, 2014	Oct. 20, 2015
Wisewind	Thermometer	HTC-1	TM225	Oct. 16, 2015	Oct. 15, 2016
H.M.IRIS	Thermometer	TH-08	TM356	Oct. 16, 2015	Oct. 15, 2016
Anritsu	Radio Communication Analyzer	MT8820C	6201074414	Feb. 06, 2015	Feb. 05, 2016
Agilent	Wireless Communication Test Set	E5515C	MY50266977	May. 27, 2014	May. 26, 2015
Agilent	Wireless Communication Test Set	E5515C	MY50266977	May. 14, 2015	May. 13, 2016
SPEAG	Device Holder	N/A	N/A	N/A	N/A
Agilent	Signal Generator	N5181A	MY50145381	Dec. 11, 2014	Dec. 10, 2015
R&S	Signal Generator	MG3710A	6201502524	Dec. 18, 2015	Dec. 17, 2016
Agilent	ENA Network Analyzer	E5071C	MY46316648	Feb. 11, 2015	Feb. 10, 2016
SPEAG	Dielectric Probe Kit	DAK-3.5	1138	Nov. 18, 2014	Nov. 17, 2015
SPEAG	Dielectric Probe Kit	DAK-3.5	1126	Jul. 21, 2015	Jul. 20, 2016
Anritsu	Power Meter	ML2495A	1419002	May. 16, 2014	May. 15, 2015
Anritsu	Power Sensor	MA2411B	1339124	Jun. 03, 2014	Jun. 02, 2015
Anritsu	Power Meter	ML2495A	1419002	May. 13, 2015	May. 12, 2016
Anritsu	Power Sensor	MA2411B	1339124	May. 13, 2015	May. 12, 2016
Agilent	Dual Directional Coupler	778D	50422	Note 1	
ATM	Dual Directional Coupler	C122H-10	P610410z-02	Note 1	
Woken	Attenuator 1	WK0602-XX	N/A	Note 1	
PE	Attenuator 2	PE7005-10	N/A	Note 1	
PE	Attenuator 3	PE7005- 3	N/A	Note 1	
AR	Power Amplifier	5S1G4M2	0328767	Note 1	
Mini-Circuits	Power Amplifier	ZVE-3W	162601250	Note 1	

General Note:

1. Prior to system verification and validation, the path loss from the signal generator to the system check source and the power meter, which includes the amplifier, cable, attenuator and directional coupler, was measured by the network analyzer. The reading of the power meter was offset by the path loss difference between the path to the power meter and the path to the system check source to monitor the actual power level fed to the system check source.

11. System Verification

11.1 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 Head								
750	41.1	57.0	0.2	1.4	0.2	0	0.89	41.9
835	40.3	57.9	0.2	1.4	0.2	0	0.90	41.5
900	40.3	57.9	0.2	1.4	0.2	0	0.97	41.5
1800, 1900, 2000	55.2	0	0	0.3	0	44.5	1.40	40.0
2450	55.0	0	0	0	0	45.0	1.80	39.2
2600	54.8	0	0	0.1	0	45.1	1.96	39.0
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
900	50.8	48.2	0	0.9	0.1	0	1.05	55.0
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	MSL	22.6	0.962	56.093	0.96	55.50	0.21	1.07	±5	2015/4/16
750	MSL	22.6	0.955	57.407	0.96	55.50	-0.52	3.44	±5	2015/4/20
750	MSL	22.4	0.976	56.550	0.96	55.50	1.67	1.89	±5	2015/12/23
835	MSL	22.2	0.962	54.494	0.97	55.20	-0.82	-1.28	±5	2015/4/14
835	MSL	22.4	0.976	55.961	0.97	55.20	0.62	1.38	±5	2015/4/16
835	MSL	22.1	0.967	55.596	0.97	55.20	-0.31	0.72	±5	2015/4/17
835	MSL	22.4	0.984	54.433	0.97	55.20	1.44	-1.39	±5	2015/4/19
835	MSL	22.4	0.966	56.435	0.97	55.20	-0.41	2.24	±5	2015/12/23
1750	MSL	22.3	1.480	53.724	1.49	53.40	-0.67	0.61	±5	2015/4/15
1750	MSL	22.2	1.478	53.486	1.49	53.40	-0.81	0.16	±5	2015/4/18
1750	MSL	22.4	1.481	54.739	1.49	53.40	-0.60	2.51	±5	2015/12/23
1900	MSL	22.5	1.543	54.940	1.52	53.30	1.51	3.08	±5	2015/4/15
1900	MSL	22.2	1.535	53.487	1.52	53.30	0.99	0.35	±5	2015/4/17
1900	MSL	22.4	1.536	53.691	1.52	53.30	1.05	0.73	±5	2015/12/23
1900	MSL	22.2	1.561	53.580	1.52	53.30	2.70	0.53	±5	2016/1/8
2450	MSL	22.8	2.019	51.633	1.95	52.70	3.54	-2.02	±5	2016/1/4
5250	MSL	22.5	5.345	46.723	5.36	48.93	-0.28	-4.51	±5	2016/1/5
5600	MSL	22.5	5.775	46.163	5.77	48.50	0.09	-4.82	±5	2016/1/5
5750	MSL	22.5	5.973	45.970	5.94	48.30	0.56	-4.82	±5	2016/1/5

11.2 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 (%)
2015/4/16	750	MSL	250	D750V3-1099	EX3DV4 - SN3955	DAE4 Sn1399	2.28	8.56	9.12	6.54
2015/4/20	750	MSL	250	D750V3-1099	EX3DV4 - SN3954	DAE4 Sn1279	2.04	8.56	8.16	-4.67
2015/12/23	750	MSL	250	D750V3-1012	EX3DV4 - SN3931	DAE3 Sn577	1.98	8.61	7.92	-8.01
2015/4/14	835	MSL	250	D835V2-4d092	EX3DV4 - SN3955	DAE4 Sn1399	2.40	9.47	9.60	1.37
2015/4/16	835	MSL	250	D835V2-4d092	EX3DV4 - SN3955	DAE4 Sn1399	2.29	9.47	9.16	-3.27
2015/4/17	835	MSL	250	D835V2-4d092	EX3DV4 - SN3954	DAE4 Sn1279	2.45	9.47	9.80	3.48
2015/4/19	835	MSL	250	D835V2-4d092	EX3DV4 - SN3954	DAE4 Sn1279	2.53	9.47	10.12	6.86
2015/12/23	835	MSL	250	D835V2-499	EX3DV4 - SN3931	DAE3 Sn577	2.41	9.30	9.64	3.66
2015/4/15	1750	MSL	250	D1750V2-1068	EX3DV4 - SN3955	DAE4 Sn1399	9.21	38.00	36.84	-3.05
2015/4/18	1750	MSL	250	D1750V2-1068	EX3DV4 - SN3954	DAE4 Sn1279	9.83	38.00	39.32	3.47
2015/12/23	1750	MSL	250	D1750V2-1068	EX3DV4 - SN3931	DAE3 Sn577	9.03	38.00	36.12	-4.95
2015/4/15	1900	MSL	250	D1900V2-5d182	EX3DV4 - SN3955	DAE4 Sn1399	9.78	40.00	39.12	-2.20
2015/4/17	1900	MSL	250	D1900V2-5d182	EX3DV4 - SN3954	DAE4 Sn1279	10.40	40.00	41.60	4.00
2015/12/23	1900	MSL	250	D1900V2-5d210	EX3DV4 - SN3931	DAE3 Sn577	9.91	40.00	39.64	-0.90
2016/1/8	1900	MSL	250	D1900V2-5d210	EX3DV4 - SN3925	DAE3 Sn495	9.69	40.00	38.76	-3.10
2016/1/4	2450	MSL	250	D2450V2-926	EX3DV4 - SN3931	DAE3 Sn577	13.20	51.70	52.80	2.13
2016/1/5	5250	MSL	100	D5GHzV2-1128-5250	EX3DV4 - SN3931	DAE3 Sn577	7.71	76.20	77.10	1.18
2016/1/5	5600	MSL	100	D5GHzV2-1128-5600	EX3DV4 - SN3931	DAE3 Sn577	8.07	79.30	80.70	1.77
2016/1/5	5750	MSL	100	D5GHzV2-1128-5750	EX3DV4 - SN3931	DAE3 Sn577	7.32	75.90	73.20	-3.56

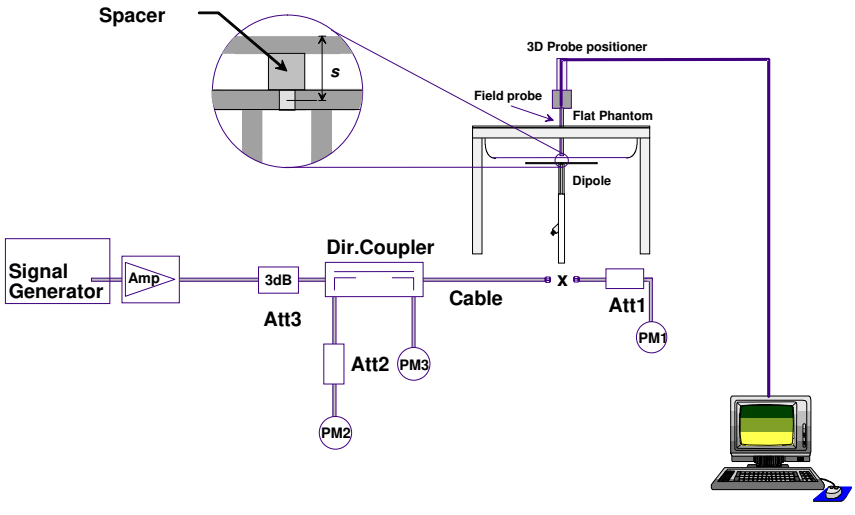


Fig 8.3.1 System Performance Check Setup

Fig 8.3.2 Setup Photo

12. Conducted RF Output Power (Unit: dBm)

<GSM Conducted Power>

General Note:

1. Per KDB 447498 D01v06, the maximum output power channel is used for SAR testing and for further SAR test reduction.
2. Per KDB 941225 D01v03r01, for Body SAR test reduction for GPRS and EDGE modes is determined by the source-based time-averaged output power including tune-up tolerance, for modes with the same specified maximum output power and tolerance, the higher number time-slot configuration should be tested, therefore, the GPRS 2Tx slots modes was selected when EUT operating without power back-off, the GPRS 2Tx slots modes was selected when EUT operating with power back-off, according to the highest source-based time-averaged output power.

Full Power Mode (Proximity Sensor Inactive)

Band GSM850	Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame-Average Power (dBm)			Tune-up Limit (dBm)
TX Channel	128	189	251		128	189	251	
Frequency (MHz)	824.2	836.4	848.8		824.2	836.4	848.8	
GPRS (GMSK, 1 Tx slot)	32.03	32.00	31.92	33.50	23.03	23.00	22.92	24.50
GPRS (GMSK, 2 Tx slots)	31.89	31.88	31.86	33.00	25.89	25.88	25.86	27.00
EDGE (8PSK, 1 Tx slot)	26.73	26.72	26.74	28.00	17.73	17.72	17.74	19.00
EDGE (8PSK, 2 Tx slots)	26.57	26.58	26.66	27.00	20.57	20.58	20.66	21.00
EDGE (8PSK, 3 Tx slots)	26.45	26.46	26.46	27.00	22.19	22.20	22.20	22.74
EDGE (8PSK, 4 Tx slots)	26.31	26.30	26.36	27.00	23.31	23.30	23.36	24.00

Band GSM1900	Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame-Average Power (dBm)			Tune-up Limit (dBm)
TX Channel	512	661	810		512	661	810	
Frequency (MHz)	1850.2	1880	1909.8		1850.2	1880	1909.8	
GPRS (GMSK, 1 Tx slot)	29.28	29.40	29.32	30.50	20.28	20.40	20.32	21.50
GPRS (GMSK, 2 Tx slots)	29.24	29.38	29.29	30.00	23.24	23.38	23.29	24.00
EDGE (8PSK, 1 Tx slot)	25.56	25.64	25.66	27.00	16.56	16.64	16.66	18.00
EDGE (8PSK, 2 Tx slots)	25.52	25.59	25.62	26.00	19.52	19.59	19.62	20.00
EDGE (8PSK, 3 Tx slots)	25.47	25.48	25.58	26.00	21.21	21.22	21.32	21.74
EDGE (8PSK, 4 Tx slots)	25.33	25.41	25.44	26.00	22.33	22.41	22.44	23.00

Reduced Power Mode (Proximity Sensor active)

Band GSM850	Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame-Average Power (dBm)			Tune-up Limit (dBm)
TX Channel	128	189	251		128	189	251	
Frequency (MHz)	824.2	836.4	848.8		824.2	836.4	848.8	
GPRS (GMSK, 1 Tx slot)	27.84	27.81	27.73	28.50	18.84	18.81	18.73	19.50
GPRS (GMSK, 2 Tx slots)	27.20	27.30	27.24	28.00	21.20	21.30	21.24	22.00
EDGE (8PSK, 1 Tx slot)	26.73	26.72	26.74	28.00	17.73	17.72	17.74	19.00
EDGE (8PSK, 2 Tx slots)	26.57	26.58	26.66	27.00	20.57	20.58	20.66	21.00
EDGE (8PSK, 3 Tx slots)	25.86	25.91	25.90	26.00	21.60	21.65	21.64	21.74
EDGE (8PSK, 4 Tx slots)	23.66	23.75	23.77	24.00	20.66	20.75	20.77	21.00

Band GSM1900	Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame-Average Power (dBm)			Tune-up Limit (dBm)
TX Channel	512	661	810		512	661	810	
Frequency (MHz)	1850.2	1880	1909.8		1850.2	1880	1909.8	
GPRS (GMSK, 1 Tx slot)	26.34	26.38	26.37	27.00	17.34	17.38	17.37	18.00
GPRS (GMSK, 2 Tx slots)	25.78	25.88	25.79	26.50	19.78	19.88	19.79	20.50
EDGE (8PSK, 1 Tx slot)	25.56	25.64	25.66	27.00	16.56	16.64	16.66	18.00
EDGE (8PSK, 2 Tx slots)	25.52	25.59	25.62	26.00	19.52	19.59	19.62	20.00
EDGE (8PSK, 3 Tx slots)	23.45	23.42	23.40	24.50	19.19	19.16	19.14	20.24
EDGE (8PSK, 4 Tx slots)	22.45	22.44	22.43	22.50	19.45	19.44	19.43	19.50

<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 D01 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 Agilent E5515C referred to the Setup Configuration.
b. The RF path losses were compensated into the measurements.
c. A call was established between EUT and Base Station with following setting:
   i. Set Gain Factors (β_c and β_d) and parameters were set according to each
   ii. Specific sub-test in the following table, C10.1.4, quoted from the TS 34.121
   iii. Set RMC 12.2Kbps + HSDPA mode.
   iv. Set Cell Power = -86 dBm
   v. Set HS-DSCH Configuration Type to FRC (H-set 1, QPSK)
   vi. Select HSDPA Uplink Parameters
   vii. Set Delta ACK, Delta NACK and Delta CQI = 8
   viii. Set Ack-Nack Repetition Factor to 3
   ix. Set CQI Feedback Cycle (k) to 4 ms
   x. Set CQI Repetition Factor to 2
   xi. Power Ctrl Mode = All Up bits
d. The transmitted maximum output power was recorded.

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

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

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

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

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

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

Setup Configuration

HSUPA Setup Configuration:

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

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

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	β_{HS} (Note1)	β_{ec}	β_{ed} (Note 5) (Note 6)	β_{ed} (SF)	β_{ed} (Codes)	CM (dB) (Note 2)	MPR (dB) (Note 2)	AG Index (Note 6)	E-TFCI
1	11/15 (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 (Note 4)	15/15 (Note 4)	64	15/15 (Note 4)	30/15	24/15	134/15	4	1	1.0	0.0	21	81

Note 1: Δ_{ACK}, Δ_{NACK} and Δ_{CQI} = 30/15 with β_{hs} = 30/15 * 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: For subtest 5 the β_c/β_d ratio of 15/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to β_c = 14/15 and β_d = 15/15.
Note 5: 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 6: β_{ed} can not be set directly, it is set by Absolute Grant Value.

Setup Configuration

DC-HSDPA 3GPP release 8 Setup Configuration:

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

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

C.8.1.12 Fixed Reference Channel Definition H-Set 12

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

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

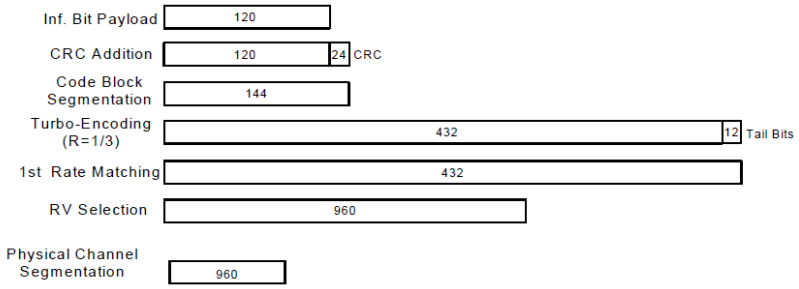


Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)

Setup Configuration

<WCDMA Conducted Power>

General Note:

1. Per KDB 941225 D01v03r01, SAR for Body exposure 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. If 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.

Full Power mode (Proximity Sensor Inactive)

Band			WCDMA V			Tune-up Limit (dBm)	WCDMA II			Tune-up Limit (dBm)	WCDMA IV			Tune-up Limit (dBm)
TX Channel			4132	4182	4233		9262	9400	9538		1312	1413	1513	
Rx Channel			4357	4407	4458		9662	9800	9938		1537	1638	1738	
Frequency (MHz)			826.4	836.4	846.6		1852.4	1880	1907.6		1712.4	1732.6	1752.6	
MPR (dB)	3GPP Rel 99	RMC 12.2Kbps	22.80	22.81	22.57	24.00	22.84	22.72	22.80	24.00	22.73	22.79	22.58	24.00
0	3GPP Rel 6	HSDPA Subtest-1	22.14	22.20	22.20	24.00	22.36	22.35	22.35	24.00	22.17	22.27	22.26	24.00
0	3GPP Rel 6	HSDPA Subtest-2	22.21	22.16	22.14	24.00	22.24	22.22	22.19	24.00	22.22	22.31	22.08	24.00
0.5	3GPP Rel 6	HSDPA Subtest-3	21.59	21.61	21.76	23.50	21.93	21.85	21.87	23.50	21.63	21.85	21.58	23.50
0.5	3GPP Rel 6	HSDPA Subtest-4	21.58	21.56	21.73	23.50	21.83	21.73	21.79	23.50	21.63	21.79	21.61	23.50
0	3GPP Rel 8	DC-HSDPA Subtest-1	22.13	22.15	22.19	24.00	22.36	22.36	22.37	24.00	22.15	22.25	22.24	24.00
0	3GPP Rel 8	DC-HSDPA Subtest-2	22.10	22.15	22.13	24.00	22.24	22.16	22.19	24.00	22.23	22.31	22.06	24.00
0.5	3GPP Rel 8	DC-HSDPA Subtest-3	21.68	21.60	21.75	23.50	21.91	21.85	21.86	23.50	21.65	21.84	21.60	23.50
0.5	3GPP Rel 8	DC-HSDPA Subtest-4	21.54	21.55	21.72	23.50	21.81	21.74	21.78	23.50	21.63	21.80	21.60	23.50
0	3GPP Rel 6	HSUPA Subtest-1	22.11	22.08	22.02	24.00	22.07	22.01	22.04	24.00	22.29	22.43	22.10	24.00
2	3GPP Rel 6	HSUPA Subtest-2	20.46	20.54	20.52	22.00	21.02	20.86	20.93	22.00	20.58	20.89	20.84	22.00
1	3GPP Rel 6	HSUPA Subtest-3	21.26	21.20	21.14	23.00	21.38	21.17	21.20	23.00	21.14	21.26	21.15	23.00
2	3GPP Rel 6	HSUPA Subtest-4	20.57	20.57	20.69	22.00	21.03	20.88	20.98	22.00	20.81	21.06	20.82	22.00
0	3GPP Rel 6	HSUPA Subtest-5	22.04	22.21	22.19	24.00	22.35	22.26	22.29	24.00	22.25	22.36	22.19	24.00

Reduced Power Mode (Proximity Sensor active)

Band			WCDMA V			Tune-up Limit (dBm)	WCDMA II			Tune-up Limit (dBm)	WCDMA IV			Tune-up Limit (dBm)
TX Channel			4132	4182	4233		9262	9400	9538		1312	1413	1513	
Rx Channel			4357	4407	4458		9662	9800	9938		1537	1638	1738	
Frequency (MHz)			826.4	836.4	846.6		1852.4	1880	1907.6		1712.4	1732.6	1752.6	
MPR (dB)	3GPP Rel 99	RMC 12.2Kbps	20.03	20.05	20.02	21.00	17.74	18.03	17.75	19.00	18.07	18.12	18.11	19.00
0	3GPP Rel 6	HSDPA Subtest-1	19.86	19.80	19.71	21.00	17.78	17.98	17.73	19.00	17.92	17.94	17.90	19.00
0	3GPP Rel 6	HSDPA Subtest-2	19.88	19.84	19.75	21.00	17.56	17.46	17.50	19.00	17.98	17.91	17.90	19.00
0.5	3GPP Rel 6	HSDPA Subtest-3	19.33	19.35	19.30	20.50	17.53	17.17	17.51	18.50	17.52	17.42	17.50	18.50
0.5	3GPP Rel 6	HSDPA Subtest-4	19.23	19.30	19.22	20.50	17.15	16.99	17.17	18.50	17.49	17.40	17.45	18.50
0	3GPP Rel 8	DC-HSDPA Subtest-1	19.88	19.87	19.88	21.00	17.92	17.89	17.74	19.00	18.01	17.97	17.91	19.00
0	3GPP Rel 8	DC-HSDPA Subtest-2	19.87	19.88	19.82	21.00	17.75	17.68	17.72	19.00	17.99	17.93	17.94	19.00
0.5	3GPP Rel 8	DC-HSDPA Subtest-3	19.38	19.34	19.39	20.50	17.37	17.29	17.22	18.50	17.49	17.43	17.44	18.50
0.5	3GPP Rel 8	DC-HSDPA Subtest-4	19.28	19.30	19.32	20.50	17.37	17.22	17.17	18.50	17.48	17.38	17.46	18.50
0	3GPP Rel 6	HSUPA Subtest-1	19.87	19.83	19.84	21.00	17.64	17.25	17.47	19.00	17.99	17.92	17.94	19.00
2	3GPP Rel 6	HSUPA Subtest-2	18.31	18.24	18.29	19.00	16.33	16.17	16.47	17.00	16.19	16.38	16.22	17.00
1	3GPP Rel 6	HSUPA Subtest-3	19.26	19.06	19.02	20.00	16.70	16.62	16.56	18.00	16.89	16.91	16.91	18.00
2	3GPP Rel 6	HSUPA Subtest-4	18.26	18.36	18.35	19.00	16.45	16.40	16.33	17.00	16.53	16.66	16.24	17.00
0	3GPP Rel 6	HSUPA Subtest-5	19.86	19.89	19.83	21.00	17.83	17.81	17.79	19.00	17.96	18.05	17.95	19.00

<CDMA2000 Conducted Power>

General Note:

1. Per KDB 941225 D01v03r01, in body SAR tested, the EUT is treated as data device and SAR is tested with Ev-Do Rev 0 (RTAP 153.6kbps) as the primary mode.

Full Power mode (Proximity Sensor Inactive)

Band	CDMA2000 BC10			Tune-up Limit (dBm)	CDMA2000 BC0			Tune-up Limit (dBm)	CDMA2000 BC1			Tune-up Limit (dBm)
TX Channel	476	580	684		1013	384	777		25	600	1175	
Frequency (MHz)	817.9	820.5	823.1		824.7	836.52	848.31		1851.25	1880	1908.75	
1xRTT RC1 SO55	24.11	24.13	24.20	24.50	24.36	24.47	23.96	24.50	23.97	23.85	23.86	24.50
1xRTT RC3 SO55	24.25	24.17	24.27	24.50	24.37	24.33	23.89	24.50	24.03	23.90	23.88	24.50
1xEVDO RTAP 153.6Kbps	24.15	24.12	24.18	24.50	24.37	24.40	23.97	24.50	23.86	23.78	23.78	24.50
1xEVDO RETAP 4096Bits	24.12	24.05	24.13	24.50	24.33	24.35	23.90	24.50	23.80	23.75	23.76	24.50

Reduced Power Mode (Proximity Sensor active)

Band	CDMA2000 BC10			Tune-up Limit (dBm)	CDMA2000 BC0			Tune-up Limit (dBm)	CDMA2000 BC1			Tune-up Limit (dBm)
TX Channel	476	580	684		1013	384	777		25	600	1175	
Frequency (MHz)	817.9	820.5	823.1		824.7	836.52	848.31		1851.25	1880	1908.75	
1xRTT RC1 SO55	20.20	20.24	20.32	21.50	20.46	20.55	20.10	21.50	18.39	18.45	18.27	18.50
1xRTT RC3 SO55	20.24	20.20	20.33	21.50	20.47	20.41	20.03	21.50	18.41	18.51	18.32	18.50
1xEVDO RTAP 153.6Kbps	20.25	20.26	20.34	21.50	20.47	20.48	20.11	21.50	18.49	18.50	18.43	18.50
1xEVDO RETAP 4096Bits	20.21	20.18	20.29	21.50	20.43	20.43	20.04	21.50	18.29	18.28	18.17	18.50

<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.

Full Power Mode (Proximity Sensor Inactive)

<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	22.72	23.02	22.84	24	0
10	QPSK	1	24	22.69	22.84	22.79		
10	QPSK	1	49	22.64	22.79	22.65		
10	QPSK	25	0	21.80	21.87	21.82	23	1
10	QPSK	25	12	21.77	21.84	21.75		
10	QPSK	25	24	21.73	21.79	21.66		
10	QPSK	50	0	21.69	21.80	21.78		
10	16QAM	1	0	21.56	21.79	21.86	23	1
10	16QAM	1	24	21.87	22.11	21.84		
10	16QAM	1	49	21.86	21.88	21.69		
10	16QAM	25	0	20.84	20.81	20.88	22	2
10	16QAM	25	12	20.90	20.87	20.86		
10	16QAM	25	24	20.94	20.82	20.82		
10	16QAM	50	0	20.72	20.68	20.78		
Channel				23755	23790	23825	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				706.5	710	713.5		
5	QPSK	1	0	22.63	22.88	22.81	24	0
5	QPSK	1	12	22.95	23.00	22.70		
5	QPSK	1	24	22.85	22.87	22.64		
5	QPSK	12	0	21.77	22.01	21.89	23	1
5	QPSK	12	6	21.93	22.00	21.84		
5	QPSK	12	11	22.02	22.01	21.77		
5	QPSK	25	0	21.81	21.84	21.71		
5	16QAM	1	0	21.66	21.88	21.83	23	1
5	16QAM	1	12	21.89	22.01	21.74		
5	16QAM	1	24	21.87	21.89	21.65		
5	16QAM	12	0	20.84	21.03	20.99	22	2
5	16QAM	12	6	21.00	21.05	20.89		
5	16QAM	12	11	21.02	21.03	20.79		
5	16QAM	25	0	20.80	20.88	20.78		

<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	22.97			24	0
10	QPSK	1	24	22.93				
10	QPSK	1	49	22.76				
10	QPSK	25	0	21.92			23	1
10	QPSK	25	12	21.88				
10	QPSK	25	24	21.83				
10	QPSK	50	0	21.80				
10	16QAM	1	0	22.01			23	1
10	16QAM	1	24	21.98				
10	16QAM	1	49	21.79				
10	16QAM	25	0	20.74			22	2
10	16QAM	25	12	20.88				
10	16QAM	25	24	20.92				
10	16QAM	50	0	20.74				
Channel				23205	23230	23255	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				779.5	782	784.5		
5	QPSK	1	0	22.78	22.82	22.92	24	0
5	QPSK	1	12	22.88	22.95	22.90		
5	QPSK	1	24	22.92	22.94	22.71		
5	QPSK	12	0	21.77	21.96	22.06	23	1
5	QPSK	12	6	21.79	22.01	21.95		
5	QPSK	12	11	21.90	22.06	21.87		
5	QPSK	25	0	21.78	21.88	21.91		
5	16QAM	1	0	21.86	21.85	22.00	23	1
5	16QAM	1	12	21.89	21.95	21.91		
5	16QAM	1	24	21.93	22.01	21.79		
5	16QAM	12	0	20.83	21.01	21.05	22	2
5	16QAM	12	6	20.90	21.03	20.99		
5	16QAM	12	11	20.92	21.11	20.93		
5	16QAM	25	0	20.75	20.89	20.91		

<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	22.81	22.88	22.77	24	0
10	QPSK	1	24	22.76	22.67	22.71		
10	QPSK	1	49	22.72	22.76	22.62		
10	QPSK	25	0	21.70	21.74	21.68	23	1
10	QPSK	25	12	21.63	21.66	21.67		
10	QPSK	25	24	21.66	21.64	21.60		
10	QPSK	50	0	21.60	21.63	21.57		
10	16QAM	1	0	21.80	21.77	21.74	23	1
10	16QAM	1	24	21.87	21.77	21.81		
10	16QAM	1	49	21.77	21.87	21.91		
10	16QAM	25	0	20.71	20.73	20.69	22	2
10	16QAM	25	12	20.75	20.66	20.70		
10	16QAM	25	24	20.71	20.65	20.71		
10	16QAM	50	0	20.55	20.65	20.64		
Channel				20425	20525	20625	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				826.5	836.5	846.5		
5	QPSK	1	0	22.80	22.86	22.81	24	0
5	QPSK	1	12	22.85	22.67	22.63		
5	QPSK	1	24	22.73	22.68	22.59		
5	QPSK	12	0	21.83	21.84	21.86	23	1
5	QPSK	12	6	21.81	21.73	21.75		
5	QPSK	12	11	21.82	21.80	21.76		
5	QPSK	25	0	21.75	21.63	21.64		
5	16QAM	1	0	21.80	21.93	21.83	23	1
5	16QAM	1	12	21.86	21.74	21.67		
5	16QAM	1	24	21.80	21.75	21.71		
5	16QAM	12	0	20.89	20.85	20.89	22	2
5	16QAM	12	6	20.82	20.79	20.80		
5	16QAM	12	11	20.85	20.82	20.81		
5	16QAM	25	0	20.72	20.63	20.67		

<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	22.90	23.16	23.00	24	0
20	QPSK	1	49	22.88	23.10	22.98		
20	QPSK	1	99	22.89	23.07	22.89		
20	QPSK	50	0	21.66	21.84	21.75	23	1
20	QPSK	50	24	21.65	21.79	21.74		
20	QPSK	50	49	21.60	21.77	21.68		
20	QPSK	100	0	21.70	21.86	21.83		
20	16QAM	1	0	21.94	22.03	21.98	23	1
20	16QAM	1	49	21.93	22.16	22.03		
20	16QAM	1	99	21.92	22.02	21.95		
20	16QAM	50	0	20.67	20.77	20.68	22	2
20	16QAM	50	24	20.64	20.81	20.70		
20	16QAM	50	49	20.63	20.81	20.73		
20	16QAM	100	0	20.63	20.86	20.76		
Channel				20025	20175	20325	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1732.5	1747.5		
15	QPSK	1	0	22.91	22.98	23.03	24	0
15	QPSK	1	37	22.85	22.97	23.09		
15	QPSK	1	74	22.92	22.92	23.06		
15	QPSK	36	0	21.74	21.75	21.89	23	1
15	QPSK	36	18	21.78	21.87	21.87		
15	QPSK	36	37	21.73	21.78	21.88		
15	QPSK	75	0	21.73	21.80	21.86		
15	16QAM	1	0	21.89	22.06	22.08	23	1
15	16QAM	1	37	21.85	22.09	22.15		
15	16QAM	1	74	21.88	21.96	22.07		
15	16QAM	36	0	20.73	20.74	20.92	22	2
15	16QAM	36	18	20.79	20.81	20.91		
15	16QAM	36	37	20.69	20.76	20.87		
15	16QAM	75	0	20.64	20.78	20.79		
Channel				20000	20175	20350	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1732.5	1750		
10	QPSK	1	0	22.89	23.07	23.11	24	0
10	QPSK	1	24	22.95	23.00	23.14		
10	QPSK	1	49	22.87	23.04	23.11		
10	QPSK	25	0	21.84	21.85	22.01	23	1
10	QPSK	25	12	21.84	21.97	21.93		
10	QPSK	25	24	21.85	21.92	22.00		
10	QPSK	50	0	21.66	21.69	21.84		
10	16QAM	1	0	21.92	22.03	22.14	23	1
10	16QAM	1	24	22.02	22.08	22.11		
10	16QAM	1	49	21.83	21.96	22.08		
10	16QAM	25	0	20.77	20.85	21.00	22	2
10	16QAM	25	12	20.81	20.92	20.96		
10	16QAM	25	24	20.86	20.88	21.01		
10	16QAM	50	0	20.64	20.72	20.83		

Channel				19975	20175	20375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1732.5	1752.5		
5	QPSK	1	0	22.89	22.94	23.11	24	0
5	QPSK	1	12	22.91	22.98	23.13		
5	QPSK	1	24	23.00	23.07	23.11		
5	QPSK	12	0	21.88	22.03	22.11	23	1
5	QPSK	12	6	21.96	21.99	22.12		
5	QPSK	12	11	21.97	22.02	22.19		
5	QPSK	25	0	21.83	21.86	21.97		
5	16QAM	1	0	21.95	21.98	22.12	23	1
5	16QAM	1	12	21.96	21.97	22.11		
5	16QAM	1	24	21.98	22.00	22.13		
5	16QAM	12	0	20.93	21.02	21.20	22	2
5	16QAM	12	6	20.98	21.08	21.17		
5	16QAM	12	11	21.00	21.04	21.20		
5	16QAM	25	0	20.76	20.88	21.01		

<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	22.94	23.14	22.85	24	0
20	QPSK	1	49	22.92	23.06	22.84		
20	QPSK	1	99	22.74	22.77	22.78		
20	QPSK	50	0	21.73	21.81	21.78	23	1
20	QPSK	50	24	21.70	21.76	21.67		
20	QPSK	50	49	21.49	21.66	21.74		
20	QPSK	100	0	21.60	21.87	21.77		
20	16QAM	1	0	21.91	21.92	21.77	23	1
20	16QAM	1	49	21.84	22.31	22.06		
20	16QAM	1	99	21.63	21.77	21.97		
20	16QAM	50	0	20.66	20.84	20.73	22	2
20	16QAM	50	24	20.61	20.70	20.64		
20	16QAM	50	49	20.44	20.60	20.67		
20	16QAM	100	0	20.61	20.71	20.64		
Channel				18675	18900	19125	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1902.5		
15	QPSK	1	0	22.97	22.94	22.91	24	0
15	QPSK	1	37	22.95	23.13	22.97		
15	QPSK	1	74	22.75	22.92	23.05		
15	QPSK	36	0	21.78	21.96	21.79	23	1
15	QPSK	36	18	21.81	21.81	21.86		
15	QPSK	36	37	21.69	21.73	21.76		
15	QPSK	75	0	21.69	21.70	21.64		
15	16QAM	1	0	22.25	22.28	22.15	23	1
15	16QAM	1	37	22.19	22.30	22.28		
15	16QAM	1	74	21.92	22.11	22.31		
15	16QAM	36	0	20.69	20.87	20.85	22	2
15	16QAM	36	18	20.73	20.84	20.92		
15	16QAM	36	37	20.71	20.75	20.93		
15	16QAM	75	0	20.74	20.71	20.79		
Channel				18650	18900	19150	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1905		
10	QPSK	1	0	22.97	23.02	22.91	24	0
10	QPSK	1	24	22.92	23.03	23.03		
10	QPSK	1	49	22.90	22.83	23.08		
10	QPSK	25	0	21.87	21.88	21.87	23	1
10	QPSK	25	12	21.79	21.90	21.83		
10	QPSK	25	24	21.81	21.84	21.88		
10	QPSK	50	0	21.67	21.67	21.74		
10	16QAM	1	0	21.96	22.03	21.90	23	1
10	16QAM	1	24	21.85	22.04	22.01		
10	16QAM	1	49	21.88	21.85	22.05		
10	16QAM	25	0	20.91	20.90	20.89	22	2
10	16QAM	25	12	20.77	20.89	20.86		
10	16QAM	25	24	20.83	20.78	20.84		
10	16QAM	50	0	20.65	20.68	20.78		

Channel				18625	18900	19175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	QPSK	1	0	22.96	23.00	22.98	24	0
5	QPSK	1	12	22.99	23.02	22.95		
5	QPSK	1	24	22.96	22.90	23.09		
5	QPSK	12	0	21.92	22.07	21.89	23	1
5	QPSK	12	6	21.99	22.04	21.97		
5	QPSK	12	11	21.93	21.98	21.96		
5	QPSK	25	0	21.90	21.95	21.90		
5	16QAM	1	0	21.96	22.01	22.01	23	1
5	16QAM	1	12	21.98	22.08	21.95		
5	16QAM	1	24	21.93	21.94	22.07		
5	16QAM	12	0	21.03	21.09	21.01	22	2
5	16QAM	12	6	21.05	21.08	21.00		
5	16QAM	12	11	20.99	21.00	21.06		
5	16QAM	25	0	20.87	20.86	20.82		

<LTE Band 25>

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				26140	26340	26590		
Frequency (MHz)				1860	1880	1905		
20	QPSK	1	0	22.98	23.06	22.90	24	0
20	QPSK	1	49	22.90	22.99	22.81		
20	QPSK	1	99	22.87	22.75	22.89		
20	QPSK	50	0	21.72	21.79	21.67	23	1
20	QPSK	50	24	21.71	21.69	21.57		
20	QPSK	50	49	21.67	21.59	21.55		
20	QPSK	100	0	21.73	21.76	21.70		
20	16QAM	1	0	21.97	22.12	21.81	23	1
20	16QAM	1	49	21.93	22.03	21.91		
20	16QAM	1	99	21.92	21.79	21.94		
20	16QAM	50	0	20.67	20.81	20.57	22	2
20	16QAM	50	24	20.69	20.66	20.57		
20	16QAM	50	49	20.63	20.55	20.71		
20	16QAM	100	0	20.69	20.63	20.68		
Channel				26115	26340	26615	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1907.5		
15	QPSK	1	0	22.97	23.01	22.80	24	0
15	QPSK	1	37	22.95	22.93	22.86		
15	QPSK	1	74	22.90	22.76	22.96		
15	QPSK	36	0	21.74	21.86	21.71	23	1
15	QPSK	36	18	21.77	21.71	21.65		
15	QPSK	36	37	21.65	21.61	21.78		
15	QPSK	75	0	21.68	21.61	21.70		
15	16QAM	1	0	21.96	22.06	21.76	23	1
15	16QAM	1	37	21.97	21.97	21.84		
15	16QAM	1	74	21.88	21.79	22.01		
15	16QAM	36	0	20.80	20.84	20.72	22	2
15	16QAM	36	18	20.78	20.71	20.71		
15	16QAM	36	37	20.64	20.65	20.79		
15	16QAM	75	0	20.67	20.62	20.72		
Channel				26090	26340	26640	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1910		
10	QPSK	1	0	22.95	22.99	22.87	24	0
10	QPSK	1	24	22.93	22.97	22.85		
10	QPSK	1	49	22.85	22.78	22.88		
10	QPSK	25	0	21.71	21.91	21.81	23	1
10	QPSK	25	12	21.82	21.81	21.83		
10	QPSK	25	24	21.76	21.76	21.86		
10	QPSK	50	0	21.70	21.68	21.83		
10	16QAM	1	0	21.96	22.07	21.89	23	1
10	16QAM	1	24	21.93	22.04	21.92		
10	16QAM	1	49	21.84	21.79	21.90		
10	16QAM	25	0	20.77	20.91	20.84	22	2
10	16QAM	25	12	20.83	20.77	20.75		
10	16QAM	25	24	20.80	20.74	20.82		
10	16QAM	50	0	20.72	20.62	20.85		

Channel				26065	26340	26665	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1912.5		
5	QPSK	1	0	22.93	23.02	22.89	24	0
5	QPSK	1	12	22.87	22.88	22.94		
5	QPSK	1	24	22.92	22.83	22.92		
5	QPSK	12	0	21.92	22.06	21.94	23	1
5	QPSK	12	6	21.88	21.94	21.91		
5	QPSK	12	11	21.89	21.87	22.00		
5	QPSK	25	0	21.70	21.74	21.78		
5	16QAM	1	0	21.93	22.06	21.92	23	1
5	16QAM	1	12	21.85	21.91	21.99		
5	16QAM	1	24	21.89	21.88	21.93		
5	16QAM	12	0	20.97	21.07	20.94	22	2
5	16QAM	12	6	20.92	20.97	20.90		
5	16QAM	12	11	20.96	20.92	21.00		
5	16QAM	25	0	20.73	20.76	20.83		

Reduced Power Mode (Proximity Sensor active)

<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	20.84	20.99	20.89	22	0
10	QPSK	1	24	20.80	20.78	20.87		
10	QPSK	1	49	20.78	20.77	20.88		
10	QPSK	25	0	20.77	20.95	20.94	22	0
10	QPSK	25	12	20.75	20.69	20.84		
10	QPSK	25	24	20.73	20.67	20.87		
10	QPSK	50	0	20.70	20.85	20.84		
10	16QAM	1	0	20.72	20.77	20.84	22	0
10	16QAM	1	24	20.69	20.75	20.93		
10	16QAM	1	49	20.68	20.76	20.90		
10	16QAM	25	0	20.65	20.68	20.88	22	0
10	16QAM	25	12	20.67	20.70	20.89		
10	16QAM	25	24	20.71	20.71	20.91		
10	16QAM	50	0	20.60	20.61	20.84		
Channel				23755	23790	23825	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				706.5	710	713.5		
5	QPSK	1	0	20.75	20.79	20.98	22	0
5	QPSK	1	12	20.73	20.78	20.96		
5	QPSK	1	24	20.69	20.76	20.94		
5	QPSK	12	0	20.65	20.75	20.93	22	0
5	QPSK	12	6	20.70	20.71	20.91		
5	QPSK	12	11	20.67	20.68	20.88		
5	QPSK	25	0	20.68	20.66	20.84		
5	16QAM	1	0	20.73	20.74	20.94	22	0
5	16QAM	1	12	20.71	20.73	20.93		
5	16QAM	1	24	20.69	20.70	20.90		
5	16QAM	12	0	20.70	20.71	20.91	22	0
5	16QAM	12	6	20.65	20.65	20.88		
5	16QAM	12	11	20.69	20.63	20.89		
5	16QAM	25	0	20.62	20.61	20.85		

<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		20.31		20.5	0
10	QPSK	1	24		20.27			
10	QPSK	1	49		20.10			
10	QPSK	25	0		20.16		20.5	0
10	QPSK	25	12		20.15			
10	QPSK	25	24		20.13			
10	QPSK	50	0		20.14			
10	16QAM	1	0		20.15		20.5	0
10	16QAM	1	24		20.12			
10	16QAM	1	49		20.11			
10	16QAM	25	0		20.09		20.5	0
10	16QAM	25	12		20.10			
10	16QAM	25	24		20.08			
10	16QAM	50	0		20.05			
Channel				23205	23230	23255	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				779.5	782	784.5		
5	QPSK	1	0	20.27	20.29	20.26	20.5	0
5	QPSK	1	12	20.22	20.18	20.24		
5	QPSK	1	24	20.18	20.28	20.19		
5	QPSK	12	0	20.24	20.20	20.15	20.5	0
5	QPSK	12	6	20.13	20.10	20.14		
5	QPSK	12	11	20.11	20.15	20.09		
5	QPSK	25	0	20.05	20.02	20.05		
5	16QAM	1	0	20.17	20.25	20.20	20.5	0
5	16QAM	1	12	20.15	20.24	20.18		
5	16QAM	1	24	20.11	20.19	20.16		
5	16QAM	12	0	20.14	20.14	20.11	20.5	0
5	16QAM	12	6	20.04	20.09	20.09		
5	16QAM	12	11	20.06	20.11	20.05		
5	16QAM	25	0	20.02	20.03	20.01		

<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	19.92	19.93	19.84	20.5	0
10	QPSK	1	24	19.77	19.55	19.78		
10	QPSK	1	49	19.73	19.64	19.69		
10	QPSK	25	0	19.75	19.76	19.71	20.5	0
10	QPSK	25	12	19.64	19.54	19.68		
10	QPSK	25	24	19.67	19.52	19.67		
10	QPSK	50	0	19.64	19.65	19.61		
10	16QAM	1	0	19.71	19.65	19.61	20.5	0
10	16QAM	1	24	19.78	19.65	19.68		
10	16QAM	1	49	19.68	19.66	19.78		
10	16QAM	25	0	19.52	19.51	19.56	20.5	0
10	16QAM	25	12	19.56	19.44	19.57		
10	16QAM	25	24	19.52	19.43	19.58		
10	16QAM	50	0	19.36	19.43	19.51		
Channel				20425	20525	20625	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				826.5	836.5	846.5		
5	QPSK	1	0	19.81	19.74	19.88	20.5	0
5	QPSK	1	12	19.84	19.55	19.70		
5	QPSK	1	24	19.74	19.56	19.66		
5	QPSK	12	0	19.74	19.62	19.73	20.5	0
5	QPSK	12	6	19.72	19.51	19.62		
5	QPSK	12	11	19.73	19.58	19.63		
5	QPSK	25	0	19.66	19.41	19.51		
5	16QAM	1	0	19.61	19.51	19.70	20.5	0
5	16QAM	1	12	19.67	19.32	19.54		
5	16QAM	1	24	19.61	19.33	19.58		
5	16QAM	12	0	19.50	19.33	19.76	20.5	0
5	16QAM	12	6	19.43	19.27	19.67		
5	16QAM	12	11	19.46	19.30	19.68		
5	16QAM	25	0	19.33	19.11	19.54		

<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		Channel		20050	20175	20300		
Frequency (MHz)		Frequency (MHz)		1720	1732.5	1745		
20	QPSK	1	0	17.25	17.43	17.28	18	0
20	QPSK	1	49	17.08	17.34	17.26		
20	QPSK	1	99	17.09	17.31	17.17		
20	QPSK	50	0	17.01	17.18	17.03	18	0
20	QPSK	50	24	17.01	17.13	17.02		
20	QPSK	50	49	17.00	17.11	17.01		
20	QPSK	100	0	17.01	17.20	17.11		
20	16QAM	1	0	17.04	17.12	17.15	18	0
20	16QAM	1	49	17.03	17.11	17.11		
20	16QAM	1	99	17.02	17.06	17.09		
20	16QAM	50	0	17.03	17.09	17.06	18	0
20	16QAM	50	24	17.02	17.08	17.08		
20	16QAM	50	49	17.02	17.05	17.07		
20	16QAM	100	0	17.01	17.03	17.05		
Channel				20025	20175	20325	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1732.5	1747.5		
15	QPSK	1	0	17.11	17.22	17.18	18	0
15	QPSK	1	37	17.05	17.21	17.17		
15	QPSK	1	74	17.12	17.16	17.14		
15	QPSK	36	0	17.02	17.09	17.11	18	0
15	QPSK	36	18	17.01	17.21	17.09		
15	QPSK	36	37	17.01	17.12	17.05		
15	QPSK	75	0	17.00	17.14	17.03		
15	16QAM	1	0	17.05	17.10	17.15	18	0
15	16QAM	1	37	17.04	17.13	17.13		
15	16QAM	1	74	17.04	17.00	17.09		
15	16QAM	36	0	17.02	17.09	17.05	18	0
15	16QAM	36	18	17.03	17.08	17.11		
15	16QAM	36	37	17.02	17.01	17.06		
15	16QAM	75	0	17.01	17.04	17.02		
Channel				20000	20175	20350	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1732.5	1750		
10	QPSK	1	0	17.09	17.31	17.19	18	0
10	QPSK	1	24	17.15	17.24	17.15		
10	QPSK	1	49	17.07	17.28	17.09		
10	QPSK	25	0	17.02	17.19	17.13	18	0
10	QPSK	25	12	17.01	17.28	17.08		
10	QPSK	25	24	17.02	17.26	17.11		
10	QPSK	50	0	17.01	17.03	17.01		
10	16QAM	1	0	17.04	17.07	17.10	18	0
10	16QAM	1	24	17.03	17.12	17.09		
10	16QAM	1	49	17.03	17.00	17.06		
10	16QAM	25	0	17.02	17.11	17.02	18	0
10	16QAM	25	12	17.02	17.09	17.01		
10	16QAM	25	24	17.01	17.04	17.02		
10	16QAM	50	0	17.01	17.03	17.08		

Channel				19975	20175	20375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1732.5	1752.5		
5	QPSK	1	0	17.09	17.31	17.20	18	0
5	QPSK	1	12	17.11	17.22	17.19		
5	QPSK	1	24	17.09	17.18	17.16		
5	QPSK	12	0	17.06	17.27	17.15	18	0
5	QPSK	12	6	17.05	17.23	17.18		
5	QPSK	12	11	17.04	17.26	17.10		
5	QPSK	25	0	17.02	17.10	17.08		
5	16QAM	1	0	17.05	17.02	17.16	18	0
5	16QAM	1	12	17.06	17.01	17.14		
5	16QAM	1	24	17.08	17.04	17.09		
5	16QAM	12	0	17.03	17.06	17.08	18	0
5	16QAM	12	6	17.08	17.12	17.05		
5	16QAM	12	11	17.10	17.08	17.08		
5	16QAM	25	0	17.06	17.09	17.09		

<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	17.31	17.44	17.29	19	0
20	QPSK	1	49	17.29	17.40	17.22		
20	QPSK	1	99	17.22	17.35	17.20		
20	QPSK	50	0	17.10	17.30	17.12	19	0
20	QPSK	50	24	17.07	17.25	17.09		
20	QPSK	50	49	17.06	17.21	17.02		
20	QPSK	100	0	17.07	17.15	17.01		
20	16QAM	1	0	17.20	17.20	17.21	19	0
20	16QAM	1	49	17.19	17.15	17.20		
20	16QAM	1	99	17.11	17.12	17.15		
20	16QAM	50	0	17.09	17.09	17.13	19	0
20	16QAM	50	24	17.06	17.01	17.09		
20	16QAM	50	49	17.06	17.09	17.02		
20	16QAM	100	0	17.04	17.02	17.00		
Channel				18675	18900	19125	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1902.5		
15	QPSK	1	0	17.30	17.31	17.36	19	0
15	QPSK	1	37	17.28	17.27	17.31		
15	QPSK	1	74	17.17	17.25	17.30		
15	QPSK	36	0	17.15	17.21	17.21	19	0
15	QPSK	36	18	17.09	17.15	17.18		
15	QPSK	36	37	17.07	17.09	17.08		
15	QPSK	75	0	17.02	17.02	17.02		
15	16QAM	1	0	17.18	17.20	17.10	19	0
15	16QAM	1	37	17.15	17.15	17.00		
15	16QAM	1	74	17.14	17.13	17.02		
15	16QAM	36	0	17.10	17.10	17.02	19	0
15	16QAM	36	18	17.02	17.02	17.00		
15	16QAM	36	37	17.00	17.00	17.02		
15	16QAM	75	0	17.08	17.02	17.01		
Channel				18650	18900	19150	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1905		
10	QPSK	1	0	17.28	17.27	17.40	19	0
10	QPSK	1	24	17.27	17.17	17.37		
10	QPSK	1	49	17.21	17.12	17.30		
10	QPSK	25	0	17.18	17.05	17.21	19	0
10	QPSK	25	12	17.15	17.03	17.19		
10	QPSK	25	24	17.12	17.01	17.15		
10	QPSK	50	0	17.10	17.00	17.10		
10	16QAM	1	0	17.21	17.19	17.25	19	0
10	16QAM	1	24	17.18	17.15	17.21		
10	16QAM	1	49	17.15	17.09	17.18		
10	16QAM	25	0	17.13	17.05	17.15	19	0
10	16QAM	25	12	17.10	17.03	17.08		
10	16QAM	25	24	17.09	17.01	17.02		
10	16QAM	50	0	17.02	17.02	17.00		

Channel				18625	18900	19175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	QPSK	1	0	17.33	17.22	17.32	19	0
5	QPSK	1	12	17.31	17.16	17.29		
5	QPSK	1	24	17.29	17.12	17.43		
5	QPSK	12	0	17.25	17.10	17.30	19	0
5	QPSK	12	6	17.21	17.09	17.20		
5	QPSK	12	11	17.18	17.02	17.15		
5	QPSK	25	0	17.15	17.00	17.12		
5	16QAM	1	0	17.20	17.17	17.09	19	0
5	16QAM	1	12	17.18	17.15	17.02		
5	16QAM	1	24	17.14	17.13	17.00		
5	16QAM	12	0	17.12	17.10	17.05	19	0
5	16QAM	12	6	17.09	17.05	17.04		
5	16QAM	12	11	17.05	17.02	17.02		
5	16QAM	25	0	17.02	17.00	17.01		

<LTE Band 25>

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				26140	26340	26590		
Frequency (MHz)				1860	1880	1905		
20	QPSK	1	0	17.66	17.75	17.65	19	0
20	QPSK	1	49	17.65	17.70	17.60		
20	QPSK	1	99	17.61	17.68	17.58		
20	QPSK	50	0	17.58	17.58	17.50	19	0
20	QPSK	50	24	17.56	17.55	17.39		
20	QPSK	50	49	17.54	17.39	17.37		
20	QPSK	100	0	17.30	17.41	17.36		
20	16QAM	1	0	17.50	17.41	17.50	19	0
20	16QAM	1	49	17.46	17.39	17.48		
20	16QAM	1	99	17.45	17.38	17.46		
20	16QAM	50	0	17.39	17.29	17.38	19	0
20	16QAM	50	24	17.32	17.27	17.27		
20	16QAM	50	49	17.29	17.32	17.25		
20	16QAM	100	0	17.27	17.29	17.24		
Channel				26115	26340	26615	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1907.5		
15	QPSK	1	0	17.64	17.70	17.66	19	0
15	QPSK	1	37	17.62	17.62	17.62		
15	QPSK	1	74	17.60	17.60	17.55		
15	QPSK	36	0	17.59	17.58	17.51	19	0
15	QPSK	36	18	17.54	17.39	17.37		
15	QPSK	36	37	17.48	17.32	17.42		
15	QPSK	75	0	17.44	17.30	17.32		
15	16QAM	1	0	17.39	17.35	17.39	19	0
15	16QAM	1	37	17.35	17.26	17.32		
15	16QAM	1	74	17.26	17.32	17.29		
15	16QAM	36	0	17.22	17.29	17.25	19	0
15	16QAM	36	18	17.19	17.27	17.28		
15	16QAM	36	37	17.15	17.22	17.19		
15	16QAM	75	0	17.04	17.20	17.16		
Channel				26090	26340	26640	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1910		
10	QPSK	1	0	17.63	17.68	17.60	19	0
10	QPSK	1	24	17.61	17.66	17.54		
10	QPSK	1	49	17.53	17.55	17.52		
10	QPSK	25	0	17.60	17.52	17.36	19	0
10	QPSK	25	12	17.58	17.34	17.40		
10	QPSK	25	24	17.56	17.39	17.32		
10	QPSK	50	0	17.52	17.40	17.29		
10	16QAM	1	0	17.44	17.38	17.41	19	0
10	16QAM	1	24	17.41	17.35	17.38		
10	16QAM	1	49	17.32	17.20	17.35		
10	16QAM	25	0	17.28	17.22	17.29	19	0
10	16QAM	25	12	17.20	17.15	17.27		
10	16QAM	25	24	17.22	17.09	17.22		
10	16QAM	50	0	17.19	17.05	17.19		

Channel				26065	26340	26665	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1912.5		
5	QPSK	1	0	17.61	17.65	17.63	19	0
5	QPSK	1	12	17.57	17.57	17.61		
5	QPSK	1	24	17.55	17.52	17.57		
5	QPSK	12	0	17.48	17.37	17.55	19	0
5	QPSK	12	6	17.45	17.25	17.54		
5	QPSK	12	11	17.43	17.18	17.50		
5	QPSK	25	0	17.38	17.05	17.38		
5	16QAM	1	0	17.39	17.35	17.48	19	0
5	16QAM	1	12	17.37	17.20	17.42		
5	16QAM	1	24	17.29	17.17	17.38		
5	16QAM	12	0	17.26	17.26	17.29	19	0
5	16QAM	12	6	17.22	17.16	17.32		
5	16QAM	12	11	17.19	17.11	17.25		
5	16QAM	25	0	17.09	17.00	17.35		

<2.4GHz WLAN Conducted Power>

<WLAN Conducted Power>

General Note:

1. 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.
2. Per KDB 248227 D01v02r02, the simultaneous SAR provisions in KDB publication 447498 should be applied to determine simultaneous transmission SAR test exclusion for WiFi MIMO. If the sum of 1g single transmission chain SAR measurements is < 1.6W/kg and SAR peak to location ratio < 0.04, no additional SAR measurements for MIMO.
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	14.79	15.00	98.26
		CH 6	2437		14.80	15.00	
		CH 11	2462		14.76	15.00	
	802.11g	CH 1	2412	6Mbps	14.96	15.00	98.10
		CH 6	2437		14.78	15.00	
		CH 11	2462		14.70	15.00	
	802.11n-HT20	CH 1	2412	MCS0	14.83	15.00	97.96
		CH 6	2437		14.90	15.00	
		CH 11	2462		14.89	15.00	
	802.11n-HT40	CH 3	2422	MCS0	13.97	15.00	95.92
		CH 6	2437		14.93	15.00	
		CH 9	2452		14.82	15.00	

<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	14.71	15.00	98.70
		CH 6	2437		14.70	15.00	
		CH 11	2462		14.87	15.00	
	802.11g	CH 1	2412	6Mbps	14.74	15.00	98.10
		CH 6	2437		14.72	15.00	
		CH 11	2462		14.88	15.00	
	802.11n-HT20	CH 1	2412	MCS0	14.79	15.00	97.96
		CH 6	2437		14.86	15.00	
		CH 11	2462		14.79	15.00	
	802.11n-HT40	CH 3	2422	MCS0	14.85	15.00	96.94
		CH 6	2437		14.77	15.00	
		CH 9	2452		14.80	15.00	

<5GHz WLAN ANT1>

	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	13.27	13.50	98.10
		CH 40	5200		13.33	13.50	
		CH 44	5220		13.33	13.50	
		CH 48	5240		13.28	13.50	
	802.11n-HT20	CH 36	5180	MCS0	13.47	13.50	97.96
		CH 40	5200		13.32	13.50	
		CH 44	5220		13.46	13.50	
		CH 48	5240		13.43	13.50	
	802.11n-HT40	CH 38	5190	MCS0	13.35	13.50	96.94
		CH 46	5230		13.40	13.50	
	802.11ac-VHT20	CH 36	5180	MCS0	13.35	13.50	97.97
		CH 40	5200		13.39	13.50	
		CH 44	5220		13.32	13.50	
		CH 48	5240		13.37	13.50	
	802.11ac-VHT40	CH 38	5190	MCS0	13.46	13.50	95.98
		CH 46	5230		13.32	13.50	
	802.11ac-VHT80	CH 42	5210	MCS0	13.39	13.50	92.37

	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	13.38	13.50	98.10
		CH 56	5280		13.35	13.50	
		CH 60	5300		13.37	13.50	
		CH 64	5320		13.25	13.50	
	802.11n-HT20	CH 52	5260	MCS0	13.38	13.50	97.96
		CH 56	5280		13.35	13.50	
		CH 60	5300		13.42	13.50	
		CH 64	5320		13.28	13.50	
	802.11n-HT40	CH 54	5270	MCS0	13.49	13.50	96.94
		CH 62	5310		12.73	13.00	
	802.11ac-VHT20	CH 52	5260	MCS0	13.43	13.50	97.97
		CH 56	5280		13.30	13.50	
		CH 60	5300		13.29	13.50	
		CH 64	5320		13.24	13.50	
	802.11ac-VHT40	CH 54	5270	MCS0	13.41	13.50	95.98
		CH 62	5310		12.89	13.00	
	802.11ac-VHT80	CH 58	5290	MCS0	11.94	12.00	92.37

	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	13.40	13.50	98.10
		CH 116	5580		13.44	13.50	
		CH 124	5620		13.28	13.50	
		CH 132	5660		13.49	13.50	
		CH 144	5720		13.43	13.50	
	802.11n-HT20	CH 100	5500	MCS0	13.42	13.50	97.96
		CH 116	5580		13.44	13.50	
		CH 124	5620		13.47	13.50	
		CH 132	5660		13.46	13.50	
		CH 144	5720		13.24	13.50	
	802.11n-HT40	CH 102	5510	MCS0	13.48	13.50	96.94
		CH 110	5550		13.45	13.50	
		CH 126	5630		13.40	13.50	
		CH 142	5710		13.47	13.50	
	802.11ac-VHT20	CH 100	5500	MCS0	13.38	13.50	97.97
		CH 116	5580		13.31	13.50	
		CH 124	5620		13.48	13.50	
		CH 132	5660		13.46	13.50	
		CH 144	5720		13.25	13.50	
	802.11ac-VHT40	CH 102	5510	MCS0	13.43	13.50	95.98
		CH 110	5550		13.49	13.50	
		CH 126	5630		13.45	13.50	
		CH 142	5710		13.38	13.50	
	802.11ac-VHT80	CH 106	5530	MCS0	12.99	13.00	92.37
		CH 122	5610		13.36	13.50	
		CH 138	5690		13.42	13.50	

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN ANT 1	802.11a	CH 149	5745	MCS0	13.31	13.50	98.10
		CH 157	5785		13.43	13.50	
		CH 165	5825		13.39	13.50	
	802.11n-HT20	CH 149	5745	MCS0	13.11	13.50	97.96
		CH 157	5785		13.31	13.50	
		CH 165	5825		13.20	13.50	
	802.11n-HT40	CH 151	5755	MCS0	13.34	13.50	96.94
		CH 159	5795		13.49	13.50	
	802.11ac-VHT20	CH 149	5745	MCS0	13.23	13.50	97.97
		CH 157	5785		13.30	13.50	
		CH 165	5825		13.33	13.50	
	802.11ac-VHT40	CH 151	5755	MCS0	13.48	13.50	95.98
		CH 159	5795		13.40	13.50	
	802.11ac-VHT80	CH 155	5775	MCS0	13.49	13.50	92.37

<5GHz WLAN ANT2>

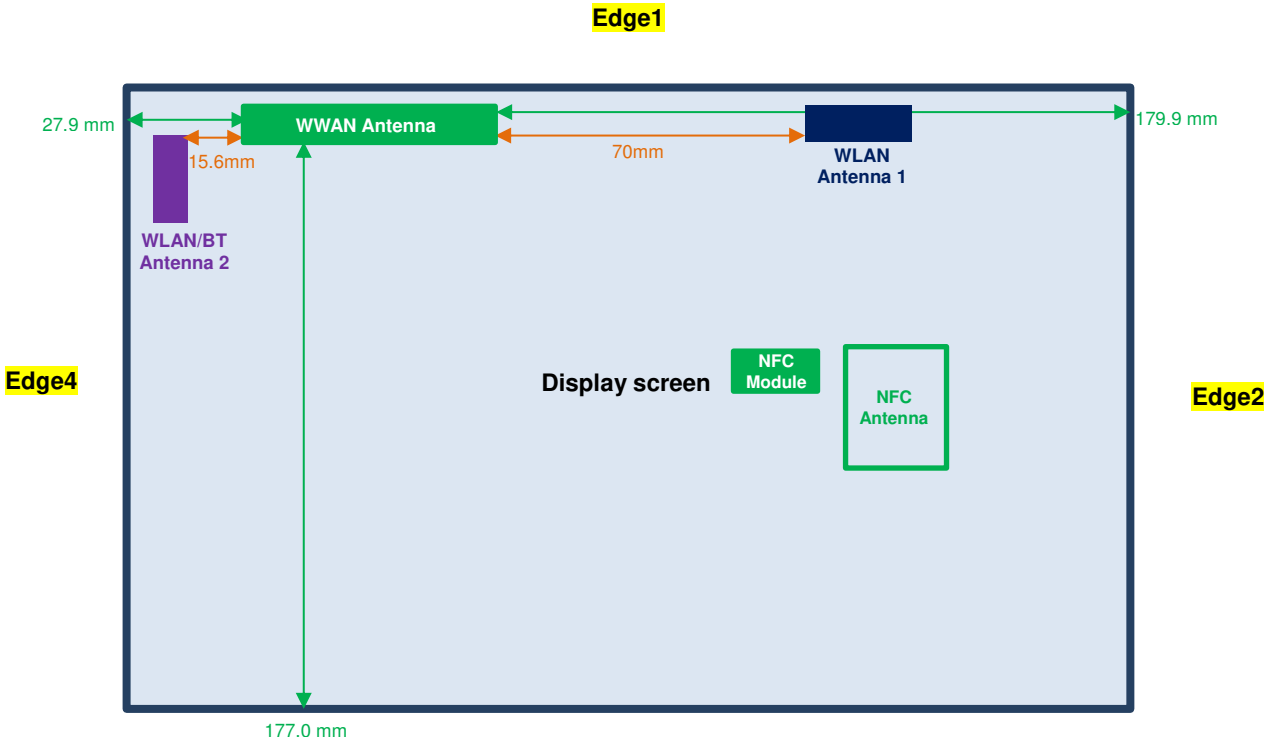
	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.2GHz WLAN ANT 2	802.11a	CH 36	5180	6Mbps	13.34	13.50	98.10
		CH 40	5200		13.39	13.50	
		CH 44	5220		13.35	13.50	
		CH 48	5240		13.36	13.50	
	802.11n-HT20	CH 36	5180	MCS0	13.49	13.50	97.97
		CH 40	5200		13.35	13.50	
		CH 44	5220		13.42	13.50	
		CH 48	5240		13.39	13.50	
	802.11n-HT40	CH 38	5190	MCS0	13.48	13.50	95.92
		CH 46	5230		13.46	13.50	
	802.11ac-VHT20	CH 36	5180	MCS0	13.34	13.50	98.48
		CH 40	5200		13.28	13.50	
		CH 44	5220		13.31	13.50	
		CH 48	5240		13.39	13.50	
	802.11ac-VHT40	CH 38	5190	MCS0	13.41	13.50	95.96
		CH 46	5230		13.40	13.50	
	802.11ac-VHT80	CH 42	5210	MCS0	13.34	13.50	93.16

	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	13.39	13.50	98.10
		CH 56	5280		13.46	13.50	
		CH 60	5300		13.41	13.50	
		CH 64	5320		13.28	13.50	
	802.11n-HT20	CH 52	5260	MCS0	13.46	13.50	97.97
		CH 56	5280		13.38	13.50	
		CH 60	5300		13.25	13.50	
		CH 64	5320		13.30	13.50	
	802.11n-HT40	CH 54	5270	MCS0	13.40	13.50	95.92
		CH 62	5310		13.45	13.50	
	802.11ac-VHT20	CH 52	5260	MCS0	13.41	13.50	98.48
		CH 56	5280		13.49	13.50	
		CH 60	5300		13.37	13.50	
		CH 64	5320		13.43	13.50	
	802.11ac-VHT40	CH 54	5270	MCS0	13.43	13.50	95.96
		CH 62	5310		13.30	13.50	
	802.11ac-VHT80	CH 58	5290	MCS0	9.87	10.00	93.16

	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	13.49	13.50	98.10
		CH 116	5580		13.40	13.50	
		CH 124	5620		13.42	13.50	
		CH 132	5660		13.35	13.50	
		CH 144	5720		13.46	13.50	
	802.11n-HT20	CH 100	5500	MCS0	13.48	13.50	97.97
		CH 116	5580		13.46	13.50	
		CH 124	5620		13.41	13.50	
		CH 132	5660		13.31	13.50	
		CH 144	5720		13.28	13.50	
	802.11n-HT40	CH 102	5510	MCS0	13.34	13.50	95.92
		CH 110	5550		13.30	13.50	
		CH 126	5630		13.22	13.50	
		CH 142	5710		13.39	13.50	
	802.11ac-VHT20	CH 100	5500	MCS0	13.40	13.50	98.48
		CH 116	5580		13.32	13.50	
		CH 124	5620		13.29	13.50	
		CH 132	5660		13.44	13.50	
		CH 144	5720		13.49	13.50	
	802.11ac-VHT40	CH 102	5510	MCS0	13.38	13.50	95.96
		CH 110	5550		13.36	13.50	
		CH 126	5630		13.31	13.50	
		CH 142	5710		13.36	13.50	
	802.11ac-VHT80	CH 106	5530	MCS0	13.46	13.50	93.16
		CH 122	5610		13.23	13.50	
		CH 138	5690		13.27	13.50	

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN ANT 2	802.11a	CH 149	5745	MCS0	13.39	13.50	98.10
		CH 157	5785		13.46	13.50	
		CH 165	5825		13.48	13.50	
	802.11n-HT20	CH 149	5745	MCS0	13.48	13.50	97.97
		CH 157	5785		13.46	13.50	
		CH 165	5825		13.42	13.50	
	802.11n-HT40	CH 151	5755	MCS0	13.36	13.50	95.92
		CH 159	5795		13.39	13.50	
	802.11ac-VHT20	CH 149	5745	MCS0	13.44	13.50	98.48
		CH 157	5785		13.46	13.50	
		CH 165	5825		13.48	13.50	
	802.11ac-VHT40	CH 151	5755	MCS0	13.45	13.50	95.96
		CH 159	5795		13.42	13.50	
	802.11ac-VHT80	CH 155	5775	MCS0	13.49	13.50	93.16

13. Antenna Location



Front View

<SAR test exclusion table>

General Note:

1. The WLAN/BT module is also integrated into Q616 host and the WLAN/BT power and SAR test exclusion is refer to FCC ID: EJE-WB0099, Sporton Report No: FA5N1313.
2. The below table, when the distance is < 50 mm exclusion threshold is "Ratio", when the distance is > 50 mm exclusion threshold is "mW"
3. Maximum power is the source-based time-average power and represents the maximum RF output power among production units
4. Per KDB 447498 D01v06, for larger devices, the test separation distance of adjacent edge configuration is determined by the closest separation between the antenna and the user.
5. Per KDB 447498 D01v06, standalone SAR test exclusion threshold is applied; If the test separation distance is < 5mm, 5mm is used to determine SAR exclusion threshold.
6. Per KDB 447498 D01v06, the 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at *test separation distances* ≤ 50 mm are determined by:
   [(*max. power of channel, including tune-up tolerance, mW*)/(*min. test separation distance, mm*)] ·[√f(GHz)] ≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR
   - f(GHz) is the RF channel transmit frequency in GHz
   - Power and distance are rounded to the nearest mW and mm before calculation
   - The result is rounded to one decimal place for comparison
7. Per KDB 447498 D01v06, at 100 MHz to 6 GHz and for *test separation distances* > 50 mm, the SAR test exclusion threshold is determined according to the following
   a) [Threshold at 50 mm in step 1) + (test separation distance - 50 mm)·(f(MHz)/150)] mW, at 100 MHz to 1500 MHz
   b) [Threshold at 50 mm in step 1) + (test separation distance - 50 mm)·10] mW at > 1500 MHz and ≤ 6 GHz

Exposure Position	Wireless Interface	GPRS 850 Class 10	GPRS 1900 Class 10	WCDMA Band V	WCDMA Band IV	WCDMA Band II	CDMA BC10	CDMA BC0	CDMA BC1	LTE Band 17	LTE Band 13	LTE Band 5	LTE Band 4	LTE Band 2	LTE Band 25
	Calculated Frequency	848MHz	1909MHz	846MHz	1750MHz	1907MHz	846MHz	848MHz	1907MHz	713MHz	784MHz	848MHz	1754MHz	1909MHz	1914MHz
	Maximum power (dBm)	27.0	24.0	24.0	24.0	24.0	24.5	24.5	24.5	24.0	24.0	24.0	24.0	24.0	24.0
	Maximum rated power(mW)	501.0	251.0	251.0	251.0	251.0	282.0	282.0	282.0	251.0	251.0	251.0	251.0	251.0	251.0
Bottom Face	Separation distance(mm)	5.0													
	exclusion threshold	92.3	69.4	46.2	66.4	69.3	51.9	51.9	77.9	42.4	44.5	46.2	66.5	69.4	69.5
	Testing required?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Edge 1	Separation distance(mm)	6.0													
	exclusion threshold	76.9	57.8	38.5	55.3	57.8	43.2	43.3	64.9	35.3	37.0	38.5	55.4	57.8	57.9
	Testing required?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Edge 2	Separation distance(mm)	179.9													
	exclusion threshold	897.0	1408.0	896.0	1412.0	1408.0	896.0	897.0	1408.0	795.0	848.0	897.0	1412.0	1408.0	1407.0
	Testing required?	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Edge 3	Separation distance(mm)	177.0													
	exclusion threshold	881.0	1379.0	879.0	1383.0	1379.0	879.0	881.0	1379.0	781.0	833.0	881.0	1383.0	1379.0	1378.0
	Testing required?	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Edge 4	Separation distance(mm)	27.9													
	exclusion threshold	16.5	12.4	8.3	11.9	12.4	9.3	9.3	14.0	7.6	8.0	8.3	11.9	12.4	12.5
	Testing required?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Exposure Position	Wireless Interface	2.4GHz WLAN ANT 1	2.4GHz WLAN ANT 2	5GHz WLAN ANT 1	5GHz WLAN ANT 2
	Calculated Frequency	2462MHz	2462MHz	5825MHz	5825MHz
	Maximum power (dBm)	15	15	13.5	13.5
	Maximum rated power(mW)	32.0	32.0	22.0	22.0
Bottom Face	Separation distance(mm)	5.0	5.0	5.0	5.0
	exclusion threshold	10.0	10.0	10.6	10.6
	Testing required?	Yes	Yes	Yes	Yes
Edge 1	Separation distance(mm)	7.0	14.0	7.0	14.0
	exclusion threshold	7.2	3.6	7.6	3.8
	Testing required?	Yes	Yes	Yes	Yes
Edge 2	Separation distance(mm)	86.0	280.0	86.0	280.0
	exclusion threshold	456.0	2396.0	422.0	2362.0
	Testing required?	No	No	No	No
Edge 3	Separation distance(mm)	176.0	157.0	176.0	157.0
	exclusion threshold	1356.0	1166.0	1322.0	1132.0
	Testing required?	No	No	No	No
Edge 4	Separation distance(mm)	186.0	5.0	186.0	5.0
	exclusion threshold	1456.0	10.0	1422.0	10.6
	Testing required?	No	Yes	No	Yes

14. SAR Test Results

General Note:

1. Per KDB 447498 D01v06, the reported SAR is the measured SAR value adjusted for maximum tune-up tolerance.
   a. Tune-up scaling Factor = tune-up limit power (mW) / EUT RF power (mW), where tune-up limit is the maximum rated power among all production units.
   b. For WWAN: Reported SAR(W/kg)= Measured SAR(W/kg)*Tune-up Scaling Factor
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. For the exposure positions that proximity sensor power reduction is applied for SAR compliance, additional SAR testing with EUT transmitting full power in normal mode was performed; 13mm for bottom face, 13mm for edge1
4. The Host Q616 with WWAN module is identical to the previously certified Q665 under FCC ID: EJE-EM7355D2, Report No: FA532514-01. The only difference is: The INTEL WiFi module “7265NGW” that was used in Host Q665 is now replaced with INTEL module “8260NGW in the new Host Q616. The Antenna types, Antenna locations, proximity sensors and the whole mechanical construction are identical in both Q665 and Q616.
5. Full SAR test was performed on WiFi module for Q616 and simultaneous SAR results are reported here.
6. For WWAN, SAR tests were performed to verify WWAN compliance and combined worst case results between Q665 and Q616 are reported here.

GSM Note:

1. Per KDB 941225 D01v03r01, for Body SAR test reduction for GPRS and EDGE modes is determined by the source-based time-averaged output power including tune-up tolerance, for modes with the same specified maximum output power and tolerance, the higher number time-slot configuration should be tested, therefore, the GPRS 2Tx slots modes was selected when EUT operating without power back-off, the GPRS 2Tx slots modes was selected when EUT operating with power back-off, according to the highest source-based time-averaged output power.

UMTS Note:

1. Per KDB 941225 D01v03r01, SAR for Body exposure 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. If 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.

CDMA Note:

1. Per KDB 941225 D01v03r01, in body SAR tested, the EUT is treated as data device and SAR is tested with Ev-Do Rev 0 (RTAP 153.6kbps) as the primary mode.

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.

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, for 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. Per KDB 248227 D01v02r02, the simultaneous SAR provisions in KDB publication 447498 should be applied to determine simultaneous transmission SAR test exclusion for WiFi MIMO. If the sum of 1g single transmission chain SAR measurements is < 1.6W/kg and SAR peak to location ratio < 0.04, no additional SAR measurements for MIMO.
7. During SAR testing the WLAN transmission was verified using a spectrum analyzer.

14.1 Body SAR

<GSM SAR>

Plot No.	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	GSM850	GPRS (2 Tx slots)	Bottom Face	0mm	ON	189	836.4	27.30	28.00	1.175	0.07	1.230	1.445
	GSM850	GPRS (2 Tx slots)	Bottom Face	0mm	ON	128	824.2	27.20	28.00	1.202	0.06	1.130	1.359
	GSM850	GPRS (2 Tx slots)	Bottom Face	0mm	ON	251	848.8	27.24	28.00	1.191	0.02	1.210	1.441
	GSM850	GPRS (2 Tx slots)	Bottom Face	13mm	OFF	128	824.2	31.89	33.00	1.291	-0.04	0.756	0.976
	GSM850	GPRS (2 Tx slots)	Bottom Face	13mm	OFF	189	836.4	31.88	33.00	1.294	-0.06	0.702	0.909
	GSM850	GPRS (2 Tx slots)	Bottom Face	13mm	OFF	251	848.8	31.86	33.00	1.300	-0.07	0.598	0.778
	GSM850	GPRS (2 Tx slots)	Edge 1	0mm	ON	189	836.4	27.30	28.00	1.175	-0.19	1.080	1.269
	GSM850	GPRS (2 Tx slots)	Edge 1	0mm	ON	128	824.2	27.20	28.00	1.202	-0.12	1.050	1.262
	GSM850	GPRS (2 Tx slots)	Edge 1	0mm	ON	251	848.8	27.24	28.00	1.191	-0.18	1.030	1.227
	GSM850	GPRS (2 Tx slots)	Edge 1	13mm	OFF	128	824.2	31.89	33.00	1.291	-0.12	0.737	0.952
	GSM850	GPRS (2 Tx slots)	Edge 1	13mm	OFF	189	836.4	31.88	33.00	1.294	-0.05	0.689	0.892
	GSM850	GPRS (2 Tx slots)	Edge 1	13mm	OFF	251	848.8	31.86	33.00	1.300	-0.06	0.593	0.771
	GSM850	GPRS (2 Tx slots)	Edge 4	0mm	OFF	128	824.2	31.89	33.00	1.291	-0.08	0.202	0.261
	GSM1900	GPRS (2 Tx slots)	Bottom Face	0mm	ON	661	1880	25.88	26.50	1.153	0	0.692	0.798
	GSM1900	GPRS (2 Tx slots)	Bottom Face	13mm	OFF	661	1880	29.38	30.00	1.153	-0.08	0.339	0.391
	GSM1900	GPRS (2 Tx slots)	Edge 1	0mm	ON	661	1880	25.88	26.50	1.153	-0.05	1.070	1.234
2	GSM1900	GPRS (2 Tx slots)	Edge 1	0mm	ON	512	1850.2	25.78	26.50	1.180	-0.09	1.230	1.452
	GSM1900	GPRS (2 Tx slots)	Edge 1	0mm	ON	810	1909.8	25.79	26.50	1.178	-0.05	1.070	1.260
	GSM1900	GPRS (2 Tx slots)	Edge 1	13mm	OFF	661	1880	29.38	30.00	1.153	-0.1	0.511	0.589
	GSM1900	GPRS (2 Tx slots)	Edge 4	0mm	OFF	661	1880	29.38	30.00	1.153	-0.13	0.224	0.258

<WCDMA SAR>

Plot No.	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)
	WCDMA V	RMC 12.2Kbps	Bottom Face	0mm	ON	4182	836.4	20.05	21.00	1.245	0.04	0.930	1.157
3	WCDMA V	RMC 12.2Kbps	Bottom Face	0mm	ON	4132	826.4	20.03	21.00	1.250	-0.05	0.927	1.159
	WCDMA V	RMC 12.2Kbps	Bottom Face	0mm	ON	4233	846.6	20.02	21.00	1.253	0.02	0.923	1.157
	WCDMA V	RMC 12.2Kbps	Bottom Face	13mm	OFF	4182	836.4	22.81	24.00	1.315	-0.06	0.397	0.522
	WCDMA V	RMC 12.2Kbps	Edge 1	0mm	ON	4182	836.4	20.05	21.00	1.245	-0.15	0.829	1.032
	WCDMA V	RMC 12.2Kbps	Edge 1	0mm	ON	4132	826.4	20.03	21.00	1.250	-0.05	0.815	1.019
	WCDMA V	RMC 12.2Kbps	Edge 1	0mm	ON	4233	846.6	20.02	21.00	1.253	-0.12	0.812	1.018
	WCDMA V	RMC 12.2Kbps	Edge 1	13mm	OFF	4182	836.4	22.81	24.00	1.315	0	0.334	0.439
	WCDMA V	RMC 12.2Kbps	Edge 4	0mm	OFF	4182	836.4	22.81	24.00	1.315	-0.04	0.094	0.124
	WCDMA IV	RMC 12.2Kbps	Bottom Face	0mm	ON	1413	1732.6	18.12	19.00	1.225	-0.05	0.911	1.116
	WCDMA IV	RMC 12.2Kbps	Bottom Face	0mm	ON	1312	1712.4	18.07	19.00	1.239	-0.03	0.950	1.177
	WCDMA IV	RMC 12.2Kbps	Bottom Face	0mm	ON	1513	1752.6	18.11	19.00	1.227	0.01	0.897	1.101
	WCDMA IV	RMC 12.2Kbps	Bottom Face	13mm	OFF	1413	1732.6	22.79	24.00	1.321	-0.07	0.331	0.437
	WCDMA IV	RMC 12.2Kbps	Edge 1	0mm	ON	1413	1732.6	18.12	19.00	1.225	-0.01	1.040	1.274
	WCDMA IV	RMC 12.2Kbps	Edge 1	0mm	ON	1312	1712.4	18.07	19.00	1.239	-0.16	1.010	1.251
4	WCDMA IV	RMC 12.2Kbps	Edge 1	0mm	ON	1513	1752.6	18.11	19.00	1.227	0.01	1.050	1.289
	WCDMA IV	RMC 12.2Kbps	Edge 1	13mm	OFF	1413	1732.6	22.79	24.00	1.321	-0.02	0.430	0.568
	WCDMA IV	RMC 12.2Kbps	Edge 4	0mm	OFF	1413	1732.6	22.79	24.00	1.321	-0.04	0.232	0.307
	WCDMA II	RMC 12.2Kbps	Bottom Face	0mm	ON	9400	1880	18.03	19.00	1.250	-0.06	0.908	1.135
	WCDMA II	RMC 12.2Kbps	Bottom Face	0mm	ON	9262	1852.4	17.74	19.00	1.337	-0.07	0.770	1.029
	WCDMA II	RMC 12.2Kbps	Bottom Face	0mm	ON	9538	1907.6	17.75	19.00	1.334	0.01	0.950	1.267
	WCDMA II	RMC 12.2Kbps	Bottom Face	13mm	OFF	9262	1852.4	22.84	24.00	1.306	-0.01	0.335	0.438
5	WCDMA II	RMC 12.2Kbps	Edge 1	0mm	ON	9400	1880	18.03	19.00	1.250	-0.11	1.090	1.363
	WCDMA II	RMC 12.2Kbps	Edge 1	0mm	ON	9262	1852.4	17.74	19.00	1.337	-0.17	0.944	1.262
	WCDMA II	RMC 12.2Kbps	Edge 1	0mm	ON	9538	1907.6	17.75	19.00	1.334	-0.02	0.748	0.997
	WCDMA II	RMC 12.2Kbps	Edge 1	13mm	OFF	9262	1852.4	22.84	24.00	1.306	-0.12	0.557	0.728
	WCDMA II	RMC 12.2Kbps	Edge 4	0mm	OFF	9262	1852.4	22.84	24.00	1.306	-0.09	0.278	0.363

<CDMA SAR>

Plot No.	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)
6	CDMA2000 BC10	RTAR 153.6Kbps	Bottom Face	0mm	ON	684	823.1	20.34	21.50	1.306	0.09	0.941	1.229
	CDMA2000 BC10	RTAR 153.6Kbps	Bottom Face	13mm	OFF	684	823.1	24.18	24.50	1.076	0.04	0.473	0.509
	CDMA2000 BC10	RTAP 153.6Kbps	Edge 1	0mm	ON	684	823.1	20.34	21.50	1.306	-0.14	0.847	1.106
	CDMA2000 BC10	RTAR 153.6Kbps	Edge 1	13mm	OFF	684	823.1	24.18	24.50	1.076	-0.04	0.425	0.457
	CDMA2000 BC10	RTAP 153.6Kbps	Edge 4	0mm	OFF	684	823.1	24.18	24.50	1.076	-0.04	0.133	0.143
	CDMA2000 BC0	RTAP 153.6Kbps	Bottom Face	0mm	ON	384	836.52	20.48	21.50	1.265	-0.03	1.000	1.265
7	CDMA2000 BC0	RTAP153.6Kbps	Bottom Face	0mm	ON	1013	824.7	20.47	21.50	1.268	-0.09	1.010	1.280
	CDMA2000 BC0	RTAP153.6Kbps	Bottom Face	0mm	ON	777	848.31	20.11	21.50	1.377	0.03	0.897	1.235
	CDMA2000 BC0	RTAP 153.6Kbps	Bottom Face	13mm	OFF	384	836.52	24.40	24.50	1.023	-0.01	0.461	0.472
	CDMA2000 BC0	RTAP 153.6Kbps	Edge 1	0mm	ON	384	836.52	20.48	21.50	1.265	-0.19	0.899	1.137
	CDMA2000 BC0	RTAP 153.6Kbps	Edge 1	0mm	ON	1013	824.7	20.47	21.50	1.268	-0.18	0.885	1.122
	CDMA2000 BC0	RTAP 153.6Kbps	Edge 1	0mm	ON	777	848.31	20.11	21.50	1.377	-0.1	0.798	1.099
	CDMA2000 BC0	RTAP 153.6Kbps	Edge 1	13mm	OFF	384	836.52	24.40	24.50	1.023	0.04	0.432	0.442
	CDMA2000 BC0	RTAP 153.6Kbps	Edge 4	0mm	OFF	384	836.52	24.40	24.50	1.023	0.05	0.117	0.120
	CDMA2000 BC1	RTAP153.6Kbps	Bottom Face	0mm	ON	600	1880	18.50	18.50	1.000	-0.13	1.050	1.050
	CDMA2000 BC1	RTAP153.6Kbps	Bottom Face	0mm	ON	25	1851.25	18.49	18.50	1.002	-0.19	1.020	1.022
	CDMA2000 BC1	RTAP153.6Kbps	Bottom Face	0mm	ON	1175	1908.75	18.43	18.50	1.016	-0.1	1.010	1.026
	CDMA2000 BC1	RTAP153.6Kbps	Bottom Face	13mm	OFF	25	1851.25	23.86	24.50	1.159	-0.04	0.599	0.694
	CDMA2000 BC1	RTAP153.6Kbps	Edge 1	0mm	ON	600	1880	18.50	18.50	1.000	0.19	1.100	1.100
8	CDMA2000 BC1	RTAP153.6Kbps	Edge 1	0mm	ON	25	1851.25	18.49	18.50	1.002	0.13	1.140	1.143
	CDMA2000 BC1	RTAP153.6Kbps	Edge 1	0mm	ON	1175	1908.75	18.43	18.50	1.016	0.13	1.120	1.138
	CDMA2000 BC1	RTAP153.6Kbps	Edge 1	13mm	OFF	25	1851.25	23.86	24.50	1.159	-0.04	0.728	0.844
	CDMA2000 BC1	RTAP153.6Kbps	Edge 1	13mm	OFF	600	1880	23.78	24.50	1.180	0.06	0.698	0.824
	CDMA2000 BC1	RTAP153.6Kbps	Edge 1	13mm	OFF	1175	1908.75	23.78	24.50	1.180	-0.14	0.702	0.829
	CDMA2000 BC1	RTAP153.6Kbps	Edge 4	0mm	OFF	25	1851.25	23.86	24.50	1.159	0.09	0.421	0.488

<LTE SAR>

Plot No.	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)
9	LTE Band 17	10M	QPSK	1RB	0offset	Bottom Face	0mm	ON	23790	710	20.99	22.00	1.262	0.05	0.947	1.195
	LTE Band 17	10M	QPSK	25RB	0offset	Bottom Face	0mm	ON	23790	710	20.95	22.00	1.274	0	0.814	1.037
	LTE Band 17	10M	QPSK	50RB	0offset	Bottom Face	0mm	ON	23790	710	20.85	22.00	1.303	-0.04	0.820	1.069
	LTE Band 17	10M	QPSK	1RB	0offset	Bottom Face	13mm	OFF	23790	710	23.02	24.00	1.253	-0.12	0.239	0.300
	LTE Band 17	10M	QPSK	25RB	0offset	Bottom Face	13mm	OFF	23790	710	21.87	23.00	1.297	-0.04	0.202	0.262
	LTE Band 17	10M	QPSK	1RB	0offset	Edge 1	0mm	ON	23790	710	20.99	22.00	1.262	-0.13	0.772	0.974
	LTE Band 17	10M	QPSK	25RB	0offset	Edge 1	0mm	ON	23790	710	20.95	22.00	1.274	-0.09	0.755	0.961
	LTE Band 17	10M	QPSK	50RB	0offset	Edge 1	0mm	ON	23790	710	20.85	22.00	1.303	-0.06	0.746	0.972
	LTE Band 17	10M	QPSK	1RB	0offset	Edge 1	13mm	OFF	23790	710	23.02	24.00	1.253	-0.1	0.163	0.204
	LTE Band 17	10M	QPSK	25RB	0offset	Edge 1	13mm	OFF	23790	710	21.87	23.00	1.297	-0.09	0.136	0.176
	LTE Band 17	10M	QPSK	1RB	0offset	Edge 4	0mm	OFF	23790	710	23.02	24.00	1.253	-0.01	0.108	0.135
	LTE Band 17	10M	QPSK	25RB	0offset	Edge 4	0mm	OFF	23790	710	21.87	23.00	1.297	-0.07	0.092	0.119

Plot No.	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)
10	LTE Band 13	10M	QPSK	1RB	0offset	Bottom Face	0mm	ON	23230	782	20.31	20.50	1.045	0.04	1.220	1.275
	LTE Band 13	10M	QPSK	25RB	0offset	Bottom Face	0mm	ON	23230	782	20.16	20.50	1.081	0.01	1.120	1.211
	LTE Band 13	10M	QPSK	50RB	0offset	Bottom Face	0mm	ON	23230	782	20.14	20.50	1.086	-0.01	1.100	1.195
	LTE Band 13	10M	QPSK	1RB	0offset	Bottom Face	13mm	OFF	23230	782	22.97	24.00	1.268	-0.09	0.409	0.518
	LTE Band 13	10M	QPSK	25RB	0offset	Bottom Face	13mm	OFF	23230	782	21.92	23.00	1.282	-0.03	0.346	0.444
	LTE Band 13	10M	QPSK	1RB	0offset	Edge 1	0mm	ON	23230	782	20.31	20.50	1.045	-0.12	1.040	1.087
	LTE Band 13	10M	QPSK	25RB	0offset	Edge 1	0mm	ON	23230	782	20.16	20.50	1.081	0.01	0.984	1.064
	LTE Band 13	10M	QPSK	50RB	0offset	Edge 1	0mm	ON	23230	782	20.14	20.50	1.086	-0.04	0.969	1.053
	LTE Band 13	10M	QPSK	1RB	0offset	Edge 1	13mm	OFF	23230	782	22.97	24.00	1.268	0.05	0.370	0.469
	LTE Band 13	10M	QPSK	25RB	0offset	Edge 1	13mm	OFF	23230	782	21.92	23.00	1.282	-0.02	0.323	0.414
	LTE Band 13	10M	QPSK	1RB	0offset	Edge 4	0mm	OFF	23230	782	22.97	24.00	1.268	-0.05	0.150	0.190
	LTE Band 13	10M	QPSK	25RB	0offset	Edge 4	0mm	OFF	23230	782	21.92	23.00	1.282	-0.13	0.119	0.153
	LTE Band 5	10M	QPSK	1RB	0offset	Bottom Face	0mm	ON	20525	836.5	19.93	20.50	1.140	0.04	0.849	0.968
	LTE Band 5	10M	QPSK	1RB	0offset	Bottom Face	0mm	ON	20450	829	19.92	20.50	1.143	0.07	0.874	0.999
	LTE Band 5	10M	QPSK	1RB	0offset	Bottom Face	0mm	ON	20600	844	19.84	20.50	1.164	0.08	0.830	0.966
	LTE Band 5	10M	QPSK	25RB	0offset	Bottom Face	0mm	ON	20525	836.5	19.76	20.50	1.186	-0.03	0.831	0.985
11	LTE Band 5	10M	QPSK	25RB	0offset	Bottom Face	0mm	ON	20450	829	19.75	20.50	1.189	0.05	0.855	1.016
	LTE Band 5	10M	QPSK	25RB	0offset	Bottom Face	0mm	ON	20600	844	19.71	20.50	1.199	-0.04	0.820	0.984
	LTE Band 5	10M	QPSK	50RB	0offset	Bottom Face	0mm	ON	20525	836.5	19.65	20.50	1.216	0	0.818	0.995
	LTE Band 5	10M	QPSK	1RB	0offset	Bottom Face	13mm	OFF	20525	836.5	22.88	24.00	1.294	-0.05	0.369	0.478
	LTE Band 5	10M	QPSK	25RB	0offset	Bottom Face	13mm	OFF	20525	836.5	21.74	23.00	1.337	-0.09	0.291	0.389
	LTE Band 5	10M	QPSK	1RB	0offset	Edge 1	0mm	ON	20525	836.5	19.93	20.50	1.140	-0.16	0.748	0.853
	LTE Band 5	10M	QPSK	1RB	0offset	Edge 1	0mm	ON	20450	829	19.92	20.50	1.143	0.02	0.783	0.895
	LTE Band 5	10M	QPSK	1RB	0offset	Edge 1	0mm	ON	20600	844	19.84	20.50	1.164	0.01	0.750	0.873
	LTE Band 5	10M	QPSK	25RB	0offset	Edge 1	0mm	ON	20525	836.5	19.76	20.50	1.186	0.07	0.749	0.888
	LTE Band 5	10M	QPSK	25RB	0offset	Edge 1	0mm	ON	20450	829	19.75	20.50	1.189	0.08	0.758	0.901
	LTE Band 5	10M	QPSK	25RB	0offset	Edge 1	0mm	ON	20600	844	19.71	20.50	1.199	0.03	0.737	0.884
	LTE Band 5	10M	QPSK	50RB	0offset	Edge 1	0mm	ON	20525	836.5	19.65	20.50	1.216	0.06	0.731	0.889
	LTE Band 5	10M	QPSK	1RB	0offset	Edge 1	13mm	OFF	20525	836.5	22.88	24.00	1.294	0.06	0.341	0.441
	LTE Band 5	10M	QPSK	25RB	0offset	Edge 1	13mm	OFF	20525	836.5	21.74	23.00	1.337	0.04	0.275	0.368
	LTE Band 5	10M	QPSK	1RB	0offset	Edge 4	0mm	OFF	20525	836.5	22.88	24.00	1.294	-0.06	0.094	0.122
	LTE Band 5	10M	QPSK	25RB	0offset	Edge 4	0mm	OFF	20525	836.5	21.74	23.00	1.337	-0.05	0.073	0.098

Plot No.	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)
	LTE Band 4	20M	QPSK	1RB	0offset	Bottom Face	0mm	ON	20175	1732.5	17.43	18.00	1.140	-0.17	0.818	0.933
	LTE Band 4	20M	QPSK	1RB	0offset	Bottom Face	0mm	ON	20050	1720	17.25	18.00	1.189	-0.17	0.840	0.998
	LTE Band 4	20M	QPSK	1RB	0offset	Bottom Face	0mm	ON	20300	1745	17.28	18.00	1.180	-0.19	0.567	0.669
12	LTE Band 4	20M	QPSK	50RB	0offset	Bottom Face	0mm	ON	20175	1732.5	17.18	18.00	1.208	-0.14	0.994	1.201
	LTE Band 4	20M	QPSK	50RB	0offset	Bottom Face	0mm	ON	20050	1720	17.01	18.00	1.256	0.01	0.742	0.932
	LTE Band 4	20M	QPSK	50RB	0offset	Bottom Face	0mm	ON	20300	1745	17.03	18.00	1.250	-0.01	0.592	0.740
	LTE Band 4	20M	QPSK	100RB	0offset	Bottom Face	0mm	ON	20175	1732.5	17.20	18.00	1.202	0	0.714	0.858
	LTE Band 4	20M	QPSK	1RB	0offset	Bottom Face	13mm	OFF	20175	1732.5	23.16	24.00	1.213	-0.06	0.356	0.432
	LTE Band 4	20M	QPSK	50RB	0offset	Bottom Face	13mm	OFF	20175	1732.5	21.84	23.00	1.306	-0.03	0.265	0.346
	LTE Band 4	20M	QPSK	1RB	0offset	Edge 1	0mm	ON	20175	1732.5	17.43	18.00	1.140	-0.06	0.779	0.888
	LTE Band 4	20M	QPSK	1RB	0offset	Edge 1	0mm	ON	20050	1720	17.25	18.00	1.189	-0.05	0.556	0.661
	LTE Band 4	20M	QPSK	1RB	0offset	Edge 1	0mm	ON	20300	1745	17.28	18.00	1.180	-0.05	0.649	0.766
	LTE Band 4	20M	QPSK	50RB	0offset	Edge 1	0mm	ON	20175	1732.5	17.18	18.00	1.208	-0.03	0.732	0.884
	LTE Band 4	20M	QPSK	50RB	0offset	Edge 1	0mm	ON	20050	1720	17.01	18.00	1.256	-0.01	0.683	0.858
	LTE Band 4	20M	QPSK	50RB	0offset	Edge 1	0mm	ON	20300	1745	17.03	18.00	1.250	0.01	0.622	0.778
	LTE Band 4	20M	QPSK	100RB	0offset	Edge 1	0mm	ON	20175	1732.5	17.20	18.00	1.202	0.02	0.711	0.855
	LTE Band 4	20M	QPSK	1RB	0offset	Edge 1	13mm	OFF	20175	1732.5	23.16	24.00	1.213	-0.08	0.375	0.455
	LTE Band 4	20M	QPSK	50RB	0offset	Edge 1	13mm	OFF	20175	1732.5	21.84	23.00	1.306	-0.06	0.290	0.379
	LTE Band 4	20M	QPSK	1RB	0offset	Edge 4	0mm	OFF	20175	1732.5	23.16	24.00	1.213	-0.09	0.213	0.258
	LTE Band 4	20M	QPSK	50RB	0offset	Edge 4	0mm	OFF	20175	1732.5	21.84	23.00	1.306	-0.05	0.166	0.217
	LTE Band 2	20M	QPSK	1RB	0offset	Bottom Face	0mm	ON	18900	1880	17.44	19.00	1.432	0	0.892	1.278
	LTE Band 2	20M	QPSK	1RB	0offset	Bottom Face	0mm	ON	18700	1860	17.31	19.00	1.476	-0.12	0.875	1.291
	LTE Band 2	20M	QPSK	1RB	0offset	Bottom Face	0mm	ON	19100	1900	17.29	19.00	1.483	-0.13	0.746	1.106
	LTE Band 2	20M	QPSK	50RB	0offset	Bottom Face	0mm	ON	18900	1880	17.30	19.00	1.479	-0.13	0.746	1.103
	LTE Band 2	20M	QPSK	50RB	0offset	Bottom Face	0mm	ON	18700	1860	17.31	19.00	1.476	-0.11	0.689	1.017
	LTE Band 2	20M	QPSK	50RB	0offset	Bottom Face	0mm	ON	19100	1900	17.29	19.00	1.483	-0.14	0.657	0.974
	LTE Band 2	20M	QPSK	100RB	0offset	Bottom Face	0mm	ON	18900	1880	17.15	19.00	1.531	-0.13	0.776	1.188
	LTE Band 2	20M	QPSK	1RB	0offset	Bottom Face	13mm	OFF	18900	1880	23.14	24.00	1.219	-0.03	0.442	0.539
	LTE Band 2	20M	QPSK	50RB	0offset	Bottom Face	13mm	OFF	18900	1880	21.81	23.00	1.315	-0.08	0.345	0.454
13	LTE Band 2	20M	QPSK	1RB	0offset	Edge 1	0mm	ON	18900	1880	17.44	19.00	1.432	-0.09	0.904	1.295
	LTE Band 2	20M	QPSK	1RB	0offset	Edge 1	0mm	ON	18700	1860	17.31	19.00	1.476	0.01	0.853	1.259
	LTE Band 2	20M	QPSK	1RB	0offset	Edge 1	0mm	ON	19100	1900	17.29	19.00	1.483	0.01	0.842	1.248
	LTE Band 2	20M	QPSK	50RB	0offset	Edge 1	0mm	ON	18900	1880	17.30	19.00	1.479	0	0.834	1.234
	LTE Band 2	20M	QPSK	50RB	0offset	Edge 1	0mm	ON	18700	1860	17.31	19.00	1.476	0.06	0.810	1.195
	LTE Band 2	20M	QPSK	50RB	0offset	Edge 1	0mm	ON	19100	1900	17.29	19.00	1.483	0.04	0.808	1.198
	LTE Band 2	20M	QPSK	100RB	0offset	Edge 1	0mm	ON	18900	1880	17.15	19.00	1.531	0.01	0.798	1.222
	LTE Band 2	20M	QPSK	1RB	0offset	Edge 1	13mm	OFF	18900	1880	23.14	24.00	1.219	-0.01	0.607	0.740
	LTE Band 2	20M	QPSK	50RB	0offset	Edge 1	13mm	OFF	18900	1880	21.81	23.00	1.315	-0.05	0.466	0.613
	LTE Band 2	20M	QPSK	1RB	0offset	Edge 4	0mm	OFF	18900	1880	23.14	24.00	1.219	-0.07	0.333	0.406
	LTE Band 2	20M	QPSK	50RB	0offset	Edge 4	0mm	OFF	18900	1880	21.81	23.00	1.315	-0.06	0.243	0.320

Plot No.	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)
	LTE Band 25	20M	QPSK	1RB	0offset	Bottom Face	0mm	ON	26340	1880	17.75	19.00	1.334	-0.12	0.722	0.963
	LTE Band 25	20M	QPSK	1RB	0offset	Bottom Face	0mm	ON	26140	1860	17.66	19.00	1.361	-0.01	0.809	1.101
	LTE Band 25	20M	QPSK	1RB	0offset	Bottom Face	0mm	ON	26590	1905	17.65	19.00	1.365	0.02	0.668	0.912
	LTE Band 25	20M	QPSK	50RB	0offset	Bottom Face	0mm	ON	26340	1880	17.58	19.00	1.387	0.17	0.715	0.992
	LTE Band 25	20M	QPSK	50RB	0offset	Bottom Face	0mm	ON	26140	1860	17.58	19.00	1.387	-0.01	0.703	0.975
	LTE Band 25	20M	QPSK	50RB	0offset	Bottom Face	0mm	ON	26590	1905	17.50	19.00	1.413	0	0.689	0.973
	LTE Band 25	20M	QPSK	100RB	0offset	Bottom Face	0mm	ON	26340	1880	17.41	19.00	1.442	-0.05	0.711	1.025
	LTE Band 25	20M	QPSK	1RB	0offset	Bottom Face	13mm	OFF	26340	1880	23.06	24.00	1.242	-0.08	0.415	0.515
	LTE Band 25	20M	QPSK	50RB	0offset	Bottom Face	13mm	OFF	26340	1880	21.79	23.00	1.321	-0.03	0.304	0.402
	LTE Band 25	20M	QPSK	1RB	0offset	Edge 1	0mm	ON	26340	1880	17.75	19.00	1.334	-0.08	0.841	1.121
14	LTE Band 25	20M	QPSK	1RB	0offset	Edge 1	0mm	ON	26140	1860	17.66	19.00	1.361	-0.07	0.954	1.299
	LTE Band 25	20M	QPSK	1RB	0offset	Edge 1	0mm	ON	26590	1905	17.65	19.00	1.365	-0.04	0.908	1.239
	LTE Band 25	20M	QPSK	50RB	0offset	Edge 1	0mm	ON	26340	1880	17.58	19.00	1.387	-0.11	0.767	1.064
	LTE Band 25	20M	QPSK	50RB	0offset	Edge 1	0mm	ON	26140	1860	17.58	19.00	1.387	-0.01	0.859	1.191
	LTE Band 25	20M	QPSK	50RB	0offset	Edge 1	0mm	ON	26590	1905	17.50	19.00	1.413	-0.06	0.737	1.041
	LTE Band 25	20M	QPSK	100RB	0offset	Edge 1	0mm	ON	26340	1880	17.41	19.00	1.442	-0.11	0.754	1.087
	LTE Band 25	20M	QPSK	1RB	0offset	Edge 1	13mm	OFF	26340	1880	23.06	24.00	1.242	-0.12	0.575	0.714
	LTE Band 25	20M	QPSK	50RB	0offset	Edge 1	13mm	OFF	26340	1880	21.79	23.00	1.321	-0.02	0.432	0.571
	LTE Band 25	20M	QPSK	1RB	0offset	Edge 4	0mm	OFF	26340	1880	23.06	24.00	1.242	-0.06	0.298	0.370
	LTE Band 25	20M	QPSK	50RB	0offset	Edge 4	0mm	OFF	26340	1880	21.79	23.00	1.321	-0.04	0.209	0.276

<2.4GHz WLAN>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	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)
	WLAN2.4GHz	802.11b 1Mbps	Bottom Face	0mm	Ant 1	6	2437	14.80	15.00	1.048	98.26	1.018	-0.16	0.631	0.673
	WLAN2.4GHz	802.11b 1Mbps	Bottom Face	0mm	Ant 1	1	2412	14.79	15.00	1.050	98.26	1.018	-0.15	0.614	0.657
15	WLAN2.4GHz	802.11b 1Mbps	Bottom Face	0mm	Ant 1	11	2462	14.76	15.00	1.058	98.26	1.018	-0.12	0.719	0.774
	WLAN2.4GHz	802.11b 1Mbps	Edge 1	0mm	Ant 1	6	2437	14.80	15.00	1.048	98.26	1.018	-0.1	0.189	0.202
	WLAN2.4GHz	802.11b 1Mbps	Bottom Face	0mm	Ant 2	11	2462	14.87	15.00	1.031	98.7	1.013	-0.05	0.180	0.188
	WLAN2.4GHz	802.11b 1Mbps	Edge 1	0mm	Ant 2	11	2462	14.87	15.00	1.031	98.7	1.013	0.11	0.008	0.008
	WLAN2.4GHz	802.11b 1Mbps	Edge 4	0mm	Ant 2	11	2462	14.87	15.00	1.031	98.7	1.013	-0.15	0.066	0.069

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	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)
	WLAN5GHz	802.11n-HT40 MCS0	Bottom Face	0mm	Ant 1	54	5270	13.49	13.50	1.003	96.94	1.032	0.14	0.321	0.332
16	WLAN5GHz	802.11n-HT40 MCS0	Edge 1	0mm	Ant 1	54	5270	13.49	13.50	1.003	96.94	1.032	0.02	0.753	0.780
	WLAN5GHz	802.11n-HT40 MCS0	Edge 1	0mm	Ant 1	62	5310	12.73	13.00	1.065	96.94	1.032	-0.1	0.663	0.729
	WLAN5GHz	802.11n-HT40 MCS0	Bottom Face	0mm	Ant 2	54	5270	13.40	13.50	1.023	95.92	1.043	-0.09	0.278	0.297
	WLAN5GHz	802.11n-HT40 MCS0	Edge 1	0mm	Ant 2	54	5270	13.40	13.50	1.023	95.92	1.043	0.13	0.114	0.122
	WLAN5GHz	802.11n-HT40 MCS0	Edge 4	0mm	Ant 2	54	5270	13.40	13.50	1.023	95.92	1.043	-0.03	0.239	0.255
	WLAN5GHz	802.11ac-VHT80 MCS0	Bottom Face	0mm	Ant 1	138	5690	13.42	13.50	1.019	92.37	1.083	0.11	0.097	0.107
	WLAN5GHz	802.11ac-VHT80 MCS0	Edge 1	0mm	Ant 1	138	5690	13.42	13.50	1.019	92.37	1.083	0.15	0.173	0.191
17	WLAN5GHz	802.11ac-VHT80 MCS0	Bottom Face	0mm	Ant 2	106	5530	13.46	13.50	1.010	93.16	1.073	0.09	0.280	0.303
	WLAN5GHz	802.11ac-VHT80 MCS0	Bottom Face	0mm	Ant 2	122	5610	13.23	13.50	1.065	93.16	1.073	0.03	0.264	0.302
	WLAN5GHz	802.11ac-VHT80 MCS0	Bottom Face	0mm	Ant 2	138	5690	13.27	13.50	1.054	93.16	1.073	0.1	0.151	0.171
	WLAN5GHz	802.11ac-VHT80 MCS0	Edge 1	0mm	Ant 2	106	5530	13.46	13.50	1.010	93.16	1.073	0.16	0.126	0.137
	WLAN5GHz	802.11ac-VHT80 MCS0	Edge 4	0mm	Ant 2	106	5530	13.46	13.50	1.010	93.16	1.073	-0.11	0.268	0.290
	WLAN5GHz	802.11ac-VHT80 MCS0	Bottom Face	0mm	Ant 1	155	5775	13.49	13.50	1.001	92.37	1.083	0.16	0.144	0.156
18	WLAN5GHz	802.11ac-VHT80 MCS0	Edge 1	0mm	Ant 1	155	5775	13.49	13.50	1.001	92.37	1.083	-0.15	0.275	0.298
	WLAN5GHz	802.11ac-VHT80 MCS0	Bottom Face	0mm	Ant 2	155	5775	13.49	13.50	1.002	93.16	1.073	0.12	0.137	0.147
	WLAN5GHz	802.11ac-VHT80 MCS0	Edge 1	0mm	Ant 2	155	5775	13.49	13.50	1.002	93.16	1.073	-0.16	0.094	0.101
	WLAN5GHz	802.11ac-VHT80 MCS0	Edge 4	0mm	Ant 2	155	5775	13.49	13.50	1.002	93.16	1.073	-0.12	0.161	0.173

14.2 Repeated SAR Measurement

No.	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)	Ratio	Reported 1g SAR (W/kg)
1st	GSM850	GPRS (2 Tx slots)	Bottom Face	0mm	ON	189	836.4	27.30	28.00	1.175	0.07	1.230	-	1.445
2nd	GSM850	GPRS (2 Tx slots)	Bottom Face	0mm	ON	189	836.4	27.30	28.00	1.175	0.01	1.220	1.01	1.433
1st	GSM1900	GPRS (2 Tx slots)	Edge 1	0mm	ON	512	1850.2	25.78	26.50	1.180	-0.09	1.230	-	1.452
2nd	GSM1900	GPRS (2 Tx slots)	Edge 1	0mm	ON	512	1850.2	25.78	26.50	1.180	0.06	1.190	1.03	1.405
1st	WCDMA IV	RMC 12.2Kbps	Edge 1	0mm	ON	1513	1752.6	18.11	19.00	1.227	0.01	1.050	-	1.289
2nd	WCDMA IV	RMC 12.2Kbps	Edge 1	0mm	ON	1513	1752.6	18.11	19.00	1.227	-0.08	1.010	1.04	1.240

No.	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)	Ratio	Reported 1g SAR (W/kg)
1st	LTE Band 13	10M	QPSK	1RB	0offset	Bottom Face	0mm	ON	23230	782	20.31	20.50	1.045	0.04	1.220	-	1.275
2nd	LTE Band 13	10M	QPSK	1RB	0offset	Bottom Face	0mm	ON	23230	782	20.31	20.50	1.045	-0.01	1.150	1.06	1.201

General Note:

1. Per KDB 865664 D01v01r03, for each frequency band, repeated SAR measurement is required only when the measured SAR is ≥0.8W/kg.
2. Per KDB 865664 D01v01r03, 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*.

All measurement SAR result is scaled-up to account for tune-up tolerance and is compliant.

15. Simultaneous Transmission Analysis

NO.	Simultaneous Transmission Configurations	Tablet	Note
		Body	
1.	WWAN + WLAN ANT1	Yes	
2.	WWAN + WLAN ANT2	Yes	
3.	WWAN + Bluetooth ANT2	Yes	
4.	WLAN ANT1 + WLAN ANT2	Yes	WLAN MIMO
5.	WLAN ANT1 + Bluetooth ANT2	Yes	
6.	WWAN + WLAN ANT1 + WLAN ANT2	Yes	
7.	WWAN + WLAN ANT1 + Bluetooth ANT2	Yes	

General Note:

1. The WLAN/BT module is also integrated into Q616 host and the WLAN/BT power and SAR test exclusion is refer to FCC ID: EJE-WB0099, Sporton Report No: FA5N1313, full SAR test was performed on WiFi module for Q616 and simultaneous SAR results are reported here.
2. The worst case WLAN reported SAR for each configuration was used for SAR summation. Therefore, the following summations represent the absolute worst cases for simultaneous transmission with WLAN.
3. For simultaneous transmission analysis for exposure position of edge 13mm and bottom face 13mm, WLAN SAR tested at 0mm separation is worse and the test data is used for conservative SAR summation.
4. For co-location analysis was performed at the same exposure positions, which are bottom face, Edge1 and Edge4, where both WWAN standalone SAR and WLAN standalone SAR was assessed.
5. For “no.6 and 7” simultaneous transmission analysis exclusion was cover by “No.1 ~ No.5”, if each standalone SAR summation is < 1.6 or SPLSR analysis is < 0.04 according KDB 447498 D01v06, the additional analysis is not necessary.
6. 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.
7. For simultaneous transmission analysis, Bluetooth SAR is estimated per KDB 447498 D01v06 based on the formula below.
   i) (*max. power of channel, including tune-up tolerance, mW*)/(*min. test separation distance, mm*)]·[√f(GHz)/*x*] W/kg for *test separation distances* ≤ 50 mm; where *x* = 7.5 for 1-g SAR, and *x* = 18.75 for 10-g SAR.
   ii) When the minimum separation distance is < 5mm, the distance is used 5mm to determine SAR test exclusion.
   iii) 0.4 W/kg for 1-g SAR and 1.0 W/kg for 10-g SAR, when the *test separation distances* is > 50 mm.
   iv) Bluetooth estimated SAR is conservatively determined by 5mm separation, for all applicable exposure positions.

Bluetooth Max Power	Exposure Position	All Positions
5 dBm	Estimated SAR (W/kg)	0.126 W/kg

15.1 Body Exposure Conditions

WWAN Band		Exposure Position	1 WWAN SAR (W/kg)	2 2.4GHz WLAN Ant 1 SAR (W/kg)	3 2.4GHz WLAN Ant 2 SAR (W/kg)	1+2 Summed SAR (W/kg)	1+3 Summed SAR (W/kg)	1+2 SPLSR Results	1+2 Case No	1+3 SPLSR Results	1+3 Case No
GSM	GSM850	Bottom Face at 13mm	0.976	0.774	0.188	**1.75**	**1.16**	0.02	Case 1		
		Edge 1 at 13mm	0.952	0.202	0.008	**1.15**	**0.96**				
		Bottom Face at 0mm	1.445	0.774	0.188	**2.22**	**1.63**	0.03	Case 2	0.03	Case 3
		Edge 1 at 0mm	1.269	0.202	0.008	**1.47**	**1.28**				
		Edge 4 at 0mm	0.261		0.069	**0.26**	**0.33**				
	GSM1900	Bottom Face at 13mm	0.391	0.774	0.188	**1.17**	**0.58**				
		Edge 1 at 13mm	0.589	0.202	0.008	**0.79**	**0.60**				
		Bottom Face at 0mm	0.798	0.774	0.188	**1.57**	**0.99**				
		Edge 1 at 0mm	1.452	0.202	0.008	**1.65**	**1.46**	0.02	Case38		
		Edge 4 at 0mm	0.258		0.069	**0.26**	**0.33**				
WCDMA	WCDMA V	Bottom Face at 13mm	0.522	0.774	0.188	**1.30**	**0.71**				
		Edge 1 at 13mm	0.439	0.202	0.008	**0.64**	**0.45**				
		Bottom Face at 0mm	1.159	0.774	0.188	**1.93**	**1.35**	0.02	Case 4		
		Edge 1 at 0mm	1.032	0.202	0.008	**1.23**	**1.04**				
		Edge 4 at 0mm	0.124		0.069	**0.12**	**0.19**				
	WCDMA IV	Bottom Face at 13mm	0.437	0.774	0.188	**1.21**	**0.63**				
		Edge 1 at 13mm	0.568	0.202	0.008	**0.77**	**0.58**				
		Bottom Face at 0mm	1.177	0.774	0.188	**1.95**	**1.37**	0.02	Case 5		
		Edge 1 at 0mm	1.289	0.202	0.008	**1.49**	**1.30**				
		Edge 4 at 0mm	0.307		0.069	**0.31**	**0.38**				
	WCDMA II	Bottom Face at 13mm	0.438	0.774	0.188	**1.21**	**0.63**				
		Edge 1 at 13mm	0.728	0.202	0.008	**0.93**	**0.74**				
		Bottom Face at 0mm	1.267	0.774	0.188	**2.04**	**1.46**	0.02	Case 6		
		Edge 1 at 0mm	1.363	0.202	0.008	**1.57**	**1.37**				
		Edge 4 at 0mm	0.363		0.069	**0.36**	**0.43**				
CDMA	CDMA2000 BC10	Bottom Face at 13mm	0.509	0.774	0.188	**1.28**	**0.70**				
		Edge 1 at 13mm	0.457	0.202	0.008	**0.66**	**0.47**				
		Bottom Face at 0mm	1.229	0.774	0.188	**2.00**	**1.42**	0.02	Case 7		
		Edge 1 at 0mm	1.106	0.202	0.008	**1.31**	**1.11**				
		Edge 4 at 0mm	0.143		0.069	**0.14**	**0.21**				
	CDMA2000 BC0	Bottom Face at 13mm	0.472	0.774	0.188	**1.25**	**0.66**				
		Edge 1 at 13mm	0.442	0.202	0.008	**0.64**	**0.45**				
		Bottom Face at 0mm	1.280	0.774	0.188	**2.05**	**1.47**	0.03	Case 8		
		Edge 1 at 0mm	1.137	0.202	0.008	**1.34**	**1.15**				
		Edge 4 at 0mm	0.120		0.069	**0.12**	**0.19**				
	CDMA2000 BC1	Bottom Face at 13mm	0.694	0.774	0.188	**1.47**	**0.88**				
		Edge 1 at 13mm	0.844	0.202	0.008	**1.05**	**0.85**				
		Bottom Face at 0mm	1.050	0.774	0.188	**1.82**	**1.24**	0.02	Case 9		
		Edge 1 at 0mm	1.143	0.202	0.008	**1.35**	**1.15**				
		Edge 4 at 0mm	0.488		0.069	**0.49**	**0.56**				

WWAN Band		Exposure Position	1 WWAN SAR (W/kg)	2 2.4GHz WLAN Ant 1 SAR (W/kg)	3 2.4GHz WLAN Ant 2 SAR (W/kg)	1+2 Summed SAR (W/kg)	1+3 Summed SAR (W/kg)	1+2 SPLSR Results	1+2 Case No	1+3 SPLSR Results	1+3 Case No
LTE	LTE Band 17	Bottom Face at 13mm	0.300	0.774	0.188	**1.07**	**0.49**				
		Edge 1 at 13mm	0.204	0.202	0.008	**0.41**	**0.21**				
		Bottom Face at 0mm	1.195	0.774	0.188	**1.97**	**1.38**	0.02	Case 10		
		Edge 1 at 0mm	0.974	0.202	0.008	**1.18**	**0.98**				
		Edge 4 at 0mm	0.135		0.069	**0.14**	**0.20**				
	LTE Band 13	Bottom Face at 13mm	0.518	0.774	0.188	**1.29**	**0.71**				
		Edge 1 at 13mm	0.469	0.202	0.008	**0.67**	**0.48**				
		Bottom Face at 0mm	1.275	0.774	0.188	**2.05**	**1.46**	0.02	Case 11		
		Edge 1 at 0mm	1.087	0.202	0.008	**1.29**	**1.10**				
		Edge 4 at 0mm	0.190		0.069	**0.19**	**0.26**				
	LTE Band 5	Bottom Face at 13mm	0.478	0.774	0.188	**1.25**	**0.67**				
		Edge 1 at 13mm	0.441	0.202	0.008	**0.64**	**0.45**				
		Bottom Face at 0mm	1.016	0.774	0.188	**1.79**	**1.20**	0.02	Case 12		
		Edge 1 at 0mm	0.901	0.202	0.008	**1.10**	**0.91**				
		Edge 4 at 0mm	0.122		0.069	**0.12**	**0.19**				
	LTE Band 4	Bottom Face at 13mm	0.432	0.774	0.188	**1.21**	**0.62**				
		Edge 1 at 13mm	0.455	0.202	0.008	**0.66**	**0.46**				
		Bottom Face at 0mm	1.201	0.774	0.188	**1.98**	**1.39**	0.02	Case 13		
		Edge 1 at 0mm	0.888	0.202	0.008	**1.09**	**0.90**				
		Edge 4 at 0mm	0.258		0.069	**0.26**	**0.33**				
	LTE Band 2	Bottom Face at 13mm	0.539	0.774	0.188	**1.31**	**0.73**				
		Edge 1 at 13mm	0.740	0.202	0.008	**0.94**	**0.75**				
		Bottom Face at 0mm	1.291	0.774	0.188	**2.07**	**1.48**	0.02	Case 14		
		Edge 1 at 0mm	1.295	0.202	0.008	**1.50**	**1.30**				
		Edge 4 at 0mm	0.406		0.069	**0.41**	**0.48**				
	LTE Band 25	Bottom Face at 13mm	0.515	0.774	0.188	**1.29**	**0.70**				
		Edge 1 at 13mm	0.714	0.202	0.008	**0.92**	**0.72**				
		Bottom Face at 0mm	1.101	0.774	0.188	**1.88**	**1.29**	0.02	Case 15		
		Edge 1 at 0mm	1.299	0.202	0.008	**1.50**	**1.31**				
		Edge 4 at 0mm	0.370		0.069	**0.37**	**0.44**				

WWAN Band		Exposure Position	1 WWAN SAR (W/kg)	5 5GHz WLAN Ant 1 SAR (W/kg)	6 5GHz WLAN Ant 2 SAR (W/kg)	1+5 Summed SAR (W/kg)	1+6 Summed SAR (W/kg)	1+5 SPLSR Results	1+5 Case No	1+6 SPLSR Results	1+6 Case No
GSM	GSM850	Bottom Face at 13mm	0.976	0.332	0.303	**1.31**	**1.28**				
		Edge 1 at 13mm	0.952	0.780	0.137	**1.73**	**1.09**	0.02	Case 16		
		Bottom Face at 0mm	1.445	0.332	0.303	**1.78**	**1.75**	0.02	Case 17	0.04	Case 19
		Edge 1 at 0mm	1.269	0.780	0.137	**2.05**	**1.41**	0.03	Case 18		
		Edge 4 at 0mm	0.261		0.290	**0.26**	**0.55**				
	GSM1900	Bottom Face at 13mm	0.391	0.332	0.303	**0.72**	**0.69**				
		Edge 1 at 13mm	0.589	0.780	0.137	**1.37**	**0.73**				
		Bottom Face at 0mm	0.798	0.332	0.303	**1.13**	**1.10**				
		Edge 1 at 0mm	1.452	0.780	0.137	**2.23**	**1.59**	0.02	Case 20		
		Edge 4 at 0mm	0.258		0.290	**0.26**	**0.55**				
WCDMA	WCDMA V	Bottom Face at 13mm	0.522	0.332	0.303	**0.85**	**0.83**				
		Edge 1 at 13mm	0.439	0.780	0.137	**1.22**	**0.58**				
		Bottom Face at 0mm	1.159	0.332	0.303	**1.49**	**1.46**				
		Edge 1 at 0mm	1.032	0.780	0.137	**1.81**	**1.17**	0.02	Case 21		
		Edge 4 at 0mm	0.124		0.290	**0.12**	**0.41**				
	WCDMA IV	Bottom Face at 13mm	0.437	0.332	0.303	**0.77**	**0.74**				
		Edge 1 at 13mm	0.568	0.780	0.137	**1.35**	**0.71**				
		Bottom Face at 0mm	1.177	0.332	0.303	**1.51**	**1.48**				
		Edge 1 at 0mm	1.289	0.780	0.137	**2.07**	**1.43**	0.02	Case 22		
		Edge 4 at 0mm	0.307		0.290	**0.31**	**0.60**				
	WCDMA II	Bottom Face at 13mm	0.438	0.332	0.303	**0.77**	**0.74**				
		Edge 1 at 13mm	0.728	0.780	0.137	**1.51**	**0.87**				
		Bottom Face at 0mm	1.267	0.332	0.303	**1.60**	**1.57**	0.01	Case 23		
		Edge 1 at 0mm	1.363	0.780	0.137	**2.14**	**1.50**	0.02	Case 24		
		Edge 4 at 0mm	0.363		0.290	**0.36**	**0.65**				
CDMA	CDMA2000 BC10	Bottom Face at 13mm	0.509	0.332	0.303	**0.84**	**0.81**				
		Edge 1 at 13mm	0.457	0.780	0.137	**1.24**	**0.59**				
		Bottom Face at 0mm	1.229	0.332	0.303	**1.56**	**1.53**				
		Edge 1 at 0mm	1.106	0.780	0.137	**1.89**	**1.24**	0.02	Case 25		
		Edge 4 at 0mm	0.143		0.290	**0.14**	**0.43**				
	CDMA2000 BC0	Bottom Face at 13mm	0.472	0.332	0.303	**0.80**	**0.78**				
		Edge 1 at 13mm	0.442	0.780	0.137	**1.22**	**0.58**				
		Bottom Face at 0mm	1.280	0.332	0.303	**1.61**	**1.58**	0.02	Case 26		
		Edge 1 at 0mm	1.137	0.780	0.137	**1.92**	**1.27**	0.03	Case 27		
		Edge 4 at 0mm	0.120		0.290	**0.12**	**0.41**				
	CDMA2000 BC1	Bottom Face at 13mm	0.694	0.332	0.303	**1.03**	**1.00**				
		Edge 1 at 13mm	0.844	0.780	0.137	**1.62**	**0.98**	0.01	Case 28		
		Bottom Face at 0mm	1.050	0.332	0.303	**1.38**	**1.35**				
		Edge 1 at 0mm	1.143	0.780	0.137	**1.92**	**1.28**	0.02	Case 29		
		Edge 4 at 0mm	0.488		0.290	**0.49**	**0.78**				

WWAN Band		Exposure Position	1	5	6	1+5 Summed SAR (W/kg)	1+6 Summed SAR (W/kg)	1+5 SPLSR Results	1+5 Case No	1+6 SPLSR Results	1+6 Case No
			WWAN	5GHz WLAN Ant 1	5GHz WLAN Ant 2						
			SAR (W/kg)	SAR (W/kg)	SAR (W/kg)						
LTE	LTE Band 17	Bottom Face at 13mm	0.300	0.332	0.303	**0.63**	**0.60**				
		Edge 1 at 13mm	0.204	0.780	0.137	**0.98**	**0.34**				
		Bottom Face at 0mm	1.195	0.332	0.303	**1.53**	**1.50**				
		Edge 1 at 0mm	0.974	0.780	0.137	**1.75**	**1.11**	0.02	Case 30		
		Edge 4 at 0mm	0.135		0.290	**0.14**	**0.43**				
	LTE Band 13	Bottom Face at 13mm	0.518	0.332	0.303	**0.85**	**0.82**				
		Edge 1 at 13mm	0.469	0.780	0.137	**1.25**	**0.61**				
		Bottom Face at 0mm	1.275	0.332	0.303	**1.61**	**1.58**	0.02	Case 31		
		Edge 1 at 0mm	1.087	0.780	0.137	**1.87**	**1.22**	0.02	Case 32		
		Edge 4 at 0mm	0.190		0.290	**0.19**	**0.48**				
	LTE Band 5	Bottom Face at 13mm	0.478	0.332	0.303	**0.81**	**0.78**				
		Edge 1 at 13mm	0.441	0.780	0.137	**1.22**	**0.58**				
		Bottom Face at 0mm	1.016	0.332	0.303	**1.35**	**1.32**				
		Edge 1 at 0mm	0.901	0.780	0.137	**1.68**	**1.04**	0.02	Case 33		
		Edge 4 at 0mm	0.122		0.290	**0.12**	**0.41**				
	LTE Band 4	Bottom Face at 13mm	0.432	0.332	0.303	**0.76**	**0.74**				
		Edge 1 at 13mm	0.455	0.780	0.137	**1.24**	**0.59**				
		Bottom Face at 0mm	1.201	0.332	0.303	**1.53**	**1.50**				
		Edge 1 at 0mm	0.888	0.780	0.137	**1.67**	**1.03**	0.02	Case 34		
		Edge 4 at 0mm	0.258		0.290	**0.26**	**0.55**				
	LTE Band 2	Bottom Face at 13mm	0.539	0.332	0.303	**0.87**	**0.84**				
		Edge 1 at 13mm	0.740	0.780	0.137	**1.52**	**0.88**				
		Bottom Face at 0mm	1.291	0.332	0.303	**1.62**	**1.59**	0.02	Case 35		
		Edge 1 at 0mm	1.295	0.780	0.137	**2.08**	**1.43**	0.02	Case 36		
		Edge 4 at 0mm	0.406		0.290	**0.41**	**0.70**				
	LTE Band 25	Bottom Face at 13mm	0.515	0.332	0.303	**0.85**	**0.82**				
		Edge 1 at 13mm	0.714	0.780	0.137	**1.49**	**0.85**				
		Bottom Face at 0mm	1.101	0.332	0.303	**1.43**	**1.40**				
		Edge 1 at 0mm	1.299	0.780	0.137	**2.08**	**1.44**	0.02	Case 37		
		Edge 4 at 0mm	0.370		0.290	**0.37**	**0.66**				

WWAN Band		Exposure Position	1 WWAN SAR (W/kg)	4 2.4GHz Bluetooth Ant Estimated SAR (W/kg)	1+4 Summed SAR (W/kg)	1+4 SPLSR Results	1+4 Case No
GSM	GSM850	Bottom Face at 13mm	0.976	0.126	**1.10**		
		Edge 1 at 13mm	0.952	0.126	**1.08**		
		Bottom Face at 0mm	1.445	0.126	**1.57**		
		Edge 1 at 0mm	1.269	0.126	**1.40**		
		Edge 4 at 0mm	0.261	0.126	**0.39**		
	GSM1900	Bottom Face at 13mm	0.391	0.126	**0.52**		
		Edge 1 at 13mm	0.589	0.126	**0.72**		
		Bottom Face at 0mm	0.798	0.126	**0.92**		
		Edge 1 at 0mm	1.452	0.126	**1.58**		
		Edge 4 at 0mm	0.258	0.126	**0.38**		
WCDMA	WCDMA V	Bottom Face at 13mm	0.522	0.126	**0.65**		
		Edge 1 at 13mm	0.439	0.126	**0.57**		
		Bottom Face at 0mm	1.159	0.126	**1.29**		
		Edge 1 at 0mm	1.032	0.126	**1.16**		
		Edge 4 at 0mm	0.124	0.126	**0.25**		
	WCDMA IV	Bottom Face at 13mm	0.437	0.126	**0.56**		
		Edge 1 at 13mm	0.568	0.126	**0.69**		
		Bottom Face at 0mm	1.177	0.126	**1.30**		
		Edge 1 at 0mm	1.289	0.126	**1.42**		
		Edge 4 at 0mm	0.307	0.126	**0.43**		
	WCDMA II	Bottom Face at 13mm	0.438	0.126	**0.56**		
		Edge 1 at 13mm	0.728	0.126	**0.85**		
		Bottom Face at 0mm	1.267	0.126	**1.39**		
		Edge 1 at 0mm	1.363	0.126	**1.49**		
		Edge 4 at 0mm	0.363	0.126	**0.49**		
CDMA	CDMA2000 BC10	Bottom Face at 13mm	0.509	0.126	**0.64**		
		Edge 1 at 13mm	0.457	0.126	**0.58**		
		Bottom Face at 0mm	1.229	0.126	**1.36**		
		Edge 1 at 0mm	1.106	0.126	**1.23**		
		Edge 4 at 0mm	0.143	0.126	**0.27**		
	CDMA2000 BC0	Bottom Face at 13mm	0.472	0.126	**0.60**		
		Edge 1 at 13mm	0.442	0.126	**0.57**		
		Bottom Face at 0mm	1.280	0.126	**1.41**		
		Edge 1 at 0mm	1.137	0.126	**1.26**		
		Edge 4 at 0mm	0.120	0.126	**0.25**		
	CDMA2000 BC1	Bottom Face at 13mm	0.694	0.126	**0.82**		
		Edge 1 at 13mm	0.844	0.126	**0.97**		
		Bottom Face at 0mm	1.050	0.126	**1.18**		
		Edge 1 at 0mm	1.143	0.126	**1.27**		
		Edge 4 at 0mm	0.488	0.126	**0.61**		

WWAN Band		Exposure Position	1 WWAN SAR (W/kg)	4 2.4GHz Bluetooth Ant Estimated SAR (W/kg)	1+4 Summed SAR (W/kg)	1+4 SPLSR Results	1+4 Case No
LTE	LTE Band 17	Bottom Face at 13mm	0.300	0.126	**0.43**		
		Edge 1 at 13mm	0.204	0.126	**0.33**		
		Bottom Face at 0mm	1.195	0.126	**1.32**		
		Edge 1 at 0mm	0.974	0.126	**1.10**		
		Edge 4 at 0mm	0.135	0.126	**0.26**		
	LTE Band 13	Bottom Face at 13mm	0.518	0.126	**0.64**		
		Edge 1 at 13mm	0.469	0.126	**0.60**		
		Bottom Face at 0mm	1.275	0.126	**1.40**		
		Edge 1 at 0mm	1.087	0.126	**1.21**		
		Edge 4 at 0mm	0.190	0.126	**0.32**		
	LTE Band 5	Bottom Face at 13mm	0.478	0.126	**0.60**		
		Edge 1 at 13mm	0.441	0.126	**0.57**		
		Bottom Face at 0mm	1.016	0.126	**1.14**		
		Edge 1 at 0mm	0.901	0.126	**1.03**		
		Edge 4 at 0mm	0.122	0.126	**0.25**		
	LTE Band 4	Bottom Face at 13mm	0.432	0.126	**0.56**		
		Edge 1 at 13mm	0.455	0.126	**0.58**		
		Bottom Face at 0mm	1.201	0.126	**1.33**		
		Edge 1 at 0mm	0.888	0.126	**1.01**		
		Edge 4 at 0mm	0.258	0.126	**0.38**		
	LTE Band 2	Bottom Face at 13mm	0.539	0.126	**0.67**		
		Edge 1 at 13mm	0.740	0.126	**0.87**		
		Bottom Face at 0mm	1.291	0.126	**1.42**		
		Edge 1 at 0mm	1.295	0.126	**1.42**		
		Edge 4 at 0mm	0.406	0.126	**0.53**		
	LTE Band 25	Bottom Face at 13mm	0.515	0.126	**0.64**		
		Edge 1 at 13mm	0.714	0.126	**0.84**		
		Bottom Face at 0mm	1.101	0.126	**1.23**		
		Edge 1 at 0mm	1.299	0.126	**1.43**		
		Edge 4 at 0mm	0.370	0.126	**0.50**		

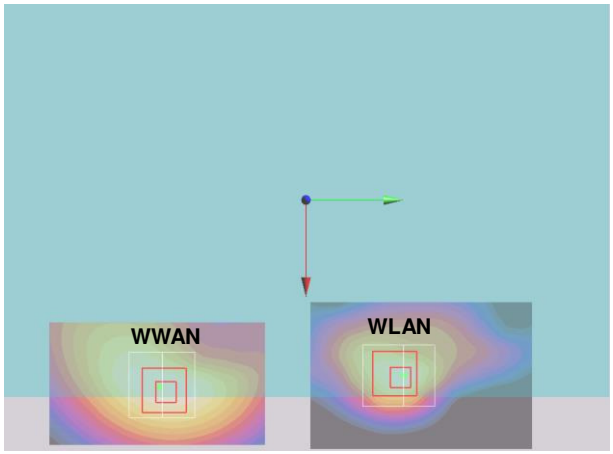
Exposure Position	2 2.4GHz WLAN Ant 1 SAR (W/kg)	3 2.4GHz WLAN Ant 2 SAR (W/kg)	4 Bluetooth Ant 2 Estimated SAR (W/kg)	5 5GHz WLAN Ant 1 SAR (W/kg)	6 5GHz WLAN Ant 2 SAR (W/kg)	2+3 Summed SAR (W/kg)	5+6 Summed SAR (W/kg)	2+4 Summed SAR (W/kg)	4+5 Summed SAR (W/kg)
Bottom Face at 13mm	0.774	0.188	0.126	0.332	0.303	**0.96**	**0.64**	**0.90**	**0.46**
Edge 1 at 13mm	0.202	0.008	0.126	0.780	0.137	**0.21**	**0.92**	**0.33**	**0.91**
Bottom Face at 0mm	0.774	0.188	0.126	0.332	0.303	**0.96**	**0.64**	**0.90**	**0.46**
Edge 1 at 0mm	0.202	0.008	0.126	0.780	0.137	**0.21**	**0.92**	**0.33**	**0.91**
Edge 4 at 0mm		0.069	0.126		0.290	**0.07**	**0.29**	**0.13**	**0.13**

15.2 SPLSR Evaluation and Analysis

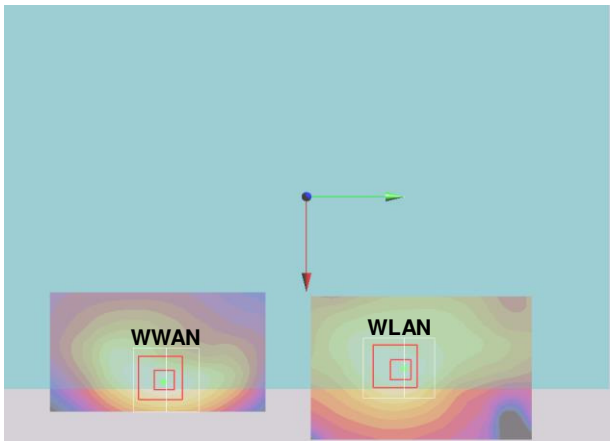
General Note:

1. SPLSR = $(SAR_1 + SAR_2)^{1.5}$ / (*min. separation distance, mm*). If SPLSR ≤ 0.04, simultaneously transmission SAR measurement is not necessary

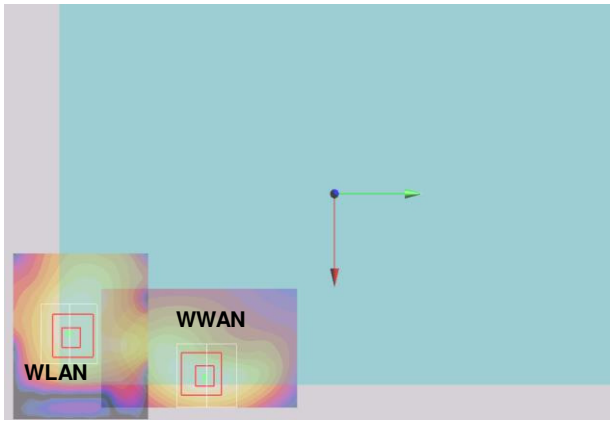
Case 1	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	GSM850	Bottom Face	0.976	13	0.0905	-0.07	-0.182	117.7	1.75	0.02	Not required
	2.4GHz WLAN		0.774	0	0.086	0.0476	-0.179				



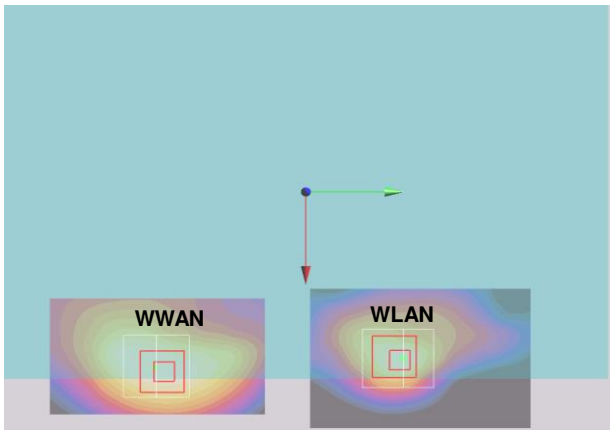
Case 2	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	GSM850	Bottom Face	1.445	0	0.092	-0.0685	-0.181	116.3	2.22	0.03	Not required
	2.4GHz WLAN		0.774	0	0.086	0.0476	-0.179				



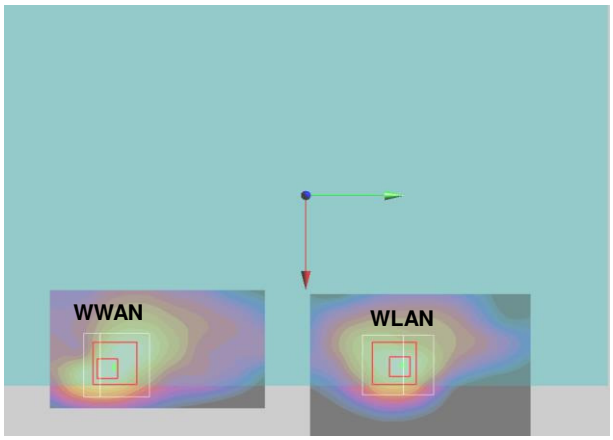
	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case 3	GSM850	Bottom Face	1.445	0	0.092	-0.0685	-0.181	76.5	1.63	0.03	Not required
	2.4GHz WLAN		0.188	0	0.0708	-0.142	-0.179				



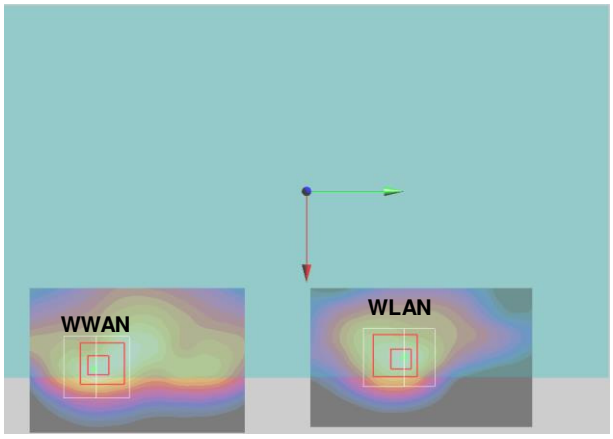
	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case 4	WCDMA V	Bottom Face	1.159	0	0.09	-0.073	-0.181	120.7	1.93	0.02	Not required
	2.4GHz WLAN		0.774	0	0.086	0.0476	-0.179				



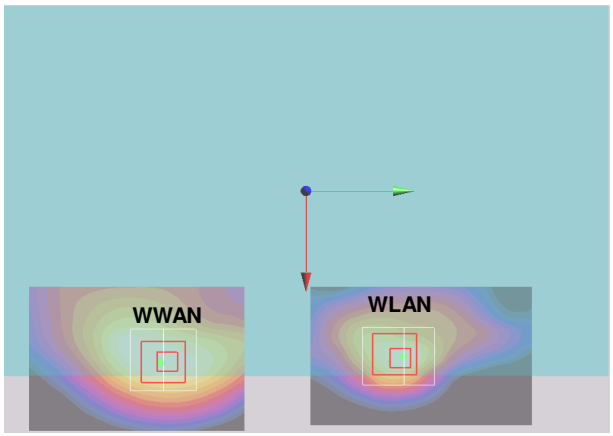
	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case 5	WCDMA IV	Bottom Face	1.177	0	0.086	-0.101	-0.181	148.6	1.95	0.02	Not required
	2.4GHz WLAN		0.774	0	0.086	0.0476	-0.179				



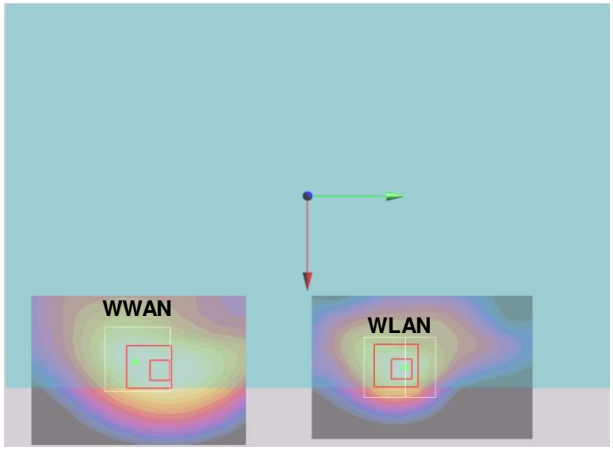
	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case 6	WCDMA II	Bottom Face	1.267	0	0.091	-0.103	-0.18	150.7	2.04	0.02	Not required
	2.4GHz WLAN		0.774	0	0.086	0.0476	-0.179				



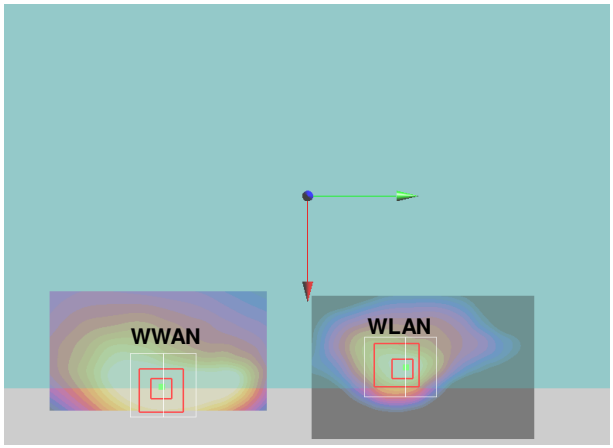
	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case 7	CDMA2000 BC10	Bottom Face	1.229	0	0.088	-0.0695	-0.181	117.1	2.00	0.02	Not required
	2.4GHz WLAN		0.774	0	0.086	0.0476	-0.179				



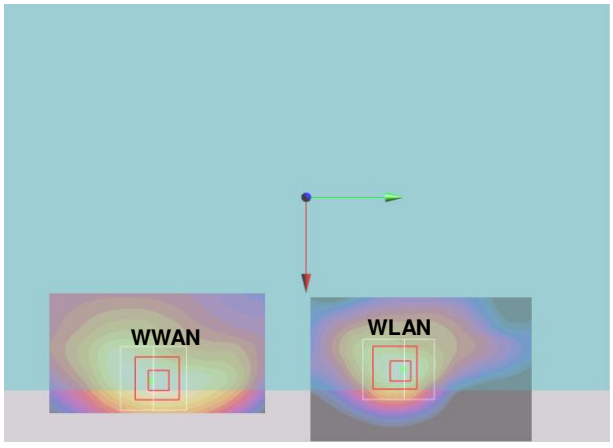
	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case 8	CDMA2000 BC0	Bottom Face	1.28	0	0.09	-0.067	-0.181	114.7	2.05	0.03	Not required
	2.4GHz WLAN		0.774	0	0.086	0.0476	-0.179				



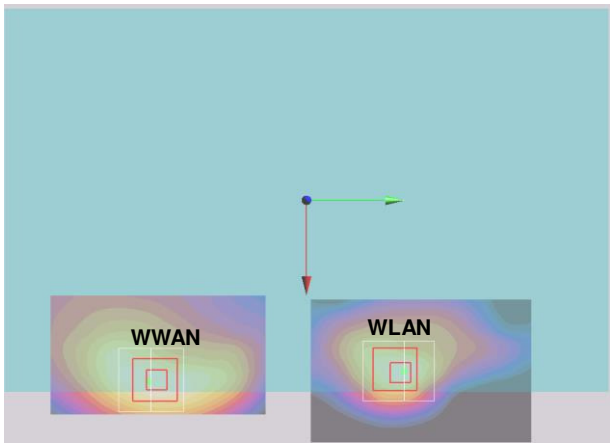
	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case 9	CDMA BC1	Bottom Face	1.05	0	0.089	-0.102	-0.178	149.6	1.82	0.02	Not required
	2.4GHz WLAN		0.774	0	0.086	0.0476	-0.179				



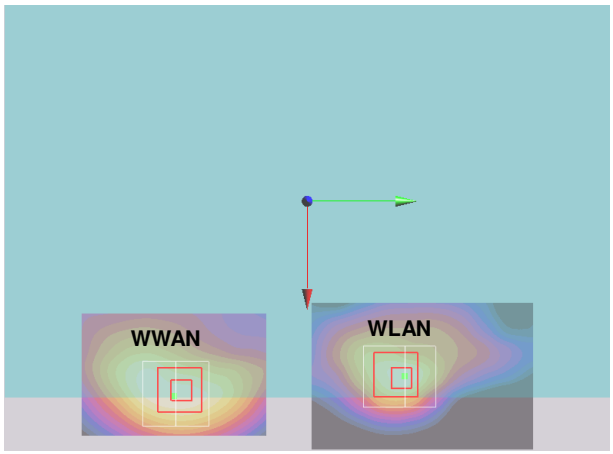
	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case 10	LTE Band 17	Bottom Face	1.195	0	0.0905	-0.076	-0.181	123.7	1.97	0.02	Not required
	2.4GHz WLAN		0.774	0	0.086	0.0476	-0.179				



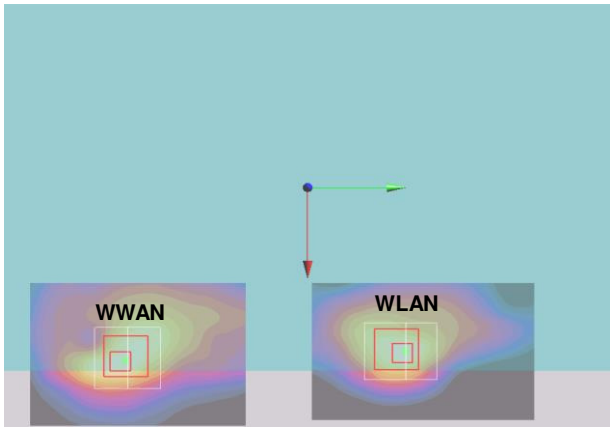
Case 11	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	LTE Band 13	Bottom Face	1.275	0	0.0905	-0.0745	-0.181	122.2	2.05	0.02	Not required
	2.4GHz WLAN		0.774	0	0.086	0.0476	-0.179				



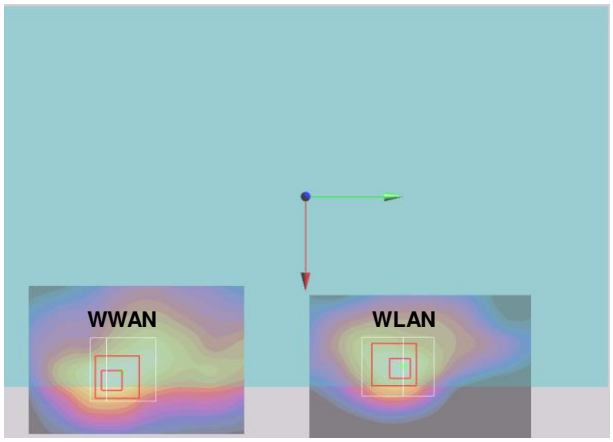
Case 12	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	LTE Band 5	Bottom Face	1.016	0	0.0945	-0.064	-0.181	111.9	1.79	0.02	Not required
	2.4GHz WLAN		0.774	0	0.086	0.0476	-0.179				



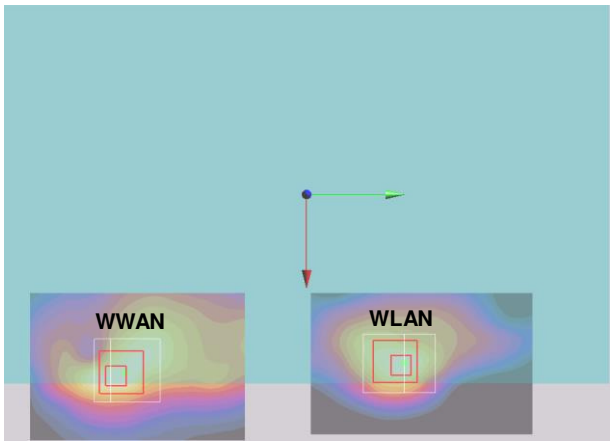
Case	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
13	LTE Band 4	Bottom Face	1.201	0	0.0895	-0.0875	-0.181	135.2	1.98	0.02	Not required
	2.4GHz WLAN		0.774	0	0.086	0.0476	-0.179				



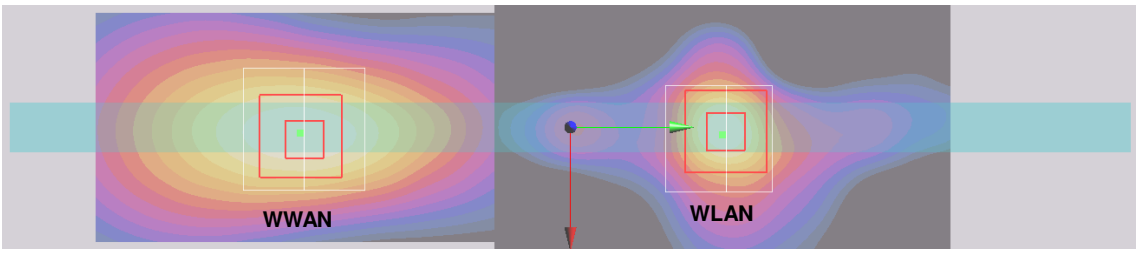
Case	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
14	LTE Band 2	Bottom Face	1.291	0	0.0955	-0.097	-0.18	144.9	2.07	0.02	Not required
	2.4GHz WLAN		0.774	0	0.086	0.0476	-0.179				



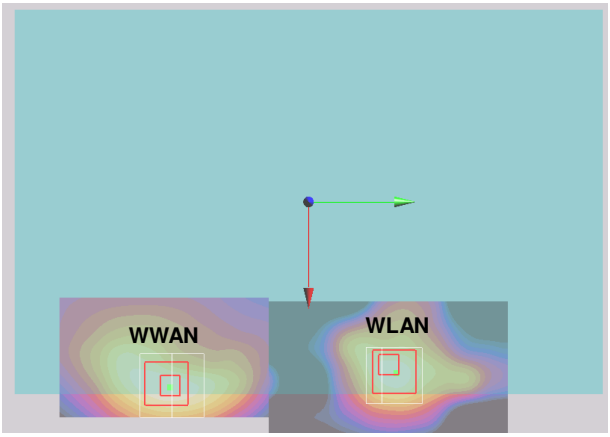
Case 15	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	LTE Band 25	Bottom Face	1.101	0	0.0895	-0.0955	-0.181	143.2	1.88	0.02	Not required
	2.4GHz WLAN		0.774	0	0.086	0.0476	-0.179				



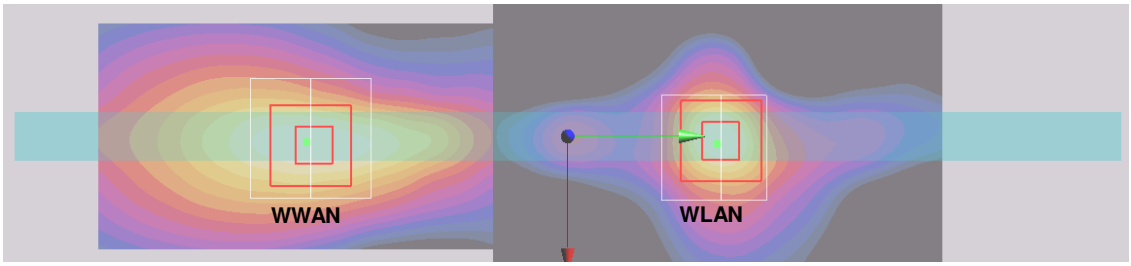
Case 16	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	GSM850	Edge 1	0.952	1.3	0.0005	-0.07	-0.183	111.1	1.73	0.02	Not required
	5GHz WLAN		0.78	0	0.001	0.041	-0.178				



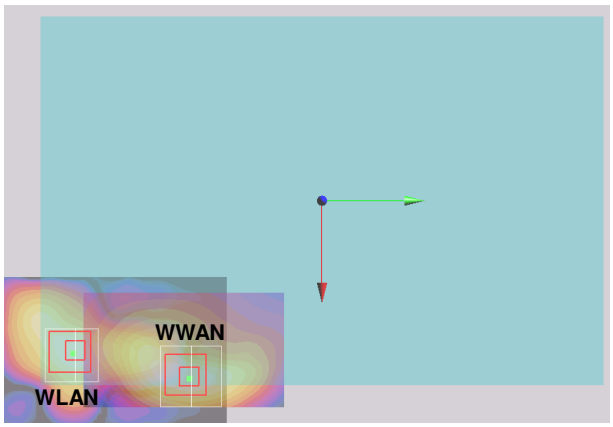
Case	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
17	GSM850	Bottom Face	1.445	0	0.092	-0.0685	-0.181	106.1	1.78	0.02	Not required
	5GHz WLAN		0.332	0	0.081	0.037	-0.179				



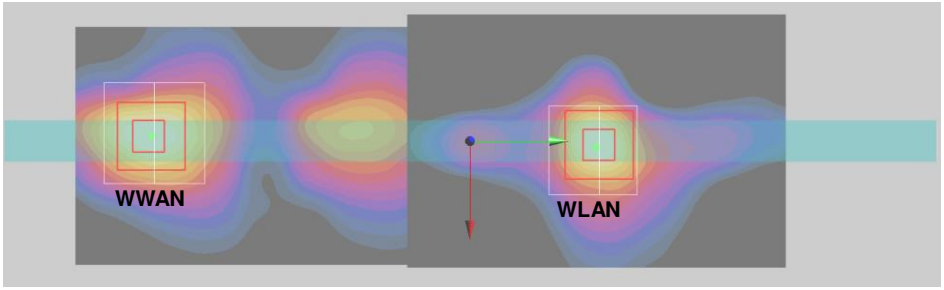
Case	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
18	GSM850	Edge 1	1.269	0	0.0005	-0.0685	-0.18	109.5	2.05	0.03	Not required
	5GHz WLAN		0.78	0	0.001	0.041	-0.178				



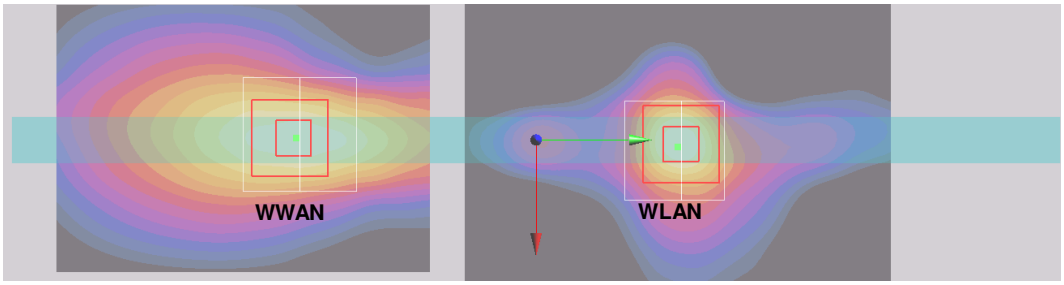
Case 19	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	GSM850	Bottom Face	1.445	0	0.092	-0.0685	-0.181	62.0	1.75	0.04	Not required
	5GHz WLAN		0.303	0	0.079	-0.129	-0.178				



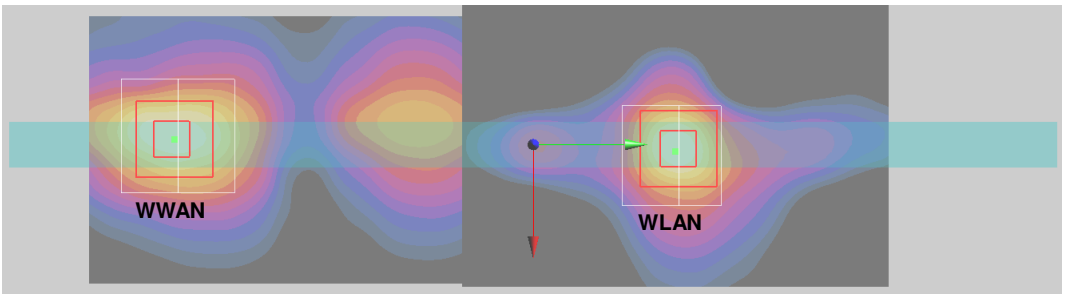
Case 20	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	GSM1900	Edge 1	1.452	0	-0.0025	-0.1	-0.182	141.1	2.23	0.02	Not required
	5GHz WLAN		0.78	0	0.001	0.041	-0.178				



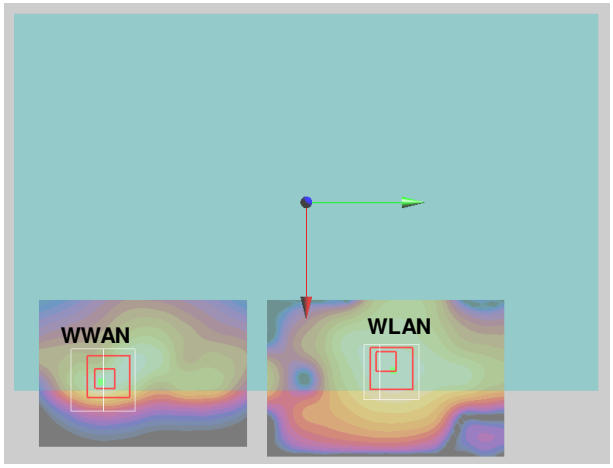
Case 21	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	WCDMA V	Edge 1	1.032	0	-0.0015	-0.0665	-0.181	107.6	1.81	0.02	Not required
	5GHz WLAN		0.78	0	0.001	0.041	-0.178				



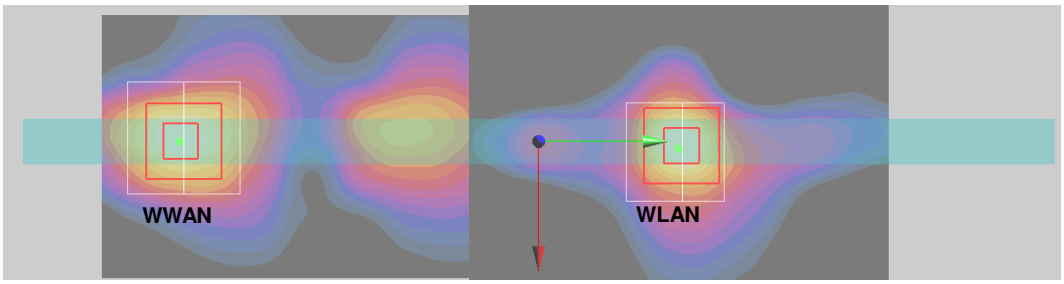
Case 22	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	WCDMA IV	Edge 1	1.289	0	-0.0025	-0.1	-0.182	141.1	2.07	0.02	Not required
	5GHz WLAN		0.78	0	0.001	0.041	-0.178				



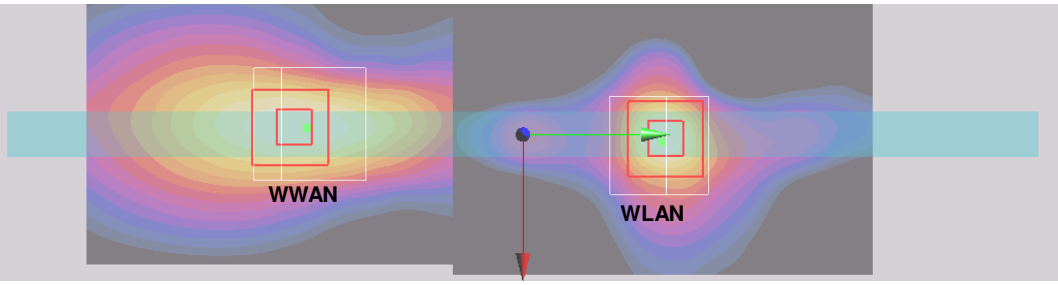
Case	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
23	WCDMA II	Bottom Face	1.267	0	0.091	-0.103	-0.18	140.4	1.60	0.01	Not required
	5GHz WLAN		0.332	0	0.081	0.037	-0.179				



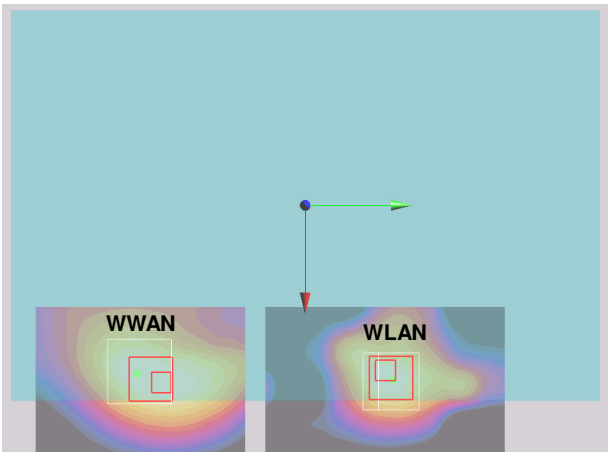
Case	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
24	WCDMA II	Edge 1	1.363	0	-0.001	-0.102	-0.182	143.1	2.14	0.02	Not required
	5GHz WLAN		0.78	0	0.001	0.041	-0.178				



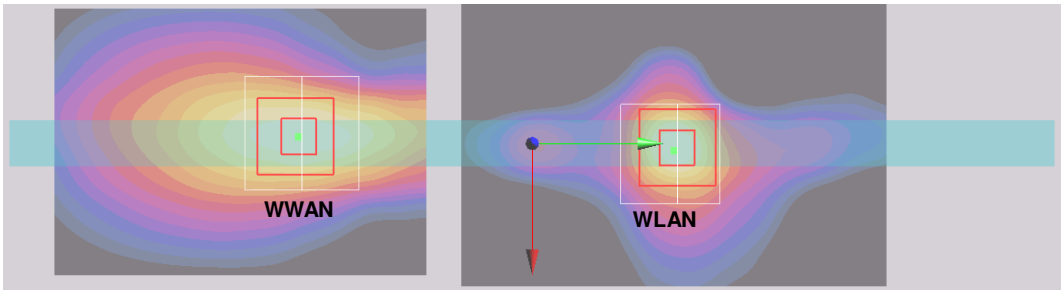
Case	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
24	CDMA BC10	Edge 1	1.106	0	-0.003	-0.069	-0.182	110.1	1.89	0.02	Not required
	5GHz WLAN		0.78	0	0.001	0.041	-0.178				



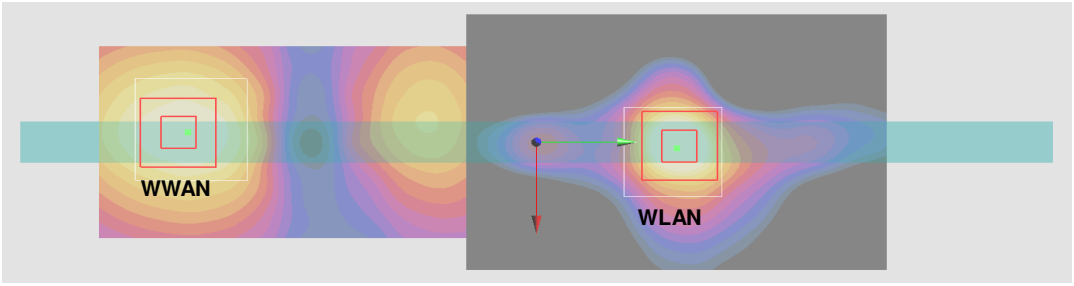
Case	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
26	CDMA BC0	Bottom Face	1.28	0	0.09	-0.067	-0.181	104.4	1.61	0.02	Not required
	5GHz WLAN		0.332	0	0.081	0.037	-0.179				



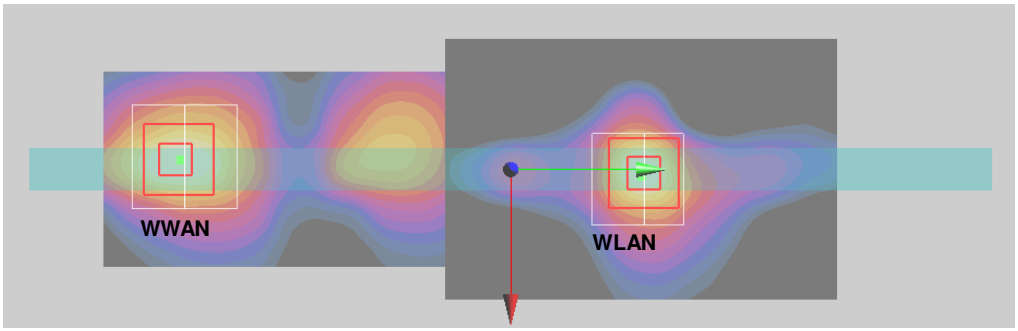
Case	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
27	CDMA BC0	Edge 1	1.137	0	-0.003	-0.065	-0.182	106.2	1.92	0.03	Not required
	5GHz WLAN		0.78	0	0.001	0.041	-0.178				



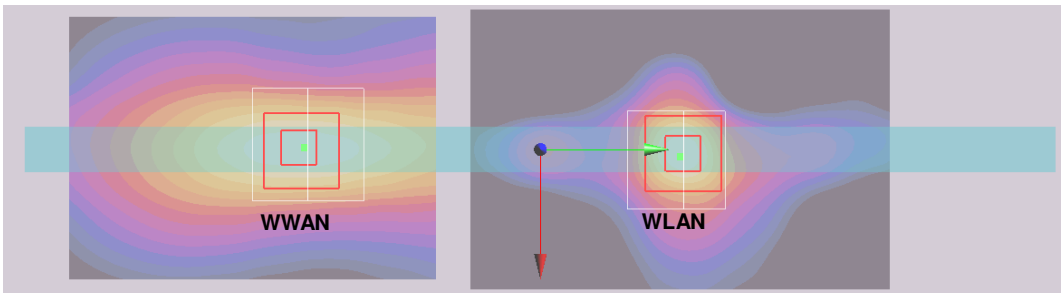
Case	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
28	CDMA2000 BC1	Edge 1	0.844	1.3	-0.0024	-0.1017	-0.1822	143.6	1.62	0.01	Not required
	5GHz WLAN		0.78	0	0.0018	0.0418	-0.1798				



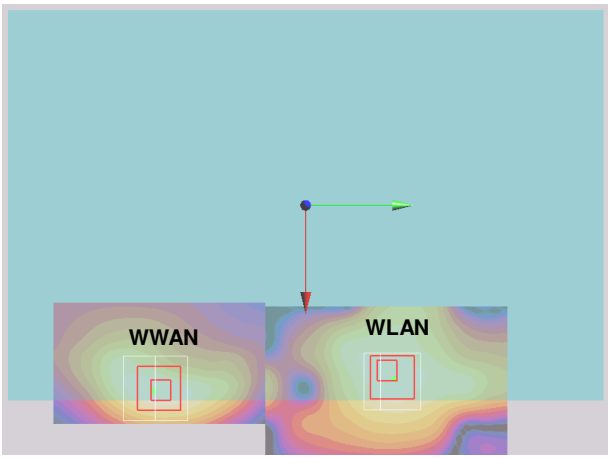
Case	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
29	CDMA BC1	Edge 1	1.143	0	-0.004	-0.1	-0.181	141.1	1.92	0.02	Not required
	5GHz WLAN		0.78	0	0.001	0.041	-0.178				



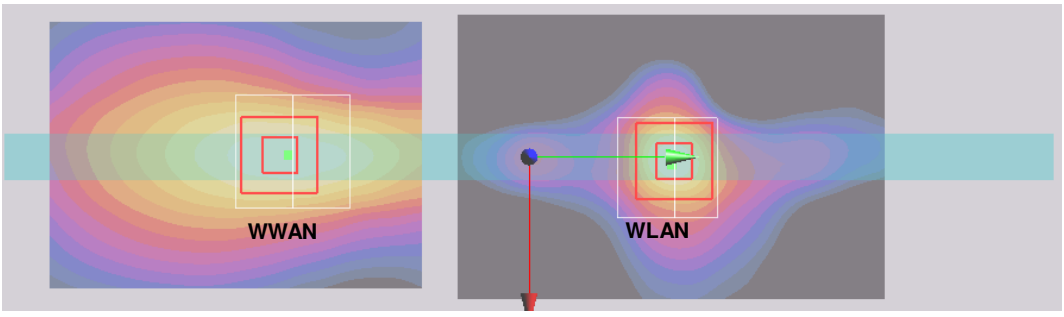
Case	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
30	LTE Band17	Edge 1	0.974	0	-0.0015	-0.0665	-0.181	107.6	1.75	0.02	Not required
	5GHz WLAN		0.78	0	0.001	0.041	-0.178				



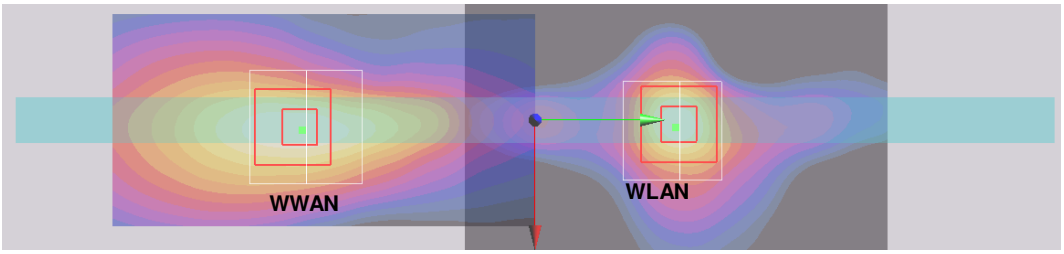
Case	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
31	LTE Band 13	Bottom Face	1.275	0	0.0905	-0.0745	-0.181	111.9	1.61	0.02	Not required
	5GHz WLAN		0.332	0	0.081	0.037	-0.179				



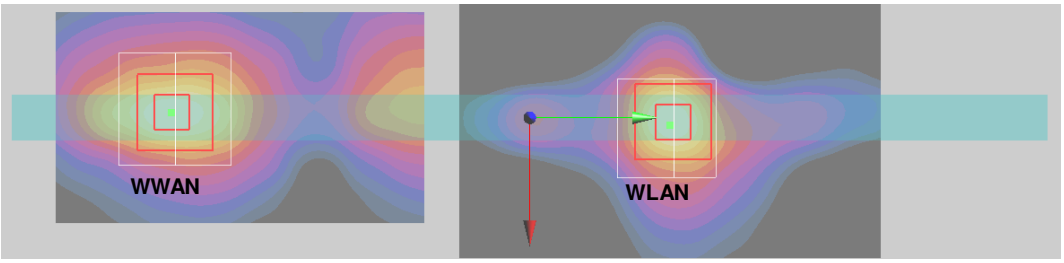
Case	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
32	LTE Band 13	Edge 1	1.087	0	-0.0015	-0.0665	-0.182	107.6	1.87	0.02	Not required
	5GHz WLAN		0.78	0	0.001	0.041	-0.178				



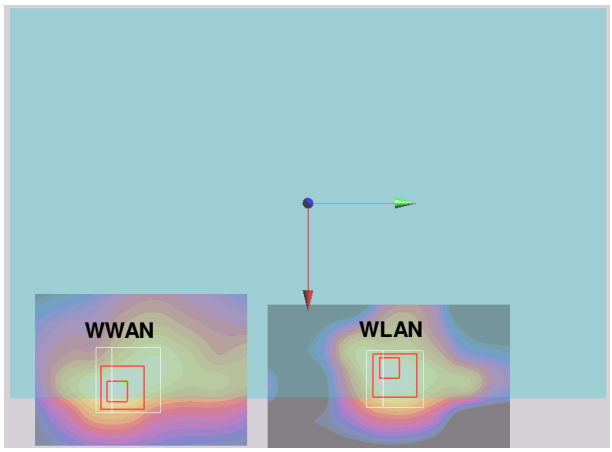
Case	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
33	LTE Band 5	Edge 1	0.901	0	0.002	-0.065	-0.18	106.0	1.68	0.02	Not required
	5GHz WLAN		0.78	0	0.001	0.041	-0.178				



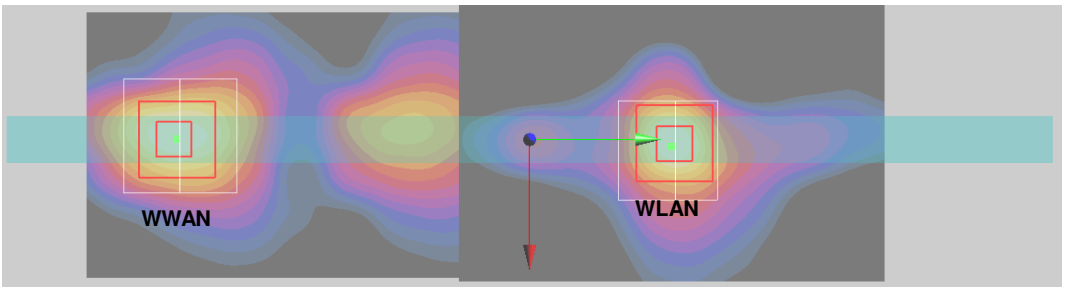
Case	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
34	LTE Band 4	Edge 1	0.888	0	-0.0025	-0.101	-0.182	142.1	1.67	0.02	Not required
	5GHz WLAN		0.78	0	0.001	0.041	-0.178				



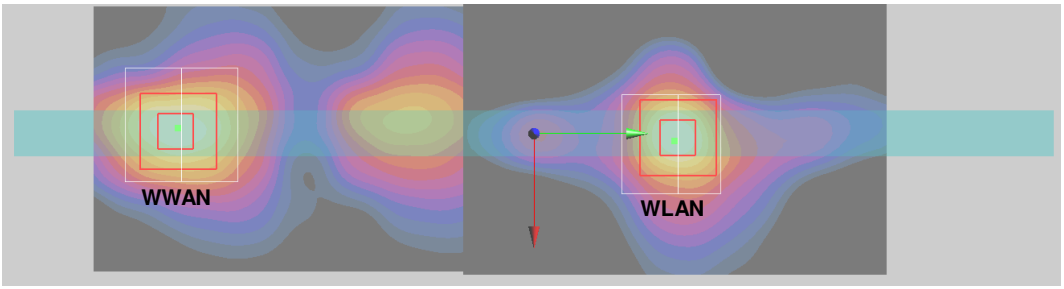
Case 35	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	LTE Band 2	Bottom Face	1.291	0	0.0955	-0.097	-0.18	134.8	1.62	0.02	Not required
	5GHz WLAN		0.332	0	0.081	0.037	-0.179				



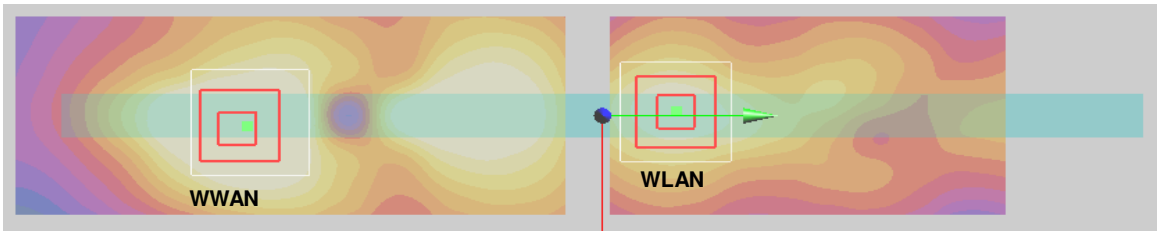
Case 36	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	LTE Band 2	Edge 1	1.295	0	-0.001	-0.0985	-0.182	139.6	2.08	0.02	Not required
	5GHz WLAN		0.78	0	0.001	0.041	-0.178				



Case	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
37	LTE Band25	Edge 1	1.299	0	-0.0025	-0.1	-0.182	141.1	2.08	0.02	Not required
	5GHz WLAN		0.78	0	0.001	0.041	-0.178				



Case	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
38	GSM1900	Edge 1	1.452	0	0.0036	-0.1008	-0.1778	121.0	1.65	0.02	Not required
	2.4GHz WLAN		0.202	0	-0.0012	0.02	-0.1822				



Test Engineer : Galen Zhang, Ken Li, Poa Pan, Nick Yu, Angelo Chang, Frank Wu, and Jerry Hu

16. Uncertainty Assessment

The component of uncertainly may generally be categorized according to the methods used to evaluate them. The evaluation of uncertainly by the statistical analysis of a series of observations is termed a Type An evaluation of uncertainty. The evaluation of uncertainty by means other than the statistical analysis of a series of observation is termed a Type B evaluation of uncertainty. Each component of uncertainty, however evaluated, is represented by an estimated standard deviation, termed standard uncertainty, which is determined by the positive square root of the estimated variance.

A Type A evaluation of standard uncertainty may be based on any valid statistical method for treating data. This includes calculating the standard deviation of the mean of a series of independent observations; using the method of least squares to fit a curve to the data in order to estimate the parameter of the curve and their standard deviations; or carrying out an analysis of variance in order to identify and quantify random effects in certain kinds of measurement.

A type B evaluation of standard uncertainty is typically based on scientific judgment using all of the relevant information available. These may include previous measurement data, experience, and knowledge of the behavior and properties of relevant materials and instruments, manufacture's specification, data provided in calibration reports and uncertainties assigned to reference data taken from handbooks. Broadly speaking, the uncertainty is either obtained from an outdoor source or obtained from an assumed distribution, such as the normal distribution, rectangular or triangular distributions indicated in table below.

Uncertainty Distributions	Normal	Rectangular	Triangular	U-Shape
Multi-plying Factor[a]	1/k[b]	$1/\sqrt{3}$	$1/\sqrt{6}$	$1/\sqrt{2}$

(a) standard uncertainty is determined as the product of the multiplying factor and the estimated range of variations in the measured quantity

(b) κ is the coverage factor

Table 16.1. Standard Uncertainty for Assumed Distribution

The combined standard uncertainty of the measurement result represents the estimated standard deviation of the result. It is obtained by combining the individual standard uncertainties of both Type A and Type B evaluation using the usual "root-sum-squares" (RSS) methods of combining standard deviations by taking the positive square root of the estimated variances.

Expanded uncertainty is a measure of uncertainty that defines an interval about the measurement result within which the measured value is confidently believed to lie. It is obtained by multiplying the combined standard uncertainty by a coverage factor. Typically, the coverage factor ranges from 2 to 3. Using a coverage factor allows the true value of a measured quantity to be specified with a defined probability within the specified uncertainty range. For purpose of this document, a coverage factor two is used, which corresponds to confidence interval of about 95 %. The DASY uncertainty Budget is shown in the following tables.

Error Description	Uncertainty Value (±%)	Probability	Divisor	(Ci) 1g	(Ci) 10g	Standard Uncertainty (1g) (±%)	Standard Uncertainty (10g) (±%)
Measurement System							
Probe Calibration	6.0	N	1	1	1	6.0	6.0
Axial Isotropy	4.7	R	1.732	0.7	0.7	1.9	1.9
Hemispherical Isotropy	9.6	R	1.732	0.7	0.7	3.9	3.9
Boundary Effects	1.0	R	1.732	1	1	0.6	0.6
Linearity	4.7	R	1.732	1	1	2.7	2.7
System Detection Limits	1.0	R	1.732	1	1	0.6	0.6
Modulation Response	3.2	R	1.732	1	1	1.8	1.8
Readout Electronics	0.3	N	1	1	1	0.3	0.3
Response Time	0.0	R	1.732	1	1	0.0	0.0
Integration Time	2.6	R	1.732	1	1	1.5	1.5
RF Ambient Noise	3.0	R	1.732	1	1	1.7	1.7
RF Ambient Reflections	3.0	R	1.732	1	1	1.7	1.7
Probe Positioner	0.4	R	1.732	1	1	0.2	0.2
Probe Positioning	2.9	R	1.732	1	1	1.7	1.7
Max. SAR Eval.	2.0	R	1.732	1	1	1.2	1.2
Test Sample Related							
Device Positioning	3.0	N	1	1	1	3.0	3.0
Device Holder	3.6	N	1	1	1	3.6	3.6
Power Drift	5.0	R	1.732	1	1	2.9	2.9
Power Scaling	0.0	R	1.732	1	1	0.0	0.0
Phantom and Setup							
Phantom Uncertainty	6.1	R	1.732	1	1	3.5	3.5
SAR correction	0.0	R	1.732	1	0.84	0.0	0.0
Liquid Conductivity Repeatability	0.2	N	1	0.78	0.71	0.1	0.1
Liquid Conductivity (target)	5.0	R	1.732	0.78	0.71	2.3	2.0
Liquid Conductivity (mea.)	2.5	R	1.732	0.78	0.71	1.1	1.0
Temp. unc. - Conductivity	3.4	R	1.732	0.78	0.71	1.5	1.4
Liquid Permittivity Repeatability	0.15	N	1	0.23	0.26	0.0	0.0
Liquid Permittivity (target)	5.0	R	1.732	0.23	0.26	0.7	0.8
Liquid Permittivity (mea.)	2.5	R	1.732	0.23	0.26	0.3	0.4
Temp. unc. - Permittivity	0.83	R	1.732	0.23	0.26	0.1	0.1
Combined Std. Uncertainty						11.4%	11.4%
Coverage Factor for 95 %						K=2	K=2
Expanded STD Uncertainty						22.9%	22.7%

Table 17.1. Uncertainty Budget for frequency range 300 MHz to 3 GHz

Error Description	Uncertainty Value (±%)	Probability	Divisor	(Ci) 1g	(Ci) 10g	Standard Uncertainty (1g) (±%)	Standard Uncertainty (10g) (±%)
Measurement System							
Probe Calibration	6.55	N	1	1	1	6.6	6.6
Axial Isotropy	4.7	R	1.732	0.7	0.7	1.9	1.9
Hemispherical Isotropy	9.6	R	1.732	0.7	0.7	3.9	3.9
Boundary Effects	2.0	R	1.732	1	1	1.2	1.2
Linearity	4.7	R	1.732	1	1	2.7	2.7
System Detection Limits	1.0	R	1.732	1	1	0.6	0.6
Modulation Response	3.2	R	1.732	1	1	1.8	1.8
Readout Electronics	0.3	N	1	1	1	0.3	0.3
Response Time	0.0	R	1.732	1	1	0.0	0.0
Integration Time	2.6	R	1.732	1	1	1.5	1.5
RF Ambient Noise	3.0	R	1.732	1	1	1.7	1.7
RF Ambient Reflections	3.0	R	1.732	1	1	1.7	1.7
Probe Positioner	0.4	R	1.732	1	1	0.2	0.2
Probe Positioning	6.7	R	1.732	1	1	3.9	3.9
Max. SAR Eval.	4.0	R	1.732	1	1	2.3	2.3
Test Sample Related							
Device Positioning	3.0	N	1	1	1	3.0	3.0
Device Holder	3.6	N	1	1	1	3.6	3.6
Power Drift	5.0	R	1.732	1	1	2.9	2.9
Power Scaling	0.0	R	1.732	1	1	0.0	0.0
Phantom and Setup							
Phantom Uncertainty	6.6	R	1.732	1	1	3.8	3.8
SAR correction	0.0	R	1.732	1	0.84	0.0	0.0
Liquid Conductivity Repeatability	0.2	N	1	0.78	0.71	0.1	0.1
Liquid Conductivity (target)	5.0	R	1.732	0.78	0.71	2.3	2.0
Liquid Conductivity (mea.)	2.5	R	1.732	0.78	0.71	1.1	1.0
Temp. unc. - Conductivity	3.4	R	1.732	0.78	0.71	1.5	1.4
Liquid Permittivity Repeatability	0.15	N	1	0.23	0.26	0.0	0.0
Liquid Permittivity (target)	5.0	R	1.732	0.23	0.26	0.7	0.8
Liquid Permittivity (mea.)	2.5	R	1.732	0.23	0.26	0.3	0.4
Temp. unc. - Permittivity	0.83	R	1.732	0.23	0.26	0.1	0.1
Combined Std. Uncertainty						12.5%	12.5%
Coverage Factor for 95 %						K=2	K=2
Expanded STD Uncertainty						25.0%	24.9%

Table 17.2. Uncertainty Budget for frequency range 3 GHz to 6 GHz

17. References

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

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

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

[4] SPEAG DASY System Handbook

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

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

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

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

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

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

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