FCC SAR Test Report

APPLICANT	**:**	**Nyle Oswind Parry Limited Liability Company**
EQUIPMENT	**:**	**Tablet PC**
MODEL NAME	**:**	**GQY56XZ**
FCC ID	**:**	**2ABO6-0725**
STANDARD	**:**	**FCC 47 CFR Part 2 (2.1093)** **ANSI/IEEE C95.1-1992** **IEEE 1528-2003**

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

SPORTON INTERNATIONAL INC.
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Revision History

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA432436-09	Rev. 01	Initial issue of report	Aug. 08, 2014
FA432436-09	Rev. 02	In section5, added the verification of the proximity sensor power reduction.	Aug. 22, 2014

1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for **Nyle Oswind Parry Limited Liability Company, Tablet PC, GQY56XZ**, are as follows.

Equipment Class	Frequency Band	Highest SAR Summary	
		Body 1g SAR (W/kg)	Simultaneous Transmission 1g SAR (W/kg)
PCB	GSM850	1.19	1.43
	GSM1900	1.19	
	WCDMA Band V	1.07	
	WCDMA Band II	1.19	
	LTE Band 17	1.14	
	LTE Band 4	1.18	
DTS	WLAN 2.4GHz Band	1.10	1.43
NII	WLAN 5.2GHz Band	1.16	1.26
	WLAN 5.3GHz Band	1.25	
	WLAN 5.5GHz Band	1.15	
	WLAN 5.8GHz Band	**1.26**	
Date of Testing:		05/07/2014 ~ 07/14/2014	

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 1528-2003.

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 Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL: +886-3-327-3456 FAX: +886-3-328-4978

Applicant	
Company Name	Nyle Oswind Parry Limited Liability Company
Address	7027 Old Madison Pike, Suite 108, Huntsville, Alabama 35806

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 1528-2003
- FCC KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz v01r03
- FCC KDB 865664 D02 SAR Reporting v01r01
- FCC KDB 447498 D01 General RF Exposure Guidance v05r02
- FCC KDB 248227 D01 SAR meas for 802 11abg v01r02
- FCC KDB 644545 D01 Guidance for IEEE 802 11ac v01r02
- FCC KDB 616217 D04 SAR for laptop and tablets v01r01
- FCC KDB 941225 D01 SAR test for 3G devices v02
- FCC KDB 941225 D02 HSPA and 1x Advanced v02r02
- FCC KDB 941225 D03 SAR Test Reduction GSM GPRS EDGE v01
- FCC KDB 941225 D05 SAR for LTE Devices v02r03

4. Equipment Under Test (EUT)

4.1 General Information

Product Feature & Specification	
Equipment Name	Tablet PC
Model Name	GQY56XZ
FCC ID	2ABO6-0725
S/N	B08404044244005U
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 II: 1852.4 MHz ~ 1907.6 MHz LTE Band 17: 706.5 MHz ~ 713.5 MHz LTE Band 4: 1710.7 MHz ~ 1754.3 MHz WLAN 2.4GHz Band: 2412 MHz ~ 2462 MHz WLAN 5.2GHz Band: 5180 MHz ~ 5240 MHz WLAN 5.3GHz Band: 5260 MHz ~ 5320 MHz WLAN 5.5GHz Band: 5500 MHz ~ 5700 MHz WLAN 5.8GHz Band: 5745 MHz ~ 5825 MHz Bluetooth: 2402 MHz ~ 2480 MHz
Mode	・GPRS/EGPRS ・RMC 12.2Kbps ・HSDPA ・HSUPA ・LTE: QPSK, 16QAM ・802.11a/b/g/n/ac HT20/HT40/VHT20/VHT40/VHT80 ・Bluetooth v3.0+EDR，Bluetooth v4.0-LE
Remark: 1. 5GHz WLAN operation in 5600 MHz ~ 5650 MHz is notched.	

4.2 Maximum Tune-up Limit

Band	Burst average power (dBm)			
	GSM 850		GSM 1900	
Output Power Status	Full Power Mode	Reduced Power Mode	Full Power Mode	Reduced Power Mode
GPRS/EDGE (GMSK, 1 Tx slot)	33.5	26.0	30.5	28.0
GPRS/EDGE (GMSK, 2 Tx slots)	32.0	23.5	29.5	25.5
EDGE (8PSK, 1 Tx slot)	27.5	26.0	26.5	26.5
EDGE (8PSK, 2 Tx slots)	27.5	23.0	26.5	25.0

Band	average power (dBm)			
	WCDMA V		WCDMA II	
Output Power Status	Full Power Mode	Reduced Power Mode	Full Power Mode	Reduced Power Mode
RMC 12.2Kbps	23.5	17.5	23.5	19.5
HSDPA Subset 1	22.5	16.5	22.5	18.5
HSUPA Subset 5	22.5	16.5	22.5	18.5

LTE Band 17						
average power(dBm)						
Modulation	BW (MHz)	RB size	Full power mode MPR	Full power mode	Reduced power mode MPR	Reduced power mode
QPSK	10	≤ 12	0	23.5	0	18.0
QPSK	10	> 12	1	22.5	0	18.0
16QAM	10	≤ 12	1	22.5	0	18.0
16QAM	10	> 12	2	21.5	0	18.0
QPSK	5	≤ 8	0	23.5	0	18.0
QPSK	5	> 8	1	22.5	0	18.0
16QAM	5	≤ 8	1	22.5	0	18.0
16QAM	5	> 8	2	21.5	0	18.0

LTE Band 4						
average power(dBm)						
Modulation	BW (MHz)	RB size	Full power mode MPR	Full power mode	Reduced power mode MPR	Reduced power mode
QPSK	20	≤ 18	0	24.5	0	17.0
QPSK	20	> 18	1	23.5	0	17.0
16QAM	20	≤ 18	1	23.5	0	17.0
16QAM	20	> 18	2	22.5	0	17.0
QPSK	15	≤ 16	0	24.5	0	17.0
QPSK	15	> 16	1	23.5	0	17.0
16QAM	15	≤ 16	1	23.5	0	17.0
16QAM	15	> 16	2	22.5	0	17.0
QPSK	10	≤ 12	0	24.5	0	17.0
QPSK	10	> 12	1	23.5	0	17.0
16QAM	10	≤ 12	1	23.5	0	17.0
16QAM	10	> 12	2	22.5	0	17.0
QPSK	5	≤ 8	0	24.5	0	17.0
QPSK	5	> 8	1	23.5	0	17.0
16QAM	5	≤ 8	1	23.5	0	17.0
16QAM	5	> 8	2	22.5	0	17.0
QPSK	3	≤ 4	0	24.5	0	17.0
QPSK	3	> 4	1	23.5	0	17.0
16QAM	3	≤ 4	1	23.5	0	17.0
16QAM	3	> 4	2	22.5	0	17.0
QPSK	1.4	≤ 5	0	24.5	0	17.0
QPSK	1.4	> 5	1	23.5	0	17.0
16QAM	1.4	≤ 5	1	23.5	0	17.0
16QAM	1.4	> 5	2	22.5	0	17.0

Band / Mode	Average power(dBm)			
	v3.0+EDR			v4.0-LE
	1Mbps	2Mbps	3Mbps	
2.4 GHz Bluetooth	9.5	6	6	6

Band / Mode	IEEE 802.11 average power(dBm)		
	Antenna 1	Antenna 2	Antenna 1+2
2.4GHz Band	15.5	15.5	18.5
5.2GHz Band	12.5	12.5	15.5
5.3GHz Band	13.0	11.5	15.3
5.5GHz Band	13.0	11.5	15.3
5.8GHz Band	13.0	13.0	16.0

4.3 General LTE SAR Test and Reporting Considerations

Summarized necessary items addressed in KDB 941225 D05 v02r03	
FCC ID	2ABO6-0725
Equipment Name	Tablet PC
Operating Frequency Range of each LTE transmission band	LTE Band 17: 706.5 MHz ~ 713.5 MHz LTE Band 04: 1710.7 MHz ~ 1754.3 MHz
Channel Bandwidth	LTE Band 17: 5MHz, 10MHz LTE Band 04:1.4MHz, 3MHz, 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

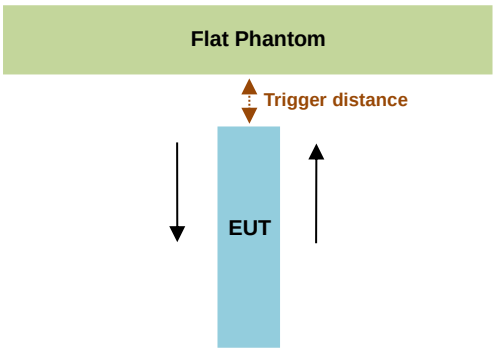
LTE Band 4

	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	19957	1710.7	19965	1711.5	19975	1712.5	20000	1715	20025	1717.5	20050	1720
M	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5
H	20393	1754.3	20385	1753.5	20375	1752.5	20350	1750	20325	1747.5	20300	1745

5. Proximity Sensor Triggering Test

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

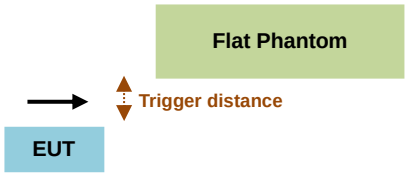
Proximity sensor triggering distance testing was performed according to the procedures outlined in KDB 616217 D04 section 6.2, and EUT moving further away from the flat phantom and EUT moving toward the flat phantom were both assessed. The details are illustrated in the exhibit “P-Sensor operational description”, and the shortest triggering distances were reported and used for SAR assessment.
In the preliminary triggering distance testing, the tissue-equivalent medium for different frequency bands were used for verification; no other frequency bands tissue-equivalent medium was found to result in shortest triggering distance than that for 1900MHz, and the tissue-equivalent medium for 1900MHz was used for formal proximity sensor triggering testing.



Proximity Sensor Trigger Distance (mm)		
Position	Bottom Slant of Edge2	Edge 2
Minimum	13	14

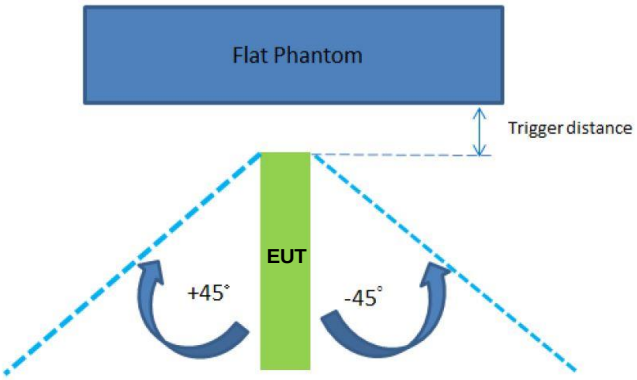
<Proximity Sensor Triggering Coverage (KDB 616217 D04 section 6.3)>:

If a sensor is spatially offset from the antenna(s), it is necessary to verify sensor triggering for conditions where the antenna is next to the user but the sensor is laterally further away to ensure sensor coverage is sufficient for reducing the power to maintain compliance. For p-sensor coverage testing, the device is moved and “along the direction of maximum antenna and sensor offset”.



<Tablet Tilt angle influences to proximity sensor triggering (KDB 616217 D04 section 6.4)>:

The influence of table tilt angles to proximity sensor triggering was determined by positioning each tablet edge that contains a transmitting antenna, perpendicular to the flat phantom, at 14 mm separation.
Rotating the tablet around the edge next to the phantom in ≤ 10° increments until the tablet is ± 45° from the vertical position at 0, and the maximum output power remains in the reduced mode.



The Sensor Trigger Distance (mm)	
Position	Edge 2
Minimum	14

Proximity sensor power reduction

Exposure Position / wireless mode	Bottom Slant of Edge	Bottom Face	Edge 2	Edge 1	Edge 3	Edge 4
GSM850 (GMSK 1 Tx slot)	7.5dB	7.5dB	7.5dB	0 dB	0 dB	0 dB
GSM850 (GMSK 2 Tx slot)	8.5dB	8.5dB	8.5dB			
GSM850 (8PSK 1 Tx slot)	1.5dB	1.5dB	1.5dB			
GSM850 (8PSK 2 Tx slot)	4.5dB	4.5dB	4.5dB			
GSM1900 (GMSK 1 Tx slot)	2.5dB	2.5dB	2.5dB			
GSM1900 (GMSK 2 Tx slot)	4.0dB	4.0dB	4.0dB			
GSM1900 (8PSK 1 Tx slot)	0.0dB	0.0dB	0.0dB			
GSM1900 (8PSK 2 Tx slot)	1.5dB	1.5dB	1.5dB			
WCDMA Band II	4.0dB	4.0dB	4.0dB			
WCDMA Band V	6.0dB	6.0dB	6.0dB			
LTE Band 4	7.5dB	7.5dB	7.5dB			
LTE Band 17	5.5dB	5.5dB	5.5dB			

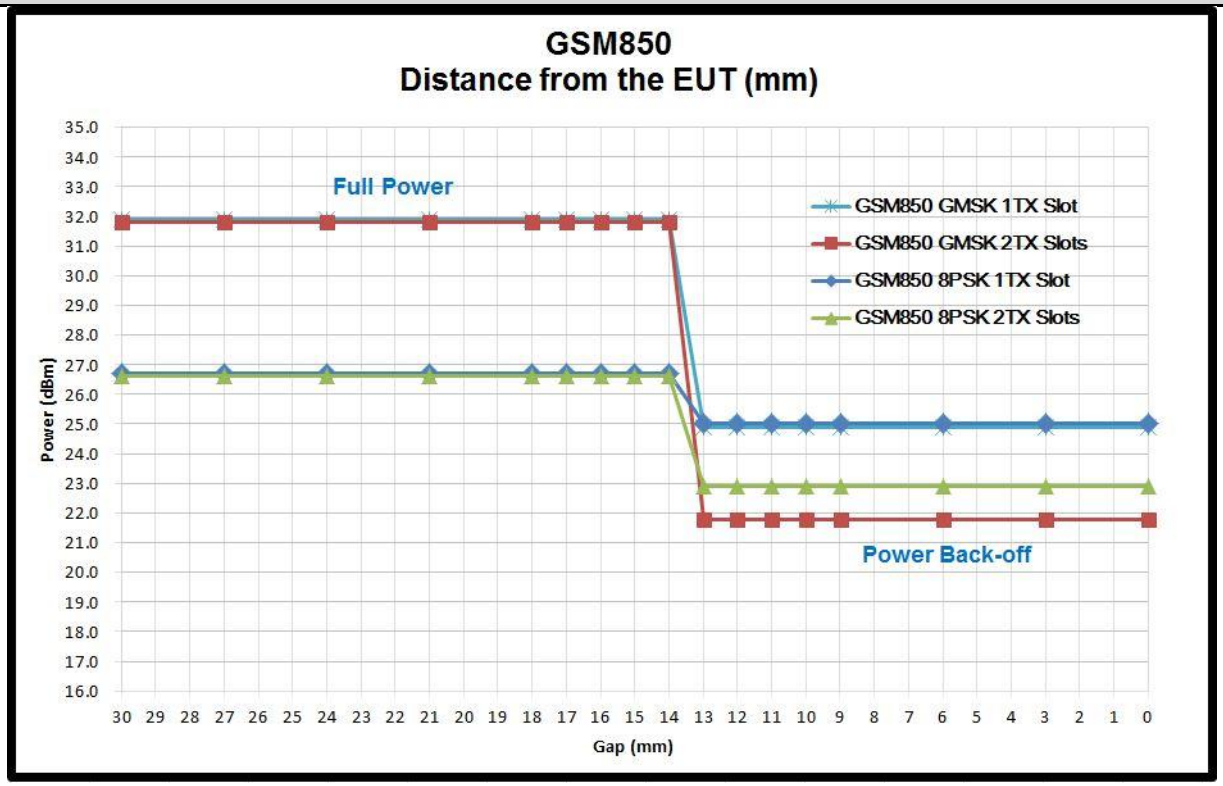
Remark:

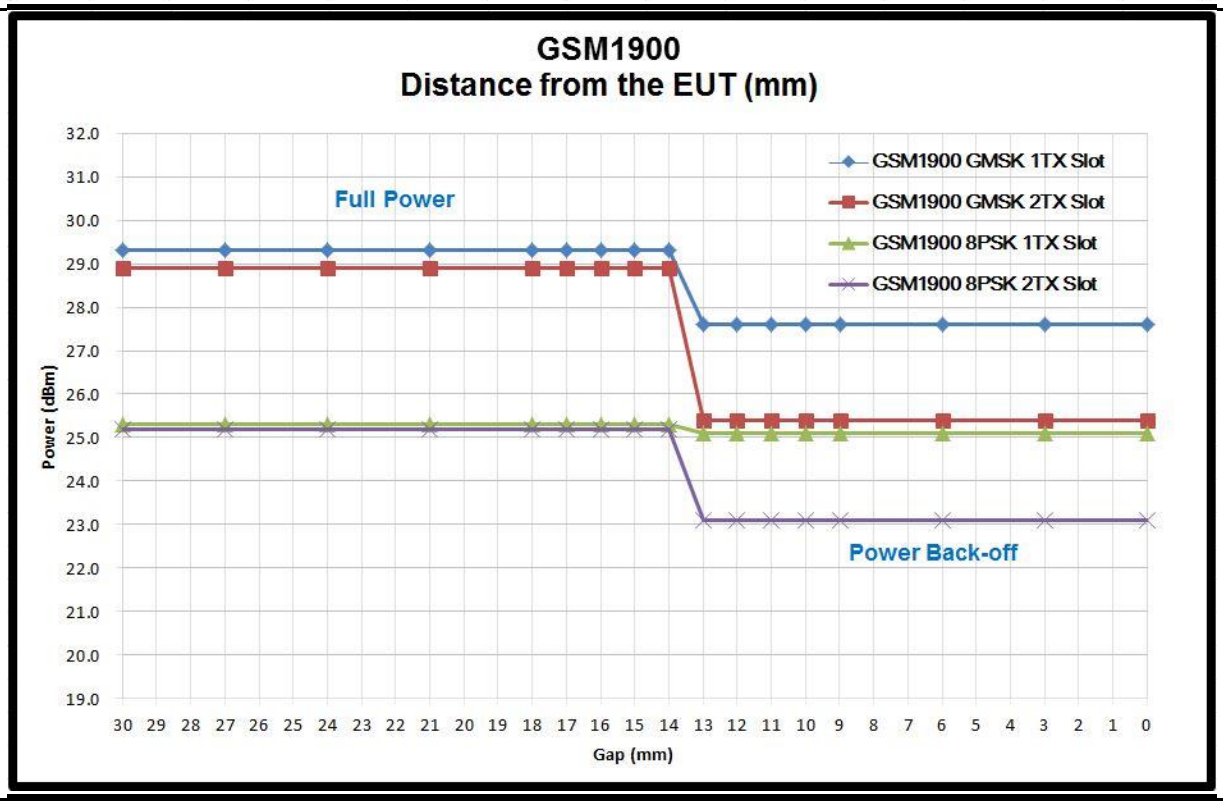
1. Tests were performed in accordance with KDB 616217 D04 section 6.1, 6.2, 6.3, 6.4 and 6.5 and compliant results are shown and described in exhibit “Operational Description of Power Reduction”
2. Power reduction is not applicable for WLAN and Bluetooth.
3. For verification of compliance of power reduction scheme, additional SAR testing with EUT transmitting at full RF power at a conservative trigger distance was performed:
   - Bottom slant of Edge2: 13 mm
   - Edge2: 14 mm

Power Measurement during Sensor Trigger distance testing

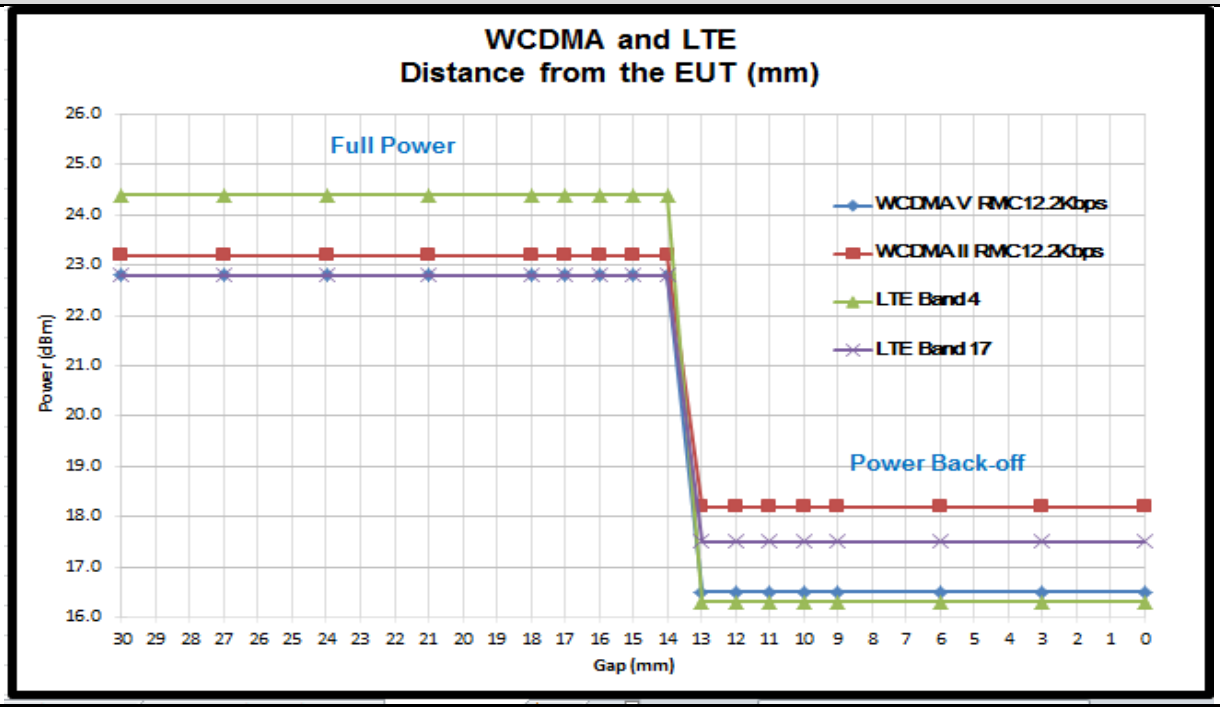
Band/Mode	CH	Measured power reduction (dBm)		Reduction Levels
		w/o power back-off	w/ power back-off	(dB)
GSM850 GPRS (GMSK 1 Tx slots)	251	31.9	24.9	7.0
GSM850 GPRS (GMSK 2 Tx slots)	251	31.8	21.8	10.0
GSM850 GPRS (8PSK 1 Tx slots)	251	26.7	25.0	1.7
GSM850 GPRS (8PSK 2 Tx slots)	251	26.6	22.9	3.7
GSM1900 GPRS (GMSK 1 Tx slots)	810	29.3	27.6	1.7
GSM1900 GPRS (GMSK 2 Tx slots)	810	28.9	25.4	3.5
GSM1900 GPRS (8PSK 1 Tx slots)	810	25.3	25.1	0.2
GSM1900 GPRS (8PSK 2 Tx slots)	810	25.2	23.1	2.1
WCDMA Band II (RMC 12.2Kbps)	9262	22.8	16.5	4.9
WCDMA Band V (RMC 12.2Kbps)	4132	23.2	18.2	6.3
LTE Band 4	20050	24.4	16.3	8.1
LTE Band 17	23780	22.8	17.5	5.3

Proximity Sensor for Bottom Slant of Edge 2

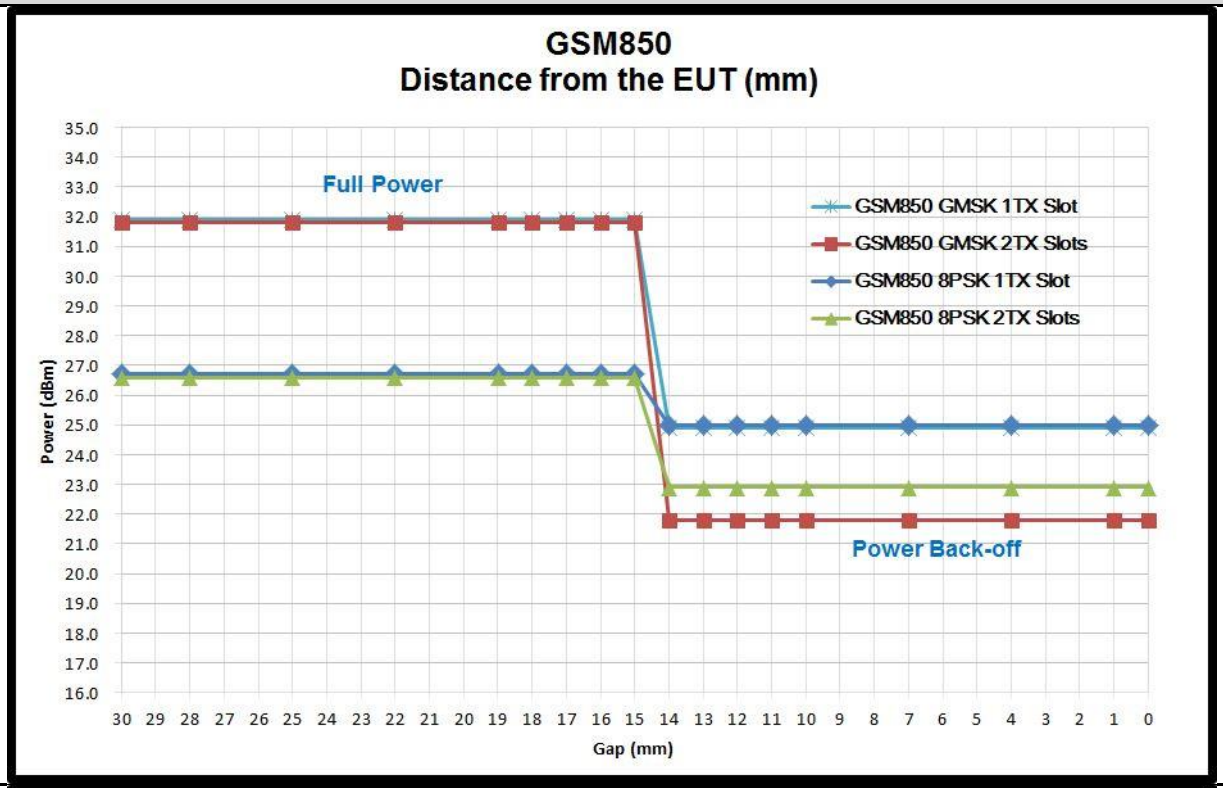


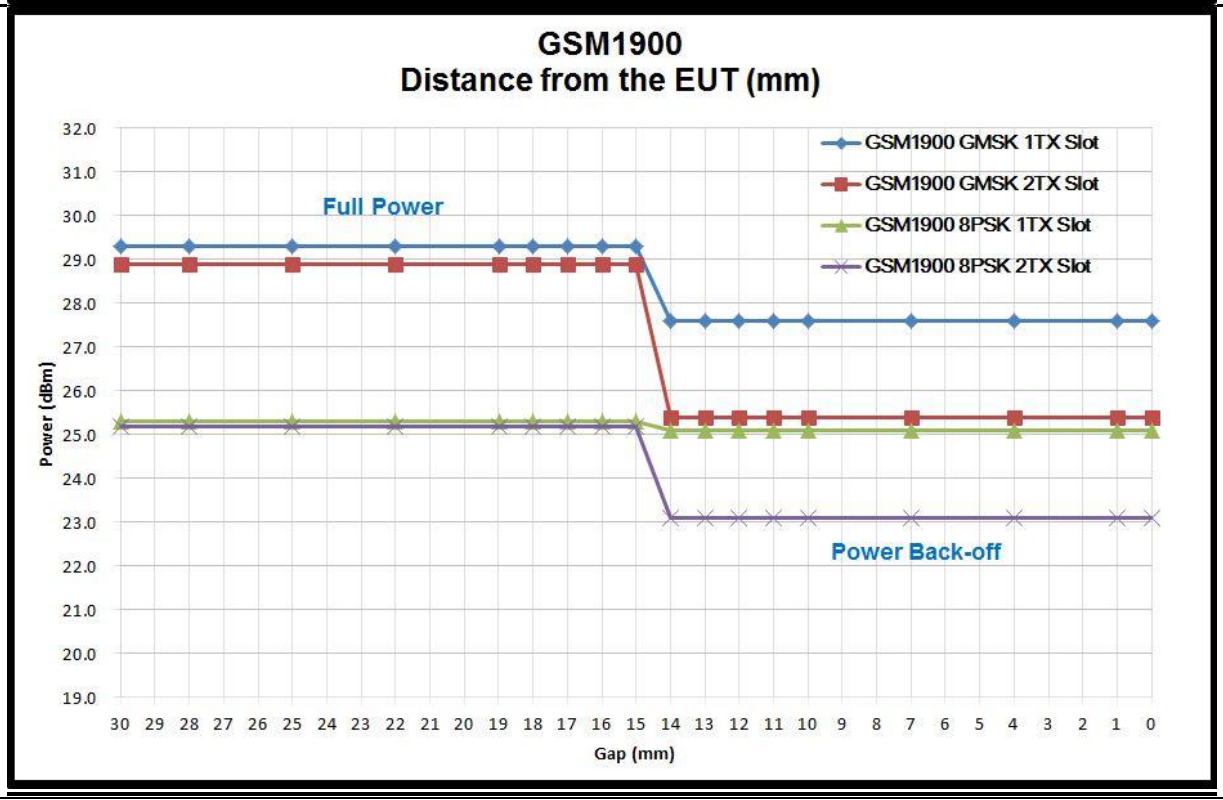


Proximity Sensor for Bottom Slant of Edge 2

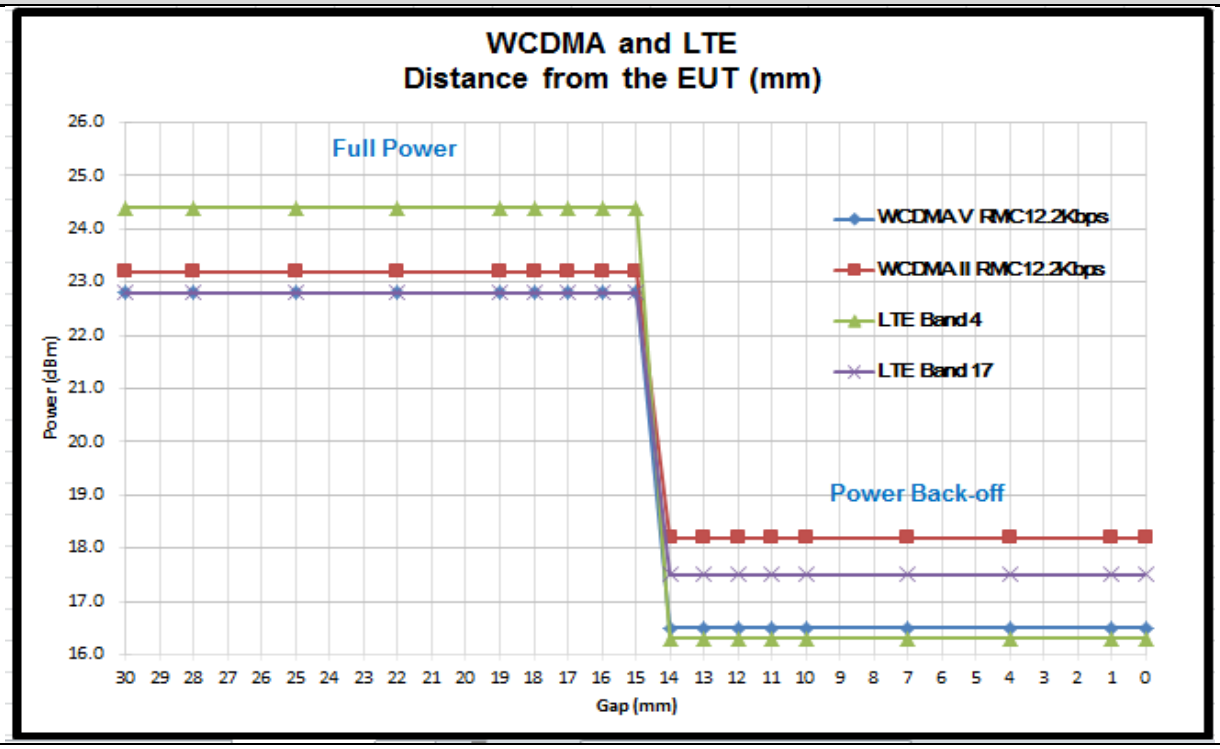


Proximity Sensor for Edge 2





Proximity Sensor for Edge 2



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:

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

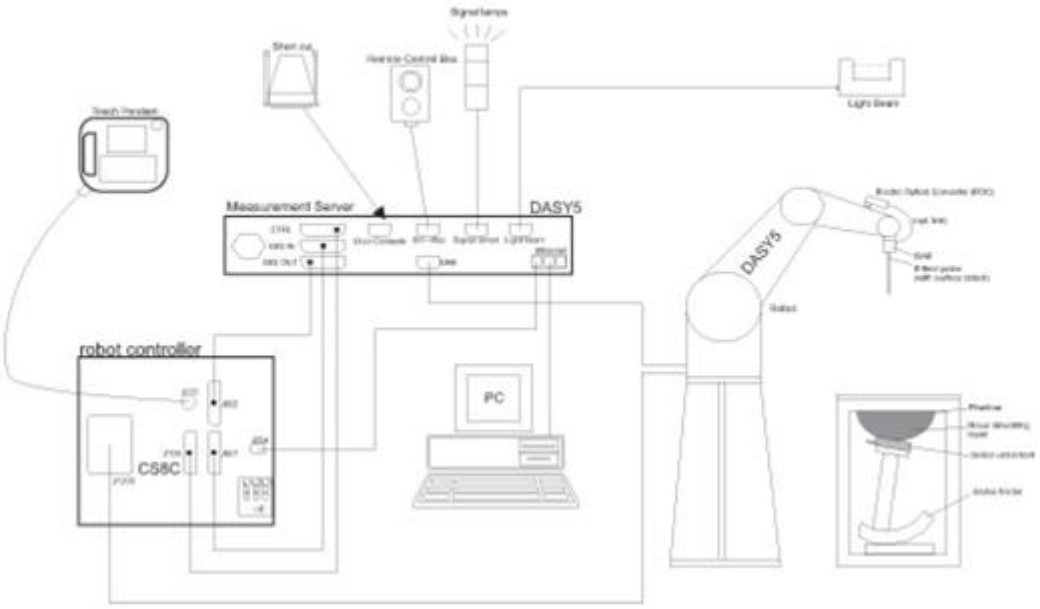
SAR is expressed in units of Watts per kilogram (W/kg)

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

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

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 D01v01r03 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 D01v01r03 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	1004	Jan. 28, 2014	Jan. 27, 2015
SPEAG	835MHz System Validation Kit	D835V2	499	Mar. 24, 2014	Mar. 23, 2015
SPEAG	1750MHz System Validation Kit	D1750V2	1068	Nov. 27, 2013	Nov. 26, 2014
SPEAG	1900MHz System Validation Kit	D1900V2	5d041	Mar. 21, 2014	Mar. 20, 2015
SPEAG	2450MHz System Validation Kit	D2450V2	924	Nov. 13, 2013	Nov. 12, 2014
SPEAG	5GHz System Validation Kit	D5GHzV2	1128	Jul. 24, 2013	Jul. 23, 2014
SPEAG	Data Acquisition Electronics	DAE4	778	Aug. 21, 2013	Aug. 20, 2014
SPEAG	Data Acquisition Electronics	DAE4	1338	Nov. 05, 2013	Nov. 04, 2014
SPEAG	Data Acquisition Electronics	DAE4	1279	Jan. 30, 2014	Jan. 29, 2015
SPEAG	Data Acquisition Electronics	DAE3	495	May. 19, 2014	May. 18, 2015
SPEAG	Data Acquisition Electronics	DAE4	1399	Nov. 07, 2013	Nov. 06, 2014
SPEAG	Dosimetric E-Field Probe	ES3DV3	3270	Sep. 24, 2013	Sep. 23, 2014
SPEAG	Dosimetric E-Field Probe	EX3DV4	3935	Nov. 04, 2013	Nov. 03, 2014
SPEAG	Dosimetric E-Field Probe	EX3DV4	3954	Nov. 04, 2013	Nov. 03, 2014
SPEAG	Dosimetric E-Field Probe	EX3DV4	3925	May. 22, 2014	May. 21, 2015
SPEAG	Dosimetric E-Field Probe	EX3DV4	3955	Nov. 12, 2013	Nov. 11, 2014
Wisewind	Thermometer	ETP-101	TM560	Oct. 22, 2013	Oct. 21, 2014
Wisewind	Thermometer	ETP-101	TM685	Oct. 22, 2013	Oct. 21, 2014
Wisewind	Thermometer	HTC-1	TM642	Oct. 22, 2013	Oct. 21, 2014
Wisewind	Thermometer	HTC-1	TM281	Oct. 22, 2013	Oct. 21, 2014
H.M.IRIS	Thermometer	TH-08	TM658	Oct. 22, 2013	Oct. 21, 2014
Anritsu	Radio Communication Analyzer	MT8820C	6201074414	Feb. 11, 2014	Feb. 10, 2015
Agilent	Wireless Communication Test Set	E5515C	MY48360820	Jan. 10, 2014	Jan. 09, 2015
R&S	Radio communication Tester	CMW500	113998	Oct. 04, 2013	Oct. 03, 2014
SPEAG	Device Holder	N/A	N/A	NCR	NCR
Agilent	Signal Generator	E4438C	MY49070755	Oct. 08, 2013	Oct. 07, 2014
SPEAG	Dielectric Probe Kit	DAKS-3.5	0004	Mar. 04, 2014	Mar. 03, 2015
Agilent	ENA Network Analyzer	E5071C	MY46316648	Feb. 07, 2014	Feb. 06, 2015
Anritsu	Power Meter	ML2495A	1349001	Dec. 04, 2013	Dec. 03, 2014
Anritsu	Power Sensor	MA2411B	1306099	Dec. 03, 2013	Dec. 02, 2014
R&S	Spectrum Analyzer	FSP30	101067	Nov. 20, 2013	Nov. 19, 2014
Agilent	Dual Directional Coupler	778D	50422	Note 1	
Woken	Attenuator	WK0602-XX	N/A	Note 1	
PE	Attenuator	PE7005-10	N/A	Note 1	
PE	Attenuator	PE7005- 3	N/A	Note 1	
AR	Power Amplifier	5S1G4M2	0328767	Note 1	
Mini-Circuits	Power Amplifier	ZVE-3W	162601250	Note 1	
Mini-Circuits	Power Amplifier	ZHL-42W+	13440021344	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	Body	22.5	0.967	53.993	0.96	55.50	0.73	-2.72	±5	2014/7/5
835	Body	22.5	0.946	56.664	0.97	55.20	-2.47	2.65	±5	2014/7/2
835	Body	22.6	0.996	54.843	0.97	55.20	2.68	-0.65	±5	2014/7/4
1750	Body	22.3	1.546	51.742	1.49	53.40	3.76	-3.10	±5	2014/7/2
1750	Body	22.3	1.527	51.913	1.49	53.40	2.48	-2.78	±5	2014/7/3
1750	Body	22.3	1.525	52.092	1.49	53.40	2.35	-2.45	±5	2014/7/14
1900	Body	22.5	1.526	52.813	1.52	53.30	0.39	-0.91	±5	2014/7/2
2450	Body	22.5	2.020	53.886	1.95	52.70	3.59	2.25	±5	2014/5/8
5200	Body	22.3	5.279	48.534	5.30	49.00	-0.40	-0.95	±5	2014/5/7
5200	Body	22.5	5.388	48.732	5.30	49.00	1.66	-0.55	±5	2014/5/10
5200	Body	22.7	5.312	47.806	5.30	49.00	0.23	-2.44	±5	2014/5/11
5300	Body	22.3	5.418	48.319	5.42	48.88	-0.04	-1.15	±5	2014/5/7
5300	Body	22.5	5.522	48.584	5.42	48.88	1.88	-0.61	±5	2014/5/10
5300	Body	22.7	5.457	47.597	5.42	48.88	0.68	-2.62	±5	2014/5/11
5300	Body	22.6	5.418	48.319	5.42	48.88	-0.04	-1.15	±5	2014/5/30
5300	Body	22.6	5.515	48.269	5.42	48.88	1.75	-1.25	±5	2014/6/6
5600	Body	22.3	5.849	47.666	5.77	48.47	1.37	-1.66	±5	2014/5/7
5600	Body	22.7	5.888	46.875	5.77	48.47	2.05	-3.29	±5	2014/5/11
5600	Body	22.6	5.800	46.780	5.77	48.47	0.52	-3.49	±5	2014/5/30
5600	Body	22.6	5.945	47.571	5.77	48.47	3.03	-1.85	±5	2014/6/6
5800	Body	22.3	6.113	47.156	6.00	48.20	1.88	-2.17	±5	2014/5/7
5800	Body	22.5	6.162	47.730	6.00	48.20	2.70	-0.98	±5	2014/5/10
5800	Body	22.7	6.168	46.453	6.00	48.20	2.80	-3.62	±5	2014/5/11

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 SAR (W/kg)	Targeted SAR (W/kg)	Normalized SAR (W/kg)	Deviation (%)
2014/7/5	750	Body	250	D750V3-1004	3955	1399	2.29	8.65	9.16	5.90
2014/7/2	835	Body	250	D835V2-499	3955	1399	2.37	9.46	9.48	0.21
2014/7/4	835	Body	250	D835V2-499	3955	1399	2.39	9.46	9.56	1.06
2014/7/2	1750	Body	250	D1750V2-1068	3270	778	9.05	37.50	36.20	-3.47
2014/7/3	1750	Body	250	D1750V2-1068	3270	778	9.00	37.50	36.00	-4.00
2014/7/14	1750	Body	250	D1750V2-1068	3925	495	8.95	37.50	35.80	-4.53
2014/7/2	1900	Body	250	D1900V2-5d041	3270	778	10.10	41.00	40.40	-1.46
2014/5/8	2450	Body	250	D2450V2-924	3954	1279	12.50	50.20	50.00	-0.40
2014/5/7	5200	Body	100	D5GHzV2-1128	3954	1279	7.37	73.40	73.70	0.41
2014/5/10	5200	Body	100	D5GHzV2-1128	3954	1279	7.62	73.40	76.20	3.81
2014/5/11	5200	Body	100	D5GHzV2-1128	3954	1279	7.51	73.40	75.10	2.32
2014/5/7	5300	Body	100	D5GHzV2-1128	3954	1279	7.36	74.30	73.60	-0.94
2014/5/10	5300	Body	100	D5GHzV2-1128	3954	1279	7.51	74.30	75.10	1.08
2014/5/11	5300	Body	100	D5GHzV2-1128	3954	1279	7.95	74.30	79.50	7.00
2014/5/30	5300	Body	100	D5GHzV2-1128	3954	1279	7.36	74.30	73.60	-0.94
2014/6/6	5300	Body	100	D5GHzV2-1128	3935	1338	8.02	74.30	80.20	7.94
2014/5/7	5600	Body	100	D5GHzV2-1128	3954	1279	7.82	77.80	78.20	0.51
2014/5/11	5600	Body	100	D5GHzV2-1128	3954	1279	7.43	77.80	74.30	-4.50
2014/5/30	5600	Body	100	D5GHzV2-1128	3954	1279	7.38	77.80	73.80	-5.14
2014/6/6	5600	Body	100	D5GHzV2-1128	3935	1338	7.21	77.80	72.10	-7.33
2014/5/7	5800	Body	100	D5GHzV2-1128	3954	1279	7.36	72.20	73.60	1.94
2014/5/10	5800	Body	100	D5GHzV2-1128	3954	1279	7.41	72.20	74.10	2.63
2014/5/11	5800	Body	100	D5GHzV2-1128	3954	1279	7.42	72.20	74.20	2.77

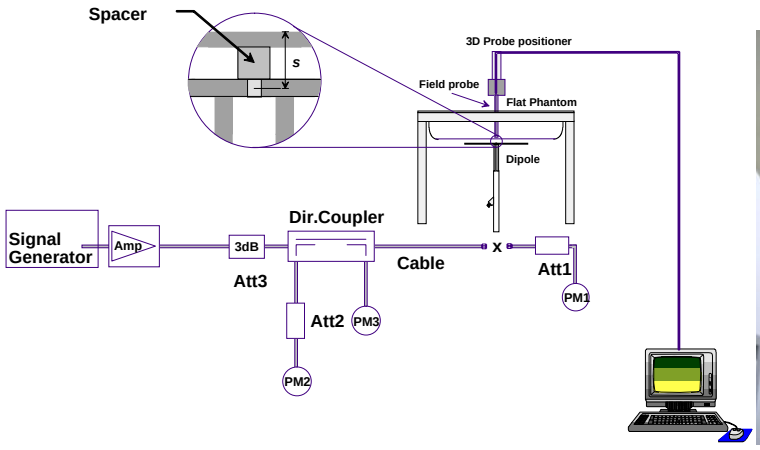


Fig 8.3.1 System Performance Check Setup

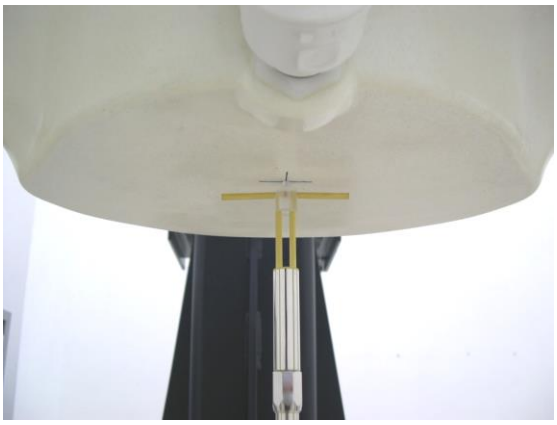


Fig 8.3.2 Setup Photo

12. RF Exposure Positions

12.1 SAR Testing for Tablet

This device can be used also in full sized tablet exposure conditions, due to its size. Per FCC KDB 616217, the back surface and edges of the tablet should be tested for SAR compliance with the tablet touching the phantom. The SAR exclusion threshold in KDB 447498 D01v05r02 can be applied to determine SAR test exclusion for adjacent edge configurations. The closest distance from the antenna to an adjacent tablet edge is used to determine if SAR testing is required for the adjacent edges, with the adjacent edge positioned against the phantom and the edge containing the antenna positioned perpendicular to the phantom.

13. Conducted RF Output Power (Unit: dBm)

<GSM Conducted Power>

General Note:

1. Per KDB 447498 D01v05r02, the maximum output power channel is used for SAR testing and for further SAR test reduction.
2. For Body SAR testing was following KDB 941225 D03v01, 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)	31.8	31.8	31.9	33.5	22.8	22.8	22.9	24.5
GPRS (GMSK, 2 Tx slots)	31.6	31.7	31.8	32.0	25.6	25.7	25.8	26.0
EDGE (8PSK, 1 Tx slot)	26.6	26.6	26.7	27.5	17.6	17.6	17.7	18.5
EDGE (8PSK, 2 Tx slots)	26.5	26.6	26.6	27.5	20.5	20.6	20.6	21.5

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)	29.2	29.2	29.3	30.5	20.2	20.2	20.3	21.5
GPRS (GMSK, 2 Tx slots)	28.7	28.6	28.9	29.5	22.7	22.6	22.9	23.5
EDGE (8PSK, 1 Tx slot)	25.4	25.2	25.3	26.5	16.4	16.2	16.3	17.5
EDGE (8PSK, 2 Tx slots)	25.3	25.1	25.2	26.5	19.3	19.1	19.2	20.5

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)	25.4	25.2	24.9	26.0	16.4	16.2	15.9	17.0
GPRS (GMSK, 2 Tx slots)	21.9	21.8	21.8	23.5	15.9	15.8	15.8	17.5
EDGE (8PSK, 1 Tx slot)	25.0	25.1	25.0	26.0	16.0	16.1	16.0	17.0
EDGE (8PSK, 2 Tx slots)	23.0	22.9	22.9	23.0	17.0	16.9	16.9	17.0

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)	27.5	27.4	27.6	28.0	18.5	18.4	18.6	19.0
GPRS (GMSK, 2 Tx slots)	25.3	25.3	25.4	25.5	19.3	19.3	19.4	19.5
EDGE (8PSK, 1 Tx slot)	25.2	25.1	25.1	26.5	16.2	16.1	16.1	17.5
EDGE (8PSK, 2 Tx slots)	23.2	23.2	23.1	25.0	17.2	17.2	17.1	19.0

<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.

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	β_{ed}1: 47/15 β_{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

<WCDMA Conducted Power>

General Note:

1. Per KDB 941225 D02v02r02, RMC 12.2kbps setting is used to evaluate SAR. If HSDPA/HSUPA output power is < 0.25dB higher than RMC, or reported SAR with RMC 12.2kbps setting is ≤ 1.2W/kg, HSDPA/HSUPA SAR evaluation can be excluded..

Full Power Mode (Proximity Sensor Inactive)

Band		WCDMA V			WCDMA II		
TX Channel		4132	4182	4233	9262	9400	9538
Frequency (MHz)		826.4	836.4	846.6	1852.4	1880	1907.6
MPR(dB)	RMC 12.2Kbps	22.8	22.7	22.7	23.2	23.0	22.8
0	HSDPA Subtest-1	21.2	21.3	21.3	21.7	21.6	21.3
0	HSDPA Subtest-2	21.3	21.2	21.2	21.6	21.5	21.4
0.5	HSDPA Subtest-3	21.2	21.3	21.3	21.7	21.6	21.4
0.5	HSDPA Subtest-4	21.3	21.3	21.3	21.6	21.5	21.3
0	HSUPA Subtest-1	21.4	21.3	21.2	22.3	22.2	22.1
2	HSUPA Subtest-2	20.4	20.3	20.2	20.8	20.7	20.8
1	HSUPA Subtest-3	21.4	21.3	21.2	21.4	21.3	21.2
2	HSUPA Subtest-4	20.4	20.4	20.3	20.7	20.7	20.7
0	HSUPA Subtest-5	21.8	21.9	21.8	22.3	22.3	22.2

Reduced Power Mode (Proximity Sensor active)

Band		WCDMA V			WCDMA II		
TX Channel		4132	4182	4233	9262	9400	9538
Frequency (MHz)		826.4	836.4	846.6	1852.4	1880	1907.6
MPR(dB)	RMC 12.2Kbps	16.5	16.6	16.4	18.2	18.1	17.8
0	HSDPA Subtest-1	16.1	16.3	16.1	17.4	17.3	17.4
0	HSDPA Subtest-2	16.2	16.4	16.1	17.4	17.3	17.4
0.5	HSDPA Subtest-3	15.2	15.7	15.2	17.0	16.8	16.9
0.5	HSDPA Subtest-4	15.1	15.8	15.1	16.9	16.7	17.0
0	HSUPA Subtest-1	15.8	15.9	15.7	17.3	17.2	17.3
2	HSUPA Subtest-2	14.4	14.5	14.3	15.9	15.8	15.8
1	HSUPA Subtest-3	15.0	15.1	15.0	16.4	16.3	16.2
2	HSUPA Subtest-4	14.4	14.4	14.3	15.9	15.7	15.7
0	HSUPA Subtest-5	16.1	16.1	16.0	17.5	17.4	17.4

<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 D05v02r03, 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 D05v02r03, 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 D05v02r03, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
5. Per KDB 941225 D05v02r03, 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 D05v02r03, 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 D05v02r03, 16QAM SAR testing is not required.
7. Per KDB 941225 D05v02r03, 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 D05v02r03, smaller bandwidth SAR testing is not required.

Maximum Average RF Power (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	**22.8**	22.5	22.5	23.5	0
10	QPSK	1	24	22.3	22.2	22.4		
10	QPSK	1	49	22.5	22.4	22.4		
10	QPSK	25	0	21.5	21.2	21.2	22.5	1
10	QPSK	25	12	21.4	21.2	21.2		
10	QPSK	25	24	21.3	21.3	21.3		
10	QPSK	50	0	21.2	21.0	21.1		
10	16QAM	1	0	21.6	21.1	21.4	22.5	1
10	16QAM	1	24	21.3	21.3	21.4		
10	16QAM	1	49	21.7	21.3	21.7		
10	16QAM	25	0	20.2	20.2	20.1	21.5	2
10	16QAM	25	12	20.2	20.3	20.2		
10	16QAM	25	24	20.3	20.3	20.4		
10	16QAM	50	0	20.1	20.1	20.1		
Channel				23755	23790	23825	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				706.5	710	713.5		
5	QPSK	1	0	22.7	22.2	22.4	23.5	0
5	QPSK	1	12	22.4	22.3	22.6		
5	QPSK	1	24	22.3	22.5	22.5		
5	QPSK	12	0	21.5	21.2	21.5	22.5	1
5	QPSK	12	6	21.3	21.2	21.7		
5	QPSK	12	11	21.2	21.4	21.6		
5	QPSK	25	0	21.2	21.1	21.4		
5	16QAM	1	0	21.7	21.2	21.4	22.5	1
5	16QAM	1	12	21.4	21.3	21.7		
5	16QAM	1	24	21.3	21.5	21.6		
5	16QAM	12	0	20.5	20.2	20.6	21.5	2
5	16QAM	12	6	20.4	20.3	20.5		
5	16QAM	12	11	20.3	20.4	20.6		
5	16QAM	25	0	20.2	20.1	20.4		

<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	**24.4**	24.3	24.1	24.5	0
20	QPSK	1	49	24.2	24.0	23.9		
20	QPSK	1	99	24.1	23.7	23.7		
20	QPSK	50	0	23.1	22.9	22.7	23.5	1
20	QPSK	50	24	23.0	22.7	22.6		
20	QPSK	50	49	23.0	22.6	22.6		
20	QPSK	100	0	23.0	22.8	22.6		
20	16QAM	1	0	23.3	23.3	23.2	23.5	1
20	16QAM	1	49	23.3	23.1	23.0		
20	16QAM	1	99	23.2	22.8	22.8		
20	16QAM	50	0	21.9	21.8	21.6	22.5	2
20	16QAM	50	24	21.9	21.7	21.6		
20	16QAM	50	49	21.9	21.6	21.5		
20	16QAM	100	0	22.0	21.7	21.6		
Channel				20025	20175	20325	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1732.5	1747.5		
15	QPSK	1	0	24.3	24.3	24.0	24.5	0
15	QPSK	1	37	24.2	24.1	23.9		
15	QPSK	1	74	24.2	23.8	23.8		
15	QPSK	36	0	23.0	22.9	22.7	23.5	1
15	QPSK	36	18	23.1	22.8	22.7		
15	QPSK	36	37	23.0	22.7	22.6		
15	QPSK	75	0	23.0	22.8	22.6		
15	16QAM	1	0	23.4	23.3	23.1	23.5	1
15	16QAM	1	37	23.3	23.1	22.9		
15	16QAM	1	74	23.3	22.9	22.8		
15	16QAM	36	0	22.0	22.0	21.7	22.5	2
15	16QAM	36	18	22.0	21.8	21.7		
15	16QAM	36	37	22.0	21.8	21.6		
15	16QAM	75	0	21.9	21.7	21.6		
Channel				20000	20175	20350	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1732.5	1750		
10	QPSK	1	0	24.3	24.2	23.9	24.5	0
10	QPSK	1	24	24.2	24.0	23.9		
10	QPSK	1	49	24.2	24.0	23.7		
10	QPSK	25	0	23.0	23.0	22.7	23.5	1
10	QPSK	25	12	23.0	22.8	22.7		
10	QPSK	25	24	23.1	22.8	22.6		
10	QPSK	50	0	23.0	22.7	22.6		
10	16QAM	1	0	23.3	23.2	22.9	23.5	1
10	16QAM	1	24	23.2	23.0	23.0		
10	16QAM	1	49	23.1	23.0	22.8		
10	16QAM	25	0	22.0	22.0	21.7	22.5	2
10	16QAM	25	12	22.1	21.9	21.7		
10	16QAM	25	24	22.1	21.8	21.6		
10	16QAM	50	0	21.9	21.7	21.6		

Channel				19975	20175	20375	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1732.5	1752.5		
5	QPSK	1	0	24.2	24.1	23.9	24.5	0
5	QPSK	1	12	24.1	24.0	23.8		
5	QPSK	1	24	24.1	23.9	23.7		
5	QPSK	12	0	23.2	23.0	22.8	23.5	1
5	QPSK	12	6	23.2	23.0	22.8		
5	QPSK	12	11	23.1	22.9	22.8		
5	QPSK	25	0	23.1	22.9	22.7		
5	16QAM	1	0	23.2	23.1	22.9	23.5	1
5	16QAM	1	12	23.2	23.0	22.8		
5	16QAM	1	24	23.2	22.9	22.8		
5	16QAM	12	0	22.2	22.1	21.8	22.5	2
5	16QAM	12	6	22.2	22.0	21.8		
5	16QAM	12	11	22.2	22.0	21.8		
5	16QAM	25	0	22.0	21.9	21.6		
Channel				19965	20175	20385	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1732.5	1753.5		
3	QPSK	1	0	24.2	24.0	23.8	24.5	0
3	QPSK	1	7	24.1	23.9	23.8		
3	QPSK	1	14	24.1	23.8	23.7		
3	QPSK	8	0	23.3	23.1	22.9	23.5	1
3	QPSK	8	4	23.2	23.0	22.9		
3	QPSK	8	7	23.1	23.0	22.9		
3	QPSK	15	0	23.2	22.9	22.8		
3	16QAM	1	0	23.2	23.1	22.8	23.5	1
3	16QAM	1	7	23.1	23.0	22.7		
3	16QAM	1	14	23.1	22.9	22.7		
3	16QAM	8	0	22.2	22.1	21.7	22.5	2
3	16QAM	8	4	22.1	22.0	21.7		
3	16QAM	8	7	22.1	22.0	21.7		
3	16QAM	15	0	22.2	22.0	21.8		
Channel				19957	20175	20393	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1732.5	1754.3		
1.4	QPSK	1	0	24.3	24.0	23.8	24.5	0
1.4	QPSK	1	2	24.2	23.9	23.7		
1.4	QPSK	1	5	24.2	23.9	23.7		
1.4	QPSK	3	0	24.2	23.9	23.7		
1.4	QPSK	3	1	24.1	23.9	23.6		
1.4	QPSK	3	2	24.2	23.9	23.7		
1.4	QPSK	6	0	23.3	23.0	22.8	23.5	1
1.4	16QAM	1	0	23.2	23.0	22.9	23.5	1
1.4	16QAM	1	2	23.2	23.0	22.7		
1.4	16QAM	1	5	23.2	22.9	22.7		
1.4	16QAM	3	0	23.2	23.1	22.8		
1.4	16QAM	3	1	23.3	23.1	22.8		
1.4	16QAM	3	2	23.3	23.1	22.8		
1.4	16QAM	6	0	22.2	22.0	21.8	22.5	2

Reduced Average RF Power (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	**17.5**	17.4	17.4	18.0	0
10	QPSK	1	24	17.3	17.3	17.3		
10	QPSK	1	49	17.3	17.4	17.3		
10	QPSK	25	0	17.3	17.2	17.2	18.0	0
10	QPSK	25	12	17.2	17.2	17.1		
10	QPSK	25	24	17.2	17.1	17.1		
10	QPSK	50	0	17.2	17.1	17.1		
10	16QAM	1	0	17.3	17.3	17.2	18.0	0
10	16QAM	1	24	17.2	17.2	17.1		
10	16QAM	1	49	17.2	17.3	17.2		
10	16QAM	25	0	17.2	17.2	17.1	18.0	0
10	16QAM	25	12	17.2	17.2	17.1		
10	16QAM	25	24	17.2	17.2	17.1		
10	16QAM	50	0	17.1	17.1	17.0		
Channel				23755	23790	23825	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				706.5	710	713.5		
5	QPSK	1	0	17.4	17.3	17.3	18.0	0
5	QPSK	1	12	17.2	17.2	17.2		
5	QPSK	1	24	17.2	17.2	17.2		
5	QPSK	12	0	17.2	17.2	17.1	18.0	0
5	QPSK	12	6	17.2	17.2	17.1		
5	QPSK	12	11	17.2	17.2	17.1		
5	QPSK	25	0	17.2	17.1	17.0		
5	16QAM	1	0	17.2	17.2	17.2	18.0	0
5	16QAM	1	12	17.1	17.1	17.2		
5	16QAM	1	24	17.1	17.1	17.0		
5	16QAM	12	0	17.1	17.1	17.0	18.0	0
5	16QAM	12	6	17.1	17.1	17.0		
5	16QAM	12	11	17.1	17.1	17.0		
5	16QAM	25	0	17.0	17.0	16.9		

<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	**16.3**	16.2	16.1	17.0	0
20	QPSK	1	49	16.2	16.1	15.8		
20	QPSK	1	99	16.1	15.7	15.8		
20	QPSK	50	0	16.1	16.0	16.0	17.0	0
20	QPSK	50	24	16.0	16.0	15.8		
20	QPSK	50	49	16.0	15.9	15.6		
20	QPSK	100	0	16.0	16.0	15.8		
20	16QAM	1	0	16.2	16.1	16.0	17.0	0
20	16QAM	1	49	16.1	16.0	16.0		
20	16QAM	1	99	16.0	16.1	16.0		
20	16QAM	50	0	15.9	16.0	15.9	17.0	0
20	16QAM	50	24	16.1	16.0	15.8		
20	16QAM	50	49	16.1	15.9	15.7		
20	16QAM	100	0	16.0	16.0	15.8		
Channel				20025	20175	20325	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1732.5	1747.5		
15	QPSK	1	0	16.2	16.1	16.0	17.0	0
15	QPSK	1	37	16.1	16.1	15.7		
15	QPSK	1	74	16.0	15.8	15.8		
15	QPSK	36	0	16.1	16.0	15.8	17.0	0
15	QPSK	36	18	16.0	16.1	15.8		
15	QPSK	36	37	16.1	15.9	15.8		
15	QPSK	75	0	16.0	16.0	15.8		
15	16QAM	1	0	16.1	16.0	15.9	17.0	0
15	16QAM	1	37	16.0	15.9	15.9		
15	16QAM	1	74	16.0	15.9	15.8		
15	16QAM	36	0	15.9	16.0	15.9	17.0	0
15	16QAM	36	18	15.9	15.8	15.7		
15	16QAM	36	37	16.0	15.9	15.6		
15	16QAM	75	0	16.0	15.9	15.7		
Channel				20000	20175	20350	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1732.5	1750		
10	QPSK	1	0	16.2	16.1	16.0	17.0	0
10	QPSK	1	24	16.1	16.0	15.7		
10	QPSK	1	49	16.1	15.7	15.8		
10	QPSK	25	0	16.1	16.0	15.8	17.0	0
10	QPSK	25	12	16.1	15.9	15.8		
10	QPSK	25	24	16.1	15.9	15.7		
10	QPSK	50	0	16.0	16.0	15.7		
10	16QAM	1	0	16.1	16.0	15.9	17.0	0
10	16QAM	1	24	16.0	15.9	15.8		
10	16QAM	1	49	16.0	15.9	15.9		
10	16QAM	25	0	16.0	16.0	15.9	17.0	0
10	16QAM	25	12	16.0	15.8	15.8		
10	16QAM	25	24	16.0	15.9	15.7		
10	16QAM	50	0	15.9	15.9	15.6		

Channel				19975	20175	20375	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1732.5	1752.5		
5	QPSK	1	0	16.2	16.1	16.1	17.0	0
5	QPSK	1	12	16.1	16.0	15.8		
5	QPSK	1	24	16.0	15.7	15.7		
5	QPSK	12	0	16.0	16.0	15.8	17.0	0
5	QPSK	12	6	16.1	16.0	15.8		
5	QPSK	12	11	15.9	15.9	15.5		
5	QPSK	25	0	16.0	16.0	15.7		
5	16QAM	1	0	16.1	16.0	16.0	17.0	0
5	16QAM	1	12	16.0	15.9	15.9		
5	16QAM	1	24	15.9	15.9	15.8		
5	16QAM	12	0	16.0	16.0	15.9	17.0	0
5	16QAM	12	6	16.0	15.8	15.8		
5	16QAM	12	11	16.0	15.9	15.6		
5	16QAM	25	0	15.9	15.8	15.8		
Channel				19965	20175	20385	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1732.5	1753.5		
3	QPSK	1	0	16.2	16.1	16.1	17.0	0
3	QPSK	1	7	16.1	16.0	15.7		
3	QPSK	1	14	16.1	15.8	15.7		
3	QPSK	8	0	16.1	16.0	15.8	17.0	0
3	QPSK	8	4	16.0	15.8	15.8		
3	QPSK	8	7	15.9	15.9	15.5		
3	QPSK	15	0	16.0	16.0	15.8		
3	16QAM	1	0	16.1	16.0	15.9	17.0	0
3	16QAM	1	7	16.0	15.9	15.8		
3	16QAM	1	14	16.0	16.0	15.9		
3	16QAM	8	0	15.8	15.9	15.9	17.0	0
3	16QAM	8	4	16.0	15.8	15.8		
3	16QAM	8	7	16.0	15.9	15.6		
3	16QAM	15	0	15.9	15.9	15.7		
Channel				19957	20175	20393	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1732.5	1754.3		
1.4	QPSK	1	0	16.2	16.0	16.0	17.0	0
1.4	QPSK	1	2	16.1	15.9	15.8		
1.4	QPSK	1	5	16.1	15.7	15.7		
1.4	QPSK	3	0	16.0	15.8	15.9		
1.4	QPSK	3	1	15.9	16.0	15.7		
1.4	QPSK	3	2	15.9	15.9	15.7		
1.4	QPSK	6	0	16.0	15.8	15.7	17.0	0
1.4	16QAM	1	0	16.1	16.0	15.9	17.0	0
1.4	16QAM	1	2	16.0	15.9	15.9		
1.4	16QAM	1	5	16.0	15.7	15.8		
1.4	16QAM	3	0	16.0	16.0	15.9		
1.4	16QAM	3	1	15.9	15.9	15.8		
1.4	16QAM	3	2	16.0	15.9	15.6		
1.4	16QAM	6	0	16.0	15.9	15.8	17.0	0

<2.4GHz WLAN Conducted Power>

General Note:

1. For 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. For 2.4GHz WLAN SAR testing, highest average RF output power channel for the lowest data rate for 802.11b were selected for SAR evaluation. 802.11g/n HT20/VHT20 were not investigated since the average output powers over all channels and data rates were not more than 0.25 dB higher than the tested channel in the lowest data rate of 802.11b mode.
3. The measured power of antenna 1 and antenna 2 is summed to a total power.

<Total Power of Antenna 1+2>

WLAN 2.4GHz 802.11b Average Power (dBm)					
Power vs. Channel					
Channel	Frequency (MHz)	Data Rate	2Mbps	5.5Mbps	11Mbps
		1Mbps			
CH 1	2412	18.1	18.1	18.0	17.9
CH 6	2437	18.1			
CH 11	2462	18.1			

WLAN 2.4GHz 802.11g Average Power (dBm)									
Power vs. Channel									
Channel	Frequency (MHz)	Data Rate	9Mbps	12Mbps	18Mbps	24Mbps	36Mbps	48Mbps	54Mbps
		6Mbps							
CH 1	2412	17.5	17.7	17.7	17.7	17.6	17.7	17.7	17.7
CH 6	2437	18.4							
CH 11	2462	17.2							

WLAN 2.4GHz 802.11n-HT20 Average Power (dBm)									
Power vs. Channel									
Channel	Frequency (MHz)	MCS Index	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
		MCS0							
CH 1	2412	16.4	17.8	17.8	17.9	18.0	17.9	17.8	17.8
CH 6	2437	18.4							
CH 11	2462	17.2							

WLAN 2.4GHz 802.11ac-VHT20 Average Power (dBm)									
Power vs. Channel									
Channel	Frequency (MHz)	MCS Index	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8
		MCS0								
CH 1	2412	16.5	17.8	17.8	17.9	18.0	17.9	17.8	17.7	17.7
CH 6	2437	18.4								
CH 11	2462	17.3								

<Antenna 1>

WLAN 2.4GHz 802.11b Average Power (dBm)					
Power vs. Channel					
Channel	Frequency (MHz)	Data Rate	2Mbps	5.5Mbps	11Mbps
		1Mbps			
CH 1	2412	15.2	15.1	15.0	14.9
CH 6	2437	15.2			
CH 11	2462	15.0			

WLAN 2.4GHz 802.11g Average Power (dBm)									
Power vs. Channel									
Channel	Frequency (MHz)	Data Rate	9Mbps	12Mbps	18Mbps	24Mbps	36Mbps	48Mbps	54Mbps
		6Mbps							
CH 1	2412	14.4	15.0	14.9	14.9	14.8	14.9	15.0	15.0
CH 6	2437	15.3							
CH 11	2462	14.1							

WLAN 2.4GHz 802.11n-HT20 Average Power (dBm)									
Power vs. Channel									
Channel	Frequency (MHz)	MCS Index	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
		MCS0							
CH 1	2412	13.4	14.8	14.8	14.9	14.9	14.9	14.8	14.8
CH 6	2437	15.4							
CH 11	2462	14.1							

WLAN 2.4GHz 802.11ac-VHT20 Average Power (dBm)									
Power vs. Channel									
Channel	Frequency (MHz)	MCS Index	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8
		MCS0								
CH 1	2412	13.6	14.8	14.8	14.9	14.9	14.9	14.7	14.7	14.7
CH 6	2437	15.4								
CH 11	2462	14.1								

<Antenna 2>

WLAN 2.4GHz 802.11b Average Power (dBm)					
Power vs. Channel					
Channel	Frequency (MHz)	Data Rate	2Mbps	5.5Mbps	11Mbps
		1Mbps			
CH 1	2412	15.1	15.0	15.1	15.0
CH 6	2437	15.0			
CH 11	2462	15.2			

WLAN 2.4GHz 802.11g Average Power (dBm)									
Power vs. Channel									
Channel	Frequency (MHz)	Data Rate	9Mbps	12Mbps	18Mbps	24Mbps	36Mbps	48Mbps	54Mbps
		6Mbps							
CH 1	2412	14.5	14.4	14.5	14.4	14.4	14.4	14.4	14.4
CH 6	2437	15.4							
CH 11	2462	14.3							

WLAN 2.4GHz 802.11n-HT20 Average Power (dBm)									
Power vs. Channel									
Channel	Frequency (MHz)	MCS Index	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
		MCS0							
CH 1	2412	13.4	14.9	14.7	15.0	15.0	15.0	14.8	14.9
CH 6	2437	15.4							
CH 11	2462	14.2							

WLAN 2.4GHz 802.11ac-VHT20 Average Power (dBm)									
Power vs. Channel									
Channel	Frequency (MHz)	MCS Index	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8
		MCS0								
CH 1	2412	13.3	14.9	14.7	15.0	15.0	14.9	14.9	14.7	14.7
CH 6	2437	15.4								
CH 11	2462	14.4								

<5GHz WLAN Conducted Power>

General Note:

1. For 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. For 5GHz WLAN SAR testing, highest average RF output power channel for the lowest data rate for 802.11a were selected for SAR evaluation. 802.11n HT20/VHT20/VHT40 were not investigated since the average output powers over all channels and data rates were not more than 0.25 dB higher than the tested channel in the lowest data rate of 802.11a mode.
3. Per April 2013 TCB Workshop notes, full SAR tests for SISO IEEE 802.11ac configurations were not required because the average output power was not more than 0.25 dB higher than IEEE 802.11a mode. IEEE 802.11ac was evaluated for the highest IEEE 802.11a position in each 5 GHz band and exposure condition.
4. The measured power of antenna 1 and antenna 2 is summed to a total power.

<Total Power of Antenna 1+2>

WLAN 5GHz 802.11a Average Power (dBm)									
Power vs. Channel									
Channel	Frequency (MHz)	Data Rate	9Mbps	12Mbps	18Mbps	24Mbps	36Mbps	48Mbps	54Mbps
		6Mbps							
CH 36	5180	15.3	15.1	15.2	15.1	14.9	15.0	15.2	15.2
CH 40	5200	15.1							
CH 44	5220	15.3							
CH 48	5240	15.0							
CH 52	5260	15.1	15.0	15.0	15.0	14.9	15.0	14.9	14.9
CH 56	5280	15.1							
CH 60	5300	15.2							
CH 64	5320	15.1							
CH 100	5500	15.1	15.0	15.1	15.0	14.9	15.0	14.9	15.0
CH 104	5520	15.1							
CH 108	5540	15.2							
CH 112	5560	15.2							
CH 116	5580	15.2							
CH 132	5660	15.1							
CH 136	5680	15.1							
CH 140	5700	15.1							
CH 144	5720	15.1							
CH 149	5745	15.4	15.8	15.9	15.8	15.6	15.7	15.9	15.9
CH 153	5765	15.6							
CH 157	5785	15.3							
CH 161	5805	15.6							
CH 165	5825	16.0							

WLAN 5GHz 802.11a Average Power (dBm)									
Power vs. Channel									
Channel	Frequency (MHz)	Data Rate	9Mbps	12Mbps	18Mbps	24Mbps	36Mbps	48Mbps	54Mbps
		6Mbps							
CH 36	5180	15.2	15.1	15.1	15.1	15.0	15.1	15.0	15.0
CH 40	5200	15.0							
CH 44	5220	15.3							
CH 48	5240	15.0							
CH 52	5260	15.3	15.1	15.1	15.1	15.0	15.1	15.0	15.1
CH 56	5280	15.1							
CH 60	5300	15.3							
CH 64	5320	15.3							
CH 100	5500	15.3	15.2	15.0	15.3	15.2	15.3	15.3	15.3
CH 104	5520	15.3							
CH 108	5540	15.3							
CH 112	5560	15.3							
CH 116	5580	15.3							
CH 132	5660	15.1							
CH 136	5680	15.2							
CH 140	5700	15.4							
CH 144	5720	15.3							
CH 149	5745	15.7	15.8	15.7	15.8	15.8	15.9	15.8	15.8
CH 153	5765	15.7							
CH 157	5785	16.0							
CH 161	5805	16.0							
CH 165	5825	16.0							

WLAN 5GHz 802.11n-HT40 Average Power (dBm)									
Power vs. Channel									
Channel	Frequency (MHz)	MCS Index	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
		MCS0							
CH 38	5190	15.0	15.1	15.1	15.3	15.3	15.2	15.3	15.3
CH 46	5230	15.5							
CH 54	5270	15.3	15.1	15.2	15.1	15.0	15.1	15.0	15.1
CH 62	5310	15.3							
CH 102	5510	14.7	15.2	15.2	15.1	15.0	15.1	15.0	15.0
CH 110	5550	15.3							
CH 134	5670	15.2							
CH 142	5710	15.2							
CH 151	5755	15.1	15.4	15.4	15.6	15.6	15.5	15.6	15.6
CH 159	5795	15.8							

WLAN 5GHz 802.11ac-VHT20 Average Power (dBm)										
Power vs. Channel										
Channel	Frequency (MHz)	MCS Index	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8
		MCS0								
CH 36	5180	15.4	15.1	14.8	15.2	15.2	15.2	15.3	15.2	15.2
CH 40	5200	15.3								
CH 44	5220	15.3								
CH 48	5240	15.0								
CH 52	5260	15.3	15.2	15.2	15.2	15.0	15.1	15.1	15.1	15.0
CH 56	5280	15.1								
CH 60	5300	15.4								
CH 64	5320	15.3								
CH 100	5500	15.2	15.2	15.2	15.1	15.1	15.1	15.0	15.1	15.0
CH 104	5520	15.3								
CH 108	5540	15.3								
CH 112	5560	15.3								
CH 116	5580	15.2								
CH 132	5660	15.2								
CH 136	5680	15.2								
CH 140	5700	15.2								
CH 144	5720	15.3								
CH 149	5745	15.6	15.7	15.5	15.8	15.8	15.9	15.9	15.8	15.9
CH 153	5765	15.5								
CH 157	5785	16.0								
CH 161	5805	16.0								
CH 165	5825	16.0								

WLAN 5GHz 802.11ac-VHT40 Average Power (dBm)										
Power vs. Channel										
Channel	Frequency (MHz)	MCS Index	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8	MCS9
		MCS0									
CH 38	5190	15.0	15.4	15.1	15.4	15.4	15.4	15.3	15.3	15.3	15.3
CH 46	5230	15.5									
CH 54	5270	15.3	15.1	15.2	15.1	15.0	15.1	15.0	15.0	15.0	15.0
CH 62	5310	14.8									
CH 102	5510	14.3	15.1	15.2	15.2	15.0	15.1	15.0	15.0	15.0	15.0
CH 110	5550	15.3									
CH 134	5670	15.3									
CH 142	5710	15.2									
CH 151	5755	15.2	15.9	15.6	15.8	15.9	15.8	15.8	15.8	15.8	15.8
CH 159	5795	16.0									

WLAN 5GHz 802.11ac-VHT80 Average Power (dBm)											
Power vs. Channel											
Channel	Frequency (MHz)	MCS Index	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8	MCS9
		MCS0									
CH 42	5210	15.4	15.2	15.3	15.2	15.2	15.2	15.2	15.3	15.0	14.9
CH 58	5290	15.3	15.0	15.0	15.0	14.9	14.9	15.0	14.9	14.8	14.9
CH 106	5530	15.3	15.0	15.1	15.0	14.9	14.9	14.9	15.0	14.8	14.9
CH 138	5690	15.2									
CH 155	5775	15.7	15.5	15.6	15.5	15.5	15.6	15.6	15.6	15.3	15.3

<Antenna 1>

WLAN 5GHz 802.11a Average Power (dBm)									
Power vs. Channel									
Channel	Frequency (MHz)	Data Rate	9Mbps	12Mbps	18Mbps	24Mbps	36Mbps	48Mbps	54Mbps
		6Mbps							
CH 36	5180	12.1	12.0	12.0	11.9	11.8	11.8	12.0	12.0
CH 40	5200	12.0							
CH 44	5220	12.0							
CH 48	5240	12.0							
CH 52	5260	13.0	12.8	12.9	12.8	12.7	12.8	12.8	12.7
CH 56	5280	13.0							
CH 60	5300	13.0							
CH 64	5320	13.0							
CH 100	5500	13.0	12.8	12.9	12.8	12.7	12.8	12.8	12.8
CH 104	5520	13.0							
CH 108	5540	13.0							
CH 112	5560	13.0							
CH 116	5580	13.0							
CH 132	5660	13.0							
CH 136	5680	13.0							
CH 140	5700	12.9							
CH 144	5720	12.9							
CH 149	5745	12.2	12.8	12.9	12.7	12.7	12.7	12.9	12.8
CH 153	5765	12.6							
CH 157	5785	12.1							
CH 161	5805	12.6							
CH 165	5825	13.0							

WLAN 5GHz 802.11a Average Power (dBm)									
Power vs. Channel									
Channel	Frequency (MHz)	Data Rate 6Mbps	9Mbps	12Mbps	18Mbps	24Mbps	36Mbps	48Mbps	54Mbps
CH 36	5180	12.0	11.8	11.9	11.8	11.7	11.8	11.8	11.7
CH 40	5200	12.0							
CH 44	5220	12.0							
CH 48	5240	12.0							
CH 52	5260	13.0	12.8	12.8	12.8	12.7	12.8	12.7	12.8
CH 56	5280	13.0							
CH 60	5300	13.0							
CH 64	5320	13.0							
CH 100	5500	13.0	12.9	12.8	13.0	12.9	12.9	13.0	13.0
CH 104	5520	13.0							
CH 108	5540	13.0							
CH 112	5560	13.0							
CH 116	5580	13.0							
CH 132	5660	12.8							
CH 136	5680	12.9							
CH 140	5700	13.0							
CH 144	5720	12.8							
CH 149	5745	12.5	12.8	12.8	12.8	12.7	12.8	12.7	12.7
CH 153	5765	12.5							
CH 157	5785	13.0							
CH 161	5805	13.0							
CH 165	5825	13.0							

WLAN 5GHz 802.11n-HT40 Average Power (dBm)									
Power vs. Channel									
Channel	Frequency (MHz)	MCS Index MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
CH 38	5190	12.0	12.2	12.2	12.5	12.4	12.4	12.5	12.4
CH 46	5230	12.5							
CH 54	5270	13.0	12.8	12.8	12.8	12.7	12.8	12.7	12.8
CH 62	5310	12.9							
CH 102	5510	12.5	12.9	12.8	12.8	12.7	12.8	12.7	12.7
CH 110	5550	13.0							
CH 134	5670	12.9							
CH 142	5710	12.8							
CH 151	5755	11.8	12.4	12.4	12.7	12.6	12.6	12.7	12.6
CH 159	5795	12.7							

WLAN 5GHz 802.11ac-VHT20 Average Power (dBm)										
Power vs. Channel										
Channel	Frequency (MHz)	MCS Index	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8
		MCS0								
CH 36	5180	12.2	11.9	11.6	12.0	11.9	12.0	12.0	11.9	12.0
CH 40	5200	12.1								
CH 44	5220	12.2								
CH 48	5240	12.0								
CH 52	5260	13.0	12.8	12.9	12.8	12.7	12.8	12.8	12.8	12.7
CH 56	5280	13.0								
CH 60	5300	13.0								
CH 64	5320	13.0								
CH 100	5500	12.9	12.9	12.9	12.8	12.7	12.8	12.7	12.8	12.7
CH 104	5520	13.0								
CH 108	5540	13.0								
CH 112	5560	13.0								
CH 116	5580	12.8								
CH 132	5660	13.0								
CH 136	5680	13.0								
CH 140	5700	12.8								
CH 144	5720	12.9								
CH 149	5745	12.4	12.7	12.3	12.8	12.7	12.7	12.8	12.7	12.8
CH 153	5765	12.2								
CH 157	5785	12.9								
CH 161	5805	12.9								
CH 165	5825	12.9								

WLAN 5GHz 802.11ac-VHT40 Average Power (dBm)										
Power vs. Channel										
Channel	Frequency (MHz)	MCS Index	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8	MCS9
		MCS0									
CH 38	5190	12.0	12.4	12.1	12.5	12.4	12.4	12.4	12.3	12.4	12.2
CH 46	5230	12.5									
CH 54	5270	13.0	12.8	12.8	12.8	12.7	12.8	12.7	12.7	12.7	12.6
CH 62	5310	12.5									
CH 102	5510	12.0	12.8	12.8	12.8	12.7	12.8	12.7	12.7	12.7	12.7
CH 110	5550	13.0									
CH 134	5670	12.9									
CH 142	5710	12.8									
CH 151	5755	11.9	12.8	12.4	12.8	12.7	12.7	12.7	12.6	12.7	12.5
CH 159	5795	12.8									

WLAN 5GHz 802.11ac-VHT80 Average Power (dBm)											
Power vs. Channel											
Channel	Frequency (MHz)	MCS Index	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8	MCS9
		MCS0									
CH 42	5210	12.2	12.1	12.4	12.0	12.1	12.1	12.2	12.1	11.9	11.8
CH 58	5290	12.9	12.5	12.5	12.5	12.4	12.4	12.5	12.4	12.4	12.4
CH 106	5530	13.0	12.5	12.6	12.5	12.4	12.5	12.5	12.5	12.3	12.4
CH 138	5690	13.0									
CH 155	5775	12.5	12.3	12.7	12.2	12.3	12.3	12.4	12.3	12.1	12.0

<Antenna 2>

WLAN 5GHz 802.11a Average Power (dBm)									
Power vs. Channel									
Channel	Frequency (MHz)	Data Rate	9Mbps	12Mbps	18Mbps	24Mbps	36Mbps	48Mbps	54Mbps
		6Mbps							
CH 36	5180	12.5	12.3	12.3	12.2	12.0	12.2	12.3	12.5
CH 40	5200	12.1							
CH 44	5220	12.5							
CH 48	5240	12.0							
CH 52	5260	11.1	10.9	10.9	11.0	10.8	10.9	10.8	10.9
CH 56	5280	11.0							
CH 60	5300	11.1							
CH 64	5320	11.0							
CH 100	5500	11.0	10.9	11.0	10.9	10.8	10.9	10.8	10.9
CH 104	5520	11.0							
CH 108	5540	11.1							
CH 112	5560	11.1							
CH 116	5580	11.1							
CH 132	5660	11.0							
CH 136	5680	11.0							
CH 140	5700	11.1							
CH 144	5720	11.0							
CH 149	5745	12.6	12.8	12.8	12.8	12.5	12.7	12.8	13.0
CH 153	5765	12.6							
CH 157	5785	12.5							
CH 161	5805	12.6							
CH 165	5825	13.0							

WLAN 5GHz 802.11a Average Power (dBm)									
Power vs. Channel									
Channel	Frequency (MHz)	Data Rate / 6Mbps	9Mbps	12Mbps	18Mbps	24Mbps	36Mbps	48Mbps	54Mbps
CH 36	5180	12.5	12.3	12.3	12.3	12.2	12.3	12.2	12.2
CH 40	5200	12.0							
CH 44	5220	12.5							
CH 48	5240	12.0							
CH 52	5260	11.5	11.3	11.3	11.3	11.2	11.3	11.2	11.3
CH 56	5280	11.0							
CH 60	5300	11.5							
CH 64	5320	11.5							
CH 100	5500	11.5	11.3	11.1	11.3	11.4	11.5	11.4	11.4
CH 104	5520	11.4							
CH 108	5540	11.4							
CH 112	5560	11.4							
CH 116	5580	11.5							
CH 132	5660	11.2							
CH 136	5680	11.3							
CH 140	5700	11.5							
CH 144	5720	11.5							
CH 149	5745	12.8	12.9	12.6	12.8	12.9	13.0	12.9	12.9
CH 153	5765	12.8							
CH 157	5785	13.0							
CH 161	5805	13.0							
CH 165	5825	13.0							

WLAN 5GHz 802.11n-HT40 Average Power (dBm)									
Power vs. Channel									
Channel	Frequency (MHz)	MCS Index / MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
CH 38	5190	12.0	12.0	11.9	12.1	12.2	12.0	12.1	12.2
CH 46	5230	12.5							
CH 54	5270	11.5	11.3	11.4	11.3	11.2	11.3	11.2	11.2
CH 62	5310	11.5							
CH 102	5510	10.8	11.3	11.4	11.3	11.2	11.3	11.2	11.2
CH 110	5550	11.5							
CH 134	5670	11.5							
CH 142	5710	11.5							
CH 151	5755	12.4	12.5	12.4	12.5	12.6	12.4	12.5	12.7
CH 159	5795	13.0							

WLAN 5GHz 802.11ac-VHT20 Average Power (dBm)										
Power vs. Channel										
Channel	Frequency (MHz)	MCS Index	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8
		MCS0								
CH 36	5180	12.5	12.3	12.1	12.3	12.4	12.4	12.5	12.4	12.4
CH 40	5200	12.5								
CH 44	5220	12.5								
CH 48	5240	12.0								
CH 52	5260	11.4	11.4	11.4	11.4	11.3	11.4	11.3	11.3	11.2
CH 56	5280	11.0								
CH 60	5300	11.5								
CH 64	5320	11.3								
CH 100	5500	11.4	11.3	11.3	11.3	11.3	11.3	11.2	11.3	11.1
CH 104	5520	11.4								
CH 108	5540	11.4								
CH 112	5560	11.4								
CH 116	5580	11.5								
CH 132	5660	11.2								
CH 136	5680	11.3								
CH 140	5700	11.5								
CH 144	5720	11.5								
CH 149	5745	12.8	12.8	12.6	12.8	12.9	13.0	13.0	12.9	13.0
CH 153	5765	12.8								
CH 157	5785	13.0								
CH 161	5805	13.0								
CH 165	5825	13.0								

WLAN 5GHz 802.11ac-VHT40 Average Power (dBm)										
Power vs. Channel										
Channel	Frequency (MHz)	MCS Index	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8	MCS9
		MCS0									
CH 38	5190	12.0	12.4	12.2	12.2	12.4	12.4	12.2	12.3	12.3	12.4
CH 46	5230	12.5									
CH 54	5270	11.5	11.3	11.4	11.3	11.2	11.3	11.2	11.2	11.2	11.2
CH 62	5310	10.8									
CH 102	5510	10.5	11.3	11.4	11.4	11.2	11.3	11.2	11.2	11.1	11.2
CH 110	5550	11.5									
CH 134	5670	11.4									
CH 142	5710	11.5									
CH 151	5755	12.4	12.9	12.7	12.8	13.0	12.9	12.8	12.9	12.8	12.9
CH 159	5795	13.0									

WLAN 5GHz 802.11ac-VHT80 Average Power (dBm)											
Power vs. Channel											
Channel	Frequency (MHz)	MCS Index	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8	MCS9
		MCS0									
CH 42	5210	12.5	12.2	12.0	12.3	12.3	12.4	12.3	12.4	12.1	12.0
CH 58	5290	11.5	11.3	11.3	11.3	11.2	11.3	11.3	11.2	11.1	11.2
CH 106	5530	11.5	11.3	11.4	11.3	11.2	11.2	11.2	11.3	11.1	11.2
CH 138	5690	11.2									
CH 155	5775	13.0	12.7	12.5	12.8	12.7	12.8	12.7	12.8	12.5	12.5

14. Bluetooth Exclusions Applied

Mode Band	Average power(dBm)	
	Bluetooth v3.0+EDR	Bluetooth v4.0+LE
2.4GHz Bluetooth	9.5	6.0

Note:

1. Per KDB 447498 D01v05r02, 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

Bluetooth Max Power (dBm)	Separation Distance (mm)	Frequency (GHz)	exclusion thresholds
9.5	< 5	2.48	2.83

Note:
Per KDB 447498 D01v05r02, when the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion. The test exclusion threshold is 2.83 which is <= 3, SAR testing is not required.

15. Exposure Position Conditions

<Distance from the antenna to the edge>
General Note:

1. The detail antenna locations please refer to setup photo.
2. This device overall diagonal dimension is 272mm, and according to KDB 616217 D04v01r01, if the diagonal is greater than 200mm, SAR evaluation for the front surface of tablet display screens are generally not necessary.

Exposure Position	Bottom Face	Edge1	Edge2	Edge3	Edge4
WLAN Antenna1 to the Edge distance (mm)	< 5 mm	< 5 mm	163 mm	138 mm	49 mm
WLAN Antenna2 to the Edge distance (mm)	< 5 mm	116 mm	216 mm	21 mm	< 5 mm
WWAN Antenna to the Edge distance (mm)	< 5 mm	28 mm	< 5 mm	43 mm	216.4 mm

<SAR test exclusion table>

General Note:

1. The below table, when the distance is < 50 mm exclusion threshold is "Ratio", when the distance is > 50 mm exclusion threshold is "mW"
2. Maximum power is the source-based time-average power and represents the maximum RF output power among production units
3. Per KDB 447498 D01v05r02, for larger devices, the test separation distance of adjacent edge configuration is determined by the closest separation between the antenna and the user.
4. Per KDB 447498 D01v05r02, standalone SAR test exclusion threshold is applied; If the test separation distance is < 5mm, 5mm is used to determine SAR exclusion threshold.
5. Per KDB 447498 D01v05r02, 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
6. Per KDB 447498 D01v05r02, 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 II	LTE Band 17	LTE Band 4	802.11b Ant 1	802.11b Ant 2	802.11a Ant 1	802.11a Ant 2
	Calculated Frequency	848MHz	1909MHz	846MHz	1907MHz	713MHz	1754MHz	2462MHz	2462MHz	5825MHz	5825MHz
	Maximum power (dBm)	26	23.5	24	24	23.5	24.5	15.5	15.5	13	13
	Maximum rated power(mW)	398	224	251	251	224	282	35	35	20	20
Bottom Face	Separation distance(mm)	< 5.0						< 5.0	< 5.0	< 5.0	< 5.0
	exclusion threshold	73	62	46	69	38	75	11	11	10	10
	Testing required?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Edge 1	Separation distance(mm)	28.0						< 5.0	116.0	< 5.0	116.0
	exclusion threshold	13	11	8	12	7	13	11	756	10	722
	Testing required?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No
Edge 2	Separation distance(mm)	< 5.0						163.0	216.0	163.0	216.0
	exclusion threshold	73	62	46	69	38	75	1226	1756	1192	1722
	Testing required?	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No
Edge 3	Separation distance(mm)	43.0						138.0	21.0	138.00	21.0
	exclusion threshold	9	7	5	8	4	9	976	3	942	2
	Testing required?	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No
Edge 4	Separation distance(mm)	216.4						49.0	< 5.0	49.0	< 5.00
	exclusion threshold	1104	1773	1102	1773	969	1777	1	11	1	10
	Testing required?	No	No	No	No	No	No	No	Yes	No	Yes

16. SAR Test Results

General Note:

1. Per KDB 447498 D01v05r02, 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/WLAN: Reported SAR(W/kg)= Measured SAR(W/kg)*Tune-up Scaling Factor
2. Per KDB 447498 D01v05r02, 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. During the SAR testing, the additional separation between EUT and the phantom surface introduced by the protrusion is <5mm, and the reported SAR with the protrusions in place is < 1.2 W/kg, additional consideration of test setup is not required. Detailed information is included in the test setup photo exhibit.
4. 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.
5. 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 - Slant of Edge 2, 14mm for Edge 2

GSM Note:

1. Justification for reduced test configuration s per KDB 941225 D03v01, the source-based time-averaged output power was evaluated for all multi-slot operations. The multi-slot configuration with the highest frame averaged output power was evaluated for SAR Measurement.

UMTS Note:

1. Per KDB 941225 D02v02r02, RMC 12.2kbps setting is used to evaluate SAR. If HSDPA/HSUPA output power is < 0.25dB higher than RMC12.2Kbps, or reported SAR with RMC 12.2kbps setting is ≤ 1.2W/kg, HSDPA/HSUPA SAR evaluation can be excluded.

LTE Note:

1. Per KDB 941225 D05v02r03, 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 D05v02r03, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
3. Per KDB 941225 D05v02r03, 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 D05v02r03, 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 D05v02r03, 16QAM SAR testing is not required.
5. Per KDB 941225 D05v02r03, 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 D05v02r03, smaller bandwidth SAR testing is not required.

16.1 Body SAR

<GSM SAR>

Plot No.	Band	Mode	Test Position	Gap (cm)	Ch.	Freq. (MHz)	Power Reduction	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	GSM850	GPRS (2 Tx slots)	Bottom - Slant of Edge 2	1.3cm	251	848.8	OFF	31.8	32.0	1.047	-0.03	0.971	1.017
	GSM850	GPRS (2 Tx slots)	Bottom - Slant of Edge 2	1.3cm	128	824.2	OFF	31.6	32.0	1.096	-0.07	1.020	1.118
	GSM850	GPRS (2 Tx slots)	Bottom - Slant of Edge 2	1.3cm	189	836.4	OFF	31.7	32.0	1.072	-0.05	0.985	1.055
	GSM850	GPRS (2 Tx slots)	Edge 1	0cm	251	848.8	OFF	31.8	32.0	1.047	0.03	0.135	0.141
	GSM850	GPRS (2 Tx slots)	Edge 2	1.4cm	251	848.8	OFF	31.8	32.0	1.047	-0.19	0.951	0.996
	GSM850	GPRS (2 Tx slots)	Edge 2	1.4cm	128	824.2	OFF	31.6	32.0	1.096	-0.05	1.020	1.118
	GSM850	GPRS (2 Tx slots)	Edge 2	1.4cm	189	836.4	OFF	31.7	32.0	1.072	-0.05	1.020	1.093
	GSM850	GPRS (2 Tx slots)	Edge 3	0cm	251	848.8	OFF	31.8	32.0	1.047	-0.13	0.268	0.281
	GSM850	GPRS (2 Tx slots)	Bottom - Slant of Edge 2	0cm	128	824.2	ON	21.9	23.5	1.445	0.03	0.680	0.983
	GSM850	GPRS (2 Tx slots)	Bottom - Slant of Edge 2	0cm	189	836.4	ON	21.8	23.5	1.479	0.12	0.713	1.055
01	GSM850	GPRS (2 Tx slots)	Bottom - Slant of Edge 2	0cm	251	848.8	ON	21.8	23.5	1.479	-0.02	0.803	**1.188**
	GSM850	GPRS (2 Tx slots)	Edge 2	0cm	128	824.2	ON	21.9	23.5	1.445	0.07	0.550	0.795
	GSM850	GPRS (2 Tx slots)	Bottom Face	0cm	128	824.2	ON	21.9	23.5	1.445	0.02	0.590	0.853
	GSM850	GPRS (2 Tx slots)	Bottom Face	0cm	189	836.4	ON	21.8	23.5	1.479	-0.1	0.649	0.960
	GSM850	GPRS (2 Tx slots)	Bottom Face	0cm	251	848.8	ON	21.8	23.5	1.479	0	0.702	1.038
	GSM1900	GPRS (2 Tx slots)	Bottom - Slant of Edge 2	1.3cm	810	1909.8	OFF	28.9	29.5	1.148	-0.03	0.385	0.442
	GSM1900	GPRS (2 Tx slots)	Edge 1	0cm	810	1909.8	OFF	28.9	29.5	1.148	0.03	0.380	0.436
	GSM1900	GPRS (2 Tx slots)	Edge 2	1.4cm	810	1909.8	OFF	28.9	29.5	1.148	-0.14	0.248	0.285
	GSM1900	GPRS (2 Tx slots)	Edge 3	0cm	810	1909.8	OFF	28.9	29.5	1.148	0.07	0.524	0.602
	GSM1900	GPRS (2 Tx slots)	Bottom - Slant of Edge 2	0cm	810	1909.8	ON	25.4	25.5	1.023	0.14	1.050	1.074
	GSM1900	GPRS (2 Tx slots)	Bottom - Slant of Edge 2	0cm	512	1850.2	ON	25.3	25.5	1.047	0.03	1.140	1.194
	GSM1900	GPRS (2 Tx slots)	Bottom - Slant of Edge 2	0cm	661	1880	ON	25.3	25.5	1.047	0.02	1.070	1.120
	GSM1900	GPRS (2 Tx slots)	Edge 2	0cm	810	1909.8	ON	25.4	25.5	1.023	-0.01	0.978	1.001
	GSM1900	GPRS (2 Tx slots)	Edge 2	0cm	661	1880	ON	25.3	25.5	1.047	-0.02	0.913	0.956
	GSM1900	GPRS (2 Tx slots)	Edge 2	0cm	512	1850.2	ON	25.3	25.5	1.047	-0.12	0.907	0.950
	GSM1900	GPRS (2 Tx slots)	Bottom Face	0cm	810	1909.8	ON	25.4	25.5	1.023	-0.17	0.916	0.937
02	GSM1900	GPRS (2 Tx slots)	Bottom Face	0cm	512	1850.2	ON	25.3	25.5	1.047	-0.1	1.140	**1.194**
	GSM1900	GPRS (2 Tx slots)	Bottom Face	0cm	661	1880	ON	25.3	25.5	1.047	-0.1	0.971	1.017

<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (cm)	Ch.	Freq. (MHz)	Power Reduction	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-slant of Edge 2	1.3cm	4132	826.4	OFF	22.8	23.5	1.175	-0.01	0.479	0.563
	WCDMA V	RMC 12.2Kbps	Edge 1	0cm	4132	826.4	OFF	22.8	23.5	1.175	0.03	0.069	0.081
	WCDMA V	RMC 12.2Kbps	Edge 2	1.4cm	4132	826.4	OFF	22.8	23.5	1.175	-0.04	0.465	0.546
	WCDMA V	RMC 12.2Kbps	Edge 3	0cm	4132	826.4	OFF	22.8	23.5	1.175	-0.05	0.115	0.135
	WCDMA V	RMC 12.2Kbps	Bottom-slant of Edge 2	0cm	4182	836.4	ON	16.6	17.5	1.230	0.06	0.773	0.951
03	WCDMA V	RMC 12.2Kbps	Bottom-slant of Edge 2	0cm	4132	826.4	ON	16.5	17.5	1.259	-0.03	0.850	**1.070**
	WCDMA V	RMC 12.2Kbps	Bottom-slant of Edge 2	0cm	4233	846.6	ON	16.4	17.5	1.288	0.03	0.753	0.970
	WCDMA V	RMC 12.2Kbps	Edge 2	0cm	4182	836.4	ON	16.6	17.5	1.230	-0.03	0.639	0.786
	WCDMA V	RMC 12.2Kbps	Bottom Face	0cm	4182	836.4	ON	16.6	17.5	1.230	-0.03	0.657	0.808
	WCDMA V	RMC 12.2Kbps	Bottom Face	0cm	4132	826.4	ON	16.5	17.5	1.259	-0.03	0.758	0.954
	WCDMA V	RMC 12.2Kbps	Bottom Face	0cm	4233	846.6	ON	16.4	17.5	1.288	0.09	0.666	0.858
	WCDMA II	RMC 12.2Kbps	Bottom - Slant of Edge 2	1.3cm	9262	1852.4	OFF	23.2	23.5	1.072	-0.1	0.473	0.507
	WCDMA II	RMC 12.2Kbps	Edge 1	0cm	9262	1852.4	OFF	23.2	23.5	1.072	0.08	0.530	0.568
	WCDMA II	RMC 12.2Kbps	Edge 2	1.4cm	9262	1852.4	OFF	23.2	23.5	1.072	-0.01	0.317	0.340
	WCDMA II	RMC 12.2Kbps	Edge 3	0cm	9262	1852.4	OFF	23.2	23.5	1.072	0.04	0.660	0.707
	WCDMA II	RMC 12.2Kbps	Bottom - Slant of Edge 2	0cm	9262	1852.4	ON	18.2	19.5	1.349	-0.1	0.821	1.107
	WCDMA II	RMC 12.2Kbps	Bottom - Slant of Edge 2	0cm	9400	1880	ON	18.1	19.5	1.380	-0.07	0.821	1.133
04	WCDMA II	RMC 12.2Kbps	Bottom - Slant of Edge 2	0cm	9538	1907.6	ON	17.8	19.5	1.479	-0.02	0.805	**1.191**
	WCDMA II	RMC 12.2Kbps	Edge 2	0cm	9262	1852.4	ON	18.2	19.5	1.349	-0.09	0.701	0.946
	WCDMA II	RMC 12.2Kbps	Edge 2	0cm	9400	1880	ON	18.1	19.5	1.380	-0.05	0.763	1.053
	WCDMA II	RMC 12.2Kbps	Edge 2	0cm	9538	1907.6	ON	17.8	19.5	1.479	-0.04	0.803	1.188
	WCDMA II	RMC 12.2Kbps	Bottom Face	0cm	9262	1852.4	ON	18.2	19.5	1.349	-0.19	0.814	1.098
	WCDMA II	RMC 12.2Kbps	Bottom Face	0cm	9400	1880	ON	18.1	19.5	1.380	-0.19	0.821	1.133
	WCDMA II	RMC 12.2Kbps	Bottom Face	0cm	9538	1907.6	ON	17.8	19.5	1.479	-0.18	0.793	1.173

<LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (cm)	Ch.	Freq. (MHz)	Power Reduction	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 17	10M	QPSK	1	0	Bottom - Slant of Edge 2	1.3cm	23780	709	OFF	22.8	23.5	1.175	-0.06	0.447	0.525
	LTE Band 17	10M	QPSK	25	0	Bottom - Slant of Edge 2	1.3cm	23780	709	OFF	21.5	22.5	1.259	-0.1	0.364	0.458
	LTE Band 17	10M	QPSK	1	0	Edge 1	0cm	23780	709	OFF	22.8	23.5	1.175	-0.06	0.121	0.142
	LTE Band 17	10M	QPSK	25	0	Edge 1	0cm	23780	709	OFF	21.5	22.5	1.259	-0.04	0.101	0.127
	LTE Band 17	10M	QPSK	1	0	Edge 2	1.4cm	23780	709	OFF	22.8	23.5	1.175	0.15	0.300	0.352
	LTE Band 17	10M	QPSK	25	0	Edge 2	1.4cm	23780	709	OFF	21.5	22.5	1.259	-0.06	0.233	0.293
	LTE Band 17	10M	QPSK	1	0	Edge 3	0cm	23780	709	OFF	22.8	23.5	1.175	-0.06	0.209	0.246
	LTE Band 17	10M	QPSK	25	0	Edge 3	0cm	23780	709	OFF	21.5	22.5	1.259	-0.1	0.183	0.230
	LTE Band 17	10M	QPSK	1	0	Bottom - Slant of Edge 2	0cm	23780	709	ON	17.5	18.0	1.122	-0.18	0.918	1.030
05	LTE Band 17	10M	QPSK	25	0	Bottom - Slant of Edge 2	0cm	23780	709	ON	17.3	18.0	1.175	-0.17	0.967	**1.136**
	LTE Band 17	10M	QPSK	50	0	Bottom - Slant of Edge 2	0cm	23780	709	ON	17.2	18.0	1.202	-0.12	0.890	1.070
	LTE Band 17	10M	QPSK	1	0	Edge 2	0cm	23780	709	ON	17.5	18.0	1.122	-0.07	0.697	0.782
	LTE Band 17	10M	QPSK	25	0	Edge 2	0cm	23780	709	ON	17.3	18.0	1.175	-0.06	0.662	0.778
	LTE Band 17	10M	QPSK	1	0	Bottom Face	0cm	23780	709	ON	17.5	18.0	1.122	-0.13	0.718	0.806
	LTE Band 17	10M	QPSK	25	0	Bottom Face	0cm	23780	709	ON	17.3	18.0	1.175	-0.08	0.744	0.874
	LTE Band 17	10M	QPSK	50	0	Bottom Face	0cm	23780	709	ON	17.2	18.0	1.202	-0.08	0.744	0.894
	LTE Band 4	20M	QPSK	1	0	Bottom - Slant of Edge 2	1.3cm	20050	1720	OFF	24.4	24.5	1.023	0.01	0.543	0.556
	LTE Band 4	20M	QPSK	50	0	Bottom - Slant of Edge 2	1.3cm	20050	1720	OFF	23.1	23.5	1.096	-0.03	0.437	0.479
	LTE Band 4	20M	QPSK	1	0	Edge 1	0cm	20050	1720	OFF	24.4	24.5	1.023	-0.19	0.369	0.378
	LTE Band 4	20M	QPSK	50	0	Edge 1	0cm	20050	1720	OFF	23.1	23.5	1.096	-0.02	0.278	0.305
	LTE Band 4	20M	QPSK	1	0	Edge 2	1.4cm	20050	1720	OFF	24.4	24.5	1.023	0	0.441	0.451
	LTE Band 4	20M	QPSK	50	0	Edge 2	1.4cm	20050	1720	OFF	23.1	23.5	1.096	0.14	0.364	0.399
	LTE Band 4	20M	QPSK	1	0	Edge 3	0cm	20050	1720	OFF	24.4	24.5	1.023	0.01	0.592	0.606
	LTE Band 4	20M	QPSK	50	0	Edge 3	0cm	20050	1720	OFF	23.1	23.5	1.096	0.08	0.476	0.522
	LTE Band 4	20M	QPSK	1	0	Bottom - Slant of Edge 2	0cm	20050	1720	ON	16.3	17.0	1.175	-0.16	0.967	1.136
	LTE Band 4	20M	QPSK	1	0	Bottom - Slant of Edge 2	0cm	20175	1732.5	ON	16.2	17.0	1.202	-0.13	0.940	1.130
	LTE Band 4	20M	QPSK	1	0	Bottom - Slant of Edge 2	0cm	20300	1745	ON	16.1	17.0	1.230	0.04	0.947	1.165
	LTE Band 4	20M	QPSK	50	0	Bottom - Slant of Edge 2	0cm	20050	1720	ON	16.1	17.0	1.230	-0.14	0.742	0.913
	LTE Band 4	20M	QPSK	50	0	Bottom - Slant of Edge 2	0cm	20175	1732.5	ON	16.0	17.0	1.259	0.04	0.790	0.995
06	LTE Band 4	20M	QPSK	50	0	Bottom - Slant of Edge 2	0cm	20300	1745	ON	16.0	17.0	1.259	0.01	0.940	**1.183**
	LTE Band 4	20M	QPSK	100	0	Bottom - Slant of Edge 2	0cm	20050	1720	ON	16.0	17.0	1.259	-0.16	0.784	0.987
	LTE Band 4	20M	QPSK	1	0	Edge 2	0cm	20050	1720	ON	16.3	17.0	1.175	0.02	0.460	0.540
	LTE Band 4	20M	QPSK	50	0	Edge 2	0cm	20050	1720	ON	16.1	17.0	1.230	0.14	0.428	0.527
	LTE Band 4	20M	QPSK	1	0	Bottom Face	0cm	20050	1720	ON	16.3	17.0	1.175	-0.16	0.726	0.853
	LTE Band 4	20M	QPSK	1	0	Bottom Face	0cm	20175	1732.5	ON	16.2	17.0	1.202	-0.14	0.546	0.656
	LTE Band 4	20M	QPSK	1	0	Bottom Face	0cm	20300	1745	ON	16.1	17.0	1.230	-0.16	0.612	0.753
	LTE Band 4	20M	QPSK	50	0	Bottom Face	0cm	20050	1720	ON	16.1	17.0	1.230	-0.01	0.745	0.917
	LTE Band 4	20M	QPSK	50	0	Bottom Face	0cm	20175	1732.5	ON	16.0	17.0	1.259	-0.08	0.572	0.720
	LTE Band 4	20M	QPSK	50	0	Bottom Face	0cm	20300	1745	ON	16.0	17.0	1.259	0	0.575	0.724
	LTE Band 4	20M	QPSK	100	0	Bottom Face	0cm	20050	1720	ON	16.0	17.0	1.259	-0.17	0.574	0.723

<WLAN SAR>

Plot No.	Band	Mode	Test Position	Gap (cm)	Antenna	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)
	WLAN2.4GHz	802.11b 1Mbps	Bottom Face	0cm	Ant 1	6	2437	15.2	15.5	1.081	-0.09	0.897	0.970
	WLAN2.4GHz	802.11b 1Mbps	Bottom Face	0cm	Ant 1	1	2412	15.2	15.5	1.081	-0.06	0.755	0.816
	WLAN2.4GHz	802.11b 1Mbps	Bottom Face	0cm	Ant 1	11	2462	15.0	15.5	1.130	-0.08	0.674	0.761
07	WLAN2.4GHz	802.11b 1Mbps	Bottom Face - Slant of Edge1	0cm	Ant 1	6	2437	15.2	15.5	1.081	-0.03	1.020	**1.103**
	WLAN2.4GHz	802.11b 1Mbps	Bottom Face - Slant of Edge1	0cm	Ant 1	1	2412	15.2	15.5	1.081	0.09	0.834	0.902
	WLAN2.4GHz	802.11b 1Mbps	Bottom Face - Slant of Edge1	0cm	Ant 1	11	2462	15.0	15.5	1.130	-0.11	0.724	0.818
	WLAN2.4GHz	802.11b 1Mbps	Edge 1	0cm	Ant 1	6	2437	15.2	15.5	1.081	-0.08	0.793	0.858
	WLAN2.4GHz	802.11b 1Mbps	Edge 1	0cm	Ant 1	1	2412	15.2	15.5	1.081	-0.05	0.657	0.710
	WLAN2.4GHz	802.11b 1Mbps	Edge 1	0cm	Ant 1	11	2462	15.0	15.5	1.130	-0.06	0.503	0.568
	WLAN2.4GHz	802.11b 1Mbps	Bottom Face	0cm	Ant 2	11	2462	15.2	15.5	1.084	0.02	0.453	0.491
	WLAN2.4GHz	802.11b 1Mbps	Bottom Face - Slant of Edge4	0cm	Ant 2	11	2462	15.2	15.5	1.084	-0.11	0.544	0.590
	WLAN2.4GHz	802.11b 1Mbps	Edge 4	0cm	Ant 2	11	2462	15.2	15.5	1.084	-0.07	0.279	0.302
	WLAN5GHz	802.11a 6Mbps	Bottom Face	0cm	Ant 1	36	5180	12.1	12.5	1.093	-0.17	0.493	0.539
	WLAN5GHz	802.11a 6Mbps	Bottom Face - Slant of Edge1	0cm	Ant 1	36	5180	12.1	12.5	1.093	-0.09	0.585	0.639
	WLAN5GHz	802.11ac-VHT80 MCS0	Bottom Face - Slant of Edge1	0cm	Ant 1	42	5210	12.2	12.5	1.066	-0.13	0.524	0.558
	WLAN5GHz	802.11a 6Mbps	Edge 1	0cm	Ant 1	36	5180	12.1	12.5	1.093	-0.06	0.515	0.563
	WLAN5GHz	802.11a 6Mbps	Bottom Face	0cm	Ant 2	44	5220	12.5	12.5	1.007	-0.01	0.789	0.794
08	WLAN5GHz	802.11a 6Mbps	Bottom Face - Slant of Edge4	0cm	Ant 2	44	5220	12.5	12.5	1.007	-0.12	1.150	**1.158**
	WLAN5GHz	802.11a 6Mbps	Bottom Face - Slant of Edge4	0cm	Ant 2	36	5180	12.5	12.5	1.007	-0.05	1.120	1.127
	WLAN5GHz	802.11ac-VHT80 MCS0	Bottom Face - Slant of Edge4	0cm	Ant 2	42	5210	12.5	12.5	1.000	-0.08	0.872	0.872
	WLAN5GHz	802.11a 6Mbps	Edge 4	0cm	Ant 2	44	5220	12.5	12.5	1.007	-0.03	0.969	0.975
	WLAN5GHz	802.11a 6Mbps	Edge 4	0cm	Ant 2	36	5180	12.5	12.5	1.007	-0.04	0.892	0.898
	WLAN5GHz	802.11a 6Mbps	Bottom Face	0cm	Ant 1	52	5260	13.0	13.0	1.001	-0.19	0.634	0.635
	WLAN5GHz	802.11a 6Mbps	Bottom Face - Slant of Edge1	0cm	Ant 1	52	5260	13.0	13.0	1.001	-0.04	0.670	0.671
	WLAN5GHz	802.11ac-VHT80 MCS0	Bottom Face - Slant of Edge1	0cm	Ant 1	58	5290	12.9	13.0	1.018	-0.1	0.442	0.450
	WLAN5GHz	802.11a 6Mbps	Edge 1	0cm	Ant 1	52	5260	13.0	13.0	1.001	-0.17	0.570	0.571
	WLAN5GHz	802.11a 6Mbps	Bottom Face	0cm	Ant 2	60	5300	11.1	11.5	1.099	-0.15	0.689	0.757
09	WLAN5GHz	802.11a 6Mbps	Bottom Face - Slant of Edge4	0cm	Ant 2	60	5300	11.1	11.5	1.099	-0.1	1.140	**1.252**
	WLAN5GHz	802.11a 6Mbps	Bottom Face - Slant of Edge4	0cm	Ant 2	52	5260	11.1	11.5	1.104	-0.09	1.010	1.115
	WLAN5GHz	802.11ac-VHT80 MCS0	Bottom Face - Slant of Edge4	0cm	Ant 2	58	5290	11.5	11.5	1.006	-0.12	0.775	0.780
	WLAN5GHz	802.11a 6Mbps	Edge 4	0cm	Ant 2	60	5300	11.1	11.5	1.099	-0.07	1.000	1.099
	WLAN5GHz	802.11a 6Mbps	Edge 4	0cm	Ant 2	52	5260	11.1	11.5	1.104	-0.02	0.902	0.995

Plot No.	Band	Mode	Test Position	Gap (cm)	Antenna	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)
	WLAN5GHz	802.11a 6Mbps	Bottom Face	0cm	Ant 1	108	5540	13.0	13.0	1.000	-0.01	0.522	0.522
	WLAN5GHz	802.11a 6Mbps	Bottom Face	0cm	Ant 1	116	5580	13.0	13.0	1.000	-0.13	0.407	0.407
	WLAN5GHz	802.11a 6Mbps	Bottom Face	0cm	Ant 1	136	5680	13.0	13.0	1.000	-0.021	0.468	0.468
	WLAN5GHz	802.11a 6Mbps	Bottom Face - Slant of Edge1	0cm	Ant 1	108	5540	13.0	13.0	1.000	-0.12	0.542	0.542
	WLAN5GHz	802.11a 6Mbps	Bottom Face - Slant of Edge1	0cm	Ant 1	116	5580	13.0	13.0	1.000	0.03	0.535	0.535
	WLAN5GHz	802.11a 6Mbps	Bottom Face - Slant of Edge1	0cm	Ant 1	136	5680	13.0	13.0	1.000	-0.15	0.509	0.509
	WLAN5GHz	802.11ac-VHT80 MCS0	Bottom Face - Slant of Edge1	0cm	Ant 1	106	5530	13.0	13.0	1.004	-0.11	0.438	0.440
	WLAN5GHz	802.11ac-VHT80 MCS0	Bottom Face - Slant of Edge1	0cm	Ant 1	138	5690	13.0	13.0	1.011	-0.12	0.279	0.282
	WLAN5GHz	802.11a 6Mbps	Edge 1	0cm	Ant 1	108	5540	13.0	13.0	1.000	-0.08	0.475	0.475
	WLAN5GHz	802.11a 6Mbps	Edge 1	0cm	Ant 1	116	5580	13.0	13.0	1.000	-0.05	0.467	0.467
	WLAN5GHz	802.11a 6Mbps	Edge 1	0cm	Ant 1	136	5680	13.0	13.0	1.000	-0.05	0.400	0.400
	WLAN5GHz	802.11a 6Mbps	Bottom Face	0cm	Ant 2	108	5540	11.1	11.5	1.096	-0.19	0.700	0.768
	WLAN5GHz	802.11a 6Mbps	Bottom Face	0cm	Ant 2	116	5580	11.1	11.5	1.099	-0.03	0.772	0.848
	WLAN5GHz	802.11a 6Mbps	Bottom Face	0cm	Ant 2	140	5700	11.1	11.5	1.096	-0.04	0.690	0.756
	WLAN5GHz	802.11a 6Mbps	Bottom Face - Slant of Edge4	0cm	Ant 2	108	5540	11.1	11.5	1.096	-0.03	0.994	1.090
10	WLAN5GHz	802.11a 6Mbps	Bottom Face - Slant of Edge4	0cm	Ant 2	116	5580	11.1	11.5	1.099	-0.06	1.050	**1.154**
	WLAN5GHz	802.11a 6Mbps	Bottom Face - Slant of Edge4	0cm	Ant 2	140	5700	11.1	11.5	1.096	-0.05	0.884	0.969
	WLAN5GHz	802.11ac-VHT80 MCS0	Bottom Face - Slant of Edge4	0cm	Ant 2	106	5530	11.5	11.5	1.011	-0.11	1.050	1.061
	WLAN5GHz	802.11ac-VHT80 MCS0	Bottom Face - Slant of Edge4	0cm	Ant 2	138	5690	11.2	11.5	1.069	-0.16	0.655	0.700
	WLAN5GHz	802.11a 6Mbps	Edge 4	0cm	Ant 2	108	5540	11.1	11.5	1.096	-0.16	0.808	0.886
	WLAN5GHz	802.11a 6Mbps	Edge 4	0cm	Ant 2	116	5580	11.1	11.5	1.099	-0.17	0.767	0.843
	WLAN5GHz	802.11a 6Mbps	Edge 4	0cm	Ant 2	140	5700	11.1	11.5	1.096	-0.12	0.652	0.715
	WLAN5GHz	802.11a 6Mbps	Bottom Face	0cm	Ant 1	165	5825	13.0	13.0	1.000	-0.01	1.130	1.130
	WLAN5GHz	802.11a 6Mbps	Bottom Face	0cm	Ant 1	153	5765	12.6	13.0	1.096	-0.01	0.820	0.899
	WLAN5GHz	802.11a 6Mbps	Bottom Face	0cm	Ant 1	157	5785	12.1	13.0	1.218	-0.09	0.821	1.000
	WLAN5GHz	802.11a 6Mbps	Bottom Face - Slant of Edge1	0cm	Ant 1	165	5825	13.0	13.0	1.000	-0.08	1.170	1.170
	WLAN5GHz	802.11a 6Mbps	Bottom Face - Slant of Edge1	0cm	Ant 1	153	5765	12.6	13.0	1.096	-0.09	0.853	0.935
	WLAN5GHz	802.11a 6Mbps	Bottom Face - Slant of Edge1	0cm	Ant 1	157	5785	12.1	13.0	1.218	-0.06	0.871	1.061
	WLAN5GHz	802.11ac-VHT80 MCS0	Bottom Face - Slant of Edge1	0cm	Ant 1	155	5775	12.5	13.0	1.126	-0.09	0.604	0.680
	WLAN5GHz	802.11a 6Mbps	Edge 1	0cm	Ant 1	165	5825	13.0	13.0	1.000	0.05	0.316	0.316
	WLAN5GHz	802.11a 6Mbps	Bottom Face	0cm	Ant 2	165	5825	13.0	13.0	1.009	-0.07	0.914	0.922
	WLAN5GHz	802.11a 6Mbps	Bottom Face	0cm	Ant 2	149	5745	12.6	13.0	1.094	0.01	0.777	0.850
	WLAN5GHz	802.11a 6Mbps	Bottom Face	0cm	Ant 2	157	5785	12.5	13.0	1.135	-0.07	0.766	0.869
11	WLAN5GHz	802.11a 6Mbps	Bottom Face - Slant of Edge4	0cm	Ant 2	165	5825	13.0	13.0	1.009	-0.03	1.250	**1.261**
	WLAN5GHz	802.11a 6Mbps	Bottom Face - Slant of Edge4	0cm	Ant 2	149	5745	12.6	13.0	1.094	-0.05	1.030	1.126
	WLAN5GHz	802.11a 6Mbps	Bottom Face - Slant of Edge4	0cm	Ant 2	157	5785	12.5	13.0	1.135	-0.14	0.997	1.131
	WLAN5GHz	802.11ac-VHT80 MCS0	Bottom Face - Slant of Edge4	0cm	Ant 2	155	5775	13.0	13.0	1.008	-0.11	0.829	0.836
	WLAN5GHz	802.11a 6Mbps	Edge 4	0cm	Ant 2	165	5825	13.0	13.0	1.009	-0.19	0.909	0.917
	WLAN5GHz	802.11a 6Mbps	Edge 4	0cm	Ant 2	149	5745	12.6	13.0	1.094	-0.06	0.730	0.798
	WLAN5GHz	802.11a 6Mbps	Edge 4	0cm	Ant 2	157	5785	12.5	13.0	1.135	-0.13	0.736	0.835

16.2 Repeated SAR Measurement

No.	Band	Mode	Test Position	Gap (cm)	Ch.	Freq. (MHz)	Power Reduction	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)	Edge 2	1.4cm	128	824.2	OFF	31.6	32.0	1.096	-0.05	1.020	-	1.118
2nd	GSM850	GPRS (2 Tx slots)	Edge 2	1.4cm	128	824.2	OFF	31.6	32.0	1.096	-0.04	1.010	1.01	1.107
1st	GSM1900	GPRS (2 Tx slots)	Bottom Face	0cm	512	1850.2	ON	25.3	25.5	1.047	-0.1	1.140	-	1.194
2nd	GSM1900	GPRS (2 Tx slots)	Bottom Face	0cm	512	1850.2	ON	25.3	25.5	1.047	-0.11	1.120	1.02	1.173

No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (cm)	Ch.	Freq. (MHz)	Power Reduction	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 17	10M	QPSK	25	0	Bottom - Slant of Edge 2	0cm	23780	709	ON	17.3	18.0	1.175	-0.17	0.967	-	1.136
2nd	LTE Band 17	10M	QPSK	25	0	Bottom - Slant of Edge 2	0cm	23780	709	ON	17.3	18.0	1.175	0.01	0.952	1.05	1.119
1st	LTE Band 4	20M	QPSK	1	0	Bottom - Slant of Edge 2	0cm	20050	1720	ON	16.3	17.0	1.175	-0.16	0.967	-	1.136
2nd	LTE Band 4	20M	QPSK	1	0	Bottom - Slant of Edge 2	0cm	20050	1720	ON	16.3	17.0	1.175	0.02	0.839	1.15	0.986

Plot No.	Band	Mode	Test Position	Gap (cm)	Antenna	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	WLAN2.4GHz	802.11b 1Mbps	Bottom Face - Slant of Edge1	0cm	Ant 1	6	2437	15.2	15.5	1.081	-0.03	1.020	-	1.103
2nd	WLAN2.4GHz	802.11b 1Mbps	Bottom Face - Slant of Edge1	0cm	Ant 1	6	2437	15.2	15.5	1.081	-0.03	1.010	1.01	1.092
1st	WLAN5GHz	802.11a 6Mbps	Bottom Face - Slant of Edge4	0cm	Ant 2	44	5220	12.5	12.5	1.007	-0.12	1.150	-	1.158
2nd	WLAN5GHz	802.11a 6Mbps	Bottom Face - Slant of Edge4	0cm	Ant 2	44	5220	12.5	12.5	1.007	-0.16	1.050	1.10	1.057
1st	WLAN5GHz	802.11a 6Mbps	Bottom Face - Slant of Edge4	0cm	Ant 2	60	5300	11.1	11.5	1.099	-0.1	1.140	-	1.252
2nd	WLAN5GHz	802.11a 6Mbps	Bottom Face - Slant of Edge4	0cm	Ant 2	60	5300	11.1	11.5	1.099	-0.08	1.040	1.10	1.143
1st	WLAN5GHz	802.11a 6Mbps	Bottom Face - Slant of Edge4	0cm	Ant 2	116	5580	11.1	11.5	1.099	-0.06	1.050	-	1.154
2nd	WLAN5GHz	802.11a 6Mbps	Bottom Face - Slant of Edge4	0cm	Ant 2	116	5580	11.1	11.5	1.099	-0.07	1.040	1.01	1.143
1st	WLAN5GHz	802.11a 6Mbps	Bottom Face - Slant of Edge4	0cm	Ant 2	165	5825	13.0	13.0	1.009	-0.03	1.250	-	1.261
2nd	WLAN5GHz	802.11a 6Mbps	Bottom Face - Slant of Edge4	0cm	Ant 2	165	5825	13.0	13.0	1.009	-0.09	1.190	1.05	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*.
4. All measurement SAR result is scaled-up to account for tune-up tolerance and is compliant.

17. Simultaneous Transmission Analysis

NO.	Simultaneous Transmission Configurations	Supported
1.	WWAN + Bluetooth	Yes
2.	WWAN + WLAN Antenna 1 + WLAN Antenna 2	Yes
3.	WLAN Antenna 1 + WLAN Antenna 2	Yes

General Note:

1. WLAN and Bluetooth share the same antenna1, and cannot transmit simultaneously.
2. This device does not supported SISO mode operation.
3. EUT will choose either WLAN 2.4GHz or WLAN 5GHz according to the network signal condition; therefore, 2.4GHz WLAN and 5GHz WLAN will not operate simultaneously at any moment.
4. The worst case WLAN reported SAR for each configuration was used for SAR summation, regardless of whether the WLAN channel has WiFi Direct and Hotspot capability. Therefore, the following summations represent the absolute worst cases for simultaneous transmission with WLAN.
5. The Scaled SAR summation is calculated based on the same configuration and test position.
6. Per KDB 447498 D01v05r02, 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 17.2.
7. For simultaneous transmission analysis, Bluetooth SAR is estimated per KDB 447498 D01v05r02 based on the formula below.
   i) (*max. power of channel, including tune-up tolerance, mW*)/(*min. test separation distance, mm*)]·[$\sqrt{}$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 Position
	Separation Distance	5 mm
9.5 dBm	Estimated SAR (W/kg)	0.378 W/kg

17.1 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+3 Summed SAR (W/kg)	SPLSR	Case No
GSM	GSM850	Bottom Face at 0 cm	1.038	0.970	0.491	**2.50**	0.02	Case 1
		Bottom Face - Slant of Edge1 at 0 cm		1.103		**1.10**		
		Bottom Face - Slant of Edge4 at 0 cm			0.59	**0.59**		
		Edge1 at 0cm	0.141	0.858		**1.00**		
		Edge4 at 0cm			0.302	**0.30**		
		Bottom - Slant of Edge 2 at 1.3cm	1.118			**1.12**		
		Bottom - Slant of Edge 2 at 0cm	1.188			**1.19**		
		Edge2 at 1.4cm	1.118			**1.12**		
		Edge2 at 0cm	0.795			**0.80**		
		Edge3 at 0cm	0.281			**0.28**		
	GSM1900	Bottom Face at 0 cm	1.194	0.970	0.491	**2.66**	0.02	Case 2
		Bottom Face - Slant of Edge1 at 0 cm		1.103		**1.10**		
		Bottom Face - Slant of Edge4 at 0 cm			0.59	**0.59**		
		Edge1 at 0cm	0.436	0.858		**1.29**		
		Edge4 at 0cm			0.302	**0.30**		
		Bottom - Slant of Edge 2 at 1.3cm	0.442			**0.44**		
		Bottom - Slant of Edge 2 at 0cm	1.194			**1.19**		
		Edge2 at 1.4cm	0.285			**0.29**		
		Edge2 at 0cm	1.001			**1.00**		
		Edge3 at 0cm	0.602			**0.60**		
WCMDA	Band V	Bottom Face at 0 cm	0.954	0.970	0.491	**2.42**	0.02	Case 3
		Bottom Face - Slant of Edge1 at 0 cm		1.103		**1.10**		
		Bottom Face - Slant of Edge4 at 0 cm			0.59	**0.59**		
		Edge1 at 0cm	0.081	0.858		**0.94**		
		Edge4 at 0cm			0.302	**0.30**		
		Bottom - Slant of Edge 2 at 1.3cm	0.563			**0.56**		
		Bottom - Slant of Edge 2 at 0cm	1.070			**1.07**		
		Edge2 at 1.4cm	0.546			**0.55**		
		Edge2 at 0cm	0.786			**0.79**		
		Edge3 at 0cm	0.135			**0.14**		
	Band II	Bottom Face at 0 cm	1.173	0.970	0.491	**2.63**	0.02	Case 4
		Bottom Face - Slant of Edge1 at 0 cm		1.103		**1.10**		
		Bottom Face - Slant of Edge4 at 0 cm			0.59	**0.59**		
		Edge1 at 0cm	0.568	0.858		**1.43**		
		Edge4 at 0cm			0.302	**0.30**		
		Bottom - Slant of Edge 2 at 1.3cm	0.507			**0.51**		
		Bottom - Slant of Edge 2 at 0cm	1.191			**1.19**		
		Edge2 at 1.4cm	0.340			**0.34**		
		Edge2 at 0cm	1.188			**1.19**		
		Edge3 at 0cm	0.707			**0.71**		

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+3 Summed SAR (W/kg)	SPLSR	Case No
LTE	Band 17	Bottom Face at 0 cm	0.894	0.97	0.491	**2.36**	0.02	Case 5
		Bottom Face - Slant of Edge1 at 0 cm		1.103		**1.10**		
		Bottom Face - Slant of Edge4 at 0 cm			0.59	**0.59**		
		Edge1 at 0cm	0.142	0.858		**1.00**		
		Edge4 at 0cm			0.302	**0.30**		
		Bottom - Slant of Edge 2 at 1.3cm	0.525			**0.53**		
		Bottom - Slant of Edge 2 at 0cm	1.136			**1.14**		
		Edge2 at 1.4cm	0.352			**0.35**		
		Edge2 at 0cm	0.782			**0.78**		
		Edge3 at 0cm	0.246			**0.25**		
	Band 4	Bottom Face at 0 cm	0.917	0.97	0.491	**2.38**	0.02	Case 6
		Bottom Face - Slant of Edge1 at 0 cm		1.103		**1.10**		
		Bottom Face - Slant of Edge4 at 0 cm			0.59	**0.59**		
		Edge1 at 0cm	0.378	0.858		**1.24**		
		Edge4 at 0cm			0.302	**0.30**		
		Bottom - Slant of Edge 2 at 1.3cm	0.556			**0.56**		
		Bottom - Slant of Edge 2 at 0cm	1.183			**1.18**		
		Edge2 at 1.4cm	0.451			**0.45**		
		Edge2 at 0cm	0.540			**0.54**		
		Edge3 at 0cm	0.606			**0.61**		

WWAN Band		Exposure Position	1 WWAN SAR (W/kg)	4 Bluetooth Ant 1 Estimated SAR (W/kg)	**1+4 Summed SAR (W/kg)**	SPLSR	Case No
GSM	GSM850	Bottom Face at 0 cm	1.038	0.378	**1.42**		
		Bottom Face - Slant of Edge1 at 0 cm		0.378	**0.38**		
		Bottom Face - Slant of Edge4 at 0 cm		0.378	**0.38**		
		Edge1 at 0cm	0.141	0.378	**0.52**		
		Edge4 at 0cm		0.378	**0.38**		
		Bottom - Slant of Edge 2 at 1.3cm	1.118	0.378	**1.50**		
		Bottom - Slant of Edge 2 at 0cm	1.188	0.378	**1.57**		
		Edge2 at 1.4cm	1.118	0.378	**1.50**		
		Edge2 at 0cm	0.795	0.378	**1.17**		
		Edge3 at 0cm	0.281	0.378	**0.66**		
	GSM1900	Bottom Face at 0 cm	1.194	0.378	**1.57**		
		Bottom Face - Slant of Edge1 at 0 cm		0.378	**0.38**		
		Bottom Face - Slant of Edge4 at 0 cm		0.378	**0.38**		
		Edge1 at 0cm	0.436	0.378	**0.81**		
		Edge4 at 0cm		0.378	**0.38**		
		Bottom - Slant of Edge 2 at 1.3cm	0.442	0.378	**0.82**		
		Bottom - Slant of Edge 2 at 0cm	1.194	0.378	**1.57**		
		Edge2 at 1.4cm	0.285	0.378	**0.66**		
		Edge2 at 0cm	1.001	0.378	**1.38**		
		Edge3 at 0cm	0.602	0.378	**0.98**		
WCMDA	Band V	Bottom Face at 0 cm	0.954	0.378	**1.33**		
		Bottom Face - Slant of Edge1 at 0 cm		0.378	**0.38**		
		Bottom Face - Slant of Edge4 at 0 cm		0.378	**0.38**		
		Edge1 at 0cm	0.081	0.378	**0.46**		
		Edge4 at 0cm		0.378	**0.38**		
		Bottom - Slant of Edge 2 at 1.3cm	0.563	0.378	**0.94**		
		Bottom - Slant of Edge 2 at 0cm	1.070	0.378	**1.45**		
		Edge2 at 1.4cm	0.546	0.378	**0.92**		
		Edge2 at 0cm	0.786	0.378	**1.16**		
		Edge3 at 0cm	0.135	0.378	**0.51**		
	Band II	Bottom Face at 0 cm	1.173	0.378	**1.55**		
		Bottom Face - Slant of Edge1 at 0 cm		0.378	**0.38**		
		Bottom Face - Slant of Edge4 at 0 cm		0.378	**0.38**		
		Edge1 at 0cm	0.568	0.378	**0.95**		
		Edge4 at 0cm		0.378	**0.38**		
		Bottom - Slant of Edge 2 at 1.3cm	0.507	0.378	**0.89**		
		Bottom - Slant of Edge 2 at 0cm	1.191	0.378	**1.57**		
		Edge2 at 1.4cm	0.340	0.378	**0.72**		
		Edge2 at 0cm	1.188	0.378	**1.57**		
		Edge3 at 0cm	0.707	0.378	**1.09**		

WWAN Band		Exposure Position	1 WWAN SAR (W/kg)	4 Bluetooth Ant 1 Estimated SAR (W/kg)	**1+4 Summed SAR (W/kg)**	SPLSR	Case No
LTE	Band 17	Bottom Face at 0 cm	0.894	0.378	**1.27**		
		Bottom Face - Slant of Edge1 at 0 cm		0.378	**0.38**		
		Bottom Face - Slant of Edge4 at 0 cm		0.378	**0.38**		
		Edge1 at 0cm	0.142	0.378	**0.52**		
		Edge4 at 0cm		0.378	**0.38**		
		Bottom - Slant of Edge 2 at 1.3cm	0.525	0.378	**0.90**		
		Bottom - Slant of Edge 2 at 0cm	1.136	0.378	**1.51**		
		Edge2 at 1.4cm	0.352	0.378	**0.73**		
		Edge2 at 0cm	0.782	0.378	**1.16**		
		Edge3 at 0cm	0.246	0.378	**0.62**		
	Band 4	Bottom Face at 0 cm	0.917	0.378	**1.30**		
		Bottom Face - Slant of Edge1 at 0 cm		0.378	**0.38**		
		Bottom Face - Slant of Edge4 at 0 cm		0.378	**0.38**		
		Edge1 at 0cm	0.378	0.378	**0.76**		
		Edge4 at 0cm		0.378	**0.38**		
		Bottom - Slant of Edge 2 at 1.3cm	0.556	0.378	**0.93**		
		Bottom - Slant of Edge 2 at 0cm	1.183	0.378	**1.56**		
		Edge2 at 1.4cm	0.451	0.378	**0.83**		
		Edge2 at 0cm	0.540	0.378	**0.92**		
		Edge3 at 0cm	0.606	0.378	**0.98**		

WWAN Band		Exposure Position	1	2		3		1+2+3 Summed SAR (W/kg)	SPLSR	Case No
			WWAN	5.2GHz / 5.3GHz / 5.5GHz / 5.8GHz WLAN Ant 1		5.2GHz / 5.3GHz / 5.5GHz / 5.8GHz WLAN Ant 2				
			SAR (W/kg)	Band	SAR (W/kg)	Band	SAR (W/kg)			
GSM	GSM850	Bottom Face at 0 cm	1.038	5.8GHz WLAN	1.130	5.8GHz WLAN	0.922	**3.09**	0.02	Case 7
		Bottom Face - Slant of Edge1 at 0 cm		5.8GHz WLAN	1.170			**1.17**		
		Bottom Face - Slant of Edge4 at 0 cm				5.8GHz WLAN	1.261	**1.26**		
		Edge1 at 0cm	0.141	5.3GHz WLAN	0.571			**0.71**		
		Edge4 at 0cm				5.3GHz WLAN	1.099	**1.10**		
		Bottom - Slant of Edge 2 at 1.3cm	1.118					**1.12**		
		Bottom - Slant of Edge 2 at 0cm	1.188					**1.19**		
		Edge2 at 1.4cm	1.118					**1.12**		
		Edge2 at 0cm	0.795					**0.80**		
		Edge3 at 0cm	0.281					**0.28**		
	GSM1900	Bottom Face at 0 cm	1.194	5.8GHz WLAN	1.130	5.8GHz WLAN	0.922	**3.25**	0.02	Case 8
		Bottom Face - Slant of Edge1 at 0 cm		5.8GHz WLAN	1.170			**1.17**		
		Bottom Face - Slant of Edge4 at 0 cm				5.8GHz WLAN	1.261	**1.26**		
		Edge1 at 0cm	0.436	5.3GHz WLAN	0.571			**1.01**		
		Edge4 at 0cm				5.3GHz WLAN	1.099	**1.10**		
		Bottom - Slant of Edge 2 at 1.3cm	0.442					**0.44**		
		Bottom - Slant of Edge 2 at 0cm	1.194					**1.19**		
		Edge2 at 1.4cm	0.285					**0.29**		
		Edge2 at 0cm	1.001					**1.00**		
		Edge3 at 0cm	0.602					**0.60**		
WCMDA	Band V	Bottom Face at 0 cm	0.954	5.8GHz WLAN	1.130	5.8GHz WLAN	0.922	**3.01**	0.02	Case 9
		Bottom Face - Slant of Edge1 at 0 cm		5.8GHz WLAN	1.170			**1.17**		
		Bottom Face - Slant of Edge4 at 0 cm				5.8GHz WLAN	1.261	**1.26**		
		Edge1 at 0cm	0.081	5.3GHz WLAN	0.571			**0.65**		
		Edge4 at 0cm				5.3GHz WLAN	1.099	**1.10**		
		Bottom - Slant of Edge 2 at 1.3cm	0.563					**0.56**		
		Bottom - Slant of Edge 2 at 0cm	1.07					**1.07**		
		Edge2 at 1.4cm	0.546					**0.55**		
		Edge2 at 0cm	0.786					**0.79**		
		Edge3 at 0cm	0.135					**0.14**		
	Band II	Bottom Face at 0 cm	1.173	5.8GHz WLAN	1.130	5.8GHz WLAN	0.922	**3.22**	0.02	Case 10
		Bottom Face - Slant of Edge1 at 0 cm		5.8GHz WLAN	1.170			**1.17**		
		Bottom Face - Slant of Edge4 at 0 cm				5.8GHz WLAN	1.261	**1.26**		
		Edge1 at 0cm	0.568	5.3GHz WLAN	0.571			**1.14**		
		Edge4 at 0cm				5.3GHz WLAN	1.099	**1.10**		
		Bottom - Slant of Edge 2 at 1.3cm	0.507					**0.51**		
		Bottom - Slant of Edge 2 at 0cm	1.191					**1.19**		
		Edge2 at 1.4cm	0.34					**0.34**		
		Edge2 at 0cm	1.188					**1.19**		
		Edge3 at 0cm	0.707					**0.71**		

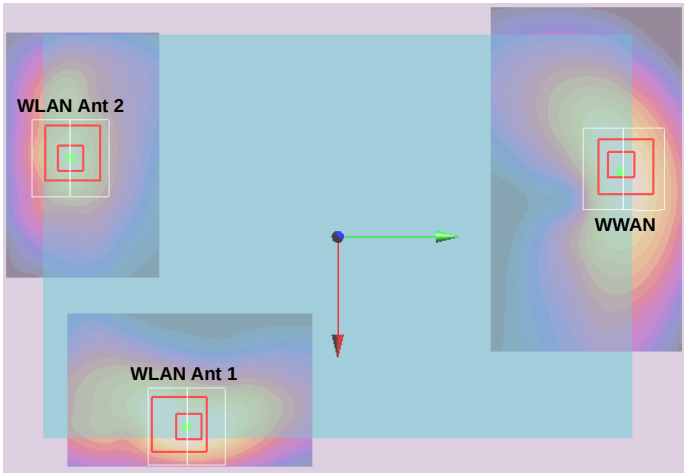
WWAN Band		Exposure Position	1	2		3		1+2+3 Summed SAR (W/kg)	SPLSR	Case No
			WWAN	5.2GHz / 5.3GHz / 5.5GHz / 5.8GHz WLAN Ant 1		5.2GHz / 5.3GHz / 5.5GHz / 5.8GHz WLAN Ant 2				
			SAR (W/kg)	Band	SAR (W/kg)	Band	SAR (W/kg)			
LTE	Band 17	Bottom Face at 0 cm	0.894	5.8GHz WLAN	1.130	5.8GHz WLAN	0.922	**2.95**	0.02	Case 11
		Bottom Face - Slant of Edge1 at 0 cm		5.8GHz WLAN	1.170			**1.17**		
		Bottom Face - Slant of Edge4 at 0 cm				5.8GHz WLAN	1.261	**1.26**		
		Edge1 at 0cm	0.142	5.3GHz WLAN	0.571			**0.71**		
		Edge4 at 0cm				5.3GHz WLAN	1.099	**1.10**		
		Bottom - Slant of Edge 2 at 1.3cm	0.525					**0.53**		
		Bottom - Slant of Edge 2 at 0cm	1.136					**1.14**		
		Edge2 at 1.4cm	0.352					**0.35**		
		Edge2 at 0cm	0.782					**0.78**		
		Edge3 at 0cm	0.246					**0.25**		
	Band 4	Bottom Face at 0 cm	0.917	5.8GHz WLAN	1.130	5.8GHz WLAN	0.922	**2.97**	0.02	Case 12
		Bottom Face - Slant of Edge1 at 0 cm		5.8GHz WLAN	1.170			**1.17**		
		Bottom Face - Slant of Edge4 at 0 cm				5.8GHz WLAN	1.261	**1.26**		
		Edge1 at 0cm	0.378	5.3GHz WLAN	0.571			**0.95**		
		Edge4 at 0cm				5.3GHz WLAN	1.099	**1.10**		
		Bottom - Slant of Edge 2 at 1.3cm	0.556					**0.56**		
		Bottom - Slant of Edge 2 at 0cm	1.183					**1.18**		
		Edge2 at 1.4cm	0.451					**0.45**		
		Edge2 at 0cm	0.54					**0.54**		
		Edge3 at 0cm	0.606					**0.61**		

17.2 SPLSR Evaluation and Analysis

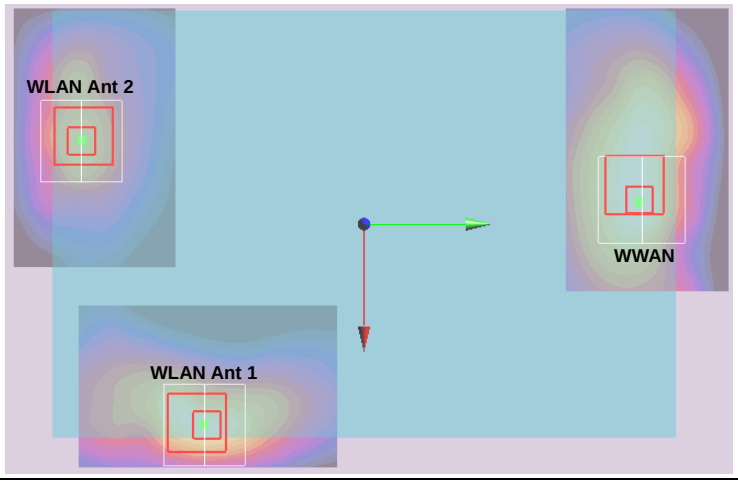
General Note:

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

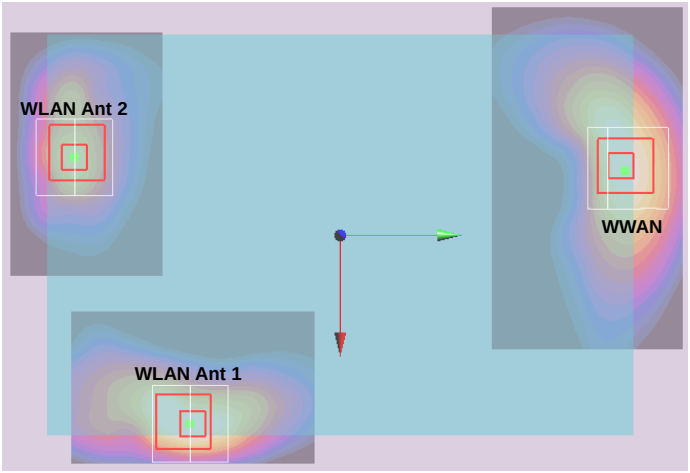
	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case 1	GSM850	Bottom Face	1.038	0	-0.0265	0.112	-0.176	198.7	2.01	0.01	Not required
	2.4GHz WLAN Ant 1		0.970	0	0.0744	-0.0592	-0.175				
	GSM850		1.038	0	-0.0265	0.112	-0.176	217.0	1.53	0.01	Not required
	2.4GHz WLAN Ant 2		0.491	0	-0.0307	-0.105	-0.175				
	2.4GHz WLAN Ant 1		0.970	0	0.0744	-0.0592	-0.175	114.6	1.46	0.02	Not required
	2.4GHz WLAN Ant 2		0.491	0	-0.0307	-0.105	-0.175				



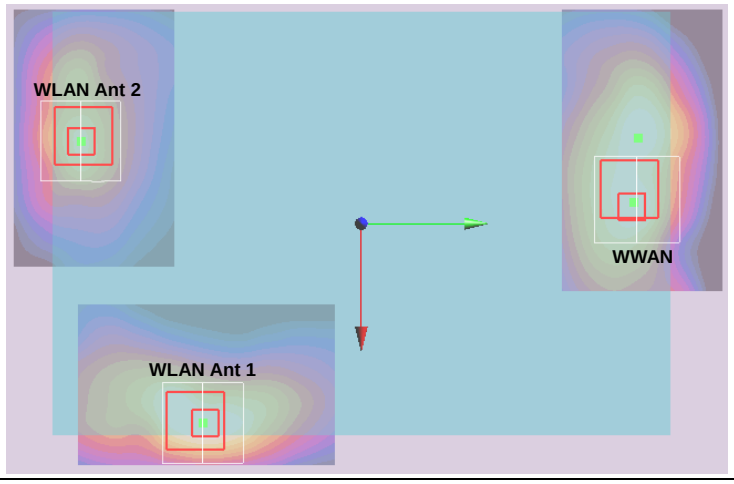
	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case 2	GSM1900	Bottom Face	1.194	0	-0.009	0.103	-0.175	182.4	2.16	0.02	Not required
	2.4GHz WLAN Ant 1		0.970	0	0.0744	-0.0592	-0.175				
	GSM1900		1.194	0	-0.009	0.103	-0.175	209.1	1.69	0.01	Not required
	2.4GHz WLAN Ant 2		0.491	0	-0.0307	-0.105	-0.175				
	2.4GHz WLAN Ant 1		0.970	0	0.0744	-0.0592	-0.175	114.6	1.46	0.02	Not required
	2.4GHz WLAN Ant 2		0.491	0	-0.0307	-0.105	-0.175				



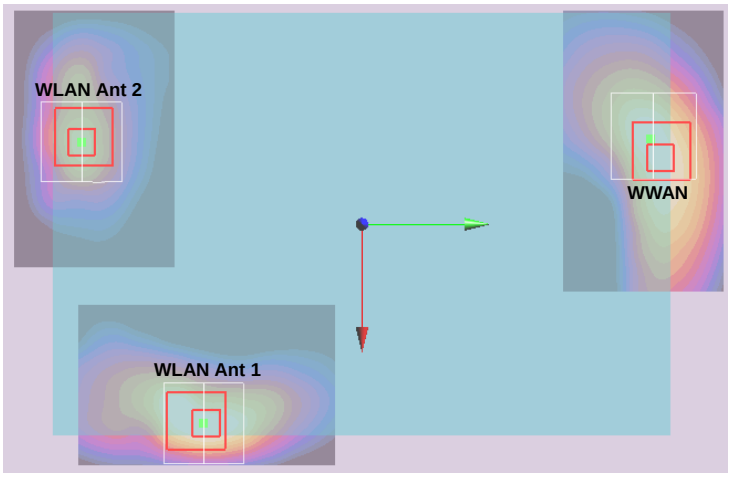
	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case 3	WCDMA V	Bottom Face	0.954	0	-0.0345	0.106	-0.175	197.9	1.92	0.01	Not required
	2.4GHz WLAN Ant 1		0.970	0	0.0744	-0.0592	-0.175				
	WCDMA V		0.954	0	-0.0345	0.106	-0.175	211.0	1.45	0.01	Not required
	2.4GHz WLAN Ant 2		0.491	0	-0.0307	-0.105	-0.175				
	2.4GHz WLAN Ant 1		0.970	0	0.0744	-0.0592	-0.175	114.6	1.46	0.02	Not required
	2.4GHz WLAN Ant 2		0.491	0	-0.0307	-0.105	-0.175				



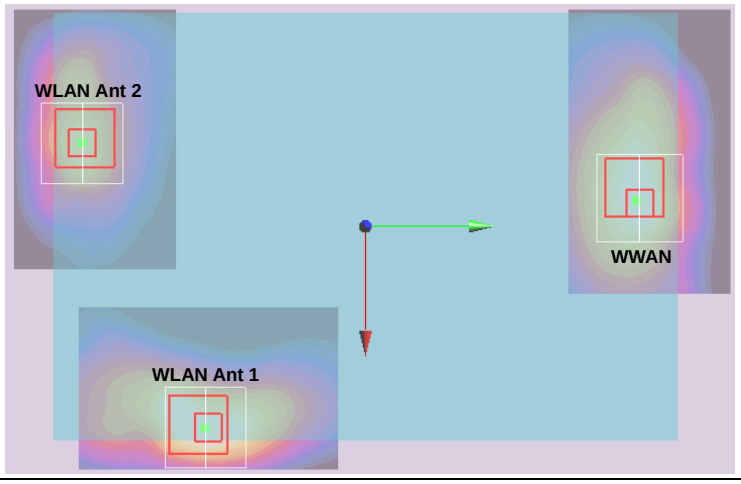
	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case 4	WCDMA II	Bottom Face	1.173	0	-0.001	0.103	-0.174	178.9	2.14	0.02	Not required
	2.4GHz WLAN Ant 1		0.970	0	0.0744	-0.0592	-0.175				
	WCDMA II		1.173	0	-0.001	0.103	-0.174	210.1	1.66	0.01	Not required
	2.4GHz WLAN Ant 2		0.491	0	-0.0307	-0.105	-0.175				
	2.4GHz WLAN Ant 1		0.970	0	0.0744	-0.0592	-0.175	114.6	1.46	0.02	Not required
	2.4GHz WLAN Ant 2		0.491	0	-0.0307	-0.105	-0.175				



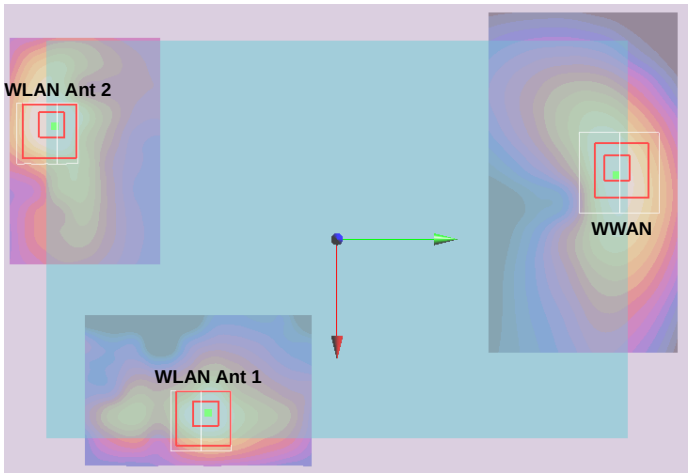
	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case 5	LTE Band 17	Bottom Face	0.894	0	-0.033	0.109	-0.178	199.6	1.86	0.01	Not required
	2.4GHz WLAN Ant 1		0.970	0	0.0744	-0.0592	-0.175				
	LTE Band 17		0.894	0	-0.033	0.109	-0.178	214.0	1.39	0.01	Not required
	2.4GHz WLAN Ant 2		0.491	0	-0.0307	-0.105	-0.175				
	2.4GHz WLAN Ant 1		0.970	0	0.0744	-0.0592	-0.175	114.6	1.46	0.02	Not required
	2.4GHz WLAN Ant 2		0.491	0	-0.0307	-0.105	-0.175				



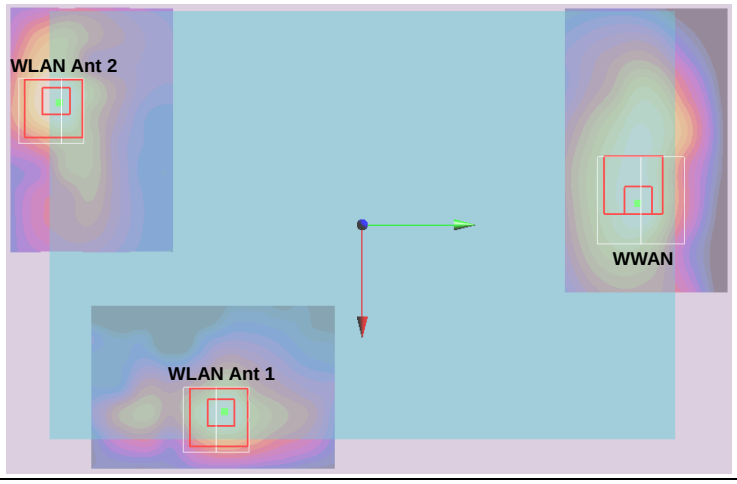
	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case 6	LTE Band 4	Bottom Face	0.917	0	-0.0025	0.102	-0.176	178.6	1.89	0.01	Not required
	2.4GHz WLAN Ant 1		0.970	0	0.0744	-0.0592	-0.175				
	LTE Band 4		0.917	0	-0.0025	0.102	-0.176	208.9	1.41	0.01	Not required
	2.4GHz WLAN Ant 2		0.491	0	-0.0307	-0.105	-0.175				
	2.4GHz WLAN Ant 1		0.970	0	0.0744	-0.0592	-0.175	114.6	1.46	0.02	Not required
	2.4GHz WLAN Ant 2		0.491	0	-0.0307	-0.105	-0.175				



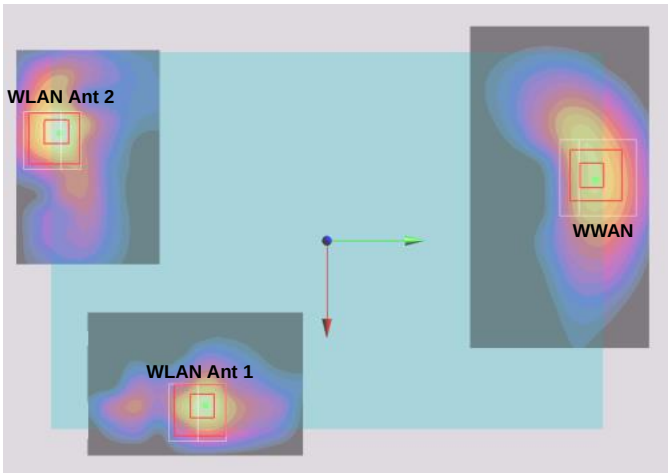
	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case 7	GSM850	Bottom Face	1.038	0	-0.0265	0.112	-0.176	192.8	2.17	0.02	Not required
	5.8GHz WLAN Ant 1		1.130	0	0.068	-0.056	-0.174				
	GSM850		1.038	0	-0.0265	0.112	-0.176	223.7	1.96	0.01	Not required
	5.8GHz WLAN Ant 2		0.922	0	-0.044	-0.111	-0.174				
	5.8GHz WLAN Ant 1		1.130	0	0.068	-0.056	-0.174	124.8	2.05	0.02	Not required
	5.8GHz WLAN Ant 2		0.922	0	-0.044	-0.111	-0.174				



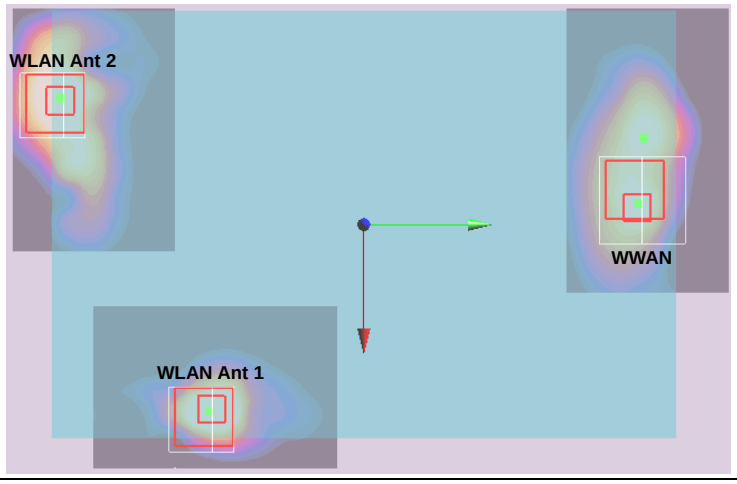
	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case 8	GSM1900	Bottom Face	1.194	0	-0.009	0.103	-0.175	176.7	2.32	0.02	Not required
	5.8GHz WLAN Ant 1		1.130	0	0.068	-0.056	-0.174				
	GSM1900		1.194	0	-0.009	0.103	-0.175	216.8	2.12	0.01	Not required
	5.8GHz WLAN Ant 2		0.922	0	-0.044	-0.111	-0.174				
	5.8GHz WLAN Ant 1		1.130	0	0.068	-0.056	-0.174	124.8	2.05	0.02	Not required
	5.8GHz WLAN Ant 2		0.922	0	-0.044	-0.111	-0.174				



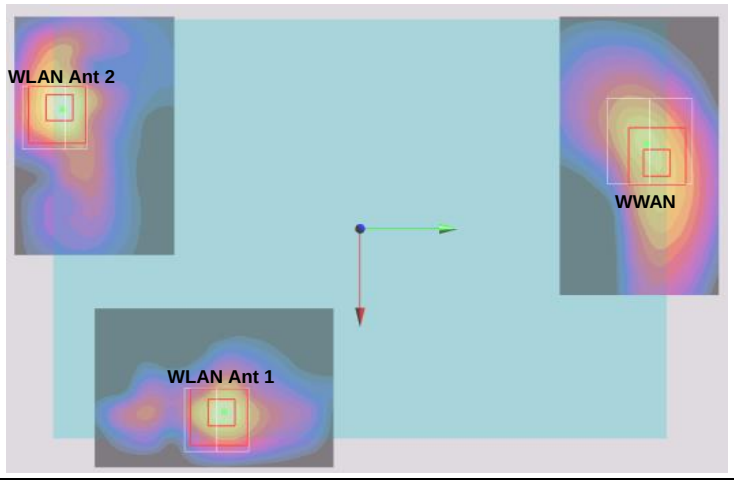
	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case 9	WCDMA V	Bottom Face	0.954	0	-0.0345	0.106	-0.175	191.7	2.08	0.02	Not required
	5.8GHz WLAN Ant 1		1.130	0	0.068	-0.056	-0.174				
	WCDMA V		0.954	0	-0.0345	0.106	-0.175	217.2	1.88	0.01	Not required
	5.8GHz WLAN Ant 2		0.922	0	-0.044	-0.111	-0.174				
	5.8GHz WLAN Ant 1		1.130	0	0.068	-0.056	-0.174	124.8	2.05	0.02	Not required
	5.8GHz WLAN Ant 2		0.922	0	-0.044	-0.111	-0.174				



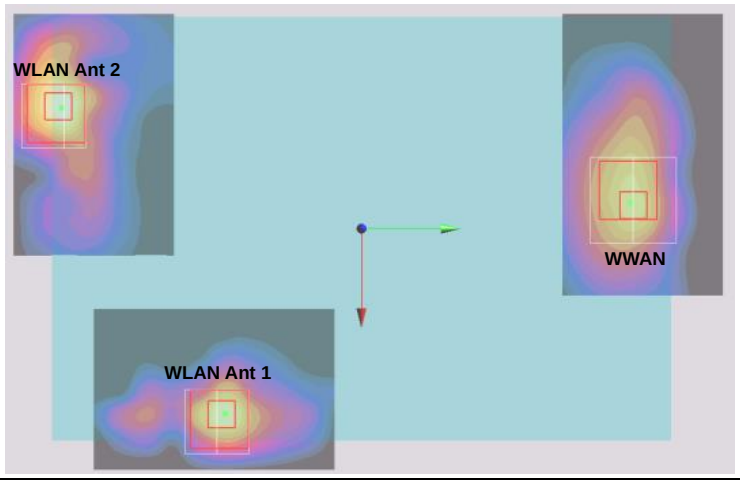
	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case 10	WCDMA II	Bottom Face	1.173	0	-0.001	0.103	-0.174	173.3	2.30	0.02	Not required
	5.8GHz WLAN Ant 1		1.130	0	0.068	-0.056	-0.174				
	WCDMA II		1.173	0	-0.001	0.103	-0.174	218.3	2.10	0.01	Not required
	5.8GHz WLAN Ant 2		0.922	0	-0.044	-0.111	-0.174				
	5.8GHz WLAN Ant 1		1.130	0	0.068	-0.056	-0.174	124.8	2.05	0.02	Not required
	5.8GHz WLAN Ant 2		0.922	0	-0.044	-0.111	-0.174				



	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 11	LTE Band 17	Bottom Face	0.894	0	-0.033	0.109	-0.178	193.5	2.02	0.01	Not required
	5.8GHz WLAN Ant 1		1.130	0	0.068	-0.056	-0.174				
	LTE Band 17		0.894	0	-0.033	0.109	-0.178	220.3	1.82	0.01	Not required
	5.8GHz WLAN Ant 2		0.922	0	-0.044	-0.111	-0.174				
	5.8GHz WLAN Ant 1		1.130	0	0.068	-0.056	-0.174	124.8	2.05	0.02	Not required
	5.8GHz WLAN Ant 2		0.922	0	-0.044	-0.111	-0.174				



	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 12	LTE Band 4	Bottom Face	0.917	0	-0.0025	0.102	-0.176	173.0	2.05	0.02	Not required
	5.8GHz WLAN Ant 1		1.130	0	0.068	-0.056	-0.174				
	LTE Band 4		0.917	0	-0.0025	0.102	-0.176	217.0	1.84	0.01	Not required
	5.8GHz WLAN Ant 2		0.922	0	-0.044	-0.111	-0.174				
	5.8GHz WLAN Ant 1		1.130	0	0.068	-0.056	-0.174	124.8	2.05	0.02	Not required
	5.8GHz WLAN Ant 2		0.922	0	-0.044	-0.111	-0.174				



Test Engineer： Tom Jiang, Galen Zhang, Nick Yu, Jerry Hu, Aaron Chen, Vic Yang, Iran Wang, San Lin , and Ken Lee

18. 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/√3	1/√6	1/√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 18.1. 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 Distribution	Divisor	Ci (1g)	Ci (10g)	Standard Uncertainty (1g)	Standard Uncertainty (10g)
Measurement System							
Probe Calibration	6.0	Normal	1	1	1	± 6.0 %	± 6.0 %
Axial Isotropy	4.7	Rectangular	√3	0.7	0.7	± 1.9 %	± 1.9 %
Hemispherical Isotropy	9.6	Rectangular	√3	0.7	0.7	± 3.9 %	± 3.9 %
Boundary Effects	1.0	Rectangular	√3	1	1	± 0.6 %	± 0.6 %
Linearity	4.7	Rectangular	√3	1	1	± 2.7 %	± 2.7 %
System Detection Limits	1.0	Rectangular	√3	1	1	± 0.6 %	± 0.6 %
Readout Electronics	0.3	Normal	1	1	1	± 0.3 %	± 0.3 %
Response Time	0.8	Rectangular	√3	1	1	± 0.5 %	± 0.5 %
Integration Time	2.6	Rectangular	√3	1	1	± 1.5 %	± 1.5 %
RF Ambient Noise	3.0	Rectangular	√3	1	1	± 1.7 %	± 1.7 %
RF Ambient Reflections	3.0	Rectangular	√3	1	1	± 1.7 %	± 1.7 %
Probe Positioner	0.4	Rectangular	√3	1	1	± 0.2 %	± 0.2 %
Probe Positioning	2.9	Rectangular	√3	1	1	± 1.7 %	± 1.7 %
Max. SAR Eval.	1.0	Rectangular	√3	1	1	± 0.6 %	± 0.6 %
Test Sample Related							
Device Positioning	2.9	Normal	1	1	1	± 2.9 %	± 2.9 %
Device Holder	3.6	Normal	1	1	1	± 3.6 %	± 3.6 %
Power Drift	5.0	Rectangular	√3	1	1	± 2.9 %	± 2.9 %
Phantom and Setup							
Phantom Uncertainty	4.0	Rectangular	√3	1	1	± 2.3 %	± 2.3 %
Liquid Conductivity (Target)	5.0	Rectangular	√3	0.64	0.43	± 1.8 %	± 1.2 %
Liquid Conductivity (Meas.)	2.5	Normal	1	0.64	0.43	± 1.6 %	± 1.1 %
Liquid Permittivity (Target)	5.0	Rectangular	√3	0.6	0.49	± 1.7 %	± 1.4 %
Liquid Permittivity (Meas.)	2.5	Normal	1	0.6	0.49	± 1.5 %	± 1.2 %
Combined Standard Uncertainty						± 11.0 %	± 10.8 %
Coverage Factor for 95 %						K=2	
Expanded Uncertainty						**± 22.0 %**	**± 21.5 %**

Table 18.2. Uncertainty Budget for frequency range 300 MHz to 3 GHz

Error Description	Uncertainty Value (±%)	Probability Distribution	Divisor	Ci (1g)	Ci (10g)	Standard Uncertainty (1g)	Standard Uncertainty (10g)
Measurement System							
Probe Calibration	6.55	Normal	1	1	1	± 6.55 %	± 6.55 %
Axial Isotropy	4.7	Rectangular	√3	0.7	0.7	± 1.9 %	± 1.9 %
Hemispherical Isotropy	9.6	Rectangular	√3	0.7	0.7	± 3.9 %	± 3.9 %
Boundary Effects	2.0	Rectangular	√3	1	1	± 1.2 %	± 1.2 %
Linearity	4.7	Rectangular	√3	1	1	± 2.7 %	± 2.7 %
System Detection Limits	1.0	Rectangular	√3	1	1	± 0.6 %	± 0.6 %
Readout Electronics	0.3	Normal	1	1	1	± 0.3 %	± 0.3 %
Response Time	0.8	Rectangular	√3	1	1	± 0.5 %	± 0.5 %
Integration Time	2.6	Rectangular	√3	1	1	± 1.5 %	± 1.5 %
RF Ambient Noise	3.0	Rectangular	√3	1	1	± 1.7 %	± 1.7 %
RF Ambient Reflections	3.0	Rectangular	√3	1	1	± 1.7 %	± 1.7 %
Probe Positioner	0.8	Rectangular	√3	1	1	± 0.5 %	± 0.5 %
Probe Positioning	9.9	Rectangular	√3	1	1	± 5.7 %	± 5.7 %
Max. SAR Eval.	4.0	Rectangular	√3	1	1	± 2.3 %	± 2.3 %
Test Sample Related							
Device Positioning	2.9	Normal	1	1	1	± 2.9 %	± 2.9 %
Device Holder	3.6	Normal	1	1	1	± 3.6 %	± 3.6 %
Power Drift	5.0	Rectangular	√3	1	1	± 2.9 %	± 2.9 %
Phantom and Setup							
Phantom Uncertainty	4.0	Rectangular	√3	1	1	± 2.3 %	± 2.3 %
Liquid Conductivity (Target)	5.0	Rectangular	√3	0.64	0.43	± 1.8 %	± 1.2 %
Liquid Conductivity (Meas.)	2.5	Normal	1	0.64	0.43	± 1.6 %	± 1.1 %
Liquid Permittivity (Target)	5.0	Rectangular	√3	0.6	0.49	± 1.7 %	± 1.4 %
Liquid Permittivity (Meas.)	2.5	Normal	1	0.6	0.49	± 1.5 %	± 1.2 %
Combined Standard Uncertainty						± 12.8 %	± 12.6 %
Coverage Factor for 95 %						K=2	
Expanded Uncertainty						**± 25.6 %**	**± 25.2 %**

Table 18.3. Uncertainty Budget for frequency range 3 GHz to 6 GHz

19. 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. 1528-2003, “Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques”, December 2003

[4] SPEAG DASY System Handbook

[5] FCC KDB 248227 D01 v01r02, “SAR Measurement Procedures for 802.11 a/b/g Transmitters”, May 2007

[6] FCC KDB 447498 D01 v05r02, “Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies”, Feb 2014

[7] FCC KDB 941225 D01 v02, “SAR Measurement Procedures for 3G Devices – CDMA 2000 / Ev-Do / WCDMA / HSDPA / HSPA”, October 2007

[8] FCC KDB 941225 D02 v02r02, “SAR Guidance for HSPA, HSPA+, DC-HSDPA and 1x-Advanced”, May 2013.

[9] FCC KDB 941225 D03 v01, “Recommended SAR Test Reduction Procedures for GSM / GPRS / EDGE”, December 2008

[10] FCC KDB 941225 D05 v02r03, “SAR Evaluation Considerations for LTE Devices”, Dec 2013

[11] FCC KDB 616217 D04 v01r01, “SAR Evaluation Considerations for Laptop, Notebook, Netbook and Tablet Computers”, May 2013

[12] FCC KDB 644545 D01 v01r02, "Guidance for IEEE 802.11ac and Pre-ac Device Emission Testing", Oct 2013.

[13] FCC KDB 865664 D01 v01r03, "SAR Measurement Requirements for 100 MHz to 6 GHz", Feb 2014.

[14] FCC KDB 865664 D02 v01r01, “RF Exposure Compliance Reporting and Documentation Considerations” May 2013.