FCC SAR Test Report

APPLICANT	:	Motorola Mobility, LLC
EQUIPMENT	:	Mobile Cellular Phone
BRAND NAME	:	Motorola
MODEL NAME	:	4237
FCC ID	:	IHDT56VB1
STANDARD	:	FCC 47 CFR Part 2 (2.1093) ANSI/IEEE C95.1-1992 IEEE 1528-2013

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

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Testing Laboratory
1190

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Revision History

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA631828	Rev. 01	Initial issue of report	May. 10, 2016
FA631828	Rev. 02	Corrected WLAN Tune-up Limit	Jun. 14, 2016

1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for **Motorola Mobility, LLC, Mobile Cellular Phone, 4237** are as follows.

Equipment Class	Frequency Band	Highest SAR Summary				Highest Simultaneous Transmission 1g SAR (W/kg)
		Head (Separation 0mm)	Body-worn (Separation 10mm)	Hotspot (Separation 10mm)	Product Specific (Separation 0mm)	
		1g SAR (W/kg)			10g SAR (W/kg)	
Licensed	GSM850	0.254	1.097	1.097		1.581
	GSM1900	0.271	0.588	0.588		
	WCDMA II	0.502	1.142	1.142	3.173	
	WCDMA V	0.388	1.042	1.042		
	CDMA BC0	0.382	1.191	1.187		
	CDMA BC1	0.625	1.186	0.986	3.387	
	LTE Band 2	0.393	1.133	1.176		
	LTE Band 4	0.462	0.891	0.905		
	LTE Band 5	0.428	1.057	1.057		
	LTE Band 7	0.376	1.107	1.107		
	LTE Band 13	0.249	0.972	0.972		
DTS	2.4GHz WLAN	0.761	0.270	0.270		1.501
NII	5GHz WLAN	0.909	0.433	0.162	2.600	1.575
DSS	Bluetooth		0.010			1.581
Date of Testing:		2016/4/11 ~ 2016/6/10				

This device is in compliance with Specific Absorption Rate (SAR) for general population/uncontrolled exposure limits (1.6 W/kg for Partial-Body, 4.0 W/kg for Product Specific) specified in FCC 47 CFR part 2 (2.1093) and ANSI/IEEE C95.1-1992, and had been tested in accordance with the measurement methods and procedures specified in IEEE 1528-2013 and FCC KDB publications

2. Administration Data

Testing Laboratory	
Test Site	SPORTON INTERNATIONAL INC.
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Applicant	
Company Name	Motorola Mobility, LLC
Address	222 W Merchandise Mart Plaza, Suite 1800, Chicago, IL 60654, United States

Manufacturer	
Company Name	Motorola Mobility, LLC
Address	222 W Merchandise Mart Plaza, Suite 1800, Chicago, IL 60654, United States

3. Guidance Standard

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

- FCC 47 CFR Part 2 (2.1093)
- ANSI/IEEE C95.1-1992
- IEEE 1528-2013
- FCC KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz v01r04
- FCC KDB 865664 D02 SAR Reporting v01r02
- FCC KDB 447498 D01 General RF Exposure Guidance v06
- FCC KDB 648474 D04 SAR Evaluation Considerations for Wireless Handsets v01r03
- FCC KDB 248227 D01 802.11 Wi-Fi SAR v02r02
- FCC KDB 941225 D01 3G SAR Procedures v03r01
- FCC KDB 941225 D05 SAR for LTE Devices v02r05
- FCC KDB 941225 D05A Rel.10 LTE SAR Test Guidance v01r02
- FCC KDB 941225 D06 Hotspot Mode SAR v02r01

4. Equipment Under Test (EUT) Information

4.1 General Information

Product Feature & Specification	
Equipment Name	Mobile Cellular Phone
Brand Name	Motorola
Model Name	4237
FCC ID	IHDT56VB1
IMEI Code	354107070048827
Wireless Technology and Frequency Range	GSM850: 824.2 MHz ~ 848.8 MHz GSM1900: 1850.2 MHz ~ 1909.8 MHz WCDMA Band II: 1852.4 MHz ~ 1907.6 MHz WCDMA Band V: 826.4 MHz ~ 846.6 MHz CDMA2000 BC0: 824.7 MHz ~ 848.31 MHz CDMA 2000 BC1: 1851.25 MHz ~ 1908.75 MHz LTE Band 2: 1850 MHz ~ 1910 MHz LTE Band 4: 1710 MHz ~ 1755 MHz LTE Band 5: 824 MHz ~ 849 MHz LTE Band 7: 2500 MHz ~ 2570 MHz LTE Band 13: 777 MHz ~ 787 MHz WLAN 2.4GHz Band: 2412 MHz ~ 2462 MHz WLAN 5.2GHz Band: 5180 MHz ~ 5240 MHz WLAN 5.3GHz Band: 5260 MHz ~ 5320 MHz WLAN 5.5GHz Band: 5500 MHz ~ 5720 MHz WLAN 5.8GHz Band: 5745 MHz ~ 5825 MHz Bluetooth: 2402 MHz ~ 2480 MHz NFC: 13.56 MHz
Mode	· GSM/GPRS/EGPRS · RMC/AMR 12.2Kbps · HSDPA · HSUPA · DC-HSDPA · CDMA2000 : 1xRTT/1xEv-Do(Rev.0)/1xEv-Do(Rev.A) · LTE: QPSK, 16QAM · 802.11a/b/g/n/ac HT20/HT40/VHT20/VHT40/VHT80 · Bluetooth with EDR / LE · NFC:ASK
GSM / (E)GPRS Transfer mode	Class B – EUT cannot support Packet Switched and Circuit Switched Network simultaneously but can automatically switch between Packet and Circuit Switched Network.
EUT Stage	Identical Prototype

Remark:

1. This device 2.4GHz / 5.2GHz / 5.8GHz WLAN supports Hotspot operation and WiFi Direct (Group Client / Group Owner), and 5.3GHz / 5.5GHz WLAN supports WiFi Direct (Group Client).
2. While operating in “Front” and “Back” configuration by end user, the device will limit different maximum output powers on the GSM850, WCDMA B2 / B5, CDMA BC0 / BC1 and LTE B4 / B5 / B13 transmitter and detail descriptions of the power reduction mechanism are included in the operational description.
3. While operating in body-adjacent exposure configuration during a mobile hotspot session, the device will reduced output powers on the GSM850, WCDMA B2 / B5, CDMA BC0 / BC1 and LTE B4 / B5 / B13 transmitter and detail descriptions of the power reduction mechanism are included in the operational description.
4. The device utilizes independent power reduction mechanisms for SAR compliance for the WLAN transmitter for held-to-are exposure conditions and detail descriptions of the power reduction mechanism are included in the operational description.
5. This device implements antenna tuning techniques for several WWAN (cellular) operating modes and frequencies for the purpose of improving antenna efficiency over a broad range of frequencies. Specifically, these techniques are employed in the GSM, WCDMA, CDMA and LTE modes. In this report SAR was measured according to the normally required SAR configurations with the tuner active and worst tune state (auto tune) was used for SAR testing. The detail descriptions of the antenna tuner are included in the operational description and supplemental data for additional information on section16.

4.2 General LTE SAR Test and Reporting Considerations

Summarized necessary items addressed in KDB 941225 D05 v02r05	
FCC ID	IHDT56VB1
Equipment Name	Mobile Cellular Phone
Operating Frequency Range of each LTE transmission band	LTE Band 02: 1850 MHz ~ 1910 MHz LTE Band 04: 1710 MHz ~ 1755 MHz LTE Band 05: 824 MHz ~ 849 MHz LTE Band 07: 2500 MHz ~ 2570 MHz LTE Band 13: 777 MHz ~ 787 MHz
Channel Bandwidth	LTE Band 02:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 04:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 05:1.4MHz, 3MHz, 5MHz, 10MHz LTE Band 07: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 13: 5MHz, 10MHz
uplink modulations used	QPSK, and 16QAM
LTE Voice / Data requirements	Voice and Data
LTE MPR permanently built-in by design	**Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 3**

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

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, when operating in hotspot mode that LTE B4 / B5 / B13 power reduction applied to satisfy SAR compliance.
LTE Carrier Aggregation Combinations	Inter-Band and Intra-Band possible combinations and the detail power verification please referred to page58.
LTE Carrier Aggregation Additional Information	This device supports a maximum of 3 carriers in the downlink only. All uplink communications are identical to the Release 8 Specifications. Uplink communications are done on the PCC. Due to carrier capability, only the combinations listed above are supported. The following LTE Release features are not supported: Relay, HetNet, Enhanced MIMO, eICI, WiFi Offloading, MDH, eMBMA, Cross-Carrier Scheduling, Enhanced SC-FDMA.

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

LTE Band 2

	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	18607	1850.7	18615	1851.5	18625	1852.5	18650	1855	18675	1857.5	18700	1860
M	18900	1880	18900	1880	18900	1880	18900	1880	18900	1880	18900	1880
H	19193	1909.3	19185	1908.5	19175	1907.5	19150	1905	19125	1902.5	19100	1900

LTE Band 4												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	19957	1710.7	19965	1711.5	19975	1712.5	20000	1715	20025	1717.5	20050	1720
M	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5
H	20393	1754.3	20385	1753.5	20375	1752.5	20350	1750	20325	1747.5	20300	1745

LTE Band 5								
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	20407	824.7	20415	825.5	20425	826.5	20450	829
M	20525	836.5	20525	836.5	20525	836.5	20525	836.5
H	20643	848.3	20635	847.5	20625	846.5	20600	844

LTE Band 7								
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	20775	2502.5	20800	2505	20825	2507.5	20850	2510
M	21100	2535	21100	2535	21100	2535	21100	2535
H	21425	2567.5	21400	2565	21375	2562.5	21350	2560

LTE Band 13				
	Bandwidth 5 MHz		Bandwidth 10 MHz	
	Channel #	Freq.(MHz)	Channel #	Freq.(MHz)
L	23205	779.5	23230	782
M	23230	782		
H	23255	784.5		

5. RF Exposure Limits

5.1 Uncontrolled Environment

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

5.2 Controlled Environment

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

Limits for Occupational/Controlled Exposure (W/kg)

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

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

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

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

6. Specific Absorption Rate (SAR)

6.1 Introduction

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

6.2 SAR Definition

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

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

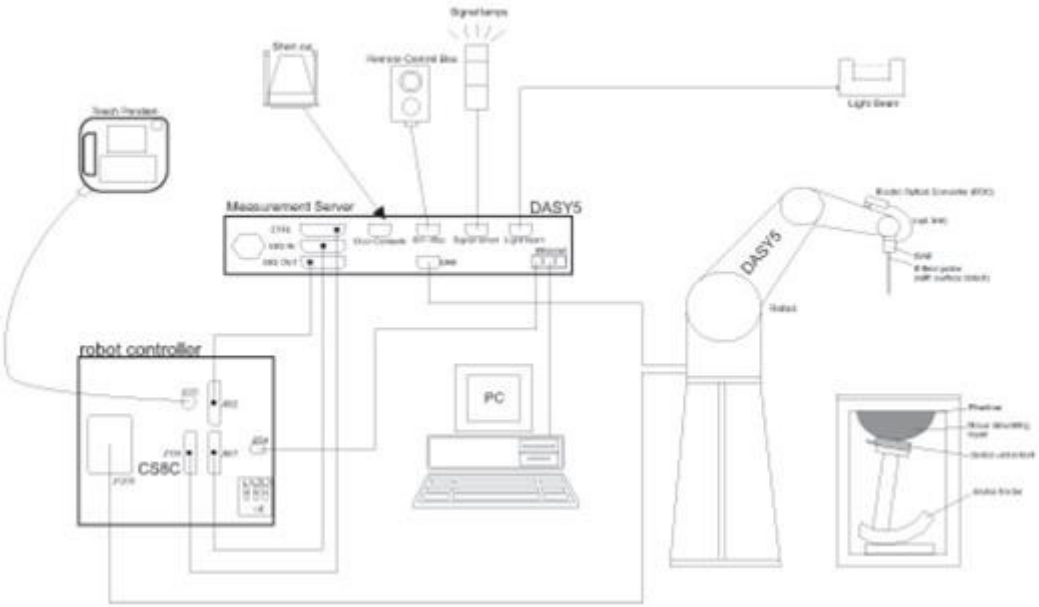
SAR is expressed in units of Watts per kilogram (W/kg)

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

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

7. System Description and Setup

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



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

7.1 E-Field Probe

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

<ES3DV3 Probe>

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

<EX3DV4 Probe>

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

7.2 Data Acquisition Electronics (DAE)

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

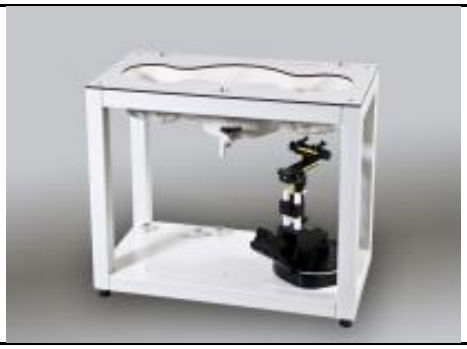
The input impedance of the DAE is 200 MOhm; the inputs are symmetrical and floating. Common mode rejection is above 80 dB.

Fig 5.1 Photo of DAE

7.3 Phantom

<SAM Twin Phantom>

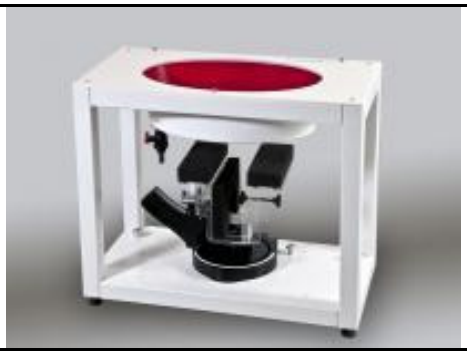
Shell Thickness	2 ± 0.2 mm; Center ear point: 6 ± 0.2 mm
Filling Volume	Approx. 25 liters
Dimensions	Length: 1000 mm; Width: 500 mm; Height: adjustable feet
Measurement Areas	Left Hand, Right Hand, Flat Phantom



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

<ELI Phantom>

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



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

7.4 Device Holder

<Mounting Device for Hand-Held Transmitter>

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

Mounting Device for Hand-Held Transmitters

Mounting Device Adaptor for Wide-Phones

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

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

Mounting Device for Laptops

8. Measurement Procedures

The measurement procedures are as follows:

<Conducted power measurement>

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

<SAR measurement>

(a) Use base station simulator to configure EUT WWAN transmission in radiated connection, and engineering software to configure EUT WLAN/BT continuously transmission, at maximum RF power, in the highest power channel.
(b) Place the EUT in the positions as Exhibit 7C_SAR Setup Photo demonstrates.
(c) Set scan area, grid size and other setting on the DASY software.
(d) Measure SAR results for the highest power channel on each testing position.
(e) Find out the largest SAR result on these testing positions of each band
(f) Measure SAR results for other channels in worst SAR testing position if the reported SAR of highest power channel is larger than 0.8 W/kg

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

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

8.1 Spatial Peak SAR Evaluation

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

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

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

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

8.2 Power Reference Measurement

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

8.3 Area Scan

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

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

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

8.4 Zoom Scan

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

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

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

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

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

8.5 Volume Scan Procedures

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

8.6 Power Drift Monitoring

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

9. Test Equipment List

Manufacturer	Name of Equipment	Type/Model	Serial Number	Calibration	
				Last Cal.	Due Date
SPEAG	750MHz System Validation Kit	D750V3	1012	May. 28, 2015	May. 27, 2016
SPEAG	835MHz System Validation Kit	D835V2	4d092	Jun. 23, 2015	Jun. 22, 2016
SPEAG	1750MHz System Validation Kit	D1750V2	1068	Nov. 23, 2015	Nov. 22, 2016
SPEAG	1900MHz System Validation Kit	D1900V2	5d041	Oct. 22, 2015	Oct. 21, 2016
SPEAG	2450MHz System Validation Kit	D2450V2	736	Aug. 20, 2015	Aug. 19, 2016
SPEAG	2600MHz System Validation Kit	D2600V2	1008	Aug. 19, 2015	Aug. 18, 2016
SPEAG	5GHz System Validation Kit	D5GHzV2	1128	Jul. 20, 2015	Jul. 19, 2016
SPEAG	5GHz System Validation Kit	D5GHzV2	1006	Oct. 06, 2015	Oct. 05, 2016
SPEAG	Data Acquisition Electronics	DAE3	495	May. 22, 2015	May. 21, 2016
SPEAG	Data Acquisition Electronics	DAE3	495	May. 27, 2016	May. 26, 2017
SPEAG	Data Acquisition Electronics	DAE3	360	Oct. 15, 2015	Oct. 14, 2016
SPEAG	Data Acquisition Electronics	DAE3	577	Sep. 24, 2015	Sep. 23, 2016
SPEAG	Data Acquisition Electronics	DAE4	1399	Nov. 23, 2015	Nov. 22, 2016
SPEAG	Dosimetric E-Field Probe	EX3DV4	3925	May. 27, 2015	May. 26, 2016
SPEAG	Dosimetric E-Field Probe	EX3DV4	3925	May. 26, 2016	May. 25, 2017
SPEAG	Dosimetric E-Field Probe	ES3DV3	3270	Sep. 28, 2015	Sep. 27, 2016
SPEAG	Dosimetric E-Field Probe	EX3DV4	3931	Oct. 01, 2015	Sep. 30, 2016
SPEAG	Dosimetric E-Field Probe	EX3DV4	3955	Nov. 24, 2015	Nov. 23, 2016
WonDer	Thermometer	WD-5015	TM685	Oct. 16, 2015	Oct. 15, 2016
WonDer	Thermometer	WD-5015	TM642	Oct. 16, 2015	Oct. 15, 2016
WonDer	Thermometer	WD-5015	TM281	Oct. 16, 2015	Oct. 15, 2016
Wisewind	Thermometer	HTC-1	TM225	Oct. 16, 2015	Oct. 15, 2016
Anritsu	Radio Communication Analyzer	MT8820C	6201341950	Dec. 18, 2015	Dec. 17, 2016
Agilent	Wireless Communication Test Set	E5515C	MY50266977	May. 14, 2015	May. 13, 2016
R&S	Radio communication Tester	CMW500	149638	Aug. 04, 2015	Aug. 03, 2016
SPEAG	Device Holder	N/A	N/A	N/A	N/A
R&S	Signal Generator	MG3710A	6201502524	Dec. 18, 2015	Dec. 17, 2016
Agilent	ENA Network Analyzer	E5071C	MY46316648	Jan. 12, 2016	Jan. 11, 2017
SPEAG	Dielectric Probe Kit	DAK-3.5	1126	Jul. 21, 2015	Jul. 20, 2016
LINE SEIKI	Digital Thermometer	LKMelectronic	DTM3000SPEZIAL/90900	Aug. 26, 2015	Aug. 25, 2016
Anritsu	Power Meter	ML2495A	1419002	May. 13, 2015	May. 12, 2016
Anritsu	Power Sensor	MA2411B	1339124	May. 13, 2015	May. 12, 2016
Agilent	Spectrum Analyzer	E4408B	MY44211028	Aug. 24, 2015	Aug. 23, 2016
ATM	Dual Directional Coupler	C122H-10	P610410z-02	Note 1	
Woken	Attenuator 1	WK0602-XX	N/A	Note 1	
PE	Attenuator 2	PE7005-10	N/A	Note 1	
PE	Attenuator 3	PE7005- 3	N/A	Note 1	
AR	Power Amplifier	5S1G4M2	0328767	Note 1	
Mini-Circuits	Power Amplifier	ZVE-3W	162601250	Note 1	

General Note:

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

10. System Verification

10.1 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	HSL	22.4	0.890	42.900	0.89	41.90	0.00	2.39	±5	2016/4/15
750	MSL	22.5	0.956	55.600	0.96	55.50	-0.42	0.18	±5	2016/4/19
835	HSL	22.4	0.878	40.900	0.90	41.50	-2.44	-1.45	±5	2016/4/13
835	MSL	22.5	0.972	57.600	0.97	55.20	0.21	4.35	±5	2016/4/20
835	MSL	22.6	0.991	57.500	0.97	55.20	2.16	4.17	±5	2016/4/21
1750	HSL	22.3	1.380	40.600	1.37	40.10	0.73	1.25	±5	2016/4/12
1750	MSL	22.7	1.440	52.700	1.49	53.40	-3.36	-1.31	±5	2016/4/17
1750	MSL	22.7	1.440	52.700	1.49	53.40	-3.36	-1.31	±5	2016/4/17
1900	HSL	22.3	1.460	38.300	1.40	40.00	4.29	-4.25	±5	2016/4/11
1900	MSL	22.4	1.550	55.300	1.52	53.30	1.97	3.75	±5	2016/4/16
1900	MSL	22.7	1.510	53.200	1.52	53.30	-0.66	-0.19	±5	2016/4/17
1900	MSL	22.7	1.530	53.100	1.52	53.30	0.66	-0.38	±5	2016/4/19
2450	HSL	22.4	1.780	39.411	1.80	39.20	-1.11	0.54	±5	2016/4/23
2450	MSL	22.4	2.013	53.321	1.95	52.70	3.23	1.18	±5	2016/4/17
2450	MSL	22.5	2.006	53.271	1.95	52.70	2.87	1.08	±5	2016/4/29
2450	MSL	22.6	1.953	54.456	1.95	52.70	0.15	3.33	±5	2016/4/22
2600	HSL	22.3	1.950	39.000	1.96	39.00	-0.51	0.00	±5	2016/4/12
2600	MSL	22.3	2.190	53.900	2.16	52.50	1.39	2.67	±5	2016/4/16
5250	HSL	22.6	4.506	35.122	4.71	35.95	-4.33	-2.30	±5	2016/4/21
5250	MSL	22.5	5.396	46.717	5.36	48.95	0.67	-4.56	±5	2016/4/17
5250	MSL	22.6	5.531	47.065	5.36	48.95	3.19	-3.85	±5	2016/4/18
5250	MSL	22.4	5.561	46.917	5.36	48.95	3.75	-4.15	±5	2016/4/22
5300	HSL	22.6	4.713	35.508	4.76	35.90	-0.99	-1.09	±5	2016/6/10
5300	MSL	22.6	5.590	49.161	5.42	48.90	3.14	0.53	±5	2016/6/10
5600	HSL	22.6	4.838	34.679	5.07	35.50	-4.58	-2.31	±5	2016/4/21
5600	HSL	22.6	4.992	35.112	5.07	35.50	-1.54	-1.09	±5	2016/6/10
5600	MSL	22.5	5.846	46.176	5.77	48.50	1.32	-4.79	±5	2016/4/17
5600	MSL	22.6	5.975	48.656	5.77	48.50	3.55	0.32	±5	2016/6/10
5750	HSL	22.6	4.991	34.493	5.22	35.35	-4.39	-2.42	±5	2016/4/21
5750	MSL	22.4	6.230	45.988	5.94	48.28	4.88	-4.75	±5	2016/4/22

<Tissue Dielectric Parameter Check for Low / Middle / High Frequencies>

General Note:

The tissue measure results for low / middle / high frequencies list below, the results were used in the Dasy SAR system to perform interpolation to determine the dielectric parameters on the SAR test device. The SAR test plots may slightly difference between the tables below due to the digit rounding in the software calculated.

CH	Frequency (MHz)	Liquid Type	Conductivity (σ)	Permittivity (ε_r)	Conductivity Target (σ)	Permittivity Target (ε_r)	Delta (σ) (%)	Delta (ε_r) (%)	Limit (%)	Date
18700	1860	Head	1.416	38.468	1.400	40.000	1.13	-3.83	±5	Apr. 11, 2016
18900	1880	Head	1.435	38.380	1.400	40.000	2.50	-4.05	±5	Apr. 11, 2016
19100	1900	Head	1.455	38.300	1.400	40.000	3.95	-4.25	±5	Apr. 11, 2016
9262	1852.4	Head	1.408	38.492	1.400	40.000	0.58	-3.77	±5	Apr. 11, 2016
9400	1880	Head	1.435	38.380	1.400	40.000	2.50	-4.05	±5	Apr. 11, 2016
9538	1907.6	Head	1.463	38.272	1.400	40.000	4.48	-4.32	±5	Apr. 11, 2016
512	1850.2	Head	1.406	38.502	1.400	40.000	0.42	-3.74	±5	Apr. 11, 2016
661	1880	Head	1.435	38.380	1.400	40.000	2.50	-4.05	±5	Apr. 11, 2016
810	1909.8	Head	1.465	38.265	1.400	40.000	4.64	-4.34	±5	Apr. 11, 2016
25	1851.25	Head	1.407	38.497	1.400	40.000	0.50	-3.76	±5	Apr. 11, 2016
600	1880	Head	1.435	38.380	1.400	40.000	2.50	-4.05	±5	Apr. 11, 2016
1175	1908.75	Head	1.464	38.269	1.400	40.000	4.56	-4.33	±5	Apr. 11, 2016
20050	1720	Head	1.350	40.760	1.356	40.149	-0.70	1.65	±5	Apr. 12, 2016
20175	1732.5	Head	1.362	40.707	1.362	40.129	0.13	1.51	±5	Apr. 12, 2016
20300	1745	Head	1.372	40.660	1.368	40.108	0.15	1.40	±5	Apr. 12, 2016
20850	2510	Head	1.846	39.320	1.860	39.120	-0.75	0.56	±5	Apr. 12, 2016
21100	2535	Head	1.873	39.230	1.890	39.090	-0.90	0.33	±5	Apr. 12, 2016
21350	2560	Head	1.900	39.150	1.920	39.050	-1.04	0.13	±5	Apr. 12, 2016
20450	829	Head	0.873	41.006	0.899	41.528	-3.02	-1.19	±5	Apr. 13, 2016
20525	836.5	Head	0.880	40.915	0.902	41.500	-2.26	-1.41	±5	Apr. 13, 2016
20600	844	Head	0.886	40.831	0.910	41.500	-2.63	-1.61	±5	Apr. 13, 2016
1013	824.7	Head	0.870	41.057	0.899	41.548	-3.39	-1.07	±5	Apr. 13, 2016
384	836.52	Head	0.880	40.914	0.902	41.500	-2.26	-1.41	±5	Apr. 13, 2016
777	848.31	Head	0.890	40.784	0.914	41.500	-2.16	-1.73	±5	Apr. 13, 2016
4132	826.4	Head	0.871	41.036	0.899	41.540	-3.23	-1.12	±5	Apr. 13, 2016
4182	836.4	Head	0.880	40.916	0.902	41.500	-2.27	-1.41	±5	Apr. 13, 2016
4233	846.6	Head	0.889	40.803	0.912	41.500	-2.36	-1.68	±5	Apr. 13, 2016
128	824.2	Head	0.869	41.064	0.899	41.551	-3.44	-1.29	±5	Apr. 13, 2016
189	836.4	Head	0.880	40.916	0.902	41.500	-2.27	-1.41	±5	Apr. 13, 2016
251	848.8	Head	0.891	40.779	0.915	41.500	-2.10	-1.74	±5	Apr. 13, 2016
23230	782	Head	0.921	42.470	0.890	42.150	3.48	0.64	±5	Apr. 15, 2016
512	1850.2	Body	1.491	55.447	1.520	53.300	-1.88	4.03	±5	Apr. 16, 2016
661	1880	Body	1.523	55.356	1.520	53.300	0.19	3.86	±5	Apr. 16, 2016
810	1909.8	Body	1.559	55.237	1.520	53.300	2.59	3.63	±5	Apr. 16, 2016
18700	1860	Body	1.502	55.428	1.520	53.300	-1.21	3.99	±5	Apr. 16, 2016
18900	1880	Body	1.523	55.356	1.520	53.300	0.19	3.86	±5	Apr. 16, 2016
19100	1900	Body	1.547	55.275	1.520	53.300	1.78	3.70	±5	Apr. 16, 2016
20850	2510	Body	2.056	54.216	2.034	52.620	1.27	3.07	±5	Apr. 16, 2016
21100	2535	Body	2.092	54.140	2.069	52.587	1.08	2.93	±5	Apr. 16, 2016
21350	2560	Body	2.127	54.062	2.104	52.553	1.30	2.78	±5	Apr. 16, 2016
9262	1852.4	Body	1.465	53.412	1.520	53.300	-3.62	0.21	±5	Apr. 17, 2016
9400	1880	Body	1.494	53.315	1.520	53.300	-1.74	0.03	±5	Apr. 17, 2016
9538	1907.6	Body	1.524	53.191	1.520	53.300	0.24	-0.20	±5	Apr. 17, 2016
25	1851.25	Body	1.464	53.415	1.520	53.300	-3.70	0.22	±5	Apr. 17, 2016
600	1880	Body	1.494	53.315	1.520	53.300	-1.74	0.03	±5	Apr. 17, 2016
1175	1908.75	Body	1.525	53.188	1.520	53.300	0.35	-0.21	±5	Apr. 17, 2016

Table of Low/Middle/High Channel for Liquid Validation

CH	Frequency (MHz)	Liquid Type	Conductivity (σ)	Permittivity (ε_r)	Conductivity Target (σ)	Permittivity Target (ε_r)	Delta (σ) (%)	Delta (ε_r) (%)	Limit (%)	Date
20050	1720	Body	1.413	52.812	1.474	53.456	-3.87	-1.29	±5	Apr. 17, 2016
20175	1732.5	Body	1.425	52.788	1.481	53.433	-3.73	-1.15	±5	Apr. 17, 2016
20300	1745	Body	1.436	52.759	1.487	53.409	-3.66	-1.20	±5	Apr. 17, 2016
1	2412	Body	1.961	53.470	1.914	52.750	2.67	1.27	±5	Apr. 17, 2016
3	2422	Body	1.976	53.430	1.923	52.740	2.92	1.39	±5	Apr. 17, 2016
6	2437	Body	1.996	53.370	1.938	52.720	2.89	1.27	±5	Apr. 17, 2016
9	2452	Body	2.016	53.310	1.953	52.700	3.38	1.16	±5	Apr. 17, 2016
11	2462	Body	2.030	53.270	1.967	52.680	3.05	1.08	±5	Apr. 17, 2016
36	5180	Body	5.313	46.818	5.276	49.027	0.63	-4.45	±5	Apr. 17, 2016
38	5190	Body	5.324	46.810	5.288	49.013	0.64	-4.47	±5	Apr. 17, 2016
40	5200	Body	5.333	46.795	5.300	49.000	0.62	-4.50	±5	Apr. 17, 2016
42	5210	Body	5.346	46.774	5.312	48.990	0.67	-4.54	±5	Apr. 17, 2016
44	5220	Body	5.359	46.754	5.323	48.980	0.74	-4.58	±5	Apr. 17, 2016
46	5230	Body	5.374	46.734	5.335	48.970	0.83	-4.62	±5	Apr. 17, 2016
48	5240	Body	5.387	46.733	5.346	48.960	0.70	-4.63	±5	Apr. 17, 2016
52	5260	Body	5.407	46.693	5.370	48.940	0.69	-4.51	±5	Apr. 17, 2016
54	5270	Body	5.423	46.673	5.381	48.930	0.79	-4.55	±5	Apr. 17, 2016
56	5280	Body	5.439	46.664	5.393	48.920	0.90	-4.57	±5	Apr. 17, 2016
58	5290	Body	5.451	46.657	5.404	48.910	0.94	-4.59	±5	Apr. 17, 2016
60	5300	Body	5.462	46.651	5.416	48.900	0.78	-4.60	±5	Apr. 17, 2016
62	5310	Body	5.472	46.631	5.428	48.787	0.77	-4.45	±5	Apr. 17, 2016
64	5320	Body	5.485	46.613	5.439	48.673	0.83	-4.29	±5	Apr. 17, 2016
100	5500	Body	5.714	46.330	5.650	48.600	1.13	-4.67	±5	Apr. 17, 2016
102	5510	Body	5.726	46.330	5.661	48.590	1.17	-4.67	±5	Apr. 17, 2016
104	5520	Body	5.736	46.320	5.673	48.580	1.16	-4.69	±5	Apr. 17, 2016
106	5530	Body	5.750	46.300	5.685	48.570	1.05	-4.73	±5	Apr. 17, 2016
108	5540	Body	5.762	46.280	5.696	48.560	1.09	-4.77	±5	Apr. 17, 2016
110	5550	Body	5.778	46.260	5.708	48.550	1.19	-4.81	±5	Apr. 17, 2016
112	5560	Body	5.790	46.250	5.720	48.540	1.22	-4.64	±5	Apr. 17, 2016
116	5580	Body	5.813	46.200	5.743	48.520	1.27	-4.74	±5	Apr. 17, 2016
120	5600	Body	5.846	46.180	5.770	48.500	1.32	-4.78	±5	Apr. 17, 2016
122	5610	Body	5.860	46.170	5.778	48.490	1.38	-4.80	±5	Apr. 17, 2016
124	5620	Body	5.871	46.160	5.790	48.470	1.40	-4.82	±5	Apr. 17, 2016
126	5630	Body	5.883	46.150	5.801	48.460	1.43	-4.85	±5	Apr. 17, 2016
128	5640	Body	5.896	46.140	5.813	48.440	1.48	-4.67	±5	Apr. 17, 2016
132	5660	Body	5.922	46.100	5.837	48.410	1.40	-4.75	±5	Apr. 17, 2016
134	5670	Body	5.931	46.090	5.848	48.400	1.38	-4.77	±5	Apr. 17, 2016
136	5680	Body	5.941	46.070	5.860	48.380	1.38	-4.81	±5	Apr. 17, 2016
138	5690	Body	5.956	46.040	5.872	48.370	1.47	-4.88	±5	Apr. 17, 2016
140	5700	Body	5.975	46.020	5.883	48.350	1.62	-4.92	±5	Apr. 17, 2016
142	5710	Body	5.990	46.010	5.895	48.340	1.53	-4.74	±5	Apr. 17, 2016
144	5720	Body	6.003	46.010	5.907	48.320	1.57	-4.74	±5	Apr. 17, 2016
149	5745	Body	6.028	45.987	5.936	48.283	1.48	-4.79	±5	Apr. 17, 2016
151	5755	Body	6.040	45.971	5.947	48.268	1.51	-4.82	±5	Apr. 17, 2016
153	5765	Body	6.064	45.957	5.959	48.253	1.74	-4.85	±5	Apr. 17, 2016
155	5775	Body	6.073	45.946	5.971	48.238	1.73	-4.68	±5	Apr. 17, 2016
157	5785	Body	6.070	45.923	5.982	48.223	1.51	-4.72	±5	Apr. 17, 2016
159	5795	Body	6.085	45.888	5.994	48.208	1.59	-4.80	±5	Apr. 17, 2016
161	5805	Body	6.114	45.870	6.000	48.200	1.89	-4.83	±5	Apr. 17, 2016
165	5825	Body	6.130	45.855	6.000	48.200	2.17	-4.86	±5	Apr. 17, 2016

Table of Low/Middle/High Channel for Liquid Validation

CH	Frequency (MHz)	Liquid Type	Conductivity (σ)	Permittivity (ε_r)	Conductivity Target (σ)	Permittivity Target (ε_r)	Delta (σ) (%)	Delta (ε_r) (%)	Limit (%)	Date
36	5180	Body	5.443	47.183	5.276	49.027	3.09	-3.71	±5	Apr. 18, 2016
38	5190	Body	5.455	47.166	5.288	49.013	3.12	-3.74	±5	Apr. 18, 2016
40	5200	Body	5.466	47.145	5.300	49.000	3.14	-3.79	±5	Apr. 18, 2016
42	5210	Body	5.480	47.123	5.312	48.990	3.20	-3.83	±5	Apr. 18, 2016
44	5220	Body	5.494	47.100	5.323	48.980	3.26	-3.88	±5	Apr. 18, 2016
46	5230	Body	5.510	47.082	5.335	48.970	3.37	-3.91	±5	Apr. 18, 2016
48	5240	Body	5.522	47.080	5.346	48.960	3.22	-3.92	±5	Apr. 18, 2016
52	5260	Body	5.542	47.039	5.370	48.940	3.20	-3.81	±5	Apr. 18, 2016
54	5270	Body	5.555	47.014	5.381	48.930	3.26	-3.86	±5	Apr. 18, 2016
56	5280	Body	5.570	46.996	5.393	48.920	3.34	-3.89	±5	Apr. 18, 2016
58	5290	Body	5.582	46.983	5.404	48.910	3.37	-3.92	±5	Apr. 18, 2016
60	5300	Body	5.593	46.966	5.416	48.900	3.19	-3.95	±5	Apr. 18, 2016
62	5310	Body	5.605	46.942	5.428	48.787	3.22	-3.81	±5	Apr. 18, 2016
64	5320	Body	5.619	46.921	5.439	48.673	3.29	-3.65	±5	Apr. 18, 2016
25	1851.25	Body	1.469	53.294	1.520	53.300	-3.38	-0.01	±5	Apr. 19, 2016
600	1880	Body	1.502	53.205	1.520	53.300	-1.19	-0.18	±5	Apr. 19, 2016
1175	1908.75	Body	1.535	53.074	1.520	53.300	1.02	-0.42	±5	Apr. 19, 2016
23230	782	Body	0.987	55.307	0.964	55.684	2.80	-0.71	±5	Apr. 19, 2016
20450	829	Body	0.966	57.671	0.969	55.221	-0.41	4.48	±5	Apr. 20, 2016
20525	836.5	Body	0.973	57.604	0.972	55.195	0.31	4.35	±5	Apr. 20, 2016
20600	844	Body	0.981	57.533	0.981	55.172	0.06	4.23	±5	Apr. 20, 2016
4132	826.4	Body	0.964	57.694	0.969	55.230	-0.66	4.52	±5	Apr. 20, 2016
4182	836.4	Body	0.973	57.605	0.972	55.196	0.30	4.36	±5	Apr. 20, 2016
4233	846.6	Body	0.983	57.515	0.984	55.164	0.29	4.19	±5	Apr. 20, 2016
128	824.2	Body	0.962	57.712	0.969	55.238	-0.86	4.55	±5	Apr. 20, 2016
189	836.4	Body	0.973	57.605	0.972	55.196	0.30	4.36	±5	Apr. 20, 2016
251	848.8	Body	0.985	57.494	0.987	55.158	-0.50	4.16	±5	Apr. 20, 2016
1013	824.7	Body	0.962	57.708	0.969	55.236	-0.82	4.54	±5	Apr. 20, 2016
384	836.52	Body	0.973	57.603	0.972	55.195	0.32	4.35	±5	Apr. 20, 2016
777	848.31	Body	0.984	57.498	0.986	55.159	-0.57	4.16	±5	Apr. 20, 2016
1013	824.7	Body	0.981	57.559	0.969	55.236	1.09	4.27	±5	Apr. 21, 2016
384	836.52	Body	0.992	57.448	0.972	55.195	2.29	4.07	±5	Apr. 21, 2016
777	848.31	Body	1.004	57.339	0.986	55.159	1.37	3.87	±5	Apr. 21, 2016
36	5180	Head	4.437	35.192	4.639	36.023	-4.37	-2.25	±5	Apr. 21, 2016
38	5190	Head	4.446	35.178	4.650	36.012	-4.38	-2.28	±5	Apr. 21, 2016
40	5200	Head	4.454	35.159	4.660	36.000	-4.42	-2.34	±5	Apr. 21, 2016
42	5210	Head	4.466	35.139	4.670	35.990	-4.37	-2.39	±5	Apr. 21, 2016
44	5220	Head	4.478	35.129	4.680	35.980	-4.31	-2.42	±5	Apr. 21, 2016
46	5230	Head	4.491	35.118	4.690	35.970	-4.24	-2.45	±5	Apr. 21, 2016
48	5240	Head	4.502	35.121	4.700	35.960	-4.21	-2.44	±5	Apr. 21, 2016
52	5260	Head	4.511	35.102	4.720	35.940	-4.43	-2.22	±5	Apr. 21, 2016
54	5270	Head	4.522	35.078	4.730	35.930	-4.39	-2.29	±5	Apr. 21, 2016
56	5280	Head	4.533	35.066	4.740	35.920	-4.37	-2.32	±5	Apr. 21, 2016
58	5290	Head	4.542	35.052	4.750	35.910	-4.38	-2.36	±5	Apr. 21, 2016
60	5300	Head	4.550	35.039	4.760	35.900	-4.41	-2.40	±5	Apr. 21, 2016
62	5310	Head	4.560	35.018	4.770	35.887	-4.41	-2.46	±5	Apr. 21, 2016
64	5320	Head	4.572	35.003	4.781	35.873	-4.35	-2.50	±5	Apr. 21, 2016

Table of Low/Middle/High Channel for Liquid Validation

CH	Frequency (MHz)	Liquid Type	Conductivity (σ)	Permittivity (ε_r)	Conductivity Target (σ)	Permittivity Target (ε_r)	Delta (σ) (%)	Delta (ε_r) (%)	Limit (%)	Date
100	5500	Head	4.737	34.801	4.967	35.633	-4.69	-2.24	±5	Apr. 21, 2016
102	5510	Head	4.745	34.788	4.977	35.620	-4.72	-2.28	±5	Apr. 21, 2016
104	5520	Head	4.755	34.765	4.987	35.607	-4.71	-2.35	±5	Apr. 21, 2016
106	5530	Head	4.768	34.750	4.998	35.593	-4.64	-2.39	±5	Apr. 21, 2016
108	5540	Head	4.781	34.738	5.008	35.580	-4.57	-2.42	±5	Apr. 21, 2016
110	5550	Head	4.795	34.729	5.018	35.567	-4.49	-2.45	±5	Apr. 21, 2016
112	5560	Head	4.805	34.735	5.029	35.553	-4.47	-2.43	±5	Apr. 21, 2016
116	5580	Head	4.816	34.711	5.049	35.527	-4.64	-2.22	±5	Apr. 21, 2016
120	5600	Head	4.838	34.679	5.070	35.500	-4.57	-2.31	±5	Apr. 21, 2016
122	5610	Head	4.847	34.667	5.080	35.490	-4.58	-2.35	±5	Apr. 21, 2016
124	5620	Head	4.856	34.650	5.090	35.480	-4.59	-2.39	±5	Apr. 21, 2016
126	5630	Head	4.866	34.631	5.100	35.470	-4.58	-2.45	±5	Apr. 21, 2016
128	5640	Head	4.880	34.618	5.110	35.460	-4.50	-2.48	±5	Apr. 21, 2016
132	5660	Head	4.905	34.605	5.130	35.440	-4.38	-2.24	±5	Apr. 21, 2016
134	5670	Head	4.912	34.609	5.140	35.430	-4.44	-2.23	±5	Apr. 21, 2016
136	5680	Head	4.917	34.596	5.150	35.420	-4.53	-2.27	±5	Apr. 21, 2016
138	5690	Head	4.925	34.575	5.160	35.410	-4.54	-2.33	±5	Apr. 21, 2016
140	5700	Head	4.938	34.559	5.170	35.400	-4.48	-2.38	±5	Apr. 21, 2016
142	5710	Head	4.948	34.549	5.180	35.390	-4.48	-2.40	±5	Apr. 21, 2016
144	5720	Head	4.956	34.535	5.190	35.380	-4.50	-2.44	±5	Apr. 21, 2016
149	5745	Head	4.985	34.498	5.215	35.355	-4.51	-2.55	±5	Apr. 21, 2016
151	5755	Head	4.997	34.485	5.225	35.345	-4.45	-2.31	±5	Apr. 21, 2016
153	5765	Head	5.010	34.482	5.235	35.335	-4.38	-2.32	±5	Apr. 21, 2016
155	5775	Head	5.017	34.488	5.245	35.325	-4.44	-2.30	±5	Apr. 21, 2016
157	5785	Head	5.022	34.476	5.255	35.315	-4.52	-2.34	±5	Apr. 21, 2016
159	5795	Head	5.031	34.455	5.265	35.305	-4.54	-2.39	±5	Apr. 21, 2016
161	5805	Head	5.042	34.439	5.275	35.295	-4.51	-2.44	±5	Apr. 21, 2016
165	5825	Head	5.061	34.419	5.296	35.275	-4.52	-2.50	±5	Apr. 21, 2016
1	2412	Body	1.905	54.580	1.914	52.751	-0.28	3.37	±5	Apr. 22, 2016
3	2422	Body	1.918	54.543	1.923	52.737	-0.09	3.50	±5	Apr. 22, 2016
6	2437	Body	1.938	54.502	1.938	52.717	-0.12	3.42	±5	Apr. 22, 2016
9	2452	Body	1.956	54.449	1.953	52.697	0.31	3.32	±5	Apr. 22, 2016
11	2462	Body	1.969	54.417	1.967	52.684	-0.04	3.26	±5	Apr. 22, 2016
36	5180	Body	5.473	47.024	5.276	49.027	3.66	-4.03	±5	Apr. 22, 2016
38	5190	Body	5.485	47.006	5.288	49.013	3.69	-4.07	±5	Apr. 22, 2016
40	5200	Body	5.498	46.986	5.300	49.000	3.74	-4.11	±5	Apr. 22, 2016
42	5210	Body	5.513	46.965	5.312	48.990	3.82	-4.15	±5	Apr. 22, 2016
44	5220	Body	5.527	46.950	5.323	48.980	3.89	-4.18	±5	Apr. 22, 2016
46	5230	Body	5.542	46.934	5.335	48.970	3.98	-4.22	±5	Apr. 22, 2016
48	5240	Body	5.554	46.929	5.346	48.960	3.81	-4.23	±5	Apr. 22, 2016
149	5745	Body	6.223	45.995	5.936	48.283	4.76	-4.77	±5	Apr. 22, 2016
151	5755	Body	6.239	45.983	5.947	48.268	4.85	-4.80	±5	Apr. 22, 2016
153	5765	Body	6.252	45.975	5.959	48.253	4.90	-4.81	±5	Apr. 22, 2016
155	5775	Body	6.259	45.971	5.971	48.238	4.84	-4.62	±5	Apr. 22, 2016
157	5785	Body	6.267	45.947	5.982	48.223	4.80	-4.67	±5	Apr. 22, 2016
159	5795	Body	6.279	45.909	5.994	48.208	4.83	-4.75	±5	Apr. 22, 2016
161	5805	Body	6.294	45.882	6.000	48.200	4.91	-4.81	±5	Apr. 22, 2016
165	5825	Body	6.299	45.845	6.000	48.200	4.99	-4.89	±5	Apr. 22, 2016
1	2412	Head	1.734	39.565	1.766	39.268	-2.04	0.67	±5	Apr. 23, 2016
3	2422	Head	1.747	39.520	1.775	39.250	-1.86	0.82	±5	Apr. 23, 2016
6	2437	Head	1.765	39.465	1.788	39.223	-1.40	0.68	±5	Apr. 23, 2016
9	2452	Head	1.782	39.403	1.802	39.197	-1.00	0.52	±5	Apr. 23, 2016
11	2462	Head	1.795	39.365	1.813	39.184	-0.85	0.42	±5	Apr. 23, 2016
0	2402	Body	1.941	53.467	1.90	52.76	2.14	1.26	±5	Apr. 29, 2016
39	2441	Body	1.995	53.308	1.94	52.71	2.83	1.15	±5	Apr. 29, 2016
78	2480	Body	2.047	53.159	1.95	52.70	4.98	0.87	±5	Apr. 29, 2016

Table of Low/Middle/High Channel for Liquid Validation

CH	Frequency (MHz)	Liquid Type	Conductivity (σ)	Permittivity (ε_r)	Conductivity Target (σ)	Permittivity Target (ε_r)	Delta (σ) (%)	Delta (ε_r) (%)	Limit (%)	Date
52	5260	Head	4.674	35.57	4.720	35.94	-0.97	-0.92	±5	Jun. 10, 2016
54	5270	Head	4.686	35.55	4.730	35.93	-0.93	-0.97	±5	Jun. 10, 2016
56	5280	Head	4.696	35.53	4.740	35.92	-0.93	-1.03	±5	Jun. 10, 2016
58	5290	Head	4.705	35.52	4.750	35.91	-0.95	-1.06	±5	Jun. 10, 2016
60	5300	Head	4.713	35.51	4.760	35.90	-0.99	-1.09	±5	Jun. 10, 2016
62	5310	Head	4.720	35.49	4.770	35.89	-1.05	-1.14	±5	Jun. 10, 2016
64	5320	Head	4.732	35.47	4.780	35.87	-1.00	-1.20	±5	Jun. 10, 2016
100	5500	Head	4.894	35.25	4.970	35.63	-1.53	-0.98	±5	Jun. 10, 2016
102	5510	Head	4.902	35.24	4.980	35.62	-1.57	-1.01	±5	Jun. 10, 2016
104	5520	Head	4.911	35.22	4.990	35.61	-1.58	-1.07	±5	Jun. 10, 2016
106	5530	Head	4.923	35.20	5.000	35.59	-1.54	-1.12	±5	Jun. 10, 2016
108	5540	Head	4.935	35.19	5.010	35.58	-1.50	-1.15	±5	Jun. 10, 2016
110	5550	Head	4.947	35.17	5.020	35.57	-1.45	-1.21	±5	Jun. 10, 2016
112	5560	Head	4.957	35.18	5.030	35.55	-1.45	-1.18	±5	Jun. 10, 2016
116	5580	Head	4.969	35.14	5.050	35.53	-1.60	-1.01	±5	Jun. 10, 2016
120	5600	Head	4.992	35.11	5.070	35.50	-1.54	-1.10	±5	Jun. 10, 2016
122	5610	Head	5.002	35.10	5.080	35.49	-1.54	-1.13	±5	Jun. 10, 2016
124	5620	Head	5.010	35.09	5.090	35.48	-1.57	-1.15	±5	Jun. 10, 2016
126	5630	Head	5.019	35.07	5.100	35.47	-1.59	-1.21	±5	Jun. 10, 2016
128	5640	Head	5.032	35.05	5.110	35.46	-1.53	-1.27	±5	Jun. 10, 2016
132	5660	Head	5.055	35.03	5.130	35.44	-1.46	-1.05	±5	Jun. 10, 2016
134	5670	Head	5.062	35.03	5.140	35.43	-1.52	-1.05	±5	Jun. 10, 2016
136	5680	Head	5.068	35.02	5.150	35.42	-1.59	-1.07	±5	Jun. 10, 2016
138	5690	Head	5.077	34.99	5.160	35.41	-1.61	-1.16	±5	Jun. 10, 2016
140	5700	Head	5.088	34.98	5.170	35.40	-1.59	-1.19	±5	Jun. 10, 2016
142	5710	Head	5.100	34.97	5.180	35.39	-1.54	-1.21	±5	Jun. 10, 2016
144	5720	Head	5.107	34.96	5.190	35.38	-1.60	-1.24	±5	Jun. 10, 2016
52	5260	Body	5.539	49.23	5.370	48.94	3.15	0.67	±5	Jun. 10, 2016
54	5270	Body	5.549	49.23	5.380	48.93	3.14	0.67	±5	Jun. 10, 2016
56	5280	Body	5.564	49.20	5.390	48.92	3.23	0.61	±5	Jun. 10, 2016
58	5290	Body	5.579	49.18	5.400	48.91	3.31	0.57	±5	Jun. 10, 2016
60	5300	Body	5.590	49.16	5.420	48.90	3.14	0.53	±5	Jun. 10, 2016
62	5310	Body	5.601	49.14	5.430	48.79	3.15	0.70	±5	Jun. 10, 2016
64	5320	Body	5.616	49.12	5.440	48.67	3.24	0.86	±5	Jun. 10, 2016
100	5500	Body	5.842	48.83	5.650	48.60	3.40	0.47	±5	Jun. 10, 2016
102	5510	Body	5.853	48.81	5.660	48.59	3.41	0.43	±5	Jun. 10, 2016
104	5520	Body	5.865	48.78	5.670	48.58	3.44	0.37	±5	Jun. 10, 2016
106	5530	Body	5.882	48.76	5.690	48.57	3.37	0.33	±5	Jun. 10, 2016
108	5540	Body	5.898	48.75	5.700	48.56	3.47	0.31	±5	Jun. 10, 2016
110	5550	Body	5.914	48.73	5.710	48.55	3.57	0.27	±5	Jun. 10, 2016
112	5560	Body	5.926	48.73	5.720	48.54	3.60	0.47	±5	Jun. 10, 2016
116	5580	Body	5.948	48.70	5.740	48.52	3.62	0.41	±5	Jun. 10, 2016
120	5600	Body	5.975	48.66	5.770	48.50	3.55	0.33	±5	Jun. 10, 2016
122	5610	Body	5.988	48.64	5.780	48.49	3.60	0.29	±5	Jun. 10, 2016
124	5620	Body	6.000	48.62	5.790	48.47	3.63	0.25	±5	Jun. 10, 2016
126	5630	Body	6.014	48.60	5.800	48.46	3.69	0.21	±5	Jun. 10, 2016
128	5640	Body	6.029	48.58	5.810	48.44	3.77	0.37	±5	Jun. 10, 2016
132	5660	Body	6.058	48.55	5.840	48.41	3.73	0.31	±5	Jun. 10, 2016
134	5670	Body	6.073	48.55	5.850	48.40	3.81	0.31	±5	Jun. 10, 2016
136	5680	Body	6.082	48.54	5.860	48.38	3.79	0.29	±5	Jun. 10, 2016
138	5690	Body	6.096	48.52	5.870	48.37	3.85	0.25	±5	Jun. 10, 2016
140	5700	Body	6.110	48.50	5.880	48.35	3.91	0.21	±5	Jun. 10, 2016
142	5710	Body	6.122	48.49	5.900	48.34	3.76	0.39	±5	Jun. 10, 2016
144	5720	Body	6.134	48.47	5.910	48.32	3.79	0.35	±5	Jun. 10, 2016

Table of Low/Middle/High Channel for Liquid Validation

10.2 System Performance Check Results

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

Date	Frequency (MHz)	Tissue Type	Input Power (mW)	Dipole S/N	Probe S/N	DAE S/N	Measured 1g SAR (W/kg)	Targeted 1g SAR (W/kg)	Normalized 1g SAR (W/kg)	Deviation (%)
2016/4/15	750	HSL	250	D750V3-1012	EX3DV4 - SN3925	DAE3 Sn495	1.98	8.22	7.92	-3.65
2016/4/19	750	MSL	250	D750V3-1012	ES3DV3 - SN3270	DAE3 Sn360	2.32	8.61	9.28	7.78
2016/4/13	835	HSL	250	D835V2-4d092	EX3DV4 - SN3925	DAE3 Sn495	2.41	9.26	9.64	4.10
2016/4/20	835	MSL	250	D835V2-4d092	ES3DV3 - SN3270	DAE3 Sn360	2.37	9.40	9.48	0.85
2016/4/21	835	MSL	250	D835V2-4d092	ES3DV3 - SN3270	DAE3 Sn360	2.42	9.40	9.68	2.98
2016/4/12	1750	HSL	250	D1750V2-1068	EX3DV4 - SN3925	DAE3 Sn495	9.05	36.80	36.20	-1.63
2016/4/17	1750	MSL	250	D1750V2-1068	EX3DV4 - SN3925	DAE3 Sn495	9.52	35.70	38.08	6.67
2016/4/17	1750	MSL	250	D1750V2-1068	ES3DV3 - SN3270	DAE3 Sn360	8.28	35.70	33.12	-7.23
2016/4/11	1900	HSL	250	D1900V2-5d041	EX3DV4 - SN3925	DAE3 Sn495	10.70	39.80	42.80	7.54
2016/4/16	1900	MSL	250	D1900V2-5d041	EX3DV4 - SN3925	DAE3 Sn495	10.20	40.00	40.80	2.00
2016/4/17	1900	MSL	250	D1900V2-5d041	EX3DV4 - SN3925	DAE3 Sn495	10.20	40.00	40.80	2.00
2016/4/19	1900	MSL	250	D1900V2-5d041	ES3DV3 - SN3270	DAE3 Sn360	10.20	40.00	40.80	2.00
2016/4/23	2450	HSL	250	D2450V2-736	EX3DV4 - SN3931	DAE3 Sn577	12.20	53.40	48.80	-8.61
2016/4/17	2450	MSL	250	D2450V2-736	EX3DV4 - SN3955	DAE4 Sn1399	11.95	51.90	47.80	-7.90
2016/4/22	2450	MSL	250	D2450V2-736	EX3DV4 - SN3955	DAE4 Sn1399	12.70	51.90	50.80	-2.12
2016/4/29	2450	MSL	250	D2450V2-736	EX3DV4 - SN3925	DAE3 Sn495	12.50	51.90	50.00	-3.66
2016/4/12	2600	HSL	250	D2600V2-1008	EX3DV4 - SN3925	DAE3 Sn495	13.70	56.30	54.80	-2.66
2016/4/16	2600	MSL	250	D2600V2-1008	EX3DV4 - SN3925	DAE3 Sn495	14.50	55.80	58.00	3.94
2016/4/21	5250	HSL	100	D5GHzV2-1128-5250	EX3DV4 - SN3955	DAE4 Sn1399	7.56	80.80	75.60	-6.44
2016/4/17	5250	MSL	100	D5GHzV2-1128-5250	EX3DV4 - SN3955	DAE4 Sn1399	7.03	76.20	70.30	-7.74
2016/4/18	5250	MSL	100	D5GHzV2-1128-5250	EX3DV4 - SN3955	DAE4 Sn1399	7.27	76.20	72.70	-4.59
2016/4/22	5250	MSL	100	D5GHzV2-1128-5250	EX3DV4 - SN3931	DAE3 Sn577	7.96	76.20	79.60	4.46
2016/6/10	5300	HSL	100	D5GHzV2-1006-5300	EX3DV4 - SN3925	DAE3 Sn495	8.65	84.50	86.5	2.37
2016/6/10	5300	MSL	100	D5GHzV2-1006-5300	EX3DV4 - SN3925	DAE3 Sn495	7.78	79.50	77.80	-2.14
2016/4/21	5600	HSL	100	D5GHzV2-1128-5600	EX3DV4 - SN3955	DAE4 Sn1399	7.95	82.00	79.50	-3.05
2016/6/10	5600	HSL	100	D5GHzV2-1006-5600	EX3DV4 - SN3925	DAE3 Sn495	8.80	84.80	88	3.77
2016/4/17	5600	MSL	100	D5GHzV2-1128-5600	EX3DV4 - SN3955	DAE4 Sn1399	8.29	79.30	82.90	4.54
2016/6/10	5600	MSL	100	D5GHzV2-1006-5600	EX3DV4 - SN3925	DAE3 Sn495	7.70	82.30	77	-6.44
2016/4/21	5750	HSL	100	D5GHzV2-1128-5750	EX3DV4 - SN3955	DAE4 Sn1399	7.69	79.70	76.90	-3.51
2016/4/22	5750	MSL	100	D5GHzV2-1128-5750	EX3DV4 - SN3931	DAE3 Sn577	7.32	75.90	73.20	-3.56

Date	Frequency (MHz)	Tissue Type	Input Power (mW)	Dipole S/N	Probe S/N	DAE S/N	Measured 10g SAR (W/kg)	Targeted 10g SAR (W/kg)	Normalized 10g SAR (W/kg)	Deviation (%)
2016/4/17	1900	MSL	250	D1900V2-5d041	EX3DV4 - SN3925	DAE3 Sn495	5.35	21.20	21.40	0.94
2016/4/17	5250	MSL	100	D5GHzV2-1128-5250	EX3DV4 - SN3955	DAE4 Sn1399	1.94	21.40	19.40	-9.35
2016/6/10	5300	MSL	100	D5GHzV2-1006-5300	EX3DV4 - SN3925	DAE3 Sn495	2.09	22.40	20.90	-6.70
2016/4/17	5600	MSL	100	D5GHzV2-1128-5600	EX3DV4 - SN3955	DAE4 Sn1399	2.23	22.10	22.30	0.90
2016/6/10	5600	MSL	100	D5GHzV2-1006-5600	EX3DV4 - SN3925	DAE3 Sn495	2.08	23.00	20.80	-9.57

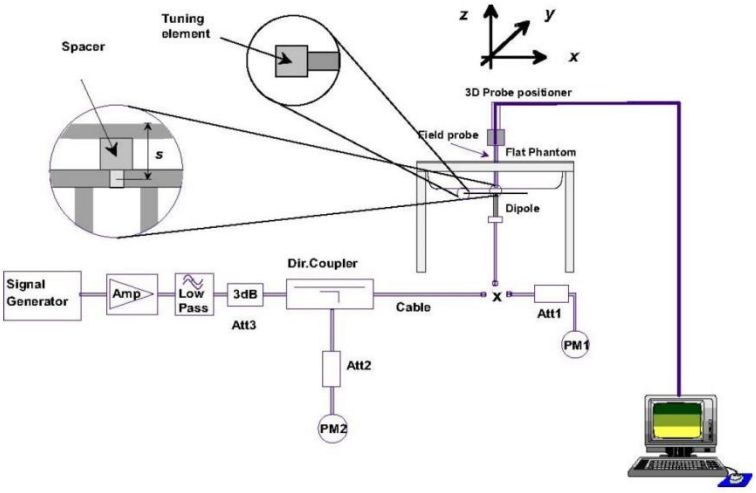


Fig 8.3.1 System Performance Check Setup

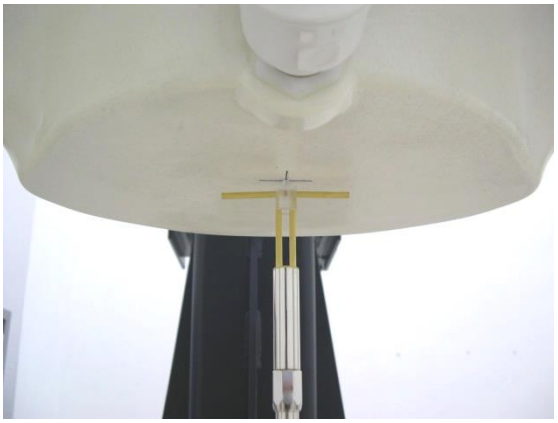


Fig 8.3.2 Setup Photo

11. RF Exposure Positions

11.1 Ear and handset reference point

Figure 9.1.1 shows the front, back, and side views of the SAM phantom. The center-of-mouth reference point is labeled “M,” the left ear reference point (ERP) is marked “LE,” and the right ERP is marked “RE.” Each ERP is 15 mm along the B-M (back-mouth) line behind the entrance-to-ear-canal (EEC) point, as shown in Figure 9.1.2 The Reference Plane is defined as passing through the two ear reference points and point M. The line N-F (neck-front), also called the reference pivoting line, is normal to the Reference Plane and perpendicular to both a line passing through RE and LE and the B-M line (see Figure 9.1.3). Both N-F and B-M lines should be marked on the exterior of the phantom shell to facilitate handset positioning. Posterior to the N-F line the ear shape is a flat surface with 6 mm thickness at each ERP, and forward of the N-F line the ear is truncated, as illustrated in Figure 9.1.2. The ear truncation is introduced to preclude the ear lobe from interfering with handset tilt, which could lead to unstable positioning at the cheek.

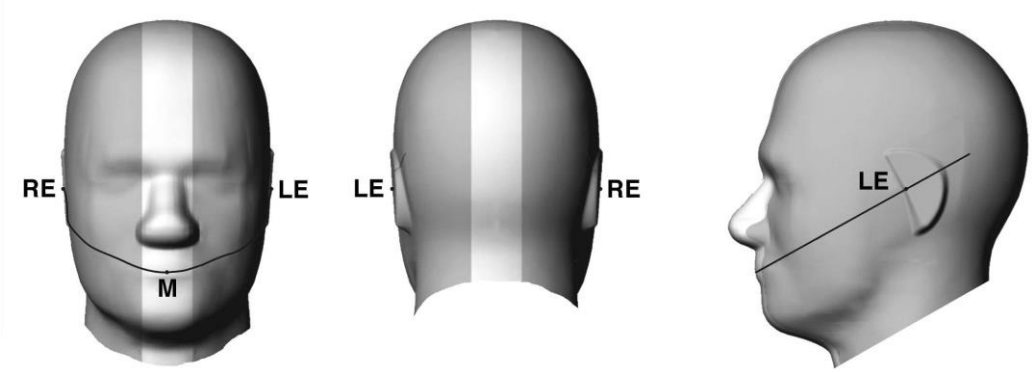


Fig 9.1.1 Front, back, and side views of SAM twin phantom

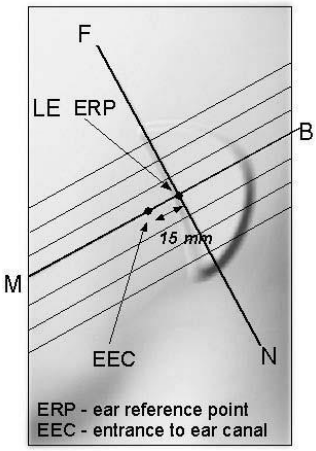


Fig 9.1.2 Close-up side view of phantom showing the ear region.

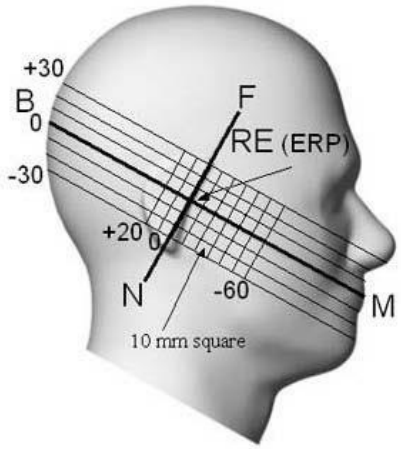


Fig 9.1.3 Side view of the phantom showing relevant markings and seven cross-sectional plane locations

11.2 Definition of the cheek position

1. Ready the handset for talk operation, if necessary. For example, for handsets with a cover piece (flip cover), open the cover. If the handset can transmit with the cover closed, both configurations must be tested.
2. Define two imaginary lines on the handset—the vertical centerline and the horizontal line. The vertical centerline passes through two points on the front side of the handset—the midpoint of the width wt of the handset at the level of the acoustic output (point A in Figure 9.2.1 and Figure 9.2.2), and the midpoint of the width wb of the bottom of the handset (point B). The horizontal line is perpendicular to the vertical centerline and passes through the center of the acoustic output (see Figure 9.2.1). The two lines intersect at point A. Note that for many handsets, point A coincides with the center of the acoustic output; however, the acoustic output may be located elsewhere on the horizontal line. Also note that the vertical centerline is not necessarily parallel to the front face of the handset (see Figure 9.2.2), especially for clamshell handsets, handsets with flip covers, and other irregularly-shaped handsets.
3. Position the handset close to the surface of the phantom such that point A is on the (virtual) extension of the line passing through points RE and LE on the phantom (see Figure 9.2.3), such that the plane defined by the vertical centerline and the horizontal line of the handset is approximately parallel to the sagittal plane of the phantom.
4. Translate the handset towards the phantom along the line passing through RE and LE until handset point A touches the pinna at the ERP.
5. While maintaining the handset in this plane, rotate it around the LE-RE line until the vertical centerline is in the plane normal to the plane containing B-M and N-F lines, i.e., the Reference Plane.
6. Rotate the handset around the vertical centerline until the handset (horizontal line) is parallel to the N-F line.
7. While maintaining the vertical centerline in the Reference Plane, keeping point A on the line passing through RE and LE, and maintaining the handset contact with the pinna, rotate the handset about the N-F line until any point on the handset is in contact with a phantom point below the pinna on the cheek. See Figure 9.2.3. The actual rotation angles should be documented in the test report.

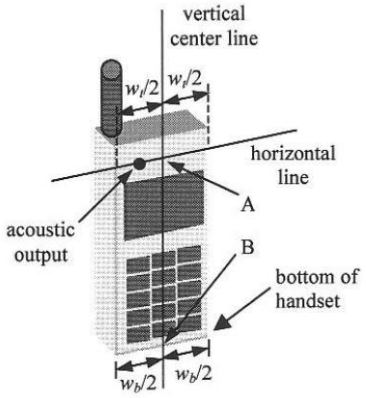


Fig 9.2.1 Handset vertical and horizontal reference lines—"fixed case

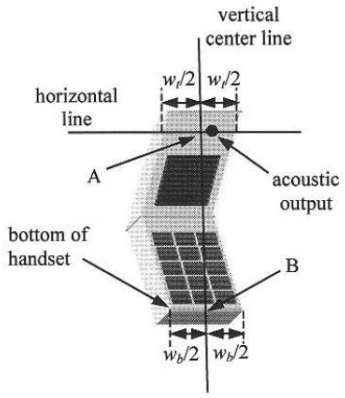


Fig 9.2.2 Handset vertical and horizontal reference lines—"clam-shell case"

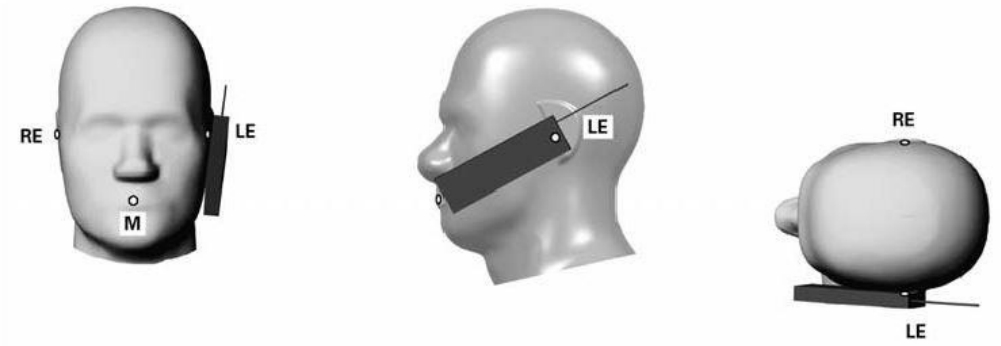


Fig 9.2.3 cheek or touch position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which establish the Reference Plane for handset positioning, are indicated.

11.3 Definition of the tilt position

1. Ready the handset for talk operation, if necessary. For example, for handsets with a cover piece (flip cover), open the cover. If the handset can transmit with the cover closed, both configurations must be tested.
2. While maintaining the orientation of the handset, move the handset away from the pinna along the line passing through RE and LE far enough to allow a rotation of the handset away from the cheek by 15°.
3. Rotate the handset around the horizontal line by 15°.
4. While maintaining the orientation of the handset, move the handset towards the phantom on the line passing through RE and LE until any part of the handset touches the ear. The tilt position is obtained when the contact point is on the pinna. See Figure 9.3.1. If contact occurs at any location other than the pinna, e.g., the antenna at the back of the phantom head, the angle of the handset should be reduced. In this case, the tilt position is obtained if any point on the handset is in contact with the pinna and a second point

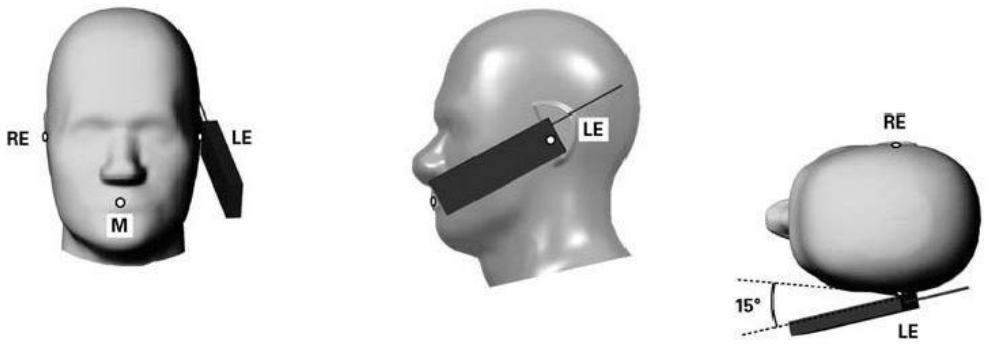


Fig 9.3.1 Tilt position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which define the Reference Plane for handset positioning, are indicated.

11.4 Body Worn Accessory

Body-worn operating configurations are tested with the belt-clips and holsters attached to the device and positioned against a flat phantom in a normal use configuration (see Figure 9.4). Per KDB648474 D04v01r03, body-worn accessory exposure is typically related to voice mode operations when handsets are carried in body-worn accessories. The body-worn accessory procedures in FCC KDB 447498 D01v06 should be used to test for body-worn accessory SAR compliance, without a headset connected to it. This enables the test results for such configuration to be compatible with that required for hotspot mode when the body-worn accessory test separation distance is greater than or equal to that required for hotspot mode, when applicable. When the reported SAR for body-worn accessory, measured without a headset connected to the handset is < 1.2 W/kg, the highest reported SAR configuration for that wireless mode and frequency band should be repeated for that body-worn accessory with a handset attached to the handset.

Accessories for body-worn operation configurations are divided into two categories: those that do not contain metallic components and those that do contain metallic components and those that do contain metallic components. When multiple accessories that do not contain metallic components are supplied with the device, the device is tested with only the accessory that dictates the closest spacing to the body. Then multiple accessories that contain metallic components are test with the device with each accessory. If multiple accessories share an identical metallic component (i.e. the same metallic belt-chip used with different holsters with no other metallic components) only the accessory that dictates the closest spacing to the body is tested.

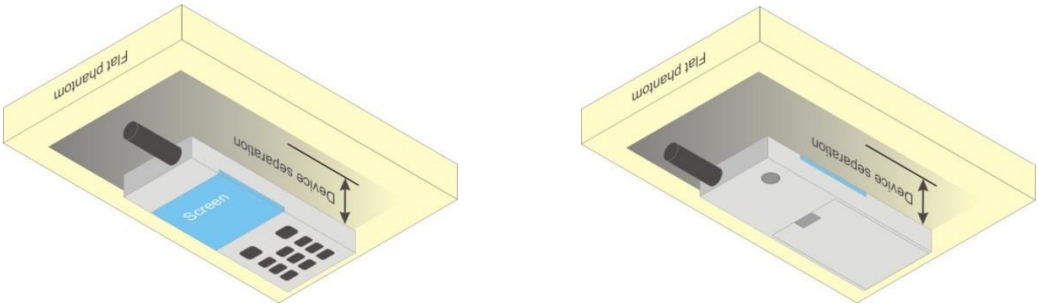


Fig 9.4 Body Worn Position

11.5 Product Specific device

For smart phones with a display diagonal dimension > 15.0 cm or an overall diagonal dimension > 16.0 cm that provide similar mobile web access and multimedia support found in mini-tablets or UMPC mini-tablets that support voice calls next to the ear, According to KDB648474 D04v01r03, the following phablet procedures should be applied to evaluate SAR compliance for each applicable wireless modes and frequency band. Devices marketed as phablets, regardless of form factors and operating characteristics must be tested as a phablet to determine SAR compliance

1. The normally required head and body-worn accessory SAR test procedures for handsets, including hotspot mode, must be applied.

2. The UMPC mini-tablet procedures must also be applied to test the SAR of all surfaces and edges with an antenna located at ≤ 25 mm from that surface or edge, in direct contact with a flat phantom, for 10-g extremity SAR according to the body-equivalent tissue dielectric parameters in KDB 865664 to address interactive hand use exposure conditions.6 The UMPC mini-tablet 1-g SAR at 5 mm is not required. When hotspot mode applies, 10-g extremity SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg.

11.6 Wireless Router

Some battery-operated handsets have the capability to transmit and receive user through simultaneous transmission of WIFI simultaneously with a separate licensed transmitter. The FCC has provided guidance in FCC KDB Publication 941225 D06 v02r01 where SAR test considerations for handsets (L x W ≥ 9 cm x 5 cm) are based on a composite test separation distance of 10mm from the front, back and edges of the device containing transmitting antennas within 2.5cm of their edges, determined form general mixed use conditions for this type of devices. Since the hotspot SAR results may overlap with the body-worn accessory SAR requirements, the more conservative configurations can be considered, thus excluding some body-worn accessory SAR tests.

When the user enables the personal wireless router functions for the handset, actual operations include simultaneous transmission of both the WIFI transmitter and another licensed transmitter. Both transmitters often do not transmit at the same transmitting frequency and thus cannot be evaluated for SAR under actual use conditions due to the limitations of the SAR assessment probes. Therefore, SAR must be evaluated for each frequency transmission and mode separately and spatially summed with the WIFI transmitter according to FCC KDB Publication 447498 D01v06 publication procedures. The “Portable Hotspot” feature on the handset was NOT activated during SAR assessments, to ensure the SAR measurements were evaluated for a single transmission frequency RF signal at a time.

12. Conducted RF Output Power (Unit: dBm)

<GSM Conducted Power>

General Note:

1. Per KDB 447498 D01v06, the maximum output power channel is used for SAR testing and for further SAR test reduction.
2. Per KDB 941225 D01v03r01, for SAR test reduction for GSM / GPRS / EDGE modes is determined by the source-based time-averaged output power including tune-up tolerance. The mode with highest specified time-averaged output power should be tested for SAR compliance in the applicable exposure conditions. For modes with the same specified maximum output power and tolerance, the higher number time-slot configuration should be tested. Therefore, the GPRS (4Tx slots) for GSM850/GSM1900 is considered as the primary mode.
3. Other configurations of GSM / GPRS / EDGE are considered as secondary modes. The 3G SAR test reduction procedure is applied, when the maximum output power and tune-up tolerance specified for production units in a secondary mode is ≤ ¼ dB higher than the primary mode, SAR measurement is not required for the secondary mode

<Default Power Mode>

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	
GSM 1 Tx slot	33.48	33.14	33.10	33.50	24.48	24.14	24.10	24.50
GPRS 1 Tx slot	33.49	33.13	33.11	33.50	24.49	24.13	24.11	24.50
GPRS 2 Tx slots	29.43	29.45	29.07	30.50	23.43	23.45	23.07	24.50
GPRS 3 Tx slots	27.32	27.31	27.13	28.75	23.06	23.05	22.87	24.49
GPRS 4 Tx slots	25.78	25.78	25.57	27.50	22.78	22.78	22.57	24.50
EDGE 1 Tx slot	26.53	26.55	26.51	28.50	17.53	17.55	17.51	19.50
EDGE 2 Tx slots	26.38	26.42	26.24	28.50	20.38	20.42	20.24	22.50
EDGE 3 Tx slots	25.88	25.95	25.81	26.75	21.62	21.69	21.55	22.49
EDGE 4 Tx slots	24.53	24.58	24.49	25.50	21.53	21.58	21.49	22.50

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	
GSM 1 Tx slot	29.71	29.87	30.16	30.50	20.71	20.87	21.16	21.50
GPRS 1 Tx slot	29.71	29.88	30.18	30.50	20.71	20.88	21.18	21.50
GPRS 2 Tx slots	26.36	26.36	26.82	27.50	20.36	20.36	20.82	21.50
GPRS 3 Tx slots	24.39	24.44	24.69	25.75	20.13	20.18	20.43	21.49
GPRS 4 Tx slots	23.72	23.66	23.90	24.50	20.72	20.66	20.90	21.50
EDGE 1 Tx slot	25.24	25.29	25.60	27.50	16.24	16.29	16.60	18.50
EDGE 2 Tx slots	25.03	25.06	25.50	27.50	19.03	19.06	19.50	21.50
EDGE 3 Tx slots	24.61	24.64	25.04	25.75	20.35	20.38	20.78	21.49
EDGE 4 Tx slots	23.24	23.29	23.72	24.50	20.24	20.29	20.72	21.50

<Near-body and Hotspot Mode>

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	
GSM 1 Tx slot	29.71	29.74	29.63	31.00	20.71	20.74	20.63	22.00
GPRS 1 Tx slot	29.70	29.72	29.59	31.00	20.70	20.72	20.59	22.00
GPRS 2 Tx slots	26.34	26.38	26.26	28.00	20.34	20.38	20.26	22.00
GPRS 3 Tx slots	24.41	24.45	24.30	26.25	20.15	20.19	20.04	21.99
GPRS 4 Tx slots	23.01	23.02	23.00	25.00	20.01	20.02	20.00	22.00
EDGE 1 Tx slot	26.22	26.32	26.06	28.00	17.22	17.32	17.06	19.00
EDGE 2 Tx slots	26.06	26.13	26.00	28.00	20.06	20.13	20.00	22.00
EDGE 3 Tx slots	24.74	24.80	24.60	26.25	20.48	20.54	20.34	21.99
EDGE 4 Tx slots	23.33	23.45	23.24	25.00	20.33	20.45	20.24	22.00

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	
GSM 1 Tx slot	29.71	29.87	30.16	30.50	20.71	20.87	21.16	21.50
GPRS 1 Tx slot	29.71	29.88	30.18	30.50	20.71	20.88	21.18	21.50
GPRS 2 Tx slots	26.36	26.36	26.82	27.50	20.36	20.36	20.82	21.50
GPRS 3 Tx slots	24.39	24.44	24.69	25.75	20.13	20.18	20.43	21.49
GPRS 4 Tx slots	23.72	23.66	23.90	24.50	20.72	20.66	20.90	21.50
EDGE 1 Tx slot	25.24	25.29	25.60	27.50	16.24	16.29	16.60	18.50
EDGE 2 Tx slots	25.03	25.06	25.50	27.50	19.03	19.06	19.50	21.50
EDGE 3 Tx slots	24.61	24.64	25.04	25.75	20.35	20.38	20.78	21.49
EDGE 4 Tx slots	23.24	23.29	23.72	24.50	20.24	20.29	20.72	21.50

<WCDMA Conducted Power>

1. The following tests were conducted according to the test requirements outlines in 3GPP TS 34.121 specification.
2. The procedures in KDB 941225 D01v03r01 are applied for 3GPP Rel. 6 HSPA to configure the device in the required sub-test mode(s) to determine SAR test exclusion.
3. For DC-HSDPA, the device was configured according to the H-Set 12, Fixed Reference Channel (FRC) configuration in Table C.8.1.12 of 3GPP TS 34.121-1, with the primary and the secondary serving HS-DSCH Cell enabled during the power measurement.

A summary of these settings are illustrated below:

HSDPA Setup Configuration:

a. The EUT was connected to Base Station 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

DC-HSDPA 3GPP release 8 Setup Configuration:

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

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

C.8.1.12 Fixed Reference Channel Definition H-Set 12

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

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

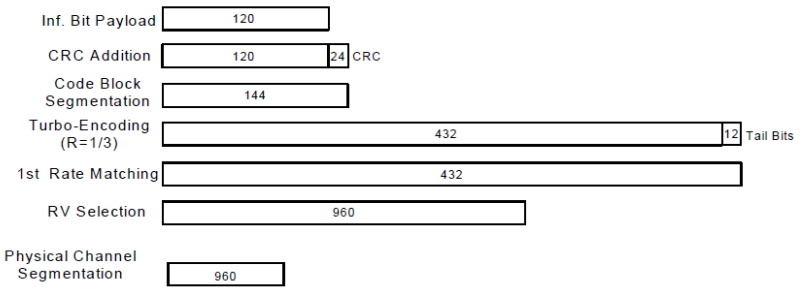


Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)

Setup Configuration

<WCDMA Conducted Power>

General Note:

1. Per KDB 941225 D01v03r01, for SAR testing is measured using a 12.2 kbps RMC with TPC bits configured to all "1's".
2. Per KDB 941225 D01v03r01, RMC 12.2kbps setting is used to evaluate SAR. If the maximum output power and tune-up tolerance specified for production units in HSDPA / HSUPA / DC-HSDPA is ≤ ¼ dB higher than RMC 12.2Kbps or when the highest reported SAR of the RMC12.2Kbps is scaled by the ratio of specified maximum output power and tune-up tolerance of HSDPA / HSUPA / DC-HSDPA to RMC12.2Kbps and the adjusted SAR is ≤ 1.2 W/kg, SAR measurement is not required for HSDPA / HSUPA / DC-HSDPA.

<Default Power Mode>

Band		WCDMA II			Tune-up Limit (dBm)	WCDMA V			Tune-up Limit (dBm)
TX Channel		9262	9400	9538		4132	4182	4233	
Rx Channel		9662	9800	9938		4357	4407	4458	
Frequency (MHz)		1852.4	1880	1907.6		826.4	836.4	846.6	
3GPP Rel 99	AMR 12.2Kbps	22.96	22.92	23.08	24.00	23.04	22.95	22.92	24.00
3GPP Rel 99	RMC 12.2Kbps	22.97	22.93	23.13	24.00	23.05	22.96	22.93	24.00
3GPP Rel 6	HSDPA Subtest-1	21.94	21.90	22.09	23.00	22.04	21.91	21.93	23.00
3GPP Rel 6	HSDPA Subtest-2	21.92	21.88	22.10	23.00	22.03	21.91	21.92	23.00
3GPP Rel 6	HSDPA Subtest-3	21.44	21.41	21.62	22.50	21.55	21.43	21.44	22.50
3GPP Rel 6	HSDPA Subtest-4	21.43	21.42	21.61	22.50	21.54	21.43	21.43	22.50
3GPP Rel 8	DC-HSDPA Subtest-1	21.94	21.92	22.11	23.00	22.03	21.90	21.92	23.00
3GPP Rel 8	DC-HSDPA Subtest-2	21.93	21.92	21.12	23.00	22.03	21.90	21.91	23.00
3GPP Rel 8	DC-HSDPA Subtest-3	21.42	21.42	21.62	22.50	21.54	21.42	21.43	22.50
3GPP Rel 8	DC-HSDPA Subtest-4	21.45	21.42	21.61	22.50	21.53	21.41	21.40	22.50
3GPP Rel 6	HSUPA Subtest-1	21.91	21.90	22.04	23.00	22.05	21.90	21.89	23.00
3GPP Rel 6	HSUPA Subtest-2	19.95	19.92	20.11	21.00	20.03	19.92	19.90	21.00
3GPP Rel 6	HSUPA Subtest-3	20.90	20.85	21.06	22.00	21.00	20.90	20.85	22.00
3GPP Rel 6	HSUPA Subtest-4	19.74	19.93	20.13	21.00	20.00	19.92	19.89	21.00
3GPP Rel 6	HSUPA Subtest-5	21.85	21.79	22.07	23.00	22.02	22.02	21.82	23.00

<Near-body and Hotspot Mode>

Band		WCDMA II			Tune-up Limit (dBm)	WCDMA V			Tune-up Limit (dBm)
TX Channel		9262	9400	9538		4132	4182	4233	
Rx Channel		9662	9800	9938		4357	4407	4458	
Frequency (MHz)		1852.4	1880	1907.6		826.4	836.4	846.6	
3GPP Rel 99	AMR 12.2Kbps	21.83	21.70	21.98	23.00	19.33	19.25	19.31	20.50
3GPP Rel 99	RMC 12.2Kbps	21.84	21.71	22.00	23.00	19.35	19.27	19.32	20.50
3GPP Rel 6	HSDPA Subtest-1	20.84	20.68	20.94	22.00	18.27	18.22	18.22	19.50
3GPP Rel 6	HSDPA Subtest-2	20.86	20.70	20.95	22.00	18.30	18.21	18.20	19.50
3GPP Rel 6	HSDPA Subtest-3	20.40	20.22	20.48	21.50	17.81	17.74	17.75	19.00
3GPP Rel 6	HSDPA Subtest-4	20.36	20.20	20.47	21.50	17.80	17.74	17.73	19.00
3GPP Rel 8	DC-HSDPA Subtest-1	20.80	20.66	20.90	22.00	18.25	18.20	18.21	19.50
3GPP Rel 8	DC-HSDPA Subtest-2	20.82	20.77	20.92	22.00	18.29	18.20	18.20	19.50
3GPP Rel 8	DC-HSDPA Subtest-3	20.37	20.21	20.44	21.50	17.78	17.73	17.74	19.00
3GPP Rel 8	DC-HSDPA Subtest-4	20.32	20.20	20.41	21.50	17.75	17.70	17.72	19.00
3GPP Rel 6	HSUPA Subtest-1	20.47	20.43	20.62	22.00	17.82	17.72	17.76	19.50
3GPP Rel 6	HSUPA Subtest-2	18.87	18.80	18.98	20.00	16.32	16.24	16.28	17.50
3GPP Rel 6	HSUPA Subtest-3	19.65	19.61	19.77	21.00	17.25	17.18	17.22	18.50
3GPP Rel 6	HSUPA Subtest-4	18.75	18.70	18.79	20.00	16.33	16.27	16.29	17.50
3GPP Rel 6	HSUPA Subtest-5	20.80	20.72	20.90	22.00	18.20	18.17	18.14	19.50

<CDMA Conducted Power>

General Note:

1. Per KDB 941225 D01v03r01, SAR for head exposure is measured in RC3 with the handset configured to transmit at full rate in SO55.
2. Per KDB 941225 D01v03r01, in Hotspot mode EUT is treated as data device and SAR is tested with Ev-Do Rev 0 (RTAP 153.6kbps) as the primary mode.
3. Per KDB 941225 D01v03r01, for Body-worn accessory SAR is measured in RC3 with the handset configured in TDSO/SO32 to transmit at full rate on FCH only with all other code channels disabled. The body-worn accessory procedures in KDB Publication 447498 are applied. The 3G SAR test reduction procedure is applied to the multiple code channel configuration (FCH+SCH), with FCH only as the primary mode.

<Default Power Mode>

Band	CDMA2000 BC0			Tune-up Limit (dBm)	CDMA2000 BC1			Tune-up Limit (dBm)
TX Channel	1013	384	777		25	600	1175	
Frequency (MHz)	824.7	836.52	848.31		1851.25	1880	1908.75	
RC1 SO55	23.80	23.73	23.55	25.00	24.10	24.09	24.19	25.00
RC3 SO55	23.76	23.74	23.54	25.00	24.05	24.07	24.12	25.00
RC3 SO32(F+SCH)	23.77	23.71	23.57	25.00	24.07	24.17	24.12	25.00
RC3 SO32(+SCH)	23.79	23.75	23.58	25.00	24.02	24.08	24.13	25.00
RTAP 153.6Kbps	24.06	23.99	23.69	25.00	24.35	24.31	24.37	25.00
RETAP 4096Bits	23.84	23.92	23.52	25.00	24.28	24.30	24.48	25.00

<Near-body and Hotspot Mode>

Band	CDMA2000 BC0			Tune-up Limit (dBm)	CDMA2000 BC1			Tune-up Limit (dBm)
TX Channel	1013	384	777		25	600	1175	
Frequency (MHz)	824.7	836.52	848.31		1851.25	1880	1908.75	
RC1 SO55	21.30	21.23	21.03	22.50	22.63	22.52	22.58	23.50
RC3 SO55	21.33	21.32	21.13	22.50	22.62	22.61	22.68	23.50
RC3 SO32(F+SCH)	21.34	21.31	21.11	22.50	22.61	22.60	22.67	23.50
RC3 SO32(+SCH)	21.32	21.31	21.10	22.50	22.62	22.63	22.69	23.50
RTAP 153.6Kbps	21.35	21.24	21.03	22.50	22.64	22.63	22.72	23.50
RETAP 4096Bits	21.29	21.31	21.09	22.50	22.62	22.63	22.70	23.50

<LTE Conducted Power>

General Note:

1. Anritsu MT8820C base station simulator was used to setup the connection with EUT; the frequency band, channel bandwidth, RB allocation configuration, modulation type are set in the base station simulator to configure EUT transmitting at maximum power and at different configurations which are requested to be reported to FCC, for conducted power measurement and SAR testing.
2. Per KDB 941225 D05v02r05, when a properly configured base station simulator is used for the SAR and power measurements, spectrum plots for each RB allocation and offset configuration is not required.
3. Per KDB 941225 D05v02r05, start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
4. Per KDB 941225 D05v02r05, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
5. Per KDB 941225 D05v02r05, For QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
6. Per KDB 941225 D05v02r05, 16QAM output power for each RB allocation configuration is > not ½ dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, 16QAM SAR testing is not required.
7. Per KDB 941225 D05v02r05, Smaller bandwidth output power for each RB allocation configuration is > not ½ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, smaller bandwidth SAR testing is not required.
8. For LTE B5 / B4 the maximum bandwidth does not support three non-overlapping channels, per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.

<Default Power Mode>

<LTE Band 2>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				18700	18900	19100		
Frequency (MHz)				1860	1880	1900		
20	QPSK	1	0	23.01	23.09	23.01	24	0
20	QPSK	1	49	22.83	22.77	22.76		
20	QPSK	1	99	22.98	22.99	22.93		
20	QPSK	50	0	22.09	22.10	22.01	23	1
20	QPSK	50	24	22.01	21.90	21.91		
20	QPSK	50	50	22.01	21.95	21.86		
20	QPSK	100	0	22.07	21.92	21.95		
20	16QAM	1	0	22.49	22.50	22.47	23	1
20	16QAM	1	49	22.15	22.02	22.06		
20	16QAM	1	99	22.35	22.31	22.23		
20	16QAM	50	0	21.10	20.97	20.87	22	2
20	16QAM	50	24	20.98	20.88	20.90		
20	16QAM	50	50	20.99	20.94	21.00		
20	16QAM	100	0	21.02	20.90	20.94		
Channel				18675	18900	19125	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1902.5		
15	QPSK	1	0	23.16	23.01	22.94	24	0
15	QPSK	1	37	22.85	22.72	22.85		
15	QPSK	1	74	23.05	22.94	23.11		
15	QPSK	36	0	22.05	21.96	22.00	23	1
15	QPSK	36	20	21.99	21.89	21.99		
15	QPSK	36	39	22.05	21.90	22.05		
15	QPSK	75	0	22.05	21.93	22.03		
15	16QAM	1	0	22.43	22.34	22.35	23	1
15	16QAM	1	37	22.12	22.01	22.09		
15	16QAM	1	74	22.38	22.34	22.42		
15	16QAM	36	0	21.01	20.93	20.98	22	2
15	16QAM	36	20	20.97	20.87	20.99		
15	16QAM	36	39	21.01	20.87	21.02		
15	16QAM	75	0	20.99	20.92	21.00		
Channel				18650	18900	19150	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1905		
10	QPSK	1	0	23.12	23.08	23.10	24	0
10	QPSK	1	25	22.91	22.80	22.97		
10	QPSK	1	49	23.00	23.02	23.11		
10	QPSK	25	0	22.15	21.96	22.12	23	1
10	QPSK	25	12	22.00	21.88	22.07		
10	QPSK	25	25	21.92	21.82	22.07		
10	QPSK	50	0	22.04	21.93	22.11		
10	16QAM	1	0	22.79	22.61	22.74	23	1
10	16QAM	1	25	22.12	21.99	22.19		
10	16QAM	1	49	22.40	22.40	22.55		
10	16QAM	25	0	21.11	20.93	21.10	22	2
10	16QAM	25	12	20.98	20.84	21.03		
10	16QAM	25	25	20.94	20.79	21.06		
10	16QAM	50	0	21.03	20.89	21.08		

Channel				18625	18900	19175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	QPSK	1	0	23.04	22.93	23.10	24	0
5	QPSK	1	12	22.94	22.83	22.99		
5	QPSK	1	24	22.91	22.83	23.02		
5	QPSK	12	0	22.15	22.01	22.08	23	1
5	QPSK	12	7	22.15	22.03	22.13		
5	QPSK	12	13	22.15	22.00	22.24		
5	QPSK	25	0	21.93	21.79	21.99	23	1
5	16QAM	1	0	22.51	22.29	22.53	23	1
5	16QAM	1	12	22.45	22.27	22.45		
5	16QAM	1	24	22.24	22.23	22.41		
5	16QAM	12	0	21.13	21.02	21.15	22	2
5	16QAM	12	7	21.11	21.02	21.08		
5	16QAM	12	13	21.09	21.05	21.15		
5	16QAM	25	0	20.93	20.80	20.98	22	2
Channel				18615	18900	19185	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1908.5		
3	QPSK	1	0	22.94	22.89	23.10	24	0
3	QPSK	1	8	23.07	23.01	23.08		
3	QPSK	1	14	22.86	22.76	22.93		
3	QPSK	8	0	22.09	22.05	22.18	23	1
3	QPSK	8	4	22.15	22.07	22.19		
3	QPSK	8	7	22.08	22.02	22.15		
3	QPSK	15	0	21.91	21.77	21.95	23	1
3	16QAM	1	0	22.04	22.00	22.16	23	1
3	16QAM	1	8	22.38	22.07	22.36		
3	16QAM	1	14	22.42	22.11	22.45		
3	16QAM	8	0	21.03	21.05	21.05	22	2
3	16QAM	8	4	21.10	21.03	21.15		
3	16QAM	8	7	21.00	21.03	21.08		
3	16QAM	15	0	20.91	20.81	20.98	22	2
Channel				18607	18900	19193	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1909.3		
1.4	QPSK	1	0	22.78	22.73	22.87	24	0
1.4	QPSK	1	3	22.75	22.69	22.90		
1.4	QPSK	1	5	22.76	22.70	22.88		
1.4	QPSK	3	0	22.90	22.78	22.97		
1.4	QPSK	3	1	22.94	22.89	23.08		
1.4	QPSK	3	3	22.95	22.89	23.09		
1.4	QPSK	6	0	22.07	22.02	22.10	23	1
1.4	16QAM	1	0	22.02	22.00	22.15	23	1
1.4	16QAM	1	3	22.07	22.03	22.18		
1.4	16QAM	1	5	22.01	21.93	22.09		
1.4	16QAM	3	0	21.92	21.79	21.99		
1.4	16QAM	3	1	22.08	21.93	22.06		
1.4	16QAM	3	3	22.10	21.93	22.09		
1.4	16QAM	6	0	21.05	21.01	21.08	22	2

<LTE Band 4>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				20050	20175	20300		
Frequency (MHz)				1720	1732.5	1745		
20	QPSK	1	0	22.37	22.49	22.55	24	0
20	QPSK	1	49	22.32	22.34	22.51		
20	QPSK	1	99	22.34	22.39	22.45		
20	QPSK	50	0	21.49	21.46	21.61	23	1
20	QPSK	50	24	21.61	21.65	21.66		
20	QPSK	50	50	21.46	21.53	21.45		
20	QPSK	100	0	21.51	21.49	21.58		
20	16QAM	1	0	21.78	21.88	21.92	23	1
20	16QAM	1	49	21.55	21.60	21.73		
20	16QAM	1	99	21.61	21.63	21.64		
20	16QAM	50	0	20.59	20.39	20.47	22	2
20	16QAM	50	24	20.65	20.64	20.58		
20	16QAM	50	50	20.50	20.52	20.44		
20	16QAM	100	0	20.51	20.59	20.46		
Channel				20025	20175	20325	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1732.5	1747.5		
15	QPSK	1	0	22.56	22.56	22.73	24	0
15	QPSK	1	37	22.38	22.42	22.48		
15	QPSK	1	74	22.30	22.36	22.32		
15	QPSK	36	0	21.57	21.51	21.60	23	1
15	QPSK	36	20	21.56	21.60	21.61		
15	QPSK	36	39	21.54	21.44	21.54		
15	QPSK	75	0	21.54	21.56	21.60		
15	16QAM	1	0	21.72	21.77	21.79	23	1
15	16QAM	1	37	21.56	21.67	21.69		
15	16QAM	1	74	21.62	21.60	21.67		
15	16QAM	36	0	20.50	20.46	20.55	22	2
15	16QAM	36	20	20.58	20.62	20.68		
15	16QAM	36	39	20.53	20.41	20.51		
15	16QAM	75	0	20.57	20.56	20.52		
Channel				20000	20175	20350	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1732.5	1750		
10	QPSK	1	0	22.29	22.33	22.46	24	0
10	QPSK	1	25	22.56	22.58	22.71		
10	QPSK	1	49	22.87	22.89	22.99		
10	QPSK	25	0	21.60	21.64	21.69	23	1
10	QPSK	25	12	21.60	21.65	21.73		
10	QPSK	25	25	21.63	21.74	21.77		
10	QPSK	50	0	21.64	21.72	21.78		
10	16QAM	1	0	22.09	22.23	22.33	23	1
10	16QAM	1	25	21.76	21.84	21.88		
10	16QAM	1	49	22.24	22.33	22.35		
10	16QAM	25	0	20.59	20.59	20.67	22	2
10	16QAM	25	12	20.58	20.69	20.71		
10	16QAM	25	25	20.61	20.73	20.75		
10	16QAM	50	0	20.64	20.72	20.75		

Channel				19975	20175	20375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1732.5	1752.5		
5	QPSK	1	0	22.19	22.14	22.33	24	0
5	QPSK	1	12	22.52	22.60	22.70		
5	QPSK	1	24	22.62	22.68	22.73		
5	QPSK	12	0	21.63	21.67	21.71	23	1
5	QPSK	12	7	21.62	21.62	21.70		
5	QPSK	12	13	21.57	21.62	21.67		
5	QPSK	25	0	21.58	21.64	21.66	23	1
5	16QAM	1	0	22.12	22.11	22.14	23	1
5	16QAM	1	12	21.91	21.97	22.08		
5	16QAM	1	24	21.05	21.15	21.18		
5	16QAM	12	0	20.65	20.59	20.74	22	2
5	16QAM	12	7	20.63	20.67	20.70		
5	16QAM	12	13	20.60	20.64	20.68		
5	16QAM	25	0	20.59	20.65	20.70	22	2
Channel				19965	20175	20385	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1732.5	1753.5		
3	QPSK	1	0	22.55	22.60	22.61	24	0
3	QPSK	1	8	22.61	22.67	22.84		
3	QPSK	1	14	22.54	22.84	22.86		
3	QPSK	8	0	21.54	21.56	21.65	23	0
3	QPSK	8	4	21.63	21.26	21.78		
3	QPSK	8	7	21.60	21.59	21.64		
3	QPSK	15	0	21.50	21.64	21.64	23	1
3	16QAM	1	0	21.45	21.98	21.83	23	1
3	16QAM	1	8	22.02	21.62	22.02		
3	16QAM	1	14	21.57	21.28	22.21		
3	16QAM	8	0	20.61	20.60	20.73	22	2
3	16QAM	8	4	20.73	20.43	20.90		
3	16QAM	8	7	20.57	20.67	20.69		
3	16QAM	15	0	20.52	20.65	20.68	22	2
Channel				19957	20175	20393	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1732.5	1754.3		
1.4	QPSK	1	0	22.63	22.51	22.68	24	0
1.4	QPSK	1	3	22.71	22.77	22.83		
1.4	QPSK	1	5	22.48	22.53	22.58		
1.4	QPSK	3	0	22.58	22.58	22.64		
1.4	QPSK	3	1	22.64	22.54	22.75		
1.4	QPSK	3	3	22.67	22.58	22.78		
1.4	QPSK	6	0	21.41	21.54	21.60	23	1
1.4	16QAM	1	0	21.77	21.73	21.82	23	1
1.4	16QAM	1	3	21.84	21.89	21.95		
1.4	16QAM	1	5	21.68	21.77	21.76		
1.4	16QAM	3	0	21.58	21.61	21.65		
1.4	16QAM	3	1	21.61	21.60	21.75		
1.4	16QAM	3	3	21.55	21.55	21.78		
1.4	16QAM	6	0	20.52	20.63	20.68	22	2

<LTE Band 5>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				20450	20525	20600		
Frequency (MHz)				829	836.5	844		
10	QPSK	1	0	22.99	22.86	22.89	24	0
10	QPSK	1	25	22.83	22.63	22.71		
10	QPSK	1	49	22.75	22.64	22.47		
10	QPSK	25	0	21.92	21.77	21.89	23	1
10	QPSK	25	12	21.78	21.73	21.87		
10	QPSK	25	25	21.71	21.70	21.85		
10	QPSK	50	0	21.82	21.77	21.74		
10	16QAM	1	0	22.15	22.07	22.11	23	1
10	16QAM	1	25	21.89	22.02	21.93		
10	16QAM	1	49	21.92	22.11	21.77		
10	16QAM	25	0	20.64	20.81	20.82	22	2
10	16QAM	25	12	20.71	20.84	20.77		
10	16QAM	25	25	20.71	20.85	20.65		
10	16QAM	50	0	20.69	20.68	20.72		
Channel				20425	20525	20625	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				826.5	836.5	846.5		
5	QPSK	1	0	22.84	22.82	22.77	24	0
5	QPSK	1	12	22.80	22.79	22.53		
5	QPSK	1	24	22.73	22.67	22.57		
5	QPSK	12	0	21.78	21.79	21.72	23	1
5	QPSK	12	7	21.81	21.83	21.70		
5	QPSK	12	13	21.79	21.87	21.60		
5	QPSK	25	0	21.77	21.80	21.67	23	1
5	16QAM	1	0	22.27	22.26	22.17	23	1
5	16QAM	1	12	22.25	22.21	22.11		
5	16QAM	1	24	21.73	22.19	21.21		
5	16QAM	12	0	20.75	20.79	20.79	22	2
5	16QAM	12	7	20.76	20.91	20.76		
5	16QAM	12	13	20.76	20.88	20.65		
5	16QAM	25	0	20.74	20.78	20.73	22	2
Channel				20415	20525	20635	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				825.5	836.5	847.5		
3	QPSK	1	0	22.81	22.78	22.69	24	0
3	QPSK	1	8	22.67	22.75	22.48		
3	QPSK	1	14	22.69	22.71	22.45		
3	QPSK	8	0	21.78	21.76	21.55	23	1
3	QPSK	8	4	21.72	21.72	21.08		
3	QPSK	8	7	21.70	21.79	21.51		
3	QPSK	15	0	21.70	21.79	21.52	23	1
3	16QAM	1	0	22.19	22.05	22.09	23	1
3	16QAM	1	8	22.10	21.92	21.37		
3	16QAM	1	14	22.05	22.05	21.34		
3	16QAM	8	0	20.82	20.77	20.56	22	2
3	16QAM	8	4	20.86	20.67	20.15		
3	16QAM	8	7	20.71	20.77	20.47		
3	16QAM	15	0	20.72	20.83	20.57	22	2

Channel				20407	20525	20643	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				824.7	836.5	848.3		
1.4	QPSK	1	0	22.89	22.77	22.63	24	0
1.4	QPSK	1	3	22.87	22.73	22.51		
1.4	QPSK	1	5	22.74	22.74	22.44		
1.4	QPSK	3	0	22.84	22.74	22.52	23	1
1.4	QPSK	3	1	22.77	22.72	22.59		
1.4	QPSK	3	3	22.77	22.84	22.54		
1.4	QPSK	6	0	21.75	21.84	21.54		
1.4	16QAM	1	0	22.09	22.10	21.77	23	1
1.4	16QAM	1	3	22.22	22.21	21.67		
1.4	16QAM	1	5	22.05	22.06	21.75		
1.4	16QAM	3	0	21.86	21.81	21.55	22	2
1.4	16QAM	3	1	21.85	21.74	21.53		
1.4	16QAM	3	3	21.93	21.74	21.48		
1.4	16QAM	6	0	20.79	20.83	20.47		

<LTE Band 7>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.
Channel				20850	21100	21350		
Frequency (MHz)				2510	2535	2560		
20	QPSK	1	0	22.84	22.58	22.67	24	0
20	QPSK	1	49	22.58	22.48	22.57		
20	QPSK	1	99	23.01	22.78	22.92		
20	QPSK	50	0	21.63	21.61	21.65	23	1
20	QPSK	50	24	21.57	21.64	21.78		
20	QPSK	50	50	21.86	21.68	21.79		
20	QPSK	100	0	21.61	21.75	21.87		
20	16QAM	1	0	21.96	22.05	22.01	23	1
20	16QAM	1	49	21.75	21.77	21.89		
20	16QAM	1	99	22.02	22.12	22.25		
20	16QAM	50	0	20.60	20.59	20.65	22	2
20	16QAM	50	24	20.56	20.62	20.79		
20	16QAM	50	50	20.66	20.53	20.87		
20	16QAM	100	0	20.58	20.60	20.84		
Channel				20825	21100	21375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2507.5	2535	2562.5		
15	QPSK	1	0	22.03	22.01	22.02	24	0
15	QPSK	1	37	22.60	22.50	22.65		
15	QPSK	1	74	22.83	22.74	22.88		
15	QPSK	36	0	21.65	21.69	21.76	23	1
15	QPSK	36	20	21.71	21.64	21.73		
15	QPSK	36	39	21.74	21.66	21.85		
15	QPSK	75	0	21.73	21.72	21.77		
15	16QAM	1	0	22.05	22.01	22.06	23	1
15	16QAM	1	37	21.89	21.79	21.88		
15	16QAM	1	74	22.17	22.10	22.34		
15	16QAM	36	0	20.61	20.64	20.67	22	2
15	16QAM	36	20	20.70	20.61	20.69		
15	16QAM	36	39	20.68	20.59	20.81		
15	16QAM	75	0	20.70	20.64	20.73		
Channel				20800	21100	21400	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2505	2535	2565		
10	QPSK	1	0	22.32	22.38	22.41	24	0
10	QPSK	1	25	22.60	22.38	22.62		
10	QPSK	1	49	22.74	22.38	22.80		
10	QPSK	25	0	21.71	21.76	21.79	23	1
10	QPSK	25	12	21.69	21.64	21.71		
10	QPSK	25	25	21.74	21.68	21.84		
10	QPSK	50	0	21.79	21.75	21.78		
10	16QAM	1	0	22.45	22.38	22.45	23	1
10	16QAM	1	25	21.83	21.78	21.87		
10	16QAM	1	49	22.38	22.32	22.56		
10	16QAM	25	0	20.57	20.71	20.77	22	2
10	16QAM	25	12	20.59	20.61	20.72		
10	16QAM	25	25	20.70	20.64	20.85		
10	16QAM	50	0	20.76	20.69	20.81		

Channel				20775	21100	21425	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2502.5	2535	2567.5		
5	QPSK	1	0	22.73	22.77	22.79	24	0
5	QPSK	1	12	22.52	22.54	22.67		
5	QPSK	1	24	22.33	22.57	22.21		
5	QPSK	12	0	21.59	21.57	21.69	23	1
5	QPSK	12	7	21.57	21.57	21.70		
5	QPSK	12	13	21.53	21.53	21.70		
5	QPSK	25	0	21.56	21.53	21.66	23	1
5	16QAM	1	0	22.02	21.88	22.24	23	1
5	16QAM	1	12	22.00	21.88	22.09		
5	16QAM	1	24	21.81	21.04	21.59		
5	16QAM	12	0	20.61	20.57	20.71	22	2
5	16QAM	12	7	20.56	20.53	20.72		
5	16QAM	12	13	20.53	20.50	20.70		
5	16QAM	25	0	20.58	20.53	20.69	22	2

<LTE Band 13>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				23230				
Frequency (MHz)				782				
10	QPSK	1	0	22.32			24	0
10	QPSK	1	25	22.25				
10	QPSK	1	49	22.29				
10	QPSK	25	0	21.56			23	1
10	QPSK	25	12	21.55				
10	QPSK	25	25	21.50				
10	QPSK	50	0	21.58				
10	16QAM	1	0	22.20			23	1
10	16QAM	1	25	21.66				
10	16QAM	1	49	22.05				
10	16QAM	25	0	20.53			22	2
10	16QAM	25	12	20.52				
10	16QAM	25	25	20.57				
10	16QAM	50	0	20.00				
Channel				23205	23230	23255	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				779.5	782	784.5		
5	QPSK	1	0	22.55	22.53	22.50	24	0
5	QPSK	1	12	22.44	22.38	22.54		
5	QPSK	1	24	22.37	22.54	22.53		
5	QPSK	12	0	21.56	21.55	21.55	23	1
5	QPSK	12	7	21.50	21.46	21.64		
5	QPSK	12	13	21.41	21.47	21.50		
5	QPSK	25	0	21.49	21.48	21.48		
5	16QAM	1	0	21.90	22.06	21.98	23	1
5	16QAM	1	12	21.70	22.01	22.04		
5	16QAM	1	24	22.00	22.05	22.15		
5	16QAM	12	0	20.55	20.39	20.41	22	2
5	16QAM	12	7	20.51	20.38	20.50		
5	16QAM	12	13	20.37	20.26	20.57		
5	16QAM	25	0	20.47	20.35	20.42		

<Near-body and Hotspot Mode>

<LTE Band 2>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				18700	18900	19100		
Frequency (MHz)				1860	1880	1900		
20	QPSK	1	0	23.01	23.09	23.01	24	0
20	QPSK	1	49	22.83	22.77	22.76		
20	QPSK	1	99	22.98	22.99	22.93		
20	QPSK	50	0	22.09	22.10	22.01	23	1
20	QPSK	50	24	22.01	21.90	21.91		
20	QPSK	50	50	22.01	21.95	21.86		
20	QPSK	100	0	22.07	21.92	21.95		
20	16QAM	1	0	22.49	22.50	22.47	23	1
20	16QAM	1	49	22.15	22.02	22.06		
20	16QAM	1	99	22.35	22.31	22.23		
20	16QAM	50	0	21.10	20.97	20.87	22	2
20	16QAM	50	24	20.98	20.88	20.90		
20	16QAM	50	50	20.99	20.94	21.00		
20	16QAM	100	0	21.02	20.90	20.94		
Channel				18675	18900	19125	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1902.5		
15	QPSK	1	0	23.16	23.01	22.94	24	0
15	QPSK	1	37	22.85	22.72	22.85		
15	QPSK	1	74	23.05	22.94	23.11		
15	QPSK	36	0	22.05	21.96	22.00	23	1
15	QPSK	36	20	21.99	21.89	21.99		
15	QPSK	36	39	22.05	21.90	22.05		
15	QPSK	75	0	22.05	21.93	22.03		
15	16QAM	1	0	22.43	22.34	22.35	23	1
15	16QAM	1	37	22.12	22.01	22.09		
15	16QAM	1	74	22.38	22.34	22.42		
15	16QAM	36	0	21.01	20.93	20.98	22	2
15	16QAM	36	20	20.97	20.87	20.99		
15	16QAM	36	39	21.01	20.87	21.02		
15	16QAM	75	0	20.99	20.92	21.00		
Channel				18650	18900	19150	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1905		
10	QPSK	1	0	23.12	23.08	23.10	24	0
10	QPSK	1	25	22.91	22.80	22.97		
10	QPSK	1	49	23.00	23.02	23.11		
10	QPSK	25	0	22.15	21.96	22.12	23	1
10	QPSK	25	12	22.00	21.88	22.07		
10	QPSK	25	25	21.92	21.82	22.07		
10	QPSK	50	0	22.04	21.93	22.11		
10	16QAM	1	0	22.79	22.61	22.74	23	1
10	16QAM	1	25	22.12	21.99	22.19		
10	16QAM	1	49	22.40	22.40	22.55		
10	16QAM	25	0	21.11	20.93	21.10	22	2
10	16QAM	25	12	20.98	20.84	21.03		
10	16QAM	25	25	20.94	20.79	21.06		
10	16QAM	50	0	21.03	20.89	21.08		

Channel				18625	18900	19175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	QPSK	1	0	23.04	22.93	23.10	24	0
5	QPSK	1	12	22.94	22.83	22.99		
5	QPSK	1	24	22.91	22.83	23.02		
5	QPSK	12	0	22.15	22.01	22.08	23	1
5	QPSK	12	7	22.15	22.03	22.13		
5	QPSK	12	13	22.15	22.00	22.24		
5	QPSK	25	0	21.93	21.79	21.99	23	1
5	16QAM	1	0	22.51	22.29	22.53	23	1
5	16QAM	1	12	22.45	22.27	22.45		
5	16QAM	1	24	22.24	22.23	22.41		
5	16QAM	12	0	21.13	21.02	21.15	22	2
5	16QAM	12	7	21.11	21.02	21.08		
5	16QAM	12	13	21.09	21.05	21.15		
5	16QAM	25	0	20.93	20.80	20.98	22	2
Channel				18615	18900	19185	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1908.5		
3	QPSK	1	0	22.94	22.89	23.10	24	0
3	QPSK	1	8	23.07	23.01	23.08		
3	QPSK	1	14	22.86	22.76	22.93		
3	QPSK	8	0	22.09	22.05	22.18	23	1
3	QPSK	8	4	22.15	22.07	22.19		
3	QPSK	8	7	22.08	22.02	22.15		
3	QPSK	15	0	21.91	21.77	21.95	23	1
3	16QAM	1	0	22.04	22.00	22.16	23	1
3	16QAM	1	8	22.38	22.07	22.36		
3	16QAM	1	14	22.42	22.11	22.45		
3	16QAM	8	0	21.03	21.05	21.05	22	2
3	16QAM	8	4	21.10	21.03	21.15		
3	16QAM	8	7	21.00	21.03	21.08		
3	16QAM	15	0	20.91	20.81	20.98	22	2
Channel				18607	18900	19193	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1909.3		
1.4	QPSK	1	0	22.78	22.73	22.87	24	0
1.4	QPSK	1	3	22.75	22.69	22.90		
1.4	QPSK	1	5	22.76	22.70	22.88		
1.4	QPSK	3	0	22.90	22.78	22.97		
1.4	QPSK	3	1	22.94	22.89	23.08		
1.4	QPSK	3	3	22.95	22.89	23.09		
1.4	QPSK	6	0	22.07	22.02	22.10	23	1
1.4	16QAM	1	0	22.02	22.00	22.15	23	1
1.4	16QAM	1	3	22.07	22.03	22.18		
1.4	16QAM	1	5	22.01	21.93	22.09		
1.4	16QAM	3	0	21.92	21.79	21.99		
1.4	16QAM	3	1	22.08	21.93	22.06		
1.4	16QAM	3	3	22.10	21.93	22.09		
1.4	16QAM	6	0	21.05	21.01	21.08	22	2

<LTE Band 4>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				20050	20175	20300		
Frequency (MHz)				1720	1732.5	1745		
20	QPSK	1	0	22.00	22.08	22.14	23	0
20	QPSK	1	49	21.49	21.58	21.73		
20	QPSK	1	99	21.84	21.93	21.90		
20	QPSK	50	0	22.04	21.95	21.99	23	0
20	QPSK	50	24	22.13	22.09	22.15		
20	QPSK	50	50	21.95	22.04	21.94		
20	QPSK	100	0	21.96	21.99	22.07		
20	16QAM	1	0	22.01	22.11	22.22	23	0
20	16QAM	1	49	22.27	22.37	22.46		
20	16QAM	1	99	22.08	22.20	22.13		
20	16QAM	50	0	21.03	20.92	20.95	22	1
20	16QAM	50	24	21.13	21.13	21.07		
20	16QAM	50	50	20.97	21.02	20.95		
20	16QAM	100	0	20.98	21.05	20.95		
Channel				20025	20175	20325	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1732.5	1747.5		
15	QPSK	1	0	21.41	21.58	21.63	23	0
15	QPSK	1	37	21.74	21.94	22.04		
15	QPSK	1	74	21.77	21.81	21.83		
15	QPSK	36	0	22.03	22.00	22.14	23	0
15	QPSK	36	20	22.42	22.00	22.17		
15	QPSK	36	39	22.03	21.96	22.05		
15	QPSK	75	0	22.06	22.05	22.04		
15	16QAM	1	0	21.97	22.13	22.26	23	0
15	16QAM	1	37	22.14	22.22	22.25		
15	16QAM	1	74	22.06	22.14	22.11		
15	16QAM	36	0	20.95	20.99	21.06	22	1
15	16QAM	36	20	21.38	20.90	21.28		
15	16QAM	36	39	20.99	20.91	20.99		
15	16QAM	75	0	21.04	21.03	21.04		
Channel				20000	20175	20350	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1732.5	1750		
10	QPSK	1	0	22.00	22.12	22.17	23	0
10	QPSK	1	25	22.02	22.10	22.21		
10	QPSK	1	49	22.38	22.42	22.48		
10	QPSK	25	0	22.08	22.12	22.20	23	0
10	QPSK	25	12	22.07	22.16	22.25		
10	QPSK	25	25	22.10	22.23	22.27		
10	QPSK	50	0	22.12	22.24	22.26		
10	16QAM	1	0	22.63	22.77	22.85	23	0
10	16QAM	1	25	22.26	22.37	22.38		
10	16QAM	1	49	22.72	22.81	22.90		
10	16QAM	25	0	21.05	21.12	21.17	22	1
10	16QAM	25	12	21.06	21.19	21.21		
10	16QAM	25	25	21.09	21.22	21.24		
10	16QAM	50	0	21.11	21.20	21.24		

Channel				19975	20175	20375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1732.5	1752.5		
5	QPSK	1	0	21.97	21.94	22.10	23	0
5	QPSK	1	12	21.97	22.14	22.18		
5	QPSK	1	24	22.06	22.17	22.23		
5	QPSK	12	0	21.92	21.99	21.92	23	0
5	QPSK	12	7	21.99	21.96	21.92		
5	QPSK	12	13	21.93	21.90	21.96		
5	QPSK	25	0	21.98	21.92	21.97	23	0
5	16QAM	1	0	22.67	22.59	22.68	23	0
5	16QAM	1	12	22.42	22.43	22.56		
5	16QAM	1	24	22.53	22.61	22.66		
5	16QAM	12	0	21.15	21.13	21.25	22	1
5	16QAM	12	7	21.10	21.15	21.21		
5	16QAM	12	13	21.06	21.12	21.17		
5	16QAM	25	0	21.08	21.16	21.19	22	1
Channel				19965	20175	20385	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1732.5	1753.5		
3	QPSK	1	0	21.95	21.68	21.86	23	0
3	QPSK	1	8	22.09	22.34	22.42		
3	QPSK	1	14	22.12	22.10	22.11		
3	QPSK	8	0	22.03	22.09	22.18	23	0
3	QPSK	8	4	21.98	21.95	22.34		
3	QPSK	8	7	21.99	22.09	22.16		
3	QPSK	15	0	21.94	22.08	22.16	23	0
3	16QAM	1	0	21.87	22.44	22.27	23	0
3	16QAM	1	8	22.35	22.23	22.68		
3	16QAM	1	14	22.10	21.92	22.55		
3	16QAM	8	0	21.07	21.17	21.22	22	1
3	16QAM	8	4	21.02	21.04	21.36		
3	16QAM	8	7	21.04	21.18	21.20		
3	16QAM	15	0	20.95	21.14	21.18	22	1
Channel				19957	20175	20393	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1732.5	1754.3		
1.4	QPSK	1	0	21.66	21.69	21.79	23	0
1.4	QPSK	1	3	22.15	22.26	22.35		
1.4	QPSK	1	5	21.96	22.02	22.06		
1.4	QPSK	3	0	21.99	22.08	22.15		
1.4	QPSK	3	1	21.82	22.26	22.19		
1.4	QPSK	3	3	21.72	21.91	22.23		
1.4	QPSK	6	0	21.90	22.03	22.09	23	0
1.4	16QAM	1	0	22.23	22.23	22.37	23	0
1.4	16QAM	1	3	22.34	22.18	22.43		
1.4	16QAM	1	5	22.17	22.25	22.28		
1.4	16QAM	3	0	22.04	22.10	22.16		
1.4	16QAM	3	1	22.10	21.88	22.31		
1.4	16QAM	3	3	22.12	21.86	22.34		
1.4	16QAM	6	0	20.98	21.11	21.18	22	1

<LTE Band 5>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				20450	20525	20600		
Frequency (MHz)				829	836.5	844		
10	QPSK	1	0	18.56	18.66	18.57	20	0
10	QPSK	1	25	18.38	18.65	18.38		
10	QPSK	1	49	18.44	18.42	18.19		
10	QPSK	25	0	18.47	18.69	18.54	20	0
10	QPSK	25	12	18.45	18.58	18.46		
10	QPSK	25	25	18.38	18.60	18.36		
10	QPSK	50	0	18.46	18.55	18.45		
10	16QAM	1	0	18.84	18.87	18.87	20	0
10	16QAM	1	25	18.59	18.88	18.62		
10	16QAM	1	49	18.78	18.79	18.56		
10	16QAM	25	0	18.32	18.53	18.49	20	0
10	16QAM	25	12	18.41	18.66	18.43		
10	16QAM	25	25	18.45	18.54	18.33		
10	16QAM	50	0	18.39	18.50	18.41		
Channel				20425	20525	20625	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				826.5	836.5	846.5		
5	QPSK	1	0	18.76	18.83	18.64	20	0
5	QPSK	1	12	18.50	18.62	18.46		
5	QPSK	1	24	18.44	18.62	18.37		
5	QPSK	12	0	18.49	18.58	18.48	20	0
5	QPSK	12	7	18.53	18.62	18.49		
5	QPSK	12	13	18.52	18.54	18.47		
5	QPSK	25	0	18.47	18.59	18.41	20	0
5	16QAM	1	0	19.13	18.90	18.90	20	0
5	16QAM	1	12	19.02	19.08	18.84		
5	16QAM	1	24	18.80	18.86	18.56		
5	16QAM	12	0	18.52	18.59	18.49	20	0
5	16QAM	12	7	18.55	18.66	18.46		
5	16QAM	12	13	18.54	18.57	18.47		
5	16QAM	25	0	18.51	18.60	18.44	20	0
Channel				20415	20525	20635	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				825.5	836.5	847.5		
3	QPSK	1	0	18.76	18.80	18.61	20	0
3	QPSK	1	8	18.82	18.41	18.03		
3	QPSK	1	14	18.46	18.49	18.34		
3	QPSK	8	0	18.53	18.55	18.40	20	0
3	QPSK	8	4	18.56	18.47	18.05		
3	QPSK	8	7	18.45	18.48	18.35		
3	QPSK	15	0	18.44	18.58	18.36	20	0
3	16QAM	1	0	18.79	18.71	18.78	20	0
3	16QAM	1	8	19.04	18.71	18.18		
3	16QAM	1	14	18.84	18.79	18.59		
3	16QAM	8	0	18.59	18.58	18.44	20	0
3	16QAM	8	4	18.54	18.53	18.06		
3	16QAM	8	7	18.49	18.49	18.39		
3	16QAM	15	0	18.49	18.61	18.44	20	0

Channel				20407	20525	20643	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				824.7	836.5	848.3		
1.4	QPSK	1	0	18.62	18.66	18.43	20	0
1.4	QPSK	1	3	18.75	18.76	18.36		
1.4	QPSK	1	5	18.51	18.51	18.29		
1.4	QPSK	3	0	18.60	18.56	18.39	20	0
1.4	QPSK	3	1	18.67	18.50	18.37		
1.4	QPSK	3	3	18.78	18.62	18.32		
1.4	QPSK	6	0	18.48	18.52	18.28		
1.4	16QAM	1	0	18.80	18.76	18.64	20	0
1.4	16QAM	1	3	18.89	18.68	18.62		
1.4	16QAM	1	5	18.80	18.82	18.57		
1.4	16QAM	3	0	18.60	18.60	18.39	20	0
1.4	16QAM	3	1	18.73	18.50	18.40		
1.4	16QAM	3	3	18.84	18.51	18.33		
1.4	16QAM	6	0	18.57	18.59	18.36		

<LTE Band 7>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.
Channel				20850	21100	21350		
Frequency (MHz)				2510	2535	2560		
20	QPSK	1	0	22.84	22.58	22.67	24	0
20	QPSK	1	49	22.58	22.48	22.57		
20	QPSK	1	99	23.01	22.78	22.92		
20	QPSK	50	0	21.63	21.61	21.65	23	1
20	QPSK	50	24	21.57	21.64	21.78		
20	QPSK	50	50	21.86	21.68	21.79		
20	QPSK	100	0	21.61	21.75	21.87		
20	16QAM	1	0	21.96	22.05	22.01	23	1
20	16QAM	1	49	21.75	21.77	21.89		
20	16QAM	1	99	22.02	22.12	22.25		
20	16QAM	50	0	20.60	20.59	20.65	22	2
20	16QAM	50	24	20.56	20.62	20.79		
20	16QAM	50	50	20.66	20.53	20.87		
20	16QAM	100	0	20.58	20.60	20.84		
Channel				20825	21100	21375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2507.5	2535	2562.5		
15	QPSK	1	0	22.03	22.01	22.02	24	0
15	QPSK	1	37	22.60	22.50	22.65		
15	QPSK	1	74	22.83	22.74	22.88		
15	QPSK	36	0	21.65	21.69	21.76	23	1
15	QPSK	36	20	21.71	21.64	21.73		
15	QPSK	36	39	21.74	21.66	21.85		
15	QPSK	75	0	21.73	21.72	21.77		
15	16QAM	1	0	22.05	22.01	22.06	23	1
15	16QAM	1	37	21.89	21.79	21.88		
15	16QAM	1	74	22.17	22.10	22.34		
15	16QAM	36	0	20.61	20.64	20.67	22	2
15	16QAM	36	20	20.70	20.61	20.69		
15	16QAM	36	39	20.68	20.59	20.81		
15	16QAM	75	0	20.70	20.64	20.73		
Channel				20800	21100	21400	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2505	2535	2565		
10	QPSK	1	0	22.32	22.38	22.41	24	0
10	QPSK	1	25	22.60	22.38	22.62		
10	QPSK	1	49	22.74	22.38	22.80		
10	QPSK	25	0	21.71	21.76	21.79	23	1
10	QPSK	25	12	21.69	21.64	21.71		
10	QPSK	25	25	21.74	21.68	21.84		
10	QPSK	50	0	21.79	21.75	21.78		
10	16QAM	1	0	22.45	22.38	22.45	23	1
10	16QAM	1	25	21.83	21.78	21.87		
10	16QAM	1	49	22.38	22.32	22.56		
10	16QAM	25	0	20.57	20.71	20.77	22	2
10	16QAM	25	12	20.59	20.61	20.72		
10	16QAM	25	25	20.70	20.64	20.85		
10	16QAM	50	0	20.76	20.69	20.81		

Channel				20775	21100	21425	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2502.5	2535	2567.5		
5	QPSK	1	0	22.73	22.77	22.79	24	0
5	QPSK	1	12	22.52	22.54	22.67		
5	QPSK	1	24	22.33	22.57	22.21		
5	QPSK	12	0	21.59	21.57	21.69	23	1
5	QPSK	12	7	21.57	21.57	21.70		
5	QPSK	12	13	21.53	21.53	21.70		
5	QPSK	25	0	21.56	21.53	21.66	23	1
5	16QAM	1	0	22.02	21.88	22.24	23	1
5	16QAM	1	12	22.00	21.88	22.09		
5	16QAM	1	24	21.81	21.04	21.59		
5	16QAM	12	0	20.61	20.57	20.71	22	2
5	16QAM	12	7	20.56	20.53	20.72		
5	16QAM	12	13	20.53	20.50	20.70		
5	16QAM	25	0	20.58	20.53	20.69	22	2

<LTE Band 13>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				23230				
Frequency (MHz)				782				
10	QPSK	1	0	18.21			20	0
10	QPSK	1	25	18.20				
10	QPSK	1	49	18.00				
10	QPSK	25	0	18.58			20	0
10	QPSK	25	12	18.39				
10	QPSK	25	25	18.32				
10	QPSK	50	0	18.48				
10	16QAM	1	0	18.50			20	0
10	16QAM	1	25	18.38				
10	16QAM	1	49	18.27				
10	16QAM	25	0	18.29			20	0
10	16QAM	25	12	18.31				
10	16QAM	25	25	18.63				
10	16QAM	50	0	18.50				
Channel				23205	23230	23255	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				779.5	782	784.5		
5	QPSK	1	0	18.34	18.30	18.29	20	0
5	QPSK	1	12	18.20	18.08	18.23		
5	QPSK	1	24	18.11	18.21	18.23		
5	QPSK	12	0	18.31	18.29	18.27	20	0
5	QPSK	12	7	18.25	18.21	18.37		
5	QPSK	12	13	18.14	18.18	18.24		
5	QPSK	25	0	18.23	18.22	18.29		
5	16QAM	1	0	18.35	18.50	18.51	20	0
5	16QAM	1	12	18.29	18.12	18.26		
5	16QAM	1	24	18.31	18.37	18.20		
5	16QAM	12	0	18.36	18.28	18.27	20	0
5	16QAM	12	7	18.27	18.16	18.41		
5	16QAM	12	13	18.15	18.16	18.30		
5	16QAM	25	0	18.26	18.26	18.29		

<LTE Rel. 10 Carrier Aggregation>

General Note:

1. This device supports LTE Rel.11 Cat9 and Aggregation on downlink only for inter and intra band, Uplink CA in not supported. For the device supports bands and bandwidths and configurations are provided as follow table was according to 3GPP.
2. All permutations exist. No restrictions on Pcell & Scell combinations.
3. Only supported intra-band non-contiguous CA, intra-band contiguous CA is not supported.

E-UTRA CA Configuration	E-UTRA Bands	5 MHz	10 MHz	15 MHz	20 MHz	Maximum aggregated bandwidth [MHz]	Bandwidth combination set
CA_2A-2A	2	Yes	Yes	Yes	Yes	40	0
CA_4A-4A	4	Yes	Yes	Yes	Yes	40	0
CA_2A-2A-5A	2	Yes	Yes	Yes	Yes	50	0
	5	Yes	Yes				
CA_2A-2A-13A	2	Yes	Yes	Yes	Yes	50	0
	13		Yes				
CA_2A-4A	2	Yes	Yes	Yes	Yes	40	2
	4	Yes	Yes	Yes	Yes		
CA_2A-5A	2	Yes	Yes	Yes	Yes	30	0
	5	Yes	Yes				
CA_2A-13A	2	Yes	Yes	Yes	Yes	30	0
	13		Yes				
CA_4A-4A-5A	4	Yes	Yes	Yes	Yes	50	0
	5	Yes	Yes				
CA_4A-4A-13A	4	Yes	Yes	Yes	Yes	50	0
	13		Yes				
CA_4A-5A	4	Yes	Yes	Yes	Yes	30	1
	5	Yes	Yes				
CA_4A-13A	4	Yes	Yes	Yes	Yes	30	0
	13		Yes				
CA_2A-4A-5A	2	Yes	Yes	Yes	Yes	50	0
	4	Yes	Yes	Yes	Yes		
	5	Yes	Yes				
CA_2A-4A-13A	2	Yes	Yes	Yes	Yes	50	0
	4	Yes	Yes	Yes	Yes		
	13		Yes				

<LTE Carrier Aggregation Conducted Power>

General Note:

1. According to KDB941225 D05A LTE Rel.10 KDB Inquiry Sheet v01r02 LTE CA conducted power requirement will base on below procedure for conducted power verification.
2. Selected highest measured power when downlink carrier aggregation is inactive for conducted power comparison with downlink carrier aggregation is active, to confirm that when downlink carrier aggregation is active uplink maximum output power remains within the specified tune-up tolerance limits and not more than ¼ dB higher than the maximum output power measured when downlink carrier aggregation inactive.
3. For non-contiguous intra-band CA, the SCC selected to provide maximum separation from the PCC and must remain fully within the downlink transmission band.
4. For inter-band CA, the SCC selected highest bandwidth and near the middle of its transmission band.

<Default power mode for two CA power verification>

Configure		PCC							SCC							Power	
		LTE Band	BW (MHz)	UL Freq. (MHz)	UL Channel	Modulation	UL# RB	UL RB Offset	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	Modulation	DL# RB	DL RB Offset	LTE Rel 11 Tx.Power (dBm)	LTE Rel 8 Tx.Power (dBm)
Inter-Band		Band 2	15M	1857.5	18675	QPSK	1	0	Band 4	20M	2132.5	2175	QPSK	1	0	23.15	23.16
		Band 4	10M	1750	20350	QPSK	1	49	Band 2	20M	1960	900	QPSK	1	99	22.95	22.99
		Band 2	15M	1857.5	18675	QPSK	1	0	Band 5	10M	881.5	2525	QPSK	1	0	23.00	23.05
		Band 5	10M	829	20450	QPSK	1	0	Band 2	20M	1960	900	QPSK	1	0	22.95	22.99
		Band 2	15M	1857.5	18675	QPSK	1	0	Band 13	10M	751	5230	QPSK	1	0	21.95	21.99
		Band 13	10M	782	23230	QPSK	1	0	Band 2	20M	1960	900	QPSK	1	0	22.30	22.32
		Band 4	10M	1750	20350	QPSK	1	49	Band 5	10M	881.5	2525	QPSK	1	49	22.30	22.33
		Band 5	10M	829	20450	QPSK	1	0	Band 4	20M	2132.5	2175	QPSK	1	0	22.95	22.99
		Band 4	10M	1750	20350	QPSK	1	49	Band 13	10M	751	5230	QPSK	1	49	22.32	22.35
		Band 13	10M	782	23230	QPSK	1	0	Band 4	20M	2132.5	2175	QPSK	1	0	22.30	22.32
Intra-Band	Non Contiguous	Band 2	15M	1857.5	18675	QPSK	1	0	Band 2	5M	1987.5	1175	QPSK	1	0	23.11	23.16
		Band 4	10M	1750	20350	QPSK	1	49	Band 4	5M	2112.5	1975	QPSK	1	24	22.94	22.99

<Near-body and Hotspot mode for two CA power verification>

Configure		PCC							SCC							Power	
		LTE Band	BW (MHz)	UL Freq. (MHz)	UL Channel	Modulation	UL# RB	UL RB Offset	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	Modulation	DL# RB	DL RB Offset	LTE Rel 11 Tx.Power (dBm)	LTE Rel 8 Tx.Power (dBm)
Inter-Band		Band 4	10M	1750	20350	16QAM	1	49	Band 2	20M	1960	900	16QAM	1	99	22.81	22.90
		Band 5	5M	826.5	20425	16QAM	1	0	Band 2	20M	1960	900	16QAM	1	0	19.10	19.13
		Band 13	10M	782	23230	QPSK	25	0	Band 2	20M	1960	900	QPSK	50	0	18.55	18.58
		Band 4	10M	1750	20350	16QAM	1	49	Band 5	10M	881.5	2525	16QAM	1	49	22.84	22.90
		Band 5	5M	826.5	20425	16QAM	1	0	Band 4	20M	2132.5	2175	16QAM	1	0	19.12	19.13
		Band 4	10M	1750	20350	16QAM	1	49	Band 13	10M	751	5230	16QAM	1	49	22.83	22.90
		Band 13	10M	782	23230	QPSK	25	0	Band 4	20M	2132.5	2175	QPSK	50	0	18.51	18.58
Intra-Band	Non Contiguous	Band 2	15M	1857.5	18675	QPSK	1	0	Band 2	5M	1987.5	1175	QPSK	1	0	23.11	23.16

<Default power mode for three CA power verification>

Configure		PCC							SCC1							SCC2							Power	
		LTE Band	BW (MHz)	UL Freq. (MHz)	UL Channel	Mod.	UL# RB	UL RB Offset	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	Mod.	DL# RB	DL RB Offset	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	Mod.	DL# RB	DL RB Offset	LTE Rel 10 Tx.Power (dBm)	LTE Rel 8 Tx.Power (dBm)
Inter-Band		Band 2	15M	1857.5	18675	QPSK	1	0	Band 4	20M	2132.5	2175	QPSK	1	0	Band 5	10M	881.5	2525	QPSK	1	0	23.14	23.16
		Band 4	10M	1750	20350	QPSK	1	49	Band 2	20M	1960	900	QPSK	1	99	Band 5	10M	881.5	2525	QPSK	1	49	22.96	22.99
		Band 5	10M	829	20450	QPSK	1	0	Band 4	20M	2132.5	2175	QPSK	1	0	Band 2	20M	1960	900	QPSK	1	0	22.93	22.99
		Band 2	15M	1857.5	18675	QPSK	1	0	Band 4	20M	2132.5	2175	QPSK	1	0	Band 13	10M	751	5230	QPSK	1	0	23.10	23.16
		Band 4	10M	1750	20350	QPSK	1	49	Band 2	20M	1960	900	QPSK	1	99	Band 13	10M	751	5230	QPSK	1	49	22.96	22.99
		Band 13	10M	782	23230	QPSK	1	0	Band 4	20M	2132.5	2175	QPSK	1	0	Band 2	20M	1960	900	QPSK	1	0	22.29	22.32
Intra-Band	Non-Contiguous	Band 2	15M	1857.5	18675	QPSK	1	0	Band 2	5M	1987.5	1175	QPSK	1	0	Band 5	10M	881.5	2525	QPSK	1	0	23.11	23.16
		Band 5	10M	829	20450	QPSK	1	0	Band 2	20M	1960	900	QPSK	1	0	Band 2	5M	1987.5	1175	QPSK	1	0	22.94	22.99
		Band 2	15M	1857.5	18675	QPSK	1	0	Band 2	5M	1987.5	1175	QPSK	1	0	Band 13	10M	751	5230	QPSK	1	0	23.12	23.16
		Band 13	10M	782	23230	QPSK	1	0	Band 2	20M	1960	900	QPSK	1	0	Band 2	5M	1987.5	1175	QPSK	1	0	22.30	22.32
		Band 4	10M	1750	20350	QPSK	1	49	Band 4	5M	2112.5	1975	QPSK	1	24	Band 5	10M	881.5	2525	QPSK	1	49	22.94	22.99
		Band 5	10M	829	20450	QPSK	1	0	Band 4	20M	2132.5	2175	QPSK	1	0	Band 4	5M	2112.5	1975	QPSK	1	0	22.95	22.99
		Band 4	10M	1750	20350	QPSK	1	49	Band 4	5M	2112.5	1975	QPSK	1	24	Band 13	10M	751	5230	QPSK	1	49	22.96	22.99
		Band 13	10M	782	23230	QPSK	1	0	Band 4	20M	2132.5	2175	QPSK	1	0	Band 4	5M	2112.5	1975	QPSK	1	0	22.27	22.32

<Near-body and Hotspot mode for three CA power verification>

Configure		PCC							SCC1							SCC2							Power	
		LTE Band	BW (MHz)	UL Freq. (MHz)	UL Channel	Mod.	UL# RB	UL RB Offset	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	Mod.	DL# RB	DL RB Offset	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	Mod.	DL# RB	DL RB Offset	LTE Rel 10 Tx.Power (dBm)	LTE Rel 8 Tx.Power (dBm)
Inter-Band		Band 4	10M	1750	20350	16QAM	1	49	Band 2	20M	1960	900	16QAM	1	99	Band 5	10M	881.5	2525	16QAM	1	49	22.86	22.90
		Band 5	5M	826.5	20425	16QAM	1	0	Band 4	20M	2132.5	2175	16QAM	1	0	Band 2	20M	1960	900	16QAM	1	0	19.12	19.13
		Band 4	10M	1750	20350	16QAM	1	49	Band 2	20M	1960	900	16QAM	1	99	Band 13	10M	751	5230	16QAM	1	49	22.65	22.90
		Band 13	10M	782	23230	QPSK	25	0	Band 4	20M	2132.5	2175	QPSK	50	0	Band 2	20M	1960	900	QPSK	50	0	18.53	18.58
Intra-Band	Non-Contiguous	Band 5	5M	826.5	20425	16QAM	1	0	Band 2	20M	1960	900	16QAM	1	0	Band 2	5M	1987.5	1175	16QAM	1	0	19.09	19.13
		Band 13	10M	782	23230	QPSK	25	0	Band 2	20M	1960	900	QPSK	50	0	Band 2	5M	1987.5	1175	QPSK	12	0	18.54	18.58
		Band 4	10M	1750	20350	16QAM	1	49	Band 4	5M	2112.5	1975	16QAM	1	24	Band 5	10M	881.5	2525	16QAM	1	49	22.67	22.90
		Band 5	5M	826.5	20425	16QAM	1	0	Band 4	20M	2132.5	2175	16QAM	1	0	Band 4	5M	2112.5	1975	16QAM	1	0	19.11	19.13
		Band 4	10M	1750	20350	16QAM	1	49	Band 4	5M	2112.5	1975	16QAM	1	24	Band 13	10M	751	5230	16QAM	1	49	22.65	22.90
		Band 13	10M	782	23230	QPSK	25	0	Band 4	20M	2132.5	2175	QPSK	50	0	Band 4	5M	2112.5	1975	QPSK	12	0	18.53	18.58

<WLAN Conducted Power>

General Note:

1. For WLAN SAR testing was performed on single antenna RF power in SISO mode is larger or equal to the single antenna RF power in MIMO mode, and for RF exposure assessment of MIMO mode simultaneous transmission exclusion analysis was performed with SAR test results of each antenna in SISO mode.
2. Per KDB 248227 D01v02r02, the simultaneous SAR provisions in KDB publication 447498 should be applied to determine simultaneous transmission SAR test exclusion for WiFi MIMO. If the sum of 1g single transmission chain SAR measurements is < 1.6W/kg and SAR peak to location ratio < 0.04, no additional SAR measurements for MIMO.
3. Per KDB 248227 D01v02r02, SAR test reduction is determined according to 802.11 transmission mode configurations and certain exposure conditions with multiple test positions. In the 2.4 GHz band, separate SAR procedures are applied to DSSS and OFDM configurations to simplify DSSS test requirements. For OFDM, in both 2.4 and 5 GHz bands, an initial test configuration must be determined for each standalone and aggregated frequency band, according to the transmission mode configuration with the highest maximum output power specified for production units to perform SAR measurements. If the same highest maximum output power applies to different combinations of channel bandwidths, modulations and data rates, additional procedures are applied to determine which test configurations require SAR measurement. When applicable, an initial test position may be applied to reduce the number of SAR measurements required for next to the ear, UMPC mini-tablet or hotspot mode configurations with multiple test positions.
4. For 2.4 GHz 802.11b DSSS, either the initial test position procedure for multiple exposure test positions or the DSSS procedure for fixed exposure position is applied; these are mutually exclusive. For 2.4 GHz and 5 GHz OFDM configurations, the initial test configuration is applied to measure SAR using either the initial test position procedure for multiple exposure test position configurations or the initial test configuration procedures for fixed exposure test conditions. Based on the reported SAR of the measured configurations and maximum output power of the transmission mode configurations that are not included in the initial test configuration, the subsequent test configuration and initial test position procedures are applied to determine if SAR measurements are required for the remaining OFDM transmission configurations. In general, the number of test channels that require SAR measurement is minimized based on maximum output power measured for the test sample(s).
5. For OFDM transmission configurations in the 2.4 GHz and 5 GHz bands, When the same maximum power is specified for multiple transmission modes in a frequency band, the largest channel bandwidth, lowest order modulation, lowest data rate and lowest order 802.11a/g/n/ac mode is used for SAR measurement, on the highest measured output power channel for each frequency band.
6. DSSS and OFDM configurations are considered separately according to the required SAR procedures. SAR is measured in the initial test position using the 802.11 transmission mode configuration required by the DSSS procedure or initial test configuration and subsequent test configuration(s) according to the OFDM procedures.18 The initial test position procedure is described in the following:
   a. When the reported SAR of the initial test position is ≤ 0.4 W/kg, further SAR measurement is not required for the other test positions in that exposure configuration and 802.11 transmission mode combinations within the frequency band or aggregated band.
   b. When the reported SAR of the test position is > 0.4 W/kg, SAR is repeated for the 802.11 transmission mode configuration tested in the initial test position to measure the subsequent next closet/smallest test separation distance and maximum coupling test position on the highest maximum output power channel, until the report SAR is ≤ 0.8 W/kg or all required test position are tested.
   c. For all positions/configurations, when the reported SAR is > 0.8 W/kg, SAR is measured for these test positions/configurations on the subsequent next highest measured output power channel(s) until the reported SAR is ≤ 1.2 W/kg or all required channels are tested.

<Default Power Mode>

<2.4GHz WLAN ANT 1>

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
2.4GHz WLAN ANT 1	802.11b	CH 1	2412	1Mbps	17.30	19.00	99.04
		CH 6	2437		18.48	20.00	
		CH 11	2462		18.91	20.00	
	802.11g	CH 1	2412	6Mbps	16.54	18.50	94.50
		CH 6	2437		17.30	19.00	
		CH 11	2462		16.18	17.50	
	802.11n-HT20	CH 1	2412	MCS0	16.35	18.00	95.04
		CH 6	2437		16.81	18.50	
		CH 11	2462		15.51	17.50	
	802.11ac-VHT20	CH 1	2412	MCS0	16.44	18.00	94.18
		CH 6	2437		16.75	18.50	
		CH 11	2462		14.97	16.50	

<2.4GHz WLAN ANT 2>

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
2.4GHz WLAN ANT 2	802.11b	CH 1	2412	1Mbps	14.35	15.00	99.05
		CH 6	2437		14.88	16.00	
		CH 11	2462		14.96	16.00	
	802.11g	CH 1	2412	6Mbps	13.41	14.50	94.50
		CH 6	2437		13.73	15.00	
		CH 11	2462		12.47	13.50	
	802.11n-HT20	CH 1	2412	MCS0	13.19	14.00	95.05
		CH 6	2437		13.58	14.50	
		CH 11	2462		11.82	13.50	
	802.11ac-VHT20	CH 1	2412	MCS0	13.17	14.00	94.12
		CH 6	2437		13.59	14.50	
		CH 11	2462		11.28	13.00	

<2.4GHz WLAN ANT 1+2>

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
2.4GHz WLAN ANT 1+2	802.11b	CH 1	2412	1Mbps	18.43	20.00	99.04
		CH 6	2437		19.41	21.00	
		CH 11	2462		19.80	21.00	
	802.11g	CH 1	2412	6Mbps	17.48	19.00	94.50
		CH 6	2437		18.18	20.00	
		CH 11	2462		16.92	18.50	
	802.11n-HT20	CH 1	2412	MCS0	17.37	19.00	93.14
		CH 6	2437		17.77	19.50	
		CH 11	2462		16.35	18.00	
	802.11ac-VHT20	CH 1	2412	MCS0	17.41	18.30	94.18
		CH 6	2437		17.77	19.50	
		CH 11	2462		15.87	17.50	

<5GHz WLAN ANT1>

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.2GHz WLAN ANT 1	802.11a	CH 36	5180	6Mbps	16.30	18.00	94.95
		CH 40	5200		16.24	18.00	
		CH 44	5220		16.23	18.00	
		CH 48	5240		16.26	18.00	
	802.11n-HT20	CH 36	5180	MCS0	16.17	18.00	95.07
		CH 40	5200		16.02	18.00	
		CH 44	5220		15.98	17.50	
		CH 48	5240		16.09	17.50	
	802.11n-HT40	CH 38	5190	MCS0	13.78	15.50	90.48
		CH 46	5230		14.25	16.00	
	802.11ac-VHT20	CH 36	5180	MCS0	16.21	18.00	95.10
		CH 40	5200		16.12	18.00	
		CH 44	5220		16.07	18.00	
		CH 48	5240		16.18	18.00	
	802.11ac-VHT40	CH 38	5190	MCS0	13.59	15.00	89.62
		CH 46	5230		14.56	16.00	
	802.11ac-VHT80	CH 42	5210	MCS0	13.42	14.50	86.10

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.3GHz WLAN ANT 1	802.11a	CH 52	5260	6Mbps	16.40	18.00	94.95
		CH 56	5280		16.28	18.00	
		CH 60	5300		16.07	18.00	
		CH 64	5320		16.04	18.00	
	802.11n-HT20	CH 52	5260	MCS0	16.20	18.00	95.07
		CH 56	5280		16.10	18.00	
		CH 60	5300		16.00	18.00	
		CH 64	5320		15.86	17.50	
	802.11n-HT40	CH 54	5270	MCS0	14.51	16.00	90.48
		CH 62	5310		13.82	15.50	
	802.11ac-VHT20	CH 52	5260	MCS0	16.14	18.00	95.10
		CH 56	5280		16.06	18.00	
		CH 60	5300		16.03	18.00	
		CH 64	5320		15.98	17.50	
	802.11ac-VHT40	CH 54	5270	MCS0	14.60	16.00	89.62
		CH 62	5310		13.93	15.50	
	802.11ac-VHT80	CH 58	5290	MCS0	12.53	13.00	86.10

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.5GHz WLAN ANT 1	802.11a	CH 100	5500	6Mbps	16.70	18.00	94.95
		CH 116	5580		16.67	18.00	
		CH 124	5620		16.56	18.00	
		CH 132	5660		16.23	17.00	
		CH 140	5700		15.68	17.00	
		CH 144	5720		15.13	16.50	
	802.11n-HT20	CH 100	5500	MCS0	16.54	18.00	95.07
		CH 116	5580		16.50	18.00	
		CH 124	5620		16.23	18.00	
		CH 132	5660		16.13	18.00	
		CH 140	5700		15.77	17.50	
		CH 144	5720		14.64	16.50	
	802.11n-HT40	CH 102	5510	MCS0	13.79	15.00	90.48
		CH 110	5550		14.34	16.00	
		CH 126	5630		14.42	16.00	
		CH 134	5670		14.60	16.00	
		CH 142	5710		12.79	14.50	
	802.11ac-VHT20	CH 100	5500	MCS0	16.51	18.00	95.10
		CH 116	5580		16.46	18.00	
		CH 124	5620		16.23	18.00	
		CH 132	5660		16.05	18.00	
		CH 140	5700		15.68	17.50	
		CH 144	5720		14.71	16.00	
	802.11ac-VHT40	CH 102	5510	MCS0	14.06	15.00	89.62
		CH 110	5550		14.39	16.00	
		CH 126	5630		14.42	16.00	
		CH 134	5670		14.60	16.00	
		CH 142	5710		12.82	14.50	
	802.11ac-VHT80	CH 106	5530	MCS0	8.54	10.50	86.10
		CH 122	5610		14.76	16.00	
		CH 138	5690		13.62	15.50	

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN ANT 1	802.11a	CH 149	5745	6Mbps	16.37	18.00	94.95
		CH 157	5785		15.85	17.50	
		CH 165	5825		15.96	17.50	
	802.11n-HT20	CH 149	5745	MCS0	16.13	18.00	95.07
		CH 157	5785		15.90	17.50	
		CH 165	5825		15.72	17.50	
	802.11n-HT40	CH 151	5755	MCS0	14.94	16.00	90.48
		CH 159	5795		14.45	16.00	
	802.11ac-VHT20	CH 149	5745	MCS0	16.17	18.00	95.10
		CH 157	5785		15.81	17.50	
		CH 165	5825		15.78	17.50	
	802.11ac-VHT40	CH 151	5755	MCS0	14.67	16.00	89.62
		CH 159	5795		14.57	16.00	
	802.11ac-VHT80	CH 155	5775	MCS0	13.93	15.50	86.10

<5GHz WLAN ANT2>

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.2GHz WLAN ANT 2	802.11a	CH 36	5180	6Mbps	15.79	17.50	95.41
		CH 40	5200		15.63	17.50	
		CH 44	5220		15.69	17.50	
		CH 48	5240		15.76	17.50	
	802.11n-HT20	CH 36	5180	MCS0	15.52	17.50	94.52
		CH 40	5200		15.44	17.50	
		CH 44	5220		15.40	17.00	
		CH 48	5240		15.46	17.00	
	802.11n-HT40	CH 38	5190	MCS0	13.43	15.00	89.62
		CH 46	5230		14.00	16.00	
	802.11ac-VHT20	CH 36	5180	MCS0	15.74	17.50	95.10
		CH 40	5200		15.68	18.00	
		CH 44	5220		15.72	17.50	
		CH 48	5240		15.69	17.50	
	802.11ac-VHT40	CH 38	5190	MCS0	13.03	15.00	90.05
		CH 46	5230		13.97	15.50	
	802.11ac-VHT80	CH 42	5210	MCS0	12.62	14.50	85.71

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.3GHz WLAN ANT 2	802.11a	CH 52	5260	6Mbps	15.76	17.50	95.41
		CH 56	5280		15.63	17.50	
		CH 60	5300		15.54	17.50	
		CH 64	5320		15.43	17.00	
	802.11n-HT20	CH 52	5260	MCS0	15.56	17.50	94.52
		CH 56	5280		15.49	17.50	
		CH 60	5300		15.45	17.00	
		CH 64	5320		15.42	17.00	
	802.11n-HT40	CH 54	5270	MCS0	13.89	15.50	89.36
		CH 62	5310		13.20	15.00	
	802.11ac-VHT20	CH 52	5260	MCS0	15.71	17.50	95.10
		CH 56	5280		15.63	17.50	
		CH 60	5300		15.56	17.50	
		CH 64	5320		15.39	17.00	
	802.11ac-VHT40	CH 54	5270	MCS0	13.90	15.50	90.05
		CH 62	5310		13.31	15.00	
	802.11ac-VHT80	CH 58	5290	MCS0	11.70	13.50	85.71

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.5GHz WLAN ANT 2	802.11a	CH 100	5500	6Mbps	16.10	18.00	95.41
		CH 116	5580		16.08	18.00	
		CH 124	5620		15.98	18.00	
		CH 132	5660		15.73	17.00	
		CH 140	5700		15.66	17.50	
		CH 144	5720		14.63	16.50	
	802.11n-HT20	CH 100	5500	MCS0	16.23	18.00	94.52
		CH 116	5580		16.19	18.00	
		CH 124	5620		16.01	18.00	
		CH 132	5660		15.95	18.00	
		CH 140	5700		15.72	17.00	
		CH 144	5720		14.55	16.00	
	802.11n-HT40	CH 102	5510	MCS0	13.26	15.00	89.62
		CH 110	5550		14.32	16.00	
		CH 126	5630		14.25	16.00	
		CH 134	5670		14.19	16.00	
		CH 142	5710		12.60	14.00	
	802.11ac-VHT20	CH 100	5500	MCS0	16.15	18.00	95.10
		CH 116	5580		16.12	18.00	
		CH 124	5620		16.02	18.00	
		CH 132	5660		15.91	17.50	
		CH 140	5700		15.70	17.50	
		CH 144	5720		14.35	16.00	
	802.11ac-VHT40	CH 102	5510	MCS0	13.42	15.00	90.05
		CH 110	5550		14.22	16.00	
		CH 126	5630		14.15	16.00	
		CH 134	5670		14.23	16.00	
		CH 142	5710		12.77	14.50	
	802.11ac-VHT80	CH 106	5530	MCS0	8.48	10.00	85.71
		CH 122	5610		14.41	16.00	
		CH 138	5690		13.37	15.00	

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN ANT 2	802.11a	CH 149	5745	6Mbps	16.22	18.00	95.41
		CH 157	5785		15.81	17.50	
		CH 165	5825		15.89	17.50	
	802.11n-HT20	CH 149	5745	MCS0	16.02	17.50	94.52
		CH 157	5785		15.88	17.00	
		CH 165	5825		15.55	17.00	
	802.11n-HT40	CH 151	5755	MCS0	14.44	16.00	89.62
		CH 159	5795		14.08	15.50	
	802.11ac-VHT20	CH 149	5745	MCS0	15.63	17.50	95.10
		CH 157	5785		15.74	17.50	
		CH 165	5825		15.55	17.00	
	802.11ac-VHT40	CH 151	5755	MCS0	14.43	16.00	90.05
		CH 159	5795		14.12	16.00	
	802.11ac-VHT80	CH 155	5775	MCS0	13.81	15.50	85.71

<5GHz WLAN ANT1+2>

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.2GHz WLAN ANT 1+2	802.11a	CH 36	5180	6Mbps	18.27	20.00	94.95
		CH 40	5200		18.18	20.00	
		CH 44	5220		18.21	20.00	
		CH 48	5240		18.18	20.00	
	802.11n-HT20	CH 36	5180	MCS0	18.07	20.00	94.94
		CH 40	5200		18.02	20.00	
		CH 44	5220		18.00	20.00	
		CH 48	5240		18.02	20.00	
	802.11n-HT40	CH 38	5190	MCS0	16.05	18.00	89.62
		CH 46	5230		16.57	18.50	
	802.11ac-VHT20	CH 36	5180	MCS0	18.23	20.00	94.63
		CH 40	5200		18.14	20.00	
		CH 44	5220		18.16	20.00	
		CH 48	5240		18.16	20.00	
	802.11ac-VHT40	CH 38	5190	MCS0	15.67	17.50	90.48
		CH 46	5230		16.55	18.50	
	802.11ac-VHT80	CH 42	5210	MCS0	15.55	17.50	85.63

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.3GHz WLAN ANT 1+2	802.11a	CH 52	5260	6Mbps	18.37	20.00	94.95
		CH 56	5280		18.21	20.00	
		CH 60	5300		18.06	20.00	
		CH 64	5320		18.05	20.00	
	802.11n-HT20	CH 52	5260	MCS0	18.03	19.50	94.94
		CH 56	5280		17.92	19.50	
		CH 60	5300		17.85	19.50	
		CH 64	5320		17.85	19.50	
	802.11n-HT40	CH 54	5270	MCS0	16.60	18.50	89.62
		CH 62	5310		15.95	17.50	
	802.11ac-VHT20	CH 52	5260	MCS0	18.08	19.50	94.63
		CH 56	5280		17.95	19.50	
		CH 60	5300		17.87	19.50	
		CH 64	5320		17.79	19.50	
	802.11ac-VHT40	CH 54	5270	MCS0	16.53	18.50	90.48
		CH 62	5310		15.85	17.50	
	802.11ac-VHT80	CH 58	5290	MCS0	14.67	16.50	85.63

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.5GHz WLAN ANT 1+2	802.11a	CH 100	5500	6Mbps	18.60	20.00	94.95
		CH 116	5580		18.56	20.00	
		CH 124	5620		18.26	20.00	
		CH 132	5660		18.18	20.00	
		CH 140	5700		17.90	19.50	
		CH 144	5720		16.84	19.00	
	802.11n-HT20	CH 100	5500	MCS0	18.02	19.50	94.94
		CH 116	5580		17.97	19.50	
		CH 124	5620		17.86	19.50	
		CH 132	5660		17.62	19.50	
		CH 140	5700		17.60	19.50	
		CH 144	5720		16.79	19.00	
	802.11n-HT40	CH 102	5510	MCS0	16.11	18.00	89.62
		CH 110	5550		16.70	18.50	
		CH 126	5630		16.55	18.50	
		CH 134	5670		16.51	18.50	
		CH 142	5710		15.09	17.00	
	802.11ac-VHT20	CH 100	5500	MCS0	18.52	20.00	94.63
		CH 116	5580		18.47	20.00	
		CH 124	5620		18.23	20.00	
		CH 132	5660		17.95	20.00	
		CH 140	5700		17.48	19.00	
		CH 144	5720		16.35	18.50	
	802.11ac-VHT40	CH 102	5510	MCS0	16.03	17.50	90.48
		CH 110	5550		16.56	18.50	
		CH 126	5630		16.43	18.50	
		CH 134	5670		16.57	18.50	
		CH 142	5710		15.03	16.00	
	802.11ac-VHT80	CH 106	5530	MCS0	11.51	13.00	85.63
		CH 122	5610		16.89	18.50	
		CH 138	5690		15.72	17.00	

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN ANT 1+2	802.11a	CH 149	5745	MCS0	18.62	19.50	94.95
		CH 157	5785		18.03	19.50	
		CH 165	5825		17.88	19.50	
	802.11n-HT20	CH 149	5745	MCS0	18.39	19.50	94.94
		CH 157	5785		18.02	19.50	
		CH 165	5825		17.92	19.50	
	802.11n-HT40	CH 151	5755	MCS0	16.98	18.50	89.62
		CH 159	5795		16.66	18.50	
	802.11ac-VHT20	CH 149	5745	MCS0	18.37	19.50	94.63
		CH 157	5785		18.08	19.50	
		CH 165	5825		17.95	19.50	
	802.11ac-VHT40	CH 151	5755	MCS0	17.09	18.50	90.48
		CH 159	5795		16.60	18.50	
	802.11ac-VHT80	CH 155	5775	MCS0	16.31	18.00	85.63

<At-Head Power Mode>

<2.4GHz WLAN ANT 1>

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
2.4GHz WLAN ANT 1	802.11b	CH 1	2412	1Mbps	15.83	16.50	99.04
		CH 6	2437		16.06	16.50	
		CH 11	2462		16.35	16.50	
	802.11g	CH 1	2412	6Mbps	15.16	16.00	94.50
		CH 6	2437		15.13	16.00	
		CH 11	2462		15.66	16.00	
	802.11n-HT20	CH 1	2412	MCS0	14.85	16.00	95.04
		CH 6	2437		14.86	16.00	
		CH 11	2462		15.51	16.00	
	802.11ac-VHT20	CH 1	2412	MCS0	14.88	16.00	94.18
		CH 6	2437		14.87	16.00	
		CH 11	2462		14.97	16.00	

<2.4GHz WLAN ANT 2>

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
2.4GHz WLAN ANT 2	802.11b	CH 1	2412	1Mbps	12.96	13.00	99.05
		CH 6	2437		12.73	13.00	
		CH 11	2462		12.71	13.00	
	802.11g	CH 1	2412	6Mbps	11.98	13.00	94.50
		CH 6	2437		11.96	13.00	
		CH 11	2462		12.10	13.00	
	802.11n-HT20	CH 1	2412	MCS0	11.78	13.00	95.05
		CH 6	2437		11.77	13.00	
		CH 11	2462		11.82	13.00	
	802.11ac-VHT20	CH 1	2412	MCS0	11.79	13.00	94.12
		CH 6	2437		11.78	13.00	
		CH 11	2462		11.28	13.00	

<2.4GHz WLAN ANT 1+2>

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
2.4GHz WLAN ANT 1+2	802.11b	CH 1	2412	1Mbps	16.86	18.10	99.04
		CH 6	2437		17.05	18.10	
		CH 11	2462		17.22	18.10	
	802.11g	CH 1	2412	6Mbps	16.03	17.10	94.50
		CH 6	2437		16.15	17.80	
		CH 11	2462		16.61	17.80	
	802.11n-HT20	CH 1	2412	MCS0	16.04	17.10	93.14
		CH 6	2437		16.03	17.80	
		CH 11	2462		16.35	17.80	
	802.11ac-VHT20	CH 1	2412	MCS0	15.89	17.10	94.18
		CH 6	2437		15.99	17.80	
		CH 11	2462		15.87	17.80	

<5GHz WLAN ANT1>

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.2GHz WLAN ANT 1	802.11a	CH 36	5180	6Mbps	11.34	12.00	94.95
		CH 40	5200		11.20	12.00	
		CH 44	5220		11.18	12.00	
		CH 48	5240		11.15	12.00	
	802.11n-HT20	CH 36	5180	MCS0	11.30	12.00	95.07
		CH 40	5200		11.12	12.00	
		CH 44	5220		10.96	12.00	
		CH 48	5240		11.07	12.00	
	802.11n-HT40	CH 38	5190	MCS0	10.74	12.00	90.48
		CH 46	5230		10.64	12.00	
	802.11ac-VHT20	CH 36	5180	MCS0	11.21	12.00	95.10
		CH 40	5200		11.17	12.00	
		CH 44	5220		11.13	12.00	
		CH 48	5240		11.07	12.00	
	802.11ac-VHT40	CH 38	5190	MCS0	10.83	12.00	89.62
		CH 46	5230		10.89	12.00	
	802.11ac-VHT80	CH 42	5210	MCS0	10.79	12.00	86.10

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.3GHz WLAN ANT 1	802.11a	CH 52	5260	6Mbps	11.43	12.00	94.95
		CH 56	5280		11.21	12.00	
		CH 60	5300		10.94	12.00	
		CH 64	5320		9.34	10.00	
	802.11n-HT20	CH 52	5260	MCS0	11.04	12.00	95.07
		CH 56	5280		10.88	12.00	
		CH 60	5300		10.79	12.00	
		CH 64	5320		9.14	10.00	
	802.11n-HT40	CH 54	5270	MCS0	11.08	12.00	90.48
		CH 62	5310		10.68	12.00	
	802.11ac-VHT20	CH 52	5260	MCS0	11.27	12.00	95.10
		CH 56	5280		11.20	12.00	
		CH 60	5300		10.65	12.00	
		CH 64	5320		8.99	10.00	
	802.11ac-VHT40	CH 54	5270	MCS0	11.15	12.00	89.62
		CH 62	5310		10.50	12.00	
	802.11ac-VHT80	CH 58	5290	MCS0	10.86	12.00	86.10

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.5GHz WLAN ANT 1	802.11a	CH 100	5500	6Mbps	10.19	12.00	94.95
		CH 116	5580		10.66	12.00	
		CH 124	5620		10.02	12.00	
		CH 132	5660		10.16	12.00	
		CH 140	5700		10.04	12.00	
		CH 144	5720		10.02	12.00	
	802.11n-HT20	CH 100	5500	MCS0	10.03	12.00	95.07
		CH 116	5580		10.47	12.00	
		CH 124	5620		10.07	12.00	
		CH 132	5660		10.02	12.00	
		CH 140	5700		10.04	12.00	
		CH 144	5720		10.03	12.00	
	802.11n-HT40	CH 102	5510	MCS0	10.01	12.00	90.48
		CH 110	5550		10.01	12.00	
		CH 126	5630		10.09	12.00	
		CH 134	5670		10.02	12.00	
		CH 142	5710		10.00	12.00	
	802.11ac-VHT20	CH 100	5500	MCS0	10.01	12.00	95.10
		CH 116	5580		10.50	12.00	
		CH 124	5620		10.02	12.00	
		CH 132	5660		10.09	12.00	
		CH 140	5700		10.08	12.00	
		CH 144	5720		10.05	12.00	
	802.11ac-VHT40	CH 102	5510	MCS0	10.02	12.00	89.62
		CH 110	5550		10.06	12.00	
		CH 126	5630		10.04	12.00	
		CH 134	5670		10.11	12.00	
		CH 142	5710		10.05	12.00	
	802.11ac-VHT80	CH 106	5530	MCS0	8.54	9.50	86.10
		CH 122	5610		10.19	12.00	
		CH 138	5690		10.06	12.00	

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN ANT 1	802.11a	CH 149	5745	6Mbps	10.48	12.00	94.95
		CH 157	5785		10.46	12.00	
		CH 165	5825		10.57	12.00	
	802.11n-HT20	CH 149	5745	MCS0	10.30	12.00	95.07
		CH 157	5785		10.36	12.00	
		CH 165	5825		10.26	12.00	
	802.11n-HT40	CH 151	5755	MCS0	10.15	12.00	90.48
		CH 159	5795		10.24	12.00	
	802.11ac-VHT20	CH 149	5745	MCS0	10.34	12.00	95.10
		CH 157	5785		10.19	12.00	
		CH 165	5825		10.13	12.00	
	802.11ac-VHT40	CH 151	5755	MCS0	10.26	12.00	89.62
		CH 159	5795		10.45	12.00	
	802.11ac-VHT80	CH 155	5775	MCS0	10.76	12.00	86.10

<5GHz WLAN ANT2>

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.2GHz WLAN ANT 2	802.11a	CH 36	5180	6Mbps	10.31	12.00	95.41
		CH 40	5200		10.08	12.00	
		CH 44	5220		10.00	12.00	
		CH 48	5240		10.15	12.00	
	802.11n-HT20	CH 36	5180	MCS0	10.30	12.00	94.52
		CH 40	5200		10.01	12.00	
		CH 44	5220		10.01	12.00	
		CH 48	5240		10.13	12.00	
	802.11n-HT40	CH 38	5190	MCS0	10.34	12.00	89.62
		CH 46	5230		10.25	12.00	
	802.11ac-VHT20	CH 36	5180	MCS0	10.24	12.00	95.10
		CH 40	5200		10.02	12.00	
		CH 44	5220		10.00	12.00	
		CH 48	5240		10.05	12.00	
	802.11ac-VHT40	CH 38	5190	MCS0	10.39	12.00	90.05
		CH 46	5230		10.30	12.00	
	802.11ac-VHT80	CH 42	5210	MCS0	10.00	12.00	85.71

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.3GHz WLAN ANT 2	802.11a	CH 52	5260	6Mbps	10.09	12.00	95.41
		CH 56	5280		10.02	12.00	
		CH 60	5300		10.15	12.00	
		CH 64	5320		10.00	12.00	
	802.11n-HT20	CH 52	5260	MCS0	10.16	12.00	94.52
		CH 56	5280		10.06	12.00	
		CH 60	5300		10.09	12.00	
		CH 64	5320		10.00	12.00	
	802.11n-HT40	CH 54	5270	MCS0	10.06	12.00	89.36
		CH 62	5310		10.00	12.00	
	802.11ac-VHT20	CH 52	5260	MCS0	10.03	12.00	95.10
		CH 56	5280		10.08	12.00	
		CH 60	5300		10.00	12.00	
		CH 64	5320		10.00	12.00	
	802.11ac-VHT40	CH 54	5270	MCS0	10.04	12.00	90.05
		CH 62	5310		10.00	12.00	
	802.11ac-VHT80	CH 58	5290	MCS0	10.23	12.00	85.71

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.5GHz WLAN ANT 2	802.11a	CH 100	5500	6Mbps	10.05	12.00	95.41
		CH 116	5580		10.16	12.00	
		CH 124	5620		10.00	12.00	
		CH 132	5660		10.03	12.00	
		CH 140	5700		10.17	12.00	
		CH 144	5720		10.11	12.00	
	802.11n-HT20	CH 100	5500	MCS0	10.05	12.00	94.52
		CH 116	5580		10.16	12.00	
		CH 124	5620		10.00	12.00	
		CH 132	5660		10.08	12.00	
		CH 140	5700		10.37	12.00	
		CH 144	5720		10.28	12.00	
	802.11n-HT40	CH 102	5510	MCS0	10.13	12.00	89.62
		CH 110	5550		10.26	12.00	
		CH 126	5630		10.11	12.00	
		CH 134	5670		10.02	12.00	
		CH 142	5710		10.01	12.00	
	802.11ac-VHT20	CH 100	5500	MCS0	10.03	12.00	95.10
		CH 116	5580		10.01	12.00	
		CH 124	5620		10.00	12.00	
		CH 132	5660		10.03	12.00	
		CH 140	5700		10.01	12.00	
		CH 144	5720		10.06	12.00	
	802.11ac-VHT40	CH 102	5510	MCS0	10.00	12.00	90.05
		CH 110	5550		10.37	12.00	
		CH 126	5630		10.22	12.00	
		CH 134	5670		10.04	12.00	
		CH 142	5710		10.16	12.00	
	802.11ac-VHT80	CH 106	5530	MCS0	8.48	10.00	85.71
		CH 122	5610		10.05	12.00	
		CH 138	5690		10.01	12.00	

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN ANT 2	802.11a	CH 149	5745	6Mbps	10.41	12.00	95.41
		CH 157	5785		10.15	12.00	
		CH 165	5825		10.00	12.00	
	802.11n-HT20	CH 149	5745	MCS0	10.46	12.00	94.52
		CH 157	5785		10.12	12.00	
		CH 165	5825		10.06	12.00	
	802.11n-HT40	CH 151	5755	MCS0	10.13	12.00	89.62
		CH 159	5795		10.03	12.00	
	802.11ac-VHT20	CH 149	5745	MCS0	10.30	12.00	95.10
		CH 157	5785		10.15	12.00	
		CH 165	5825		10.00	12.00	
	802.11ac-VHT40	CH 151	5755	MCS0	10.53	12.00	90.05
		CH 159	5795		10.10	12.00	
	802.11ac-VHT80	CH 155	5775	MCS0	10.61	12.00	85.71

<5GHz WLAN ANT1+2>

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.2GHz WLAN ANT 1+2	802.11a	CH 36	5180	6Mbps	13.12	15.00	94.95
		CH 40	5200		13.05	15.00	
		CH 44	5220		13.05	15.00	
		CH 48	5240		13.27	15.00	
	802.11n-HT20	CH 36	5180	MCS0	13.13	15.00	94.94
		CH 40	5200		13.16	15.00	
		CH 44	5220		13.06	15.00	
		CH 48	5240		13.19	15.00	
	802.11n-HT40	CH 38	5190	MCS0	13.18	15.00	89.62
		CH 46	5230		13.08	15.00	
	802.11ac-VHT20	CH 36	5180	MCS0	13.10	15.00	94.63
		CH 40	5200		13.18	15.00	
		CH 44	5220		13.04	15.00	
		CH 48	5240		13.00	15.00	
	802.11ac-VHT40	CH 38	5190	MCS0	13.35	15.00	90.48
		CH 46	5230		13.15	15.00	
	802.11ac-VHT80	CH 42	5210	MCS0	13.07	15.00	85.63

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.3GHz WLAN ANT 1+2	802.11a	CH 52	5260	6Mbps	13.16	15.00	94.95
		CH 56	5280		13.05	15.00	
		CH 60	5300		13.04	15.00	
		CH 64	5320		13.01	14.10	
	802.11n-HT20	CH 52	5260	MCS0	13.11	15.00	94.94
		CH 56	5280		13.18	15.00	
		CH 60	5300		13.10	15.00	
		CH 64	5320		13.00	14.10	
	802.11n-HT40	CH 54	5270	MCS0	13.10	15.00	89.62
		CH 62	5310		13.06	15.00	
	802.11ac-VHT20	CH 52	5260	MCS0	13.08	15.00	94.63
		CH 56	5280		13.19	15.00	
		CH 60	5300		13.00	15.00	
		CH 64	5320		13.01	14.10	
	802.11ac-VHT40	CH 54	5270	MCS0	13.09	15.00	90.48
		CH 62	5310		13.02	15.00	
	802.11ac-VHT80	CH 58	5290	MCS0	13.11	15.00	85.63

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.5GHz WLAN ANT 1+2	802.11a	CH 100	5500	6Mbps	13.78	15.00	94.95
		CH 116	5580		13.98	15.00	
		CH 124	5620		13.68	15.00	
		CH 132	5660		13.54	15.00	
		CH 140	5700		13.40	15.00	
		CH 144	5720		13.32	15.00	
	802.11n-HT20	CH 100	5500	MCS0	13.59	15.00	94.94
		CH 116	5580		13.76	15.00	
		CH 124	5620		13.11	15.00	
		CH 132	5660		13.09	15.00	
		CH 140	5700		13.11	15.00	
		CH 144	5720		13.05	15.00	
	802.11n-HT40	CH 102	5510	MCS0	13.52	15.00	89.62
		CH 110	5550		13.23	15.00	
		CH 126	5630		13.18	15.00	
		CH 134	5670		13.14	15.00	
		CH 142	5710		13.05	15.00	
	802.11ac-VHT20	CH 100	5500	MCS0	13.59	15.00	94.63
		CH 116	5580		13.69	15.00	
		CH 124	5620		13.08	15.00	
		CH 132	5660		13.06	15.00	
		CH 140	5700		13.06	15.00	
		CH 144	5720		13.01	15.00	
	802.11ac-VHT40	CH 102	5510	MCS0	13.47	15.00	90.48
		CH 110	5550		13.02	15.00	
		CH 126	5630		13.06	15.00	
		CH 134	5670		13.13	15.00	
		CH 142	5710		13.02	15.00	
	802.11ac-VHT80	CH 106	5530	MCS0	11.51	12.80	85.63
		CH 122	5610		13.33	15.00	
		CH 138	5690		13.24	15.00	

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN ANT 1+2	802.11a	CH 149	5745	MCS0	13.66	15.00	94.95
		CH 157	5785		13.14	15.00	
		CH 165	5825		13.08	15.00	
	802.11n-HT20	CH 149	5745	MCS0	13.30	15.00	94.94
		CH 157	5785		13.05	15.00	
		CH 165	5825		13.00	15.00	
	802.11n-HT40	CH 151	5755	MCS0	13.19	15.00	89.62
		CH 159	5795		13.08	15.00	
	802.11ac-VHT20	CH 149	5745	MCS0	13.47	15.00	94.63
		CH 157	5785		13.08	15.00	
		CH 165	5825		13.01	15.00	
	802.11ac-VHT40	CH 151	5755	MCS0	13.22	15.00	90.48
		CH 159	5795		13.00	15.00	
	802.11ac-VHT80	CH 155	5775	MCS0	13.33	15.00	85.63

<Bluetooth Power>

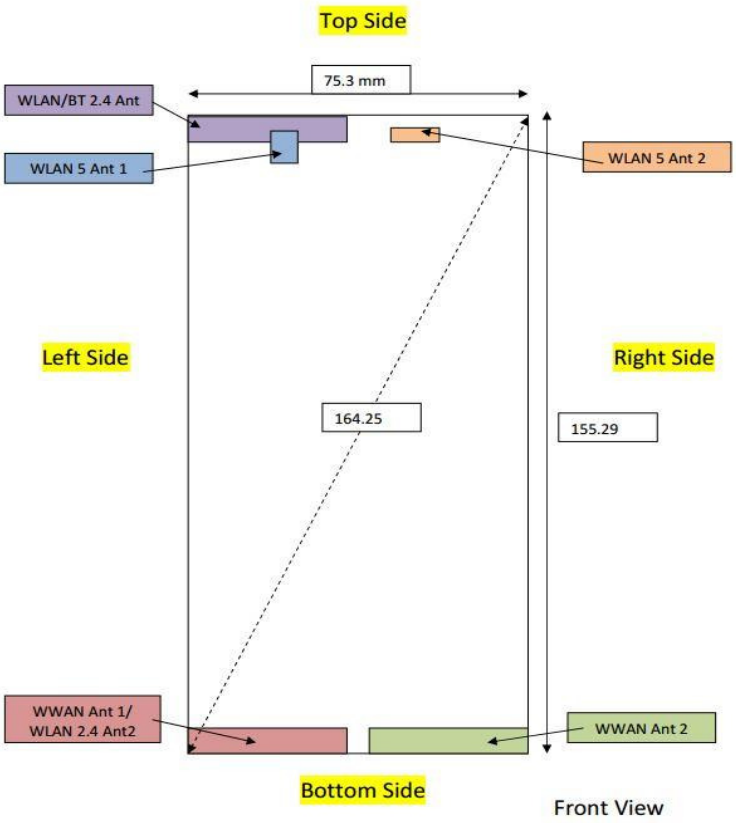
General Note:

1. For 2.4GHz Bluetooth SAR testing was selected 1Mbps, due to its highest average power.
2. The duty factor is selected theoretical 83.3% perform Bluetooth SAR testing.

Mode	Channel	Frequency (MHz)	Average power (dBm)		
			1Mbps	2Mbps	3Mbps
EDR	CH 00	2402	7.19	3.99	3.97
	CH 39	2441	9.66	6.43	6.41
	CH 78	2480	7.69	4.47	4.48
Tune-up Limit			10	7	7

Mode	Channel	Frequency (MHz)	Average power (dBm)
			GFSK
LE	CH 00	2402	-1.39
	CH 19	2440	1.38
	CH 39	2480	-0.28
Tune-up Limit			2

13. Antenna Location



Distance of the Antenna to the EUT surface/edge						
Antennas	Back	Front	Top Side	Bottom Side	Right Side	Left Side
WWAN Ant	≤ 25mm	≤ 25mm	> 25mm	≤ 25mm	≤ 25mm	≤ 25mm
2.4GHz WLAN Ant1	≤ 25mm	≤ 25mm	≤ 25mm	> 25mm	> 25mm	≤ 25mm
2.4GHz WLAN Ant2	≤ 25mm	≤ 25mm	> 25mm	≤ 25mm	> 25mm	≤ 25mm
2.4GHz WLAN MIMO	≤ 25mm	≤ 25mm	≤ 25mm	≤ 25mm	> 25mm	≤ 25mm
5Hz WLAN Ant1	≤ 25mm	≤ 25mm	≤ 25mm	> 25mm	> 25mm	≤ 25mm
5Hz WLAN Ant2	≤ 25mm	≤ 25mm	≤ 25mm	> 25mm	≤ 25mm	> 25mm
5Hz WLAN MIMO	≤ 25mm	≤ 25mm	≤ 25mm	> 25mm	≤ 25mm	≤ 25mm

Positions for SAR tests; Hotspot mode						
Antennas	Back	Front	Top Side	Bottom Side	Right Side	Left Side
WWAN Ant	Yes	Yes	No	Yes	Yes	Yes
2.4GHz WLAN Ant1	Yes	Yes	Yes	No	No	Yes
2.4GHz WLAN Ant2	Yes	Yes	No	Yes	No	Yes
2.4GHz WLAN MIMO	Yes	Yes	Yes	Yes	No	Yes
5Hz WLAN Ant1	Yes	Yes	Yes	No	No	Yes
5Hz WLAN Ant2	Yes	Yes	Yes	No	Yes	No
5Hz WLAN MIMO	Yes	Yes	Yes	No	Yes	Yes

General Note:

1. Referring to KDB 941225 D06 v02r01, when the overall device length and width are > 9cm*5cm, the test distance is 10 mm. SAR must be measured for all sides and surfaces.
2. Since the device supports MIMO operated, when each chain transmits at the same time that right side can be exempt for 2.4GHz WLAN only, bottom side can be exempt for 5GHz WLAN only

14. SAR Test Results

General Note:

1. Per KDB 447498 D01v06, the reported SAR is the measured SAR value adjusted for maximum tune-up tolerance.
   a. Tune-up scaling Factor = tune-up limit power (mW) / EUT RF power (mW), where tune-up limit is the maximum rated power among all production units.
   b. For SAR testing of WLAN signal with non-100% duty cycle, the measured SAR is scaled-up by the duty cycle scaling factor which is equal to "1/(duty cycle)"
   c. For WWAN: Reported SAR(W/kg)= Measured SAR(W/kg)*Tune-up Scaling Factor
   d. For WLAN: Reported SAR(W/kg)= Measured SAR(W/kg)* Duty Cycle scaling factor * Tune-up scaling factor
2. Per KDB 447498 D01v06, for each exposure position, testing of other required channels within the operating mode of a frequency band is not required when the *reported* 1-g or 10-g SAR for the mid-band or highest output power channel is:
   - ≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100 MHz
   - ≤ 0.6 W/kg or 1.5 W/kg, for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz
   - ≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz
3. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required only when the measured SAR is ≥0.8W/kg.
4. Per KDB 648474 D04v01r03, when the reported SAR for a body-worn accessory measured without a headset connected to the handset is ≤ 1.2 W/kg, SAR testing with a headset connected to the handset is not required.
5. Per KDB648474 D04v01r03, for smart phones with a display diagonal dimension > 15.0 cm or an overall diagonal dimension > 16.0 cm, when hotspot mode applies, 10-g product specific SAR for WWAN transmitter is required only for the edges according to “operational description” with hotspot mode 1-g reported SAR > 1.2 W/kg, however, when power reduction applies to hotspot mode the measured SAR must be scaled to the maximum output power, including tolerance, allowed for phablet modes to compare with the 1.2W/kg SAR test reduction threshold, for this device only bottom side SAR for WWAN transmitter scaled to maximum output power is higher than 1.2W/kg of UMTS B2 and CDMA BC1, therefore product specific SAR is necessary. For 5.3GHz / 5.5GHz WLAN product specific SAR is necessary too, due to an overall diagonal dimension is > 16cm.
6. While operating in “Front” and “Back” configuration by end user, the device will limit different maximum output powers on the GSM850, WCDMA B2 / B5, CDMA BC0 / BC1 and LTE B4 / B5 / B13 transmitter and detail descriptions of the power reduction mechanism are included in the operational description.
7. While operating in body-adjacent exposure configuration during a mobile hotspot session, the device will reduced output powers on the GSM850, WCDMA B2 / B5, CDMA BC0 / BC1 and LTE B4 / B5 / B13 transmitter and detail descriptions of the power reduction mechanism are included in the operational description.
8. The device utilizes independent power reduction mechanisms for SAR compliance for the WLAN transmitter for held-to-are exposure conditions and detail descriptions of the power reduction mechanism are included in the operational description.

GSM Note:

1. Per KDB 941225 D01v03r01, for SAR test reduction for GSM / GPRS / EDGE modes is determined by the source-based time-averaged output power including tune-up tolerance. The mode with highest specified time-averaged output power should be tested for SAR compliance in the applicable exposure conditions. For modes with the same specified maximum output power and tolerance, the higher number time-slot configuration should be tested. Therefore, the GPRS (4Tx slots) for GSM850/GSM1900 is considered as the primary mode.
2. Other configurations of GSM / GPRS / EDGE are considered as secondary modes. The 3G SAR test reduction procedure is applied, when the maximum output power and tune-up tolerance specified for production units in a secondary mode is ≤ ¼ dB higher than the primary mode, SAR measurement is not required for the secondary mode.

UMTS Note:

1. Per KDB 941225 D01v03r01, for SAR testing is measured using a 12.2 kbps RMC with TPC bits configured to all "1's".
2. Per KDB 941225 D01v03r01, RMC 12.2kbps setting is used to evaluate SAR. If the maximum output power and tune-up tolerance specified for production units in HSDPA / HSUPA / DC-HSDPA is ≤ ¼ dB higher than RMC 12.2Kbps or when the highest reported SAR of the RMC12.2Kbps is scaled by the ratio of specified maximum output power and tune-up tolerance of HSDPA / HSUPA / DC-HSDPA to RMC12.2Kbps and the adjusted SAR is ≤ 1.2 W/kg, SAR measurement is not required for HSDPA / HSUPA / DC-HSDPA.

CDMA Note:

1. Per KDB 941225 D01v03r01, SAR for next to the ear head exposure is measured in RC3 with the handset configured to transmit at full rate in SO55.
2. Per KDB 941225 D01v03r01, in Hotspot mode EUT is treated as data device and SAR is tested with Ev-Do Rev 0 (RTAP 153.6kbps) as the primary mode.
3. Per KDB 941225 D01v03r01, for Body-worn accessory SAR is measured in RC3 with the handset configured in TDSO/SO32 to transmit at full rate on FCH only with all other code channels disabled. The body-worn accessory procedures in KDB Publication 447498 are applied. The 3G SAR test reduction procedure is applied to the multiple code channel configuration (FCH+SCH), with FCH only as the primary mode.

LTE Note:

1. Per KDB 941225 D05v02r05, start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
2. Per KDB 941225 D05v02r05, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
3. Per KDB 941225 D05v02r05, For QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
4. Per KDB 941225 D05v02r05, 16QAM output power for each RB allocation configuration is > not ½ dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, 16QAM SAR testing is not required.
5. Per KDB 941225 D05v02r05, Smaller bandwidth output power for each RB allocation configuration is > not ½ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, smaller bandwidth SAR testing is not required.
6. For LTE B4 / B5 the maximum bandwidth does not support three non-overlapping channels, per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.

WLAN Note:

1. Per KDB 248227 D01v02r02, for 2.4GHz 802.11g/n SAR testing is not required when the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg.
2. Per KDB 248227 D01v02r02, for U-NII-1 Head and Body-worn SAR testing is not required when the U-NII-2A band highest reported SAR for a test configuration is ≤ 1.2 W/kg, SAR is not required for U-NII-1 band.
3. When the reported SAR of the test position is > 0.4 W/kg, SAR is repeated for the 802.11 transmission mode configuration tested in the initial test position to measure the subsequent next closet/smallest test separation distance and maximum coupling test position on the highest maximum output power channel, until the report SAR is ≤ 0.8 W/kg or all required test position are tested.
4. For all positions / configurations, when the reported SAR is > 0.8 W/kg, SAR is measured for these test positions / configurations on the subsequent next highest measured output power channel(s) until the reported SAR is ≤ 1.2 W/kg or all required channels are tested.
5. For WLAN SAR testing was performed on single antenna RF power in SISO mode is larger or equal to the single antenna RF power in MIMO mode, and for RF exposure assessment of MIMO mode simultaneous transmission exclusion analysis was performed with SAR test results of each antenna in SISO mode.
6. Per KDB 248227 D01v02r02, the simultaneous SAR provisions in KDB publication 447498 should be applied to determine simultaneous transmission SAR test exclusion for WiFi MIMO. If the sum of 1g single transmission chain SAR measurements is < 1.6W/kg and SAR peak to location ratio < 0.04, no additional SAR measurements for MIMO.
7. During SAR testing the WLAN transmission was verified using a spectrum analyzer.

14.1 Head SAR

<GSM SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	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)
	GSM850	GPRS (4 Tx slots)	Right Cheek	0mm	189	836.4	25.78	27.50	1.486	0.142	0.163	0.242
	GSM850	GPRS (4 Tx slots)	Right Tilted	0mm	189	836.4	25.78	27.50	1.486	0.059	0.063	0.094
01	GSM850	GPRS (4 Tx slots)	Left Cheek	0mm	189	836.4	25.78	27.50	1.486	0.012	0.171	0.254
	GSM850	GPRS (4 Tx slots)	Left Tilted	0mm	189	836.4	25.78	27.50	1.486	0.151	0.066	0.098
02	GSM1900	GPRS (4 Tx slots)	Right Cheek	0mm	810	1909.8	23.90	24.50	1.148	0.182	0.236	0.271
	GSM1900	GPRS (4 Tx slots)	Right Tilted	0mm	810	1909.8	23.90	24.50	1.148	0.192	0.078	0.090
	GSM1900	GPRS (4 Tx slots)	Left Cheek	0mm	810	1909.8	23.90	24.50	1.148	0.117	0.214	0.246
	GSM1900	GPRS (4 Tx slots)	Left Tilted	0mm	810	1909.8	23.90	24.50	1.148	-0.112	0.053	0.061

<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	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)
03	WCDMA II	RMC 12.2Kbps	Right Cheek	0mm	9538	1907.6	23.13	24.00	1.222	0.146	0.411	0.502
	WCDMA II	RMC 12.2Kbps	Right Tilted	0mm	9538	1907.6	23.13	24.00	1.222	0.06	0.135	0.165
	WCDMA II	RMC 12.2Kbps	Left Cheek	0mm	9538	1907.6	23.13	24.00	1.222	0.057	0.388	0.474
	WCDMA II	RMC 12.2Kbps	Left Tilted	0mm	9538	1907.6	23.13	24.00	1.222	-0.052	0.086	0.105
	WCDMA V	RMC 12.2Kbps	Right Cheek	0mm	4132	826.4	23.05	24.00	1.245	0.185	0.167	0.208
	WCDMA V	RMC 12.2Kbps	Right Tilted	0mm	4132	826.4	23.05	24.00	1.245	0.132	0.068	0.085
04	WCDMA V	RMC 12.2Kbps	Left Cheek	0mm	4132	826.4	23.05	24.00	1.245	0.124	0.312	0.388
	WCDMA V	RMC 12.2Kbps	Left Tilted	0mm	4132	826.4	23.05	24.00	1.245	0.131	0.096	0.119

<CDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	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)
	CDMA BC0	1xRTT RC3 SO55	Right Cheek	0mm	1013	824.7	23.76	25.00	1.330	0.114	0.190	0.253
	CDMA BC0	1xRTT RC3 SO55	Right Tilted	0mm	1013	824.7	23.76	25.00	1.330	0.132	0.076	0.101
05	CDMA BC0	1xRTT RC3 SO55	Left Cheek	0mm	1013	824.7	23.76	25.00	1.330	-0.056	0.287	0.382
	CDMA BC0	1xRTT RC3 SO55	Left Tilted	0mm	1013	824.7	23.76	25.00	1.330	0.141	0.084	0.112
06	CDMA BC1	1xRTT RC3 SO55	Right Cheek	0mm	1175	1908.75	24.12	25.00	1.225	0.095	0.510	0.625
	CDMA BC1	1xRTT RC3 SO55	Right Tilted	0mm	1175	1908.75	24.12	25.00	1.225	-0.075	0.158	0.193
	CDMA BC1	1xRTT RC3 SO55	Left Cheek	0mm	1175	1908.75	24.12	25.00	1.225	0.106	0.409	0.501
	CDMA BC1	1xRTT RC3 SO55	Left Tilted	0mm	1175	1908.75	24.12	25.00	1.225	0.006	0.123	0.151

<LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	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)
07	LTE Band 2	20M	QPSK	1	0	Right Cheek	0mm	18900	1880	23.09	24.00	1.233	0.12	0.319	0.393
	LTE Band 2	20M	QPSK	50	0	Right Cheek	0mm	18900	1880	22.10	23.00	1.230	0.088	0.245	0.301
	LTE Band 2	20M	QPSK	1	0	Right Tilted	0mm	18900	1880	23.09	24.00	1.233	0.156	0.098	0.121
	LTE Band 2	20M	QPSK	50	0	Right Tilted	0mm	18900	1880	22.10	23.00	1.230	0.087	0.074	0.091
	LTE Band 2	20M	QPSK	1	0	Left Cheek	0mm	18900	1880	23.09	24.00	1.233	0.025	0.312	0.385
	LTE Band 2	20M	QPSK	50	0	Left Cheek	0mm	18900	1880	22.10	23.00	1.230	0.065	0.235	0.289
	LTE Band 2	20M	QPSK	1	0	Left Tilted	0mm	18900	1880	23.09	24.00	1.233	0.121	0.088	0.109
	LTE Band 2	20M	QPSK	50	0	Left Tilted	0mm	18900	1880	22.10	23.00	1.230	0.102	0.068	0.084
	LTE Band 4	20M	QPSK	1	0	Right Cheek	0mm	20175	1732.5	22.49	24.00	1.416	0.111	0.283	0.401
	LTE Band 4	20M	QPSK	50	24	Right Cheek	0mm	20175	1732.5	21.65	23.00	1.365	0.074	0.220	0.300
	LTE Band 4	20M	QPSK	1	0	Right Tilted	0mm	20175	1732.5	22.49	24.00	1.416	0.064	0.096	0.136
	LTE Band 4	20M	QPSK	50	24	Right Tilted	0mm	20175	1732.5	21.65	23.00	1.365	0.071	0.071	0.097
08	LTE Band 4	20M	QPSK	1	0	Left Cheek	0mm	20175	1732.5	22.49	24.00	1.416	0.058	0.326	0.462
	LTE Band 4	20M	QPSK	50	24	Left Cheek	0mm	20175	1732.5	21.65	23.00	1.365	0.145	0.237	0.323
	LTE Band 4	20M	QPSK	1	0	Left Tilted	0mm	20175	1732.5	22.49	24.00	1.416	0.124	0.104	0.147
	LTE Band 4	20M	QPSK	50	24	Left Tilted	0mm	20175	1732.5	21.65	23.00	1.365	0.101	0.075	0.102
	LTE Band 5	10M	QPSK	1	0	Right Cheek	0mm	20525	836.5	22.86	24.00	1.300	0.015	0.210	0.273
	LTE Band 5	10M	QPSK	25	0	Right Cheek	0mm	20525	836.5	21.77	23.00	1.327	-0.085	0.117	0.155
	LTE Band 5	10M	QPSK	1	0	Right Tilted	0mm	20525	836.5	22.86	24.00	1.300	0.037	0.081	0.105
	LTE Band 5	10M	QPSK	25	0	Right Tilted	0mm	20525	836.5	21.77	23.00	1.327	-0.061	0.041	0.054
09	LTE Band 5	10M	QPSK	1	0	Left Cheek	0mm	20525	836.5	22.86	24.00	1.300	-0.133	0.329	0.428
	LTE Band 5	10M	QPSK	25	0	Left Cheek	0mm	20525	836.5	21.77	23.00	1.327	-0.017	0.175	0.232
	LTE Band 5	10M	QPSK	1	0	Left Tilted	0mm	20525	836.5	22.86	24.00	1.300	0.02	0.105	0.137
	LTE Band 5	10M	QPSK	25	0	Left Tilted	0mm	20525	836.5	21.77	23.00	1.327	-0.029	0.052	0.069
	LTE Band 7	20M	QPSK	1	99	Right Cheek	0mm	20850	2510	23.01	24.00	1.256	0.076	0.167	0.210
	LTE Band 7	20M	QPSK	50	50	Right Cheek	0mm	20850	2510	21.86	23.00	1.300	0.145	0.130	0.169
	LTE Band 7	20M	QPSK	1	99	Right Tilted	0mm	20850	2510	23.01	24.00	1.256	-0.011	0.101	0.127
	LTE Band 7	20M	QPSK	50	50	Right Tilted	0mm	20850	2510	21.86	23.00	1.300	0.065	0.063	0.082
10	LTE Band 7	20M	QPSK	1	99	Left Cheek	0mm	20850	2510	23.01	24.00	1.256	0.01	0.299	0.376
	LTE Band 7	20M	QPSK	50	50	Left Cheek	0mm	20850	2510	21.86	23.00	1.300	0.14	0.231	0.300
	LTE Band 7	20M	QPSK	1	99	Left Tilted	0mm	20850	2510	23.01	24.00	1.256	-0.077	0.079	0.099
	LTE Band 7	20M	QPSK	50	50	Left Tilted	0mm	20850	2510	21.86	23.00	1.300	-0.047	0.060	0.078
11	LTE Band 13	10M	QPSK	1	0	Right Cheek	0mm	23230	782	22.32	24.00	1.472	0.024	0.169	0.249
	LTE Band 13	10M	QPSK	25	0	Right Cheek	0mm	23230	782	21.56	23.00	1.393	0.028	0.146	0.203
	LTE Band 13	10M	QPSK	1	0	Right Tilted	0mm	23230	782	22.32	24.00	1.472	0.008	0.052	0.077
	LTE Band 13	10M	QPSK	25	0	Right Tilted	0mm	23230	782	21.56	23.00	1.393	-0.095	0.043	0.060
	LTE Band 13	10M	QPSK	1	0	Left Cheek	0mm	23230	782	22.32	24.00	1.472	0.069	0.117	0.172
	LTE Band 13	10M	QPSK	25	0	Left Cheek	0mm	23230	782	21.56	23.00	1.393	-0.08	0.097	0.135
	LTE Band 13	10M	QPSK	1	0	Left Tilted	0mm	23230	782	22.32	24.00	1.472	-0.026	0.051	0.075
	LTE Band 13	10M	QPSK	25	0	Left Tilted	0mm	23230	782	21.56	23.00	1.393	-0.004	0.042	0.059

<WLAN SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
12	WLAN2.4GHz	802.11b 1Mbps	Right Cheek	0mm	Ant 1	11	2462	16.35	16.50	1.035	99.04	1.010	-0.03	0.728	0.761
	WLAN2.4GHz	802.11b 1Mbps	Right Tilted	0mm	Ant 1	11	2462	16.35	16.50	1.035	99.04	1.010	-0.13	0.625	0.653
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 1	11	2462	16.35	16.50	1.035	99.04	1.010	-0.1	0.323	0.338
	WLAN2.4GHz	802.11b 1Mbps	Left Tilted	0mm	Ant 1	11	2462	16.35	16.50	1.035	99.04	1.010	-0.1	0.305	0.319
	WLAN2.4GHz	802.11b 1Mbps	Right Cheek	0mm	Ant 2	1	2412	12.96	13.00	1.009	99.05	1.010	-0.04	0.003	0.003
	WLAN2.4GHz	802.11b 1Mbps	Right Tilted	0mm	Ant 2	1	2412	12.96	13.00	1.009	99.05	1.010	0	0.001	0.001
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 2	1	2412	12.96	13.00	1.009	99.05	1.010	0.13	0.006	0.006
	WLAN2.4GHz	802.11b 1Mbps	Left Tilted	0mm	Ant 2	1	2412	12.96	13.00	1.009	99.05	1.010	0.13	0.001	0.001
13	WLAN5GHz	802.11ac-VHT80 MCS0	Right Cheek	0mm	Ant 1	58	5290	10.86	12.00	1.300	86.10	1.161	0	0.602	0.909
	WLAN5GHz	802.11ac-VHT80 MCS0	Right Tilted	0mm	Ant 1	58	5290	10.86	12.00	1.300	86.10	1.161	0.04	0.397	0.599
	WLAN5GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 1	58	5290	10.86	12.00	1.300	86.10	1.161	-0.07	0.337	0.509
	WLAN5GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 1	58	5290	10.86	12.00	1.300	86.10	1.161	0	0.293	0.442
	WLAN5GHz	802.11ac-VHT80 MCS0	Right Cheek	0mm	Ant 2	58	5290	10.23	12.00	1.503	85.71	1.167	0.1	0.038	0.067
	WLAN5GHz	802.11ac-VHT80 MCS0	Right Tilted	0mm	Ant 2	58	5290	10.23	12.00	1.503	85.71	1.167	0.1	0.022	0.039
	WLAN5GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 2	58	5290	10.23	12.00	1.503	85.71	1.167	0	0.129	0.226
	WLAN5GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 2	58	5290	10.23	12.00	1.503	85.71	1.167	-0.09	0.091	0.160
14	WLAN5GHz	802.11ac-VHT80 MCS0	Right Cheek	0mm	Ant 1	122	5610	10.19	12.00	1.517	86.10	1.161	0.12	0.480	0.845
	WLAN5GHz	802.11ac-VHT80 MCS0	Right Cheek	0mm	Ant 1	138	5690	10.06	12.00	1.563	86.10	1.161	0.01	0.306	0.555
	WLAN5GHz	802.11ac-VHT80 MCS0	Right Tilted	0mm	Ant 1	122	5610	10.19	12.00	1.517	86.10	1.161	0.12	0.317	0.558
	WLAN5GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 1	122	5610	10.19	12.00	1.517	86.10	1.161	0.11	0.211	0.372
	WLAN5GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 1	122	5610	10.19	12.00	1.517	86.10	1.161	0.15	0.192	0.338
	WLAN5GHz	802.11ac-VHT80 MCS0	Right Cheek	0mm	Ant 2	122	5610	10.05	12.00	1.567	85.71	1.167	0.12	0.033	0.060
	WLAN5GHz	802.11ac-VHT80 MCS0	Right Tilted	0mm	Ant 2	122	5610	10.05	12.00	1.567	85.71	1.167	-0.18	0.039	0.071
	WLAN5GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 2	122	5610	10.05	12.00	1.567	85.71	1.167	0.1	0.091	0.166
	WLAN5GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 2	122	5610	10.05	12.00	1.567	85.71	1.167	-0.13	0.120	0.219
15	WLAN5GHz	802.11ac-VHT80 MCS0	Right Cheek	0mm	Ant 1	155	5775	10.76	12.00	1.330	86.10	1.161	0.1	0.266	0.411
	WLAN5GHz	802.11ac-VHT80 MCS0	Right Tilted	0mm	Ant 1	155	5775	10.76	12.00	1.330	86.10	1.161	-0.06	0.239	0.369
	WLAN5GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 1	155	5775	10.76	12.00	1.330	86.10	1.161	0.01	0.191	0.295
	WLAN5GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 1	155	5775	10.76	12.00	1.330	86.10	1.161	0.18	0.192	0.297
	WLAN5GHz	802.11ac-VHT80 MCS0	Right Cheek	0mm	Ant 2	155	5775	10.61	12.00	1.377	85.71	1.167	0.16	0.153	0.246
	WLAN5GHz	802.11ac-VHT80 MCS0	Right Tilted	0mm	Ant 2	155	5775	10.61	12.00	1.377	85.71	1.167	0.04	0.178	0.286
	WLAN5GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 2	155	5775	10.61	12.00	1.377	85.71	1.167	0.07	0.218	0.350
	WLAN5GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 2	155	5775	10.61	12.00	1.377	85.71	1.167	0.03	0.240	0.386

14.2 Hotspot SAR

<GSM SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	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)
	GSM850	GPRS (4 Tx slots)	Front	10mm	189	836.4	23.02	25.00	1.578	-0.082	0.566	0.893
	GSM850	GPRS (4 Tx slots)	Front	10mm	128	824.2	23.01	25.00	1.581	-0.142	0.502	0.794
	GSM850	GPRS (4 Tx slots)	Front	10mm	251	848.8	23.00	25.00	1.585	0.007	0.595	0.943
	GSM850	GPRS (4 Tx slots)	Back	10mm	189	836.4	23.02	25.00	1.578	0.028	0.653	1.030
	GSM850	GPRS (4 Tx slots)	Back	10mm	128	824.2	23.01	25.00	1.581	0.011	0.574	0.908
16	GSM850	GPRS (4 Tx slots)	Back	10mm	251	848.8	23.00	25.00	1.585	-0.002	0.692	1.097
	GSM850	GPRS (4 Tx slots)	Left Side	10mm	189	836.4	23.02	25.00	1.578	-0.017	0.226	0.357
	GSM850	GPRS (4 Tx slots)	Right Side	10mm	189	836.4	23.02	25.00	1.578	0.056	0.101	0.159
	GSM850	GPRS (4 Tx slots)	Bottom Side	10mm	189	836.4	23.02	25.00	1.578	0.046	0.290	0.458
	GSM1900	GPRS (4 Tx slots)	Front	10mm	810	1909.8	23.90	24.50	1.148	0.104	0.479	0.550
17	GSM1900	GPRS (4 Tx slots)	Back	10mm	810	1909.8	23.90	24.50	1.148	-0.025	0.512	0.588
	GSM1900	GPRS (4 Tx slots)	Left Side	10mm	810	1909.8	23.90	24.50	1.148	-0.028	0.157	0.180
	GSM1900	GPRS (4 Tx slots)	Right Side	10mm	810	1909.8	23.90	24.50	1.148	-0.132	0.250	0.287
	GSM1900	GPRS (4 Tx slots)	Bottom Side	10mm	810	1909.8	23.90	24.50	1.148	0.039	0.418	0.480

<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	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)
18	WCDMA II	RMC 12.2Kbps	Front	10mm	9538	1907.6	22.00	23.00	1.259	-0.044	0.907	1.142
	WCDMA II	RMC 12.2Kbps	Front	10mm	9262	1852.4	21.84	23.00	1.306	0.048	0.843	1.101
	WCDMA II	RMC 12.2Kbps	Front	10mm	9400	1880	21.71	23.00	1.346	-0.003	0.845	1.137
	WCDMA II	RMC 12.2Kbps	Back	10mm	9538	1907.6	22.00	23.00	1.259	-0.001	0.891	1.122
	WCDMA II	RMC 12.2Kbps	Back	10mm	9262	1852.4	21.84	23.00	1.306	0.027	0.812	1.061
	WCDMA II	RMC 12.2Kbps	Back	10mm	9400	1880	21.71	23.00	1.346	-0.006	0.817	1.100
	WCDMA II	RMC 12.2Kbps	Left Side	10mm	9538	1907.6	22.00	23.00	1.259	0.111	0.297	0.374
	WCDMA II	RMC 12.2Kbps	Right Side	10mm	9538	1907.6	22.00	23.00	1.259	0.017	0.440	0.554
	WCDMA II	RMC 12.2Kbps	Bottom Side	10mm	9538	1907.6	22.00	23.00	1.259	-0.009	0.856	1.078
	WCDMA II	RMC 12.2Kbps	Bottom Side	10mm	9262	1852.4	21.84	23.00	1.306	-0.016	0.796	1.040
	WCDMA II	RMC 12.2Kbps	Bottom Side	10mm	9400	1880	21.71	23.00	1.346	-0.184	0.832	1.120
	WCDMA V	RMC 12.2Kbps	Front	10mm	4132	826.4	19.35	20.50	1.303	0.009	0.743	0.968
	WCDMA V	RMC 12.2Kbps	Front	10mm	4182	836.4	19.27	20.50	1.327	0.019	0.751	0.997
	WCDMA V	RMC 12.2Kbps	Front	10mm	4233	846.6	19.32	20.50	1.312	0.025	0.726	0.953
	WCDMA V	RMC 12.2Kbps	Back	10mm	4132	826.4	19.35	20.50	1.303	-0.009	0.733	0.955
	WCDMA V	RMC 12.2Kbps	Back	10mm	4182	836.4	19.27	20.50	1.327	0.015	0.772	1.025
19	WCDMA V	RMC 12.2Kbps	Back	10mm	4233	846.6	19.32	20.50	1.312	0.043	0.794	1.042
	WCDMA V	RMC 12.2Kbps	Left Side	10mm	4132	826.4	19.35	20.50	1.303	-0.111	0.264	0.344
	WCDMA V	RMC 12.2Kbps	Right Side	10mm	4132	826.4	19.35	20.50	1.303	-0.063	0.128	0.167
	WCDMA V	RMC 12.2Kbps	Bottom Side	10mm	4132	826.4	19.35	20.50	1.303	-0.013	0.304	0.396

<CDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	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)
	CDMA BC0	RTAP 153.6Kbps	Front	10mm	1013	824.7	21.35	22.50	1.303	0.012	0.802	1.045
	CDMA BC0	RTAP 153.6Kbps	Front	10mm	384	836.52	21.24	22.50	1.337	0.019	0.831	1.111
	CDMA BC0	RTAP 153.6Kbps	Front	10mm	777	848.31	21.03	22.50	1.403	-0.004	0.811	1.138
	CDMA BC0	RTAP 153.6Kbps	Back	10mm	1013	824.7	21.35	22.50	1.303	0.037	0.867	1.130
20	CDMA BC0	RTAP 153.6Kbps	Back	10mm	384	836.52	21.24	22.50	1.337	0.036	0.888	1.187
	CDMA BC0	RTAP 153.6Kbps	Back	10mm	777	848.31	21.03	22.50	1.403	0.013	0.844	1.184
	CDMA BC0	RTAP 153.6Kbps	Left Side	10mm	1013	824.7	21.35	22.50	1.303	-0.122	0.361	0.470
	CDMA BC0	RTAP 153.6Kbps	Right Side	10mm	1013	824.7	21.35	22.50	1.303	0.18	0.152	0.198
	CDMA BC0	RTAP 153.6Kbps	Bottom Side	10mm	1013	824.7	21.35	22.50	1.303	0.001	0.392	0.511
	CDMA BC1	RTAP 153.6Kbps	Front	10mm	1175	1908.75	22.72	23.50	1.197	0.145	0.755	0.904
	CDMA BC1	RTAP 153.6Kbps	Front	10mm	25	1851.25	22.64	23.50	1.219	0.123	0.705	0.859
	CDMA BC1	RTAP 153.6Kbps	Front	10mm	600	1880	22.63	23.50	1.222	0.136	0.746	0.911
	CDMA BC1	RTAP 153.6Kbps	Back	10mm	1175	1908.75	22.72	23.50	1.197	0.001	0.812	0.972
	CDMA BC1	RTAP 153.6Kbps	Back	10mm	25	1851.25	22.64	23.50	1.219	0.006	0.741	0.903
	CDMA BC1	RTAP 153.6Kbps	Back	10mm	600	1880	22.63	23.50	1.222	0.052	0.773	0.944
	CDMA BC1	RTAP 153.6Kbps	Left Side	10mm	1175	1908.75	22.72	23.50	1.197	0.005	0.306	0.366
	CDMA BC1	RTAP 153.6Kbps	Right Side	10mm	1175	1908.75	22.72	23.50	1.197	0.016	0.488	0.584
	CDMA BC1	RTAP 153.6Kbps	Bottom Side	10mm	1175	1908.75	22.72	23.50	1.197	-0.101	0.818	0.979
	CDMA BC1	RTAP 153.6Kbps	Bottom Side	10mm	25	1851.25	22.64	23.50	1.219	0.01	0.779	0.950
21	CDMA BC1	RTAP 153.6Kbps	Bottom Side	10mm	600	1880	22.63	23.50	1.222	-0.028	0.807	0.986

<LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 2	20M	QPSK	1	0	Front	10mm	18900	1880	23.09	24.00	1.233	-0.135	0.880	1.085
	LTE Band 2	20M	QPSK	1	0	Front	10mm	18700	1860	23.01	24.00	1.256	0.009	0.882	1.108
	LTE Band 2	20M	QPSK	1	0	Front	10mm	19100	1900	23.01	24.00	1.256	0.001	0.858	1.078
	LTE Band 2	20M	QPSK	50	0	Front	10mm	18900	1880	22.10	23.00	1.230	0.018	0.682	0.839
	LTE Band 2	20M	QPSK	50	0	Front	10mm	18700	1860	22.09	23.00	1.233	0.008	0.691	0.852
	LTE Band 2	20M	QPSK	50	0	Front	10mm	19100	1900	22.01	23.00	1.256	-0.006	0.683	0.858
	LTE Band 2	20M	QPSK	100	0	Front	10mm	18700	1860	22.07	23.00	1.239	-0.008	0.694	0.860
	LTE Band 2	20M	QPSK	1	0	Back	10mm	18900	1880	23.09	24.00	1.233	-0.128	0.903	1.113
	LTE Band 2	20M	QPSK	1	0	Back	10mm	18700	1860	23.01	24.00	1.256	0.022	0.902	1.133
	LTE Band 2	20M	QPSK	1	0	Back	10mm	19100	1900	23.01	24.00	1.256	-0.001	0.882	1.108
	LTE Band 2	20M	QPSK	50	0	Back	10mm	18900	1880	22.10	23.00	1.230	0.008	0.696	0.856
	LTE Band 2	20M	QPSK	50	0	Back	10mm	18700	1860	22.09	23.00	1.233	0.025	0.709	0.874
	LTE Band 2	20M	QPSK	50	0	Back	10mm	19100	1900	22.01	23.00	1.256	0.001	0.699	0.878
	LTE Band 2	20M	QPSK	100	0	Back	10mm	18700	1860	22.07	23.00	1.239	0.011	0.715	0.886
	LTE Band 2	20M	QPSK	1	0	Left Side	10mm	18900	1880	23.09	24.00	1.233	0.037	0.240	0.296
	LTE Band 2	20M	QPSK	50	0	Left Side	10mm	18900	1880	22.10	23.00	1.230	-0.038	0.186	0.229
	LTE Band 2	20M	QPSK	1	0	Right Side	10mm	18900	1880	23.09	24.00	1.233	-0.057	0.355	0.438
	LTE Band 2	20M	QPSK	50	0	Right Side	10mm	18900	1880	22.10	23.00	1.230	0.02	0.276	0.340
	LTE Band 2	20M	QPSK	1	0	Bottom Side	10mm	18900	1880	23.09	24.00	1.233	0.033	0.888	1.095
22	LTE Band 2	20M	QPSK	1	0	Bottom Side	10mm	18700	1860	23.01	24.00	1.256	-0.012	0.936	1.176
	LTE Band 2	20M	QPSK	1	0	Bottom Side	10mm	19100	1900	23.01	24.00	1.256	0.018	0.902	1.133
	LTE Band 2	20M	QPSK	50	0	Bottom Side	10mm	18900	1880	22.10	23.00	1.230	0.004	0.718	0.883
	LTE Band 2	20M	QPSK	50	0	Bottom Side	10mm	18700	1860	22.09	23.00	1.233	0.016	0.734	0.905
	LTE Band 2	20M	QPSK	50	0	Bottom Side	10mm	19100	1900	22.01	23.00	1.256	0.008	0.712	0.894
	LTE Band 2	20M	QPSK	100	0	Bottom Side	10mm	18700	1860	22.07	23.00	1.239	0.014	0.735	0.911

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 4	20M	QPSK	1	0	Front	10mm	20175	1732.5	22.08	23.00	1.236	0.013	0.721	0.891
	LTE Band 4	20M	QPSK	50	24	Front	10mm	20175	1732.5	22.09	23.00	1.233	-0.017	0.591	0.729
	LTE Band 4	20M	QPSK	100	0	Front	10mm	20175	1732.5	21.99	23.00	1.262	0.187	0.579	0.731
	LTE Band 4	20M	QPSK	1	0	Back	10mm	20175	1732.5	22.08	23.00	1.236	0.029	0.687	0.849
	LTE Band 4	20M	QPSK	50	24	Back	10mm	20175	1732.5	22.09	23.00	1.233	0.019	0.527	0.650
	LTE Band 4	20M	QPSK	100	0	Back	10mm	20175	1732.5	21.99	23.00	1.262	0.021	0.668	0.843
	LTE Band 4	20M	QPSK	1	0	Left Side	10mm	20175	1732.5	22.08	23.00	1.236	0.138	0.263	0.325
	LTE Band 4	20M	QPSK	50	24	Left Side	10mm	20175	1732.5	22.09	23.00	1.233	-0.051	0.152	0.187
	LTE Band 4	20M	QPSK	1	0	Right Side	10mm	20175	1732.5	22.08	23.00	1.236	-0.018	0.488	0.603
	LTE Band 4	20M	QPSK	50	24	Right Side	10mm	20175	1732.5	22.09	23.00	1.233	0.016	0.302	0.372
	LTE Band 4	20M	QPSK	1	0	Bottom Side	10mm	20175	1732.5	22.08	23.00	1.236	0.021	0.683	0.844
23	LTE Band 4	20M	QPSK	50	24	Bottom Side	10mm	20175	1732.5	22.09	23.00	1.233	0.056	0.734	0.905
	LTE Band 4	20M	QPSK	100	0	Bottom Side	10mm	20175	1732.5	21.99	23.00	1.262	0	0.715	0.902
	LTE Band 5	10M	QPSK	1	0	Front	10mm	20525	836.5	18.66	20.00	1.361	0.07	0.745	1.014
	LTE Band 5	10M	QPSK	25	0	Front	10mm	20525	836.5	18.69	20.00	1.352	0.032	0.766	1.036
	LTE Band 5	10M	QPSK	50	0	Front	10mm	20525	836.5	18.55	20.00	1.396	0.028	0.747	1.043
	LTE Band 5	10M	QPSK	1	0	Back	10mm	20525	836.5	18.66	20.00	1.361	0.127	0.735	1.001
	LTE Band 5	10M	QPSK	25	0	Back	10mm	20525	836.5	18.69	20.00	1.352	0	0.772	1.044
24	LTE Band 5	10M	QPSK	50	0	Back	10mm	20525	836.5	18.55	20.00	1.396	0.03	0.757	1.057
	LTE Band 5	10M	QPSK	1	0	Left Side	10mm	20525	836.5	18.66	20.00	1.361	0.066	0.253	0.344
	LTE Band 5	10M	QPSK	25	0	Left Side	10mm	20525	836.5	18.69	20.00	1.352	0.008	0.267	0.361
	LTE Band 5	10M	QPSK	1	0	Right Side	10mm	20525	836.5	18.66	20.00	1.361	0.027	0.110	0.150
	LTE Band 5	10M	QPSK	25	0	Right Side	10mm	20525	836.5	18.69	20.00	1.352	0.012	0.113	0.153
	LTE Band 5	10M	QPSK	1	0	Bottom Side	10mm	20525	836.5	18.66	20.00	1.361	-0.037	0.308	0.419
	LTE Band 5	10M	QPSK	25	0	Bottom Side	10mm	20525	836.5	18.69	20.00	1.352	-0.017	0.320	0.433
	LTE Band 7	20M	QPSK	1	99	Front	10mm	20850	2510	23.01	24.00	1.256	0.069	0.729	0.916
	LTE Band 7	20M	QPSK	1	99	Front	10mm	21100	2535	22.78	24.00	1.324	-0.175	0.617	0.817
	LTE Band 7	20M	QPSK	1	99	Front	10mm	21350	2560	22.92	24.00	1.282	0.15	0.693	0.889
	LTE Band 7	20M	QPSK	50	50	Front	10mm	20850	2510	21.86	23.00	1.300	0.041	0.469	0.610
	LTE Band 7	20M	QPSK	100	0	Front	10mm	21350	2560	21.87	23.00	1.297	-0.023	0.484	0.628
	LTE Band 7	20M	QPSK	1	99	Back	10mm	20850	2510	23.01	24.00	1.256	-0.024	0.799	1.004
	LTE Band 7	20M	QPSK	1	99	Back	10mm	21100	2535	22.78	24.00	1.324	-0.192	0.745	0.987
25	LTE Band 7	20M	QPSK	1	99	Back	10mm	21350	2560	22.92	24.00	1.282	0.003	0.863	1.107
	LTE Band 7	20M	QPSK	50	50	Back	10mm	20850	2510	21.86	23.00	1.300	0.014	0.499	0.649
	LTE Band 7	20M	QPSK	100	0	Back	10mm	21350	2560	21.87	23.00	1.297	-0.027	0.528	0.685
	LTE Band 7	20M	QPSK	1	99	Left Side	10mm	20850	2510	23.01	24.00	1.256	-0.091	0.212	0.266
	LTE Band 7	20M	QPSK	50	50	Left Side	10mm	20850	2510	21.86	23.00	1.300	-0.026	0.131	0.170
	LTE Band 7	20M	QPSK	1	99	Right Side	10mm	20850	2510	23.01	24.00	1.256	0.092	0.074	0.093
	LTE Band 7	20M	QPSK	50	50	Right Side	10mm	20850	2510	21.86	23.00	1.300	0.082	0.046	0.060
	LTE Band 7	20M	QPSK	1	99	Bottom Side	10mm	20850	2510	23.01	24.00	1.256	0.028	0.561	0.705
	LTE Band 7	20M	QPSK	50	50	Bottom Side	10mm	20850	2510	21.86	23.00	1.300	-0.021	0.353	0.459
	LTE Band 13	10M	QPSK	1	0	Front	10mm	23230	782	18.21	20.00	1.510	0.047	0.601	0.908
	LTE Band 13	10M	QPSK	25	0	Front	10mm	23230	782	18.58	20.00	1.387	0.031	0.666	0.924
26	LTE Band 13	10M	QPSK	50	0	Front	10mm	23230	782	18.48	20.00	1.419	-0.02	0.685	0.972
	LTE Band 13	10M	QPSK	1	0	Back	10mm	23230	782	18.21	20.00	1.510	0.039	0.619	0.935
	LTE Band 13	10M	QPSK	25	0	Back	10mm	23230	782	18.58	20.00	1.387	0.001	0.659	0.914
	LTE Band 13	10M	QPSK	50	0	Back	10mm	23230	782	18.48	20.00	1.419	-0.035	0.684	0.971
	LTE Band 13	10M	QPSK	1	0	Left Side	10mm	23230	782	18.21	20.00	1.510	0.043	0.068	0.103
	LTE Band 13	10M	QPSK	25	0	Left Side	10mm	23230	782	18.58	20.00	1.387	0.131	0.072	0.100
	LTE Band 13	10M	QPSK	1	0	Right Side	10mm	23230	782	18.21	20.00	1.510	-0.022	0.257	0.388
	LTE Band 13	10M	QPSK	25	0	Right Side	10mm	23230	782	18.58	20.00	1.387	0.027	0.270	0.374
	LTE Band 13	10M	QPSK	1	0	Bottom Side	10mm	23230	782	18.21	20.00	1.510	-0.004	0.261	0.394
	LTE Band 13	10M	QPSK	25	0	Bottom Side	10mm	23230	782	18.58	20.00	1.387	0.033	0.271	0.376

<WLAN SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
27	WLAN2.4GHz	802.11b 1Mbps	Front	10mm	Ant 1	11	2462	18.91	20.00	1.285	99.04	1.010	0.11	0.208	0.270
	WLAN2.4GHz	802.11b 1Mbps	Back	10mm	Ant 1	11	2462	18.91	20.00	1.285	99.04	1.010	-0.12	0.155	0.201
	WLAN2.4GHz	802.11b 1Mbps	Left Side	10mm	Ant 1	11	2462	18.91	20.00	1.285	99.04	1.010	-0.16	0.053	0.069
	WLAN2.4GHz	802.11b 1Mbps	Top Side	10mm	Ant 1	11	2462	18.91	20.00	1.285	99.04	1.010	-0.12	0.100	0.130
	WLAN2.4GHz	802.11b 1Mbps	Bottom Side	10mm	Ant 1	11	2462	18.91	20.00	1.285	99.04	1.010	0.04	0.002	0.003
	WLAN2.4GHz	802.11b 1Mbps	Front	10mm	Ant 2	11	2462	14.96	16.00	1.271	99.05	1.010	0.11	0.031	0.040
	WLAN2.4GHz	802.11b 1Mbps	Back	10mm	Ant 2	11	2462	14.96	16.00	1.271	99.05	1.010	-0.12	0.037	0.047
	WLAN2.4GHz	802.11b 1Mbps	Left Side	10mm	Ant 2	11	2462	14.96	16.00	1.271	99.05	1.010	0.11	0.008	0.011
	WLAN2.4GHz	802.11b 1Mbps	Top Side	10mm	Ant 2	11	2462	14.96	16.00	1.271	99.05	1.010	-0.01	0.003	0.004
	WLAN2.4GHz	802.11b 1Mbps	Bottom Side	10mm	Ant 2	11	2462	14.96	16.00	1.271	99.05	1.010	0.16	0.026	0.033
28	WLAN5GHz	802.11a 6Mbps	Front	10mm	Ant 1	36	5180	16.30	18.00	1.477	94.95	1.053	-0.1	0.091	0.142
	WLAN5GHz	802.11a 6Mbps	Back	10mm	Ant 1	36	5180	16.30	18.00	1.477	94.95	1.053	0.17	0.019	0.030
	WLAN5GHz	802.11a 6Mbps	Left Side	10mm	Ant 1	36	5180	16.30	18.00	1.477	94.95	1.053	0.07	0.008	0.012
	WLAN5GHz	802.11a 6Mbps	Right Side	10mm	Ant 1	36	5180	16.30	18.00	1.477	94.95	1.053	-0.18	0.004	0.007
	WLAN5GHz	802.11a 6Mbps	Top Side	10mm	Ant 1	36	5180	16.30	18.00	1.477	94.95	1.053	0.17	0.019	0.030
	WLAN5GHz	802.11a 6Mbps	Front	10mm	Ant 2	36	5180	15.79	17.50	1.481	95.41	1.048	-0.14	0.078	0.121
	WLAN5GHz	802.11a 6Mbps	Back	10mm	Ant 2	36	5180	15.79	17.50	1.481	95.41	1.048	0.05	0.056	0.087
	WLAN5GHz	802.11a 6Mbps	Left Side	10mm	Ant 2	36	5180	15.79	17.50	1.481	95.41	1.048	0.12	0.003	0.005
	WLAN5GHz	802.11a 6Mbps	Right Side	10mm	Ant 2	36	5180	15.79	17.50	1.481	95.41	1.048	0.19	0.012	0.019
	WLAN5GHz	802.11a 6Mbps	Top Side	10mm	Ant 2	36	5180	15.79	17.50	1.481	95.41	1.048	0.14	0.024	0.037
29	WLAN5GHz	802.11a 6Mbps	Front	10mm	Ant 1	149	5745	16.37	18.00	1.454	94.95	1.053	-0.09	0.106	0.162
	WLAN5GHz	802.11a 6Mbps	Back	10mm	Ant 1	149	5745	16.37	18.00	1.454	94.95	1.053	0.1	0.026	0.040
	WLAN5GHz	802.11a 6Mbps	Left Side	10mm	Ant 1	149	5745	16.37	18.00	1.454	94.95	1.053	-0.01	0.008	0.012
	WLAN5GHz	802.11a 6Mbps	Right Side	10mm	Ant 1	149	5745	16.37	18.00	1.454	94.95	1.053	-0.03	0.007	0.011
	WLAN5GHz	802.11a 6Mbps	Top Side	10mm	Ant 1	149	5745	16.37	18.00	1.454	94.95	1.053	0.06	0.017	0.026
	WLAN5GHz	802.11a 6Mbps	Front	10mm	Ant 2	149	5745	16.22	18.00	1.505	95.41	1.048	0.07	0.031	0.049
	WLAN5GHz	802.11a 6Mbps	Back	10mm	Ant 2	149	5745	16.22	18.00	1.505	95.41	1.048	0.1	0.025	0.039
	WLAN5GHz	802.11a 6Mbps	Left Side	10mm	Ant 2	149	5745	16.22	18.00	1.505	95.41	1.048	-0.13	0.003	0.005
	WLAN5GHz	802.11a 6Mbps	Right Side	10mm	Ant 2	149	5745	16.22	18.00	1.505	95.41	1.048	0.17	0.002	0.003
	WLAN5GHz	802.11a 6Mbps	Top Side	10mm	Ant 2	149	5745	16.22	18.00	1.505	95.41	1.048	-0.16	0.027	0.043

14.3 Product Specific SAR

<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
	WCDMA II	RMC 12.2Kbps	Bottom Side	0mm	9538	1907.6	23.13	24.00	1.222	0.009	2.590	3.164
	WCDMA II	RMC 12.2Kbps	Bottom Side	0mm	9262	1852.4	22.97	24.00	1.268	0.025	2.420	3.068
30	WCDMA II	RMC 12.2Kbps	Bottom Side	0mm	9400	1880	22.93	24.00	1.279	0.031	2.480	3.173

<CDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
31	CDMA BC1	RTAP 153.6Kbps	Bottom Side	0mm	1175	1908.75	24.37	25.00	1.156	-0.028	2.930	3.387
	CDMA BC1	RTAP 153.6Kbps	Bottom Side	0mm	25	1851.25	24.35	25.00	1.161	-0.016	2.880	3.345
	CDMA BC1	RTAP 153.6Kbps	Bottom Side	0mm	600	1880	24.31	25.00	1.172	-0.011	2.830	3.317

<WLAN SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
32	WLAN5GHz	802.11a 6Mbps	Front	0mm	Ant 1	52	5260	16.40	18.00	1.444	94.95	1.053	-0.16	0.870	1.323
	WLAN5GHz	802.11a 6Mbps	Back	0mm	Ant 1	52	5260	16.40	18.00	1.444	94.95	1.053	0.09	0.438	0.666
	WLAN5GHz	802.11a 6Mbps	Left Side	0mm	Ant 1	52	5260	16.40	18.00	1.444	94.95	1.053	0.04	0.035	0.053
	WLAN5GHz	802.11a 6Mbps	Right Side	0mm	Ant 1	52	5260	16.40	18.00	1.444	94.95	1.053	0.09	0.004	0.007
	WLAN5GHz	802.11a 6Mbps	Top Side	0mm	Ant 1	52	5260	16.40	18.00	1.444	94.95	1.053	0.09	0.202	0.307
	WLAN5GHz	802.11a 6Mbps	Front	0mm	Ant 2	52	5260	15.76	17.50	1.491	95.41	1.048	0.11	0.364	0.569
	WLAN5GHz	802.11a 6Mbps	Back	0mm	Ant 2	52	5260	15.76	17.50	1.491	95.41	1.048	0.16	0.288	0.450
	WLAN5GHz	802.11a 6Mbps	Left Side	0mm	Ant 2	52	5260	15.76	17.50	1.491	95.41	1.048	0	0.001	0.002
	WLAN5GHz	802.11a 6Mbps	Right Side	0mm	Ant 2	52	5260	15.76	17.50	1.491	95.41	1.048	0.17	0.029	0.045
	WLAN5GHz	802.11a 6Mbps	Top Side	0mm	Ant 2	52	5260	15.76	17.50	1.491	95.41	1.048	0.1	0.158	0.247
	WLAN5GHz	802.11a 6Mbps	Front	0mm	Ant 1	100	5500	16.70	18.00	1.349	94.95	1.053	-0.12	1.780	2.528
33	WLAN5GHz	802.11a 6Mbps	Front	0mm	Ant 1	116	5580	16.67	18.00	1.357	94.95	1.053	-0.05	1.820	2.600
	WLAN5GHz	802.11a 6Mbps	Back	0mm	Ant 1	100	5500	16.70	18.00	1.349	94.95	1.053	0.18	0.911	1.294
	WLAN5GHz	802.11a 6Mbps	Left Side	0mm	Ant 1	100	5500	16.70	18.00	1.349	94.95	1.053	0.03	0.067	0.095
	WLAN5GHz	802.11a 6Mbps	Right Side	0mm	Ant 1	100	5500	16.70	18.00	1.349	94.95	1.053	-0.18	0.021	0.030
	WLAN5GHz	802.11a 6Mbps	Top Side	0mm	Ant 1	100	5500	16.70	18.00	1.349	94.95	1.053	0.12	0.515	0.732
	WLAN5GHz	802.11a 6Mbps	Front	0mm	Ant 2	100	5500	16.10	18.00	1.549	95.41	1.048	-0.18	0.381	0.618
	WLAN5GHz	802.11a 6Mbps	Back	0mm	Ant 2	100	5500	16.10	18.00	1.549	95.41	1.048	-0.17	0.255	0.414
	WLAN5GHz	802.11a 6Mbps	Left Side	0mm	Ant 2	100	5500	16.10	18.00	1.549	95.41	1.048	0	0.001	0.002
	WLAN5GHz	802.11a 6Mbps	Right Side	0mm	Ant 2	100	5500	16.10	18.00	1.549	95.41	1.048	0.03	0.009	0.015
	WLAN5GHz	802.11a 6Mbps	Top Side	0mm	Ant 2	100	5500	16.10	18.00	1.549	95.41	1.048	0.11	0.110	0.179

14.4 Body Worn Accessory SAR

<GSM SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	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)
	GSM850	GPRS (4 Tx slots)	Front	10mm	189	836.4	23.02	25.00	1.578	-0.082	0.566	0.893
	GSM850	GPRS (4 Tx slots)	Front	10mm	128	824.2	23.01	25.00	1.581	-0.142	0.502	0.794
	GSM850	GPRS (4 Tx slots)	Front	10mm	251	848.8	23.00	25.00	1.585	0.007	0.595	0.943
	GSM850	GPRS (4 Tx slots)	Back	10mm	189	836.4	23.02	25.00	1.578	0.028	0.653	1.030
	GSM850	GPRS (4 Tx slots)	Back	10mm	128	824.2	23.01	25.00	1.581	0.011	0.574	0.908
34	GSM850	GPRS (4 Tx slots)	Back	10mm	251	848.8	23.00	25.00	1.585	-0.002	0.692	1.097
	GSM1900	GPRS (4 Tx slots)	Front	10mm	810	1909.8	23.90	24.50	1.148	0.104	0.479	0.550
35	GSM1900	GPRS (4 Tx slots)	Back	10mm	810	1909.8	23.90	24.50	1.148	-0.025	0.512	0.588

<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	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)
36	WCDMA II	RMC 12.2Kbps	Front	10mm	9538	1907.6	22.00	23.00	1.259	-0.044	0.907	1.142
	WCDMA II	RMC 12.2Kbps	Front	10mm	9262	1852.4	21.84	23.00	1.306	0.048	0.843	1.101
	WCDMA II	RMC 12.2Kbps	Front	10mm	9400	1880	21.71	23.00	1.346	-0.003	0.845	1.137
	WCDMA II	RMC 12.2Kbps	Back	10mm	9538	1907.6	22.00	23.00	1.259	-0.001	0.891	1.122
	WCDMA II	RMC 12.2Kbps	Back	10mm	9262	1852.4	21.84	23.00	1.306	0.027	0.812	1.061
	WCDMA II	RMC 12.2Kbps	Back	10mm	9400	1880	21.71	23.00	1.346	-0.006	0.817	1.100
	WCDMA V	RMC 12.2Kbps	Front	10mm	4132	826.4	19.35	20.50	1.303	0.009	0.743	0.968
	WCDMA V	RMC 12.2Kbps	Front	10mm	4182	836.4	19.27	20.50	1.327	0.019	0.751	0.997
	WCDMA V	RMC 12.2Kbps	Front	10mm	4233	846.6	19.32	20.50	1.312	0.025	0.726	0.953
	WCDMA V	RMC 12.2Kbps	Back	10mm	4132	826.4	19.35	20.50	1.303	-0.009	0.733	0.955
	WCDMA V	RMC 12.2Kbps	Back	10mm	4182	836.4	19.27	20.50	1.327	0.015	0.772	1.025
37	WCDMA V	RMC 12.2Kbps	Back	10mm	4233	846.6	19.32	20.50	1.312	0.043	0.794	1.042

<CDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	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)
	CDMA BC0	1xRTT RC3 SO32	Front	10mm	1013	824.7	21.34	22.50	1.306	-0.018	0.832	1.087
	CDMA BC0	1xRTT RC3 SO32	Front	10mm	384	836.52	21.31	22.50	1.315	-0.106	0.901	1.185
38	CDMA BC0	1xRTT RC3 SO32	Front	10mm	777	848.31	21.11	22.50	1.377	0.009	0.865	1.191
	CDMA BC0	1xRTT RC3 SO32	Back	10mm	1013	824.7	21.34	22.50	1.306	-0.05	0.911	1.190
	CDMA BC0	1xRTT RC3 SO32	Back	10mm	384	836.52	21.31	22.50	1.315	-0.05	0.905	1.190
	CDMA BC0	1xRTT RC3 SO32	Back	10mm	777	848.31	21.11	22.50	1.377	0.036	0.861	1.186
	CDMA BC1	1xRTT RC3 SO32	Front	10mm	1175	1908.75	22.67	23.50	1.211	-0.139	0.700	0.847
	CDMA BC1	1xRTT RC3 SO32	Front	10mm	25	1851.25	22.61	23.50	1.227	-0.037	0.638	0.783
	CDMA BC1	1xRTT RC3 SO32	Front	10mm	600	1880	22.60	23.50	1.230	-0.146	0.646	0.795
39	CDMA BC1	1xRTT RC3 SO32	Back	10mm	1175	1908.75	22.67	23.50	1.211	-0.078	0.980	1.186
	CDMA BC1	1xRTT RC3 SO32	Back	10mm	25	1851.25	22.61	23.50	1.227	-0.081	0.961	1.180
	CDMA BC1	1xRTT RC3 SO32	Back	10mm	600	1880	22.60	23.50	1.230	-0.013	0.957	1.177

<LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 2	20M	QPSK	1	0	Front	10mm	18900	1880	23.09	24.00	1.233	-0.135	0.880	1.085
	LTE Band 2	20M	QPSK	1	0	Front	10mm	18700	1860	23.01	24.00	1.256	0.009	0.882	1.108
	LTE Band 2	20M	QPSK	1	0	Front	10mm	19100	1900	23.01	24.00	1.256	0.001	0.858	1.078
	LTE Band 2	20M	QPSK	50	0	Front	10mm	18900	1880	22.10	23.00	1.230	0.018	0.682	0.839
	LTE Band 2	20M	QPSK	50	0	Front	10mm	18700	1860	22.09	23.00	1.233	0.008	0.691	0.852
	LTE Band 2	20M	QPSK	50	0	Front	10mm	19100	1900	22.01	23.00	1.256	-0.006	0.683	0.858
	LTE Band 2	20M	QPSK	100	0	Front	10mm	18700	1860	22.07	23.00	1.239	-0.008	0.694	0.860
	LTE Band 2	20M	QPSK	1	0	Back	10mm	18900	1880	23.09	24.00	1.233	-0.128	0.903	1.113
40	LTE Band 2	20M	QPSK	1	0	Back	10mm	18700	1860	23.01	24.00	1.256	0.022	0.902	1.133
	LTE Band 2	20M	QPSK	1	0	Back	10mm	19100	1900	23.01	24.00	1.256	-0.001	0.882	1.108
	LTE Band 2	20M	QPSK	50	0	Back	10mm	18900	1880	22.10	23.00	1.230	0.008	0.696	0.856
	LTE Band 2	20M	QPSK	50	0	Back	10mm	18700	1860	22.09	23.00	1.233	0.025	0.709	0.874
	LTE Band 2	20M	QPSK	50	0	Back	10mm	19100	1900	22.01	23.00	1.256	0.001	0.699	0.878
	LTE Band 2	20M	QPSK	100	0	Back	10mm	18700	1860	22.07	23.00	1.239	0.011	0.715	0.886
41	LTE Band 4	20M	QPSK	1	0	Front	10mm	20175	1732.5	22.08	23.00	1.236	0.013	0.721	0.891
	LTE Band 4	20M	QPSK	50	24	Front	10mm	20175	1732.5	22.09	23.00	1.233	-0.017	0.591	0.729
	LTE Band 4	20M	QPSK	100	0	Front	10mm	20175	1732.5	21.99	23.00	1.262	0.187	0.579	0.731
	LTE Band 4	20M	QPSK	1	0	Back	10mm	20175	1732.5	22.08	23.00	1.236	0.029	0.687	0.849
	LTE Band 4	20M	QPSK	50	24	Back	10mm	20175	1732.5	22.09	23.00	1.233	0.019	0.527	0.650
	LTE Band 4	20M	QPSK	100	0	Back	10mm	20175	1732.5	21.99	23.00	1.262	0.021	0.668	0.843
	LTE Band 5	10M	QPSK	1	0	Front	10mm	20525	836.5	18.66	20.00	1.361	0.07	0.745	1.014
	LTE Band 5	10M	QPSK	25	0	Front	10mm	20525	836.5	18.69	20.00	1.352	0.032	0.766	1.036
	LTE Band 5	10M	QPSK	50	0	Front	10mm	20525	836.5	18.55	20.00	1.396	0.028	0.747	1.043
	LTE Band 5	10M	QPSK	1	0	Back	10mm	20525	836.5	18.66	20.00	1.361	0.127	0.735	1.001
	LTE Band 5	10M	QPSK	25	0	Back	10mm	20525	836.5	18.69	20.00	1.352	0	0.772	1.044
42	LTE Band 5	10M	QPSK	50	0	Back	10mm	20525	836.5	18.55	20.00	1.396	0.03	0.757	1.057
	LTE Band 7	20M	QPSK	1	99	Front	10mm	20850	2510	23.01	24.00	1.256	0.069	0.729	0.916
	LTE Band 7	20M	QPSK	1	99	Front	10mm	21100	2535	22.78	24.00	1.324	-0.175	0.617	0.817
	LTE Band 7	20M	QPSK	1	99	Front	10mm	21350	2560	22.92	24.00	1.282	0.15	0.693	0.889
	LTE Band 7	20M	QPSK	50	50	Front	10mm	20850	2510	21.86	23.00	1.300	0.041	0.469	0.610
	LTE Band 7	20M	QPSK	100	0	Front	10mm	21350	2560	21.87	23.00	1.297	-0.023	0.484	0.628
	LTE Band 7	20M	QPSK	1	99	Back	10mm	20850	2510	23.01	24.00	1.256	-0.024	0.799	1.004
	LTE Band 7	20M	QPSK	1	99	Back	10mm	21100	2535	22.78	24.00	1.324	-0.192	0.745	0.987
43	LTE Band 7	20M	QPSK	1	99	Back	10mm	21350	2560	22.92	24.00	1.282	0.003	0.863	1.107
	LTE Band 7	20M	QPSK	50	50	Back	10mm	20850	2510	21.86	23.00	1.300	0.014	0.499	0.649
	LTE Band 7	20M	QPSK	100	0	Back	10mm	21350	2560	21.87	23.00	1.297	-0.027	0.528	0.685
	LTE Band 13	10M	QPSK	1	0	Front	10mm	23230	782	18.21	20.00	1.510	0.047	0.601	0.908
	LTE Band 13	10M	QPSK	25	0	Front	10mm	23230	782	18.58	20.00	1.387	0.031	0.666	0.924
44	LTE Band 13	10M	QPSK	50	0	Front	10mm	23230	782	18.48	20.00	1.419	-0.02	0.685	0.972
	LTE Band 13	10M	QPSK	1	0	Back	10mm	23230	782	18.21	20.00	1.510	0.039	0.619	0.935
	LTE Band 13	10M	QPSK	25	0	Back	10mm	23230	782	18.58	20.00	1.387	0.001	0.659	0.914
	LTE Band 13	10M	QPSK	50	0	Back	10mm	23230	782	18.48	20.00	1.419	-0.035	0.684	0.971

<WLAN SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
45	WLAN2.4GHz	802.11b 1Mbps	Front	10mm	Ant 1	11	2462	18.91	20.00	1.285	99.04	1.010	0.11	0.208	0.270
	WLAN2.4GHz	802.11b 1Mbps	Back	10mm	Ant 1	11	2462	18.91	20.00	1.285	99.04	1.010	-0.12	0.155	0.201
	WLAN2.4GHz	802.11b 1Mbps	Front	10mm	Ant 2	11	2462	14.96	16.00	1.271	99.05	1.010	0.11	0.031	0.040
	WLAN2.4GHz	802.11b 1Mbps	Back	10mm	Ant 2	11	2462	14.96	16.00	1.271	99.05	1.010	-0.12	0.037	0.047
46	WLAN5GHz	802.11a 6Mbps	Front	10mm	Ant 1	52	5260	16.40	18.00	1.444	94.95	1.053	-0.12	0.214	0.325
	WLAN5GHz	802.11a 6Mbps	Back	10mm	Ant 1	52	5260	16.40	18.00	1.444	94.95	1.053	0.01	0.058	0.088
	WLAN5GHz	802.11a 6Mbps	Front	10mm	Ant 2	52	5260	15.76	17.50	1.491	95.41	1.048	0.11	0.090	0.141
	WLAN5GHz	802.11a 6Mbps	Back	10mm	Ant 2	52	5260	15.76	17.50	1.491	95.41	1.048	-0.18	0.049	0.077
47	WLAN5GHz	802.11a 6Mbps	Front	10mm	Ant 1	100	5500	16.70	18.00	1.349	94.95	1.053	-0.07	0.305	0.433
	WLAN5GHz	802.11a 6Mbps	Back	10mm	Ant 1	100	5500	16.70	18.00	1.349	94.95	1.053	-0.1	0.096	0.136
	WLAN5GHz	802.11a 6Mbps	Front	10mm	Ant 2	100	5500	16.10	18.00	1.549	95.41	1.048	-0.1	0.041	0.067
	WLAN5GHz	802.11a 6Mbps	Back	10mm	Ant 2	100	5500	16.10	18.00	1.549	95.41	1.048	-0.14	0.034	0.055
48	WLAN5GHz	802.11a 6Mbps	Front	10mm	Ant 1	149	5745	16.37	18.00	1.454	94.95	1.053	-0.09	0.106	0.162
	WLAN5GHz	802.11a 6Mbps	Back	10mm	Ant 1	149	5745	16.37	18.00	1.454	94.95	1.053	0.1	0.026	0.040
	WLAN5GHz	802.11a 6Mbps	Front	10mm	Ant 2	149	5745	16.22	18.00	1.505	95.41	1.048	0.07	0.031	0.049
	WLAN5GHz	802.11a 6Mbps	Back	10mm	Ant 2	149	5745	16.22	18.00	1.505	95.41	1.048	0.1	0.025	0.039

<Bluetooth SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	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)
49	Bluetooth	1Mbps	Front	10mm	39	2441	9.66	10	1.081	0.04	0.009	0.010
	Bluetooth	1Mbps	Back	10mm	39	2441	9.66	10	1.081	-0.13	0.004	0.004

14.5 Repeated SAR Measurement

No.	Band	Mode	Test Position	Gap (mm)	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	CDMA BC0	RTAP 153.6Kbps	Back	10mm	384	836.52	21.24	22.50	1.337	0.036	0.888	-	1.187
2nd	CDMA BC0	RTAP 153.6Kbps	Back	10mm	384	836.52	21.24	22.50	1.337	-0.05	0.881	1.01	1.178
1st	CDMA BC1	1xRTT RC3 SO32	Back	10mm	1175	1908.75	22.67	23.50	1.211	-0.078	0.980	-	1.186
2nd	CDMA BC1	1xRTT RC3 SO32	Back	10mm	1175	1908.75	22.67	23.50	1.211	-0.008	0.972	1.01	1.177

No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Ratio	Reported 1g SAR (W/kg)
1st	LTE Band 7	20M	QPSK	1	99	Back	10mm	21350	2560	22.92	24.00	1.282	0.003	0.863	-	1.107
2nd	LTE Band 7	20M	QPSK	1	99	Back	10mm	21350	2560	22.92	24.00	1.282	-0.024	0.840	1.03	1.077

No.	Band	Mode	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Ratio	Reported 10g SAR (W/kg)
1st	CDMA BC1	RTAP 153.6Kbps	Bottom Side	0mm	1175	1908.75	24.37	25.00	1.156	-0.028	2.930	-	3.387
1st	CDMA BC1	RTAP 153.6Kbps	Bottom Side	0mm	1175	1908.75	24.37	25.00	1.156	0.01	2.840	1.03	3.283

General Note:

1. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required only when the measured SAR is ≥0.8W/kg.
2. Per KDB 865664 D01v01r04, if the ratio among the repeated measurement is ≤ 1.2 and the measured SAR <1.45W/kg, only one repeated measurement is required.
3. Per KDB 865664 D01v01r04, if the extremity repeated SAR is necessary, the same procedures should be adapted for measurements according to extremity and occupational exposure limits by applying a factor of 2.5 for extremity exposure and a factor of 5 for occupational exposure to the corresponding SAR thresholds.
4. The ratio is the difference in percentage between original and repeated *measured SAR*.
5. All measurement SAR result is scaled-up to account for tune-up tolerance and is compliant.

15. Simultaneous Transmission Analysis

NO.	Simultaneous Transmission Configurations	Portable Handset			
		Head	Body-worn	Hotspot	Product Specific
1.	GSM Voice + WLAN2.4GHz	Yes	Yes		Yes
2.	GPRS/EDGE + WLAN2.4GHz	Yes	Yes	Yes	Yes
3.	WCDMA + WLAN2.4GHz	Yes	Yes	Yes	Yes
4.	LTE + WLAN2.4GHz	Yes	Yes	Yes	Yes
5.	GSM Voice + Bluetooth		Yes		Yes
6.	GPRS/EDGE + Bluetooth		Yes		Yes
7.	WCDMA+ Bluetooth		Yes		Yes
8.	LTE + Bluetooth		Yes		Yes
9.	GSM Voice + WLAN5GHz	Yes	Yes		Yes
10.	GPRS/EDGE + WLAN5GHz	Yes	Yes	Yes	Yes
11.	WCDMA + WLAN5GHz	Yes	Yes	Yes	Yes
12.	LTE + WLAN5GHz	Yes	Yes	Yes	Yes
13.	GSM Voice + WLAN5GHz + Bluetooth		Yes		Yes
14.	GPRS/EDGE + WLAN5GHz + Bluetooth		Yes		Yes
15.	WCDMA + WLAN5GHz + Bluetooth		Yes		Yes
16.	LTE + WLAN5GHz + Bluetooth		Yes		Yes

General Note:

1. This device 2.4GHz / 5.2GHz / 5.8GHz WLAN supports Hotspot operation and WiFi Direct (Group Client / Group Owner), and 5.3GHz / 5.5GHz WLAN supports WiFi Direct (Group Client).
2. The worst case WLAN reported SAR for each configuration was used for SAR summation. Therefore, the following summations represent the absolute worst cases for simultaneous transmission with WLAN.
3. For 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.
4. 2.4GHz WLAN and Bluetooth cannot transmit simultaneously.
5. 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.
6. The Scaled SAR summation is calculated based on the same configuration and test position.
7. Per KDB 447498 D01v06, simultaneous transmission SAR is compliant if,
   i) Scalar SAR summation < 1.6W/kg.
   ii) SPLSR = (SAR1 + SAR2)^1.5 / (min. separation distance, mm), and the peak separation distance is determined from the square root of [(x1-x2)2 + (y1-y2)2 + (z1-z2)2], where (x1, y1, z1) and (x2, y2, z2) are the coordinates of the extrapolated peak SAR locations in the zoom scan.
   iii) If SPLSR ≤ 0.04, simultaneously transmission SAR measurement is not necessary.
   iv) Simultaneously transmission SAR measurement, and the reported multi-band SAR < 1.6W/kg.
   v) The SPLSR calculated results please refer to section 15.5.
8. For simultaneous transmission analysis, Bluetooth SAR is estimated per KDB 447498 D01v06 based on the formula below.
   i) [(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] ·[$\sqrt{f(GHz)}$] ≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g Product Specific SAR, the Bluetooth max power is 10dBm, The test exclusion threshold is 3.15 which is <= 7.5,for Product Specific SAR testing is not required.
   ii) (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.
   iii) When the minimum separation distance is < 5mm, the distance is used 5mm to determine SAR test exclusion.
   iv) 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.

Bluetooth Max Power	Exposure Position	Product Specific
	Test separation	5 mm
10 dBm	Estimated 10g SAR (W/kg)	0.168 W/kg

15.1 Head Exposure Conditions

WWAN Band		Exposure Position	1 WWAN 1g SAR (W/kg)	2 2.4GHz WLAN Ant 1 1g SAR (W/kg)	3 2.4GHz WLAN Ant 2 1g SAR (W/kg)	1+2 Summed 1g SAR (W/kg)	1+3 Summed 1g SAR (W/kg)	1+2+3 Summed 1g SAR (W/kg)	SPLSR Result	Case No
GSM	GSM850	Right Cheek	0.242	0.761	0.003	**1.003**	**0.245**	**1.006**		
		Right Tilted	0.094	0.653	0.001	**0.747**	**0.095**	**0.748**		
		Left Cheek	0.254	0.338	0.006	**0.592**	**0.260**	**0.598**		
		Left Tilted	0.098	0.319	0.001	**0.417**	**0.099**	**0.418**		
	GSM1900	Right Cheek	0.271	0.761	0.003	**1.032**	**0.274**	**1.035**		
		Right Tilted	0.090	0.653	0.001	**0.743**	**0.091**	**0.744**		
		Left Cheek	0.246	0.338	0.006	**0.584**	**0.252**	**0.590**		
		Left Tilted	0.061	0.319	0.001	**0.380**	**0.062**	**0.381**		
WCDMA	WCDMA II	Right Cheek	0.502	0.761	0.003	**1.263**	**0.505**	**1.266**		
		Right Tilted	0.165	0.653	0.001	**0.818**	**0.166**	**0.819**		
		Left Cheek	0.474	0.338	0.006	**0.812**	**0.480**	**0.818**		
		Left Tilted	0.105	0.319	0.001	**0.424**	**0.106**	**0.425**		
	WCDMA V	Right Cheek	0.208	0.761	0.003	**0.969**	**0.211**	**0.972**		
		Right Tilted	0.085	0.653	0.001	**0.738**	**0.086**	**0.739**		
		Left Cheek	0.388	0.338	0.006	**0.726**	**0.394**	**0.732**		
		Left Tilted	0.119	0.319	0.001	**0.438**	**0.120**	**0.439**		
CDMA	CDMA BC0	Right Cheek	0.253	0.761	0.003	**1.014**	**0.256**	**1.017**		
		Right Tilted	0.101	0.653	0.001	**0.754**	**0.102**	**0.755**		
		Left Cheek	0.382	0.338	0.006	**0.720**	**0.388**	**0.726**		
		Left Tilted	0.112	0.319	0.001	**0.431**	**0.113**	**0.432**		
	CDMA BC1	Right Cheek	0.625	0.761	0.003	**1.386**	**0.628**	**1.389**		
		Right Tilted	0.193	0.653	0.001	**0.846**	**0.194**	**0.847**		
		Left Cheek	0.501	0.338	0.006	**0.839**	**0.507**	**0.845**		
		Left Tilted	0.151	0.319	0.001	**0.470**	**0.152**	**0.471**		
LTE	LTE Band 2	Right Cheek	0.393	0.761	0.003	**1.154**	**0.396**	**1.157**		
		Right Tilted	0.121	0.653	0.001	**0.774**	**0.122**	**0.775**		
		Left Cheek	0.385	0.338	0.006	**0.723**	**0.391**	**0.729**		
		Left Tilted	0.109	0.319	0.001	**0.428**	**0.110**	**0.429**		
	LTE Band 4	Right Cheek	0.401	0.761	0.003	**1.162**	**0.404**	**1.165**		
		Right Tilted	0.136	0.653	0.001	**0.789**	**0.137**	**0.790**		
		Left Cheek	0.462	0.338	0.006	**0.800**	**0.468**	**0.806**		
		Left Tilted	0.147	0.319	0.001	**0.466**	**0.148**	**0.467**		
	LTE Band 5	Right Cheek	0.273	0.761	0.003	**1.034**	**0.276**	**1.037**		
		Right Tilted	0.105	0.653	0.001	**0.758**	**0.106**	**0.759**		
		Left Cheek	0.428	0.338	0.006	**0.766**	**0.434**	**0.772**		
		Left Tilted	0.137	0.319	0.001	**0.456**	**0.138**	**0.457**		
	LTE Band 7	Right Cheek	0.210	0.761	0.003	**0.971**	**0.213**	**0.974**		
		Right Tilted	0.127	0.653	0.001	**0.780**	**0.128**	**0.781**		
		Left Cheek	0.376	0.338	0.006	**0.714**	**0.382**	**0.720**		
		Left Tilted	0.099	0.319	0.001	**0.418**	**0.100**	**0.419**		
	LTE Band 13	Right Cheek	0.249	0.761	0.003	**1.010**	**0.252**	**1.013**		
		Right Tilted	0.077	0.653	0.001	**0.730**	**0.078**	**0.731**		
		Left Cheek	0.172	0.338	0.006	**0.510**	**0.178**	**0.516**		
		Left Tilted	0.075	0.319	0.001	**0.394**	**0.076**	**0.395**		

WWAN Band		Exposure Position	1 WWAN 1g SAR (W/kg)	4 5GHz WLAN Ant 1 1g SAR (W/kg)	5 5GHz WLAN Ant 2 1g SAR (W/kg)	1+4 Summed 1g SAR (W/kg)	1+5 Summed 1g SAR (W/kg)	1+4+5 Summed 1g SAR (W/kg)	SPLSR Result	Case No
GSM	GSM850	Right Cheek	0.242	0.909	0.246	**1.151**	**0.488**	**1.397**		
		Right Tilted	0.094	0.599	0.286	**0.693**	**0.380**	**0.979**		
		Left Cheek	0.254	0.509	0.350	**0.857**	**0.604**	**1.207**		
		Left Tilted	0.098	0.442	0.386	**0.540**	**0.484**	**0.926**		
	GSM1900	Right Cheek	0.271	0.909	0.246	**1.180**	**0.517**	**1.426**		
		Right Tilted	0.090	0.599	0.286	**0.689**	**0.376**	**0.975**		
		Left Cheek	0.246	0.509	0.350	**0.755**	**0.596**	**1.105**		
		Left Tilted	0.061	0.442	0.386	**0.503**	**0.447**	**0.889**		
WCDMA	WCDMA II	Right Cheek	0.502	0.909	0.246	**1.411**	**0.748**	**1.657**	0.04	Case 1
		Right Tilted	0.165	0.599	0.286	**0.764**	**0.451**	**1.050**		
		Left Cheek	0.474	0.509	0.350	**0.983**	**0.824**	**1.333**		
		Left Tilted	0.105	0.442	0.386	**0.547**	**0.491**	**0.933**		
	WCDMA V	Right Cheek	0.208	0.909	0.246	**1.117**	**0.454**	**1.363**		
		Right Tilted	0.085	0.599	0.286	**0.684**	**0.371**	**0.970**		
		Left Cheek	0.388	0.509	0.350	**0.897**	**0.738**	**1.247**		
		Left Tilted	0.119	0.442	0.386	**0.561**	**0.505**	**0.947**		
CDMA	CDMA BC0	Right Cheek	0.253	0.909	0.246	**1.162**	**0.499**	**1.408**		
		Right Tilted	0.101	0.599	0.286	**0.700**	**0.387**	**0.986**		
		Left Cheek	0.382	0.509	0.350	**0.891**	**0.732**	**1.241**		
		Left Tilted	0.112	0.442	0.386	**0.554**	**0.498**	**0.940**		
	CDMA BC1	Right Cheek	0.625	0.909	0.246	**1.534**	**0.871**	**1.780**	0.04	Case 2
		Right Tilted	0.193	0.599	0.286	**0.792**	**0.479**	**1.078**		
		Left Cheek	0.501	0.509	0.350	**1.010**	**0.851**	**1.360**		
		Left Tilted	0.151	0.442	0.386	**0.593**	**0.537**	**0.979**		
LTE	LTE Band 2	Right Cheek	0.393	0.909	0.246	**1.372**	**0.639**	**1.618**	0.04	Case 3
		Right Tilted	0.121	0.599	0.286	**0.720**	**0.407**	**1.006**		
		Left Cheek	0.385	0.509	0.350	**0.894**	**0.735**	**1.244**		
		Left Tilted	0.109	0.442	0.386	**0.551**	**0.495**	**0.937**		
	LTE Band 4	Right Cheek	0.401	0.909	0.246	**1.310**	**0.647**	**1.556**		
		Right Tilted	0.136	0.599	0.286	**0.735**	**0.422**	**1.021**		
		Left Cheek	0.462	0.509	0.350	**0.971**	**0.812**	**1.321**		
		Left Tilted	0.147	0.442	0.386	**0.589**	**0.533**	**0.975**		
	LTE Band 5	Right Cheek	0.273	0.909	0.246	**1.182**	**0.519**	**1.428**		
		Right Tilted	0.105	0.599	0.286	**0.704**	**0.391**	**0.990**		
		Left Cheek	0.428	0.509	0.350	**0.937**	**0.778**	**1.287**		
		Left Tilted	0.137	0.442	0.386	**0.579**	**0.523**	**0.965**		
	LTE Band 7	Right Cheek	0.210	0.909	0.246	**1.119**	**0.456**	**1.365**		
		Right Tilted	0.127	0.599	0.286	**0.726**	**0.413**	**1.012**		
		Left Cheek	0.376	0.509	0.350	**1.025**	**0.726**	**1.375**		
		Left Tilted	0.099	0.442	0.386	**0.541**	**0.485**	**0.927**		
	LTE Band 13	Right Cheek	0.249	0.909	0.246	**1.158**	**0.495**	**1.404**		
		Right Tilted	0.077	0.599	0.286	**0.676**	**0.363**	**0.962**		
		Left Cheek	0.172	0.509	0.350	**0.681**	**0.522**	**1.031**		
		Left Tilted	0.075	0.442	0.386	**0.517**	**0.461**	**0.903**		

15.2 Hotspot Exposure Conditions

WWAN Band		Exposure Position	1 WWAN 1g SAR (W/kg)	2 2.4GHz WLAN Ant 1 1g SAR (W/kg)	3 2.4GHz WLAN Ant 2 1g SAR (W/kg)	1+2 Summed 1g SAR (W/kg)	1+3 Summed 1g SAR (W/kg)	1+2+3 Summed 1g SAR (W/kg)
GSM	GSM850	Front	0.943	0.270	0.040	**1.213**	**0.983**	**1.253**
		Back	1.097	0.201	0.047	**1.298**	**1.144**	**1.345**
		Left side	0.357	0.069	0.011	**0.426**	**0.368**	**0.437**
		Right side	0.159			**0.159**	**0.159**	**0.159**
		Top side		0.130	0.004	**0.130**	**0.004**	**0.134**
		Bottom side	0.458	0.003	0.033	**0.461**	**0.491**	**0.494**
	GSM1900	Front	0.550	0.270	0.040	**0.820**	**0.590**	**0.860**
		Back	0.588	0.201	0.047	**0.789**	**0.635**	**0.836**
		Left side	0.180	0.069	0.011	**0.249**	**0.191**	**0.260**
		Right side	0.287			**0.287**	**0.287**	**0.287**
		Top side		0.130	0.004	**0.130**	**0.004**	**0.134**
		Bottom side	0.480	0.003	0.033	**0.483**	**0.513**	**0.516**
WCDMA	WCDMA II	Front	1.142	0.270	0.040	**1.412**	**1.182**	**1.452**
		Back	1.122	0.201	0.047	**1.323**	**1.169**	**1.370**
		Left side	0.374	0.069	0.011	**0.443**	**0.385**	**0.454**
		Right side	0.554			**0.554**	**0.554**	**0.554**
		Top side		0.130	0.004	**0.130**	**0.004**	**0.134**
		Bottom side	1.120	0.003	0.033	**1.123**	**1.153**	**1.156**
	WCDMA V	Front	0.997	0.270	0.040	**1.267**	**1.037**	**1.307**
		Back	1.042	0.201	0.047	**1.243**	**1.089**	**1.290**
		Left side	0.344	0.069	0.011	**0.413**	**0.355**	**0.424**
		Right side	0.167			**0.167**	**0.167**	**0.167**
		Top side		0.130	0.004	**0.130**	**0.004**	**0.134**
		Bottom side	0.396	0.003	0.033	**0.399**	**0.429**	**0.432**
CDMA	CDMA BC0	Front	1.138	0.270	0.040	**1.408**	**1.178**	**1.448**
		Back	1.187	0.201	0.047	**1.388**	**1.234**	**1.435**
		Left side	0.470	0.069	0.011	**0.539**	**0.481**	**0.550**
		Right side	0.198			**0.198**	**0.198**	**0.198**
		Top side		0.130	0.004	**0.130**	**0.004**	**0.134**
		Bottom side	0.511	0.003	0.033	**0.514**	**0.544**	**0.547**
	CDMA BC1	Front	0.911	0.270	0.040	**1.181**	**0.951**	**1.221**
		Back	0.972	0.201	0.047	**1.173**	**1.019**	**1.220**
		Left side	0.366	0.069	0.011	**0.435**	**0.377**	**0.446**
		Right side	0.584			**0.584**	**0.584**	**0.584**
		Top side		0.130	0.004	**0.130**	**0.004**	**0.134**
		Bottom side	0.986	0.003	0.033	**0.989**	**1.019**	**1.022**

WWAN Band		Exposure Position	1 WWAN 1g SAR (W/kg)	2 2.4GHz WLAN Ant 1 1g SAR (W/kg)	3 2.4GHz WLAN Ant 2 1g SAR (W/kg)	1+2 Summed 1g SAR (W/kg)	1+3 Summed 1g SAR (W/kg)	1+2+3 Summed 1g SAR (W/kg)
LTE	LTE Band 2	Front	1.108	0.270	0.040	**1.378**	**1.148**	**1.418**
		Back	1.133	0.201	0.047	**1.334**	**1.180**	**1.381**
		Left side	0.296	0.069	0.011	**0.365**	**0.307**	**0.376**
		Right side	0.438			**0.438**	**0.438**	**0.438**
		Top side		0.130	0.004	**0.130**	**0.004**	**0.134**
		Bottom side	1.176	0.003	0.033	**1.179**	**1.209**	**1.212**
	LTE Band 4	Front	0.891	0.270	0.040	**1.161**	**0.931**	**1.201**
		Back	0.849	0.201	0.047	**1.050**	**0.896**	**1.097**
		Left side	0.325	0.069	0.011	**0.394**	**0.336**	**0.405**
		Right side	0.603			**0.603**	**0.603**	**0.603**
		Top side		0.130	0.004	**0.130**	**0.004**	**0.134**
		Bottom side	0.905	0.003	0.033	**0.908**	**0.938**	**0.941**
	LTE Band 5	Front	1.043	0.270	0.040	**1.313**	**1.083**	**1.353**
		Back	1.057	0.201	0.047	**1.258**	**1.104**	**1.305**
		Left side	0.361	0.069	0.011	**0.430**	**0.372**	**0.441**
		Right side	0.153			**0.153**	**0.153**	**0.153**
		Top side		0.130	0.004	**0.130**	**0.004**	**0.134**
		Bottom side	0.433	0.003	0.033	**0.436**	**0.466**	**0.469**
	LTE Band 7	Front	0.916	0.270	0.040	**1.186**	**0.956**	**1.226**
		Back	1.107	0.201	0.047	**1.308**	**1.154**	**1.355**
		Left side	0.266	0.069	0.011	**0.335**	**0.277**	**0.346**
		Right side	0.093			**0.093**	**0.093**	**0.093**
		Top side		0.130	0.004	**0.130**	**0.004**	**0.134**
		Bottom side	0.705	0.003	0.033	**0.708**	**0.738**	**0.741**
	LTE Band 13	Front	0.972	0.270	0.040	**1.242**	**1.012**	**1.282**
		Back	0.971	0.201	0.047	**1.172**	**1.018**	**1.219**
		Left side	0.103	0.069	0.011	**0.172**	**0.114**	**0.183**
		Right side	0.388			**0.388**	**0.388**	**0.388**
		Top side		0.130	0.004	**0.130**	**0.004**	**0.134**
		Bottom side	0.394	0.003	0.033	**0.397**	**0.427**	**0.430**

WWAN Band		Exposure Position	1 WWAN 1g SAR (W/kg)	4 5GHz WLAN Ant 1 1g SAR (W/kg)	5 5GHz WLAN Ant 2 1g SAR (W/kg)	1+4 Summed 1g SAR (W/kg)	1+5 Summed 1g SAR (W/kg)	1+4+5 Summed 1g SAR (W/kg)
GSM	GSM850	Front	0.943	0.162	0.121	**1.105**	**1.064**	**1.226**
		Back	1.097	0.040	0.087	**1.137**	**1.184**	**1.224**
		Left side	0.357	0.012	0.005	**0.369**	**0.362**	**0.374**
		Right side	0.159	0.011	0.019	**0.170**	**0.178**	**0.189**
		Top side		0.030	0.043	**0.030**	**0.043**	**0.073**
		Bottom side	0.458			**0.458**	**0.458**	**0.458**
	GSM1900	Front	0.550	0.162	0.121	**0.712**	**0.671**	**0.833**
		Back	0.588	0.040	0.087	**0.628**	**0.675**	**0.715**
		Left side	0.180	0.012	0.005	**0.192**	**0.185**	**0.197**
		Right side	0.287	0.011	0.019	**0.298**	**0.306**	**0.317**
		Top side		0.030	0.043	**0.030**	**0.043**	**0.073**
		Bottom side	0.480			**0.480**	**0.480**	**0.480**
WCDMA	WCDMA II	Front	1.142	0.162	0.121	**1.304**	**1.263**	**1.425**
		Back	1.122	0.040	0.087	**1.162**	**1.209**	**1.249**
		Left side	0.374	0.012	0.005	**0.386**	**0.379**	**0.391**
		Right side	0.554	0.011	0.019	**0.565**	**0.573**	**0.584**
		Top side		0.030	0.043	**0.030**	**0.043**	**0.073**
		Bottom side	1.120			**1.120**	**1.120**	**1.120**
	WCDMA V	Front	0.997	0.162	0.121	**1.159**	**1.118**	**1.280**
		Back	1.042	0.040	0.087	**1.082**	**1.129**	**1.169**
		Left side	0.344	0.012	0.005	**0.356**	**0.349**	**0.361**
		Right side	0.167	0.011	0.019	**0.178**	**0.186**	**0.197**
		Top side		0.030	0.043	**0.030**	**0.043**	**0.073**
		Bottom side	0.396			**0.396**	**0.396**	**0.396**
CDMA	CDMA BC0	Front	1.138	0.162	0.121	**1.300**	**1.259**	**1.421**
		Back	1.187	0.040	0.087	**1.227**	**1.274**	**1.314**
		Left side	0.470	0.012	0.005	**0.482**	**0.475**	**0.487**
		Right side	0.198	0.011	0.019	**0.209**	**0.217**	**0.228**
		Top side		0.030	0.043	**0.030**	**0.043**	**0.073**
		Bottom side	0.511			**0.511**	**0.511**	**0.511**
	CDMA BC1	Front	0.911	0.162	0.121	**1.073**	**1.032**	**1.194**
		Back	0.972	0.040	0.087	**1.012**	**1.059**	**1.099**
		Left side	0.366	0.012	0.005	**0.378**	**0.371**	**0.383**
		Right side	0.584	0.011	0.019	**0.595**	**0.603**	**0.614**
		Top side		0.030	0.043	**0.030**	**0.043**	**0.073**
		Bottom side	0.986			**0.986**	**0.986**	**0.986**

WWAN Band		Exposure Position	1 WWAN 1g SAR (W/kg)	4 5GHz WLAN Ant 1 1g SAR (W/kg)	5 5GHz WLAN Ant 2 1g SAR (W/kg)	1+4 Summed 1g SAR (W/kg)	1+5 Summed 1g SAR (W/kg)	1+4+5 Summed 1g SAR (W/kg)
LTE	LTE Band 2	Front	1.108	0.162	0.121	**1.270**	**1.229**	**1.391**
		Back	1.133	0.040	0.087	**1.173**	**1.220**	**1.260**
		Left side	0.296	0.012	0.005	**0.308**	**0.301**	**0.313**
		Right side	0.438	0.011	0.019	**0.449**	**0.457**	**0.468**
		Top side		0.030	0.043	**0.030**	**0.043**	**0.073**
		Bottom side	1.176			**1.176**	**1.176**	**1.176**
	LTE Band 4	Front	0.891	0.162	0.121	**1.053**	**1.012**	**1.174**
		Back	0.849	0.040	0.087	**0.889**	**0.936**	**0.976**
		Left side	0.325	0.012	0.005	**0.337**	**0.330**	**0.342**
		Right side	0.603	0.011	0.019	**0.614**	**0.622**	**0.633**
		Top side		0.030	0.043	**0.030**	**0.043**	**0.073**
		Bottom side	0.905			**0.905**	**0.905**	**0.905**
	LTE Band 5	Front	1.043	0.162	0.121	**1.205**	**1.164**	**1.326**
		Back	1.057	0.040	0.087	**1.097**	**1.144**	**1.184**
		Left side	0.361	0.012	0.005	**0.373**	**0.366**	**0.378**
		Right side	0.153	0.011	0.019	**0.164**	**0.172**	**0.183**
		Top side		0.030	0.043	**0.030**	**0.043**	**0.073**
		Bottom side	0.433			**0.433**	**0.433**	**0.433**
	LTE Band 7	Front	0.916	0.162	0.121	**1.078**	**1.037**	**1.199**
		Back	1.107	0.040	0.087	**1.147**	**1.194**	**1.234**
		Left side	0.266	0.012	0.005	**0.278**	**0.271**	**0.283**
		Right side	0.093	0.011	0.019	**0.104**	**0.112**	**0.123**
		Top side		0.030	0.043	**0.030**	**0.043**	**0.073**
		Bottom side	0.705			**0.705**	**0.705**	**0.705**
	LTE Band 13	Front	0.972	0.162	0.121	**1.134**	**1.093**	**1.255**
		Back	0.971	0.040	0.087	**1.011**	**1.058**	**1.098**
		Left side	0.103	0.012	0.005	**0.115**	**0.108**	**0.120**
		Right side	0.388	0.011	0.019	**0.399**	**0.407**	**0.418**
		Top side		0.030	0.043	**0.030**	**0.043**	**0.073**
		Bottom side	0.394			**0.394**	**0.394**	**0.394**

15.3 Product Specific Conditions

WWAN Band	Exposure Position	1	2	3	4	5	6	1+4+5+6 Summed 10g SAR (W/kg)
		WWAN	2.4GHz WLAN Ant 1	2.4GHz WLAN Ant 2	5GHz WLAN Ant 1	5GHz WLAN Ant 2	Bluetooth Ant 1	
		10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)	Estimated 10g SAR (W/kg)	
WCDMA II	Front	-	-	-	2.600	0.618	0.168	**3.386**
	Back	-	-	-	1.294	0.450	0.168	**1.912**
	Left side	-	-	-	0.095	0.002	0.168	**0.265**
	Right side	-	-	-	0.030	0.045	0.168	**0.243**
	Top side	-	-	-	0.732	0.247	0.168	**1.147**
	Bottom side	3.173	-	-	-	-	0.168	**3.341**
CDMA BC1	Front	-	-	-	2.600	0.618	0.168	**3.386**
	Back	-	-	-	1.294	0.450	0.168	**1.912**
	Left side	-	-	-	0.095	0.002	0.168	**0.265**
	Right side	-	-	-	0.030	0.045	0.168	**0.243**
	Top side	-	-	-	0.732	0.247	0.168	**1.147**
	Bottom side	3.387	-	-	-	-	0.168	**3.555**

Remark:

1. According to KDB 648474 D04v01r03, for WWAN / 2.4GHz WLAN SAR ("-") was excluded, due to Hotspot SAR was < 1.2W/kg.

15.4 Body-Worn Accessory Exposure Conditions

WWAN Band		Exposure Position	1 WWAN 1g SAR (W/kg)	2 2.4GHz WLAN Ant 1 1g SAR (W/kg)	3 2.4GHz WLAN Ant 2 1g SAR (W/kg)	1+2 Summed 1g SAR (W/kg)	1+3 Summed 1g SAR (W/kg)	1+2+3 Summed 1g SAR (W/kg)	SPLSR	Case No
GSM	GSM850	Front	0.943	0.270	0.040	**1.213**	**0.983**	**1.253**		
		Back	1.097	0.201	0.047	**1.298**	**1.144**	**1.345**		
	GSM1900	Front	0.550	0.270	0.040	**0.820**	**0.590**	**0.860**		
		Back	0.588	0.201	0.047	**0.789**	**0.635**	**0.836**		
WCDMA	WCDMA II	Front	1.142	0.270	0.040	**1.412**	**1.182**	**1.452**		
		Back	1.122	0.201	0.047	**1.323**	**1.169**	**1.370**		
	WCDMA V	Front	0.997	0.270	0.040	**1.267**	**1.037**	**1.307**		
		Back	1.042	0.201	0.047	**1.243**	**1.089**	**1.290**		
CDMA	CDMA BC0	Front	1.191	0.270	0.040	**1.461**	**1.231**	**1.501**		
		Back	1.190	0.201	0.047	**1.391**	**1.237**	**1.438**		
	CDMA BC1	Front	0.847	0.270	0.040	**1.117**	**0.887**	**1.157**		
		Back	1.186	0.201	0.047	**1.387**	**1.233**	**1.434**		
LTE	LTE Band 2	Front	1.108	0.270	0.040	**1.378**	**1.148**	**1.418**		
		Back	1.133	0.201	0.047	**1.334**	**1.180**	**1.381**		
	LTE Band 4	Front	0.891	0.270	0.040	**1.161**	**0.931**	**1.201**		
		Back	0.849	0.201	0.047	**1.050**	**0.896**	**1.097**		
	LTE Band 5	Front	1.043	0.270	0.040	**1.313**	**1.083**	**1.353**		
		Back	1.057	0.201	0.047	**1.258**	**1.104**	**1.305**		
	LTE Band 7	Front	0.916	0.270	0.040	**1.186**	**0.956**	**1.226**		
		Back	1.107	0.201	0.047	**1.308**	**1.154**	**1.355**		
	LTE Band 13	Front	0.972	0.270	0.040	**1.242**	**1.012**	**1.282**		
		Back	0.971	0.201	0.047	**1.172**	**1.018**	**1.219**		

WWAN Band		Exposure Position	1 WWAN 1g SAR (W/kg)	4 5GHz WLAN Ant 1 1g SAR (W/kg)	5 5GHz WLAN Ant 2 1g SAR (W/kg)	1+4 Summed 1g SAR (W/kg)	1+5 Summed 1g SAR (W/kg)	1+4+5 Summed 1g SAR (W/kg)	SPLSR	Case No
GSM	GSM850	Front	0.943	0.433	0.141	**1.376**	**1.084**	**1.517**		
		Back	1.097	0.136	0.077	**1.233**	**1.174**	**1.310**		
	GSM1900	Front	0.550	0.433	0.141	**0.983**	**0.691**	**1.124**		
		Back	0.588	0.136	0.077	**0.724**	**0.665**	**0.801**		
WCDMA	WCDMA II	Front	1.142	0.433	0.141	**1.575**	**1.283**	**1.716**	0.02	Case 4
		Back	1.122	0.136	0.077	**1.258**	**1.199**	**1.335**		
	WCDMA V	Front	0.997	0.433	0.141	**1.430**	**1.138**	**1.571**		
		Back	1.042	0.136	0.077	**1.178**	**1.119**	**1.255**		
CDMA	CDMA BC0	Front	1.191	0.433	0.141	**1.624**	**1.332**	**1.765**	0.02	Case 5
		Back	1.190	0.136	0.077	**1.326**	**1.267**	**1.403**		
	CDMA BC1	Front	0.847	0.433	0.141	**1.280**	**0.988**	**1.421**		
		Back	1.186	0.136	0.077	**1.322**	**1.263**	**1.399**		
LTE	LTE Band 2	Front	1.108	0.433	0.141	**1.541**	**1.249**	**1.682**	0.02	Case 6
		Back	1.133	0.136	0.077	**1.269**	**1.210**	**1.346**		
	LTE Band 4	Front	0.891	0.433	0.141	**1.324**	**1.032**	**1.465**		
		Back	0.849	0.136	0.077	**0.985**	**0.926**	**1.062**		
	LTE Band 5	Front	1.043	0.433	0.141	**1.476**	**1.184**	**1.617**	0.02	Case 7
		Back	1.057	0.136	0.077	**1.193**	**1.134**	**1.270**		
	LTE Band 7	Front	0.916	0.433	0.141	**1.349**	**1.057**	**1.490**		
		Back	1.107	0.136	0.077	**1.243**	**1.184**	**1.320**		
	LTE Band 13	Front	0.972	0.433	0.141	**1.405**	**1.113**	**1.546**		
		Back	0.971	0.136	0.077	**1.107**	**1.048**	**1.184**		

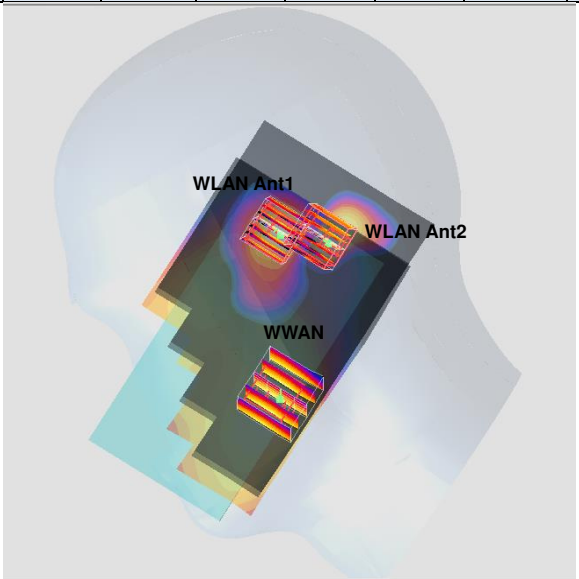
WWAN Band		Exposure Position	1 WWAN 1g SAR (W/kg)	4 5GHz WLAN Ant 1 1g SAR (W/kg)	5 5GHz WLAN Ant 2 1g SAR (W/kg)	6 Bluetooth Ant 1 1g SAR (W/kg)	**1+4+5+6 Summed 1g SAR (W/kg)**	SPLSR	Case No
GSM	GSM850	Front	0.943	0.433	0.141	0.010	**1.527**		
		Back	1.097	0.136	0.077	0.004	**1.314**		
	GSM1900	Front	0.550	0.433	0.141	0.010	**1.134**		
		Back	0.588	0.136	0.077	0.004	**0.805**		
WCDMA	WCDMA II	Front	1.142	0.433	0.141	0.010	**1.726**	0.02	Case 4
		Back	1.122	0.136	0.077	0.004	**1.339**		
	WCDMA V	Front	0.997	0.433	0.141	0.010	**1.581**		
		Back	1.042	0.136	0.077	0.004	**1.259**		
CDMA	CDMA BC0	Front	1.191	0.433	0.141	0.010	**1.775**	0.02	Case 5
		Back	1.190	0.136	0.077	0.004	**1.407**		
	CDMA BC1	Front	0.847	0.433	0.141	0.010	**1.431**		
		Back	1.186	0.136	0.077	0.004	**1.403**		
LTE	LTE Band 2	Front	1.108	0.433	0.141	0.010	**1.692**	0.02	Case 6
		Back	1.133	0.136	0.077	0.004	**1.350**		
	LTE Band 4	Front	0.891	0.433	0.141	0.010	**1.475**		
		Back	0.849	0.136	0.077	0.004	**1.066**		
	LTE Band 5	Front	1.043	0.433	0.141	0.010	**1.627**	0.02	Case 7
		Back	1.057	0.136	0.077	0.004	**1.274**		
	LTE Band 7	Front	0.916	0.433	0.141	0.010	**1.500**		
		Back	1.107	0.136	0.077	0.004	**1.324**		
	LTE Band 13	Front	0.972	0.433	0.141	0.010	**1.556**		
		Back	0.971	0.136	0.077	0.004	**1.188**		

15.5 SPLSR Evaluation and Analysis

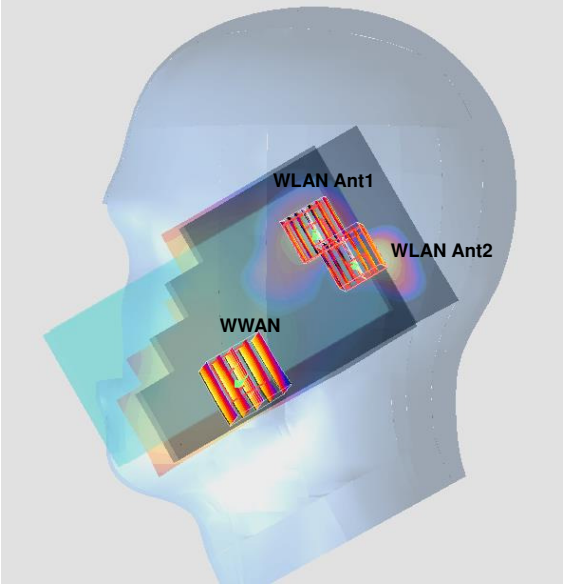
General Note:

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

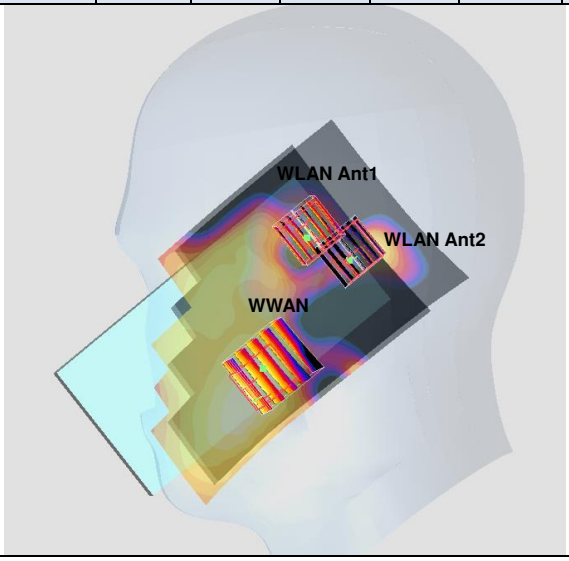
	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (cm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case 1	WCDMA II	Right Cheek	0.502	0	5.05	6.47	0.3	86.9	1.41	0.02	Not required
	5GHz WLAN Ant1		0.909	0	0.79	-1.09	-0.09				
	WCDMA II		0.502	0	5.05	6.47	0.3	84.1	0.75	0.01	Not required
	5GHz WLAN Ant2		0.246	0	-1.15	0.79	0.26				
	5GHz WLAN Ant1		0.909	0	0.85	-1.09	-0.09	27.7	1.16	0.04	Not required
	5GHz WLAN Ant2		0.246	0	-1.15	0.79	0.26				



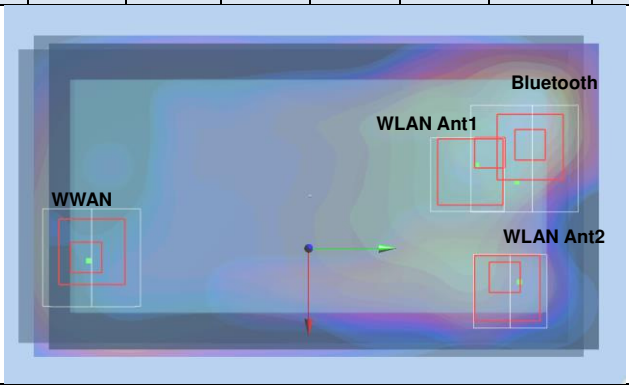
	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (cm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case 2	CDMA BC1	Right Cheek	0.625	0	5.04	6.47	0.3	86.8	1.53	0.02	Not required
	5GHz WLAN Ant1		0.909	0	0.79	-1.09	-0.09				
	CDMA BC1		0.625	0	5.04	6.47	0.3	84.0	0.87	0.01	Not required
	5GHz WLAN Ant2		0.246	0	-1.15	0.79	0.26				
	5GHz WLAN Ant1		0.909	0	0.85	-1.09	-0.09	27.7	1.16	0.04	Not required
	5GHz WLAN Ant2		0.246	0	-1.15	0.79	0.26				



	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (cm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case 3	LTE Band 2	Right Cheek	0.393	0	5.06	6.73	0	89.1	1.30	0.02	Not required
	5GHz WLAN Ant1		0.909	0	0.79	-1.09	-0.09				
	LTE Band 2		0.393	0	5.06	6.73	0	86.0	0.64	0.01	Not required
	5GHz WLAN Ant2		0.246	0	-1.15	0.79	0.26				
	5GHz WLAN Ant1		0.909	0	0.85	-1.09	-0.09	27.7	1.16	0.04	Not required
	5GHz WLAN Ant2		0.246	0	-1.15	0.79	0.26				

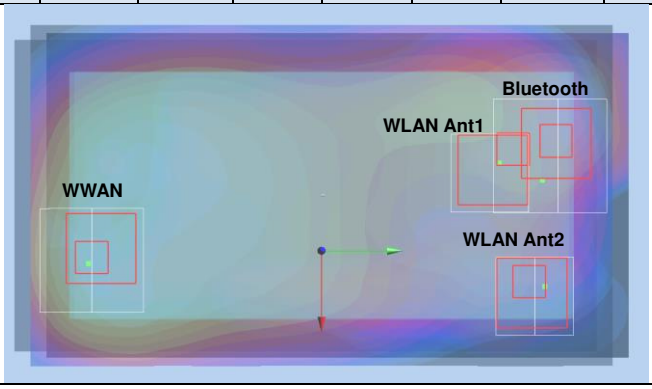


	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (cm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case 4	WCDMA II	Front	1.142	1	2	-7.42	0.16	144.0	1.58	0.01	Not required
	5GHz WLAN Ant1		0.433	1	-0.1	6.82	-0.05				
	WCDMA II		1.142	1	2	-7.42	0.16	138.7	1.28	0.01	Not required
	5GHz WLAN Ant2		0.141	1	2.62	6.44	0.06				
	5GHz WLAN Ant1		0.433	1	-0.1	6.82	-0.05	27.5	0.57	0.02	Not required
	5GHz WLAN Ant2		0.141	1	2.62	6.44	0.06				
	Bluetooth		0.01	1	-1.98	8.22	-0.12	161.4	1.15	0.01	Not required
	WCDMA II		1.142	1	2	-7.42	0.16				
	Bluetooth		0.01	1	-1.98	8.22	-0.12	23.5	0.44	0.01	Not required
	5GHz WLAN Ant1		0.433	1	-0.1	6.82	-0.05				
	Bluetooth		0.01	1	-1.98	8.22	-0.12	49.4	0.15	0.00	Not required
	5GHz WLAN Ant2		0.141	1	2.62	6.44	0.06				

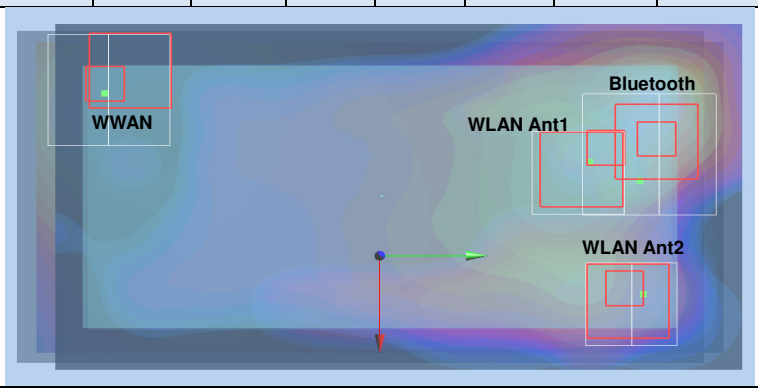


	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (cm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case 5	CDMA BC0	Front	1.191	1	-3.86	-5.88	0.02	132.5	1.62	0.02	Not required
	5GHz WLAN Ant1		0.433	1	-0.1	6.82	-0.05				
	CDMA BC0		1.191	1	-3.86	-5.88	0.02	139.2	1.33	0.01	Not required
	5GHz WLAN Ant2		0.141	1	2.62	6.44	0.06				
	5GHz WLAN Ant1		0.433	1	-0.1	6.82	-0.05	27.5	0.57	0.02	Not required
	5GHz WLAN Ant2		0.141	1	2.62	6.44	0.06				
	Bluetooth		0.01	1	-1.98	8.22	-0.12	142.3	1.20	0.01	Not required
	CDMA BC0		1.191	1	-3.86	-5.88	0.02				
	Bluetooth		0.01	1	-1.98	8.22	-0.12	23.5	0.44	0.01	Not required
	5GHz WLAN Ant1		0.433	1	-0.1	6.82	-0.05				
	Bluetooth		0.01	1	-1.98	8.22	-0.12	49.4	0.15	0.00	Not required
	5GHz WLAN Ant2		0.141	1	2.62	6.44	0.06				

	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (cm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case 6	LTE Band 2	Front	1.108	1	2	-7.1	0.17	140.8	1.54	0.01	Not required
	5GHz WLAN Ant1		0.433	1	-0.1	6.82	-0.05				
	LTE Band 2		1.108	1	2	-7.1	0.17	135.5	1.25	0.01	Not required
	5GHz WLAN Ant2		0.141	1	2.62	6.44	0.06				
	5GHz WLAN Ant1		0.433	1	-0.1	6.82	-0.05	27.5	0.57	0.02	Not required
	5GHz WLAN Ant2		0.141	1	2.62	6.44	0.06				
	Bluetooth		0.01	1	-1.98	8.22	-0.12	158.3	1.12	0.01	Not required
	LTE Band 2		1.108	1	2	-7.1	0.17				
	Bluetooth		0.01	1	-1.98	8.22	-0.12	23.5	0.44	0.01	Not required
	5GHz WLAN Ant1		0.433	1	-0.1	6.82	-0.05				
	Bluetooth		0.01	1	-1.98	8.22	-0.12	49.4	0.15	0.00	Not required
	5GHz WLAN Ant2		0.141	1	2.62	6.44	0.06				



	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (cm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case 7	LTE Band 5	Front	1.043	1	-3.58	-5.5	0.02	128.0	1.48	0.01	Not required
	5GHz WLAN Ant1		0.433	1	-0.1	6.82	-0.05				
	LTE Band 5		1.043	1	-3.58	-5.5	0.02	134.5	1.18	0.01	Not required
	5GHz WLAN Ant2		0.141	1	2.62	6.44	0.06				
	5GHz WLAN Ant1		0.433	1	-0.1	6.82	-0.05	27.5	0.57	0.02	Not required
	5GHz WLAN Ant2		0.141	1	2.62	6.44	0.06				
	Bluetooth		0.01	1	-1.98	8.22	-0.12	138.1	1.05	0.01	Not required
	LTE Band 5		1.043	1	-3.58	-5.5	0.02				
	Bluetooth		0.01	1	-1.98	8.22	-0.12	23.5	0.44	0.01	Not required
	5GHz WLAN Ant1		0.433	1	-0.1	6.82	-0.05				
	Bluetooth		0.01	1	-1.98	8.22	-0.12	49.4	0.15	0.00	Not required
	5GHz WLAN Ant2		0.141	1	2.62	6.44	0.06				



16. Supplemental tuner tests results

General Note:

1. The following test procedure was followed to demonstrate that the SAR results in this report represent the appropriate SAR test conditions. For bands with dynamic tuning implemented, SAR will be measured according to the required FCC SAR test procedures with the dynamic tuner active to allow the device to automatically tune to the antenna state for the respective RF exposure test configurations. Additional single point SAR time-sweep measurements will be evaluated for other tuner states to determine that the other tuner configurations would result in equivalent or lower SAR values. The additional tuner hardware has no influence to the antenna characteristics, other than impedance matching.
2. To evaluate all of the tuner states, the 144 tuner states are divided evenly among band, mode and exposure combinations so that at least one single point SAR measurement is measured in each configuration. Single point time-sweep measurements will be performed at the peak SAR location determined by the zoom scan of the configuration with the highest reported SAR for each combination. The tuner state will be established remotely so that the device is not moved for the entire series of single point SAR for the tuner states in each combination. The SAR probe will remain stationary at the same position throughout the entire series of single point measurements for each combination. The bands which are dynamically tuned are split into two separate antennas, so each antenna system will have its own test plan to cover the corresponding 144 tuner states.
3. The operational decryption contains more information about the design and implementation of the dynamic antenna tuning.

16.1 Supplemental Head SAR results

Operating Mode	Service/ Modulation	Freq. (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																				
									State																				
									Auto-Tune 123	Default 125	1	9	17	25	33	41	49	57	65	73	81	89	97	105	113	121	129	137	
LTE B5	QPSK	836.5	20525	1	0	Left Cheek	0 mm	0.329	0.365	0.36	0.285	0.203	0.039	0.271	0.105	0.005	0.232	0.049	0.298	0.123	0.01	0.25	0.047	0.327	0.168	0.017	0.31	0.077	
Operating Mode	Service/ Modulation	Freq. (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																				
									State																				
									Auto-Tune 90	Default 97	2	10	18	26	34	42	50	58	66	74	82	90	98	106	114	122	130	138	
LTE B7	QPSK	2510	20850	1	99	Left Cheek	0 mm	0.299	0.596	0.48	0.4	0.47	0.33	0.475	0.51	0.515	0.554	0.41	0.55	0.538	0.585	0.59	0.43	0.56	0.543	0.57	0.525	0.489	
Operating Mode	Service/ Modulation	Freq. (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																				
									State																				
									Auto-Tune 124	Default 125	3	11	19	27	35	43	51	59	67	75	83	91	99	107	15	123	131	139	
CDMA BC0	1xRTT RC3 SO55	824.7	1013	N/A	N/A	Left Cheek	0 mm	0.287	0.397	0.39	0.272	0.138	0.02	0.23	0.062	0.298	0.166	0.029	0.259	0.076	0.329	0.173	0.026	0.303	0.092	0.357	0.238	0.042	
Operating Mode	Service/ Modulation	Freq. (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																				
									State																				
									Auto-Tune 123	Default 125	4	12	20	28	36	44	52	60	68	76	84	92	100	108	116	12	132	140	
WCDMA B5	RMC12.2Kbps	826.4	4132	N/A	N/A	Left Cheek	0 mm	0.312	0.382	0.377	0.236	0.098	0.011	0.19	0.044	0.261	0.13	0.017	0.22	0.056	0.288	0.133	0.015	0.255	0.067	0.292	0.194	0.028	
Operating Mode	Service/ Modulation	Freq. (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																				
									State																				
									Auto-Tune 110	Default 110	1	11	21	31	41	51	61	71	81	91	101	111	121	131	141				
LTE B13	QPSK	782	23230	1	0	Right Cheek	0 mm	0.169	0.347	0.342	0.268	0.178	0.002	0.22	0.005	0.274	0.01	0.277	0.001	0.273	0.008	0.312	0.014	0.313	0.013				
Operating Mode	Service/ Modulation	Freq. (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																				
									State																				
									Auto-Tune 124	Default 124	2	12	22	32	42	52	62	72	82	92	102	112	122	132	142				
LTE B2	QPSK	1880	18900	1	0	Right Cheek	0 mm	0.319	0.42	0.419	0.353	0.245	0.375	0.293	0.058	0.323	0.105	0.342	0.118	0.372	0.154	0.395	0.226	0.409	0.249				
Operating Mode	Service/ Modulation	Freq. (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																				
									State																				
									Auto-Tune 124	Default 105	3	13	23	33	43	53	63	73	83	93	103	113	123	133	143				
LTE B4	QPSK	1732.5	20175	1	0	Right Cheek	0 mm	0.283	0.407	0.387	0.261	0.173	0.282	0.199	0.304	0.237	0.324	0.256	0.369	0.304	0.073	0.338	0.121	0.359	0.13				
Operating Mode	Service/ Modulation	Freq. (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																				
									State																				
									Auto-Tune 83	Default 124	4	14	24	34	44	54	64	74	84	94	104	114	124	134	144				
CDMA BC1	1xRTT RC3 SO55	1908.75	1175	N/A	N/A	Right Cheek	0 mm	0.51	0.574	0.572	0.507	0.327	0.52	0.383	0.536	0.429	0.557	0.453	0.572	0.5	0.572	0.541	0.573	0.559	0.197				
Operating Mode	Service/ Modulation	Freq. (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																				
									State																				
									Auto-Tune 83	Default 124	5	15	25	35	45	55	65	75	85	95	105	115	125	135	1				
WCDMA B2	RMC 12.2Kbps	1907.6	9538	N/A	N/A	Right Cheek	0 mm	0.411	0.587	0.584	0.505	0.303	0.531	0.355	0.55	0.419	0.556	0.449	0.582	0.495	0.584	0.535	0.586	0.552	0.536				

16.2 Supplemental Body SAR results

Operating Mode	Service/ Modulation	Freq. (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																					
									State																					
									Auto-Tune 123	Default 125	5	13	21	29	37	45	53	61	69	77	85	93	101	109	117	125	133	141		
LTE B5	QPSK	836.5	20525	1	0	Back	10 mm	0.735	1.023	1.001	0.831	0.381	0.921	0.687	0.163	0.899	0.443	0.055	0.772	0.207	0.956	0.446	0.051	0.869	0.252	1.001	0.653	0.115		
Operating Mode	Service/ Modulation	Freq. (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																					
									State																					
									Auto-Tune 90	Default 97	6	14	22	30	38	46	54	62	70	78	86	94	102	110	118	126	134	142		
LTE B7	QPSK	2560	21350	1	99	Back	10 mm	0.863	1.49	1.463	0.922	1.215	0.991	1.161	1.097	1.162	1.334	1.225	1.349	1.283	1.419	1.485	0.443	1.436	1.453	1.401	1.471	1.135		
Operating Mode	Service/ Modulation	Freq. (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																					
									State																					
									Auto-Tune 127	Default 125	7	15	23	31	39	47	55	63	71	79	87	95	103	111	119	127	135	143		
CDMA BC0	1xRTT RC3 SO32	836.5	384	N/A	N/A	Back	10 mm	0.905	1.474	1.497	1.187	0.421	1.352	0.858	0.143	1.267	0.512	1.394	0.978	0.201	1.341	0.498	1.471	1.181	0.227	1.474	0.699	0.071		
Operating Mode	Service/ Modulation	Freq. (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																					
									State																					
									Auto-Tune 123	Default 125	8	16	24	32	40	48	56	64	72	80	88	96	104	112	120	128	136	144		
WCDMA B5	RMC 12.2Kbps	836.4	4182	N/A	N/A	Back	10 mm	0.772	1.254	1.236	0.907	0.271	1.086	0.563	0.072	1.007	0.341	1.143	0.714	0.114	1.068	0.334	1.216	0.837	0.155	1.182	0.495	0.031		
Operating Mode	Service/ Modulation	Freq. (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																					
									State																					
									Auto-Tune 108	Default 110	6	16	26	36	46	56	66	76	86	96	106	116	126	136	2					
LTE B13	QPSK	782	23230	1	0	Back	10 mm	0.619	1.143	1.086	1.071	0.121	1.091	0.213	1.082	0.268	1.092	0.258	1.115	0.238	1.104	0.311	1.109	0.299	1.02					
Operating Mode	Service/ Modulation	Freq. (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																					
									State																					
									Auto-Tune 124	Default 124	7	17	27	37	47	57	67	77	87	97	107	117	127	137	3					
LTE B2	QPSK	1880	18900	1	0	Back	10 mm	0.903	1.268	1.268	0.931	0.483	0.982	0.599	1.071	0.724	1.098	0.778	1.166	0.927	1.212	1.045	1.253	1.106	1.005					
Operating Mode	Service/ Modulation	Freq. (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																					
									State																					
									Auto-Tune 124	Default 105	8	18	28	38	48	58	68	78	88	98	108	118	128	138	4					
LTE B4	QPSK	1732.5	20175	1	0	Back	10 mm	0.687	0.886	0.845	0.536	0.264	0.589	0.318	0.645	0.389	0.688	0.428	0.772	0.515	0.825	0.605	0.861	0.648	0.593					
Operating Mode	Service/ Modulation	Freq. (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																					
									State																					
									Auto-Tune 124	Default 124	9	19	29	39	49	59	69	79	89	99	109	119	129	139	5					
CDMA BC1	1xRTT RC3 SO32	1880	600	N/A	N/A	Back	10 mm	0.972	1.293	1.293	0.916	0.381	0.964	0.509	1.035	0.602	1.088	0.661	1.175	0.804	1.215	0.947	1.245	1.018	0.981					
Operating Mode	Service/ Modulation	Freq. (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																					
									State																					
									Auto-Tune 124	Default 124	10	20	30	40	50	60	70	80	90	100	110	120	130	140	6					
WCDMA B2	RMC 12.2Kbps	1880	9400	N/A	N/A	Back	10 mm	0.817	1.341	1.341	0.908	0.259	1.003	0.402	1.082	0.555	1.134	0.625	1.231	0.808	1.284	0.935	1.311	1.006	1.022					

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17. Uncertainty Assessment

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

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

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

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

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

(b) κ is the coverage factor

Table 17.1. Standard Uncertainty for Assumed Distribution

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

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

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

Table 17.2. Uncertainty Budget for frequency range 300 MHz to 3 GHz

Error Description	Uncertainty Value (±%)	Probability	Divisor	(Ci) 1g	(Ci) 10g	Standard Uncertainty (1g) (±%)	Standard Uncertainty (10g) (±%)
Measurement System							
Probe Calibration	7.0	N	1	1	1	7.0	7.0
Axial Isotropy	4.7	R	1.732	0.7	0.7	1.9	1.9
Hemispherical Isotropy	9.6	R	1.732	0.7	0.7	3.9	3.9
Boundary Effects	2.0	R	1.732	1	1	1.2	1.2
Linearity	4.7	R	1.732	1	1	2.7	2.7
System Detection Limits	1.0	R	1.732	1	1	0.6	0.6
Modulation Response	3.2	R	1.732	1	1	1.8	1.8
Readout Electronics	0.3	N	1	1	1	0.3	0.3
Response Time	0.0	R	1.732	1	1	0.0	0.0
Integration Time	2.6	R	1.732	1	1	1.5	1.5
RF Ambient Noise	3.0	R	1.732	1	1	1.7	1.7
RF Ambient Reflections	3.0	R	1.732	1	1	1.7	1.7
Probe Positioner	0.4	R	1.732	1	1	0.2	0.2
Probe Positioning	6.7	R	1.732	1	1	3.9	3.9
Max. SAR Eval.	4.0	R	1.732	1	1	2.3	2.3
Test Sample Related							
Device Positioning	3.0	N	1	1	1	3.0	3.0
Device Holder	3.6	N	1	1	1	3.6	3.6
Power Drift	5.0	R	1.732	1	1	2.9	2.9
Power Scaling	0.0	R	1.732	1	1	0.0	0.0
Phantom and Setup							
Phantom Uncertainty	6.6	R	1.732	1	1	3.8	3.8
SAR correction	0.0	R	1.732	1	0.84	0.0	0.0
Liquid Conductivity Repeatability	0.2	N	1	0.78	0.71	0.1	0.1
Liquid Conductivity (target)	5.0	R	1.732	0.78	0.71	2.3	2.0
Liquid Conductivity (mea.)	2.5	R	1.732	0.78	0.71	1.1	1.0
Temp. unc. - Conductivity	3.4	R	1.732	0.78	0.71	1.5	1.4
Liquid Permittivity Repeatability	0.15	N	1	0.23	0.26	0.0	0.0
Liquid Permittivity (target)	5.0	R	1.732	0.23	0.26	0.7	0.8
Liquid Permittivity (mea.)	2.5	R	1.732	0.23	0.26	0.3	0.4
Temp. unc. - Permittivity	0.83	R	1.732	0.23	0.26	0.1	0.1
Combined Std. Uncertainty						12.8%	12.7%
Coverage Factor for 95 %						K=2	K=2
Expanded STD Uncertainty						25.5%	25.4%

Table 17.3. Uncertainty Budget for frequency range 3 GHz to 6 GHz

18. References

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

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

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[4] SPEAG DASY System Handbook

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

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

[7] FCC KDB 648474 D04 v01r03, “SAR Evaluation Considerations for Wireless Handsets”, Oct 2015.

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

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[11] FCC KDB 941225 D06 v02r01, "SAR Evaluation Procedures for Portable Devices with Wireless Router Capabilities", Oct 2015.

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

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