FCC SAR Test Report

APPLICANT	:	Motorola Mobility LLC
EQUIPMENT	:	Mobile Cellular Phone
BRAND NAME	:	Motorola
MODEL NAME	:	XT2165-1, XT2165-2
FCC ID	:	IHDT56ZP4
STANDARD	:	FCC 47 CFR Part 2 (2.1093)

We, Sporton International (ShenZhen) Inc., would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of Sporton International (ShenZhen) Inc., the test report shall not be reproduced except in full.

Hank Huang

Reviewed by: Hank Huang / Supervisor

Johnny Chen

Approved by: Johnny Chen / Manager

ACCREDITED Cert #5145.01

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People's Republic of China

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Revision History

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA170628-01	Rev. 01	Initial issue of report.	Sep. 18, 2021

1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for **Motorola Mobility LLC, Mobile Cellular Phone, XT2165-1, XT2165-2,** are as follows.

Highest 1g SAR Summary						
Equipment Class	Frequency Band		Head (Separation 0mm)	Hotspot (Separation 5mm)	Body-worn (Separation 5mm)	Highest Simultaneous Transmission 1g SAR (W/kg)
			1g SAR (W/kg)			
Licensed	GSM	GSM850	1.14	1.29	1.29	1.59
		GSM1900	1.14	1.42	1.42	
	WCDMA	Band V	**1.18**	1.41	1.41	
		Band IV	0.43	**1.44**	1.34	
		Band II	1.15	1.39	1.39	
	LTE	Band 12	0.85	1.25	1.24	
		Band 13	0.45	1.40	1.40	
		Band 14	0.45	1.43	**1.43**	
		Band 5	1.09	1.40	1.40	
		Band 66/ Band 4	0.48	1.42	1.42	
		Band 2	1.15	1.43	**1.43**	
		Band 30	1.10	1.39	1.39	
DTS	WLAN	2.4GHz WLAN	1.15	0.39	1.08	1.59
NII		5GHz WLAN	1.15	0.41	1.19	1.58
DSS	Bluetooth	2.4GHz Bluetooth	0.19	0.16	0.16	1.58

Highest 10g SAR Summary				
Equipment Class	Frequency Band		Product Specific 10g SAR (W/kg) (Separation 0mm)	Highest Simultaneous Transmission 10g SAR (W/kg)
License	GSM	GSM850	3.22	3.99
		GSM1900	3.46	
	WCDMA	Band V	2.59	
		Band IV	3.45	
		Band II	**3.57**	
	LTE	Band 12	1.69	
		Band 13	2.45	
		Band 14	2.55	
		Band 5	2.79	
		Band 66/ Band 4	3.31	
		Band 2	3.55	
		Band 30	3.56	
DTS	WLAN	2.4GHz WLAN	1.32	3.99
NII		5GHz WLAN	2.38	3.99
Date of Testing:			2021/08/20 ~ 2021/09/04	

Remark: This device supports both LTE B4 and B66. Since the supported frequency span for LTE B4 falls completely within the supports frequency span for LTE B66, both LTE bands have the same target power, and both LTE bands share the same transmission path; therefore, SAR was only assessed for LTE B66.

Declaration of Conformity:
The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.
Comments and Explanations:
The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

This device is in compliance with Specific Absorption Rate (SAR) for general population/uncontrolled exposure limits (1.6 W/kg for Partial-Body 1g SAR, 4.0 W/kg for Product Specific 10g SAR) 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

Sporton International (Shenzhen) Inc. is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.01.

Testing Laboratory			
Test Firm	Sporton International (Shenzhen) Inc.		
Test Site Location	1/F, 2/F, Bldg 5, Shiling Industrial Zone, Xinwei Village, Xili, Nanshan, Shenzhen, 518055 People's Republic of China TEL: +86-755-86379589 FAX: +86-755-86379595		
Test Site No.	Sporton Site No.	FCC Designation No.	FCC Test Firm Registration No.
	SAR01-SZ SAR03-SZ SAR05-SZ	CN1256	421272

Applicant	
Company Name	Motorola Mobility LLC
Address	222 W,Merchandise Mart Plaza, Chicago IL 60654 USA

Manufacturer	
Company Name	Motorola Mobility LLC
Address	222 W,Merchandise Mart Plaza, Chicago IL 60654 USA

3. Guidance Applied

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

- FCC 47 CFR Part 2 (2.1093)
- ANSI/IEEE C95.1-1992
- IEEE 1528-2013
- FCC KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz v01r04
- FCC KDB 865664 D02 SAR Reporting v01r02
- FCC KDB 447498 D01 General RF Exposure Guidance v06
- FCC KDB 648474 D04 SAR Evaluation Considerations for Wireless Handsets v01r03
- FCC KDB 248227 D01 802.11 Wi-Fi SAR v02r02
- FCC KDB 616217 D04 SAR for laptop and tablets v01r02
- FCC KDB 941225 D01 3G SAR Procedures v03r01
- FCC KDB 941225 D05 SAR for LTE Devices v02r05
- FCC KDB 941225 D05A Rel.10 LTE SAR Test Guidance v01r02
- 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	XT2165-1, XT2165-2
FCC ID	IHDT56ZP4
IMEI Code	355570490007419
Wireless Technology and Frequency Range	GSM850: 824 MHz ~ 849 MHz GSM1900: 1850 MHz ~ 1910 MHz WCDMA Band II: 1850 MHz ~ 1910 MHz WCDMA Band IV: 1710 MHz ~ 1755 MHz WCDMA Band V: 824 MHz ~ 849 MHz LTE Band 2: 1850 MHz ~ 1910 MHz LTE Band 4: 1710 MHz ~ 1755 MHz LTE Band 5: 824 MHz ~ 849 MHz LTE Band 12: 699 MHz ~ 716 MHz LTE Band 13: 777 MHz ~ 787 MHz LTE Band 14 : 788 MHz ~ 798 MHz LTE Band 30 : 2305 MHz ~ 2315 MHz LTE Band 66: 1710 MHz ~ 1780 MHz WLAN 2.4GHz Band: 2412 MHz ~ 2462 MHz WLAN 5.2GHz Band: 5180 MHz ~ 5240 MHz WLAN 5.3GHz Band: 5260 MHz ~ 5320 MHz WLAN 5.5GHz Band: 5500 MHz ~ 5700 MHz WLAN 5.8GHz Band: 5745 MHz ~ 5825 MHz Bluetooth: 2402 MHz ~ 2480 MHz
Mode	GSM/GPRS/EGPRS RMC/AMR 12.2Kbps HSDPA/HSUPA DC-HSDPA HSPA+ (16QAM uplink is supported) LTE: QPSK, 16QAM, 64QAM WLAN 2.4GHz 802.11b/g/n HT20/HT40 WLAN 5GHz 802.11a/n HT20/HT40 WLAN 5GHz 802.11ac VHT20/VHT40/VHT80 Bluetooth BR/EDR/LE
HW Version	DVT2
SW Version	RRQ31.Q3-51
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. WLAN operation in 5600 MHz ~ 5650 MHz is notched
2. This device supports VoIP in GPRS, EGPRS, WCDMA and LTE (e.g. for 3rd-party VoIP), LTE supports VoLTE operation.
3. This device 2.4GHz WLAN support hotspot operation and Bluetooth support tethering applications.
4. This device 5.2GHz WLAN/5.8GHz WLAN support hotspot operation, and 5.2GHz WLAN/5.8GHz WLAN supports WiFi Direct (GC/GO), and 5.3GHz / 5.5GHz supports WiFi Direct (GC only).
5. This device does not support DTM operation and supports GPRS/EGPRS mode up to multi-slot class 12.
6. The device implements the power management and proximity sensor /receiver detection/hotspot mode for SAR compliance at different exposure conditions (head, body-worn, hotspot, extremity) and the details about the power management decision and sensor detection are provided in the operational description. And the device will invoke corresponding work scenarios power level base on frequency bands/antennas, which can refer to power table at appendix E.
7. For WLAN when transmit simultaneous with WWAN, power reduction will be activated to head, body-worn, hotspot, extremity.

8. For some WWAN bands, sensor on reduced power level is higher than hotspot reduced power level, so front/back sensor on SAR can represent hotspot conservatively.
9. There are two models, the two models are for different markets and no other difference.

4.2 General LTE SAR Test and Reporting Considerations

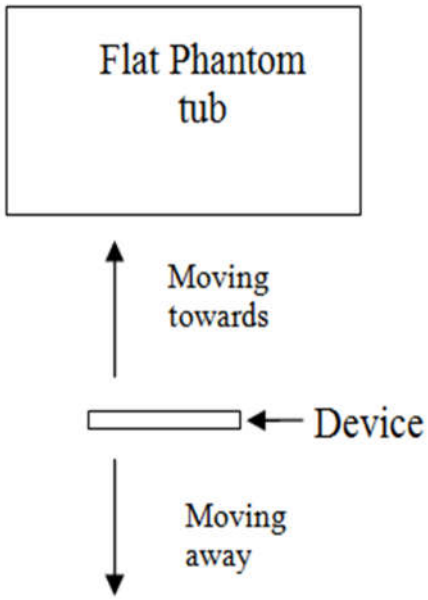
Summarized necessary items addressed in KDB 941225 D05 v02r05	
FCC ID	IHDT56ZP4
Equipment Name	Mobile Cellular Phone
Operating Frequency Range of each LTE transmission band	LTE Band 2: 1850 MHz ~ 1910 MHz LTE Band 4: 1710 MHz ~ 1755 MHz LTE Band 5: 824 MHz ~ 849 MHz LTE Band 12: 699 MHz ~ 716 MHz LTE Band 13: 777 MHz ~ 787 MHz LTE Band 14: 788 MHz ~ 798 MHz LTE Band 30: 2305 MHz ~ 2315 MHz LTE Band 66: 1710 MHz ~ 1780 MHz
Channel Bandwidth	LTE Band 2:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 4:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 5:1.4MHz, 3MHz, 5MHz, 10MHz LTE Band 12:1.4MHz, 3MHz, 5MHz, 10MHz LTE Band 13: 5MHz, 10MHz LTE Band 14: 5MHz, 10MHz LTE Band 30: 5MHz, 10MHz LTE Band 66:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz
uplink modulations used	QPSK / 16QAM / 64QAM
LTE Voice / Data requirements	Voice and Data
LTE Release Version	R11, Cat7
CA Support	Supported, Downlink only
LTE MPR permanently built-in by design	**Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 1, 2 and 3** Modulation | Channel bandwidth / Transmission bandwidth (N_{RB}) | MPR (dB) 1.4 MHz | 3.0 MHz | 5 MHz | 10 MHz | 15 MHz | 20 MHz QPSK: > 5 | > 4 | > 8 | > 12 | > 16 | > 18 | ≤ 1 16 QAM: ≤ 5 | ≤ 4 | ≤ 8 | ≤ 12 | ≤ 16 | ≤ 18 | ≤ 1 16 QAM: > 5 | > 4 | > 8 | > 12 | > 16 | > 18 | ≤ 2 64 QAM: ≤ 5 | ≤ 4 | ≤ 8 | ≤ 12 | ≤ 16 | ≤ 18 | ≤ 2 64 QAM: > 5 | > 4 | > 8 | > 12 | > 16 | > 18 | ≤ 3 256 QAM: ≥ 1 | ≤ 5
LTE A-MPR	In the base station simulator configuration, Network Setting value is set to NS_01 to disable A-MPR during SAR testing and the LTE SAR tests was transmitting on all TTI frames (Maximum TTI)
Spectrum plots for RB configuration	A properly configured base station simulator was used for the SAR and power measurement; therefore, spectrum plots for each RB allocation and offset configuration are not included in the SAR report.
Power reduction applied to satisfy SAR compliance	Yes, head/body-worn/ hotspot/extremity will trigger reduced power for some LTE bands, the detail please referred to section 13.
LTE Carrier Aggregation Combinations	Inter-Band and Intra-Band possible combinations and the detail power verification please referred to section 13.
LTE Carrier Aggregation Additional Information	1. This device supports LTE Carrier Aggregation (CA) in the uplink for 41C with two component carriers in the uplink. SAR Measurements and conducted powers were evaluated per FCC Guidance. 2. This device supports maximum of 2 carriers in the downlink. Additional 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 12												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz					
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)				
L	23017	699.7	23025	700.5	23035	701.5	23060	704				
M	23095	707.5	23095	707.5	23095	707.5	23095	707.5				
H	23173	715.3	23165	714.5	23155	713.5	23130	711				
LTE Band 13												
	Bandwidth 5 MHz				Bandwidth 10 MHz							
	Channel #		Freq.(MHz)		Channel #		Freq.(MHz)					
L	23205		779.5		23230		782					
M	23230		782									
H	23255		784.5									
LTE Band 14												
	Bandwidth 5 MHz				Bandwidth 10 MHz							
	Channel #		Channel #		Channel #		Freq.(MHz)					
L	23305		790.5		23330		793					
M	23330		793									
H	23355		795.5									
LTE Band 30												
	Bandwidth 5 MHz				Bandwidth 10 MHz							
	Channel #		Freq.(MHz)		Channel #		Freq.(MHz)					
L	27685		2307.5		27710		2310					
M	27710		2310									
H	27735		2312.5									
LTE Band 66												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	131979	1710.7	131987	1711.5	131997	1712.5	132022	1715	132047	1717.5	132072	1720
M	132322	1745	132322	1745	132322	1745	132322	1745	132322	1745	132322	1745
H	132665	1779.3	132657	1778.5	132647	1777.5	132622	1775	132597	1772.5	132572	1770

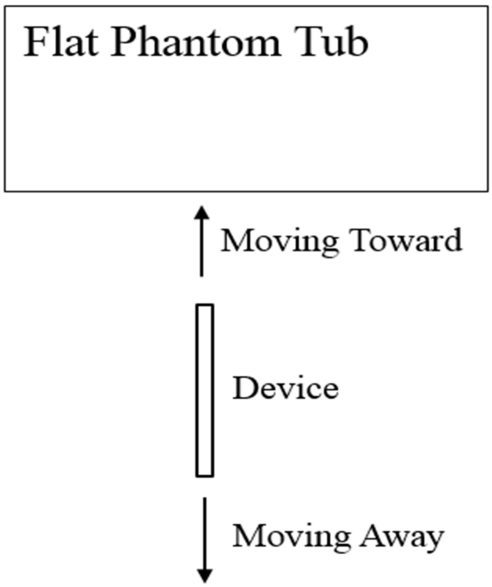
5. Proximity Sensor Triggering Test

<Proximity Sensor Triggering Distance>:

1. Proximity sensor triggering distance testing was performed according to the procedures outlined in KDB 616217 D04 section 6.2, and EUT moving further away from the flat phantom and EUT moving toward the flat phantom were both assessed and the tissue-equivalent medium for highest frequency (5750MHz) and lowest (750MHz) frequency was used for proximity sensor triggering testing.
2. Capacitive proximity sensors placed coincident with antenna elements at the top and bottom ends of the phone are utilized to determine when the device comes in proximity of the user's body at the front or back of the device. The output power will reduce to body worn power level when top and bottom sensor pad be detected.
3. The sensors used to detect the proximity of the user's body at the front or back surface of the device use a detection threshold distance. The data shown in the sections below shows the distance(s). When front or back body worn condition is detected reduced power will be active.
4. The device employs proximity sensors also can detect the presence of the user's a finger or hand when handheld state at the front/back/right/left/top/bottom side of the device. When front/back/right/left/top/bottom side of handheld condition is detected reduced power will be active.
5. For verification of compliance of power reduction scheme, additional SAR testing with EUT transmitting at full RF power at a conservative trigger distance -1mm was performed:



Sensor/Handheld detection test set-up, front and back sides



Handheld detection test set-up, right, left, top and bottom sides

<P-Sensor>

Proximity Sensor Triggering Distance (mm)				
Position	Front		Back	
	Moving towards	Moving away	Moving towards	Moving away
Minimum	20	25	25	31

<Handheld for ANT1>

Proximity Sensor Triggering Distance (mm)								
Position	Front		Back		Right Side		Bottom Side	
	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away
Minimum	9	15	15	24	4	6	15	22

<Handheld for ANT2>

Proximity Sensor Triggering Distance (mm)								
Position	Front		Back		Left Side		Top Side	
	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away
Minimum	8	13	15	24	6	14	13	18

<Handheld for ANT4>

Proximity Sensor Triggering Distance (mm)				
Position	Back		Right Side	
	Moving towards	Moving away	Moving towards	Moving away
Minimum	6	11	7	9

6. RF Exposure Limits

6.1 Uncontrolled Environment

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

6.2 Controlled Environment

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

Limits for Occupational/Controlled Exposure (W/kg)

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

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

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

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

7. Specific Absorption Rate (SAR)

7.1 Introduction

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

7.2 SAR Definition

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

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

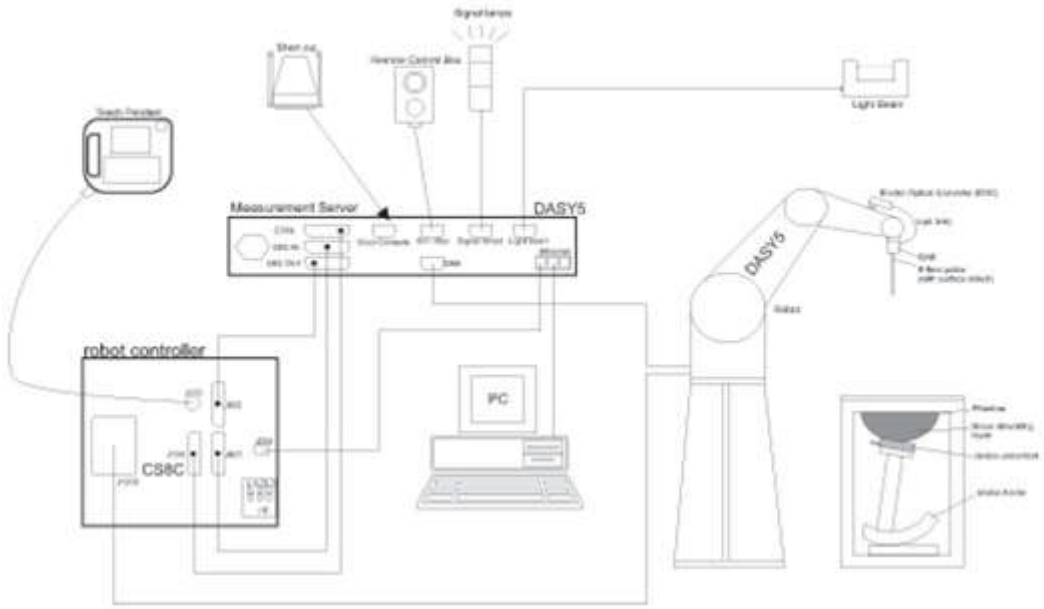
SAR is expressed in units of Watts per kilogram (W/kg)

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

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

8. System Description and Setup

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



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

8.1 E-Field Probe

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

<EX3DV4 Probe>

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

8.2 Data Acquisition Electronics (DAE)

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

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

Photo of DAE

8.3 Phantom

<SAM Twin Phantom>

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

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

<ELI Phantom>

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

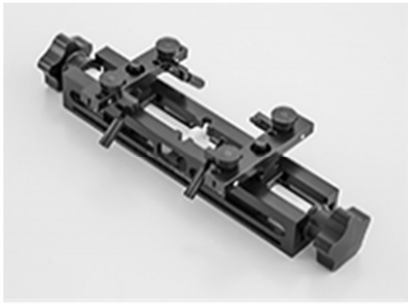
The ELI phantom is intended for compliance testing of handheld and body-mounted wireless devices in the frequency range of 30 MHz to 6 GHz. ELI4 is fully compatible with standard and all known tissue simulating liquids.

8.4 Device Holder

<Mounting Device for Hand-Held Transmitter>

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

Mounting Device for Hand-Held Transmitters



Mounting Device Adaptor for Wide-Phones

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

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

Mounting Device for Laptops

9. Measurement Procedures

The measurement procedures are as follows:

<Conducted power measurement>

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

<SAR measurement>

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

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

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

9.1 Spatial Peak SAR Evaluation

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

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

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

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

9.2 Power Reference Measurement

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

9.3 Area Scan

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

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

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

9.4 Zoom Scan

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

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

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

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

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

9.5 Volume Scan Procedures

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

9.6 Power Drift Monitoring

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

10. Test Equipment List

Manufacturer	Name of Equipment	Type/Model	Serial Number	Calibration	
				Last Cal.	Due Date
SPEAG	750MHz System Validation Kit	D750V3	1099	Dec. 06, 2018	Nov. 24, 2021
SPEAG	835MHz System Validation Kit	D835V2	4d162	Dec. 05, 2018	Nov. 24, 2021
SPEAG	1750MHz System Validation Kit	D1750V2	1090	Mar. 27, 2019	Mar. 25, 2022
SPEAG	1900MHz System Validation Kit	D1900V2	5d182	Dec. 07, 2018	Nov. 24, 2021
SPEAG	2300MHz System Validation Kit	D2300V2	1056	Nov. 01, 2018	Oct. 31, 2021
SPEAG	2450MHz System Validation Kit	D2450V2	924	Sep. 02, 2020	Sep. 01, 2021
SPEAG	5000MHz System Validation Kit	D5GHzV2	1113	Sep. 24, 2019	Sep. 23, 2022
SPEAG	Data Acquisition Electronics	DAE3	360	Nov. 06, 2020	Nov. 05, 2021
SPEAG	Data Acquisition Electronics	DAE4	1386	Jan. 13, 2021	Jan. 12, 2022
SPEAG	Data Acquisition Electronics	DAE4	1664	Mar. 01, 2021	Feb. 28, 2022
SPEAG	Dosimetric E-Field Probe	EX3DV4	7577	Sep. 30, 2020	Sep. 29, 2021
SPEAG	Dosimetric E-Field Probe	EX3DV4	7576	Apr. 26, 2021	Apr. 25, 2022
SPEAG	Dosimetric E-Field Probe	EX3DV4	3975	Jun. 07, 2021	Jun. 06, 2022
SPEAG	SAM Twin Phantom	QD 000 P40 CD	1671	NCR	NCR
SPEAG	SAM Twin Phantom	QD 000 P40 CD	1795	NCR	NCR
SPEAG	SAM Twin Phantom	QD 000 P41 AA	2035	NCR	NCR
SPEAG	Phone Positioner	N/A	N/A	NCR	NCR
Anritsu	Radio communication analyzer	MT8820C	6201300653	Jul. 14, 2021	Jul. 13, 2022
Anritsu	Radio communication analyzer	MT8820C	6201341952	Dec. 25, 2020	Dec. 24, 2021
Anritsu	Radio communication analyzer	MT8821C	6201588577	Apr. 08, 2021	Apr. 07, 2022
Agilent	Wireless Communication Test Set	E5515C	MY50267224	Jul. 14, 2021	Jul. 13, 2022
Agilent	Network Analyzer	E5071C	MY46523671	Oct. 15, 2020	Oct. 14, 2021
Speag	Dielectric Assessment KIT	DAK-3.5	1071	Dec. 23, 2020	Dec. 22, 2021
Agilent	Signal Generator	N5181A	MY50145381	Dec. 25, 2020	Dec. 24, 2021
Anritsu	Power Sensor	MA2411B	1207253	Dec. 25, 2020	Dec. 24, 2021
Anritsu	Power Meter	ML2495A	1218010	Dec. 25, 2020	Dec. 24, 2021
R&S	Power Sensor	NRP8S	109228	Apr. 09, 2021	Apr. 08, 2022
R&S	CBT BLUETOOTH TESTER	CBT	100963	Dec. 25, 2020	Dec. 24, 2021
R&S	Spectrum Analyzer	FSP7	100818	Jul. 14, 2021	Jul. 13, 2022
TES	Hygrometer	1310	200505600	Jul. 17, 2021	Jul. 16, 2022
Anymetre	Thermo-Hygrometer	JR593	2015030904	Jul. 17, 2021	Jul. 16, 2022
Anymetre	Thermo-Hygrometer	JR593	2015030903	Jan. 05, 2021	Jan. 04, 2022
Anymetre	Thermo-Hygrometer	JR593	2015102801	Jan. 05, 2021	Jan. 04, 2022
SPEAG	Device Holder	N/A	N/A	N/A	N/A
AR	Amplifier	5S1G4	0333096	Note 1	
mini-circuits	Amplifier	ZVE-3W-83+	599201528	Note 1	
ARRA	Power Divider	A3200-2	N/A	Note 1	
ET Industries	Dual Directional Coupler	C-058-10	N/A	Note 1	
Weinschel	Attenuator 2	3M-20	N/A	Note 1	

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
2. Referring to KDB 865664 D01v01r04, the dipole calibration interval can be extended to 3 years with justification. The dipoles are also not physically damaged, or repaired during the interval.
3. The justification data of dipole can be found in appendix C. The return loss is < -20dB, within 20% of prior calibration, the impedance is within 5 ohm of prior calibration.

11. System Verification

11.1 Tissue Simulating Liquids

For the measurement of the field distribution inside the SAM phantom with DASY, the phantom must be filled with around 25 liters of homogeneous body tissue simulating liquid. For head SAR testing, the liquid height from the ear reference point (ERP) of the phantom to the liquid top surface is larger than 15 cm, which is shown in Fig. 11.1. For body SAR testing, the liquid height from the center of the flat phantom to the liquid top surface is larger than 15 cm, which is shown in Fig. 11.2.

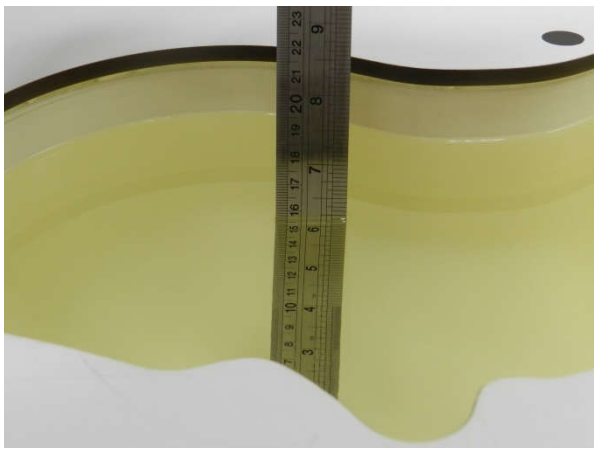


Fig 11.1 Photo of Liquid Height for Head SAR

Fig 11.2 Photo of Liquid Height for Body SAR

11.2 Tissue Verification

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

Frequency (MHz)	Water (%)	Sugar (%)	Cellulose (%)	Salt (%)	Preventol (%)	DGBE (%)	Conductivity (σ)	Permittivity (εr)
For 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
1800, 1900	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

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	Head	22.4	0.886	41.532	0.89	41.90	-0.45	-0.88	±5	2021/8/30
750	Head	22.5	0.888	40.879	0.89	41.90	-0.22	-2.44	±5	2021/9/2
835	Head	22.5	0.904	41.212	0.90	41.50	0.44	-0.69	±5	2021/8/28
835	Head	22.4	0.897	43.254	0.90	41.50	-0.33	4.23	±5	2021/9/4
1750	Head	22.4	1.367	40.221	1.37	40.10	-0.22	0.30	±5	2021/8/22
1750	Head	22.5	1.398	41.384	1.37	40.10	2.04	3.20	±5	2021/8/24
1900	Head	22.2	1.399	41.136	1.40	40.00	-0.07	2.84	±5	2021/8/20
1900	Head	22.5	1.440	40.038	1.40	40.00	2.86	0.09	±5	2021/8/26
2300	Head	22.6	1.722	37.606	1.67	39.50	3.11	-4.79	±5	2021/8/29
2300	Head	22.5	1.609	39.065	1.67	39.50	-3.65	-1.10	±5	2021/8/31
2450	Head	22.7	1.871	38.124	1.80	39.20	3.94	-2.74	±5	2021/8/22
2450	Head	22.8	1.825	39.664	1.80	39.20	1.39	1.18	±5	2021/8/31
5250	Head	22.4	4.767	36.978	4.71	35.95	1.21	2.86	±5	2021/8/23
5250	Head	22.6	4.488	37.097	4.71	35.95	-4.71	3.19	±5	2021/8/26
5600	Head	22.5	5.211	36.230	5.07	35.50	2.78	2.06	±5	2021/8/24
5600	Head	22.5	4.829	36.667	5.07	35.50	-4.75	3.29	±5	2021/8/27
5750	Head	22.6	5.384	35.949	5.22	35.35	3.14	1.69	±5	2021/8/25
5750	Head	22.6	5.009	36.365	5.22	35.35	-4.04	2.87	±5	2021/8/29

11.3 System Performance Check Results

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

<1g SAR>

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 (%)
2021/8/30	750	Head	250	1099	3975	1386	2.15	8.52	8.60	0.94
2021/9/2	750	Head	250	1099	3975	1386	2.09	8.52	8.36	-1.88
2021/8/28	835	Head	250	4d162	3975	1386	2.54	9.61	10.16	5.72
2021/9/4	835	Head	250	4d162	3975	1386	2.44	9.61	9.76	1.56
2021/8/22	1750	Head	250	1090	7577	360	8.63	36.40	34.52	-5.16
2021/8/24	1750	Head	250	1090	7577	360	8.99	36.40	35.96	-1.21
2021/8/20	1900	Head	250	5d182	7577	360	9.06	39.60	36.24	-8.48
2021/8/26	1900	Head	250	5d182	7577	360	9.21	39.60	36.84	-6.97
2021/8/29	2300	Head	250	1056	7577	360	12.30	49.90	49.20	-1.40
2021/8/31	2300	Head	250	1056	7577	360	11.90	49.90	47.60	-4.61
2021/8/22	2450	Head	250	924	7576	1664	12.60	51.40	50.40	-1.95
2021/8/31	2450	Head	250	924	7576	1664	12.10	51.40	48.40	-5.84
2021/8/23	5250	Head	100	1113	7576	1664	7.62	80.50	76.20	-5.34
2021/8/26	5250	Head	100	1113	7576	1664	7.53	80.50	75.30	-6.46
2021/8/24	5600	Head	100	1113	7576	1664	8.06	83.40	80.60	-3.36
2021/8/27	5600	Head	100	1113	7576	1664	7.97	83.40	79.70	-4.44
2021/8/25	5750	Head	100	1113	7576	1664	7.88	80.00	78.8	-1.50
2021/8/29	5750	Head	100	1113	7576	1664	7.29	80.00	72.9	-8.87

<10g SAR>

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 (%)
2021/8/30	750	Head	250	1099	3975	1386	1.43	5.64	5.72	1.42
2021/9/2	750	Head	250	1099	3975	1386	1.41	5.64	5.64	0.00
2021/8/28	835	Head	250	4d162	3975	1386	1.65	6.35	6.60	3.94
2021/9/4	835	Head	250	4d162	3975	1386	1.61	6.35	6.44	1.42
2021/8/22	1750	Head	250	1090	7577	360	4.69	19.20	18.76	-2.29
2021/8/24	1750	Head	250	1090	7577	360	5.06	19.20	20.24	5.42
2021/8/20	1900	Head	250	5d182	7577	360	5.42	20.70	21.68	4.73
2021/8/26	1900	Head	250	5d182	7577	360	5.67	20.70	22.68	9.57
2021/8/29	2300	Head	250	1056	7577	360	6.23	23.80	24.92	4.71
2021/8/31	2300	Head	250	1056	7577	360	5.69	23.80	22.76	-4.37
2021/8/22	2450	Head	250	924	7576	1664	5.87	24.00	23.48	-2.17
2021/8/31	2450	Head	250	924	7576	1664	5.42	24.00	21.68	-9.67
2021/8/23	5250	Head	100	1113	7576	1664	2.20	23.10	22.00	-4.76
2021/8/26	5250	Head	100	1113	7576	1664	2.16	23.10	21.60	-6.49
2021/8/24	5600	Head	100	1113	7576	1664	2.21	23.80	22.10	-7.14
2021/8/27	5600	Head	100	1113	7576	1664	2.28	23.80	22.80	-4.20
2021/8/25	5750	Head	100	1113	7576	1664	2.25	22.80	22.5	-1.32
2021/8/29	5750	Head	100	1113	7576	1664	2.11	22.80	21.1	-7.46

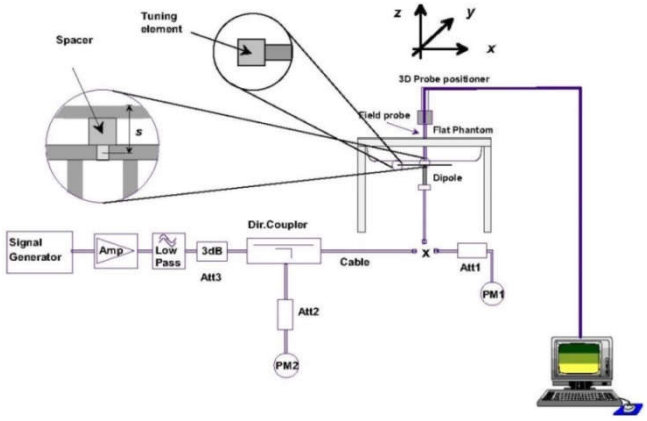


Fig 11.3.1 System Performance Check Setup

Fig 11.3.2 Setup Photo

12. RF Exposure Positions

12.1 Ear and handset reference point

Figure 12.1.1 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 12.1.2 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 12.1.3). 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 12.1.2. The ear truncation is introduced to preclude the ear lobe from interfering with handset tilt, which could lead to unstable positioning at the cheek.

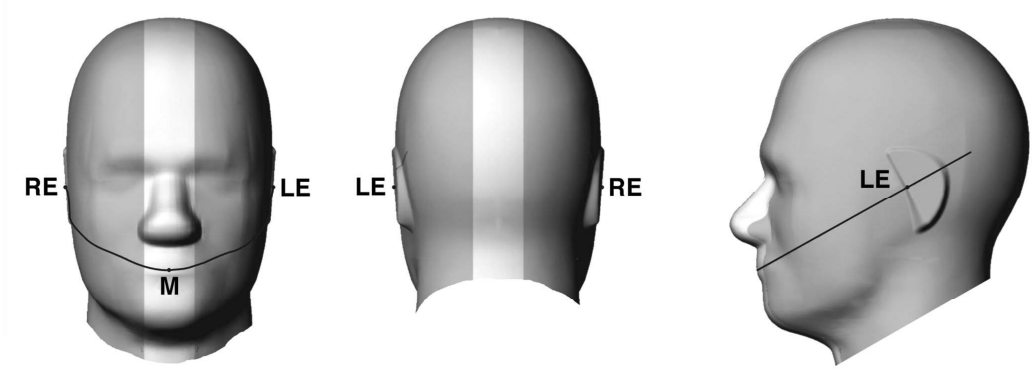


Fig 12.1.1 Front, back, and side views of SAM twin phantom

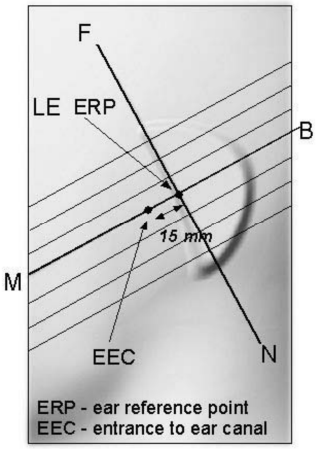


Fig 12.1.2 Close-up side view of phantom showing the ear region.

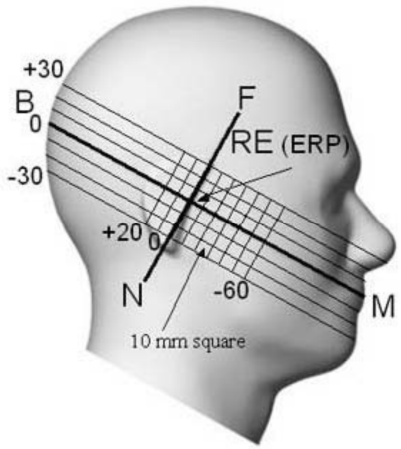


Fig 12.1.3 Side view of the phantom showing relevant markings and seven cross-sectional plane locations

12.2 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 12.2.1 and Figure 12.2.2), 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 12.2.1). 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 12.2.2), 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 12.2.3), 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 12.2.3. The actual rotation angles should be documented in the test report.

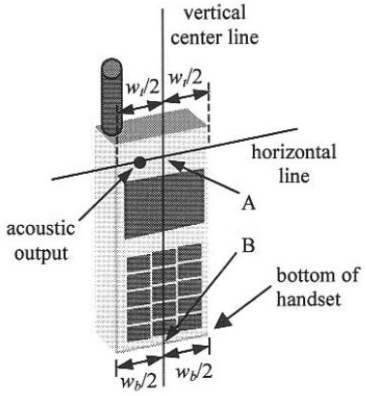


Fig 12.2.1 Handset vertical and horizontal reference lines—"fixed case

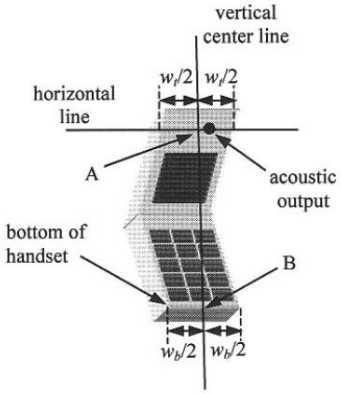


Fig 12.2.2 Handset vertical and horizontal reference lines—"clam-shell case"

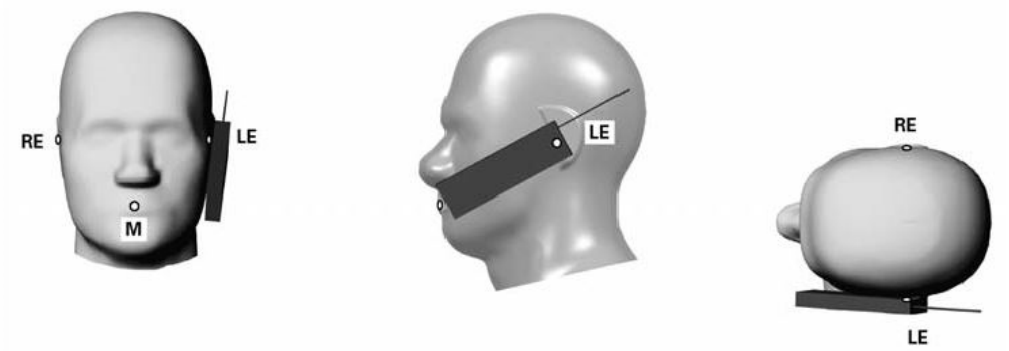


Fig 12.2.3 cheek or touch position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which establish the Reference Plane for handset positioning, are indicated.

12.3 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 12.3.1. 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

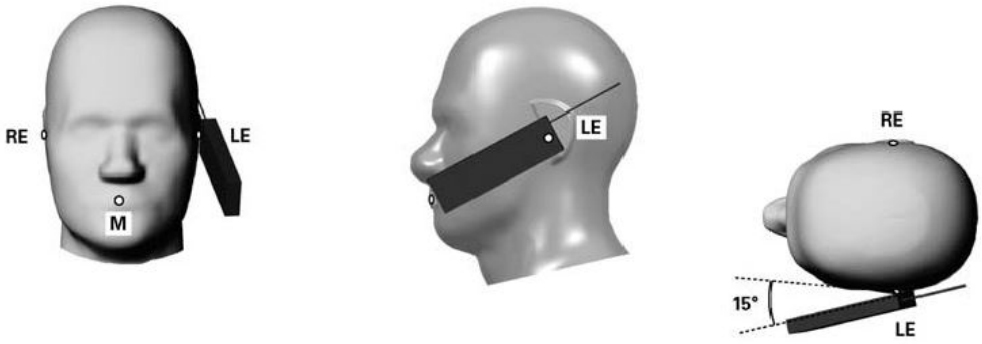


Fig 12.3.1 Tilt position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which define the Reference Plane for handset positioning, are indicated.

12.4 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 12.4). 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.

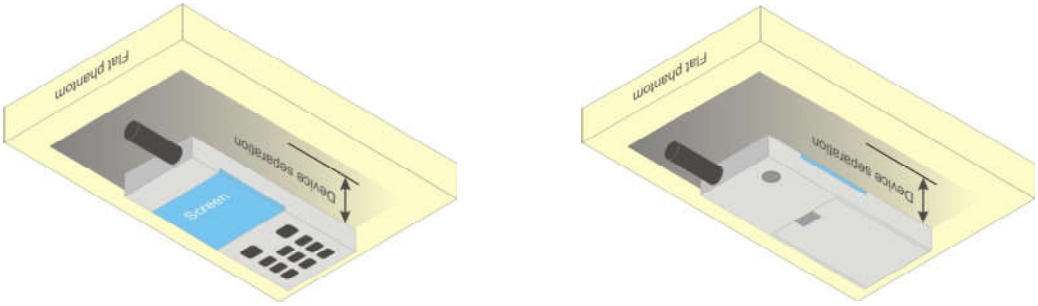


Fig 12.4 Body Worn Position

12.5 Product Specific 10g SAR Exposure

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.

12.6 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.

13. Conducted RF Output Power (Unit: dBm)

The detailed conducted power table can refer to Appendix E.

<GSM Conducted Power>

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 and GSM1900 are 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.

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

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

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

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

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

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

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

Setup Configuration

DC-HSDPA 3GPP release 8 Setup Configuration:

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

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

C.8.1.12 Fixed Reference Channel Definition H-Set 12

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

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

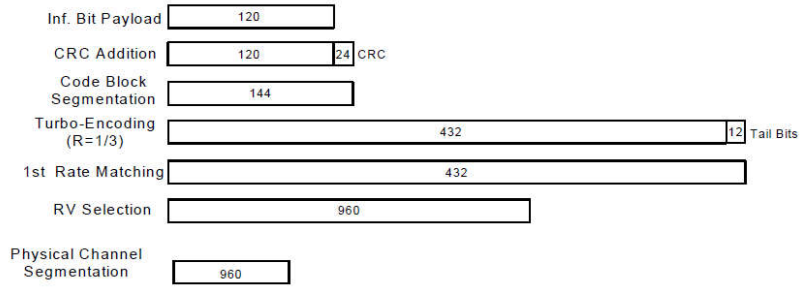


Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)

Setup Configuration

HSPA+ 3GPP release 7 (uplink category 7) 16QAM, 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 = 5.2E:HSPA+:UL with 16QAM
   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, C11.1.4, quoted from the TS 34.121-1 s5.2E
   iii. Set Channel Parms
   iv. Set Cell Power = -86 dBm
   v. Set Channel Type = HSPA
   vi. Set UE Target Power =21 dBm
   vii. Power Ctrl Mode= All Up Bits
   viii. Set Manual Uplink DPCH Bc/Bd = Manual
   ix. Set Manual Uplink DPCH Bc and Bd=15,15(for 34.121-1 v8.10.0 table C11.1.4 sub-test 1)
   x. Set HSPA Conn DL Channel Levels
   xi. Set HS-SCCH Configs
   xii. Set RB Test Mode Setup
   xiii. Set Common HSUPA Parameters
   xiv. Set Serving Grant
   xv. Confirm that E-TFCI is equal to the target E-TFCI of 105 for sub-test 1, and other subtest's E-TFCI
d. The transmitted maximum output power was recorded.

Table C.11.1.4: β values for transmitter characteristics tests with HS-DPCCH and E-DCH with 16QAM

Sub-test	β_c (Note3)	β_d	β_{HS} (Note1)	β_{ec}	β_{ed} (2xSF2) (Note 4)	β_{ed} (2xSF4) (Note 4)	CM (dB) (Note 2)	MPR (dB) (Note 2)	AG Index (Note 4)	E-TFCI (Note 5)	E-TFCI (boost)
1	1	0	30/15	30/15	β_{ed}1: 30/15 β_{ed}2: 30/15	β_{ed}3: 24/15 β_{ed}4: 24/15	3.5	2.5	14	105	105

Note 1: Δ_{ACK}, Δ_{NACK} and Δ_{CQI} = 30/15 with β_{hs} = 30/15 * β_c.
Note 2: CM = 3.5 and the MPR is based on the relative CM difference, MPR = MAX(CM-1,0).
Note 3: DPDCH is not configured, therefore the β_c is set to 1 and β_d = 0 by default.
Note 4: β_{ed} can not be set directly; it is set by Absolute Grant Value.
Note 5: All the sub-tests require the UE to transmit 2SF2+2SF4 16QAM EDCH and they apply for UE using E-DPDCH category 7. E-DCH TTI is set to 2ms TTI and E-DCH table index = 2. To support these E-DCH configurations DPDCH is not allocated. The UE is signaled to use the extrapolation algorithm.

Setup Configuration

<WCDMA Conducted Power>

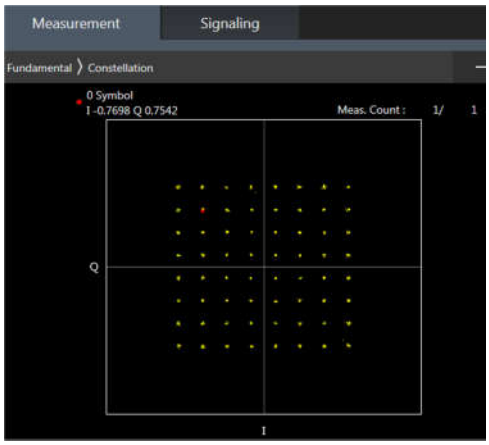
General Note:

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

<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/64QAM 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/64QAM SAR testing is not required.
7. Per KDB 941225 D05v02r05, smaller bandwidth output power for each RB allocation configuration is > not ½ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, smaller bandwidth SAR testing is not required.
8. For LTE B4 / B5 / B12 the maximum bandwidth does not support three non-overlapping channels, per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.
9. LTE B4 SAR test was covered by B66; according to April 2015 TCB workshop, SAR test for overlapping LTE bands can be reduced if
   a. the maximum output power, including tolerance, for the smaller band is ≤ the larger band to qualify for the SAR test exclusion
   b. the channel bandwidth and other operating parameters for the smaller band are fully supported by the larger band
10. According to 2017 TCB workshop, for 64 QAM and 16 QAM should be verified by checking the signal constellation with a call box to avoid incorrect maximum power levels due to MPR and other requirements associated with signal modulation, and the following figure is taken from the "Fundamental Measurement >> Modulation Analysis >> constellation" mode of the device connect to the MT8821C base station, therefore, the device 64QAM and 16QAM signal modulation are correct.



64QAM

16QAM

<LTE Carrier Aggregation>

General Note:

1. This device supports Carrier Aggregation on downlink for inter and intra band. For the device supports bands and bandwidths and configurations are provided as follow table was according to 3GPP.
2. In applying the existing power measurement procedures of KDB 941225 D05A for DL CA SAR test exclusion, only the subset with the largest number of combinations of frequency bands and CCs in each row need combination, and for this device that all the configurations were choose to power measurement.
3. All permutations exist, no restrictions on Pcell & Scell combinations but Only LTE Band 29A is limited to Scell.

2CC Downlink Carrier Aggregation	
Number	Combination
1	CA_2A-2A
2	CA_2A-5A
3	CA_2A-12A
4	CA_2A-29A
5	CA_2C
6	CA_4A-4A
7	CA_4A-5A
8	CA_4A-12A
9	CA_4A-29A
10	CA_5A-30A
11	CA_5B
12	CA_12A-30A
13	CA_13A-2A
14	CA_29A-30A
15	CA_66A-66A
16	CA_66B
17	CA_66C

LTE Carrier Aggregation Conducted Power (Downlink)

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

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

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

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

v. For inter-band CA, the SCC selected highest bandwidth and near the middle of its transmission band. For SCC DL RB size and offset will base on the PCC corresponding RB allocation.

vi. 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.

vii. For Intra-band, contiguous CA, the downlink channels selected to perform the uplink power measurement must satisfy 3GPP channel spacing (5.4.1A of 3GPP TS 36.521 or equivalent) and channel bandwidth (5.4.2A) requirements.

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

<WLAN Conducted Power>

General Note:

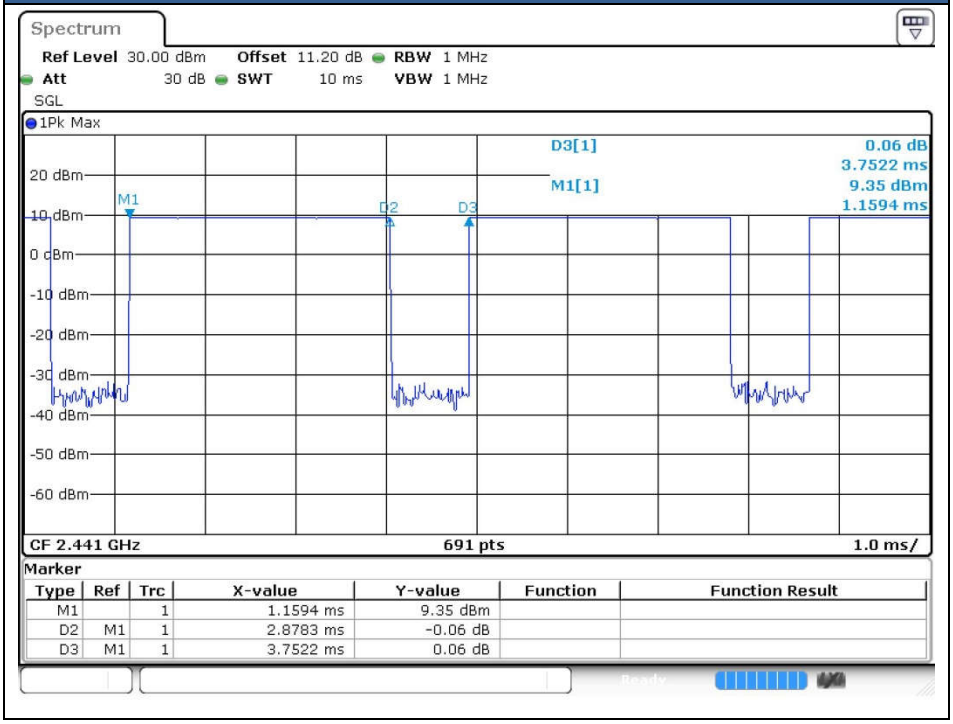
1. Per KDB 248227 D01v02r02, SAR test reduction is determined according to 802.11 transmission mode configurations and certain exposure conditions with multiple test positions. In the 2.4 GHz band, separate SAR procedures are applied to DSSS and OFDM configurations to simplify DSSS test requirements. 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.
2. 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).
3. 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.
4. DSSS and OFDM configurations are considered separately according to the required SAR procedures. SAR is measured in the initial test position using the 802.11 transmission mode configuration required by the DSSS procedure or initial test configuration and subsequent test configuration(s) according to the OFDM procedures.18 The initial test position procedure is described in the following:
   a. When the reported SAR of the initial test position is ≤ 0.4 W/kg, further SAR measurement is not required for the other test positions in that exposure configuration and 802.11 transmission mode combinations within the frequency band or aggregated band.
   b. When the reported SAR of the test position is > 0.4 W/kg, SAR is repeated for the 802.11 transmission mode configuration tested in the initial test position to measure the subsequent next closet/smallest test separation distance and maximum coupling test position on the highest maximum output power channel, until the report SAR is ≤ 0.8 W/kg or all required test position are tested.
   c. For all positions/configurations, when the reported SAR is > 0.8 W/kg, SAR is measured for these test positions/configurations on the subsequent next highest measured output power channel(s) until the reported SAR is ≤ 1.2 W/kg or all required channels are tested.

<2.4GHz Bluetooth>

General Note:

1. For 2.4GHz Bluetooth SAR testing was selected 1Mbps, due to its highest average power.
2. The Bluetooth duty cycle is 76.71 % as following figure, according to 2016 Oct. TCB workshop for Bluetooth SAR scaling need further consideration and the maximum duty cycle is 100%, therefore the actual duty cycle will be scaled up to 100% for Bluetooth reported SAR calculation

Bluetooth time-domain plot



14. Antenna Location

The detailed antenna location information can refer to SAR Test Setup Photos.

15. SAR Test Results

General Note:

1. Per KDB 447498 D01v06, the reported SAR is the measured SAR value adjusted for maximum tune-up tolerance.
   a. Tune-up scaling Factor = tune-up limit power (mW) / EUT RF power (mW), where tune-up limit is the maximum rated power among all production units.
   b. For SAR testing of BT/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 BT/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 when the measured SAR is ≥ 0.8W/kg. 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 device implements the power management and proximity sensor /receiver detection/hotspot mode for SAR compliance at different exposure conditions (head, body-worn, hotspot, extremity) and the details about the power management decision and sensor detection are provided in the operational description. And the device will invoke corresponding work scenarios power level base on frequency bands/antennas, which can refer to power table at appendix E.
5. For WLAN when transmit simultaneous with WWAN, power reduction will be activated to head, body-worn, hotspot, extremity.
6. For some WWAN bands, sensor on reduced power level is higher than hotspot reduced power level, so front/back sensor on SAR can represent hotspot conservatively.
7. 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 extremity SAR is required only for the surfaces and edges 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 1.2 W/kg SAR test reduction threshold.
   a. For this device SAR for WWAN/WLAN transmitter scaled to maximum output power mode for product specific 10g SAR is higher than 1.2W/kg of GSM850/1900, WCDMA Band II/IV/V, LTE Band2/4/5/12/13/14/30/66, WLAN 2.4GHz/5.8GHz, therefore product specific 10g SAR is necessary.
   b. WLAN 5.3/5.5GHz tested the product specific 10g SAR since it has no hotspot mode.
   c. When 10-g product specific 10g SAR is considered, SAR thresholds is specified in the procedures for SAR test reduction and exclusion should be multiplied by 2.5.
8. The following table “n/a” means the measured 1g/10g cube SAR is too small to be found.

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 and GSM1900 are 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.

WCDMA Note:

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

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/64QAM 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/64QAM SAR testing is not required.
5. Per KDB 941225 D05v02r05, smaller bandwidth output power for each RB allocation configuration is > not ½ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, smaller bandwidth SAR testing is not required.
6. For LTE B4 / B5 / B12 the maximum bandwidth does not support three non-overlapping channels, per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.
7. LTE B4 SAR test was covered by B66; according to April 2015 TCB workshop, SAR test for overlapping LTE bands can be reduced if
   a. the maximum output power, including tolerance, for the smaller band is ≤ the larger band to qualify for the SAR test exclusion
   b. the channel bandwidth and other operating parameters for the smaller band are fully supported by the larger band

WLAN Note:

1. Per KDB 248227 D01v02r02, for 2.4GHz 802.11g/n SAR testing is not required when the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg.
2. Per KDB 248227 D01v02r02, U-NII-1 SAR testing is not required when the U-NII-2A band highest reported SAR for a test configuration is ≤ 1.2 W/kg, SAR is not required for U-NII-1 band.
3. When the reported SAR of the test position is > 0.4 W/kg, SAR is repeated for the 802.11 transmission mode configuration tested in the initial test position to measure the subsequent next closet/smallest test separation distance and maximum coupling test position on the highest maximum output power channel, until the report SAR is ≤ 0.8 W/kg or all required test position are tested.
4. For all positions / configurations, when the reported SAR is > 0.8 W/kg, SAR is measured for these test positions / configurations on the subsequent next highest measured output power channel(s) until the reported SAR is ≤ 1.2 W/kg or all required channels are tested.
5. During SAR testing the WLAN transmission was verified using a spectrum analyzer.

15.1 Head SAR

<GSM SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Power State	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_Ant2	GPRS 4 Tx slots	Right Cheek	0mm	Reduced	251	848.8	25.12	26.00	1.225	0.03	0.830	1.016
	GSM850_Ant2	GPRS 4 Tx slots	Right Tilted	0mm	Reduced	251	848.8	25.12	26.00	1.225	0.04	0.606	0.742
	GSM850_Ant2	GPRS 4 Tx slots	Left Cheek	0mm	Reduced	251	848.8	25.12	26.00	1.225	-0.01	0.600	0.735
	GSM850_Ant2	GPRS 4 Tx slots	Left Tilted	0mm	Reduced	251	848.8	25.12	26.00	1.225	-0.11	0.508	0.622
01	GSM850_Ant2	GPRS 4 Tx slots	Right Cheek	0mm	Reduced	128	824.2	25.11	26.00	1.227	-0.09	0.926	**1.137**
	GSM850_Ant2	GPRS 4 Tx slots	Right Cheek	0mm	Reduced	189	836.4	25.08	26.00	1.236	-0.03	0.869	1.074
	GSM850_Ant1	GPRS 4 Tx slots	Right Cheek	0mm	Full	251	848.8	28.90	30.00	1.288	-0.03	0.557	0.718
	GSM850_Ant1	GPRS 4 Tx slots	Right Tilted	0mm	Full	251	848.8	28.90	30.00	1.288	0.15	0.214	0.276
	GSM850_Ant1	GPRS 4 Tx slots	Left Cheek	0mm	Full	251	848.8	28.90	30.00	1.288	0.17	0.491	0.633
	GSM850_Ant1	GPRS 4 Tx slots	Left Tilted	0mm	Full	251	848.8	28.90	30.00	1.288	0.11	0.211	0.272
	GSM1900_Ant2	GPRS 4 Tx slots	Right Cheek	0mm	Reduced	661	1880	19.83	20.50	1.167	-0.03	0.710	0.828
	GSM1900_Ant2	GPRS 4 Tx slots	Right Tilted	0mm	Reduced	661	1880	19.83	20.50	1.167	0.11	0.979	1.142
	GSM1900_Ant2	GPRS 4 Tx slots	Left Cheek	0mm	Reduced	661	1880	19.83	20.50	1.167	0.17	0.414	0.483
	GSM1900_Ant2	GPRS 4 Tx slots	Left Tilted	0mm	Reduced	661	1880	19.83	20.50	1.167	0.11	0.476	0.555
	GSM1900_Ant2	GPRS 4 Tx slots	Right Cheek	0mm	Reduced	512	1850.2	19.81	20.50	1.172	0.05	0.814	0.954
	GSM1900_Ant2	GPRS 4 Tx slots	Right Cheek	0mm	Reduced	810	1909.8	19.38	20.50	1.294	-0.06	0.538	0.696
02	GSM1900_Ant2	GPRS 4 Tx slots	Right Tilted	0mm	Reduced	512	1850.2	19.81	20.50	1.172	0.14	0.975	**1.143**
	GSM1900_Ant2	GPRS 4 Tx slots	Right Tilted	0mm	Reduced	810	1909.8	19.38	20.50	1.294	0.18	0.715	0.925
	GSM1900_Ant1	GPRS 4 Tx slots	Right Cheek	0mm	Full	661	1880	26.42	27.50	1.282	-0.19	0.495	0.635
	GSM1900_Ant1	GPRS 4 Tx slots	Right Tilted	0mm	Full	661	1880	26.42	27.50	1.282	-0.12	0.321	0.412
	GSM1900_Ant1	GPRS 4 Tx slots	Left Cheek	0mm	Full	661	1880	26.42	27.50	1.282	-0.03	0.428	0.151
	GSM1900_Ant1	GPRS 4 Tx slots	Left Tilted	0mm	Full	661	1880	26.42	27.50	1.282	0.15	0.342	0.439

<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WCDMA V_Ant2	RMC 12.2Kbps	Right Cheek	0mm	Reduced	4233	846.6	19.95	21.00	1.274	-0.04	0.888	1.131
	WCDMA V_Ant2	RMC 12.2Kbps	Right Tilted	0mm	Reduced	4233	846.6	19.95	21.00	1.274	-0.01	0.655	0.834
	WCDMA V_Ant2	RMC 12.2Kbps	Left Cheek	0mm	Reduced	4233	846.6	19.95	21.00	1.274	0.01	0.620	0.790
	WCDMA V_Ant2	RMC 12.2Kbps	Left Tilted	0mm	Reduced	4233	846.6	19.95	21.00	1.274	-0.09	0.553	0.704
03	WCDMA V_Ant2	RMC 12.2Kbps	Right Cheek	0mm	Reduced	4132	826.4	19.90	21.00	1.288	-0.05	0.915	**1.179**
	WCDMA V_Ant2	RMC 12.2Kbps	Right Cheek	0mm	Reduced	4182	836.4	19.92	21.00	1.282	-0.11	0.894	1.146
	WCDMA V_Ant2	RMC 12.2Kbps	Right Tilted	0mm	Reduced	4132	826.4	19.90	21.00	1.288	-0.19	0.680	0.876
	WCDMA V_Ant2	RMC 12.2Kbps	Right Tilted	0mm	Reduced	4182	836.4	19.92	21.00	1.282	-0.11	0.672	0.862
	WCDMA V_Ant1	RMC 12.2Kbps	Right Cheek	0mm	Full	4233	846.6	22.77	24.00	1.327	0.01	0.527	0.700
	WCDMA V_Ant1	RMC 12.2Kbps	Right Tilted	0mm	Full	4233	846.6	22.77	24.00	1.327	0.02	0.209	0.277
	WCDMA V_Ant1	RMC 12.2Kbps	Left Cheek	0mm	Full	4233	846.6	22.77	24.00	1.327	0.07	0.486	0.645
	WCDMA V_Ant1	RMC 12.2Kbps	Left Tilted	0mm	Full	4233	846.6	22.77	24.00	1.327	0.04	0.227	0.301
04	WCDMA IV_Ant1	RMC 12.2Kbps	Right Cheek	0mm	Full	1513	1752.6	22.68	24.00	1.355	-0.04	0.317	**0.430**
	WCDMA IV_Ant1	RMC 12.2Kbps	Right Tilted	0mm	Full	1513	1752.6	22.68	24.00	1.355	-0.03	0.141	0.191
	WCDMA IV_Ant1	RMC 12.2Kbps	Left Cheek	0mm	Full	1513	1752.6	22.68	24.00	1.355	-0.07	0.184	0.249
	WCDMA IV_Ant1	RMC 12.2Kbps	Left Tilted	0mm	Full	1513	1752.6	22.68	24.00	1.355	0.1	0.167	0.226
	WCDMA II_Ant2	RMC 12.2Kbps	Right Cheek	0mm	Reduced	9262	1852.4	16.64	18.00	1.368	-0.08	0.758	1.037
05	WCDMA II_Ant2	RMC 12.2Kbps	Right Tilted	0mm	Reduced	9262	1852.4	16.64	18.00	1.368	-0.03	0.841	**1.150**
	WCDMA II_Ant2	RMC 12.2Kbps	Left Cheek	0mm	Reduced	9262	1852.4	16.64	18.00	1.368	0.1	0.423	0.579
	WCDMA II_Ant2	RMC 12.2Kbps	Left Tilted	0mm	Reduced	9262	1852.4	16.64	18.00	1.368	0.04	0.485	0.663
	WCDMA II_Ant2	RMC 12.2Kbps	Right Cheek	0mm	Reduced	9400	1880	16.52	18.00	1.406	0.03	0.626	0.880
	WCDMA II_Ant2	RMC 12.2Kbps	Right Cheek	0mm	Reduced	9538	1907.6	16.40	18.00	1.445	0.05	0.519	0.750
	WCDMA II_Ant2	RMC 12.2Kbps	Right Tilted	0mm	Reduced	9400	1880	16.52	18.00	1.406	-0.17	0.780	1.097
	WCDMA II_Ant2	RMC 12.2Kbps	Right Tilted	0mm	Reduced	9538	1907.6	16.40	18.00	1.445	-0.13	0.654	0.945
	WCDMA II_Ant1	RMC 12.2Kbps	Right Cheek	0mm	Full	9262	1852.4	22.98	24.00	1.265	0.18	0.377	0.477
	WCDMA II_Ant1	RMC 12.2Kbps	Right Tilted	0mm	Full	9262	1852.4	22.98	24.00	1.265	-0.07	0.222	0.281
	WCDMA II_Ant1	RMC 12.2Kbps	Left Cheek	0mm	Full	9262	1852.4	22.98	24.00	1.265	0.1	0.302	0.382
	WCDMA II_Ant1	RMC 12.2Kbps	Left Tilted	0mm	Full	9262	1852.4	22.98	24.00	1.265	0.04	0.249	0.315

<FDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Power State	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)
06	LTE Band 12_Ant2	10M	QPSK	1	25	Right Cheek	0mm	Full	23095	707.5	21.94	23.00	1.276	-0.07	0.669	**0.854**
	LTE Band 12_Ant2	10M	QPSK	1	25	Right Tilted	0mm	Full	23095	707.5	21.94	23.00	1.276	-0.07	0.507	0.647
	LTE Band 12_Ant2	10M	QPSK	1	25	Left Cheek	0mm	Full	23095	707.5	21.94	23.00	1.276	0.09	0.445	0.568
	LTE Band 12_Ant2	10M	QPSK	1	25	Left Tilted	0mm	Full	23095	707.5	21.94	23.00	1.276	0.04	0.373	0.476
	LTE Band 12_Ant2	10M	QPSK	25	12	Right Cheek	0mm	Full	23095	707.5	20.91	22.00	1.285	-0.02	0.538	0.691
	LTE Band 12_Ant2	10M	QPSK	25	12	Right Tilted	0mm	Full	23095	707.5	20.91	22.00	1.285	0.05	0.413	0.531
	LTE Band 12_Ant2	10M	QPSK	25	12	Left Cheek	0mm	Full	23095	707.5	20.91	22.00	1.285	0.01	0.361	0.464
	LTE Band 12_Ant2	10M	QPSK	25	12	Left Tilted	0mm	Full	23095	707.5	20.91	22.00	1.285	0.11	0.306	0.393
	LTE Band 12_Ant2	10M	QPSK	50	0	Right Cheek	0mm	Full	23095	707.5	20.88	22.00	1.294	0.09	0.525	0.679
	LTE Band 12_Ant1	10M	QPSK	1	25	Right Cheek	0mm	Full	23095	707.5	22.49	24.00	1.416	-0.05	0.381	0.539
	LTE Band 12_Ant1	10M	QPSK	1	25	Right Tilted	0mm	Full	23095	707.5	22.49	24.00	1.416	0.1	0.186	0.263
	LTE Band 12_Ant1	10M	QPSK	1	25	Left Cheek	0mm	Full	23095	707.5	22.49	24.00	1.416	-0.04	0.329	0.466
	LTE Band 12_Ant1	10M	QPSK	1	25	Left Tilted	0mm	Full	23095	707.5	22.49	24.00	1.416	-0.1	0.180	0.255
	LTE Band 12_Ant1	10M	QPSK	25	12	Right Cheek	0mm	Full	23095	707.5	21.45	23.00	1.429	0.01	0.265	0.379
	LTE Band 12_Ant1	10M	QPSK	25	12	Right Tilted	0mm	Full	23095	707.5	21.45	23.00	1.429	0.17	0.151	0.216
	LTE Band 12_Ant1	10M	QPSK	25	12	Left Cheek	0mm	Full	23095	707.5	21.45	23.00	1.429	-0.05	0.267	0.382
	LTE Band 12_Ant1	10M	QPSK	25	12	Left Tilted	0mm	Full	23095	707.5	21.45	23.00	1.429	0.13	0.147	0.210
07	LTE Band 13_Ant1	10M	QPSK	1	25	Right Cheek	0mm	Full	23230	782	22.81	24.00	1.315	0.14	0.345	**0.454**
	LTE Band 13_Ant1	10M	QPSK	1	25	Right Tilted	0mm	Full	23230	782	22.81	24.00	1.315	0.08	0.206	0.271
	LTE Band 13_Ant1	10M	QPSK	1	25	Left Cheek	0mm	Full	23230	782	22.81	24.00	1.315	0.01	0.308	0.405
	LTE Band 13_Ant1	10M	QPSK	1	25	Left Tilted	0mm	Full	23230	782	22.81	24.00	1.315	-0.06	0.192	0.253
	LTE Band 13_Ant1	10M	QPSK	25	12	Right Cheek	0mm	Full	23230	782	21.67	23.00	1.358	0.08	0.277	0.376
	LTE Band 13_Ant1	10M	QPSK	25	12	Right Tilted	0mm	Full	23230	782	21.67	23.00	1.358	-0.01	0.171	0.232
	LTE Band 13_Ant1	10M	QPSK	25	12	Left Cheek	0mm	Full	23230	782	21.67	23.00	1.358	0.13	0.250	0.340
	LTE Band 13_Ant1	10M	QPSK	25	12	Left Tilted	0mm	Full	23230	782	21.67	23.00	1.358	0.02	0.170	0.231
08	LTE Band 14_Ant1	10M	QPSK	1	25	Right Cheek	0mm	Full	23330	793	22.70	24.00	1.349	0.19	0.336	**0.453**
	LTE Band 14_Ant1	10M	QPSK	1	25	Right Tilted	0mm	Full	23330	793	22.70	24.00	1.349	0.01	0.194	0.262
	LTE Band 14_Ant1	10M	QPSK	1	25	Left Cheek	0mm	Full	23330	793	22.70	24.00	1.349	0.14	0.286	0.386
	LTE Band 14_Ant1	10M	QPSK	1	25	Left Tilted	0mm	Full	23330	793	22.70	24.00	1.349	-0.04	0.190	0.256
	LTE Band 14_Ant1	10M	QPSK	25	12	Right Cheek	0mm	Full	23330	793	21.55	23.00	1.396	-0.05	0.260	0.363
	LTE Band 14_Ant1	10M	QPSK	25	12	Right Tilted	0mm	Full	23330	793	21.55	23.00	1.396	0.18	0.142	0.198
	LTE Band 14_Ant1	10M	QPSK	25	12	Left Cheek	0mm	Full	23330	793	21.55	23.00	1.396	-0.05	0.231	0.323
	LTE Band 14_Ant1	10M	QPSK	25	12	Left Tilted	0mm	Full	23330	793	21.55	23.00	1.396	0.01	0.153	0.214
09	LTE Band 5_Ant2	10M	QPSK	1	25	Right Cheek	0mm	Reduced	20525	836.5	19.27	20.50	1.327	0.05	0.822	**1.091**
	LTE Band 5_Ant2	10M	QPSK	1	25	Right Tilted	0mm	Reduced	20525	836.5	19.27	20.50	1.327	-0.07	0.620	0.823
	LTE Band 5_Ant2	10M	QPSK	1	25	Left Cheek	0mm	Reduced	20525	836.5	19.27	20.50	1.327	0.06	0.598	0.794
	LTE Band 5_Ant2	10M	QPSK	1	25	Left Tilted	0mm	Reduced	20525	836.5	19.27	20.50	1.327	0.13	0.546	0.725
	LTE Band 5_Ant2	10M	QPSK	25	12	Right Cheek	0mm	Reduced	20525	836.5	18.29	19.50	1.321	0.15	0.650	0.859
	LTE Band 5_Ant2	10M	QPSK	25	12	Right Tilted	0mm	Reduced	20525	836.5	18.29	19.50	1.321	0.17	0.501	0.662
	LTE Band 5_Ant2	10M	QPSK	25	12	Left Cheek	0mm	Reduced	20525	836.5	18.29	19.50	1.321	-0.01	0.483	0.638
	LTE Band 5_Ant2	10M	QPSK	25	12	Left Tilted	0mm	Reduced	20525	836.5	18.29	19.50	1.321	-0.11	0.443	0.585
	LTE Band 5_Ant2	10M	QPSK	50	0	Right Cheek	0mm	Reduced	20525	836.5	18.29	19.50	1.321	0.05	0.648	0.856
	LTE Band 5_Ant2	10M	QPSK	50	0	Right Tilted	0mm	Reduced	20525	836.5	18.29	19.50	1.321	0.03	0.499	0.659
	LTE Band 5_Ant1	10M	QPSK	1	25	Right Cheek	0mm	Full	20525	836.5	22.55	24.00	1.396	-0.01	0.487	0.680
	LTE Band 5_Ant1	10M	QPSK	1	25	Right Tilted	0mm	Full	20525	836.5	22.55	24.00	1.396	-0.03	0.174	0.243
	LTE Band 5_Ant1	10M	QPSK	1	25	Left Cheek	0mm	Full	20525	836.5	22.55	24.00	1.396	-0.08	0.340	0.475
	LTE Band 5_Ant1	10M	QPSK	1	25	Left Tilted	0mm	Full	20525	836.5	22.55	24.00	1.396	0.06	0.169	0.236
	LTE Band 5_Ant1	10M	QPSK	25	12	Right Cheek	0mm	Full	20525	836.5	21.54	23.00	1.400	0.11	0.375	0.525
	LTE Band 5_Ant1	10M	QPSK	25	12	Right Tilted	0mm	Full	20525	836.5	21.54	23.00	1.400	-0.03	0.142	0.199
	LTE Band 5_Ant1	10M	QPSK	25	12	Left Cheek	0mm	Full	20525	836.5	21.54	23.00	1.400	-0.11	0.275	0.385
	LTE Band 5_Ant1	10M	QPSK	25	12	Left Tilted	0mm	Full	20525	836.5	21.54	23.00	1.400	0.08	0.136	0.190

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
10	LTE Band 66_Ant1	20M	QPSK	1	49	Right Cheek	0mm	Full	132572	1770	22.50	24.00	1.413	0.16	0.336	**0.475**
	LTE Band 66_Ant1	20M	QPSK	1	49	Right Tilted	0mm	Full	132572	1770	22.50	24.00	1.413	0.17	0.203	0.287
	LTE Band 66_Ant1	20M	QPSK	1	49	Left Cheek	0mm	Full	132572	1770	22.50	24.00	1.413	0.1	0.236	0.333
	LTE Band 66_Ant1	20M	QPSK	1	49	Left Tilted	0mm	Full	132572	1770	22.50	24.00	1.413	-0.06	0.208	0.294
	LTE Band 66_Ant1	20M	QPSK	50	24	Right Cheek	0mm	Full	132572	1770	21.39	23.00	1.449	0.12	0.274	0.397
	LTE Band 66_Ant1	20M	QPSK	50	24	Right Tilted	0mm	Full	132572	1770	21.39	23.00	1.449	-0.06	0.164	0.238
	LTE Band 66_Ant1	20M	QPSK	50	24	Left Cheek	0mm	Full	132572	1770	21.39	23.00	1.449	0.08	0.190	0.275
	LTE Band 66_Ant1	20M	QPSK	50	24	Left Tilted	0mm	Full	132572	1770	21.39	23.00	1.449	-0.05	0.179	0.259
	LTE Band 2_Ant2	20M	QPSK	1	49	Right Cheek	0mm	Reduced	19100	1900	17.06	18.00	1.242	0.07	0.619	0.769
	LTE Band 2_Ant2	20M	QPSK	1	49	Right Tilted	0mm	Reduced	19100	1900	17.06	18.00	1.242	-0.14	0.739	0.918
	LTE Band 2_Ant2	20M	QPSK	1	49	Left Cheek	0mm	Reduced	19100	1900	17.06	18.00	1.242	-0.01	0.367	0.456
	LTE Band 2_Ant2	20M	QPSK	1	49	Left Tilted	0mm	Reduced	19100	1900	17.06	18.00	1.242	-0.08	0.421	0.523
11	LTE Band 2_Ant2	20M	QPSK	1	49	Right Tilted	0mm	Reduced	18700	1860	16.92	18.00	1.282	-0.08	0.897	**1.150**
	LTE Band 2_Ant2	20M	QPSK	1	49	Right Tilted	0mm	Reduced	18900	1880	17.04	18.00	1.247	-0.02	0.817	1.019
	LTE Band 2_Ant2	20M	QPSK	50	0	Right Cheek	0mm	Reduced	19100	1900	16.07	17.00	1.239	0.15	0.512	0.634
	LTE Band 2_Ant2	20M	QPSK	50	0	Right Tilted	0mm	Reduced	19100	1900	16.07	17.00	1.239	0.08	0.597	0.740
	LTE Band 2_Ant2	20M	QPSK	50	0	Left Cheek	0mm	Reduced	19100	1900	16.07	17.00	1.239	0.14	0.305	0.378
	LTE Band 2_Ant2	20M	QPSK	50	0	Left Tilted	0mm	Reduced	19100	1900	16.07	17.00	1.239	0.06	0.331	0.410
	LTE Band 2_Ant2	20M	QPSK	100	0	Right Tilted	0mm	Reduced	19100	1900	15.98	17.00	1.265	-0.15	0.595	0.753
	LTE Band 2_Ant1	20M	QPSK	1	49	Right Cheek	0mm	Full	19100	1900	22.77	24.00	1.327	-0.09	0.388	0.515
	LTE Band 2_Ant1	20M	QPSK	1	49	Right Tilted	0mm	Full	19100	1900	22.77	24.00	1.327	0.02	0.284	0.377
	LTE Band 2_Ant1	20M	QPSK	1	49	Left Cheek	0mm	Full	19100	1900	22.77	24.00	1.327	0.12	0.328	0.435
	LTE Band 2_Ant1	20M	QPSK	1	49	Left Tilted	0mm	Full	19100	1900	22.77	24.00	1.327	0.06	0.263	0.349
	LTE Band 2_Ant1	20M	QPSK	50	0	Right Cheek	0mm	Full	19100	1900	21.74	23.00	1.337	-0.08	0.295	0.394
	LTE Band 2_Ant1	20M	QPSK	50	0	Right Tilted	0mm	Full	19100	1900	21.74	23.00	1.337	-0.09	0.211	0.282
	LTE Band 2_Ant1	20M	QPSK	50	0	Left Cheek	0mm	Full	19100	1900	21.74	23.00	1.337	0.04	0.254	0.339
	LTE Band 2_Ant1	20M	QPSK	50	0	Left Tilted	0mm	Full	19100	1900	21.74	23.00	1.337	0.03	0.194	0.259
	LTE Band 30_Ant2	10M	QPSK	1	25	Right Cheek	0mm	Reduced	27710	2310	14.54	15.50	1.247	0.05	0.719	0.897
12	LTE Band 30_Ant2	10M	QPSK	1	25	Right Tilted	0mm	Reduced	27710	2310	14.54	15.50	1.247	-0.17	0.884	**1.103**
	LTE Band 30_Ant2	10M	QPSK	1	25	Left Cheek	0mm	Reduced	27710	2310	14.54	15.50	1.247	0.15	0.342	0.427
	LTE Band 30_Ant2	10M	QPSK	1	25	Left Tilted	0mm	Reduced	27710	2310	14.54	15.50	1.247	0.12	0.427	0.533
	LTE Band 30_Ant2	10M	QPSK	25	0	Right Cheek	0mm	Reduced	27710	2310	13.46	14.50	1.271	0.11	0.545	0.692
	LTE Band 30_Ant2	10M	QPSK	25	0	Right Tilted	0mm	Reduced	27710	2310	13.46	14.50	1.271	0.03	0.687	0.873
	LTE Band 30_Ant2	10M	QPSK	25	0	Left Cheek	0mm	Reduced	27710	2310	13.46	14.50	1.271	0.12	0.278	0.353
	LTE Band 30_Ant2	10M	QPSK	25	0	Left Tilted	0mm	Reduced	27710	2310	13.46	14.50	1.271	-0.08	0.341	0.433
	LTE Band 30_Ant2	10M	QPSK	50	0	Right Cheek	0mm	Reduced	27710	2310	13.42	14.50	1.282	-0.08	0.538	0.690
	LTE Band 30_Ant2	10M	QPSK	50	0	Right Tilted	0mm	Reduced	27710	2310	13.42	14.50	1.282	-0.08	0.682	0.875
	LTE Band 30_Ant1	10M	QPSK	1	25	Right Cheek	0mm	Full	27710	2310	22.57	24.00	1.390	-0.04	0.335	0.466
	LTE Band 30_Ant1	10M	QPSK	1	25	Right Tilted	0mm	Full	27710	2310	22.57	24.00	1.390	0.06	0.272	0.378
	LTE Band 30_Ant1	10M	QPSK	1	25	Left Cheek	0mm	Full	27710	2310	22.57	24.00	1.390	0.01	0.418	0.581
	LTE Band 30_Ant1	10M	QPSK	1	25	Left Tilted	0mm	Full	27710	2310	22.57	24.00	1.390	-0.05	0.371	0.516
	LTE Band 30_Ant1	10M	QPSK	25	0	Right Cheek	0mm	Full	27710	2310	21.43	23.00	1.435	0.02	0.252	0.362
	LTE Band 30_Ant1	10M	QPSK	25	0	Right Tilted	0mm	Full	27710	2310	21.43	23.00	1.435	0.11	0.202	0.290
	LTE Band 30_Ant1	10M	QPSK	25	0	Left Cheek	0mm	Full	27710	2310	21.43	23.00	1.435	-0.04	0.333	0.478
	LTE Band 30_Ant1	10M	QPSK	25	0	Left Tilted	0mm	Full	27710	2310	21.43	23.00	1.435	-0.02	0.295	0.423

<Bluetooth SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power State	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)
	Bluetooth	DH5 1Mbps	Right Cheek	0mm	Ant 3	Full	39	2441	9.60	11.60	1.585	76.71	1.304	-0.09	0.042	0.087
	Bluetooth	DH5 1Mbps	Right Tilted	0mm	Ant 3	Full	39	2441	9.60	11.60	1.585	76.71	1.304	0.08	0.040	0.083
13	Bluetooth	DH5 1Mbps	Left Cheek	0mm	Ant 3	Full	39	2441	9.60	11.60	1.585	76.71	1.304	0.07	0.090	**0.186**
	Bluetooth	DH5 1Mbps	Left Tilted	0mm	Ant 3	Full	39	2441	9.60	11.60	1.585	76.71	1.304	-0.12	0.071	0.147

<WLAN2.4G SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN2.4GHz	802.11b 1Mbps	Right Cheek	0mm	Ant 3	Reduced	11	2462	17.70	19.70	1.585	99.31	1.007	-0.08	0.235	0.375
	WLAN2.4GHz	802.11b 1Mbps	Right Tilted	0mm	Ant 3	Reduced	11	2462	17.70	19.70	1.585	99.31	1.007	0.12	0.286	0.456
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 3	Reduced	11	2462	17.70	19.70	1.585	99.31	1.007	0.03	0.570	0.910
	WLAN2.4GHz	802.11b 1Mbps	Left Tilted	0mm	Ant 3	Reduced	11	2462	17.70	19.70	1.585	99.31	1.007	-0.06	0.470	0.750
14	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 3	Reduced	6	2437	17.40	19.40	1.585	99.31	1.007	-0.13	0.718	**1.146**
	WLAN2.4GHz	802.11b 1Mbps	Right Cheek	0mm	Ant 3	Simultaneous	6	2437	13.40	15.40	1.585	99.31	1.007	0.08	0.115	0.184
	WLAN2.4GHz	802.11b 1Mbps	Right Tilted	0mm	Ant 3	Simultaneous	6	2437	13.40	15.40	1.585	99.31	1.007	0.13	0.098	0.157
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 3	Simultaneous	6	2437	13.40	15.40	1.585	99.31	1.007	0.02	0.249	0.397
	WLAN2.4GHz	802.11b 1Mbps	Left Tilted	0mm	Ant 3	Simultaneous	6	2437	13.40	15.40	1.585	99.31	1.007	0.14	0.202	0.322

<WLAN5G SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power State	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)
	WLAN5.3GHz	802.11a 6Mbps	Right Cheek	0mm	Ant 4	Full	52	5260	18.60	20.60	1.585	96.82	1.033	-0.11	0.437	0.715
	WLAN5.3GHz	802.11a 6Mbps	Right Tilted	0mm	Ant 4	Full	52	5260	18.60	20.60	1.585	96.82	1.033	-0.04	0.527	0.863
	WLAN5.3GHz	802.11a 6Mbps	Left Cheek	0mm	Ant 4	Full	52	5260	18.60	20.60	1.585	96.82	1.033	0.15	0.674	1.103
15	WLAN5.3GHz	802.11a 6Mbps	Left Tilted	0mm	Ant 4	Full	52	5260	18.60	20.60	1.585	96.82	1.033	0.08	0.703	**1.151**
	WLAN5.3GHz	802.11a 6Mbps	Right Tilted	0mm	Ant 4	Full	56	5280	18.58	20.50	1.556	96.82	1.033	-0.06	0.506	0.813
	WLAN5.3GHz	802.11a 6Mbps	Left Cheek	0mm	Ant 4	Full	56	5280	18.58	20.50	1.556	96.82	1.033	0.15	0.651	1.046
	WLAN5.3GHz	802.11a 6Mbps	Left Tilted	0mm	Ant 4	Full	56	5280	18.58	20.50	1.556	96.82	1.033	-0.08	0.685	1.101
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Right Cheek	0mm	Ant 4	Simultaneous	58	5290	12.82	14.80	1.578	87.84	1.138	0.08	0.070	0.126
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Right Tilted	0mm	Ant 4	Simultaneous	58	5290	12.82	14.80	1.578	87.84	1.138	-0.03	0.085	0.153
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 4	Simultaneous	58	5290	12.82	14.80	1.578	87.84	1.138	-0.12	0.111	0.199
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 4	Simultaneous	58	5290	12.82	14.80	1.578	87.84	1.138	-0.03	0.166	0.298
	WLAN5.5GHz	802.11a 6Mbps	Right Cheek	0mm	Ant 4	Full	116	5580	18.50	20.50	1.585	96.82	1.033	0.11	0.307	0.503
	WLAN5.5GHz	802.11a 6Mbps	Right Tilted	0mm	Ant 4	Full	116	5580	18.50	20.50	1.585	96.82	1.033	-0.03	0.342	0.560
16	WLAN5.5GHz	802.11a 6Mbps	Left Cheek	0mm	Ant 4	Full	116	5580	18.50	20.50	1.585	96.82	1.033	0.1	0.578	**0.946**
	WLAN5.5GHz	802.11a 6Mbps	Left Tilted	0mm	Ant 4	Full	116	5580	18.50	20.50	1.585	96.82	1.033	0.16	0.503	0.824
	WLAN5.5GHz	802.11a 6Mbps	Left Cheek	0mm	Ant 4	Full	132	5660	17.95	19.90	1.567	96.82	1.033	-0.08	0.531	0.859
	WLAN5.5GHz	802.11a 6Mbps	Left Tilted	0mm	Ant 4	Full	132	5660	17.95	19.90	1.567	96.82	1.033	0.09	0.470	0.761
	WLAN5.5GHz	802.11n-HT40 MCS0	Right Cheek	0mm	Ant 4	Simultaneous	110	5550	14.78	16.70	1.556	93.92	1.065	-0.12	0.140	0.232
	WLAN5.5GHz	802.11n-HT40 MCS0	Right Tilted	0mm	Ant 4	Simultaneous	110	5550	14.78	16.70	1.556	93.92	1.065	0.15	0.169	0.280
	WLAN5.5GHz	802.11n-HT40 MCS0	Left Cheek	0mm	Ant 4	Simultaneous	110	5550	14.78	16.70	1.556	93.92	1.065	0.05	0.237	0.393
	WLAN5.5GHz	802.11n-HT40 MCS0	Left Tilted	0mm	Ant 4	Simultaneous	110	5550	14.78	16.70	1.556	93.92	1.065	0.01	0.212	0.351
	WLAN5.8GHz	802.11a 6Mbps	Right Cheek	0mm	Ant 4	Full	165	5825	18.05	20.00	1.567	96.82	1.033	0.15	0.165	0.267
	WLAN5.8GHz	802.11a 6Mbps	Right Tilted	0mm	Ant 4	Full	165	5825	18.05	20.00	1.567	96.82	1.033	0.18	0.192	0.311
17	WLAN5.8GHz	802.11a 6Mbps	Left Cheek	0mm	Ant 4	Full	165	5825	18.05	20.00	1.567	96.82	1.033	-0.07	0.624	**1.010**
	WLAN5.8GHz	802.11a 6Mbps	Left Tilted	0mm	Ant 4	Full	165	5825	18.05	20.00	1.567	96.82	1.033	-0.1	0.341	0.552
	WLAN5.8GHz	802.11a 6Mbps	Left Cheek	0mm	Ant 4	Full	157	5785	18.02	20.00	1.578	96.82	1.033	0.16	0.549	0.895
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Right Cheek	0mm	Ant 4	Simultaneous	155	5775	12.98	14.90	1.556	87.84	1.138	-0.01	0.085	0.151
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Right Tilted	0mm	Ant 4	Simultaneous	155	5775	12.98	14.90	1.556	87.84	1.138	-0.12	0.086	0.152
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 4	Simultaneous	155	5775	12.98	14.90	1.556	87.84	1.138	0.15	0.163	0.289
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 4	Simultaneous	155	5775	12.98	14.90	1.556	87.84	1.138	0.05	0.079	0.139

15.2 Hotspot SAR

<GSM SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Power State	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_Ant2	GPRS 4 Tx slots	Front	5mm	Reduced	251	848.8	25.82	27.00	1.312	-0.09	0.529	0.694
	GSM850_Ant2	GPRS 4 Tx slots	Back	5mm	Reduced	251	848.8	25.82	27.00	1.312	-0.04	0.821	1.077
	GSM850_Ant2	GPRS 4 Tx slots	Back	5mm	Reduced	128	824.2	25.80	27.00	1.318	0.08	0.883	1.164
	GSM850_Ant2	GPRS 4 Tx slots	Back	5mm	Reduced	189	836.4	25.77	27.00	1.327	0.09	0.833	1.106
	GSM850_Ant2	GPRS 4 Tx slots	Left Side	5mm	Reduced	251	848.8	25.82	27.00	1.312	-0.09	0.238	0.312
	GSM850_Ant2	GPRS 4 Tx slots	Right Side	5mm	Reduced	251	848.8	25.82	27.00	1.312	0.04	0.228	0.299
	GSM850_Ant2	GPRS 4 Tx slots	Top Side	5mm	Reduced	251	848.8	25.82	27.00	1.312	-0.07	0.701	0.920
	GSM850_Ant2	GPRS 4 Tx slots	Top Side	5mm	Reduced	128	824.2	25.80	27.00	1.318	0.03	0.727	0.958
	GSM850_Ant2	GPRS 4 Tx slots	Top Side	5mm	Reduced	189	836.4	25.77	27.00	1.327	0.17	0.714	0.948
	GSM850_Ant1	GPRS 4 Tx slots	Front	5mm	Reduced	251	848.8	24.79	26.00	1.321	0.01	0.496	0.655
18	GSM850_Ant1	GPRS 4 Tx slots	Back	5mm	Reduced	251	848.8	24.79	26.00	1.321	-0.14	0.975	**1.288**
	GSM850_Ant1	GPRS 4 Tx slots	Back	5mm	Reduced	128	824.2	24.78	26.00	1.324	0.07	0.963	1.275
	GSM850_Ant1	GPRS 4 Tx slots	Back	5mm	Reduced	189	836.4	24.75	26.00	1.334	0.01	0.948	1.264
	GSM850_Ant1	GPRS 4 Tx slots	Left Side	5mm	Reduced	251	848.8	24.79	26.00	1.321	0.04	0.186	0.246
	GSM850_Ant1	GPRS 4 Tx slots	Right Side	5mm	Reduced	251	848.8	24.79	26.00	1.321	-0.14	0.322	0.380
	GSM850_Ant1	GPRS 4 Tx slots	Bottom Side	5mm	Reduced	251	848.8	24.79	26.00	1.321	0.17	0.853	1.127
	GSM850_Ant1	GPRS 4 Tx slots	Bottom Side	5mm	Reduced	128	824.2	24.78	26.00	1.324	0.12	0.849	1.124
	GSM850_Ant1	GPRS 4 Tx slots	Bottom Side	5mm	Reduced	189	836.4	24.75	26.00	1.334	-0.03	0.842	1.123
	GSM1900_Ant2	GPRS 4 Tx slots	Front	5mm	Reduced	661	1880	20.71	21.50	1.199	0.08	0.472	0.566
	GSM1900_Ant2	GPRS 4 Tx slots	Back	5mm	Reduced	661	1880	20.71	21.50	1.199	0.07	0.927	1.112
	GSM1900_Ant2	GPRS 4 Tx slots	Back	5mm	Reduced	512	1850.2	20.66	21.50	1.213	0.02	0.994	1.206
	GSM1900_Ant2	GPRS 4 Tx slots	Back	5mm	Reduced	810	1909.8	20.38	21.50	1.294	-0.11	0.773	1.000
	GSM1900_Ant2	GPRS 4 Tx slots	Left Side	5mm	Reduced	661	1880	19.83	20.50	1.167	0.15	0.116	0.135
	GSM1900_Ant2	GPRS 4 Tx slots	Right Side	5mm	Reduced	661	1880	19.83	20.50	1.167	-0.03	0.073	0.085
	GSM1900_Ant2	GPRS 4 Tx slots	Top Side	5mm	Reduced	661	1880	19.83	20.50	1.167	0.11	0.880	1.027
	GSM1900_Ant2	GPRS 4 Tx slots	Top Side	5mm	Reduced	512	1850.2	19.81	20.50	1.172	0.15	0.964	1.130
	GSM1900_Ant2	GPRS 4 Tx slots	Top Side	5mm	Reduced	810	1909.8	19.38	20.50	1.294	-0.18	0.714	0.924
	GSM1900_Ant1	GPRS 4 Tx slots	Front	5mm	Reduced	661	1880	21.37	22.50	1.297	0.11	0.713	0.925
	GSM1900_Ant1	GPRS 4 Tx slots	Front	5mm	Reduced	512	1850.2	21.16	22.50	1.361	0.15	0.745	1.014
	GSM1900_Ant1	GPRS 4 Tx slots	Front	5mm	Reduced	810	1909.8	21.33	22.50	1.309	0.07	0.749	0.981
	GSM1900_Ant1	GPRS 4 Tx slots	Back	5mm	Reduced	661	1880	21.37	22.50	1.297	0.18	1.030	1.336
19	GSM1900_Ant1	GPRS 4 Tx slots	Back	5mm	Reduced	512	1850.2	21.16	22.50	1.361	0.1	1.040	**1.416**
	GSM1900_Ant1	GPRS 4 Tx slots	Back	5mm	Reduced	810	1909.8	21.33	22.50	1.309	0.05	0.970	1.270
	GSM1900_Ant1	GPRS 4 Tx slots	Left Side	5mm	Reduced	661	1880	20.26	21.50	1.330	-0.07	0.365	0.486
	GSM1900_Ant1	GPRS 4 Tx slots	Right Side	5mm	Reduced	661	1880	20.26	21.50	1.330	-0.1	0.173	0.230
	GSM1900_Ant1	GPRS 4 Tx slots	Bottom Side	5mm	Reduced	661	1880	20.26	21.50	1.330	0.19	1.010	1.344
	GSM1900_Ant1	GPRS 4 Tx slots	Bottom Side	5mm	Reduced	512	1850.2	20.20	21.50	1.349	0.12	0.985	1.329
	GSM1900_Ant1	GPRS 4 Tx slots	Bottom Side	5mm	Reduced	810	1909.8	20.21	21.50	1.346	0.17	1.040	1.400

<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WCDMA V_Ant2	RMC 12.2Kbps	Front	5mm	Reduced	4233	846.6	20.32	21.50	1.312	0.03	0.476	0.625
	WCDMA V_Ant2	RMC 12.2Kbps	Back	5mm	Reduced	4233	846.6	20.32	21.50	1.312	0.07	0.893	1.172
	WCDMA V_Ant2	RMC 12.2Kbps	Back	5mm	Reduced	4132	826.4	20.30	21.50	1.318	0.01	0.797	1.051
	WCDMA V_Ant2	RMC 12.2Kbps	Back	5mm	Reduced	4182	836.4	20.26	21.50	1.330	-0.15	0.811	1.079
	WCDMA V_Ant2	RMC 12.2Kbps	Left Side	5mm	Reduced	4233	846.6	20.32	21.50	1.312	0.08	0.209	0.274
	WCDMA V_Ant2	RMC 12.2Kbps	Right Side	5mm	Reduced	4233	846.6	20.32	21.50	1.312	0.06	0.172	0.226
	WCDMA V_Ant2	RMC 12.2Kbps	Top Side	5mm	Reduced	4233	846.6	20.32	21.50	1.312	0.02	0.703	0.922
	WCDMA V_Ant2	RMC 12.2Kbps	Top Side	5mm	Reduced	4132	826.4	20.30	21.50	1.318	0.06	0.724	0.954
	WCDMA V_Ant2	RMC 12.2Kbps	Top Side	5mm	Reduced	4182	836.4	20.26	21.50	1.330	0.09	0.730	0.971
	WCDMA V_Ant1	RMC 12.2Kbps	Front	5mm	Reduced	4233	846.6	19.67	21.00	1.358	-0.13	0.541	0.735
	WCDMA V_Ant1	RMC 12.2Kbps	Back	5mm	Reduced	4233	846.6	19.67	21.00	1.358	0.16	1.000	1.358
	WCDMA V_Ant1	RMC 12.2Kbps	Back	5mm	Reduced	4132	826.4	19.66	21.00	1.361	0.04	1.030	1.402
20	WCDMA V_Ant1	RMC 12.2Kbps	Back	5mm	Reduced	4182	836.4	19.64	21.00	1.368	0.12	1.030	**1.409**
	WCDMA V_Ant1	RMC 12.2Kbps	Left Side	5mm	Reduced	4233	846.6	19.67	21.00	1.358	0.09	0.188	0.255
	WCDMA V_Ant1	RMC 12.2Kbps	Right Side	5mm	Reduced	4233	846.6	19.67	21.00	1.358	0.11	0.442	0.600
	WCDMA V_Ant1	RMC 12.2Kbps	Bottom Side	5mm	Reduced	4233	846.6	19.67	21.00	1.358	-0.12	0.892	1.212
	WCDMA V_Ant1	RMC 12.2Kbps	Bottom Side	5mm	Reduced	4132	826.4	19.66	21.00	1.361	-0.06	0.881	1.199
	WCDMA V_Ant1	RMC 12.2Kbps	Bottom Side	5mm	Reduced	4182	836.4	19.64	21.00	1.368	0.08	0.891	1.219
	WCDMA IV_Ant1	RMC 12.2Kbps	Front	5mm	Reduced	1513	1752.6	17.02	18.50	1.406	0.1	0.473	0.665
	WCDMA IV_Ant1	RMC 12.2Kbps	Back	5mm	Reduced	1513	1752.6	17.02	18.50	1.406	-0.01	0.939	1.320
	WCDMA IV_Ant1	RMC 12.2Kbps	Back	5mm	Reduced	1312	1712.4	17.01	18.50	1.409	0.04	0.951	1.340
	WCDMA IV_Ant1	RMC 12.2Kbps	Back	5mm	Reduced	1413	1732.6	17.00	18.50	1.413	-0.07	0.946	1.336
	WCDMA IV_Ant1	RMC 12.2Kbps	Left Side	5mm	Reduced	1513	1752.6	17.02	18.50	1.406	-0.03	0.276	0.388
	WCDMA IV_Ant1	RMC 12.2Kbps	Right Side	5mm	Reduced	1513	1752.6	17.02	18.50	1.406	-0.06	0.147	0.207
	WCDMA IV_Ant1	RMC 12.2Kbps	Bottom Side	5mm	Reduced	1513	1752.6	17.02	18.50	1.406	0.07	1.010	1.420
	WCDMA IV_Ant1	RMC 12.2Kbps	Bottom Side	5mm	Reduced	1312	1712.4	17.01	18.50	1.409	0.11	0.949	1.337
21	WCDMA IV_Ant1	RMC 12.2Kbps	Bottom Side	5mm	Reduced	1413	1732.6	17.00	18.50	1.413	0.12	1.020	**1.441**
	WCDMA II_Ant2	RMC 12.2Kbps	Front	5mm	Reduced	9262	1852.4	17.01	18.50	1.409	0.03	0.429	0.605
	WCDMA II_Ant2	RMC 12.2Kbps	Back	5mm	Reduced	9262	1852.4	17.01	18.50	1.409	0.02	0.823	1.160
	WCDMA II_Ant2	RMC 12.2Kbps	Back	5mm	Reduced	9400	1880	16.90	18.50	1.445	0.08	0.777	1.123
	WCDMA II_Ant2	RMC 12.2Kbps	Back	5mm	Reduced	9538	1907.6	16.73	18.50	1.503	0.07	0.691	1.039
	WCDMA II_Ant2	RMC 12.2Kbps	Left Side	5mm	Reduced	9262	1852.4	15.98	17.50	1.419	-0.15	0.103	0.146
	WCDMA II_Ant2	RMC 12.2Kbps	Right Side	5mm	Reduced	9262	1852.4	15.98	17.50	1.419	0.08	0.059	0.084
	WCDMA II_Ant2	RMC 12.2Kbps	Top Side	5mm	Reduced	9262	1852.4	15.98	17.50	1.419	0.06	0.775	1.100
	WCDMA II_Ant2	RMC 12.2Kbps	Top Side	5mm	Reduced	9400	1880	15.95	17.50	1.429	0.14	0.727	1.039
	WCDMA II_Ant2	RMC 12.2Kbps	Top Side	5mm	Reduced	9538	1907.6	15.77	17.50	1.489	-0.16	0.623	0.928
	WCDMA II_Ant1	RMC 12.2Kbps	Front	5mm	Reduced	9262	1852.4	17.95	19.00	1.274	0.14	0.710	0.904
	WCDMA II_Ant1	RMC 12.2Kbps	Front	5mm	Reduced	9400	1880	17.92	19.00	1.282	-0.14	0.704	0.903
	WCDMA II_Ant1	RMC 12.2Kbps	Front	5mm	Reduced	9538	1907.6	17.80	19.00	1.318	0.07	0.677	0.892
22	WCDMA II_Ant1	RMC 12.2Kbps	Back	5mm	Reduced	9262	1852.4	17.95	19.00	1.274	0.04	1.090	**1.388**
	WCDMA II_Ant1	RMC 12.2Kbps	Back	5mm	Reduced	9400	1880	17.92	19.00	1.282	0.09	1.050	1.346
	WCDMA II_Ant1	RMC 12.2Kbps	Back	5mm	Reduced	9538	1907.6	17.80	19.00	1.318	0.06	0.992	1.308
	WCDMA II_Ant1	RMC 12.2Kbps	Left Side	5mm	Reduced	9262	1852.4	16.85	18.00	1.303	-0.11	0.363	0.473
	WCDMA II_Ant1	RMC 12.2Kbps	Right Side	5mm	Reduced	9262	1852.4	16.85	18.00	1.303	-0.03	0.135	0.176
	WCDMA II_Ant1	RMC 12.2Kbps	Bottom Side	5mm	Reduced	9262	1852.4	16.85	18.00	1.303	-0.15	1.020	1.329
	WCDMA II_Ant1	RMC 12.2Kbps	Bottom Side	5mm	Reduced	9400	1880	16.83	18.00	1.309	0.07	1.030	1.348
	WCDMA II_Ant1	RMC 12.2Kbps	Bottom Side	5mm	Reduced	9538	1907.6	16.81	18.00	1.315	0.05	1.050	1.381

<FDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Power State	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 12_Ant2	10M	QPSK	1	25	Front	5mm	Full	23095	707.5	21.94	23.00	1.276	-0.02	0.235	0.300
	LTE Band 12_Ant2	10M	QPSK	1	25	Back	5mm	Full	23095	707.5	21.94	23.00	1.276	0.05	0.561	0.716
	LTE Band 12_Ant2	10M	QPSK	1	25	Left Side	5mm	Full	23095	707.5	21.94	23.00	1.276	0.1	0.292	0.373
	LTE Band 12_Ant2	10M	QPSK	1	25	Right Side	5mm	Full	23095	707.5	21.94	23.00	1.276	-0.12	0.171	0.218
	LTE Band 12_Ant2	10M	QPSK	1	25	Top Side	5mm	Full	23095	707.5	21.94	23.00	1.276	0.1	0.406	0.518
	LTE Band 12_Ant2	10M	QPSK	25	12	Front	5mm	Full	23095	707.5	20.91	22.00	1.285	-0.09	0.196	0.252
	LTE Band 12_Ant2	10M	QPSK	25	12	Back	5mm	Full	23095	707.5	20.91	22.00	1.285	0.1	0.428	0.550
	LTE Band 12_Ant2	10M	QPSK	25	12	Left Side	5mm	Full	23095	707.5	20.91	22.00	1.285	0.12	0.216	0.278
	LTE Band 12_Ant2	10M	QPSK	25	12	Right Side	5mm	Full	23095	707.5	20.91	22.00	1.285	0.04	0.159	0.162
	LTE Band 12_Ant2	10M	QPSK	25	12	Top Side	5mm	Full	23095	707.5	20.91	22.00	1.285	0.02	0.314	0.404
	LTE Band 12_Ant1	10M	QPSK	1	25	Front	5mm	Reduced	23095	707.5	22.00	23.50	1.413	-0.01	0.498	0.703
	LTE Band 12_Ant1	10M	QPSK	1	25	Back	5mm	Reduced	23095	707.5	22.00	23.50	1.413	-0.02	0.858	1.212
	LTE Band 12_Ant1	10M	QPSK	1	25	Left Side	5mm	Reduced	23095	707.5	22.00	23.50	1.413	-0.09	0.427	0.603
23	LTE Band 12_Ant1	10M	QPSK	1	25	Right Side	5mm	Reduced	23095	707.5	22.00	23.50	1.413	-0.02	0.885	**1.250**
	LTE Band 12_Ant1	10M	QPSK	1	25	Bottom Side	5mm	Reduced	23095	707.5	22.00	23.50	1.413	0.16	0.681	0.962
	LTE Band 12_Ant1	10M	QPSK	25	12	Front	5mm	Reduced	23095	707.5	21.06	22.50	1.393	-0.1	0.402	0.560
	LTE Band 12_Ant1	10M	QPSK	25	12	Back	5mm	Reduced	23095	707.5	21.06	22.50	1.393	0.16	0.682	0.950
	LTE Band 12_Ant1	10M	QPSK	25	12	Left Side	5mm	Reduced	23095	707.5	21.06	22.50	1.393	0.05	0.345	0.481
	LTE Band 12_Ant1	10M	QPSK	25	12	Right Side	5mm	Reduced	23095	707.5	21.06	22.50	1.393	0.18	0.711	0.991
	LTE Band 12_Ant1	10M	QPSK	25	12	Bottom Side	5mm	Reduced	23095	707.5	21.06	22.50	1.393	0.1	0.554	0.772
	LTE Band 12_Ant1	10M	QPSK	50	0	Back	5mm	Reduced	23095	707.5	21.05	22.50	1.396	0.02	0.676	0.944
	LTE Band 12_Ant1	10M	QPSK	50	0	Right Side	5mm	Reduced	23095	707.5	21.05	22.50	1.396	0.16	0.702	0.980
	LTE Band 12_Ant1	10M	QPSK	50	0	Bottom Side	5mm	Reduced	23095	707.5	21.05	22.50	1.396	0.15	0.560	0.782
	LTE Band 13_Ant1	10M	QPSK	1	25	Front	5mm	Reduced	23230	782	21.26	22.50	1.330	0.09	0.571	0.760
24	LTE Band 13_Ant1	10M	QPSK	1	25	Back	5mm	Reduced	23230	782	21.26	22.50	1.330	0.01	1.050	**1.397**
	LTE Band 13_Ant1	10M	QPSK	1	25	Left Side	5mm	Reduced	23230	782	21.26	22.50	1.330	-0.03	0.342	0.455
	LTE Band 13_Ant1	10M	QPSK	1	25	Right Side	5mm	Reduced	23230	782	21.26	22.50	1.330	0.16	0.658	0.875
	LTE Band 13_Ant1	10M	QPSK	1	25	Bottom Side	5mm	Reduced	23230	782	21.26	22.50	1.330	0.15	0.819	1.090
	LTE Band 13_Ant1	10M	QPSK	25	12	Front	5mm	Reduced	23230	782	20.26	21.50	1.330	0.11	0.468	0.623
	LTE Band 13_Ant1	10M	QPSK	25	12	Back	5mm	Reduced	23230	782	20.26	21.50	1.330	0.17	0.852	1.134
	LTE Band 13_Ant1	10M	QPSK	25	12	Left Side	5mm	Reduced	23230	782	20.26	21.50	1.330	-0.06	0.284	0.378
	LTE Band 13_Ant1	10M	QPSK	25	12	Right Side	5mm	Reduced	23230	782	20.26	21.50	1.330	-0.19	0.501	0.667
	LTE Band 13_Ant1	10M	QPSK	25	12	Bottom Side	5mm	Reduced	23230	782	20.26	21.50	1.330	0.08	0.641	0.853
	LTE Band 13_Ant1	10M	QPSK	50	0	Back	5mm	Reduced	23230	782	20.24	21.50	1.337	0.13	0.856	1.144
	LTE Band 13_Ant1	10M	QPSK	50	0	Right Side	5mm	Reduced	23230	782	20.24	21.50	1.337	-0.04	0.497	0.664
	LTE Band 13_Ant1	10M	QPSK	50	0	Bottom Side	5mm	Reduced	23230	782	20.24	21.50	1.337	0.09	0.640	0.855
	LTE Band 14_Ant1	10M	QPSK	1	25	Front	5mm	Reduced	23330	793	21.23	22.50	1.340	-0.06	0.546	0.731
25	LTE Band 14_Ant1	10M	QPSK	1	25	Back	5mm	Reduced	23330	793	21.23	22.50	1.340	0.11	1.070	**1.433**
	LTE Band 14_Ant1	10M	QPSK	1	25	Left Side	5mm	Reduced	23330	793	21.23	22.50	1.340	0.07	0.261	0.350
	LTE Band 14_Ant1	10M	QPSK	1	25	Right Side	5mm	Reduced	23330	793	21.23	22.50	1.340	0.17	0.580	0.777
	LTE Band 14_Ant1	10M	QPSK	1	25	Bottom Side	5mm	Reduced	23330	793	21.23	22.50	1.340	0.15	0.847	1.135
	LTE Band 14_Ant1	10M	QPSK	25	12	Front	5mm	Reduced	23330	793	20.15	21.50	1.365	0.18	0.438	0.598
	LTE Band 14_Ant1	10M	QPSK	25	12	Back	5mm	Reduced	23330	793	20.15	21.50	1.365	-0.04	0.865	1.180
	LTE Band 14_Ant1	10M	QPSK	25	12	Left Side	5mm	Reduced	23330	793	20.15	21.50	1.365	-0.09	0.199	0.272
	LTE Band 14_Ant1	10M	QPSK	25	12	Right Side	5mm	Reduced	23330	793	20.15	21.50	1.365	0.15	0.450	0.614
	LTE Band 14_Ant1	10M	QPSK	25	12	Bottom Side	5mm	Reduced	23330	793	20.15	21.50	1.365	0.13	0.680	0.928
	LTE Band 14_Ant1	10M	QPSK	50	0	Back	5mm	Reduced	23330	793	20.08	21.50	1.387	-0.01	0.857	1.188
	LTE Band 14_Ant1	10M	QPSK	50	0	Bottom Side	5mm	Reduced	23330	793	20.08	21.50	1.387	0.05	0.655	0.909
	LTE Band 5_Ant2	10M	QPSK	1	25	Front	5mm	Reduced	20525	836.5	20.10	21.50	1.380	0.01	0.602	0.831
	LTE Band 5_Ant2	10M	QPSK	1	25	Back	5mm	Reduced	20525	836.5	20.10	21.50	1.380	-0.11	0.807	1.114
	LTE Band 5_Ant2	10M	QPSK	1	25	Left Side	5mm	Reduced	20525	836.5	20.10	21.50	1.380	0.13	0.254	0.351

	LTE Band 5_Ant2	10M	QPSK	1	25	Right Side	5mm	Reduced	20525	836.5	20.10	21.50	1.380	0.07	0.228	0.315
	LTE Band 5_Ant2	10M	QPSK	1	25	Top Side	5mm	Reduced	20525	836.5	20.10	21.50	1.380	0.04	0.691	0.954
	LTE Band 5_Ant2	10M	QPSK	25	12	Front	5mm	Reduced	20525	836.5	19.06	20.50	1.393	0.07	0.444	0.619
	LTE Band 5_Ant2	10M	QPSK	25	12	Back	5mm	Reduced	20525	836.5	19.06	20.50	1.393	-0.06	0.679	0.946
	LTE Band 5_Ant2	10M	QPSK	25	12	Left Side	5mm	Reduced	20525	836.5	19.06	20.50	1.393	-0.08	0.168	0.234
	LTE Band 5_Ant2	10M	QPSK	25	12	Right Side	5mm	Reduced	20525	836.5	19.06	20.50	1.393	0.19	0.187	0.261
	LTE Band 5_Ant2	10M	QPSK	25	12	Top Side	5mm	Reduced	20525	836.5	19.06	20.50	1.393	0.03	0.496	0.691
	LTE Band 5_Ant2	10M	QPSK	50	0	Front	5mm	Reduced	20525	836.5	19.07	20.50	1.390	0.06	0.439	0.610
	LTE Band 5_Ant2	10M	QPSK	50	0	Back	5mm	Reduced	20525	836.5	19.07	20.50	1.390	-0.06	0.672	0.934
	LTE Band 5_Ant2	10M	QPSK	50	0	Top Side	5mm	Reduced	20525	836.5	19.07	20.50	1.390	0.04	0.485	0.674
	LTE Band 5_Ant1	10M	QPSK	1	25	Front	5mm	Reduced	20525	836.5	19.58	21.00	1.387	-0.03	0.548	0.760
26	LTE Band 5_Ant1	10M	QPSK	1	25	Back	5mm	Reduced	20525	836.5	19.58	21.00	1.387	0.03	1.010	**1.401**
	LTE Band 5_Ant1	10M	QPSK	1	25	Left Side	5mm	Reduced	20525	836.5	19.58	21.00	1.387	0.03	0.235	0.326
	LTE Band 5_Ant1	10M	QPSK	1	25	Right Side	5mm	Reduced	20525	836.5	19.58	21.00	1.387	0.12	0.405	0.562
	LTE Band 5_Ant1	10M	QPSK	1	25	Bottom Side	5mm	Reduced	20525	836.5	19.58	21.00	1.387	0.1	0.852	1.182
	LTE Band 5_Ant1	10M	QPSK	25	12	Front	5mm	Reduced	20525	836.5	18.52	20.00	1.406	-0.19	0.431	0.606
	LTE Band 5_Ant1	10M	QPSK	25	12	Back	5mm	Reduced	20525	836.5	18.52	20.00	1.406	0.15	0.776	1.091
	LTE Band 5_Ant1	10M	QPSK	25	12	Left Side	5mm	Reduced	20525	836.5	18.52	20.00	1.406	0.06	0.186	0.262
	LTE Band 5_Ant1	10M	QPSK	25	12	Right Side	5mm	Reduced	20525	836.5	18.52	20.00	1.406	0.07	0.311	0.437
	LTE Band 5_Ant1	10M	QPSK	25	12	Bottom Side	5mm	Reduced	20525	836.5	18.52	20.00	1.406	0.02	0.654	0.920
	LTE Band 5_Ant1	10M	QPSK	50	0	Back	5mm	Reduced	20525	836.5	18.52	20.00	1.406	-0.11	0.770	1.083
	LTE Band 5_Ant1	10M	QPSK	50	0	Bottom Side	5mm	Reduced	20525	836.5	18.52	20.00	1.406	0.1	0.651	0.915
	LTE Band 66_Ant1	20M	QPSK	1	49	Front	5mm	Reduced	132572	1770	16.82	18.50	1.472	0.03	0.516	0.760
27	LTE Band 66_Ant1	20M	QPSK	1	49	Back	5mm	Reduced	132572	1770	16.82	18.50	1.472	0.04	0.961	**1.415**
	LTE Band 66_Ant1	20M	QPSK	1	49	Back	5mm	Reduced	132072	1720	16.78	18.50	1.486	0.06	0.901	1.339
	LTE Band 66_Ant1	20M	QPSK	1	49	Back	5mm	Reduced	132322	1745	16.75	18.50	1.496	0.15	0.921	1.378
	LTE Band 66_Ant1	20M	QPSK	1	49	Left Side	5mm	Reduced	132572	1770	16.42	18.00	1.439	-0.07	0.270	0.388
	LTE Band 66_Ant1	20M	QPSK	1	49	Right Side	5mm	Reduced	132572	1770	16.42	18.00	1.439	-0.12	0.124	0.178
	LTE Band 66_Ant1	20M	QPSK	1	49	Bottom Side	5mm	Reduced	132572	1770	16.42	18.00	1.439	0.03	0.943	1.357
	LTE Band 66_Ant1	20M	QPSK	1	49	Bottom Side	5mm	Reduced	132072	1720	16.40	18.00	1.445	0.12	0.875	1.265
	LTE Band 66_Ant1	20M	QPSK	1	49	Bottom Side	5mm	Reduced	132322	1745	16.36	18.00	1.459	-0.14	0.905	1.320
	LTE Band 66_Ant1	20M	QPSK	50	24	Front	5mm	Reduced	132572	1770	15.78	17.50	1.486	0.08	0.395	0.587
	LTE Band 66_Ant1	20M	QPSK	50	24	Back	5mm	Reduced	132572	1770	15.78	17.50	1.486	0.04	0.758	1.126
	LTE Band 66_Ant1	20M	QPSK	50	24	Back	5mm	Reduced	132072	1720	15.76	17.50	1.493	0.09	0.723	1.079
	LTE Band 66_Ant1	20M	QPSK	50	24	Back	5mm	Reduced	132322	1745	15.73	17.50	1.503	-0.16	0.732	1.100
	LTE Band 66_Ant1	20M	QPSK	50	24	Left Side	5mm	Reduced	132572	1770	15.38	17.00	1.452	-0.13	0.207	0.301
	LTE Band 66_Ant1	20M	QPSK	50	24	Right Side	5mm	Reduced	132572	1770	15.38	17.00	1.452	0.02	0.102	0.148
	LTE Band 66_Ant1	20M	QPSK	50	24	Bottom Side	5mm	Reduced	132572	1770	15.38	17.00	1.452	0.13	0.756	1.098
	LTE Band 66_Ant1	20M	QPSK	50	24	Bottom Side	5mm	Reduced	132072	1720	15.35	17.00	1.462	0.11	0.740	1.082
	LTE Band 66_Ant1	20M	QPSK	50	24	Bottom Side	5mm	Reduced	132322	1745	15.33	17.00	1.469	0.04	0.747	1.097
	LTE Band 66_Ant1	20M	QPSK	100	0	Back	5mm	Reduced	132572	1770	15.74	17.50	1.500	0.09	0.760	1.140
	LTE Band 66_Ant1	20M	QPSK	100	0	Bottom Side	5mm	Reduced	132572	1770	15.36	17.00	1.459	0.14	0.754	1.100
	LTE Band 2_Ant2	20M	QPSK	1	49	Front	5mm	Reduced	19100	1900	18.26	19.00	1.186	0.13	0.414	0.491
	LTE Band 2_Ant2	20M	QPSK	1	49	Back	5mm	Reduced	19100	1900	18.26	19.00	1.186	0.02	0.827	0.981
	LTE Band 2_Ant2	20M	QPSK	1	49	Back	5mm	Reduced	18700	1860	18.04	19.00	1.247	-0.17	0.904	1.128
	LTE Band 2_Ant2	20M	QPSK	1	49	Back	5mm	Reduced	18900	1880	18.11	19.00	1.227	0.13	0.872	1.070
	LTE Band 2_Ant2	20M	QPSK	1	49	Left Side	5mm	Reduced	19100	1900	17.78	18.50	1.180	-0.07	0.113	0.133
	LTE Band 2_Ant2	20M	QPSK	1	49	Right Side	5mm	Reduced	19100	1900	17.78	18.50	1.180	-0.12	0.066	0.078
	LTE Band 2_Ant2	20M	QPSK	1	49	Top Side	5mm	Reduced	19100	1900	17.78	18.50	1.180	0.17	0.840	0.991
	LTE Band 2_Ant2	20M	QPSK	1	49	Top Side	5mm	Reduced	18700	1860	17.75	18.50	1.189	0.18	0.952	1.131
	LTE Band 2_Ant2	20M	QPSK	1	49	Top Side	5mm	Reduced	18900	1880	17.67	18.50	1.211	0.16	0.937	1.134
	LTE Band 2_Ant2	20M	QPSK	50	0	Front	5mm	Reduced	19100	1900	17.30	18.00	1.175	-0.13	0.338	0.397
	LTE Band 2_Ant2	20M	QPSK	50	0	Back	5mm	Reduced	19100	1900	17.30	18.00	1.175	0.04	0.655	0.770
	LTE Band 2_Ant2	20M	QPSK	50	0	Left Side	5mm	Reduced	19100	1900	16.74	17.50	1.191	0.08	0.094	0.112
	LTE Band 2_Ant2	20M	QPSK	50	0	Right Side	5mm	Reduced	19100	1900	16.74	17.50	1.191	0.11	0.051	0.061
	LTE Band 2_Ant2	20M	QPSK	50	0	Top Side	5mm	Reduced	19100	1900	16.74	17.50	1.191	-0.07	0.663	0.790

	LTE Band 2_Ant2	20M	QPSK	100	0	Back	5mm	Reduced	19100	1900	17.21	18.00	1.199	0.19	0.651	0.781
	LTE Band 2_Ant2	20M	QPSK	100	0	Top Side	5mm	Reduced	19100	1900	16.65	17.50	1.216	0.15	0.662	0.805
	LTE Band 2_Ant1	20M	QPSK	1	49	Front	5mm	Reduced	19100	1900	17.80	19.00	1.318	0.03	0.640	0.844
	LTE Band 2_Ant1	20M	QPSK	1	49	Front	5mm	Reduced	18700	1860	17.70	19.00	1.349	0.02	0.656	0.885
	LTE Band 2_Ant1	20M	QPSK	1	49	Front	5mm	Reduced	18900	1880	17.75	19.00	1.334	0.12	0.670	0.893
	LTE Band 2_Ant1	20M	QPSK	1	49	Back	5mm	Reduced	19100	1900	17.80	19.00	1.318	0.13	1.050	1.384
28	LTE Band 2_Ant1	20M	QPSK	1	49	Back	5mm	Reduced	18700	1860	17.70	19.00	1.349	0.07	1.060	**1.430**
	LTE Band 2_Ant1	20M	QPSK	1	49	Back	5mm	Reduced	18900	1880	17.75	19.00	1.334	0.07	1.060	1.414
	LTE Band 2_Ant1	20M	QPSK	1	49	Left Side	5mm	Reduced	19100	1900	16.64	18.00	1.368	-0.08	0.332	0.454
	LTE Band 2_Ant1	20M	QPSK	1	49	Right Side	5mm	Reduced	19100	1900	16.64	18.00	1.368	0.03	0.140	0.191
	LTE Band 2_Ant1	20M	QPSK	1	49	Bottom Side	5mm	Reduced	19100	1900	16.64	18.00	1.368	0.18	1.010	1.381
	LTE Band 2_Ant1	20M	QPSK	1	49	Bottom Side	5mm	Reduced	18700	1860	16.59	18.00	1.384	0.08	0.988	1.367
	LTE Band 2_Ant1	20M	QPSK	1	49	Bottom Side	5mm	Reduced	18900	1880	16.60	18.00	1.380	0.17	1.000	1.380
	LTE Band 2_Ant1	20M	QPSK	50	0	Front	5mm	Reduced	19100	1900	16.78	18.00	1.324	-0.14	0.512	0.678
	LTE Band 2_Ant1	20M	QPSK	50	0	Back	5mm	Reduced	19100	1900	16.78	18.00	1.324	-0.12	0.797	1.056
	LTE Band 2_Ant1	20M	QPSK	50	0	Back	5mm	Reduced	18700	1860	16.61	18.00	1.377	0.05	0.815	1.122
	LTE Band 2_Ant1	20M	QPSK	50	0	Back	5mm	Reduced	18900	1880	16.71	18.00	1.346	0.09	0.810	1.090
	LTE Band 2_Ant1	20M	QPSK	50	0	Left Side	5mm	Reduced	19100	1900	15.69	17.00	1.352	0.04	0.255	0.345
	LTE Band 2_Ant1	20M	QPSK	50	0	Right Side	5mm	Reduced	19100	1900	15.69	17.00	1.352	0.02	0.126	0.170
	LTE Band 2_Ant1	20M	QPSK	50	0	Bottom Side	5mm	Reduced	19100	1900	15.69	17.00	1.352	0.16	0.742	1.003
	LTE Band 2_Ant1	20M	QPSK	50	0	Bottom Side	5mm	Reduced	18700	1860	15.53	17.00	1.403	0.04	0.755	1.059
	LTE Band 2_Ant1	20M	QPSK	50	0	Bottom Side	5mm	Reduced	18900	1880	15.61	17.00	1.377	0.01	0.758	1.044
	LTE Band 2_Ant1	20M	QPSK	100	0	Front	5mm	Reduced	19100	1900	16.72	18.00	1.343	-0.12	0.510	0.685
	LTE Band 2_Ant1	20M	QPSK	100	0	Back	5mm	Reduced	19100	1900	16.72	18.00	1.343	0.07	0.787	1.057
	LTE Band 2_Ant1	20M	QPSK	100	0	Bottom Side	5mm	Reduced	19100	1900	15.62	17.00	1.374	0.02	0.738	1.014
	LTE Band 30_Ant2	10M	QPSK	1	25	Front	5mm	Reduced	27710	2310	15.18	16.00	1.208	0.08	0.414	0.500
	LTE Band 30_Ant2	10M	QPSK	1	25	Back	5mm	Reduced	27710	2310	15.18	16.00	1.208	0.16	0.902	1.089
	LTE Band 30_Ant2	10M	QPSK	1	25	Left Side	5mm	Reduced	27710	2310	14.04	15.00	1.247	0.06	0.127	0.158
	LTE Band 30_Ant2	10M	QPSK	1	25	Right Side	5mm	Reduced	27710	2310	14.04	15.00	1.247	0.02	0.040	0.050
	LTE Band 30_Ant2	10M	QPSK	1	25	Top Side	5mm	Reduced	27710	2310	14.04	15.00	1.247	0.05	0.909	1.134
	LTE Band 30_Ant2	10M	QPSK	25	0	Front	5mm	Reduced	27710	2310	14.05	15.00	1.245	0.05	0.325	0.404
	LTE Band 30_Ant2	10M	QPSK	25	0	Back	5mm	Reduced	27710	2310	14.05	15.00	1.245	0.01	0.711	0.885
	LTE Band 30_Ant2	10M	QPSK	25	0	Left Side	5mm	Reduced	27710	2310	13.01	14.00	1.256	0.09	0.098	0.123
	LTE Band 30_Ant2	10M	QPSK	25	0	Right Side	5mm	Reduced	27710	2310	13.01	14.00	1.256	0.02	0.031	0.039
	LTE Band 30_Ant2	10M	QPSK	25	0	Top Side	5mm	Reduced	27710	2310	13.01	14.00	1.256	0.06	0.726	0.912
	LTE Band 30_Ant2	10M	QPSK	50	0	Back	5mm	Reduced	27710	2310	14.00	15.00	1.259	0.13	0.702	0.884
	LTE Band 30_Ant2	10M	QPSK	50	0	Top Side	5mm	Reduced	27710	2310	12.99	14.00	1.262	0.05	0.699	0.882
	LTE Band 30_Ant1	10M	QPSK	1	25	Front	5mm	Reduced	27710	2310	18.15	19.50	1.365	0.07	0.822	1.122
29	LTE Band 30_Ant1	10M	QPSK	1	25	Back	5mm	Reduced	27710	2310	18.15	19.50	1.365	0.02	1.020	**1.392**
	LTE Band 30_Ant1	10M	QPSK	1	25	Left Side	5mm	Reduced	27710	2310	18.15	19.50	1.365	0.06	0.538	0.734
	LTE Band 30_Ant1	10M	QPSK	1	25	Right Side	5mm	Reduced	27710	2310	18.15	19.50	1.365	0.18	0.148	0.202
	LTE Band 30_Ant1	10M	QPSK	1	25	Bottom Side	5mm	Reduced	27710	2310	18.15	19.50	1.365	0.19	0.738	1.007
	LTE Band 30_Ant1	10M	QPSK	25	0	Front	5mm	Reduced	27710	2310	17.09	18.50	1.384	0.02	0.633	0.876
	LTE Band 30_Ant1	10M	QPSK	25	0	Back	5mm	Reduced	27710	2310	17.09	18.50	1.384	0.11	0.803	1.111
	LTE Band 30_Ant1	10M	QPSK	25	0	Left Side	5mm	Reduced	27710	2310	17.09	18.50	1.384	0.06	0.415	0.574
	LTE Band 30_Ant1	10M	QPSK	25	0	Right Side	5mm	Reduced	27710	2310	17.09	18.50	1.384	0.02	0.110	0.152
	LTE Band 30_Ant1	10M	QPSK	25	0	Bottom Side	5mm	Reduced	27710	2310	17.09	18.50	1.384	0.15	0.573	0.793
	LTE Band 30_Ant1	10M	QPSK	50	0	Front	5mm	Reduced	27710	2310	17.07	18.50	1.390	0.05	0.624	0.867
	LTE Band 30_Ant1	10M	QPSK	50	0	Back	5mm	Reduced	27710	2310	17.07	18.50	1.390	0.09	0.809	1.124
	LTE Band 30_Ant1	10M	QPSK	50	0	Bottom Side	5mm	Reduced	27710	2310	17.07	18.50	1.390	0.05	0.570	0.792

<Bluetooth SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power State	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)
	Bluetooth	DH5 1Mbps	Front	5mm	Ant 3	Full	39	2441	9.60	11.60	1.585	76.71	1.304	0.18	0.031	0.064
30	Bluetooth	DH5 1Mbps	Back	5mm	Ant 3	Full	39	2441	9.60	11.60	1.585	76.71	1.304	0.03	0.077	**0.159**
	Bluetooth	DH5 1Mbps	Left Side	5mm	Ant 3	Full	39	2441	9.60	11.60	1.585	76.71	1.304	-0.1	0.002	0.004
	Bluetooth	DH5 1Mbps	Right Side	5mm	Ant 3	Full	39	2441	9.60	11.60	1.585	76.71	1.304	0.04	0.018	0.036
	Bluetooth	DH5 1Mbps	Top Side	5mm	Ant 3	Full	39	2441	9.60	11.60	1.585	76.71	1.304	0.12	0.058	0.119

<WLAN2.4G SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN2.4GHz	802.11b 1Mbps	Front	5mm	Ant 3	Reduced	11	2462	14.50	16.50	1.585	99.31	1.007	-0.1	0.141	0.225
31	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	Ant 3	Reduced	11	2462	14.50	16.50	1.585	99.31	1.007	0.04	0.243	**0.388**
	WLAN2.4GHz	802.11b 1Mbps	Left Side	5mm	Ant 3	Reduced	11	2462	14.50	16.50	1.585	99.31	1.007	0.12	0.047	0.075
	WLAN2.4GHz	802.11b 1Mbps	Right Side	5mm	Ant 3	Reduced	11	2462	14.50	16.50	1.585	99.31	1.007	-0.05	0.128	0.204
	WLAN2.4GHz	802.11b 1Mbps	Top Side	5mm	Ant 3	Reduced	11	2462	14.50	16.50	1.585	99.31	1.007	-0.03	0.194	0.310

<WLAN5G SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power State	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)
	WLAN5.2GHz	802.11ac-VHT80 MCS0	Front	5mm	Ant 4	Reduced	42	5210	13.58	15.50	1.556	87.84	1.138	0.12	0.063	0.112
	WLAN5.2GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 4	Reduced	42	5210	13.58	15.50	1.556	87.84	1.138	0.04	0.115	0.204
	WLAN5.2GHz	802.11ac-VHT80 MCS0	Left Side	5mm	Ant 4	Reduced	42	5210	13.58	15.50	1.556	87.84	1.138	0.07	0.091	0.161
	WLAN5.2GHz	802.11ac-VHT80 MCS0	Right Side	5mm	Ant 4	Reduced	42	5210	13.58	15.50	1.556	87.84	1.138	-0.17	0.168	0.297
32	WLAN5.2GHz	802.11ac-VHT80 MCS0	Top Side	5mm	Ant 4	Reduced	42	5210	13.58	15.50	1.556	87.84	1.138	0.02	0.200	**0.354**
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Front	5mm	Ant 4	Reduced	155	5775	9.60	11.60	1.585	87.84	1.138	0.12	0.041	0.074
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 4	Reduced	155	5775	9.60	11.60	1.585	87.84	1.138	0.05	0.118	0.213
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Left Side	5mm	Ant 4	Reduced	155	5775	9.60	11.60	1.585	87.84	1.138	-	n/a	n/a
33	WLAN5.8GHz	802.11ac-VHT80 MCS0	Right Side	5mm	Ant 4	Reduced	155	5775	9.60	11.60	1.585	87.84	1.138	0.09	0.229	**0.413**
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Top Side	5mm	Ant 4	Reduced	155	5775	9.60	11.60	1.585	87.84	1.138	0.14	0.031	0.055

15.3 Body Worn Accessory SAR

<GSM SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Headset	Power State	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_Ant2	GPRS 4 Tx slots	Front	5mm	-	Reduced	251	848.8	25.82	27.00	1.312	-0.09	0.529	0.694
	GSM850_Ant2	GPRS 4 Tx slots	Back	5mm	-	Reduced	251	848.8	25.82	27.00	1.312	-0.04	0.821	1.077
	GSM850_Ant2	GPRS 4 Tx slots	Back	5mm	-	Reduced	128	824.2	25.80	27.00	1.318	0.08	0.883	1.164
	GSM850_Ant2	GPRS 4 Tx slots	Back	5mm	-	Reduced	189	836.4	25.77	27.00	1.327	0.09	0.833	1.106
	GSM850_Ant2	GPRS 4 Tx slots	Front	19mm	-	Full	251	848.8	27.87	29.00	1.297	0.08	0.144	0.187
	GSM850_Ant2	GPRS 4 Tx slots	Back	24mm	-	Full	128	824.2	27.86	29.00	1.300	-0.07	0.165	0.215
	GSM850_Ant1	GPRS 4 Tx slots	Front	5mm	-	Reduced	251	848.8	24.79	26.00	1.321	0.01	0.496	0.655
34	GSM850_Ant1	GPRS 4 Tx slots	Back	5mm	-	Reduced	251	848.8	24.79	26.00	1.321	-0.14	0.975	**1.288**
	GSM850_Ant1	GPRS 4 Tx slots	Back	5mm	-	Reduced	128	824.2	24.78	26.00	1.324	0.07	0.963	1.275
	GSM850_Ant1	GPRS 4 Tx slots	Back	5mm	-	Reduced	189	836.4	24.75	26.00	1.334	0.01	0.948	1.264
	GSM850_Ant1	GPRS 4 Tx slots	Back	5mm	Headset	Reduced	251	848.8	24.79	26.00	1.321	0.05	0.970	1.282
	GSM850_Ant1	GPRS 4 Tx slots	Front	19mm	-	Full	251	848.8	28.90	30.00	1.288	0.12	0.307	0.395
	GSM850_Ant1	GPRS 4 Tx slots	Back	24mm	-	Full	251	848.8	28.90	30.00	1.288	0.09	0.349	0.450
	GSM1900_Ant2	GPRS 4 Tx slots	Front	5mm	-	Reduced	661	1880	20.71	21.50	1.199	0.08	0.472	0.566
	GSM1900_Ant2	GPRS 4 Tx slots	Back	5mm	-	Reduced	661	1880	20.71	21.50	1.199	0.07	0.927	1.112
	GSM1900_Ant2	GPRS 4 Tx slots	Back	5mm	-	Reduced	512	1850.2	20.66	21.50	1.213	0.02	0.994	1.206
	GSM1900_Ant2	GPRS 4 Tx slots	Back	5mm	-	Reduced	810	1909.8	20.38	21.50	1.294	-0.11	0.773	1.000
	GSM1900_Ant2	GPRS 4 Tx slots	Back	5mm	Headset	Reduced	512	1850.2	20.66	21.50	1.213	0.14	0.968	1.175
	GSM1900_Ant2	GPRS 4 Tx slots	Front	19mm	-	Full	661	1880	24.17	25.00	1.211	0.03	0.165	0.200
	GSM1900_Ant2	GPRS 4 Tx slots	Back	24mm	-	Full	512	1850.2	24.09	25.00	1.233	0.11	0.136	0.168
	GSM1900_Ant1	GPRS 4 Tx slots	Front	5mm	-	Reduced	661	1880	21.37	22.50	1.297	0.11	0.713	0.925
	GSM1900_Ant1	GPRS 4 Tx slots	Front	5mm	-	Reduced	512	1850.2	21.16	22.50	1.361	0.15	0.745	1.014
	GSM1900_Ant1	GPRS 4 Tx slots	Front	5mm	-	Reduced	810	1909.8	21.33	22.50	1.309	0.07	0.749	0.981
	GSM1900_Ant1	GPRS 4 Tx slots	Back	5mm	-	Reduced	661	1880	21.37	22.50	1.297	0.18	1.030	1.336
35	GSM1900_Ant1	GPRS 4 Tx slots	Back	5mm	-	Reduced	512	1850.2	21.16	22.50	1.361	0.1	1.040	**1.416**
	GSM1900_Ant1	GPRS 4 Tx slots	Back	5mm	-	Reduced	810	1909.8	21.33	22.50	1.309	0.05	0.970	1.270
	GSM1900_Ant1	GPRS 4 Tx slots	Back	5mm	Headset	Reduced	512	1850.2	21.16	22.50	1.361	0.04	1.020	1.389
	GSM1900_Ant1	GPRS 4 Tx slots	Front	19mm	-	Full	512	1850.2	26.36	27.50	1.300	-0.15	0.462	0.601
	GSM1900_Ant1	GPRS 4 Tx slots	Back	24mm	-	Full	512	1850.2	26.36	27.50	1.300	-0.08	0.440	0.572

<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Headset	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WCDMA V_Ant2	RMC 12.2Kbps	Front	5mm	-	Reduced	4233	846.6	20.32	21.50	1.312	0.03	0.476	0.625
	WCDMA V_Ant2	RMC 12.2Kbps	Back	5mm	-	Reduced	4233	846.6	20.32	21.50	1.312	0.07	0.893	1.172
	WCDMA V_Ant2	RMC 12.2Kbps	Back	5mm	-	Reduced	4132	826.4	20.30	21.50	1.318	0.01	0.797	1.051
	WCDMA V_Ant2	RMC 12.2Kbps	Back	5mm	-	Reduced	4182	836.4	20.26	21.50	1.330	-0.15	0.811	1.079
	WCDMA V_Ant2	RMC 12.2Kbps	Front	19mm	-	Full	4233	846.6	21.74	23.00	1.337	0.15	0.136	0.182
	WCDMA V_Ant2	RMC 12.2Kbps	Back	24mm	-	Full	4233	846.6	21.74	23.00	1.337	-0.08	0.201	0.269
	WCDMA V_Ant1	RMC 12.2Kbps	Front	5mm	-	Reduced	4233	846.6	19.67	21.00	1.358	-0.13	0.541	0.735
	WCDMA V_Ant1	RMC 12.2Kbps	Back	5mm	-	Reduced	4233	846.6	19.67	21.00	1.358	0.16	1.000	1.358
	WCDMA V_Ant1	RMC 12.2Kbps	Back	5mm	-	Reduced	4132	826.4	19.66	21.00	1.361	0.04	1.030	1.402
36	WCDMA V_Ant1	RMC 12.2Kbps	Back	5mm	-	Reduced	4182	836.4	19.64	21.00	1.368	0.12	1.030	**1.409**
	WCDMA V_Ant1	RMC 12.2Kbps	Back	5mm	Headset	Reduced	4182	836.4	19.64	21.00	1.368	-0.04	1.010	1.381
	WCDMA V_Ant1	RMC 12.2Kbps	Front	19mm	-	Full	4233	846.6	22.77	24.00	1.327	-0.12	0.343	0.455
	WCDMA V_Ant1	RMC 12.2Kbps	Back	24mm	-	Full	4182	836.4	22.73	24.00	1.340	-0.14	0.329	0.441
	WCDMA IV_Ant1	RMC 12.2Kbps	Front	5mm	-	Reduced	1513	1752.6	17.02	18.50	1.406	0.1	0.473	0.665
	WCDMA IV_Ant1	RMC 12.2Kbps	Back	5mm	-	Reduced	1513	1752.6	17.02	18.50	1.406	-0.01	0.939	1.320
37	WCDMA IV_Ant1	RMC 12.2Kbps	Back	5mm	-	Reduced	1312	1712.4	17.01	18.50	1.409	0.04	0.951	**1.340**
	WCDMA IV_Ant1	RMC 12.2Kbps	Back	5mm	-	Reduced	1413	1732.6	17.00	18.50	1.413	-0.07	0.946	1.336
	WCDMA IV_Ant1	RMC 12.2Kbps	Back	5mm	Headset	Reduced	1312	1712.4	17.01	18.50	1.409	0.11	0.950	1.339
	WCDMA IV_Ant1	RMC 12.2Kbps	Front	19mm	-	Full	1513	1752.6	22.68	24.00	1.355	0.06	0.280	0.379
	WCDMA IV_Ant1	RMC 12.2Kbps	Back	24mm	-	Full	1312	1712.4	22.54	24.00	1.400	-0.17	0.308	0.431
	WCDMA II_Ant2	RMC 12.2Kbps	Front	5mm	-	Reduced	9262	1852.4	17.01	18.50	1.409	0.03	0.429	0.605
	WCDMA II_Ant2	RMC 12.2Kbps	Back	5mm	-	Reduced	9262	1852.4	17.01	18.50	1.409	0.02	0.823	1.160
	WCDMA II_Ant2	RMC 12.2Kbps	Back	5mm	-	Reduced	9400	1880	16.90	18.50	1.445	0.08	0.777	1.123
	WCDMA II_Ant2	RMC 12.2Kbps	Back	5mm	-	Reduced	9538	1907.6	16.73	18.50	1.503	0.07	0.691	1.039
	WCDMA II_Ant2	RMC 12.2Kbps	Front	19mm	-	Full	9262	1852.4	20.94	22.50	1.432	0.08	0.328	0.470
	WCDMA II_Ant2	RMC 12.2Kbps	Back	24mm	-	Full	9262	1852.4	20.94	22.50	1.432	0.16	0.326	0.467
	WCDMA II_Ant1	RMC 12.2Kbps	Front	5mm	-	Reduced	9262	1852.4	17.95	19.00	1.274	0.14	0.710	0.904
	WCDMA II_Ant1	RMC 12.2Kbps	Front	5mm	-	Reduced	9400	1880	17.92	19.00	1.282	-0.14	0.704	0.903
	WCDMA II_Ant1	RMC 12.2Kbps	Front	5mm	-	Reduced	9538	1907.6	17.80	19.00	1.318	0.07	0.677	0.892
38	WCDMA II_Ant1	RMC 12.2Kbps	Back	5mm	-	Reduced	9262	1852.4	17.95	19.00	1.274	0.04	1.090	**1.388**
	WCDMA II_Ant1	RMC 12.2Kbps	Back	5mm	-	Reduced	9400	1880	17.92	19.00	1.282	0.09	1.050	1.346
	WCDMA II_Ant1	RMC 12.2Kbps	Back	5mm	-	Reduced	9538	1907.6	17.80	19.00	1.318	0.06	0.992	1.308
	WCDMA II_Ant1	RMC 12.2Kbps	Back	5mm	Headset	Reduced	9262	1852.4	17.95	19.00	1.274	0.08	1.030	1.312
	WCDMA II_Ant1	RMC 12.2Kbps	Front	19mm	-	Full	9262	1852.4	22.98	24.00	1.265	-0.15	0.343	0.434
	WCDMA II_Ant1	RMC 12.2Kbps	Back	24mm	-	Full	9262	1852.4	22.98	24.00	1.265	-0.06	0.306	0.387

<FDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Headset	Power State	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 12_Ant2	10M	QPSK	1	25	Front	5mm	-	Full	23095	707.5	21.94	23.00	1.276	-0.02	0.235	0.300
	LTE Band 12_Ant2	10M	QPSK	1	25	Back	5mm	-	Full	23095	707.5	21.94	23.00	1.276	0.05	0.561	0.716
	LTE Band 12_Ant2	10M	QPSK	25	12	Front	5mm	-	Full	23095	707.5	20.91	22.00	1.285	-0.09	0.196	0.252
	LTE Band 12_Ant2	10M	QPSK	25	12	Back	5mm	-	Full	23095	707.5	20.91	22.00	1.285	0.1	0.428	0.550
	LTE Band 12_Ant1	10M	QPSK	1	25	Front	5mm	-	Reduced	23095	707.5	22.00	23.50	1.413	-0.01	0.498	0.703
	LTE Band 12_Ant1	10M	QPSK	1	25	Back	5mm	-	Reduced	23095	707.5	22.00	23.50	1.413	-0.02	0.858	1.212
39	LTE Band 12_Ant1	10M	QPSK	1	25	Back	5mm	Headset	Reduced	23095	707.5	22.00	23.50	1.413	-0.06	0.880	**1.243**
	LTE Band 12_Ant1	10M	QPSK	1	25	Front	19mm	-	Full	23095	707.5	22.49	24.00	1.416	0.12	0.376	0.532
	LTE Band 12_Ant1	10M	QPSK	1	25	Back	24mm	Headset	Full	23095	707.5	22.49	24.00	1.416	0.05	0.396	0.561
	LTE Band 12_Ant1	10M	QPSK	25	12	Front	5mm	-	Reduced	23095	707.5	21.06	22.50	1.393	-0.1	0.402	0.560
	LTE Band 12_Ant1	10M	QPSK	25	12	Back	5mm	-	Reduced	23095	707.5	21.06	22.50	1.393	0.16	0.682	0.950
	LTE Band 12_Ant1	10M	QPSK	50	0	Back	5mm	-	Reduced	23095	707.5	21.05	22.50	1.396	0.02	0.676	0.944
	LTE Band 13_Ant1	10M	QPSK	1	25	Front	5mm	-	Reduced	23230	782	21.26	22.50	1.330	0.09	0.571	0.760
40	LTE Band 13_Ant1	10M	QPSK	1	25	Back	5mm	-	Reduced	23230	782	21.26	22.50	1.330	0.01	1.050	**1.397**
	LTE Band 13_Ant1	10M	QPSK	1	25	Back	5mm	Headset	Reduced	23230	782	21.26	22.50	1.330	0.06	1.030	1.370
	LTE Band 13_Ant1	10M	QPSK	1	25	Front	19mm	-	Full	23230	782	22.81	24.00	1.315	-0.08	0.332	0.437
	LTE Band 13_Ant1	10M	QPSK	1	25	Back	24mm	-	Full	23230	782	22.81	24.00	1.315	-0.12	0.311	0.409
	LTE Band 13_Ant1	10M	QPSK	25	12	Front	5mm	-	Reduced	23230	782	20.26	21.50	1.330	0.11	0.468	0.623
	LTE Band 13_Ant1	10M	QPSK	25	12	Back	5mm	-	Reduced	23230	782	20.26	21.50	1.330	0.17	0.852	1.134
	LTE Band 13_Ant1	10M	QPSK	50	0	Back	5mm	-	Reduced	23230	782	20.24	21.50	1.337	0.13	0.856	1.144
	LTE Band 14_Ant1	10M	QPSK	1	25	Front	5mm	-	Reduced	23330	793	21.23	22.50	1.340	-0.06	0.546	0.731
41	LTE Band 14_Ant1	10M	QPSK	1	25	Back	5mm	-	Reduced	23330	793	21.23	22.50	1.340	0.11	1.070	**1.433**
	LTE Band 14_Ant1	10M	QPSK	1	25	Back	5mm	Headset	Reduced	23330	793	21.23	22.50	1.340	0.02	1.050	1.407
	LTE Band 14_Ant1	10M	QPSK	1	25	Front	19mm	-	Full	23330	793	22.70	24.00	1.349	0.18	0.274	0.370
	LTE Band 14_Ant1	10M	QPSK	1	25	Back	24mm	-	Full	23330	793	22.70	24.00	1.349	0.06	0.267	0.360
	LTE Band 14_Ant1	10M	QPSK	25	12	Front	5mm	-	Reduced	23330	793	20.15	21.50	1.365	0.18	0.438	0.598
	LTE Band 14_Ant1	10M	QPSK	25	12	Back	5mm	-	Reduced	23330	793	20.15	21.50	1.365	-0.04	0.865	1.180
	LTE Band 14_Ant1	10M	QPSK	50	0	Back	5mm	-	Reduced	23330	793	20.08	21.50	1.387	-0.01	0.857	1.188
	LTE Band 5_Ant2	10M	QPSK	1	25	Front	5mm	-	Reduced	20525	836.5	20.10	21.50	1.380	0.01	0.602	0.831
	LTE Band 5_Ant2	10M	QPSK	1	25	Back	5mm	-	Reduced	20525	836.5	20.10	21.50	1.380	-0.11	0.807	1.114
	LTE Band 5_Ant2	10M	QPSK	1	25	Front	19mm	-	Full	20525	836.5	21.77	23.00	1.327	-0.12	0.137	0.182
	LTE Band 5_Ant2	10M	QPSK	1	25	Back	24mm	-	Full	20525	836.5	21.77	23.00	1.327	-0.07	0.131	0.174
	LTE Band 5_Ant2	10M	QPSK	25	12	Front	5mm	-	Reduced	20525	836.5	19.06	20.50	1.393	0.07	0.444	0.619
	LTE Band 5_Ant2	10M	QPSK	25	12	Back	5mm	-	Reduced	20525	836.5	19.06	20.50	1.393	-0.06	0.679	0.946
	LTE Band 5_Ant2	10M	QPSK	50	0	Front	5mm	-	Reduced	20525	836.5	19.07	20.50	1.390	0.06	0.439	0.610
	LTE Band 5_Ant2	10M	QPSK	50	0	Back	5mm	-	Reduced	20525	836.5	19.07	20.50	1.390	-0.06	0.672	0.934
	LTE Band 5_Ant1	10M	QPSK	1	25	Front	5mm	-	Reduced	20525	836.5	19.58	21.00	1.387	-0.03	0.548	0.760
42	LTE Band 5_Ant1	10M	QPSK	1	25	Back	5mm	-	Reduced	20525	836.5	19.58	21.00	1.387	0.03	1.010	**1.401**
	LTE Band 5_Ant1	10M	QPSK	1	25	Back	5mm	Headset	Reduced	20525	836.5	19.58	21.00	1.387	0.19	0.992	1.376
	LTE Band 5_Ant1	10M	QPSK	1	25	Front	19mm	-	Full	20525	836.5	22.55	24.00	1.396	-0.05	0.268	0.374
	LTE Band 5_Ant1	10M	QPSK	1	25	Back	24mm	-	Full	20525	836.5	22.55	24.00	1.396	-0.12	0.240	0.335
	LTE Band 5_Ant1	10M	QPSK	25	12	Front	5mm	-	Reduced	20525	836.5	18.52	20.00	1.406	-0.19	0.431	0.606
	LTE Band 5_Ant1	10M	QPSK	25	12	Back	5mm	-	Reduced	20525	836.5	18.52	20.00	1.406	0.15	0.776	1.091
	LTE Band 5_Ant1	10M	QPSK	50	0	Back	5mm	-	Reduced	20525	836.5	18.52	20.00	1.406	-0.11	0.770	1.083
	LTE Band 66_Ant1	20M	QPSK	1	49	Front	5mm	-	Reduced	132572	1770	16.82	18.50	1.472	0.03	0.516	0.760
43	LTE Band 66_Ant1	20M	QPSK	1	49	Back	5mm	-	Reduced	132572	1770	16.82	18.50	1.472	0.04	0.961	**1.415**
	LTE Band 66_Ant1	20M	QPSK	1	49	Back	5mm	-	Reduced	132072	1720	16.78	18.50	1.486	0.06	0.901	1.339
	LTE Band 66_Ant1	20M	QPSK	1	49	Back	5mm	-	Reduced	132322	1745	16.75	18.50	1.496	0.15	0.921	1.378
	LTE Band 66_Ant1	20M	QPSK	1	49	Back	5mm	Headset	Reduced	132572	1770	16.82	18.50	1.472	0.12	0.957	1.409
	LTE Band 66_Ant1	20M	QPSK	1	49	Front	19mm	-	Full	132572	1770	22.50	24.00	1.413	0.08	0.271	0.383
	LTE Band 66_Ant1	20M	QPSK	1	49	Back	24mm	-	Full	132572	1770	22.50	24.00	1.413	-0.16	0.262	0.370

	LTE Band 66_Ant1	20M	QPSK	50	24	Front	5mm	-	Reduced	132572	1770	15.78	17.50	1.486	0.08	0.395	0.587
	LTE Band 66_Ant1	20M	QPSK	50	24	Back	5mm	-	Reduced	132572	1770	15.78	17.50	1.486	0.04	0.758	1.126
	LTE Band 66_Ant1	20M	QPSK	50	24	Back	5mm	-	Reduced	132072	1720	15.76	17.50	1.493	0.09	0.723	1.079
	LTE Band 66_Ant1	20M	QPSK	50	24	Back	5mm	-	Reduced	132322	1745	15.73	17.50	1.503	-0.16	0.732	1.100
	LTE Band 66_Ant1	20M	QPSK	100	0	Back	5mm	-	Reduced	132572	1770	15.74	17.50	1.500	0.09	0.760	1.140
	LTE Band 2_Ant2	20M	QPSK	1	49	Front	5mm	-	Reduced	19100	1900	18.26	19.00	1.186	0.13	0.414	0.491
	LTE Band 2_Ant2	20M	QPSK	1	49	Back	5mm	-	Reduced	19100	1900	18.26	19.00	1.186	0.02	0.827	0.981
	LTE Band 2_Ant2	20M	QPSK	1	49	Back	5mm	-	Reduced	18700	1860	18.04	19.00	1.247	-0.17	0.904	1.128
	LTE Band 2_Ant2	20M	QPSK	1	49	Back	5mm	-	Reduced	18900	1880	18.11	19.00	1.227	0.13	0.872	1.070
	LTE Band 2_Ant2	20M	QPSK	1	49	Front	19mm	-	Full	19100	1900	21.13	22.00	1.222	0.04	0.091	0.111
	LTE Band 2_Ant2	20M	QPSK	1	49	Back	24mm	-	Full	18700	1860	20.97	22.00	1.268	0.12	0.087	0.110
	LTE Band 2_Ant2	20M	QPSK	50	0	Front	5mm	-	Reduced	19100	1900	17.30	18.00	1.175	-0.13	0.338	0.397
	LTE Band 2_Ant2	20M	QPSK	50	0	Back	5mm	-	Reduced	19100	1900	17.30	18.00	1.175	0.04	0.655	0.770
	LTE Band 2_Ant2	20M	QPSK	100	0	Back	5mm	-	Reduced	19100	1900	17.21	18.00	1.199	0.19	0.651	0.781
	LTE Band 2_Ant1	20M	QPSK	1	49	Front	5mm	-	Reduced	19100	1900	17.80	19.00	1.318	0.03	0.640	0.844
	LTE Band 2_Ant1	20M	QPSK	1	49	Front	5mm	-	Reduced	18700	1860	17.70	19.00	1.349	0.02	0.656	0.885
	LTE Band 2_Ant1	20M	QPSK	1	49	Front	5mm	-	Reduced	18900	1880	17.75	19.00	1.334	0.12	0.670	0.893
	LTE Band 2_Ant1	20M	QPSK	1	49	Back	5mm	-	Reduced	19100	1900	17.80	19.00	1.318	0.13	1.050	1.384
44	LTE Band 2_Ant1	20M	QPSK	1	49	Back	5mm	-	Reduced	18700	1860	17.70	19.00	1.349	0.07	1.060	**1.430**
	LTE Band 2_Ant1	20M	QPSK	1	49	Back	5mm	-	Reduced	18900	1880	17.75	19.00	1.334	0.07	1.060	1.414
	LTE Band 2_Ant1	20M	QPSK	1	49	Back	5mm	Headset	Reduced	18700	1860	17.70	19.00	1.349	-0.02	1.040	1.403
	LTE Band 2_Ant1	20M	QPSK	1	49	Front	19mm	-	Full	18900	1880	22.73	24.00	1.340	0.06	0.315	0.422
	LTE Band 2_Ant1	20M	QPSK	1	49	Back	24mm	-	Full	18700	1860	22.66	24.00	1.361	0.15	0.286	0.389
	LTE Band 2_Ant1	20M	QPSK	50	0	Front	5mm	-	Reduced	19100	1900	16.78	18.00	1.324	-0.14	0.512	0.678
	LTE Band 2_Ant1	20M	QPSK	50	0	Back	5mm	-	Reduced	19100	1900	16.78	18.00	1.324	-0.12	0.797	1.056
	LTE Band 2_Ant1	20M	QPSK	50	0	Back	5mm	-	Reduced	18700	1860	16.61	18.00	1.377	0.05	0.815	1.122
	LTE Band 2_Ant1	20M	QPSK	50	0	Back	5mm	-	Reduced	18900	1880	16.71	18.00	1.346	0.09	0.810	1.090
	LTE Band 2_Ant1	20M	QPSK	100	0	Front	5mm	-	Reduced	19100	1900	16.72	18.00	1.343	-0.12	0.510	0.685
	LTE Band 2_Ant1	20M	QPSK	100	0	Back	5mm	-	Reduced	19100	1900	16.72	18.00	1.343	0.07	0.787	1.057
	LTE Band 30_Ant2	10M	QPSK	1	25	Front	5mm	-	Reduced	27710	2310	15.18	16.00	1.208	0.08	0.414	0.500
	LTE Band 30_Ant2	10M	QPSK	1	25	Back	5mm	-	Reduced	27710	2310	15.18	16.00	1.208	0.16	0.902	1.089
	LTE Band 30_Ant2	10M	QPSK	1	25	Front	19mm	-	Full	27710	2310	20.93	22.00	1.279	-0.04	0.188	0.241
	LTE Band 30_Ant2	10M	QPSK	1	25	Back	24mm	-	Full	27710	2310	20.93	22.00	1.279	-0.16	0.244	0.312
	LTE Band 30_Ant2	10M	QPSK	25	0	Front	5mm	-	Reduced	27710	2310	14.05	15.00	1.245	0.05	0.325	0.404
	LTE Band 30_Ant2	10M	QPSK	25	0	Back	5mm	-	Reduced	27710	2310	14.05	15.00	1.245	0.01	0.711	0.885
	LTE Band 30_Ant2	10M	QPSK	50	0	Back	5mm	-	Reduced	27710	2310	14.00	15.00	1.259	0.13	0.702	0.884
	LTE Band 30_Ant1	10M	QPSK	1	25	Front	5mm	-	Reduced	27710	2310	18.15	19.50	1.365	0.07	0.822	1.122
45	LTE Band 30_Ant1	10M	QPSK	1	25	Back	5mm	-	Reduced	27710	2310	18.15	19.50	1.365	0.02	1.020	**1.392**
	LTE Band 30_Ant1	10M	QPSK	1	25	Back	5mm	Headset	Reduced	27710	2310	18.15	19.50	1.365	0.08	1.010	1.378
	LTE Band 30_Ant1	10M	QPSK	1	25	Front	19mm	-	Full	27710	2310	22.57	24.00	1.390	0.04	0.281	0.391
	LTE Band 30_Ant1	10M	QPSK	1	25	Back	24mm	-	Full	27710	2310	22.57	24.00	1.390	-0.12	0.174	0.242
	LTE Band 30_Ant1	10M	QPSK	25	0	Front	5mm	-	Reduced	27710	2310	17.09	18.50	1.384	0.02	0.633	0.876
	LTE Band 30_Ant1	10M	QPSK	25	0	Back	5mm	-	Reduced	27710	2310	17.09	18.50	1.384	0.11	0.803	1.111
	LTE Band 30_Ant1	10M	QPSK	50	0	Front	5mm	-	Reduced	27710	2310	17.07	18.50	1.390	0.05	0.624	0.867
	LTE Band 30_Ant1	10M	QPSK	50	0	Back	5mm	-	Reduced	27710	2310	17.07	18.50	1.390	0.09	0.809	1.124

<Bluetooth SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Headset	Power State	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)
	Bluetooth	DH5 1Mbps	Front	5mm	Ant 3	-	Full	39	2441	9.60	11.60	1.585	76.71	1.304	0.18	0.031	0.064
46	Bluetooth	DH5 1Mbps	Back	5mm	Ant 3	-	Full	39	2441	9.60	11.60	1.585	76.71	1.304	0.03	0.077	**0.159**

<WLAN2.4G SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Headset	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN2.4GHz	802.11b 1Mbps	Front	5mm	Ant 3	-	Reduced	11	2462	19.00	21.00	1.585	99.31	1.007	-0.1	0.425	0.678
	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	Ant 3	-	Reduced	11	2462	19.00	21.00	1.585	99.31	1.007	0.04	0.603	0.962
47	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	Ant 3	-	Reduced	6	2437	18.80	20.80	1.585	99.31	1.007	0.15	0.677	**1.080**
	WLAN2.4GHz	802.11b 1Mbps	Front	5mm	Ant 3	-	Simultaneous	6	2437	14.30	16.30	1.585	99.31	1.007	-0.1	0.141	0.225
	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	Ant 3	-	Simultaneous	6	2437	14.30	16.30	1.585	99.31	1.007	0.04	0.243	0.388
	WLAN2.4GHz	802.11b 1Mbps	Front	19mm	Ant 3	-	Full	11	2462	19.70	21.70	1.585	99.31	1.007	0.02	0.066	0.105
	WLAN2.4GHz	802.11b 1Mbps	Back	24mm	Ant 3	-	Full	6	2437	19.60	21.60	1.585	99.31	1.007	-0.14	0.062	0.099

<WLAN5G SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Headset	Power State	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)
	WLAN5.3GHz	802.11a 6Mbps	Front	5mm	Ant 4	-	Full	52	5260	18.60	20.60	1.585	96.82	1.033	0.11	0.323	0.529
48	WLAN5.3GHz	802.11a 6Mbps	Back	5mm	Ant 4	-	Full	52	5260	18.60	20.60	1.585	96.82	1.033	0.16	0.416	**0.681**
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Front	5mm	Ant 4	-	Simultaneous	58	5290	13.66	15.60	1.563	87.84	1.138	0.05	0.049	0.087
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 4	-	Simultaneous	58	5290	13.66	15.60	1.563	87.84	1.138	-0.07	0.118	0.210
	WLAN5.5GHz	802.11ac-VHT40 MCS0	Front	5mm	Ant 4	-	Reduced	110	5550	17.31	19.30	1.581	93.97	1.064	0.05	0.248	0.417
	WLAN5.5GHz	802.11ac-VHT40 MCS0	Back	5mm	Ant 4	-	Reduced	110	5550	17.31	19.30	1.581	93.97	1.064	0.04	0.521	0.877
49	WLAN5.5GHz	802.11ac-VHT40 MCS0	Back	5mm	Ant 4	-	Reduced	134	5670	17.23	19.20	1.574	93.97	1.064	0.12	0.711	**1.191**
	WLAN5.5GHz	802.11n-HT40 MCS0	Front	5mm	Ant 4	-	Simultaneous	110	5550	16.11	18.10	1.581	93.92	1.065	0.12	0.139	0.234
	WLAN5.5GHz	802.11n-HT40 MCS0	Back	5mm	Ant 4	-	Simultaneous	110	5550	16.11	18.10	1.581	93.92	1.065	0.03	0.328	0.552
	WLAN5.5GHz	802.11a 6Mbps	Front	19mm	Ant 4	-	Full	116	5580	18.50	20.50	1.585	96.82	1.033	-0.09	0.023	0.038
	WLAN5.5GHz	802.11a 6Mbps	Back	24mm	Ant 4	-	Full	116	5580	18.50	20.50	1.585	96.82	1.033	0.12	0.138	0.226
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Front	5mm	Ant 4	-	Reduced	155	5775	15.03	17.00	1.574	87.84	1.138	0.08	0.157	0.281
50	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 4	-	Reduced	155	5775	15.03	17.00	1.574	87.84	1.138	-0.16	0.587	**1.051**
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Front	5mm	Ant 4	-	Simultaneous	155	5775	9.60	11.60	1.585	87.84	1.138	0.12	0.041	0.074
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 4	-	Simultaneous	155	5775	9.60	11.60	1.585	87.84	1.138	0.05	0.118	0.213
	WLAN5.8GHz	802.11a 6Mbps	Front	19mm	Ant 4	-	Full	165	5825	18.05	20.00	1.567	96.82	1.033	0.03	0.089	0.144
	WLAN5.8GHz	802.11a 6Mbps	Back	24mm	Ant 4	-	Full	165	5825	18.05	20.00	1.567	96.82	1.033	-0.08	0.258	0.418

15.4 Product Specific SAR

<GSM SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Power State	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)
	GSM850_Ant2	GPRS 4 Tx slots	Back	0mm	Full	251	848.8	27.87	29.00	1.297	0.07	2.050	2.659
	GSM850_Ant2	GPRS 4 Tx slots	Back	0mm	Full	128	824.2	27.86	29.00	1.300	-0.11	1.930	2.509
	GSM850_Ant2	GPRS 4 Tx slots	Back	0mm	Full	189	836.4	27.81	29.00	1.315	0.15	2.100	2.762
	GSM850_Ant2	GPRS 4 Tx slots	Top Side	0mm	Full	251	848.8	27.87	29.00	1.297	-0.06	1.230	1.596
	GSM850_Ant1	GPRS 4 Tx slots	Front	0mm	Full	251	848.8	28.90	30.00	1.288	0.03	1.720	2.216
	GSM850_Ant1	GPRS 4 Tx slots	Front	0mm	Full	128	824.2	28.69	30.00	1.352	0.14	1.880	2.542
	GSM850_Ant1	GPRS 4 Tx slots	Front	0mm	Full	189	836.4	28.89	30.00	1.291	0.05	1.720	2.221
	GSM850_Ant1	GPRS 4 Tx slots	Back	0mm	Full	251	848.8	28.90	30.00	1.288	0.16	2.100	2.705
	GSM850_Ant1	GPRS 4 Tx slots	Back	0mm	Full	128	824.2	28.69	30.00	1.352	0.18	1.940	2.623
	GSM850_Ant1	GPRS 4 Tx slots	Back	0mm	Full	189	836.4	28.89	30.00	1.291	0.12	2.020	2.608
	GSM850_Ant1	GPRS 4 Tx slots	Bottom Side	0mm	Full	251	848.8	28.90	30.00	1.288	0.06	2.320	2.989
51	GSM850_Ant1	GPRS 4 Tx slots	Bottom Side	0mm	Full	128	824.2	28.69	30.00	1.352	-0.09	2.380	**3.218**
	GSM850_Ant1	GPRS 4 Tx slots	Bottom Side	0mm	Full	189	836.4	28.89	30.00	1.291	0.09	2.240	2.892
	GSM1900_Ant2	GPRS 4 Tx slots	Front	0mm	Reduced	661	1880	22.15	23.00	1.216	-0.18	0.847	1.030
	GSM1900_Ant2	GPRS 4 Tx slots	Back	0mm	Reduced	661	1880	22.15	23.00	1.216	0.17	2.320	2.822
	GSM1900_Ant2	GPRS 4 Tx slots	Back	0mm	Reduced	512	1850.2	22.12	23.00	1.225	0.08	2.450	3.000
	GSM1900_Ant2	GPRS 4 Tx slots	Back	0mm	Reduced	810	1909.8	22.01	23.00	1.256	0.06	2.180	2.738
	GSM1900_Ant2	GPRS 4 Tx slots	Top Side	0mm	Reduced	661	1880	22.15	23.00	1.216	0.12	2.190	2.663
	GSM1900_Ant2	GPRS 4 Tx slots	Top Side	0mm	Reduced	512	1850.2	22.12	23.00	1.225	0.11	2.250	2.755
	GSM1900_Ant2	GPRS 4 Tx slots	Top Side	0mm	Reduced	810	1909.8	22.01	23.00	1.256	-0.09	1.820	2.286
	GSM1900_Ant2	GPRS 4 Tx slots	Front	7mm	Full	661	1880	24.17	25.00	1.211	-0.15	0.596	0.722
	GSM1900_Ant2	GPRS 4 Tx slots	Back	14mm	Full	512	1850.2	24.09	25.00	1.233	0.03	0.233	0.287
	GSM1900_Ant2	GPRS 4 Tx slots	Top Side	12mm	Full	512	1850.2	24.09	25.00	1.233	0.11	0.401	0.494
	GSM1900_Ant1	GPRS 4 Tx slots	Front	0mm	Reduced	661	1880	22.73	24.00	1.340	-0.12	1.490	1.996
	GSM1900_Ant1	GPRS 4 Tx slots	Back	0mm	Reduced	661	1880	22.73	24.00	1.340	0.04	2.410	3.229
	GSM1900_Ant1	GPRS 4 Tx slots	Back	0mm	Reduced	512	1850.2	22.71	24.00	1.346	0.09	2.260	3.042
	GSM1900_Ant1	GPRS 4 Tx slots	Back	0mm	Reduced	810	1909.8	22.70	24.00	1.349	0.05	2.460	3.318
	GSM1900_Ant1	GPRS 4 Tx slots	Left Side	0mm	Full	661	1880	26.42	27.50	1.282	0.03	2.560	3.283
52	GSM1900_Ant1	GPRS 4 Tx slots	Left Side	0mm	Full	512	1850.2	26.36	27.50	1.300	0.11	2.660	**3.458**
	GSM1900_Ant1	GPRS 4 Tx slots	Left Side	0mm	Full	810	1909.8	26.20	27.50	1.349	-0.17	2.470	3.332
	GSM1900_Ant1	GPRS 4 Tx slots	Bottom Side	0mm	Reduced	661	1880	22.73	24.00	1.340	0.18	2.160	2.894
	GSM1900_Ant1	GPRS 4 Tx slots	Bottom Side	0mm	Reduced	512	1850.2	22.71	24.00	1.346	0.15	1.910	2.571
	GSM1900_Ant1	GPRS 4 Tx slots	Bottom Side	0mm	Reduced	810	1909.8	22.70	24.00	1.349	0.18	2.280	3.076
	GSM1900_Ant1	GPRS 4 Tx slots	Front	8mm	Full	661	1880	26.42	27.50	1.282	-0.08	0.900	1.154
	GSM1900_Ant1	GPRS 4 Tx slots	Back	14mm	Full	810	1909.8	26.20	27.50	1.349	-0.12	0.696	0.939
	GSM1900_Ant1	GPRS 4 Tx slots	Bottom Side	14mm	Full	810	1909.8	26.20	27.50	1.349	0.04	0.799	1.078

<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Power State	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 V_Ant2	RMC 12.2Kbps	Back	0mm	Full	4233	846.6	21.74	23.00	1.337	0.1	1.520	2.032
53	WCDMA V_Ant2	RMC 12.2Kbps	Back	0mm	Full	4132	826.4	21.68	23.00	1.355	-0.01	1.910	**2.588**
	WCDMA V_Ant2	RMC 12.2Kbps	Back	0mm	Full	4182	836.4	21.73	23.00	1.340	0.06	1.640	2.197
	WCDMA V_Ant2	RMC 12.2Kbps	Top Side	0mm	Full	4233	846.6	21.74	23.00	1.337	0.12	0.796	1.064
	WCDMA V_Ant1	RMC 12.2Kbps	Front	0mm	Full	4233	846.6	22.77	24.00	1.327	0.11	1.230	1.633
	WCDMA V_Ant1	RMC 12.2Kbps	Back	0mm	Full	4233	846.6	22.77	24.00	1.327	0.01	1.250	1.659
	WCDMA V_Ant1	RMC 12.2Kbps	Bottom Side	0mm	Full	4233	846.6	22.77	24.00	1.327	0.14	1.510	2.004
	WCDMA V_Ant1	RMC 12.2Kbps	Bottom Side	0mm	Full	4132	826.4	22.74	24.00	1.337	0.03	1.880	2.513
	WCDMA V_Ant1	RMC 12.2Kbps	Bottom Side	0mm	Full	4182	836.4	22.73	24.00	1.340	-0.19	1.860	2.492
	WCDMA IV_Ant1	RMC 12.2Kbps	Front	0mm	Reduced	1513	1752.6	19.03	20.50	1.403	0.08	1.370	1.922
54	WCDMA IV_Ant1	RMC 12.2Kbps	Back	0mm	Reduced	1513	1752.6	19.03	20.50	1.403	0.15	2.460	**3.451**
	WCDMA IV_Ant1	RMC 12.2Kbps	Back	0mm	Reduced	1312	1712.4	19.00	20.50	1.413	0.15	2.310	3.263
	WCDMA IV_Ant1	RMC 12.2Kbps	Back	0mm	Reduced	1413	1752.6	18.92	20.50	1.439	0.14	2.340	3.367
	WCDMA IV_Ant1	RMC 12.2Kbps	Left Side	0mm	Full	1513	1752.6	22.68	24.00	1.355	0.01	1.570	2.128
	WCDMA IV_Ant1	RMC 12.2Kbps	Left Side	0mm	Full	1312	1712.4	22.54	24.00	1.400	-0.11	1.320	1.847
	WCDMA IV_Ant1	RMC 12.2Kbps	Left Side	0mm	Full	1413	1732.6	22.61	24.00	1.377	0.14	1.380	1.901
	WCDMA IV_Ant1	RMC 12.2Kbps	Bottom Side	0mm	Reduced	1513	1752.6	19.03	20.50	1.403	0.16	2.020	2.834
	WCDMA IV_Ant1	RMC 12.2Kbps	Bottom Side	0mm	Reduced	1312	1712.4	19.00	20.50	1.413	-0.05	1.890	2.670
	WCDMA IV_Ant1	RMC 12.2Kbps	Bottom Side	0mm	Reduced	1413	1732.6	18.92	20.50	1.439	0.04	1.990	2.863
	WCDMA IV_Ant1	RMC 12.2Kbps	Front	8mm	Full	1513	1752.6	22.68	24.00	1.355	-0.12	0.592	0.802
	WCDMA IV_Ant1	RMC 12.2Kbps	Back	14mm	Full	1513	1752.6	22.68	24.00	1.355	-0.07	0.480	0.650
	WCDMA IV_Ant1	RMC 12.2Kbps	Bottom Side	14mm	Full	1413	1732.6	22.61	24.00	1.377	0.06	0.506	0.697
	WCDMA II_Ant2	RMC 12.2Kbps	Front	0mm	Reduced	9262	1852.4	18.45	20.00	1.429	0.02	0.870	1.243
	WCDMA II_Ant2	RMC 12.2Kbps	Back	0mm	Reduced	9262	1852.4	18.45	20.00	1.429	0.08	2.060	2.944
	WCDMA II_Ant2	RMC 12.2Kbps	Back	0mm	Reduced	9400	1880	18.32	20.00	1.472	0.13	2.010	2.959
	WCDMA II_Ant2	RMC 12.2Kbps	Back	0mm	Reduced	9538	1907.6	18.12	20.00	1.542	0.07	1.920	2.960
	WCDMA II_Ant2	RMC 12.2Kbps	Top Side	0mm	Reduced	9262	1852.4	18.45	20.00	1.429	0.08	1.900	2.715
	WCDMA II_Ant2	RMC 12.2Kbps	Top Side	0mm	Reduced	9400	1880	18.32	20.00	1.472	0.07	1.870	2.753
	WCDMA II_Ant2	RMC 12.2Kbps	Top Side	0mm	Reduced	9538	1907.6	18.12	20.00	1.542	-0.13	1.640	2.528
	WCDMA II_Ant2	RMC 12.2Kbps	Front	7mm	Full	9262	1852.4	20.94	22.50	1.432	0.12	0.326	0.467
	WCDMA II_Ant2	RMC 12.2Kbps	Back	14mm	Full	9538	1907.6	20.70	22.50	1.514	-0.09	0.170	0.257
	WCDMA II_Ant2	RMC 12.2Kbps	Top Side	12mm	Full	9400	1880	20.87	22.50	1.455	0.03	0.314	0.457
	WCDMA II_Ant1	RMC 12.2Kbps	Front	0mm	Reduced	9262	1852.4	19.95	21.00	1.274	0.09	1.800	2.292
	WCDMA II_Ant1	RMC 12.2Kbps	Front	0mm	Reduced	9400	1880	19.92	21.00	1.282	0.08	1.830	2.347
	WCDMA II_Ant1	RMC 12.2Kbps	Front	0mm	Reduced	9538	1907.6	19.85	21.00	1.303	-0.13	1.780	2.320
	WCDMA II_Ant1	RMC 12.2Kbps	Back	0mm	Reduced	9262	1852.4	19.95	21.00	1.274	0.04	2.730	3.477
55	WCDMA II_Ant1	RMC 12.2Kbps	Back	0mm	Reduced	9400	1880	19.92	21.00	1.282	0.08	2.780	**3.565**
	WCDMA II_Ant1	RMC 12.2Kbps	Back	0mm	Reduced	9538	1907.6	19.85	21.00	1.303	0.11	2.700	3.519
	WCDMA II_Ant1	RMC 12.2Kbps	Left Side	0mm	Full	9262	1852.4	22.98	24.00	1.265	-0.07	2.040	2.580
	WCDMA II_Ant1	RMC 12.2Kbps	Left Side	0mm	Full	9400	1880	22.96	24.00	1.271	0.05	2.290	2.910
	WCDMA II_Ant1	RMC 12.2Kbps	Left Side	0mm	Full	9538	1907.6	22.94	24.00	1.276	0.06	2.190	2.795
	WCDMA II_Ant1	RMC 12.2Kbps	Bottom Side	0mm	Reduced	9262	1852.4	19.95	21.00	1.274	0.19	2.290	2.916
	WCDMA II_Ant1	RMC 12.2Kbps	Bottom Side	0mm	Reduced	9400	1880	19.92	21.00	1.282	0.15	2.370	3.039
	WCDMA II_Ant1	RMC 12.2Kbps	Bottom Side	0mm	Reduced	9538	1907.6	19.85	21.00	1.303	0.03	2.410	3.141
	WCDMA II_Ant1	RMC 12.2Kbps	Front	8mm	Full	9400	1880	22.96	24.00	1.271	-0.12	0.747	0.949
	WCDMA II_Ant1	RMC 12.2Kbps	Back	14mm	Full	9400	1880	22.96	24.00	1.271	-0.08	0.481	0.611
	WCDMA II_Ant1	RMC 12.2Kbps	Bottom Side	14mm	Full	9538	1907.6	22.94	24.00	1.276	0.13	0.666	0.850

<FDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Power State	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)
56	LTE Band 12_Ant1	10M	QPSK	1	25	Back	0mm	Full	23095	707.5	22.49	24.00	1.416	0.14	1.190	**1.685**
	LTE Band 12_Ant1	10M	QPSK	1	25	Right Side	0mm	Full	23095	707.5	22.49	24.00	1.416	0.05	0.643	0.910
	LTE Band 12_Ant1	10M	QPSK	25	12	Back	0mm	Full	23095	707.5	21.45	23.00	1.429	0.01	0.956	1.366
	LTE Band 12_Ant1	10M	QPSK	25	12	Right Side	0mm	Full	23095	707.5	21.45	23.00	1.429	-0.06	0.521	0.744
	LTE Band 13_Ant1	10M	QPSK	1	25	Back	0mm	Full	23230	782	22.81	24.00	1.315	0.13	1.690	2.223
	LTE Band 13_Ant1	10M	QPSK	1	25	Right Side	0mm	Full	23230	782	22.81	24.00	1.315	0.05	0.646	0.850
57	LTE Band 13_Ant1	10M	QPSK	1	25	Bottom Side	0mm	Full	23230	782	22.81	24.00	1.315	-0.04	1.860	**2.446**
	LTE Band 13_Ant1	10M	QPSK	25	12	Back	0mm	Full	23230	782	21.67	23.00	1.358	0.13	1.310	1.779
	LTE Band 13_Ant1	10M	QPSK	25	12	Right Side	0mm	Full	23230	782	21.67	23.00	1.358	-0.15	0.504	0.685
	LTE Band 13_Ant1	10M	QPSK	25	12	Bottom Side	0mm	Full	23230	782	21.67	23.00	1.358	-0.09	1.420	1.929
	LTE Band 13_Ant1	10M	QPSK	50	0	Back	0mm	Full	23230	782	21.66	23.00	1.361	0.12	1.290	1.756
	LTE Band 13_Ant1	10M	QPSK	50	0	Bottom Side	0mm	Full	23230	782	21.66	23.00	1.361	-0.02	1.380	1.879
	LTE Band 14_Ant1	10M	QPSK	1	25	Back	0mm	Full	23330	793	22.70	24.00	1.349	0.17	1.710	2.307
58	LTE Band 14_Ant1	10M	QPSK	1	25	Bottom Side	0mm	Full	23330	793	22.70	24.00	1.349	-0.07	1.890	**2.550**
	LTE Band 14_Ant1	10M	QPSK	25	12	Back	0mm	Full	23330	793	21.55	23.00	1.396	0.03	1.390	1.941
	LTE Band 14_Ant1	10M	QPSK	25	12	Bottom Side	0mm	Full	23330	793	21.55	23.00	1.396	0.08	1.520	2.122
	LTE Band 14_Ant1	10M	QPSK	50	0	Back	0mm	Full	23330	793	21.53	23.00	1.403	0.05	1.300	1.824
	LTE Band 14_Ant1	10M	QPSK	50	0	Bottom Side	0mm	Full	23330	793	21.53	23.00	1.403	-0.12	1.310	1.838
	LTE Band 5_Ant2	10M	QPSK	1	25	Front	0mm	Full	20525	836.5	21.77	23.00	1.327	0.04	1.240	1.646
	LTE Band 5_Ant2	10M	QPSK	1	25	Back	0mm	Full	20525	836.5	21.77	23.00	1.327	-0.06	1.460	1.938
	LTE Band 5_Ant2	10M	QPSK	1	25	Top Side	0mm	Full	20525	836.5	21.77	23.00	1.327	0.06	0.989	1.313
	LTE Band 5_Ant2	10M	QPSK	25	12	Front	0mm	Full	20525	836.5	20.73	22.00	1.340	0.14	0.942	1.262
	LTE Band 5_Ant2	10M	QPSK	25	12	Back	0mm	Full	20525	836.5	20.73	22.00	1.340	-0.04	1.150	1.541
	LTE Band 5_Ant2	10M	QPSK	25	12	Top Side	0mm	Full	20525	836.5	20.73	22.00	1.340	0.09	0.795	1.065
	LTE Band 5_Ant1	10M	QPSK	1	25	Front	0mm	Full	20525	836.5	22.55	24.00	1.396	0.18	1.520	2.122
	LTE Band 5_Ant1	10M	QPSK	1	25	Back	0mm	Full	20525	836.5	22.55	24.00	1.396	-0.1	1.660	2.318
59	LTE Band 5_Ant1	10M	QPSK	1	25	Bottom Side	0mm	Full	20525	836.5	22.55	24.00	1.396	-0.14	2.000	**2.793**
	LTE Band 5_Ant1	10M	QPSK	25	12	Front	0mm	Full	20525	836.5	21.54	23.00	1.400	0.01	1.160	1.624
	LTE Band 5_Ant1	10M	QPSK	25	12	Back	0mm	Full	20525	836.5	21.54	23.00	1.400	-0.12	1.310	1.833
	LTE Band 5_Ant1	10M	QPSK	25	12	Bottom Side	0mm	Full	20525	836.5	21.54	23.00	1.400	-0.06	1.610	2.253
	LTE Band 5_Ant1	10M	QPSK	50	0	Front	0mm	Full	20525	836.5	21.54	23.00	1.400	-0.01	1.160	1.624
	LTE Band 5_Ant1	10M	QPSK	50	0	Back	0mm	Full	20525	836.5	21.54	23.00	1.400	0.17	1.290	1.805
	LTE Band 5_Ant1	10M	QPSK	50	0	Bottom Side	0mm	Full	20525	836.5	21.54	23.00	1.400	0.09	1.590	2.225
	LTE Band 66_Ant1	20M	QPSK	1	49	Front	0mm	Reduced	132572	1770	18.36	20.00	1.459	0.03	1.350	1.969
60	LTE Band 66_Ant1	20M	QPSK	1	49	Back	0mm	Reduced	132572	1770	18.36	20.00	1.459	0.02	2.270	**3.312**
	LTE Band 66_Ant1	20M	QPSK	1	49	Back	0mm	Reduced	132072	1720	18.34	20.00	1.466	-0.16	2.060	3.019
	LTE Band 66_Ant1	20M	QPSK	1	49	Back	0mm	Reduced	132322	1745	18.29	20.00	1.483	-0.12	2.140	3.173
	LTE Band 66_Ant1	20M	QPSK	1	49	Left Side	0mm	Full	132572	1770	22.50	24.00	1.413	0.15	1.660	2.345
	LTE Band 66_Ant1	20M	QPSK	1	49	Left Side	0mm	Full	132072	1720	22.37	24.00	1.455	0.11	1.360	1.979
	LTE Band 66_Ant1	20M	QPSK	1	49	Left Side	0mm	Full	132322	1745	22.31	24.00	1.476	-0.09	1.420	2.096
	LTE Band 66_Ant1	20M	QPSK	1	49	Bottom Side	0mm	Reduced	132572	1770	18.36	20.00	1.459	0.04	1.830	2.670
	LTE Band 66_Ant1	20M	QPSK	1	49	Bottom Side	0mm	Reduced	132072	1720	18.34	20.00	1.466	0.17	1.690	2.477
	LTE Band 66_Ant1	20M	QPSK	1	49	Bottom Side	0mm	Reduced	132322	1745	18.29	20.00	1.483	-0.03	1.680	2.491
	LTE Band 66_Ant1	20M	QPSK	1	49	Front	8mm	Full	132572	1770	22.50	24.00	1.413	-0.12	0.618	0.873
	LTE Band 66_Ant1	20M	QPSK	1	49	Back	14mm	Full	132572	1770	22.50	24.00	1.413	0.07	0.456	0.644
	LTE Band 66_Ant1	20M	QPSK	1	49	Bottom Side	14mm	Full	132572	1770	22.50	24.00	1.413	-0.1	0.587	0.829
	LTE Band 66_Ant1	20M	QPSK	50	24	Front	0mm	Reduced	132572	1770	17.29	19.00	1.483	0.12	1.050	1.557
	LTE Band 66_Ant1	20M	QPSK	50	24	Back	0mm	Reduced	132572	1770	17.29	19.00	1.483	0.09	1.760	2.609
	LTE Band 66_Ant1	20M	QPSK	50	24	Back	0mm	Reduced	132072	1720	17.26	19.00	1.493	0.01	1.580	2.359
	LTE Band 66_Ant1	20M	QPSK	50	24	Back	0mm	Reduced	132322	1745	17.25	19.00	1.496	-0.06	1.680	2.514
	LTE Band 66_Ant1	20M	QPSK	50	24	Left Side	0mm	Full	132572	1770	21.39	23.00	1.449	-0.07	1.280	1.854