FCC SAR Test Report

APPLICANT	:	Honeywell International Inc.
EQUIPMENT	:	CN75WAN mobile computer
BRAND NAME	:	Honeywell
MODEL NAME	:	CN75WAN
FCC ID	:	HD5-CN75WAN
STANDARD	:	FCC 47 CFR Part 2 (2.1093) ANSI/IEEE C95.1-1992 IEEE 1528-2013

We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the procedures and had been in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.

Reviewed by: Eric Huang / Manager

Approved by: Jones Tsai / Manager

Testing Laboratory
1190

SPORTON INTERNATIONAL INC.
No.52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan District, Taoyuan City, Taiwan (R.O.C.)

Table of Contents

1. Statement of Compliance **4**
2. Administration Data **5**
3. Guidance Applied **5**
4. Equipment Under Test (EUT) Information **6**
4.1 General Information 6
5. RF Exposure Limits **8**
5.1 Uncontrolled Environment 8
5.2 Controlled Environment 8
6. Specific Absorption Rate (SAR) **9**
6.1 Introduction 9
6.2 SAR Definition 9
7. System Description and Setup **10**
7.1 E-Field Probe 11
7.2 Data Acquisition Electronics (DAE) 11
7.3 Phantom 12
7.4 Device Holder 13
8. Measurement Procedures **14**
8.1 Spatial Peak SAR Evaluation 14
8.2 Power Reference Measurement 15
8.3 Area Scan 15
8.4 Zoom Scan 16
8.5 Volume Scan Procedures 16
8.6 Power Drift Monitoring 16
9. Test Equipment List **17**
10. System Verification **18**
10.1 Tissue Simulating Liquids 18
10.2 Tissue Verification 19
10.3 System Performance Check Results 21
11. RF Exposure Positions **23**
11.1 Ear and handset reference point 23
11.2 Definition of the cheek position 24
11.3 Definition of the tilt position 25
11.4 Body Worn Accessory 25
11.5 Product Specific 26
11.6 Wireless Router 26
12. Conducted RF Output Power (Unit: dBm) **27**
13. Antenna Location **36**
14. SAR Test Results **38**
14.1 Head SAR 40
14.2 Hotspot SAR 45
14.3 Product Specific SAR 49
14.4 Body Worn Accessory SAR 50
14.5 Repeated SAR Measurement 55
15. Simultaneous Transmission Analysis **56**
15.1 Head Exposure Conditions 57
15.2 Hotspot Exposure Conditions 58
15.3 Product Specific Exposure Conditions 59
15.4 Body-Worn Accessory Exposure Conditions 60
15.5 SPLSR Evaluation and Analysis 61
16. Uncertainty Assessment **63**
17. References **66**
Appendix A. Plots of System Performance Check
Appendix B. Plots of High SAR Measurement
Appendix C. DASY Calibration Certificate
Appendix D. Test Setup Photos

Revision History

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA6D2819	Rev. 01	Initial issue of report	Mar. 08, 2017
FA6D2819	Rev. 02	Updated Bluetooth Tune-up Limit	Mar. 10, 2017

1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for Honeywell International Inc., CN75WAN mobile computer, CN75WAN, are as follows.

Equipment Class	Frequency Band	Highest SAR Summary				Highest Simultaneous Transmission 1g SAR (W/kg)
		Head (Separation 0mm)	Body-worn (Separation 10mm)	Hotspot (Separation 10mm)	Product Specific (Separation 0mm)	
		1g SAR (W/kg)			10g SAR (W/kg)	
Licensed	GSM850	0.33	0.89	0.51		1.57
	GSM1900	0.25	0.82	0.82		
	WCDMA II	0.48	1.31	1.31	2.40	
	WCDMA V	0.41	1.20	0.61		
	CDMA BC0	0.40	1.04	0.58		
	CDMA BC1	0.54	1.23	1.21	2.39	
	CDMA BC10	0.27	0.93	0.39		
DTS	2.4GHz WLAN	0.08	0.07	0.20		1.37
NII	5GHz WLAN	0.09	0.44	0.42	0.58	1.57
DSS	Bluetooth		< 0.01			1.31
Date of Testing:		2016/12/30 ~ 2017/1/17				

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

2. Administration Data

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

Applicant	
Company Name	Honeywell International Inc.
Address	9680 Old Bailes Road, Fort Mill, SC 29707 USA

Manufacturer	
Company Name	Honeywell International Inc.
Address	9680 Old Bailes Road, Fort Mill, SC 29707 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 941225 D01 3G SAR Procedures v03r01
- FCC KDB 941225 D06 Hotspot Mode SAR v02r01

4. Equipment Under Test (EUT) Information

4.1 General Information

Product Feature & Specification	
Equipment Name	CN75WAN mobile computer
Brand Name	Honeywell
Model Name	CN75WAN
FCC ID	HD5-CN75WAN
Wireless Technology and Frequency Range	GSM850: 824.2 MHz ~ 848.8 MHz GSM1900: 1850.2 MHz ~ 1909.8 MHz WCDMA Band II: 1852.4 MHz ~ 1907.6 MHz WCDMA Band V: 826.4 MHz ~ 846.6 MHz CDMA 2000 BC0: 824.7 MHz ~ 848.31 MHz CDMA 2000 BC1: 1851.25 MHz ~ 1908.75 MHz CDMA 2000 BC10: 817.9 MHz ~ 823.1 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 CDMA2000 : 1xRTT/1xEv-Do(Rev.0)/1xEv-Do(Rev.A) 802.11a/b/g/n HT20 Bluetooth BR/EDR/LE
HW Version	v1.1
SW Version	W03.320
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 WLAN 2.4GHz / 5.2GHz / 5.8GHz supports Hotspot operation.
3. The device has 4 versions, the differences can refer to following table:
   (a) For CN75E, the device has two kinds of sample. RF exposure evaluation was selected sample1 as the main testing and sample2 will select worst case found in sample1 performs.
   (b) For CN75, the device has two kinds of sample. RF exposure evaluation was selected sample3 as the main testing and sample4 will select worst case found in sample3 performs.
4. In this report, highest SAR summary and Sim-Tx analysis evaluation is select highest value of sample 1/2/3/4.

Sample List			
Sample 1	CN75E WWAN-Q6 WWAN_Q6 keypad	S/N	16344D8160
Sample 2	CN75E WWAN-N7 WWAN_N7 keypad	S/N	16344D8087
Sample 3	CN75 WWAN-Q5 WWAN_Q5 keypad	S/N	16342D82C9
Sample 4	CN75 WWAN-N5 WWAN_N5 keypad	S/N	16350D809B

Accessory Information	
Equipment	**Model Name**
CN75A/CN75E Dock	1000AV01
CK75 Dock	1001AV01
car charger	850-057-005
Snap-on(LAN)	1000AA01
Snap-on(RS232)	1000AA03
Snap-On(VoCollect)	1000AA05
Snap-on (USB)	1000AA07
Snap-on adapter	9001AE01
Holster for the CN75A	INZPT-2148-K
Holster for the CN75E	INZPT-2150-K
Holster for the CK75	INZPT-2152-K

5. RF Exposure Limits

5.1 Uncontrolled Environment

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

5.2 Controlled Environment

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

Limits for Occupational/Controlled Exposure (W/kg)

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

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

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

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

6. Specific Absorption Rate (SAR)

6.1 Introduction

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

6.2 SAR Definition

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

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

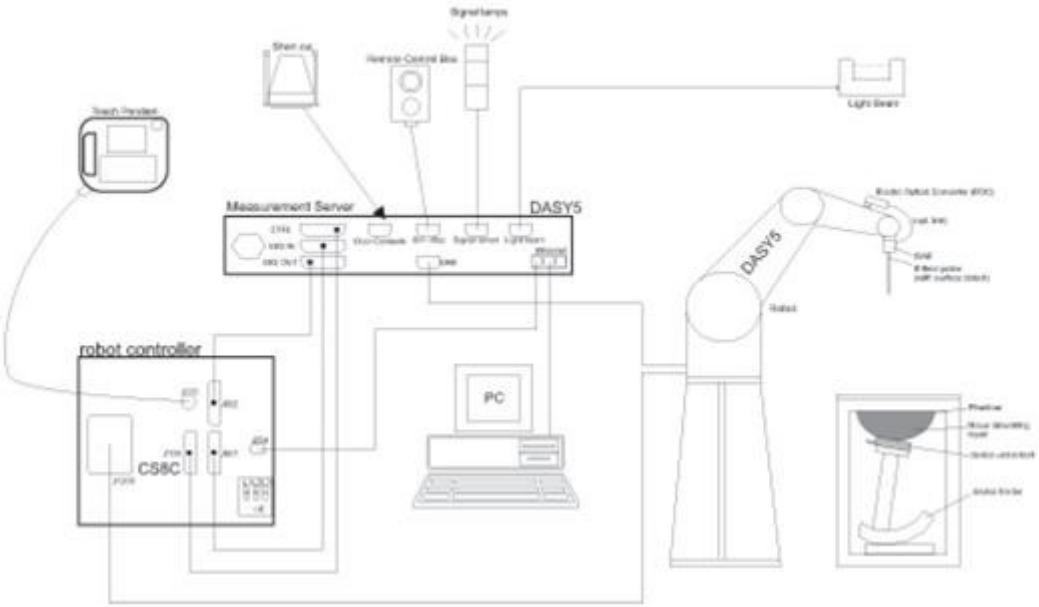
SAR is expressed in units of Watts per kilogram (W/kg)

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

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

7. System Description and Setup

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



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

7.1 E-Field Probe

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

<ES3DV3 Probe>

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

<EX3DV4 Probe>

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

7.2 Data Acquisition Electronics (DAE)

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

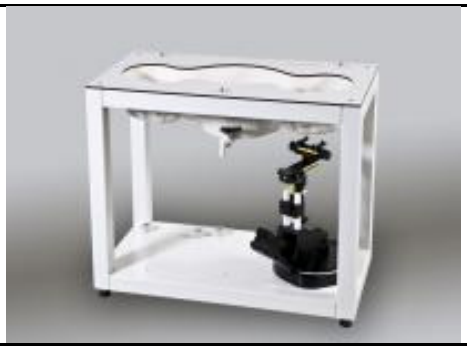
The input impedance of the DAE is 200 MOhm; the inputs are symmetrical and floating. Common mode rejection is above 80 dB.

Fig 5.1 Photo of DAE

7.3 Phantom

<SAM Twin Phantom>

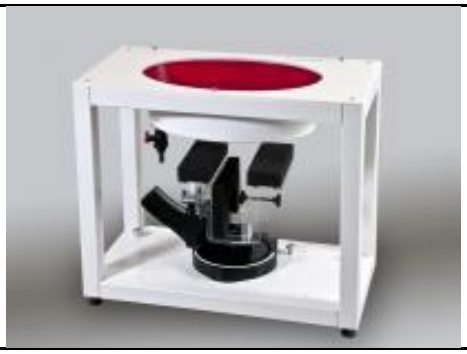
Shell Thickness	2 ± 0.2 mm; Center ear point: 6 ± 0.2 mm
Filling Volume	Approx. 25 liters
Dimensions	Length: 1000 mm; Width: 500 mm; Height: adjustable feet
Measurement Areas	Left Hand, Right Hand, Flat Phantom



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

<ELI Phantom>

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



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

7.4 Device Holder

<Mounting Device for Hand-Held Transmitter>

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

Mounting Device for Hand-Held Transmitters

Mounting Device Adaptor for Wide-Phones

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

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

Mounting Device for Laptops

8. Measurement Procedures

The measurement procedures are as follows:

<Conducted power measurement>

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

<SAR measurement>

(a) Use base station simulator to configure EUT WWAN transmission in radiated connection, and engineering software to configure EUT WLAN/BT continuously transmission, at maximum RF power, in the highest power channel.
(b) Place the EUT in the positions as 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

8.1 Spatial Peak SAR Evaluation

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

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

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

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

8.2 Power Reference Measurement

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

8.3 Area Scan

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

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

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

8.4 Zoom Scan

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

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

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

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

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

8.5 Volume Scan Procedures

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

8.6 Power Drift Monitoring

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

9. Test Equipment List

Manufacturer	Name of Equipment	Type/Model	Serial Number	Calibration	
				Last Cal.	Due Date
SPEAG	835MHz System Validation Kit	D835V2	499	Mar. 21, 2016	Mar. 20, 2017
SPEAG	1900MHz System Validation Kit	D1900V2	5d041	Sep. 30, 2016	Sep. 29, 2017
SPEAG	2450MHz System Validation Kit	D2450V2	736	Aug. 30, 2016	Aug. 29, 2017
SPEAG	5GHz System Validation Kit	D5GHzV2	1006	Sep. 27, 2016	Sep. 26, 2017
SPEAG	Data Acquisition Electronics	DAE3	495	May. 27, 2016	May. 26, 2017
SPEAG	Data Acquisition Electronics	DAE4	1399	Nov. 17, 2016	Nov. 16, 2017
SPEAG	Data Acquisition Electronics	DAE3	577	Sep. 28, 2016	Sep. 27, 2017
SPEAG	Data Acquisition Electronics	DAE4	778	May. 12, 2016	May. 11, 2017
SPEAG	Dosimetric E-Field Probe	EX3DV4	3925	May. 26, 2016	May. 25, 2017
SPEAG	Dosimetric E-Field Probe	EX3DV4	3955	Nov. 24, 2016	Nov. 23, 2017
SPEAG	Dosimetric E-Field Probe	EX3DV4	3931	Oct. 03, 2016	Oct. 02, 2017
SPEAG	Dosimetric E-Field Probe	ES3DV3	3270	Aug. 26, 2016	Aug. 25, 2017
WonDer	Thermometer	WD-5015	TM685	Oct. 12, 2016	Oct. 11, 2017
WonDer	Thermometer	WD-5015	TM642	Oct. 12, 2016	Oct. 11, 2017
WonDer	Thermometer	WD-5015	TM281	Oct. 12, 2016	Oct. 11, 2017
Wisewind	Thermometer	HTC-1	TM560	Oct. 12, 2016	Oct. 11, 2017
Anritsu	Radio Communication Analyzer	MT8820C	6201381760	May. 10, 2016	May. 09, 2017
Agilent	Wireless Communication Test Set	E5515C	MY50266977	May. 17, 2016	May. 16, 2017
R&S	BT Base Station	CBT32	100519	Jun. 03, 2016	Jun. 02, 2017
SPEAG	Device Holder	N/A	N/A	N/A	N/A
Anritsu	Signal Generator	MG3710A	6201502524	Dec. 09, 2016	Dec. 08, 2017
Agilent	ENA Network Analyzer	E5071C	MY46316648	Jan. 12, 2016	Jan. 11, 2017
Agilent	ENA Network Analyzer	E5071C	MY46316648	Jan. 04, 2017	Jan. 03, 2018
SPEAG	Dielectric Probe Kit	DAK-3.5	1126	Jul. 19, 2016	Jul. 18, 2017
LINE SEIKI	Digital Thermometer	LKMelectronic	DTM3000SPEZIAL	Sep. 05, 2016	Sep. 04, 2017
Anritsu	Power Meter	ML2495A	1419002	May. 10, 2016	May. 09, 2017
Anritsu	Power Sensor	MA2411B	1339124	May. 10, 2016	May. 09, 2017
Agilent	Spectrum Analyzer	E4408B	MY44211028	Aug. 22, 2016	Aug. 21, 2017
Mini-Circuits	Power Amplifier	ZVE-8G+	D120604	Mar. 16, 2016	Mar. 15, 2017
Mini-Circuits	Power Amplifier	ZHL-42W+	QA1344002	Mar. 16, 2016	Mar. 15, 2017
ATM	Dual Directional Coupler	C122H-10	P610410z-02	Note 1	
Woken	Attenuator 1	WK0602-XX	N/A	Note 1	
PE	Attenuator 2	PE7005-10	N/A	Note 1	
PE	Attenuator 3	PE7005- 3	N/A	Note 1	

General Note:

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

10. System Verification

10.1 Tissue 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. 10.1. 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. 10.2.

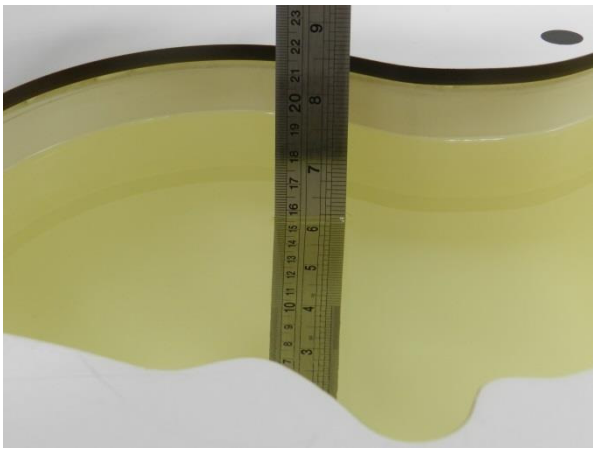


Fig 10.1Photo of Liquid Height for Head SAR

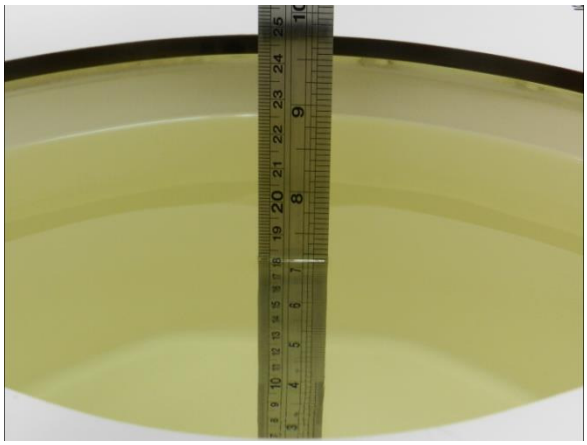


Fig 10.2 Photo of Liquid Height for Body SAR

10.2 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
900	40.3	57.9	0.2	1.4	0.2	0	0.97	41.5
1800, 1900, 2000	55.2	0	0	0.3	0	44.5	1.40	40.0
2450	55.0	0	0	0	0	45.0	1.80	39.2
2600	54.8	0	0	0.1	0	45.1	1.96	39.0
For Body								
750	51.7	47.2	0	0.9	0.1	0	0.96	55.5
835	50.8	48.2	0	0.9	0.1	0	0.97	55.2
900	50.8	48.2	0	0.9	0.1	0	1.05	55.0
1800, 1900, 2000	70.2	0	0	0.4	0	29.4	1.52	53.3
2450	68.6	0	0	0	0	31.4	1.95	52.7
2600	68.1	0	0	0.1	0	31.8	2.16	52.5

Simulating Liquid for 5GHz, Manufactured by SPEAG

Ingredients	(% by weight)
Water	64~78%
Mineral oil	11~18%
Emulsifiers	9~15%
Additives and Salt	2~3%

<Tissue Dielectric Parameter Check Results>

Frequency (MHz)	Tissue Type	Liquid Temp. (℃)	Conductivity (σ)	Permittivity (ε_r)	Conductivity Target (σ)	Permittivity Target (ε_r)	Delta (σ) (%)	Delta (ε_r) (%)	Limit (%)	Date
835	HSL	22.5	0.875	41.503	0.90	41.50	-2.78	0.01	±5	2017/1/3
835	HSL	22.6	0.878	42.500	0.90	41.50	-2.44	2.41	±5	2017/1/5
835	MSL	22.6	0.975	57.194	0.97	55.20	0.52	3.61	±5	2017/1/1
835	MSL	22.4	0.952	56.300	0.97	55.20	-1.86	1.99	±5	2017/1/4
1900	HSL	22.5	1.438	41.419	1.40	40.00	2.71	3.55	±5	2017/1/4
1900	HSL	22.5	1.420	40.000	1.40	40.00	1.43	0.00	±5	2017/1/6
1900	MSL	22.2	1.560	55.000	1.52	53.30	2.63	3.19	±5	2016/12/30
1900	MSL	22.2	1.540	55.300	1.52	53.30	1.32	3.75	±5	2017/1/3
1900	MSL	22.5	1.522	54.573	1.52	53.30	0.13	2.39	±5	2017/1/4
2450	HSL	22.1	1.840	40.500	1.80	39.20	2.22	3.32	±5	2017/1/16
2450	MSL	22.6	2.010	54.200	1.95	52.70	3.08	2.85	±5	2017/1/12
2450	MSL	22.3	2.009	54.188	1.95	52.70	3.03	2.82	±5	2017/1/12
2450	MSL	22.1	2.010	53.900	1.95	52.70	3.08	2.28	±5	2017/1/17
5250	HSL	22.5	4.530	37.000	4.71	35.95	-3.82	2.92	±5	2017/1/14
5250	MSL	22.2	5.537	47.352	5.36	48.95	3.30	-3.26	±5	2017/1/13
5250	MSL	22.3	5.480	47.388	5.36	48.95	2.24	-3.19	±5	2017/1/15
5250	MSL	22.1	5.540	47.100	5.36	48.95	3.36	-3.78	±5	2017/1/17
5600	HSL	22.5	4.860	36.500	5.07	35.50	-4.14	2.82	±5	2017/1/14
5600	MSL	22.2	6.012	46.731	5.77	48.50	4.19	-3.65	±5	2017/1/13
5600	MSL	22.1	6.010	46.400	5.77	48.50	4.16	-4.33	±5	2017/1/17
5750	HSL	22.5	5.020	36.100	5.22	35.35	-3.83	2.12	±5	2017/1/14
5750	MSL	22.2	6.223	46.468	5.94	48.28	4.76	-3.75	±5	2017/1/13
5750	MSL	22.1	6.220	46.200	5.94	48.28	4.71	-4.31	±5	2017/1/17

10.3 System Performance Check Results

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

Date	Frequency (MHz)	Tissue Type	Input Power (mW)	Dipole S/N	Probe S/N	DAE S/N	Measured 1g SAR (W/kg)	Targeted 1g SAR (W/kg)	Normalized 1g SAR (W/kg)	Deviation (%)
2017/1/3	835	HSL	250	D835V2-499	EX3DV4 - SN3925	DAE3 Sn495	2.35	9.14	9.40	2.84
2017/1/5	835	HSL	250	D835V2-499	EX3DV4 - SN3955	DAE4 Sn1399	2.24	9.14	8.96	-1.97
2017/1/1	835	MSL	250	D835V2-499	EX3DV4 - SN3925	DAE3 Sn495	2.49	9.52	9.96	4.62
2017/1/4	835	MSL	250	D835V2-499	EX3DV4 - SN3955	DAE4 Sn1399	2.39	9.52	9.56	0.42
2017/1/4	1900	HSL	250	D1900V2-5d041	ES3DV3 - SN3270	DAE4 Sn778	10.10	40.50	40.40	-0.25
2017/1/6	1900	HSL	250	D1900V2-5d041	EX3DV4 - SN3955	DAE4 Sn1399	9.61	40.50	38.44	-5.09
2016/12/30	1900	MSL	250	D1900V2-5d041	ES3DV3 - SN3270	DAE4 Sn778	10.30	38.80	41.20	6.19
2017/1/3	1900	MSL	250	D1900V2-5d041	EX3DV4 - SN3955	DAE4 Sn1399	10.00	38.80	40.00	3.09
2017/1/4	1900	MSL	250	D1900V2-5d041	ES3DV3 - SN3270	DAE4 Sn778	10.10	38.80	40.40	4.12
2017/1/16	2450	HSL	250	D2450V2-736	EX3DV4 - SN3931	DAE3 Sn577	14.10	53.10	56.40	6.21
2017/1/12	2450	MSL	250	D2450V2-736	EX3DV4 - SN3931	DAE3 Sn577	13.10	52.10	52.40	0.58
2017/1/12	2450	MSL	250	D2450V2-736	EX3DV4 - SN3955	DAE4 Sn1399	12.30	52.10	49.20	-5.57
2017/1/17	2450	MSL	250	D2450V2-736	EX3DV4 - SN3931	DAE3 Sn577	13.10	52.10	52.40	0.58
2017/1/14	5250	HSL	100	D5GHzV2-1006	EX3DV4 - SN3931	DAE3 Sn577	7.71	80.60	77.10	-4.34
2017/1/13	5250	MSL	100	D5GHzV2-1006	EX3DV4 - SN3955	DAE4 Sn1399	7.65	75.50	76.50	1.32
2017/1/15	5250	MSL	100	D5GHzV2-1006	EX3DV4 - SN3955	DAE4 Sn1399	7.54	75.50	75.40	-0.13
2017/1/17	5250	MSL	100	D5GHzV2-1006	EX3DV4 - SN3931	DAE3 Sn577	7.14	75.50	71.40	-5.43
2017/1/14	5600	HSL	100	D5GHzV2-1006	EX3DV4 - SN3931	DAE3 Sn577	8.60	83.80	86.00	2.63
2017/1/13	5600	MSL	100	D5GHzV2-1006	EX3DV4 - SN3955	DAE4 Sn1399	8.44	78.60	84.40	7.38
2017/1/17	5600	MSL	100	D5GHzV2-1006	EX3DV4 - SN3931	DAE3 Sn577	8.35	78.60	83.50	6.23
2017/1/14	5750	HSL	100	D5GHzV2-1006	EX3DV4 - SN3931	DAE3 Sn577	8.30	80.50	83.00	3.11
2017/1/13	5750	MSL	100	D5GHzV2-1006	EX3DV4 - SN3955	DAE4 Sn1399	7.93	74.60	79.30	6.30
2017/1/17	5750	MSL	100	D5GHzV2-1006	EX3DV4 - SN3931	DAE3 Sn577	7.23	74.60	72.30	-3.08

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 (%)
2017/1/4	1900	MSL	250	D1900V2-5d041	ES3DV3 - SN3270	DAE4 Sn778	5.39	20.60	21.56	4.66
2017/1/13	5250	MSL	100	D5GHzV2-1006	EX3DV4 - SN3955	DAE4 Sn1399	2.08	21.20	20.80	-1.89
2017/1/15	5250	MSL	100	D5GHzV2-1006	EX3DV4 - SN3955	DAE4 Sn1399	2.06	21.20	20.60	-2.83
2017/1/13	5600	MSL	100	D5GHzV2-1006	EX3DV4 - SN3955	DAE4 Sn1399	2.35	22.00	23.50	6.82
2017/1/17	5600	MSL	100	D5GHzV2-1006	EX3DV4 - SN3931	DAE3 Sn577	2.22	22.00	22.20	0.91

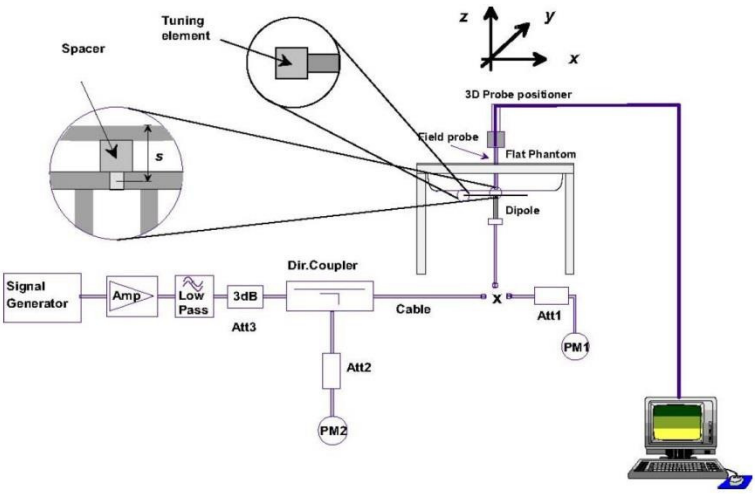


Fig 8.3.1 System Performance Check Setup

Fig 8.3.2 Setup Photo

11. RF Exposure Positions

11.1 Ear and handset reference point

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

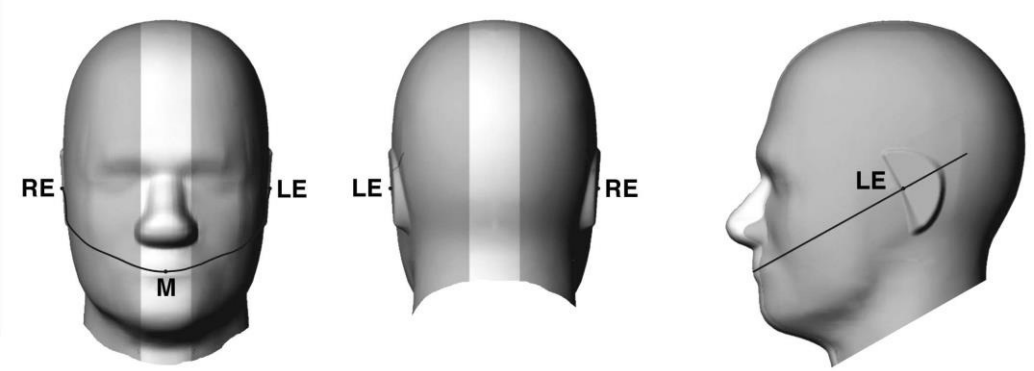


Fig 9.1.1 Front, back, and side views of SAM twin phantom

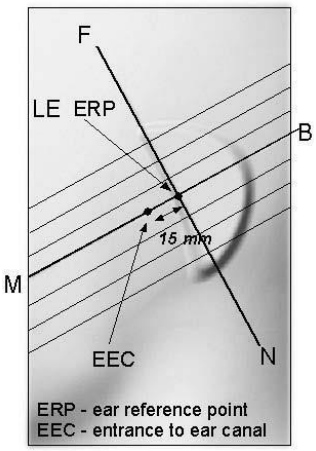


Fig 9.1.2 Close-up side view of phantom showing the ear region.

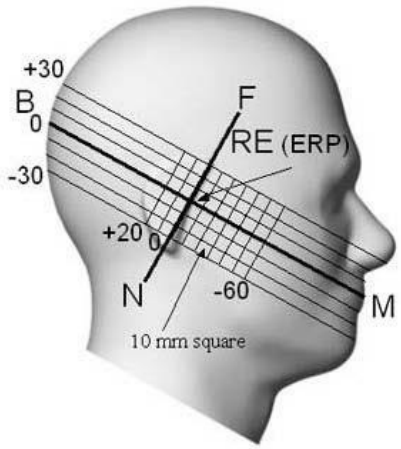


Fig 9.1.3 Side view of the phantom showing relevant markings and seven cross-sectional plane locations

11.2 Definition of the cheek position

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

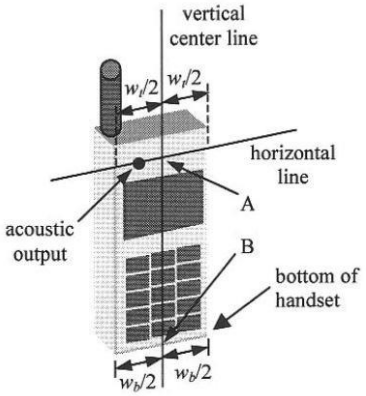


Fig 9.2.1 Handset vertical and horizontal reference lines—"fixed case

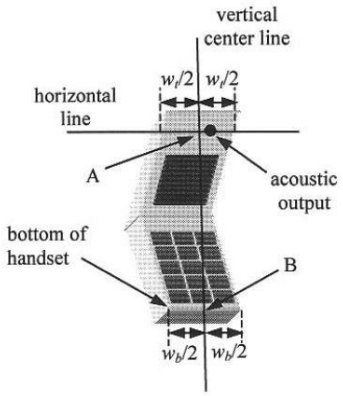


Fig 9.2.2 Handset vertical and horizontal reference lines—"clam-shell case"

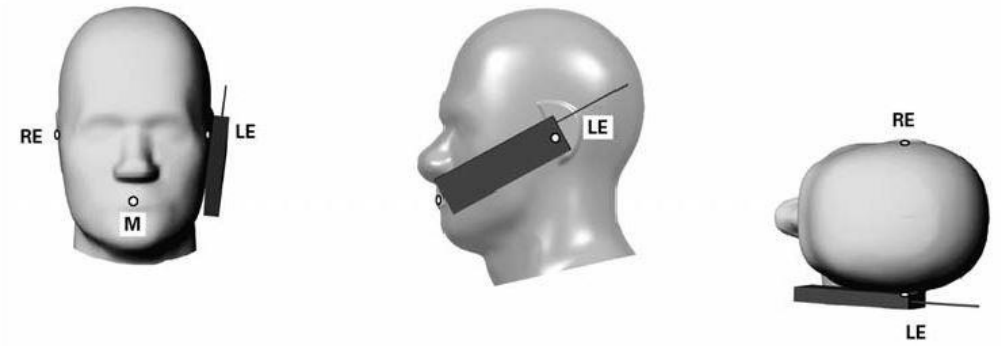


Fig 9.2.3 cheek or touch position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which establish the Reference Plane for handset positioning, are indicated.

11.3 Definition of the tilt position

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

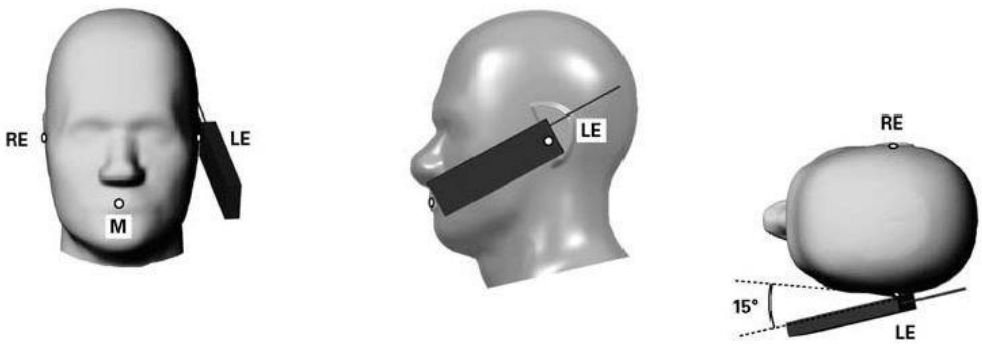


Fig 9.3.1 Tilt position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which define the Reference Plane for handset positioning, are indicated.

11.4 Body Worn Accessory

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

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

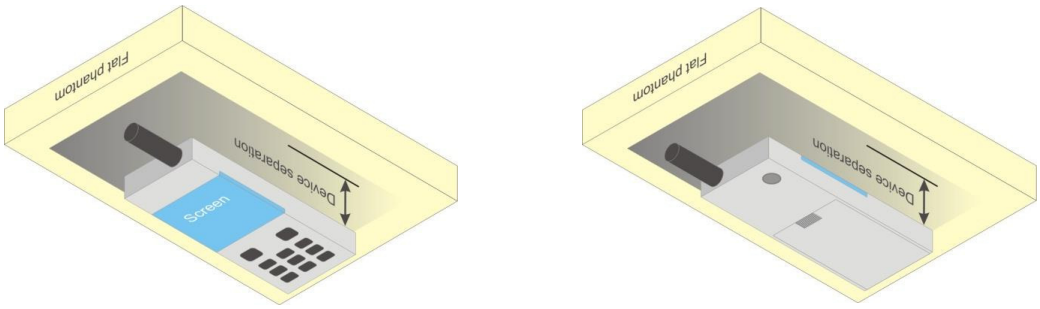


Fig 9.4 Body Worn Position

11.5 Product Specific

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

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

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

11.6 Wireless Router

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

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

12. Conducted RF Output Power (Unit: dBm)

<GSM Conducted Power>

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 (1Tx slots) for GSM850/GSM1900 is considered as the primary mode.
3. Other configurations of GSM / GPRS / EDGE are considered as secondary modes. The 3G SAR test reduction procedure is applied, when the maximum output power and tune-up tolerance specified for production units in a secondary mode is ≤ ¼ dB higher than the primary mode, SAR measurement is not required for the secondary mode

GSM850	Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame-Average Power (dBm)			Tune-up Limit (dBm)
TX Channel	128	189	251		128	189	251	
Frequency (MHz)	824.2	836.4	848.8		824.2	836.4	848.8	
GSM 1 Tx slot	32.96	32.95	32.98	33.50	23.96	23.95	23.98	24.50
GPRS 1 Tx slot	32.98	32.96	32.99	33.50	23.98	23.96	23.99	24.50
GPRS 2 Tx slots	29.84	29.84	29.90	30.00	23.84	23.84	23.90	24.00
GPRS 3 Tx slots	28.08	27.71	27.95	28.50	23.82	23.45	23.69	24.24
GPRS 4 Tx slots	26.72	26.34	26.65	27.00	23.72	23.34	23.65	24.00
EDGE 1 Tx slot	26.71	26.47	26.60	27.00	17.71	17.47	17.60	18.00
EDGE 2 Tx slots	23.66	23.39	23.52	24.00	17.66	17.39	17.52	18.00
EDGE 3 Tx slots	22.14	21.80	21.96	22.50	17.88	17.54	17.70	18.24
EDGE 4 Tx slots	21.05	20.78	20.84	21.50	18.05	17.78	17.84	18.50

GSM1900	Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame-Average Power (dBm)			Tune-up Limit (dBm)
TX Channel	512	661	810		512	661	810	
Frequency (MHz)	1850.2	1880	1909.8		1850.2	1880	1909.8	
GSM 1 Tx slot	29.80	30.05	29.73	30.50	20.80	21.05	20.73	21.50
GPRS 1 Tx slot	29.86	30.06	29.74	30.50	20.86	21.06	20.74	21.50
GPRS 2 Tx slots	26.85	26.48	26.70	27.00	20.85	20.48	20.70	21.00
GPRS 3 Tx slots	24.92	24.57	24.42	25.00	20.66	20.31	20.16	20.74
GPRS 4 Tx slots	23.37	23.14	22.87	23.50	20.37	20.14	19.87	20.50
EDGE 1 Tx slot	25.86	25.59	25.37	26.00	16.86	16.59	16.37	17.00
EDGE 2 Tx slots	22.70	22.50	22.27	23.00	16.70	16.50	16.27	17.00
EDGE 3 Tx slots	21.25	21.05	20.80	21.50	16.99	16.79	16.54	17.24
EDGE 4 Tx slots	19.96	19.59	19.48	20.00	16.96	16.59	16.48	17.00

<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.

A summary of these settings are illustrated below:

HSDPA Setup Configuration:

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

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

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

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

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

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

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

Setup Configuration

HSUPA Setup Configuration:

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

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

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	β_{HS} (Note1)	β_{ec}	β_{ed} (Note 5) (Note 6)	β_{ed} (SF)	β_{ed} (Codes)	CM (dB) (Note 2)	MPR (dB) (Note 2)	AG Index (Note 6)	E-TFCI
1	11/15 (Note 3)	15/15 (Note 3)	64	11/15 (Note 3)	22/15	209/225	1309/225	4	1	1.0	0.0	20	75
2	6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67
3	15/15	9/15	64	15/9	30/15	30/15	β_{ed}1: 47/15 β_{ed}2: 47/15	4 4	2	2.0	1.0	15	92
4	2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71
5	15/15 (Note 4)	15/15 (Note 4)	64	15/15 (Note 4)	30/15	24/15	134/15	4	1	1.0	0.0	21	81

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

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

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

Note 4: For subtest 5 the β_c/β_d ratio of 15/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to β_c = 14/15 and β_d = 15/15.

Note 5: In case of testing by UE using E-DPDCH Physical Layer category 1, Sub-test 3 is omitted according to TS25.306 Table 5.1g.

Note 6: β_{ed} can not be set directly, it is set by Absolute Grant Value.

Setup Configuration

<WCDMA Conducted Power>

General Note:

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

Band		WCDMA II			Tune-up Limit (dBm)	WCDMA V			Tune-up Limit (dBm)
TX Channel		9262	9400	9538		4132	4182	4233	
Rx Channel		9662	9800	9938		4357	4407	4458	
Frequency (MHz)		1852.4	1880	1907.6		826.4	836.4	846.6	
3GPP Rel 99	AMR 12.2Kbps	23.90	24.23	24.07	24.50	23.91	24.03	23.94	24.50
3GPP Rel 99	RMC 12.2Kbps	23.99	24.26	24.10	24.50	23.95	24.06	23.98	24.50
3GPP Rel 6	HSDPA Subtest-1	23.95	24.18	24.06	24.50	23.86	24.01	23.93	24.50
3GPP Rel 6	HSDPA Subtest-2	23.94	24.23	24.01	24.50	23.94	24.03	23.90	24.50
3GPP Rel 6	HSDPA Subtest-3	23.51	23.75	23.63	24.00	23.41	23.53	23.64	24.00
3GPP Rel 6	HSDPA Subtest-4	23.50	23.76	23.59	24.00	23.44	23.60	23.52	24.00
3GPP Rel 6	HSUPA Subtest-1	23.70	23.66	23.40	24.50	23.63	23.62	22.74	24.50
3GPP Rel 6	HSUPA Subtest-2	22.00	22.50	21.96	22.50	22.04	22.49	22.35	22.50
3GPP Rel 6	HSUPA Subtest-3	23.11	23.22	22.69	23.50	22.60	23.09	22.53	23.50
3GPP Rel 6	HSUPA Subtest-4	22.44	22.48	22.43	22.50	22.42	22.50	22.41	22.50
3GPP Rel 6	HSUPA Subtest-5	23.88	24.17	24.06	24.50	23.80	23.92	23.78	24.50

<CDMA2000 Conducted Power>

General Note:

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

Band	CDMA2000 BC0			Tune-up Limit (dBm)	CDMA2000 BC1			Tune-up Limit (dBm)	CDMA2000 BC10			Tune-up Limit (dBm)
TX Channel	1013	384	777		25	600	1175		476	580	684	
Frequency (MHz)	824.7	836.52	848.31		1851.25	1880	1908.75		817.9	820.5	823.1	
RC1 SO55	23.93	24.10	23.90	24.50	23.65	23.75	23.85	24.50	23.98	24.17	24.04	24.50
RC3 SO55	23.88	24.02	24.06	24.50	23.63	23.66	23.74	24.50	23.97	24.04	24.02	24.50
RC3 SO32(F+SCH)	23.86	24.00	23.79	24.50	23.62	23.66	23.70	24.50	23.97	24.06	24.00	24.50
RC3 SO32(+SCH)	23.86	24.00	23.82	24.50	23.61	23.62	23.73	24.50	23.96	24.06	23.98	24.50
RTAP 153.6Kbps	23.98	24.09	24.01	24.50	23.75	23.75	23.84	24.50	24.08	24.16	24.10	24.50
RETAP 4096Bits	23.95	24.08	23.96	24.50	23.70	23.73	23.83	24.50	24.04	24.15	24.08	24.50

<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 WLAN>

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
2.4GHz WLAN	802.11b	CH 1	2412	1Mbps	17.06	18.00	100.00
		CH 6	2437		17.20	18.00	
		CH 11	2462		17.27	18.00	
	802.11g	CH 1	2412	6Mbps	13.45	14.00	98.35
		CH 6	2437		13.42	14.00	
		CH 11	2462		13.50	14.00	
	802.11n-HT20	CH 1	2412	MCS0	13.47	14.00	98.81
		CH 6	2437		13.47	14.00	
		CH 11	2462		13.50	14.00	

<5GHz WLAN >

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.2GHz WLAN	802.11a	CH 36	5180	6Mbps	13.43	14.00	98.90
		CH 40	5200		13.33	14.00	
		CH 44	5220		13.31	14.00	
		CH 48	5240		13.25	14.00	
	802.11n-HT20	CH 36	5180	MCS0	13.41	14.00	98.81
		CH 40	5200		13.31	14.00	
		CH 44	5220		13.30	14.00	
		CH 48	5240		13.25	14.00	

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.3GHz WLAN	802.11a	CH 52	5260	6Mbps	13.37	14.00	98.90
		CH 56	5280		13.21	14.00	
		CH 60	5300		13.35	14.00	
		CH 64	5320		13.39	14.00	
	802.11n-HT20	CH 52	5260	MCS0	13.39	14.00	98.81
		CH 56	5280		13.47	14.00	
		CH 60	5300		13.35	14.00	
		CH 64	5320		13.40	14.00	

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.5GHz WLAN	802.11a	CH 100	5500	6Mbps	13.19	14.00	98.90
		CH 116	5580		13.09	14.00	
		CH 132	5660		13.17	14.00	
		CH 140	5700		13.15	14.00	
	802.11n-HT20	CH 100	5500	MCS0	13.18	14.00	98.81
		CH 116	5580		13.10	14.00	
		CH 132	5660		13.26	14.00	
		CH 140	5700		13.17	14.00	

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN	802.11a	CH 149	5745	MCS0	13.42	14.00	98.81
		CH 157	5785		13.40	14.00	
		CH 165	5825		13.41	14.00	
	802.11n-HT20	CH 149	5745	MCS0	13.48	14.00	98.82
		CH 157	5785		13.37	14.00	
		CH 165	5825		13.47	14.00	

<2.4GHz Bluetooth>

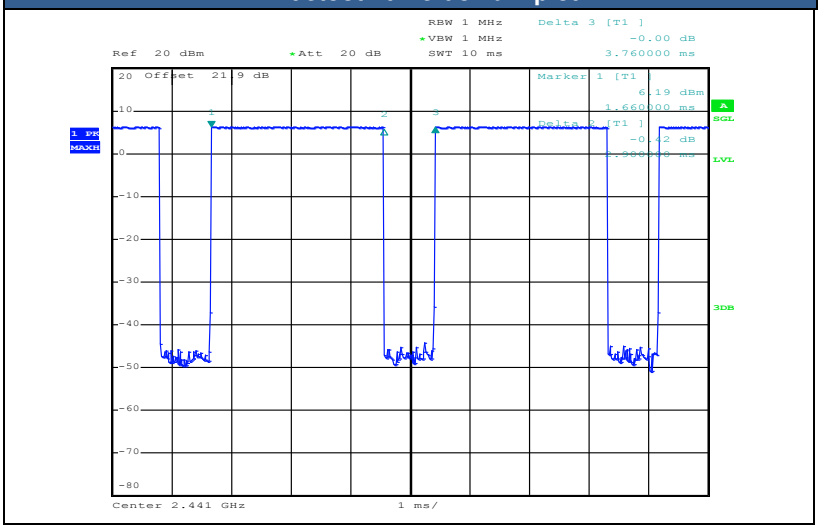
Mode	Channel	Frequency (MHz)	Average power (dBm)		
			1Mbps	2Mbps	3Mbps
BR / EDR	CH 00	2402	7.08	5.85	5.83
	CH 39	2441	7.11	5.86	5.84
	CH 78	2480	7.03	5.73	5.71
Tune-up Limit			8	6	6

Mode	Channel	Frequency (MHz)	Average power (dBm)
			GFSK
LE	CH 00	2402	6.74
	CH 19	2440	6.69
	CH 39	2480	6.58
Tune-up Limit			8

General Note:

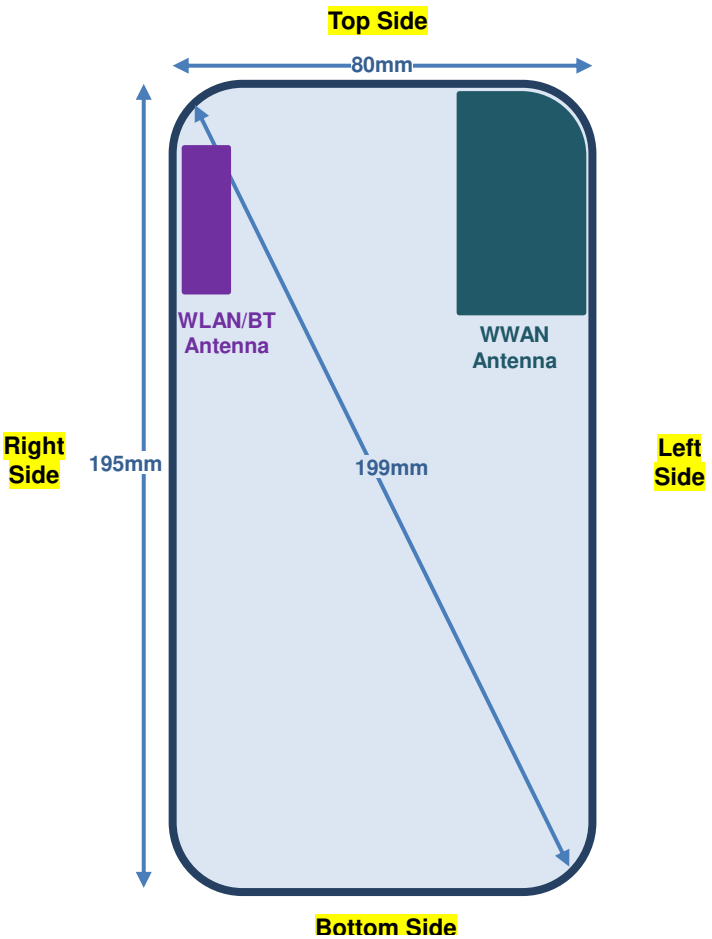
1. For 2.4GHz Bluetooth SAR testing was selected 1Mbps, due to its highest average power
2. The Bluetooth duty cycle is 77.13 % as following figure, and the theoretical maximum duty cycle of DH5 is 83.3%, therefore the SAR test result will be scaled up to the theoretical maximum duty cycle for SAR evaluation.

Bluetooth time-domain plot



13. Antenna Location

<Sample 1 and Sample 2>



Back View

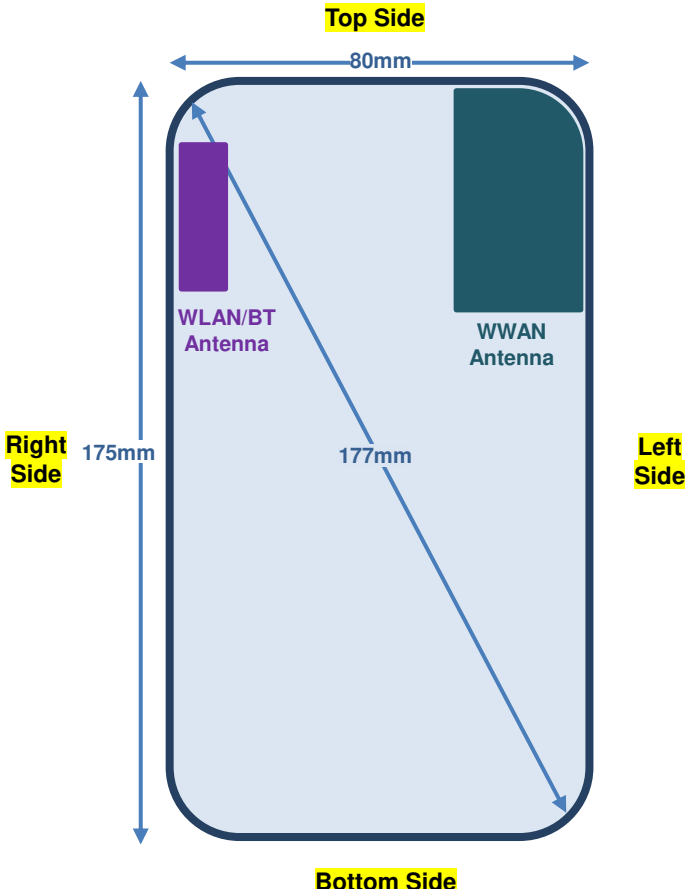
Distance of the Antenna to the EUT surface/edge						
Antennas	Back	Front	Top Side	Bottom Side	Right Side	Left Side
WWAN Main	≤ 25mm	≤ 25mm	≤ 25mm	＞25mm	＞25mm	≤ 25mm
BT&WLAN	≤ 25mm	≤ 25mm	≤ 25mm	＞25mm	≤ 25mm	＞25mm

Positions for SAR tests; Hotspot mode						
Antennas	Back	Front	Top Side	Bottom Side	Right Side	Left Side
WWAN Main	Yes	Yes	Yes	No	No	Yes
BT&WLAN	Yes	Yes	Yes	No	Yes	No

General Note:

1. Referring to KDB 941225 D06 v02r01, when the overall device length and width are ≥ 9cm*5cm, the test distance is 10 mm. SAR must be measured for all sides and surfaces with a transmitting antenna located within 25mm from that surface or edge

<Sample 3 and Sample 4>



Back View

Distance of the Antenna to the EUT surface/edge						
Antennas	Back	Front	Top Side	Bottom Side	Right Side	Left Side
WWAN Main	≤ 25mm	≤ 25mm	≤ 25mm	＞25mm	＞25mm	≤ 25mm
BT&WLAN	≤ 25mm	≤ 25mm	≤ 25mm	＞25mm	≤ 25mm	＞25mm

Positions for SAR tests; Hotspot mode						
Antennas	Back	Front	Top Side	Bottom Side	Right Side	Left Side
WWAN Main	Yes	Yes	Yes	No	No	Yes
BT&WLAN	Yes	Yes	Yes	No	Yes	No

General Note:

2. Referring to KDB 941225 D06 v02r01, when the overall device length and width are ≥ 9cm*5cm, the test distance is 10 mm. SAR must be measured for all sides and surfaces with a transmitting antenna located within 25mm from that surface or edge

14. SAR Test Results

General Note:

1. Per KDB 447498 D01v06, the reported SAR is the measured SAR value adjusted for maximum tune-up tolerance.
   a. Tune-up scaling Factor = tune-up limit power (mW) / EUT RF power (mW), where tune-up limit is the maximum rated power among all production units.
   b. For SAR testing of WLAN signal with non-100% duty cycle, the measured SAR is scaled-up by the duty cycle scaling factor which is equal to "1/(duty cycle)"
   c. For WWAN: Reported SAR(W/kg)= Measured SAR(W/kg)*Tune-up Scaling Factor
   d. For WLAN/Bluetooth: Reported SAR(W/kg)= Measured SAR(W/kg)* Duty Cycle scaling factor * Tune-up scaling factor
2. Per KDB 447498 D01v06, for each exposure position, testing of other required channels within the operating mode of a frequency band is not required when the *reported* 1-g or 10-g SAR for the mid-band or highest output power channel is:
   - ≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100 MHz
   - ≤ 0.6 W/kg or 1.5 W/kg, for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz
   - ≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz
3. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required only when the measured SAR is ≥0.8W/kg.
4. Per KDB648474 D04v01r03, for smart phones with a display diagonal dimension > 15cm or an overall diagonal dimension > 16cm, when hotspot mode applies, 10-g Product Specific SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg, in this report, WCDMA Band 2 and CDMA BC1 hotspot mode 1-g reported SAR > 1.2 W/kg.
5. Per KDB648474 D04v01r03, for 5.3GHz / 5.5GHz WLAN product specific SAR is necessary, due to an overall diagonal dimension is > 16cm.
6. According to TCB workshop October 2016, when the highest reported SAR of an antenna is > 1.2 W/kg, holder perturbation verification is required for each antenna, using the highest SAR configuration among all applicable frequency bands.
7. For the body SAR measurement was used a low-loss foam block performed testing, the relative permittivity and loss tangent of the foam material is 1.0 and 10^{-5}, respectively, therefore holder perturbation verification is not required even highest reported SAR is >1.2W/kg.
8. In this report, highest SAR summary is select highest value of sample 1/2/3/4.

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 (1Tx slots) for GSM850/GSM1900 is considered as the primary mode.
2. Other configurations of GSM / GPRS / EDGE are considered as secondary modes. The 3G SAR test reduction procedure is applied, when the maximum output power and tune-up tolerance specified for production units in a secondary mode is ≤ ¼ dB higher than the primary mode, SAR measurement is not required for the secondary mode.

UMTS Note:

1. Per KDB 941225 D01v03r01, for SAR testing is measured using a 12.2 kbps RMC with TPC bits configured to all “1’s”.
2. Per KDB 941225 D01v03r01, RMC 12.2kbps setting is used to evaluate SAR. If the maximum output power and tune-up tolerance specified for production units in HSDPA / HSUPA 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 to RMC12.2Kbps and the adjusted SAR is ≤ 1.2 W/kg, SAR measurement is not required for HSDPA / HSUPA.

CDMA Note:

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

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.

14.1 Head SAR

<GSM SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Sample	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)
01	GSM850	GPRS (1 Tx slot)	Right Cheek	0mm	Sample 1	251	848.8	32.99	33.50	1.125	0.07	0.295	0.332
	GSM850	GPRS (1 Tx slot)	Right Cheek	0mm	Sample 1	128	824.2	32.98	33.50	1.127	0.03	0.164	0.185
	GSM850	GPRS (1 Tx slot)	Right Cheek	0mm	Sample 1	189	836.4	32.96	33.50	1.132	-0.03	0.213	0.241
	GSM850	GPRS (1 Tx slot)	Right Tilted	0mm	Sample 1	251	848.8	32.99	33.50	1.125	-0.12	0.277	0.312
	GSM850	GPRS (1 Tx slot)	Left Cheek	0mm	Sample 1	251	848.8	32.99	33.50	1.125	0.04	0.200	0.225
	GSM850	GPRS (1 Tx slot)	Left Tilted	0mm	Sample 1	251	848.8	32.99	33.50	1.125	0.02	0.176	0.198
	GSM850	GPRS (1 Tx slot)	Right Cheek	0mm	Sample 2	251	848.8	32.99	33.50	1.125	0.04	0.270	0.304
	GSM850	GPRS (1 Tx slot)	Right Cheek	0mm	Sample 3	251	848.8	32.99	33.50	1.125	0.022	0.284	0.319
	GSM850	GPRS (1 Tx slot)	Right Cheek	0mm	Sample 3	128	824.2	32.98	33.50	1.127	0.118	0.188	0.212
	GSM850	GPRS (1 Tx slot)	Right Cheek	0mm	Sample 3	189	836.4	32.96	33.50	1.132	-0.112	0.222	0.251
	GSM850	GPRS (1 Tx slot)	Right Tilted	0mm	Sample 3	251	848.8	32.99	33.50	1.125	0.159	0.267	0.300
	GSM850	GPRS (1 Tx slot)	Left Cheek	0mm	Sample 3	251	848.8	32.99	33.50	1.125	0.113	0.202	0.227
	GSM850	GPRS (1 Tx slot)	Left Tilted	0mm	Sample 3	251	848.8	32.99	33.50	1.125	0.073	0.172	0.193
	GSM850	GPRS (1 Tx slot)	Right Cheek	0mm	Sample 4	251	848.8	32.99	33.50	1.125	0.079	0.294	0.331
	GSM1900	GPRS (1 Tx slot)	Right Cheek	0mm	Sample 1	661	1880	30.06	30.50	1.107	-0.03	0.209	0.231
	GSM1900	GPRS (1 Tx slot)	Right Cheek	0mm	Sample 1	512	1850.2	29.86	30.50	1.159	0.01	0.183	0.212
02	GSM1900	GPRS (1 Tx slot)	Right Cheek	0mm	Sample 1	810	1909.8	29.86	30.50	1.159	-0.19	0.217	0.251
	GSM1900	GPRS (1 Tx slot)	Right Tilted	0mm	Sample 1	661	1880	30.06	30.50	1.107	0	0.151	0.167
	GSM1900	GPRS (1 Tx slot)	Left Cheek	0mm	Sample 1	661	1880	30.06	30.50	1.107	-0.08	0.148	0.164
	GSM1900	GPRS (1 Tx slot)	Left Tilted	0mm	Sample 1	661	1880	30.06	30.50	1.107	0.06	0.158	0.175
	GSM1900	GPRS (1 Tx slot)	Right Cheek	0mm	Sample 2	810	1909.8	29.74	30.50	1.191	-0.14	0.204	0.243
	GSM1900	GPRS (1 Tx slot)	Right Cheek	0mm	Sample 3	661	1880	30.06	30.50	1.107	0.027	0.214	0.237
	GSM1900	GPRS (1 Tx slot)	Right Cheek	0mm	Sample 3	512	1850.2	29.86	30.50	1.159	-0.057	0.183	0.212
	GSM1900	GPRS (1 Tx slot)	Right Cheek	0mm	Sample 3	810	1909.8	29.74	30.50	1.191	-0.085	0.188	0.224
	GSM1900	GPRS (1 Tx slot)	Right Tilted	0mm	Sample 3	661	1880	30.06	30.50	1.107	-0.042	0.152	0.168
	GSM1900	GPRS (1 Tx slot)	Left Cheek	0mm	Sample 3	661	1880	30.06	30.50	1.107	0.144	0.124	0.137
	GSM1900	GPRS (1 Tx slot)	Left Tilted	0mm	Sample 3	661	1880	30.06	30.50	1.107	-0.04	0.114	0.126
	GSM1900	GPRS (1 Tx slot)	Right Cheek	0mm	Sample 4	661	1880	30.06	30.50	1.107	-0.021	0.192	0.212

<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Sample	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 II	RMC 12.2Kbps	Right Cheek	0mm	Sample 1	9400	1880	24.26	24.50	1.057	-0.18	0.365	0.386
	WCDMA II	RMC 12.2Kbps	Right Cheek	0mm	Sample 1	9262	1852.4	23.99	24.50	1.125	-0.14	0.403	0.453
03	WCDMA II	RMC 12.2Kbps	Right Cheek	0mm	Sample 1	9538	1907.6	24.10	24.50	1.096	-0.03	0.440	0.482
	WCDMA II	RMC 12.2Kbps	Right Tilted	0mm	Sample 1	9400	1880	24.26	24.50	1.057	-0.04	0.263	0.278
	WCDMA II	RMC 12.2Kbps	Left Cheek	0mm	Sample 1	9400	1880	24.26	24.50	1.057	0.01	0.230	0.243
	WCDMA II	RMC 12.2Kbps	Left Tilted	0mm	Sample 1	9400	1880	24.26	24.50	1.057	0	0.237	0.250
	WCDMA II	RMC 12.2Kbps	Right Cheek	0mm	Sample 2	9538	1907.6	24.10	24.50	1.096	-0.02	0.434	0.476
	WCDMA II	RMC 12.2Kbps	Right Cheek	0mm	Sample 3	9400	1880	24.26	24.50	1.057	-0.024	0.359	0.379
	WCDMA II	RMC 12.2Kbps	Right Cheek	0mm	Sample 3	9262	1852.4	23.99	24.50	1.125	0.033	0.384	0.432
	WCDMA II	RMC 12.2Kbps	Right Cheek	0mm	Sample 3	9538	1907.6	24.10	24.50	1.096	0.057	0.397	0.435
	WCDMA II	RMC 12.2Kbps	Right Tilted	0mm	Sample 3	9400	1880	24.26	24.50	1.057	0.103	0.266	0.281
	WCDMA II	RMC 12.2Kbps	Left Cheek	0mm	Sample 3	9400	1880	24.26	24.50	1.057	-0.01	0.196	0.207
	WCDMA II	RMC 12.2Kbps	Left Tilted	0mm	Sample 3	9400	1880	24.26	24.50	1.057	0.048	0.189	0.200
	WCDMA II	RMC 12.2Kbps	Right Cheek	0mm	Sample 4	9538	1907.6	24.10	24.50	1.096	0.007	0.321	0.352
04	WCDMA V	RMC 12.2Kbps	Right Cheek	0mm	Sample 1	4182	836.4	24.06	24.50	1.107	-0.13	0.371	0.411
	WCDMA V	RMC 12.2Kbps	Right Cheek	0mm	Sample 1	4132	826.4	23.95	24.50	1.135	-0.04	0.223	0.253
	WCDMA V	RMC 12.2Kbps	Right Cheek	0mm	Sample 1	4233	846.6	23.98	24.50	1.128	-0.11	0.342	0.386
	WCDMA V	RMC 12.2Kbps	Right Tilted	0mm	Sample 1	4182	836.4	24.06	24.50	1.107	-0.06	0.318	0.352
	WCDMA V	RMC 12.2Kbps	Left Cheek	0mm	Sample 1	4182	836.4	24.06	24.50	1.107	-0.09	0.246	0.272
	WCDMA V	RMC 12.2Kbps	Left Tilted	0mm	Sample 1	4182	836.4	24.06	24.50	1.107	0.02	0.207	0.229
	WCDMA V	RMC 12.2Kbps	Right Cheek	0mm	Sample 2	4182	836.4	24.06	24.50	1.107	-0.07	0.351	0.388
	WCDMA V	RMC 12.2Kbps	Right Cheek	0mm	Sample 3	4182	836.4	24.06	24.50	1.107	-0.132	0.350	0.387
	WCDMA V	RMC 12.2Kbps	Right Cheek	0mm	Sample 3	4132	826.4	23.95	24.50	1.135	-0.05	0.227	0.258
	WCDMA V	RMC 12.2Kbps	Right Cheek	0mm	Sample 3	4233	846.6	23.98	24.50	1.128	0.02	0.314	0.354
	WCDMA V	RMC 12.2Kbps	Right Tilted	0mm	Sample 3	4182	836.4	24.06	24.50	1.107	0.174	0.323	0.357
	WCDMA V	RMC 12.2Kbps	Left Cheek	0mm	Sample 3	4182	836.4	24.06	24.50	1.107	0.14	0.262	0.290
	WCDMA V	RMC 12.2Kbps	Left Tilted	0mm	Sample 3	4182	836.4	24.06	24.50	1.107	0.118	0.219	0.242
	WCDMA V	RMC 12.2Kbps	Right Cheek	0mm	Sample 4	4182	836.4	24.06	24.50	1.107	-0.14	0.343	0.380

<CDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Sample	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	CDMA BC0	1xRTT RC3 SO55	Right Cheek	0mm	Sample 1	777	848.31	24.06	24.50	1.107	0.03	0.316	0.350
	CDMA BC0	1xRTT RC3 SO55	Right Cheek	0mm	Sample 1	384	836.52	24.02	24.50	1.117	0.13	0.338	0.377
	CDMA BC0	1xRTT RC3 SO55	Right Cheek	0mm	Sample 1	1013	824.7	23.88	24.50	1.153	0.04	0.201	0.232
	CDMA BC0	1xRTT RC3 SO55	Right Tilted	0mm	Sample 1	777	848.31	24.06	24.50	1.107	-0.09	0.280	0.310
	CDMA BC0	1xRTT RC3 SO55	Left Cheek	0mm	Sample 1	777	848.31	24.06	24.50	1.107	-0.06	0.202	0.224
	CDMA BC0	1xRTT RC3 SO55	Left Tilted	0mm	Sample 1	777	848.31	24.06	24.50	1.107	0.01	0.188	0.208
	CDMA BC0	1xRTT RC3 SO55	Right Cheek	0mm	Sample 2	384	836.52	24.02	24.50	1.117	-0.06	0.281	0.314
	CDMA BC0	1xRTT RC3 SO55	Right Cheek	0mm	Sample 3	777	848.31	24.06	24.50	1.107	-0.084	0.319	0.353
	CDMA BC0	1xRTT RC3 SO55	Right Cheek	0mm	Sample 3	1013	824.7	23.88	24.50	1.153	-0.02	0.205	0.236
05	CDMA BC0	1xRTT RC3 SO55	Right Cheek	0mm	Sample 3	384	836.52	24.02	24.50	1.117	-0.016	0.355	0.396
	CDMA BC0	1xRTT RC3 SO55	Right Tilted	0mm	Sample 3	777	848.31	24.06	24.50	1.107	-0.016	0.270	0.299
	CDMA BC0	1xRTT RC3 SO55	Left Cheek	0mm	Sample 3	777	848.31	24.06	24.50	1.107	0.113	0.264	0.292
	CDMA BC0	1xRTT RC3 SO55	Left Tilted	0mm	Sample 3	777	848.31	24.06	24.50	1.107	0.015	0.241	0.267
	CDMA BC0	1xRTT RC3 SO55	Right Cheek	0mm	Sample 4	384	836.52	24.02	24.50	1.117	-0.182	0.334	0.373
	CDMA BC1	1xRTT RC3 SO55	Right Cheek	0mm	Sample 1	1175	1908.75	23.74	24.50	1.191	-0.12	0.394	0.469
	CDMA BC1	1xRTT RC3 SO55	Right Cheek	0mm	Sample 1	25	1851.25	23.63	24.50	1.222	-0.13	0.375	0.458
	CDMA BC1	1xRTT RC3 SO55	Right Cheek	0mm	Sample 1	600	1880	23.66	24.50	1.213	-0.03	0.315	0.382
	CDMA BC1	1xRTT RC3 SO55	Right Tilted	0mm	Sample 1	1175	1908.75	23.74	24.50	1.191	-0.07	0.283	0.337
	CDMA BC1	1xRTT RC3 SO55	Left Cheek	0mm	Sample 1	1175	1908.75	23.74	24.50	1.191	0.02	0.243	0.289
	CDMA BC1	1xRTT RC3 SO55	Left Tilted	0mm	Sample 1	1175	1908.75	23.74	24.50	1.191	0	0.241	0.287
	CDMA BC1	1xRTT RC3 SO55	Right Cheek	0mm	Sample 2	1175	1908.75	23.74	24.50	1.191	-0.05	0.371	0.442
06	CDMA BC1	1xRTT RC3 SO55	Right Cheek	0mm	Sample 3	1175	1908.75	23.74	24.50	1.191	-0.107	0.454	0.541
	CDMA BC1	1xRTT RC3 SO55	Right Cheek	0mm	Sample 3	25	1851.25	23.63	24.50	1.222	-0.127	0.304	0.371
	CDMA BC1	1xRTT RC3 SO55	Right Cheek	0mm	Sample 3	600	1880	23.66	24.50	1.213	-0.014	0.300	0.364
	CDMA BC1	1xRTT RC3 SO55	Right Tilted	0mm	Sample 3	1175	1908.75	23.74	24.50	1.191	0.065	0.281	0.335
	CDMA BC1	1xRTT RC3 SO55	Left Cheek	0mm	Sample 3	1175	1908.75	23.74	24.50	1.191	0.142	0.209	0.249
	CDMA BC1	1xRTT RC3 SO55	Left Tilted	0mm	Sample 3	1175	1908.75	23.74	24.50	1.191	0.09	0.169	0.201
	CDMA BC1	1xRTT RC3 SO55	Right Cheek	0mm	Sample 4	1175	1908.75	23.74	24.50	1.191	-0.141	0.322	0.384
07	CDMA BC10	1xRTT RC3 SO55	Right Cheek	0mm	Sample 1	580	820.5	24.04	24.50	1.112	-0.04	0.240	0.267
	CDMA BC10	1xRTT RC3 SO55	Right Tilted	0mm	Sample 1	580	820.5	24.04	24.50	1.112	-0.09	0.189	0.210
	CDMA BC10	1xRTT RC3 SO55	Left Cheek	0mm	Sample 1	580	820.5	24.04	24.50	1.112	-0.05	0.167	0.186
	CDMA BC10	1xRTT RC3 SO55	Left Tilted	0mm	Sample 1	580	820.5	24.04	24.50	1.112	-0.03	0.135	0.150
	CDMA BC10	1xRTT RC3 SO55	Right Cheek	0mm	Sample 2	580	820.5	24.04	24.50	1.112	-0.04	0.185	0.206
	CDMA BC10	1xRTT RC3 SO55	Right Cheek	0mm	Sample 3	580	820.5	24.04	24.50	1.112	-0.039	0.240	0.267
	CDMA BC10	1xRTT RC3 SO55	Right Tilted	0mm	Sample 3	580	820.5	24.04	24.50	1.112	0.046	0.187	0.208
	CDMA BC10	1xRTT RC3 SO55	Left Cheek	0mm	Sample 3	580	820.5	24.04	24.50	1.112	0.073	0.200	0.222
	CDMA BC10	1xRTT RC3 SO55	Left Tilted	0mm	Sample 3	580	820.5	24.04	24.50	1.112	0.003	0.179	0.199
	CDMA BC10	1xRTT RC3 SO55	Right Cheek	0mm	Sample 4	580	820.5	24.04	24.50	1.112	-0.145	0.236	0.262

<WLAN SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Sample	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	Sample 1	11	2462	17.27	18.00	1.183	100	1.000	0.186	0.007	0.009
	WLAN2.4GHz	802.11b 1Mbps	Right Tilted	0mm	Sample 1	11	2462	17.27	18.00	1.183	100	1.000	0.102	0.012	0.014
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Sample 1	11	2462	17.27	18.00	1.183	100	1.000	0.108	0.032	0.038
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Sample 1	1	2412	17.06	18.00	1.242	100	1.000	0.053	0.037	0.046
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Sample 1	6	2437	17.20	18.00	1.202	100	1.000	0.098	0.034	0.041
	WLAN2.4GHz	802.11b 1Mbps	Left Tilted	0mm	Sample 1	11	2462	17.27	18.00	1.183	100	1.000	0.011	0.026	0.031
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Sample 2	1	2412	17.06	18.00	1.242	100	1.000	-0.08	0.032	0.040
	WLAN2.4GHz	802.11b 1Mbps	Right Cheek	0mm	Sample 3	11	2462	17.27	18.00	1.183	100	1.000	-0.081	0.037	0.044
	WLAN2.4GHz	802.11b 1Mbps	Right Tilted	0mm	Sample 3	11	2462	17.27	18.00	1.183	100	1.000	-0.04	0.039	0.046
08	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Sample 3	11	2462	17.27	18.00	1.183	100	1.000	0.05	0.070	0.083
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Sample 3	1	2412	17.06	18.00	1.242	100	1.000	0.017	0.066	0.082
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Sample 3	6	2437	17.20	18.00	1.202	100	1.000	0.017	0.068	0.082
	WLAN2.4GHz	802.11b 1Mbps	Left Tilted	0mm	Sample 3	11	2462	17.27	18.00	1.183	100	1.000	0.135	0.056	0.066
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Sample 4	11	2462	17.27	18.00	1.183	100	1.000	-0.023	0.063	0.075
	WLAN5GHz	802.11a 6Mbps	Right Cheek	0mm	Sample 1	64	5320	13.39	14.00	1.151	98.90	1.011	0.139	0.021	0.024
	WLAN5GHz	802.11a 6Mbps	Right Tilted	0mm	Sample 1	64	5320	13.39	14.00	1.151	98.90	1.011	0.117	0.039	0.045
09	WLAN5GHz	802.11a 6Mbps	Left Cheek	0mm	Sample 1	64	5320	13.39	14.00	1.151	98.90	1.011	0.143	0.076	0.088
	WLAN5GHz	802.11a 6Mbps	Left Cheek	0mm	Sample 1	52	5260	13.37	14.00	1.156	98.90	1.011	0.001	0.072	0.084
	WLAN5GHz	802.11a 6Mbps	Left Tilted	0mm	Sample 1	64	5320	13.39	14.00	1.151	98.90	1.011	0.053	0.036	0.042
	WLAN5GHz	802.11a 6Mbps	Left Cheek	0mm	Sample 2	64	5320	13.39	14.00	1.151	98.90	1.011	0.095	0.065	0.076
	WLAN5GHz	802.11a 6Mbps	Right Cheek	0mm	Sample 3	64	5320	13.39	14.00	1.151	98.90	1.011	-0.056	0.014	0.016
	WLAN5GHz	802.11a 6Mbps	Right Tilted	0mm	Sample 3	64	5320	13.39	14.00	1.151	98.90	1.011	-0.137	0.024	0.028
	WLAN5GHz	802.11a 6Mbps	Left Cheek	0mm	Sample 3	64	5320	13.39	14.00	1.151	98.90	1.011	-0.05	0.050	0.058
	WLAN5GHz	802.11a 6Mbps	Left Cheek	0mm	Sample 3	52	5260	13.39	14.00	1.151	98.90	1.011	0.026	0.065	0.076
	WLAN5GHz	802.11a 6Mbps	Left Tilted	0mm	Sample 3	64	5320	13.37	14.00	1.156	98.90	1.011	0.128	0.034	0.040
	WLAN5GHz	802.11a 6Mbps	Left Cheek	0mm	Sample 4	52	5260	13.39	14.00	1.151	98.90	1.011	-0.166	0.062	0.072
	WLAN5GHz	802.11a 6Mbps	Right Cheek	0mm	Sample 1	100	5500	13.19	14.00	1.205	98.90	1.011	0	0.001	0.001
	WLAN5GHz	802.11a 6Mbps	Right Tilted	0mm	Sample 1	100	5660	13.19	14.00	1.205	98.90	1.011	0	0.001	0.001
	WLAN5GHz	802.11a 6Mbps	Left Cheek	0mm	Sample 1	100	5500	13.19	14.00	1.205	98.90	1.011	0.153	0.034	0.041
	WLAN5GHz	802.11a 6Mbps	Left Cheek	0mm	Sample 1	116	5580	13.09	14.00	1.233	98.90	1.011	-0.105	0.018	0.022
	WLAN5GHz	802.11a 6Mbps	Left Cheek	0mm	Sample 1	132	5660	13.17	14.00	1.211	98.90	1.011	-0.118	0.012	0.015
	WLAN5GHz	802.11a 6Mbps	Left Cheek	0mm	Sample 1	140	5700	13.15	14.00	1.216	98.90	1.011	-0.13	0.009	0.012
	3WLAN5GHz	802.11a 6Mbps	Left Tilted	0mm	Sample 1	100	5660	13.19	14.00	1.205	98.90	1.011	-0.021	0.007	0.009
	WLAN5GHz	802.11a 6Mbps	Left Cheek	0mm	Sample 2	100	5500	13.19	14.00	1.205	98.90	1.011	-0.12	0.031	0.038
	WLAN5GHz	802.11a 6Mbps	Right Cheek	0mm	Sample 3	100	5500	13.19	14.00	1.205	98.90	1.011	-0.125	0.012	0.015
	WLAN5GHz	802.11a 6Mbps	Right Tilted	0mm	Sample 3	100	5500	13.19	14.00	1.205	98.90	1.011	0.15	0.012	0.015
	WLAN5GHz	802.11a 6Mbps	Left Cheek	0mm	Sample 3	100	5500	13.19	14.00	1.205	98.90	1.011	-0.004	0.033	0.040
	WLAN5GHz	802.11a 6Mbps	Left Cheek	0mm	Sample 3	116	5580	13.09	14.00	1.233	98.90	1.011	-0.11	0.035	0.044
	WLAN5GHz	802.11a 6Mbps	Left Cheek	0mm	Sample 3	132	5660	13.17	14.00	1.211	98.90	1.011	-0.011	0.057	0.070
10	WLAN5GHz	802.11a 6Mbps	Left Cheek	0mm	Sample 3	140	5700	13.15	14.00	1.216	98.90	1.011	0.159	0.064	0.079
	WLAN5GHz	802.11a 6Mbps	Left Tilted	0mm	Sample 3	100	5500	13.19	14.00	1.205	98.90	1.011	-0.032	0.021	0.026
	WLAN5GHz	802.11a 6Mbps	Left Cheek	0mm	Sample 4	140	5700	13.15	14.00	1.216	98.90	1.011	0.19	0.052	0.064

Plot No.	Band	Mode	Test Position	Gap (mm)	Sample	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN5GHz	802.11a 6Mbps	Right Cheek	0mm	Sample 1	149	5745	13.42	14.00	1.142	98.81	1.012	-0.18	0.001	0.001
	WLAN5GHz	802.11a 6Mbps	Right Tilted	0mm	Sample 1	149	5745	13.42	14.00	1.142	98.81	1.012	0	0.004	0.005
	WLAN5GHz	802.11a 6Mbps	Left Cheek	0mm	Sample 1	149	5745	13.42	14.00	1.142	98.81	1.012	0.186	0.013	0.015
	WLAN5GHz	802.11a 6Mbps	Left Cheek	0mm	Sample 1	157	5785	13.40	14.00	1.148	98.81	1.012	0.19	0.015	0.017
	WLAN5GHz	802.11a 6Mbps	Left Cheek	0mm	Sample 1	165	5825	13.41	14.00	1.145	98.81	1.012	-0.105	0.017	0.020
	WLAN5GHz	802.11a 6Mbps	Left Tilted	0mm	Sample 1	149	5745	13.42	14.00	1.142	98.81	1.012	0.149	0.007	0.008
11	WLAN5GHz	802.11a 6Mbps	Left Cheek	0mm	Sample 2	165	5825	13.41	14.00	1.145	98.81	1.012	0.097	0.070	0.081
	WLAN5GHz	802.11a 6Mbps	Right Cheek	0mm	Sample 3	149	5745	13.42	14.00	1.142	98.81	1.012	0.07	0.036	0.042
	WLAN5GHz	802.11a 6Mbps	Right Tilted	0mm	Sample 3	149	5745	13.42	14.00	1.142	98.81	1.012	0.01	0.028	0.032
	WLAN5GHz	802.11a 6Mbps	Left Cheek	0mm	Sample 3	149	5745	13.42	14.00	1.142	98.81	1.012	-0.143	0.049	0.057
	WLAN5GHz	802.11a 6Mbps	Left Cheek	0mm	Sample 3	157	5785	13.40	14.00	1.148	98.81	1.012	-0.12	0.063	0.073
	WLAN5GHz	802.11a 6Mbps	Left Cheek	0mm	Sample 3	165	5825	13.41	14.00	1.145	98.81	1.012	0.19	0.064	0.074
	WLAN5GHz	802.11a 6Mbps	Left Tilted	0mm	Sample 3	149	5745	13.42	14.00	1.142	98.81	1.012	0.005	0.041	0.047
	WLAN5GHz	802.11a 6Mbps	Left Cheek	0mm	Sample 4	165	5825	13.41	14.00	1.145	98.81	1.012	-0.152	0.070	0.081

14.2 Hotspot SAR

<GSM SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Sample	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	GSM850	GPRS (1 Tx slot)	Front	10mm	Sample 1	251	848.8	32.99	33.50	1.125	-0.14	0.134	0.151
	GSM850	GPRS (1 Tx slot)	Back	10mm	Sample 1	251	848.8	32.99	33.50	1.125	0.14	0.396	0.445
	GSM850	GPRS (1 Tx slot)	Back	10mm	Sample 1	128	824.2	32.98	33.50	1.127	-0.02	0.217	0.245
	GSM850	GPRS (1 Tx slot)	Back	10mm	Sample 1	189	836.4	32.96	33.50	1.132	0.1	0.288	0.326
	GSM850	GPRS (1 Tx slot)	Left side	10mm	Sample 1	251	848.8	32.99	33.50	1.125	-0.02	0.262	0.295
	GSM850	GPRS (1 Tx slot)	Top side	10mm	Sample 1	251	848.8	32.99	33.50	1.125	-0.01	0.229	0.258
	GSM850	GPRS (1 Tx slot)	Back	10mm	Sample 2	251	848.8	32.99	33.50	1.125	0.1	0.408	0.459
	GSM850	GPRS (1 Tx slot)	Front	10mm	Sample 3	251	848.8	32.99	33.50	1.125	0.154	0.140	0.157
	GSM850	GPRS (1 Tx slot)	Back	10mm	Sample 3	251	848.8	32.99	33.50	1.125	0.017	0.401	0.451
	GSM850	GPRS (1 Tx slot)	Back	10mm	Sample 3	128	824.2	32.98	33.50	1.127	0.167	0.241	0.272
	GSM850	GPRS (1 Tx slot)	Back	10mm	Sample 3	189	836.4	32.96	33.50	1.132	-0.139	0.305	0.345
	GSM850	GPRS (1 Tx slot)	Left Side	10mm	Sample 3	251	848.8	32.99	33.50	1.125	0.071	0.230	0.259
	GSM850	GPRS (1 Tx slot)	Top Side	10mm	Sample 3	251	848.8	32.99	33.50	1.125	-0.057	0.232	0.261
12	GSM850	GPRS (1 Tx slot)	Back	10mm	Sample 4	251	848.8	32.99	33.50	1.125	0.011	0.456	0.513
	GSM1900	GPRS (1 Tx slot)	Front	10mm	Sample 1	661	1880	30.06	30.50	1.107	0.182	0.068	0.075
	GSM1900	GPRS (1 Tx slot)	Back	10mm	Sample 1	661	1880	30.06	30.50	1.107	-0.102	0.601	0.665
	GSM1900	GPRS (1 Tx slot)	Back	10mm	Sample 1	512	1850.2	29.86	30.50	1.159	-0.072	0.492	0.570
13	GSM1900	GPRS (1 Tx slot)	Back	10mm	Sample 1	810	1909.8	29.74	30.50	1.191	-0.092	0.686	0.817
	GSM1900	GPRS (1 Tx slot)	Left Side	10mm	Sample 1	661	1880	30.06	30.50	1.107	-0.003	0.371	0.411
	GSM1900	GPRS (1 Tx slot)	Top Side	10mm	Sample 1	661	1880	30.06	30.50	1.107	0.006	0.149	0.165
	GSM1900	GPRS (1 Tx slot)	Back	10mm	Sample 2	810	1909.8	29.74	30.50	1.191	-0.131	0.628	0.748
	GSM1900	GPRS (1 Tx slot)	Front	10mm	Sample 3	661	1880	30.06	30.50	1.107	-0.062	0.065	0.072
	GSM1900	GPRS (1 Tx slot)	Back	10mm	Sample 3	661	1880	30.06	30.50	1.107	0.027	0.551	0.610
	GSM1900	GPRS (1 Tx slot)	Back	10mm	Sample 3	512	1850.2	29.86	30.50	1.159	0.064	0.491	0.569
	GSM1900	GPRS (1 Tx slot)	Back	10mm	Sample 3	810	1909.8	29.74	30.50	1.191	0.111	0.624	0.743
	GSM1900	GPRS (1 Tx slot)	Left Side	10mm	Sample 3	661	1880	30.06	30.50	1.107	-0.008	0.332	0.367
	GSM1900	GPRS (1 Tx slot)	Top Side	10mm	Sample 3	661	1880	30.06	30.50	1.107	0.148	0.140	0.155
	GSM1900	GPRS (1 Tx slot)	Back	10mm	Sample 4	810	1909.8	29.74	30.50	1.191	-0.014	0.542	0.646

<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Sample	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 II	RMC 12.2Kbps	Front	10mm	Sample 1	9400	1880	24.26	24.50	1.057	0.194	0.124	0.131
	WCDMA II	RMC 12.2Kbps	Back	10mm	Sample 1	9400	1880	24.26	24.50	1.057	-0.146	1.020	1.078
	WCDMA II	RMC 12.2Kbps	Back	10mm	Sample 1	9262	1852.4	23.99	24.50	1.125	-0.091	1.100	1.237
14	WCDMA II	RMC 12.2Kbps	Back	10mm	Sample 1	9538	1907.6	24.10	24.50	1.096	-0.077	1.190	1.305
	WCDMA II	RMC 12.2Kbps	Left Side	10mm	Sample 1	9400	1880	24.26	24.50	1.057	0.093	0.744	0.786
	WCDMA II	RMC 12.2Kbps	Top Side	10mm	Sample 1	9400	1880	24.26	24.50	1.057	0.011	0.245	0.259
	WCDMA II	RMC 12.2Kbps	Back	10mm	Sample 2	9538	1907.6	24.10	24.50	1.096	-0.143	1.120	1.228
	WCDMA II	RMC 12.2Kbps	Front	10mm	Sample 3	9400	1880	24.26	24.50	1.057	0.004	0.117	0.124
	WCDMA II	RMC 12.2Kbps	Back	10mm	Sample 3	9400	1880	24.26	24.50	1.057	0.003	0.955	1.009
	WCDMA II	RMC 12.2Kbps	Back	10mm	Sample 3	9262	1852.4	23.99	24.50	1.125	0.042	1.060	1.192
	WCDMA II	RMC 12.2Kbps	Back	10mm	Sample 3	9538	1907.6	24.10	24.50	1.096	0.135	1.060	1.162
	WCDMA II	RMC 12.2Kbps	Left Side	10mm	Sample 3	9400	1880	24.26	24.50	1.057	0.002	0.699	0.739
	WCDMA II	RMC 12.2Kbps	Top Side	10mm	Sample 3	9400	1880	24.26	24.50	1.057	0.097	0.276	0.292
	WCDMA II	RMC 12.2Kbps	Back	10mm	Sample 4	9262	1852.4	23.99	24.50	1.125	0.16	0.830	0.933
	WCDMA V	RMC 12.2Kbps	Front	10mm	Sample 1	4182	836.4	24.06	24.50	1.107	-0.1	0.180	0.199
	WCDMA V	RMC 12.2Kbps	Back	10mm	Sample 1	4182	836.4	24.06	24.50	1.107	-0.11	0.446	0.494
	WCDMA V	RMC 12.2Kbps	Back	10mm	Sample 1	4132	826.4	23.95	24.50	1.135	-0.06	0.283	0.321
	WCDMA V	RMC 12.2Kbps	Back	10mm	Sample 1	4233	846.6	23.98	24.50	1.128	-0.08	0.434	0.489
	WCDMA V	RMC 12.2Kbps	Left Side	10mm	Sample 1	4182	836.4	24.06	24.50	1.107	-0.13	0.328	0.363
	WCDMA V	RMC 12.2Kbps	Top Side	10mm	Sample 1	4182	836.4	24.06	24.50	1.107	-0.08	0.256	0.283
	WCDMA V	RMC 12.2Kbps	Back	10mm	Sample 2	4182	836.4	24.06	24.50	1.107	-0.04	0.462	0.511
	WCDMA V	RMC 12.2Kbps	Front	10mm	Sample 3	4182	836.4	24.06	24.50	1.107	-0.128	0.165	0.183
	WCDMA V	RMC 12.2Kbps	Back	10mm	Sample 3	4182	836.4	24.06	24.50	1.107	-0.114	0.527	0.583
	WCDMA V	RMC 12.2Kbps	Back	10mm	Sample 3	4132	826.4	23.95	24.50	1.135	-0.088	0.305	0.346
	WCDMA V	RMC 12.2Kbps	Back	10mm	Sample 3	4233	846.6	23.98	24.50	1.128	-0.082	0.458	0.516
	WCDMA V	RMC 12.2Kbps	Left Side	10mm	Sample 3	4182	836.4	24.06	24.50	1.107	-0.013	0.333	0.369
	WCDMA V	RMC 12.2Kbps	Top Side	10mm	Sample 3	4182	836.4	24.06	24.50	1.107	-0.048	0.289	0.320
15	WCDMA V	RMC 12.2Kbps	Back	10mm	Sample 4	4182	836.4	24.06	24.50	1.107	-0.007	0.547	0.605

<CDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Sample	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	CDMA BC0	RTAP 153.6Kbps	Front	10mm	Sample 1	384	836.52	24.09	24.50	1.099	0.06	0.164	0.180
	CDMA BC0	RTAP 153.6Kbps	Back	10mm	Sample 1	384	836.52	24.09	24.50	1.099	-0.11	0.452	0.497
	CDMA BC0	RTAP 153.6Kbps	Back	10mm	Sample 1	1013	824.7	23.98	24.50	1.127	0.04	0.270	0.304
	CDMA BC0	RTAP 153.6Kbps	Back	10mm	Sample 1	777	848.31	24.01	24.50	1.119	0.18	0.420	0.470
	CDMA BC0	RTAP 153.6Kbps	Left Side	10mm	Sample 1	384	836.52	24.09	24.50	1.099	0.1	0.316	0.347
	CDMA BC0	RTAP 153.6Kbps	Top Side	10mm	Sample 1	384	836.52	24.09	24.50	1.099	0.08	0.251	0.276
	CDMA BC0	RTAP 153.6Kbps	Back	10mm	Sample 2	384	836.52	24.09	24.50	1.099	-0.12	0.400	0.440
	CDMA BC0	RTAP 153.6Kbps	Front	10mm	Sample 3	384	836.52	24.09	24.50	1.099	-0.12	0.154	0.169
16	CDMA BC0	RTAP 153.6Kbps	Back	10mm	Sample 3	384	836.52	24.09	24.50	1.099	-0.129	0.531	0.584
	CDMA BC0	RTAP 153.6Kbps	Back	10mm	Sample 3	1013	824.7	23.98	24.50	1.127	-0.024	0.302	0.340
	CDMA BC0	RTAP 153.6Kbps	Back	10mm	Sample 3	777	848.31	24.01	24.50	1.119	0.037	0.489	0.547
	CDMA BC0	RTAP 153.6Kbps	Left Side	10mm	Sample 3	384	836.52	24.09	24.50	1.099	-0.021	0.307	0.337
	CDMA BC0	RTAP 153.6Kbps	Top Side	10mm	Sample 3	384	836.52	24.09	24.50	1.099	0.014	0.253	0.278
	CDMA BC0	RTAP 153.6Kbps	Back	10mm	Sample 4	384	836.52	24.09	24.50	1.099	-0.152	0.519	0.570
	CDMA BC1	RTAP 153.6Kbps	Front	10mm	Sample 1	1175	1908.75	23.84	24.50	1.164	-0.036	0.120	0.140
17	CDMA BC1	RTAP 153.6Kbps	Back	10mm	Sample 1	1175	1908.75	23.84	24.50	1.164	-0.152	1.040	1.211
	CDMA BC1	RTAP 153.6Kbps	Back	10mm	Sample 1	25	1851.25	23.75	24.50	1.189	-0.137	1.000	1.189
	CDMA BC1	RTAP 153.6Kbps	Back	10mm	Sample 1	600	1880	23.75	24.50	1.189	-0.148	0.859	1.021
	CDMA BC1	RTAP 153.6Kbps	Left Side	10mm	Sample 1	1175	1908.75	23.84	24.50	1.164	-0.089	0.741	0.863
	CDMA BC1	RTAP 153.6Kbps	Top Side	10mm	Sample 1	1175	1908.75	23.84	24.50	1.164	-0.056	0.265	0.308
	CDMA BC1	RTAP 153.6Kbps	Back	10mm	Sample 2	1175	1908.75	23.84	24.50	1.164	0.019	0.979	1.140
	CDMA BC1	RTAP 153.6Kbps	Front	10mm	Sample 3	1175	1908.75	23.84	24.50	1.164	0.041	0.118	0.137
	CDMA BC1	RTAP 153.6Kbps	Back	10mm	Sample 3	1175	1908.75	23.84	24.50	1.164	-0.036	0.988	1.150
	CDMA BC1	RTAP 153.6Kbps	Back	10mm	Sample 3	25	1851.25	23.75	24.50	1.189	0.12	0.903	1.073
	CDMA BC1	RTAP 153.6Kbps	Back	10mm	Sample 3	600	1880	23.75	24.50	1.189	0.071	0.870	1.034
	CDMA BC1	RTAP 153.6Kbps	Left Side	10mm	Sample 3	1175	1908.75	23.84	24.50	1.164	-0.044	0.709	0.825
	CDMA BC1	RTAP 153.6Kbps	Top Side	10mm	Sample 3	1175	1908.75	23.84	24.50	1.164	0.07	0.266	0.310
	CDMA BC1	RTAP 153.6Kbps	Back	10mm	Sample 4	1175	1908.75	23.84	24.50	1.164	0.086	0.951	1.107
	CDMA BC10	RTAP 153.6Kbps	Front	10mm	Sample 1	580	820.5	24.16	24.50	1.081	-0.07	0.107	0.116
	CDMA BC10	RTAP 153.6Kbps	Back	10mm	Sample 1	580	820.5	24.16	24.50	1.081	0.01	0.298	0.322
	CDMA BC10	RTAP 153.6Kbps	Left Side	10mm	Sample 1	580	820.5	24.16	24.50	1.081	0.1	0.192	0.208
	CDMA BC10	RTAP 153.6Kbps	Top Side	10mm	Sample 1	580	820.5	24.16	24.50	1.081	0	0.164	0.177
	CDMA BC10	RTAP 153.6Kbps	Back	10mm	Sample 2	580	820.5	24.16	24.50	1.081	0.01	0.277	0.300
	CDMA BC10	RTAP 153.6Kbps	Front	10mm	Sample 3	580	820.5	24.16	24.50	1.081	-0.069	0.111	0.120
	CDMA BC10	RTAP 153.6Kbps	Back	10mm	Sample 3	580	820.5	24.16	24.50	1.081	-0.009	0.351	0.380
	CDMA BC10	RTAP 153.6Kbps	Left Side	10mm	Sample 3	580	820.5	24.16	24.50	1.081	0.041	0.183	0.198
	CDMA BC10	RTAP 153.6Kbps	Top Side	10mm	Sample 3	580	820.5	24.16	24.50	1.081	0.026	0.163	0.176
18	CDMA BC10	RTAP 153.6Kbps	Back	10mm	Sample 4	580	820.5	24.16	24.50	1.081	0.025	0.356	0.385

<WLAN SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Sample	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	10mm	Sample 1	11	2462	17.27	18.00	1.183	100	1.000	-0.13	0.009	0.010
	WLAN2.4GHz	802.11b 1Mbps	Back	10mm	Sample 1	11	2462	17.27	18.00	1.183	100	1.000	-0.13	0.018	0.021
	WLAN2.4GHz	802.11b 1Mbps	Back	10mm	Sample 1	1	2412	17.06	18.00	1.242	100	1.000	-0.04	0.028	0.035
	WLAN2.4GHz	802.11b 1Mbps	Back	10mm	Sample 1	6	2437	17.20	18.00	1.202	100	1.000	0.14	0.022	0.026
	WLAN2.4GHz	802.11b 1Mbps	Back	10mm	Sample 2	1	2412	17.06	18.00	1.242	100	1.000	0.17	0.051	0.063
	WLAN2.4GHz	802.11b 1Mbps	Right Side	10mm	Sample 1	11	2462	17.27	18.00	1.183	100	1.000	0.01	0.049	0.058
	WLAN2.4GHz	802.11b 1Mbps	Right Side	10mm	Sample 1	1	2412	17.06	18.00	1.242	100	1.000	0.07	0.070	0.087
	WLAN2.4GHz	802.11b 1Mbps	Right Side	10mm	Sample 1	6	2437	17.20	18.00	1.202	100	1.000	0.13	0.058	0.070
	WLAN2.4GHz	802.11b 1Mbps	Right Side	10mm	Sample 2	1	2412	17.06	18.00	1.242	100	1.000	0.03	0.131	0.163
	WLAN2.4GHz	802.11b 1Mbps	Top Side	10mm	Sample 1	11	2462	17.27	18.00	1.183	100	1.000	0.11	0.010	0.012
	WLAN2.4GHz	802.11b 1Mbps	Front	10mm	Sample 3	11	2462	17.27	18.00	1.183	100	1.000	-0.141	0.021	0.025
	WLAN2.4GHz	802.11b 1Mbps	Back	10mm	Sample 3	11	2462	17.27	18.00	1.183	100	1.000	-0.066	0.056	0.066
	WLAN2.4GHz	802.11b 1Mbps	Back	10mm	Sample 3	1	2412	17.06	18.00	1.242	100	1.000	0.093	0.045	0.056
	WLAN2.4GHz	802.11b 1Mbps	Back	10mm	Sample 3	6	2437	17.20	18.00	1.202	100	1.000	-0.153	0.056	0.067
	WLAN2.4GHz	802.11b 1Mbps	Back	10mm	Sample 4	6	2437	17.20	18.00	1.202	100	1.000	0.039	0.057	0.069
19	WLAN2.4GHz	802.11b 1Mbps	Right Side	10mm	Sample 3	11	2462	17.27	18.00	1.183	100	1.000	0.118	0.169	0.200
	WLAN2.4GHz	802.11b 1Mbps	Right Side	10mm	Sample 3	1	2412	17.06	18.00	1.242	100	1.000	-0.018	0.155	0.192
	WLAN2.4GHz	802.11b 1Mbps	Right Side	10mm	Sample 3	6	2437	17.20	18.00	1.202	100	1.000	-0.098	0.145	0.174
	WLAN2.4GHz	802.11b 1Mbps	Right Side	10mm	Sample 4	11	2462	17.27	18.00	1.183	100	1.000	-0.098	0.149	0.176
	WLAN2.4GHz	802.11b 1Mbps	Top Side	10mm	Sample 3	11	2462	17.27	18.00	1.183	100	1.000	0.025	0.041	0.049
	WLAN5GHz	802.11a 6Mbps	Front	10mm	Sample 1	36	5180	13.43	14.00	1.140	98.90	1.011	0.14	0.023	0.027
	WLAN5GHz	802.11a 6Mbps	Back	10mm	Sample 1	36	5180	13.43	14.00	1.140	98.90	1.011	-0.17	0.230	0.265
	WLAN5GHz	802.11a 6Mbps	Right Side	10mm	Sample 1	36	5180	13.43	14.00	1.140	98.90	1.011	0.03	0.231	0.266
	WLAN5GHz	802.11a 6Mbps	Right Side	10mm	Sample 1	44	5220	13.31	14.00	1.172	98.90	1.011	-0.11	0.231	0.274
	WLAN5GHz	802.11a 6Mbps	Right Side	10mm	Sample 2	44	5220	13.31	14.00	1.172	98.90	1.011	-0.14	0.235	0.278
	WLAN5GHz	802.11a 6Mbps	Top Side	10mm	Sample 1	36	5180	13.43	14.00	1.140	98.90	1.011	-0.13	0.062	0.071
	WLAN5GHz	802.11a 6Mbps	Front	10mm	Sample 3	36	5180	13.43	14.00	1.140	98.90	1.011	0.09	0.020	0.023
	WLAN5GHz	802.11a 6Mbps	Back	10mm	Sample 3	36	5180	13.43	14.00	1.140	98.90	1.011	-0.15	0.316	0.364
20	WLAN5GHz	802.11a 6Mbps	Back	10mm	Sample 3	44	5220	13.31	14.00	1.172	98.90	1.011	0.03	0.334	0.396
	WLAN5GHz	802.11a 6Mbps	Back	10mm	Sample 4	44	5220	13.31	14.00	1.172	98.90	1.011	0	0.316	0.374
	WLAN5GHz	802.11a 6Mbps	Right Side	10mm	Sample 3	36	5180	13.43	14.00	1.140	98.90	1.011	0.07	0.288	0.332
	WLAN5GHz	802.11a 6Mbps	Top Side	10mm	Sample 3	36	5180	13.43	14.00	1.140	98.90	1.011	0.14	0.070	0.081
	WLAN5GHz	802.11a 6Mbps	Front	10mm	Sample 1	149	5745	13.42	14.00	1.142	98.81	1.012	0	0.001	0.001
	WLAN5GHz	802.11a 6Mbps	Back	10mm	Sample 1	149	5745	13.42	14.00	1.142	98.81	1.012	0.15	0.019	0.022
	WLAN5GHz	802.11a 6Mbps	Back	10mm	Sample 1	157	5785	13.40	14.00	1.148	98.81	1.012	-0.16	0.018	0.021
	WLAN5GHz	802.11a 6Mbps	Back	10mm	Sample 1	165	5825	13.41	14.00	1.145	98.81	1.012	0.18	0.020	0.023
	WLAN5GHz	802.11a 6Mbps	Back	10mm	Sample 2	165	5825	13.41	14.00	1.145	98.81	1.012	0.17	0.316	0.366
	WLAN5GHz	802.11a 6Mbps	Right Side	10mm	Sample 1	149	5745	13.42	14.00	1.142	98.81	1.012	0.13	0.020	0.023
	WLAN5GHz	802.11a 6Mbps	Right Side	10mm	Sample 1	157	5785	13.40	14.00	1.148	98.81	1.012	0.13	0.019	0.022
	WLAN5GHz	802.11a 6Mbps	Right Side	10mm	Sample 1	165	5825	13.41	14.00	1.145	98.81	1.012	0.14	0.051	0.059
	WLAN5GHz	802.11a 6Mbps	Right Side	10mm	Sample 2	165	5825	13.41	14.00	1.145	98.81	1.012	-0.06	0.235	0.272
	WLAN5GHz	802.11a 6Mbps	Top Side	10mm	Sample 1	149	5745	13.42	14.00	1.142	98.81	1.012	-0.1	0.001	0.001
	WLAN5GHz	802.11a 6Mbps	Front	10mm	Sample 3	149	5745	13.42	14.00	1.142	98.81	1.012	-0.123	0.016	0.018
	WLAN5GHz	802.11a 6Mbps	Back	10mm	Sample 3	149	5745	13.42	14.00	1.142	98.81	1.012	0.137	0.249	0.288
	WLAN5GHz	802.11a 6Mbps	Back	10mm	Sample 3	157	5785	13.40	14.00	1.148	98.81	1.012	0.069	0.314	0.365
21	WLAN5GHz	802.11a 6Mbps	Back	10mm	Sample 3	165	5825	13.41	14.00	1.145	98.81	1.012	-0.191	0.364	0.422
	WLAN5GHz	802.11a 6Mbps	Back	10mm	Sample 4	165	5825	13.41	14.00	1.145	98.81	1.012	0.045	0.364	0.422
	WLAN5GHz	802.11a 6Mbps	Right Side	10mm	Sample 3	149	5745	13.42	14.00	1.142	98.81	1.012	-0.009	0.246	0.284
	WLAN5GHz	802.11a 6Mbps	Top Side	10mm	Sample 3	149	5745	13.42	14.00	1.142	98.81	1.012	-0.121	0.054	0.062

14.3 Product Specific SAR

<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Sample	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)
22	WCDMA II	RMC 12.2Kbps	Back	0mm	Sample 1	9538	1907.6	24.10	24.50	1.096	0.08	2.190	2.401
	WCDMA II	RMC 12.2Kbps	Back	0mm	Sample 1	9262	1852.4	23.99	24.50	1.125	0.08	2.120	2.384
	WCDMA II	RMC 12.2Kbps	Back	0mm	Sample 1	9400	1880	24.26	24.50	1.057	0.03	1.970	2.082
	WCDMA II	RMC 12.2Kbps	Back	0mm	Sample 2	9538	1907.6	24.10	24.50	1.096	0.11	2.020	2.215

<CDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Sample	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)
	CDMA BC1	RTAP 153.6Kbps	Back	0mm	Sample 1	1175	1908.75	23.84	24.50	1.164	0.13	1.930	2.247
23	CDMA BC1	RTAP 153.6Kbps	Back	0mm	Sample 1	25	1851.25	23.75	24.50	1.189	-0.18	2.010	2.389
	CDMA BC1	RTAP 153.6Kbps	Back	0mm	Sample 1	600	1880	23.75	24.50	1.189	0.07	1.750	2.080
	CDMA BC1	RTAP 153.6Kbps	Back	0mm	Sample 2	25	1851.25	23.75	24.50	1.189	-0.18	1.980	2.353

<WLAN SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Sample	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
	WLAN5GHz	802.11a 6Mbps	Front	0mm	Sample 1	64	5320	13.39	14.00	1.151	98.90	1.011	0.01	0.030	0.035
	WLAN5GHz	802.11a 6Mbps	Back	0mm	Sample 1	64	5320	13.39	14.00	1.151	98.90	1.011	-0.1	0.259	0.301
	WLAN5GHz	802.11a 6Mbps	Right Side	0mm	Sample 1	64	5320	13.39	14.00	1.151	98.90	1.011	-0.11	0.431	0.501
24	WLAN5GHz	802.11a 6Mbps	Right Side	0mm	Sample 1	52	5260	13.37	14.00	1.156	98.90	1.011	0.01	0.484	0.566
	WLAN5GHz	802.11a 6Mbps	Top Side	0mm	Sample 1	64	5320	13.39	14.00	1.151	98.90	1.011	-0.13	0.033	0.038
	WLAN5GHz	802.11a 6Mbps	Right Side	0mm	Sample 2	52	5260	13.37	14.00	1.156	98.90	1.011	-0.1	0.335	0.392
	WLAN5GHz	802.11a 6Mbps	Front	0mm	Sample 3	64	5320	13.39	14.00	1.151	98.90	1.011	0.11	0.021	0.024
	WLAN5GHz	802.11a 6Mbps	Back	0mm	Sample 3	64	5320	13.39	14.00	1.151	98.90	1.011	-0.12	0.288	0.335
	WLAN5GHz	802.11a 6Mbps	Right Side	0mm	Sample 3	64	5320	13.39	14.00	1.151	98.90	1.011	0.18	0.386	0.449
	WLAN5GHz	802.11a 6Mbps	Right Side	0mm	Sample 3	52	5260	13.37	14.00	1.156	98.90	1.011	0.13	0.411	0.480
	WLAN5GHz	802.11a 6Mbps	Top Side	0mm	Sample 3	64	5320	13.39	14.00	1.151	98.90	1.011	0.12	0.033	0.038
	WLAN5GHz	802.11a 6Mbps	Right Side	0mm	Sample 4	52	5260	13.37	14.00	1.156	98.90	1.011	0.14	0.472	0.552
	WLAN5GHz	802.11a 6Mbps	Front	0mm	Sample 1	100	5500	13.19	14.00	1.205	98.90	1.011	0.15	0.001	0.001
	WLAN5GHz	802.11a 6Mbps	Back	0mm	Sample 1	100	5500	13.19	14.00	1.205	98.90	1.011	-0.06	0.064	0.078
	WLAN5GHz	802.11a 6Mbps	Right Side	0mm	Sample 1	100	5500	13.19	14.00	1.205	98.90	1.011	0.02	0.377	0.459
	WLAN5GHz	802.11a 6Mbps	Top Side	0mm	Sample 1	100	5500	13.19	14.00	1.205	98.90	1.011	-0.15	0.001	0.002
	WLAN5GHz	802.11a 6Mbps	Right Side	0mm	Sample 1	116	5580	13.09	14.00	1.233	98.90	1.011	-0.04	0.273	0.340
	WLAN5GHz	802.11a 6Mbps	Right Side	0mm	Sample 1	132	5660	13.17	14.00	1.211	98.90	1.011	-0.01	0.141	0.173
	WLAN5GHz	802.11a 6Mbps	Right Side	0mm	Sample 1	140	5700	13.15	14.00	1.216	98.90	1.011	0.04	0.112	0.138
	WLAN5GHz	802.11a 6Mbps	Right Side	0mm	Sample 2	100	5500	13.19	14.00	1.205	98.90	1.011	0.15	0.194	0.236
	WLAN5GHz	802.11a 6Mbps	Front	0mm	Sample 3	100	5500	13.19	14.00	1.205	98.90	1.011	0.01	0.014	0.017
	WLAN5GHz	802.11a 6Mbps	Back	0mm	Sample 3	100	5500	13.19	14.00	1.205	98.90	1.011	0.07	0.278	0.339
	WLAN5GHz	802.11a 6Mbps	Right Side	0mm	Sample 3	100	5500	13.19	14.00	1.205	98.90	1.011	-0.189	0.352	0.429
	WLAN5GHz	802.11a 6Mbps	Right Side	0mm	Sample 3	116	5580	13.09	14.00	1.233	98.90	1.011	0.089	0.377	0.470
	WLAN5GHz	802.11a 6Mbps	Right Side	0mm	Sample 3	132	5660	13.17	14.00	1.211	98.90	1.011	-0.105	0.328	0.401
25	WLAN5GHz	802.11a 6Mbps	Right Side	0mm	Sample 3	140	5700	13.15	14.00	1.216	98.90	1.011	0.18	0.471	0.579
	WLAN5GHz	802.11a 6Mbps	Top Side	0mm	Sample 3	100	5500	13.19	14.00	1.205	98.90	1.011	0.086	0.029	0.035
	WLAN5GHz	802.11a 6Mbps	Right Side	0mm	Sample 4	140	5700	13.15	14.00	1.216	98.90	1.011	0.156	0.427	0.525

14.4 Body Worn Accessory SAR

<GSM SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Holster	Sample	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	GSM850	GPRS (1 Tx slot)	Front	10mm	-	Sample 1	251	848.8	32.99	33.50	1.125	-0.14	0.134	0.151
	GSM850	GPRS (1 Tx slot)	Back	10mm	-	Sample 1	251	848.8	32.99	33.50	1.125	0.14	0.396	0.445
	GSM850	GPRS (1 Tx slot)	Back	10mm	-	Sample 1	128	824.2	32.98	33.50	1.127	-0.02	0.217	0.245
	GSM850	GPRS (1 Tx slot)	Back	10mm	-	Sample 1	189	836.4	32.96	33.50	1.132	0.1	0.288	0.326
	GSM850	GPRS (1 Tx slot)	Back	0mm	Holster	Sample 1	251	848.8	32.99	33.50	1.125	-0.09	0.759	0.854
	GSM850	GPRS (1 Tx slot)	Back	0mm	Holster	Sample 1	128	824.2	32.98	33.50	1.127	-0.02	0.575	0.648
	GSM850	GPRS (1 Tx slot)	Back	0mm	Holster	Sample 1	189	836.4	32.96	33.50	1.132	-0.01	0.630	0.713
	GSM850	GPRS (1 Tx slot)	Back	0mm	Holster	Sample 2	251	848.8	32.99	33.50	1.125	-0.17	0.720	0.810
	GSM850	GPRS (1 Tx slot)	Front	10mm	-	Sample 3	251	848.8	32.99	33.50	1.125	0.154	0.140	0.157
	GSM850	GPRS (1 Tx slot)	Back	10mm	-	Sample 3	251	848.8	32.99	33.50	1.125	0.017	0.401	0.451
	GSM850	GPRS (1 Tx slot)	Back	10mm	-	Sample 3	128	824.2	32.98	33.50	1.127	0.167	0.241	0.272
	GSM850	GPRS (1 Tx slot)	Back	10mm	-	Sample 3	189	836.4	32.96	33.50	1.132	-0.139	0.305	0.345
	GSM850	GPRS (1 Tx slot)	Back	0mm	Holster	Sample 3	251	848.8	32.99	33.50	1.125	0.12	0.747	0.840
	GSM850	GPRS (1 Tx slot)	Back	0mm	Holster	Sample 3	128	836.4	32.98	33.50	1.127	-0.108	0.621	0.700
	GSM850	GPRS (1 Tx slot)	Back	0mm	Holster	Sample 3	189	836.4	32.96	33.50	1.132	0.011	0.663	0.751
26	GSM850	GPRS (1 Tx slot)	Back	0mm	Holster	Sample 4	251	848.8	32.99	33.50	1.125	0.178	0.790	0.888
	GSM1900	GPRS (1 Tx slot)	Front	10mm	-	Sample 1	661	1880	30.06	30.50	1.107	0.182	0.068	0.075
	GSM1900	GPRS (1 Tx slot)	Back	10mm	-	Sample 1	661	1880	30.06	30.50	1.107	-0.102	0.601	0.665
	GSM1900	GPRS (1 Tx slot)	Back	10mm	-	Sample 1	512	1850.2	29.86	30.50	1.159	-0.072	0.492	0.570
27	GSM1900	GPRS (1 Tx slot)	Back	10mm	-	Sample 1	810	1909.8	29.74	30.50	1.191	-0.092	0.686	0.817
	GSM1900	GPRS (1 Tx slot)	Back	0mm	Holster	Sample 1	810	1909.8	29.74	30.50	1.191	-0.15	0.410	0.488
	GSM1900	GPRS (1 Tx slot)	Back	0mm	Holster	Sample 1	512	1850.2	29.86	30.50	1.159	-0.155	0.301	0.349
	GSM1900	GPRS (1 Tx slot)	Back	0mm	Holster	Sample 1	661	1880	30.06	30.50	1.107	-0.072	0.354	0.392
	GSM1900	GPRS (1 Tx slot)	Back	10mm	-	Sample 2	810	1909.8	29.74	30.50	1.191	-0.131	0.628	0.748
	GSM1900	GPRS (1 Tx slot)	Front	10mm	-	Sample 3	661	1880	30.06	30.50	1.107	-0.062	0.065	0.072
	GSM1900	GPRS (1 Tx slot)	Back	10mm	-	Sample 3	661	1880	30.06	30.50	1.107	0.027	0.551	0.610
	GSM1900	GPRS (1 Tx slot)	Back	10mm	-	Sample 3	512	1850.2	29.86	30.50	1.159	0.064	0.491	0.569
	GSM1900	GPRS (1 Tx slot)	Back	10mm	-	Sample 3	810	1909.8	29.74	30.50	1.191	0.111	0.624	0.743
	GSM1900	GPRS (1 Tx slot)	Back	0mm	Holster	Sample 3	810	1909.8	30.06	30.50	1.107	0.083	0.340	0.376
	GSM1900	GPRS (1 Tx slot)	Back	0mm	Holster	Sample 3	512	1850.2	29.86	30.50	1.159	-0.01	0.263	0.305
	GSM1900	GPRS (1 Tx slot)	Back	0mm	Holster	Sample 3	661	1880	29.74	30.50	1.191	0.048	0.304	0.362
	GSM1900	GPRS (1 Tx slot)	Back	10mm	-	Sample 4	810	1909.8	29.74	30.50	1.191	-0.014	0.542	0.646

<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Holster	Sample	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 II	RMC 12.2Kbps	Front	10mm	-	Sample 1	9400	1880	24.26	24.50	1.057	0.194	0.124	0.131
	WCDMA II	RMC 12.2Kbps	Back	10mm	-	Sample 1	9400	1880	24.26	24.50	1.057	-0.146	1.020	1.078
	WCDMA II	RMC 12.2Kbps	Back	10mm	-	Sample 1	9262	1852.4	23.99	24.50	1.125	-0.091	1.100	1.237
28	WCDMA II	RMC 12.2Kbps	Back	10mm	-	Sample 1	9538	1907.6	24.10	24.50	1.096	-0.077	1.190	1.305
	WCDMA II	RMC 12.2Kbps	Back	0mm	Holster	Sample 1	9538	1907.6	24.10	24.50	1.096	-0.055	0.771	0.845
	WCDMA II	RMC 12.2Kbps	Back	0mm	Holster	Sample 1	9262	1852.4	23.99	24.50	1.125	-0.092	0.694	0.780
	WCDMA II	RMC 12.2Kbps	Back	0mm	Holster	Sample 1	9400	1880	24.26	24.50	1.057	-0.095	0.642	0.678
	WCDMA II	RMC 12.2Kbps	Back	10mm	-	Sample 2	9538	1907.6	24.10	24.50	1.096	-0.143	1.120	1.228
	WCDMA II	RMC 12.2Kbps	Front	10mm	-	Sample 3	9400	1880	24.26	24.50	1.057	0.004	0.117	0.124
	WCDMA II	RMC 12.2Kbps	Back	10mm	-	Sample 3	9400	1880	24.26	24.50	1.057	0.003	0.955	1.009
	WCDMA II	RMC 12.2Kbps	Back	10mm	-	Sample 3	9262	1852.4	23.99	24.50	1.125	0.042	1.060	1.192
	WCDMA II	RMC 12.2Kbps	Back	10mm	-	Sample 3	9538	1907.6	24.10	24.50	1.096	0.135	1.060	1.162
	WCDMA II	RMC 12.2Kbps	Back	0mm	Holster	Sample 3	9262	1852.4	23.99	24.50	1.125	-0.005	0.620	0.697
	WCDMA II	RMC 12.2Kbps	Back	0mm	Holster	Sample 3	9400	1880	24.26	24.50	1.057	-0.003	0.575	0.608
	WCDMA II	RMC 12.2Kbps	Back	0mm	Holster	Sample 3	9538	1907.6	24.10	24.50	1.096	0.084	0.695	0.762
	WCDMA II	RMC 12.2Kbps	Back	10mm	-	Sample 4	9262	1852.4	23.99	24.50	1.125	0.16	0.830	0.933
	WCDMA V	RMC 12.2Kbps	Front	10mm	-	Sample 1	4182	836.4	24.06	24.50	1.107	-0.1	0.180	0.199
	WCDMA V	RMC 12.2Kbps	Back	10mm	-	Sample 1	4182	836.4	24.06	24.50	1.107	-0.11	0.446	0.494
	WCDMA V	RMC 12.2Kbps	Back	10mm	-	Sample 1	4132	826.4	23.95	24.50	1.135	-0.06	0.283	0.321
	WCDMA V	RMC 12.2Kbps	Back	10mm	-	Sample 1	4233	846.6	23.98	24.50	1.128	-0.08	0.434	0.489
	WCDMA V	RMC 12.2Kbps	Back	0mm	Holster	Sample 1	4182	836.4	24.06	24.50	1.107	-0.15	0.920	1.018
	WCDMA V	RMC 12.2Kbps	Back	0mm	Holster	Sample 1	4132	826.4	23.95	24.50	1.135	-0.02	0.787	0.893
	WCDMA V	RMC 12.2Kbps	Back	0mm	Holster	Sample 1	4233	846.6	23.98	24.50	1.128	-0.02	0.973	1.097
	WCDMA V	RMC 12.2Kbps	Back	0mm	Holster	Sample 2	4233	846.6	23.98	24.50	1.128	0.01	0.932	1.051
	WCDMA V	RMC 12.2Kbps	Front	10mm	-	Sample 3	4182	836.4	24.06	24.50	1.107	-0.128	0.165	0.183
	WCDMA V	RMC 12.2Kbps	Back	10mm	-	Sample 3	4182	836.4	24.06	24.50	1.107	-0.114	0.527	0.583
	WCDMA V	RMC 12.2Kbps	Back	10mm	-	Sample 3	4132	826.4	23.95	24.50	1.135	-0.088	0.305	0.346
	WCDMA V	RMC 12.2Kbps	Back	10mm	-	Sample 3	4233	846.6	23.98	24.50	1.128	-0.082	0.458	0.516
	WCDMA V	RMC 12.2Kbps	Back	0mm	Holster	Sample 3	4182	836.4	24.06	24.50	1.107	-0.056	0.952	1.054
	WCDMA V	RMC 12.2Kbps	Back	0mm	Holster	Sample 3	4132	826.4	23.95	24.50	1.135	0.008	0.657	0.746
	WCDMA V	RMC 12.2Kbps	Back	0mm	Holster	Sample 3	4233	846.6	23.98	24.50	1.128	-0.047	0.770	0.868
29	WCDMA V	RMC 12.2Kbps	Back	0mm	Holster	Sample 4	4182	836.4	24.06	24.50	1.107	-0.101	1.080	1.195

<CDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Holster	Sample	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	CDMA BC0	1xRTT RC3 SO32	Front	10mm	-	Sample 1	836.52	24.00	24.50	1.122	0.01	0.156	0.175
	CDMA BC0	1xRTT RC3 SO32	Back	10mm	-	Sample 1	836.52	24.00	24.50	1.122	-0.15	0.449	0.504
	CDMA BC0	1xRTT RC3 SO32	Back	10mm	-	Sample 1	824.7	23.86	24.50	1.159	0.09	0.268	0.311
	CDMA BC0	1xRTT RC3 SO32	Back	10mm	-	Sample 1	848.31	23.79	24.50	1.178	0.08	0.415	0.489
30	CDMA BC0	1xRTT RC3 SO32	Back	0mm	Holster	Sample 1	836.52	24.00	24.50	1.122	0.04	0.930	1.043
	CDMA BC0	1xRTT RC3 SO32	Back	0mm	Holster	Sample 1	824.7	23.86	24.50	1.159	-0.08	0.642	0.744
	CDMA BC0	1xRTT RC3 SO32	Back	0mm	Holster	Sample 1	848.31	23.79	24.50	1.178	0.09	0.787	0.927
	CDMA BC0	1xRTT RC3 SO32	Back	0mm	Holster	Sample 2	836.52	24.00	24.50	1.122	-0.15	0.890	0.999
	CDMA BC0	1xRTT RC3 SO32	Front	10mm	-	Sample 3	836.52	24.00	24.50	1.122	-0.115	0.153	0.172
	CDMA BC0	1xRTT RC3 SO32	Back	10mm	-	Sample 3	836.52	24.00	24.50	1.122	-0.079	0.521	0.585
	CDMA BC0	1xRTT RC3 SO32	Back	10mm	-	Sample 3	824.7	23.86	24.50	1.159	-0.052	0.303	0.351
	CDMA BC0	1xRTT RC3 SO32	Back	10mm	-	Sample 3	848.31	23.79	24.50	1.178	-0.063	0.492	0.579
	CDMA BC0	1xRTT RC3 SO32	Back	0mm	Holster	Sample 3	836.52	24.00	24.50	1.122	-0.18	0.731	0.820
	CDMA BC0	1xRTT RC3 SO32	Back	0mm	Holster	Sample 3	824.7	23.86	24.50	1.159	-0.074	0.466	0.540
	CDMA BC0	1xRTT RC3 SO32	Back	0mm	Holster	Sample 3	848.31	23.79	24.50	1.178	-0.115	0.564	0.664
	CDMA BC0	1xRTT RC3 SO32	Back	0mm	Holster	Sample 4	836.52	24.00	24.50	1.122	-0.171	0.579	0.650
	CDMA BC1	1xRTT RC3 SO32	Front	10mm	-	Sample 1	1908.75	23.70	24.50	1.202	-0.026	0.115	0.138
31	CDMA BC1	1xRTT RC3 SO32	Back	10mm	-	Sample 1	1908.75	23.70	24.50	1.202	-0.129	1.020	1.226
	CDMA BC1	1xRTT RC3 SO32	Back	10mm	-	Sample 1	1851.25	23.62	24.50	1.225	-0.111	0.998	1.222
	CDMA BC1	1xRTT RC3 SO32	Back	10mm	-	Sample 1	1880	23.66	24.50	1.213	-0.121	0.851	1.033
	CDMA BC1	1xRTT RC3 SO32	Back	0mm	Holster	Sample 1	1908.75	23.70	24.50	1.202	0.024	0.634	0.762
	CDMA BC1	1xRTT RC3 SO32	Back	0mm	Holster	Sample 1	1851.25	23.62	24.50	1.225	0.103	0.671	0.822
	CDMA BC1	1xRTT RC3 SO32	Back	0mm	Holster	Sample 1	1880	23.66	24.50	1.213	0.047	0.583	0.707
	CDMA BC1	1xRTT RC3 SO32	Back	10mm	-	Sample 2	1908.75	23.70	24.50	1.202	0.115	0.971	1.167
	CDMA BC1	1xRTT RC3 SO32	Front	10mm	-	Sample 3	1908.75	23.70	24.50	1.202	0.031	0.116	0.139
	CDMA BC1	1xRTT RC3 SO32	Back	10mm	-	Sample 3	1908.75	23.70	24.50	1.202	-0.016	0.955	1.148
	CDMA BC1	1xRTT RC3 SO32	Back	10mm	-	Sample 3	1851.25	23.62	24.50	1.225	0.13	0.901	1.103
	CDMA BC1	1xRTT RC3 SO32	Back	10mm	-	Sample 3	1880	23.66	24.50	1.213	0.061	0.868	1.053
	CDMA BC1	1xRTT RC3 SO32	Back	0mm	Holster	Sample 3	1908.75	23.70	24.50	1.202	-0.025	0.615	0.739
	CDMA BC1	1xRTT RC3 SO32	Back	0mm	Holster	Sample 3	1851.25	23.62	24.50	1.225	-0.016	0.518	0.634
	CDMA BC1	1xRTT RC3 SO32	Back	0mm	Holster	Sample 3	1880	23.66	24.50	1.213	0.059	0.524	0.636
	CDMA BC1	1xRTT RC3 SO32	Back	10mm	-	Sample 4	1908.75	23.70	24.50	1.202	0.066	0.949	1.141
	CDMA BC10	1xRTT RC3 SO32	Front	10mm	-	Sample 1	820.5	24.06	24.50	1.107	-0.05	0.105	0.116
	CDMA BC10	1xRTT RC3 SO32	Back	10mm	-	Sample 1	820.5	24.06	24.50	1.107	0.11	0.289	0.320
32	CDMA BC10	1xRTT RC3 SO32	Back	0mm	Holster	Sample 1	820.5	24.06	24.50	1.107	-0.18	0.844	0.934
	CDMA BC10	1xRTT RC3 SO32	Back	0mm	Holster	Sample 2	820.5	24.06	24.50	1.107	-0.05	0.792	0.876
	CDMA BC10	1xRTT RC3 SO32	Front	10mm	-	Sample 3	820.5	24.06	24.50	1.107	-0.003	0.110	0.122
	CDMA BC10	1xRTT RC3 SO32	Back	10mm	-	Sample 3	820.5	24.06	24.50	1.107	-0.109	0.331	0.366
	CDMA BC10	1xRTT RC3 SO32	Back	0mm	Holster	Sample 3	820.5	24.06	24.50	1.107	0.081	0.580	0.642
	CDMA BC10	1xRTT RC3 SO32	Back	0mm	Holster	Sample 4	820.5	24.06	24.50	1.107	-0.089	0.480	0.531

<WLAN SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Holster	Sample	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	10mm	-	Sample 1	11	2462	17.27	18.00	1.183	100	1.000	-0.13	0.009	0.010
	WLAN2.4GHz	802.11b 1Mbps	Back	10mm	-	Sample 1	11	2462	17.27	18.00	1.183	100	1.000	-0.13	0.018	0.021
	WLAN2.4GHz	802.11b 1Mbps	Back	10mm	-	Sample 1	1	2412	17.06	18.00	1.242	100	1.000	-0.04	0.028	0.035
	WLAN2.4GHz	802.11b 1Mbps	Back	10mm	-	Sample 1	6	2437	17.20	18.00	1.202	100	1.000	0.14	0.022	0.026
	WLAN2.4GHz	802.11b 1Mbps	Back	0mm	Holster	Sample 1	1	2412	17.06	18.00	1.242	100	1.000	0.11	0.023	0.029
	WLAN2.4GHz	802.11b 1Mbps	Back	0mm	Holster	Sample 1	6	2437	17.20	18.00	1.202	100	1.000	-0.17	0.020	0.024
	WLAN2.4GHz	802.11b 1Mbps	Back	0mm	Holster	Sample 1	11	2462	17.27	18.00	1.183	100	1.000	0.11	0.016	0.019
	WLAN2.4GHz	802.11b 1Mbps	Back	10mm	-	Sample 2	1	2412	17.06	18.00	1.242	100	1.000	0.17	0.051	0.063
	WLAN2.4GHz	802.11b 1Mbps	Front	10mm	-	Sample 3	11	2462	17.27	18.00	1.183	100	1.000	-0.141	0.021	0.025
	WLAN2.4GHz	802.11b 1Mbps	Back	10mm	-	Sample 3	11	2462	17.27	18.00	1.183	100	1.000	-0.066	0.056	0.066
	WLAN2.4GHz	802.11b 1Mbps	Back	10mm	-	Sample 3	1	2412	17.06	18.00	1.242	100	1.000	0.093	0.045	0.056
	WLAN2.4GHz	802.11b 1Mbps	Back	10mm	-	Sample 3	6	2437	17.20	18.00	1.202	100	1.000	-0.153	0.056	0.067
	WLAN2.4GHz	802.11b 1Mbps	Back	0mm	Holster	Sample 3	11	2462	17.27	18.00	1.183	100	1.000	-0.092	0.044	0.052
	WLAN2.4GHz	802.11b 1Mbps	Back	0mm	Holster	Sample 3	1	2412	17.06	18.00	1.242	100	1.000	0.009	0.041	0.051
	WLAN2.4GHz	802.11b 1Mbps	Back	0mm	Holster	Sample 3	6	2437	17.20	18.00	1.202	100	1.000	0.062	0.051	0.061
33	WLAN2.4GHz	802.11b 1Mbps	Back	10mm	-	Sample 4	6	2437	17.20	18.00	1.202	100	1.000	0.039	0.057	0.069
	WLAN5GHz	802.11a 6Mbps	Front	10mm	-	Sample 1	64	5320	13.39	14.00	1.151	98.90	1.011	0.01	0.022	0.026
	WLAN5GHz	802.11a 6Mbps	Back	10mm	-	Sample 1	64	5320	13.39	14.00	1.151	98.90	1.011	-0.1	0.294	0.342
	WLAN5GHz	802.11a 6Mbps	Back	10mm	-	Sample 1	52	5260	13.37	14.00	1.156	98.90	1.011	-0.13	0.281	0.328
	WLAN5GHz	802.11a 6Mbps	Back	0mm	Holster	Sample 1	64	5320	13.39	14.00	1.151	98.90	1.011	-0.15	0.160	0.186
	WLAN5GHz	802.11a 6Mbps	Back	0mm	Holster	Sample 1	52	5260	13.37	14.00	1.156	98.90	1.011	-0.1	0.158	0.185
	WLAN5GHz	802.11a 6Mbps	Back	10mm	-	Sample 2	64	5320	13.39	14.00	1.151	98.90	1.011	-0.05	0.291	0.339
	WLAN5GHz	802.11a 6Mbps	Front	10mm	-	Sample 3	64	5320	13.39	14.00	1.151	98.90	1.011	-0.129	0.028	0.033
	WLAN5GHz	802.11a 6Mbps	Back	10mm	-	Sample 3	64	5320	13.39	14.00	1.151	98.90	1.011	-0.088	0.369	0.429
	WLAN5GHz	802.11a 6Mbps	Back	10mm	-	Sample 3	52	5260	13.37	14.00	1.156	98.90	1.011	-0.048	0.362	0.423
	WLAN5GHz	802.11a 6Mbps	Back	0mm	Holster	Sample 3	64	5320	13.39	14.00	1.151	98.90	1.011	-0.047	0.324	0.377
	WLAN5GHz	802.11a 6Mbps	Back	0mm	Holster	Sample 3	52	5260	13.37	14.00	1.156	98.90	1.011	-0.082	0.293	0.342
34	WLAN5GHz	802.11a 6Mbps	Back	10mm	-	Sample 4	64	5320	13.39	14.00	1.151	98.90	1.011	0.136	0.376	0.437
	WLAN5GHz	802.11a 6Mbps	Front	10mm	-	Sample 1	100	5500	13.19	14.00	1.205	98.90	1.011	0	0.001	0.001
	WLAN5GHz	802.11a 6Mbps	Back	10mm	-	Sample 1	100	5500	13.19	14.00	1.205	98.90	1.011	-0.13	0.302	0.368
	WLAN5GHz	802.11a 6Mbps	Back	10mm	-	Sample 1	116	5580	13.09	14.00	1.233	98.90	1.011	0.04	0.215	0.268
	WLAN5GHz	802.11a 6Mbps	Back	10mm	-	Sample 1	132	5660	13.17	14.00	1.211	98.90	1.011	0.1	0.105	0.129
	WLAN5GHz	802.11a 6Mbps	Back	10mm	-	Sample 1	140	5700	13.15	14.00	1.216	98.90	1.011	-0.04	0.240	0.295
	WLAN5GHz	802.11a 6Mbps	Back	0mm	Holster	Sample 1	100	5500	13.19	14.00	1.205	98.90	1.011	-0.17	0.172	0.210
	WLAN5GHz	802.11a 6Mbps	Back	0mm	Holster	Sample 1	116	5580	13.09	14.00	1.233	98.90	1.011	-0.04	0.210	0.262
	WLAN5GHz	802.11a 6Mbps	Back	0mm	Holster	Sample 1	132	5660	13.17	14.00	1.211	98.90	1.011	0.14	0.029	0.035
	WLAN5GHz	802.11a 6Mbps	Back	0mm	Holster	Sample 1	140	5700	13.15	14.00	1.216	98.90	1.011	0.15	0.012	0.015
	WLAN5GHz	802.11a 6Mbps	Back	10mm	-	Sample 2	100	5500	13.19	14.00	1.205	98.90	1.011	0.15	0.292	0.356
	WLAN5GHz	802.11a 6Mbps	Front	10mm	-	Sample 3	100	5500	13.19	14.00	1.205	98.90	1.011	-0.071	0.026	0.032
	WLAN5GHz	802.11a 6Mbps	Back	10mm	-	Sample 3	100	5500	13.19	14.00	1.205	98.90	1.011	-0.085	0.325	0.396
	WLAN5GHz	802.11a 6Mbps	Back	10mm	-	Sample 3	116	5580	13.09	14.00	1.233	98.90	1.011	-0.073	0.265	0.330
	WLAN5GHz	802.11a 6Mbps	Back	10mm	-	Sample 3	132	5660	13.17	14.00	1.211	98.90	1.011	-0.184	0.254	0.311
	WLAN5GHz	802.11a 6Mbps	Back	10mm	-	Sample 3	140	5700	13.15	14.00	1.216	98.90	1.011	-0.062	0.284	0.349
	WLAN5GHz	802.11a 6Mbps	Back	0mm	Holster	Sample 3	100	5500	13.19	14.00	1.205	98.90	1.011	0.16	0.206	0.251
	WLAN5GHz	802.11a 6Mbps	Back	0mm	Holster	Sample 3	116	5580	13.09	14.00	1.233	98.90	1.011	-0.13	0.221	0.276
	WLAN5GHz	802.11a 6Mbps	Back	0mm	Holster	Sample 3	132	5660	13.17	14.00	1.211	98.90	1.011	0.082	0.257	0.315
	WLAN5GHz	802.11a 6Mbps	Back	0mm	Holster	Sample 3	140	5700	13.15	14.00	1.216	98.90	1.011	-0.071	0.283	0.348
35	WLAN5GHz	802.11a 6Mbps	Back	10mm	-	Sample 4	100	5500	13.19	14.00	1.205	98.90	1.011	-0.065	0.329	0.401

Plot No.	Band	Mode	Test Position	Gap (mm)	Holster	Sample	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN5GHz	802.11a 6Mbps	Front	10mm	-	Sample 1	149	5745	13.42	14.00	1.142	98.81	1.012	0	0.001	0.001
	WLAN5GHz	802.11a 6Mbps	Back	10mm	-	Sample 1	149	5745	13.42	14.00	1.142	98.81	1.012	0.15	0.019	0.022
	WLAN5GHz	802.11a 6Mbps	Back	10mm	-	Sample 1	157	5785	13.40	14.00	1.148	98.81	1.012	-0.16	0.018	0.021
	WLAN5GHz	802.11a 6Mbps	Back	10mm	-	Sample 1	165	5825	13.41	14.00	1.145	98.81	1.012	0.18	0.020	0.023
	WLAN5GHz	802.11a 6Mbps	Back	0mm	Holster	Sample 1	165	5825	13.41	14.00	1.145	98.81	1.012	-0.1	0.012	0.014
	WLAN5GHz	802.11a 6Mbps	Back	0mm	Holster	Sample 1	149	5745	13.42	14.00	1.142	98.81	1.012	0.17	0.009	0.010
	WLAN5GHz	802.11a 6Mbps	Back	0mm	Holster	Sample 1	157	5785	13.40	14.00	1.148	98.81	1.012	0.17	0.010	0.011
	WLAN5GHz	802.11a 6Mbps	Back	10mm	-	Sample 2	165	5825	13.41	14.00	1.145	98.81	1.012	0.17	0.316	0.366
	WLAN5GHz	802.11a 6Mbps	Front	10mm	-	Sample 3	149	5745	13.42	14.00	1.142	98.81	1.012	-0.123	0.016	0.018
	WLAN5GHz	802.11a 6Mbps	Back	10mm	-	Sample 3	149	5745	13.42	14.00	1.142	98.81	1.012	0.137	0.249	0.288
	WLAN5GHz	802.11a 6Mbps	Back	10mm	-	Sample 3	157	5785	13.40	14.00	1.148	98.81	1.012	0.069	0.314	0.365
36	WLAN5GHz	802.11a 6Mbps	Back	10mm	-	Sample 3	165	5825	13.41	14.00	1.145	98.81	1.012	-0.191	0.364	0.422
	WLAN5GHz	802.11a 6Mbps	Back	0mm	Holster	Sample 3	149	5745	13.42	14.00	1.142	98.81	1.012	0.005	0.259	0.299
	WLAN5GHz	802.11a 6Mbps	Back	0mm	Holster	Sample 3	157	5785	13.40	14.00	1.148	98.81	1.012	-0.151	0.273	0.317
	WLAN5GHz	802.11a 6Mbps	Back	0mm	Holster	Sample 3	165	5825	13.41	14.00	1.145	98.81	1.012	0.078	0.284	0.329
	WLAN5GHz	802.11a 6Mbps	Back	10mm	-	Sample 4	165	5825	13.41	14.00	1.145	98.81	1.012	0.045	0.364	0.422

<Bluetooth SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Holster	Sample	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	1Mbps	Front	10mm	-	Sample 1	39	2441	7.11	8.00	1.229	77.13	1.297	-0.011	0.001	0.002
	Bluetooth	1Mbps	Back	10mm	-	Sample 1	39	2441	7.11	8.00	1.229	77.13	1.297	-0.13	0.001	0.001
	Bluetooth	1Mbps	Back	10mm	-	Sample 1	0	2402	7.08	8.00	1.237	77.13	1.297	0.18	0.001	0.001
	Bluetooth	1Mbps	Back	10mm	-	Sample 1	78	2480	7.03	8.00	1.252	77.13	1.297	0.119	0.001	0.002
	Bluetooth	1Mbps	Back	10mm	Holster	Sample 1	39	2441	7.11	8.00	1.229	77.13	1.297	-0.11	0.001	0.002
	Bluetooth	1Mbps	Back	10mm	Holster	Sample 1	0	2441	7.08	8.00	1.237	77.13	1.297	-0.182	0.001	0.002
	Bluetooth	1Mbps	Back	10mm	Holster	Sample 1	78	2480	7.03	8.00	1.252	77.13	1.297	0.19	0.001	0.002
37	Bluetooth	1Mbps	Back	10mm	-	Sample 2	39	2441	7.11	8.00	1.229	77.13	1.297	-0.128	0.003	0.004
	Bluetooth	1Mbps	Front	10mm	-	Sample 3	39	2441	7.11	8.00	1.229	77.13	1.297	0.083	0.001	0.002
	Bluetooth	1Mbps	Back	10mm	-	Sample 3	39	2441	7.11	8.00	1.229	77.13	1.297	0	0.002	0.004
	Bluetooth	1Mbps	Back	10mm	-	Sample 3	0	2402	7.08	8.00	1.237	77.13	1.297	-0.17	0.002	0.003
	Bluetooth	1Mbps	Back	10mm	-	Sample 3	78	2480	7.03	8.00	1.252	77.13	1.297	0.127	0.001	0.001
	Bluetooth	1Mbps	Back	0mm	Holster	Sample 3	39	2441	7.11	8.00	1.229	77.13	1.297	-0.112	0.002	0.004
	Bluetooth	1Mbps	Back	0mm	Holster	Sample 3	0	2402	7.08	8.00	1.237	77.13	1.297	-0.001	0.001	0.002
	Bluetooth	1Mbps	Back	0mm	Holster	Sample 3	78	2480	7.03	8.00	1.252	77.13	1.297	0.07	0.001	0.001
	Bluetooth	1Mbps	Back	10mm	-	Sample 4	39	2441	7.11	8.00	1.229	77.13	1.297	-0.125	0.002	0.004

14.5 Repeated SAR Measurement

No.	Band	Mode	Test Position	Gap (mm)	Holster	Sample	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Raio	Reported 1g SAR (W/kg)
1st	WCDMA II	RMC 12.2Kbps	Back	10mm	-	Sample 1	9538	1907.6	24.10	24.50	1.096	-0.077	1.190		1.305
2nd	WCDMA II	RMC 12.2Kbps	Back	10mm	-	Sample 1	9538	1907.6	24.10	24.50	1.096	0.031	1.180	1.01	1.294
1st	WCDMA V	RMC 12.2Kbps	Back	0mm	Holster	Sample 4	4182	836.4	24.06	24.50	1.107	-0.101	1.080		1.195
2nd	WCDMA V	RMC 12.2Kbps	Back	0mm	Holster	Sample 4	4182	836.4	24.06	24.50	1.107	-0.195	1.010	1.07	1.118

No.	Band	Mode	Test Position	Gap (mm)	Sample	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Ratio	Reported 10g SAR (W/kg)
1st	WCDMA II	RMC 12.2Kbps	Back	0mm	Sample 1	9538	1907.6	24.10	24.50	1.096	0.08	2.190		2.401
2nd	WCDMA II	RMC 12.2Kbps	Back	0mm	Sample 1	9538	1907.6	24.10	24.50	1.096	0.12	2.090	1.05	2.292

General Note:

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

15. Simultaneous Transmission Analysis

NO.	Simultaneous Transmission Configurations	Portable Handset			
		Head	Body-worn	Hotspot	Product Specific
1.	WWAN (Voice) + WLAN2.4GHz	Yes	Yes		Yes
2.	WWAN (Data) + WLAN2.4GHz	Yes	Yes	Yes	Yes
3.	WWAN (Voice) + Bluetooth		Yes		Yes
4.	WWAN (Data) + Bluetooth		Yes		Yes
5.	WWAN (Voice) + WLAN5GHz	Yes	Yes		Yes
6.	WWAN (Data) + WLAN5GHz	Yes	Yes	Yes	Yes

General Note:

1. In this report, Sim-Tx analysis evaluation is select highest value of sample 1/2/3/4..
2. This device WLAN 2.4GHz / 5.2GHz / 5.8GHz supports Hotspot operation.
3. The worst case WLAN reported SAR for each configuration was used for SAR summation. Therefore, the following summations represent the absolute worst cases for simultaneous transmission with WLAN.
4. WLAN and Bluetooth share the same antenna, and cannot transmit simultaneously.
5. EUT will choose either WLAN 2.4GHz or WLAN 5GHz according to the network signal condition; therefore, 2.4GHz WLAN and 5GHz WLAN will not operate simultaneously at any moment.
6. The Scaled SAR summation is calculated based on the same configuration and test position.
7. Per KDB 447498 D01v06, simultaneous transmission SAR is compliant if,
   i) Scalar SAR summation < 1.6W/kg.
   ii) SPLSR = (SAR1 + SAR2)^1.5 / (min. separation distance, mm), and the peak separation distance is determined from the square root of [(x1-x2)2 + (y1-y2)2 + (z1-z2)2], where (x1, y1, z1) and (x2, y2, z2) are the coordinates of the extrapolated peak SAR locations in the zoom scan.
   iii) If SPLSR ≤ 0.04, simultaneously transmission SAR measurement is not necessary.
   iv) Simultaneously transmission SAR measurement, and the reported multi-band SAR < 1.6W/kg.
   v) The SPLSR calculated results please refer to section 15.5.
8. For Product specific simultaneous transmission analysis, Bluetooth SAR is estimated per KDB 447498 D01v06 based on the formula below.
   i) (*max. power of channel, including tune-up tolerance, mW*)/(*min. test separation distance, mm*)]·[√f(GHz)/*x*] W/kg for *test separation distances* ≤ 50 mm; where *x* = 7.5 for 1-g SAR, and *x* = 18.75 for 10-g SAR.
   ii) When the minimum separation distance is < 5mm, the distance is used 5mm to determine SAR test exclusion.
   iii) 0.4 W/kg for 1-g SAR and 1.0 W/kg for 10-g SAR, when the *test separation distances* is > 50 mm.

Bluetooth Max Power	Exposure Position	Product specific
	Test separation	5mm
8 dBm	Estimated SAR (W/kg)	0.101 W/kg

15.1 Head Exposure Conditions

WWAN Band		Exposure Position	1 WWAN 1g SAR (W/kg)	2 2.4GHz WLAN 1g SAR (W/kg)	3 5GHz WLAN 1g SAR (W/kg)	1+2 Summed 1g SAR (W/kg)	1+3 Summed 1g SAR (W/kg)
GSM	GSM850	Right Cheek	0.332	0.044	0.042	**0.376**	**0.374**
		Right Tilted	0.312	0.046	0.045	**0.358**	**0.357**
		Left Cheek	0.227	0.083	0.088	**0.310**	**0.315**
		Left Tilted	0.198	0.066	0.047	**0.264**	**0.245**
	GSM1900	Right Cheek	0.251	0.044	0.042	**0.295**	**0.293**
		Right Tilted	0.168	0.046	0.045	**0.214**	**0.213**
		Left Cheek	0.164	0.083	0.088	**0.247**	**0.252**
		Left Tilted	0.175	0.066	0.047	**0.241**	**0.222**
WCDMA	WCDMA II	Right Cheek	0.482	0.044	0.042	**0.526**	**0.524**
		Right Tilted	0.281	0.046	0.045	**0.327**	**0.326**
		Left Cheek	0.243	0.083	0.088	**0.326**	**0.331**
		Left Tilted	0.250	0.066	0.047	**0.316**	**0.297**
	WCDMA V	Right Cheek	0.411	0.044	0.042	**0.455**	**0.453**
		Right Tilted	0.357	0.046	0.045	**0.403**	**0.402**
		Left Cheek	0.290	0.083	0.088	**0.373**	**0.378**
		Left Tilted	0.242	0.066	0.047	**0.308**	**0.289**
CDMA	CDMA BC0	Right Cheek	0.396	0.044	0.042	**0.440**	**0.438**
		Right Tilted	0.310	0.046	0.045	**0.356**	**0.355**
		Left Cheek	0.292	0.083	0.088	**0.375**	**0.380**
		Left Tilted	0.267	0.066	0.047	**0.333**	**0.314**
	CDMA BC1	Right Cheek	0.541	0.044	0.042	**0.585**	**0.583**
		Right Tilted	0.337	0.046	0.045	**0.383**	**0.382**
		Left Cheek	0.289	0.083	0.088	**0.372**	**0.377**
		Left Tilted	0.287	0.066	0.047	**0.353**	**0.334**
	CDMA BC10	Right Cheek	0.267	0.044	0.042	**0.311**	**0.309**
		Right Tilted	0.210	0.046	0.045	**0.256**	**0.255**
		Left Cheek	0.222	0.083	0.088	**0.305**	**0.310**
		Left Tilted	0.199	0.066	0.047	**0.265**	**0.246**

15.2 Hotspot Exposure Conditions

WWAN Band		Exposure Position	1 WWAN 1g SAR (W/kg)	2 2.4GHz WLAN 1g SAR (W/kg)	3 5GHz WLAN 1g SAR (W/kg)	1+2 Summed 1g SAR (W/kg)	1+3 Summed 1g SAR (W/kg)	SPLSR	Case No
GSM	GSM850	Front	0.157	0.025	0.027	**0.182**	**0.184**		
		Back	0.513	0.069	0.422	**0.582**	**0.935**		
		Left side	0.295			**0.295**	**0.295**		
		Right side		0.200	0.332	**0.200**	**0.332**		
		Top side	0.261	0.049	0.081	**0.310**	**0.342**		
	GSM1900	Front	0.075	0.025	0.027	**0.100**	**0.102**		
		Back	0.817	0.069	0.422	**0.886**	**1.239**		
		Left side	0.411			**0.411**	**0.411**		
		Right side		0.200	0.332	**0.200**	**0.332**		
		Top side	0.165	0.049	0.081	**0.214**	**0.246**		
WCDMA	WCDMA II	Front	0.131	0.025	0.027	**0.156**	**0.158**		
		Back	1.305	0.069	0.422	**1.374**	**1.727**	0.04	Case 1
		Left side	0.786			**0.786**	**0.786**		
		Right side		0.200	0.332	**0.200**	**0.332**		
		Top side	0.292	0.049	0.081	**0.341**	**0.373**		
	WCDMA V	Front	0.199	0.025	0.027	**0.224**	**0.226**		
		Back	0.605	0.069	0.422	**0.674**	**1.027**		
		Left side	0.369			**0.369**	**0.369**		
		Right side		0.200	0.332	**0.200**	**0.332**		
		Top side	0.320	0.049	0.081	**0.369**	**0.401**		
CDMA	CDMA BC0	Front	0.180	0.025	0.027	**0.205**	**0.207**		
		Back	0.584	0.069	0.422	**0.653**	**1.006**		
		Left side	0.347			**0.347**	**0.347**		
		Right side		0.200	0.332	**0.200**	**0.332**		
		Top side	0.278	0.049	0.081	**0.327**	**0.359**		
	CDMA BC1	Front	0.140	0.025	0.027	**0.165**	**0.167**		
		Back	1.211	0.069	0.422	**1.280**	**1.633**	0.04	Case 2
		Left side	0.863			**0.863**	**0.863**		
		Right side		0.200	0.332	**0.200**	**0.332**		
		Top side	0.310	0.049	0.081	**0.359**	**0.391**		
	CDMA BC10	Front	0.120	0.025	0.027	**0.145**	**0.147**		
		Back	0.385	0.069	0.422	**0.454**	**0.807**		
		Left side	0.208			**0.208**	**0.208**		
		Right side		0.200	0.332	**0.200**	**0.332**		
		Top side	0.177	0.049	0.081	**0.226**	**0.258**		

15.3 Product Specific Exposure Conditions

General Note:

1. The worst case 5GHz WLAN results are taking from 5.3GHz and 5.5GHz perform product specific simultaneous transmission analysis
2. According to KDB 648474 D04v01r03, for WWAN and 2.4GHz WLAN SAR ("-") was excluded, due to Body SAR was < 1.2W/kg.
3. According to KDB 941225 D06 v02r01, for Bluetooth and 5GHz WLAN SAR ("-") was excluded, due to transmitting antenna located larger 25mm from that surface or edge

WWAN Band		Exposure Position	1	2	3	4	1+2 Summed 1g SAR (W/kg)	1+3 Summed 1g SAR (W/kg)	1+4 Summed 1g SAR (W/kg)
			WWAN	2.4GHz WLAN	5GHz WLAN	Bluetooth			
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	Estimated 10g SAR (W/kg)			
GSM	GSM850	Front	-	-	0.035	0.101		**0.035**	**0.101**
		Back	-	-	0.339	0.101		**0.339**	**0.101**
		Left side	-	-	-	-			
		Right side	-	-	0.579	0.101		**0.579**	**0.101**
		Top side	-	-	0.038	0.101		**0.038**	**0.101**
	GSM1900	Front	-	-	0.035	0.101		**0.035**	**0.101**
		Back	-	-	0.339	0.101		**0.339**	**0.101**
		Left side	-	-	-	-			
		Right side	-	-	0.579	0.101		**0.579**	**0.101**
		Top side	-	-	0.038	0.101		**0.038**	**0.101**
WCDMA	WCDMA II	Front	-	-	0.035	0.101		**0.035**	**0.101**
		Back	2.401	-	0.339	0.101		**2.740**	**2.502**
		Left side	-	-	-	-			
		Right side	-	-	0.579	0.101		**0.579**	**0.101**
		Top side	-	-	0.038	0.101		**0.038**	**0.101**
	WCDMA V	Front	-	-	0.035	0.101		**0.035**	**0.101**
		Back	-	-	0.339	0.101		**0.339**	**0.101**
		Left side	-	-	-	-			
		Right side	-	-	0.579	0.101		**0.579**	**0.101**
		Top side	-	-	0.038	0.101		**0.038**	**0.101**
CDMA	CDMA BC0	Front	-	-	0.035	0.101		**0.035**	**0.101**
		Back	-	-	0.339	0.101		**0.339**	**0.101**
		Left side	-	-	-	-			
		Right side	-	-	0.579	0.101		**0.579**	**0.101**
		Top side	-	-	0.038	0.101		**0.038**	**0.101**
	CDMA BC1	Front	-	-	0.035	0.101		**0.035**	**0.101**
		Back	2.389	-	0.339	0.101		**2.728**	**2.490**
		Left side	-	-	-	-			
		Right side	-	-	0.579	0.101		**0.579**	**0.101**
		Top side	-	-	0.038	0.101		**0.038**	**0.101**
	CDMA BC10	Front	-	-	0.035	0.101		**0.035**	**0.101**
		Back	-	-	0.339	0.101		**0.339**	**0.101**
		Left side	-	-	-	-			
		Right side	-	-	0.579	0.101		**0.579**	**0.101**
		Top side	-	-	0.038	0.101		**0.038**	**0.101**

15.4 Body-Worn Accessory Exposure Conditions

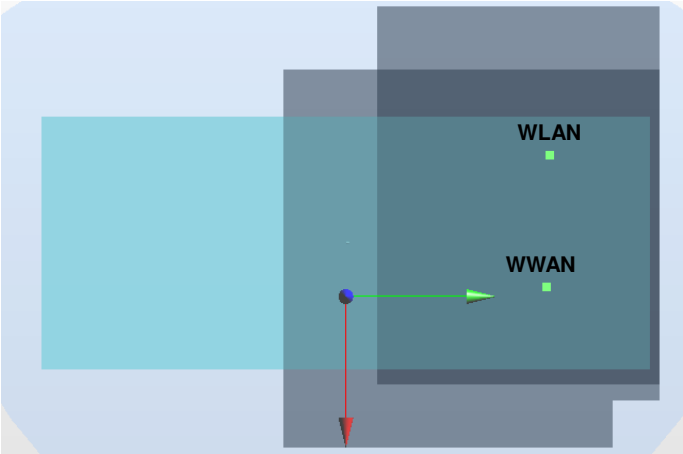
WWAN Band		Exposure Position	1 WWAN 1g SAR (W/kg)	2 2.4GHz WLAN 1g SAR (W/kg)	3 5GHz WLAN 1g SAR (W/kg)	4 Bluetooth 1g SAR (W/kg)	1+2 Summed 1g SAR (W/kg)	1+3 Summed 1g SAR (W/kg)	1+4 Summed 1g SAR (W/kg)	SPLSR	Case No
GSM	GSM850	Front	0.157	0.025	0.033	0.002	**0.182**	**0.190**	**0.159**		
		Back	0.451	0.069	0.437	0.004	**0.520**	**0.888**	**0.455**		
		Back with Holster	0.888	0.061	0.377	0.004	**0.949**	**1.265**	**0.892**		
	GSM1900	Front	0.075	0.025	0.033	0.002	**0.100**	**0.108**	**0.077**		
		Back	0.817	0.069	0.437	0.004	**0.886**	**1.254**	**0.821**		
		Back with Holster	0.488	0.061	0.377	0.004	**0.549**	**0.865**	**0.492**		
WCDMA	WCDMA II	Front	0.131	0.025	0.033	0.002	**0.156**	**0.164**	**0.133**		
		Back	1.305	0.069	0.437	0.004	**1.374**	**1.742**	**1.309**	0.04	Case 3
		Back with Holster	0.845	0.061	0.377	0.004	**0.906**	**1.222**	**0.849**		
	WCDMA V	Front	0.199	0.025	0.033	0.002	**0.224**	**0.232**	**0.201**		
		Back	0.583	0.069	0.437	0.004	**0.652**	**1.020**	**0.587**		
		Back with Holster	1.195	0.061	0.377	0.004	**1.256**	**1.572**	**1.199**		
CDMA	CDMA BC0	Front	0.175	0.025	0.033	0.002	**0.200**	**0.208**	**0.177**		
		Back	0.585	0.069	0.437	0.004	**0.654**	**1.022**	**0.589**		
		Back with Holster	1.043	0.061	0.377	0.004	**1.104**	**1.420**	**1.047**		
	CDMA BC1	Front	0.139	0.025	0.033	0.002	**0.164**	**0.172**	**0.141**		
		Back	1.226	0.069	0.437	0.004	**1.295**	**1.663**	**1.230**	0.04	Case 4
		Back with Holster	0.822	0.061	0.377	0.004	**0.883**	**1.199**	**0.826**		
	CDMA BC10	Front	0.122	0.025	0.033	0.002	**0.147**	**0.155**	**0.124**		
		Back	0.366	0.069	0.437	0.004	**0.435**	**0.803**	**0.370**		
		Back with Holster	0.934	0.061	0.377	0.004	**0.995**	**1.311**	**0.938**		

15.5 SPLSR Evaluation and Analysis

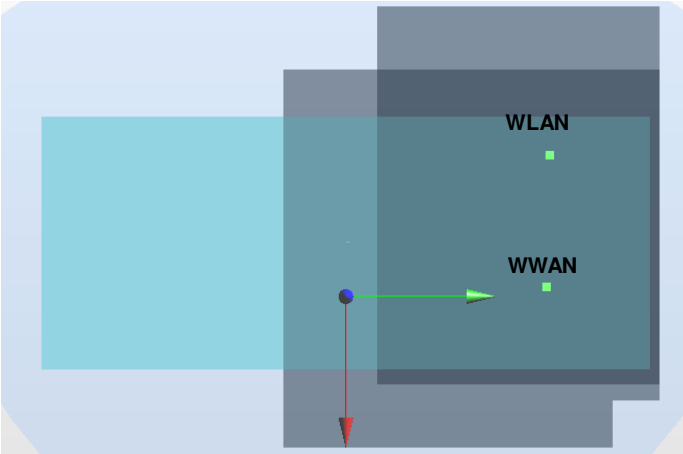
General Note:

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

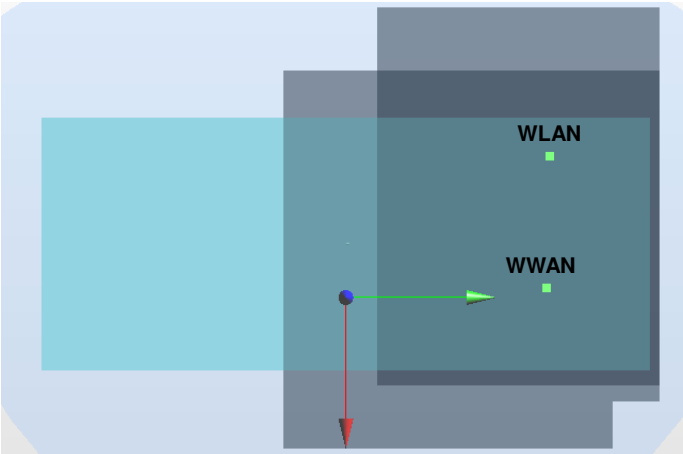
Case 1	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	WCDMA II	Back	1.305	1	1.667	6.502	-0.09	52.5	1.73	0.04	Not required
	WLAN5GHz		0.422	1	-3.58	6.68	-0.157				



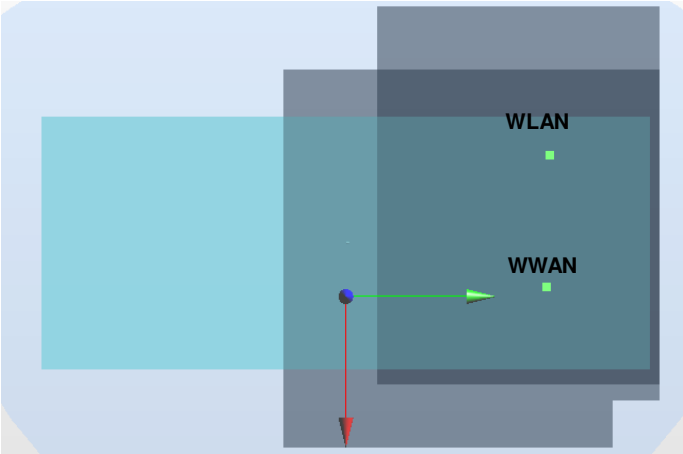
Case 2	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	CDMA BC1	Back	1.211	1	1.563	6.417	-0.07	51.5	1.63	0.04	Not required
	WLAN5GHz		0.422	1	-3.58	6.68	-0.157				



Case 3	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	WCDMA II	Back	1.305	1	1.667	6.502	-0.09	52.5	1.74	0.04	Not required
	WLAN5GHz		0.437	1	-3.58	6.68	-0.157				



Case 4	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	CDMA BC1	Back	1.226	1	1.563	6.417	-0.07	51.5	1.66	0.04	Not required
	WLAN5GHz		0.437	1	-3.58	6.68	-0.157				



Test Engineer： Thomas Wang, Poa Pan, Kurt Liu, Iran Wang, Tom Jiang, San Lin, Nick Yu, and Ken Li.

16. Uncertainty Assessment

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

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

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

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

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

(b) κ is the coverage factor

Table 16.1. Standard Uncertainty for Assumed Distribution

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

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

Error Description	Uncertainty Value (±%)	Probability	Divisor	(Ci) 1g	(Ci) 10g	Standard Uncertainty (1g) (±%)	Standard Uncertainty (10g) (±%)
Measurement System							
Probe Calibration	6.00	N	1	1	1	6.0	6.0
Axial Isotropy	4.70	R	1.732	0.7	0.7	1.9	1.9
Hemispherical Isotropy	9.60	R	1.732	0.7	0.7	3.9	3.9
Boundary Effects	1.00	R	1.732	1	1	0.6	0.6
Linearity	4.70	R	1.732	1	1	2.7	2.7
System Detection Limits	1.00	R	1.732	1	1	0.6	0.6
Modulation Response	4.68	R	1.732	1	1	2.7	2.7
Readout Electronics	0.30	N	1	1	1	0.3	0.3
Response Time	0.00	R	1.732	1	1	0.0	0.0
Integration Time	2.60	R	1.732	1	1	1.5	1.5
RF Ambient Noise	3.00	R	1.732	1	1	1.7	1.7
RF Ambient Reflections	3.00	R	1.732	1	1	1.7	1.7
Probe Positioner	0.40	R	1.732	1	1	0.2	0.2
Probe Positioning	2.90	R	1.732	1	1	1.7	1.7
Max. SAR Eval.	2.00	R	1.732	1	1	1.2	1.2
Test Sample Related							
Device Positioning	3.03	N	1	1	1	3.0	3.0
Device Holder	3.60	N	1	1	1	3.6	3.6
Power Drift	5.00	R	1.732	1	1	2.9	2.9
Power Scaling	0.00	R	1.732	1	1	0.0	0.0
Phantom and Setup							
Phantom Uncertainty	6.10	R	1.732	1	1	3.5	3.5
SAR correction	0.00	R	1.732	1	0.84	0.0	0.0
Liquid Conductivity Repeatability	0.03	N	1	0.78	0.71	0.0	0.0
Liquid Conductivity (target)	5.00	R	1.732	0.78	0.71	2.3	2.0
Liquid Conductivity (mea.)	2.50	R	1.732	0.78	0.71	1.1	1.0
Temp. unc. - Conductivity	3.68	R	1.732	0.78	0.71	1.7	1.5
Liquid Permittivity Repeatability	0.02	N	1	0.23	0.26	0.0	0.0
Liquid Permittivity (target)	5.00	R	1.732	0.23	0.26	0.7	0.8
Liquid Permittivity (mea.)	2.50	R	1.732	0.23	0.26	0.3	0.4
Temp. unc. - Permittivity	0.84	R	1.732	0.23	0.26	0.1	0.1
Combined Std. Uncertainty						11.6%	11.6%
Coverage Factor for 95 %						K=2	K=2
Expanded STD Uncertainty						23.2%	23.1%

Table 16.2. Uncertainty Budget for frequency range 300 MHz to 3 GHz

Error Description	Uncertainty Value (±%)	Probability	Divisor	(Ci) 1g	(Ci) 10g	Standard Uncertainty (1g) (±%)	Standard Uncertainty (10g) (±%)
Measurement System							
Probe Calibration	7.00	N	1	1	1	7.0	7.0
Axial Isotropy	4.70	R	1.732	0.7	0.7	1.9	1.9
Hemispherical Isotropy	9.60	R	1.732	0.7	0.7	3.9	3.9
Boundary Effects	2.00	R	1.732	1	1	1.2	1.2
Linearity	4.70	R	1.732	1	1	2.7	2.7
System Detection Limits	1.00	R	1.732	1	1	0.6	0.6
Modulation Response	4.68	R	1.732	1	1	2.7	2.7
Readout Electronics	0.30	N	1	1	1	0.3	0.3
Response Time	0.00	R	1.732	1	1	0.0	0.0
Integration Time	2.60	R	1.732	1	1	1.5	1.5
RF Ambient Noise	3.00	R	1.732	1	1	1.7	1.7
RF Ambient Reflections	3.00	R	1.732	1	1	1.7	1.7
Probe Positioner	0.40	R	1.732	1	1	0.2	0.2
Probe Positioning	6.70	R	1.732	1	1	3.9	3.9
Max. SAR Eval.	4.00	R	1.732	1	1	2.3	2.3
Test Sample Related							
Device Positioning	3.03	N	1	1	1	3.0	3.0
Device Holder	3.60	N	1	1	1	3.6	3.6
Power Drift	5.00	R	1.732	1	1	2.9	2.9
Power Scaling	0.00	R	1.732	1	1	0.0	0.0
Phantom and Setup							
Phantom Uncertainty	6.60	R	1.732	1	1	3.8	3.8
SAR correction	0.00	R	1.732	1	0.84	0.0	0.0
Liquid Conductivity Repeatability	0.03	N	1	0.78	0.71	0.0	0.0
Liquid Conductivity (target)	5.00	R	1.732	0.78	0.71	2.3	2.0
Liquid Conductivity (mea.)	2.50	R	1.732	0.78	0.71	1.1	1.0
Temp. unc. - Conductivity	3.68	R	1.732	0.78	0.71	1.7	1.5
Liquid Permittivity Repeatability	0.02	N	1	0.23	0.26	0.0	0.0
Liquid Permittivity (target)	5.00	R	1.732	0.23	0.26	0.7	0.8
Liquid Permittivity (mea.)	2.50	R	1.732	0.23	0.26	0.3	0.4
Temp. unc. - Permittivity	0.84	R	1.732	0.23	0.26	0.1	0.1
Combined Std. Uncertainty						12.9%	12.9%
Coverage Factor for 95 %						K=2	K=2
Expanded STD Uncertainty						25.9%	25.8%

Table 16.3. Uncertainty Budget for frequency range 3 GHz to 6 GHz

17. References

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

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

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

[4] SPEAG DASY System Handbook

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

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

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

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

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

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

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