SAR Test Report

FOR:

Manufacturer: Intel Corporation
Model Number: DZ110
FCC ID: O2Z-DZ110
IC Certification Number: 1000W-DZ110

Test Report #: SAR_INTEL_037_13001_FCC_rev1

Date of Report: July 7, 2014

FCC Listed #:
A2LA Accredited

IC Recognized #
3462B-1

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1. Assessment

The following device was evaluated against the limits for general population uncontrolled exposure specified in FCC 2.1093 and RSS 102, Issue 4 according to measurement procedures specified in FCC regulations, IEEE 1528:2013, and IEC 62209-2:2010 and no deviations were ascertained during the course of the tests performed.

Company	Description	Model #
Intel Corporation	Intel 4.5-inch Premium LTE Smartphone	DZ110

Responsible for Testing Laboratory:

Date	Section	Name	Signature
July 7, 2014	Compliance	Heiko Strehlow (COO)	Digitally signed by Heiko Strehlow DN: cn=Heiko Strehlow, c=US Date: 2014.07.07 14:29:10 -07'00'

Responsible for the Report:

Date	Section	Name	Signature
July 7, 2014	Compliance	Josie Sabado (Test Lab Manager)	

The test results of this test report relate exclusively to the test item specified in Section 3.
CETECOM Inc. USA does not assume responsibility for any conclusions and generalizations drawn from the test results with regard to other specimens or samples of the type of the equipment represented by the test item. The test report may only be reproduced or published in full. Reproduction or publication of extracts from the report requires the prior written approval of CETECOM Inc. USA.

2. Administrative Data

2.1. Identification of the Testing Laboratory Issuing the SAR Test Report

Company Name:	CETECOM Inc.
Department:	Compliance
Address:	411 Dixon Landing Road Milpitas, CA 95035 U.S.A.
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Industry Canada Company Number:	3462B
Test Lab Manager:	Josie Sabado
Responsible Project Leader:	Rami Saman

2.2. Identification of the Client

Applicant's Name:	Intel Corporation
Street Address:	2200 Mission College Blvd
City/Zip Code	Santa Clara, CA 95054
Country	USA
Contact Person:	Christine Ryan
Phone No.	408-300-2167
Fax:	408-765-2336
e-mail:	christine.m.ryan@intel.com

2.3. Identification of the Manufacturer

Same as above client.

3. Equipment under Test (EUT)

3.1. General Specification of the Equipment under Test

Product Type:	Portable
Prototype/Production:	Pre-Production
RF Exposure Environment:	General / Uncontrolled
Dimensions:	66 x 133 x 10 mm
Exposure Conditions:	Held next to the ear Body worn Personal Wireless Router (Hotspot)
Marketing Name:	Intel 4.5-inch Premium LTE Smartphone
Model No:	DZ110
FCC ID:	O2Z-DZ110
IC Certification Number:	1000W-DZ110
Antenna Information:	**Primary Tx/Rx Cellular:** Inverted Monopole with -10.5dBi @ 710MHz; -4.1 dBi @ 850MHz; -3.6dBi @ 900MHz; +1.6dBi @ 1750MHz; +2.8dBi @ 1880MHz; +3.3dBi @ 1950MHz; 0.1dBi @ 2550MHz **Secondary Rx Cellular:** Rx only **WLAN/Bluetooth/GPS:** Inverted Monopole with -5.5dBi @ 2.4GHz; -4dBi @ 5.2GHz; -9dBi @ 5.3GHz; -3.5dBi @ 5.6GHz; +0dBi @ 5.8GHz **NFC:** Internal Loop

Operating Voltage Range:	+3.6 VDC to +4.35 VDC
Operating Temperature Range:	-10 °C to +55 °C
Supported Radios:	GSM/GPRS/EGPRS, MS Class 33, Power Class 4/1, Mobile Class B WCDMA/HSDPA/DC-HSDPA/HSUPA/HSPA+, Power Class 3, DL cat 24, UL cat 6 (5.7 Mbps uplink and QPSK) LTE, Category 3 Bluetooth v2.1 + EDR, Bluetooth 4.0 802.11 a/b/g/n (HT20, HT40)/ac (VHT20, VHT40, VHT80), SISO
Additional Radios[1]:	GPS receiver at 1.575 MHz NFC
Power Back-Off Modes:	None
Simultaneous Transmission Configurations:	Cellular + WLAN Cellular + Bluetooth
Date of Testing:	November 25, 2013 to May 2, 2014

NOTES:
1. Additional radios are supported by the EUT, but are not addressed in this test report.

3.2. Technical Specification of Supported Radios

Signal Type	Duty Cycle		Type(s) of Modulation	Band	Uplink Transmit Frequency Range (MHz)	Measured Maximum Conducted Output Power (dBm)
GSM	12.5%		GMSK	GSM 850	824 – 849	32.9
				PCS 1900	1850 - 1910	29.9
(E)GPRS	*# Uplink Timeslots*	*Duty Cycle*	GMSK, 8PSK	GSM 850	824 – 849	32.9
	1	12.5%				
	2	25%		PCS 1900	1850 - 1910	29.9
	3	37.5%				
	4	50%				
WCDMA	100%		QPSK, 16 QAM	FDD II	1850 - 1910	22.4
				FDD IV	1710 - 1755	22.9
				FDD V	824 – 849	23.9
LTE	100%		QPSK, 16-QAM	Band 2	1850 - 1910	23.35
				Band 4	1710 - 1755	22.75
				Band 5	824 – 849	23.24
				Band 7	2500 – 2690	22.98
				Band 17	698 - 746	23.35
Bluetooth 2.1 + EDR	72.5%		GFSK, π/4 DQPSK, 8DPSK	N/A	2400 – 2483.5	8.8
Bluetooth 4.0	62%		GFSK	N/A	2400 – 2483.5	6.4
802.11 b/g/n	100%		BPSK, QPSK, 16-QAM, 64-QAM	N/A	2400 – 2483.5	18.94
802.11 a/n/ac	100%		BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM	Sub-Band 1	5150 - 5250	16.47
				Sub-Band 2	5250 - 5350	16.4
				Sub-Band 3	5475 - 5725	16.44
				Sub-Band 4	5725 - 5850	16.44
GPS[1]	N/A		N/A	L1	N/A	N/A
NFC[1]	100%		ASK	N/A	13.56	N/A

NOTES:
1. Bands are supported by the EUT, but outside of the scope of this test report.

3.3. Identification of the Equipment Under Test (EUT)

EUT #	Serial Number	HW Version	SW Version	Comments
1	INV133600111	PR2D.2	SB JB r43-main-weekly-973 (WW46)	Plastic
2	INV133600175	PR2D.2	SB JB r43-main-weekly-973 (WW46)	Plastic
3	INV133600567	PR2C.2	SB JB r43-main-weekly-973 (WW46)	Ceramic
4	INV133600668	PR2D.2	SB JB r43-main-weekly-973 (WW46)	Plastic
5	INV133600796	PR2D.2	SB JB r43-main-weekly-973 (WW46)	Plastic
6	INV133600930	PR2C.2	SB JB r43-main-weekly-973 (WW46)	Ceramic
7	INV133600934	PR2D.2	SB JB r43-main-weekly-973 (WW46)	Plastic
8	INV133600961	PR2D.2	SB JB r43-main-weekly-973 (WW46)	Plastic
9	INV133601011	PR2C.2	SB JB r43-main-weekly-973 (WW46)	Ceramic
10	INV133601025	PR2D.2	SB JB r43-main-weekly-973 (WW46)	Plastic
11	INV133601067	PR2D.2	SB JB r43-main-weekly-973 (WW46)	Plastic
12	INV133601261	PR2C.2	SB JB r43-main-weekly-973 (WW46)	Ceramic
13	INV133601827	PR2C.2	SB JB r43-main-weekly-973 (WW46)	Ceramic

3.4. Identification of Accessory equipment

AE #	Type	Manufacturer	Model	Serial Number	Comments
1	Headset	Intel	N/A	N/A	

3.5. Miscellaneous Testing Information

There are two variants of the EUT. One variant has a plastic back cover and the other variant has a ceramic back cover. Full testing is performed on the EUT with the plastic cover. Spot checks are performed on the EUT with the ceramic cover. When spot check measurements on the ceramic variant are higher than the plastic variant, full testing is performed on the ceramic variant for that band and exposure configuration.

3.6. Maximum SAR values

Measured 1g SAR scaled to manufacturer stated output power upper tolerance limit.

Plastic Variant (Original Equipment Authorization)

Equipment Class	Exposure Condition	Measured 1g SAR (W/kg)	Maximum Reported 1g SAR (W/kg)
PCE	Head	0.801	1.06
	Body-Worn Accessory	0.863	1.14
	Personal Wireless Router	0.863	1.14
	Simultaneous Transmission		1.53
DTS	Head	0.806	1.15
	Body-Worn Accessory	0.102	0.15
	Personal Wireless Router	0.136	0.20
	Simultaneous Transmission		1.53
DSS	Head	< 0.10	< 0.10
	Body-Worn Accessory	< 0.10	< 0.10
	Personal Wireless Router	< 0.10	< 0.10
	Simultaneous Transmission		1.14
NII	Head	0.241	0.35
	Body-Worn Accessory	< 0.10	< 0.10
	Simultaneous Transmission		1.41

Ceramic Variant (Class 2 Permissive Change)

Equipment Class	Exposure Condition	Measured 1g SAR (W/kg)	Maximum Reported 1g SAR (W/kg)
PCE	Head	0.801	1.06
	Body-Worn Accessory	0.863	1.14
	Personal Wireless Router	0.863	1.14
	Simultaneous Transmission		1.53
DTS	Head	0.806	1.15
	Body-Worn Accessory	0.102	0.15
	Personal Wireless Router	0.136	0.20
	Simultaneous Transmission		1.53
DSS	Head	< 0.10	< 0.10
	Body-Worn Accessory	< 0.10	< 0.10
	Personal Wireless Router	< 0.10	< 0.10
	Simultaneous Transmission		1.14
NII	Head	0.557	0.81
	Body-Worn Accessory	0.162	0.23
	Simultaneous Transmission		1.37

4. Subject of Investigation

The objective of the measurements done by CETECOM Inc. was the dosimetric assessment of the EUT described in section 3. The tests were performed in configurations for devices operated next to a person's body. The examinations were carried out with the dosimetric assessment system DASY52 described in Section 6.

4.1. The IEEE Standard C95.1 , FCC Exposure Criteria, and IC Exposure Criteria

The FCC limits are set by CFR 47 FCC rule parts 1.1307 and 2.1093. The IC limits are set by RSS 102, Issue 4. The limits are derived from the recommendations in IEEE C95.1-1999 (ANSI/IEEE C95.1-1999), "IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz."

4.2. SAR Limit

In this report the comparison between the exposure limits and the SAR data is made using the spatial peak SAR.

Having in mind a worst case consideration, the SAR limit is valid for uncontrolled environment and portable transmitters. The SAR values have to be averaged over a mass of 1g (SAR_{1g}) with the shape of a cube.

Standard	Exposure Condition	Average SAR (W/kg)	Mass Average (g)
FCC CFR 47 Part 2.1093 (d)(2)	Partial-Body	1.6	1
RSS 102, Issue 4	Localized Head and Trunk	1.6	1

5. Measurement Procedure

The Federal Communications Commission (FCC) requires routine dosimetric assessment of mobile telecom-communications devices, either by laboratory measurement techniques or by computational modeling, prior to equipment authorization or use. The measurement procedure shall be performed according to IEEE 1528:2013. The following KDB publications have additionally been applied:

447498 D01 V05R02 – Mobile and Portable Devices RF Exposure Procedures and Equipment Authorization Policies
648474 D04 V01R02 – SAR Evaluation Considerations for Wireless Handsets
865664 D01V01R03 – SAR Measurement Requirements for 100 MHz to 6 GHz
248227 D01 V01R02 – SAR Measurement Procedures for 802.11 a/b/g Transmitters
941225 D01 V02 – SAR Measurement Procedures for 3G Devices
941225 D02 V02R02 – SAR Guidance for HSPA, HSPA^{+}, DC-HSDPA, and 1x-Advanced
941225 D03 V01 – Recommended SAR Test Reduction Procedures for GSM/GPRS/EDGE
941225 D05 V02R03 – SAR Evaluation Considerations for LTE Devices
941225 D06 V01R01 – SAR Evaluation Procedures for Portable Devices with Wireless Router Capabilities

Industry Canada (IC) requirements and measurement techniques regarding RF exposure are described in RSS-102, Issue 4, which refers to the latest version of IEEE 1528 and IEC 62209. IC follows many of the same procedures as applied for compliance with FCC requirements regarding EUT specific technologies and form factors. IC allows the use of the above listed KDBs in most aspects as described in IC Notice 2012-DRS1203 regarding Applicability of Latest FCC RF Exposure KDB Procedures (Publication Date: October 24, 2012) and Other Procedures.

5.1. General Requirements

SAR evaluation was performed in a laboratory with an environment which avoids influence on SAR measurements by ambient EM sources and any reflection from the environment itself. The ambient temperature was in the range of 18°C to 25°C and 30-70% humidity. Simulating liquid temperature did not deviate more than +/- 2°C throughout SAR evaluation.

5.2. Body-worn and Other Configurations

Phantom Requirements
For body-worn and other configurations a flat phantom shall be used which is comprised of material with electrical properties similar to the corresponding tissues.

Test Position
The body-worn configurations shall be tested with the supplied accessories (belt-clips, holsters, etc.) attached to the device in normal use configuration. Devices with a headset output shall be tested with a connected headset.

Test to be Performed

For purpose of determining test requirements, accessories may be divided into two categories: those that do not contain metallic components and those that do. For multiple accessories that do not contain metallic components, the device may be tested only with that accessory which provides the closest spacing to the body. For multiple accessories that contain metallic components, the device must be tested with each accessory that contains a unique metallic component. If multiple accessories share an identical metallic component, only the accessory that provides the closest spacing to the body must be tested. If the manufacturer provides none body-worn accessories a separation distance of 1.5 cm between the back of the device and the flat phantom is recommended. Other separation distances may be used, but they shall not exceed 2.5 cm. In these cases, the device may use body-worn accessories that provide a separation distance greater than that tested for the device provided however that the accessory contains no metallic components.

For devices with retractable antenna the SAR test shall be performed with the antenna fully extended and fully retracted. Other factors that may affect the exposure shall also be tested. For example, optional antennas or optional battery packs which may significantly change the volume, lengths, flip open/closed, etc. of the device, or any other accessories which might have the potential to considerably increase the peak spatial-average SAR value.

5.3. Procedure for assessing the peak spatial-average SAR

Step 1*:* Power reference measurement:

Prior to the SAR test, a local SAR measurement should be taken at a user-selected spatial reference point to monitor power variations during testing.

Step 2: Area scan

The measurement procedures for evaluating SAR associated with wireless handsets typically start with a coarse measurement grid in order to determine the approximate location of the local peak SAR values. This is referred to as the "area scan" procedure. The SAR distribution is scanned along the inside surface of typically half of the head of the phantom but at least larger than the areas projected (normal to the phantom's surface) by the handset and antenna. An example grid is given in Figure 4. The distance between the measured points and phantom surface should be less than 8 mm, and should remain constant (variation less than ± 1 mm) during the entire scan in order to determine the locations of the local peak SAR with sufficient precision. The distance between the measurement points should enable the detection of the location of local maximum with an accuracy of better than half the linear dimension of the tissue cube after interpolation. The approximate locations of the peak SARs should be determined from area scan. Since a given amplitude local peak with steep gradients may produce lower spatial-average SAR than slightly lower amplitude peaks with less steep gradients, it is necessary to evaluate the other peaks as well. However, since the spatial gradients of local SAR peaks are a function of wavelength inside the tissue simulating liquid and incident magnetic field strength, it is not necessary to evaluate peaks that are less than –2dB of the local maximum. Two-dimensional spline algorithms [Press, et al, 1996], [Brishoual, 2001] are typically used to determine the peaks and gradients within the scanned area. If the peak is closer than one-half of the linear dimension of the 1 g or 10 g tissue cube to the scan border, the measurement area should be enlarged if possible, e.g., by tilting the probe or the phantom (see Figure 5).

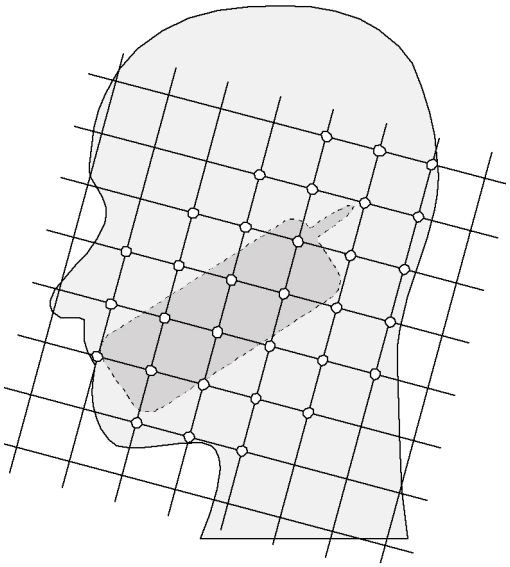


Figure 4 – Example of an area scan including the position of the handset. The scanned area (white dots) should be larger than the area projected by the handset and antenna.

The SPEAG DASY SAR system uses a mechanical sensor detection to find the phantom surface. To decrease test time, the DASY software allows the operator to choose an option where the SAR probe will reuse measurement locations from a previous identical area scan. With this option enabled, the DASY system will not use mechanical sensor detection to find the phantom surface. Locations of each measurement point of the area scan is taken at the same locations as an identical area scan if one is available. Area scans that reused location of measurement points is noted in the result plots under DASY Configuration > Sensor-Surface.

Step 3: Zoom scan

In order to assess the peak spatial SAR values averaged over a 1 g and 10 g cube, fine resolution volume scans, called "zoom scans", are performed at the peak SAR locations determined during the “area scan.” The zoom scan volume should have at least 1.5 times the linear dimension of either a 1 g or a 10 g tissue cube for whichever peak spatial-average SAR is being evaluated. The peak local SAR locations that were determined in the area scan (interpolated value) should be on the centerline of the zoom scans. The centerline is the line that is normal to the surface and in the center of the volume scan. If this is not possible, the zoom scan can be shifted but not by more than half the dimension of the 1 g or a 10 g tissue cube.

The maximum spatial-average SAR is determined by a numerical analysis of the SAR values obtained in the volume of the zoom scan, whereby interpolation (between measured points) and extrapolation (between surface and closest measured points) routines should be applied. A 3-D-spline algorithm [Press, et al, 1996], [Kreyszig, 1983], [Brishoual, 2001] can be used for interpolation and a trapezoidal algorithm for the integration (averaging). Scan resolutions of larger than 2 mm can be used provided the uncertainty is evaluated according to E (see E.5).

In some areas of the phantom, such as the jaw and upper head region, the angle of the probe with respect to the line normal to the surface might become large, e.g., at angles larger than ± 30º (see Figure 5), which may increase the boundary effect to an unacceptable level. In these cases, a change in the orientation of

the probe and/or the phantom is recommended during the zoom scan so that the angle between the probe housing tube and the line normal to the surface is significantly reduced (<30º).

Step 4: Power reference measurement

The local SAR should be measured at exactly the same location as in Step 1. The absolute value of the measurement drift (the difference between the SAR measured in Step 4 and Step 1) should be recorded in the uncertainty budget. It is recommended that the drift be kept within ± 5%. If this is not possible, even with repeat testing, additional information may be used to demonstrate the power stability during the test. Power reference measurements can be taken after each zoom scan, if more than one zoom scan is needed. However, the drift should always be referred to the initial state with fully charged battery.

5.4. Determination of the largest peak spatial-average SAR

In order to determine the largest value of the peak spatial-average SAR of a handset, all device positions, configurations and operational modes should be tested for each frequency band according to steps 1 to 3 below.

Step 1: The tests of 6.4 should be conducted at the channel that is closest to the center of the transmit frequency band (*fc*) for:

a) all device positions (cheek and tilt, for both left and right sides of the SAM phantom,

b) all configurations for each device position in (a), e.g. antenna extended and retracted, and

c) all operational modes for each device position in (a) and configuration in (b) in each frequency band, e.g. analog and digital.

If more than three frequencies need to be tested, (i.e., Nc > 3), then all frequencies, configurations and modes must be tested for all of the above positions.

Step 2: For the condition providing highest spatial peak SAR determined in Step 1 conduct all tests of 6.4 at all other test frequencies, e.g. lowest and highest frequencies. In addition, for all other conditions (device position, configuration and operational mode) where the spatial peak SAR value determined in Step 1 is within 3dB of the applicable SAR limit, it is recommended that all other test frequencies should be tested as well[1].

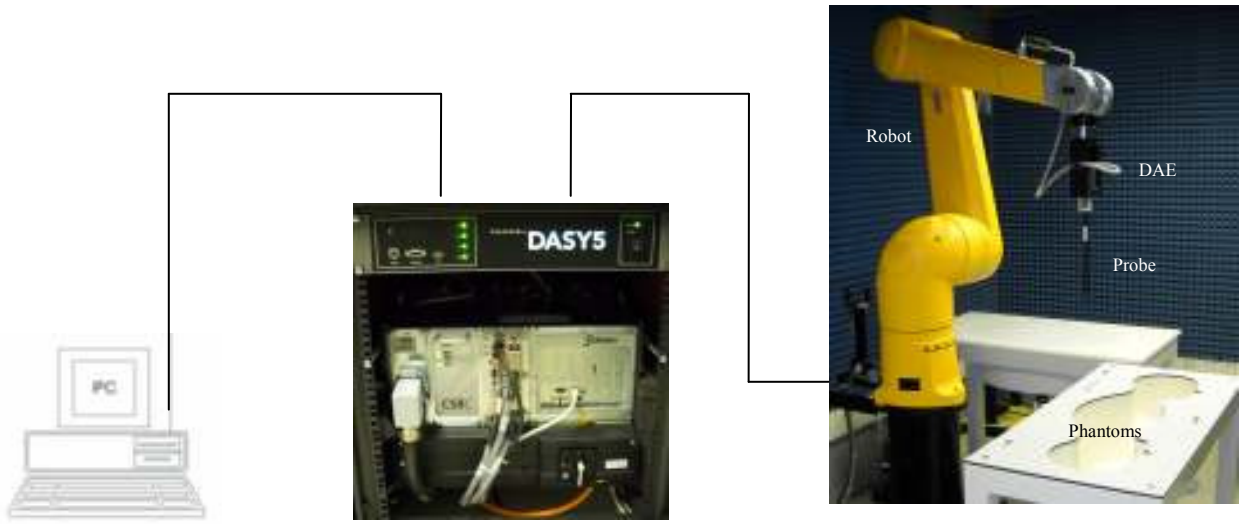
Step 3: Examine all data to determine the largest value of the peak spatial-average SAR found in Steps 1 to 2.

6. The Measurement System

6.1. Robot system specification

The SAR measurement system being used is the SPEAG DASY52 system, which consists of a Stäubli TX90XL 6-axis robot arm and CS8c controller, SPEAG SAR Probe, Data Acquisition Electronics, and SAM Twin Phantom. The robot is used to articulate the probe to programmed positions inside the phantom to obtain the SAR readings from the EUT.

The system is controlled remotely from a PC, which contains the software to control the robot and data acquisition equipment. The software also displays the data obtained from test scans.



Schematic diagram of the SAR measurement system

In operation, the system first does an area (2D) scan at a fixed depth within the liquid from the inside wall of the phantom. When the maximum SAR point has been found, the system will then carry out a 3D scan centered at that point to determine volume averaged SAR level.

6.2. Isotropic E-Field Probe for Dosimetric Measurements

The probes are constructed using three orthogonal dipole sensors arranged on an interlocking, triangular prism core. The probes have built-in shielding against static charges and are contained within a PEEK cylindrical enclosure material at the tip. Probe calibration is described in the probe's calibration certificate.

6.3. Data Acquisition Electronics

The DAE contains a signal amplifier, multiplexer, 16bit A/D converter and control logic. It uses an optical link for communication with the DASY5 system. The DAE has a dynamic range of -100 to 300 mV. It also contains a two step probe touch detector for mechanical surface detection and emergency robot stop.

6.4. Phantoms

The Twin SAM V4.0 Phantom is designed to specifications defined in IEEE 1528 and IEC/EN 62209-1. It enables the dosimetric evaluation of left and right hand phone usage as well as body mounted usage at the flat phantom region.

Additionally, the Oval Flat ELI V4.0 Phantom is designed to specification defined in IEEE 1528 and IEC/EN 62209-2. It enables the dosimetric evaluation of body mounted usage.

6.5. Interpolation and Extrapolation schemes

The interpolation, extrapolation and maximum search routines are all based on the modifed Quadratic Shepard's method. The interpolation scheme combines a least-square fitted function method and a weighted average method which are the two basic types of computational interpolation and approximation. The routines construct a once-continuously differentiable function that interpolates the measurement values.

7. Uncertainty Assessment

The following uncertainty budgets are included for Industry Canada.

7.1. Measurement Uncertainty Budget According to IEEE 1528:2013

The uncertainty values for components specified were evaluated according to the procedures of *IEEE 1528-2013, NIST 1297 1994 edition and ISO Guide to the Expression of Uncertainty in Measurements (GUM)*.

a	*b*	*c*	*d*	*e = f(d,k)*	*f*	*g = c x f / e*	*k*
Uncertainty Component	**Sec.**	**Tol. (± %)**	**Prob. Dist.**	**Div.**	c_i **(1-g)**	**1-g** u_i **(±%)**	v_i
Measurement System							
Probe Calibration	E2.1	5.5	N	1	1	5.5	∞
Axial Isotropy	E2.2	4.7	R	√3	0.7	1.9	∞
Hemispherical Isotropy	E2.2	9.6	R	√3	0.7	3.9	∞
Boundary Effect	E2.3	1.0	R	√3	1	0.6	∞
Linearity	E2.4	4.7	R	√3	1	2.7	∞
System Detection Limits	E2.5	1.0	R	√3	1	0.6	∞
Readout Electronics	E2.6	0.3	N	1	1	0.3	∞
Response Time	E2.7	0.8	R	√3	1	0.5	∞
Integration Time	E2.8	2.6	R	√3	1	1.5	∞
RF Ambient Noise	E6.1	3.0	R	√3	1	1.7	∞
RF Ambient Reflections	E6.1	3.0	R	√3	1	1.7	∞
Probe Positioner Mechanical Tolerance	E6.2	0.4	R	√3	1	0.2	∞
Probe Positioning with respect to Phantom Shell	E6.3	2.9	R	√3	1	1.7	∞
Extrapolation, interpolation and Integration Algorithms for Max. SAR Evaluation	E5.2	1.0	R	√3	1	0.6	∞
Test sample Related							
Test Sample Positioning	E4.2	2.9	N	1	1	2.9	*145*
Device Holder Uncertainty	E4.1	3.6	N	1	1	3.6	*5*
Output Power Variation - SAR drift measurement	6.6.2	5.0	R	√3	1	2.9	∞
Phantom and Tissue Parameters							
Phantom Uncertainty (shape and thickness tolerances)	E3.1	4.0	R	√3	1	2.3	∞
Liquid Conductivity Target - tolerance	E3.2	5.0	R	√3	0.7	1.8	∞
Liquid Conductivity - measurement uncertainty	E3.3	2.5	N	1	0.7	1.6	∞
Liquid Permittivity Target tolerance	E3.2	5.0	R	√3	0.6	1.7	∞
Liquid Permittivity - measurement uncertainty	E3.3	2.5	N	1	0.6	1.5	∞
Combined Standard Uncertainty			RSS			**± 10.7%**	
Expanded Uncertainty (95% CONFIDENCE INTERVAL)			*k*= 2.00705			**± 21.4%**	

7.2. Measurement Uncertainty Budget According to IEC 62209-2

A measurement uncertainty assessment has been undertaken following guidance given in IEC/EN-62209. Some of the uncertainty contributions are site-specific and, for these, CETECOM, Inc. has assessed the uncertainty contributions arising from local environmental and procedural factors. The resultant uncertainty budget, following the assessment template given IEC/EN-62209 is shown below:

a	*b*	*c*	*d*	*e = f(d,k)*	*f*	*g = c x f / e*	*k*
Uncertainty Component	**Sec.**	**Tol. (± %)**	**Prob. Dist.**	**Div.**	**c_i (1-g)**	**1-g u_i (±%)**	**v_i**
Measurement System							
Probe Calibration	E2.1	5.5	N	1	1	5.5	∞
Axial Isotropy	E2.2	4.7	R	√3	0.7	1.9	∞
Hemispherical Isotropy	E2.2	9.6	R	√3	0.7	3.9	∞
Boundary Effect	E2.3	1.0	R	√3	1	0.6	∞
Linearity	E2.4	4.7	R	√3	1	2.7	∞
System Detection Limits	E2.5	1.0	R	√3	1	0.6	∞
Readout Electronics	E2.6	0.3	N	1	1	0.3	∞
Response Time	E2.7	0.8	R	√3	1	0.5	∞
Integration Time	E2.8	2.6	R	√3	1	1.5	∞
RF Ambient Noise	E6.1	3.0	R	√3	1	1.7	∞
RF Ambient Reflections	E6.1	3.0	R	√3	1	1.7	∞
Probe Positioner Mechanical Tolerance	E6.2	0.4	R	√3	1	0.2	∞
Probe Positioning with respect to Phantom Shell	E6.3	2.9	R	√3	1	1.7	∞
Extrapolation, interpolation and Integration Algorithms for Max. SAR Evaluation	E5.2	1.0	R	√3	1	0.6	∞
Test sample Related							
Test Sample Positioning	E4.2	2.9	N	1	1	2.9	*145*
Device Holder Uncertainty	E4.1	3.6	N	1	1	3.6	*5*
Output Power Variation - SAR drift measurement	6.6.2	5.0	R	√3	1	2.9	∞
Phantom and Tissue Parameters							
Phantom Uncertainty (shape and thickness tolerances)	E3.1	4.0	R	√3	1	2.3	∞
Liquid Conductivity Target - tolerance	E3.2	5.0	R	√3	0.43	1.2	∞
Liquid Conductivity - measurement uncertainty	E3.3	2.5	N	1	0.43	1.1	∞
Liquid Permittivity Target tolerance	E3.2	5.0	R	√3	0.49	1.4	∞
Liquid Permittivity - measurement uncertainty	E3.3	2.5	N	1	0.49	1.2	∞
Combined Standard Uncertainty			RSS			**± 10.5%**	
Expanded Uncertainty (95% CONFIDENCE INTERVAL)			*k*= 2.00705			**± 21.0%**	

8. Test results summary

8.1. Conducted Average Output Power

Measurement uncertainty for conducted measurements is ±0.5dB

Bluetooth v2.1 - Basic Rate / Enhanced Data Rate

Average power measured using an average power meter.

Channel	Frequency [MHz]	Average Power [dBm]		
		GFSK	π/4 DQPSK	8-DPSK
0	2402	7.8	3.9	3.8
39	2441	8.8	5.5	5.5
78	2480	8.5	5.2	5.2
Upper Power Tolerance Limit		10	9	9

Bluetooth v4.0 – Low Energy

Average power measured using an average power meter.

Channel	Frequency [MHz]	Average Power [dBm]
		GFSK
0	2402	4.3
20	2442	6.3
39	2480	6.4
Upper Power Tolerance Limit		10

2.4 GHz WLAN – 802.11 b/g/n HT20

Average power measured using an average power meter.

Channel	Frequency [MHz]	Average Power [dBm]		
		802.11b	802.11g	802.11n, HT20
1	2412	17.5	17.2	15.7
6	2437	18.94	18.18	16.3
11	2462	18.62	17.5	16.2
Upper Power Tolerance Limit		19	18.5	17

5 GHz WLAN – 802.11 a/n HT20

Average power measured using an average power meter.

Channel	Frequency [MHz]	Average Power [dBm]	
		802.11a	802.11n, HT20
36	5180	16.22	16.34
40	5200	16.19	16.27
44	5220	16.33	16.4
48	5240	16.13	16.11
52	5260	16.34	16.4
56	5280	16.29	16.35
60	5300	16.28	16.2
64	5320	16.25	16.33
100	5500	16.39	16.2
104	5520	16.4	16.44
108	5540	16.24	16.39
112	5560	16.21	16.36
116	5580	16.26	16.28
132	5660	16.04	16.08
136	5680	16.1	16.04
140	5700	16	16
149	5745	16.44	16.17
153	5765	16.25	16.13
157	5785	16.29	16.17
161	5805	16.28	16.13
165	5825	16.09	16.12
Upper Power Tolerance Limit		18	18

5 GHz WLAN – 802.11 n HT40

Average power measured using an average power meter.

Channel	Frequency [MHz]	Average Power [dBm]
		802.11n, HT40
38	5190	16.43
46	5230	16.18
54	5270	16.12
62	5310	16
102	5510	16.23
110	5550	16.17
134	5670	16
151	5755	16.2
159	5795	16.1
Upper Power Tolerance Limit		18

5 GHz WLAN – 802.11 ac VHT80

Average power measured using an average power meter.

Channel	Frequency [MHz]	Average Power [dBm]
		802.11ac, VHT80
42	5210	16.47
58	5290	16.3
106	5530	16.4
155	5775	16.2
Upper Power Tolerance Limit		18

GSM

Average power measured using a Rhode and Schwarz CMU 200.

Band	Channel	Frequency [MHz]	Average Power [dBm]	Upper Power Tolerance Limit
GSM 850	128	824.2	32.9	32.9
	190	836.6	32.9	
	251	848.8	32.9	
PCS 1900	512	1850.2	29.9	29.9
	661	1880	29.9	
	810	1909.8	29.9	

GSM 850 Band – (E)GPRS

Average power measured using a Rhode and Schwarz CMU 200.

Number of Uplink Timeslots		Modulation	Channel / Frequency [MHz]						Burst Average Upper Power Tolerance Limit
			128 / 824.2		190 / 836.6		251 / 848.8		
			Measured Burst Average Power [dBm]	Calculated Time Average Power [dBm]	Measured Burst Average Power [dBm]	Calculated Time Average Power [dBm]	Measured Burst Average Power [dBm]	Calculated Time Average Power [dBm]	
GPRS	1	GMSK	32.9	23.9	32.9	23.9	32.9	23.9	32.9
	2		29.9	23.9	29.9	23.9	29.9	23.9	29.9
	3		28.1	23.85	28.1	23.85	28.1	23.85	28.1
	4		26.9	23.9	26.9	23.9	26.9	23.9	26.9
EGPRS	1	GMSK	32.9	23.9	32.9	23.9	32.9	23.9	32.9
	2		29.9	23.9	29.9	23.9	29.9	23.9	29.9
	3		28.1	23.85	28.1	23.85	28.1	23.85	28.1
	4		26.9	23.9	26.9	23.9	26.9	23.9	26.9
	1	8PSK	27.3	18.3	27.2	18.2	27.1	18.1	27.4
	2		27.3	21.3	27.2	21.2	27.1	21.1	27.4
	3		26.6	22.35	26.5	22.25	26.4	22.15	26.9
	4		25.4	22.4	25.3	22.3	25.3	22.3	25.9

PCS 1900 Band - (E)GPRS

Average power measured using a Rhode and Schwarz CMU 200.

Number of Uplink Timeslots		Modulation	Channel / Frequency [MHz]						Burst Average Upper Power Tolerance Limit
			512 / 1850.2		661 / 1880		810 / 1909.8		
			Measured Burst Average Power [dBm]	Calculated Time Average Power [dBm]	Measured Burst Average Power [dBm]	Calculated Time Average Power [dBm]	Measured Burst Average Power [dBm]	Calculated Time Average Power [dBm]	
GPRS	1	GMSK	29.9	20.9	29.9	20.9	29.9	20.9	29.9
	2		26.8	20.8	26.7	20.7	26.5	20.5	26.9
	3		25	20.75	24.9	20.65	24.8	20.55	25.1
	4		23.9	20.9	23.7	20.7	23.5	20.5	23.9
EGPRS	1	GMSK	29.9	20.9	29.9	20.9	29.9	20.9	29.9
	2		26.8	20.8	26.7	20.7	26.5	20.5	26.9
	3		25	20.75	24.9	20.65	24.8	20.55	25.1
	4		23.9	20.9	23.7	20.7	23.5	20.5	23.9
	1	8PSK	26.1	17.1	26	17	26.1	17.1	26.4
	2		26	20	26	20	26.1	20.1	26.4
	3		25.5	21.25	25.5	21.25	25.6	21.35	25.4
	4		24.3	21.3	24.3	21.3	24.4	21.4	24.4

WCDMA

Average power measured using a Rhode and Schwarz CMU 200.

Band	Channel	Frequency [MHz]	Average Power [dBm]		Upper Power Tolerance Limit
			12.2kbps AMR, 3.4kb SRB	12.2kbps RMC	
FDD II	9262	1852.4	22.4	22.4	22.4
	9400	1880	22.34	22.4	
	9538	1907.6	22	22.07	
FDD IV	1312	1712.4	22.9	22.9	22.9
	1413	1732.6	22.64	22.7	
	1513	1752.6	22.66	22.7	
FDD V	4132	826.4	23.9	23.9	23.9
	4175	835	23.9	23.9	
	4233	846.6	23.9	23.9	

HSDPA

Settings are according to FCC KDB 941225 D01, "SAR Measurement Procedures for 3G Devices" section "Release 5 HSDPA Data Devices"

Average power measured using a Rhode and Schwarz CMU 200. Reference Rhode and Schwarz application note 1CM72: Operation Guide for HSDPA Test Setup according to 3GPP TS 34.121, section 2.2.

The HSDPA channels remained active and stable with the required E-TFCI and AG index values for the duration of the measurements below. 3GPP specifications regarding MPR according to cubic metric requriements are not applied by the EUT according to manufacturer declaration.

Band	Channel	Frequency [MHz]	Average Power [dBm]			
			Sub-test 1	Sub-test 2	Sub-test 3	Sub-test 4
FDD II	9262	1852.4	21.69	21.67	21.67	21.65
	9400	1880	21.51	21.5	21.51	21.53
	9538	1907.6	21.29	21.35	21.31	21.32
FDD IV	1312	1712.4	22.82	22.93	22.9	22.9
	1413	1732.6	23.15	23.21	23.19	23.21
	1513	1752.6	22.99	23.02	23.04	23.02
FDD V	4132	826.4	23.38	23.33	23.07	23.09
	4175	835	23.46	23.42	23.42	23.14
	4233	846.6	23.44	23.39	23.42	23.14

HSUPA

Settings are according to FCC KDB 941225 D01, "SAR Measurement Procedures for 3G Devices" section "Release 6 HSPA Data Devices"

Average power measured using a Rhode and Schwarz CMU 200. Reference Rhode and Schwarz application note 1CM73: Operation Guide for HSUPA Test Setup according to 3GPP TS 34.121, section 2.1 and 2.2.

The HSPA channels remained active and stable with the required E-TFCI and AG index values for the duration of the measurements below. 3GPP specifications regarding MPR according to cubic metric requriements are not applied by the EUT according to manufacturer declaration.

Band	Channel	Frequency [MHz]	Average Power [dBm]				
			Sub-test 1	Sub-test 2	Sub-test 3	Sub-test 4	Sub-test 5
FDD II	9262	1852.4	20.96	21.57	21.51	21.65	21.36
	9400	1880	21.15	21.37	21.29	21.28	21.17
	9538	1907.6	20.98	21.2	21.08	21.3	20.89
FDD IV	1312	1712.4	22.23	21.22	22.32	21.45	22.05
	1413	1732.6	22.34	21.46	22.6	21.74	22.02
	1513	1752.6	22.23	21.64	22.33	21.53	22.22
FDD V	4132	826.4	22.38	21.6	22.49	21.88	22.05
	4175	835	22.52	21.72	22.61	22.01	22.45
	4233	846.6	22.44	21.71	22.53	21.95	22.39

DC-HSDPA

Settings are according to FCC KDB 941225 D02, "SAR Guidance for HSPA, HSPA+, DC-HSDPA and 1x-Advanced"

Average power measured using a Rhode and Schwarz CMW 500. Reference Rhode and Schwarz application note 1CM96: HSDPA RF Measurements with the R&S CMW500 in line with 3GPP TS 34.121, section 2 and 4.

The HSDPA channels remained active and stable with the required E-TFCI and AG index values for the duration of the measurements below. 3GPP specifications regarding MPR according to cubic metric requriements are not applied by the EUT according to manufacturer declaration.

Band	Channel	Frequency [MHz]	Average Power [dBm]			
			Sub-test 1	Sub-test 2	Sub-test 3	Sub-test 4
FDD II	9262	1852.4	21.54	21.64	21.61	21.58
	9400	1880	21.6	21.5	21.42	21.61
	9538	1907.6	21.57	21.34	21.29	21.28
FDD IV	1312	1712.4	22.62	22.87	23.1	22.97
	1413	1732.6	23.01	23.64	23.08	23.18
	1513	1752.6	22.09	23.01	23.02	23.1
FDD V	4132	826.4	23.20	23.13	23.07	23.21
	4175	835	23.18	23.42	23.36	23.11
	4233	846.6	23.22	23.15	23.37	23.16

LTE – QPSK Modulation

Band	Bandwidth [MHz]	Channel	Frequency [MHz]	Average Power [dBm]						
				# RB / RB Position						
				100% / Low	50% / Low	50% / Mid	50% / High	1 / Low	1 / Mid	1 / High
2	20	18700	1860	21.37	21.23	21.3	21.4	21.9	22.33	22.22
		18900	1880	21.28	21.37	21.24	21.09	22.35	22.15	21.95
		19100	1900	21.01	20.76	20.95	21.22	21.9	21.91	21.97
		Factory Upper Tolerance		21.4	21.4			22.4		
	15	18675	1857.5	21.34	21.35	21.33	21.33	21.88	22.35	22.3
		18900	1880	21.33	21.33	21.36	21.27	22.28	22.29	21.84
		19125	1902.5	21.35	21.18	21.38	21.37	21.71	22.08	21.96
		Factory Upper Tolerance		21.4	21.4			22.4		
	10	18650	1855	21.1	20.98	21.06	21.16	21.73	21.94	21.82
		18900	1880	21.07	21.24	21.19	21.06	22.07	21.98	21.73
		19150	1905	21.09	20.94	21.12	21.19	21.73	22	21.74
		Factory Upper Tolerance		21.4	21.4			22.4		
	5	18625	1852.5	21.19	21.03	21.26	21.28	21.75	22.17	21.83
		18900	1880	21.3	21.34	21.32	21.3	22.05	22.32	21.86
		19175	1907.5	21.36	21.4	21.3	21.35	21.81	22.29	21.74
		Factory Upper Tolerance		21.4	21.4			22.4		
	3	18615	1851.5	21.05	20.95	21.02	21.08	21.72	21.79	21.97
		18900	1880	21.24	21.3	21.28	21.3	22.27	22.14	22.1
		19185	1908.5	21.34	21	21.39	21.26	22.17	22.14	22.05
		Factory Upper Tolerance		21.4	21.4			22.4		
	1.4	18607	1850.7	20.88	21.77	21.81	21.79	21.61	21.68	21.66
		18900	1880	21.09	22.02	22.04	22.04	22.06	22.08	22.01
		19193	1909.3	21.18	22.07	22.09	22.04	22.01	22.01	21.92
		Factory Upper Tolerance		21.4	22.4			22.4		

Band	Bandwidth [MHz]	Channel	Frequency [MHz]	Average Power [dBm]						
				# RB / RB Position						
				100% / Low	50% / Low	50% / Mid	50% / High	1 / Low	1 / Mid	1 / High
4	20	20050	1720	21.55	21.6	21.61	21.55	22.47	22.39	22.18
		20175	1732.5	21.38	21.47	21.37	21.27	22.75	22.52	22.21
		20300	1745	21.24	21.2	21.21	21.3	22.05	22.15	22.19
		Factory Upper Tolerance		21.9	21.9			22.9		
	15	20025	1717.5	21.81	21.87	21.88	21.78	22.65	22.61	22.52
		20175	1732.5	21.6	21.66	21.67	21.56	22.5	22.53	22.4
		20325	1747.5	21.53	21.48	21.5	21.58	22.32	22.46	22.44
		Factory Upper Tolerance		21.9	21.9			22.9		
	10	20000	1715	21.51	21.43	21.42	21.48	22.22	22.32	22.2
		20175	1732.5	21.16	21.22	21.21	21.16	22.21	22.5	22.19
		20350	1750	21.38	21.25	21.38	21.41	22.13	22.4	22.29
		Factory Upper Tolerance		21.9	21.9			22.9		
	5	19975	1712.5	21.61	21.65	21.74	21.67	22.45	22.03	22.65
		20175	1732.5	21.41	21.4	21.49	21.4	22.08	22.72	22.25
		20375	1752.5	21.47	21.41	21.6	21.55	22.33	22.7	22.35
		Factory Upper Tolerance		21.9	21.9			22.9		
	3	19965	1711.5	21.59	21.62	21.57	21.57	21.95	22.72	22.68
		20175	1732.5	21.41	21.38	21.36	21.32	22.45	22.55	22.57
		20385	1753.5	21.45	21.47	21.43	21.46	22.53	22.53	22.52
		Factory Upper Tolerance		21.9	21.9			22.9		
	1.4	19957	1710.7	21.42	22.71	22.75	22.7	22.74	22.73	22.66
		20175	1732.5	21.24	22.32	22.3	22.26	22.32	22.35	22.35
		20393	1754.3	21.28	22.4	22.54	22.53	22.46	22.45	22.42
		Factory Upper Tolerance		21.9	22.9			22.9		

Band	Bandwidth [MHz]	Channel	Frequency [MHz]	Average Power [dBm]						
				# RB / RB Position						
				100% / Low	50% / Low	50% / Mid	50% / High	1 / Low	1 / Mid	1 / High
5	10	20600	844	21.92	22.03	22.12	21.96	22.35	22.78	22.3
		20525	836.5	21.73	21.66	21.66	21.63	22.67	22.58	23.24
		20450	829	22.06	22.1	22	21.88	22.95	23.06	22.51
		Factory Upper Tolerance		22.4	22.4			23.4		
	5	20625	846.5	22.1	22.24	22.22	21.93	22.72	23	22.29
		20525	836.5	21.76	21.77	21.81	21.71	22.23	22.53	22.24
		20425	826.5	22.18	22.26	22.35	22.27	22.86	23.24	22.7
		Factory Upper Tolerance		22.4	22.4			23.4		
	3	20635	847.5	21.88	21.9	21.82	21.72	22.85	22.51	22.38
		20525	836.5	21.71	21.78	21.68	21.72	22.63	22.52	22.5
		20415	825.5	22.26	22.23	22.19	22.22	23.21	23.11	23.12
		Factory Upper Tolerance		22.4	22.4			23.4		
	1.4	20643	848.3	21.6	22.45	22.42	22.43	22.3	22.32	22.24
		20525	836.5	21.56	22.42	22.43	22.42	22.42	22.43	22.4
		20407	824.7	22.07	23.01	23.04	23.02	23	23.07	23.02
		Factory Upper Tolerance		22.4	23.4			23.4		

Band	Bandwidth [MHz]	Channel	Frequency [MHz]	Average Power [dBm]						
				# RB / RB Position						
				100% / Low	50% / Low	50% / Mid	50% / High	1 / Low	1 / Mid	1 / High
7	20	20850	2510	22.02	21.93	21.96	22.1	22.47	22.59	22.7
		21100	2535	22.05	22.23	22.02	21.84	22.98	22.98	22.52
		21350	2560	21.7	21.62	21.68	21.82	22.18	22.35	22.48
		Factory Upper Tolerance		22.4	22.4			23.4		
	15	20825	2507.5	21.92	21.89	21.88	21.86	22.42	22.55	22.58
		21100	2535	21.92	22.11	22.05	21.87	22.94	22.96	22.59
		21375	2562.5	21.82	21.78	21.86	21.93	22.32	22.33	22.27
		Factory Upper Tolerance		22.4	22.4			23.4		
	10	20800	2505	21.41	21.4	21.43	21.42	22.16	22.18	22.08
		21100	2535	21.66	21.81	21.7	21.62	22.59	22.64	22.26
		21400	2565	21.51	21.47	21.61	21.6	22.09	22.36	22.24
		Factory Upper Tolerance		22.4	22.4			23.4		
	5	20775	2502.5	21.78	21.73	21.81	21.67	22.33	22.52	22.16
		21100	2535	21.78	21.93	21.96	21.85	22.64	22.91	22.4
		21425	2567.5	21.73	21.74	21.84	21.78	22.19	22.48	22.2
		Factory Upper Tolerance		22.4	22.4			23.4		
17	10	20800	2505	22.18	21.95	22.01	22.27	23.04	22.92	23.35
		21100	2535	22.16	21.83	22.11	22.29	22.99	22.96	23.19
		21400	2565	22.21	22	22.21	22.23	22.95	23.08	22.9
		Factory Upper Tolerance		22.4	22.4			23.4		
	5	20775	2502.5	22.11	22.2	22.15	22.09	22.86	22.92	22.8
		21100	2535	22.25	22.07	22.34	22.39	22.82	23.22	23.2
		21425	2567.5	22.37	22.34	22.38	22.39	23.02	22.65	23.04
		Factory Upper Tolerance		22.4	22.4			23.4		

LTE – 16QAM Modulation

Band	Bandwidth [MHz]	Channel	Frequency [MHz]	Average Power [dBm]						
				# RB / RB Position						
				100% / Low	50% / Low	50% / Mid	50% / High	1 / Low	1 / Mid	1 / High
2	20	18700	1860	20.78	20.84	20.88	20.81	21.67	21.8	21.87
		18900	1880	20.42	20.81	20.35	20.07	21.61	21.54	21.2
		19100	1900	20.4	20	20.15	20.44	21.1	21.48	21.58
		Factory Upper Tolerance		21.4	21.4			21.9		
	15	18675	1857.5	21.02	20.92	20.98	21.01	21.8	21.74	21.75
		18900	1880	20.59	20.88	20.56	20.25	21.81	21.54	21.3
		19125	1902.5	20.59	20.43	20.63	20.76	21.07	21.51	21.52
		Factory Upper Tolerance		21.4	21.4			21.9		
	10	18650	1855	20.6	20.46	20.6	20.7	21	21.54	21.58
		18900	1880	20.18	20.38	20.26	20.08	21.74	21.6	21.16
		19150	1905	20.45	20.34	20.54	20.55	21.13	21.47	21.25
		Factory Upper Tolerance		21.4	21.4			21.9		
	5	18625	1852.5	20.77	20.48	20.73	20.77	21.01	21.68	21.57
		18900	1880	20.4	20.53	20.6	20.52	21.53	21.79	21.22
		19175	1907.5	20.66	20.7	20.78	20.74	21.34	21.44	20.9
		Factory Upper Tolerance		21.4	21.4			21.9		
	3	18615	1851.5	20.52	20.56	20.56	20.64	21.11	21.29	21.51
		18900	1880	20.41	20.49	20.44	20.45	21.85	21.72	21.66
		19185	1908.5	20.62	20.69	20.68	20.66	21.65	21.55	21.48
		Factory Upper Tolerance		21.4	21.4			21.9		
	1.4	18607	1850.7	20.45	21.22	21.17	21.22	21.3	21.4	21.41
		18900	1880	20.2	21.47	21.48	21.48	21.68	21.72	21.65
		19193	1909.3	20.67	21.62	21.6	21.63	21.49	21.49	21.41
		Factory Upper Tolerance		21.4	21.9			21.9		

Band	Bandwidth [MHz]	Channel	Frequency [MHz]	Average Power [dBm]						
				# RB / RB Position						
				100% / Low	50% / Low	50% / Mid	50% / High	1 / Low	1 / Mid	1 / High
4	20	20050	1720	20.99	20.93	20.97	20.91	21.76	21.74	21.67
		20175	1732.5	20.66	20.83	20.58	20.52	21.78	22.07	21.69
		20300	1745	20.62	20.44	20.48	20.69	21.87	21.97	21.85
		Factory Upper Tolerance		21.4	21.4			22.4		
	15	20025	1717.5	21.12	20.89	21.2	21.26	21.8	22	21.88
		20175	1732.5	20.8	20.97	20.89	20.65	21.55	21.72	21.73
		20325	1747.5	20.58	20.41	20.58	20.77	21.76	21.99	22.16
		Factory Upper Tolerance		21.4	21.4			22.4		
	10	20000	1715	20.66	20.68	20.66	20.8	21.28	21.57	21.51
		20175	1732.5	20.43	20.4	20.54	20.46	21.07	21.31	21.2
		20350	1750	20.37	20.22	20.42	20.6	21.04	21.44	21.5
		Factory Upper Tolerance		21.4	21.4			22.4		
	5	19975	1712.5	20.93	20.78	20.85	20.86	21.49	21.96	21.65
		20175	1732.5	20.62	20.79	20.83	20.7	21.65	21.31	21.48
		20375	1752.5	20.66	20.69	20.89	20.85	21.63	21.34	21.6
		Factory Upper Tolerance		21.4	21.4			22.4		
	3	19965	1711.5	20.71	20.81	20.79	20.84	21.58	21.58	21.55
		20175	1732.5	20.63	20.74	20.65	20.6	21.99	21.97	21.82
		20385	1753.5	20.66	20.75	20.64	20.59	22.08	21.95	21.82
		Factory Upper Tolerance		21.4	21.4			22.4		
	1.4	19957	1710.7	20.69	21.62	21.63	21.65	21.62	21.68	21.66
		20175	1732.5	20.37	21.71	21.72	21.71	21.95	21.95	21.84
		20393	1754.3	20.85	21.93	21.91	21.92	21.93	21.82	21.8
		Factory Upper Tolerance		21.4	22.4			22.4		

Band	Bandwidth [MHz]	Channel	Frequency [MHz]	Average Power [dBm]						
				# RB / RB Position						
				100% / Low	50% / Low	50% / Mid	50% / High	1 / Low	1 / Mid	1 / High
5	10	20600	844	20.84	20.96	21.07	20.88	21.94	22	21.06
		20525	836.5	20.8	20.76	20.75	20.76	21.6	21.4	22.09
		20450	829	21.07	21.16	21.02	20.98	21.75	21.98	21.45
		Factory Upper Tolerance		22	22			22.5		
	5	20625	846.5	20.9	21	21.06	20.72	22.12	22.27	21.6
		20525	836.5	20.8	20.71	20.98	20.9	21.17	21.6	21.28
		20425	826.5	21.29	21.35	21.44	21.35	22.2	22.42	21.88
		Factory Upper Tolerance		22	22			22.5		
	3	20635	847.5	21.34	21.55	21.34	21.32	21.85	21.77	21.9
		20525	836.5	21.53	21.39	21.38	21.37	21.5	21.5	21.51
		20415	825.5	21.99	21.98	21.96	21.95	21.96	21.92	21.87
		Factory Upper Tolerance		22	22			22.5		
	1.4	20643	848.3	20.28	21.53	21.52	21.48	21.61	21.56	21.54
		20525	836.5	20.73	21.7	21.62	21.61	21.26	21.25	21.24
		20407	824.7	21.34	22.2	22.19	22.16	21.94	21.95	21.92
		Factory Upper Tolerance		22	22.5			22.5		

Band	Bandwidth [MHz]	Channel	Frequency [MHz]	Average Power [dBm]						
				# RB / RB Position						
				100% / Low	50% / Low	50% / Mid	50% / High	1 / Low	1 / Mid	1 / High
7	20	20850	2510	20.29	20.77	20.79	20.89	21.86	22.02	22.06
		21100	2535	21.21	21.07	20.86	20.8	22.2	22.25	21.79
		21350	2560	20.9	20.8	20.82	20.85	21.79	21.83	21.89
		Factory Upper Tolerance		21.5	21.5			22.4		
	15	20825	2507.5	21.14	21.1	21.11	21.16	21.56	21.65	21.64
		21100	2535	21.32	21.45	21.36	21.12	22.16	22.16	22.18
		21375	2562.5	20.97	20.89	21	21	21.82	22.02	21.96
		Factory Upper Tolerance		21.5	21.5			22.4		
	10	20800	2505	20.82	20.77	20.81	20.74	21.38	21.52	21.4
		21100	2535	20.85	21	20.91	20.84	21.47	21.56	21.24
		21400	2565	20.61	20.58	20.68	20.6	21.49	21.73	21.64
		Factory Upper Tolerance		21.5	21.5			22.4		
	5	20775	2502.5	20.9	20.8	20.91	20.92	21.51	21.75	21.39
		21100	2535	20.93	21.11	21.12	21.07	21.92	22.13	21.72
		21425	2567.5	20.69	20.73	20.81	20.82	21.96	22.22	22.03
		Factory Upper Tolerance		21.5	21.5			22.4		
17	10	20800	2505	20.81	20.55	20.69	20.9	21.2	21.45	21.65
		21100	2535	20.7	20.49	20.77	20.94	21.63	22.02	22
		21400	2565	20.82	20.65	20.9	20.99	21.04	21.7	21.39
		Factory Upper Tolerance		21.5	21.5			22.6		
	5	20775	2502.5	20.81	20.71	20.72	20.66	21.45	21.66	21.46
		21100	2535	21.05	20.82	21	21.03	21.35	22	21.86
		21425	2567.5	21.22	21.28	21.45	21.28	21.96	22.5	21.68
		Factory Upper Tolerance		21.5	21.5			22.6		

8.2. Stand-Alone SAR Evaluation Exclusion

Antenna	Operation Mode	SAR Evaluation Exclusion Reason
WLAN	802.11g 802.11n 802.11ac	According to KDB 248227, 802.11g and/or 802.11n HT20 is not required when the maximum average output power is < ¼ dB higher than that measured on the corresponding 802.11b channels.
Cellular	GSM 850 band, 8PSK Modulation	According to KDB 941225 D03 and FCC Public Notice DA 02-1438, SAR evaluation for low-power modes are required for devices that produced a peak SAR larger than one half of the compliance limit. The highest reported SAR value for GMSK is less than one half of the 1.6 W/kg limit.
Cellular	PCS 1900 band, 8PSK Modulation	According to KDB 941225 D03 and FCC Public Notice DA 02-1438, SAR evaluation for low-power modes are required for devices that produced a peak SAR larger than one half of the compliance limit. The highest reported SAR value for GMSK is less than one half of the 1.6 W/kg limit.
Cellular	HSDPA	According to KDB 941225 D01, SAR evaluation is not required when the maximum average output power is < ¼ dB higher than that measured on the corresponding channels without HSDPA using 12.2 kbps RMC and the maximum SAR for 12.2 kbps RMC is less than 1.2 W/kg.
Cellular	DC-HSDPA, HSPA+	According to KDB 941225 D02, SAR evaluation is not required when the maximum average output power is < ¼ dB higher than that measured on the corresponding channels without HSDPA or HSPA+ using 12.2 kbps RMC and the maximum SAR for 12.2 kbps RMC is less than 1.2 W/kg.
Cellular	HSPA	According to KDB 941225 D01, SAR evaluation is not required when the maximum average output power is < ¼ dB higher than that measured on the corresponding channels without HSPA using 12.2 kbps RMC and the maximum SAR for 12.2 kbps RMC is less than 1.2 W/kg.

8.3. Test Positions and Configurations

Exposure Condition	Distance	Position	Positioning Photo (Appendix B)
Head SAR	0 mm	Left Touch	Photo 1
		Left 15° Tilt	Photo 2
		Right Touch	Photo 3
		Right 15° Tilt	Photo 4
Body SAR	10 mm	Front	Photo 5
		Back	Photo 6
		Left Edge	Photo 7
		Bottom Edge	Photo 8
		Right Edge	Photo 9
		Top Edge	Photo 10

KDB 941225 D06 states the positions to be tested for personal wireless router mode is any face or edge within 25 mm of the antenna. See antenna locations in Appendix B for antenna locations. The following positions / antenna combinations are excluded for the given distance:

- Top edge / cellular – 114 mm
- Bottom edge / WLAN - 116 mm
- Left edge / WLAN – 55 mm

Personal Wireless Router Mode Positions			
Antenna	**Face / Edge**	**Antenna-Edge Distance (mm)**	**Tested**
Cellular	Front	1.5	Yes
	Back	< 1	Yes
	Bottom Edge	3.1	Yes
	Top Edge	114	No
	Left Edge	3.2	Yes
	Right Edge	1.7	Yes
WLAN / Bluetooth	Front	5	Yes
	Back	< 1	Yes
	Bottom Edge	116	No
	Top Edge	2.7	Yes
	Left Edge	55	No
	Right Edge	3.1	Yes

WLAN is tested with 100% duty cycle. According to SPEAG user manual section 27.2, CW can be assumed which results in crest factor 1.

If the SAR value on the middle channel was more than 3dB below the limit, high and low channels were not evaluated.

Measured SAR values are scaled up to the manufacturer's stated output power. These SAR values are the reported SAR values as described in FCC KDB 447498.

Configurations with multiple SAR values have at least one peak SAR within 2 dB of the primary peak.

8.4. SAR Results for Head

GSM 850

Unit Type	Operation Mode	Channel	Frequency (MHz)	Position	SAR 1g (W/kg)	Reported SAR 1g (W/kg)	Results (Appendix A)
Plastic	GSM	190	836.6	Right Touch	0.203	0.203	Plot 1
				Right Tilt	0.132	0.132	Plot 2
				Left Touch	0.218	0.218	Plot 3
				Left Tilt	0.126	0.126	Plot 4
Ceramic	GSM	190	836.6	Right Touch	0.359	0.359	Plot 5
				Right Tilt	0.203	0.203	Plot 6
				Left Touch	0.380	0.380	Plot 7
				Left Tilt	0.233	0.233	Plot 8

GSM 1900

Unit Type	Operation Mode	Channel	Frequency (MHz)	Position	SAR 1g (W/kg)	Reported SAR 1g (W/kg)	Results (Appendix A)
Plastic	GSM	661	1880	Right Touch	0.326	0.326	Plot 9
				Right Tilt	0.250	0.250	Plot 10
				Left Touch	0.489	0.489	Plot 11
				Left Tilt	0.271	0.271	Plot 12
Ceramic	GSM	661	1880	Left Touch	0.488	0.488	Plot 13

WCDMA FDD II

Unit Type	Operation Mode	Channel	Frequency (MHz)	Position	SAR 1g (W/kg)	Reported SAR 1g (W/kg)	Results (Appendix A)
Plastic	12.2 kbps RMC	9400	1880	Right Touch	0.450	0.450	Plot 14
				Right Tilt	0.326	0.326	Plot 15
				Left Touch	0.652	0.652	Plot 16
				Left Tilt	0.375	0.375	Plot 17
Ceramic	12.2 kbps RMC	9400	1880	Left Touch	0.667	0.667	Plot 18

WCDMA FDD IV

Unit Type	Operation Mode	Channel	Frequency (MHz)	Position	SAR 1g (W/kg)	Reported SAR 1g (W/kg)	Results (Appendix A)
Plastic	12.2 kbps RMC	1413	1732.6	Right Touch	0.298	0.312	Plot 19
				Right Tilt	0.250	0.262	Plot 20
				Left Touch	0.471	0.493	Plot 21
				Left Tilt	0.265	0.277	Plot 22
Ceramic	12.2 kbps RMC	1413	1732.6	Left Touch	0.465	0.487	Plot 23

WCDMA FDD V

Unit Type	Operation Mode	Channel	Frequency (MHz)	Position	SAR 1g (W/kg)	Reported SAR 1g (W/kg)	Results (Appendix A)
Plastic	12.2 kbps RMC	4183	836.6	Right Touch	0.211	0.211	Plot 24
				Right Tilt	0.137	0.137	Plot 25
				Left Touch	0.235	0.235	Plot 26
				Left Tilt	0.132	0.132	Plot 27
Ceramic	12.2 kbps RMC	4183	836.6	Right Touch	0.344	0.344	Plot 28
				Right Tilt	0.189	0.189	Plot 29
				Left Touch	0.335	0.335	Plot 30
				Left Tilt	0.211	0.211	Plot 31

LTE Band 2

Unit Type	Operation Mode			Channel	Frequency (MHz)	Position	SAR 1g (W/kg)	Reported SAR 1g (W/kg)	Results (Appendix A)
	Bandwidth (MHz)	#RB	RB Position						
Plastic	20	1	Low	18900	1880	Right Touch	0.407	0.412	Plot 32
						Right Tilt	0.288	0.291	Plot 33
						Left Touch	0.524	0.530	Plot 34
						Left Tilt	0.305	0.309	Plot 35
	20	50	Low	18900	1880	Right Touch	0.362	0.365	Plot 36
						Right Tilt	0.260	0.262	Plot 37
						Left Touch	0.482	0.485	Plot 38
						Left Tilt	0.268	0.270	Plot 39
Ceramic	20	1	Low	18900	1880	Left Touch	0.540	0.546	Plot 40

LTE Band 4

Unit Type	Operation Mode			Channel	Frequency (MHz)	Position	SAR 1g (W/kg)	Reported SAR 1g (W/kg)	Results (Appendix A)
	Bandwidth (MHz)	#RB	RB Position						
Plastic	20	1	Low	20175	1732.5	Right Touch	0.266	0.275	Plot 41
						Right Tilt	0.255	0.264	Plot 42
						Left Touch	0.438	0.453	Plot 43
						Left Tilt	0.275	0.285	Plot 44
	20	50	Low	20175	1732.5	Right Touch	0.236	0.249	Plot 45
						Right Tilt	0.232	0.245	Plot 46
						Left Touch	0.387	0.409	Plot 47
						Left Tilt	0.254	0.268	Plot 48
Ceramic	20	1	Low	20175	1732.5	Left Touch	0.452	0.468	Plot 49

LTE Band 5

Unit Type	Operation Mode			Channel	Frequency (MHz)	Position	SAR 1g (W/kg)	Reported SAR 1g (W/kg)	Results (Appendix A)
	Bandwidth (MHz)	#RB	RB Position						
Plastic	10	1	High	20525	836.5	Right Touch	0.129	0.134	Plot 50
						Right Tilt	0.078	0.081	Plot 51
						Left Touch	0.146	0.151	Plot 52
						Left Tilt	0.080	0.083	Plot 53
	10	25	Low	20525	836.5	Right Touch	0.151	0.179	Plot 54
						Right Tilt	0.094	0.111	Plot 55
						Left Touch	0.162	0.192	Plot 56
						Left Tilt	0.097	0.115	Plot 57
Ceramic	10	1	High	20525	836.5	Right Touch	0.275	0.285	Plot 58
						Right Tilt	0.159	0.165	Plot 59
						Left Touch	0.348	0.361	Plot 60
						Left Tilt	0.195	0.202	Plot 61
	10	25	Low	20525	836.5	Right Touch	0.200	0.237	Plot 62
						Right Tilt	0.114	0.135	Plot 63
						Left Touch	0.215	0.255	Plot 64
						Left Tilt	0.130	0.154	Plot 65

LTE Band 7

Unit Type	Operation Mode			Channel	Frequency (MHz)	Position	SAR 1g (W/kg)	Reported SAR 1g (W/kg)	Results (Appendix A)
	Bandwidth (MHz)	#RB	RB Position						
Plastic	20	1	Low	21100	2535	Right Touch	0.519	0.572	Plot 66
						Right Tilt	0.308	0.339	Plot 67
						Left Touch	0.953	1.05	Plot 68
						Left Tilt	0.273	0.301	Plot 69
				20850	2510	Left Touch	0.667	0.826	Plot 70
				21350	2560	Left Touch	0.801	1.06	Plot 71
	20	50	Low	21100	2535	Right Touch	0.468	0.487	Plot 72
						Right Tilt	0.278	0.289	Plot 73
						Left Touch	0.875	0.910	Plot 74
						Left Tilt	0.240	0.250	Plot 75
				20850	2510	Left Touch	0.660	0.735	Plot 76
				21350	2560	Left Touch	0.823	0.985	Plot 77
	20	100	Low	21100	2535	Left Touch	0.782	0.848	Plot 78
Ceramic	20	1	Low	21100	2535	Left Touch	0.880	0.969	Plot 79

LTE Band 17

Unit Type	Operation Mode			Channel	Frequency (MHz)	Position	SAR 1g (W/kg)	Reported SAR 1g (W/kg)	Results (Appendix A)
	Bandwidth (MHz)	#RB	RB Position						
Plastic	10	1	High	23790	710	Right Touch	0.090	0.094	Plot 80
						Right Tilt	0.054	0.057	Plot 81
						Left Touch	0.105	0.110	Plot 82
						Left Tilt	0.056	0.059	Plot 83
	10	25	Mid	23790	710	Right Touch	0.049	0.050	Plot 84
						Right Tilt	0.030	0.031	Plot 85
						Left Touch	0.059	0.060	Plot 86
						Left Tilt	0.035	0.036	Plot 87
Ceramic	10	1	High	23790	710	Right Touch	0.143	0.150	Plot 88
						Right Tilt	0.085	0.089	Plot 89
						Left Touch	0.168	0.176	Plot 90
						Left Tilt	0.100	0.104	Plot 91
	10	25	Mid	23790	710	Right Touch	0.100	0.103	Plot 92
						Right Tilt	0.064	0.066	Plot 93
						Left Touch	0.122	0.125	Plot 94
						Left Tilt	0.070	0.071	Plot 95

WLAN 802.11a

Unit Type	Operation Mode	Channel	Frequency (MHz)	Position	SAR 1g (W/kg)	Reported SAR 1g (W/kg)	Results (Appendix A)
Plastic	100% Duty Cycle	36	5180	Right Touch	0.031	0.046	Plot 96
				Right Tilt	0.032	0.048	Plot 97
				Left Touch	0.082	0.124	Plot 98
				Left Tilt	0.072	0.109	Plot 99
	100% Duty Cycle	52	5260	Right Touch	0.042	0.061	Plot 100
				Right Tilt	0.040	0.058	Plot 101
				Left Touch	0.090	0.132	Plot 102
				Left Tilt	0.127	0.186	Plot 103
	100% Duty Cycle	104	5520	Right Touch	0.126	0.182	Plot 104
				Right Tilt	0.147	0.212	Plot 105
				Left Touch	0.241	0.348	Plot 106
				Left Tilt	0.238	0.344	Plot 107
	100% Duty Cycle	149	5745	Right Touch	0.566	0.811	Plot 108
				Right Tilt	0.576	0.825	Plot 109
				Left Touch	0.794	1.14	Plot 110
				Left Tilt	0.806	1.15	Plot 111
		161	5805	Left Tilt	0.394	0.585	Plot 112
Ceramic	100% Duty Cycle	36	5180	Right Touch	0.114	0.172	Plot 113
				Right Tilt	0.121	0.182	Plot 114
				Left Touch	0.157	0.237	Plot 115
				Left Tilt	0.189	0.285	Plot 116
Ceramic	100% Duty Cycle	52	5260	Right Touch	0.178	0.261	Plot 117
				Right Tilt	0.192	0.281	Plot 118
				Left Touch	0.268	0.393	Plot 119
				Left Tilt	0.273	0.400	Plot 120
Ceramic	100% Duty Cycle	104	5520	Right Touch	0.348	0.503	Plot 121
				Right Tilt	0.397	0.574	Plot 122
				Left Touch	0.542	0.783	Plot 123
				Left Tilt	0.557	0.805	Plot 124
		116	5580	Left Tilt	0.513	0.742	Plot 125
		136	5680	Left Tilt	0.385	0.556	Plot 126
Ceramic	100% Duty Cycle	149	5745	Left Tilt	0.242	0.347	Plot 127

WLAN 802.11b

Unit Type	Operation Mode	Channel	Frequency (MHz)	Position	SAR 1g (W/kg)	Reported SAR 1g (W/kg)	Results (Appendix A)
Plastic	100% Duty Cycle	6	2437	Right Touch	0.078	0.079	Plot 128
				Right Tilt	0.056	0.057	Plot 129
				Left Touch	0.294	0.298	Plot 130
				Left Tilt	0.186	0.189	Plot 131
Ceramic	100% Duty Cycle	6	2437	Left Touch	0.241	0.244	Plot 132

Bluetooth

Unit Type	Operation Mode	Channel	Frequency (MHz)	Position	SAR 1g (W/kg)	Reported SAR 1g (W/kg)	Results (Appendix A)
Plastic	GFSK, DH5	39	2441	Right Touch	0.0045	0.006	Plot 133
				Right Tilt	0.00241	0.003	Plot 134
				Left Touch	0.016	0.021	Plot 135
				Left Tilt	0.00784	0.010	Plot 136
Ceramic	GFSK, DH5	39	2441	Left Touch	0.017	0.023	Plot 137

8.5. SAR Results for Body Worn and Hotspot Mode

GPRS 850

Unit Type	Operation Mode	Channel	Frequency (MHz)	Position	Distance (mm)	Accessory	SAR 1g (W/kg)	Reported SAR 1g (W/kg)	Results (Appendix A)
Plastic	**4 Uplink Timeslots**	**190**	**836.6**	Front	10	None	0.255	0.255	Plot 138
				Back			0.330	0.330	Plot 139
				Bottom Edge			0.039	0.0385	Plot 140
				Left Edge			0.173	0.173	Plot 141
				Right Edge			0.126	0.126	Plot 142
Ceramic	**4 Uplink Timeslots**	**190**	**836.6**	Front	10	None	0.322	0.322	Plot 143
				Back			0.380	0.380	Plot 144
				Bottom Edge			0.033	0.0329	Plot 145
				Left Edge			0.278	0.278	Plot 146
				Right Edge			0.175	0.175	Plot 147

GPRS 1900

Unit Type	Operation Mode	Channel	Frequency (MHz)	Position	Distance (mm)	Accessory	SAR 1g (W/kg)	Reported SAR 1g (W/kg)	Results (Appendix A)
Plastic	**4 Uplink Timeslots**	**661**	**1880**	Front	10	None	0.477	0.477	Plot 148
				Back			0.532	0.532	Plot 149
				Bottom Edge			0.349	0.349	Plot 150
				Left Edge			0.291	0.291	Plot 151
				Right Edge			0.106	0.106	Plot 152
Ceramic	**4 Uplink Timeslots**	**661**	**1880**	Back	10	None	0.537	0.537	Plot 153

WCDMA FDD II

Unit Type	Operation Mode	Channel	Frequency (MHz)	Position	Distance (mm)	Accessory	SAR 1g (W/kg)	Reported SAR 1g (W/kg)	Results (Appendix A)
Plastic	**12.2 kbps RMC**	**9400**	**1880**	Front	10	None	0.618	0.618	Plot 154
				Back			0.737	0.737	Plot 155
				Bottom Edge			0.463	0.463	Plot 156
				Left Edge			0.379	0.379	Plot 157
				Right Edge			0.163	0.163	Plot 158
							0.106	0.106	
Ceramic	**12.2 kbps RMC**	**9400**	**1880**	Back	10	None	0.758	0.758	Plot 159

WCDMA FDD IV

Unit Type	Operation Mode	Channel	Frequency (MHz)	Position	Distance (mm)	Accessory	SAR 1g (W/kg)	Reported SAR 1g (W/kg)	Results (Appendix A)
Plastic	**12.2 kbps RMC**	**1413**	**1732.6**	Front	10	None	0.571	0.598	Plot 160
				Back			0.784	0.821	Plot 161
				Bottom Edge			0.050	0.053	Plot 162
				Left Edge			0.400	0.419	Plot 163
							0.276	0.289	
				Right Edge			0.078	0.082	Plot 164
		1312	**1712.4**	Back			0.641	0.641	Plot 165
		1513	**1752.6**	Back			0.761	0.797	Plot 166
Ceramic	**12.2 kbps RMC**	**1413**	**1732.6**	Back	10	None	0.779	0.816	Plot 167

WCDMA FDD V

Unit Type	Operation Mode	Channel	Frequency (MHz)	Position	Distance (mm)	Accessory	SAR 1g (W/kg)	Reported SAR 1g (W/kg)	Results (Appendix A)
Plastic	**12.2 kbps RMC**	**4183**	**836.6**	Front	10	None	0.282	0.282	Plot 168
				Back			0.344	0.344	Plot 169
				Bottom Edge			0.038	0.0383	Plot 170
				Left Edge			0.204	0.204	Plot 171
				Right Edge			0.155	0.155	Plot 172
Ceramic	**12.2 kbps RMC**	**4183**	**836.6**	Front	10	None	0.361	0.361	Plot 173
				Back			0.433	0.433	Plot 174
				Bottom Edge			0.036	0.036	Plot 175
				Left Edge			0.296	0.296	Plot 176
				Right Edge			0.210	0.210	Plot 177

LTE Band 2

Unit Type	Operation Mode			Channel	Frequency (MHz)	Position	Distance (mm)	Accessory	SAR 1g (W/kg)	Reported SAR 1g (W/kg)	Results (Appendix A)
	Bandwidth (MHz)	#RB	RB Position								
Plastic	**20**	**1**	**Low**	**18900**	**1880**	Front	10	None	0.560	0.566	Plot 178
						Back			0.608	0.615	Plot 179
						Bottom Edge			0.459	0.464	Plot 180
						Left Edge			0.377	0.381	Plot 181
						Right Edge			0.143	0.145	Plot 182
	20	**50**	**Low**	**18900**	**1880**	Front	10	None	0.508	0.512	Plot 183
						Back			0.549	0.553	Plot 184
						Bottom Edge			0.423	0.426	Plot 185
						Left Edge			0.372	0.375	Plot 186
						Right Edge			0.129	0.130	Plot 187
Ceramic	**20**	**1**	**Low**	**18900**	**1880**	Back	10	None	0.605	0.612	Plot 188

LTE Band 4

Unit Type	Operation Mode			Channel	Frequency (MHz)	Position	Distance (mm)	Accessory	SAR 1g (W/kg)	Reported SAR 1g (W/kg)	Results (Appendix A)
	Bandwidth (MHz)	#RB	RB Position								
Plastic	20	1	Low	20175	1732.5	Front	10	None	0.708	0.733	Plot 189
						Back			0.857	0.887	Plot 190
						Bottom Edge			0.551	0.570	Plot 191
						Left Edge			0.468	0.484	Plot 192
						Right Edge			0.098	0.102	Plot 193
				20050	1720	Back			0.531	0.586	Plot 194
				20300	1745	Back			0.697	0.848	Plot 195
	20	50	Low	20175	1732.5	Front	10	None	0.654	0.691	Plot 196
						Back			0.790	0.835	Plot 197
						Bottom Edge			0.509	0.538	Plot 198
						Left Edge			0.409	0.432	Plot 199
						Right Edge			0.082	0.086	Plot 200
				20050	1720	Back			0.715	0.720	Plot 201
				20300	1745	Back			0.756	0.833	Plot 202
Ceramic	20	1	Low	20175	1732.5	Back	10	None	0.696	0.720	Plot 203

LTE Band 5

Unit Type	Operation Mode			Channel	Frequency (MHz)	Position	Distance (mm)	Accessory	SAR 1g (W/kg)	Reported SAR 1g (W/kg)	Results (Appendix A)
	Bandwidth (MHz)	#RB	RB Position								
Plastic	10	1	High	20525	836.5	Front	10	None	0.187	0.194	Plot 204
						Back			0.239	0.248	Plot 205
						Bottom Edge			0.028	0.029	Plot 206
						Left Edge			0.192	0.199	Plot 207
						Right Edge			0.132	0.137	Plot 208
	10	25	Low	20525	836.5	Front	10	None	0.228	0.270	Plot 209
						Back			0.283	0.336	Plot 210
						Bottom Edge			0.031	0.037	Plot 211
						Left Edge			0.261	0.309	Plot 212
						Right Edge			0.177	0.210	Plot 213
Ceramic	10	1	High	20525	836.5	Front	10	None	0.341	0.354	Plot 214
						Back			0.449	0.466	Plot 215
						Bottom Edge			0.029	0.030	Plot 216
						Left Edge			0.273	0.283	Plot 217
						Right Edge			0.196	0.203	Plot 218
	10	25	Low	20525	836.5	Front	10	None	0.237	0.281	Plot 219
						Back			0.307	0.364	Plot 220
						Bottom Edge			0.021	0.024	Plot 221
						Left Edge			0.206	0.244	Plot 222
						Right Edge			0.143	0.170	Plot 223

LTE Band 7

Unit Type	Operation Mode			Channel	Frequency (MHz)	Position	Distance (mm)	Accessory	SAR 1g (W/kg)	Reported SAR 1g (W/kg)	Results (Appendix A)
	Bandwidth (MHz)	#RB	RB Position								
Plastic	20	1	Low	21100	2535	Front	10	None	0.536	0.590	Plot 224
						Back			0.887	0.977	Plot 225
						Bottom Edge			0.493	0.543	Plot 226
						Left Edge			0.414	0.456	Plot 227
									0.336	0.370	
						Right Edge			0.057	0.063	Plot 228
									0.053	0.058	
				20850	2510	Back			0.651	0.806	Plot 229
				21350	2560	Back			0.863	1.143	Plot 230
	20	50	Low	21100	2535	Front	10	None	0.467	0.486	Plot 231
						Back			0.698	0.726	Plot 232
						Bottom Edge			0.417	0.434	Plot 233
						Left Edge			0.382	0.397	Plot 234
									0.310	0.322	
						Right Edge			0.047	0.049	Plot 235
									0.045	0.047	
				20850	2510	Back			0.648	0.722	Plot 236
				21350	2560	Back			0.726	0.869	Plot 237
	20	100	Low	21100	2535	Back	10	None	0.675	0.732	Plot 238
Ceramic	20	1	Low	21100	2535	Back	10	None	0.829	0.913	Plot 239

LTE Band 17

Unit Type	Operation Mode			Channel	Frequency (MHz)	Position	Distance (mm)	Accessory	SAR 1g (W/kg)	Reported SAR 1g (W/kg)	Results (Appendix A)
	Bandwidth (MHz)	#RB	RB Position								
Plastic	10	1	High	23790	710	Front	10	None	0.127	0.133	Plot 240
						Back			0.183	0.192	Plot 241
						Bottom Edge			0.026	0.027	Plot 242
						Left Edge			0.159	0.167	Plot 243
						Right Edge			0.078	0.082	Plot 244
	10	25	High	23790	710	Front	10	None	0.077	0.079	Plot 245
						Back			0.108	0.111	Plot 246
						Bottom Edge			0.014	0.014	Plot 247
						Left Edge			0.090	0.093	Plot 248
						Right Edge			0.043	0.044	Plot 249
Ceramic	10	1	High	23790	710	Front	10	None	0.203	0.213	Plot 250
						Back			0.289	0.303	Plot 251
						Bottom Edge			0.036	0.038	Plot 252
						Left Edge			0.232	0.243	Plot 253
						Right Edge			0.116	0.122	Plot 254
	10	25	High	23790	710	Front	10	None	0.182	0.187	Plot 255
						Back			0.269	0.276	Plot 256
						Bottom Edge			0.031	0.032	Plot 257
						Left Edge			0.211	0.216	Plot 258
						Right Edge			0.106	0.109	Plot 259

WLAN 802.11a

Unit Type	Operation Mode	Channel	Frequency (MHz)	Position	Distance (mm)	Accessory	SAR 1g (W/kg)	Reported SAR 1g (W/kg)	Results (Appendix A)
Plastic	100% Duty Cycle	36	5180	Front	10	None	0.000498	0.001	Plot 260
				Back			0.00569	0.009	Plot 261
		52	5260	Front	10	None	0.005	0.007	Plot 262
				Back			0.025	0.037	Plot 263
		104	5520	Front	10	None	0.024	0.034	Plot 264
				Back			0.041	0.060	Plot 265
		149	5745	Front	10	None	0.068	0.097	Plot 266
				Back			0.102	0.146	Plot 267
				Top Edge			0.136	0.195	Plot 268
				Right Edge			0.075	0.108	Plot 269
Ceramic	100% Duty Cycle	36	5180	Front	10	None	0.022	0.033	Plot 270
				Back			0.055	0.083	Plot 271
		52	5260	Front	10	None	0.025	0.036	Plot 272
				Back			0.090	0.131	Plot 273
		104	5520	Front	10	None	0.047	0.068	Plot 274
				Back			0.162	0.234	Plot 275
		149	5745	Top Edge	10	None	0.057	0.082	Plot 276

WLAN 802.11b

Unit Type	Operation Mode	Channel	Frequency (MHz)	Position	Distance (mm)	Accessory	SAR 1g (W/kg)	Reported SAR 1g (W/kg)	Results (Appendix A)
Plastic	**100% Duty Cycle**	**6**	**2437**	Front	10	None	0.035	0.035	Plot 277
				Back			0.073	0.074	Plot 278
				Top Edge			0.018	0.018	Plot 279
				Right Edge			0.097	0.099	Plot 280
Ceramic	**100% Duty Cycle**	**6**	**2437**	Right Edge	10	None	0.082	0.083	Plot 281

Bluetooth

Unit Type	Operation Mode	Channel	Frequency (MHz)	Position	Distance (mm)	Accessory	SAR 1g (W/kg)	Reported SAR 1g (W/kg)	Results (Appendix A)
Plastic	**GFSK, DH5**	**39**	**2441**	Front	10	None	0.00145	0.002	Plot 282
				Back			0.00147	0.002	Plot 283
				Top Edge			0.001	0.001	Plot 284
				Right Edge			0.00468	0.006	Plot 285
Ceramic	**GFSK, DH5**	**39**	**2441**	Right Edge	10	None	0.00484	0.006	Plot 286

8.6. SAR Measurement Variability

SAR measurement variability is assessed when the initial measured 1g SAR is ≥ 0.80 W/kg. If the measured SAR value of the initial repeated measurement is < 1.45 W/kg with ≤ 20% variation, only one repeated measurement is required to affirm that the results are not expected to have substation variations. A second repeated measurement is required only if the measured results for the initial repeated measurement is within 10% of the SAR limit and vary by more than 20%.

Band	Operation Mode	Frequency (MHz)	Position	Measured 1g SAR (W/kg)	Repeated 1g SAR (W/kg)	Ratio of largest to smallest 1g SAR
LTE Band 7	20 MHz Bandwidth, 1 RB	2535	Left Touch	0.936	0.953	1.02
802.11a, sub-band 4	100% Duty Cycle	5745	Left Tilt	0.806	0.796	1.01
LTE Band 4	20 MHz Bandwidth, 1 RB	1732.5	Back	0.857	0.851	1.01
LTE Band 7	20 MHz Bandwidth, 1 RB	2535	Back	0.878	0.887	1.01

8.7. Simultaneous Transmission SAR Evaluation Consideration

According to KDB 447498, SAR evaluation for simultaneous transmission can be excluded when specific requirements are satisfied.

8.7.1. Plastic Variant

Position	Highest Reported SAR 1g (W/kg)			
	WLAN (DTS)	WLAN (UNII)	Bluetooth	Cellular
Right Touch	0.811	0.182	0.006	0.572
Right Tilt	0.825	0.212	0.003	0.339
Left Touch	1.14	0.348	0.021	1.06
Left Tilt	1.15	0.344	0.010	0.375
Front	0.097	0.034	0.002	0.733
Back	0.146	0.060	0.002	1.14
Right Edge	0.108	---	0.006	0.210

Position	Simultaneous Transmission Antenna Combinations	Sum of SAR 1g (W/kg)	SAR to Peak Location Separation Ratio[1]	Simultaneous Transmission Evaluation Exclusion Reason
Right Touch	Cellular + WLAN (DTS)	1.38	---	Sum of SAR 1g < 1.6 W/kg
	Cellular + WLAN (UNII)	0.754	---	Sum of SAR 1g < 1.6 W/kg
	Cellular + Bluetooth	0.578	---	Sum of SAR 1g < 1.6 W/kg
Right Tilt	Cellular + WLAN (DTS)	1.16	---	Sum of SAR 1g < 1.6 W/kg
	Cellular + WLAN (UNII)	0.551	---	Sum of SAR 1g < 1.6 W/kg
	Cellular + Bluetooth	0.342	---	Sum of SAR 1g < 1.6 W/kg
Left Touch	Cellular + WLAN (DTS)	2.20	0.04	SPLSR is ≤ 0.04
	Cellular + WLAN (UNII)	1.41	---	Sum of SAR 1g < 1.6 W/kg
	Cellular + Bluetooth	1.08	---	Sum of SAR 1g < 1.6 W/kg
Left Tilt	Cellular + WLAN (DTS)	1.53	---	Sum of SAR 1g < 1.6 W/kg
	Cellular + WLAN (UNII)	0.719	---	Sum of SAR 1g < 1.6 W/kg
	Cellular + Bluetooth	0.385	---	Sum of SAR 1g < 1.6 W/kg
Front	Cellular + WLAN (DTS)	0.830	---	Sum of SAR 1g < 1.6 W/kg
	Cellular + WLAN (UNII)	0.767	---	Sum of SAR 1g < 1.6 W/kg
	Cellular + Bluetooth	0.735	---	Sum of SAR 1g < 1.6 W/kg
Back	Cellular + WLAN (DTS)	1.29	---	Sum of SAR 1g < 1.6 W/kg
	Cellular + WLAN (UNII)	1.20	---	Sum of SAR 1g < 1.6 W/kg
	Cellular + Bluetooth	1.14	---	Sum of SAR 1g < 1.6 W/kg
Right Edge	Cellular + WLAN (DTS)	0.318	---	Sum of SAR 1g < 1.6 W/kg
	Cellular + Bluetooth	0.216	---	Sum of SAR 1g < 1.6 W/kg

NOTES:
1. SAR to Peak Location Separation Ratio is only calculated if the Sum of SAR 1g (W/kg) is equal to or greater than 1.6 W/kg.

8.7.2. Ceramic Variant

Position	Highest Reported SAR 1g (W/kg)			
	WLAN (DTS)	WLAN (UNII)	Bluetooth	Cellular
Right Touch	0.811	0.503	0.006	0.572
Right Tilt	0.825	0.574	0.003	0.339
Left Touch	1.14	0.783	0.023	1.06
Left Tilt	1.15	0.805	0.010	0.375
Front	0.097	0.068	0.002	0.733
Back	0.146	0.234	0.002	1.14
Right Edge	0.108	---	0.006	0.210

Position	Simultaneous Transmission Antenna Combinations	Sum of SAR 1g (W/kg)	SAR to Peak Location Separation Ratio[1]	Simultaneous Transmission Evaluation Exclusion Reason
Right Touch	Cellular + WLAN (DTS)	1.38	---	Sum of SAR 1g < 1.6 W/kg
	Cellular + WLAN (UNII)	1.08	---	Sum of SAR 1g < 1.6 W/kg
	Cellular + Bluetooth	0.578	---	Sum of SAR 1g < 1.6 W/kg
Right Tilt	Cellular + WLAN (DTS)	1.16	---	Sum of SAR 1g < 1.6 W/kg
	Cellular + WLAN (UNII)	0.913	---	Sum of SAR 1g < 1.6 W/kg
	Cellular + Bluetooth	0.342	---	Sum of SAR 1g < 1.6 W/kg
Left Touch	Cellular + WLAN (DTS)	2.20	0.04	SPLSR is ≤ 0.04
	Cellular + WLAN (UNII)	1.84	0.03	SPLSR is ≤ 0.04
	Cellular + Bluetooth	1.08	---	Sum of SAR 1g < 1.6 W/kg
Left Tilt	Cellular + WLAN (DTS)	1.53	---	Sum of SAR 1g < 1.6 W/kg
	Cellular + WLAN (UNII)	1.18	---	Sum of SAR 1g < 1.6 W/kg
	Cellular + Bluetooth	0.385	---	Sum of SAR 1g < 1.6 W/kg
Front	Cellular + WLAN (DTS)	0.83	---	Sum of SAR 1g < 1.6 W/kg
	Cellular + WLAN (UNII)	0.801	---	Sum of SAR 1g < 1.6 W/kg
	Cellular + Bluetooth	0.735	---	Sum of SAR 1g < 1.6 W/kg
Back	Cellular + WLAN (DTS)	1.29	---	Sum of SAR 1g < 1.6 W/kg
	Cellular + WLAN (UNII)	1.37	---	Sum of SAR 1g < 1.6 W/kg
	Cellular + Bluetooth	1.14	---	Sum of SAR 1g < 1.6 W/kg
Right Edge	Cellular + WLAN (DTS)	0.318	---	Sum of SAR 1g < 1.6 W/kg
	Cellular + Bluetooth	0.216	---	Sum of SAR 1g < 1.6 W/kg

NOTES:
1. SAR to Peak Location Separation Ratio is only calculated if the Sum of SAR 1g (W/kg) is equal to or greater than 1.6 W/kg.

8.7.3. SAR to Peak Location Separation Ratio Analysis

According to KDB 447498, when the sum of SAR is larger than the limit, SAR test exclusion for simultaneous transmission is determined by the SAR to peak location separation ratio. The ratio is determined by $(SAR_1 + SAR_2)^{1.5}/R_i$ and must be ≤ 0.04 to qualify for SAR test exclusion. SEMCAD is used to determine the peak location separation distance.

Plastic and Ceramic Variant – Left Touch – Cellular + WLAN (DTS)
Peak Location for Cellular:

(6.25, 25.19, -17.53)

Peak Location for WLAN:

(2.11, 32.68, -17.49)

Separation Distance:

Distance [cm]: 8.57

The SAR to peak location separation ratio is $(2.20)^{1.5}$ / 85.7 = 0.04.

Ceramic Variant – Left Touch – Cellular + WLAN (UNII)
Peak Location for Cellular:

(6.25, 25.19, -17.53)

Peak Location for WLAN:

(1.95, 32.61, -17.42)

Separation Distance:

Distance [cm]: 8.58

The SAR to peak location separation ratio is $(1.84)^{1.5}$ / 85.8 = 0.03.

8.8. Dipole verification

Prior to formal testing at each frequency a system verification was performed in accordance with IEEE 1528. The 1 Watt reference SAR value is taken from the SPEAG dipole calibration report. All of the testing described in this report was performed within 24 hours of the system verification. The following results were obtained:

Date	Liquid Type	Frequency (MHz)	CW input at dipole feed (Watts)	1g SAR (W/kg)[1]	1 Watt reference SAR value (W/kg)	Difference reference SAR value to normalized SAR	Results (Appendix A)
2/13/2014	HSL	750	1	7.83	8.56	-8.53%	Plot 287
2/24/2014	HSL	750	1	7.86	8.56	-8.18%	Plot 288
11/25/2013	HSL	835	1	9.85	9.47	4.01%	Plot 289
12/3/2013	HSL	835	1	9.55	9.47	0.84%	Plot 290
1/24/2014	HSL	835	1	9.51	9.54	-0.31%	Plot 291
2/20/2014	HSL	835	1	9.9	9.47	4.54%	Plot 292
2/22/2014	HSL	835	1	9.47	9.47	0.00%	Plot 293
11/26/2013	HSL	1750	1	33.2	35.9	-7.52%	Plot 294
12/10/2013	HSL	1750	1	33.2	36.8	-9.78%	Plot 295
2/4/2014	HSL	1750	1	33.3	36.8	-9.51%	Plot 296
2/26/2014	HSL	1750	1	32.8	35.9	-8.64%	Plot 297
12/2/2013	HSL	1900	1	36.8	39.1	-5.88%	Plot 298
12/4/2013	HSL	1900	1	36.3	39.1	-7.16%	Plot 299
1/21/2014	HSL	1900	1	36.5	39.7	-8.06%	Plot 300
1/22/2014	HSL	1900	1	37.1	39.7	-6.55%	Plot 301
12/17/2013	HSL	2450	1	48.6	53.8	-9.67%	Plot 302
4/4/2014	HSL	2450	1	48.8	53.8	-9.29%	Plot 303
2/5/2014	HSL	2550	1	57	57.2	-0.35%	Plot 304
1/13/2014	HSL	5200	1	70.8	77.5	-8.65%	Plot 305
1/14/2014	HSL	5200	1	71.7	77.5	-7.48%	Plot 306
1/15/2014	HSL	5200	1	75.1	77.5	-3.10%	Plot 307
1/17/2014	HSL	5200	1	72.6	77.5	-6.32%	Plot 308
4/29/2014	HSL	5200	1	76.4	77.5	-1.42%	Plot 309
2/21/2014	HSL	5500	1	74.3	81.7	-9.06%	Plot 310
5/1/2014	HSL	5500	1	75.8	83.5	-9.22%	Plot 311
5/2/2014	HSL	5500	1	78.7	83.5	-5.75%	Plot 312
1/23/2014	HSL	5800	1	69.7	75.3	-7.44%	Plot 313

Date	Liquid Type	Frequency (MHz)	CW input at dipole feed (Watts)	1g SAR (W/kg)[1]	1 Watt reference SAR value (W/kg)	Difference reference SAR value to normalized SAR	Results (Appendix A)
2/12/2014	MSL	750	1	8.16	8.75	-6.74%	Plot 314
2/25/2014	MSL	750	1	8.39	8.75	-4.11%	Plot 315
12/2/2013	MSL	835	1	9.39	9.57	-1.88%	Plot 316
12/9/2013	MSL	835	1	9.74	9.57	1.78%	Plot 317
12/9/2013	MSL	835	1	9.93	9.57	3.76%	Plot 318
1/27/2014	MSL	835	1	9.36	9.55	-1.99%	Plot 319
2/22/2014	MSL	835	1	9.41	9.57	-1.67%	Plot 320
11/27/2013	MSL	1750	1	34.5	37.6	-8.24%	Plot 321
2/14/2014	MSL	1750	1	34.3	37.8	-9.26%	Plot 322
2/18/2014	MSL	1750	1	34.7	37.8	-8.20%	Plot 323
2/19/2014	MSL	1750	1	35.5	37.8	-6.08%	Plot 324
4/18/2014	MSL	1750	1	34.2	37.8	-9.52%	Plot 325
4/21/2014	MSL	1750	1	34.4	37.8	-8.99%	Plot 326
12/4/2013	MSL	1900	1	37.8	40.5	-6.67%	Plot 327
12/10/2013	MSL	1900	1	37.1	40.3	-7.94%	Plot 328
1/23/2014	MSL	1900	1	37	40.3	-8.19%	Plot 329
2/25/2014	MSL	1900	1	36.7	40.5	-9.38%	Plot 330
4/28/2014	MSL	1900	1	37.4	40.3	-7.20%	Plot 331
12/17/2013	MSL	2450	1	49.5	51.5	-3.88%	Plot 332
4/3/2014	MSL	2450	1	49.8	51.5	-3.30%	Plot 333
4/7/2014	MSL	2450	1	48	51.5	-6.80%	Plot 334
2/6/2014	MSL	2550	1	49.7	54.1	-8.13%	Plot 335
4/22/2014	MSL	2550	1	52.3	54.1	-3.33%	Plot 336
2/5/2014	MSL	5200	1	79.8	74.3	7.40%	Plot 337
2/6/2014	MSL	5200	1	76.4	74.3	2.83%	Plot 338
2/20/2014	MSL	5200	1	68.8	74.3	-7.40%	Plot 339
4/30/2014	MSL	5200	1	67.8	74.3	-8.75%	Plot 340
2/6/2014	MSL	5500	1	76.4	79.2	-3.54%	Plot 341
4/30/2014	MSL	5500	1	72.8	79.2	-8.08%	Plot 342
2/13/2014	MSL	5800	1	67.6	74.4	-9.14%	Plot 343
2/14/2014	MSL	5800	1	67.1	74.4	-9.81%	Plot 344

NOTES:

1. Verification between 5000 MHz and 6000 MHz is performed with 100 mW (20 dBm) input power to the dipole. The measured SAR values are scaled to 1 W (30 dBm)

9. References

1. [IEEE 1999] IEEE Std C95.1-1999: IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz, Inst. of Electrical and Electronics Engineers, Inc., December 1998.

2. [IEEE 2013] 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. Inst. of Electrical and Electronics Engineers, Inc., June 2013.

3. [NIST 1994] NIST: Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results, Technical Note 1297 (TN1297), United States Department of Commerce Technology Administration, National Institute of Standards and Technology, September 1994.

4. [FCC 20XX] Various FCC KDB Publications,
< http://transition.fcc.gov/oet/ea/eameasurements.html#sar>

5. [IC 2010] RSS-102: Radio Frequency (RF) Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands), Industry Canada, Issue 4, March 2010.

6. [IC 2012] Notice 2012-DRS1203: RE: APPLICABILITY OF LATEST FCC RF EXPOSURE KDB PROCEDURES (PUBLICATION DATE: OCTOBER 24, 2012) AND OTHER PROCEDURES, Industry Canada, December 2012

7. IEC 62209-1: 2006, Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices - Human models, instrumentation, and procedures - Part 1: Procedure to determine the specific absorption rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)

8. IEC 62209-2:2010, Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices - Human models, instrumentation, and procedures - Part 2: Procedure to determine the specific absorption rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)

10. Report History

Date	Report Name – Changes to Report	Report prepared by
June 12, 2014	**SAR_INTEL_037_13001 _FCC** 1. First Version	J. Sabado
July 7, 2014	**SAR_INTEL_037_13001 _FCC_rev1** 1. Updated section 3.5 according to TCB comments 2. Replaces previous test report number.	J. Sabado