SAR TEST REPORT

HCT CO., LTD

EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA/LTE Phone with Bluetooth, WLAN, NFC
FCC ID:	ZNFD855P
Model:	LG-D855P
Additional Model:	LG-D855p, D855P, D855p, LGD855P, LGD855p, LG-D855AR, LG-D855ar, LGD855AR, LGD855ar, D855AR, D855ar
Date of Issue:	May. 29, 2014
Test report No.:	HCT-A-1405-F005-1
Test Laboratory:	**HCT CO., LTD.** 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, Korea TEL: +82 31 645 6300 FAX: +82 31 645 6401
Applicant :	**LG Electronics, MobileComm U.S.A., Inc.** 1000 Sylvan Avenue, Englewood Cliffs NJ 07632
Testing has been carried out in accordance with:	RSS-102 Issue 4; Health Canada Safety Code 6 47CFR §2.1093 ANSI/ IEEE C95.1 – 1992 IEEE 1528-2003
Test result:	The tested device complies with the requirements in respect of all parameters subject to the test. The test results and statements relate only to the items tested. The test report shall not be reproduced except in full, without written approval of the laboratory.
Signature	Report prepared by : Yun-Jeang Hur Test Engineer of SAR Part Approved by : Dong-Seob Kim Manager of SAR Part

Revision History

Rev.	Issue DATE	DESCRIPTION
HCT-A-1405-F005	May. 20, 2014	Initial Issue
HCT-A-1405-F005-1	May. 29, 2014	Sec. 3 was reivsed. (add the note- decription of EUT battery cover) Sec. 3.1 was revised. (typo) Sec. 10.1 was revised (add 2535 MHz verification data) Sec. 11.1 was revised. Sec. 12.2 was revised (add decription of EUT battery cover) Sec. 13.4 was revised.(revised WLAN SAR test note) Sec. 15 was revised. (add the VoLTE operation descriptions for simultaneous transmission and WIFI Direct note) Attachmnet 1 was revised. (Plot no. 27) Attachment 2 was revised.(Verification 5.3 GHz Head, Body)

Table of Contents

1. INTRODUCTION

The FCC has adopted the guidelines for evaluating the environmental effects of radio frequency radiation in ET Docket 93-62 on Aug. 6, 1996 to protect the public and workers from the potential hazards of RF emissions due to FCC-regulated portable devices.

The safety limits used for the environmental evaluation measurements are based on the criteria published by the American National Standards Institute (ANSI) for localized specific absorption rate (SAR) in IEEE/ANSI C95.1-1992 Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz. 1992 by the Institute of Electrical and Electronics Engineers, Inc., New York, New York 10017. The measurement procedure described in IEEE/ANSI C95.3-1992 Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields - RF and Microwave is used for guidance in measuring SAR due to the RF radiation exposure from the Equipment Under Test (EUT). These criteria for SAR evaluation are similar to those recommended by the National Council on Radiation Protection and Measurements (NCRP) in Biological Effects and Exposure Criteria for Radio frequency Electromagnetic Fields," NCRP Report No. 86 NCRP, 1986, Bethesda, MD 20814. SAR is a measure of the rate of energy absorption due to exposure to an RF transmitting source. SAR values have been related to threshold levels for potential biological hazards.

SAR Definition

Specific Absorption Rate (SAR) is defined as the time derivative of the incremental electromagnetic energy (d*W*) absorbed by (dissipated in) an incremental mass (d*m*) contained in a volume element (d*V*) of a given density (*r*). It is also defined as the rate of RF energy absorption per unit mass at a point in an absorbing body.

$$SAR = \frac{d}{dt}\left(\frac{dU}{dm}\right) = \frac{d}{dt}\left(\frac{dU}{\rho\, dv}\right)$$

Figure 1. SAR Mathematical Equation

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

$$SAR = \sigma E^2 / \rho$$

Where:
σ = conductivity of the tissue-simulant material (S/m)
ρ = mass density of the tissue-simulant material (kg/㎥)
E = Total RMS electric field strength (V/m)

NOTE: The primary factors that control rate of energy absorption were found to be the wavelength of the incident field in relations to the dimensions and geometry of the irradiated organism, the orientation of the organism in relation to the polarity of field vectors, the presence of reflecting surfaces, and whether conductive contact is made by the organism with a ground plane.

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with FCC KDB Procedure, IEEE Standard 1528-2003 & IEEE 1528a-2005 and the following published KDB procedures.

- FCC KDB Publication 941225 D01 SAR test for 3G devices v02
- FCC KDB Publication 941225 D02 HSPA and 1x Advanced v02r02
- FCC KDB Publication 941225 D03 SAR Test Reduction GSM GPRS EDGE v01
- FCC KDB Publication 941225 D05 SAR for LTE Devices v02r03
- FCC KDB Publication 941225 D06 Hot Spot SAR v01r01
- FCC KDB Publication 248227 D01v01r02(SAR Considerationa for 802.11 Devices)
- FCC KDB Publication 447498 D01v05r02 (General SAR Guidance)
- FCC KDB Publication 648474 D04 Handset SAR v01r02
- FCC KDB Publication 865664 D01 SAR measurement 100 MHz to 6 GHz v01r03
- FCC KDB Publication 865664 D02 SAR Reporting v01r01
- April 2013 TCB Workshop Notes (IEEE 802.11ac)
- October 2013 TCB Workshop Notes (GPRS testing criteria)

3. DESCRIPTION OF DEVICE

Environmental evaluation measurements of specific absorption rate (SAR) distributions in emulated human head and body tissues exposed to radio frequency (RF) radiation from wireless portable devices for compliance with the rules and regulations of the U.S. Federal Communications Commission (FCC).

EUT Type	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA/LTE Phone with Bluetooth, WLAN, NFC
FCC ID:	ZNFD855P
Model:	LG-D855P
Additional Model*[1]:	LG-D855p, D855P, D855p, LGD855P, LGD855p, LG-D855AR, LG-D855ar, LGD855AR, LGD855ar, D855AR, D855ar
Trade Name	LG Electronics, MobileComm U.S.A., Inc.
Application Type	Certification
Mode(s) of Operation	GSM850 / GSM1900 / WCDMA850 / WCDMA1900 / LTE2 / LTE4 / LTE7 / LTE17 / 802.11b/g/n/a
Production Unit or Identical Prototype	Prototype

Max. SAR

Band	Tx Frequency (MHz)	Equipment Class	Reported 1g SAR (W/Kg)		
			Head	Body-worn	Hotspot
GSM/GPRS/ EDGE 850	824.2 - 848.8	PCE	0.15	0.25	0.25
GSM/GPRS/ EDGE1900	1 850.2 -1 909.8	PCE	0.19	0.78	0.81
WCDMA 850	826.4 - 846.6	PCE	0.15	0.22	0.53
WCDMA 1900	1 852.4 – 1 907.6	PCE	0.19	1.03	1.03
LTE 2	1 850.7 ~ 1 909.3	PCE	0.15	0.73	0.78
LTE 4	1 710.7 – 1 754.3	PCE	0.22	0.49	0.49
LTE 7	2 502.5 – 2 567.5	PCE	0.05	0.30	0.30
LTE 17	706.5 ~ 713.5	PCE	0.07	0.07	0.13
802.11b	2 412.0 - 2 462.0	DTS	0.20	0.14	0.14
802.11a	5 745 - 5 825	DTS	0.24	0.31	0.31
802.11a	5 180 - 5 240	UNII	0.30	0.18	-
802.11a	5 260 - 5 320	UNII	0.20	0.21	-
802.11a	5 500 - 5 700	UNII	0.19	0.31	-
Bluetooth	2 402 – 2 480	DSS/DTS	-	0.08*[2]	-
Simultaneous SAR per KDB 690783 D01v01r03			0.43	1.35	1.35

Date(s) of Tests	Apr. 24, 2014 ~ May. 08, 2014
Antenna Type	Integral Antenna
GPRS / EDGE	Multislot Class: 12, Mode Class B
Key Feature(s)	This device supports Mobile Hotspot.

* 1. There is no differences between models.
* 2.BT Body-worn SAR value is estimate SAR value that should not be reported standalone SAR on grants of equipment approval.
* All test performed with the battery cover already incorporate the NFC antenna and Wireless charging capability.

3.1 KDB 941225 LTE information

<table>
<tr><th>Item.</th><th>Description</th></tr>
<tr><td>Frequency Range:</td><td>Band 2: 1 850.7 MHz ~ 1 909.3 MHz , Band 4: 1 710.7 MHz – 1 754.3 MHz
Band 7: 2 502.5 MHz ~ 2 567.5 MHz, Band 17: 706.5 MHz ~ 713.5 MHz</td></tr>
<tr><td>Channel Bandwidth:</td><td>Band 2: 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz
Band 4: 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz
Band 7: 5 MHz, 10 MHz, 15MHz, 20MHz
Band 17: 5 MHz, 10 MHz</td></tr>
<tr><td>Channel Number & Frequency:</td><td>
Band 2
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Band 4
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<tr><th>Ch.</th><th>Freq. (MHz)</th><th>Ch.</th><th>Freq. (MHz)</th><th>Ch.</th><th>Freq. (MHz)</th><th>Ch.</th><th>Freq. (MHz)</th><th>Ch.</th><th>Freq. (MHz)</th><th>Ch.</th><th>Freq. (MHz)</th></tr>
<tr><td>19957</td><td>1 710.7</td><td>19965</td><td>1 711.5</td><td>19975</td><td>1 712.5</td><td>20000</td><td>1 715</td><td>20025</td><td>1 717.5</td><td>20050</td><td>1 720</td></tr>
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Band 7
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<tr><th>Ch.</th><th>Freq. (MHz)</th><th>Ch.</th><th>Freq. (MHz)</th><th>Ch.</th><th>Freq. (MHz)</th><th>Ch.</th><th>Freq. (MHz)</th></tr>
<tr><td>20775</td><td>2 502.5</td><td>20800</td><td>2 505</td><td>20825</td><td>2 507.5</td><td>20850</td><td>2 510</td></tr>
<tr><td>21100</td><td>2 535</td><td>21100</td><td>2 535</td><td>21100</td><td>2 535</td><td>21100</td><td>2 535</td></tr>
<tr><td>21425</td><td>2 567.5</td><td>21400</td><td>2 565</td><td>21375</td><td>2 562.5</td><td>21350</td><td>2 560</td></tr>
</table>
Band 17
<table>
<tr><th colspan="2">5 MHz</th><th colspan="2">10 MHz</th></tr>
<tr><th>Ch.</th><th>Freq. (MHz)</th><th>Ch.</th><th>Freq. (MHz)</th></tr>
<tr><td>23755</td><td>706.5</td><td>23780</td><td>709</td></tr>
<tr><td>23790</td><td>710</td><td>23790</td><td>710</td></tr>
<tr><td>23825</td><td>713.5</td><td>23800</td><td>711</td></tr>
</table>
</td></tr>
</table>

Item.	Description
UE Category & Uplink Modulation	UE Category 3 QPSK, 16QAM
Description of the LTE Transmitter & antenna	This model have two Tx antennas. -, One is for GSM and WCDMA and LTE. It can not transmit simultaneously. - The other is for BT & WLAN. It can not transmit simultaneously. Please find the section 12
LTE voice/data requirements	Data Only, LTE voice is available via VoIP. Considering the users may install 3rd party software to enable VoIP, LTE Head SAR is also evaluated.
Identify if MPR is optional or mendatory optional or mendatory	The EUT incorporates MPR as per 3GPP TS36.101. The MPR is permanently built-in by design as a mandatory. A-MPR is not implemented in the EUT.
Maximum average conducted output power(dBm) Identify all other U.S. wireless operating modes, device exposure configurations and frequency bands	See section 11.3 RF output power measurements in the SAR report. GSM850/1900, WCDMA850/1900, LTE Band 2, LTE Band, LTE Band 7 and LTE Band 17 : Head & Body SAR are required.
Maximum average conducted output power for other wireless mode and frequency	See section 11 RF output power measurements in the SAR report.
Simultaneous Transmission condition	This device supports simultaneous transmission. Please find the section 15.
Power reduction explanation	This device doesn't implements power reduction.
Description of the test equipment, software, etc.	LTE SAR Testing was performed using a CMW500. UE transmits with maximum output power during SAR testing.

4. DESCRIPTION OF TEST EQUIPMENT

4.1 SAR MEASUREMENT SETUP

These measurements are performed using the DASY4 automated dosimetric assessment system. It is made by Schmid & Partner Engineering AG (SPEAG) in Zurich, Switzerland. It consists of high precision robotics system (Staubli), robot controller, Pentium III computer, near-field probe, probe alignment sensor, and the generic twin phantom containing the brain equivalent material. The robot is a six-axis industrial robot performing precise movements to position the probe to the location (points) of maximum electromagnetic field (EMF) (see Figure.2).

A cell controller system contains the power supply, robot controller, teach pendant (Joystick), and remote control, is used to drive the robot motors. The PC consists of the HP Pentium IV 3.0 GHz computer with Windows XP system and SAR Measurement Software DASY4, A/D interface card, monitor, mouse, and keyboard. The Staubli Robot is connected to the cell controller to allow software manipulation of the robot. A data acquisition electronic (DAE) circuit performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. is connected to the Electro-optical coupler (EOC). The EOC performs the conversion from the optical into digital electric signal of the DAE and transfers data to the PC plug-in card.

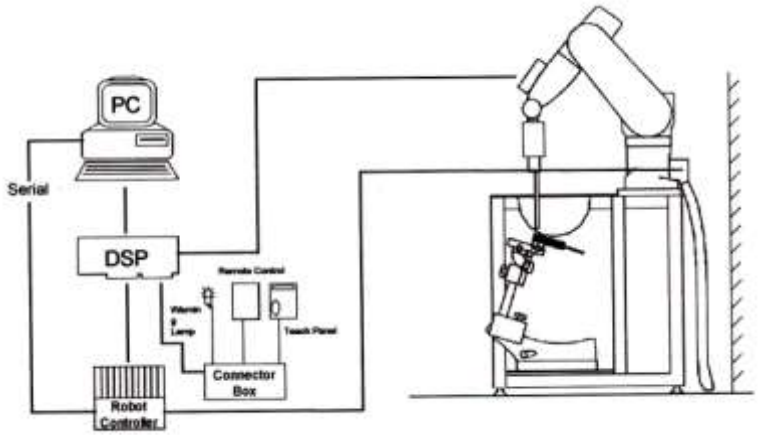


Figure 2. HCT SAR Lab. Test Measurement Set-up

The DAE4 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 PC-card is accomplished through an optical downlink for data and status information and an optical uplink for commands and clock lines. The mechanical probe mounting device includes two different sensor systems for frontal and sidewise probe contacts. They are also used for mechanical surface detection and probe collision detection. The robot uses its own controller with a built in VME-bus computer. The system is described in detail in.

4.2 DASY E-FIELD PROBE SYSTEM

4.1 ET3DV6 Probe Specification

Construction	Symmetrical design with triangular core Built-in optical fiber for surface detection System Built-in shielding against static charges
Calibration	In air from 10 MHz to 2.5 GHz In brain and muscle simulating tissue at Frequencies of 450 MHz, 900 MHz and 1.8 GHz (accuracy: 8 %)
Frequency	10 MHz to > 3 GHz; Linearity: ± 0.2 dB (30 MHz to 3 GHz)
Directivity	± 0.2 dB in brain tissue (rotation around probe axis) ± 0.4 dB in brain tissue (rotation normal probe axis)
Dynamic	5 μW/g to > 100 mW/g;
Range Linearity:	± 0.2 dB
Surface Detection	± 0.2 mm repeatability in air and clear liquids over diffuse reflecting surfaces.
Dimensions	Overall length: 330 mm Tip length: 16 mm Body diameter: 12 mm Tip diameter: 6.8 mm Distance from probe tip to dipole centers: 2.7 mm
Application	General dissymmetry up to 3 GHz Compliance tests of WCDMA/LTE Phones Fast automatic scanning in arbitrary phantoms

Figure 3. Photograph of the probe and the Phantom

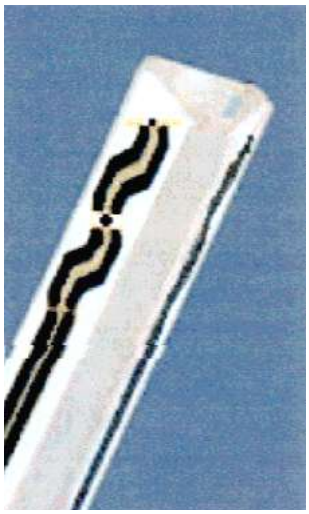


Figure 4. ET3DV6 E-field Probe

The SAR measurements were conducted with the dosimetric probe ET3DV6, designed in the classical triangular configuration and optimized for dosimetric evaluation. The probe is constructed using the thick film technique; with printed resistive lines on ceramic substrates. The probe is equipped with an optical multifiber line ending at the front of the probe tip. It is connected to the EOC box on the robot arm and provides an automatic detection of the phantom surface. Half of the fibers are connected to a pulsed infrared transmitter, the other half to a synchronized receiver. As the probe approaches the surface, the reflection from the surface produces a coupling from the transmitting to the receiving fibers. This reflection increases first during the approach, reaches a maximum and then decreases. If the probe is flatly touching the surface, the coupling is zero. The distance of the coupling maximum to the surface is independent of the surface reflectivity and largely independent of the surface to probe angle. The DASY4 software reads the reflection during a software approach and looks for the maximum using a 2nd order fitting. The approach is stopped at reaching the maximum.

4.2.1 EX3DV4 Probe Specification

Construction	Symmetrical design with triangular core Interleaved sensors Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)
Calibration	Basic Broad Band Calibration in air Conversion Factors (CF) for HSL 900 and HSL 1810 Additional CF for other liquids and frequencies upon request
Frequency	10 MHz to 4 GHz; Linearity: ± 0.2 dB (30 MHz to 4 GHz)
Directivity	± 0.2 dB in HSL (rotation around probe axis) ± 0.3 dB in tissue material (rotation normal to probe axis)
Dynamic Range	5 μW/g to > 100 mW/g; Linearity: ± 0.2 dB
Dimensions	Overall length: 330 mm (Tip: 20 mm) Tip diameter: 3.9 mm (Body: 12 mm) Distance from probe tip to dipole centers: 2.0 mm
Application	General dosimetry up to 4 GHz Dosimetry in strong gradient fields Compliance tests of mobile phones

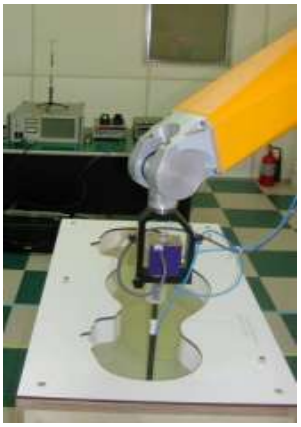


Figure 5. Photograph of the probe and the Phantom

Figure 6. EX3DV4 E-field Probe

The SAR measurements were conducted with the dosimetric probe EX3DV4, designed in the classical triangular configuration and optimized for dosimetric evaluation. The probe is constructed using the thick film technique; with printed resistive lines on ceramic substrates. The probe is equipped with an optical multifiber line ending at the front of the probe tip. It is connected to the EOC box on the robot arm and provides an automatic detection of the phantom surface. Half of the fibers are connected to a pulsed infrared transmitter, the other half to a synchronized receiver. As the probe approaches the surface, the reflection from the surface produces a coupling from the transmitting to the receiving fibers. This reflection increases first during the approach, reaches a maximum and then decreases. If the probe is flatly touching the surface, the coupling is zero. The distance of the coupling maximum to the surface is independent of the surface reflectivity and largely independent of the surface to probe angle. The DASY4 software reads the reflection during a software approach and looks for the maximum using a 2nd order fitting. The approach is stopped at reaching the maximum.

4.3 PROBE CALIBRATION PROCESS

4.3.1 E-Probe Calibration

Each probe is calibrated according to a dosimetric assessment procedure with an accuracy better than ± 10 %. The spherical isotropy was evaluated with the proper procedure and found to be better than ± 0.25 dB. The sensitivity parameters (NormX, NormY, NormZ), the diode compression parameter (DCP) and the conversion factor (ConvF) of the probe is tested.
The free space E-field from amplified probe outputs is determined in a test chamber. This is performed in a TEM cell for frequencies bellow 1 GHz, and in a waveguide above 1 GHz for free space. For the free space calibration, the probe is placed in the volumetric center of the cavity and at the proper orientation with the field. The probe is then rotated 360 degrees.
E-field temperature correlation calibration is performed in a flat phantom filled with the appropriate simulated brain tissue. The measured free space E-field in the medium correlates to temperature rise in a dielectric medium. For temperature correlation calibration a RF transparent thermistor-based temperature probe is used in conjunction with the E-field probe.

$$SAR = C\frac{\Delta T}{\Delta t}$$

where:
Δt = exposure time (30 seconds),
C = heat capacity of tissue (brain or muscle),
ΔT = temperature increase due to RF exposure.
SAR is proportional to $\Delta T/\Delta t$, the initial rate of tissue heating, before thermal diffusion takes place.
Now it's possible to quantify the electric field in the simulated tissue by equating the thermally derived SAR to the E-field;

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

where:
σ = simulated tissue conductivity,
ρ = Tissue density (1.25 g/㎤ for brain tissue)

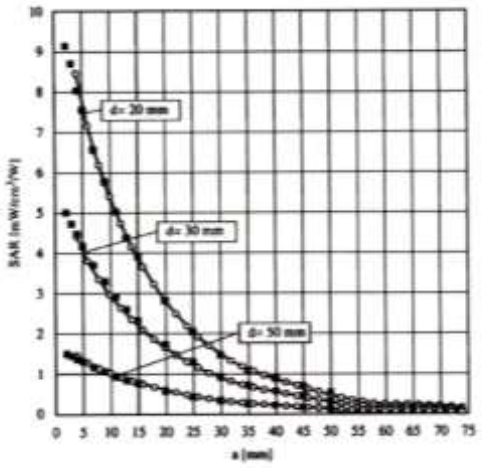


Figure 7. E-Field and Temperature measurements at 900 MHz

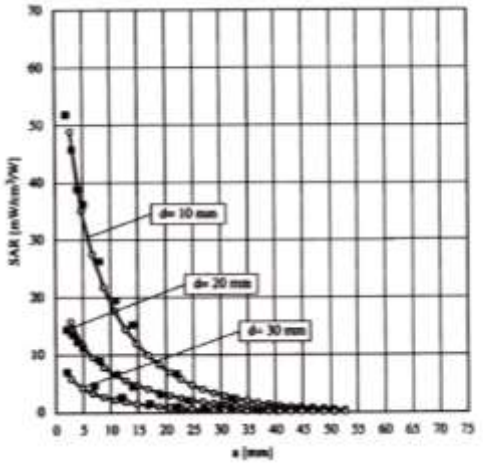


Figure 8. E-Field and temperature measurements at 1.8 GHz

4.3.2 Data Extrapolation

The DASY4 software automatically executes the following procedures to calculate the field units from the microvolt readings at the probe connector. The first step of the evaluation is a linearization of the filtered input signal to account for the compression characteristics of the detector diode. The compensation depends on the input signal, the diode type and the DC-transmission factor from the diode to the evaluation electronics. If the exciting field is pulsed, the crest factor of the signal must be known to correctly compensate for peak power. The formula for each channel can be given like below;

$$\boldsymbol{V_i = U_i + U_i^2 \cdot \frac{cf}{dcp_i}}$$

with

V_i = compensated signal of channel i (i=x,y,z)
U_i = input signal of channel i (i=x,y,z)
cf = crest factor of exciting field (DASY parameter)
dcp_i = diode compression poing (DASY parameter)

From the compensated input signals the primary field data for each channel can be evaluated:

E-field probes:

$$\boldsymbol{E_i = \sqrt{\frac{V_i}{Norm_i \cdot ConvF}}}$$

with

V_i = compensated signal of channel i (i=x,y,z)
$Norm_i$ = sensor sensitivity of channel i (i=x,y,z)
$\mu V/(V/m)^2$ for E-field probes
$ConvF$ = sensitivity of enhancement in solution
E_i = electric field strength of channel i in V/m

The RSS value of the field components gives the total field strength (Hermetian magnitude):

$$\boldsymbol{E_{tot} = E_x^2 + E_y^2 + E_z^2}$$

The primary field data are used to calculate the derived field units.

$$\boldsymbol{SAR = E_{tot}^2 \cdot \frac{\sigma}{\rho \cdot 1000}}$$

with

SAR = local specific absorption rate in W/g
E_{tot} = total field strength in V/m
σ = conductivity in [mho/m] or [Siemens/m]
ρ = equivalent tissue density in g/cm^3

The power flow density is calculated assuming the excitation field to be a free space field.

$$\boldsymbol{P_{pwe} = \frac{E_{tot}^2}{3770}}$$

with

P_{pwe} = equivalent power density of a plane wave in w/cm^2
E_{tot} = total electric field strength in V/m

4.4 SAM Phantom

The shell corresponds to the specifications of the Specific Anthropomorphic Mannequin (SAM) phantom defined in IEEE 1528 and IEC 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. A cover prevents evaporation of the liquid. Reference markings on the phantom allow the complete setup of all predefined phantom positions and measurement grids by teaching three points with the robot.

Figure 9. SAM Phantom

Shell Thickness	2.0 mm ± 0.2 mm (6 ± 0.2 mm at ear point)
Filling Volume	about 25 L
Dimensions	810 mm x 1 000 mm x 500 mm (H x L x W)

Triple Modular Phantom consists of tree identical modules which can be installed and removed separately without emptying the liquid. It includes three reference points for phantom installation. Covers prevent evaporation of the liquid. Phantom material is resistant to DGBE based tissue simulating liquids. The MFP V5.1 will be delivered including wooden support only (**non**-standard SPEAG support).
Applicable for system performance check from 700 MHz to 6 GHz (MFP V5.1C) or 800 MHz - 6 GHz (MFP V5.1A) as well as dosimetric evaluations for body-worn operation.

Shell Thickness	2.0 mm ± 0.2 mm
Filling Volume	approx. 9.2 L
Dimensions	830 mm x 500 mm (L x W)

Figure 10. MFP V5.1 Triple Modular Phantom

4.5 Device Holder for Transmitters

In combination with the SAM Phantom V 4.0, the Mounting Device (POM) enables the rotation of the mounted transmitter in spherical coordinates whereby the rotation points is the ear opening. The devices can be easily, accurately, and repeatable positioned according to the FCC and CENELEC specifications. The device holder can be locked at different phantom locations (left head, right head, flat phantom).

Note: A simulating human hand is not used due to the complex anatomical and geometrical structure of the hand that may produced infinite number of configurations. To produce the Worst-case condition (the hand absorbs antenna output power), the hand is omitted during the tests.

Figure 11. Device Holder

4.6 Tissue Simulating Mixture Characterization

The mixture is characterized to obtain proper dielectric constant (permittivity) and conductivity of the tissue of interest. The tissue dielectric parameters recommended in IEEE 1528 and IEC 62209 have been used as targets for the compositions, and are to mach within 5%, per the FCC recommendations .

Ingredients (% by weight)	Frequency (MHz)							
	835		1 900		2 450 ~ 2 700		5 200 - 5 800	
Tissue Type	Head	Body	Head	Body	Head	Body	Head	Body
Water	40.45	53.06	54.9	70.17	71.88	73.2	65.52	78.66
Salt (NaCl)	1.45	0.94	0.18	0.39	0.16	0.1	0.0	0.0
Sugar	57.0	44.9	0.0	0	0.0	0.0	0.0	0.0
HEC	1.0	1.0	0.0	0	0.0	0.0	0.0	0.0
Bactericide	0.1	0.1	0.0	0	0.0	0.0	0.0	0.0
Triton X-100	0.0	0.0	0.0	0.0	19.97	0.0	17.24	10.67
DGBE	0.0	0.0	44.92	29.44	7.99	26.7	0.0	0.0
Diethylene glycol hexyl ether	-	-	-	-	-	-	17.24	10.67

Salt:	99 % Pure Sodium Chloride	Sugar:	98 % Pure Sucrose
Water:	De-ionized, 16M resistivity	HEC:	Hydroxyethyl Cellulose
DGBE:	99 % Di(ethylene glycol) butyl ether,[2-(2-butoxyethoxy) ethanol]		
Triton X-100(ultra pure):	Polyethylene glycol mono[4-(1,1,3,3-tetramethylbutyl)phenyl] ether		

Table 4.1 Composition of the Tissue Equivalent Matter

4.7 SAR TEST EQUIPMENT

Manufacturer	Type / Model	S/N	Calib. Date	Calib.Interval	Calib.Due
SPEAG	SAM Phantom	-	N/A	N/A	N/A
SPEAG	Triple Modular Phantom	-	N/A	N/A	N/A
Staubli	Robot RX90B L	F01/5K09A1/A/01	N/A	N/A	N/A
Staubli	Robot TX90XL	F11/5K3RA1/A/01	N/A	N/A	N/A
Staubli	Robot ControllerCS7MB	3403-91935	N/A	N/A	N/A
Staubli	CS8Cspeag-TX90	F11/5K3RA1/C/01	N/A	N/A	N/A
HP	Pavilion t000_puffer	KRJ51201TV	N/A	N/A	N/A
SPEAG	Light Alignment Sensor	265	N/A	N/A	N/A
SPEAG	Light Alignment Sensor	SE UKS 030 AA	N/A	N/A	N/A
Staubli	Teach Pendant (Joystick)	D21142603	N/A	N/A	N/A
Staubli	Teach Pendant (Joystick)	D221340.01	N/A	N/A	N/A
SPEAG	DAE3	466	Feb.27, 2014	Annual	Feb.27, 2015
SPEAG	DAE4	869	Sep.30, 2013	Annual	Sep.30, 2014
SPEAG	DAE4	1225	Mar.24, 2014	Annual	Mar.24, 2015
SPEAG	E-Field Probe ET3DV6	1605	Jan.31, 2014	Annual	Jan.31, 2015
SPEAG	E-Field Probe ET3DV6	1609	Sep.23, 2013	Annual	Sep.23, 2014
SPEAG	E-Field Probe EX3DV4	3967	Jan.08, 2014	Annual	Jan.08, 2015
SPEAG	E-Field Probe ET3DV6	3968	Jan.08, 2014	Annual	Jan.08, 2015
SPEAG	Dipole D750V3	1014	Jul. 30, 2013	Annual	Jul. 30, 2014
SPEAG	Dipole D835V2	4d165	Jan.07, 2014	Annual	Jan.07, 2015
SPEAG	Dipole D1800V2	2d006	Mar.24, 2014	Annual	Mar.24, 2015
SPEAG	Dipole D1900V2	5d032	Jul. 29, 2013	Annual	Jul. 29, 2014
SPEAG	Dipole D2450V2	743	Aug.23, 2013	Annual	Aug.23, 2014
SPEAG	Dipole D2600V2	1015	Apr.23, 2014	Annual	Apr.23, 2015
SPEAG	Dipole D5000V2	1107	Jan.27, 2014	Annual	Jan.27, 2015
Agilent	Power Meter(F) E4419B	MY41291386	Nov. 01, 2013	Annual	Nov. 01, 2014
Agilent	Power Sensor(G) 8481	MY41090680	Oct. 30, 2013	Annual	Oct. 30, 2014
Agilent	Dielectric Probe Kit 85070C	00721521	CBT		
HP	Dual Directional Coupler 778D	16072	Oct. 31, 2013	Annual	Oct. 31, 2014
Agilent	Base Station E5515C	GB44400269	Feb. 10, 2014	Annual	Feb. 10, 2015
HP	Signal Generator 8664A	3744A02069	Nov. 04, 2013	Annual	Nov. 04, 2014
Hewlett Packard	11636B/Power Divider	11377	Nov. 10. 2013	Annual	Nov. 11. 2014
Agilent	N9020A/ SIGNAL ANALYZER	MY51110085	Jul. 18, 2013	Annual	Jul. 18, 2014
TESCOM	TC-3000C / BLUETOOTH TESTER	3000C000276	Apr. 11, 2014	Annual	Apr. 11. 2015
HP	Network Analyzer 8753ES	JP39240221	Mar. 21, 2014	Annual	Mar. 21, 2015
R&S	Base Station CMW500	1201.0002K50_116858	Jan. 17, 2014	Annual	Jan. 17, 2015

NOTE:

1. The E-field probe was calibrated by SPEAG, by the waveguide technique procedure. Dipole Verification measurement is performed by HCT Lab. before each test. The brain/body simulating material is calibrated by HCT using the dielectric probe system and network analyzer to determine the conductivity and permittivity
(dielectric constant) of the brain/body-equivalent material.
2. CBT(Calibrating Before Testing). Prior to testing, the dielectric probe kit was calibrated via the network analyzer, with the specified procedure(calibrated in pure water) and calibration kit(standard) short circuit, before the dielectric measurement. The specific procedure and calibration kit are provided by Agilent

5. SAR MEASUREMENT PROCEDURE

The evaluation was performed with the following procedure:

1. The SAR value at a fixed location above the ear point was measured and was used as a reference value for assessing the power drop.

2. The SAR distribution at the exposed side of the head was measured at a distance of 3.9 mm from the inner surface of the shell. The area covered the entire dimension of the head and the horizontal grid spacing was 15 mm x 15 mm. Based on this data, the area of the maximum absorption was determined by spline interpolation.

3. Around this point, a volume of 32 mm x 32 mm x 30 mm was assessed by measuring 5 x 5 x 7 points. On this basis of this data set, the spatial peak SAR value was evaluated with the following procedure:
   a. The data at the surface were extrapolated, since the center of the dipoles is 2.7 mm away from the tip of the probe and the distance between the surface and the lowest measuring point is 1.2 mm. The extrapolation was based on a least square algorithm. A polynomial of the fourth order was calculated through the points in z-axes. This polynomial was then used to evaluate the points between the surface and the probe tip.
   b. The maximum interpolated value was searched with a straight-forward algorithm. Around this maximum the SAR values averaged over the spatial volumes (1 g or 10 g) were computed using the 3D-Spline interpolation algorithm. The 3D-spline is composed of three one-dimensional splines with the "Not a knot" condition (in x, y, and z directions. The volume was integrated with the trapezoidal algorithm. One thousand points (10 x 10 x 10) were interpolated to calculate the average.
   c. All neighboring volumes were evaluated until no neighboring volume with a higher average value was found.

4. The SAR value, at the same location as procedure #1, was re-measured. If the value changed by more than 5 %, the evaluation is repeated.

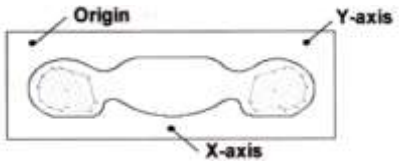


Figure 12. SAR Measurement Point in Area Scan

First Area Scan is used to locate the approximate location(s) of the local peak SAR value(s).
The measurement grid within an Area Scan is defined by the grid extend, grid step size and grid offset. Next, in order to determine the EM field distribution in a three-dimensional spatial extension, Zoom Scan is required. The Zoom Scan is performed around the hightest E-field value to determine the averaged SASR-distribution over 10g.
Area scan and zoom scan resolution setting follow KDB 865664 D01v01r03 quoted below.

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

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

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

6. DESCRIPTION OF TEST POSITION

6.1 HEAD POSITION

The device was placed in a normal operating position with the Point A on the device, as illustrated in following drawing, aligned with the location of the RE(ERP) on the phantom. With the ear-piece pressed against the head, the vertical center line of the body of the handset was aligned with an imaginary plane consisting of the RE, LE and M. While maintaining these alignments, the body of the handset was gradually moved towards the cheek until any point on the mouth-piece or keypad contacted the cheek. This is a cheek/touch position.
For ear/tilt position, while maintain the device aligned with the BM and FN lines, the device was pivot against ERP back for 15º or until the device antenna touch the phantom. Please refer to IEEE 1528-2003 illustration below.

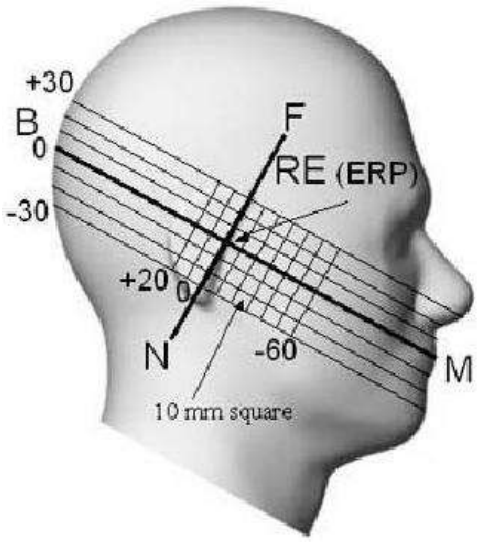


Figure 13. Side view of the phantom

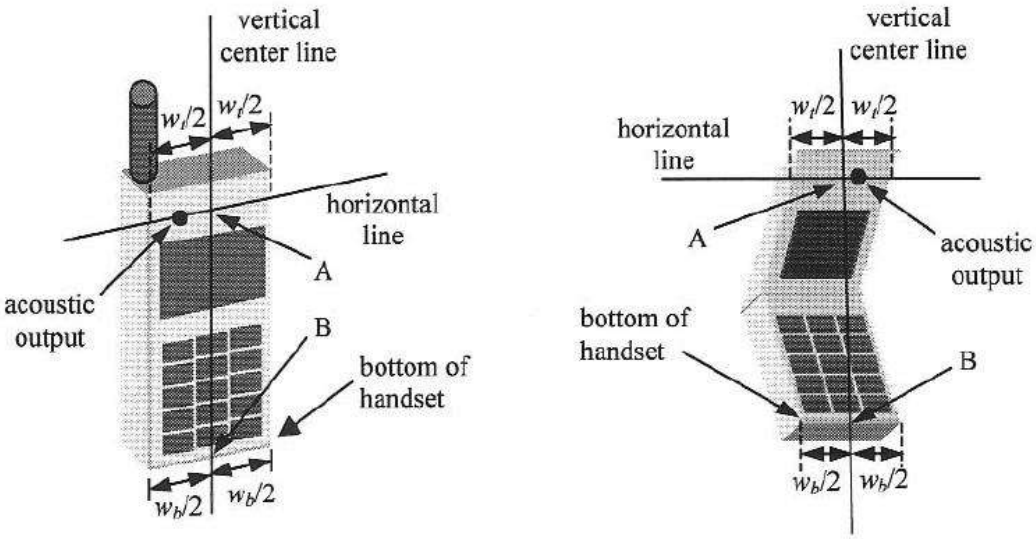


Figure 14. Handset vertical and horizontal reference lines

6.2 Body Holster/Belt Clip Configurations

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. A device with a headset output is tested with a headset connected to the device. Body dielectric parameters are used.

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

Body-worn accessories may not always be supplied or available as options for some Devices intended to be authorized for body-worn use. In this case, a test configuration with a separation distance between the back of the device and the flat phantom is used.

Since this EUT does not supply any body worn accessory to the end user a distance of 1.0 cm from the EUT back surface to the liquid interface is configured for the generic test.

"See the Test SET-UP Photo"

Transmitters that are designed to operate in front of a person’s face, as in push-to-talk configurations, are tested for SAR compliance with the front of the device positioned to face the flat phantom. For devices that are carried next to the body such as a shoulder, waist or chest-worn transmitters, SAR compliance is tested with the accessory(ies), Including headsets and microphones, attached to the device and positioned against a flat phantom in a normal use configuration.

In all cases SAR measurements are performed to investigate the worst-case positioning. Worstcase positioning is then documented and used to perform Body SAR testing.

7. MEASUREMENT UNCERTAINTY

Error Description	Tol (± %)	Prob. dist.	Div.	c_i	Standard Uncertainty (± %)	v_{eff}
1. Measurement System						
Probe Calibration	6.00	N	1	1	6.00	∞
Axial Isotropy	4.70	R	1.73	0.7	1.90	∞
Hemispherical Isotropy	9.60	R	1.73	0.7	3.88	∞
Boundary Effects	1.00	R	1.73	1	0.58	∞
Linearity	4.70	R	1.73	1	2.71	∞
System Detection Limits	1.00	R	1.73	1	0.58	∞
Readout Electronics	0.30	N	1.00	1	0.30	∞
Response Time	0.8	R	1.73	1	0.46	∞
Integration Time	2.6	R	1.73	1	1.50	∞
RF Ambient Conditions	3.00	R	1.73	1	1.73	∞
Probe Positioner	0.40	R	1.73	1	0.23	∞
Probe Positioning	2.90	R	1.73	1	1.67	∞
Max SAR Eval	1.00	R	1.73	1	0.58	∞
2.Test Sample Related						
Device Positioning	2.90	N	1.00	1	2.90	145
Device Holder	3.60	N	1.00	1	3.60	5
Power Drift	5.00	R	1.73	1	2.89	∞
3.Phantom and Setup						
Phantom Uncertainty	4.00	R	1.73	1	2.31	∞
Liquid Conductivity(target)	5.00	R	1.73	0.64	1.85	∞
Liquid Conductivity(meas.)	2.07	N	1	0.64	1.32	9
Liquid Permitivity(target)	5.00	R	1.73	0.6	1.73	∞
Liquid Permitivity(meas.)	5.02	N	1	0.6	3.01	9
Combind Standard Uncertainty					11.13	
Coverage Factor for 95 %					*k*=2	
Expanded STD Uncertainty					22.25	

Table 7.1 Uncertainty (800 MHz- 2 600 MHz)

Error Description	Tol (± %)	Prob. dist.	Div.	c_i	Standard Uncertainty (± %)	v_{eff}
1. Measurement System						
Probe Calibration	6.55	N	1	1	6.00	∞
Axial Isotropy	4.70	R	1.73	0.7	1.90	∞
Hemispherical Isotropy	9.60	R	1.73	0.7	3.88	∞
Boundary Effects	1.00	R	1.73	1	0.58	∞
Linearity	4.70	R	1.73	1	2.71	∞
System Detection Limits	1.00	R	1.73	1	0.58	∞
Readout Electronics	0.30	N	1.00	1	0.30	∞
Response Time	0.8	R	1.73	1	0.46	∞
Integration Time	2.6	R	1.73	1	1.50	∞
RF Ambient Conditions	3.00	R	1.73	1	1.73	∞
Probe Positioner	0.40	R	1.73	1	0.23	∞
Probe Positioning	2.90	R	1.73	1	1.67	∞
Max SAR Eval	1.00	R	1.73	1	0.58	∞
2.Test Sample Related						
Device Positioning	2.90	N	1.00	1	2.90	145
Device Holder	3.60	N	1.00	1	3.60	5
Power Drift	5.00	R	1.73	1	2.89	∞
3.Phantom and Setup						
Phantom Uncertainty	4.00	R	1.73	1	2.31	∞
Liquid Conductivity(target)	5.00	R	1.73	0.64	1.85	∞
Liquid Conductivity(meas.)	2.07	N	1	0.64	1.32	9
Liquid Permitivity(target)	5.00	R	1.73	0.6	1.73	∞
Liquid Permitivity(meas.)	5.02	N	1	0.6	3.01	9
Combind Standard Uncertainty					11.43	
Coverage Factor for 95 %					*k*=2	
Expanded STD Uncertainty					22.86	

Table 7.2 Uncertainty (5 000 – 5 900 MHz)

8. ANSI/ IEEE C95.1 - 1992 RF EXPOSURE LIMITS

HUMAN EXPOSURE	UNCONTROLLED ENVIRONMENT General Population (W/kg) or (mW/g)	CONTROLLED ENVIRONMENT Occupational (W/kg) or (mW/g)
SPATIAL PEAK SAR * (Brain)	1.60	8.00
SPATIAL AVERAGE SAR ** (Whole Body)	0.08	0.40
SPATIAL PEAK SAR *** (Hands / Feet / Ankle / Wrist)	4.00	20.00

Table 8.1 Safety Limits for Partial Body Exposure

NOTES:

* The Spatial Peak value of the SAR averaged over any 1 g of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.

** The Spatial Average value of the SAR averaged over the whole-body.

*** The Spatial Peak value of the SAR averaged over any 10 g of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.

Uncontrolled Environments are defined as locations where there is the exposure of individuals who have no knowledge or control of their exposure.

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).

9. SAR SYSTEM VALIDATION

Per FCC KCB 865664 D02v01r01, SAR system validation status should be document to confirm measurement accuracy. The SAR systems (including SAR probes, system components and software versions) used for this device were validated against its performance specifications prior to the SAR measurements. Reference dipoles were used with the required tissue- equivalent media for system validation, according to the procedures outlined in IEEE 1528-2003 and FCC KDB 865664 D01v01r03. Since SAR probe calibrations are frequency dependent, each probe calibration point was validated at a frequency within the valid frequency range of the probe calibration point, using the system that normally operates with the probe for routine SAR measurements and according to the required tissue-equivalent media.

A tabulated summary of the system validation status including the validation date(s), measurement frequencies, SAR probes and tissue dielectric parameters has been included.

SAR System #	Probe	probe Type	Probe Calibration Point		Dipole	Date	Dielectric Parameters		CW Validation			Modulation Validation		
							Measured Permittivity	Measured Conductivity	Sensitivity	Probe Linearity	Probe Isortopy	MOD. Type	Duty Factor	PAR
9	3968	EX3DV4	Head	750	1014	Jan.20,2014	42	0.91	PASS	PASS	PASS	N/A	N/A	N/A
9	3968	EX3DV4	Body	750	1014	Jan.20,2014	56.1	0.96	PASS	PASS	PASS	N/A	N/A	N/A
4	1605	ET3DV6	Head	835	4d165	Feb.12,2014	40.9	0.92	PASS	PASS	PASS	GMSK	PASS	N/A
4	1605	ET3DV6	Body	835	4d165	Feb.12,2014	54.8	0.99	PASS	PASS	PASS	GMSK	PASS	N/A
9	3968	EX3DV4	Head	1800	2d006	Apr.10,2014	40.2	1.41	PASS	PASS	PASS	N/A	N/A	N/A
9	3968	EX3DV4	Body	1800	2d006	Apr.10,2014	53.1	1.51	PASS	PASS	PASS	N/A	N/A	N/A
4	1605	ET3DV6	Head	1900	5d032	Feb.06,2014	38.9	1.41	PASS	PASS	PASS	GMSK	PASS	N/A
4	1605	ET3DV6	Body	1900	5d032	Feb.06,2014	52.7	1.55	PASS	PASS	PASS	GMSK	PASS	N/A
9	3968	EX3DV4	Head	1900	5d032	Jan. 22,2014	40.1	1.37	PASS	PASS	PASS	NA	NA	N/A
9	3968	EX3DV4	Body	1900	5d032	Jan. 23,2014	53.6	1.53	PASS	PASS	PASS	NA	NA	N/A
2	1609	ET3DV6	Head	2450	743	Oct.10,2013	38.7	1.79	PASS	PASS	PASS	OFDM	N/A	PASS
2	1609	ET3DV6	Body	2450	743	Oct.10,2013	51.9	1.97	PASS	PASS	PASS	OFDM	N/A	PASS
8	3968	EX3DV4	Head	2600	1015	May.07,2014	39.2	1.98	PASS	PASS	PASS	NA	N/A	NA
9	3968	EX3DV4	Body	2600	1015	May.7,2014	52.7	2.14	PASS	PASS	PASS	NA	N/A	NA
8	3967	EX3DV4	Head	5200	1107	Feb.13,2014	35.8	4.57	PASS	PASS	PASS	OFDM	N/A	PASS
8	3967	EX3DV4	Head	5300	1107	Feb.13,2014	35.7	4.75	PASS	PASS	PASS	OFDM	N/A	PASS
8	3967	EX3DV4	Head	5500	1107	Feb.13,2014	35.4	4.92	PASS	PASS	PASS	OFDM	N/A	PASS
8	3967	EX3DV4	Head	5600	1107	Feb.13,2014	35.2	4.99	PASS	PASS	PASS	OFDM	N/A	PASS
8	3967	EX3DV4	Head	5800	1107	Feb.13,2014	35.1	5.29	PASS	PASS	PASS	OFDM	N/A	PASS
8	3967	EX3DV4	Body	5200	1107	Feb.14,2014	48.9	5.27	PASS	PASS	PASS	OFDM	N/A	PASS
8	3967	EX3DV4	Body	5300	1107	Feb.14,2014	48.5	5.38	PASS	PASS	PASS	OFDM	N/A	PASS
8	3967	EX3DV4	Body	5500	1107	Feb.14,2014	48.1	5.63	PASS	PASS	PASS	OFDM	N/A	PASS
8	3967	EX3DV4	Body	5600	1107	Feb.14,2014	47.8	5.72	PASS	PASS	PASS	OFDM	N/A	PASS
8	3967	EX3DV4	Body	5800	1107	Feb.14,2014	47.3	5.94	PASS	PASS	PASS	OFDM	N/A	PASS

SAR System Validation Summary

Note;

All measurement were performed using probes calibrated for CW signal only. Modulations in the table above represent test configurations for which the measurement system has been validated per FCC KDB Publication 865664 D01v01r03. SAR system were validated for modulated signals with a periodic duty cycle, such as GMSK, or with a high peak to average ratio (>5 dB), such as OFDM according to KDB 865664 D01v01r03.

10. SYSTEM VERIFICATION

10.1 Tissue Verification

Freq. [MHz]	Date	Probe	Dipole	Liquid	Liquid Temp. [°C]	Parameters	Target Value	Measured Value	Deviation [%]	Limit [%]
750	May. 07, 2014	3968	1014	Head	21.1	ε r	41.9	42.553	+ 1.56	± 5
						σ	0.89	0.903	+ 1.46	± 5
750	May. 07, 2014			Body	21.1	ε r	55.5	54.732	- 1.38	± 5
						σ	0.96	0.984	+ 2.50	± 5
835	Apr. 30, 2014	1605	4d165	Head	21.1	ε r	41.5	42.3	+ 1.93	± 5
						σ	0.92	0.894	- 2.83	± 5
835	May. 07, 2014			Body	21.2	ε r	55.2	54.3	- 1.63	± 5
						σ	0.97	0.984	+ 1.44	± 5
1 800	May. 08, 2014	3968	2d006	Head	21.4	ε r	40.0	40.099	+ 0.25	± 5
						σ	1.40	1.4	+ 0.00	± 5
1 800	May. 07, 2014			Body	21.1	ε r	53.3	52.073	- 2.30	± 5
						σ	1.52	1.535	+ 0.99	± 5
1 900	Apr. 28, 2014	1605	5d032	Head	20.2	ε r	40.0	39.1	- 2.25	± 5
						σ	1.40	1.42	+ 1.43	± 5
1 900	Apr. 29, 2014			Body	20.5	ε r	53.3	52.3	- 1.88	± 5
						σ	1.52	1.5	- 1.32	± 5
1 900	May. 08, 2014	3968	5d032	Head	21.4	ε r	40.0	38.872	- 2.82	± 5
						σ	1.40	1.437	+ 2.64	± 5
1 900	Apr. 30, 2014			Body	20.5	ε r	53.3	52.292	- 1.89	± 5
						σ	1.52	1.499	- 1.38	± 5
2 450	Apr. 28, 2014	1609	743	Head	20.0	ε r	39.2	39.8	+ 1.53	± 5
						σ	1.80	1.8	+ 0.00	± 5
2 450	Apr. 28, 2014			Body	20.0	ε r	52.7	52.1	- 1.14	± 5
						σ	1.95	1.95	+ 0.00	± 5
2 535*	May. 09, 2014	3968	1015	Head	20.3	ε r	39.09	38.848	- 0.58	± 5
						σ	1.893	1.961	+ 3.77	± 5
2 535*	May. 09, 2014			Body	20.3	ε r	52.561	54.495	- 0.34	± 5
						σ	2.072	2.104	+ 3.99	± 5
2 600	May. 09, 2014	3968	1015	Head	20.3	ε r	39.0	38.623	- 0.97	± 5
						σ	1.96	2.035	+ 3.83	± 5
2 600	May. 09, 2014			Body	20.3	ε r	52.5	54.31	+ 3.45	± 5
						σ	2.16	2.188	+ 1.30	± 5
5 200	May. 07, 2014	3967	1107	Head	20.6	ε_r	36	36.074	+ 0.21	± 5
						σ	4.66	4.523	- 2.94	± 5
5 200	Apr. 29, 2014			Body	19.9	ε_r	49.01	49.275	+ 0.54	± 5
						σ	5.3	5.263	- 0.70	± 5
5 300	May. 07, 2014			Head	20.6	ε_r	35.9	35.72	- 0.50	± 5
						σ	4.76	4.674	- 1.81	± 5
5 300	Apr. 29, 2014			Body	19.9	ε_r	48.9	49.02	+ 0.25	± 5
						σ	5.42	5.434	+ 0.26	± 5
5 500	May. 07, 2014			Head	20.6	ε_r	35.6	35.234	- 1.03	± 5
						σ	4.96	4.841	- 2.40	± 5
5 500	Apr. 29, 2014			Body	19.9	ε_r	48.6	48.422	- 0.37	± 5
						σ	5.65	5.778	+ 2.27	± 5
5 600	May. 07, 2014			Head	20.6	ε_r	35.5	35.081	- 1.18	± 5
						σ	5.07	4.944	- 2.49	± 5
5 600	Apr. 29, 2014			Body	19.9	ε_r	48.5	48.179	- 0.66	± 5
						σ	5.77	5.934	+ 2.84	± 5
5 800	May. 07, 2014			Head	20.6	ε_r	35.3	34.482	- 2.32	± 5
						σ	5.27	5.232	- 0.72	± 5
5 800	Apr. 29, 2014			Body	19.9	ε_r	48.2	47.672	- 1.10	± 5
						σ	6.00	6.268	+ 4.47	± 5

The Tissue dielectronic parameters were measured prior to the SAR evaluation using an 85070C Dielectronic Probe Kit and Network Analyzer.

*Note: 2 535 MHz tissue verification is for LTE Band 7 test channel.

10.2 System Verification

Prior to assessment, the system is verified to the ± 10 % of the specifications at 750 MHz/ 835 MHz / 1800 MHz/ 1 900 MHz / 2 450 MHz / 2 600 MHz / 5 200 MHz / 5 300 MHz / 5 500 MHz / 5 600 MHz / 5 800 MHz by using the system Verification kit. (Graphic Plots Attached)

[System Verification Results]

Freq. [MHz]	Date	Probe (SN)	Dipole (SN)	Liquid	Amb. Temp. [°C]	Liquid Temp. [°C]	1 W Target SAR_{1g} (SPEAG) (mW/g)	Measured SAR_{1g} (mW/g)	1 W Normalized SAR_{1g} (mW/g)	Deviation [%]	Limit [%]
750	May. 07, 2014	3968	1014	Head	21.3	21.1	8.41	0.878	8.78	+ 4.40	± 10
750	May. 07, 2014			Body	21.3	21.1	8.77	0.862	8.62	- 1.71	± 10
835	Apr. 30, 2014	1605	4d165	Head	21.3	21.1	9.24	0.907	9.07	- 1.84	± 10
835	May. 07, 2014			Body	21.4	21.2	9.58	0.937	9.37	- 2.19	± 10
1 800	May. 08, 2014	3968	2d006	Head	21.6	21.4	38.1	3.83	38.3	+ 0.52	± 10
1 800	May. 07, 2014			Body	21.3	21.1	38.1	3.77	37.7	- 1.05	± 10
1 900	Apr. 28, 2014	1605	5d032	Head	20.4	20.2	40.1	4.1	41	+ 2.24	± 10
1 900	Apr. 29, 2014			Body	20.7	20.5	40.5	4.09	40.9	+ 0.99	± 10
1 900	May. 08, 2014	3968	5d032	Head	21.6	21.4	40.1	4.01	40.1	+ 0.00	± 10
1 900	Apr. 30, 2014			Body	20.7	20.5	40.5	4.04	40.4	- 0.25	± 10
2 450	Apr. 28, 2014	1609	743	Head	20.2	20.0	52.8	5.3	53	+ 0.38	± 10
2 450	Apr. 28, 2014			Body	20.2	20.0	50.5	5.24	52.4	+ 3.76	± 10
2 600	May. 09, 2014	3968	1015	Head	20.5	20.3	57.7	5.58	55.8	- 3.29	± 10
2 600	May. 09, 2014			Body	20.5	20.3	55.5	5.56	55.6	+ 0.18	± 10
5 200	May. 07, 2014	3967	1107	Head	20.8	20.6	77.8	7.97	79.7	+ 2.44	± 10
5 200	Apr. 29, 2014			Body	20.1	19.9	74.7	7.23	72.3	- 3.21	± 10
5 300	May. 07, 2014			Head	20.8	20.6	82.9	8.35	83.5	+ 0.72	± 10
5 300	Apr. 29, 2014			Body	20.1	19.9	75.8	7.35	73.5	- 3.03	± 10
5 500	May. 07, 2014			Head	20.8	20.6	84.0	8.61	86.1	+ 2.50	± 10
5 500	Apr. 29, 2014			Body	20.1	19.9	79.1	8.20	82.0	+ 3.67	± 10
5 600	May. 07, 2014			Head	20.8	20.6	83.0	8.27	82.7	- 0.36	± 10
5 600	Apr. 29, 2014			Body	20.1	19.9	80.2	7.67	76.7	- 4.36	± 10
5 800	May. 07, 2014			Head	20.8	20.6	79.4	7.89	78.9	- 0.63	± 10
5 800	Apr. 29, 2014			Body	20.1	19.9	74.4	7.32	73.2	- 1.61	± 10

10.3 System Verification Procedure

SAR measurement was prior to assessment, the system is verified to the ± 10 % of the specifications at each frequency band by using the system Verification kit. (Graphic Plots Attached)

- Cabling the system, using the Verification kit equipments.
- Generate about 100 mW Input Level from the Signal generator to the Dipole Antenna.
- Dipole Antenna was placed below the Flat phantom.
- The measured one-gram SAR at the surface of the phantom above the dipole feed-point should be within 10 % of the target reference value.
- The results are normalized to 1 W input power.

Note;
SAR Verification was performed according to the FCC KDB 865664 D01v01r03.

11. RF CONDUCTED POWER MEASUREMENT

Power measurements were performed using a base station simulator under digital average power.
The handset was placed into a simulated call using a base station simulator in a shielded chamber.
Such test signals offer a consistent means for testing SAR and are recommended for evaluation SAR
SAR measurements were taken with a fully charged battery. In order to verify that the device was tested
and maintained at full power, this was configured with the base station simulator. The SAR measurement
Software calculates a reference point at the start and end of the test to check for power drifts. If conducted
Power deviations of more then 5 % occurred, the tests were repeated.

11.1 Output Power Specifications.

This device operates using the following maximum output power specifications. SAR values were scaled to the maximum allowed power to determine compliance per KDB publication 447498 D01v05r02.

GSM

GSM850		GSM1900	
Target Power : 33.2 dBm		Target Power : 30.2 dBm	
GPRS850		PCS1900	
GPRS 1tx : 33.2 dBm	EGPRS 1tx : 27.2 dBm	GPRS 1tx : 30.2 dBm	EGPRS 1tx : 26.2 dBm
GPRS 2tx : 31.2 dBm	EGPRS 2tx : 27.2 dBm	GPRS 2tx : 28.2 dBm	EGPRS 2tx : 26.2 dBm
GPRS 3tx : 29.2 dBm	EGPRS 3tx : 26.2 dBm	GPRS 3tx : 27.2 dBm	EGPRS 3tx : 25.2 dBm
GPRS 4tx : 27.2 dBm	EGPRS 4tx : 25.2 dBm	GPRS 4tx : 26.2 dBm	EGPRS 4tx : 24.2 dBm
Tune-up Tolerance : -1.5 dB/ +0.5 dB			

WCDMA

WCDMA850	WCDMA1900
Target Power : 23.2 dBm	Target Power : 23.2 dBm
Tune-up Tolerance : -1.5 dB/ +0.5 dB	

* The HSUPA transmitter power will not exceed the R99 maximum transmit Power in devices based on Qualcomm's HSPA chipset solutions

LTE

Mode/Band	LTE Band 2		LTE Band 4		LTE Band 7		LTE Band 17	
Target Power	23.2 dBm		23.2 dBm		23.2 dBm		23.2 dBm	
Tune-up Tolerance : -1.5 dB/ +0.5 dB								
RB Size	1	1	50%	100%	1	1	50%	100%
Mode	QPSK	QPSK	QPSK	QPSK	16-QAM	16-QAM	16-QAM	16-QAM
MPR	0	0	1	1	1	1	2	2
* MPR Tolerance : +0.5dB/-0.5dB								

Wifi

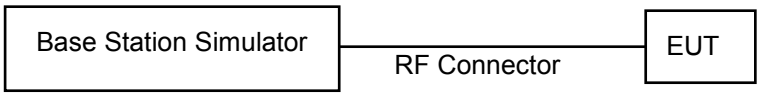
Wifi (Average Power)	Mode / Band								
	2.4 GHz			5 GHz					
	802.11b	802.11g	802.11n	802.11a	802.11n (20MHz)	802.11n (40MHz)	802.11ac (20MHz)	802.11ac (40MHz)	802.11ac (80MHz)
Maximum	17 dBm	14 dBm	13 dBm	10 dBm	9 dBm	8.5 dBm	9 dBm	8.5 dBm	9 dBm
Nominal	16 dBm	13 dBm	12 dBm	9 dBm	8 dBm	7.5 dBm	8 dBm	7.5 dBm	8 dBm

BT.

Mode / Band	1Mbps(GFSK)	2Mbps(DPSK)	3Mbps(8DPSK)	LE
Maximum	6.5 dBm	4 dBm	4 dBm	2.5 dBm
Nominal	5.5 dBm	3 dBm	3 dBm	1.5 dBm

11.2 GSM

Conducted output power measurements were performed using a base station simulator under digital average power.



SAR Test for WWAN were performed with a base station simulator Agilent E5515C. Communication between the device and the emulator was established by air link. Set base station emulator to allow DUT to radiate maximum output power during all tests. Please refer to the below worst case SAR operation setup.

- GSM voice: Head SAR
- GPRS Multi-slots : Body SAR with GPRS/EDGE Multi-slot Class12 with CS 1 (GMSK)

Note;
CS1/MCS7 coding scheme was used in GPRS/EDGE output power measurements and SAR Testing, as a condition where GMSK/8PSK modulation was ensured. Investigation has shown that CS1 - CS4/ MCS5 – MCS9 settings do not have any impact on the output levels in the GPRS/EDGE modes.

GSM Conducted output powers (Burst-Average)

Band	Ch.	Voice	GPRS(GMSK) Data – CS1				EDGE Data			
		GSM (dBm)	GPRS 1 TX Slot (dBm)	GPRS 2 TX Slot (dBm)	GPRS 3 TX Slot (dBm)	GPRS 4 TX Slot (dBm)	EDGE 1 TX Slot (dBm)	EDGE 2 TX Slot (dBm)	EDGE 3 TX Slot (dBm)	EDGE 4 TX Slot (dBm)
GSM 850	128	33.30	33.26	31.43	29.05	27.22	26.70	26.63	26.02	24.91
	190	33.41	33.36	31.49	29.18	27.35	26.87	26.83	26.24	25.14
	251	33.46	33.33	31.39	29.47	27.30	26.93	26.90	26.29	25.17
GSM 1900	512	30.00	30.02	28.19	26.85	26.16	25.54	25.41	24.75	23.57
	661	29.97	29.95	28.29	27.14	26.27	25.66	25.59	24.93	23.76
	810	30.01	29.94	28.23	26.92	26.13	25.75	25.67	24.96	23.83

GSM Conducted output powers (Frame-Average)

Band	Ch.	Voice	GPRS(GMSK) Data – CS1				EDGE Data			
		GSM (dBm)	GPRS 1 TX Slot (dBm)	GPRS 2 TX Slot (dBm)	GPRS 3 TX Slot (dBm)	GPRS 4 TX Slot (dBm)	EDGE 1 TX Slot (dBm)	EDGE 2 TX Slot (dBm)	EDGE 3 TX Slot (dBm)	EDGE 4 TX Slot (dBm)
GSM 850	128	24.27	24.23	25.41	24.79	24.21	17.67	20.61	21.76	21.90
	190	24.38	24.33	25.47	24.92	24.34	17.84	20.81	21.98	22.13
	251	24.43	24.30	25.37	25.21	24.29	17.90	20.88	22.03	22.16
GSM 1900	512	20.97	20.99	22.17	22.59	23.15	16.51	19.39	20.49	20.56
	661	20.94	20.92	22.27	22.88	23.26	16.63	19.57	20.67	20.75
	810	20.98	20.91	22.21	22.66	23.12	16.72	19.65	20.70	20.82

Note:

Time slot average factor is as follows:
1 Tx slot = 9.03 dB, Frame-Average output power = Burst-Average output power – 9.03 dB
2 Tx slot = 6.02 dB, Frame-Average output power = Burst-Average output power – 6.02 dB
3 Tx slot = 4.26 dB, Frame-Average output power = Burst-Average output power – 4.26 dB
4 Tx slot = 3.01 dB, Frame-Average output power = Burst-Average output power – 3.01 dB

11.3 WCDMA

Body SAR is not required for handsets with HSDPA capabilities when the maximum average output of each RF channel with HSDPA active is less than ¼ dB higher than that measured without HSDPA using 12.2 kbps RMC and the maximum SAR for 12.2 kbps RMC is ≤ 75 % of the SAR limit. Otherwise, SAR is Measured for HSDPA, using an FRC with H-Set 1 in Sub-test 1 and a 12.2 kbps RMC configured in Test Loop Mode 1, using the highest body SAR configuration in 12.2 kbps RMC without HSDPA, on the maximum output channel with the body exposure configuration that results in the highest SAR in 12.2 kbps RMC for that RF channel.

11.3.1 Output Power Verification

Maximum output power is verified on the High, Middle and Low channels according to the general descriptions in section 5.2 of 3 GPP TS 34.121, using the appropriate RMC or AMR with TPC(transmit power control) set to all "1s".

11.3.2 Head SAR Measurements

SAR for head exposure configurations is measured using the 12.2 kbps RMC with TPC bits configured to all "1s". SAR in AMR configurations is not required when the maximum average output of each RF channel for 12.2 kbps AMR is less than ¼ dB higher than that measured in 12.2 kbps RMC. Otherwise, SAR is measured on the maximum output channel in 12.2 AMR with a 3.4 kbps SRB (signaling radio bearer using the exposure configuration that results in the highest SAR for that RF channel in 12.2 RMC.

11.3.3 Body SAR Measurement

SAR for body exposure configurations is measured using the 12.2 kbps RMC with the TPC bits all "1s".

11.3.4 Handsets with Release 5 HSDPA

Body SAR is not required for handsets with HSDPA capabilities when the maximum average output of each RF channel with HSDPA active is less than ¼ dB higher than that measured without HSDPA using 12.2 kbps RMC and the maximum SAR for 12.2 kbps RMC is ≤ 75 % of the SAR limit. Otherwise, SAR is Measured for HSDPA, using an FRC with H-Set 1 in Sub-test 1 and a 12.2 kbps RMC configured in Test Loop Mode 1, using the highest body SAR configuration in 12.2 kbps RMC without HSDPA, on the maximum output channel with the body exposure configuration that results in the highest SAR in 12.2 kbps RMC for that RF channel.

Sub-Test 1 Setup for Release 5 HSDPA

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	β_{hs} (1)	CM (dB) (2)
1	2/15	15/15	64	2/15	4/15	0.0
2	12/15 (3)	15/15 (3)	64	12/15 (3)	24/15	1.0
3	15/15	8/15	64	15/8	30/15	1.5
4	15/15	4/15	64	15/4	30/15	1.5

Note 1: Δ_{ACK}, Δ_{NACK} and $\Delta_{CQI} = 8 \Leftrightarrow A_{hs} = \beta_{hs}/\beta_c = 30/15 \Leftrightarrow \beta_{hs} = 30/15 * \beta_c$
Note 2: CM = 1 for β_c/β_d =12/15, β_{hs}/β_c=24/15.
Note 3: 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 signaled gain factors for the reference TFC (TF1, TF1) to β_c = 11/15 and β_d = 15/15.

11.3.5 Handsets with Release 6 HSPA (HSDPA/HSUPA)

Body SAR is not required for handsets with HSPA capabilities when the maximum average output of each RF channel with HSUPA/HSDPA active is less than ¼ dB higher than that measured without HSUPA/HSDPA using 12.2 kbps RMC and the maximum SAR for 12.2 kbps RMC is ≤ 75 % of the SAR limit. Body SAR for HSPA is measured with E-DCH Sub-test 5, using H-Set 1 and QPSK for FRC and a 12.2 kbps RMC configured in Test Loop Mode 1 with power control algorithm 2, according to the highest body SAR configuration in 12.1 kbps RMC without HSPA. When VOIP is applicable for head exposure, SAR is not required when the maximum output of each RF channel with HSPA is less than ¼ dB higher than that measured using 12.2 kbps RMC; otherwise, the same HSPA configuration used for body measurement should be used to test for head exposure.

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	β_{hs}(1)	β_{ec}	β_{ed}	β_{ed} (SF)	β_{ed} (codes)	CM(2) (dB)	MPR (dB)	AG(4) Index	E-TFCI
1	11/15(3)	15/15(3)	64	11/15(3)	22/15	209/225	1039/225	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_{ed1}: 47/15 β_{ed2}: 47/15	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(4)	15/15(4)	64	15/15(4)	30/15	24/15	134/15	4	1	1.0	0.0	21	81

Note 1: Δ_{ACK}, Δ_{NACK} and $\Delta_{CQI} = 8 \Leftrightarrow A_{hs} = \beta_{hs}/\beta_c = 30/15 \Leftrightarrow \beta_{hs} = 30/15 * \beta_c$.
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 signaled 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 signaled gain factors for the reference TFC (TF1, TF1) to β_c = 14/15 and β_d = 15/15.
Note 5: Testing UE using E-DPDCH Physical Layer category 1 Sub-test 3 is not required according to TS 25.306 Table 5.1g.
Note 6: β_{ed} can not be set directly; it is set by Absolute Grant Value.

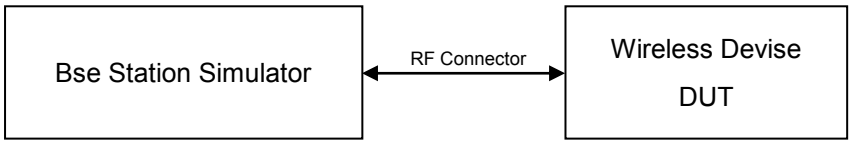
11.3.6 DC-HSDPA

UMTS SAR was tested under RMC 12.2 kbps with HSPA inactive per KDB publication 941225 D01v02.
HSPA SAR was not required since the average output power of the HSPA subtests was not more than 0.25 dB higher than the RMC level and SAR was less than 1.2 W/kg.

DC-HSDPA Considerations:

- 3GPP Specification 34.121-1 Release 8 Ver 8.10.0 was used for DC-HSDPA guidance
- H-Set 12(QPSK) was confirmed to be used during DC-HSDPA measurements
- Measured maximum output powers for DC-HSDPA were not greater than 1/4 dB higher than the WCDMA 12.2 kbps RMC maximum output and as a result, SAR is not required for DC-HSDPA
- The DUT supports UE category 24 for HSDPA

It is expected by the manufacturer that MPR for some HSUPA subtests may be up to 1 dB more than specified by 3GPP, but also as low as 0 dB according to the chipset implementation in this model.



WCDMA 850

3GPP Release Version	Mode	3GPP 34.121 Subtest	Cellular Band [dBm]		
			UL 4132 DL 4357	UL 4183 DL 4408	UL 4233 DL 4458
99	WCDMA	12.2 kbps RMC	23.57	23.63	23.64
99	WCDMA	12.2 kbps AMR	23.59	23.58	23.66
5	HSDPA	Subtest 1	23.53	23.67	23.66
5		Subtest 2	23.62	23.69	23.67
5		Subtest 3	23.16	23.18	23.18
5		Subtest 4	23.14	23.15	23.14
6	HSUPA	Subtest 1	23.17	23.38	23.47
6		Subtest 2	21.69	21.68	21.63
6		Subtest 3	22.19	22.36	22.57
6		Subtest 4	21.68	21.65	21.62
6		Subtest 5	23.16	23.28	23.48
8	DC-HSDPA	Subtest 1	23.37	23.48	23.40
8		Subtest 2	23.34	23.49	23.38
8		Subtest 3	22.88	23.00	23.00
8		Subtest 4	22.86	23.02	22.98

WCDMA Average Conducted output powers

WCDMA1900

3GPP Release Version	Mode	3GPP 34.121 Subtest	PCS Band [dBm]		
			UL 9262 DL 9662	UL 9400 DL 9800	UL 9538 DL 9938
99	WCDMA	12.2 kbps RMC	23.65	23.70	23.65
99	WCDMA	12.2 kbps AMR	23.63	23.68	23.59
5	HSDPA	Subtest 1	23.70	23.68	23.65
5		Subtest 2	23.64	23.64	23.67
5		Subtest 3	23.20	23.18	21.18
5		Subtest 4	23.17	23.15	23.19
6	HSUPA	Subtest 1	23.10	23.60	23.10
6		Subtest 2	21.64	21.34	21.65
6		Subtest 3	22.62	22.62	22.69
6		Subtest 4	21.64	21.61	21.67
6		Subtest 5	23.43	23.65	23.12
8	DC-HSDPA	Subtest 1	22.95	23.14	23.18
8		Subtest 2	22.92	23.10	23.10
8		Subtest 3	22.39	22.77	22.58
8		Subtest 4	22.49	22.76	22.57

WCDMA Average Conducted output powers

11.3 LTE

SAR testing was performed according to the FCC KDB 941225 D05v02r03 publication.
This DUT is developed base on MPR. The MPR is mandatory.
The device will not operate with any other MPR setting than that stated in the table as indicated.
SAR Testing was performed using a CMW500. UE transmits with Maximum output power during SAR testing.
A-MPR has been disabled for all SAR tests by setting NS=01 on the R&S CMW500.

- LTE Band 2

Bandwidth	UL Channel	UL Freq.(MHz)	Modulation	RB Size	RB Offset	Max.Average Power (dBm)
5 MHz	18625	1852.5	QPSK	1	0	23.26
				1	12	23.30
				1	24	23.24
				12	0	22.31
				12	6	22.31
				12	11	22.36
				25	0	22.31
			16QAM	1	0	22.03
				1	12	22.02
				1	24	22.03
				12	0	21.30
				12	6	21.27
				12	11	21.30
				25	0	21.34
5 MHz	18900	1880.0	QPSK	1	0	23.28
				1	12	23.34
				1	24	23.35
				12	0	22.43
				12	6	22.35
				12	11	22.36
				25	0	22.40
			16QAM	1	0	22.13
				1	12	22.10
				1	24	22.19
				12	0	21.33
				12	6	21.32
				12	11	21.39
				25	0	21.44
5 MHz	19175	1907.5	QPSK	1	0	23.10
				1	12	23.07
				1	24	23.02
				12	0	22.10
				12	6	22.08
				12	11	22.11
				25	0	22.10
			16QAM	1	0	22.52
				1	12	22.41
				1	24	22.44
				12	0	21.12
				12	6	21.10
				12	11	21.14
				25	0	21.11

Bandwidth	UL Channel	UL Freq.(MHz)	Modulation	RB Size	RB Offset	Max.Average Power (dBm)
10MHz	18650	1855	QPSK	1	0	23.33
				1	24	23.28
				1	49	23.40
				25	0	22.34
				25	12	22.31
				25	24	22.36
				50	0	22.32
			16QAM	1	0	22.09
				1	24	22.07
				1	49	22.11
				25	0	21.23
				25	12	21.20
				25	24	21.26
				50	0	21.23
10MHz	18900	1880	QPSK	1	0	23.38
				1	24	23.41
				1	49	23.39
				25	0	22.40
				25	12	22.43
				25	24	22.44
				50	0	22.38
			16QAM	1	0	22.21
				1	24	22.17
				1	49	22.24
				25	0	21.31
				25	12	21.32
				25	24	21.34
				50	0	21.38
10MHz	19150	1905	QPSK	1	0	23.21
				1	24	23.18
				1	49	23.11
				25	0	22.15
				25	12	22.12
				25	24	22.13
				50	0	22.14
			16QAM	1	0	22.08
				1	24	22.00
				1	49	21.91
				25	0	21.30
				25	12	21.22
				25	24	21.22
				50	0	21.19

Bandwidth	UL Channel	UL Freq.(MHz)	Modulation	RB Size	RB Offset	Max.Average Power (dBm)
15MHz	18675	1857.5	QPSK	1	0	23.37
				1	37	23.28
				1	74	23.39
				36	0	22.43
				36	18	22.34
				36	37	22.36
				75	0	22.37
			16QAM	1	0	22.13
				1	37	22.11
				1	74	22.23
				36	0	21.23
				36	18	21.21
				36	38	21.23
				75	0	21.26
15MHz	18900	1880	QPSK	1	0	23.35
				1	37	23.37
				1	74	23.35
				36	0	22.48
				36	18	22.36
				36	38	22.41
				75	0	22.43
			16QAM	1	0	22.17
				1	37	22.18
				1	74	22.29
				36	0	21.41
				36	18	21.32
				36	38	21.31
				75	0	21.35
15MHz	19125	1902.5	QPSK	1	0	23.23
				1	37	23.14
				1	74	23.15
				36	0	22.27
				36	18	22.24
				36	38	22.18
				75	0	22.22
			16QAM	1	0	22.63
				1	37	22.54
				1	74	22.44
				36	0	21.36
				36	18	21.20
				36	38	21.15
				75	0	21.22

Bandwidth	UL Channel	UL Freq.(MHz)	Modulation	RB Size	RB Offset	Max.Average Power (dBm)
20MHz	18700	1860	QPSK	1	0	23.14
				1	49	23.20
				1	99	23.21
				50	0	22.30
				50	25	22.35
				50	49	22.34
				100	0	22.40
			16QAM	1	0	22.38
				1	49	22.42
				1	99	22.42
				50	0	21.30
				50	25	21.30
				50	49	21.21
				100	0	21.32
20MHz	18900	1880	QPSK	1	0	23.21
				1	49	23.34
				1	99	23.28
				50	0	22.41
				50	25	22.45
				50	49	22.48
				100	0	22.46
			16QAM	1	0	22.47
				1	49	22.52
				1	99	22.53
				50	0	21.44
				50	25	21.44
				50	49	21.43
				100	0	21.46
20MHz	19100	1900	QPSK	1	0	23.37
				1	49	23.16
				1	99	23.12
				50	0	22.36
				50	25	22.31
				50	49	22.27
				100	0	22.32
			16QAM	1	0	22.55
				1	49	22.41
				1	99	22.30
				50	0	21.38
				50	25	21.36
				50	49	21.32
				100	0	21.37

Bandwidth	UL Channel	UL Freq.(MHz)	Modulation	RB Size	RB Offset	Max.Average Power (dBm)
3MHz	18615	1851.5	QPSK	1	0	23.34
				1	7	23.34
				1	14	23.41
				8	0	22.31
				8	3	22.29
				8	7	22.27
				15	0	22.28
			16QAM	1	0	22.05
				1	7	22.08
				1	14	22.18
				8	0	21.27
				8	3	21.25
				8	7	21.31
				15	0	21.25
3MHz	18900	1880	QPSK	1	0	23.38
				1	7	23.42
				1	14	23.45
				8	0	22.33
				8	3	22.32
				8	7	22.36
				15	0	22.40
			16QAM	1	0	22.24
				1	7	22.14
				1	14	22.23
				8	0	21.35
				8	3	21.33
				8	7	21.35
				15	0	21.31
3MHz	19185	1908.5	QPSK	1	0	23.09
				1	7	23.05
				1	14	23.60
				8	0	22.03
				8	3	22.05
				8	7	22.07
				15	0	22.11
			16QAM	1	0	21.91
				1	7	21.88
				1	14	21.90
				8	0	21.07
				8	3	21.08
				8	7	21.11
				15	0	21.05

Bandwidth	UL Channel	UL Freq.(MHz)	Modulation	RB Size	RB Offset	Max.Average Power (dBm)
1.4MHz	18607	1850.7	QPSK	1	0	23.26
				1	3	23.18
				1	5	23.20
				3	0	23.24
				3	1	23.19
				3	3	23.34
				6	0	22.29
			16QAM	1	0	22.37
				1	3	22.32
				1	5	22.32
				3	0	22.21
				3	1	22.18
				3	3	22.22
				6	0	21.31
1.4MHz	18900	1880	QPSK	1	0	23.38
				1	3	23.33
				1	5	23.41
				3	0	23.31
				3	1	23.24
				3	3	23.34
				6	0	22.48
			16QAM	1	0	22.15
				1	3	22.16
				1	5	22.23
				3	0	22.53
				3	1	22.49
				3	3	22.48
				6	0	21.42
1.4MHz	19193	1909.3	QPSK	1	0	23.16
				1	3	23.11
				1	5	23.14
				3	0	23.09
				3	1	23.10
				3	3	23.14
				6	0	22.13
			16QAM	1	0	22.31
				1	3	22.26
				1	5	22.33
				3	0	22.07
				3	1	22.04
				3	3	22.05
				6	0	20.96

- LTE Band 4

Bandwidth	UL Channel	UL Freq.(MHz)	Modulation	RB Size	RB Offset	Max.Average Power (dBm)
5 MHz	19975	1712.5	QPSK	1	0	23.63
				1	12	23.61
				1	24	23.65
				12	0	22.66
				12	6	22.64
				12	11	22.63
				25	0	22.67
			16QAM	1	0	22.41
				1	12	22.38
				1	24	22.47
				12	0	21.57
				12	6	21.59
				12	11	21.61
				25	0	21.65
5 MHz	20175	1732.5	QPSK	1	0	23.44
				1	12	23.37
				1	24	23.41
				12	0	22.52
				12	6	22.44
				12	11	22.43
				25	0	22.45
			16QAM	1	0	22.81
				1	12	22.74
				1	24	22.73
				12	0	21.48
				12	6	21.42
				12	11	21.42
				25	0	21.41
5 MHz	20375	1752.5	QPSK	1	0	23.66
				1	12	23.52
				1	24	23.59
				12	0	22.55
				12	6	22.56
				12	11	22.59
				25	0	22.56
			16QAM	1	0	22.68
				1	12	22.51
				1	24	22.55
				12	0	21.57
				12	6	21.58
				12	11	21.56
				25	0	21.52

Bandwidth	UL Channel	UL Freq.(MHz)	Modulation	RB Size	RB Offset	Max.Average Power (dBm)
10MHz	20000	1715	QPSK	1	0	23.34
				1	24	23.36
				1	49	23.34
				25	0	22.41
				25	12	22.39
				25	24	22.43
				50	0	22.45
			16QAM	1	0	22.2
				1	24	22.18
				1	49	22.09
				25	0	21.38
				25	24	21.34
				25	49	21.36
				50	0	21.42
10MHz	20175	1732.5	QPSK	1	0	23.25
				1	12	23.20
				1	24	23.19
				25	0	22.27
				25	12	22.25
				25	24	22.24
				50	0	22.30
			16QAM	1	0	22.06
				1	24	22.01
				1	49	21.98
				25	0	21.23
				25	12	21.24
				25	24	21.21
				50	0	21.27
10MHz	20350	1750	QPSK	1	0	23.17
				1	24	23.29
				1	49	23.23
				25	0	22.27
				25	12	22.28
				25	24	22.29
				50	0	22.33
			16QAM	1	0	22.03
				1	24	22.17
				1	49	22.05
				25	0	21.36
				25	12	21.37
				25	24	21.38
				50	0	21.38

Bandwidth	UL Channel	UL Freq.(MHz)	Modulation	RB Size	RB Offset	Max.Average Power (dBm)
15NHz	20025	1717.5	QPSK	1	0	23.34
				1	37	23.26
				1	74	23.14
				36	0	22.48
				36	18	22.36
				36	37	22.38
				75	0	22.44
			16QAM	1	0	22.23
				1	37	22.14
				1	74	22.07
				36	0	21.40
				36	18	21.36
				36	38	21.29
				75	0	21.39
15MHz	20175	1732.5	QPSK	1	0	23.22
				1	37	23.17
				1	74	23.18
				36	0	22.30
				36	18	22.31
				36	38	22.30
				75	0	22.40
			16QAM	1	0	22.07
				1	37	22.04
				1	74	22.05
				36	0	21.26
				36	18	21.24
				36	38	21.22
				75	0	21.36
15MHz	20325	1747.5	QPSK	1	0	23.18
				1	37	23.25
				1	74	23.21
				36	0	22.34
				36	18	22.30
				36	38	22.31
				75	0	22.37
			16QAM	1	0	22.68
				1	37	22.70
				1	74	22.69
				36	0	21.24
				36	18	21.27
				36	38	21.31
				75	0	21.35

Bandwidth	UL Channel	UL Freq.(MHz)	Modulation	RB Size	RB Offset	Max.Average Power (dBm)
20MHz	20175	1732.5	QPSK	1	0	23.08
				1	49	23.10
				1	99	23.23
				50	0	22.21
				50	25	22.30
				50	49	22.46
				100	0	22.26
			16QAM	1	0	22.27
				1	49	22.31
				1	99	22.38
				50	0	21.29
				50	25	21.34
				50	49	21.31
				100	0	21.32

Note: LTE Band 4 (AWS) at 20 MHz Bandwidth does not support three non-overlapping chennels. Per KDB 941225 D05V02, when a device supports overipping channel assignment in a channel bandwidth configuration, the mid channel of the group of overiapping channels should be selected for testing.

Bandwidth	UL Channel	UL Freq.(MHz)	Modulation	RB Size	RB Offset	Max.Average Power (dBm)
3MHz	19965	1711.5	QPSK	1	0	23.37
				1	7	23.35
				1	14	23.44
				8	0	22.31
				8	3	22.26
				8	7	22.30
				15	0	22.33
			16QAM	1	0	22.14
				1	7	22.13
				1	14	22.18
				8	0	21.35
				8	3	21.31
				8	7	21.36
				15	0	21.36
3MHz	20175	1732.5	QPSK	1	0	23.20
				1	7	23.15
				1	14	23.28
				8	0	22.23
				8	3	22.24
				8	7	22.21
				15	0	22.27
			16QAM	1	0	22.03
				1	7	21.99
				1	14	22.10
				8	0	21.26
				8	3	21.25
				8	7	21.30
				15	0	21.27
3MHz	20385	1753.5	QPSK	1	0	23.27
				1	7	23.22
				1	14	23.28
				8	0	22.31
				8	3	22.22
				8	7	22.28
				15	0	22.29
			16QAM	1	0	22.10
				1	7	22.02
				1	14	22.11
				8	0	21.26
				8	3	21.25
				8	7	21.28
				15	0	21.24

Bandwidth	UL Channel	UL Freq.(MHz)	Modulation	RB Size	RB Offset	Max.Average Power (dBm)
1.4MHz	19956	1711.5	QPSK	1	0	23.28
				1	3	23.24
				1	5	23.32
				3	0	23.39
				3	1	23.38
				3	3	23.41
				6	0	22.41
			16QAM	1	0	22.52
				1	3	22.43
				1	5	22.51
				3	0	22.29
				3	1	22.27
				3	3	22.31
				6	0	21.37
1.4MHz	20175	1732.5	QPSK	1	0	23.17
				1	3	23.13
				1	5	23.17
				3	0	23.26
				3	1	23.15
				3	3	23.25
				6	0	22.33
			16QAM	1	0	22.33
				1	3	22.28
				1	5	22.36
				3	0	22.16
				3	1	22.14
				3	3	22.20
				6	0	21.35
1.4MHz	20394	1753.5	QPSK	1	0	23.26
				1	3	23.27
				1	5	23.28
				3	0	23.25
				3	1	23.21
				3	3	23.23
				6	0	22.28
			16QAM	1	0	22.17
				1	3	22.16
				1	5	22.19
				3	0	22.17
				3	1	22.43
				3	3	22.46
				6	0	21.46

- LTE Band 7

Bandwidth	UL Channel	UL Freq.(MHz)	Modulation	RB Size	RB Offset	Max.Average Power (dBm)
5 MHz	20775	2502.5	QPSK	1	0	23.34
				1	12	23.40
				1	24	23.48
				12	0	22.41
				12	6	22.45
				12	11	22.49
				25	0	22.45
			16QAM	1	0	22.11
				1	12	22.14
				1	24	22.31
				12	0	21.50
				12	6	21.48
				12	11	21.54
				25	0	21.55
5 MHz	21100	2535	QPSK	1	0	23.34
				1	12	23.31
				1	24	23.30
				12	0	22.41
				12	6	22.39
				12	11	22.42
				25	0	22.40
			16QAM	1	0	22.69
				1	12	22.67
				1	24	22.68
				12	0	21.37
				12	6	21.34
				12	11	21.36
				25	0	21.36
5 MHz	21425	2567.5	QPSK	1	0	23.34
				1	12	23.28
				1	24	23.25
				12	0	22.32
				12	6	22.25
				12	11	22.25
				25	0	22.30
			16QAM	1	0	22.32
				1	12	22.00
				1	24	22.22
				12	0	21.30
				12	6	21.28
				12	11	21.26
				25	0	21.26

Bandwidth	UL Channel	UL Freq.(MHz)	Modulation	RB Size	RB Offset	Max.Average Power (dBm)
10MHz	20800	2505	QPSK	1	0	23.40
				1	24	23.50
				1	49	23.41
				25	0	22.46
				25	12	22.50
				25	24	22.44
				50	0	22.53
			16QAM	1	0	22.15
				1	24	22.26
				1	49	22.19
				25	0	21.40
				25	12	21.44
				25	24	21.46
				50	0	21.52
10MHz	21100	2535	QPSK	1	0	23.49
				1	24	23.43
				1	49	23.43
				25	0	22.51
				25	12	22.47
				25	24	22.46
				50	0	22.48
			16QAM	1	0	22.31
				1	24	22.21
				1	49	22.20
				25	0	21.46
				25	12	21.39
				25	24	21.41
				50	0	21.40
10MHz	21400	2565	QPSK	1	0	23.29
				1	24	23.24
				1	49	23.24
				25	0	22.35
				25	12	22.29
				25	24	22.27
				50	0	22.35
			16QAM	1	0	22.15
				1	24	22.06
				1	49	22.01
				25	0	21.44
				25	12	21.41
				25	24	21.36
				50	0	21.34

Bandwidth	UL Channel	UL Freq.(MHz)	Modulation	RB Size	RB Offset	23.41
15MHz	20825	2507.5	QPSK	1	0	23.41
				1	37	23.21
				1	74	23.39
				36	0	22.61
				36	18	22.47
				36	38	22.44
				75	0	22.46
			16QAM	1	0	22.15
				1	37	22.16
				1	74	22.21
				36	0	21.52
				36	18	21.44
				36	38	21.35
				75	0	21.44
15MHz	21100	2535	QPSK	1	0	23.48
				1	37	23.44
				1	74	23.45
				36	0	22.52
				36	18	22.44
				36	38	22.45
				75	0	22.44
			16QAM	1	0	22.27
				1	37	22.18
				1	74	22.21
				36	0	21.43
				36	18	21.34
				36	38	21.37
				75	0	21.40
15MHz	21375	2562.5	QPSK	1	0	23.33
				1	37	23.23
				1	74	23.20
				36	0	22.34
				36	18	22.36
				36	38	22.34
				75	0	22.31
			16QAM	1	0	22.68
				1	37	22.65
				1	74	22.64
				36	0	21.34
				36	18	21.29
				36	38	21.31
				75	0	21.37

Bandwidth	UL Channel	UL Freq.(MHz)	Modulation	RB Size	RB Offset	Max.Average Power (dBm)
20MHz	20850	2510	QPSK	1	0	23.17
				1	49	23.16
				1	99	23.24
				50	0	22.44
				50	25	22.35
				50	49	22.39
				100	0	22.36
			16QAM	1	0	22.45
				1	49	22.42
				1	99	22.48
				50	0	21.49
				50	25	21.40
				50	49	21.38
				100	0	21.36
20MHz	21100	2535	QPSK	1	0	23.36
				1	49	23.22
				1	99	23.21
				50	0	22.45
				50	25	22.44
				50	49	22.45
				100	0	22.41
			16QAM	1	0	22.55
				1	49	22.51
				1	99	22.48
				50	0	21.49
				50	25	21.43
				50	49	21.41
				100	0	21.42
20MHz	21350	2560	QPSK	1	0	23.19
				1	49	23.13
				1	99	23.08
				50	0	22.41
				50	25	22.35
				50	49	22.31
				100	0	22.32
			16QAM	1	0	22.45
				1	49	22.37
				1	99	22.31
				50	0	21.43
				50	25	21.35
				50	49	21.27
				100	0	21.28

- LTE Band 17

Bandwidth	UL Channel	UL Freq.(MHz)	Modulation	RB Size	RB Offset	Max.Average Power (dBm)
5 MHz	23790	710	QPSK	1	0	23.41
				1	12	23.39
				1	24	23.45
				12	0	22.51
				12	6	22.48
				12	11	22.49
				25	0	22.50
			16QAM	1	0	22.22
				1	12	22.23
				1	24	22.27
				12	0	21.52
				12	6	21.52
				12	11	21.53
				25	0	21.61
10MHz	23790	710	QPSK	1	0	23.37
				1	24	23.47
				1	49	23.51
				25	0	22.53
				25	12	22.45
				25	24	22.46
				50	0	22.44
			16QAM	1	0	22.19
				1	24	22.28
				1	49	22.39
				25	0	21.53
				25	12	21.46
				25	24	21.47
				50	0	21.49

Note: LTE Band 17 at 5 MHz &10 MHz Bandwidth does not support three non-overlapping chennels. Per KDB 941225 D05V02, when a device supports overipping channel assignment in a channel bandwidth configuration, the mid channel of the group of overiapping channels should be selected for testing.

Note;
The EUT enables maximum power reduction in accordance with 3GPP 36.101. The MPR settings are configured during the manufacture process and are not configurable by the network, carrier, or end user.

11.4 WiFi

11.4.1 SAR Testing for 802.11b/g/n modes

General Device Setup

Normal Network operating configurations are not suitable for measuring the SAR of 802.11 a/b/g transmitters. Unpredictable fluctuations in network traffic and antenna diversity conditions can introduce undesirable variations in SAR results. The SAR for these devices should be measured using chipset based test mode software to ensure the results are consistent and reliable.

Chipset based test mode software is hardware dependent and generally varies among manufacturers. The device operating parameters established in test mode for SAR measurements must be identical to those programmed in production units, including output power levels, amplifier gain settings and other RF performance tuning parameters. The test frequencies should correspond to actual channel frequencies defined for domestic use. SAR for devices with switched diversity should be measured with only one antenna transmitting at a time during each SAR measurement, according to a fixed modulation and data rate. The same data pattern should be used for all measurements.

Frequency Channel Configurations

802.11 a/b/g and 4.9 GHz operating modes are tested independently according to the service requirements in each frequency band. 802.11 b/g modes are tested on channels 1, 6 and 11.802.11a is tested for UNII operations on channels 36 and 48 in the 5.15-5.25 GHz band; channels 52 and 64 in the 5.25-5.35 GHz band; Channels 104, 116, 124 and 136 in the 5.470-5.725 GHz band; and channels 149 and 161 in the 5.8 GHz band. When 5.8 GHz § 15.247 is also available, channels 149, 157 and 165 should be tested instead of the UNII channels. 4.9 GHz is tested on channels 1, 10 and 5 or 6, whichever has the higher output power, for 5 MHz channels; channels 11,15 and 19 for 10 MHz channels; and channels 21 and 25 for 20 MHz channels. These are referred to as the “default test channels”. 802.11g mode was evaluated only if the output power was 0.25 dB higher than the 802.11b mode.

Mode		GHz	Channel	Turbo Channel	“Default Test Channels”			
					§15.247		UNII	
					802.11b	802.11g		
802.11b/g		2.412	1#		√	▽		
		2.437	6	6	√	▽		
		2.462	11#		√	▽		
802.11a	UNII	5.18	36				√	
		5.20	40	42 (5.21 GHz)				*
		5.22	44					*
		5.24	48	50 (5.25 GHz)			√	
		5.26	52				√	
		5.28	56	58 (5.29 GHz)				*
		5.30	60					*
		5.32	64				√	
		5.500	100	Unknown				*
		5.520	104				√	
		5.540	108					*
		5.560	112					*
		5.580	116				√	
		5.600	120					*
		5.620	124				√	
		5.640	128					*
		5.660	132					*
		5.680	136				√	
		5.700	140					*
	UNII or §15.247	5.745	149		√		√	
		5.765	153	152 (5.76 GHz)		*		*
		5.785	157		√			*
		5.805	161	160 (5.80 GHz)		*	√	
	§15.247	5.825	165		√			

802.11 Test Channels per FCC Requirements

IEEE 802.11b Average RF Power

Mode	Freq. [MHz]	Channel	802.11b (2.4 GHz) Conducted Power [dBm]			
			Data Rate (Mbps)			
			1	2	5.5	11
802.11b	2412	1	15.83	15.80	15.98	15.91
	2437	6	16.00	16.01	16.13	16.11
	2462	11	16.01	16.06	16.18	16.17

IEEE 802.11g Average RF Power

Mode	Freq. [MHz]	Channel	802.11g (2.4 GHz) Conducted Power [dBm]							
			Data Rate (Mbps)							
			6	9	12	18	24	36	48	54
802.11g	2412	1	12.72	12.71	12.78	12.73	12.75	12.74	12.82	12.61
	2437	6	12.75	12.74	12.92	12.89	12.89	12.90	12.83	12.83
	2462	11	12.99	12.92	13.01	12.93	12.95	12.90	12.92	12.97

IEEE 802.11n Average RF Power

Mode	Freq. [MHz]	Channel	802.11n (2.4 GHz) Conducted Power [dBm]							
			Data Rate (Mbps)							
			6.5	13	19.5	26	39	52	58.5	65
802.11n (20MHz)	2412	1	11.87	11.95	11.85	11.97	11.77	11.72	11.87	11.82
	2437	6	12.00	11.83	12.07	11.96	11.91	11.86	11.96	11.97
	2462	11	11.87	12.07	12.16	12.13	12.05	11.96	12.08	12.05

IEEE 802.11a Average RF Power– 20 MHz Bandwidth

Mode	Freq. [MHz]	Channel	802.11a (5 GHz) Conducted Power [dBm]							
			Data Rate (Mbps)							
			6	9	12	18	24	36	48	54
802.11a	5180	36	9.38	9.41	9.29	9.42	9.40	9.51	9.39	9.32
	5200	40	9.33	9.47	9.52	9.63	9.55	9.50	9.59	9.60
	5220	44	9.35	9.43	9.48	9.59	9.51	9.50	9.48	9.52
	5240	48	9.49	9.61	9.65	9.62	9.62	9.51	9.51	9.42
	5260	52	9.62	9.66	9.71	9.73	9.72	9.58	9.70	9.50
	5280	56	9.52	9.51	9.52	9.51	9.60	9.49	9.51	9.40
	5300	60	9.40	9.32	9.40	9.39	9.49	9.25	9.30	9.36
	5320	64	8.93	9.17	9.24	9.28	9.17	9.11	9.20	9.30
	5500	100	8.52	8.44	8.59	8.52	8.54	8.53	8.63	8.49
	5520	104	8.53	8.49	8.53	8.54	8.53	8.53	8.69	8.50
	5540	108	8.73	8.65	8.75	8.72	8.73	8.73	8.68	8.61
	5560	112	9.10	9.07	9.11	9.12	9.08	9.09	9.19	9.12
	5580	116	9.16	9.09	9.13	9.12	9.11	9.13	9.27	9.13
	5660	132	9.09	9.04	9.09	9.08	9.07	9.07	9.16	9.08
	5680	136	8.99	9.01	8.98	8.91	9.01	8.90	8.91	8.92
	5700	140	8.91	9.01	8.95	8.88	8.94	8.74	8.84	8.84
	5720	144	8.93	8.98	8.94	8.90	8.94	8.89	8.89	8.90
	5745	149	8.40	8.61	8.55	8.48	8.56	8.61	8.62	8.53
	5765	153	8.38	8.41	8.53	8.41	8.38	8.31	8.45	8.41
	5785	157	8.91	9.01	9.02	9.01	9.06	8.94	8.88	8.93
	5805	161	8.22	8.23	8.31	8.23	8.25	8.18	8.25	8.25
	5825	165	8.58	8.61	8.65	8.69	8.56	8.60	8.74	8.49

IEEE 802.11n Average RF Power – 20 MHz Bandwidth

Mode	Freq. [MHz]	Channel	20 MHz BW 802.11n (5 GHz) Conducted Power [dBm]							
			Data Rate (Mbps)							
			6.5	13	19.5	26	39	52	58.5	65
802.11n	5180	36	8.27	8.26	8.37	8.33	8.39	8.22	8.35	8.44
	5200	40	8.37	8.41	8.57	8.36	8.33	8.29	8.49	8.43
	5220	44	8.25	8.26	8.35	8.32	8.34	8.26	8.31	8.36
	5240	48	8.18	8.16	8.34	8.21	8.19	8.11	8.26	8.30
	5260	52	8.25	8.30	8.44	8.37	8.23	8.25	8.45	8.36
	5280	56	8.13	8.21	8.32	8.27	8.14	8.13	8.38	8.29
	5300	60	8.02	8.00	8.03	7.99	8.02	8.08	8.07	8.05
	5320	64	7.49	7.45	7.61	7.57	7.46	7.51	7.63	7.59
	5500	100	7.08	7.19	7.21	7.11	7.34	7.33	7.35	7.36
	5520	104	7.11	7.21	7.25	7.17	7.29	7.31	7.28	7.33
	5540	108	7.23	7.35	7.38	7.26	7.23	7.28	7.29	7.33
	5560	112	7.38	7.41	7.43	7.31	7.34	7.32	7.37	7.35
	5580	116	7.52	7.62	7.73	7.74	7.59	7.60	7.71	7.71
	5660	132	7.41	7.48	7.51	7.58	7.43	7.48	7.52	7.53
	5680	136	7.34	7.38	7.31	7.26	7.28	7.21	7.41	7.42
	5700	140	7.20	7.30	7.43	7.18	7.18	7.15	7.33	7.32
	5720	144	7.21	7.28	7.37	7.25	7.21	7.22	7.29	7.27
	5745	149	7.62	7.67	7.69	7.67	7.68	7.61	7.80	7.69
	5765	153	7.47	7.43	7.58	7.51	7.42	7.43	7.49	7.42
	5785	157	7.36	7.40	7.53	7.30	7.38	7.32	7.41	7.45
	5805	161	7.21	7.22	7.23	7.21	7.20	7.13	7.23	7.27
	5825	165	7.02	7.13	7.15	7.19	7.14	7.07	7.17	7.07

IEEE 802.11n Average RF Power – 40 MHz Bandwidth

Mode	Freq. [MHz]	Channel	40 MHz BW 802.11n (5 GHz) Conducted Power [dBm]							
			Data Rate (Mbps)							
			13.5	27	40.5	54	81	108	121.5	135
802.11n	5190	38	8.26	8.08	8.16	8.14	8.27	8.17	8.36	8.44
	5230	46	8.13	8.16	8.31	8.22	8.49	8.38	8.37	8.46
	5270	54	8.03	8.28	8.19	8.13	8.42	8.36	8.40	8.42
	5310	62	7.71	7.98	7.94	7.82	8.18	8.11	8.02	8.01
	5510	102	6.93	7.03	7.00	6.97	7.11	7.22	7.21	7.09
	5550	110	7.25	7.24	7.31	7.33	7.54	7.55	7.41	7.45
	5670	134	7.17	7.27	7.28	7.18	7.20	7.28	7.36	7.40
	5710	142	7.03	7.14	7.12	7.16	7.18	7.13	7.16	7.08
	5755	151	6.95	6.99	7.09	6.94	6.95	7.11	7.20	7.23
	5795	159	6.78	7.32	6.61	6.57	6.74	6.68	6.66	6.76

IEEE 802.11ac Average RF Power – 20 MHz Bandwidth

Mode	Freq. [MHz]	Channel	802.11ac (5 GHz) Conducted Power [dBm]								
			Data Rate (Mbps)								
			6.5	13	19.5	26	39	52	58.5	65	78
802.11ac	5180	36	8.18	8.29	8.38	8.37	8.20	8.37	8.35	8.35	8.26
	5200	40	8.23	8.22	8.20	8.18	8.28	8.34	8.33	8.33	8.27
	5220	44	8.33	8.31	8.29	8.27	8.31	8.39	8.34	8.38	8.31
	5240	48	8.43	8.51	8.41	8.39	8.48	8.62	8.63	8.38	8.43
	5260	52	8.56	8.26	8.34	7.99	8.45	8.50	8.45	8.45	8.42
	5280	56	8.42	8.47	8.39	8.19	8.38	8.48	8.39	8.39	8.41
	5300	60	8.15	8.08	8.06	8.07	8.21	8.42	7.88	7.90	7.97
	5320	64	7.84	7.89	7.98	7.63	7.68	7.64	7.60	7.52	7.48
	5500	100	7.60	7.71	7.74	7.61	7.66	7.81	7.81	7.72	7.65
	5520	104	7.68	7.74	7.76	7.67	7.70	7.91	7.80	7.69	7.71
	5540	108	7.93	7.94	7.96	7.97	7.84	7.73	7.94	7.68	8.01
	5560	112	8.13	8.04	8.09	8.21	8.27	8.32	8.16	8.15	8.21
	5580	116	8.22	8.25	8.32	8.34	8.32	8.30	8.32	8.30	8.34
	5660	132	8.23	8.31	8.32	8.29	8.28	8.29	8.36	8.34	8.31
	5680	136	8.19	8.24	8.38	8.24	8.21	8.27	8.23	8.22	8.24
	5700	140	8.29	8.16	8.21	8.22	8.18	8.20	8.21	8.22	8.20
	5720	144	8.19	8.21	8.23	8.24	8.18	8.20	8.21	8.22	8.20
	5745	149	7.93	7.99	7.98	7.84	7.91	8.05	8.05	7.93	7.98
	5765	153	7.78	7.81	7.89	7.69	7.74	7.89	7.89	7.84	7.82
	5785	157	7.68	7.75	7.79	7.56	7.69	7.80	7.76	7.73	7.52
	5805	161	7.52	7.68	7.71	7.49	7.61	7.79	7.73	7.69	7.52
	5825	165	7.64	7.50	7.56	7.52	7.42	7.55	7.55	7.55	7.45

IEEE 802.11ac Average RF Power – 40 MHz Bandwidth

Mode	Freq. [MHz]	Channel	40 MHz BW 802.11ac (5 GHz) Conducted Power [dBm]									
			Data Rate (Mbps)									
			13.5	27	40.5	54	81	108	121.5	135	162	180
802.11ac	5190	38	8.14	8.21	8.27	8.04	8.22	8.29	8.27	8.21	8.36	8.26
	5230	46	8.21	8.14	8.16	8.19	8.24	8.16	8.15	8.12	8.28	8.35
	5270	54	8.08	8.14	8.05	8.15	8.11	8.16	8.15	8.13	8.25	8.28
	5310	62	7.80	7.82	7.88	7.82	7.95	7.92	7.89	7.77	7.94	7.96
	5510	102	7.12	7.25	7.16	7.06	7.24	7.23	7.13	7.10	7.20	7.20
	5550	110	7.38	7.52	7.40	7.36	7.46	7.49	7.51	7.47	7.47	7.52
	5670	134	7.33	7.49	7.37	7.32	7.48	7.45	7.49	7.38	7.42	7.49
	5710	142	7.36	7.38	7.33	7.33	7.50	7.44	7.40	7.30	7.44	7.48
	5755	151	7.24	7.27	7.28	7.29	7.29	7.30	7.21	7.19	7.31	7.39
	5795	159	7.00	7.13	7.20	6.93	7.07	7.11	7.12	7.04	7.19	7.22

IEEE 802.11ac Average RF Power – 80 MHz Bandwidth

Mode	Freq. [MHz]	Channel	80 MHz BW 802.11ac (5 GHz) Conducted Power [dBm]									
			Data Rate (Mbps)									
			29.3	58.5	87.8	117	175.5	234	263.3	292.5	351	390
802.11ac	5210	42	8.67	8.79	8.74	8.82	8.80	8.83	8.78	8.85	8.77	8.76
	5290	58	8.57	8.63	8.53	8.62	8.66	8.75	8.77	8.79	8.78	8.64
	5530	106	7.60	7.62	7.55	7.58	7.60	7.63	7.67	7.75	7.71	7.61
	5690	138	7.83	8.00	7.89	7.90	7.87	8.06	8.04	8.05	8.05	8.05
	5775	155	7.03	7.22	7.13	7.20	7.21	7.16	7.09	7.16	7.20	7.03

11.5 Test Exclusions Applied

11.5.1 BT

Per FCC KDB 447498 D01v05r02, The SAR exclusion threshold for distance < 50 mm is defined by the following equation:

$$\frac{Max\ Power\ of\ Channel(mW)}{Test\ \ Separation\ Distance\ (mm)} * \sqrt{Frequency(GHz)} \leq 3.0$$

Mode	Frequency	Maximum Allowed Power	Separatuin Distance	≤ 3.0
	[MHz]	[mW]	[mm]	
Bluetooth	2441	4	10	0.62

Based on the maximum conducted power of Bluetooth and antenna to use separation distance, Bluetooth SAR was not required [(4/10)*√2.441] = 0.62 < 3.0.

This device contains transmitters that may operate simultaneously. Therefore simultaneous transmission analysis is required. Per FCC KDB 447498 D01v05r02 IV.C.1iii, simultaneous transmission SAR test exclusion may be applied when the sum of the 1-g SAR for all the simultaneous transmitting antennas in a specific a physical test configuration is ≤ 1.6W/kg. When standalone SAR is not required to be measured per FCC KDB 447498 D01v05r02 4.3.22, the following equation must be used to estimate the standalone 1-g SAR for simultaneous transmission assessment involving that transmitter.

$$Estimated\ SAR = \frac{\sqrt{f(GHZ)}}{7.5} * \frac{(Max\ Power\ of\ channel\ mW)}{Min\ Seperation\ Distance}.$$

Mode	Frequency	Maximum Allowed Power	Separatuin Distance (Body)	Estimated SAR (Body)
	[MHz]	[mW]	[mm]	[W/kg]
Bluetooth	2441	4	10	0.08

Note :
1) Held-to ear configurations are not applicable to Bluetooth operations and therefore were not considered for simultaneous transmission. The Estimated SAR results were determined according to FCC KDB447498 D01v05r02.

2) Bluetooth LE conducted Power is not calculated on the SAR test exclusions table. Because Bluetooth LE conducted power is lower than Bluetooth conducted Power.

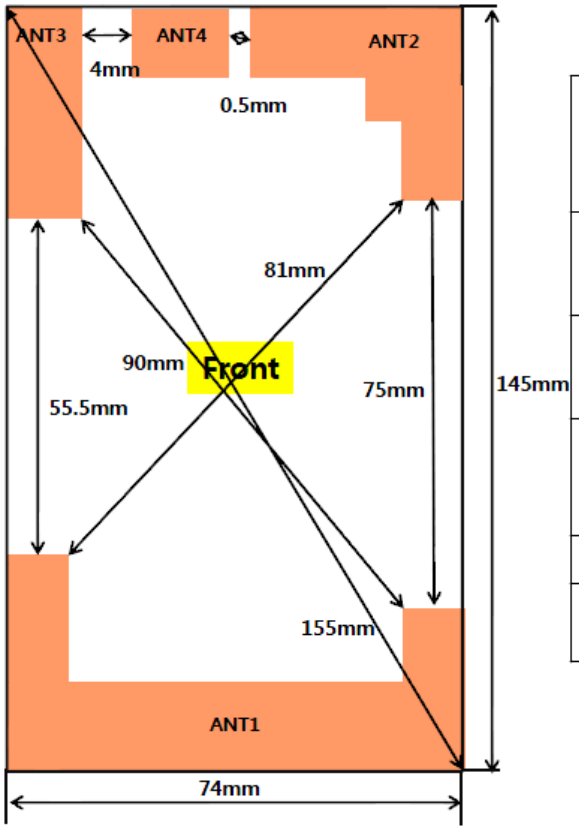
12. SAR Test configuration & Antenna Information

12.1 Mobile Hotspot sides for SAR Testing configurations

Mode	Rear	Front	Left	Right	Bottom	Top
GSM/GPRS 850	Yes	Yes	Yes	Yes	Yes	No
GSM/GPRS 1900	Yes	Yes	Yes	Yes	Yes	No
WCDMA 850	Yes	Yes	Yes	Yes	Yes	No
WCDMA 1 900	Yes	Yes	Yes	Yes	Yes	No
LTE Band 2	Yes	Yes	Yes	Yes	Yes	No
LTE Band 4	Yes	Yes	Yes	Yes	Yes	No
LTE Band 7	Yes	Yes	Yes	Yes	Yes	No
LTE Band 17	Yes	Yes	Yes	Yes	Yes	No
2.4 GHz WLAN	Yes	Yes	Yes	No	No	Yes
5 GHz WLAN	Yes	Yes	Yes	No	No	Yes

Note; All test configurations are based on front view.

12.2 Antenna and Device Information



ANT1	GSM Quad WCDMA B1/2/5/8 LTE B2/4/17
ANT1	LTE 7
ANT2	LTE B2/4/17MIMO WCDMA B1/2/5MRD
ANT3	GPS LTE B7MIMO
ANT4	BT/Wi-Fi
ANT5	NFC

Note;

1. Per FCC KDB Publication 941225 D06v01r01, we performed the SAR testing at 1.0 cm from the top & bottom surfaces and also from side edges with a transmitting antenna ≤ 2.5 cm from an edge.
*Please see the LG-D855P_ ZNFD855P _Antenna distance for futher information

* All test performed with the battery cover already incorporate the NFC antenna and Wireless charging capability.

13. SAR TEST DATA SUMMARY

13.1-1 Measurement Results (GSM850 Head SAR)

Frequency		Mode	Power (dBm)		Power Drift (dB)	Battery	Phantom Position	Measured SAR (mW/g)	Scaling Factor	Scaled SAR (mW/g)	Plot No.
MHz	Ch.		Tune-Up Limit	Conducted Power							
836.6	190	GSM 850	33.7	33.41	-0.134	Standard	Left Ear	0.124	1.069	0.133	-
836.6	190		33.7	33.41	-0.068	Standard	Left Tilt	0.074	1.069	0.079	-
836.6	190		33.7	33.41	-0.031	Standard	Right Ear	0.141	1.069	**0.151**	1
836.6	190		33.7	33.41	0.013	Standard	Right Tilt	0.078	1.069	0.083	-
836.6	190	GPRS 2Tx	31.7	31.49	-0.109	Standard	Left Ear	0.024	1.050	0.025	-
836.6	190		31.7	31.49	-0.194	Standard	Left Tilt	0.014	1.050	0.015	-
836.6	190		31.7	31.49	-0.163	Standard	Right Ear	0.026	1.050	0.027	-
836.6	190		31.7	31.49	-0.194	Standard	Right Tilt	0.014	1.050	0.015	-
ANSI/ IEEE C95.1 - 1992– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population							**Head 1.6 W/kg (mW/g) **Averaged over 1 gram				

13.1-2 Measurement Results (GSM1900 Head SAR)

Frequency		Mode	Power (dBm)		Power Drift (dB)	Battery	Phantom Position	Measured SAR (mW/g)	Scaling Factor	Scaled SAR (mW/g)	Plot No.
MHz	Ch.		Tune-Up Limit	Conducted Power							
1 880.0	661	GSM 1900	30.7	29.97	-0.137	Standard	Left Ear	0.069	1.183	0.082	-
1 880.0	661		30.7	29.97	-0.131	Standard	Left Tilt	0.052	1.183	0.062	-
1 880.0	661		30.7	29.97	-0.150	Standard	Right Ear	0.104	1.183	0.123	-
1 880.0	661		30.7	29.97	-0.055	Standard	Right Tilt	0.037	1.183	0.044	-
1 880.0	661	GPRS 4Tx	26.7	26.27	-0.093	Standard	Left Ear	0.114	1.104	0.126	-
1 880.0	661		26.7	26.27	-0.062	Standard	Left Tilt	0.088	1.104	0.097	-
1 880.0	661		26.7	26.27	-0.033	Standard	Right Ear	0.175	1.104	**0.193**	2
1 880.0	661		26.7	26.27	-0.032	Standard	Right Tilt	0.065	1.104	0.072	-
ANSI/ IEEE C95.1 - 1992– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population							**Head 1.6 W/kg (mW/g) **Averaged over 1 gram				

13.1-3 Measurement Results (WCDMA850 Head SAR)

Frequency		Mode	Power (dBm)		Power Drift (dB)	Battery	Phantom Position	Measured SAR (mW/g)	Scaling Factor	Scaled SAR (mW/g)	Plot No.
MHz	Ch.		Tune-Up Limit	Conducted Power							
836.6	4183	WCDMA 850	23.7	23.63	-0.146	Standard	Left Ear	0.135	1.016	0.137	-
836.6	4183		23.7	23.63	-0.135	Standard	Left Tilt	0.091	1.016	0.092	-
836.6	4183		23.7	23.63	-0.101	Standard	Right Ear	0.152	1.016	**0.154**	3
836.6	4183		23.7	23.63	0.024	Standard	Right Tilt	0.084	1.016	0.085	-
ANSI/ IEEE C95.1 - 1992– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population							**Head 1.6 W/kg (mW/g) Averaged over 1 gram**				

13.1-4 Measurement Results (WCDMA1900 Head SAR)

Frequency		Mode	Power (dBm)		Power Drift (dB)	Battery	Phantom Position	Measured SAR (mW/g)	Scaling Factor	Scaled SAR (mW/g)	Plot No.
MHz	Ch.		Tune-Up Limit	Conducted Power							
1 880.0	9400	WCDMA 1900	23.7	23.70	-0.131	Standard	Left Ear	0.119	1.000	0.119	-
1 880.0	9400		23.7	23.70	-0.040	Standard	Left Tilt	0.119	1.000	0.119	-
1 880.0	9400		23.7	23.70	-0.153	Standard	Right Ear	0.194	1.000	**0.194**	4
1 880.0	9400		23.7	23.70	0.066	Standard	Right Tilt	0.076	1.000	0.076	-
ANSI/ IEEE C95.1 - 1992– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population							**Head 1.6 W/kg (mW/g) Averaged over 1 gram**				

13.1-5 Measurement Results (LTE Band 2 20MHz Head SAR)

Frequency		Mode	Power (dBm)		Power Drift (dB)	Battery	Phantom Position	RB Size	RB Offset	Measured SAR (mW/g)	Scaling Factor	Scaled SAR (mW/g)	Plot No
MHz	ch.		Tune-Up Limit	Conducted Power									
1 900	19100	QPSK	23.7	23.37	-0.12	Standard	Left Ear	1	0	0.067	1.079	0.072	-
1 880	18900		23.7	22.48	0.06	Standard	Left Ear	50	49	0.061	1.052	0.064	-
1 900	19100		23.7	23.37	0.15	Standard	Left Tilt 15°	1	0	0.101	1.079	0.109	-
1 880	18900		23.7	22.48	0.03	Standard	Left Tilt 15°	50	49	0.057	1.052	0.060	-
1 900	19100		23.7	23.37	0.03	Standard	Right Ear	1	0	0.139	1.079	**0.150**	5
1 880	18900		23.7	22.48	-0.02	Standard	Right Ear	50	49	0.113	1.052	0.119	-
1 900	19100		23.7	23.37	0.10	Standard	Right Tilt 15°	1	0	0.061	1.079	0.066	-
1 880	18900		23.7	22.48	0.13	Standard	Right Tilt 15°	50	49	0.052	1.052	0.055	-
ANSI/ IEEE C95.1 1992 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population								**Head 1.6 W/kg (mW/g) Averaged over 1 gram**					

13.1-6 Measurement Results (LTE Band 4 20MHz Head SAR)

Frequency		Mode	Power (dBm)		Power Drift (dB)	Battery	Phantom Position	RB Size	RB Offset	Measured SAR (mW/g)	Scaling Factor	Scaled SAR (mW/g)	Plot No
MHz	ch.		Tune-Up Limit	Conducted Power									
1 732.5	20175	QPSK	23.7	23.23	-0.10	Standard	Left Ear	1	99	0.095	1.114	0.106	-
1 732.5	20175		23.7	22.46	-0.01	Standard	Left Ear	50	49	0.073	1.057	0.077	-
1 732.5	20175		23.7	23.23	0.16	Standard	Left Tilt 15°	1	99	0.100	1.114	0.111	-
1 732.5	20175		23.7	22.46	-0.09	Standard	Left Tilt 15°	50	49	0.077	1.057	0.081	-
1 732.5	20175		23.7	23.23	-0.19	Standard	Right Ear	1	99	0.196	1.114	**0.218**	6
1 732.5	20175		23.7	22.46	0.07	Standard	Right Ear	50	49	0.114	1.057	0.120	-
1 732.5	20175		23.7	23.23	-0.03	Standard	Right Tilt 15°	1	99	0.079	1.114	0.088	-
1 732.5	20175		23.7	22.46	-0.13	Standard	Right Tilt 15°	50	49	0.061	1.057	0.064	-
ANSI/ IEEE C95.1 1992 – Safety Limit **Spatial Peak** **Uncontrolled Exposure/ General Population**								**Head** **1.6 W/kg (mW/g)** **Averaged over 1 gram**					

13.1-7 Measurement Results (LTE Band 7 20MHz Head SAR)

Frequency		Mode	Power (dBm)		Power Drift (dB)	Battery	Phantom Position	RB Size	RB Offset	Measured SAR (mW/g)	Scaling Factor	Scaled SAR (mW/g)	Plot No
MHz	ch.		Tune-Up Limit	Conducted Power									
2 535	21100	QPSK	23.7	23.36	0.02	Standard	Left Ear	1	0	0.016	1.081	0.017	-
2 535	21100		23.7	22.45	0.18	Standard	Left Ear	50	0	0.026	1.059	0.028	-
2 535	21100		23.7	23.36	-0.01	Standard	Left Tilt 15°	1	0	0.00907	1.081	0.010	-
2 535	21100		23.7	22.45	-0.05	Standard	Left Tilt 15°	50	0	0.00531	1.059	0.006	-
2 535	21100		23.7	23.36	0.00	Standard	Right Ear	1	0	0.046	1.081	**0.050**	7
2 535	21100		23.7	22.45	0.00	Standard	Right Ear	50	0	0.033	1.059	0.035	-
2 535	21100		23.7	23.36	0.00	Standard	Right Tilt 15°	1	0	0.031	1.081	0.034	-
2 535	21100		23.7	22.45	0.00	Standard	Right Tilt 15°	50	0	0.021	1.059	0.022	-
ANSI/ IEEE C95.1 1992 – Safety Limit **Spatial Peak** **Uncontrolled Exposure/ General Population**								**Head** **1.6 W/kg (mW/g)** **Averaged over 1 gram**					

13.1-8 Measurement Results (LTE Band 17 10MHz Head SAR)

Frequency		Mode	Power (dBm)		Power Drift (dB)	Battery	Phantom Position	RB Size	RB Offset	Measured SAR (mW/g)	Scaling Factor	Scaled SAR (mW/g)	Plot No
MHz	ch.		Tune-Up Limit	Conducted Power									
710	23790	QPSK	23.7	23.51	-0.19	Standard	Left Ear	1	49	0.016	1.045	0.017	-
710	23790		23.7	22.53	0.16	Standard	Left Ear	25	0	0.011	1.040	0.011	-
710	23790		23.7	23.51	-0.07	Standard	Left Tilt 15°	1	49	0.033	1.045	0.034	-
710	23790		23.7	22.53	0.11	Standard	Left Tilt 15°	25	0	0.019	1.040	0.020	-
710	23790		23.7	23.51	-0.10	Standard	Right Ear	1	49	0.063	1.045	**0.066**	8
710	23790		23.7	22.53	-0.14	Standard	Right Ear	25	0	0.042	1.040	0.044	-
710	23790		23.7	23.51	0.15	Standard	Right Tilt 15°	1	49	0.040	1.045	0.042	-
710	23790		23.7	22.53	0.17	Standard	Right Tilt 15°	25	0	0.025	1.040	0.026	-
ANSI/ IEEE C95.1 1992 – Safety Limit **Spatial Peak** **Uncontrolled Exposure/ General Population**								**Head** **1.6 W/kg (mW/g)** **Averaged over 1 gram**					

13.1-9 Measurement Results (DTS Head SAR)

Frequency		Mode	Power (dBm)		Power Drift (dB)	Battery	Phantom Position	Data Rate	Measured SAR (mW/g)	Scaling Factor	Scaled SAR (mW/g)	Plot No.
MHz	Ch.		Tune-Up Limit	Conducted Power								
2 462	11	802.11b	17	16.01	-0.106	Standard	Left Ear	1Mbps	0.142	1.256	0.178	-
			17	16.01	-0.124	Standard	Left Tilt	1Mbps	0.162	1.256	**0.203**	9
			17	16.01	-0.141	Standard	Right Ear	1Mbps	0.111	1.256	0.139	-
			17	16.01	-0.096	Standard	Right Tilt	1Mbps	0.115	1.256	0.144	-
5 745	149	802.11a	10	8.40	0.00	Standard	Left Ear	6Mbps	0.141	1.445	0.204	-
			10	8.40	-0.08	Standard	Left Tilt	6Mbps	0.169	1.445	**0.244**	10
			10	8.40	0.10	Standard	Right Ear	6Mbps	0.120	1.445	0.173	-
			10	8.40	0.11	Standard	Right Tilt	6Mbps	0.131	1.445	0.189	-
5 775	155	802.11ac	9	7.03	0.14	Standard	Left Tilt	29.3Mbps	0.060	1.574	0.094	-
ANSI/ IEEE C95.1 - 1992– Safety Limit **Spatial Peak** **Uncontrolled Exposure/ General Population**								**Head** **1.6 W/kg (mW/g)** Averaged over 1 gram				

13.1-10 Measurement Results (NII Head SAR)

Frequency		Mode	Power (dBm)		Power Drift (dB)	Battery	Phantom Position	Data Rate	Measured SAR (mW/g)	Scaling Factor	Scaled SAR (mW/g)	Plot No.
MHz	Ch.		Tune-Up Limit	Conducted Power								
5 240	48	802.11a	10	9.49	0.11	Standard	Left Ear	6Mbps	0.261	1.125	0.294	-
			10	9.49	-0.10	Standard	Left Tilt	6Mbps	0.263	1.125	**0.296**	11
			10	9.49	-0.16	Standard	Right Ear	6Mbps	0.118	1.125	0.133	-
			10	9.49	0.00	Standard	Right Tilt	6Mbps	0.120	1.125	0.135	-
5 210	42	802.11ac	9	8.67	0.00	Standard	Left Tilt	29.3Mbps	0.058	1.079	0.063	-
5 260	52	802.11a	10	9.62	-0.17	Standard	Left Ear	6Mbps	0.178	1.091	0.194	-
			10	9.62	0.00	Standard	Left Tilt	6Mbps	0.182	1.091	0.199	-
			10	9.62	-0.06	Standard	Right Ear	6Mbps	0.156	1.091	0.170	-
			10	9.62	-0.09	Standard	Right Tilt	6Mbps	0.176	1.091	0.192	-
5 290	58	802.11ac	9	8.57	-0.04	Standard	Left Tilt	29.3Mbps	0.079	1.104	0.087	-
5 580	116	802.11a	10	9.16	-0.01	Standard	Left Ear	6Mbps	0.154	1.213	0.187	-
			10	9.16	0.14	Standard	Left Tilt	6Mbps	0.150	1.213	0.182	-
			10	9.16	0.00	Standard	Right Ear	6Mbps	0.118	1.213	0.143	-
			10	9.16	0.07	Standard	Right Tilt	6Mbps	0.123	1.213	0.149	-
5 530	106	802.11ac	9	7.60	0.00	Standard	Left Ear	29.3Mbps	0.059	1.380	0.081	-
5 690	138	802.11ac	9	7.83	0.00	Standard	Left Ear	29.3Mbps	0.054	1.309	0.071	-
ANSI/ IEEE C95.1 - 1992– Safety Limit **Spatial Peak** **Uncontrolled Exposure/ General Population**							**Head** **1.6 W/kg (mW/g)** Averaged over 1 gram					

13.2-1 Measurement Results (GSM850 Hotspot SAR)

Frequency		Mode	Power (dBm)		Power Drift (dB)	Configuration	Separation Distance	Measured SAR(mW/g)	Scaling Factor	Scaled SAR(mW/g)	Plot No.
MHz	Ch.		Tune-Up Limit	Conducted Power							
836.6	190	GPRS 2Tx	31.7	31.49	-0.011	Rear	1.0 cm	0.237	1.050	**0.249**	12
836.6	190		31.7	31.49	0.096	Front	1.0 cm	0.179	1.050	0.188	-
836.6	190		31.7	31.49	0.140	Left	1.0 cm	0.092	1.050	0.097	-
836.6	190		31.7	31.49	-0.058	Right	1.0 cm	0.222	1.050	0.233	-
836.6	190		31.7	31.49	0.123	Bottom	1.0 cm	0.196	1.050	0.206	-
ANSI/ IEEE C95.1 - 1992– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population							**Body 1.6 W/kg (mW/g) **Averaged over 1 gram				

13. 2-2 Measurement Results (GSM1900 Hotspot SAR)

Frequency		Mode	Power (dBm)		Power Drift (dB)	Configuration	Separation Distance	Measured SAR (mW/g)	Scaling Factor	Scaled SAR (mW/g)	Plot No.
MHz	Ch.		Tune-Up Limit	Conducted Power							
1 880.0	661	GPRS 4Tx	26.7	26.27	-0.027	Rear	1.0 cm	0.709	1.104	0.783	13
1 880.0	661		26.7	26.27	-0.003	Front	1.0 cm	0.453	1.104	0.500	-
1 880.0	661		26.7	26.27	-0.012	Left	1.0 cm	0.040	1.104	0.044	-
1 880.0	661		26.7	26.27	-0.058	Right	1.0 cm	0.140	1.104	0.155	-
1 850.2	512		26.7	26.16	-0.134	Bottom	1.0 cm	0.499	1.132	0.565	
1 880.0	661		26.7	26.27	0.027	Bottom	1.0 cm	0.734	1.104	**0.810**	14
1 909.8	810		26.7	26.13	-0.026	Bottom	1.0 cm	0.704	1.140	0.803	
ANSI/ IEEE C95.1 - 1992– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population							**Body 1.6 W/kg (mW/g) **Averaged over 1 gram				

13. 2-3 Measurement Results (WCDMA850 Hotspot SAR)

Frequency		Mode	Power (dBm)		Power Drift (dB)	Configuration	Separation Distance	Measured SAR (mW/g)	Scaling Factor	Scaled SAR (mW/g)	Plot No.
MHz	Ch.		Tune-Up Limit	Conducted Power							
836.6	4183	WCDMA 850	23.7	23.63	-0.119	Rear	1.0 cm	0.214	1.016	0.217	15
836.6	4183		23.7	23.63	0.014	Front	1.0 cm	0.155	1.016	0.158	-
836.6	4183		23.7	23.63	0.071	Left	1.0 cm	0.127	1.016	0.129	-
836.6	4183		23.7	23.63	0.067	Right	1.0 cm	0.251	1.016	0.255	-
836.6	4183		23.7	23.63	-0.030	Bottom	1.0 cm	0.525	1.016	**0.534**	16
ANSI/ IEEE C95.1 - 1992– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population							**Body 1.6 W/kg (mW/g) **Averaged over 1 gram				

13. 2-4 Measurement Results (WCDMA1900 Hotspot SAR)

Frequency		Mode	Power (dBm)		Power Drift (dB)	Configuration	Separation Distance	Measured SAR (mW/g)	Scaling Factor	Scaled SAR (mW/g)	Plot No.
MHz	Ch.		Tune-Up Limit	Conducted Power							
1 852.4	9262	WCDMA 1900	23.7	23.65	0.125	Rear	1.0 cm	0.730	1.012	0.738	-
1 880.0	9400		23.7	23.70	0.086	Rear	1.0 cm	0.877	1.000	0.877	-
1 907.6	9538		23.7	23.65	0.157	Rear	1.0 cm	1.02	1.012	**1.032**	17
1 880.0	9400		23.7	23.70	0.034	Front	1.0 cm	0.466	1.000	0.466	-
1 880.0	9400		23.7	23.70	-0.093	Left	1.0 cm	0.051	1.000	0.051	-
1 880.0	9400		23.7	23.70	0.046	Right	1.0 cm	0.024	1.000	0.024	-
1 880.0	9400		23.7	23.70	-0.137	Bottom	1.0 cm	0.734	1.000	0.734	-
ANSI/ IEEE C95.1 - 1992– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population							**Body 1.6 W/kg (mW/g) Averaged over 1 gram**				

13.2-5 Measurement Results (LTE Band 2 20MHz Hotspot SAR)

Frequency		Mode	Power (dBm)		Power Drift (dB)	Configuration	RB Size	RB Offset	Separation Distance	Measured SAR (mW/g)	Scaling Factor	Scaled SAR (mW/g)	Plot No.
MHz	Ch.		Tune-Up Limit	Conducted Power									
1 900	19100	QPSK	23.7	23.37	-0.10	Rear	1	0	1.0 cm	0.680	1.079	0.734	18
1 880	18900		23.7	22.48	0.18	Rear	50	49	1.0 cm	0.535	1.052	0.563	-
1 900	19100		23.7	23.37	0.03	Front	1	0	1.0 cm	0.722	1.079	**0.779**	19
1 880	18900		23.7	22.48	-0.12	Front	50	49	1.0 cm	0.597	1.052	0.628	-
1 900	19100		23.7	23.37	-0.01	Left	1	0	1.0 cm	0.058	1.079	0.063	-
1 880	18900		23.7	22.48	-0.04	Left	50	49	1.0 cm	0.041	1.052	0.043	-
1 900	19100		23.7	23.37	0.04	Right	1	0	1.0 cm	0.145	1.079	0.156	-
1 880	18900		23.7	22.48	0.02	Right	50	49	1.0 cm	0.109	1.052	0.115	-
1 900	19100		23.7	23.37	-0.02	Bottom	1	0	1.0 cm	0.525	1.079	0.566	-
1 880	18900		23.7	22.48	0.00	Bottom	50	49	1.0 cm	0.583	1.052	0.613	-
ANSI/ IEEE C95.1 1992 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population									**Body 1.6 W/kg (mW/g) Averaged over 1 gram**				

13.2-6 Measurement Results (LTE Band 4 20MHz Hotspot SAR)

Frequency		Mode	Power (dBm)		Power Drift (dB)	Configuration	RB Size	RB Offset	Separation Distance	Measured SAR (mW/g)	Scaling Factor	Scaled SAR (mW/g)	Plot No.
MHz	Ch.		Tune-Up Limit	Conducted Power									
1 732.5	20175	QPSK	23.7	23.23	-0.17	Rear	1	99	1.0 cm	0.442	1.114	**0.493**	20
1 732.5	20175		23.7	22.46	-0.12	Rear	50	49	1.0 cm	0.291	1.057	0.308	-
1 732.5	20175		23.7	23.23	-0.13	Front	1	99	1.0 cm	0.233	1.114	0.260	-
1 732.5	20175		23.7	22.46	-0.02	Front	50	49	1.0 cm	0.182	1.057	0.192	-
1 732.5	20175		23.7	23.23	-0.03	Left	1	99	1.0 cm	0.044	1.114	0.049	-
1 732.5	20175		23.7	22.46	-0.00	Left	50	49	1.0 cm	0.035	1.057	0.037	-
1 732.5	20175		23.7	23.23	-0.01	Right	1	99	1.0 cm	0.069	1.114	0.077	-
1 732.5	20175		23.7	22.46	-0.16	Right	50	49	1.0 cm	0.055	1.057	0.058	-
1 732.5	20175		23.7	23.23	-0.13	Bottom	1	99	1.0 cm	0.406	1.114	0.452	-
1 732.5	20175		23.7	22.46	-0.06	Bottom	50	49	1.0 cm	0.306	1.057	0.323	-
ANSI/ IEEE C95.1 1992 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population								**Body 1.6 W/kg (mW/g) Averaged over 1 gram**					

13.2-7 Measurement Results (LTE Band 7 20MHz Hotspot SAR)

Frequency		Mode	Power (dBm)		Power Drift (dB)	Configuration	RB Size	RB Offset	Separation Distance	Measured SAR (mW/g)	Scaling Factor	Scaled SAR (mW/g)	Plot No.
MHz	ch.		Tune-Up Limit	Conducted Power									
2 535	21100	QPSK	23.7	23.36	0.18	Rear	1	0	1.0 cm	0.278	1.081	**0.301**	21
2 535	21100		23.7	22.45	-0.16	Rear	50	0	1.0 cm	0.218	1.059	0.231	-
2 535	21100		23.7	23.36	0.10	Front	1	0	1.0 cm	0.207	1.081	0.224	-
2 535	21100		23.7	22.45	-0.13	Front	50	0	1.0 cm	0.169	1.059	0.179	-
2 535	21100		23.7	23.36	-0.16	Left	1	0	1.0 cm	0.157	1.081	0.170	-
2 535	21100		23.7	22.45	-0.12	Left	50	0	1.0 cm	0.125	1.059	0.132	-
2 535	21100		23.7	23.36	-0.04	Right	1	0	1.0 cm	0.026	1.081	0.028	-
2 535	21100		23.7	22.45	-0.17	Right	50	0	1.0 cm	0.020	1.059	0.021	-
2 535	21100		23.7	23.36	-0.07	Bottom	1	0	1.0 cm	0.197	1.081	0.213	-
2 535	21100		23.7	22.45	0.01	Bottom	50	0	1.0 cm	0.152	1.059	0.161	-
ANSI/ IEEE C95.1 1992 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population								**Body 1.6 W/kg (mW/g) Averaged over 1 gram**					

13.2-8 Measurement Results (LTE Band 17 10MHz Hotspot SAR)

Frequency		Mode	Power (dBm)		Power Drift (dB)	Configuration	RB Size	RB Offset	Separation Distance	Measured SAR (mW/g)	Scaling Factor	Scaled SAR (mW/g)	Plot No.
MHz	Ch.		Tune-Up Limit	Conducted Power									
710	23790	QPSK	23.7	23.51	-0.11	Rear	1	49	1.0 cm	0.067	1.045	**0.070**	22
710	23790		23.7	22.53	0.12	Rear	25	0	1.0 cm	0.050	1.040	0.052	-
710	23790		23.7	23.51	0.16	Front	1	49	1.0 cm	0.061	1.045	0.064	-
710	23790		23.7	22.53	0.06	Front	25	0	1.0 cm	0.047	1.040	0.049	-
710	23790		23.7	23.51	0.01	Left	1	49	1.0 cm	0.071	1.045	0.074	-
710	23790		23.7	22.53	-0.02	Left	25	0	1.0 cm	0.048	1.040	0.050	-
710	23790		23.7	23.51	0.04	Right	1	49	1.0 cm	0.126	1.045	**0.132**	23
710	23790		23.7	22.53	0.02	Right	25	0	1.0 cm	0.087	1.040	0.090	-
710	23790		23.7	23.51	-0.10	Bottom	1	49	1.0 cm	0.043	1.045	0.045	-
710	23790		23.7	22.53	0.01	Bottom	25	0	1.0 cm	0.033	1.040	0.034	-
ANSI/ IEEE C95.1 1992 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population							**Body 1.6 W/kg (mW/g) Averaged over 1 gram**						

13. 2-9 Measurement Results (WLAN Hotspot SAR)

Frequency		Mode	Power (dBm)		Power Drift (dB)	Configuration	Data Rate	**Separation Distance**	Measured SAR (mW/g)	Scaling Factor	Scaled SAR (mW/g)	Plot No.
MHz	Ch.		Tune-Up Limit	Conducted Power								
2 462	11	802.11b	17	16.01	-0.117	Rear	1Mbps	1.0 cm	0.114	1.256	**0.143**	24
			17	16.01	0.115	Front	1Mbps	1.0 cm	0.045	1.256	0.057	-
			17	16.01	0.133	Left	1Mbps	1.0 cm	0.00354	1.256	0.004	-
			17	16.01	0.049	Top	1Mbps	1.0 cm	0.062	1.256	0.078	-
5 745	149	802.11a	10	8.40	-0.07	Rear	6Mbps	1.0 cm	0.217	1.445	**0.314**	25
			10	8.40	-0.07	Front	6Mbps	1.0 cm	0.030	1.445	0.043	-
			10	8.40	-0.16	Left	6Mbps	1.0 cm	0.034	1.445	0.049	-
			10	8.40	-0.01	Top	6Mbps	1.0 cm	0.142	1.445	0.205	-
5 775	155	802.11ac	9	7.03	0.19	Rear	29.3Mbps	1.0 cm	0.102	1.574	0.161	-
ANSI/ IEEE C95.1 - 1992– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population							**Body 1.6 W/kg (mW/g) **Averaged over 1 gram					

13.3-1 Measurement Results (WLAN Body-worn SAR)

Frequency		Mode	Power (dBm)		Power Drift (dB)	Configuration	Data Rate	Separation Distance	Measured SAR (mW/g)	Scaling Factor	Scaled SAR (mW/g)	Plot No.
MHz	Ch.		Tune-Up Limit	Conducted Power								
2 462	11	802.11b	17	16.01	-0.117	Rear	1Mbps	1.0 cm	0.114	1.256	0.143	24
5 745	149	802.11a	10	8.40	-0.07	Rear	6Mbps	1.0 cm	0.217	1.445	0.314	25
5 775	155	802.11ac	9	7.03	0.19	Rear	29.3Mbps	1.0 cm	0.102	1.574	0.161	-
ANSI/ IEEE C95.1 - 1992– Safety Limit **Spatial Peak** **Uncontrolled Exposure/ General Population**							**Body** **1.6 W/kg (mW/g)** Averaged over 1 gram					

13.3-2 Measurement Results (NII Body-worn SAR)

Frequency		Mode	Power (dBm)		Power Drift (dB)	Configuration	Data Rate	Separation Distance	Measured SAR (mW/g)	Scaling Factor	Scaled SAR (mW/g)	Plot No.
MHz	Ch.		Tune-Up Limit	Conducted Power								
5 240	48	802.11a	10	9.49	-0.10	Rear	6Mbps	1.0 cm	0.144	1.125	0.162	-
5 210	42	802.11ac	9	8.67	-0.04	Rear	29.3Mbps	1.0 cm	0.168	1.079	**0.181**	26
5 260	52	802.11a	10	9.62	-0.15	Rear	6Mbps	1.0 cm	0.193	1.091	**0.211**	27
5 290	58	802.11ac	9	8.57	-0.14	Rear	29.3Mbps	1.0 cm	0.104	1.104	0.115	-
5 580	116	802.11a	10	9.16	-0.10	Rear	6Mbps	1.0 cm	0.255	1.213	**0.309**	28
5 530	106	802.11ac	9	7.60	0.12	Rear	29.3Mbps	1.0 cm	0.142	1.380	0.196	-
5 690	138	802.11ac	9	7.83	-0.17	Rear	29.3Mbps	1.0 cm	0.149	1.309	0.195	-
ANSI/ IEEE C95.1 - 1992– Safety Limit **Spatial Peak** **Uncontrolled Exposure/ General Population**							**Body** **1.6 W/kg (mW/g)** Averaged over 1 gram					

13.3-3 Measurement Results (Body-worn SAR)

Frequency		Mode	Power (dBm)		Power Drift (dB)	Configuration	Separation Distance	Measured SAR (mW/g)	Scaling Factor	Scaled SAR (mW/g)	Plot No.
MHz	Ch.		Tune-Up Limit	Conducted Power							
836.6	190	GSM850	33.7	33.41	-0.079	Rear	1.0 cm	0.203	1.069	0.217	29
836.6	190	GPRS 2Tx	31.7	31.49	-0.011	Rear	1.0 cm	0.237	1.050	**0.249**	12
1 880.0	661	GSM1900	30.7	29.97	0.137	Rear	1.0 cm	0.484	1.183	0.573	30
1 880.0	661	GPRS 4Tx	26.7	26.27	-0.027	Rear	1.0 cm	0.709	1.104	**0.783**	13
836.6	4183	WCDMA850	23.7	23.63	-0.119	Rear	1.0 cm	0.214	1.016	0.217	15
1 852.4	9262	WCDMA1900	23.7	23.65	0.125	Rear	1.0 cm	0.730	1.012	0.738	-
1 880.0	9400	WCDMA1900	23.7	23.70	0.086	Rear	1.0 cm	0.877	1.000	0.877	-
1 907.6	9538	WCDMA1900	23.7	23.65	0.157	Rear	1.0 cm	1.02	1.012	1.032	17
1 900	19100	LTE Band 2	23.7	23.37	-0.10	Rear	1.0 cm	0.680	1.079	0.734	18
1 732.5	20175	LTE Band 4	23.7	23.23	-0.17	Rear	1.0 cm	0.442	1.114	0.493	20
2 535	21100	LTE Band 7	23.7	23.36	0.18	Rear	1.0 cm	0.278	1.081	0.301	21
710	23790	LTE Band 17	23.7	23.51	-0.11	Rear	1.0 cm	0.067	1.045	0.070	22
ANSI/ IEEE C95.1 - 1992– Safety Limit **Spatial Peak** **Uncontrolled Exposure/ General Population**								**Body** **1.6 W/kg (mW/g)** Averaged over 1 gram			

13.4 SAR Test Notes

General Notes:

1. The test data reported are the worst-case SAR values according to test procedures specified in IEEE 1528-2003, FCC KDB Procedure.
2. Batteries are fully charged at the beginning of the SAR measurements. A standard battery was used for all SAR measurements.
3. Liquid tissue depth was at least 15.0 cm for all frequencies.
4. The manufacturer has confirmed that the device(s) tested have the same physical, mechanical and thermal characteristics and are within operational tolerances expected for production units.
5. SAR results were scaled to the maximum allowed power to demonstrate compliance per FCC KDB 447498 D01v05r02.
6. Device was tested using a fixed spacing for body-worn accessory testing. A separation distance of 10 mm was considered because the manufacturer has determined that there will be body-worn accessories available in the marketplace for users to support this separation distance.
7. Per FCC KDB 648474 D04v01r02, SAR was evaluated without a headset connected to the device. Since the standalone reported SAR was ≤ 1.2 W/kg, no additional SAR evaluation using a headset cable were required.

GSM/GPRS Test Notes:

1. This device supports GSM VOIP in the head and the body-worn configurations therefore GPRS was additionally evaluated for head and body-worn compliance.
2. Body-Worn accessory testing is typically associated with voice operations. Therefore, GSM voice was evaluated for body-worn SAR.
3. Justification for reduced test configurations per KDB 941225 D03v01: The source-based time-averaged output power was evaluated for all multi-slot operations. The multi-slot configuration with the highest frame averaged output power was evaluated for SAR.
4. Per FCC KDB 447498 D01v05r02, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg then testing at the other channels is not required for such test configuration(s). When the maximum output power variation across the required test channels is 1/2 dB, instead of the middle channel, the highest output power channel must be used.
5. Justification for reduced test configurations per KDB Publication 941225 D03v01 and October 2013 TCB Workshop Notes: The source-based frame-averaged output power was evaluated for all GPRS/EDGE slot configurations. The configuration with the highest target frame averaged output power was evaluated for hotspot SAR. When the maximum frame-averaged powers are equivalent across two or more slots (within 0.25 dB), the configuration with the most number of time slots was tested.

UMTS Notes:

1. UMTS mode in Body SAR was tested under RMC 12.2 kbps with HSPA inactive per KDB 941225 D01v02. HSPA SAR was not required since the average output power of the HSPA subtests was not more than 0.25 dB higher than the RMC level and SAR was less than 1.2 W/kg.
2. Per FCC KDB 447498 D01v05r02, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg then testing at the other channels is not required for such test configuration(s). When the maximum output power variation across the channel highest output power channel was used.
3. Measured maximum output powers for DC-HSDPA were not greater than 1/4 dB higher than the WCDMA 12.2 kbps RMC maximum output and as a result, SAR is not required for DC-HSDPA and SAR was less than 1.2 W/kg.

LTE Notes:

1. LTE Considerations: LTE test configurations are determined according to SAR Evaluation Consideration for LTE Devices in FCC KDB 941225 D05v02r03. The general test procedures used for testing can be found in Section 8.4.4.
2. MPR is permanently implemented for this device by the manufacturer. The specific manufacturer target MPR is indicated alongside the SAR results. MPR is enabled for this device, according to target MPR is indicated alongside the SAR results. MPR is enabled for this device, according to 2.5 under Table 6.2.3-1.
3. A-MPR was diabled for all SAR tests by setting NS=01 on the base station simulator.
4. *Pre-installed VOIP applications are considered.

WLAN Notes:

1. Justification for reduced test configurations for WIFI channels per KDB 248227 D01v01r02 and Oct. 2012 FCC/TCB Meeting Notes for 2.4 GHz WIFI: Highest average RF output power channel for the lowest data rate was selected for SAR evaluation in 802.11b. Other IEEE 802.11 modes (including 802.11 g/n) were not investigated since the average output powers over all channels and data rates were not more than 0.25 dB higher than the tested channel in the lowest data rate of IEEE 802.11b mode.
2. Justification for reduced test configurations for WIFI channels per KDB 248227 D01v01r02 and Oct. 2012 FCC/TCB Meeting Notes for 5 GHz WIFI: Highest average RF output power channel for the lowest data rate was selected for SAR evaluation in 802.11a. Other IEEE 802.11 modes (including 802.11 n 20MHz and 40 MHz bandwidths) were not investigated since the average output power over all channels and data rates were not more than 0.25 dB higher than the tested channel in the lowest data of IEEE 802.11a mode.
3. Per Apr. 2013 TCB Workshop notes, full SAR test for all IEEE 802.11 ac configurations were not required because the average output power was not more than 0.25 dB higher than IEEE 802.11 a mode. IEEE 802.11 ac was evaluated for the highest IEEE 802.11 a configuration in each 5 GHz band and exposure condition.
4. When wireless router is enabled, 5.2, 5.3 and 5.5 GHz bands are disabled.
5. 5G WiFi Direct GO is supported in the 5.8 GHz band only. The manufacturer expects 5.8 GHz WiFi Direct GO may be used similar to wireless router usage. Therefore, 5.8 GHz WiFi Direct GO was evaluated For SAR similar to wireless router SAR procedures in FCC KDB Publication 941225 D06v01r01.
6. Since the maximum extrapolated peak SAR of the zoom scan for the maximum output channel was $\leq$ 1.6 W/kg and the reported 1g averaged SAR was $<$ 0.8 W/kg, SAR testing on other default channels was not required.

14. SAR Measurement Variability and Uncertainty

In accordance with published RF Exposure KDB procedure 865664 D01v01r03 SAR measurement 100 MHz to 6 GHz. These additional measurements are repeated after the completion of all measurements requiring the same head or body tissue-equivalent medium in a frequency band. The test device should be returned to ambient conditions (normal room temperature) with the battery fully charged before it is re-mounted on the device holder for the repeated measurement(s) to minimize any unexpected variations in the repeated results.

1) Repeated measurement is not required when the original highest measured SAR is < 0.80 W/kg; steps 2) through 4) do not apply.
2) When the original highest measured SAR is ≥ 0.80 W/kg, repeat that measurement once.
3) Perform a second repeated measurement only if the ratio of largest to smallest SAR for the original and first repeated measurements is > 1.20 or when the original or repeated measurement is ≥ 1.45 W/kg (~ 10 % from the 1-g SAR limit).
4) Perform a third repeated measurement only if the original, first or second repeated measurement is ≥1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20.

Frequency		Modulation	Battery	Configuration	Conducted Power (dBm)	Original SAR (mW/g)	Repeated SAR (mW/g)	Largest to Smallest SAR Ratio	Plot No.
MHz	Ch.								
1 907.6	9538	WCDMA1900	Standard	Rear	23.65	1.02	1.02	1.00	31

Note(s):
1) Second Repeated Measurement is not required since the ratio of the largest to smallest SAR for the original and first repeated measurement is not > 1.20.
2) Repeated measurement is not required when the original highest measured SAR is < 0.80 W/kg.

15. SAR Summation Scenario

	Position	Applicable Combination	Note
Simultaneous Transmission	Head	GSM 850 Voice/Data + 2.4 GHz WiFi	
		GPRS 850 Voice/Data + 2.4 GHz WiFi	
		GSM 1900 Voice/Data + 2.4 GHz WiFi	
		GPRS 1900 Voice/Data + 2.4 GHz WiFi	
		WCDMA850 Voice/Data + 2.4 GHz WiFi	
		WCDMA1900 Voice/Data + 2.4 GHz WiFi	
		LTE Band 2 Voice/Data + 2.4 GHz WiFi	*Pre-installed VOIP applications are considered.
		LTE Band 4 Voice/Data + 2.4 GHz WiFi	
		LTE Band 7 Voice/Data + 2.4 GHz WiFi	
		LTE Band 17 Voice/Data + 2.4 GHz WiFi	
		GSM 850 Voice/Data + 5 GHz WiFi	
		GPRS 850 Voice/Data + 5 GHz WiFi	
		GSM 1900 Voice/Data + 5 GHz WiFi	
		GPRS 1900 Voice/Data + 5 GHz WiFi	
		WCDMA850 Voice/Data +5 GHz WiFi	
		WCDMA1900 Voice/Data +5 GHz WiFi	
		LTE Band 2 Voice/Data +5 GHz WiFi	*Pre-installed VOIP applications are considered.
		LTE Band 4 Voice/Data +5 GHz WiFi	
		LTE Band 7 Voice/Data +5 GHz WiFi	
		LTE Band 17 Voice/Data +5 GHz WiFi	
	Hotspot	GPRS 850 Voice/Data + 2.4 GHz WiFi	
		GPRS 1900 Voice/Data + 2.4 GHz WiFi	
		WCDMA850 Voice/Data + 2.4 GHz WiFi	
		WCDMA1900 Voice/Data + 2.4 GHz WiFi	
		LTE Band 2 Voice/Data + 2.4 GHz WiFi	
		LTE Band 4 Voice/Data + 2.4 GHz WiFi	
		LTE Band 7 Voice/Data + 2.4 GHz WiFi	
		LTE Band 17 Voice/Data + 2.4 GHz WiFi	
		GPRS 850 Voice/Data + 5 GHz WiFi	WIFI Direct*
		GPRS 1900 Voice/Data + 5 GHz WiFi	
		WCDMA850 Voice/Data + 5 GHz WiFi	
		WCDMA1900 Voice/Data + 5 GHz WiFi	
		LTE Band 2 Voice/Data + 5 GHz WiFi	
		LTE Band 4 Voice/Data + 5 GHz WiFi	
		LTE Band 7 Voice/Data + 5 GHz WiFi	
		LTE Band 17 Voice/Data + 5 GHz WiFi	
	Body-worn	GSM 850 Voice/Data + 2.4 GHz WiFi	
		GPRS 850 Voice/Data + 2.4 GHz WiFi	
		GSM 1900 Voice/Data + 2.4 GHz WiFi	
		GPRS 1900 Voice/Data + 2.4 GHz WiFi	
		WCDMA850 Voice/Data + 2.4 GHz WiFi	
		WCDMA1900 Voice/Data + 2.4 GHz WiFi	
		LTE Band 2 Voice/Data + 2.4 GHz WiFi	
		LTE Band 4 Voice/Data + 2.4 GHz WiFi	
		LTE Band 7 Voice/Data + 2.4 GHz WiFi	
		LTE Band 17 Voice/Data + 2.4 GHz WiFi	
		GSM 850 Voice/Data + 5 GHz WiFi	
		GPRS 850 Voice/Data + 5 GHz WiFi	
		GSM 1900 Voice/Data + 5 GHz WiFi	
		GPRS 1900 Voice/Data + 5 GHz WiFi	
		WCDMA850 Voice/Data + 5 GHz WiFi	
		WCDMA1900 Voice/Data + 5 GHz WiFi	
		LTE Band 2 Voice/Data + 5 GHz WiFi	
		LTE Band 4 Voice/Data + 5 GHz WiFi	
		LTE Band 7 Voice/Data + 5 GHz WiFi	
		LTE Band 17 Voice/Data + 5 GHz WiFi	
		GSM 850 Voice + 2.4 GHz Bluetooth	
		GPRS VoIP 850 + 2.4 GHz Bluetooth	
		GSM 1900 Voice + 2.4 GHz Bluetooth	
		GPRS VoIP 1900 + 2.4 GHz Bluetooth	
		WCDMA850 Voice/Data + 2.4 GHz Bluetooth	
		WCDMA1900 Voice/Data 2.4 GHz Bluetooth	
		LTE Band 2 Voice/Data 2.4 GHz Bluetooth	
		LTE Band 4 Voice/Data 2.4 GHz Bluetooth	
		LTE Band 7 Voice/Data 2.4 GHz Bluetooth	
		LTE Band 17 Voice/Data 2.4 GHz Bluetooth	

* BT and WLAN are not simultaneous transmission.
* When the WIFI Direct mode is enabled, all 5 GHz NII Band are disabled. Therefore 5GHz NII WIFI is not considered in this section.

15.1 Simultaneous Transmission Summation for Head

Simultaneous Transmission Summation with 2.4 GHz WIFI

Band	configuration	Scaled SAR (W/kg)	2.4 GHz WIFI Scaled SAR (W/kg)	∑ 1-g SAR (W/kg)
GSM 850	Left Cheek	0.133	0.178	0.311
	Left Tilt	0.079	0.203	0.282
	Right Cheek	0.151	0.139	0.290
	Right Tilt	0.083	0.144	0.227
GPRS 850	Left Cheek	0.025	0.178	0.203
	Left Tilt	0.015	0.203	0.218
	Right Cheek	0.027	0.139	0.166
	Right Tilt	0.015	0.144	0.159
GSM 1900	Left Cheek	0.082	0.178	0.260
	Left Tilt	0.062	0.203	0.265
	Right Cheek	0.123	0.139	0.262
	Right Tilt	0.044	0.144	0.188
GPRS 1900	Left Cheek	0.126	0.178	0.304
	Left Tilt	0.097	0.203	0.300
	Right Cheek	0.193	0.139	0.332
	Right Tilt	0.072	0.144	0.216
WCDMA 850	Left Cheek	0.137	0.178	0.315
	Left Tilt	0.092	0.203	0.295
	Right Cheek	0.154	0.139	0.293
	Right Tilt	0.085	0.144	0.229
WCDMA 1900	Left Cheek	0.119	0.178	0.297
	Left Tilt	0.119	0.203	0.322
	Right Cheek	0.194	0.139	0.333
	Right Tilt	0.076	0.144	0.220
LTE Band 2	Left Cheek	0.072	0.178	0.250
	Left Tilt	0.109	0.203	0.312
	Right Cheek	0.150	0.139	0.289
	Right Tilt	0.066	0.144	0.210
LTE Band 4	Left Cheek	0.106	0.178	0.284
	Left Tilt	0.111	0.203	0.314
	Right Cheek	0.218	0.139	0.357
	Right Tilt	0.088	0.144	0.232
LTE Band 7	Left Cheek	0.028	0.178	0.206
	Left Tilt	0.010	0.203	0.213
	Right Cheek	0.050	0.139	0.189
	Right Tilt	0.034	0.144	0.178
LTE Band 17	Left Cheek	0.017	0.178	0.195
	Left Tilt	0.034	0.203	0.237
	Right Cheek	0.066	0.139	0.205
	Right Tilt	0.042	0.144	0.186

Simultaneous Transmission Summation with 5 GHz WIFI

Band	configuration	Scaled SAR (W/kg)	5 GHz WIFI Scaled SAR (W/kg)	∑ 1-g SAR (W/kg)
GSM 850	Left Cheek	0.133	0.294	0.427
	Left Tilt	0.079	0.296	0.375
	Right Cheek	0.151	0.173	0.324
	Right Tilt	0.083	0.192	0.275
GPRS 850	Left Cheek	0.025	0.294	0.319
	Left Tilt	0.015	0.296	0.311
	Right Cheek	0.027	0.173	0.200
	Right Tilt	0.015	0.192	0.207
GSM 1900	Left Cheek	0.082	0.294	0.376
	Left Tilt	0.062	0.296	0.358
	Right Cheek	0.123	0.173	0.296
	Right Tilt	0.044	0.192	0.236
GPRS 1900	Left Cheek	0.126	0.294	0.420
	Left Tilt	0.097	0.296	0.393
	Right Cheek	0.193	0.173	0.366
	Right Tilt	0.072	0.192	0.264
WCDMA 850	Left Cheek	0.137	0.294	0.431
	Left Tilt	0.092	0.296	0.388
	Right Cheek	0.154	0.173	0.327
	Right Tilt	0.085	0.192	0.277
WCDMA 1900	Left Cheek	0.119	0.294	0.413
	Left Tilt	0.119	0.296	0.415
	Right Cheek	0.194	0.173	0.367
	Right Tilt	0.076	0.192	0.268
LTE Band 2	Left Cheek	0.072	0.294	0.366
	Left Tilt	0.109	0.296	0.405
	Right Cheek	0.150	0.173	0.323
	Right Tilt	0.066	0.192	0.258
LTE Band 4	Left Cheek	0.106	0.294	0.400
	Left Tilt	0.111	0.296	0.407
	Right Cheek	0.218	0.173	0.391
	Right Tilt	0.088	0.192	0.280
LTE Band 7	Left Cheek	0.028	0.294	0.322
	Left Tilt	0.010	0.296	0.306
	Right Cheek	0.050	0.173	0.223
	Right Tilt	0.034	0.192	0.226
LTE Band 17	Left Cheek	0.017	0.294	0.311
	Left Tilt	0.034	0.296	0.330
	Right Cheek	0.066	0.173	0.239
	Right Tilt	0.042	0.192	0.234

Note: The worst case 5 GHz WLAN reported SAR for each configuration was used for SAR summation, regardless of whether the WLAN channel has WIFI Direct capability. Therefore, the summations above represent the absolute worst cases for simultaneous transmission with 5 GHz WLAN.

15.2 Simultaneous Transmission Summation for Body-Worn

Simultaneous Transmission Summation with Wifi (1 cm)

Band	configuration	Scaled SAR(W/kg)	2.4 GHz WIFI Scaled SAR (W/kg)	∑ 1-g SAR (W/kg)
GSM 850	Rear	0.217	0.143	0.360
GPRS 850	Rear	0.249	0.143	0.392
GSM 1900	Rear	0.573	0.143	0.716
GPRS 1900	Rear	0.783	0.143	0.926
WCDMA850	Rear	0.217	0.143	0.360
WCDMA1900	Rear	1.032	0.143	1.175
LTE Band 2	Rear	0.734	0.143	0.877
LTE Band 4	Rear	0.493	0.143	0.636
LTE Band 7	Rear	0.301	0.143	0.444
LTE Band 17	Rear	0.070	0.143	0.213

Simultaneous Transmission Summation with Wifi (1 cm)

Band	configuration	Scaled SAR(W/kg)	5 GHz WIFI Scaled SAR (W/kg)	∑ 1-g SAR (W/kg)
GSM 850	Rear	0.217	0.314	0.531
GPRS 850	Rear	0.249	0.314	0.563
GSM 1900	Rear	0.573	0.314	0.887
GPRS 1900	Rear	0.783	0.314	1.097
WCDMA850	Rear	0.217	0.314	0.531
WCDMA1900	Rear	1.032	0.314	1.346
LTE Band 2	Rear	0.734	0.314	1.048
LTE Band 4	Rear	0.493	0.314	0.807
LTE Band 7	Rear	0.301	0.314	0.615
LTE Band 17	Rear	0.070	0.314	0.384

Note: The worst case 5 GHz WLAN reported SAR for each configuration was used for SAR summation, regardless of whether the WLAN channel has WIFI Direct capability. Therefore, the summations above represent the absolute worst cases for simultaneous transmission with 5 GHz WLAN.

Simultaneous Transmission Summation with Bluetooth (1 cm)

Band	configuration	Scaled SAR(W/kg)	BT SAR (W/kg)	∑ 1-g SAR (W/kg)
GSM 850	Rear	0.217	0.08	0.297
GPRS 850	Rear	0.249	0.08	0.329
GSM 1900	Rear	0.573	0.08	0.653
GPRS 1900	Rear	0.783	0.08	0.863
WCDMA850	Rear	0.217	0.08	0.297
WCDMA1900	Rear	1.032	0.08	1.112
LTE Band 2	Rear	0.734	0.08	0.814
LTE Band 4	Rear	0.493	0.08	0.573
LTE Band 7	Rear	0.301	0.08	0.381
LTE Band 17	Rear	0.070	0.08	0.150

15.3 Simultaneous Transmission Summation for Hotspot

Simultaneous Transmission Summation with 2.4 GHz WIFI (1 cm)

Band	configuration	Scaled SAR (W/kg)	2.4 GHz WIFI Scaled SAR (W/kg)	∑ 1-g SAR (W/kg)
GSM 850	Rear	0.249	0.143	0.392
	Front	0.188	0.057	0.245
	Left	0.097	0.004	0.101
	Right	0.233		0.233
	Bottom	0.206		0.206
	Top		0.078	0.078
GSM 1900	Rear	0.783	0.143	0.926
	Front	0.500	0.057	0.557
	Left	0.044	0.004	0.048
	Right	0.155		0.155
	Bottom	0.810		0.810
	Top		0.078	0.078
WCDMA 850	Rear	0.217	0.143	0.360
	Front	0.158	0.057	0.215
	Left	0.129	0.004	0.133
	Right	0.255		0.255
	Bottom	0.534		0.534
	Top		0.078	0.078
WCDMA 1900	Rear	1.032	0.143	1.175
	Front	0.466	0.057	0.523
	Left	0.051	0.004	0.055
	Right	0.024		0.024
	Bottom	0.734		0.734
	Top		0.078	0.078
LTE Band 2	Rear	0.734	0.143	0.877
	Front	0.779	0.057	0.836
	Left	0.063	0.004	0.067
	Right	0.156		0.156
	Bottom	0.613		0.613
	Top		0.078	0.078
LTE Band 4	Rear	0.493	0.143	0.636
	Front	0.260	0.057	0.317
	Left	0.049	0.004	0.053
	Right	0.077		0.077
	Bottom	0.452		0.452
	Top		0.078	0.078
LTE Band 7	Rear	0.301	0.143	0.444
	Front	0.224	0.057	0.281
	Left	0.170	0.004	0.174
	Right	0.028		0.028
	Bottom	0.213		0.213
	Top		0.078	0.078
LTE Band 17	Rear	0.070	0.143	0.213
	Front	0.064	0.057	0.121
	Left	0.074	0.004	0.078
	Right	0.132		0.132
	Bottom	0.045		0.045
	Top		0.078	0.078

Simultaneous Transmission Summation with 5.8 GHz DTS Wifi (1 cm)

Band	configuration	Scaled SAR (W/kg)	5.8 GHz WIFI Scaled SAR (W/kg)	∑ 1-g SAR (W/kg)
GSM 850	Rear	0.249	0.314	0.563
	Front	0.188	0.043	0.231
	Left	0.097	0.049	0.146
	Right	0.233		0.233
	Bottom	0.206		0.206
	Top		0.205	0.205
GSM 1900	Rear	0.783	0.314	1.097
	Front	0.500	0.043	0.543
	Left	0.044	0.049	0.093
	Right	0.155		0.155
	Bottom	0.810		0.810
	Top		0.205	0.205
WCDMA 850	Rear	0.217	0.314	0.531
	Front	0.158	0.043	0.201
	Left	0.129	0.049	0.178
	Right	0.255		0.255
	Bottom	0.534		0.534
	Top		0.205	0.205
WCDMA 1900	Rear	1.032	0.314	1.346
	Front	0.466	0.043	0.509
	Left	0.051	0.049	0.100
	Right	0.024		0.024
	Bottom	0.734		0.734
	Top		0.205	0.205
LTE Band 2	Rear	0.734	0.314	1.048
	Front	0.779	0.043	0.822
	Left	0.063	0.049	0.112
	Right	0.156		0.156
	Bottom	0.613		0.613
	Top		0.205	0.205
LTE Band 4	Rear	0.493	0.314	0.807
	Front	0.260	0.043	0.303
	Left	0.049	0.049	0.098
	Right	0.077		0.077
	Bottom	0.452		0.452
	Top		0.205	0.205
LTE Band 7	Rear	0.301	0.314	0.615
	Front	0.224	0.043	0.267
	Left	0.170	0.049	0.219
	Right	0.028		0.028
	Bottom	0.213		0.213
	Top		0.205	0.205
LTE Band 17	Rear	0.070	0.314	0.384
	Front	0.064	0.043	0.107
	Left	0.074	0.049	0.123
	Right	0.132		0.132
	Bottom	0.045		0.045
	Top		0.205	0.205

Note: The worst case 5 GHz WLAN reported SAR for each configuration was used for SAR summation, regardless of whether the WLAN channel has WIFI Direct capability. Therefore, the summations above represent the absolute worst cases for simultaneous transmission with 5 GHz WLAN.

15.4 Simultaneous Transmission Conclusion

The above numerical summed SAR results for all the worst-case simultaneous transmission conditions were below the SAR limit. Therefore, the above analysis is sufficient to determine that simultaneous transmission cases will not exceed the SAR limit. And therefore no measured volumetric simultaneous SAR summation is required per FCC KDB Publication 447498 D01v05r02.

16. CONCLUSION

The SAR measurement indicates that the EUT complies with the RF radiation exposure limits of the ANSI/ IEEE C95.1 1992.

These measurements are taken to simulate the RF effects exposure under worst-case conditions. Precise laboratory measures were taken to assure repeatability of the tests.

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Attachment 1. – SAR Test Plots

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA/LTE Phone with Bluetooth, WLAN, NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Apr.30, 2014
Plot No.	1

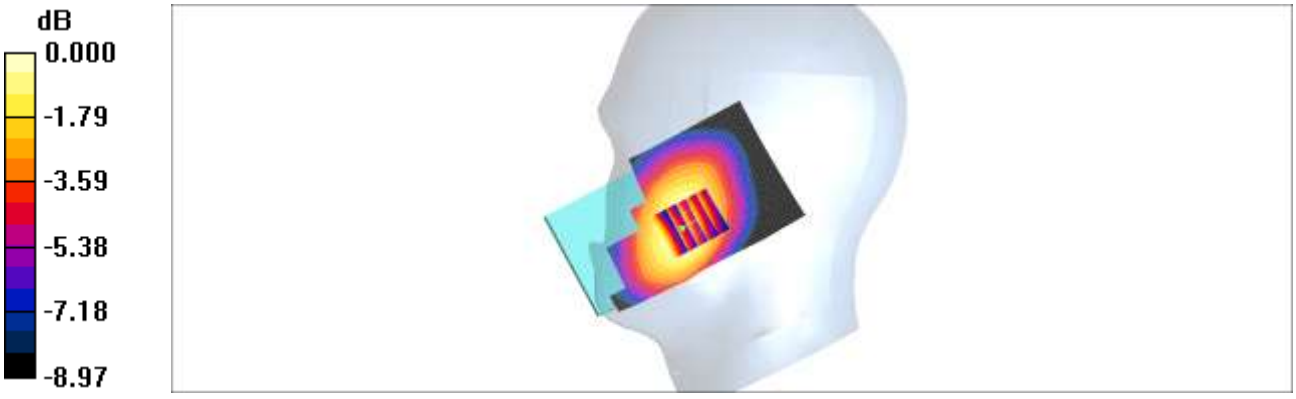
DUT: LG-D855P; Type: Bar; Serial: #1

Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.896 mho/m; ε_r = 42.3; ρ = 1000 kg/m^3
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

DASY4 Configuration:
- Probe: ET3DV6 - SN1605; ConvF(6.57, 6.57, 6.57); Calibrated: 2014-01-31
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2014-02-27
- Phantom: 835/900 Phamtom ; Type: SAM

GSM850 right touch 190ch/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.150 mW/g

GSM850 right touch 190ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.61 V/m; Power Drift = -0.031 dB
Peak SAR (extrapolated) = 0.169 W/kg
SAR(1 g) = 0.141 mW/g; SAR(10 g) = 0.108 mW/g
Maximum value of SAR (measured) = 0.148 mW/g



0 dB = 0.148mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA/LTE Phone with Bluetooth, WLAN, NFC
Liquid Temperature:	20.2 ℃
Ambient Temperature:	20.4 ℃
Test Date:	Apr.28, 2014
Plot No.	2

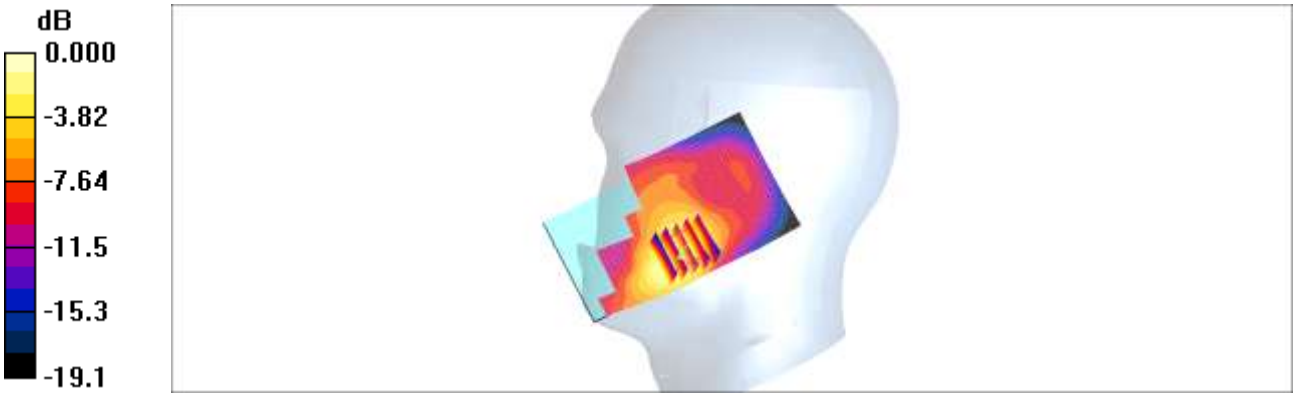
DUT: LG-D855P; Type: Bar; Serial: #1

Communication System: GSM 1900; Frequency: 1880 MHz;Duty Cycle: 1:2.075
Medium parameters used: f = 1880 MHz; σ = 1.4 mho/m; ε_r = 39.2; ρ = 1000 kg/m^3
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

DASY4 Configuration:
- Probe: ET3DV6 - SN1605; ConvF(5.2, 5.2, 5.2); Calibrated: 2014-01-31
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2014-02-27
- Phantom: 1800/1900 Phantom; Type: SAM

GSM1900 right touch 661ch GPRS 4Tx/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.200 mW/g

GSM1900 right touch 661ch GPRS 4Tx/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.08 V/m; Power Drift = -0.033 dB
Peak SAR (extrapolated) = 0.253 W/kg
SAR(1 g) = 0.175 mW/g; SAR(10 g) = 0.107 mW/g
Maximum value of SAR (measured) = 0.193 mW/g



0 dB = 0.193mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA/LTE Phone with Bluetooth, WLAN, NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Apr.30, 2014
Plot No.	3

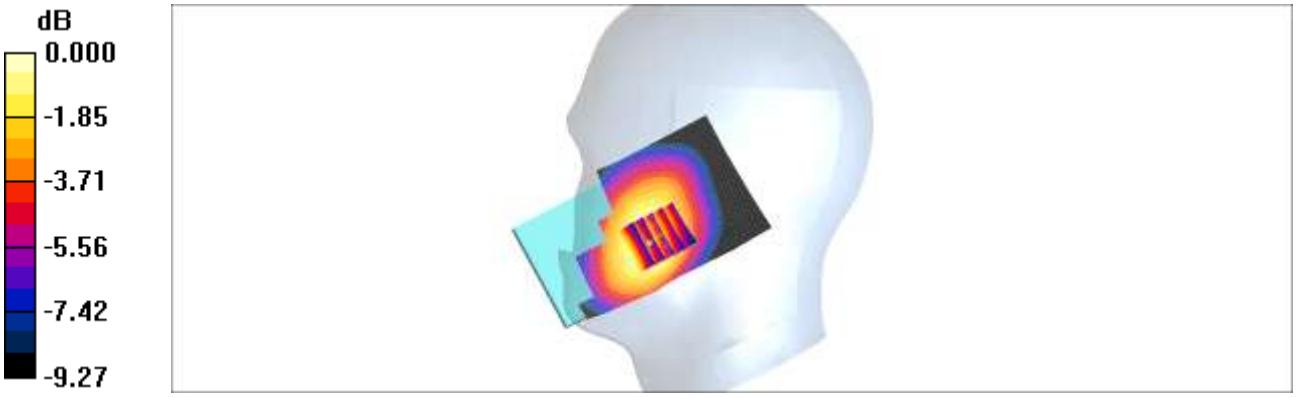
DUT: LG-D855P; Type: Bar; Serial: #1

Communication System: WCDMA850; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.896 mho/m; ε_r = 42.3; ρ = 1000 kg/m^3
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

DASY4 Configuration:
- Probe: ET3DV6 - SN1605; ConvF(6.57, 6.57, 6.57); Calibrated: 2014-01-31
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2014-02-27
- Phantom: 835/900 Phamtom ; Type: SAM

WCDMA850 right touch 4183ch/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.161 mW/g

WCDMA850 right touch 4183ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.21 V/m; Power Drift = -0.101 dB
Peak SAR (extrapolated) = 0.184 W/kg
SAR(1 g) = 0.152 mW/g; SAR(10 g) = 0.116 mW/g
Maximum value of SAR (measured) = 0.160 mW/g



0 dB = 0.160mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA/LTE Phone with Bluetooth, WLAN, NFC
Liquid Temperature:	20.2 ℃
Ambient Temperature:	20.4 ℃
Test Date:	Apr.28, 2014
Plot No.	4

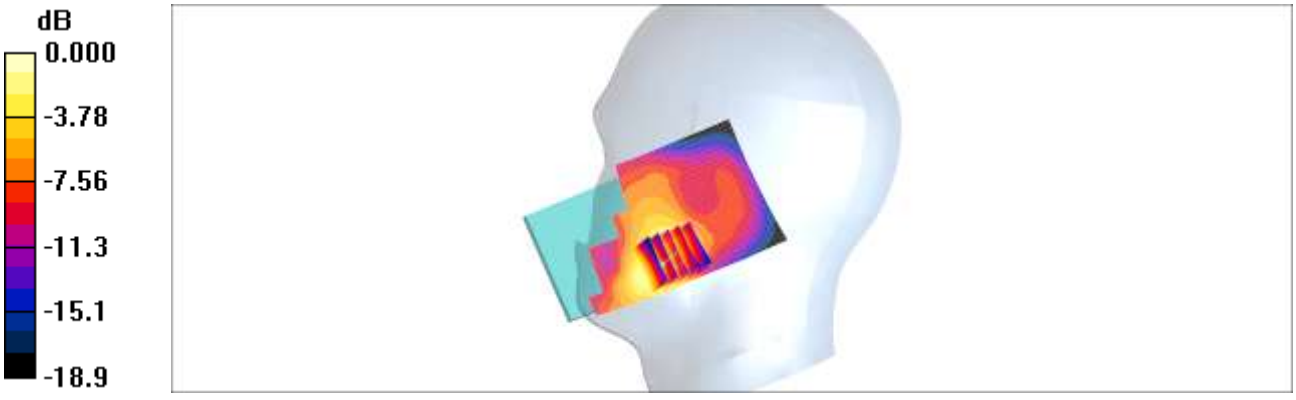
DUT: LG-D855P; Type: Bar; Serial: #1

Communication System: WCDMA1900; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.4 mho/m; ε_r = 39.2; ρ = 1000 kg/m^3
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

DASY4 Configuration:
- Probe: ET3DV6 - SN1605; ConvF(5.2, 5.2, 5.2); Calibrated: 2014-01-31
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2014-02-27
- Phantom: 1800/1900 Phantom; Type: SAM

WCDMA1900 right touch 9400ch/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.220 mW/g

WCDMA1900 right touch 9400ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.62 V/m; Power Drift = -0.153 dB
Peak SAR (extrapolated) = 0.272 W/kg
SAR(1 g) = 0.194 mW/g; SAR(10 g) = 0.120 mW/g
Maximum value of SAR (measured) = 0.213 mW/g



0 dB = 0.213mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA/LTE Phone with Bluetooth, WLAN, NFC
Liquid Temperature:	21.4 ℃
Ambient Temperature:	21.6 ℃
Test Date:	May.08, 2014
Plot No.	5

DUT: LG-D855P; Type: bar; Serial: 1

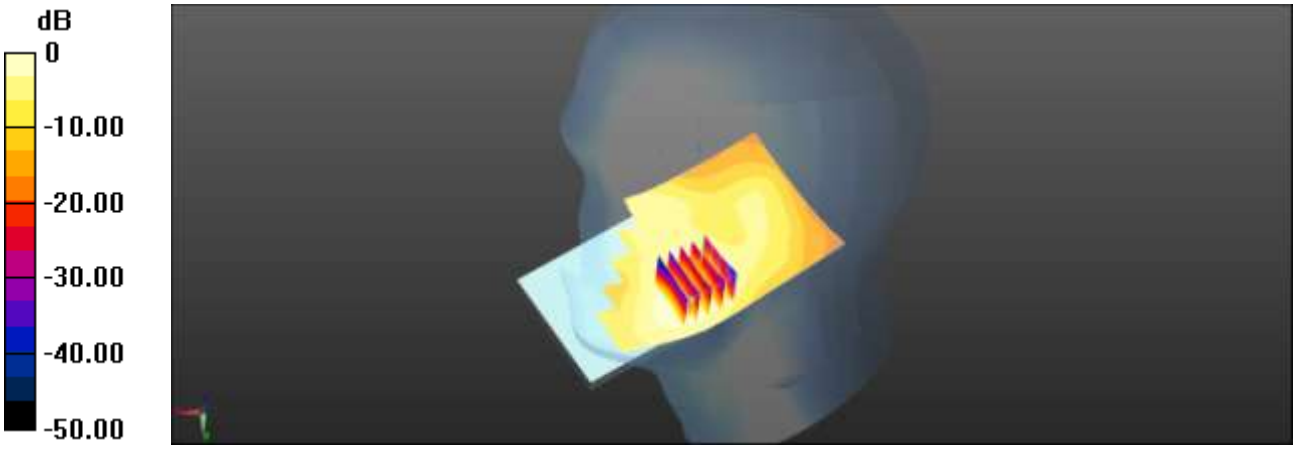
Communication System: UID 0, LTE Band 2 (0); Frequency: 1900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; σ = 1.437 S/m; ε_r = 38.872; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3968; ConvF(7.91, 7.91, 7.91); Calibrated: 2014-01-08;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2013-09-30
- Phantom: SAM with CRP v5.0_2014_02_21; Type: QD000P40CD; Serial: TP:xxxx
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7331)

LG-D855P/LTE Band 2 Right Touch 20MHzBW QPSK 1RB 0offset 19100/Area Scan (61x111x1):
Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.179 W/kg

LG-D855P/LTE Band 2 Right Touch 20MHzBW QPSK 1RB 0offset 19100/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.578 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.236 W/kg
SAR(1 g) = 0.139 W/kg; SAR(10 g) = 0.083 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 0.184 W/kg



0 dB = 0.179 W/kg = −7.47 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA/LTE Phone with Bluetooth, WLAN, NFC
Liquid Temperature:	21.4 ℃
Ambient Temperature:	21.6 ℃
Test Date:	May.08, 2014
Plot No.	6

DUT: LG-D855P; Type: bar; Serial: 1

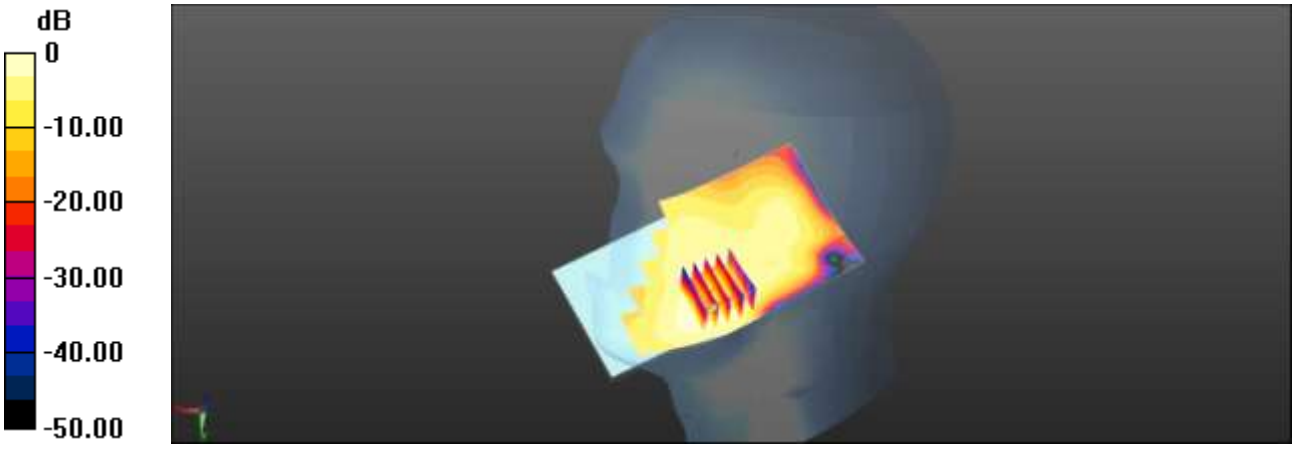
Communication System: UID 0, LTE Band 4 (0); Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.333 S/m; ε_r = 40.388; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3968; ConvF(8.15, 8.15, 8.15); Calibrated: 2014-01-08;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2013-09-30
- Phantom: SAM with CRP v5.0_2014_02_21; Type: QD000P40CD; Serial: TP:xxxx
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7331)

LG-D855P/LTE Band 4 Right Touch 20MHzBW QPSK 1RB 99offset 20175/Area Scan (61x111x1):
Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.263 W/kg

LG-D855P/LTE Band 4 Right Touch 20MHzBW QPSK 1RB 99offset 20175/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.173 V/m; Power Drift = -0.19 dB
Peak SAR (extrapolated) = 0.298 W/kg
SAR(1 g) = 0.196 W/kg; SAR(10 g) = 0.120 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 0.250 W/kg



0 dB = 0.263 W/kg = −5.80 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA/LTE Phone with Bluetooth, WLAN, NFC
Liquid Temperature:	20.3 ℃
Ambient Temperature:	20.5 ℃
Test Date:	May. 09, 2014
Plot No.	7

DUT: LG-D855P; Type: Folder; Serial: 1

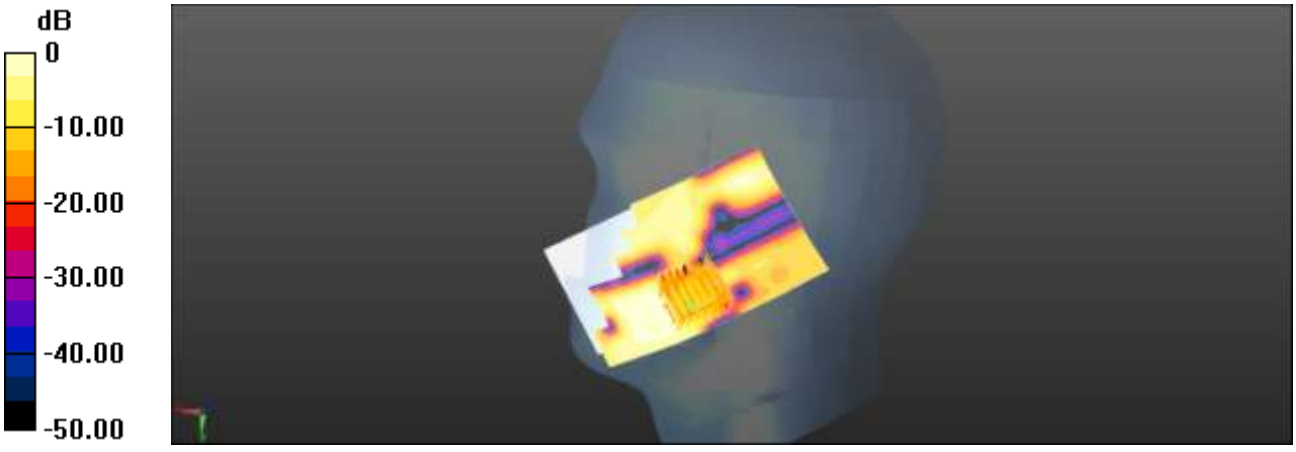
Communication System: UID 0, LTE Band 7 (0); Frequency: 2535 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2535 MHz; σ = 1.961 S/m; ε_r = 38.848; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3968; ConvF(7.04, 7.04, 7.04); Calibrated: 2014-01-08;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2013-09-30
- Phantom: SAM with CRP v5.0_2014_02_21; Type: QD000P40CD; Serial: TP:xxxx
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7331)

LG-D855P/LTE Band 7 Right Touch 20MHzBW QPSK 1RB 0offset 21100/Area Scan (71x121x1):
Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.0799 W/kg

LG-D855P/LTE Band 7 Right Touch 20MHzBW QPSK 1RB 0offset 21100/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 0 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 0.106 W/kg
SAR(1 g) = 0.046 W/kg; SAR(10 g) = 0.021 W/kg
Maximum value of SAR (measured) = 0.0673 W/kg



0 dB = 0.0799 W/kg = −10.98 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA/LTE Phone with Bluetooth, WLAN, NFC
Liquid Temperature:	21.5 ℃
Ambient Temperature:	21.7 ℃
Test Date:	May.07, 2014
Plot No.	8

DUT: LG-D855P; Type: bar; Serial: 1

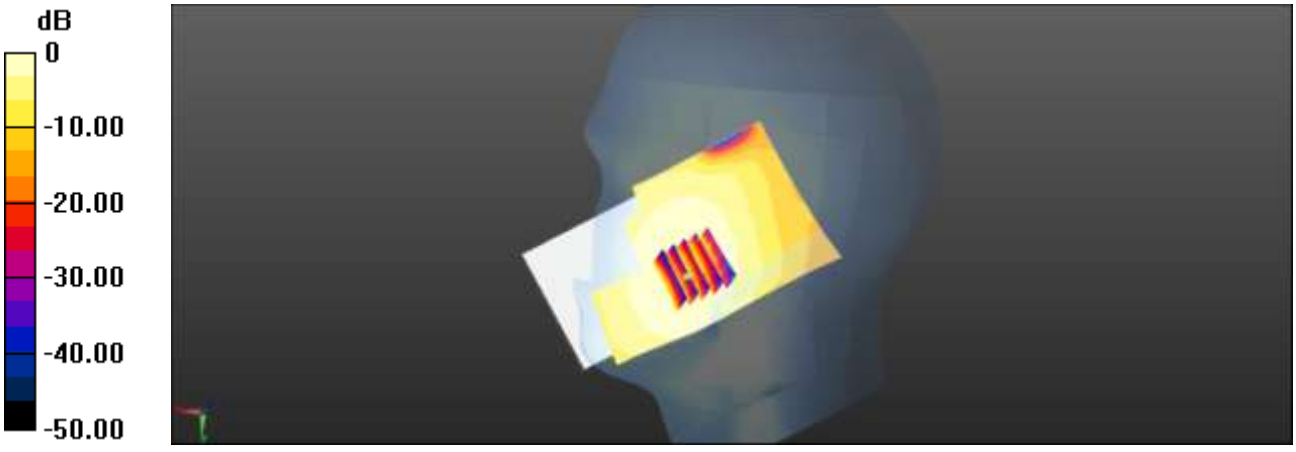
Communication System: UID 0, LTE Band 17 (0); Frequency: 710 MHz;Duty Cycle: 1:1
Medium parameters used: f = 710 MHz; σ = 0.866 S/m; ε_r = 43.18; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3968; ConvF(10.28, 10.28, 10.28); Calibrated: 2014-01-08;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2013-09-30
- Phantom: SAM with CRP v5.0 Front; Type: QD000P40CD; Serial: TP:xxxx
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7331)

LG-D855P/LTE Band 17 Right Touch 10MHzBW QPSK 1RB 49offset 23790/Area Scan (61x111x1):
Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.0709 W/kg

LG-D855P/LTE Band 17 Right Touch 10MHzBW QPSK 1RB 49offset 23790/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.395 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 0.0740 W/kg
SAR(1 g) = 0.063 W/kg; SAR(10 g) = 0.051 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 0.0687 W/kg



0 dB = 0.0709 W/kg = −11.49 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA/LTE Phone with Bluetooth, WLAN, NFC
Liquid Temperature:	20.0 ℃
Ambient Temperature:	20.2 ℃
Test Date:	Apr.28, 2014
Plot No.	9

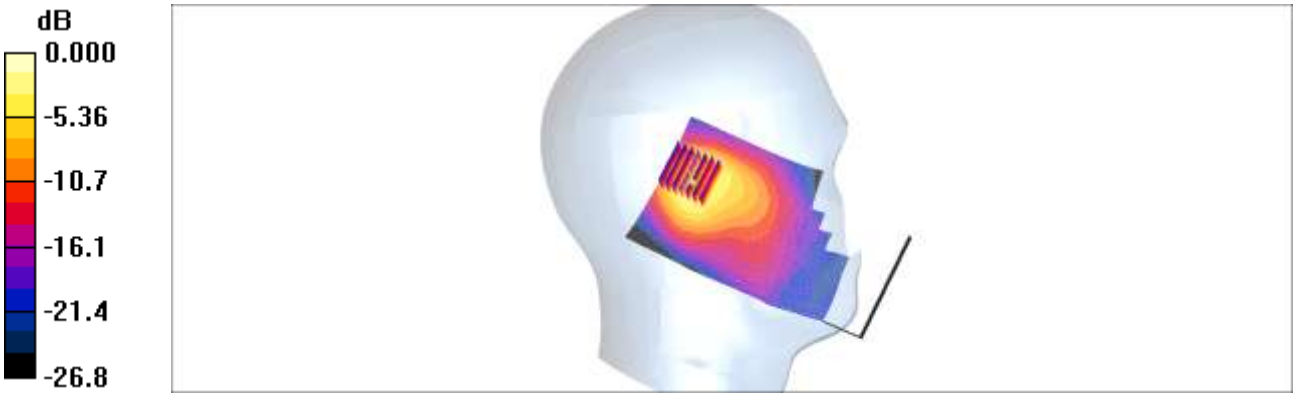
DUT: LG-D855P; Type: Bar; Serial: #1

Communication System: 2450MHz FCC; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2462 MHz; σ = 1.82 mho/m; ε_r = 39.7; ρ = 1000 kg/m^3
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

DASY4 Configuration:
- Probe: ET3DV6 - SN1609; ConvF(4.64, 4.64, 4.64); Calibrated: 2013-09-23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2014-02-27
- Phantom: 835/900 Phamtom ; Type: SAM

WIFI2450 Left Tilt 11ch 1Mbps/Area Scan (81x131x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (interpolated) = 0.179 mW/g

WIFI2450 Left Tilt 11ch 1Mbps/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 7.94 V/m; Power Drift = -0.124 dB
Peak SAR (extrapolated) = 0.408 W/kg
SAR(1 g) = 0.162 mW/g; SAR(10 g) = 0.073 mW/g
Maximum value of SAR (measured) = 0.176 mW/g



0 dB = 0.176mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA/LTE Phone with Bluetooth, WLAN, NFC
Liquid Temperature:	20.6 ℃
Ambient Temperature:	20.8 ℃
Test Date:	May. 07, 2014
Plot No.	10

DUT: LG-D855P; Type: Folder; Serial: 1

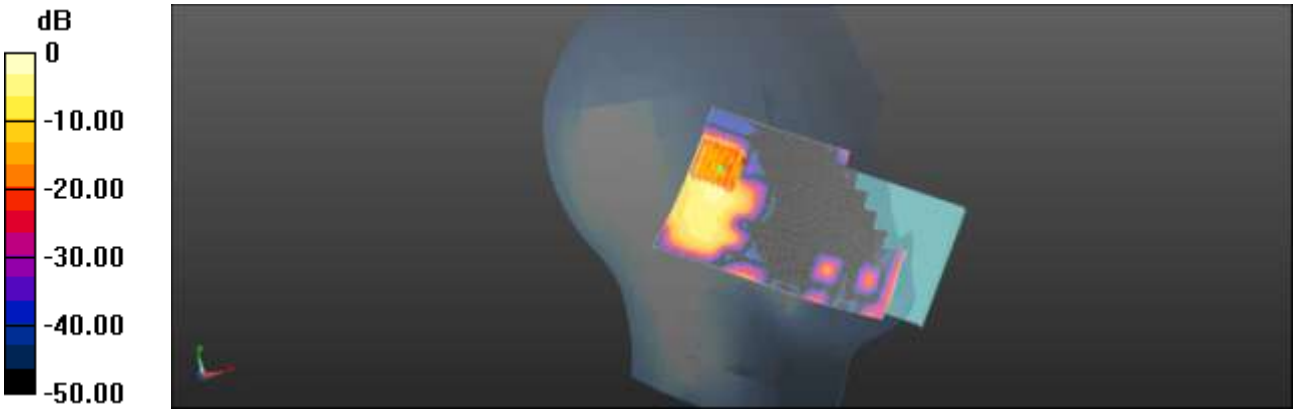
Communication System: UID 0, WIFI 5GHz (0); Frequency: 5745 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5745 MHz; σ = 5.188 S/m; ε_r = 34.555; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3967; ConvF(4.67, 4.67, 4.67); Calibrated: 2014-01-08;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1225; Calibrated: 2014-03-24
- Phantom: SAM (20deg probe tilt) with CRP v5.0_Right_2014_02_25; Type: QD000P40CD; Serial: TP:1804
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7331)

LG-D855P/802.11a Left tilt 6Mbps 149ch/Area Scan (91x151x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.652 W/kg

LG-D855P/802.11a Left tilt 6Mbps 149ch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 0.9380 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 0.784 W/kg
SAR(1 g) = 0.169 W/kg; SAR(10 g) = 0.051 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 0.436 W/kg



0 dB = 0.652 W/kg = −1.86 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA/LTE Phone with Bluetooth, WLAN, NFC
Liquid Temperature:	20.6 ℃
Ambient Temperature:	20.8 ℃
Test Date:	May.07, 2014
Plot No.	11

DUT: LG-D855P; Type: Folder; Serial: 1

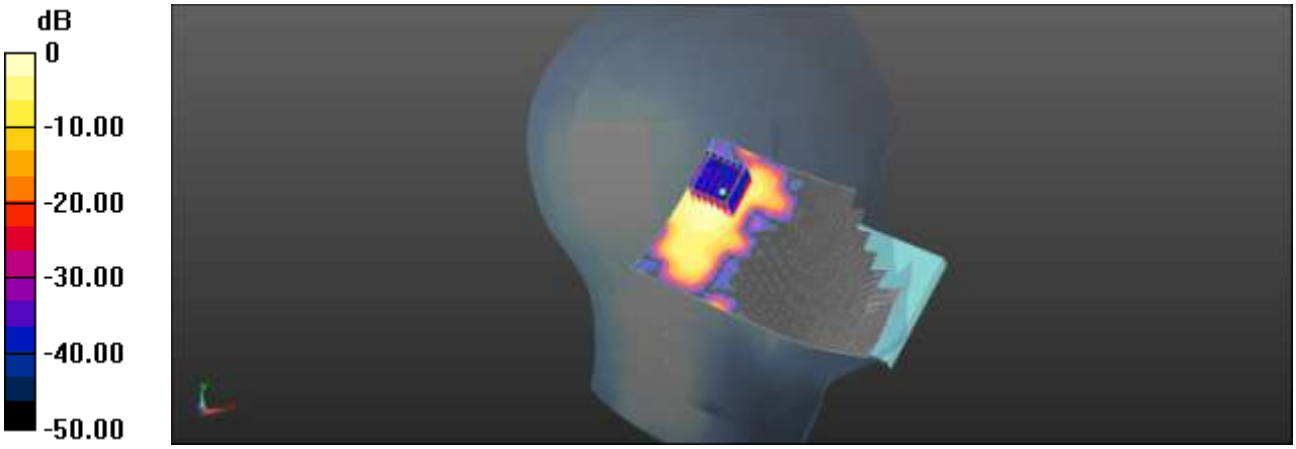
Communication System: UID 0, WIFI 5GHz (0); Frequency: 5240 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5240 MHz; σ = 4.533 S/m; ε_r = 35.812; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3967; ConvF(5.18, 5.18, 5.18); Calibrated: 2014-01-08;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1225; Calibrated: 2014-03-24
- Phantom: SAM (20deg probe tilt) with CRP v5.0_Right_2014_02_25; Type: QD000P40CD; Serial: TP:1804
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7331)

LG-D855P/802.11a Left tilt 6Mbps 48ch/Area Scan (91x151x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.682 W/kg

LG-D855P/802.11a Left tilt 6Mbps 48ch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 0.8810 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 0.970 W/kg
SAR(1 g) = 0.263 W/kg; SAR(10 g) = 0.081 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 0.635 W/kg



0 dB = 0.682 W/kg = −1.66 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA/LTE Phone with Bluetooth, WLAN, NFC
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	May.07, 2014
Plot No.	12

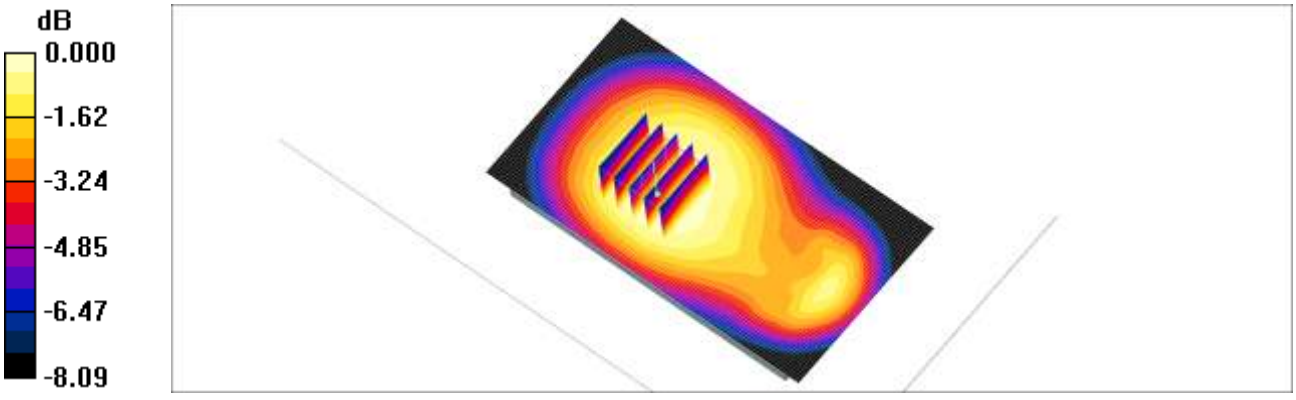
DUT: LG-D855P; Type: Bar; Serial: #1

Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:4.15
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.986 mho/m; ε_r = 54.3; ρ = 1000 kg/m^3
Phantom section: Center Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

DASY4 Configuration:
- Probe: ET3DV6 - SN1605; ConvF(6.35, 6.35, 6.35); Calibrated: 2014-01-31
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2014-02-27
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA

GSM850 body rear 190ch GPRS 2Tx/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.251 mW/g

GSM850 body rear 190ch GPRS 2Tx/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.3 V/m; Power Drift = -0.011 dB
Peak SAR (extrapolated) = 0.284 W/kg
SAR(1 g) = 0.237 mW/g; SAR(10 g) = 0.184 mW/g
Maximum value of SAR (measured) = 0.249 mW/g



0 dB = 0.249mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA/LTE Phone with Bluetooth, WLAN, NFC
Liquid Temperature:	20.5 ℃
Ambient Temperature:	20.7 ℃
Test Date:	Apr.29, 2014
Plot No.	13

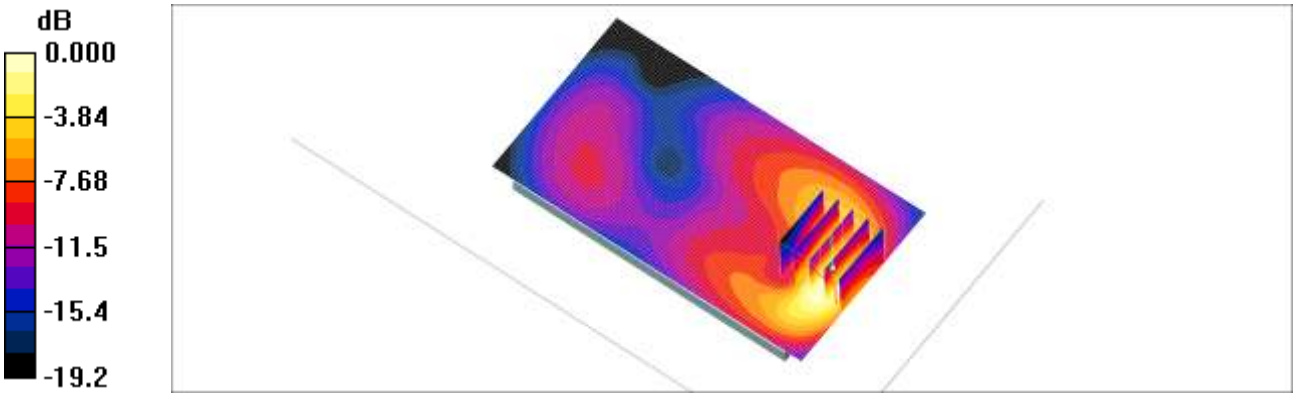
DUT: LG-D855P; Type: Bar; Serial: #1

Communication System: GSM 1900; Frequency: 1880 MHz;Duty Cycle: 1:2.075
Medium parameters used: f = 1880 MHz; σ = 1.48 mho/m; ε_r = 52.4; ρ = 1000 kg/m^3
Phantom section: Center Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

DASY4 Configuration:
- Probe: ET3DV6 - SN1605; ConvF(4.57, 4.57, 4.57); Calibrated: 2014-01-31
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2014-02-27
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA

GSM1900 body rear 661ch 4Tx/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.790 mW/g

GSM1900 body rear 661ch 4Tx/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.44 V/m; Power Drift = -0.027 dB
Peak SAR (extrapolated) = 1.15 W/kg
SAR(1 g) = 0.709 mW/g; SAR(10 g) = 0.378 mW/g
Maximum value of SAR (measured) = 0.797 mW/g



0 dB = 0.797mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA/LTE Phone with Bluetooth, WLAN, NFC
Liquid Temperature:	20.5 ℃
Ambient Temperature:	20.7 ℃
Test Date:	Apr.29, 2014
Plot No.	14

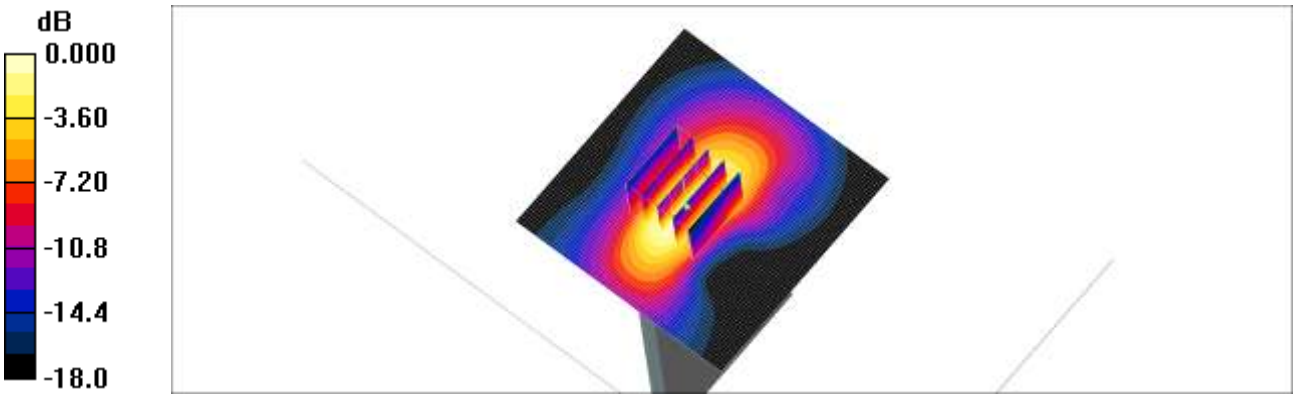
DUT: LG-D855P; Type: Bar; Serial: #1

Communication System: GSM 1900; Frequency: 1880 MHz;Duty Cycle: 1:2.075
Medium parameters used: f = 1880 MHz; σ = 1.48 mho/m; ε_r = 52.4; ρ = 1000 kg/m^3
Phantom section: Center Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

DASY4 Configuration:
- Probe: ET3DV6 - SN1605; ConvF(4.57, 4.57, 4.57); Calibrated: 2014-01-31
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2014-02-27
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA

GSM1900 body bottom 661ch 4Tx/Area Scan (71x71x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.798 mW/g

GSM1900 body bottom 661ch 4Tx/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 22.6 V/m; Power Drift = 0.027 dB
Peak SAR (extrapolated) = 1.21 W/kg
SAR(1 g) = 0.734 mW/g; SAR(10 g) = 0.390 mW/g
Maximum value of SAR (measured) = 0.826 mW/g



0 dB = 0.826mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA/LTE Phone with Bluetooth, WLAN, NFC
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	May.07, 2014
Plot No.	15

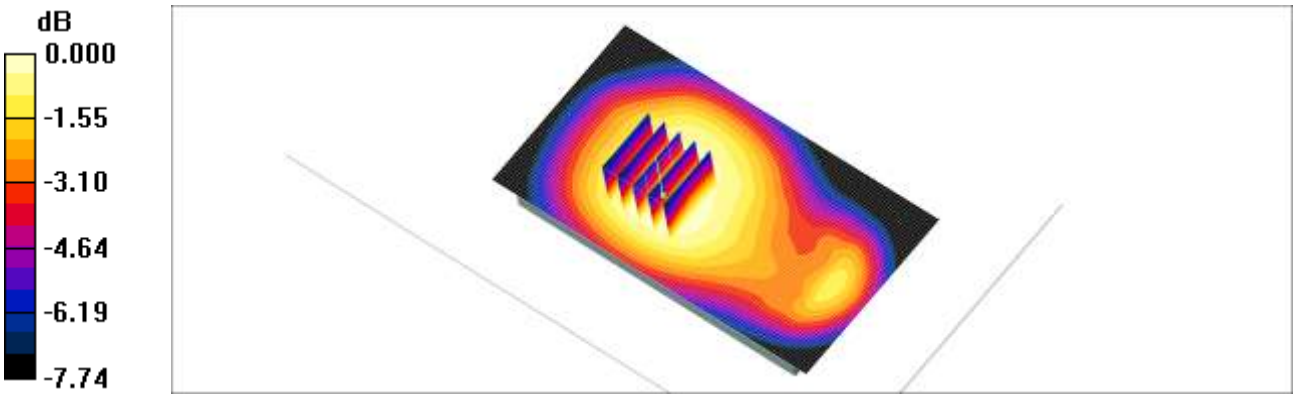
DUT: LG-D855P; Type: Bar; Serial: #1

Communication System: WCDMA850; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.986 mho/m; ε_r = 54.3; ρ = 1000 kg/m^3
Phantom section: Center Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

DASY4 Configuration:
- Probe: ET3DV6 - SN1605; ConvF(6.35, 6.35, 6.35); Calibrated: 2014-01-31
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2014-02-27
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA

WCDMA850 body rear 4183ch/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.230 mW/g

WCDMA850 body rear 4183ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.7 V/m; Power Drift = -0.119 dB
Peak SAR (extrapolated) = 0.255 W/kg
SAR(1 g) = 0.214 mW/g; SAR(10 g) = 0.167 mW/g
Maximum value of SAR (measured) = 0.225 mW/g



0 dB = 0.225mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA/LTE Phone with Bluetooth, WLAN, NFC
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	May.07, 2014
Plot No.	16

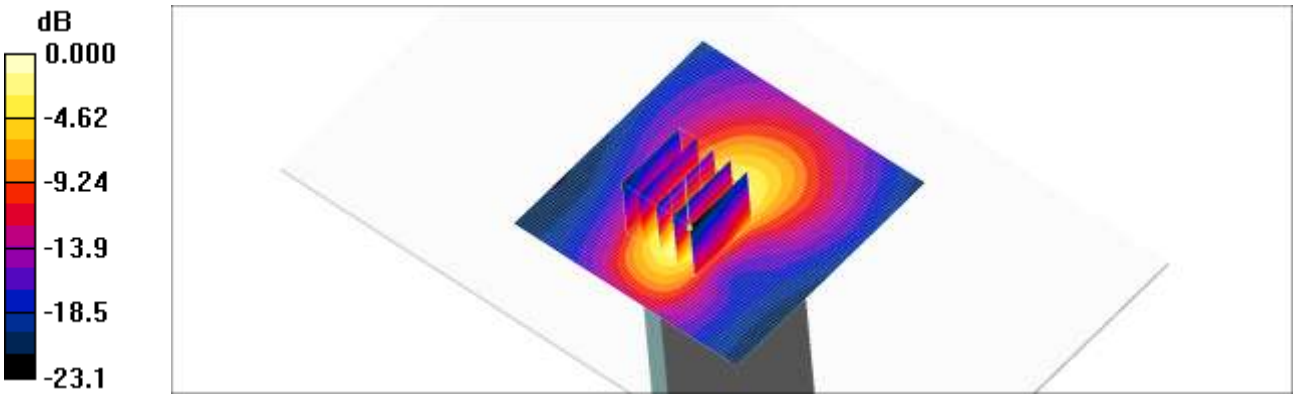
DUT: LG-D855P; Type: Bar; Serial: #1

Communication System: WCDMA850; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.986 mho/m; ε_r = 54.3; ρ = 1000 kg/m^3
Phantom section: Center Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

DASY4 Configuration:
- Probe: ET3DV6 - SN1605; ConvF(6.35, 6.35, 6.35); Calibrated: 2014-01-31
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2014-02-27
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA

WCDMA850 body bottom 4183ch/Area Scan (71x71x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.590 mW/g

WCDMA850 body bottom 4183ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 23.0 V/m; Power Drift = -0.030 dB
Peak SAR (extrapolated) = 1.13 W/kg
SAR(1 g) = 0.525 mW/g; SAR(10 g) = 0.250 mW/g
Maximum value of SAR (measured) = 0.582 mW/g



0 dB = 0.582mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA/LTE Phone with Bluetooth, WLAN, NFC
Liquid Temperature:	20.5 ℃
Ambient Temperature:	20.7 ℃
Test Date:	Apr.29, 2014
Plot No.	17

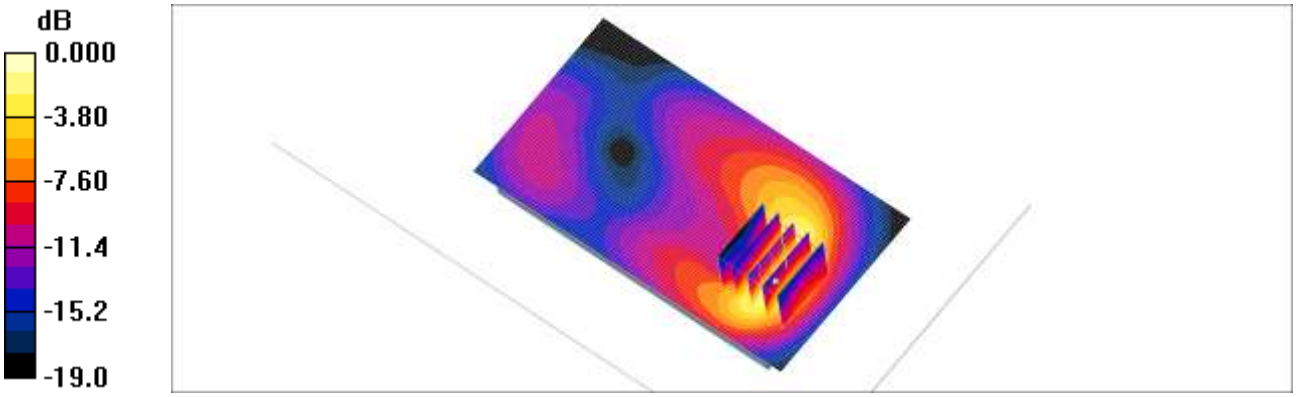
DUT: LG-D855P; Type: Bar; Serial: #1

Communication System: WCDMA1900; Frequency: 1907.6 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1907.6 MHz; σ = 1.51 mho/m; ε_r = 52.3; ρ = 1000 kg/m^3
Phantom section: Center Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

DASY4 Configuration:
- Probe: ET3DV6 - SN1605; ConvF(4.57, 4.57, 4.57); Calibrated: 2014-01-31
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2014-02-27
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA

WCDMA1900 body rear 9538ch/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.16 mW/g

WCDMA1900 body rear 9538ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.12 V/m; Power Drift = 0.157 dB
Peak SAR (extrapolated) = 1.70 W/kg
SAR(1 g) = 1.02 mW/g; SAR(10 g) = 0.530 mW/g
Maximum value of SAR (measured) = 1.16 mW/g



0 dB = 1.16mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA/LTE Phone with Bluetooth, WLAN, NFC
Liquid Temperature:	20.5 ℃
Ambient Temperature:	20.7 ℃
Test Date:	Apr.30, 2014
Plot No.	18

DUT: LG-D855P; Type: Folder; Serial: 1

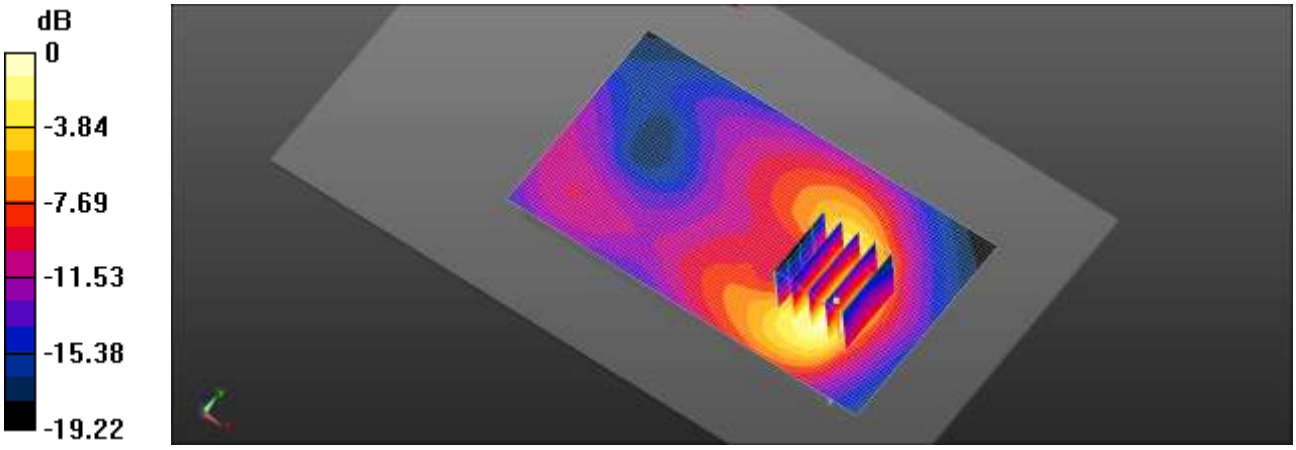
Communication System: UID 0, LTE Band 2 (0); Frequency: 1900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; σ = 1.499 S/m; ε_r = 52.292; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3968; ConvF(7.59, 7.59, 7.59); Calibrated: 2014-01-08;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2013-09-30
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: xxxx
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7331)

LG-D855P/LTE band 2 body rear 20MHz BW QPSK 1RB 0 offset 19100/Area Scan (61x111x1):
Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.830 W/kg

LG-D855P/LTE band 2 body rear 20MHz BW QPSK 1RB 0 offset 19100/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.131 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 1.16 W/kg
SAR(1 g) = 0.680 W/kg; SAR(10 g) = 0.357 W/kg
Maximum value of SAR (measured) = 0.933 W/kg



0 dB = 0.830 W/kg = −0.81 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA/LTE Phone with Bluetooth, WLAN, NFC
Liquid Temperature:	20.5 ℃
Ambient Temperature:	20.7 ℃
Test Date:	Apr.30, 2014
Plot No.	19

DUT: LG-D855P; Type: Folder; Serial: 1

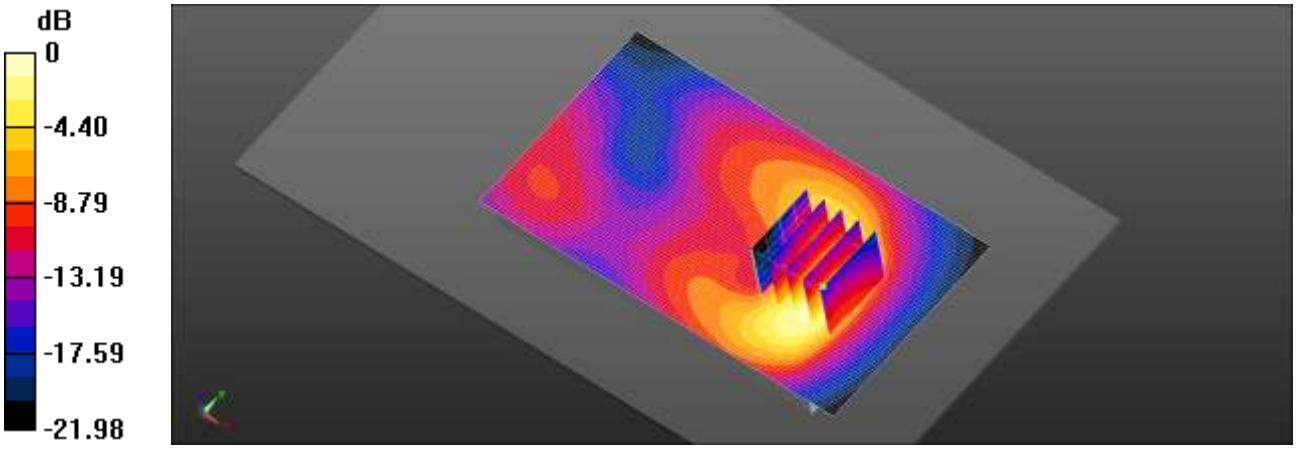
Communication System: UID 0, LTE Band 2 (0); Frequency: 1900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; σ = 1.499 S/m; ε_r = 52.292; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3968; ConvF(7.59, 7.59, 7.59); Calibrated: 2014-01-08;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2013-09-30
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: xxxx
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7331)

LG-D855P/LTE band 2 body Front 20MHz BW QPSK 1RB 0offset 19100/Area Scan (61x111x1):
Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.910 W/kg

LG-D855P/LTE band 2 body Front 20MHz BW QPSK 1RB 0offset 19100/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.801 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 1.25 W/kg
SAR(1 g) = 0.722 W/kg; SAR(10 g) = 0.373 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 1.01 W/kg



0 dB = 0.910 W/kg = −0.41 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA/LTE Phone with Bluetooth, WLAN, NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	May.07, 2014
Plot No.	20

DUT: LG-D855P; Type: Folder; Serial: 1

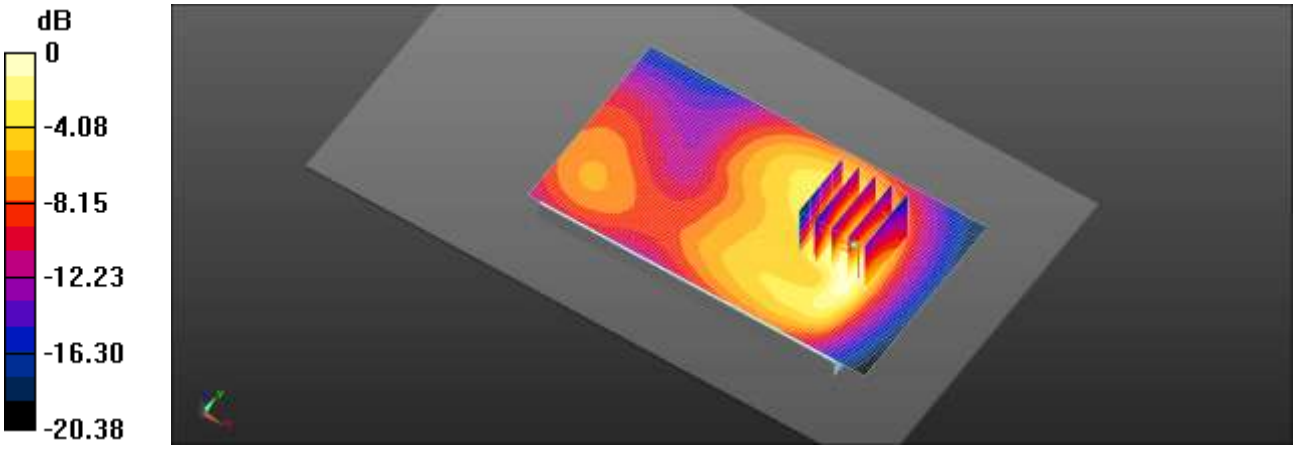
Communication System: UID 0, LTE Band 4 (0); Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.466 S/m; ε_r = 52.308; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3968; ConvF(7.93, 7.93, 7.93); Calibrated: 2014-01-08;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2013-09-30
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: xxxx
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7331)

LG-D855P/LTE band 4 body Rear 20MHz BW QPSK 1RB 99offset 20175/Area Scan (61x111x1):
Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.532 W/kg

LG-D855P/LTE band 4 body Rear 20MHz BW QPSK 1RB 99offset 20175/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.043 V/m; Power Drift = -0.17 dB
Peak SAR (extrapolated) = 0.730 W/kg
SAR(1 g) = 0.442 W/kg; SAR(10 g) = 0.248 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 0.592 W/kg



0 dB = 0.532 W/kg = −2.74 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA/LTE Phone with Bluetooth, WLAN, NFC
Liquid Temperature:	20.3 ℃
Ambient Temperature:	20.5 ℃
Test Date:	May. 09, 2014
Plot No.	21

DUT: LG-D855P; Type: Folder; Serial: 1

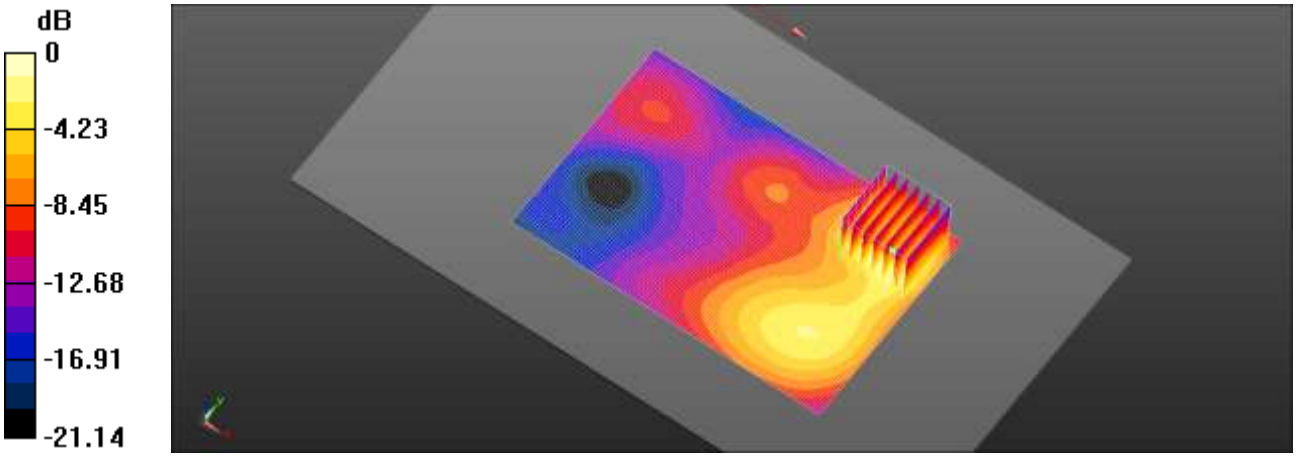
Communication System: UID 0, LTE Band 7 (0); Frequency: 2535 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2535 MHz; σ = 2.104 S/m; ε_r = 54.495; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3968; ConvF(6.96, 6.96, 6.96); Calibrated: 2014-01-08;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2013-09-30
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: xxxx
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7331)

LG-D855P/LTE band 7 body rear 20MHz BW QPSK 1RB 0 offset 21100/Area Scan (81x121x1):
Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.418 W/kg

LG-D855P/LTE band 7 body rear 20MHz BW QPSK 1RB 0 offset 21100/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.794 V/m; Power Drift = 0.18 dB
Peak SAR (extrapolated) = 0.579 W/kg
SAR(1 g) = 0.278 W/kg; SAR(10 g) = 0.132 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 0.415 W/kg



0 dB = 0.418 W/kg = −3.79 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA/LTE Phone with Bluetooth, WLAN, NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	May.07, 2014
Plot No.	22

DUT: LG-D855P; Type: Folder; Serial: 1

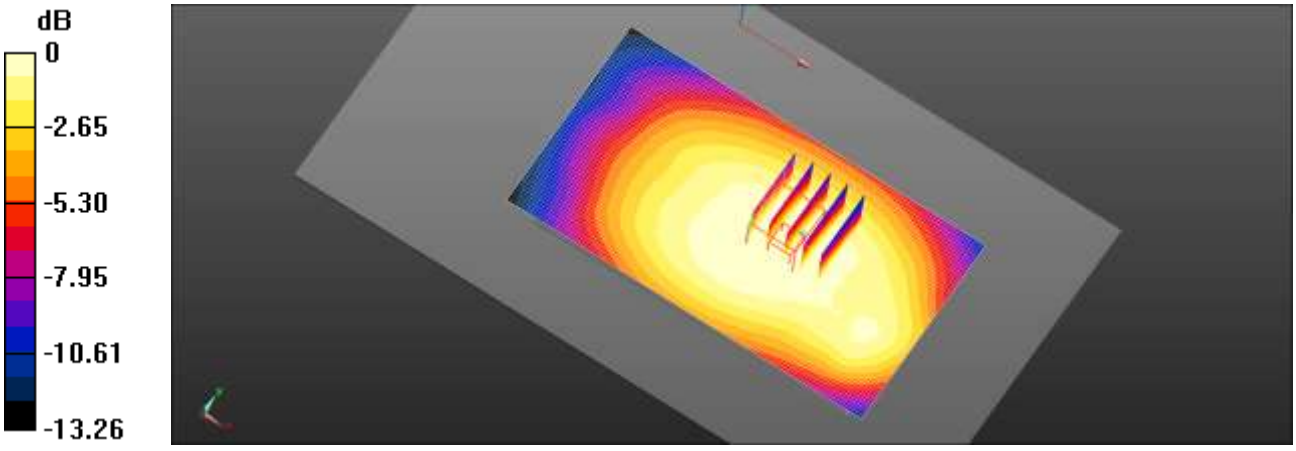
Communication System: UID 0, LTE Band 17 (0); Frequency: 710 MHz;Duty Cycle: 1:1
Medium parameters used: f = 710 MHz; σ = 0.949 S/m; ε_r = 55.216; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3968; ConvF(9.74, 9.74, 9.74); Calibrated: 2014-01-08;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2013-09-30
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: xxxx
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7331)

LG-D855P/LTE band 17 body Rear 10MHz BW QPSK 1RB 49offset 23790/Area Scan (61x111x1):
Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.0738 W/kg

LG-D855P/LTE band 17 body Rear 10MHz BW QPSK 1RB 49offset 23790/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.997 V/m; Power Drift = -0.11 dB
Peak SAR (extrapolated) = 0.0800 W/kg
SAR(1 g) = 0.067 W/kg; SAR(10 g) = 0.054 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 0.0744 W/kg



0 dB = 0.0738 W/kg = −11.32 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA/LTE Phone with Bluetooth, WLAN, NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	May.07, 2014
Plot No.	23

DUT: LG-D855P; Type: Bar; Serial: 1

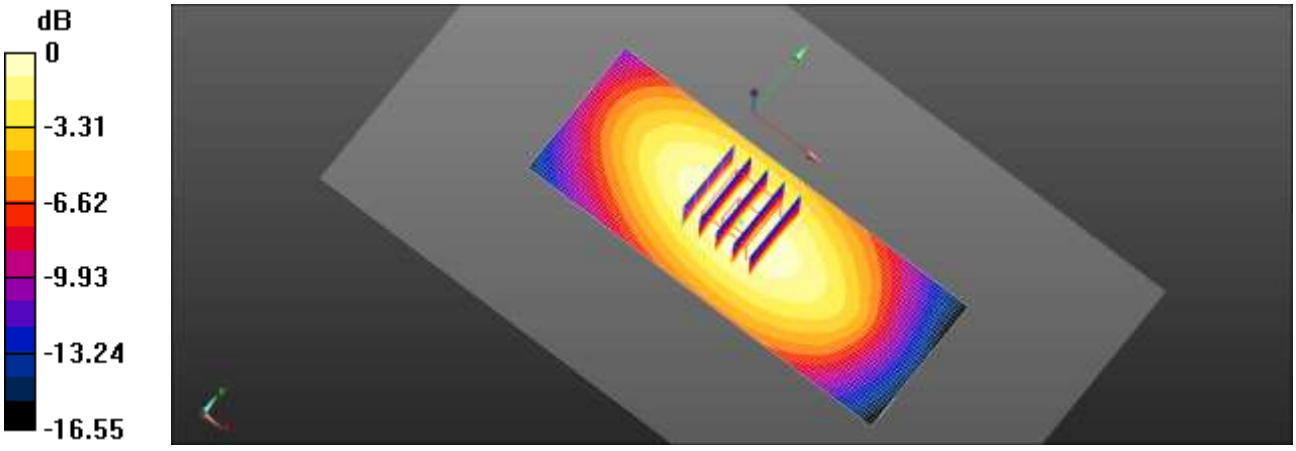
Communication System: UID 0, LTE Band 17 (0); Frequency: 710 MHz;Duty Cycle: 1:1
Medium parameters used: f = 710 MHz; σ = 0.949 S/m; ε_r = 55.216; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3968; ConvF(9.74, 9.74, 9.74); Calibrated: 2014-01-08;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2013-09-30
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: xxxx
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7331)

LG-D855P/LTE band 17 body Right Side 10MHz BW QPSK 1RB 49offset 23790/Area Scan (41x111x1):
Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.148 W/kg

LG-D855P/LTE band 17 body Right Side 10MHz BW QPSK 1RB 49offset 23790/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.65 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 0.171 W/kg
SAR(1 g) = 0.126 W/kg; SAR(10 g) = 0.090 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 0.151 W/kg



0 dB = 0.148 W/kg = −8.28 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA/LTE Phone with Bluetooth, WLAN, NFC
Liquid Temperature:	20.0 ℃
Ambient Temperature:	20.2 ℃
Test Date:	Apr.28, 2014
Plot No.	24

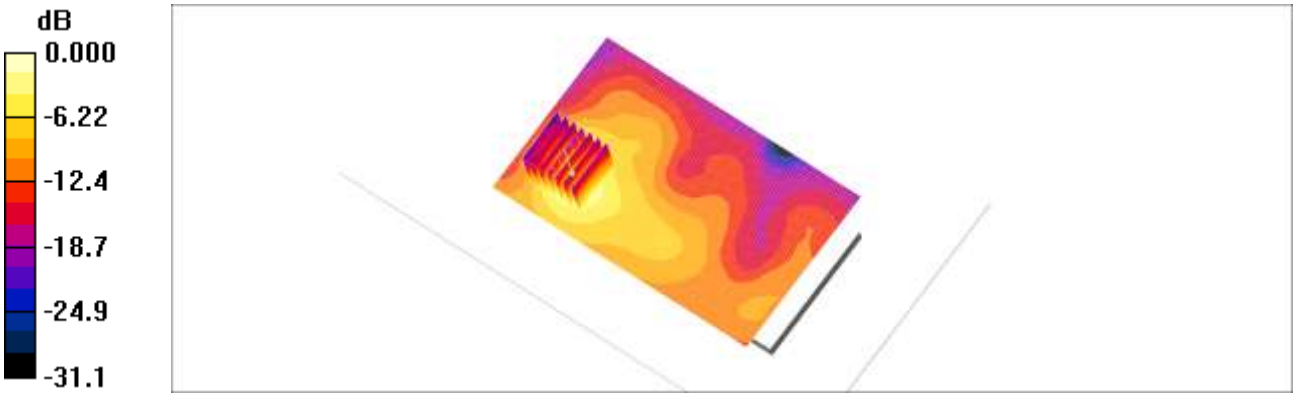
DUT: LG-D855P; Type: Bar; Serial: #1

Communication System: 2450MHz FCC; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2462 MHz; σ = 1.97 mho/m; ε_r = 52; ρ = 1000 kg/m^3
Phantom section: Center Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

DASY4 Configuration:
- Probe: ET3DV6 - SN1609; ConvF(4.2, 4.2, 4.2); Calibrated: 2013-09-23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2014-02-27
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA

WIFI2450 Body rear 11ch 1Mbps/Area Scan (81x131x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (interpolated) = 0.128 mW/g

WIFI2450 Body rear 11ch 1Mbps/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.24 V/m; Power Drift = -0.117 dB
Peak SAR (extrapolated) = 0.301 W/kg
SAR(1 g) = 0.114 mW/g; SAR(10 g) = 0.051 mW/g
Maximum value of SAR (measured) = 0.126 mW/g



0 dB = 0.126mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA/LTE Phone with Bluetooth, WLAN, NFC
Liquid Temperature:	19.9 ℃
Ambient Temperature:	20.1 ℃
Test Date:	Apr.29, 2014
Plot No.	25

DUT: LG-D855P; Type: Folder; Serial: 1

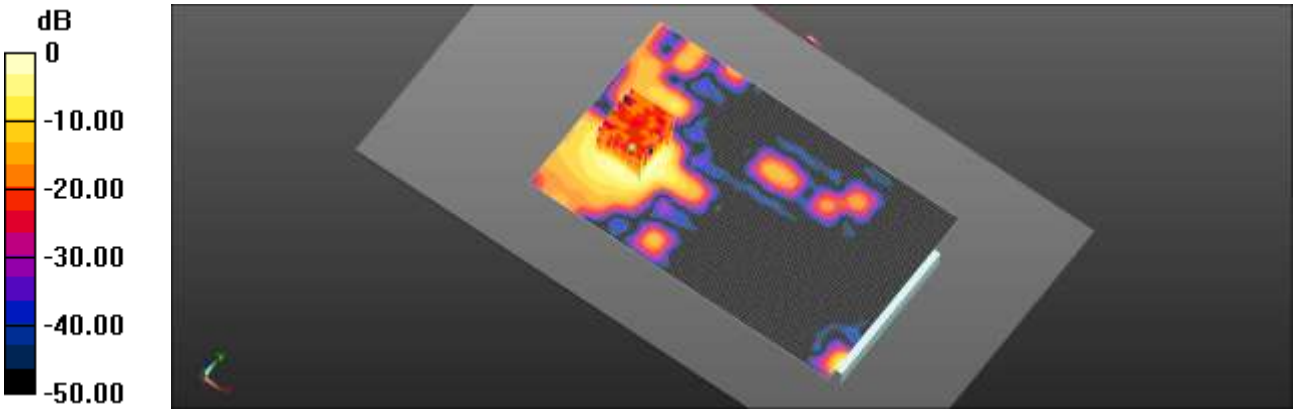
Communication System: UID 0, WIFI 5GHz (0); Frequency: 5745 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5745 MHz; σ = 6.092 S/m; ε_r = 47.804; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3967; ConvF(4.21, 4.21, 4.21); Calibrated: 2014-01-08;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1225; Calibrated: 2014-03-24
- Phantom: Triple Flat Phantom 5.1C-2014-02-21; Type: QD 000 P51 CA; Serial: xxxx
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7331)

LG-D855P/802.11a Body Rear 6Mbps 149ch/Area Scan (161x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.588 W/kg

LG-D855P/802.11a Body Rear 6Mbps 149ch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 2.040 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 0.933 W/kg
SAR(1 g) = 0.217 W/kg; SAR(10 g) = 0.068 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 0.540 W/kg



0 dB = 0.588 W/kg = −2.30 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA/LTE Phone with Bluetooth, WLAN, NFC
Liquid Temperature:	19.9 ℃
Ambient Temperature:	20.1 ℃
Test Date:	Apr.29, 2014
Plot No.	26

DUT: LG-D855P; Type: Folder; Serial: 1

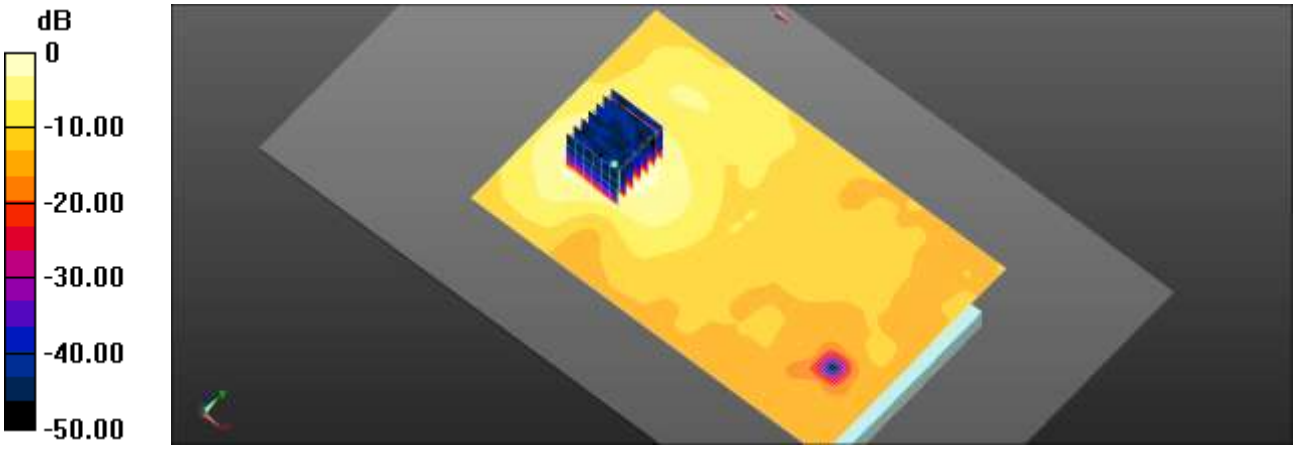
Communication System: UID 0, 5GHz(80ac) (0); Frequency: 5210 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5210 MHz; σ = 5.282 S/m; ε_r = 49.247; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3967; ConvF(4.67, 4.67, 4.67); Calibrated: 2014-01-08;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1225; Calibrated: 2014-03-24
- Phantom: Triple Flat Phantom 5.1C-2014-02-21; Type: QD 000 P51 CA; Serial: xxxx
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7331)

LG-D855P/802.11ac(80MHz) Body Rear 42ch MCS0/Area Scan (161x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.360 W/kg

LG-D855P/802.11ac(80MHz) Body Rear 42ch MCS0/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 2.827 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 0.591 W/kg
SAR(1 g) = 0.168 W/kg; SAR(10 g) = 0.078 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 0.341 W/kg



0 dB = 0.360 W/kg = −4.44 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA/LTE Phone with Bluetooth, WLAN, NFC
Liquid Temperature:	19.9 ℃
Ambient Temperature:	20.1 ℃
Test Date:	Apr.29, 2014
Plot No.	27

DUT: LG-D855P; Type: Folder; Serial: 1

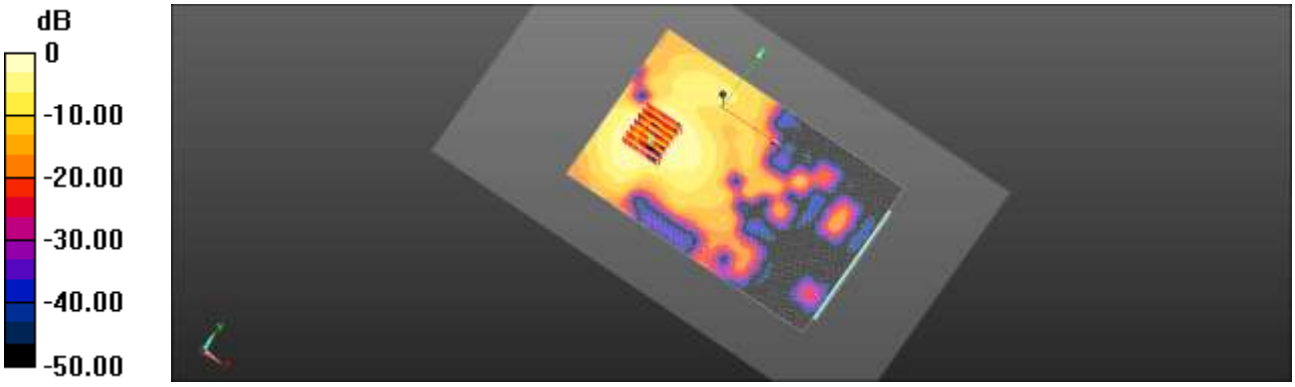
Communication System: UID 0, WIFI 5GHz (0); Frequency: 5260 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5260 MHz; σ = 5.373 S/m; ε_r = 49.112; ρ = 1000 kg/m^3
Phantom section: Center Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY4 Configuration:

- Probe: EX3DV4 - SN3967; ConvF(4.48, 4.48, 4.48); Calibrated: 2014-01-08;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1225; Calibrated: 2014-03-24
- Phantom: Triple Flat Phantom 5.1C-2014-02-21; Type: QD 000 P51 CA; Serial: xxxx
- ; SEMCAD X Version 14.6.10 (7331)

LG-D855P/802.11a Body Rear 6Mbps 52ch/Area Scan (161x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.452 W/kg

LG-D855P/802.11a Body Rear 6Mbps 52ch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 2.673 V/m; Power Drift = -0.15 dB
Peak SAR (extrapolated) = 0.802 W/kg
SAR(1 g) = 0.193 W/kg; SAR(10 g) = 0.066 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 0.466 W/kg



0 dB = 0.452 W/kg = -3.45 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA/LTE Phone with Bluetooth, WLAN, NFC
Liquid Temperature:	19.9 ℃
Ambient Temperature:	20.1 ℃
Test Date:	Apr.29, 2014
Plot No.	28

DUT: LG-D855P; Type: Folder; Serial: 1

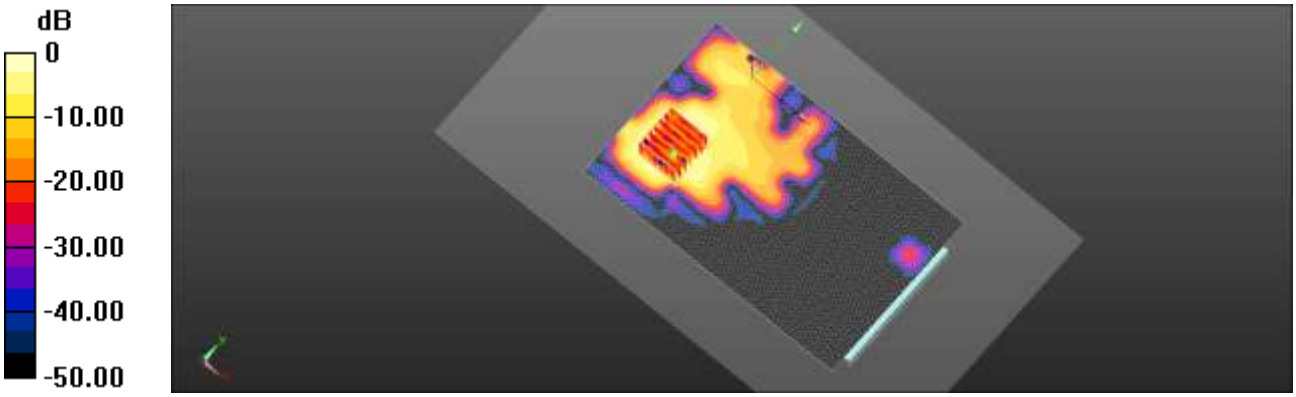
Communication System: UID 0, WIFI 5GHz (0); Frequency: 5580 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5580 MHz; σ = 5.905 S/m; ε_r = 48.242; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3967; ConvF(4.25, 4.25, 4.25); Calibrated: 2014-01-08;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1225; Calibrated: 2014-03-24
- Phantom: Triple Flat Phantom 5.1C-2014-02-21; Type: QD 000 P51 CA; Serial: xxxx
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

LG-D855P/802.11a Body Rear 6Mbps 116ch/Area Scan (161x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.628 W/kg

LG-D855P/802.11a Body Rear 6Mbps 116ch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 2.314 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 1.25 W/kg
SAR(1 g) = 0.255 W/kg; SAR(10 g) = 0.086 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 0.627 W/kg



0 dB = 0.628 W/kg = −2.02 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA/LTE Phone with Bluetooth, WLAN, NFC
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	May.07, 2014
Plot No.	29

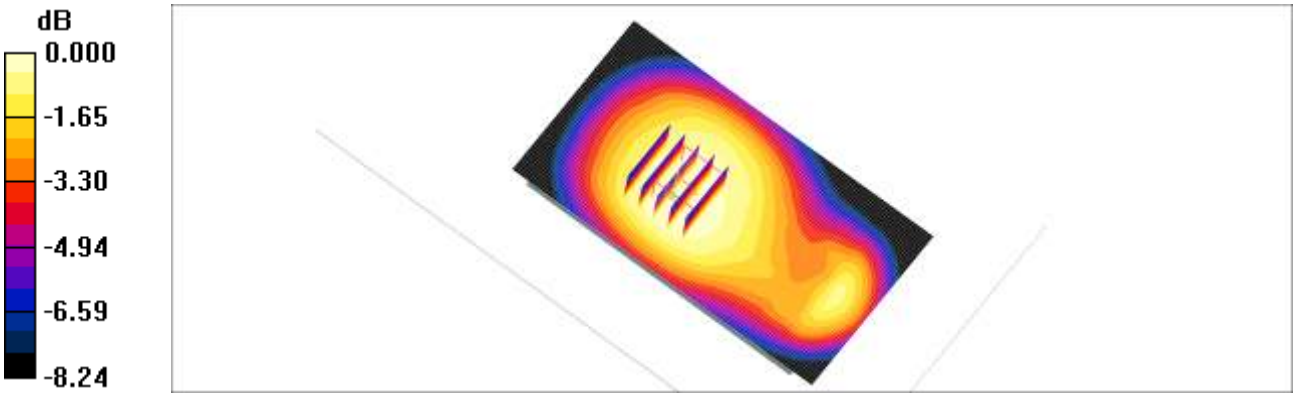
DUT: LG-D855P; Type: Bar; Serial: #1

Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.986 mho/m; ε_r = 54.3; ρ = 1000 kg/m^3
Phantom section: Center Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

DASY4 Configuration:
- Probe: ET3DV6 - SN1605; ConvF(6.35, 6.35, 6.35); Calibrated: 2014-01-31
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2014-02-27
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA

GSM850 body rear 190ch/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.216 mW/g

GSM850 body rear 190ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.2 V/m; Power Drift = -0.079 dB
Peak SAR (extrapolated) = 0.243 W/kg
SAR(1 g) = 0.203 mW/g; SAR(10 g) = 0.156 mW/g
Maximum value of SAR (measured) = 0.213 mW/g



0 dB = 0.213mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA/LTE Phone with Bluetooth, WLAN, NFC
Liquid Temperature:	20.5 ℃
Ambient Temperature:	20.7 ℃
Test Date:	Apr.29, 2014
Plot No.	30

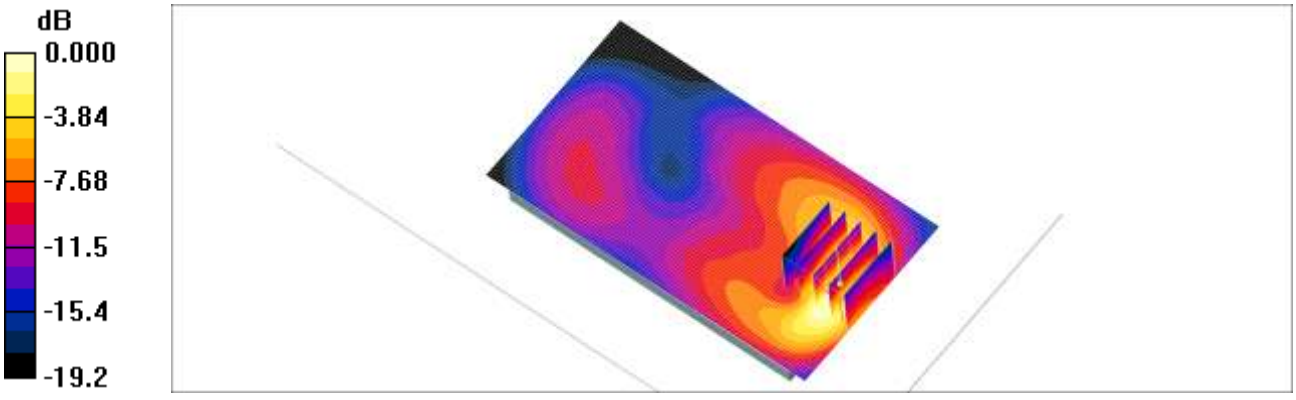
DUT: LG-D855P; Type: Bar; Serial: #1

Communication System: GSM 1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 1880 MHz; σ = 1.48 mho/m; ε_r = 52.4; ρ = 1000 kg/m^3
Phantom section: Center Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

DASY4 Configuration:
- Probe: ET3DV6 - SN1605; ConvF(4.57, 4.57, 4.57); Calibrated: 2014-01-31
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2014-02-27
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA

GSM1900 body rear 661ch body-worn/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.553 mW/g

GSM1900 body rear 661ch body-worn/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.03 V/m; Power Drift = 0.137 dB
Peak SAR (extrapolated) = 0.772 W/kg
SAR(1 g) = 0.484 mW/g; SAR(10 g) = 0.258 mW/g
Maximum value of SAR (measured) = 0.545 mW/g



0 dB = 0.545mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA/LTE Phone with Bluetooth, WLAN, NFC
Liquid Temperature:	20.5 ℃
Ambient Temperature:	20.7 ℃
Test Date:	Apr.29, 2014
Plot No.	31

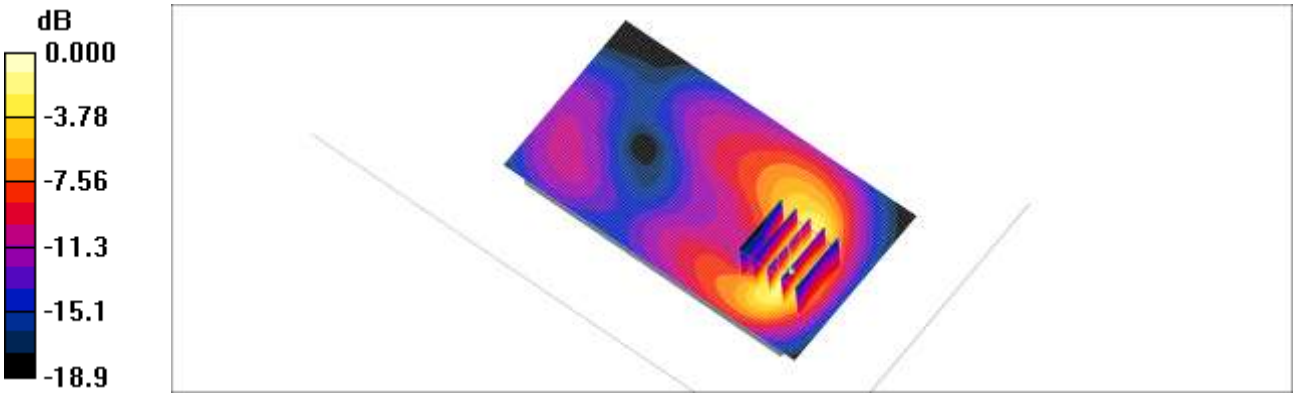
DUT: LG-D855P; Type: Bar; Serial: #1

Communication System: WCDMA1900; Frequency: 1907.6 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1907.6 MHz; σ = 1.51 mho/m; ε_r = 52.3; ρ = 1000 kg/m^3
Phantom section: Center Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

DASY4 Configuration:
- Probe: ET3DV6 - SN1605; ConvF(4.57, 4.57, 4.57); Calibrated: 2014-01-31
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2014-02-27
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA

WCDMA1900 body rear 9538ch/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.15 mW/g

WCDMA1900 body rear 9538ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.19 V/m; Power Drift = 0.003 dB
Peak SAR (extrapolated) = 1.70 W/kg
SAR(1 g) = 1.02 mW/g; SAR(10 g) = 0.530 mW/g
Maximum value of SAR (measured) = 1.16 mW/g



0 dB = 1.16mW/g

Attachment 2. – Dipole Verification Plots

■ Verification Data (750 MHz Head)

Test Laboratory: HCT CO., LTD

Input Power 100 mW (20 dBm)

Liquid Temp: 21.1 ℃

Test Date: May. 07, 2014

DUT: Dipole 750 MHz D750V3; Type: D750V3; Serial: D750V3 - SN:1014

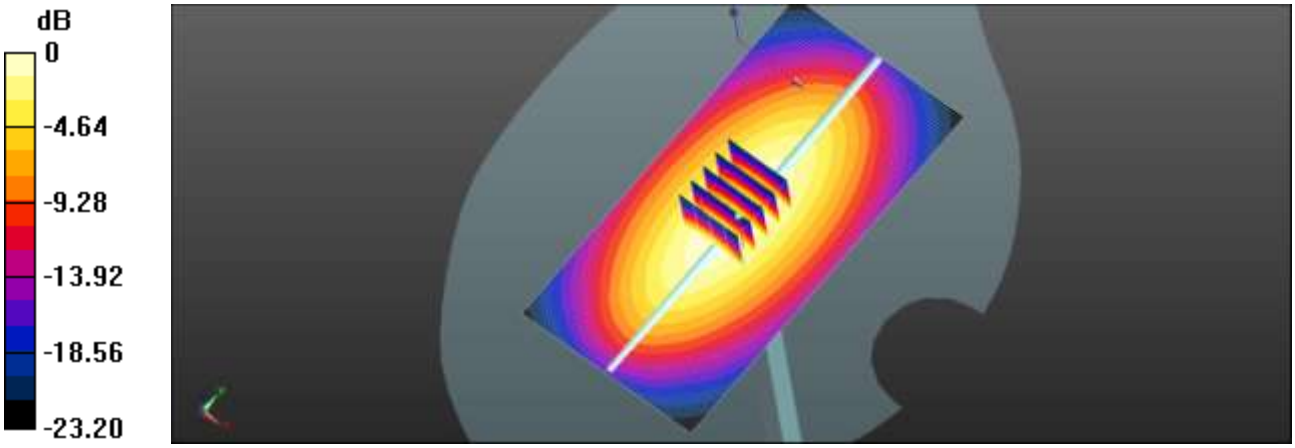
Communication System: UID 0, CW (0); Frequency: 750 MHz;Duty Cycle: 1:1
Medium parameters used: f = 750 MHz; σ = 0.903 S/m; ε_r = 42.553; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3968; ConvF(10.28, 10.28, 10.28); Calibrated: 2014-01-08;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2013-09-30
- Phantom: SAM with CRP v5.0_Front_20120517; Type: QD000P40CD; Serial: TP:xxxx
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7331)

Verification 750MHz/Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.948 W/kg

Verification 750MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 32.40 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 1.31 W/kg
SAR(1 g) = 0.878 W/kg; SAR(10 g) = 0.576 W/kg
Maximum value of SAR (measured) = 0.944 W/kg



0 dB = 0.948 W/kg = −0.23 dBW/kg

■ Verification Data (750 MHz Body)

Test Laboratory: HCT CO., LTD
Input Power 100 mW (20 dBm)
Liquid Temp: 21.1 ℃
Test Date: May. 07, 2014

DUT: Dipole 750 MHz D750V3; Type: D750V3; Serial: D750V3 - SN:1014

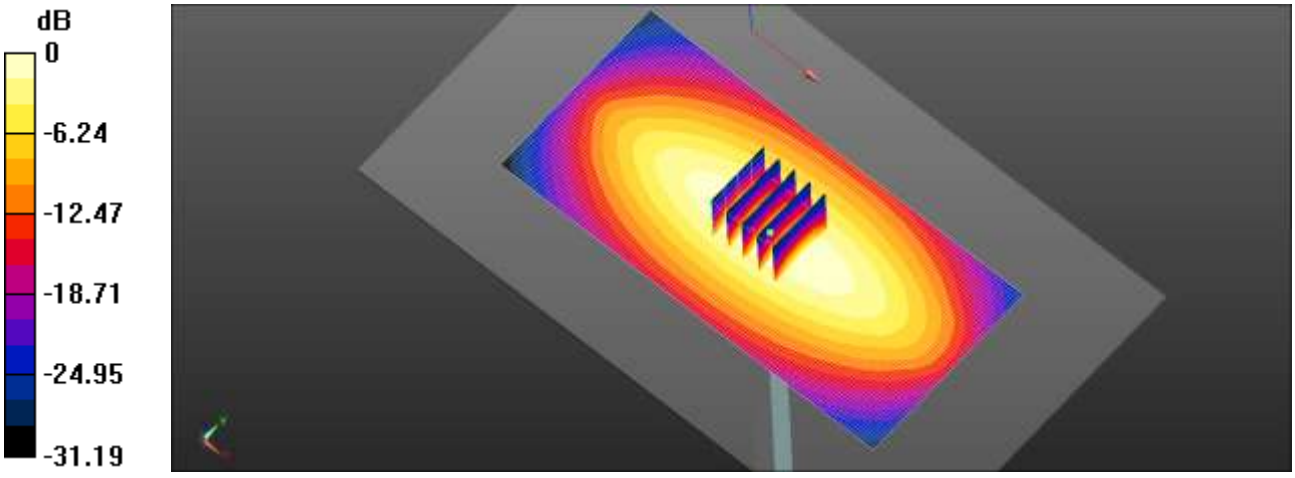
Communication System: UID 0, CW (0); Frequency: 750 MHz;Duty Cycle: 1:1
Medium parameters used: f = 750 MHz; σ = 0.984 S/m; ε_r = 54.732; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3968; ConvF(9.74, 9.74, 9.74); Calibrated: 2014-01-08;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2013-09-30
- Phantom: Triple Flat Phantom 5.1C-2014-02-21; Type: QD 000 P51 CA; Serial: xxxx
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7331)

750MHz Verification/Area Scan (61x131x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.11 W/kg

750MHz Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 30.70 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 1.31 W/kg
SAR(1 g) = 0.862 W/kg; SAR(10 g) = 0.571 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 1.12 W/kg



0 dB = 1.11 W/kg = 0.44 dBW/kg

■ Verification Data (835 MHz Head)

Test Laboratory: HCT CO., LTD

Input Power 100 mW (20 dBm)

Liquid Temp: 21.1 ℃

Test Date: Apr. 30, 2014

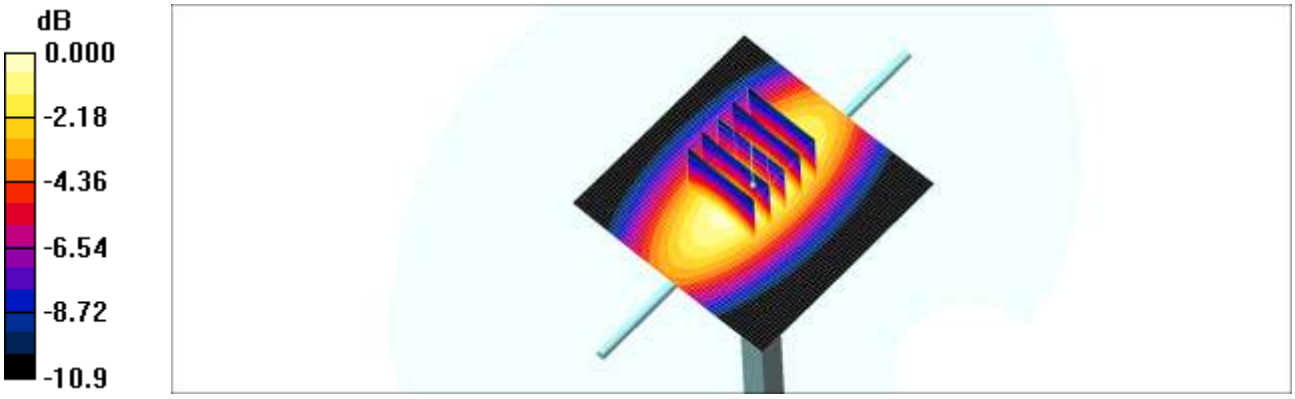
DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:4d165

Communication System: CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium parameters used: f = 835 MHz; σ = 0.894 mho/m; ε_r = 42.3; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

DASY4 Configuration:
- Probe: ET3DV6 - SN1605; ConvF(6.57, 6.57, 6.57); Calibrated: 2014-01-31
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2014-02-27
- Phantom: SAM 1800/1900 MHz; Type: SAM

Verification 835MHz/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.993 mW/g

Verification 835MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 34.6 V/m; Power Drift = -0.028 dB
Peak SAR (extrapolated) = 1.30 W/kg
SAR(1 g) = 0.907 mW/g; SAR(10 g) = 0.588 mW/g
Maximum value of SAR (measured) = 0.988 mW/g



0 dB = 0.988mW/g

■ Verification Data (835 MHz Body)

Test Laboratory: HCT CO., LTD
Input Power 100 mW (20 dBm)
Liquid Temp: 21.2 ℃
Test Date: May. 07, 2014

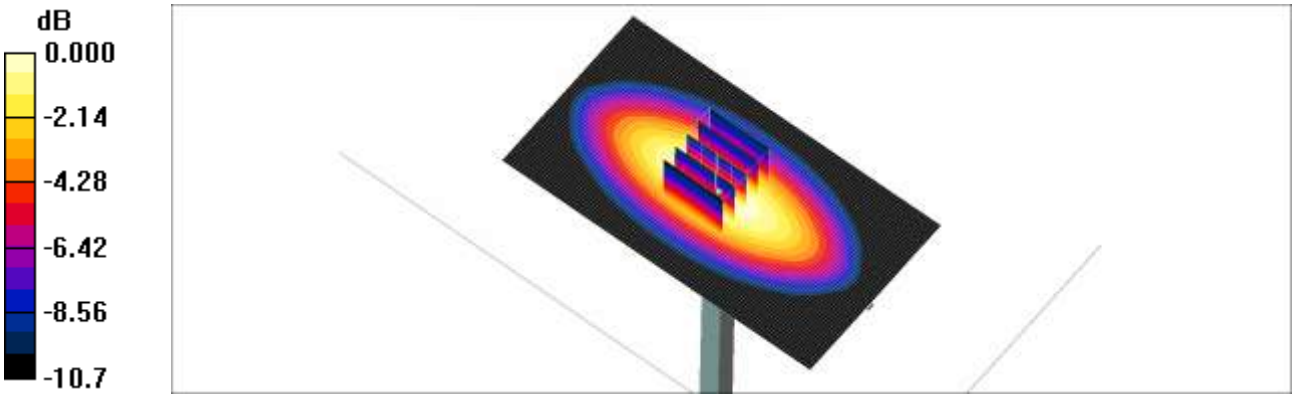
DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:4d165

Communication System: CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium parameters used: f = 835 MHz; σ = 0.984 mho/m; ε_r = 54.3; ρ = 1000 kg/m^3
Phantom section: Center Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

DASY4 Configuration:
- Probe: ET3DV6 - SN1605; ConvF(6.35, 6.35, 6.35); Calibrated: 2014-01-31
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2014-02-27
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA

Verification 835 MHz/Area Scan (111x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.03 mW/g

Verification 835 MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 33.8 V/m; Power Drift = -0.023 dB
Peak SAR (extrapolated) = 1.34 W/kg
SAR(1 g) = 0.937 mW/g; SAR(10 g) = 0.611 mW/g
Maximum value of SAR (measured) = 1.02 mW/g



0 dB = 1.02mW/g

■ Verification Data (1 800 MHz Head)

Test Laboratory: HCT CO., LTD
Input Power 100 mW (20 dBm)
Liquid Temp: 21.4 ℃
Test Date: May. 08, 2014

DUT: Dipole 1800 MHz D1800V2; Type: D1800V2; Serial: D1800V2 - SN:2d006

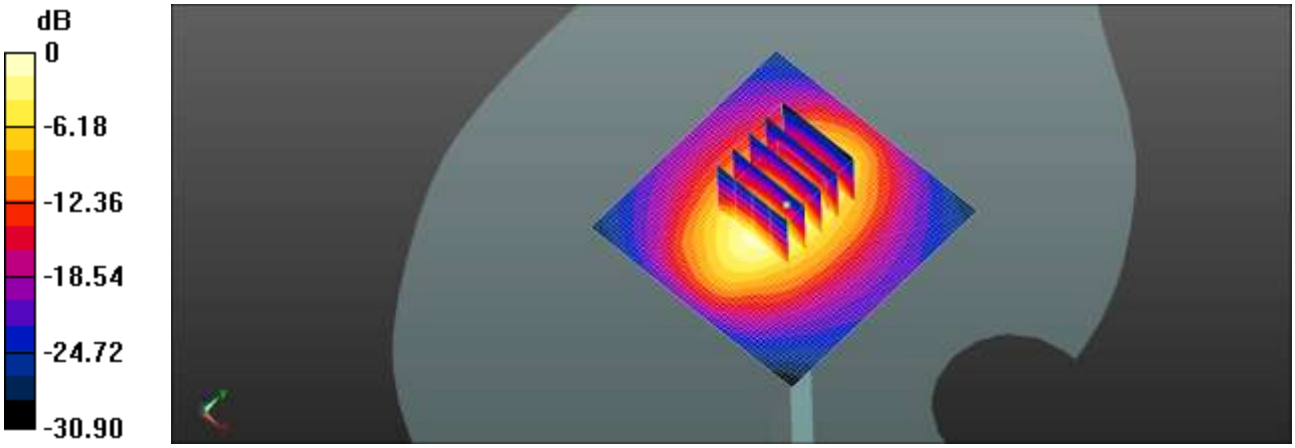
Communication System: UID 0, CW; Frequency: 1800 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1800 MHz; σ = 1.4 S/m; ε_r = 40.099; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3968; ConvF(8.15, 8.15, 8.15); Calibrated: 2014-01-08;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2013-09-30
- Phantom: SAM with CRP v5.0_Front_20120517; Type: QD000P40CD; Serial: TP:xxxx
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7331)

Verification 1800MHz/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 5.63 W/kg

Verification 1800MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 61.93 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 7.34 W/kg
SAR(1 g) = 3.83 W/kg; SAR(10 g) = 1.95 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 5.57 W/kg



0 dB = 5.63 W/kg = 7.51 dBW/kg

■ Verification Data (1 800 MHz Body)

Test Laboratory: HCT CO., LTD

Input Power 100 mW (20 dBm)

Liquid Temp: 21.1 ℃

Test Date: May. 07, 2014

DUT: Dipole 1800 MHz D1800V2; Type: D1800V2; Serial: D1800V2 - SN:2d006

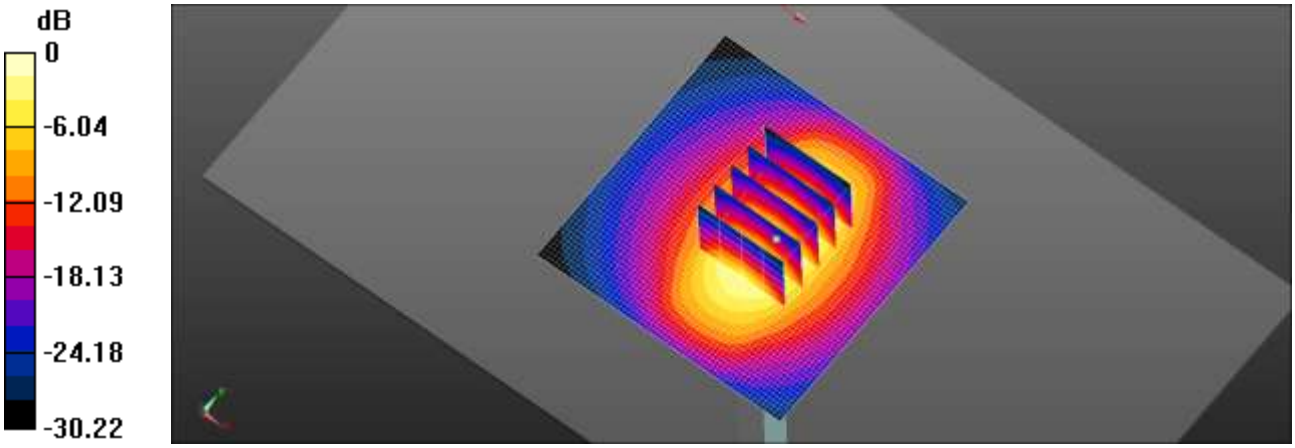
Communication System: UID 0, CW (0); Frequency: 1800 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1800 MHz; σ = 1.535 S/m; ε_r = 52.073; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3968; ConvF(7.93, 7.93, 7.93); Calibrated: 2014-01-08;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2013-09-30
- Phantom: Triple Flat Phantom 5.1C-2014-02-21; Type: QD 000 P51 CA; Serial: xxxx
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7331)

1800MHz Verification/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 4.34 W/kg

1800MHz Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 42.01 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 6.68 W/kg
SAR(1 g) = 3.77 W/kg; SAR(10 g) = 2.02 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 4.28 W/kg



0 dB = 4.34 W/kg = 6.38 dBW/kg