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SAR TEST REPORT

LG Electronics, MobileComm U.S.A., Inc. 1000 Sylvan Avenue, Englewood Cliffs NJ 07632	**Date of Issue: January 19, 2015** **Test Report No.: HCT-A-1501-F002** **Test Site: HCT CO., LTD.**

FCC ID: **ZNFH955P**

Equipment Type:	**Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA/LTE Phone with Bluetooth, WLAN, NFC**
Model Name:	**LG-H955P**
Additional Model Name:	**H955P, LGH955P, LG-H955p, H955p, LGH955p, LG-H955AR, LG-H955AR, H955AR, LGH955AR, LG-H955ar, H955ar, LGH955ar**
Testing has been carried out in accordance with:	**47CFR §2.1093** **ANSI/ IEEE C95.1 – 1992** **IEEE 1528-2003**
Date of Test:	**December 18, 2014 ~ December 30, 2014**

This device has been shown to be capable of compliance for localized specific absorption rate (SAR) for uncontrolled environment/general population exposure limits specified in FCC KDB procedures and had been tested in accordance with the measurement procedures specified in FCC KDB procedures.

I attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

Tested By;

Yun-Jeang Heo
Test Engineer / SAR Team
Certification Division

Reviewer

Dong-Seob Kim
Technical Manager / SAR Team
Certification Division

Revision History

Rev.	Issue DATE	DESCRIPTION
HCT-A-1501-F002	Jan. 19, 2015	Initial Issue

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/m^3)
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 3G SAR Procedures v03
- FCC KDB Publication 941225 D06 Hot Spot SAR v02
- FCC KDB Publication 941225 D05 SAR for LTE Devices v02r03
- FCC KDB Publication 941225 D05A LTE Rel.10 KDB Inquiry sheet v01r01
- FCC KDB Publication 248227 D01 SAR Consideration for 802.11 Devices v01r02
- FCC KDB Publication 447498 D01 General SAR Guidance v05r02
- 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:	ZNFH955P
Model:	LG-H955P
Additional Model Name:	H955P, LGH955P, LG-H955P, H955p, LGH955p, LG-H955AR, H955AR, LGH955AR, LG-H955ar, H955ar, LGH955ar
Trade Name:	LG Electronics, MobileComm U.S.A., Inc.
Application Type:	Certification
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	0.28	0.35	0.36
GSM/GPRS/EDGE 1900	1 850.2 -1 909.8	PCE	0.50	0.38	0.38
WCDMA 850	826.4 - 846.6	PCE	0.15	0.18	0.18
WCDMA 1900	1 852.4 – 1 907.6	PCE	0.55	0.46	0.46
LTE 2	1 850.7 ~ 1 909.3	PCE	0.57	0.50	0.53
LTE 4	1 710.7 – 1 754.3	PCE	0.70	0.73	0.73
LTE 7	2 502.5 – 2 567.5	PCE	0.39	0.61	0.74
LTE 17	706.5 ~ 713.5	PCE	0.16	0.30	0.30
802.11b	2 412.0 - 2 462.0	DTS	0.64	0.13	0.18
802.11a	5 180 - 5 240	UNII	0.67	0.21	
802.11a	5 260 - 5 320	UNII	0.62	0.25	
802.11a	5 500 - 5 700	UNII	0.43	0.24	
802.11a	5 745 - 5 825	UNII	0.50	0.26	0.26
Bluetooth	2 402 – 2 480	DSS/DTS	-	0.21*	-
Simultaneous SAR per KDB 690783 D01v01r03			1.37	1.00	1.00

Date(s) of Tests:	December 18, 2014 ~ December 30, 2014
Antenna Type:	Integral Antenna
GPRS/EDGE:	Multi-slot Class 12, Mode Class B
Key Feature(s):	This device supports Mobile Hotspot.

* Note :
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.
3. Separation distance of 0.8 mm was considered because this is the closest distance between the outer of the device and user. Please see the Operational description for further information.

* 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 rowspan="2">Frequency Range:</td><td>Band 2: 1 850.7 MHz ~ 1 909.3 MHz , Band 4: 1 710.7 MHz – 1 754.3 MHz</td></tr>
<tr><td>Band 7: 2 502.5 MHz ~ 2 567.5 MHz, Band 17: 706.5 MHz ~ 713.5 MHz</td></tr>
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<tr><td>Band 4: 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz</td></tr>
<tr><td>Band 7: 5 MHz, 10 MHz, 15MHz, 20MHz</td></tr>
<tr><td>Band 17: 5 MHz, 10 MHz</td></tr>
<tr><td>Channel Number & Frequency:</td><td>
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<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 has 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 TS 36.101 sec. 6.2.3 ~ 6.2.5 The MPR is permanently built-in by design as a mandatory. A-MPR is not implemented in the EUT. See section 11.4 RF output power measurements in the SAR report.
Maximum average conducted output power(dBm) Identify all other U.S. wireless operating modes, device exposure configurations and frequency bands	GSM850/ GSM1900, WCDMA850/1900, LTE Band 2, LTE Band 4, 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.

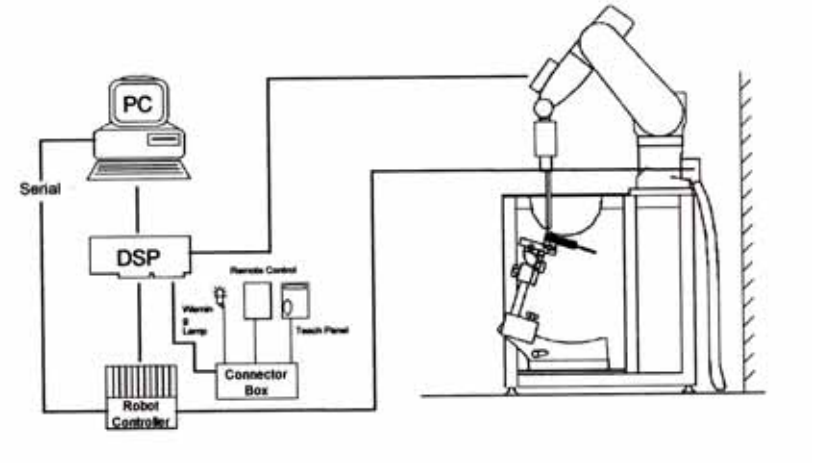

Figure 2. HCT SAR Lab. Test Measurement Set-up

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

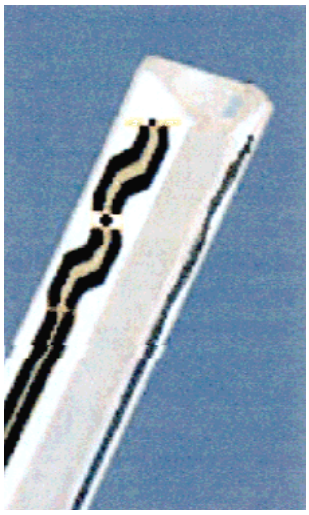

Figure 4. ET3DV6 E-field Probe

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;

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

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

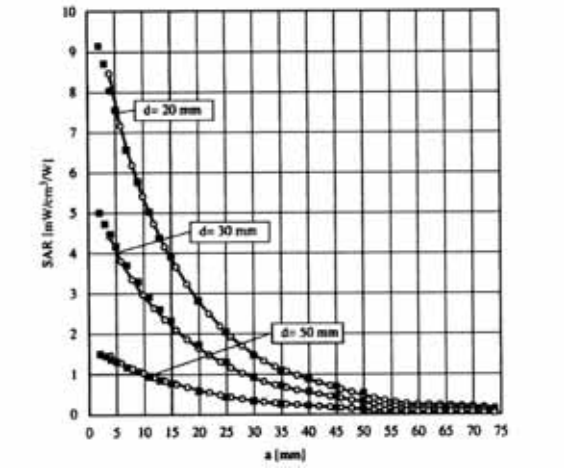

Figure 7. E-Field and Temperature measurements at 900 MHz

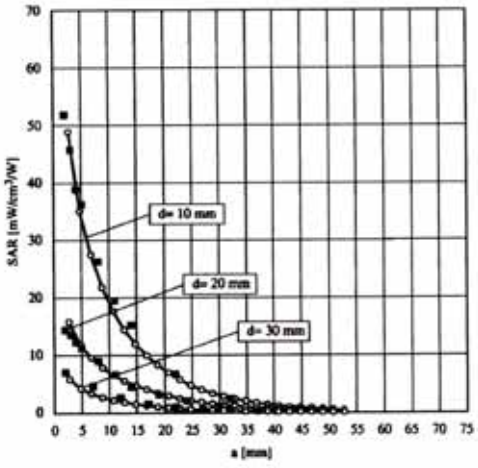

Figure 8. E-Field and temperature measurements at 1.8 GHz

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.

Figure 10. MFP V5.1 Triple Modular Phantom

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

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).

Figure 11. Device Holder

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.

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.

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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 ControllerCS7MB	3403-91935	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
Staubli	Teach Pendant (Joystick)	D221340.01	N/A	N/A	N/A
SPEAG	DAE3	446	Jan. 22, 2014	Annual	Jan. 22, 2015
SPEAG	DAE4	1225	Mar. 24, 2014	Annual	Mar. 24, 2015
SPEAG	DAE4	1417	Jan. 03, 2014	Annual	Jan. 03, 2015
SPEAG	DAE4	652	Mar. 26, 2014	Annual	Mar. 26, 2015
SPEAG	E-Field Probe EX3DV4	3968	Jan. 08. 2014	Annual	Jan. 08. 2015
SPEAG	E-Field Probe EX3DV4	3863	Jul. 24, 2014	Annual	Jul. 24, 2015
SPEAG	E-Field Probe ET3DV6	1605	Jan. 31, 2014	Annual	Jan. 31, 2015
SPEAG	E-Field Probe EX3DV4	3903	Aug. 28, 2014	Annual	Aug. 28, 2015
SPEAG	Dipole D750V3	1014	Jul. 24, 2014	Annual	Jul. 24, 2015
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	5d061	Jul. 23, 2014	Annual	Jul. 23, 2015
SPEAG	Dipole D2450V2	743	Jul. 24, 2014	Annual	Jul. 24, 2015
SPEAG	Dipole D2600V2	1015	Apr.23, 2014	Annual	Apr.23, 2015
SPEAG	Dipole D5GHzV2	1107	Jan. 27, 2014	Annual	Jan. 27, 2015
Agilent	Power Meter(F) E4419B	MY41291386	Oct. 27, 2014	Annual	Oct. 27, 2015
Agilent	Power Sensor(G) 8481	MY41090680	Oct. 27, 2014	Annual	Oct. 27, 2015
HP	Dielectric Probe Kit 85070C	00721521	CBT		
HP	Dual Directional Coupler	16072	Oct. 27, 2014	Annual	Oct. 27, 2015
Agilent	Base Station E5515C	GB44400269	Feb. 10, 2014	Annual	Feb. 10, 2015
HP	Signal Generator 8664A	3744A02069	Oct. 27, 2014	Annual	Oct. 27, 2015
Hewlett Packard	11636B/Power Divider	58698	Mar. 03. 2014	Annual	Mar. 03. 2015
Agilent	N9020A/ SIGNAL	MY50510407	Mar. 25, 2014	Annual	Mar. 25, 2015
TESCOM	TC-3000C / BLUETOOTH	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.

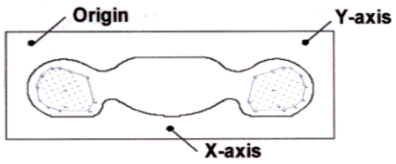


Figure 12. SAR Measurement Point in Area Scan

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.

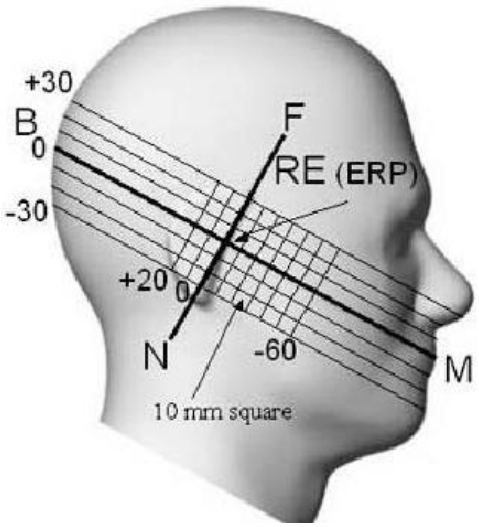


Figure 13. Side view of the phantom

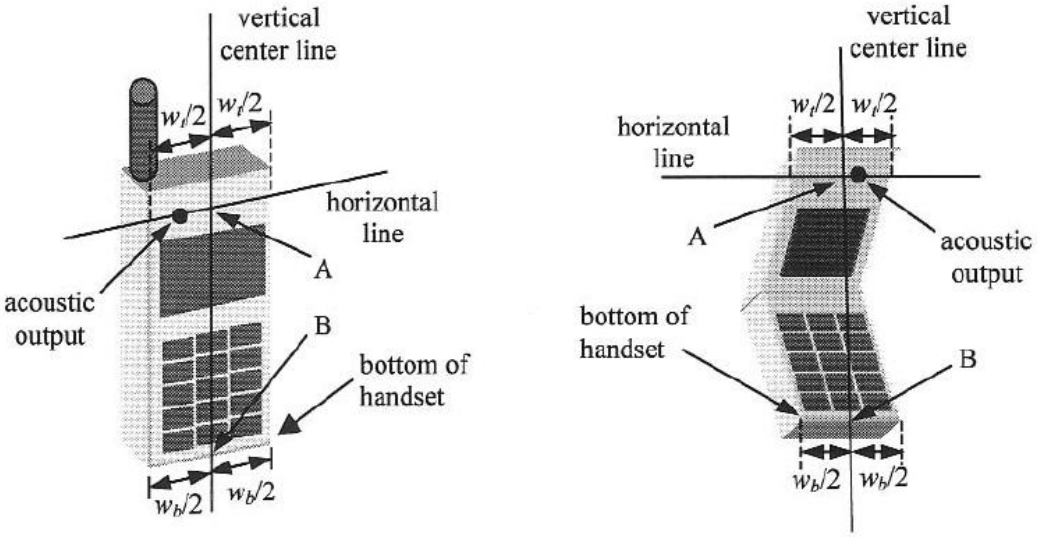


Figure 14. Handset vertical and horizontal reference lines

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 0.8 cm and 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.)	2.50	N	1	0.64	1.60	∞
Liquid Permitivity(target)	5.00	R	1.73	0.6	1.73	∞
Liquid Permitivity(meas.)	2.50	N	1	0.6	1.50	∞
Combind Standard Uncertainty					10.85	
Coverage Factor for 95 %					$k=2$	
Expanded STD Uncertainty					21.70	

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	6.55	∞
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.)	2.50	N	1	0.64	1.60	9
Liquid Permitivity(target)	5.00	R	1.73	0.6	1.73	∞
Liquid Permitivity(meas.)	2.50	N	1	0.6	1.50	9
Combind Standard Uncertainty					11.17	
Coverage Factor for 95 %					k=2	
Expanded STD Uncertainty					22.33	

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 Isotropy	MOD. Type	Duty Factor	PAR
9	3968	EX3DV4	Head	750	1014	Aug. 01,2014	42.1	0.9	PASS	PASS	PASS	N/A	N/A	N/A
4	1605	ET3DV6	Body	750	1014	Aug. 01,2014	55.7	0.98	PASS	PASS	PASS	N/A	N/A	N/A
1	3863	EX3DV4	Head	835	4d165	Aug.01,2014	41.6	0.92	PASS	PASS	PASS	GMSK	PASS	N/A
1	3863	EX3DV4	Body	835	4d165	Aug.01,2014	55.4	0.99	PASS	PASS	PASS	GMSK	PASS	N/A
1	3863	EX3DV4	Head	1800	2d006	Aug.04,2014	40.1	1.39	PASS	PASS	PASS	N/A	N/A	N/A
4	1605	ET3DV6	Body	1800	2d006	Apr.10,2014	53.1	1.51	PASS	PASS	PASS	N/A	N/A	N/A
1	3863	EX3DV4	Head	1900	5d061	Aug.05,2014	39.8	1.4	PASS	PASS	PASS	GMSK	PASS	N/A
1	3863	EX3DV4	Body	1900	5d061	Aug.06,2014	52.1	1.52	PASS	PASS	PASS	GMSK	PASS	N/A
1	3863	EX3DV4	Head	2450	743	Aug.05,2014	38.2	1.79	PASS	PASS	PASS	OFDM	N/A	PASS
1	3863	EX3DV4	Body	2450	743	Aug.06,2014	53.2	1.95	PASS	PASS	PASS	OFDM	N/A	PASS
1	3863	EX3DV4	Head	2600	1015	Aug.05,2014	38.5	1.98	PASS	PASS	PASS	N/A	N/A	N/A
1	3863	EX3DV4	Body	2600	1015	Aug.06,2014	52.7	2.09	PASS	PASS	PASS	N/A	N/A	N/A
5	3903	EX3DV4	Body	5200	1107	Apr.15,2014	49.5	5.29	PASS	PASS	PASS	OFDM	N/A	PASS
1	3863	EX3DV4	Body	5200	1107	Feb.14,2014	48.9	5.27	PASS	PASS	PASS	OFDM	N/A	PASS
5	3903	EX3DV4	Body	5300	1107	Apr.15,2014	49.2	5.37	PASS	PASS	PASS	OFDM	N/A	PASS
1	3863	EX3DV4	Body	5300	1107	Feb.14,2014	48.5	5.38	PASS	PASS	PASS	OFDM	N/A	PASS
5	3903	EX3DV4	Body	5500	1107	Apr.15,2014	48.3	5.59	PASS	PASS	PASS	OFDM	N/A	PASS
1	3863	EX3DV4	Body	5500	1107	Feb.14,2014	48.1	5.63	PASS	PASS	PASS	OFDM	N/A	PASS
5	3903	EX3DV4	Body	5600	1107	Apr.15,2014	48.2	5.68	PASS	PASS	PASS	OFDM	N/A	PASS
1	3863	EX3DV4	Body	5600	1107	Feb.14,2014	47.8	5.72	PASS	PASS	PASS	OFDM	N/A	PASS
5	3903	EX3DV4	Body	5800	1107	Apr.15,2014	47.8	6.1	PASS	PASS	PASS	OFDM	N/A	PASS
1	3863	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 bove 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	Dec.19, 2014	3968	1014	Head	21.0	ε r	41.9	42.712	+ 1.94	± 5
						σ	0.89	0.906	+ 1.80	± 5
750	Dec.19, 2014	1605		Body	19.0	ε r	55.5	54.6	- 1.62	± 5
						σ	0.96	0.981	+ 2.19	± 5
835	Dec.23, 2014	3863	4d165	Head	20.5	ε r	41.5	42.3	+ 1.93	± 5
						σ	0.90	0.882	- 2.00	± 5
835	Dec.23, 2014	3863		Body	19.9	ε r	55.2	55.9	+ 1.27	± 5
						σ	0.97	0.95	- 2.06	± 5
1 800	Dec.22, 2014	3863	2d006	Head	20.4	ε r	40.0	39.5	- 1.25	± 5
						σ	1.40	1.41	+ 0.71	± 5
1 800	Dec.22, 2014	1605		Body	18.5	ε r	53.3	52.5	- 1.50	± 5
						σ	1.52	1.54	+ 1.32	± 5
1 900	Dec.18, 2014	3863	5d061	Head	21.0	ε r	40.0	38.9	- 2.75	± 5
						σ	1.40	1.44	+ 2.86	± 5
1 900	Dec.18, 2014	3863		Body	18.0	ε r	53.3	52.2	- 2.06	± 5
						σ	1.52	1.56	+ 2.63	± 5
2 450	Dec.26, 2014	3863	743	Head	18.0	ε r	39.2	37.8	- 3.57	± 5
						σ	1.80	1.81	+ 0.56	± 5
2 450	Dec.26, 2014	3863		Body	19.9	ε r	52.7	53.5	+ 1.52	± 5
						σ	1.95	1.99	+ 2.05	± 5
2 600	Dec.24, 2014	3863	1015	Head	21.6	ε r	39.0	40.3	+ 3.33	± 5
						σ	1.96	1.99	+ 1.53	± 5
2 600	Dec.24, 2014	3863		Body	20.8	ε r	52.5	52.6	+ 0.19	± 5
						σ	2.16	2.11	- 2.31	± 5
5 200	Dec.29, 2014	3903	1107	Head	18.8	ε r	36	36.552	+ 1.53	± 5
						σ	4.66	4.544	- 2.49	± 5
5 200	Dec.30, 2014	3863		Body	20.0	ε r	49.0	48.4	- 1.22	± 5
						σ	5.30	5.13	- 3.21	± 5
5 300	Dec.29, 2014	3903	1107	Head	18.8	ε r	35.9	36.331	+ 1.20	± 5
						σ	4.76	4.659	- 2.12	± 5
5 300	Dec.30, 2014	3863		Body	20.0	ε r	48.9	48.1	- 1.64	± 5
						σ	5.42	5.29	- 2.40	± 5
5 500	Dec.29, 2014	3903	1107	Head	18.8	ε r	35.6	35.89	+ 0.81	± 5
						σ	4.96	4.927	- 0.67	± 5
5 500	Dec.30, 2014	3863		Body	20.0	ε r	48.6	47.5	- 2.26	± 5
						σ	5.65	5.62	- 0.53	± 5
5 600	Dec.29, 2014	3903	1107	Head	18.8	ε r	35.5	35.577	+ 0.22	± 5
						σ	5.07	5.069	- 0.02	± 5
5 600	Dec.30, 2014	3863		Body	20.0	ε r	48.5	47.3	- 2.47	± 5
						σ	5.77	5.78	+ 0.17	± 5
5 800	Dec.29, 2014	3903	1107	Head	18.8	ε r	35.3	34.986	- 0.89	± 5
						σ	5.27	5.331	+ 1.16	± 5
5 800	Dec.30, 2014	3863		Body	20.0	ε r	48.2	46.8	- 2.90	± 5
						σ	6.00	6.11	+ 1.83	± 5

The Tissue dielectronic parameters were measured prior to the SAR evaluation using an Agilent 85070C

Dielectronic Probe Kit and Agilent Network Analyzer.

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.	Date	Probe (S/N)	Dipole (S/N)	Liquid	Amb. Temp.	Liquid Temp.	1 W Target SAR_{1g} (SPEAG)	Measured SAR_{1g}	1 W Normalized SAR_{1g}	Deviation	Limit [%]
[MHz]					[°C]	[°C]	[mW/g]	[mW/g]	[mW/g]	[%]	[%]
750	Dec.19,2014	3968	1014	Head	21.2	21.0	8.31	0.851	8.51	+ 2.41	± 10
750	Dec.19,2014	1605		Body	19.2	19.0	8.63	0.896	8.96	+ 3.82	± 10
835	Dec.23, 2014	3863	4d165	Head	20.7	20.5	9.24	0.925	9.25	+ 0.11	± 10
835	Dec.23, 2014	3863		Body	20.1	19.9	9.58	0.963	9.63	+ 0.52	± 10
1 800	Dec.22, 2014	3863	2d006	Head	20.6	20.4	38.1	3.72	37.2	- 2.36	± 10
1 800	Dec.22, 2014	1605		Body	18.7	18.5	38.1	3.96	39.6	+ 3.94	± 10
1 900	Dec.18, 2014	3863	5d061	Head	21.2	21.0	40.6	4.11	41.1	+ 1.23	± 10
1 900	Dec.18, 2014	3863		Body	18.2	18.0	40.8	4.16	41.6	+ 1.96	± 10
2 450	Dec.26, 2014	3863	743	Head	18.2	18.0	53.2	5.41	54.1	+ 1.69	± 10
2 450	Dec.26, 2014	3863		Body	20.1	19.9	51.3	5.28	52.8	+ 2.92	± 10
2 600	Dec.24, 2014	3863	1015	Head	21.8	21.6	57.7	5.54	55.4	- 3.99	± 10
2 600	Dec.24, 2014	3863		Body	21.0	20.8	55.5	5.81	58.1	+ 4.68	± 10
5 200	Dec.29, 2014	3903	1107	Head	19.0	18.8	77.8	7.8	78	+ 0.26	± 10
5 200	Dec.30, 2014	3863		Body	20.2	20.0	74.7	7.35	73.5	- 1.61	± 10
5 300	Dec.29, 2014	3903	1107	Head	19.0	18.8	82.9	7.91	79.1	- 4.58	± 10
5 300	Dec.30, 2014	3863		Body	20.2	20.0	75.8	7.32	73.2	- 3.43	± 10
5 500	Dec.29, 2014	3903	1107	Head	19.0	18.8	84.0	7.87	78.7	- 6.31	± 10
5 500	Dec.30, 2014	3863		Body	20.2	20.0	79.1	7.99	79.9	+ 1.01	± 10
5 600	Dec.29, 2014	3903	1107	Head	19.0	18.8	83.0	7.6	76	- 8.43	± 10
5 600	Dec.30, 2014	3863		Body	20.2	20.0	80.2	8.06	80.6	+ 0.50	± 10
5 800	Dec.29, 2014	3903	1107	Head	19.0	18.8	79.4	8.15	81.5	+ 2.64	± 10
5 800	Dec.30, 2014	3863		Body	20.2	20.0	74.4	7.29	72.9	- 2.02	± 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 equipment.
- 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 : 25.2 dBm	GPRS 2tx : 28.2 dBm / EGPRS 2tx : 24.2 dBm
GPRS 3tx : 29.2 dBm / EGPRS 3tx : 23.2 dBm	GPRS 3tx : 26.2 dBm / EGPRS 3tx : 22.2 dBm
GPRS 4tx : 27.2 dBm / EGPRS 4tx : 21.2 dBm	GPRS 4tx : 24.2 dBm / EGPRS 4tx : 20.2 dBm
Tune-up Tolerance : -1.5 dB/ +0.5 dB	

WCDMA

WCDMA850		WCDMA1900	
Target Power : 23.2 dBm		Target Power : 23.2 dBm	
HSDPA Sub-test1	Target Power : 23.2 dBm	HSDPA Sub-test1	Target Power : 23.2 dBm
HSDPA Sub-test2	Target Power : 21.2 dBm	HSDPA Sub-test2	Target Power : 21.2 dBm
HSDPA Sub-test3	Target Power : 22.2 dBm	HSDPA Sub-test3	Target Power : 22.2 dBm
HSDPA Sub-test4	Target Power : 21.2 dBm	HSDPA Sub-test4	Target Power : 21.2 dBm
HSDPA Sub-test5	Target Power : 23.2 dBm	HSDPA Sub-test5	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			24.2 dBm			23.2 dBm		
Tune-up Tolerance : -1.5 dB/ +0.5 dB												
RB Size	1	50%	100%	1	50%	100%	1	50%	100%	1	50%	100%
Mode	QPSK	QPSK	QPSK	QPSK	QPSK	QPSK	16-QAM	16-QAM	16-QAM	16-QAM	16-QAM	16-QAM
MPR	0	1	1	0	1	1	1	2	2	0	1	1
MPR (1.4 MHz case)	0	0	1	0	0	1	1	1	2	0	0	1
* MPR Tolerance : +0.5dB/-0.5dB												

Wifi

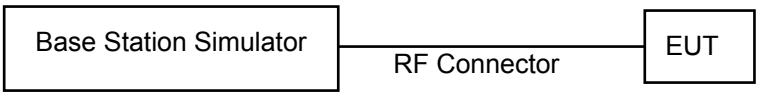
IEEE 802.11 (in dBm)							
2.4 GHz WIFI	Mode / Band	802.11a	802.11b	802.11g	802.11n (20MHz)	802.11n (40MHz)	802.11ac
	Maximum	N/A	16.0	13.5	12.5	N/A	12.5
	Nominal	N/A	15.0	12.5	11.5	N/A	11.5
5 GHz WIFI	Mode / Band	802.11a	802.11n (20MHz)	802.11n (40MHz)	802.11ac (20MHz)	802.11ac (40MHz)	802.11ac (80MHz)
	Maximum	14.5	13.5	12.0	12.5	12.0	12.0
	Nominal	13.5	12.5	11.0	11.5	11.0	11.0

BT.

Bluetooth (Average Power)	(in dBm)	1Mbps(GFSK)	2Mbps(DPSK)	3Mbps(8DPSK)	LE
	Maximum	9	5.5	5.5	6.5
	Nominal	8	4.5	4.5	5.5

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

Note;
This EUT'S GSM, GPRS and EDGE device class is B
GPRS/EDGE Mltislot class :12, DTM Multislot class :N/A
Per KDB 941225 D01v03, GMSK GPRS and EDGE mode is the primary mode. 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	Channel	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	33.48	33.42	31.31	29.54	27.12	27.17	25.20	23.00	20.97
	190	33.49	33.50	31.31	29.60	27.49	27.32	25.32	23.07	21.40
	251	33.34	33.32	31.46	29.68	27.57	27.48	25.53	23.30	21.59
GSM 1900	512	30.61	30.61	28.38	26.44	24.44	26.38	24.60	22.63	20.51
	661	30.34	30.30	28.32	26.25	24.31	26.38	24.59	22.59	20.42
	810	30.27	30.28	28.22	26.25	24.23	26.25	24.49	22.50	20.43

GSM Conducted output powers (Frame-Average)

Band	Channel	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	24.45	24.39	25.29	25.28	24.11	18.14	19.18	18.74	17.96
	190	24.46	24.47	25.29	25.34	24.48	18.29	19.30	18.81	18.39
	251	24.31	24.29	25.44	25.42	24.56	18.45	19.51	19.04	18.58
GSM 1900	512	21.58	21.58	22.36	22.18	21.43	17.35	18.58	18.37	17.50
	661	21.31	21.27	22.30	21.99	21.30	17.35	18.57	18.33	17.41
	810	21.24	21.25	22.20	21.99	21.22	17.22	18.47	18.24	17.42

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.

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	23.60	23.45	23.61
99	WCDMA	12.2 kbps AMR	23.57	23.47	23.60
5	HSDPA	Subtest 1	22.26	22.25	22.63
5		Subtest 2	22.28	22.25	22.61
5		Subtest 3	21.75	21.73	21.93
5		Subtest 4	21.74	21.69	22.01
6	HSUPA	Subtest 1	21.72	21.81	21.29
6		Subtest 2	21.29	21.35	21.53
6		Subtest 3	21.47	21.46	21.75
6		Subtest 4	21.42	21.48	21.66
6		Subtest 5	22.48	22.46	21.95

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	23.56	23.55	23.24
99	WCDMA	12.2 kbps AMR	23.51	23.50	23.24
5	HSDPA	Subtest 1	22.23	22.06	22.04
5		Subtest 2	22.24	22.07	22.05
5		Subtest 3	21.90	21.31	21.51
5		Subtest 4	21.89	21.30	21.53
6	HSUPA	Subtest 1	22.02	21.60	21.68
6		Subtest 2	21.33	20.94	21.22
6		Subtest 3	21.10	20.69	21.43
6		Subtest 4	21.88	21.29	21.54
6		Subtest 5	21.82	21.35	21.48

WCDMA Average Conducted output powers

11.4 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	Modulation	RB Size	RB Offset	Max.Average Power (dBm)		
				18625 1852.5MHz	18900 1880MHz	19175 1907.5MHz
5MHz	QPSK	1	0	23.54	23.33	23.11
		1	12	23.48	23.02	22.70
		1	24	23.68	23.31	23.11
		12	0	22.56	22.08	21.96
		12	6	22.56	22.13	22.00
		12	11	22.64	22.02	21.97
		25	0	22.56	22.06	21.95
	16QAM	1	0	22.69	22.64	22.70
		1	12	22.53	22.64	22.68
		1	24	22.68	22.56	22.68
		12	0	21.52	21.10	20.99
		12	6	21.59	21.22	21.00
		12	11	21.67	21.08	20.97
		25	0	21.64	21.06	20.85

Bandwidth	Modulation	RB Size	RB Offset	Max.Average Power (dBm)		
				18650 1855MHz	18900 1880MHz	19150 1905MHz
10MHz	QPSK	1	0	23.56	23.23	22.92
		1	24	23.35	22.90	22.88
		1	49	23.42	23.03	22.93
		25	0	22.35	21.83	21.90
		25	12	22.42	21.77	21.83
		25	24	22.39	21.82	21.88
		50	0	22.42	21.80	21.87
	16QAM	1	0	22.99	22.48	22.19
		1	24	22.81	22.32	22.13
		1	49	22.89	22.36	22.36
		25	0	21.29	20.83	20.98
		25	12	21.39	20.84	20.94
		25	24	21.38	20.83	20.87
		50	0	21.38	20.79	20.94

Bandwidth	Modulation	RB Size	RB Offset	Max.Average Power (dBm)		
				18675 1857.5MHz	18900 1880MHz	19125 1902.5MHz
15MHz	QPSK	1	0	23.32	23.33	23.06
		1	36	23.14	23.01	22.70
		1	74	23.31	23.15	22.94
		36	0	22.24	21.89	21.82
		36	18	22.18	21.91	21.75
		36	36	22.36	21.85	21.79
		75	0	22.26	21.92	21.82
	16QAM	1	0	22.64	22.42	22.67
		1	36	22.39	22.20	22.38
		1	74	22.63	22.27	22.65
		36	0	21.24	20.90	20.71
		36	18	21.23	20.91	20.65
		36	38	21.26	20.85	20.67
		75	0	21.27	20.91	20.79

Bandwidth	Modulation	RB Size	RB Offset	Max.Average Power (dBm)		
				18700 1860MHz	18900 1880MHz	19100 1900MHz
20MHz	QPSK	1	0	23.65	23.47	23.32
		1	49	23.64	22.90	22.88
		1	99	23.57	23.13	23.12
		50	0	22.38	21.90	21.92
		50	25	22.36	21.93	21.80
		50	49	22.38	22.00	21.80
		100	0	22.38	21.98	21.91
	16QAM	1	0	22.68	22.66	22.57
		1	49	22.57	22.49	22.10
		1	99	22.67	22.66	22.42
		50	0	21.36	20.94	20.84
		50	25	21.34	20.94	20.72
		50	49	21.35	20.97	20.74
		100	0	21.31	20.96	20.92

- LTE Band 4

Bandwidth	Modulation	RB Size	RB Offset	Max.Average Power (dBm)		
				19965 1711.5 MHz	20175 1732.5 MHz	20385 1753.5 MHz
3MHz	QPSK	1	0	23.02	23.03	22.71
		1	7	23.03	22.85	22.64
		1	14	22.96	22.98	22.86
		8	0	21.99	21.87	21.51
		8	3	22.03	21.82	21.53
		8	7	22.00	21.80	21.56
		15	0	22.01	21.78	21.58
	16QAM	1	0	22.09	22.45	21.83
		1	7	21.94	22.22	21.67
		1	14	22.11	22.42	21.90
		8	0	21.12	20.92	20.55
		8	3	21.14	20.84	20.61
		8	7	21.18	20.87	20.66
		15	0	21.07	20.80	20.55

Bandwidth	Modulation	RB Size	RB Offset	Max.Average Power (dBm)		
				19975 1712.5 MHz	20175 1732.5 MHz	20375 1752.5 MHz
5MHz	QPSK	1	0	22.92	22.96	22.68
		1	12	22.99	22.99	22.39
		1	24	23.07	23.07	22.66
		12	0	21.97	21.84	21.52
		12	6	22.03	21.82	21.56
		12	11	21.97	21.82	21.54
		25	0	21.97	21.75	21.53
	16QAM	1	0	22.02	22.25	22.53
		1	12	22.02	22.31	22.56
		1	24	22.20	22.29	22.59
		12	0	20.99	20.92	20.59
		12	6	21.06	20.91	20.59
		12	11	21.01	20.88	20.59
		25	0	21.12	20.80	20.51

Bandwidth	Modulation	RB Size	RB Offset	Max.Average Power (dBm)		
				20000 1715 MHz	20175 1732.5 MHz	20350 1750 MHz
10MHz	QPSK	1	0	23.10	23.20	22.65
		1	24	23.30	23.06	22.53
		1	49	23.26	23.03	22.59
		25	0	22.14	21.83	21.62
		25	12	22.15	21.86	21.68
		25	24	22.20	21.88	21.56
		50	0	22.19	21.86	21.59
	16QAM	1	0	22.67	22.42	22.04
		1	24	22.63	22.38	22.43
		1	49	22.57	22.32	22.08
		25	0	21.17	20.90	20.73
		25	12	21.20	20.95	20.77
		25	24	21.22	20.94	20.65
		50	0	21.13	20.85	20.65

Bandwidth	Modulation	RB Size	RB Offset	Max.Average Power (dBm)		
				20025 1717.5 MHz	20175 1732.5 MHz	20325 1747.5 MHz
15MHz	QPSK	1	0	23.35	23.36	23.19
		1	36	23.30	23.22	22.88
		1	74	23.48	23.37	22.94
		36	0	22.32	22.06	21.89
		36	18	22.33	22.10	21.93
		36	36	22.40	22.01	21.90
		75	0	22.34	22.00	21.93
	16QAM	1	0	22.59	22.46	22.69
		1	36	22.51	22.38	22.58
		1	74	22.67	22.47	22.67
		36	0	21.30	21.12	20.88
		36	18	21.30	21.17	20.90
		36	38	21.34	21.07	20.86
		75	0	21.33	21.09	20.94

Bandwidth	Modulation	RB Size	RB Offset	Max.Average Power (dBm)		
					20175 1732.5 MHz	
20MHz	QPSK	1	0		23.65	
		1	49		23.39	
		1	99		23.41	
		50	0		22.12	
		50	25		22.10	
		50	49		22.15	
		100	0		22.15	
	16QAM	1	0		22.68	
		1	49		22.66	
		1	99		22.69	
		50	0		21.15	
		50	25		21.08	
		50	49		21.15	
		100	0		21.21	

Note: LTE Band 4 (AWS) at 20 MHz Bandwidth does not support three non-overlapping chennels. Per KDB 941225 D05v02r03, 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.

- LTE Band 7

Bandwidth	Modulation	RB Size	RB Offset	Max.Average Power (dBm)		
				20775 2502.5MHz	21100 2535MHz	21425 2567.5MHz
5MHz	QPSK	1	0	23.32	23.38	23.35
		1	12	23.19	23.36	23.26
		1	24	23.37	23.37	23.39
		12	0	22.17	22.16	22.19
		12	6	22.21	22.21	22.23
		12	11	22.20	22.17	22.14
		25	0	22.18	22.17	22.14
	16QAM	1	0	22.35	22.34	22.35
		1	12	22.23	22.32	22.25
		1	24	22.42	22.46	22.41
		12	0	21.16	21.18	21.16
		12	6	21.21	21.19	21.20
		12	11	21.20	21.25	21.19
		25	0	21.25	21.23	21.25

Bandwidth	Modulation	RB Size	RB Offset	Max.Average Power (dBm)		
				20800 2505MHz	21100 2535MHz	21400 2565MHz
10MHz	QPSK	1	0	23.90	24.01	24.16
		1	24	23.83	23.92	24.22
		1	49	23.78	24.08	24.04
		25	0	22.8	22.85	23.19
		25	12	22.96	22.87	23.37
		25	24	22.86	22.84	23.29
		50	0	22.97	22.85	23.23
	16QAM	1	0	23.42	23.22	23.57
		1	24	23.34	23.26	23.05
		1	49	23.38	23.30	23.32
		25	0	21.83	21.84	22.27
		25	12	21.97	21.92	22.47
		25	24	21.90	21.82	22.43
		50	0	21.90	21.86	22.27

Bandwidth	Modulation	RB Size	RB Offset	Max.Average Power (dBm)		
				20825 2507.5MHz	21100 2535MHz	21375 2562.5MHz
15MHz	QPSK	1	0	23.97	24.26	24.36
		1	36	23.96	23.99	24.31
		1	74	23.80	24.09	24.22
		36	0	22.96	23.01	23.41
		36	18	23.12	22.97	23.40
		36	36	23.08	22.99	23.44
		75	0	23.03	22.95	23.45
	16QAM	1	0	23.38	23.45	23.52
		1	36	23.44	23.3	23.45
		1	74	23.06	23.45	23.61
		36	0	21.99	22.05	22.40
		36	18	22.12	21.94	22.35
		36	38	22.10	22.04	22.41
		75	0	22.03	21.94	22.42

Bandwidth	Modulation	RB Size	RB Offset	Max.Average Power (dBm)		
				20850 2510MHz	21100 2535MHz	21350 2560MHz
20MHz	QPSK	1	0	24.23	24.10	24.56
		1	49	24.15	23.96	24.49
		1	99	24.03	23.95	24.66
		50	0	23.03	23.05	23.40
		50	25	23.06	22.98	23.42
		50	49	22.97	23.04	23.43
		100	0	23.00	22.95	23.47
	16QAM	1	0	23.35	23.27	23.54
		1	49	23.21	23.00	23.66
		1	99	23.03	23.18	23.65
		50	0	22.08	22.04	22.37
		50	25	22.07	21.96	22.42
		50	49	21.97	22.01	22.46
		100	0	22.04	21.99	22.54

- LTE Band 17

Bandwidth	Modulation	RB Size	RB Offset	Max.Average Power (dBm)		
					23790 710 MHz	
5MHz	QPSK	1	0		23.51	
		1	12		23.64	
		1	24		23.51	
		12	0		22.52	
		12	6		22.57	
		12	11		22.55	
		25	0		22.45	
	16QAM	1	0		22.53	
		1	12		22.63	
		1	24		22.65	
		12	0		21.52	
		12	6		21.57	
		12	11		21.50	
		25	0		21.59	

Bandwidth	Modulation	RB Size	RB Offset	Max.Average Power (dBm)		
					23790 710 MHz	
10MHz	QPSK	1	0		23.48	
		1	24		23.54	
		1	49		23.42	
		25	0		22.64	
		25	12		22.50	
		25	24		22.54	
		50	0		22.57	
	16QAM	1	0		22.61	
		1	24		22.68	
		1	49		22.59	
		25	0		21.63	
		25	12		21.51	
		25	24		21.58	
		50	0		21.49	

Note: LTE Band 17 at 5 MHz &10 MHz Bandwidth does not support three non-overlapping chennels. Per KDB 941225 D05v02r03, 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.

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	15.31	15.48	15.41	15.45
	2437	6	15.75	15.96	15.99	15.91
	2462	11	13.63	13.81	13.70	13.66

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	12.38	12.43	12.51	12.51	12.61	12.71	12.87	13.00
	2437	6	12.86	12.71	12.90	12.79	13.09	13.16	13.28	13.23
	2462	11	10.17	10.36	10.38	10.37	10.65	10.74	10.65	10.54

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	11.24	11.39	11.47	11.82	11.82	11.88	11.77	11.93
	2437	6	12.07	11.97	11.93	12.34	12.48	12.41	12.38	12.50
	2462	11	9.24	9.28	9.09	9.45	9.54	9.62	9.51	9.44

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	13.18	13.00	13.02	13.02	13.26	13.32	13.42	13.37
	5200	40	13.45	13.20	13.29	13.27	13.50	13.49	13.69	13.51
	5220	44	13.62	13.40	13.36	13.28	13.74	13.60	13.81	13.72
	5240	48	13.62	13.45	13.36	13.32	13.79	13.63	13.85	13.76
	5260	52	13.36	13.17	13.21	13.23	13.50	13.39	13.56	13.49
	5280	56	13.40	13.18	13.17	13.19	13.50	13.48	13.60	13.57
	5300	60	13.42	13.22	13.20	13.20	13.53	13.53	13.65	13.60
	5320	64	13.41	13.26	13.21	13.28	13.51	13.47	13.65	13.55
	5500	100	13.77	13.56	13.54	13.58	13.78	13.88	14.01	13.94
	5520	104	13.77	13.58	13.59	13.63	13.79	13.92	14.01	13.94
	5540	108	13.77	13.61	13.61	13.63	13.80	13.97	14.02	13.95
	5560	112	14.05	13.87	13.89	13.93	14.12	14.07	14.28	14.15
	5580	116	14.08	13.91	13.93	13.95	14.16	14.09	14.28	14.19
	5660	132	14.08	13.88	13.88	13.91	14.11	14.05	14.24	14.18
	5680	136	14.03	13.86	13.91	13.90	14.13	14.05	14.23	14.19
	5700	140	14.04	13.85	13.92	13.95	14.16	14.02	14.24	14.17
	5720	144	13.69	13.67	13.62	13.63	13.92	13.82	14.06	13.93
	5745	149	13.21	13.02	13.07	12.90	13.20	13.25	13.43	13.28
	5765	153	13.24	13.07	13.15	12.92	13.19	13.16	13.47	13.25
	5785	157	13.26	13.13	13.18	12.95	13.19	13.22	13.48	13.26
	5805	161	13.21	13.06	13.14	12.91	13.19	13.21	13.43	13.22
	5825	165	13.17	12.80	12.90	12.96	13.19	13.02	13.39	13.19

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	12.16	12.25	12.25	12.66	12.67	12.71	12.69	12.87
	5200	40	12.43	12.45	12.45	12.89	12.92	12.82	12.70	12.82
	5220	44	12.73	12.56	12.63	13.02	12.97	13.13	13.12	13.12
	5240	48	12.73	12.58	12.64	13.03	13.01	13.18	13.13	13.13
	5260	52	12.27	12.32	12.35	12.66	12.70	12.75	12.74	12.66
	5280	56	12.23	12.32	12.33	12.65	12.69	12.72	12.73	12.62
	5300	60	12.15	12.17	12.13	12.49	12.63	12.60	12.69	12.63
	5320	64	12.15	12.18	12.18	12.56	12.66	12.70	12.69	12.70
	5500	100	12.58	12.64	12.71	12.90	13.09	12.96	12.94	13.05
	5520	104	12.92	12.86	12.89	13.26	13.29	13.18	13.31	13.35
	5540	108	12.90	12.91	12.88	13.20	13.25	13.20	13.33	13.36
	5560	112	12.88	12.91	12.91	13.20	13.22	13.22	13.33	13.31
	5580	116	12.92	12.91	12.93	13.26	13.29	13.22	13.33	13.36
	5660	132	12.82	12.80	12.80	13.09	13.24	13.31	13.27	13.35
	5680	136	12.85	12.82	12.84	13.12	13.29	13.34	13.27	13.33
	5700	140	12.85	12.80	12.81	13.05	13.22	13.33	13.28	13.34
	5720	144	12.64	12.65	12.68	13.02	12.97	13.16	13.02	13.12
	5745	149	12.08	11.97	11.93	12.38	12.33	12.42	12.48	12.42
	5765	153	12.08	11.97	11.90	12.34	12.33	12.37	12.46	12.42
	5785	157	11.82	11.91	11.92	12.14	12.28	12.33	12.33	12.39
	5805	161	11.82	11.89	11.88	12.09	12.26	12.30	12.32	12.38
	5825	165	11.78	11.79	11.79	12.16	12.27	12.30	12.38	12.26

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	11.13	11.43	11.09	11.09	11.08	11.06	11.31	11.32
	5230	46	11.19	11.36	11.41	11.67	11.67	11.56	11.40	11.36
	5270	54	10.74	10.78	10.63	10.92	10.84	10.73	10.77	10.81
	5310	62	10.87	10.97	10.78	11.02	11.02	10.89	10.90	10.90
	5510	102	8.19	8.32	8.14	8.48	8.43	8.26	8.27	8.30
	5550	110	11.37	11.47	10.93	11.28	11.17	11.11	11.06	11.16
	5670	134	11.36	11.45	10.89	11.23	11.15	11.08	11.06	11.16
	5710	142	11.67	11.69	11.65	11.86	11.76	11.61	11.65	11.67
	5755	151	11.46	11.51	11.18	11.68	11.49	11.51	11.38	11.45
	5795	159	11.17	11.50	11.26	11.41	11.28	11.31	11.35	11.33

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	11.42	11.32	11.27	11.70	11.76	11.83	11.81	11.79	11.66
	5200	40	11.32	11.35	11.25	11.74	11.69	11.72	11.69	11.69	11.71
	5220	44	11.39	11.39	11.40	11.85	11.87	11.84	11.85	11.93	11.83
	5240	48	11.43	11.43	11.41	11.89	11.90	11.89	11.87	11.98	11.88
	5260	52	11.04	11.08	11.28	11.51	11.60	11.60	11.58	11.58	11.57
	5280	56	11.27	11.25	11.15	11.60	11.57	11.57	11.60	11.59	11.71
	5300	60	11.28	11.30	11.16	11.63	11.61	11.60	11.63	11.60	11.76
	5320	64	11.06	11.21	11.18	11.58	11.71	11.72	11.70	11.59	11.78
	5500	100	11.60	11.68	11.59	12.00	12.03	11.95	11.99	12.06	12.05
	5520	104	12.02	11.97	11.90	12.41	12.34	12.26	12.34	12.48	12.32
	5540	108	12.01	11.97	11.90	12.38	12.35	12.25	12.29	12.49	12.29
	5560	112	12.00	11.94	11.87	12.40	12.32	12.29	12.28	12.44	12.30
	5580	116	12.04	11.97	11.94	12.42	12.35	12.29	12.34	12.50	12.34
	5660	132	11.91	11.72	11.67	12.03	12.07	12.19	12.13	12.29	12.06
	5680	136	11.91	11.72	11.65	12.02	12.08	12.22	12.14	12.30	12.07
	5700	140	11.93	11.69	11.69	12.07	12.10	12.16	12.18	12.30	12.05
	5720	144	11.58	11.66	11.62	12.07	12.07	11.92	11.91	12.02	12.10
	5745	149	11.01	10.81	10.90	11.20	11.24	11.36	11.42	11.24	11.23
	5765	153	10.97	10.79	10.90	11.17	11.24	11.33	11.38	11.20	11.21
	5785	157	10.76	10.79	10.65	11.23	11.15	11.12	11.20	11.09	11.07
	5805	161	10.71	10.75	10.65	11.22	11.14	11.07	11.15	11.06	11.06
	5825	165	10.51	10.69	10.62	11.02	11.10	10.97	11.11	11.11	11.09

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	11.18	11.32	11.24	11.51	11.33	11.36	11.29	11.40	11.49	11.38
	5230	46	11.36	11.64	11.38	11.81	11.48	11.57	11.47	11.47	11.50	11.37
	5270	54	10.78	10.89	10.68	10.95	10.98	10.88	10.96	10.89	10.80	10.88
	5310	62	10.81	10.77	10.85	11.07	11.06	10.86	10.88	10.90	10.89	10.92
	5510	102	8.26	8.15	8.20	8.35	8.39	8.27	8.31	8.28	8.30	8.33
	5550	110	11.04	10.87	10.94	11.13	11.12	10.99	10.98	10.95	10.98	11.12
	5670	134	11.10	11.08	11.06	11.18	11.19	11.26	11.26	11.12	11.17	11.17
	5710	142	11.11	11.09	11.10	11.20	11.19	11.27	11.26	11.16	11.21	11.19
	5755	151	11.39	11.38	11.22	11.51	11.56	11.53	11.58	11.52	11.32	11.50
	5795	159	11.37	11.24	11.27	11.45	11.31	11.40	11.28	11.46	11.39	11.46

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	11.03	11.07	10.98	11.15	11.08	11.27	11.20	11.21	11.13	11.05
	5290	58	10.97	11.03	10.85	11.15	11.07	11.12	11.15	11.14	11.16	11.03
	5530	106	9.86	9.81	9.71	9.94	9.91	9.90	10.10	9.96	9.90	9.94
	5690	138	11.66	11.62	11.42	11.62	11.69	11.65	11.78	11.82	11.73	11.73
	5775	155	11.14	11.03	11.19	11.27	11.25	11.36	11.30	11.32	11.26	11.32

11.5 Test Exclusions Applied

11.6.1 WCDMA

Per FCC KDB 941225 D01V03, 12.2 kbps RMC is the primary mode and HSPA (HSUPA/HSDPA with RMC) is the secondary mode.

Per KDB 941225 D01v03, The SAR test exclusion is applied to the secondary mode by the following equation.

$$\text{Adjusted SAR} = \text{Highest Reported SAR} * \frac{Secondary\ Max\ tune - up\ (mW)}{Primary\ Max\ tune\ tune - up(mW)} \leq 1.2\ \text{W/kg}.$$

Based on the highest Reported SAR, the secondary mode is not required.

[0.547* (234/234)] = 0.547 W/kg ≤ 1.2 W/kg

And the the maximum output power and tune-up tolerance in secondary mode is ≤ 0.25 dB higher than the primary mode.

11.6.2 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	Separation Distance	≤ 3.0
	[MHz]	[mW]	[mm]	
Bluetooth	2 480	8	8	1.57

Based on the maximum conducted power of Bluetooth and antenna to use separation distance, Bluetooth SAR was not required [(8/8)*√2.480] = 1.57 < 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	Separation Distance (Body)	Estimated SAR (Body)
	[MHz]	[mW]	[mm]	[W/kg]
Bluetooth	2 480	8	8	0.21

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) The frequency of Bluetooth using for estimated SAR was selected highest channel of Bluetooth for highest estimated SAR.

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 1900	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	No	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.

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	33.49	0.123	Standard	Left Ear	0.161	1.050	0.169	-
836.6	190		33.7	33.49	0.112	Standard	Left Tilt	0.087	1.050	0.091	-
836.6	190		33.7	33.49	0.120	Standard	Right Ear	0.165	1.050	0.173	-
836.6	190		33.7	33.49	-0.109	Standard	Right Tilt	0.097	1.050	0.102	-
836.6	190	GPRS 3Tx	29.7	29.60	0.109	Standard	Left Ear	0.254	1.023	0.260	-
836.6	190		29.7	29.60	-0.156	Standard	Left Tilt	0.149	1.023	0.152	-
836.6	190		29.7	29.60	-0.143	Standard	Right Ear	0.271	1.023	0.277	1
836.6	190		29.7	29.60	-0.025	Standard	Right Tilt	0.168	1.023	0.172	-
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	30.34	0.160	Standard	Left Ear	0.142	1.086	0.154	-
1 880.0	661		30.7	30.34	-0.067	Standard	Left Tilt	0.093	1.086	0.101	-
1 880.0	661		30.7	30.34	-0.182	Standard	Right Ear	0.329	1.086	0.357	-
1 880.0	661		30.7	30.34	0.155	Standard	Right Tilt	0.101	1.086	0.110	-
1 880.0	661	GPRS 3Tx	26.7	26.25	0.059	Standard	Left Ear	0.194	1.109	0.215	-
1 880.0	661		26.7	26.25	0.029	Standard	Left Tilt	0.126	1.109	0.140	-
1 880.0	661		26.7	26.25	-0.023	Standard	Right Ear	0.450	1.109	**0.499**	2
1 880.0	661		26.7	26.25	-0.063	Standard	Right Tilt	0.137	1.109	0.152	-
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	23.45	-0.132	Standard	Left Ear	0.138	1.059	0.146	-
836.6	4183		23.7	23.45	0.157	Standard	Left Tilt	0.080	1.059	0.085	-
836.6	4183		23.7	23.45	-0.160	Standard	Right Ear	0.142	1.059	**0.150**	3
836.6	4183		23.7	23.45	-0.181	Standard	Right Tilt	0.091	1.059	0.096	-
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							
1880	9400	WCDMA 1900	23.7	23.55	-0.127	Standard	Left Ear	0.245	1.035	0.254	-
1880	9400		23.7	23.55	0.139	Standard	Left Tilt	0.157	1.035	0.163	-
1880	9400		23.7	23.55	0.063	Standard	Right Ear	0.528	1.035	**0.547**	4
1880	9400		23.7	23.55	0.171	Standard	Right Tilt	0.169	1.035	0.175	-
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									
1 860	18700	QPSK	23.7	23.65	-0.189	Standard	Left Ear	1	0	0.260	1.012	0.263	-
1 860	18700		22.7	22.38	0.121	Standard	Left Ear	50	0	0.202	1.076	0.217	-
1 860	18700		23.7	23.65	0.066	Standard	Left Tilt	1	0	0.178	1.012	0.180	-
1 860	18700		22.7	22.38	0.150	Standard	Left Tilt	50	0	0.127	1.076	0.137	-
1 860	18700		23.7	23.65	-0.120	Standard	Right Ear	1	0	0.559	1.012	**0.565**	5
1 860	18700		22.7	22.38	-0.101	Standard	Right Ear	50	0	0.427	1.076	0.460	-
1 860	18700		23.7	23.65	0.101	Standard	Right Tilt	1	0	0.199	1.012	0.201	-
1 860	18700		22.7	22.38	0.190	Standard	Right Tilt	50	0	0.145	1.076	0.156	-
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	23.65	-0.140	Standard	Left Ear	1	0	0.262	1.012	0.265	-
1 732.5	20175		22.7	22.15	0.018	Standard	Left Ear	50	49	0.186	1.135	0.211	-
1 732.5	20175		23.7	23.65	0.128	Standard	Left Tilt	1	0	0.236	1.012	0.239	-
1 732.5	20175		22.7	22.15	0.173	Standard	Left Tilt	50	49	0.189	1.135	0.215	-
1 732.5	20175		23.7	23.65	0.109	Standard	Right Ear	1	0	0.693	1.012	**0.701**	6
1 732.5	20175		22.7	22.15	-0.026	Standard	Right Ear	50	49	0.522	1.135	0.592	-
1 732.5	20175		23.7	23.65	0.188	Standard	Right Tilt	1	0	0.305	1.012	0.309	-
1 732.5	20175		22.7	22.15	0.116	Standard	Right Tilt	50	49	0.223	1.135	0.253	-
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									
2 560	21350	QPSK	24.7	24.66	-0.029	Standard	Left Ear	1	99	0.390	1.009	**0.394**	7
2 560	21350		23.7	23.43	0.137	Standard	Left Ear	50	49	0.336	1.064	0.358	-
2 560	21350		24.7	24.66	-0.045	Standard	Left Tilt	1	99	0.170	1.009	0.172	-
2 560	21350		23.7	23.43	-0.133	Standard	Left Tilt	50	49	0.142	1.064	0.151	-
2 560	21350		24.7	24.66	-0.106	Standard	Right Ear	1	99	0.348	1.009	0.351	-
2 560	21350		23.7	23.43	0.19	Standard	Right Ear	50	49	0.289	1.064	0.308	-
2 560	21350		24.7	24.66	0.183	Standard	Right Tilt	1	99	0.332	1.009	0.335	-
2 560	21350		23.7	23.43	0.107	Standard	Right Tilt	50	49	0.271	1.064	0.288	-
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	23.54	-0.06	Standard	Left Ear	1	24	0.127	1.038	0.132	-
710	23790		22.7	22.64	-0.11	Standard	Left Ear	25	0	0.080	1.014	0.081	-
710	23790		23.7	23.54	0.15	Standard	Left Tilt	1	24	0.082	1.038	0.085	-
710	23790		22.7	22.64	0.11	Standard	Left Tilt	25	0	0.058	1.014	0.059	-
710	23790		23.7	23.54	-0.08	Standard	Right Ear	1	24	0.154	1.038	**0.160**	8
710	23790		22.7	22.64	-0.19	Standard	Right Ear	25	0	0.115	1.014	0.117	-
710	23790		23.7	23.54	0.19	Standard	Right Tilt	1	24	0.096	1.038	0.100	-
710	23790		22.7	22.64	0.04	Standard	Right Tilt	25	0	0.071	1.014	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					

13.1-9 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								
2 437	6	802.11b	16.0	15.75	-0.042	Standard	Left Ear	1Mbps	0.368	1.059	0.390	-
			16.0	15.75	-0.020	Standard	Left Tilt	1Mbps	0.291	1.059	0.308	-
			16.0	15.75	0.024	Standard	Right Ear	1Mbps	0.603	1.059	**0.639**	9
			16.0	15.75	-0.199	Standard	Right Tilt	1Mbps	0.507	1.059	0.537	-
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	14.5	13.62	-0.12	Standard	Left Ear	6Mbps	0.253	1.225	0.310	-
			14.5	13.62	0.13	Standard	Left Tilt	6Mbps	0.242	1.225	0.296	-
			14.5	13.62	-0.13	Standard	Right Ear	6Mbps	0.549	1.225	**0.672**	10
			14.5	13.62	-0.13	Standard	Right Tilt	6Mbps	0.404	1.225	0.495	-
5 210	42	802.11ac	12.0	11.03	-0.13	Standard	Right Ear	29.3Mbps	0.292	1.250	0.365	-
5 300	60	802.11a	14.5	13.42	-0.11	Standard	Left Ear	6Mbps	0.252	1.282	0.323	-
			14.5	13.42	-0.12	Standard	Left Tilt	6Mbps	0.219	1.282	0.281	-
			14.5	13.42	-0.199	Standard	Right Ear	6Mbps	0.487	1.282	0.624	-
			14.5	13.42	-0.18	Standard	Right Tilt	6Mbps	0.329	1.282	0.422	-
5 290	58	802.11ac	12.0	10.97	-0.12	Standard	Right Ear	29.3Mbps	0.235	1.268	0.298	-
5 580	116	802.11a	14.5	14.08	-0.11	Standard	Left Ear	6Mbps	0.199	1.102	0.219	-
			14.5	14.08	-0.13	Standard	Left Tilt	6Mbps	0.206	1.102	0.227	-
			14.5	14.08	-0.144	Standard	Right Ear	6Mbps	0.388	1.102	0.427	-
			14.5	14.08	-0.17	Standard	Right Tilt	6Mbps	0.312	1.102	0.344	-
5 690	138	802.11ac	12.0	11.66	0.01	Standard	Right Ear	29.3Mbps	0.197	1.081	0.213	-
5 785	157	802.11a	14.5	13.26	-0.16	Standard	Left Ear	6Mbps	0.187	1.330	0.249	-
			14.5	13.26	-0.17	Standard	Left Tilt	6Mbps	0.209	1.330	0.278	-
			14.5	13.26	-0.11	Standard	Right Ear	6Mbps	0.378	1.330	0.503	-
			14.5	13.26	-0.14	Standard	Right Tilt	6Mbps	0.304	1.330	0.404	-
5 775	155	802.11ac	12.0	11.14	-0.14	Standard	Right Ear	29.3Mbps	0.209	1.219	0.255	-
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 3Tx	29.70	29.60	-0.005	Rear	0.8 cm	0.340	1.023	0.348	11
836.6	190		29.70	29.60	-0.057	Front	0.8 cm	0.347	1.023	0.355	12
836.6	190		29.70	29.60	-0.091	Left	1.0 cm	0.297	1.023	0.304	-
836.6	190		29.70	29.60	-0.011	Right	1.0 cm	0.297	1.023	0.304	-
836.6	190		29.70	29.60	0.046	Bottom	1.0 cm	0.193	1.023	0.197	-
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 3Tx	26.7	26.25	0.121	Rear	0.8 cm	0.339	1.109	**0.376**	13
1 880.0	661		26.7	26.25	0.125	Front	0.8 cm	0.336	1.109	0.373	-
1 880.0	661		26.7	26.25	0.054	Left	1.0 cm	0.068	1.109	0.075	-
1 880.0	661		26.7	26.25	0.052	Right	1.0 cm	0.180	1.109	0.200	-
1 880.0	661		26.7	26.25	-0.136	Bottom	1.0 cm	0.140	1.109	0.155	-
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	23.45	-0.126	Rear	0.8 cm	0.174	1.059	**0.184**	14
836.6	4183		23.7	23.45	-0.017	Front	0.8 cm	0.167	1.059	0.177	-
836.6	4183		23.7	23.45	-0.161	Left	1.0 cm	0.172	1.059	0.182	-
836.6	4183		23.7	23.45	-0.127	Right	1.0 cm	0.171	1.059	0.181	-
836.6	4183		23.7	23.45	0.079	Bottom	1.0 cm	0.105	1.059	0.111	-
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							
1 880.0	9400	WCDMA 1900	23.7	23.55	0.150	Rear	0.8 cm	0.442	**1.035**	**0.458**	15
1 880.0	9400		23.7	23.55	0.170	Front	0.8 cm	0.384	1.035	0.397	-
1 880.0	9400		23.7	23.55	0.165	Left	1.0 cm	0.068	1.035	0.070	-
1 880.0	9400		23.7	23.55	0.083	Right	1.0 cm	0.190	1.035	0.197	-
1 880.0	9400		23.7	23.55	0.112	Bottom	1.0 cm	0.166	1.035	0.172	-
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									
1 860	18700	QPSK	23.7	23.65	0.059	Rear	1	0	0.8 cm	0.490	1.012	0.496	16
1 860	18700		22.7	22.38	0.014	Rear	50	0	0.8 cm	0.367	1.076	0.395	-
1 860	18700		23.7	23.65	0.199	Front	1	0	0.8 cm	0.520	1.012	**0.526**	17
1 860	18700		22.7	22.38	0.199	Front	50	0	0.8 cm	0.410	1.076	0.441	-
1 860	18700		23.7	23.65	-0.082	Left	1	0	1.0 cm	0.099	1.012	0.100	-
1 860	18700		22.7	22.38	0.045	Left	50	0	1.0 cm	0.077	1.076	0.083	-
1 860	18700		23.7	23.65	0.107	Right	1	0	1.0 cm	0.279	1.012	0.282	-
1 860	18700		22.7	22.38	-0.009	Right	50	0	1.0 cm	0.212	1.076	0.228	-
1 860	18700		23.7	23.65	0.003	Bottom	1	0	1.0 cm	0.244	1.012	0.247	-
1 860	18700		22.7	22.38	0.007	Bottom	50	0	1.0 cm	0.193	1.076	0.208	-
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	23.65	0.093	Rear	1	0	0.8 cm	0.726	1.012	**0.734**	18
1 732.5	20175		22.7	22.15	-0.008	Rear	50	49	0.8 cm	0.511	1.135	0.580	-
1 732.5	20175		23.7	23.65	0.085	Front	1	0	0.8 cm	0.570	1.012	0.577	-
1 732.5	20175		22.7	22.15	0.117	Front	50	49	0.8 cm	0.383	1.135	0.435	-
1 732.5	20175		23.7	23.65	-0.098	Left	1	0	1.0 cm	0.133	1.012	0.135	-
1 732.5	20175		22.7	22.15	-0.032	Left	50	49	1.0 cm	0.097	1.135	0.110	-
1 732.5	20175		23.7	23.65	0.132	Right	1	0	1.0 cm	0.409	1.012	0.414	-
1 732.5	20175		22.7	22.15	-0.028	Right	50	49	1.0 cm	0.307	1.135	0.348	-
1 732.5	20175		23.7	23.65	0.072	Bottom	1	0	1.0 cm	0.192	1.012	0.194	-
1 732.5	20175		22.7	22.15	0.026	Bottom	50	49	1.0 cm	0.166	1.135	0.188	-
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									
2 560	21350	QPSK	24.7	24.66	0.183	Rear	1	99	0.8 cm	0.603	1.009	0.609	19
2 560	21350		23.7	23.43	0.046	Rear	50	49	0.8 cm	0.479	1.064	0.510	-
2 560	21350		24.7	24.66	0.144	Front	1	99	0.8 cm	0.733	1.009	**0.740**	20
2 560	21350		23.7	23.43	-0.010	Front	50	49	0.8 cm	0.631	1.064	0.671	-
2 560	21350		24.7	24.66	-0.060	Left	1	99	1.0 cm	0.356	1.009	0.359	-
2 560	21350		23.7	23.43	0.023	Left	50	49	1.0 cm	0.300	1.064	0.319	-
2 560	21350		24.7	24.66	-0.114	Bottom	1	99	1.0 cm	0.487	1.009	0.492	-
2 560	21350		23.7	23.43	0.015	Bottom	50	49	1.0 cm	0.419	1.064	0.446	-
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	23.54	0.023	Rear	1	24	0.8 cm	0.288	1.038	**0.299**	21
710	23790		22.7	22.64	-0.060	Rear	25	0	0.8 cm	0.225	1.014	0.228	-
710	23790		23.7	23.54	0.065	Front	1	24	0.8 cm	0.241	1.038	0.250	-
710	23790		22.7	22.64	0.147	Front	25	0	0.8 cm	0.219	1.014	0.222	-
710	23790		23.7	23.54	0.107	Left	1	24	1.0 cm	0.039	1.038	0.040	-
710	23790		22.7	22.64	0.096	Left	25	0	1.0 cm	0.030	1.014	0.030	-
710	23790		23.7	23.54	0.104	Right	1	24	1.0 cm	0.088	1.038	0.091	-
710	23790		22.7	22.64	-0.047	Right	25	0	1.0 cm	0.068	1.014	0.069	-
710	23790		23.7	23.54	-0.030	Bottom	1	24	1.0 cm	0.020	1.038	0.021	-
710	23790		22.7	22.64	-0.039	Bottom	25	0	1.0 cm	0.016	1.014	0.016	-
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								
2 437	6	802.11b	16.0	15.75	0.134	Rear	1Mbps	0.8 cm	0.122	1.059	0.129	22
			16.0	15.75	0.198	Front	1Mbps	0.8 cm	0.174	1.059	**0.184**	23
			16.0	15.75	0.107	Left	1Mbps	1.0 cm	0.065	1.059	0.069	-
			16.0	15.75	0.104	Top	1Mbps	1.0 cm	0.084	1.059	0.089	-
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. 2-10 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								
5 785	157	802.11a	14.5	13.26	0.174	Rear	6Mbps	0.8 cm	0.198	1.330	**0.263**	24
			14.5	13.26	0.135	Front	6Mbps	0.8 cm	0.106	1.330	0.141	-
			14.5	13.26	0.158	Left	6Mbps	1.0 cm	0.154	1.330	0.205	-
			14.5	13.26	0.181	Top	6Mbps	1.0 cm	0.100	1.330	0.133	-
5 775	155	802.11ac	12.0	11.14	0.146	Rear	29.3Mbps	0.8 cm	0.110	1.219	0.134	-
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								
2 437	6	802.11b	16.0	15.75	0.134	Rear	1Mbps	0.8 cm	0.122	1.059	0.129	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					

13.3-2 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	14.5	13.62	-0.121	Rear	6Mbps	0.8 cm	0.170	1.225	**0.208**	25
5 210	42	802.11ac	12.0	11.03	-0.16	Rear	29.3Mbps	0.8 cm	0.090	1.250	0.113	-
5 300	60	802.11a	14.5	13.42	0.197	Rear	6Mbps	0.8 cm	0.191	1.282	**0.245**	26
5 290	58	802.11ac	12.0	10.97	0.181	Rear	29.3Mbps	0.8 cm	0.107	1.268	0.136	-
5 580	116	802.11a	14.5	14.08	0.082	Rear	6Mbps	0.8 cm	0.215	1.102	**0.237**	27
5 690	138	802.11ac	12.0	11.66	0.16	Rear	29.3Mbps	0.8 cm	0.125	1.081	0.135	-
5 785	157	802.11a	14.5	13.26	0.174	Rear	6Mbps	0.8 cm	0.198	1.330	**0.263**	24
5 775	155	802.11ac	12.0	11.14	0.146	Rear	29.3Mbps	0.8 cm	0.110	1.219	0.134	-
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	GSM 850	33.7	33.49	0.075	Rear	0.8 cm	0.219	1.050	0.230	28
836.6	190	GPRS 3Tx	29.7	29.60	-0.005	Rear	0.8 cm	0.340	1.023	**0.348**	11
1 880.0	661	GSM 1900	30.7	30.34	-0.04	Rear	0.8 cm	0.267	1.086	0.290	29
1 880.0	661	GPRS 3Tx	26.7	26.25	0.121	Rear	0.8 cm	0.339	1.109	**0.376**	13
836.6	4183	WCDMA850	23.7	23.45	-0.126	Rear	0.8 cm	0.174	1.059	0.184	14
1 880.0	9400	WCDMA1900	23.7	23.55	0.150	Rear	0.8 cm	0.442	1.035	0.458	15
1 860	18700	LTE Band 2	23.7	23.65	0.059	Rear	0.8 cm	0.490	1.012	0.496	16
1 732.5	20175	LTE Band 4	23.7	23.65	0.093	Rear	0.8 cm	0.726	1.012	0.734	18
2 560	21350	LTE Band 7	24.7	24.66	0.183	Rear	0.8 cm	0.603	1.009	0.609	19
710	23790	LTE Band 17	23.7	23.54	0.023	Rear	0.8 cm	0.288	1.038	0.299	21
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 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.
8. Per FCC KDB 865664 D01v01r03, variability SAR tests were not performed since the measured SAR results for all frequency bands were less than 0.8 W/kg. Please see Section 14 for variability analysis information.
9. For Back side, the device was tested at a distance of 8 mm at the center of the device. For Front side, the device was tested at a distance of 8mm from the outer ends of the device. The remaining surface or edges within 25 mm of Tx antenna were tested at a distance of 10 mm.

GSM/GPRS Test Notes:

1. This EUT'S GSM, GPRS and EDGE device class is B.
2. This device supports GSM VOIP in the head and the body-worn configurations therefore GPRS was additionally evaluated for head and body-worn compliance.
3. Body-Worn accessory testing is typically associated with voice operations. Therefore, GSM voice was evaluated for body-worn SAR.
4. Justification for reduced test configurations per KDB 941225 D01v03: 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.
5. 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.
6. Justification for reduced test configurations per KDB Publication 941225 D01v03 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. The 12.2 kbps RMC mode is the primary mode.
2. UMTS mode in Body SAR was tested under RMC 12.2 kbps with HSPA inactive per KDB 941225 D01v03. 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 Adjusted SAR value was less than 1.2 W/kg.
3. 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.
4. UMTS SAR was tested under RMC 12.2 kbps with HSPA inactive per KDB publication 941225 D01v03. 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.

LTE Notes:

1. LTE Considerations: LTE test configurations are determined according to SAR Evaluation Consideration for LTE Devices in FCC KDB 941225 D05v02r03.
2. According to FCC KDB 941225 D05v02r01:
   i. When the reported SAR is ≤ 0.8 W/kg, testing of the 100%RB allocation and required test channels is not required. Otherwise, SAR is required for the remaining required test channels using the 1RB, 50%RB and 100%RB allocation with highest output power for that channel.
   ii. Only one channel, and as reported SAR values for 1RB allocation and 50%RB allocation were less than 1.45W/Kg only the highest power RB offset for each allocation was required.
3. 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.
4. A-MPR was diabled for all SAR tests by setting NS=01 on the base station simulator.
5. Pre-installed VOIP applications are considered.
6. SAR test reduction is applied using the following criteria:
   - Start with the largest channel bandwidth and measure SAR for QPSK with 1 RB, and 50% RB allocation, using the RB offset and required test channel combination with the highest maximum output power among RB offsets at the upper edge, middle and lower edge of each required test channel.
   - When the reported SAR is >0.8 W/kg, testing for other Channels is performed at the highest output power level for 1RB, and 50% RB configuration for that channel.
   - Testing for 100% RB configuration is performed at the highest output power level for 100% RB configuration across the Low, Mid and High Channel when the highest reported SAR for 1 RB and 50% RB are >0.8 W/kg, Testing for the remaining required channels is not needed because the reported SAR for 100% RB Allocation <1.45 W/kg.
   - Testing for 16-QAM modulation is not required because the reported SAR for QPSK is <1.45 W/kg and its output power is not more than 0.5 dB higher than that a QPSK.

Testing for the other channel bandwidths is not required because the reported SAR for the highest channel bandwidth is <1.45 W/kg and its

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. Since the maximum extrapolated peak SAR of the zoom scan for the maximum output channel was ≤ 1.6 W/kg and the reported 1g averaged SAR was < 0.8 W/kg, SAR testing on other default channels was not required.
3. 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.
4. 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.
5. When wireless router is enabled, 5.2, 5.3 and 5.5 GHz bands are disabled.
6. This device can operate in the 2.4 GHz and 5.8 GHz bands using WIFI Direct Go capability. Per FCC KDB 941225 D06v02, 5.8 GHz WIFI Direct Go is evaluated for SAR using wireless router SAR evaluation procedures.
7. Since the maximum extrapolated peak SAR of the zoom scan for the maximum output channel was ≤ 1.6 W/kg and the reported 1g averaged SAR was < 0.8 W/kg, SAR testing on other default channels was not required.
8. 5GHz 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 D06v02.

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.

15. SAR Summation Scenario

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

	Position	Applicable Combination	Note
Simultaneous Transmission	Body-worn	GSM 850 Voice + 2.4 GHz WiFi	
		GPRS 850 Data + 2.4 GHz WiFi	
		GSM 1900 Voice + 2.4 GHz WiFi	
		GPRS 1900 Data + 2.4 GHz WiFi	
		WCDMA850 Voice + 2.4 GHz WiFi	
		WCDMA1900 Voice + 2.4 GHz WiFi	
		LTE Band 2 Data + 2.4 GHz WiFi	
		LTE Band 4 Data + 2.4 GHz WiFi	
		LTE Band 7 Data + 2.4 GHz WiFi	
		LTE Band 17 Data + 2.4 GHz WiFi	
		GSM 850 Voice + 5 GHz WiFi	
		GPRS 850 Data + 5 GHz WiFi	
		GSM 1900 Voice + 5 GHz WiFi	
		GPRS 1900 Data + 5 GHz WiFi	
		WCDMA850 Voice + 5 GHz WiFi	
		WCDMA1900 Voice + 5 GHz WiFi	
		LTE Band 2 Data + 5 GHz WiFi	
		LTE Band 4 Data + 5 GHz WiFi	
		LTE Band 7 Data + 5 GHz WiFi	
		LTE Band 17 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 + 2.4 GHz Bluetooth	
		WCDMA1900 Voice +2.4 GHz Bluetooth	
		LTE Band 2 Data + 5 GHz Bluetooth	
		LTE Band 4 Data + 5 GHz Bluetooth	
		LTE Band 7 Data + 5 GHz Bluetooth	
		LTE Band 17 Data + 5 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	0.169	0.390	0.559
	Left Tilt	0.091	0.308	0.399
	Right Cheek	0.173	0.639	0.812
	Right Tilt	0.102	0.537	0.639
GPRS 850	Left Cheek	0.260	0.390	0.650
	Left Tilt	0.152	0.308	0.460
	Right Cheek	0.277	0.639	0.916
	Right Tilt	0.172	0.537	0.709
GSM 1900	Left Cheek	0.154	0.390	0.544
	Left Tilt	0.101	0.308	0.409
	Right Cheek	0.357	0.639	0.996
	Right Tilt	0.110	0.537	0.647
GPRS 1900	Left Cheek	0.215	0.390	0.605
	Left Tilt	0.140	0.308	0.448
	Right Cheek	0.499	0.639	1.138
	Right Tilt	0.152	0.537	0.689
WCDMA 850	Left Cheek	0.146	0.390	0.536
	Left Tilt	0.085	0.308	0.393
	Right Cheek	0.150	0.639	0.789
	Right Tilt	0.096	0.537	0.633
WCDMA 1900	Left Cheek	0.254	0.390	0.644
	Left Tilt	0.163	0.308	0.471
	Right Cheek	0.547	0.639	1.186
	Right Tilt	0.175	0.537	0.712
LTE Band 2	Left Cheek	0.263	0.390	0.653
	Left Tilt	0.180	0.308	0.488
	Right Cheek	0.565	0.639	1.204
	Right Tilt	0.201	0.537	0.738
LTE Band 4	Left Cheek	0.265	0.390	0.655
	Left Tilt	0.239	0.308	0.547
	Right Cheek	0.701	0.639	1.340
	Right Tilt	0.309	0.537	0.846
LTE Band 7	Left Cheek	0.394	0.390	0.784
	Left Tilt	0.172	0.308	0.480
	Right Cheek	0.351	0.639	0.990
	Right Tilt	0.335	0.537	0.872
LTE Band 17	Left Cheek	0.132	0.390	0.522
	Left Tilt	0.085	0.308	0.393
	Right Cheek	0.160	0.639	0.799
	Right Tilt	0.100	0.537	0.637

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	0.169	0.323	0.492
	Left Tilt	0.091	0.296	0.387
	Right Cheek	0.173	0.672	0.845
	Right Tilt	0.102	0.495	0.597
GPRS 850	Left Cheek	0.260	0.323	0.583
	Left Tilt	0.152	0.296	0.448
	Right Cheek	0.277	0.672	0.949
	Right Tilt	0.172	0.495	0.667
GSM 1900	Left Cheek	0.154	0.323	0.477
	Left Tilt	0.101	0.296	0.397
	Right Cheek	0.357	0.672	1.029
	Right Tilt	0.110	0.495	0.605
GPRS 1900	Left Cheek	0.215	0.323	0.538
	Left Tilt	0.140	0.296	0.436
	Right Cheek	0.499	0.672	1.171
	Right Tilt	0.152	0.495	0.647
WCDMA 850	Left Cheek	0.146	0.323	0.469
	Left Tilt	0.085	0.296	0.381
	Right Cheek	0.150	0.672	0.822
	Right Tilt	0.096	0.495	0.591
WCDMA 1900	Left Cheek	0.254	0.323	0.577
	Left Tilt	0.163	0.296	0.459
	Right Cheek	0.547	0.672	1.219
	Right Tilt	0.175	0.495	0.670
LTE Band 2	Left Cheek	0.263	0.323	0.586
	Left Tilt	0.180	0.296	0.476
	Right Cheek	0.565	0.672	1.237
	Right Tilt	0.201	0.495	0.696
LTE Band 4	Left Cheek	0.265	0.323	0.588
	Left Tilt	0.239	0.296	0.535
	Right Cheek	0.701	0.672	**1.373**
	Right Tilt	0.309	0.495	0.804
LTE Band 7	Left Cheek	0.394	0.323	0.717
	Left Tilt	0.172	0.296	0.468
	Right Cheek	0.351	0.672	1.023
	Right Tilt	0.335	0.495	0.830
LTE Band 17	Left Cheek	0.132	0.323	0.455
	Left Tilt	0.085	0.296	0.381
	Right Cheek	0.160	0.672	0.832
	Right Tilt	0.100	0.495	0.595

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 2.4 GHz WIFI (0.8 cm)

Band	configuration	Scaled SAR (W/kg)	2.4 GHz WIFI Scaled SAR (W/kg)	∑ 1-g SAR (W/kg)
GSM 850	Rear	0.230	0.129	0.359
GPRS 850	Rear	0.348	0.129	0.477
GSM 1900	Rear	0.290	0.129	0.419
GPRS 1900	Rear	0.376	0.129	0.505
WCDMA 850	Rear	0.184	0.129	0.313
WCDMA 1900	Rear	0.458	0.129	0.587
LTE Band 2	Rear	0.496	0.129	0.625
LTE Band 4	Rear	0.734	0.129	0.863
LTE Band 7	Rear	0.609	0.129	0.738
LTE Band 17	Rear	0.299	0.129	0.428

Simultaneous Transmission Summation with 5 GHz WIFI (0.8 cm)

Band	configuration	Scaled SAR(W/kg)	5 GHz WIFI Scaled SAR (W/kg)	∑ 1-g SAR (W/kg)
GSM 850	Rear	0.230	0.263	0.493
GPRS 850	Rear	0.348	0.263	0.611
GSM 1900	Rear	0.290	0.263	0.553
GPRS 1900	Rear	0.376	0.263	0.639
WCDMA 850	Rear	0.184	0.263	0.447
WCDMA 1900	Rear	0.458	0.263	0.721
LTE Band 2	Rear	0.496	0.263	0.759
LTE Band 4	Rear	0.734	0.263	**0.997**
LTE Band 7	Rear	0.609	0.263	0.872
LTE Band 17	Rear	0.299	0.263	0.562

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 (0.8 cm)

Band	configuration	Scaled SAR(W/kg)	Estimated BT SAR (W/kg)	∑ 1-g SAR (W/kg)
GSM 850	Rear	0.230	0.21	0.440
GPRS 850	Rear	0.348	0.21	0.558
GSM 1900	Rear	0.290	0.21	0.500
GPRS 1900	Rear	0.376	0.21	0.586
WCDMA 850	Rear	0.184	0.21	0.394
WCDMA 1900	Rear	0.458	0.21	0.668
LTE Band 2	Rear	0.496	0.21	0.706
LTE Band 4	Rear	0.734	0.21	0.944
LTE Band 7	Rear	0.609	0.21	0.819
LTE Band 17	Rear	0.299	0.21	0.509

15.3 Simultaneous Transmission Summation for Hotspot

Simultaneous Transmission Summation with 2.4 GHz WIFI (0.8 cm)

Band	configuration	Scaled SAR (W/kg)	2.4 GHz WIFI Scaled SAR (W/kg)	∑ 1-g SAR (W/kg)
GSM 850	Rear	0.348	0.129	0.477
	Front	0.355	0.184	0.539
	Left	0.304	0.069	0.373
	Right	0.304		0.304
	Bottom	0.197		0.197
	Top		0.089	0.089
GSM 1900	Rear	0.376	0.129	0.505
	Front	0.373	0.184	0.557
	Left	0.075	0.069	0.144
	Right	0.200		0.200
	Bottom	0.155		0.155
	Top		0.089	0.089
WCDMA 850	Rear	0.184	0.129	0.313
	Front	0.177	0.184	0.361
	Left	0.182	0.069	0.251
	Right	0.181		0.181
	Bottom	0.111		0.111
	Top		0.089	0.089
WCDMA 1900	Rear	0.458	0.129	0.587
	Front	0.397	0.184	0.581
	Left	0.070	0.069	0.139
	Right	0.197		0.197
	Bottom	0.172		0.172
	Top		0.089	0.089
LTE Band 2	Rear	0.496	0.129	0.625
	Front	0.526	0.184	0.710
	Left	0.100	0.069	0.169
	Right	0.282		0.282
	Bottom	0.247		0.247
	Top		0.089	0.089
LTE Band 4	Rear	0.734	0.129	0.863
	Front	0.577	0.184	0.761
	Left	0.135	0.069	0.204
	Right	0.414		0.414
	Bottom	0.194		0.194
	Top		0.089	0.089
LTE Band 7	Rear	0.609	0.129	0.738
	Front	0.740	0.184	0.924
	Left	0.359	0.069	0.428
	Right			
	Bottom	0.492		0.492
	Top		0.089	0.089
LTE Band 17	Rear	0.299	0.129	0.428
	Front	0.250	0.184	0.434
	Left	0.040	0.069	0.109
	Right	0.091		0.091
	Bottom	0.021		0.021
	Top		0.089	0.089

Simultaneous Transmission Summation with 5.8 GHz DTS Wifi (0.8 cm)

Band	configuration	Scaled SAR (W/kg)	5.8 GHz WIFI Scaled SAR (W/kg)	∑ 1-g SAR (W/kg)
GSM 850	Rear	0.348	0.263	0.611
	Front	0.355	0.141	0.496
	Left	0.304	0.205	0.509
	Right	0.304		0.304
	Bottom	0.197		0.197
	Top		0.133	0.133
GSM 1900	Rear	0.376	0.263	0.639
	Front	0.373	0.141	0.514
	Left	0.075	0.205	0.280
	Right	0.200		0.200
	Bottom	0.155		0.155
	Top		0.133	0.133
WCDMA 850	Rear	0.184	0.263	0.447
	Front	0.177	0.141	0.318
	Left	0.182	0.205	0.387
	Right	0.181		0.181
	Bottom	0.111		0.111
	Top		0.133	0.133
WCDMA 1900	Rear	0.458	0.263	0.721
	Front	0.397	0.141	0.538
	Left	0.070	0.205	0.275
	Right	0.197		0.197
	Bottom	0.172		0.172
	Top		0.133	0.133
LTE Band 2	Rear	0.496	0.263	0.759
	Front	0.526	0.141	0.667
	Left	0.100	0.205	0.305
	Right	0.282		0.282
	Bottom	0.247		0.247
	Top		0.133	0.133
LTE Band 4	Rear	0.734	0.263	**0.997**
	Front	0.577	0.141	0.718
	Left	0.135	0.205	0.340
	Right	0.414		0.414
	Bottom	0.194		0.194
	Top		0.133	0.133
LTE Band 7	Rear	0.609	0.263	0.872
	Front	0.740	0.141	0.881
	Left	0.359	0.205	0.564
	Right			
	Bottom	0.492		0.492
	Top		0.133	0.133
LTE Band 17	Rear	0.299	0.263	0.562
	Front	0.250	0.141	0.391
	Left	0.040	0.205	0.245
	Right	0.091		0.091
	Bottom	0.021		0.021
	Top		0.133	0.133

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:	20.5 ℃
Ambient Temperature:	20.7 ℃
Test Date:	Dec. 23, 2014
Plot No.	1

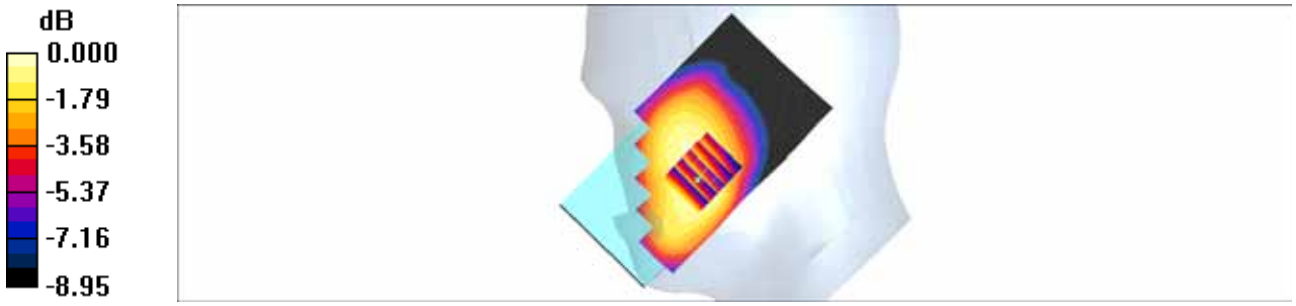
DUT: LG-H955P; Type: bar;

Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:2.77
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.883 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: EX3DV4 - SN3863; ConvF(9.5, 9.5, 9.5); Calibrated: 2014-07-24
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1225; Calibrated: 2014-03-24
- Phantom: 1800/1900; Type: SAM

GSM850 Head Right Touch 3Tx 190ch/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.322 mW/g

GSM850 Head Right Touch 3Tx 190ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.82 V/m; Power Drift = -0.143 dB
Peak SAR (extrapolated) = 0.358 W/kg
SAR(1 g) = 0.271 mW/g; SAR(10 g) = 0.207 mW/g
Maximum value of SAR (measured) = 0.316 mW/g



0 dB = 0.316mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA/LTE Phone with Bluetooth, WLAN, NFC
Liquid Temperature:	21.0 ℃
Ambient Temperature:	21.2 ℃
Test Date:	Dec. 18, 2014
Plot No.	2

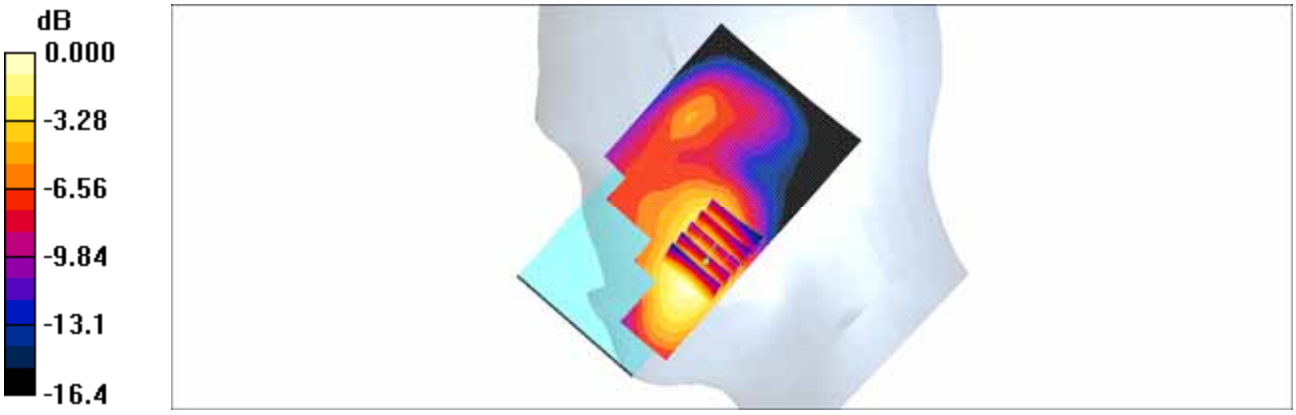
DUT: LG-H955P; Type: bar;

Communication System: GSM 1900; Frequency: 1880 MHz;Duty Cycle: 1:2.77
Medium parameters used: f = 1880 MHz; σ = 1.42 mho/m; ε_r = 38.9; 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: EX3DV4 - SN3863; ConvF(8.02, 8.02, 8.02); Calibrated: 2014-07-24
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1225; Calibrated: 2014-03-24
- Phantom: 835/900 Phantom; Type: SAM

GSM1900 Head Right Touch 3Tx 661ch/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.607 mW/g

GSM1900 Head Right Touch 3Tx 661ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.88 V/m; Power Drift = -0.023 dB
Peak SAR (extrapolated) = 0.690 W/kg
SAR(1 g) = 0.450 mW/g; SAR(10 g) = 0.282 mW/g
Maximum value of SAR (measured) = 0.579 mW/g



0 dB = 0.579mW/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:	Dec. 23, 2014
Plot No.	3

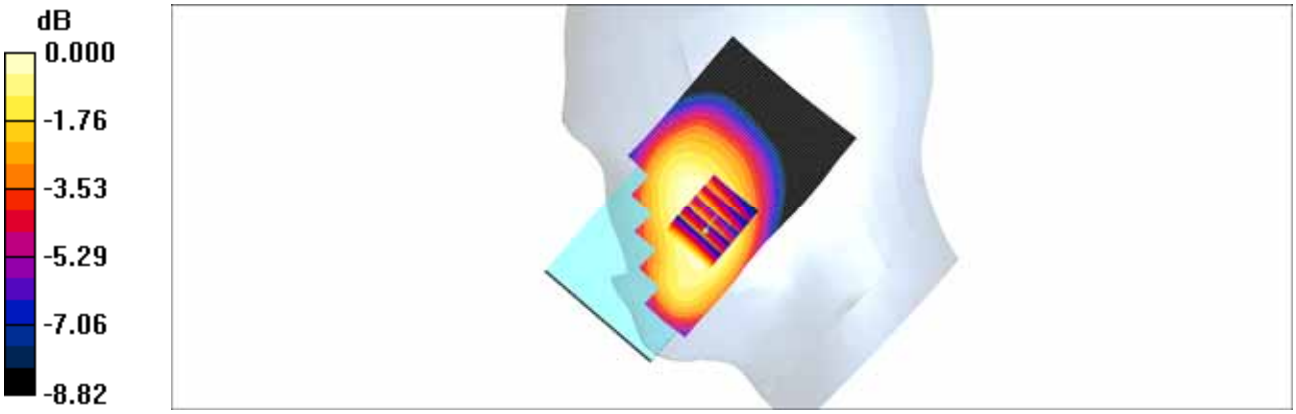
DUT: LG-H955P; Type: bar;

Communication System: WCDMA850; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.883 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: EX3DV4 - SN3863; ConvF(9.5, 9.5, 9.5); Calibrated: 2014-07-24
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1225; Calibrated: 2014-03-24
- Phantom: 1800/1900; Type: SAM

WCDMA850 Head Right Touch 4183ch/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.158 mW/g

WCDMA850 Head Right Touch 4183ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.46 V/m; Power Drift = -0.160 dB
Peak SAR (extrapolated) = 0.189 W/kg
SAR(1 g) = 0.142 mW/g; SAR(10 g) = 0.109 mW/g
Maximum value of SAR (measured) = 0.149 mW/g



0 dB = 0.149mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA/LTE Phone with Bluetooth, WLAN, NFC
Liquid Temperature:	21.0 ℃
Ambient Temperature:	21.2 ℃
Test Date:	Dec. 18, 2014
Plot No.	4

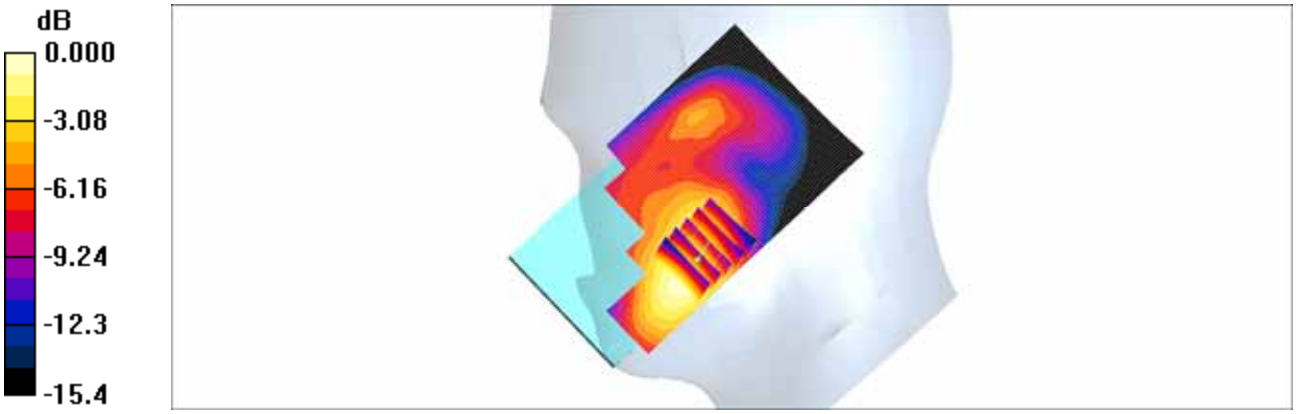
DUT: LG-H955P; Type: bar;

Communication System: WCDMA1900; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.42 mho/m; ε_r = 38.9; 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: EX3DV4 - SN3863; ConvF(8.02, 8.02, 8.02); Calibrated: 2014-07-24
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1225; Calibrated: 2014-03-24
- Phantom: 835/900 Phantom; Type: SAM

WCDMA1900 Head Right Touch 9400ch/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.694 mW/g

WCDMA1900 Head Right Touch 9400ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.24 V/m; Power Drift = 0.063 dB
Peak SAR (extrapolated) = 0.786 W/kg
SAR(1 g) = 0.528 mW/g; SAR(10 g) = 0.341 mW/g
Maximum value of SAR (measured) = 0.655 mW/g



0 dB = 0.655mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA/LTE Phone with Bluetooth, WLAN, NFC
Liquid Temperature:	21.0 ℃
Ambient Temperature:	21.2 ℃
Test Date:	Dec. 18, 2014
Plot No.	5

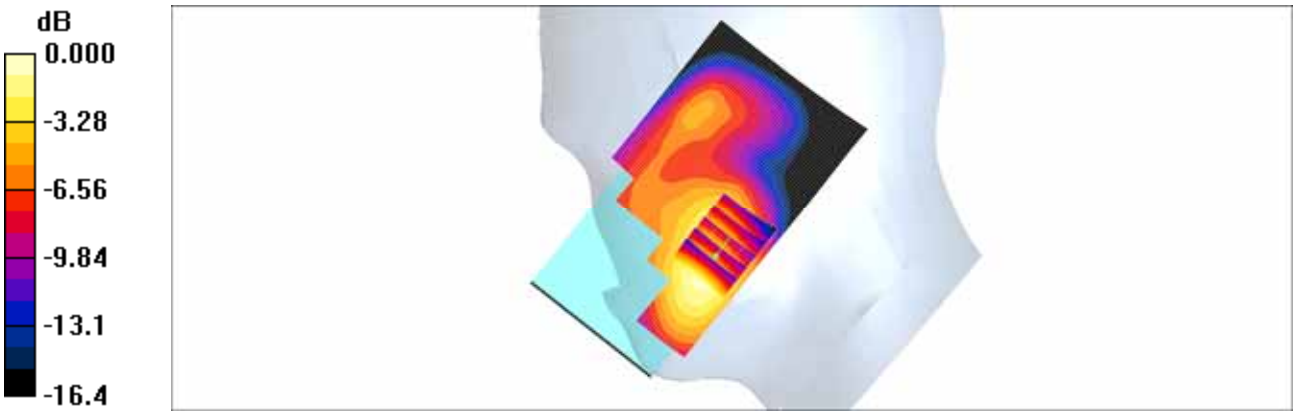
DUT: LG-H955P; Type: bar;

Communication System: LTE band 2; Frequency: 1860 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1860 MHz; σ = 1.4 mho/m; ε_r = 39; 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: EX3DV4 - SN3863; ConvF(8.02, 8.02, 8.02); Calibrated: 2014-07-24
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1225; Calibrated: 2014-03-24
- Phantom: 835/900 Phantom; Type: SAM

LTE band 2 head Right Touch QPSK 20MHz 1RB 0offset 18700ch/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.720 mW/g

LTE band 2 head Right Touch QPSK 20MHz 1RB 0offset 18700ch/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.55 V/m; Power Drift = -0.120 dB
Peak SAR (extrapolated) = 0.857 W/kg
SAR(1 g) = 0.559 mW/g; SAR(10 g) = 0.356 mW/g
Maximum value of SAR (measured) = 0.716 mW/g



0 dB = 0.716mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA/LTE Phone with Bluetooth, WLAN, NFC
Liquid Temperature:	20.4 ℃
Ambient Temperature:	20.6 ℃
Test Date:	Dec. 22, 2014
Plot No.	6

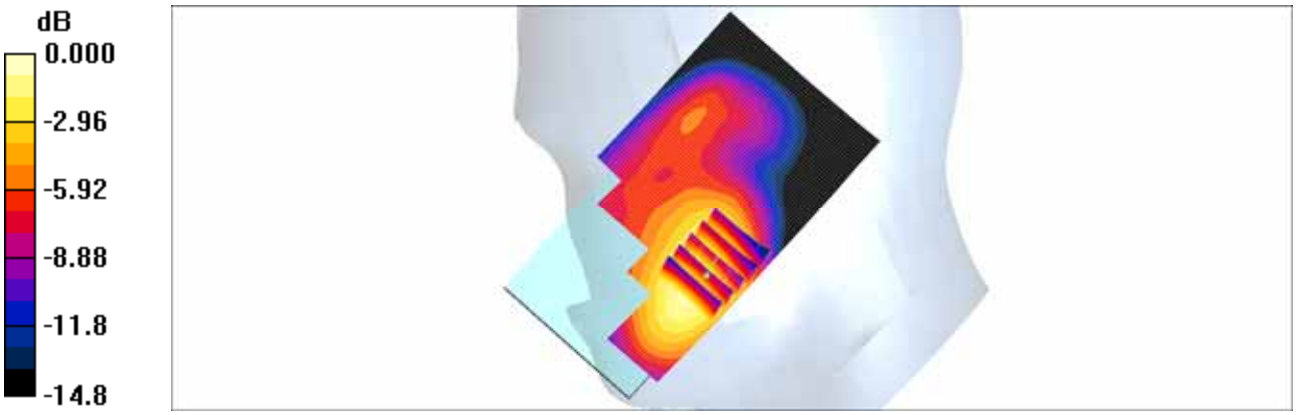
DUT: LG-H955P; Type: bar;

Communication System: LTE Band 4; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.35 mho/m; ε_r = 39.8; 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: EX3DV4 - SN3863; ConvF(8.38, 8.38, 8.38); Calibrated: 2014-07-24
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1225; Calibrated: 2014-03-24
- Phantom: 835/900 Phantom; Type: SAM

LTE band 4 head Right Touch QPSK 20MHz 1RB 0offset 20175ch/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.839 mW/g

LTE band 4 head Right Touch QPSK 20MHz 1RB 0offset 20175ch/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.02 V/m; Power Drift = 0.109 dB
Peak SAR (extrapolated) = 1.03 W/kg
SAR(1 g) = 0.693 mW/g; SAR(10 g) = 0.458 mW/g
Maximum value of SAR (measured) = 0.874 mW/g



0 dB = 0.874mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA/LTE Phone with Bluetooth, WLAN, NFC
Liquid Temperature:	21.6 ℃
Ambient Temperature:	21.8 ℃
Test Date:	Dec. 24, 2014
Plot No.	7

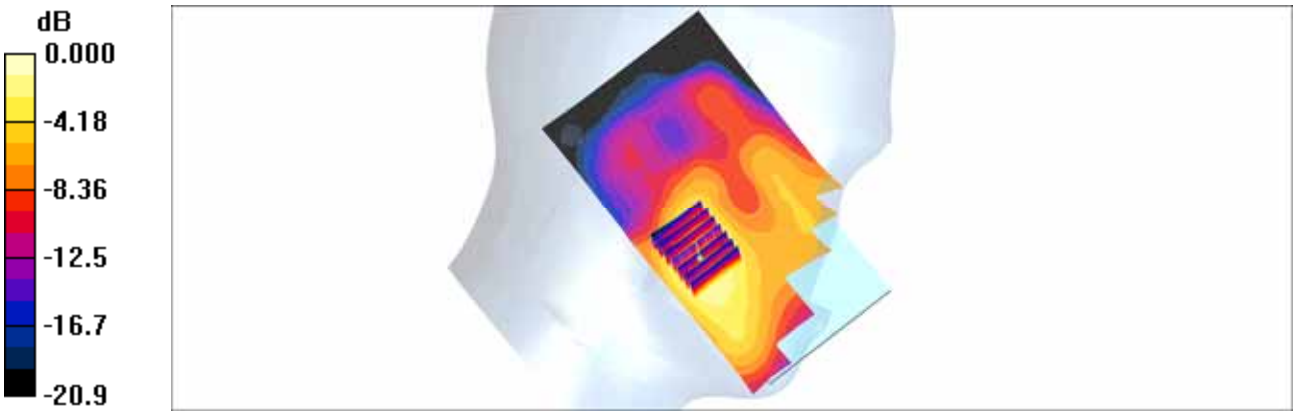
DUT: LG-H955P; Type: bar;

Communication System: LTE Band 7; Frequency: 2560 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2560 MHz; σ = 1.95 mho/m; ε_r = 40.5; 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: EX3DV4 - SN3863; ConvF(7.05, 7.05, 7.05); Calibrated: 2014-07-24
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1225; Calibrated: 2014-03-24
- Phantom: SAM 835/900 MHz; Type: SAM

LTE band 7 head Left Touch QPSK 20MHz 1RB 99offset 21350ch/Area Scan (81x141x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (interpolated) = 0.549 mW/g

LTE band 7 head Left Touch QPSK 20MHz 1RB 99offset 21350ch/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.97 V/m; Power Drift = -0.029 dB
Peak SAR (extrapolated) = 0.731 W/kg
SAR(1 g) = 0.390 mW/g; SAR(10 g) = 0.204 mW/g
Maximum value of SAR (measured) = 0.555 mW/g



0 dB = 0.555mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA/LTE Phone with Bluetooth, WLAN, NFC
Liquid Temperature:	21.0 ℃
Ambient Temperature:	21.2 ℃
Test Date:	Dec. 19, 2014
Plot No.	8

DUT: LG-H955P; Type: Bar

Communication System: UID 0, LTE Band 17 (0); Frequency: 710 MHz;Duty Cycle: 1:1
Medium parameters used: f = 710 MHz; σ = 0.871 S/m; ε_r = 43.306; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3968; ConvF(10.28, 10.28, 10.28); Calibrated: 2014-01-08;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1417; Calibrated: 2014-01-03
- Phantom: SAM (20deg probe tilt) with CRP v5.0_Left_2014_02_25; Type: QD000P40CD; Serial: TP:1804
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

LG-H955P/LTE Band 17 Right Touch QPSK 10MHz 1RB 24 offset 23790ch/Area Scan (71x111x1):
Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.179 W/kg

LG-H955P/LTE Band 17 Right Touch QPSK 10MHz 1RB 24 offset 23790ch/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.428 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 0.192 W/kg
SAR(1 g) = 0.154 W/kg; SAR(10 g) = 0.117 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 0.174 W/kg

0 dB = 0.179 W/kg = −7.48 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:	18.0 ℃
Ambient Temperature:	18.2 ℃
Test Date:	Dec. 26, 2014
Plot No.	9

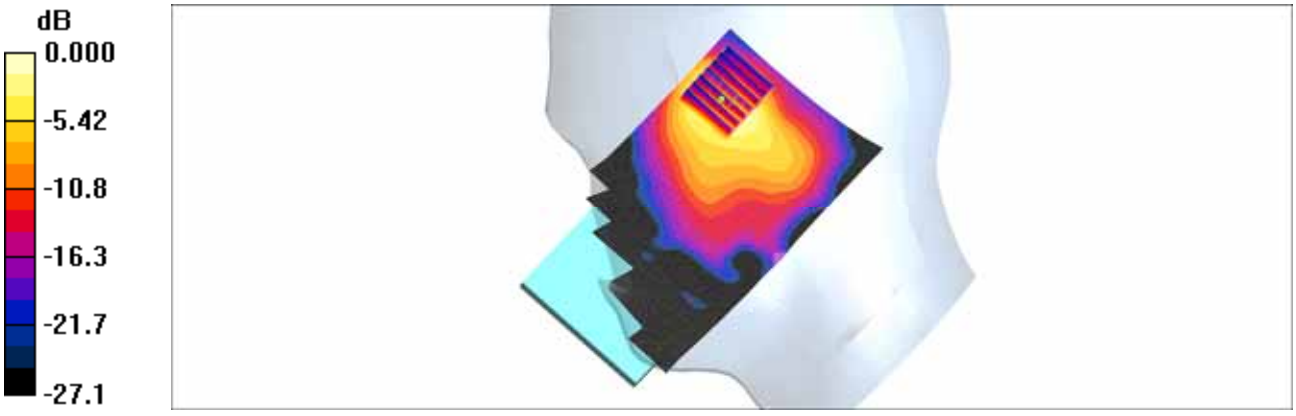
DUT: LG-H955P; Type: bar;

Communication System: 2450MHz FCC; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2437 MHz; σ = 1.81 mho/m; ε_r = 37.9; 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: EX3DV4 - SN3863; ConvF(7.15, 7.15, 7.15); Calibrated: 2014-07-24
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1225; Calibrated: 2014-03-24
- Phantom: SAM 835/900 MHz; Type: SAM

802.11b Head Right Touch 1Mbps 6ch/Area Scan (81x141x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (interpolated) = 1.09 mW/g

802.11b Head Right Touch 1Mbps 6ch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 12.3 V/m; Power Drift = 0.024 dB
Peak SAR (extrapolated) = 1.29 W/kg
SAR(1 g) = 0.603 mW/g; SAR(10 g) = 0.290 mW/g
Maximum value of SAR (measured) = 0.886 mW/g



0 dB = 0.886mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA/LTE Phone with Bluetooth, WLAN, NFC
Liquid Temperature:	18.8 ℃
Ambient Temperature:	19.0 ℃
Test Date:	Dec. 29, 2014
Plot No.	10

DUT: LG-H955P; Type: Bar

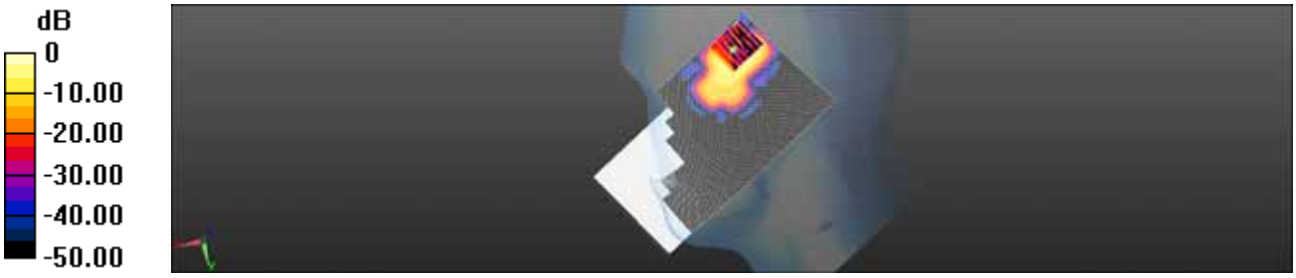
Communication System: UID 0, WIFI 5GHz (0); Frequency: 5240 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5240 MHz; σ = 4.613 S/m; ε_r = 36.499; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3903; ConvF(5.55, 5.55, 5.55); Calibrated: 2014-08-28;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn652; Calibrated: 2014-03-26
- Phantom: SAM with CRP v5.0_2014_07_29; Type: QD000P40CD; Serial: TP:xxxx
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

LG-H955P/802.11a Head Right Touch 6Mbps 48ch/Area Scan (91x161x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 2.02 W/kg

LG-H955P/802.11a Head Right Touch 6Mbps 48ch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 1.191 V/m; Power Drift = -0.13 dB
Peak SAR (extrapolated) = 2.47 W/kg
SAR(1 g) = 0.549 W/kg; SAR(10 g) = 0.165 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 1.38 W/kg



0 dB = 2.02 W/kg = 3.04 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:	Dec. 23, 2014
Plot No.	11

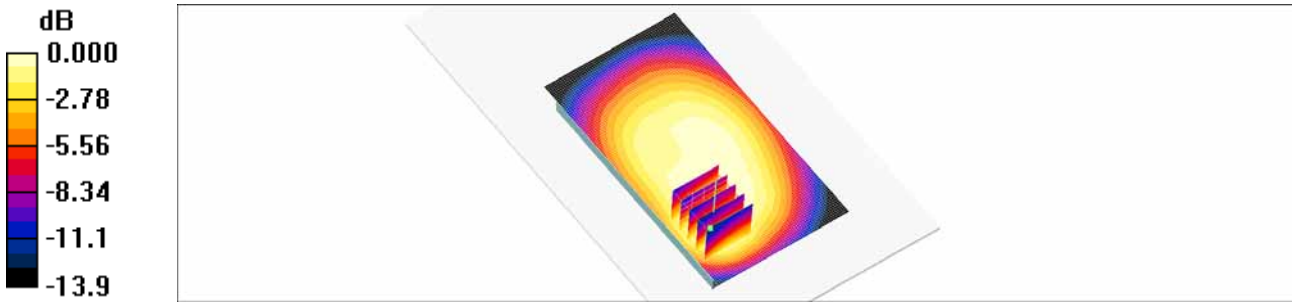
DUT: LG-H955P; Type: bar;

Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:2.77
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.951 mho/m; ε_r = 55.9; 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: EX3DV4 - SN3863; ConvF(9.43, 9.43, 9.43); Calibrated: 2014-07-24
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1225; Calibrated: 2014-03-24
- Phantom: Triple Flat Phantom 5.1C_20120905; Type: QD 000 P51 CA

GSM850 Body Rear GPRS 3Tx 190ch/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.432 mW/g

GSM850 Body Rear GPRS 3Tx 190ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 18.8 V/m; Power Drift = -0.005 dB
Peak SAR (extrapolated) = 0.501 W/kg
SAR(1 g) = 0.340 mW/g; SAR(10 g) = 0.231 mW/g
Maximum value of SAR (measured) = 0.416 mW/g



0 dB = 0.416mW/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:	Dec. 23, 2014
Plot No.	12

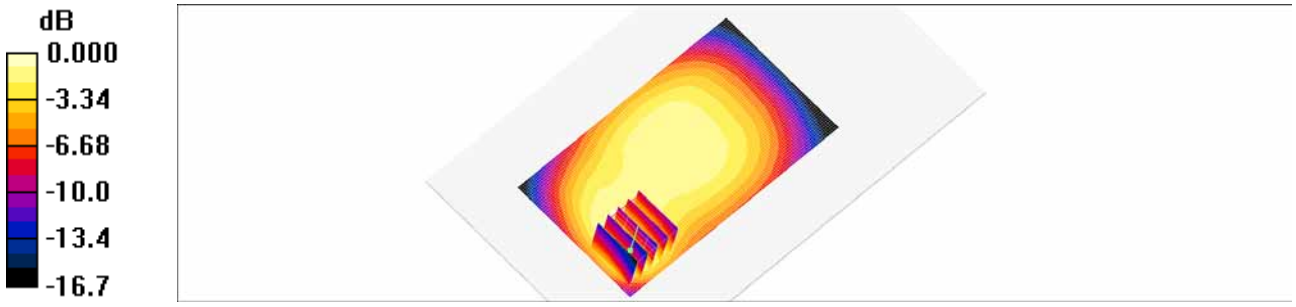
DUT: LG-H955P; Type: bar;

Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:2.77
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.951 mho/m; ε_r = 55.9; 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: EX3DV4 - SN3863; ConvF(9.43, 9.43, 9.43); Calibrated: 2014-07-24
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1225; Calibrated: 2014-03-24
- Phantom: Triple Flat Phantom 5.1C_20120905; Type: QD 000 P51 CA

GSM850 Body Front GPRS 3Tx 190ch/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.475 mW/g

GSM850 Body Front GPRS 3Tx 190ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 18.3 V/m; Power Drift = -0.057 dB
Peak SAR (extrapolated) = 0.559 W/kg
SAR(1 g) = 0.347 mW/g; SAR(10 g) = 0.225 mW/g
Maximum value of SAR (measured) = 0.450 mW/g



0 dB = 0.450mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA/LTE Phone with Bluetooth, WLAN, NFC
Liquid Temperature:	18.0 ℃
Ambient Temperature:	18.2 ℃
Test Date:	Dec. 18, 2014
Plot No.	13

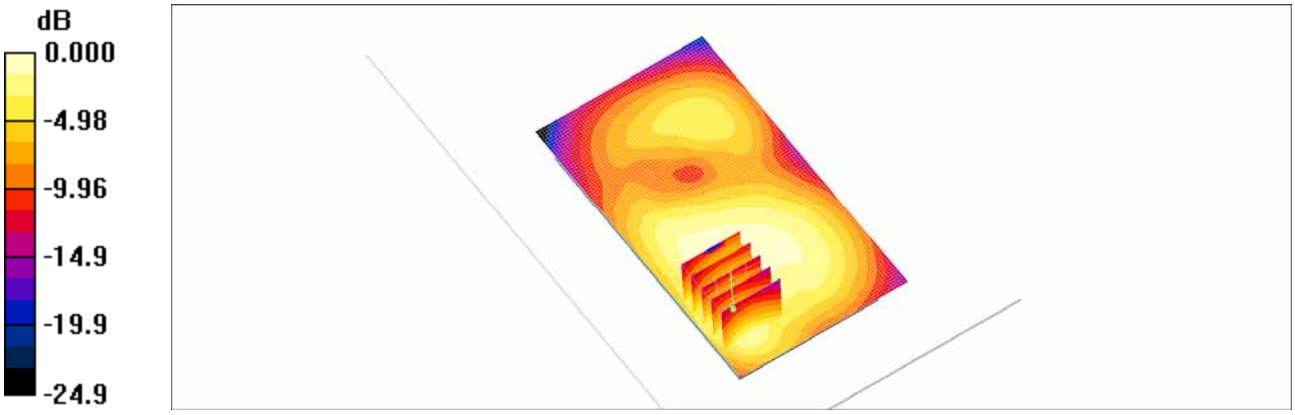
DUT: LG-H955P; Type: bar;

Communication System: GSM 1900; Frequency: 1880 MHz;Duty Cycle: 1:2.77
Medium parameters used: f = 1880 MHz; σ = 1.54 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: EX3DV4 - SN3863; ConvF(7.36, 7.36, 7.36); Calibrated: 2014-07-24
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1225; Calibrated: 2014-03-24
- Phantom: Triple Flat Phantom 5.1C_20120905; Type: QD 000 P51 CA

GSM1900 Body Rear GPRS 3Tx 661ch/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.459 mW/g

GSM1900 Body Rear GPRS 3Tx 661ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.15 V/m; Power Drift = 0.121 dB
Peak SAR (extrapolated) = 0.538 W/kg
SAR(1 g) = 0.339 mW/g; SAR(10 g) = 0.211 mW/g
Maximum value of SAR (measured) = 0.446 mW/g



0 dB = 0.446mW/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:	Dec. 23, 2014
Plot No.	14

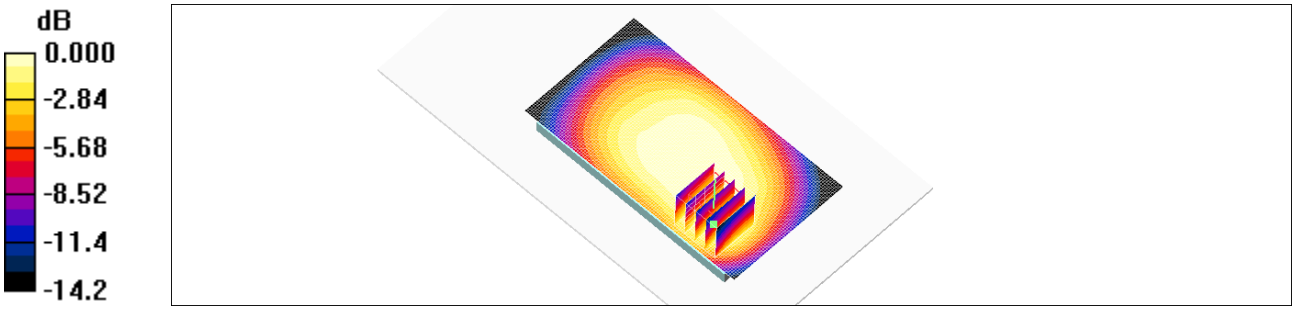
DUT: LG-H955P; Type: bar;

Communication System: WCDMA850; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.951 mho/m; ε_r = 55.9; 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: EX3DV4 - SN3863; ConvF(9.43, 9.43, 9.43); Calibrated: 2014-07-24
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1225; Calibrated: 2014-03-24
- Phantom: Triple Flat Phantom 5.1C_20120905; Type: QD 000 P51 CA

WCDMA850 Body Rear 4183ch/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.222 mW/g

WCDMA850 Body Rear 4183ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.1 V/m; Power Drift = -0.126 dB
Peak SAR (extrapolated) = 0.259 W/kg
SAR(1 g) = 0.174 mW/g; SAR(10 g) = 0.117 mW/g
Maximum value of SAR (measured) = 0.215 mW/g



0 dB = 0.215mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA/LTE Phone with Bluetooth, WLAN, NFC
Liquid Temperature:	18.0 ℃
Ambient Temperature:	18.2 ℃
Test Date:	Dec. 18, 2014
Plot No.	15

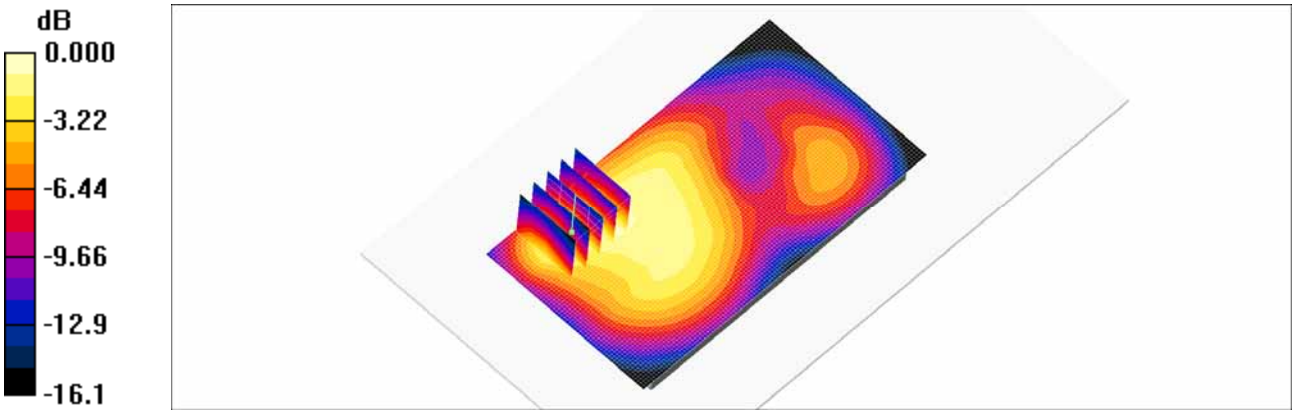
DUT: LG-H955P; Type: bar;

Communication System: WCDMA1900; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.54 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: EX3DV4 - SN3863; ConvF(7.36, 7.36, 7.36); Calibrated: 2014-07-24
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1225; Calibrated: 2014-03-24
- Phantom: Triple Flat Phantom 5.1C_20120905; Type: QD 000 P51 CA

WCDMA1900 Body Rear 9400ch/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.601 mW/g

WCDMA1900 Body Rear 9400ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.26 V/m; Power Drift = 0.150 dB
Peak SAR (extrapolated) = 0.709 W/kg
SAR(1 g) = 0.442 mW/g; SAR(10 g) = 0.265 mW/g
Maximum value of SAR (measured) = 0.583 mW/g



0 dB = 0.583mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA/LTE Phone with Bluetooth, WLAN, NFC
Liquid Temperature:	18.0 ℃
Ambient Temperature:	18.2 ℃
Test Date:	Dec. 18, 2014
Plot No.	16

DUT: LG-H955P; Type: bar;

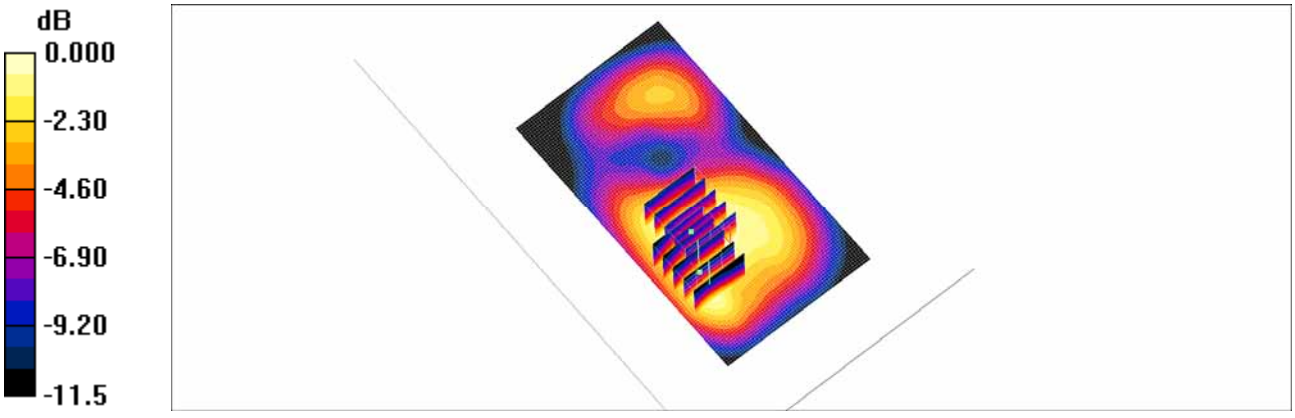
Communication System: LTE band 2; Frequency: 1860 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1860 MHz; σ = 1.52 mho/m; ε_r = 52.3; ρ = 1000 kg/m^3
Phantom section: Center Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

DASY4 Configuration:
- Probe: EX3DV4 - SN3863; ConvF(7.36, 7.36, 7.36); Calibrated: 2014-07-24
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1225; Calibrated: 2014-03-24
- Phantom: Triple Flat Phantom 5.1C_20120905; Type: QD 000 P51 CA

LTE band 2 Body Rear QPSK 20MHz 1RB 0offset 18700ch/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.611 mW/g

LTE band 2 Body Rear QPSK 20MHz 1RB 0offset 18700ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.57 V/m; Power Drift = 0.059 dB
Peak SAR (extrapolated) = 0.716 W/kg
SAR(1 g) = 0.479 mW/g; SAR(10 g) = 0.328 mW/g
Maximum value of SAR (measured) = 0.600 mW/g

LTE band 2 Body Rear QPSK 20MHz 1RB 0offset 18700ch/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.57 V/m; Power Drift = 0.059 dB
Peak SAR (extrapolated) = 0.724 W/kg
SAR(1 g) = 0.490 mW/g; SAR(10 g) = 0.344 mW/g
Maximum value of SAR (measured) = 0.627 mW/g



0 dB = 0.627mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA/LTE Phone with Bluetooth, WLAN, NFC
Liquid Temperature:	18.0 ℃
Ambient Temperature:	18.2 ℃
Test Date:	Dec. 18, 2014
Plot No.	17

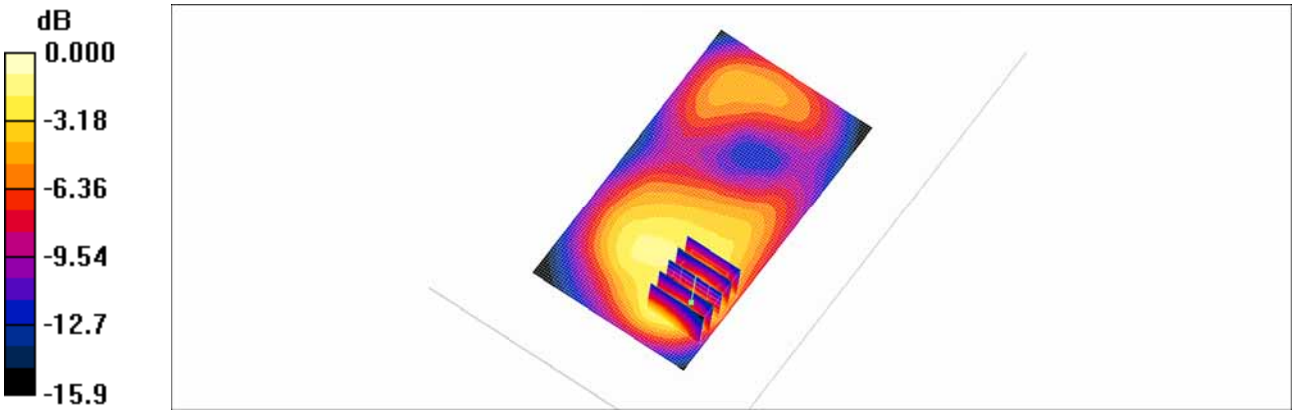
DUT: LG-H955P; Type: bar;

Communication System: LTE band 2; Frequency: 1860 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1860 MHz; σ = 1.52 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: EX3DV4 - SN3863; ConvF(7.36, 7.36, 7.36); Calibrated: 2014-07-24
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1225; Calibrated: 2014-03-24
- Phantom: Triple Flat Phantom 5.1C_20120905; Type: QD 000 P51 CA

LTE band 2 Body Front QPSK 20MHz 1RB 0offset 18700ch/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.723 mW/g

LTE band 2 Body Front QPSK 20MHz 1RB 0offset 18700ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.34 V/m; Power Drift = 0.199 dB
Peak SAR (extrapolated) = 0.861 W/kg
SAR(1 g) = 0.520 mW/g; SAR(10 g) = 0.300 mW/g
Maximum value of SAR (measured) = 0.710 mW/g



0 dB = 0.710mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA/LTE Phone with Bluetooth, WLAN, NFC
Liquid Temperature:	18.5 ℃
Ambient Temperature:	18.7 ℃
Test Date:	Dec. 22, 2014
Plot No.	18

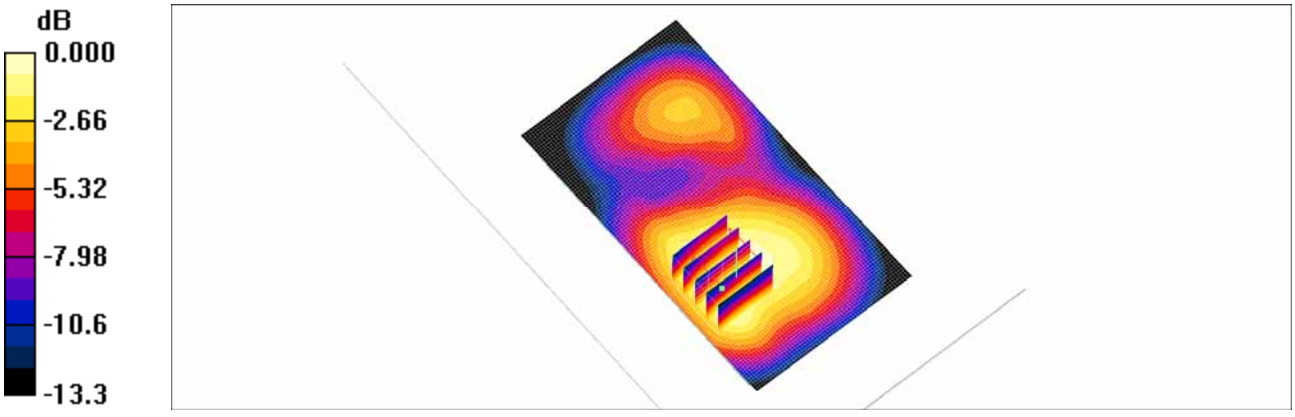
DUT: LG-H955P; Type: bar;

Communication System: LTE Band 4; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.48 mho/m; ε_r = 52.8; 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(4.81, 4.81, 4.81); Calibrated: 2014-01-31
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2014-01-22
- Phantom: Triple Flat Phantom 5.1C_20120905; Type: QD 000 P51 CA

LTE band 4 Body Rear QPSK 20MHz 1RB 0offset 20175ch/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.768 mW/g

LTE band 4 Body Rear QPSK 20MHz 1RB 0offset 20175ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.05 V/m; Power Drift = 0.093 dB
Peak SAR (extrapolated) = 0.926 W/kg
SAR(1 g) = 0.726 mW/g; SAR(10 g) = 0.501 mW/g
Maximum value of SAR (measured) = 0.765 mW/g



0 dB = 0.765mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA/LTE Phone with Bluetooth, WLAN, NFC
Liquid Temperature:	20.8 ℃
Ambient Temperature:	21.0 ℃
Test Date:	Dec. 24, 2014
Plot No.	19

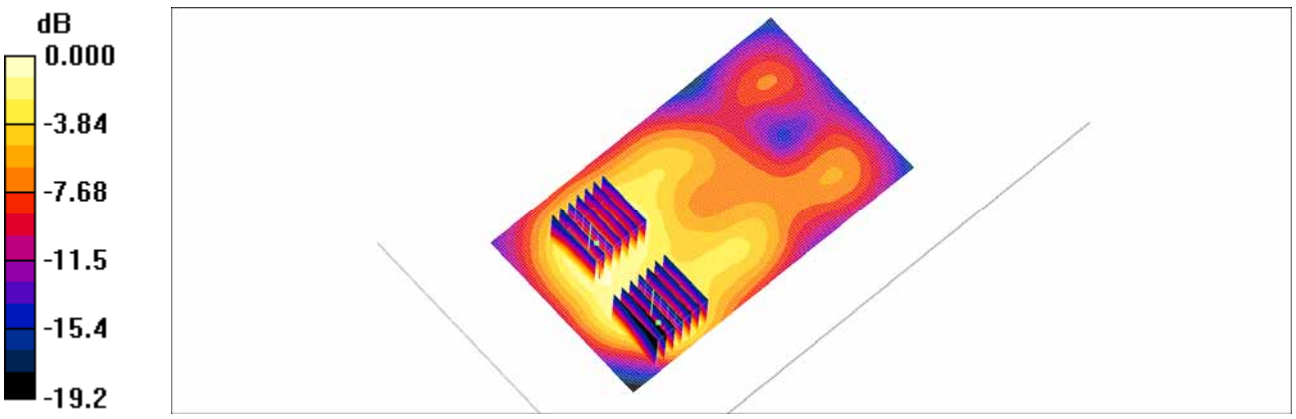
DUT: LG-H955P; Type: bar;

Communication System: LTE Band 7; Frequency: 2560 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2560 MHz; σ = 2.07 mho/m; ε_r = 52.9; 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: EX3DV4 - SN3863; ConvF(6.87, 6.87, 6.87); Calibrated: 2014-07-24
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1225; Calibrated: 2014-03-24
- Phantom: Triple Flat Phantom 5.1C_20120905; Type: QD 000 P51 CA

LTE band 7 Body Rear QPSK 20MHz 1RB 99offset 21350ch/Area Scan (81x141x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (interpolated) = 0.871 mW/g

LTE band 7 Body Rear QPSK 20MHz 1RB 99offset 21350ch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.15 V/m; Power Drift = 0.183 dB
Peak SAR (extrapolated) = 1.23 W/kg
SAR(1 g) = 0.603 mW/g; SAR(10 g) = 0.305 mW/g
Maximum value of SAR (measured) = 0.859 mW/g
LTE band 7 Body Rear QPSK 20MHz 1RB 99offset 21350ch/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.15 V/m; Power Drift = 0.183 dB
Peak SAR (extrapolated) = 1.09 W/kg
SAR(1 g) = 0.596 mW/g; SAR(10 g) = 0.342 mW/g
Maximum value of SAR (measured) = 0.831 mW/g



0 dB = 0.831mW/g

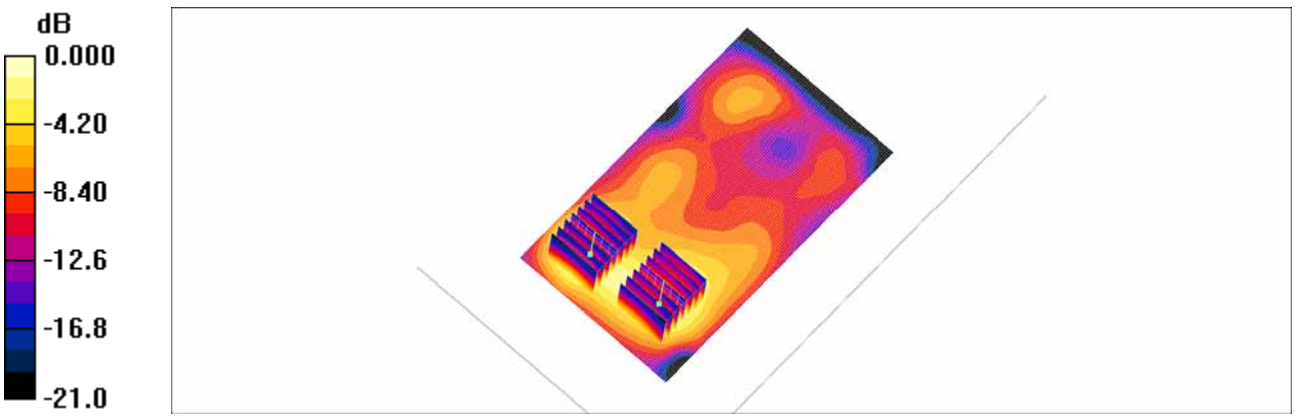
Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA/LTE Phone with Bluetooth, WLAN, NFC
Liquid Temperature:	20.8 ℃
Ambient Temperature:	21.0 ℃
Test Date:	Dec. 24, 2014
Plot No.	20

DUT: LG-H955P; Type: bar;

Communication System: LTE Band 7; Frequency: 2560 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2560 MHz; σ = 2.07 mho/m; ε_r = 52.9; 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: EX3DV4 - SN3863; ConvF(6.87, 6.87, 6.87); Calibrated: 2014-07-24
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1225; Calibrated: 2014-03-24
- Phantom: Triple Flat Phantom 5.1C_20120905; Type: QD 000 P51 CA

LTE band 7 Body Front QPSK 20MHz 1RB 99offset 21350ch/Area Scan (81x141x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (interpolated) = 1.18 mW/g
LTE band 7 Body Front QPSK 20MHz 1RB 99offset 21350ch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.33 V/m; Power Drift = 0.144 dB
Peak SAR (extrapolated) = 1.58 W/kg
SAR(1 g) = 0.733 mW/g; SAR(10 g) = 0.345 mW/g
Maximum value of SAR (measured) = 1.10 mW/g
LTE band 7 Body Front QPSK 20MHz 1RB 99offset 21350ch/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.33 V/m; Power Drift = 0.144 dB
Peak SAR (extrapolated) = 1.15 W/kg
SAR(1 g) = 0.619 mW/g; SAR(10 g) = 0.337 mW/g
Maximum value of SAR (measured) = 0.878 mW/g



0 dB = 0.878mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA/LTE Phone with Bluetooth, WLAN, NFC
Liquid Temperature:	19.0 ℃
Ambient Temperature:	19.2 ℃
Test Date:	Dec. 19, 2014
Plot No.	21

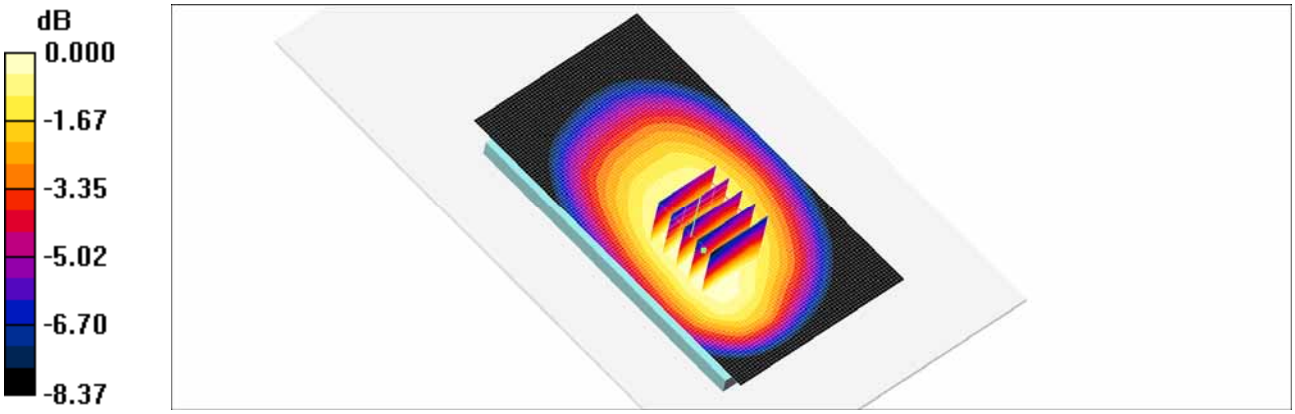
DUT: LG-H955P; Type: bar;

Communication System: LTE Band 17; Frequency: 710 MHz;Duty Cycle: 1:1
Medium parameters used: f = 710 MHz; σ = 0.945 mho/m; ε_r = 55.1; 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(6.45, 6.45, 6.45); Calibrated: 2014-01-31
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2014-01-22
- Phantom: Triple Flat Phantom 5.1C_20120905; Type: QD 000 P51 CA

LTE band 17 Body Rear QPSK 10MHz 1RB 24offset 23790ch/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.307 mW/g

LTE band 17 Body Rear QPSK 10MHz 1RB 24offset 23790ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.3 V/m; Power Drift = 0.023 dB
Peak SAR (extrapolated) = 0.361 W/kg
SAR(1 g) = 0.288 mW/g; SAR(10 g) = 0.226 mW/g
Maximum value of SAR (measured) = 0.302 mW/g



0 dB = 0.302mW/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:	Dec. 26, 2014
Plot No.	22

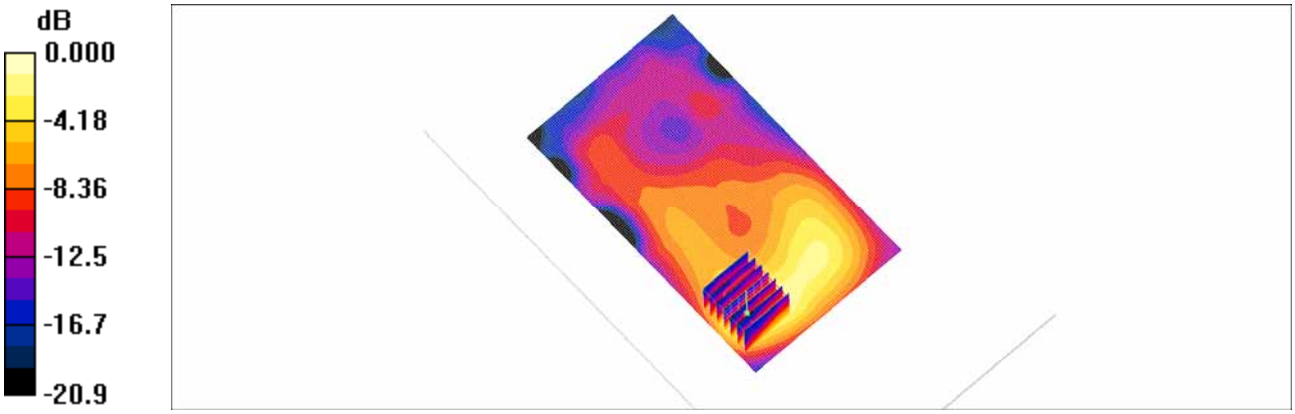
DUT: LG-H955P; Type: bar;

Communication System: 2450MHz FCC; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2437 MHz; σ = 1.97 mho/m; ε_r = 53.6; 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: EX3DV4 - SN3863; ConvF(6.97, 6.97, 6.97); Calibrated: 2014-07-24
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1225; Calibrated: 2014-03-24
- Phantom: Triple Flat Phantom 5.1C_20120905; Type: QD 000 P51 CA

802.11b Body Rear 1Mbps 6ch/Area Scan (81x141x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (interpolated) = 0.179 mW/g

802.11b Body Rear 1Mbps 6ch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.61 V/m; Power Drift = 0.134 dB
Peak SAR (extrapolated) = 0.255 W/kg
SAR(1 g) = 0.122 mW/g; SAR(10 g) = 0.062 mW/g
Maximum value of SAR (measured) = 0.181 mW/g



0 dB = 0.181mW/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:	Dec. 26, 2014
Plot No.	23

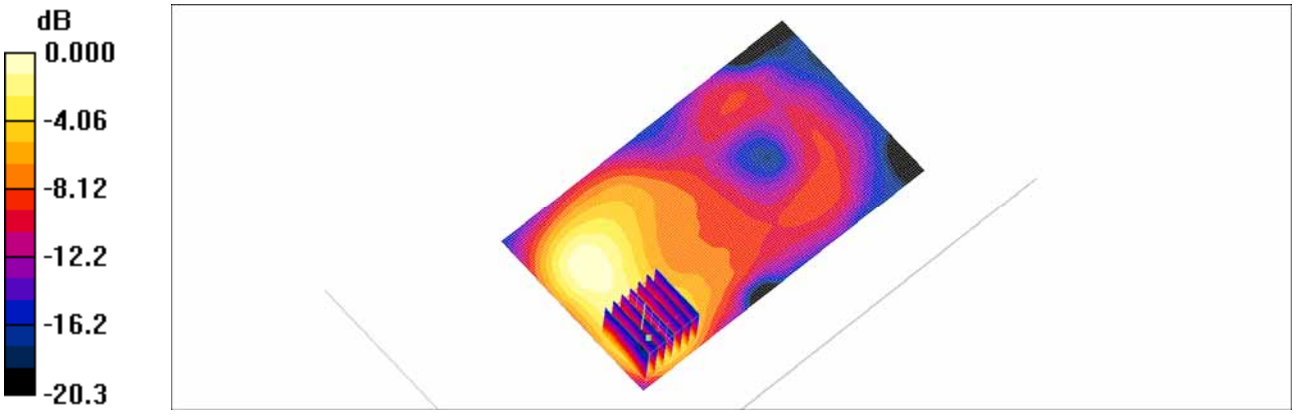
DUT: LG-H955P; Type: bar;

Communication System: 2450MHz FCC; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2437 MHz; σ = 1.97 mho/m; ε_r = 53.6; 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: EX3DV4 - SN3863; ConvF(6.97, 6.97, 6.97); Calibrated: 2014-07-24
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1225; Calibrated: 2014-03-24
- Phantom: Triple Flat Phantom 5.1C_20120905; Type: QD 000 P51 CA

802.11b Body Front 1Mbps 6ch/Area Scan (81x141x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (interpolated) = 0.262 mW/g

802.11b Body Front 1Mbps 6ch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.25 V/m; Power Drift = 0.198 dB
Peak SAR (extrapolated) = 0.348 W/kg
SAR(1 g) = 0.174 mW/g; SAR(10 g) = 0.092 mW/g
Maximum value of SAR (measured) = 0.248 mW/g



0 dB = 0.248mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA/LTE Phone with Bluetooth, WLAN, NFC
Liquid Temperature:	20.0 ℃
Ambient Temperature:	20.2 ℃
Test Date:	Dec. 30, 2014
Plot No.	24

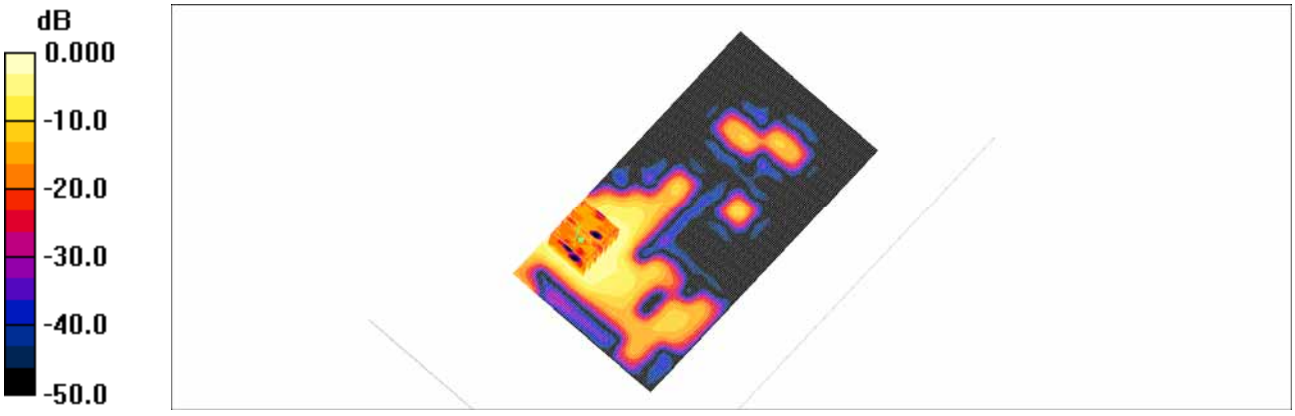
DUT: LG-H955P; Type: bar;

Communication System: WIFI 5GHz; Frequency: 5785 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5785 MHz; σ = 6.09 mho/m; ε_r = 46.8; 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: EX3DV4 - SN3863; ConvF(4.07, 4.07, 4.07); Calibrated: 2014-07-24
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1225; Calibrated: 2014-03-24
- Phantom: Triple Flat Phantom 5.1C_20120905; Type: QD 000 P51 CA

802.11a Body Rear 6Mbps 157ch/Area Scan (91x171x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.466 mW/g

802.11a Body Rear 6Mbps 157ch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 1.51 V/m; Power Drift = 0.174 dB
Peak SAR (extrapolated) = 0.853 W/kg
SAR(1 g) = 0.198 mW/g; SAR(10 g) = 0.070 mW/g
Maximum value of SAR (measured) = 0.478 mW/g



0 dB = 0.478mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA/LTE Phone with Bluetooth, WLAN, NFC
Liquid Temperature:	20.0 ℃
Ambient Temperature:	20.2 ℃
Test Date:	Dec. 30, 2014
Plot No.	25

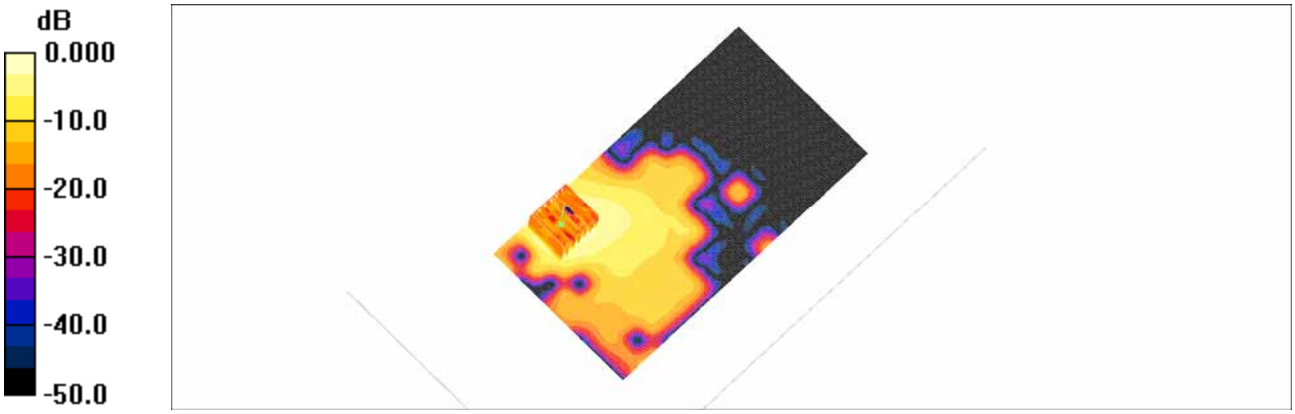
DUT: LG-H955P; Type: bar;

Communication System: WIFI 5GHz; Frequency: 5240 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5240 MHz; σ = 5.2 mho/m; ε_r = 48.3; 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: EX3DV4 - SN3863; ConvF(4.5, 4.5, 4.5); Calibrated: 2014-07-24
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1225; Calibrated: 2014-03-24
- Phantom: Triple Flat Phantom 5.1C_20120905; Type: QD 000 P51 CA

802.11a Body Rear 6Mbps 48ch/Area Scan (91x171x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.399 mW/g

802.11a Body Rear 6Mbps 48ch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 2.99 V/m; Power Drift = -0.121 dB
Peak SAR (extrapolated) = 0.739 W/kg
SAR(1 g) = 0.170 mW/g; SAR(10 g) = 0.060 mW/g
Maximum value of SAR (measured) = 0.397 mW/g



0 dB = 0.397mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA/LTE Phone with Bluetooth, WLAN, NFC
Liquid Temperature:	20.0 ℃
Ambient Temperature:	20.2 ℃
Test Date:	Dec. 30, 2014
Plot No.	26

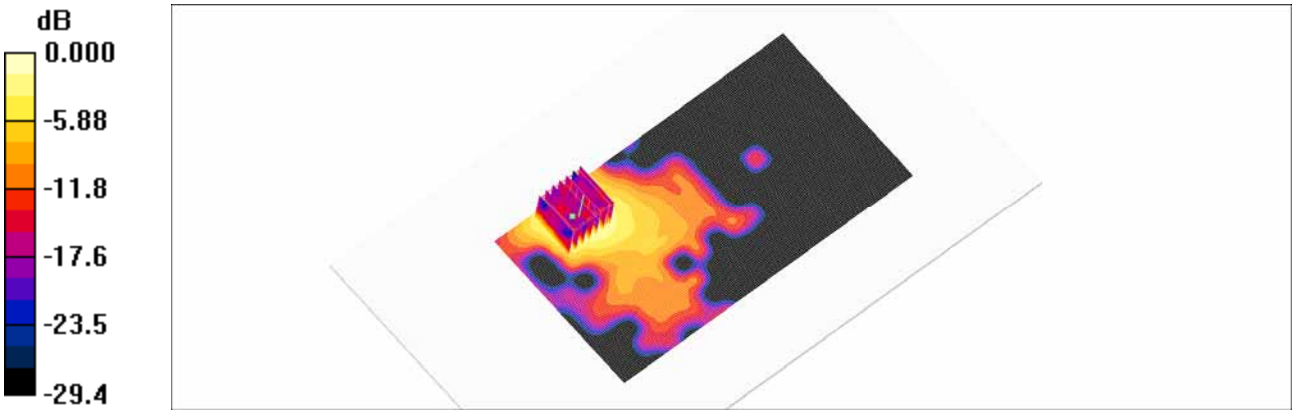
DUT: LG-H955P; Type: bar;

Communication System: WIFI 5GHz; Frequency: 5300 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5300 MHz; σ = 5.29 mho/m; ε_r = 48.1; 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: EX3DV4 - SN3863; ConvF(4.27, 4.27, 4.27); Calibrated: 2014-07-24
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1225; Calibrated: 2014-03-24
- Phantom: Triple Flat Phantom 5.1C_20120905; Type: QD 000 P51 CA

802.11a Body Rear 6Mbps 60ch/Area Scan (91x171x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.415 mW/g

802.11a Body Rear 6Mbps 60ch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 2.73 V/m; Power Drift = 0.197 dB
Peak SAR (extrapolated) = 0.783 W/kg
SAR(1 g) = 0.191 mW/g; SAR(10 g) = 0.072 mW/g
Maximum value of SAR (measured) = 0.434 mW/g



0 dB = 0.434mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA/LTE Phone with Bluetooth, WLAN, NFC
Liquid Temperature:	20.0 ℃
Ambient Temperature:	20.2 ℃
Test Date:	Dec. 30, 2014
Plot No.	27

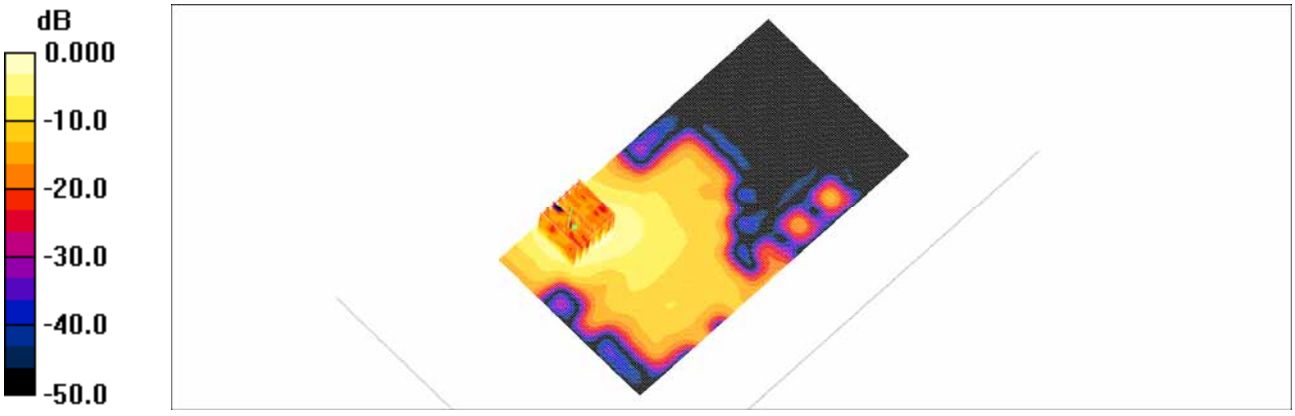
DUT: LG-H955P; Type: bar;

Communication System: WIFI 5GHz; Frequency: 5580 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5580 MHz; σ = 5.75 mho/m; ε_r = 47.4; 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: EX3DV4 - SN3863; ConvF(3.83, 3.83, 3.83); Calibrated: 2014-07-24
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1225; Calibrated: 2014-03-24
- Phantom: Triple Flat Phantom 5.1C_20120905; Type: QD 000 P51 CA

802.11a Body Rear 6Mbps 116ch/Area Scan (91x171x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.487 mW/g

802.11a Body Rear 6Mbps 116ch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 2.81 V/m; Power Drift = 0.082 dB
Peak SAR (extrapolated) = 0.876 W/kg
SAR(1 g) = 0.215 mW/g; SAR(10 g) = 0.080 mW/g
Maximum value of SAR (measured) = 0.498 mW/g



0 dB = 0.498mW/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:	Dec. 23, 2014
Plot No.	28

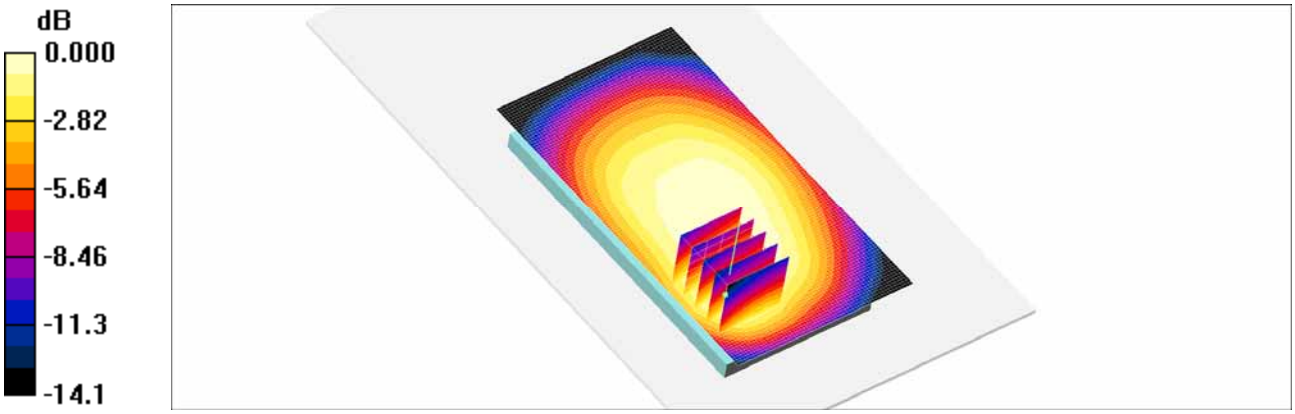
DUT: LG-H955P; Type: bar;

Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.951 mho/m; ε_r = 55.9; 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: EX3DV4 - SN3863; ConvF(9.43, 9.43, 9.43); Calibrated: 2014-07-24
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1225; Calibrated: 2014-03-24
- Phantom: Triple Flat Phantom 5.1C_20120905; Type: QD 000 P51 CA

GSM850 Body Rear 190ch/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.273 mW/g

GSM850 Body Rear 190ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.0 V/m; Power Drift = 0.075 dB
Peak SAR (extrapolated) = 0.322 W/kg
SAR(1 g) = 0.219 mW/g; SAR(10 g) = 0.148 mW/g
Maximum value of SAR (measured) = 0.268 mW/g



0 dB = 0.268mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA/LTE Phone with Bluetooth, WLAN, NFC
Liquid Temperature:	18.0 ℃
Ambient Temperature:	18.2 ℃
Test Date:	Dec. 18, 2014
Plot No.	29

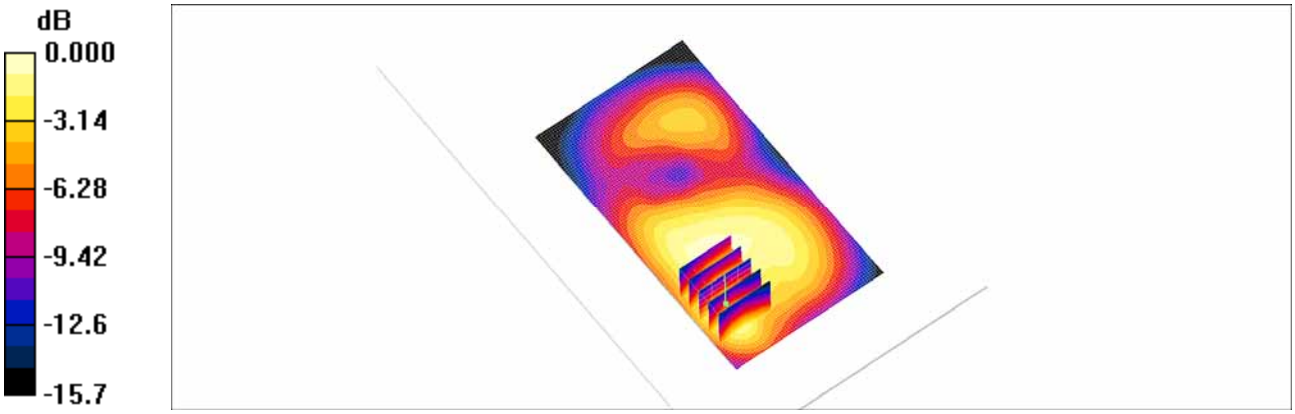
DUT: LG-H955P; Type: bar;

Communication System: GSM 1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 1880 MHz; σ = 1.54 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: EX3DV4 - SN3863; ConvF(7.36, 7.36, 7.36); Calibrated: 2014-07-24
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1225; Calibrated: 2014-03-24
- Phantom: Triple Flat Phantom 5.1C_20120905; Type: QD 000 P51 CA

GSM1900 Body Rear 661ch/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.355 mW/g

GSM1900 Body Rear 661ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.94 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 0.422 W/kg
SAR(1 g) = 0.267 mW/g; SAR(10 g) = 0.166 mW/g
Maximum value of SAR (measured) = 0.350 mW/g



0 dB = 0.350mW/g