In accordance with the requirements of FCC Report and Order: FCC 47 CFR Part 2 (2.1093)

FCC SAR TEST REPORT

For

Product Name: 3G Bar Phone
Brand Name: RINNO
Model No.: R310
Series Model: N/A
Test Report Number: C160516S01-SF

Issued for

Distribuidora Sinn, S.A. DE C.V.
Lago Zurich No.219 Piso 12, Colonia Ampliacion Granada, Del. Miguel Hidalgo, Mexico City, Mexico

Issued by

Compliance Certification Services Inc.
Kun Shan Laboratory
No.10 Weiye Rd., Innovation park, Eco&Tec, Development Zone, Kunshan City, Jiangsu, China
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TESTING CERT #2541.01

Revision History

Revision	REPORT NO.	Date	Page Revised	Contents
Original	C160516S01-SF	May 20, 2016	N/A	N/A

TABLE OF CONTENTS

1. CERTIFICATE OF COMPLIANCE (SAR EVALUATION)

Product Name:	3G Bar Phone
Brand Name:	RINNO
Model Name.:	R310
Series Model:	N/A
Devices supporting GPRS/EDGE：	Class B
Device Category:	Protable DEVICES
Exposure Category:	GENERAL POPULATION/UNCONTROLLED EXPOSURE
Date of Test:	May 18, 2016 & May 19, 2016
Applicant: Address:	**Distribuidora Sinn, S.A. DE C.V.** Lago Zurich No.219 Piso 12, Colonia Ampliacion Granada, Del. Miguel Hidalgo, Mexico City, Mexico
Manufacturer: Address:	**ZTECH communication (shenzhen) Co.,Ltd** 7 floor. D block.ZHIGU .XIxiang,BAOAN District, ShenZhen, China, 518000
Application Type:	Certification

APPLICABLE STANDARDS AND TEST PROCEDURES

STANDARDS AND TEST PROCEDURES	TEST RESULT
ANSI/IEEE C95.1-1992	compliance

Deviation from Applicable Standard

None

The device was tested by Compliance Certification Services Inc. in accordance with the measurement methods and procedures specified in KDB 865664 The test results in this report apply only to the tested sample of the stated device/equipment. Other similar device/equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Approved by:	*Tested by:*
Jeff fang	Sam. ye.
Jeff.fang RF Manager Compliance Certification Services Inc.	Sam.ye Test Engineer Compliance Certification Services Inc.

2. EUT DESCRIPTION

<table>
<tr><td>Product Name:</td><td colspan="2">3G Bar Phone</td></tr>
<tr><td>Brand Name:</td><td colspan="2">RINNO</td></tr>
<tr><td>Model Name.:</td><td colspan="2">R310</td></tr>
<tr><td>Series Model:</td><td colspan="2">N/A</td></tr>
<tr><td>Model Discrepancy:</td><td colspan="2">N/A</td></tr>
<tr><td>FCC ID:</td><td colspan="2">2AGTFR310</td></tr>
<tr><td>Software version</td><td colspan="2">2.0</td></tr>
<tr><td>Hardware version</td><td colspan="2">1.0</td></tr>
<tr><td>IMEI:</td><td colspan="2">358650070000419</td></tr>
<tr><td>Power reduction:</td><td colspan="2">NO</td></tr>
<tr><td>DTM Description:</td><td colspan="2">N/A</td></tr>
<tr><td>Device Category:</td><td colspan="2">Production unit</td></tr>
<tr><td>Frequency Range:</td><td colspan="2">GSM 850: 824.2 ~ 848.8 MHz
GSM1900: 1850.2 ~ 1909.8 MHz
WCDMA Band II:1852.4~1907.6MHz
WCDMA Band V:826.4~846.6 MHz
Bluetooth: 2402 ~ 2480 MHz</td></tr>
<tr><td>Max. Reported SAR(1g):</td><td>Head:
GSM 850: 0.313 W/kg
GSM 1900: 0.277 W/kg
WCDMA Band II: 0.781 W/kg
WCDMA Band V: 0.745 W/kg</td><td>Body:
GSM 850: 0.767 W/kg
GSM1900: 0.405 W/kg
WCDMA Band II: 0.597 W/kg
WCDMA Band V: 0.770 W/kg</td></tr>
<tr><td>Modulation Technique:</td><td colspan="2">GSM/GPRS: GMSK
EDGE:8PSK
RMC/AMR: QPSK
WCDMA: QPSK
Release version:
WCDMA:R99
HSDPA:Rel.7
HSUPA:Rel.6
Bluetooth 2.1 +EDR: GFSK + π/4DQPSK+8DPSK</td></tr>
<tr><td>Accessories:</td><td colspan="2">Battery(rating):
Capacitance: 800 mAh
Rated Voltage: 3.7 V</td></tr>
<tr><td>Antenna Specification:</td><td colspan="2">GSM&WCDMA: PIFA Antenna
Bluetooth: PIFA Antenna</td></tr>
<tr><td>Operating Mode:</td><td colspan="2">Maximum continuous output</td></tr>
<tr><td colspan="3">Remark：The product details information please refer to the product specification</td></tr>
<tr><td colspan="3"></td></tr>
</table>

3. REQUIREMENTS FOR COMPLIANCE TESTING DEFINED BY THE FCC

The order requires routine SAR evaluation prior to equipment authorization of portable transmitter devices, including portable telephones. For consumer products, the applicable limit is 1.6 W/Kg for an uncontrolled environment and 8.0 W/Kg for an occupational/controlled environment as recommended by the FCC 47 CFR Part 2 (2.1093).

4. TEST METHODOLOGY

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

☒ FCC 47 CFR Part 2 (2.1093)
☒ ANSI/IEEE C95.1-1992
☒ IEEE 1528:2013
☒ KDB 447498 D01v06 General RF Exposure Guidance
☒ KDB 648474 D04v01r03 Handset SAR
☒ KDB 865664 D01v01r04 SAR Measurement 100 MHz to 6 GHz
☒ KDB 865664 D02v01r02 RF Exposure Reporting
☒ KDB 941225 D01v03r01 3G SAR Procedures

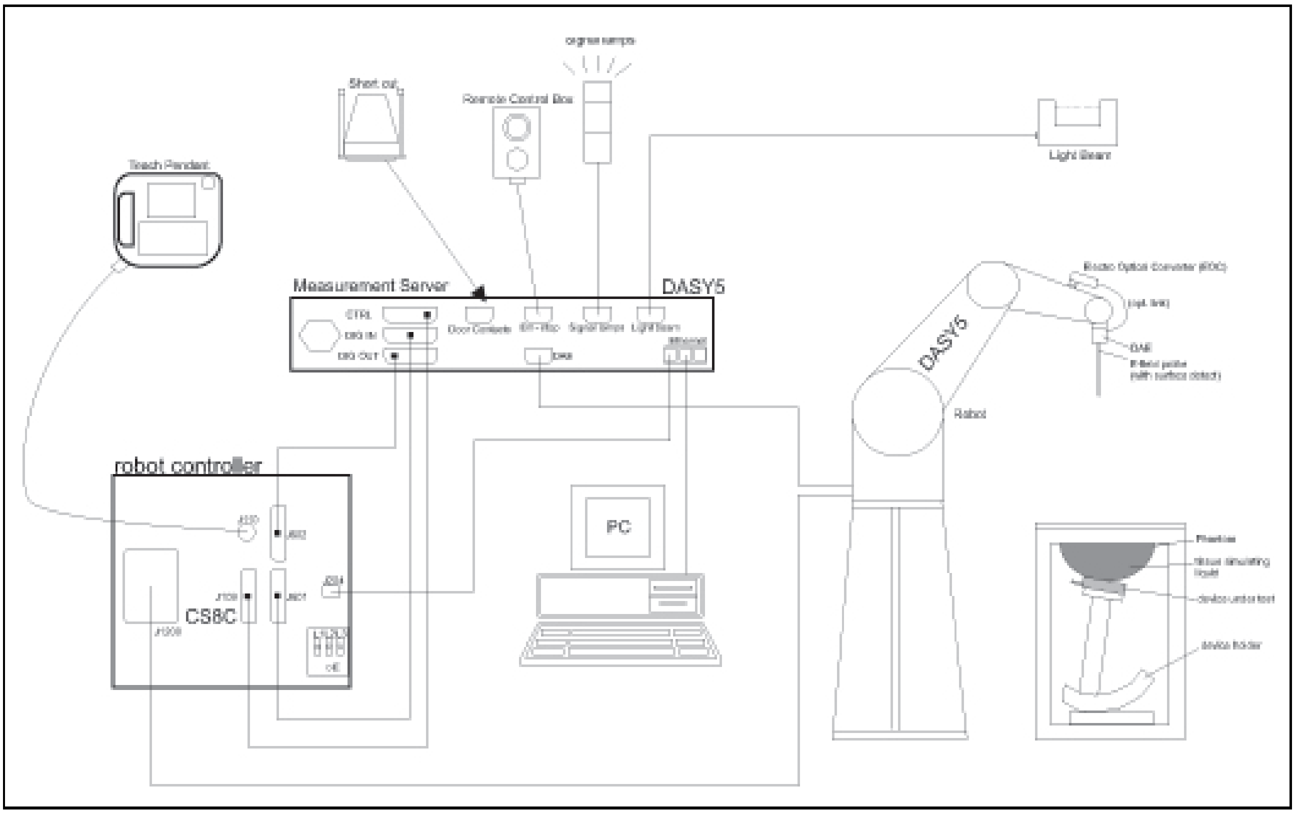
5. TEST CONFIGURATION

For WWAN SAR testing The device was controlled by using a base station emulator R&S CMU200. Communication between the device and the emulator was established by air link. The distance between the DUT and the antenna of the emulator is larger than 50 cm and the output power radiated from the emulator antenna is at least 30 dB smaller than the output power of DUT. The DUT was set from the emulator to radiate maximum output power during all tests.

6. DOSIMETRIC ASSESSMENT SETUP

These measurements were performed with the automated near-field scanning system DASY 5 from SPEAG. The system is based on a high precision robot (working range greater than 0.9 m), which positions the probes with a positional repeatability of better than ± 0.02 mm. Special E- and H-field probes have been developed for measurements close to material discontinuity, the sensors of which are directly loaded with a Schottky diode and connected via highly resistive lines to the data acquisition unit. The SAR measurements were conducted with the E-field PROBE EX3DV4 (manufactured by SPEAG), designed in the classical triangular configuration and optimized for dosimetric evaluation. The probe has been calibrated according to the procedure described in [7] with accuracy of better than ±10%. The spherical isotropy was evaluated with the procedure described in [8] and found to be better than ±0.25 dB. The phantom used was the SAM Twin Phantom as described in FCC supplement C, IEE P1528 and CENELEC EN 62209.

6.1 MEASUREMENT SYSTEM DIAGRAM



The DASY5 system for performing compliance tests consists of the following items:

- A standard high precision 6-axis robot (St¨aubli RX family) with controller, teach pendant and software. An arm extension for accommodating the data acquisition electronics (DAE).
- A dosimetric probe, i.e., an isotropic E-field probe optimized and calibrated for usage in tissue simulating liquid. The probe is equipped with an optical surface detector system.
- A data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
- The Electro-optical converter (EOC) performs the conversion between optical and electrical of the signals for the digital communication to the DAE and for the analog signal from the optical surface detection. The EOC is connected to the measurement server.
- The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- A probe alignment unit which improves the (absolute) accuracy of the probe positioning.
- A computer operating Windows 7.
- DASY5 software.
- Remote control with teach pendant and additional circuitry for robot safety such as warning lamps, etc.
- The SAM twin phantom enabling testing left-hand and right-hand usage.
- The device holder for handheld mobile phones.
- Tissue simulating liquid mixed according to the given recipes.
- Validation dipole kits allowing validating the proper functioning of the system.

6.2 SYSTEM COMPONENTS

	The DASY5 measurement server is based on a PC/104 CPU board with a 400MHz intel ULV celeron, 128MB chip-disk and 128 MB RAM. The necessary circuits for communication with either the DAE4(or DAE3) electronic box as well as the 16-bit AD-converter system for optical detection and digital I/O interface are contained on the DASY5 I/O-board, which is directly connected to the PC/104 bus of the CPU board. The measurement server performs all real-time data evaluation for field measurements and surface detection, controls robot movements and handles safety operation.
	The PC-operating system cannot interfere with these time critical processes. All connections are supervised by a watchdog, and disconnection of any of the cables to the measurement server will automatically disarm the robot and disable all program-controlled robot movements. Furthermore, the measurement server is equipped with two expansion slots which are reserved for future applications. Please note that the expansion slots do not have a standardized pinout and therefore only the expansion cards provided by SPEAG can be inserted. Expansion cards from any other supplier could seriously damage the measurement server. Calibration: No calibration required.
Data Acquisition Electronics (DAE)	

The data acquisition electronics (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 measurement server is accomplished through an optical downlink for data and status information as well as an optical uplink for commands and the clock. The mechanical probe mounting device includes two different sensor systems for frontal and sideways probe contacts. They are used for mechanical surface detection and probe collision detection. The input impedance of the DAE4 box is 200MOhm; the inputs are symmetrical and floating. Common mode rejection is above 80 dB.

EX3DV4 Isotropic E-Field Probe for Dosimetric Measurements

Construction: Symmetrical design with triangular core
Built-in shielding against static charges
PEEK enclosure material (resistant to organic solvents, e.g., DGBE)

Calibration: Basic Broad Band Calibration in air: 10-3000 MHz.
Conversion Factors (CF) for HSL 900 and HSL 1800
CF-Calibration for other liquids and frequencies upon request.

Frequency: 10 MHz to > 6 GHz; Linearity: ± 0.2 dB (30 MHz to 3 GHz)

Directivity: ± 0.3 dB in HSL (rotation around probe axis)
± 0.5 dB in HSL (rotation normal to probe axis)

Dynamic Range: 10 μW/g to > 100 mW/g; Linearity: ± 0.2 dB
(noise: typically < 1 μW/g)

Dimensions: Overall length: 337 mm (Tip: 9 mm)
Tip diameter: 2.5 mm (Body: 10 mm)
Distance from probe tip to dipole centers: 1 mm

Application: High precision dosimetric measurements in any exposure scenario (e.g., very strong gradient fields). Only probe which enables compliance testing for frequencies up to 6 GHz with precision of better 30%.

Interior of probe

SAM Twin Phantom

Construction:

The shell corresponds to the specifications of the Specific Anthropomorphic Mannequin (SAM) phantom defined in IEEE 1528-200X, CENELEC 50360 and IEC 62209. 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 manually teaching three points with the robot.

Shell Thickness: 2 ±0.2 mm

Filling Volume: Approx. 25 liters

Dimensions: Height: 850mm; Length: 1000mm; Width: 750mm

SAM Phantom (ELI4 v4.0)

Description Construction:

Phantom for compliance testing of handheld and body-mounted wireless devices in the frequency range of 30 MHz to 6 GHz. ELI4 is fully compatible with the latest draft of the standard IEC 62209 Part II and all known tissue simulating liquids. ELI4 has been optimized regarding its performance and can be integrated into our standard phantom tables. A cover prevents evaporation of the liquid. Reference markings on the phantom allow installation of the complete setup, including all predefined phantom positions and measurement grids, by teaching three points. The phantom is supported by software version DASY4/DASY5.5 and higher and is compatible with all SPEAG dosimetric probes and dipoles

Shell Thickness: 2.0 ± 0.2 mm (sagging: <1%)

Filling Volume: Approx. 25 liters

Dimensions: Major ellipse axis: 600 mm

Minor axis: 400 mm 500mm

Device Holder for SAM Twin Phantom

Construction: In combination with the Twin SAM Phantom, the Mounting Device (made from POM) enables the rotation of the mounted transmitter in spherical coordinates, whereby the rotation point is the ear opening. The devices can be easily and accurately positioned according to IEC, IEEE, CENELEC, FCC or other specifications. The device holder can be locked at different phantom locations (left head, right head, and flat phantom).

System Validation Kits for SAM Twin Phantom

Construction: Symmetrical dipole with l/4 balun Enables measurement of feedpoint impedance with NWA Matched for use near flat phantoms filled with brain simulating solutions Includes distance holder and tripod adaptor. **Frequency:** 900,1800,2450,5800 MHz **ReTune loss:** > 20 dB at specified validation position **Power capability:** > 100 W (f < 1GHz); > 40 W (f > 1GHz) **Dimensions:** D835V2: dipole length: 161 mm; overall height: 340 mm D1800V2: dipole length: 72.5 mm; overall height: 300 mm D1900V2: dipole length: 67.7 mm; overall height: 300 mm D2450V2: dipole length: 51.5 mm; overall height: 290 mm D5GHzV2: dipole length: 20.6 mm; overall height: 300mm	
System Validation Kits for ELI4 phantom	
Construction: Symmetrical dipole with l/4 balun Enables measurement of feedpoint impedance with NWA Matched for use near flat phantoms filled with brain simulating solutions Includes distance holder and tripod adaptor. **Frequency:** 900, 1800, 2450, 5800 MHz **ReTune loss:** > 20 dB at specified validation position **Power capability:** > 100 W (f < 1GHz); > 40 W (f > 1GHz) **Dimensions:** D835V2: dipole length: 161 mm; overall height: 340 mm D1800V2: dipole length: 72.5 mm; overall height: 300 mm D1900V2: dipole length: 67.7 mm; overall height: 300 mm D2450V2: dipole length: 51.5 mm; overall height: 290 mm D5GHzV2: dipole length: 20.6 mm; overall height: 300 mm	

7. EVALUATION PROCEDURES

DATA EVALUATION

The DASY 5 post processing software automatically executes the following procedures to calculate the field units from the microvolt readings at the probe connector. The parameters used in the evaluation are stored in the configuration modules of the software:

Probe parameters:	- Sensitivity	$Norm_i$, a_{i0}, a_{i1}, a_{i2}
	- Conversion factor	$ConvF_i$
	- Diode compression point	dcp_i
Device parameters:	- Frequency	f
	- Crest factor	cf
Media parameters:	- Conductivity	σ
	- Density	ρ

These parameters must be set correctly in the software. They can be found in the component documents or be imported into the software from the configuration files issued for the DASY 5 components. In the direct measuring mode of the multi-meter option, the parameters of the actual system setup are used. In the scan visualization and export modes, the parameters stored in the corresponding document files are used.

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 as:

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

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 5 parameter)
dcp_i = Diode compression point (DASY 5 parameter)

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

E-field probes: $$E_i = \sqrt{\frac{V_i}{Norm_i \bullet ConvF}}$$

H-field probes: $$H_i = \sqrt{Vi} \cdot \frac{a_{i10} + a_{i11} f + a_{i12} f^2}{f}$$

with V_i = Compensated signal of channel i (i = x, y, z)
$Norm_i$ = Sensor sensitivity of channel i (i = x, y, z)
μV/(V/m)^2 for E0field Probes
$ConvF$ = Sensitivity enhancement in solution
aij = Sensor sensitivity factors for H-field probes
f = Carrier frequency (GHz)
Ei = Electric field strength of channel i in V/m
Hi = Magnetic field strength of channel i in A/m

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

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

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

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

with SAR = local specific absorption rate in mW/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

Note that the density is normally set to 1 (or 1.06), to account for actual brain density rather than the density of the simulation liquid.

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

$$P_{pwe} = \frac{E_{tot}^{2}}{3770} \quad \text{or} \quad P_{pwe} = H_{tot}^{2} \cdot 37.7$$

with P_{pwe} = Equivalent power density of a plane wave in mW/cm^2
E_{tot} = total electric field strength in V/m
H_{tot} = total magnetic field strength in A/m

SAR EVALUATION PROCEDURES

The procedure for assessing the peak spatial-average SAR value consists of the following steps:

- **Power Reference Measurement**

  The reference and drift jobs are useful jobs for monitoring the power drift of the device under test in the batch process. Both jobs measure the field at a specified reference position, at a selectable distance from the phantom surface. The reference position can be either the selected section's grid reference point or a user point in this section. The reference job projects the selected point onto the phantom surface, orients the probe perpendicularly to the surface, and approaches the surface using the selected detection method.

- **Area Scan**

  The area scan is used as a fast scan in two dimensions to find the area of high field values, before doing a finer measurement around the hot spot. The sophisticated interpolation routines implemented in DASY 5 software can find the maximum locations even in relatively coarse grids. The scan area is defined by an editable grid. This grid is anchored at the grid reference point of the selected section in the phantom. When the area scan's property sheet is brought-up, grid was at to 15 mm by 15 mm and can be edited by a user.

- **Zoom Scan**

  Zoom scans are used to assess the peak spatial SAR values within a cubic averaging volume containing 1 g and 10 g of simulated tissue. The default zoom scan measures 5 x 5 x 7 points within a cube whose base faces are centered around the maximum found in a preceding area scan job within the same procedure. If the preceding Area Scan job indicates more then one maximum, the number of Zoom Scans has to be enlarged accordingly (The default number inserted is 1).

- **Power Drift measurement**

  The drift job measures the field at the same location as the most recent reference job within the same procedure, and with the same settings. The drift measurement gives the field difference in dB from the reading conducted within the last reference measurement. Several drift measurements are possible for one reference measurement. This allows a user to monitor the power drift of the device under test within a batch process. In the properties of the Drift job, the user can specify a limit for the drift and have DASY 5 software stop the measurements if this limit is exceeded.

- **Z-Scan**

  The Z Scan job measures points along a vertical straight line. The line runs along the Z-axis of a one-dimensional grid. A user can anchor the grid to the current probe location. As with any other grids, the local Z-axis of the anchor location establishes the Z-axis of the grid.

SPATIAL PEAK SAR EVALUATION

The procedure for spatial peak SAR evaluation has been implemented according to the IEEE1529 standard. It can be conducted for 1 g and 10 g.

The DASY 5 system allows evaluations that combine measured data and robot positions, such as:

- maximum search
- extrapolation
- boundary correction
- peak search for averaged SAR

During a maximum search, global and local maximum searches are automatically performed in 2-D after each Area Scan measurement with at least 6 measurement points. It is based on the evaluation of the local SAR gradient calculated by the Quadratic Shepard's method. The algorithm will find the global maximum and all local maxima within -2 dB of the global maxima for all SAR distributions.

Extrapolation

Extrapolation routines are used to obtain SAR values between the lowest measurement points and the inner phantom surface. The extrapolation distance is determined by the surface detection distance and the probe sensor offset. Several measurements at different distances are necessary for the extrapolation.

Extrapolation routines require at least 10 measurement points in 3-D space. They are used in the Cube Scan to obtain SAR values between the lowest measurement points and the inner phantom surface. The routine uses the modified Quadratic Shepard's method for extrapolation. For a grid using 5x5x7 measurement points with 5mm resolution amounting to 343 measurement points, the uncertainty of the extrapolation routines is less than 1% for 1 g and 10 g cubes.

Boundary effect

For measurements in the immediate vicinity of a phantom surface, the field coupling effects between the probe and the boundary influence the probe characteristics. Boundary effect errors of different dosimetric probe types have been analyzed by measurements and using a numerical probe model. As expected, both methods showed an enhanced sensitivity in the immediate vicinity of the boundary. The effect strongly depends on the probe dimensions and disappears with increasing distance from the boundary. The sensitivity can be approximately given as:

$$S \approx S_o + S_b exp(-\frac{z}{a})cos(\pi\frac{z}{\lambda})$$

Since the decay of the boundary effect dominates for small probes ($a<<\lambda$), the cos-term can be omitted. Factors *Sb* (parameter Alpha in the DASY 5 software) and *a* (parameter Delta in the DASY 5 software) are assessed during probe calibration and used for numerical compensation of the boundary effect. Several simulations and measurements have confirmed that the compensation is valid for different field and boundary configurations.

This simple compensation procedure can largely reduce the probe uncertainty near boundaries. It works well as long as:

- the boundary curvature is small
- the probe axis is angled less than 30_ to the boundary normal
- the distance between probe and boundary is larger than 25% of the probe diameter
- the probe is symmetric (all sensors have the same offset from the probe tip)

Since all of these requirements are fulfilled in a DASY 5 system, the correction of the probe boundary effect in the vicinity of the phantom surface is performed in a fully automated manner via the measurement data extraction during post processing.

8. MEASUREMENT UNCERTAINTY

Measurement uncertainty for 30 MHz to 3 GHz averaged over 1 gram

Uncertainty Component	Uncertainty	Prob.	Div.	$c_{i\,(1g)}$	Std. Unc. (1-g)	v_i or Veff
Measurement System						
Probe Calibration (*k*=1)	6.00	Normal	1	1	6.00	∞
Probe Isotropy	4.70	Rectangular	√3	0.7	1.90	∞
Modulation Response	2.40	Rectangular	√3	1	1.39	∞
Hemispherical Isotropy	9.60	Rectangular	√3	0.7	3.88	∞
Boundary Effect	2.00	Rectangular	√3	1	1.15	∞
Linearity	4.70	Rectangular	√3	1	2.71	∞
System Detection Limit	1.00	Rectangular	√3	1	0.58	∞
Readout Electronics	0.30	Normal	1	1	0.30	∞
Response Time	0.80	Rectangular	√3	1	0.46	∞
Integration Time	2.60	Rectangular	√3	1	1.50	∞
RF Ambient Noise	3.00	Rectangular	√3	1	1.73	∞
RF Ambient Reflections	3.00	Rectangular	√3	1	1.73	∞
Probe Positioner	0.40	Rectangular	√3	1	0.23	∞
Probe Positioning	2.90	Rectangular	√3	1	1.67	∞
Max. SAR Evaluation	2.00	Rectangular	√3	1	1.15	∞
Test sample Related						
Test sample Positioning	2.9	Normal	1	1	2.9	145
Device Holder Uncertainty	3.6	Normal	1	1	3.6	5
Power drift	5	Rectangular	√3	1	2.89	∞
Power Scaling	0	Rectangular	√3	1	0.00	∞
Phantom and Tissue Parameters						
Phantom Uncertainty	6.1	Rectangular	√3	1	3.52	∞
SAR correction	1.9	Rectangular	√3	1	1.10	∞
Liquid Conductivity (target)	5	Rectangular	√3	0.64	1.85	∞
Liquid Conductivity (meas)	1.25	Rectangular	√3	0.78	0.56	∞
Liquid Permittivity (target)	5	Rectangular	√3	0.6	1.73	∞
Liquid Permittivity (meas)	-3.17	Rectangular	√3	0.26	-0.48	∞
Temp. unc. - Conductivity	3.4	Rectangular	√3	0.78	1.53	∞
Temp. unc. - Permittivity	0.4	Rectangular	√3	0.23	0.05	∞
Combined Std. Uncertainty		RSS			11.44	361
Expanded STD Uncertainty		*k*=2			22.89%	
Expanded STD Uncertainty		*k*=2			1.79dB	

Measurement uncertainty for 30 MHz to 3 GHz averaged over 1 gram						
Uncertainty Component	Uncertainty	Prob.	Div.	$c_{i\,(1g)}$	Std. Unc. (1-g)	v_i or V_{eff}
Measurement System						
Probe Calibration (*k*=1)	6.00	Normal	1	1	6.0	∞
Axial Isotropy	4.70	Rectangular	√3	0.7	1.9	∞
Hemispherical Isotropy	9.60	Rectangular	√3	0.7	3.9	∞
Boundary Effect	1.00	Rectangular	√3	1	0.6	∞
Linearity	4.70	Rectangular	√3	1	2.7	∞
System Detection Limit	1.00	Rectangular	√3	1	0.6	∞
Readout Electronics	0.30	Normal	1	1	0.3	∞
Response Time	0.80	Rectangular	√3	0	0.0	∞
Integration Time	2.60	Rectangular	√3	0	0.0	∞
RF Ambient Noise	3.00	Rectangular	√3	1	1.7	∞
RF Ambient Reflections	3.00	Rectangular	√3	1	1.7	∞
Probe Positioner	0.40	Rectangular	√3	1	0.2	∞
Probe Positioning	2.90	Rectangular	√3	1	1.7	∞
Max. SAR Evaluation	1.00	Rectangular	√3	1	0.6	∞
System validation source (dipole)						
Deviation of experimental dipole from numerical dipole	5	Normal	1	1	5.0	∞
Dipole axis to liquid distance	2	Rectangular	√3	1	1.2	∞
Input power and SAR drift	4.7	Rectangular	√3	1	2.7	∞
Phantom and Tissue Parameters						
Phantom Uncertainty	4	Rectangular	√3	1	2.3	∞
SAR correction	1.9	Rectangular	1	0.84	1.6	∞
Liquid Conductivity (meas)	1.25	Rectangular	1	0.78	0.98	∞
Liquid Permittivity (meas)	-3.17	Rectangular	1	0.23	-0.73	∞
Temp. unc. - Conductivity	1.7	Rectangular	√3	0.78	0.77	∞
Temp. unc. - Permittivity	0.3	Rectangular	√3	0.23	0.04	∞
Combined Std. Uncertainty		RSS			10.8	361
Expanded STD Uncertainty		*k*=2			21.51%	
Expanded STD Uncertainty		*k*=2			1.69dB	

Table: Worst-case uncertainty for DASY5 assessed according to IEEE1528-2013.
The budge is valid for the frequency range 30 MHz to 3G Hz and represents a worst-case analysis.

9. EXPOSURE LIMIT

(A). Limits for Occupational/Controlled Exposure (W/kg)

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

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

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

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

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

Occupational/Controlled Environments are defined as locations where there is exposure that may be incurred by people who are aware of the potential for exposure, (i.e. as a result of employment or occupation).

NOTE
GENERAL POPULATION/UNCONTROLLED EXPOSURE
PARTIAL BODY LIMIT
1.6 W/kg

10. EUT ARRANGEMENT

Please refer to IEEE1528-2013 illustration below.

10.1 ANTHROPOMORPHIC HEAD PHANTOM

Figure 7-1a shows the front, back and side views of SAM. The point “M” is the reference point for the center of mouth, “LE” is the left ear reference point (ERP), and “RE” is the right ERP. The ERPs are 15 mm posterior to the entrance to ear canal (EEC) along the B-M line (Back-Mouth), as shown in Figure 7-1b. The plane passing through the two ear reference points and M is defined as the Reference Plane. The line N-F (Neck-Front) perpendicular to the reference plane and passing through the RE (or LE) is called the Reference Pivoting Line (see Figure 7-1c). Line B-M is perpendicular to the N-F line. Both N-F and B-M lines should be marked on the external phantom shell to facilitate handset positioning. Posterior to the N-F line, the thickness of the phantom shell with the shape of an ear is a flat surface 6 mm thick at the ERPs. Anterior to the N-F line, the ear is truncated as illustrated in Figure 7-1b. The ear truncation is introduced to avoid the handset from touching the ear lobe, which can cause unstable handset positioning at the cheek.

Figure 7-1a
Front, back and side view of SAM (model for the phantom shell)

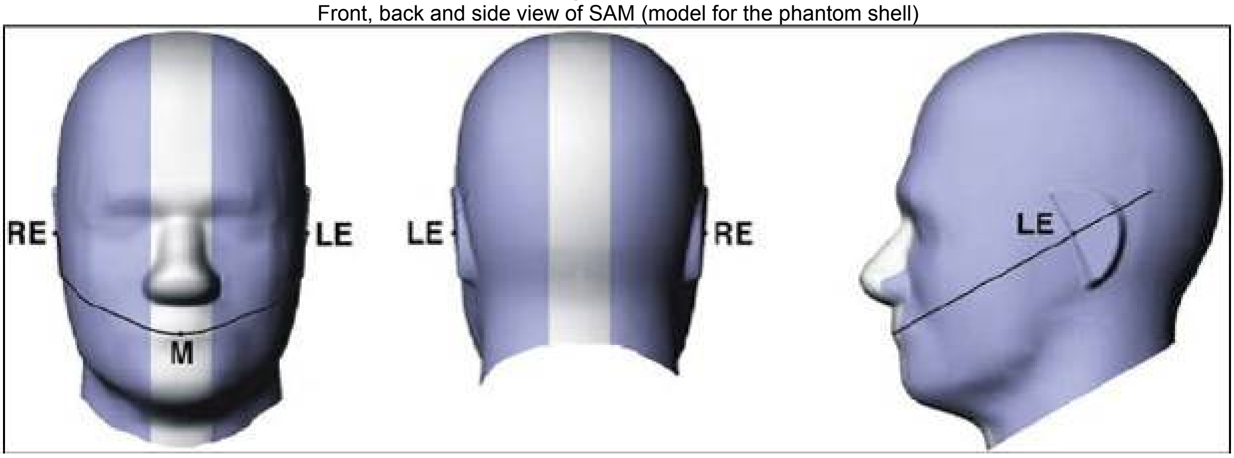
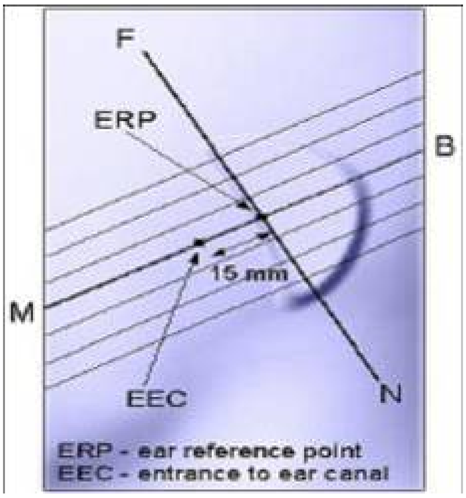


Figure 7-1b
Close up side view of phantom showing the ear region

Figure 7-1c
Side view of the phantom showing relevant markings and the 7 cross sectional plane locations



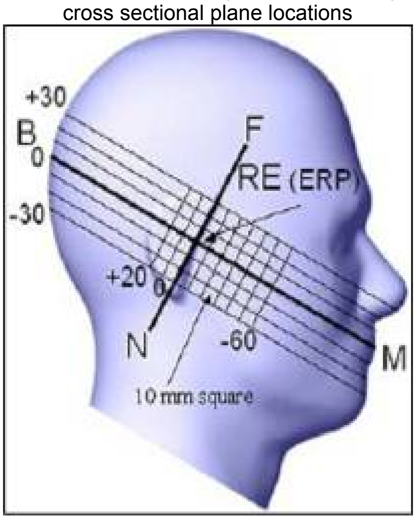


Figure 7-1b
Close up side view of phantom showing the ear region

Figure 7-1c
Side view of the phantom showing relevant markings and the 7 cross sectional plane locations

10.2 DEFINITION OF THE “CHEEK/TOUCH” POSITION

The “cheek” or “touch” position is defined as follows:

a. Ready the handset for talk operation, if necessary. For example, for handsets with a cover piece, open the cover. (If the handset can also be used with the cover closed both configurations must be tested.)

b. Define two imaginary lines on the handset: the vertical centerline and the horizontal line. The vertical centerline passes through two points on the front side of the handset: the midpoint of the width wt of the handset at the level of the acoustic output (point A on Figures 7-2a and 7-2b), and the midpoint of the width wb of the bottom of the handset (point B). The horizontal line is perpendicular to the vertical centerline and passes through the center of the acoustic output (see Figure 7-2a). The two lines intersect at point A. Note that for many handsets, point A coincides with the center of the acoustic output. However, the acoustic output may be located elsewhere on the horizontal line. Also note that the vertical centerline is not necessarily parallel to the front face of the handset (see Figure 7-2b), especially for clamshell handsets, handsets with flip pieces, and other irregularly-shaped handsets.

c. Position the handset close to the surface of the phantom such that point A is on the (virtual) extension of the line passing through points RE and LE on the phantom (see Figure 7-2c), such that the plane defined by the vertical center line and the horizontal line of the handset is approximately parallel to the sagittal plane of the phantom.

d. Translate the handset towards the phantom along the line passing through RE and LE until the handset touches the pinna.

e. e) While maintaining the handset in this plane, rotate it around the LE-RE line until the vertical centerline is in the plane normal to MB-NF including the line MB (called the reference plane).

f. Rotate the handset around the vertical centerline until the handset (horizontal line) is symmetrical with respect to the line NF.

g. While maintaining the vertical centerline in the reference plane, keeping point A on the line passing through RE and LE and maintaining the handset contact with the pinna, rotate the handset about the line NF until any point on the handset is in contact with a phantom point below the pinna (cheek). See Figure 7-2c. The physical angles of rotation should be noted.

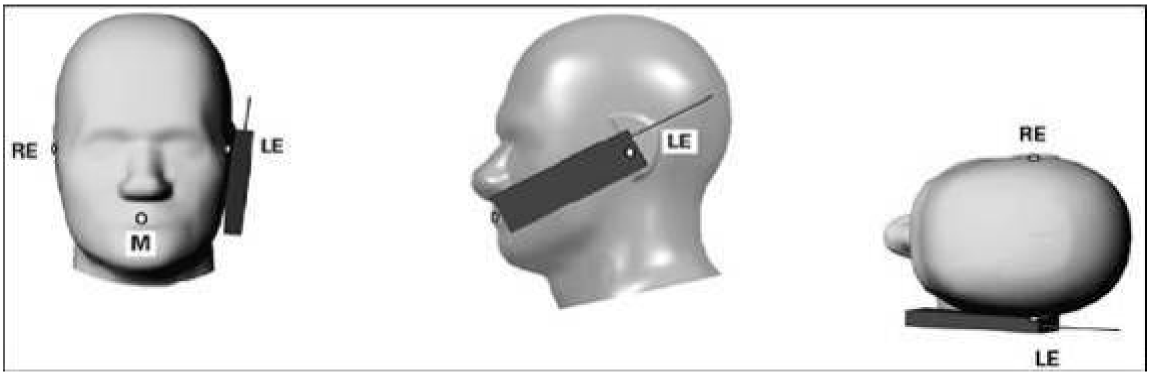


Figure 7.2c
Phone “cheek” or “touch” position. The reference points for the right ear (RE), left ear (LE) and mouth (M), which define the reference plane for handset positioning, are indicated.

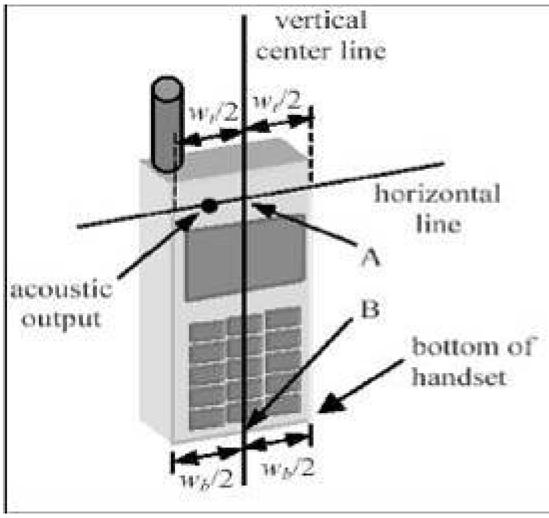


Figure 7.2a

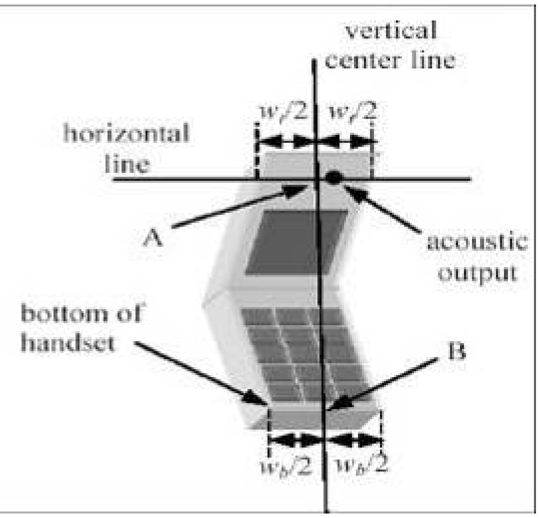


Figure 7.2b

10.3 DEFINITION OF THE “TILTED” POSITION

The “tilted” position is defined as follows:

a. Repeat steps (a) – (g) of 7.2 to place the device in the “cheek position.”

b. While maintaining the orientation of the handset move the handset away from the pinna along the line passing through RE and LE in order to enable a rotation of the handset by 15 degrees.

c. Rotate the handset around the horizontal line by 15 degrees.

d. While maintaining the orientation of the handset, move the handset towards the phantom on a line passing through RE and LE until any part of the handset touches the ear. The tilted position is obtained when the contact is on the pinna. If the contact is at any location other than the pinna (e.g., the antenna with the back of the phantom head), the angle of the handset should be reduced. In this case, the tilted position is obtained if any part of the handset is in contact with the pinna as well as a second part of the handset is contact with the phantom (e.g., the antenna with the back of the head).

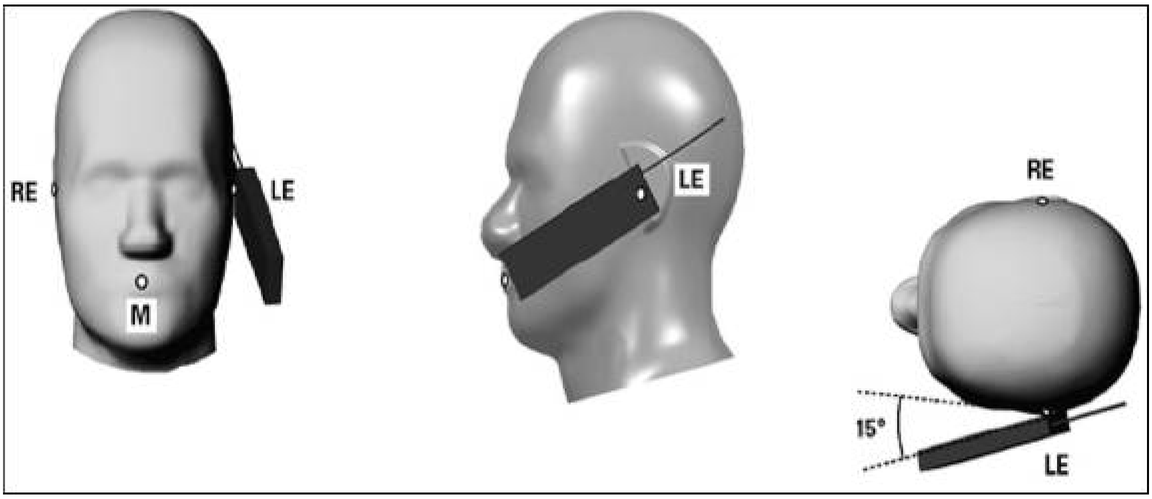


Figure 7-3
Phone “tilted” position. The reference points for the right ear (RE), left ear (LE) and mouth (M), which define the reference plane for handset positioning, are indicated.

11. MEASUREMENT RESULTS

11.1 TEST LIQUIDS CONFIRMATION

SIMULATED TISSUE LIQUID PARAMETER CONFIRMATION

The dielectric parameters were checked prior to assessment using the HP85070C dielectric probe kit. The dielectric parameters measured are reported in each correspondent section.

KDB865664 D01 RECOMMENDED TISSUE DIELECTRIC PARAMETERS

The head and Body tissue dielectric parameters recommended by the KDB865664 D01 have been incorporated in the following table.

Target Frequency (MHz)	Head		Body	
	ε_r	σ (S/m)	ε_r	σ (S/m)
150	52.3	0.76	61.9	0.80
300	45.3	0.87	58.2	0.92
450	43.5	0.87	56.7	0.94
835	41.5	0.90	55.2	0.97
900	41.5	0.97	55.0	1.05
915	41.5	0.98	55.0	1.06
1450	40.5	1.20	54.0	1.30
1610	40.3	1.29	53.8	1.40
1800-2000	40.0	1.40	53.3	1.52
2450	39.2	1.80	52.7	1.95
3000	38.5	2.40	52.0	2.73
5800	35.3	5.27	48.2	6.00

(ε_r = relative permittivity, σ = conductivity and ρ = 1000 kg/m^3)

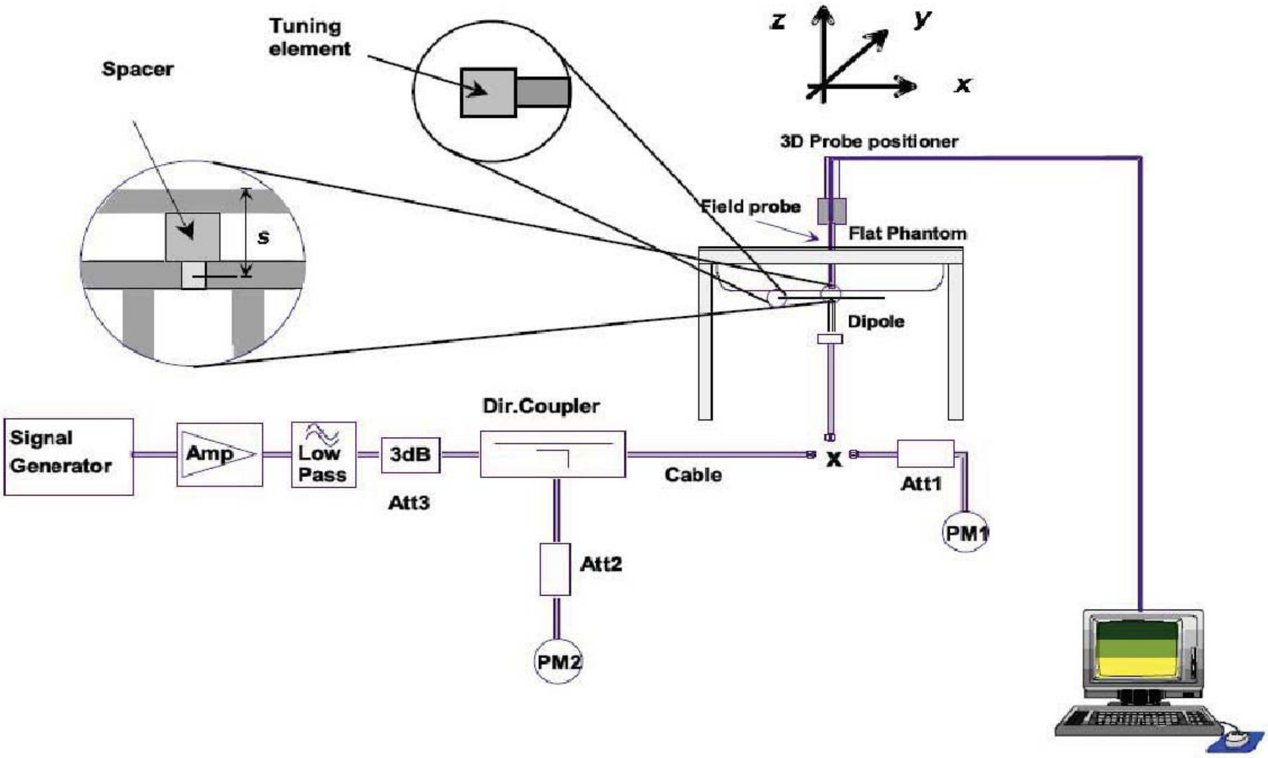
11.2 LIQUID MEASUREMENT RESULTS

The following table show the measuring results for simulating liquid:

Liquid Type	Liquid Temp. (°C)	Parameters	Target	Measured	Deviation (%)	Limited (%)	Measured Date
Head 835	21.5	Permitivity(ε)	41.50	42.63	2.72	± 5	2016-5-18
		Conductivity(σ)	0.90	0.91	0.98	± 5	
Head1900	21.5	Permitivity(ε)	40.00	39.50	-1.25	± 5	2016-5-18
		Conductivity(σ)	1.40	1.40	-0.21	± 5	
Body835	21.5	Permitivity(ε)	55.20	55.49	0.53	± 5	2016-5-19
		Conductivity(σ)	0.97	0.96	-1.23	± 5	
Body1900	21.5	Permitivity(ε)	53.30	51.61	-3.17	± 5	2016-5-19
		Conductivity(σ)	1.52	1.54	1.25	± 5	

11.3 SYSTEM PERFORMANCE CHECK

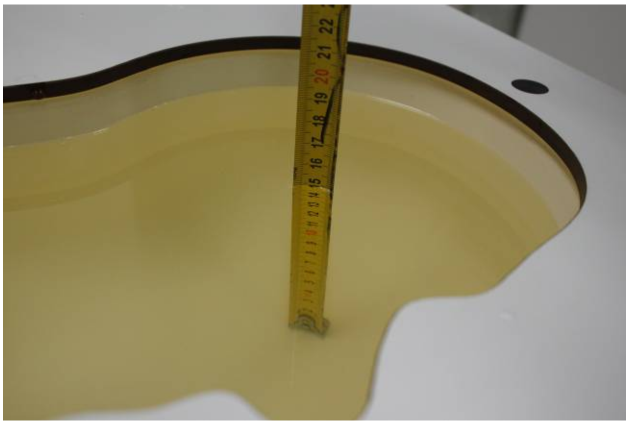
The system performance check is performed prior to any usage of the system in order to guarantee reproducible results. The system performance check verifies that the system operates within its specifications of ±10%. The system performance check results are tabulated below. And also the corresponding SAR plot is attached as well in the SAR plots files.
System check is performed regularly on all frequency bands where tests are performed with the DASY5 system .



SYSTEM PERFORMANCE CHECK MEASUREMENT CONDITIONS

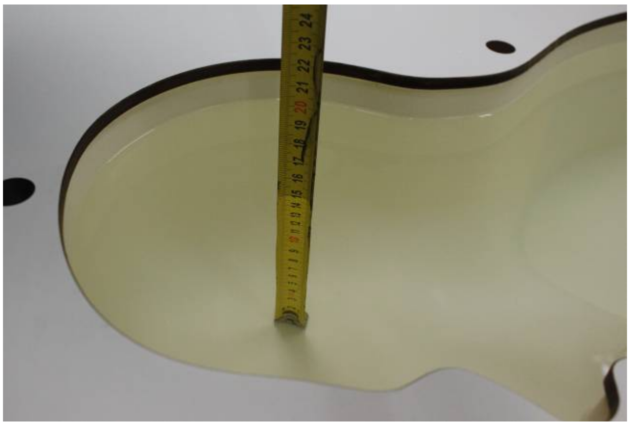
- The measurements were performed in the flat section of the SAM twin phantom filled with head and body simulating liquid of the following parameters.
- The DASY5 system withan E-fileld probe EX3DV4：3798 was used for the measurements.
- The dipole was mounted on the small tripod so that the dipole feed point was positioned below the center marking of the flat phantom section and the dipole was oriented parallel to the body axis (the long side of the phantom). The standard measuring distance was 15 mm (below 1 GHz) and 10 mm (above 1 GHz) from dipole center to the simulating liquid surface.
- The coarse grid with a grid spacing of 10mm was aligned with the dipole.
- Special 7x7x7 fine cube was chosen for cube integration (dx= 5 mm, dy= 5 mm, dz= 5 mm).
- Distance between probe sensors and phantom surface was set to 2 mm.
- The dipole input power was 250mW±3%.
- The results are normalized to 1 W input power.

Depth of Liquid

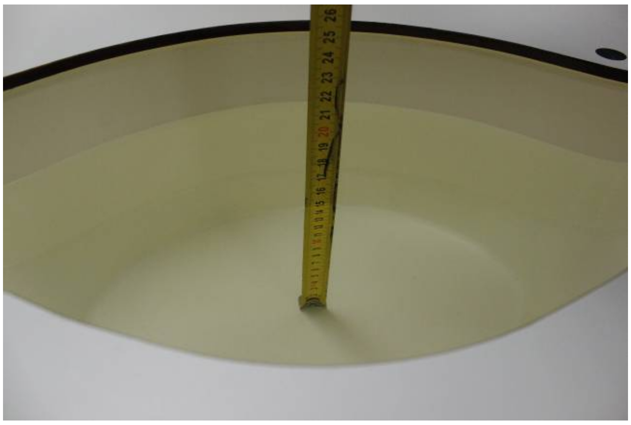


Liquid depth in the head Phantom (835 MHz 15cm depth

Liquid depth in the Body Phantom (835 MHz 15cm depth)



Liquid depth in the head Phantom (1900 MHz 15cm depth)



Liquid depth in the Body Phantom (1900 MHz 15cm depth)

The following table gives the recipes for tissue simulating liquids.

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

Frequency	water	sugar	cellulose	Salt	bactericide	DGBE	conductivity	permittivity
For Head								
835	40.3	57.9	0.2	1.4	0.2	0	0.90	41.5
1800,1900,2000	55.2	0	0	0.3	0	44.5	1.40	40.0
2450	55.0	0	0	0	0	45.0	1.80	39.2
For Body								
835	50.6	48.2	0.2	0.9	0.1	0	0.97	55.2
1800,1900,2000	70.2	0	0	0.4	0	29.4	1.52	53.3
2450	68.6	0	0	0	0	31.4	1.95	52.7

alt: 99+% Pure Sodium Chloride Sugar: 98+% Pure Sucrose
DGBE: 99+% Di(ethylene glycol) butyl ether, [2-(2-butoxyethoxy)ethanol]

<Tissue Dielectric Parameter Check Results>

Liquid Type	Ambient Temp. (°C)	Liquid Temp. (°C)	Input Power (W)	Measured SAR_{1g} (W/Kg)	1W Target SAR_{1g}(W/Kg)	1W Normalized SAR_{1g}(W/Kg)	Deviation (%)	Limited (%)	Date
Head835	22	21.5	0.25	2.34	9.50	9.36	-1.47	± 10	2016-5-18
Body835	22	21.5	0.25	2.45	9.53	9.8	2.83	± 10	2016-5-19
Head1900	22	21.5	0.25	10.25	40.40	41.00	1.49	± 10	2016-5-18
Body1900	22	21.5	0.25	10.16	40.50	40.64	0.35	± 10	2016-5-19

11.4 EUT TUNE-UP PROCEDURES AND TEST MODE

The following procedure had been used to prepare the EUT for the SAR test.
To setup the desire channel frequency and the maximum output power. A Radio Communication Tester “CMU200 ” was used to program the EUT.

General Note:

1. Per KDB 447498 D01, the maximum output power channel is used for SAR testing and for further SAR test reduction.
2. For head SAR testing, the EUT was set in GSM Voice for GSM850 and GSM1900 due to its highest frame-average power.
3. For body worn SAR testing, the EUT was set in GPRS 4 Tx slots for GSM850 and GPRS 4 Tx GSM1900 due to its highest frame-average power.
4. For hotspot SAR testing, the EUT was set in GPRS 4 Tx slots for GSM850 and GPRS 4 Tx GSM1900 due to its highest frame-average power.

GSM Conducted output power(dBm):

Band	GSM 850			GSM 1900		
Channel	128	190	251	512	661	810
Frequency(MHz)	824.2	836.6	848.8	1850.2	1880.0	1909.8
Maximum Burst-Averaged Output Power						
GSM(GMSK,1Uplink)	32.21	**32.37**	32.24	29.11	**29.19**	29.15
GPRS 8 (GMSK,1 Uplink)	32.18	32.33	32.19	28.87	28.96	28.91
GPRS 10 (GMSK,2 Uplink)	31.11	31.20	31.13	27.66	27.71	27.61
GPRS 11 (GMSK,3 Uplink)	30.05	30.11	30.09	26.81	26.85	26.77
GPRS 12 (GMSK,4 Uplink)	29.13	29.22	29.17	25.63	25.67	25.65
Maximum Frame-Averaged Output Power						
GSM(GMSK,1Uplink)	23.19	23.35	23.22	20.09	20.17	20.13
GPRS 8 (GMSK,1 Uplink)	23.15	23.30	23.16	19.84	19.93	19.88
GPRS 10 (GMSK,2 Uplink)	25.08	25.17	25.10	21.63	21.68	21.58
GPRS 11 (GMSK,3 Uplink)	25.79	25.85	25.83	22.55	22.59	22.51
GPRS 12 (GMSK,4 Uplink)	26.12	**26.21**	26.16	22.62	**22.66**	22.64

Remark: The frame-averaged power is linearly scaled the maximum burst-averaged power based on time slots. The calculated methods are shown as below:
Frame-averaged power = Burst-averaged power (1 Uplink) – 9.03 dBm
Frame-averaged power = Burst averaged power (2 Uplink) – 6.02 dBm
Frame-averaged power = Burst-averaged power (3 Uplink) – 4.26 dBm
Frame-averaged power = Burst averaged power (4 Uplink) – 3.01 dBm

Note:

1. Both burst-averaged and calculated frame-averaged powers are included. Frame-averaged power was calculated from the measured burst-averaged power by converting the slot powers into linear units and calculating the energy over 8 timeslots.

2. GPRS (GMSK) output powers were measured with coding scheme setting of 1 (CS1) on the base station simulator. CS1 was configured to measure GPRS output power measurements and SAR to ensure GMSK modulation in the signal. Our Investigation has shown that CS1 - CS4 settings do not have any impact on the output levels or modulation in the GPRS modes.
3. Per KDB 447498 D01, the maximum output power channel is used for SAR testing and for further SAR test reduction.

WCDMA Conducted output power(dBm):
As the SAR body tests for WCDMA **Band II and Band V** , we established the radio link through call processing. The Maximum Burst-Averaged Output Power were verified on high, middle and low channels for each test band according to 3GPP TS 34.121 with the following configuration: a 12.2kbps RMC, 64,144,384 kbps RMC with TPC set to all “all ‘1’s”b Test loop Mode 1
The following procedures had been used to prepare the EUT for the SAR test.

HSDPA Setup Configuration:

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

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

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

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

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

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

HSUPA Setup Configuration:

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

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

Note 1: Δ_{ACK}, Δ_{NACK} and Δ_{CQI} = 30/15 with β_{hs} = 30/15 * β_c .
Note 2: CM = 1 for β_c/β_d =12/15, β_{hs}/β_c=24/15. For all other combinations of DPDCH, DPCCH, HS- DPCCH, E-DPDCH and E-DPCCH the MPR is based on the relative CM difference.
Note 3: For subtest 1 the β_c/β_d ratio of 11/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to β_c = 10/15 and β_d = 15/15.
Note 4: For subtest 5 the β_c/β_d ratio of 15/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to β_c = 14/15 and β_d = 15/15.
Note 5: In case of testing by UE using E-DPDCH Physical Layer category 1, Sub-test 3 is omitted according to TS25.306 Table 5.1g.
Note 6: β_{ed} can not be set directly, it is set by Absolute Grant Value.

Band	WCDMA Band II			WCDMA Band V		
Channel	9262	9400	9538	4132	4182	4233
Frequency(MHz)	1852.4	1880	1907.6	826.4	836.4	846.6
Maximum Burst-Averaged Output Power						
AMR	22.34	22.41	22.25	22.12	22.19	22.06
RMC12.2K	22.51	**22.59**	22.44	22.21	**22.34**	22.15
HSDPA Subtest-1	22.11	22.34	22.17	21.31	21.47	21.38
HSDPA Subtest-2	21.83	21.87	21.75	21.25	21.31	21.26
HSDPA Subtest-3	21.57	21.60	21.52	21.06	21.14	21.10
HSDPA Subtest-4	21.17	21.26	21.21	20.81	20.87	20.76
HSUPA Subtest-1	21.71	21.87	21.83	21.05	21.17	21.11
HSUPA Subtest-2	21.13	21.22	21.17	21.10	21.18	21.14
HSUPA Subtest-3	21.23	21.31	21.19	20.97	21.11	21.05
HSUPA Subtest-4	21.10	21.18	21.13	20.14	21.25	21.19
HSUPA Subtest-5	20.91	20.97	20.85	20.51	20.70	20.64

Note:

Per KDB 941225 D01, RMC 12.2kbps setting is used to evaluate SAR. If HSDPA/HSUPA output power is < 0.25dB higher than RMC, HSDPA/HSUPA SAR evaluation can be excluded.

Bluetooth 2.1 Conducted output power(dBm):

Channel	Frequency	Peak power(dBm)		
		Date Rate		
		1Mbps	2Mbps	3Mbps
CH00	2402MHZ	-7.25	-7.40	-7.58
CH39	2441MHZ	-8.55	-8.57	-8.71
CH78	2480MHZ	-8.98	-8.91	-9.20

According to KDB447498 D01:The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at *test separation distances* ≤ 50 mm are determined by:
[(*max. power of channel, including tune-up tolerance, mW*)/(*min. test separation distance, mm*)] · [$\sqrt{f_{(GHz)}}$] ≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR,[24] where

- $f_{(GHz)}$ is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation[25]
- The result is rounded to one decimal place for comparison
- 3.0 and 7.5 are referred to as the numeric thresholds in the step 2 below
- If the test separation distance (antenna-user) is < 5mm, 5mm is used for excluded SAR calculation

	Wireless Interface	Bluetooth
Tune-up Maximum power (dBm)		-7
Tune-up Maximum rated power (mW)		0.2
Head	Antenna to user (mm)	5
	Frequency(GHz)	2.480
	SAR exclusion threshold	0.063
Body	Antenna to user (mm)	15
	Frequency(GHz)	2.480
	SAR exclusion threshold	0.031

Per KDB 447498 D01 exclusion thresholds is[(*max. power of channel, including tune-up tolerance:0.2 mW*)/(*min. test separation distance: 5mm*)] · [√2.480] =0.063< 3, Bluetooth RF exposure evaluation is not required.

Maximum Burst-Averaged output power for Product unit

Mode	The Tune-up Maximum Power(Customer Declared)(dBm)	Tune up limit	Measured Conduct Maximum Power(dBm)
GSM 850	31.5+/-1	32.5	32.37
GPRS 850-1TS	31.5+/-1	32.5	32.33
GPRS 850-2TS	30.5+/-1	31.5	31.20
GPRS 850-3TS	29.5+/-1	30.5	30.11
GPRS 850-4TS	28.5+/-1	29.5	29.22
GSM 1900	28.5+/-1	29.5	29.19
GPRS 1900-1TS	28.5+/-1	29.5	28.96
GPRS 1900-2TS	27+/-1	28	27.71
GPRS 1900-3TS	26+/-1	27	26.85
GPRS 1900-4TS	25+/-1	26	25.67
WCDMA Band II RMC 12.2K	22+/-1	23	22.59
WCDMA Band II AMR	22+/-1	23	22.41
HSDPA Band II	21.5+/-1	22.5	22.34
HSUPA Band II	21+/-1	22	21.87
WCDMA Band V RMC 12.2K	21.5+/-1	22.5	22.34
WCDMA Band V AMR	21.5+/-1	22.5	22.19
HSDPA Band V	21 +/-1	22	21.47
HSUPA Band V	20.5 +/-1	21.5	21.25
Bluetooth 1Mbps	-8+/-1	-7	-7.25
Bluetooth 2Mbps	-8+/-1	-7	-7.40
Bluetooth 3Mbps	-8.5+/-1	-7.5	-7.58

So, they are in tune-up range and complied.

11.5 SAR TEST CONFIGURATIONS

Body Exposure Conditions

Body-worn accessory exposure is typically related to voice mode operations when handsets are carried in body-worn accessories. The body-worn accessory procedures in KDB 447498 are used to test for body-worn accessory SAR compliance, without a headset connected to it. This enables the test results for such configuration to be compatible with that required for hotspot mode when the body-worn accessory test separation distance is greater than or equal to that required for hotspot mode. When the reported SAR for a body-worn accessory, measured without a headset connected to the handset, is > 1.2 W/kg, the highest reported SAR configuration for that wireless mode and frequency band should be repeated for that body-worn accessory with a headset attached to the handset.

Body-worn accessories that do not contain metallic or conductive components may be tested according to worst-case exposure configurations, typically according to the smallest test separation distance required for the group of body-worn accessories with similar operating and exposure characteristics. All body-worn accessories containing metallic components are tested in conjunction with the host device.

Body-worn accessory SAR compliance is based on a single minimum test separation distance for all wireless and operating modes applicable to each body-worn accessory used by the host, and according to the relevant voice and/or data mode transmissions and operations. If a body-worn accessory supports voice only operations in its normal and expected use conditions, testing of data mode for body-worn compliance is not required.

A conservative minimum test separation distance for supporting off-the-shelf body-worn accessories that may be acquired by users of consumer handsets is used to test for body-worn accessory SAR compliance. This distance is determined by the handset manufacturer, according to the requirements of Supplement C 01-01. Devices that are designed to operate on the body of users using lanyards and straps, or without requiring additional body-worn accessories, will be tested using a conservative minimum test separation distance <= 5 mm to support compliance.

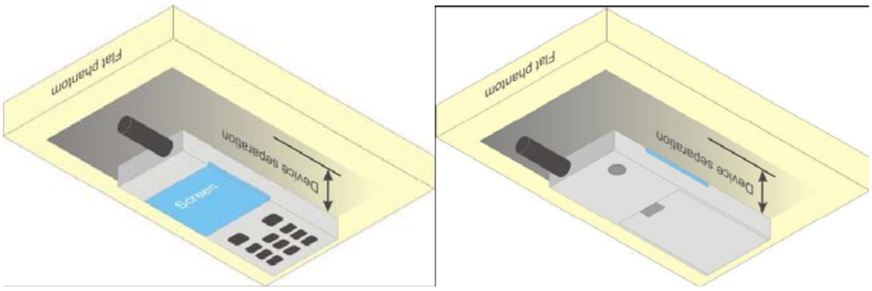
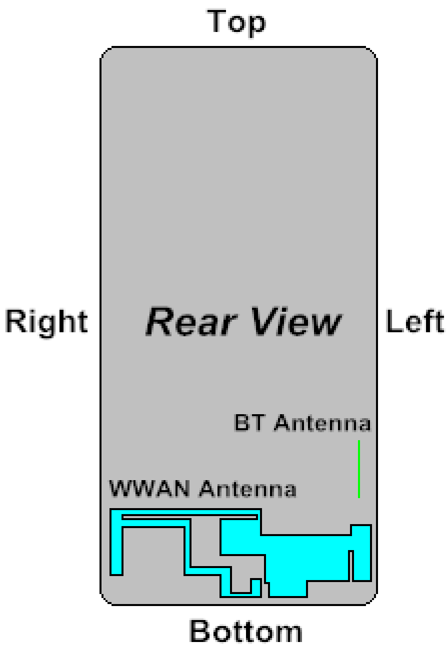


Illustration for Body Worn Position

11.6 ANTENNA POSITION



Device dimensions (H x W): 111 x 47 mm

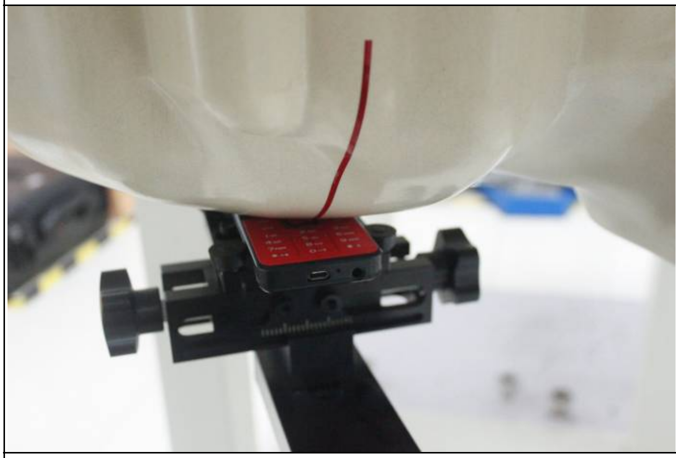
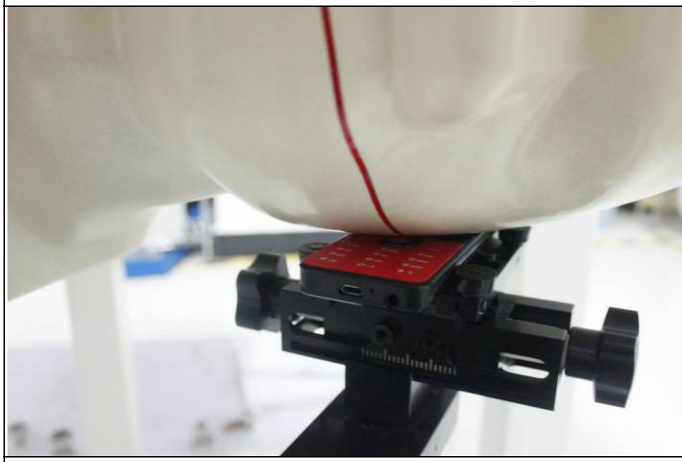
Antenna	Wireless Interface
WWAN Antenna	GSM850/GSM1900 WCDMA Band II WCDMA Band V
BT Antenna	Bluetooth

Test Mode

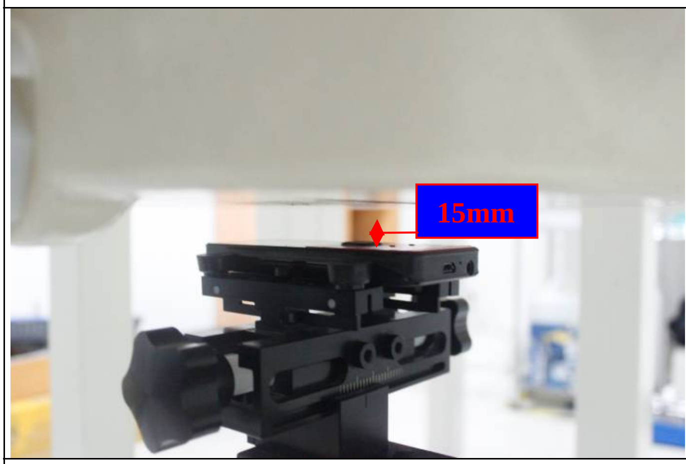
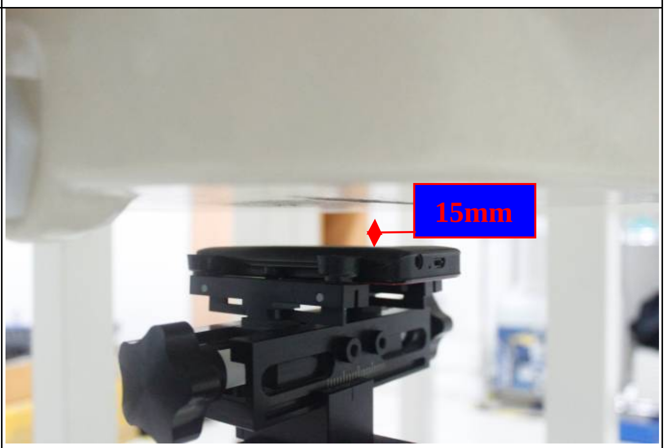
GSM 850/GSM1900	Data transmission mode(GPRS)/Voice mode(GSM)
WCDMA Band II WCDMA Band V	Data transmission mode(12.2k RMC)

11.7 EUT SETUP PHOTOS

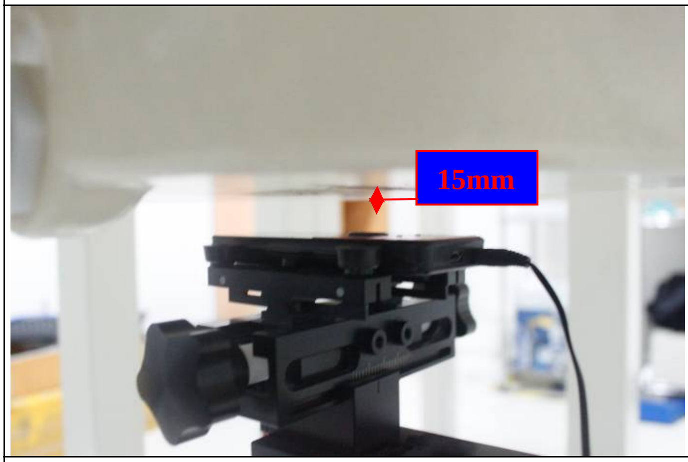
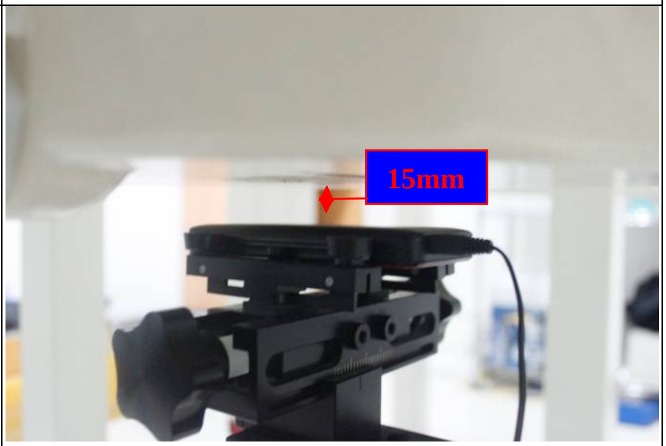
Head position

Cheek device with right head phantom.	Tilt device with right head phantom
	
EUT Setup Configuration 1	EUT Setup Configuration 2
Cheek device with left head phantom.	Tilt device with left head phantom
	
UT Setup Configuration 3	EUT Setup Configuration 4

Body Support test position

Front in body position	Rear in body position
	
EUT Setup Configuration 5	EUT Setup Configuration 6

Headset test position

Front in body position	Rear in body position
	
EUT Setup Configuration 7	**EUT Setup Configuration 8**

11.8 SAR MEASUREMENT RESULTS

Head SAR Test Records

Band	Mode	Test Position	Ch.	Freq. (MHZ)	max Power (dBm)	Tune-Up Limit (dBm)	Scaling Factor	Power Drift (dB)	SAR1g (mW/g)	Scaled SAR1g (mW/g)
GSM850	Voice	Right Cheek	190	836.6	32.37	32.5	1.030	0.06	0.304	0.313
GSM850	Voice	Right Tilted	190	836.6	32.37	32.5	1.030	0.08	0.171	0.176
GSM850	Voice	Left Cheek	190	836.6	32.37	32.5	1.030	0.00	0.268	0.276
GSM850	Voice	Left Tilted	190	836.6	32.37	32.5	1.030	0.07	0.164	0.169
GSM1900	Voice	Right Cheek	661	1880	29.19	29.5	1.074	-0.07	0.168	0.180
GSM1900	Voice	Right Tilted	661	1880	29.19	29.5	1.074	0.14	0.120	0.129
GSM1900	Voice	Left Cheek	661	1880	29.19	29.5	1.074	-0.00	0.258	0.277
GSM1900	Voice	Left Tilted	661	1880	29.19	29.5	1.074	0.09	0.165	0.177
WCDMA II	RMC 12.2k	Right Cheek	9400	1880	22.59	23	1.099	-0.07	0.711	0.781
WCDMA II	RMC 12.2k	Right Tilted	9400	1880	22.59	23	1.099	-0.04	0.495	0.544
WCDMA II	RMC 12.2k	Left Cheek	9400	1880	22.59	23	1.099	0.10	0.668	0.734
WCDMA II	RMC 12.2k	Left Tilted	9400	1880	22.59	23	1.099	-0.06	0.506	0.556
WCDMA V	RMC 12.2k	Right Cheek	4182	836.4	22.34	22.5	1.038	0.04	0.718	0.745
WCDMA V	RMC 12.2k	Right Tilted	4182	836.4	22.34	22.5	1.038	0.01	0.615	0.638
WCDMA V	RMC 12.2k	Left Cheek	4182	836.4	22.34	22.5	1.038	-0.14	0.411	0.426
WCDMA V	RMC 12.2k	Left Tilted	4182	836.4	22.34	22.5	1.038	0.10	0.440	0.457

SAR for Body Position Headset modeTest Records

Band	Mode	Test Position	Dist. (mm)	Ch.	Freq. (MHZ)	max Power (dBm)	Tune-Up Limit (dBm)	Scaling Factor	Power Drift (dB)	SAR1g (mW/g)	Scaled SAR1g (mW/g)
GSM850	Voice	Front	15	190	836.6	32.37	32.5	1.030	0.04	0.174	0.179
GSM850	Voice	Rear	15	190	836.6	32.37	32.5	1.030	0.03	0.254	0.262
GSM1900	Voice	Front	15	661	1880	29.19	29.5	1.074	0.13	0.099	0.106
GSM1900	Voice	Rear	15	661	1880	29.19	29.5	1.074	0.06	0.170	0.183
WCDMA II	RMC 12.2k	Front	15	9400	1880	22.59	23	1.099	-0.06	0.273	0.300
WCDMA II	RMC 12.2k	Rear	15	9400	1880	22.59	23	1.099	0.03	0.493	0.542
WCDMA V	RMC 12.2k	Front	15	4182	836.4	22.34	22.5	1.038	-0.04	0.147	0.153
WCDMA V	RMC 12.2k	Rear	15	4182	836.4	22.34	22.5	1.038	-0.01	0.520	0.540

SAR for Body Position Test Records

Band	Mode	Test Position	Dist. (mm)	Ch.	Freq. (MHZ)	max Power (dBm)	Tune-Up Limit (dBm)	Scaling Factor	Power Drift (dB)	SAR1g (mW/g)	Scaled SAR1g (mW/g)
GSM850	GPRS 4slots	Front	15	190	836.6	29.22	29.5	1.067	-0.12	0.572	0.610
GSM850	GPRS 4slots	Rear	15	190	836.6	29.22	29.5	1.067	0.16	0.719	0.767
GSM1900	GPRS 4slots	Front	15	661	1880	25.67	26	1.079	0.12	0.233	0.251
GSM1900	GPRS 4slots	Rear	15	661	1880	25.67	26	1.079	-0.04	0.375	0.405
WCDMA II	RMC 12.2k	Front	15	9400	1880	22.59	23	1.099	0.00	0.355	0.390
WCDMA II	RMC 12.2k	Rear	15	9400	1880	22.59	23	1.099	0.10	0.543	0.597
WCDMA V	RMC 12.2k	Front	15	4182	836.4	22.34	22.5	1.038	0.05	0.513	0.532
WCDMA V	RMC 12.2k	Rear	15	4182	836.4	22.34	22.5	1.038	-0.02	0.742	0.770

Note:
According to October 2013TCB Workshop, For GSM / GPRS , the number of time slots to test for SAR should correspond to the highest source-based time-averaged maximum output power configuration, Considering the possibility of e.g. 3rd party VoIP operation for body-worn SAR testing, the EUT was set in GPRS (4Tx slots) for GSM850/GSM1900 band due to its highest frame-average power.

11.9 REPEATED SAR MEASUREMENT

Band	Mode	Test Position	Dist. (mm)	Ch.	Original Measured SAR1g (mW/g)	1st Repeated SAR1g (mW/g)	Ratio	Original Measured SAR1g (mW/g)	2nd Repeated SAR1g (mW/g)	Ratio
--	--	--	--	--	--	--	--	--	--	--

Note:

1. Per KDB 865664 D01v01,for each frequency band, repeated SAR measurement is required only when the measured SAR is ≥ 0.8W/Kg
2. Per KDB 865664 D01v01,if the ratio of largest to smallest SAR for the original and first repeated measurement is ≤1.2 and the measured SAR ＜1.45W/Kg,only one repeated measurement is required.
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
4. The ratio is the difference in percentage between original and repeated measured SAR.

12. SAR HANDSETS MULTI XMITER ASSESSMENT

	Position	Applicable Combination
Simultaneous Transmission	Head	WWAN (Voice)+ BT
	Body	WWAN (Voice)+ BT
		WWAN (data)+ BT

Note:

1. The reported SAR summation is calculated based on the same configuration and test position.
2. For simultaneous transmission analysis, Bluetooth SAR is estimated per KDB 447498 D01v06 based on the formula below.
   (max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] • [√ f(GHz)/x] W/kg for test separation distances ≤ 50 mm; where x = 7.5 for 1-g SAR, and x = 18.75 for 10-g SAR.
   0.4 W/kg for 1-g SAR and 1.0 W/kg for 10-g SAR, when the test separation distances is > 50 mm.

Bluetooth:

	Max power	Head (5mm distance)	Body(15mm distance)
Estimated SAR (W/kg)	-7 dBm	0.008 W/kg	0.004 W/kg

3. Bluetooth estimated SAR is conservatively determined by 5mm separation, for all applicable exposure positions
4. Per KDB 447498 D01v06, simultaneous transmission SAR is compliant if,
   1) Scalar SAR summation < 1.6W/kg.
   2) SPLSR = (SAR1 + SAR2)1.5 / (min. separation distance, mm), and the peak separation distance is determined from the square root of [(x1-x2)2 + (y1-y2)2 + (z1-z2)2], where (x1, y1, z1) and (x2, y2, z2) are the coordinates of the extrapolated peak SAR locations in the zoom scan
   If SPLSR ≤ 0.04, simultaneously transmission SAR is compliant
   3) Simultaneously transmission SAR measurement, and the reported multi-band SAR < 1.6W/kg

Result of SUM ∑SAR1g of Head

SUM ∑SAR1g (GSM850+ Bluetooth)				
Position	Distance	Stand alone SAR(1g) [W/kg]		SUM SAR(1g)[W/kg]
	[mm]	GSM850	Bluetooth	WWAN + Bluetooth
Right Cheek	0	0.313	0.008	0.321
Right Tilted	0	0.176	0.008	0.184
Left Cheek	0	0.276	0.008	0.284
Left Tilted	0	0.169	0.008	0.177

SUM ∑SAR1g (GSM1900+ Bluetooth)				
Position	Distance	Stand alone SAR(1g) [W/kg]		SUM SAR(1g)[W/kg]
	[mm]	GSM 1900	Bluetooth	WWAN + Bluetooth
Right Cheek	0	0.180	0.008	0.188
Right Tilted	0	0.129	0.008	0.137
Left Cheek	0	0.277	0.008	0.285
Left Tilted	0	0.177	0.008	0.185

SUM ∑SAR1g (WCDMA Band II+ Bluetooth)				
Position	Distance	Stand alone SAR(1g) [W/kg]		SUM SAR(1g)[W/kg]
	[mm]	WCDMA Band II	Bluetooth	WWAN + Bluetooth
Right Cheek	0	0.781	0.008	0.789
Right Tilted	0	0.544	0.008	0.552
Left Cheek	0	0.734	0.008	0.742
Left Tilted	0	0.556	0.008	0.564

SUM ∑SAR1g (WCDMA Band V+ Bluetooth)				
Position	Distance	Stand alone SAR(1g) [W/kg]		SUM SAR(1g)[W/kg]
	[mm]	WCDMA Band V	Bluetooth	WWAN + Bluetooth
Right Cheek	0	0.745	0.008	0.753
Right Tilted	0	0.638	0.008	0.646
Left Cheek	0	0.426	0.008	0.434
Left Tilted	0	0.457	0.008	0.465

Result of SUM ∑SAR1g for Body Support (Headset Mode)

SUM ∑SAR1g (GSM850+ Bluetooth)				
Position	Distance	Stand alone SAR(1g) [W/kg]		SUM SAR(1g)[W/kg]
	[mm]	GSM850	Bluetooth	WWAN + Bluetooth
Front	15	0.179	0.004	0.183
Rear	15	0.262	0.004	0.266

SUM ∑SAR1g (GSM1900+ Bluetooth)				
Position	Distance	Stand alone SAR(1g) [W/kg]		SUM SAR(1g)[W/kg]
	[mm]	GSM1900	Bluetooth	WWAN + Bluetooth
Front	15	0.106	0.004	0.110
Rear	15	0.183	0.004	0.187

SUM ∑SAR1g (WCDMA Band II + Bluetooth)				
Position	Distance	Stand alone SAR(1g) [W/kg]		SUM SAR(1g)[W/kg]
	[mm]	WCDMA Band II	Bluetooth	WWAN + Bluetooth
Front	15	0.300	0.004	0.304
Rear	15	0.542	0.004	0.546

SUM ∑SAR1g (WCDMA Band V+ Bluetooth)				
Position	Distance	Stand alone SAR(1g) [W/kg]		SUM SAR(1g)[W/kg]
	[mm]	WCDMA Band V	Bluetooth	WWAN + Bluetooth
Front	15	0.153	0.004	0.157
Rear	15	0.540	0.004	0.544

Result of SUM ∑SAR1g for Body Support

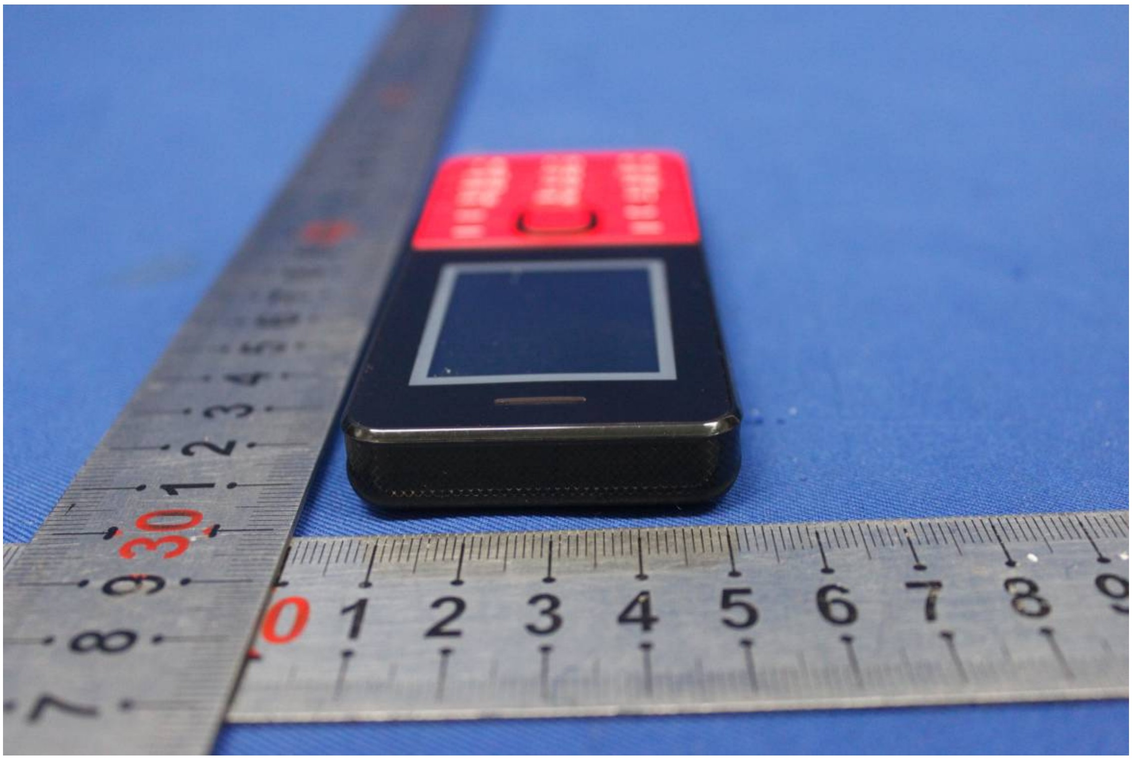
SUM ∑SAR1g (GSM850+ Bluetooth)				
Position	Distance	Stand alone SAR(1g) [W/kg]		SUM SAR(1g)[W/kg]
	[mm]	GPRS850	Bluetooth	WWAN + Bluetooth
Front	15	0.610	0.004	0.614
Rear	15	0.767	0.004	0.771

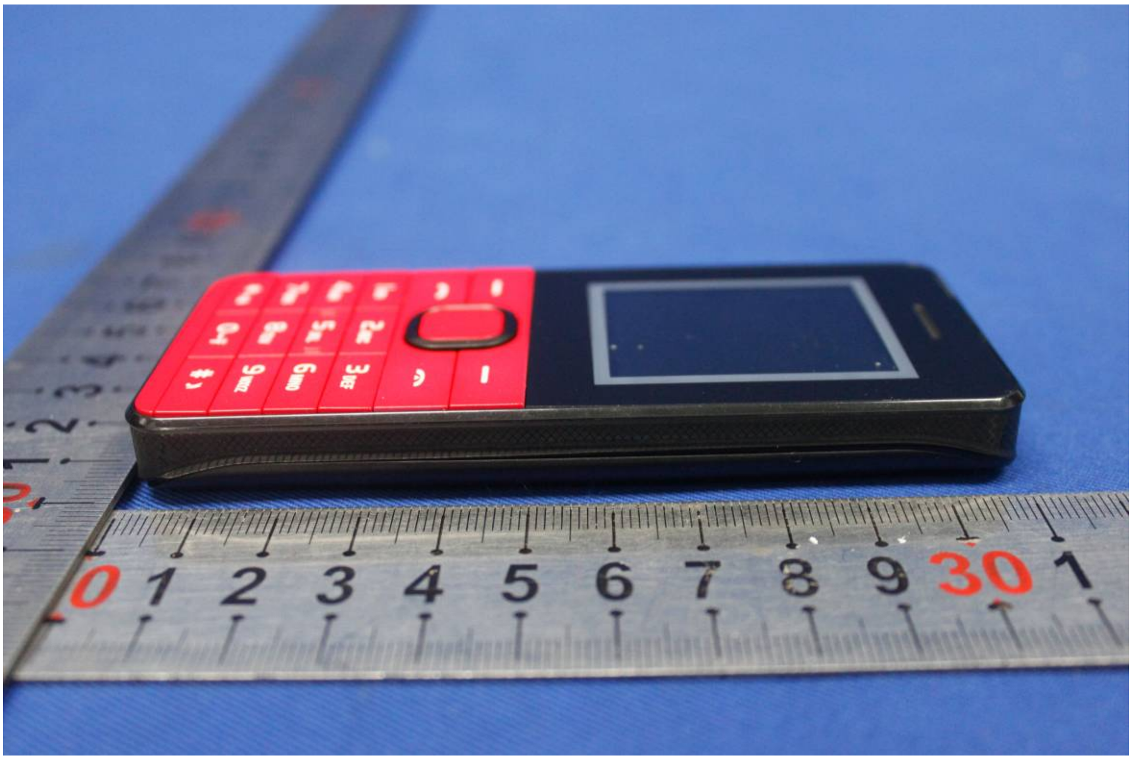
SUM ∑SAR1g (GSM1900+ Bluetooth)				
Position	Distance	Stand alone SAR(1g) [W/kg]		SUM SAR(1g)[W/kg]
	[mm]	GPRS1900	Bluetooth	WWAN + Bluetooth
Front	15	0.251	0.004	0.255
Rear	15	0.405	0.004	0.409

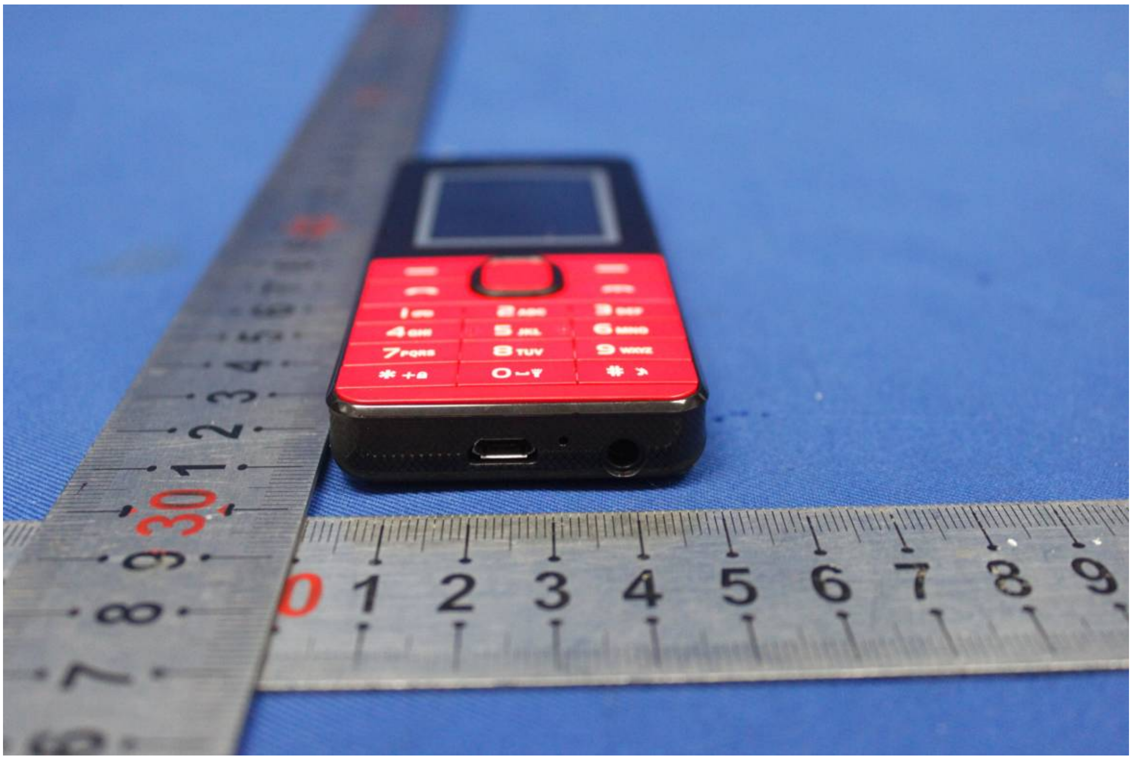
SUM ∑SAR1g (WCDMA Band II + Bluetooth)				
Position	Distance	Stand alone SAR(1g) [W/kg]		SUM SAR(1g)[W/kg]
	[mm]	WCDMA Band II	Bluetooth	WWAN + Bluetooth
Front	15	0.390	0.004	0.394
Rear	15	0.597	0.004	0.601

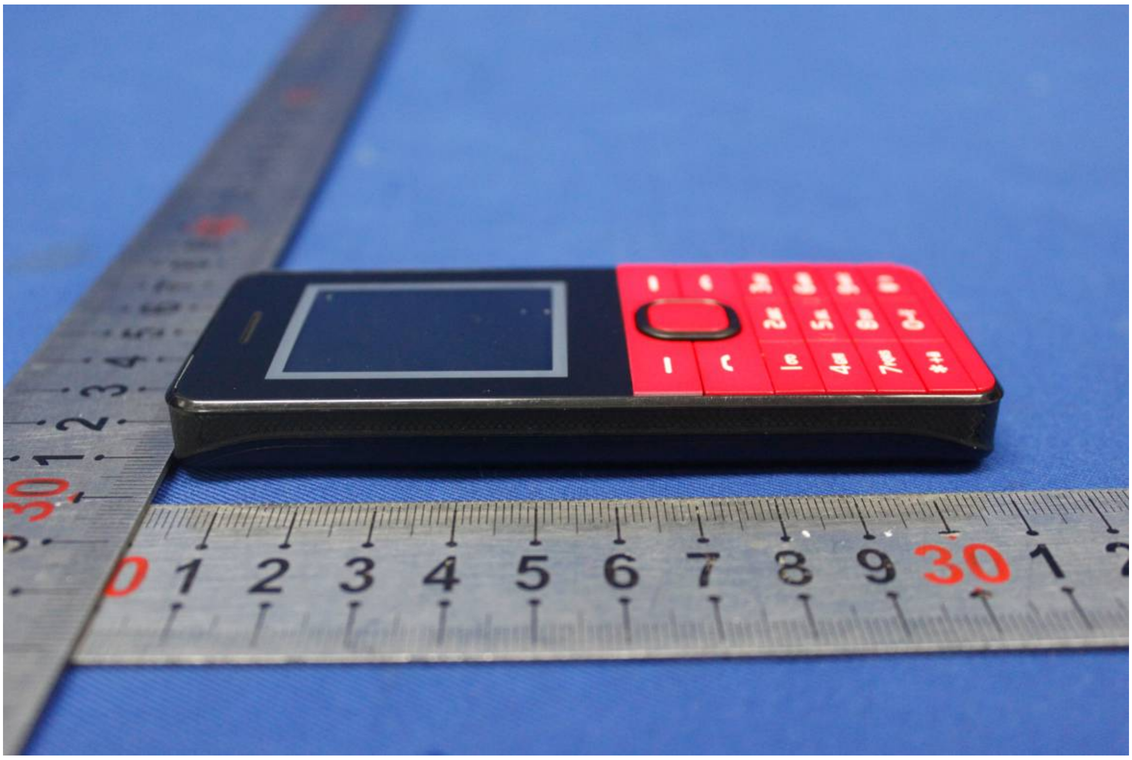
SUM ∑SAR1g (WCDMA Band V+ Bluetooth)				
Position	Distance	Stand alone SAR(1g) [W/kg]		SUM SAR(1g)[W/kg]
	[mm]	WCDMA Band V	Bluetooth	WWAN + Bluetooth
Front	15	0.532	0.004	0.536
Rear	15	0.770	0.004	0.774

13. EUT PHOTO

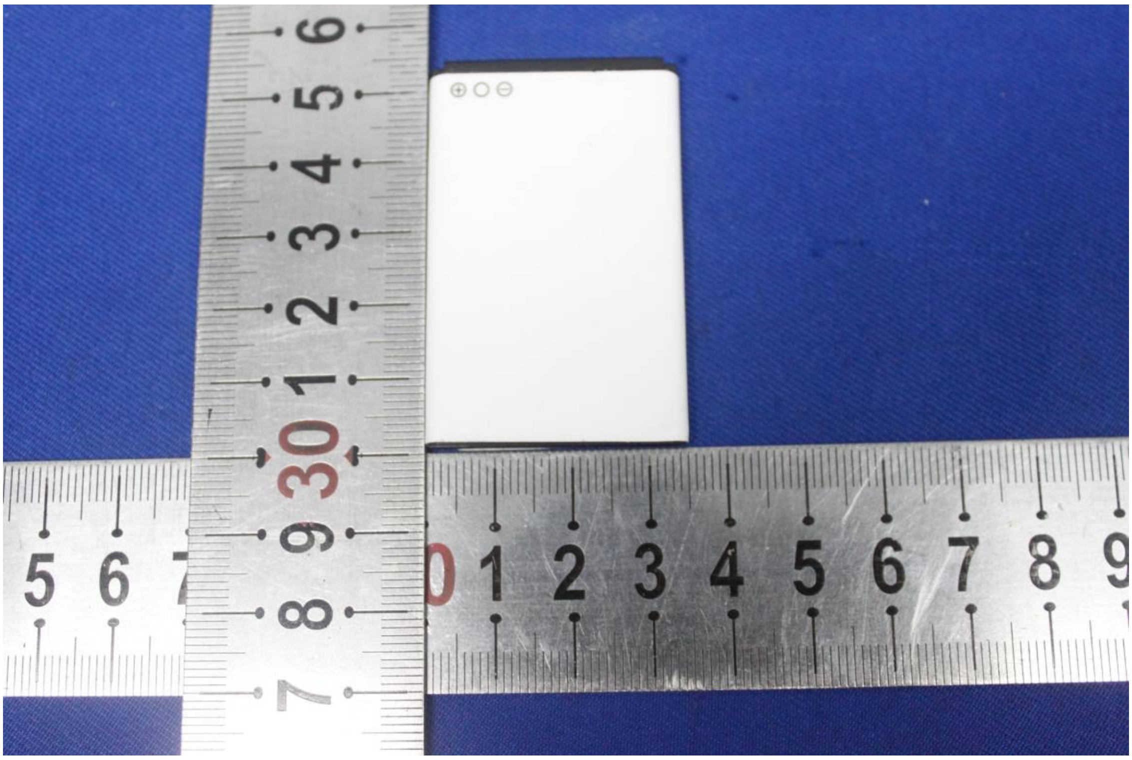









RINNO
Capacidad:
3,7Vcc- 800mAh 2.96 Wh
Ion de Litio
BATERIA RECARGABLE
- NO DESENSAMBLAR
PRECAUCIÓN :
• USAR SOLO EL CARGADOR ORIGINAL
• NO PROVOCAR CORTO CIRCUITO
• DESECHAR EN LUGARES APROPIADOS
• NO EXPONER AL FUEGO
NOM
HECHO EN CHINA
Diseñado en México



14. EQUIPMENT LIST & CALIBRATION STATUS

Name of Equipment	Manufacturer	Type/Model	Serial Number	Last Calibration	Calibration Due
P C	HP	Core(rm)3.16G	CZCO48171H	N/A	N/A
Signal Generator	Agilent	E8257C	MY43321570	11/20/2015	11/19/2016
S-Parameter Network Analyzer	Agilent	E5071B	MY42301382	03/02/2016	03/01/2017
Wireless Communication Test Set	R&S	CMU200	SN:109525	01/11/2016	01/10/2017
Power Meter	Agilent	E4416A	GB41292714	03/02/2016	03/01/2017
Peak & Average sensor	Agilent	E9327A	us40441788	03/02/2016	03/01/2017
Power meter	Anritsu	ML2495A	1445010	03/02/2016	03/01/2017
Power sensor	Anritsu	MA2411B	1339220	03/02/2016	03/01/2017
E-field PROBE	SPEAG	EX3DV4	3798	07/24/2015	07/23/2016
DAE	SPEAG	DEA4	1245	07/22/2015	07/21/2016
DIPOLE 835MHZ ANTENNA	SPEAG	D835V2	4d114	07/30/2013	07/27/2016
DIPOLE 1900MHZ ANTENNA	SPEAG	D1900V2	5d136	07/22/2013	07/19/2016
Dielectric Probe Kit	SPEAG	DAK 3.5	1102	N/A	N/A
Dual Directional Coupler	Woken	20W couple	DOM2BHW1A1	N/A	N/A
DUMMY PROBE	SPEAG	DP_2	SPDP2001AA	N/A	N/A
SAM PHANTOM (ELI4 v4.0)	SPEAG	QDOVA001BB	1102	N/A	N/A
Twin SAM Phantom	SPEAG	QD000P40CD	1609	N/A	N/A
ROBOT	SPEAG	TX60	F10/5E6AA1/A101	N/A	N/A
ROBOT KRC	SPEAG	CS8C	F10/5E6AA1/C101	N/A	N/A
LIQUID CALIBRATION KIT	ANTENNESSA	41/05 OCP9	00425167	N/A	N/A

15. FACILITIES

All measurement facilities used to collect the measurement data are located at

☒ No.10, Weiye Rd., Innovation Park, Eco & Tec. Development Part, Kunshan City, Jiangsu Province, China.

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APPENDIX A: PLOTS OF PERFORMANCE CHECK

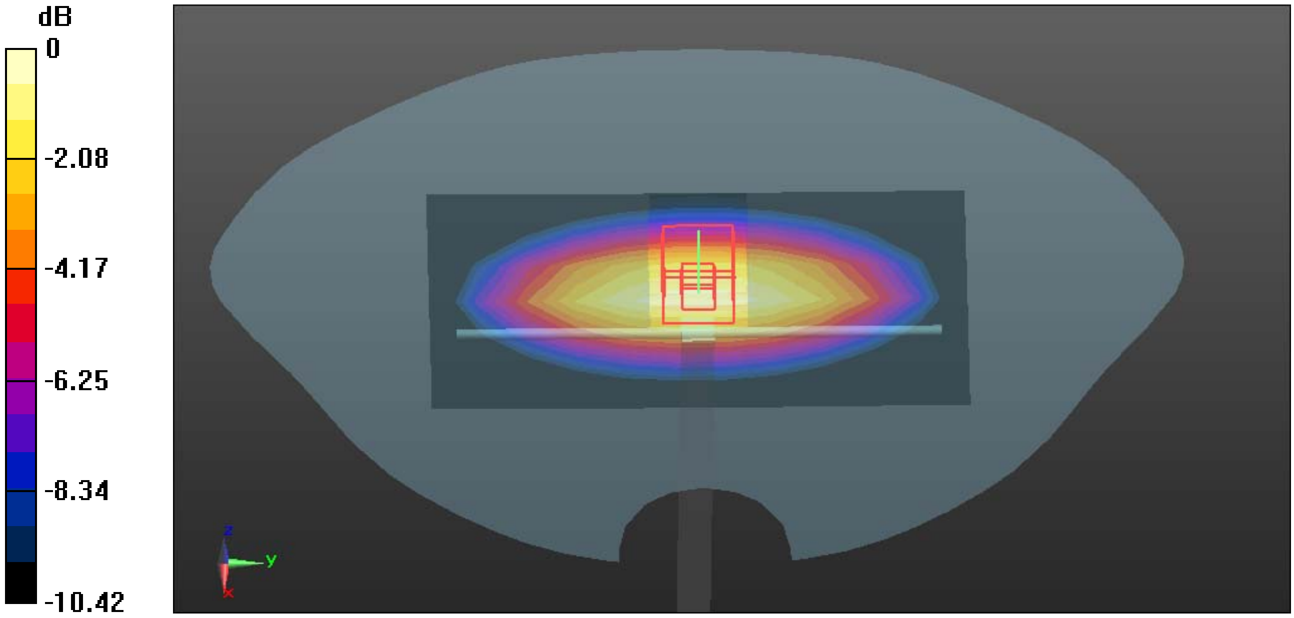
The plots are showing as followings.

Test Laboratory: Compliance Certification Services Inc. Date: 5/18/2016
SystemPerformanceCheck-Head D835
DUT: Dipole 835 MHz; Type: D835V2; Serial: 4d114
Communication System: UID 0, CW; Communication System Band: D835 (835.0 MHz); Frequency: 835 MHz;Duty Cycle: 1:1
Medium parameters used: f = 835 MHz; σ = 0.909 S/m; ε_r = 42.629; ρ = 1000 kg/m^3
Room Ambient Temperature: 22°C; Liquid Temperature: 21.5°C
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY Configuration:

- Probe: EX3DV4 - SN3798; ConvF(9.13, 9.13, 9.13); Calibrated: 7/24/2015;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1245; Calibrated: 7/22/2015
- Phantom: Twin SAM Phantom; Type: QD 000 P40 CD; Serial: 1609
- DASY52 52.8.8(1222);
- SEMCAD X Version 14.6.10 (7331)

System Performance Check at Frequencies Low 1 GHz/Pin=250 mW, dist=15 mm (EX-Probe)/Area Scan (7x12x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 2.42 W/kg

System Performance Check at Frequencies Low 1 GHz/Pin=250 mW, dist=15 mm (EX-Probe)/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 53.59 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 2.95 W/kg
SAR(1 g) = 2.34 W/kg; SAR(10 g) = 1.72 W/kg
Maximum value of SAR (measured) = 2.52 W/kg



0 dB = 2.52 W/kg = 4.01 dBW/kg

Test Laboratory: Compliance Certification Services Inc. Date: 5/19/2016

SystemPerformanceCheck-Body D835

DUT: Dipole 835 MHz; Type: D835V2; Serial: 4d114

Communication System: UID 0, CW; Communication System Band: D835 (835.0 MHz); Frequency: 835 MHz;Duty Cycle: 1:1

Medium parameters used: f = 835 MHz; σ = 0.956 S/m; ε_r = 55.494; ρ = 1000 kg/m^3

Room Ambient Temperature: 22°C; Liquid Temperature: 21.5°C

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- Probe: EX3DV4 - SN3798; ConvF(8.87, 8.87, 8.87); Calibrated: 7/24/2015;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1245; Calibrated: 7/22/2015
- Phantom: Twin SAM Phantom; Type: QD 000 P40 CD; Serial: 1609
- DASY52 52.8.8(1222);
- SEMCAD X Version 14.6.10 (7331)

System Performance Check at Frequencies Low 1 GHz/dist=15mm, Pin=250 mW(EX-Probe)/Area Scan (7x12x1): Measurement grid: dx=15mm, dy=15mm

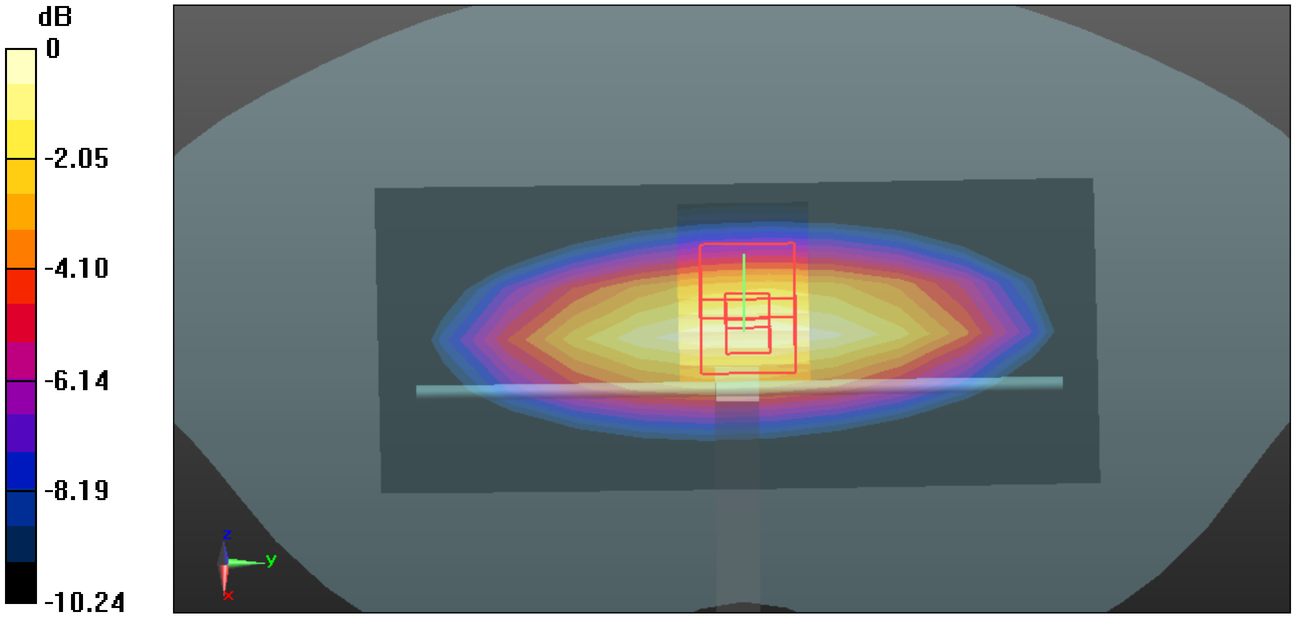
Maximum value of SAR (measured) = 2.64 W/kg

System Performance Check at Frequencies Low 1 GHz/dist=15mm, Pin=250 mW(EX-Probe)/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 54.26 V/m; Power Drift = -0.10 dB

Peak SAR (extrapolated) = 3.08 W/kg

SAR(1 g) = 2.45 W/kg; SAR(10 g) = 1.69 W/kg



0 dB = 2.64 W/kg = 4.22 dBW/kg

Test Laboratory: Compliance Certification Services Inc. Date: 5/18/2016

SystemPerformanceCheck-Head D1900

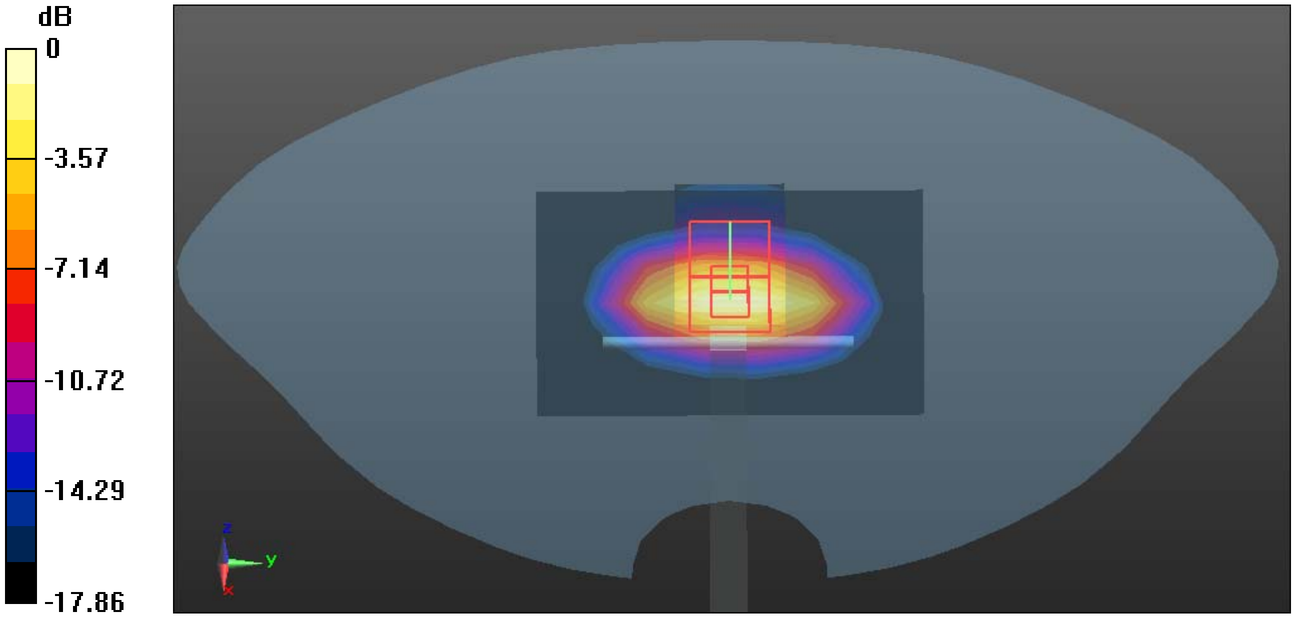
DUT: Dipole 1900 MHz ; Type: D1900V2; Serial: 5d136

Communication System: UID 0, CW; Communication System Band: D1900 (1900.0 MHz); Frequency: 1900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; σ = 1.397 S/m; ε_r = 39.497; ρ = 1000 kg/m^3
Room Ambient Temperature: 22°C; Liquid Temperature: 21.5°C
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY Configuration:

- Probe: EX3DV4 - SN3798; ConvF(7.63, 7.63, 7.63); Calibrated: 7/24/2015;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1245; Calibrated: 7/22/2015
- Phantom: Twin SAM Phantom; Type: QD 000 P40 CD; Serial: 1609
- DASY52 52.8.8(1222);
- SEMCAD X Version 14.6.10 (7331)

System Performance Check at Frequencies above 1 GHz/Pin=250 mW, dist=10mm (EX-Probe)/Area Scan (7x8x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 13.1 W/kg

System Performance Check at Frequencies above 1 GHz/Pin=250 mW, dist=10mm (EX-Probe)/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 102.2 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 18.3 W/kg
SAR(1 g) = 10.25 W/kg; SAR(10 g) = 6.16 W/kg
Maximum value of SAR (measured) = 14.2 W/kg



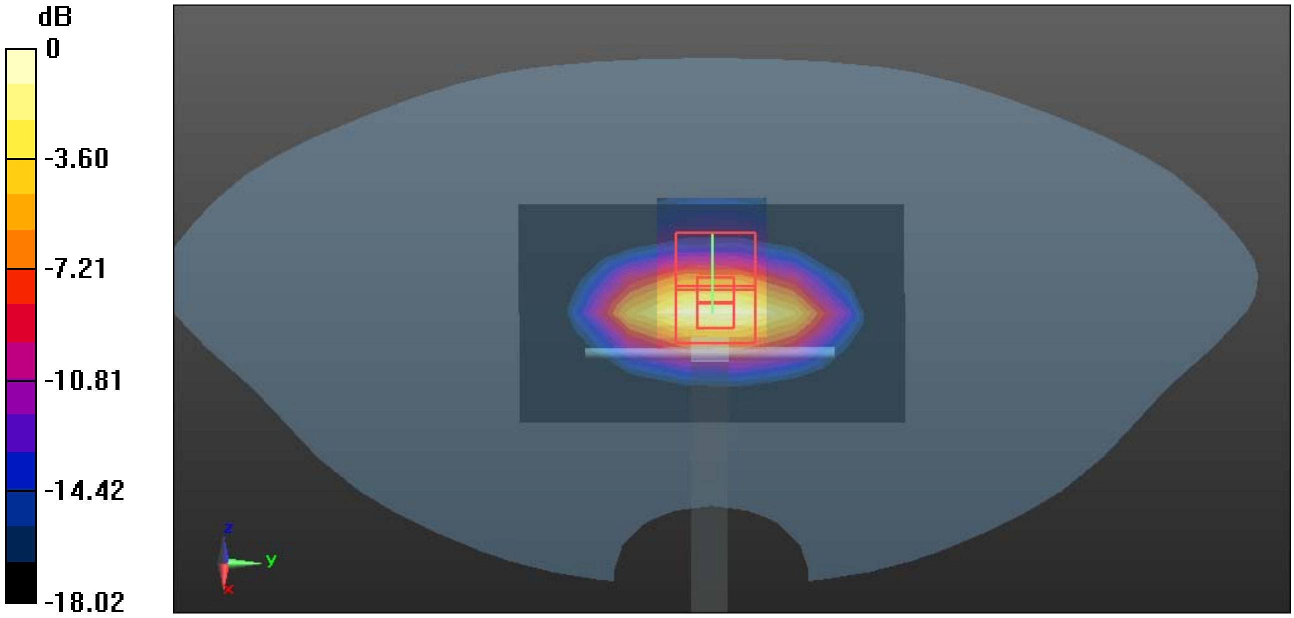
0 dB = 14.2 W/kg = 11.52 dBW/kg

Test Laboratory: Compliance Certification Services Inc. Date: 5/19/2016
SystemPerformanceCheck-Body D1900_2014.12.30
DUT: Dipole 1900 MHz ; Type: D1900V2; Serial: 5d136
Communication System: UID 0, CW; Communication System Band: D1900 (1900.0 MHz); Frequency: 1900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; σ = 1.539 S/m; ε_r = 51.612; ρ = 1000 kg/m^3
Room Ambient Temperature: 22°C; Liquid Temperature: 21.5°C
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY Configuration:

- Probe: EX3DV4 - SN3798; ConvF(7.29, 7.29, 7.29); Calibrated: 7/24/2015;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1245; Calibrated: 7/22/2015
- Phantom: Twin SAM Phantom; Type: QD 000 P40 CD; Serial: 1609
- DASY52 52.8.8(1222);
- SEMCAD X Version 14.6.10 (7331)

System Performance Check at Frequencies above 1 GHz/Pin=250 mW, dist=10mm (EX-Probe)/Area Scan (7x8x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 13.9 W/kg

System Performance Check at Frequencies above 1 GHz/Pin=250 mW, dist=10mm (EX-Probe)/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 99.81 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 18.9 W/kg
SAR(1 g) = 10.16 W/kg; SAR(10 g) = 6.25 W/kg
Maximum value of SAR (measured) = 14.7 W/kg



0 dB = 14.7 W/kg = 11.67 dBW/kg

APPENDIX B: DASY CALIBRATION CERTIFICATE

The DASY Calibration Certificates are showing in the file named Appendix B: DASY Calibration Certificate.

APPENDIX C: PLOTS OF SAR TEST RESULT

The plots are showing in the file named Appendix C Plots of SAR Test Result

END REPORT