# SAR Test Report

Report No.: AGC01826170501FH01

| | | |
|---|---|---|
| **FCC ID** | : | 2AI62T71V3 |
| **APPLICATION PURPOSE** | : | Original Equipment |
| **PRODUCT DESIGNATION** | : | rugged tablet |
| **BRAND NAME** | : | HUGEROCK |
| **MODEL NAME** | : | T71V3,T70, T71, T70V2, |
| **CLIENT** | : | SOTEN TECHNOLOGY (HONGKONG) CO., LIMITED |
| **DATE OF ISSUE** | : | July 3,2017 |
| **STANDARD(S)** | : | IEEE Std. 1528:2013<br>FCC 47CFR § 2.1093<br>IEEE/ANSI C95.1:2005 |
| **REPORT VERSION** | : | V1.0 |

*A*ttestation of Global Compliance(Shenzhen) Co., Ltd.

## Report Revise Record

| Report Version | Revise Time | Issued Date | Valid Version | Notes |
|---|---|---|---|---|
| V1.0 | / | July 3,2017 | Valid | Original Report |

# Test Report Certification

| | |
|---|---|
| Applicant Name | SOTEN TECHNOLOGY (HONGKONG) CO., LIMITED |
| Applicant Address | FLAT/RM A10 9/F SILVERCORP INTERNATIONAL TOWER 707713 NATHAN ROAD MONGKOK KL Hong Kong |
| Manufacturer Name | Shenzhen SOTEN Technology Co., Ltd. |
| Manufacturer Address | 10th Floor, 2nd Building, BaiWang Research and Development Building, No. 5308 Shahe west Road, Xili, Nanshan District, ShenZhen, China |
| Product Designation | rugged tablet |
| Brand Name | HUGEROCK |
| Model Name | T70, T71, T70V2, T71V3 |
| Different Description | All the same except the model name, the test model is T71V3 |
| EUT Voltage | DC3.7V by battery |
| Applicable Standard | IEEE Std. 1528:2013<br>FCC 47CFR § 2.1093<br>IEEE/ANSI C95.1:2005 |
| Test Date | June 7,2017 to June 24,2017 |
| Performed Location | Attestation of Global Compliance(Shenzhen) Co., Ltd.<br>2 F, Building 2, No.1-No.4, Chaxi Sanwei Technical Industrial Park, Gushu, Xixiang Street, Bao'an District, Shenzhen, China |
| Report Template | AGCRT-US-4G/SAR (2016-01-01) |

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July 3,2017

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# 1. SUMMARY OF MAXIMUM SAR VALUE

**The maximum results of Specific Absorption Rate (SAR) found during testing for EUT are as follows:**

| Frequency Band | Highest Reported 1g-SAR(W/Kg) | SAR Test Limit (W/Kg) |
|---|---|---|
| | Body-worn | |
| GSM 850 | 0.965 | 1.6 |
| PCS 1900 | 1.215 | |
| UMTS Band II | 1.171 | |
| UMTS Band V | 0.465 | |
| LTE Band 2 | 0.993 | |
| LTE Band 4 | 0.797 | |
| LTE Band 5 | 0.447 | |
| LTE Band 7 | 0.877 | |
| LTE Band 17 | 0.521 | |
| WIFI 2.4G | 0.124 | |
| Simultaneous Reported SAR | 1.382 | |
| SAR Test Result | PASS | |

This device is compliance with Specific Absorption Rate (SAR) for general population/uncontrolled exposure limits (1.6W/Kg) specified in IEEE Std. 1528:2013; FCC 47CFR § 2.1093; IEEE/ANSI C95.1:2005 and the following specific FCC Test Procedures:

- KDB 447498 D01 General RF Exposure Guidance v06
- KDB 648474 D04 Handset SAR v01r03
- KDB 865664 D01 SAR Measurement 100MHz to 6GHz v01r04
- KDB 941225 D01 3G SAR Procedures v03r01
- KDB 941225 D06 Hotspot Mode v02r01
- KDB 248227 D01 802 11 Wi-Fi SAR v02r02
- KDB 941225 D05 SAR for LTE Devices v02r05

# 2. GENERAL INFORMATION

## 2.1. EUT Description

| General Information | |
|---|---|
| Product Designation | rugged tablet |
| Test Model | T71V3 |
| Hardware Version | M6035-71-SUBBoard-V3 |
| Software Version | T71V3-20170210-EN |
| Device Category | Portable |
| RF Exposure Environment | Uncontrolled |
| Antenna Type | Internal |
| **GSM and GPRS& EGPRS** | |
| Support Band | ☒GSM 850 ☒PCS 1900 ☒GSM 900 ☒DCS 1800 |
| GPRS & EGPRS Type | Class B |
| GPRS & EGPRS Class | Class 12(1Tx+4Rx, 2Tx+3Rx, 3Tx+2Rx, 4Tx+1Rx) |
| TX Frequency Range | GSM 850 : 820-850MHz; PCS 1900: 1850-1910MHz; |
| RX Frequency Range | GSM 850 : 869~894MHz; PCS 1900: 1930~1990MHz |
| Release Version | R99 |
| Type of modulation | GMSK for GSM/GPRS; GMSK & 8-PSK for EGPRS |
| Antenna Gain | GSM850: -0.9dBi; PCS1900: -1.5dBi |
| Max. Average Power | GSM850: 30.82dBm; PCS1900: 26.89dBm |
| **WCDMA** | |
| Support Band | ☒UMTS FDD Band II ☒UMTS FDD Band V<br>☐UMTS FDD Band IV (U.S. Bands)<br>☒UMTS FDD Band I ☒UMTS FDD Band VIII (Non-U.S. Bands) |
| HS Type | HSPA(HSUPA/HSDPA) |
| TX Frequency Range | FDD Band II: 1850-1910MHz; FDD Band V: 820-850MHz |
| RX Frequency Range | FDD Band II: 1930-1990MHz; FDD Band V: 869-894MHz |
| Release Version | Rel-6 |
| Type of modulation | HSDPA:QPSK/16QAM; HSUPA:BPSK; WCDMA:QPSK |
| Antenna Gain | Band II: -0.9dBii; Band V: -1.5dBi |
| Max. Average Power | Band II: 21.54dBm; Band V: 21.55dBm |

## EUT Description( Continue)

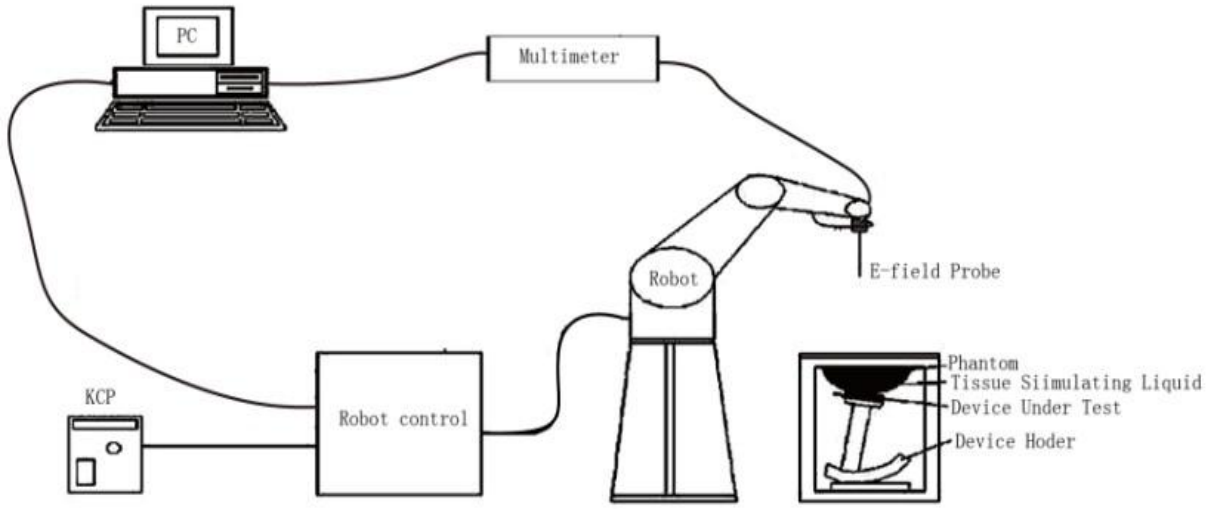
| | |
|---|---|
| **LTE** | |
| Support Band | ☒FDD Band 2 ☒FDD Band 4 ☒FDD Band 5 ☒FDD Band 7<br>☒FDD Band 17 ☐FDD Band 25 ☐FDD Band 26<br>☐TDD Band 41 (U.S. Bands) |
| TX Frequency Range | Band 2:1850-1910MHz; Band 4:1710-1755MHz; Band 5:824-849MHz;<br>Band 7: 2500-2570 MHz; Band 17: 704-716 MHz; |
| RX Frequency Range | Band 2:1930-1990MHz; Band 4:2110-2155MHz; Band 5:869-894MHz;<br>Band 7: 2620-2690 MHz; Band 17 734-746 MHz; |
| Release Version | Rel-8 |
| Type of modulation | QPSK, 16QAM |
| Antenna Gain | Band 2:- 0.5dBi; Band 4: -0.7dBi; Band 5: -1.0dBi;<br>Band 7: -0.3dBi; Band 17: -1.0dBi |
| Diversity Antenna Gain | Band 2: -0.7dBi; Band 4: -0.9dBi; Band 5: -1.3dBi;<br>Band 7:-0.5dBi; Band 17: -1.3dBi |
| Max. Average Power | Band 2: 23.24dBm; Band 4: 22.96dBm; Band 5: 22.91dBm;<br>Band 7:22.86dBm; Band 17:22.85dBm |
| **Bluetooth** | |
| Bluetooth Version | ☐V2.0 ☐V2.1 ☐V2.1+EDR ☐V3.0 ☐V3.0+HS ☒V4.0 ☐V4.1 |
| Operation Frequency | 2402~2480MHz |
| Type of modulation | ☒GFSK ☒Π/4-DQPSK ☒8-DPSK |
| Peak Power | 5.005dBm |
| Antenna Gain | 0.5dBi |
| **WIFI** | |
| WIFI Specification | ☐802.11a ☒802.11b ☒802.11g ☒802.11n(20) ☒802.11n(40) |
| Operation Frequency | 2412~2472MHz |
| Avg. Burst Power | 11b: 14.82dBm,11g:10.94dBm,11n(20):10.56dBm,11n(40):9.94dBm |
| Antenna Gain | 0.5dBi |
| **Accessories** | |
| Battery | Brand name: N/A<br>Model No. : 8070120<br>Voltage and Capacitance: 3.7 V & 10000mAh |
| Adapter | Brand name: HWELETTPACKARD<br>Model No. : 8395-UW01-1070<br>Input: AC 100-240V, 50/60Hz, 0.4A Output: DC 5.3V, 2.0A |
| Earphone | Brand name: N/A<br>Model No. : N/A |

Note:1.CMU200 can measure the average power and Peak power at the same time
2.The sample used for testing is end product.

| | |
|---|---|
| Product | Type |
| | ☒ Production unit ☐ Identical Prototype |

# 3. SAR MEASUREMENT SYSTEM

## 3.1. The SATIMO system used for performing compliance tests consists of following items




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

- The PC. It controls most of the bench devices and stores measurement data.A computer running WinXP and the Opensar software.
- The E-Field probe. The probe is a 3-axis system made of 3 distinct dipoles. Each dipole returns a voltage in function of the ambient electric field.
- The Keithley multimeter measures each probe dipole voltages.
- The SAM phantom simulates a human head. The measurement of the electric field is made inside the phantom.
- The liquids simulate the dielectric properties of the human head tissues.
- The network emulator controls the mobile phone under test.
- The validation dipoles are used to measure a reference SAR. They are used to periodically check the bench to make sure that there is no drift of the system characteristics over time.
- The phantom, the device holder and other accessories according to the targeted measurement.

## 3.2. COMOSAR E-Field Probe

The SAR measurement is conducted with the dosimetric probe manufactured by SATIMO. The probe is specially designed and calibrated for use in liquid with high permittivity. The dosimetric probe has special calibration in liquid at different frequency. SATIMO conducts the probe calibration in compliance with international and national standards (e.g. IEEE 1528 and relevant KDB files.) The calibration data are in Appendix D.

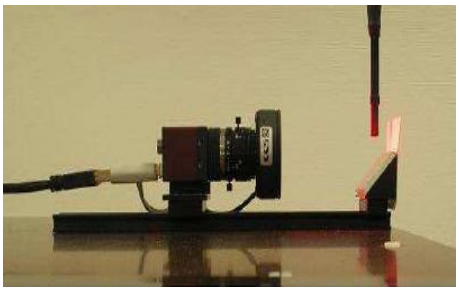
## Isotropic E-Field Probe Specification

| | | |
|---|---|---|
| **Model** | SSE5 | |
| **Manufacture** | MVG | |
| **Identification No.** | SN 14/16 EP307 | |
| **Frequency** | 0.7GHz-3GHz<br>Linearity:±0.05dB(700MHz-3GHz) |  |
| **Dynamic Range** | 0.01W/Kg-100W/Kg<br>Linearity:±0.05dB | |
| **Dimensions** | Overall length:330mm<br>Length of individual dipoles:4.5mm<br>Maximum external diameter:8mm<br>Probe Tip external diameter:5mm<br>Distance between dipoles/ probe extremity:2.7mm | |
| **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 3 GHz with precision of better 30%. | |

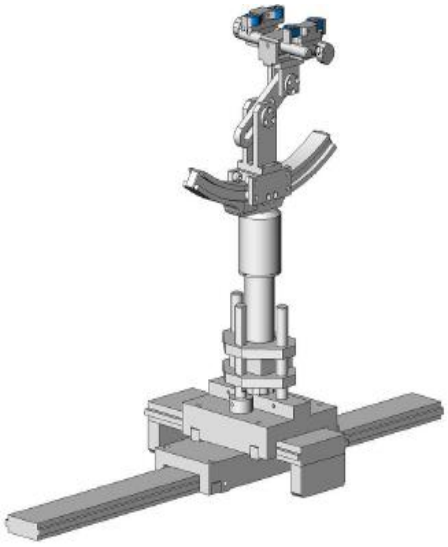
## 3.3. Robot

| | |
|---|---|
| The COMOSAR system uses the KUKA robot from SATIMO SA (France).For the 6-axis controller COMOSAR system, the KUKA robot controller version from SATIMO is used.<br>The XL robot series have many features that are important for our application:<br>□ High precision (repeatability 0.02 mm)<br>□ High reliability (industrial design)<br>□ Jerk-free straight movements<br>□ Low ELF interference (the closed metallic construction shields against motor control fields)<br>□ 6-axis controller |  |

## 3.4. Video Positioning System

| | |
|---|---|
| The video positioning system is used in OpenSAR to check the probe. Which is composed of a camera, LED, mirror and mechanical parts.The camera is piloted by the main computer with firewire link.<br>During the process, the actual position of the probe tip with respect to the robot arm is measured, as well as the probe length and the horizontal probe offset. The software then corrects all movements, such that the robot coordinates are valid for the probe tip.<br>The repeatability of this process is better than 0.1 mm. If a position has been taught with an aligned probe, the same position will be reached with another aligned probe within 0.1 mm, even if the other probe has different dimensions. During probe rotations, the probe tip will keep its actual position. |  |

## 3.5. Device Holder

| | |
|---|---|
| The COMOSAR device holder is designed to cope with different positions given in the standard. It has two scales for the device rotation (with respect to the body axis) and the device inclination (with respect to the line between the ear reference points). The rotation center for both scales is the ear reference point (EPR).<br>Thus the device needs no repositioning when changing the angles.<br>The COMOSAR device holder has been made out of low-loss POM material having the following dielectric parameters: relative permittivity<br>εr =3 and loss tangent δ = 0.02. The amount of dielectric material has been reduced in the closest vicinity of the device, since measurements have suggested that the influence of the clamp on the test results could thus be lowered. |  |

## 3.6. ELLI39 Phantom

| | |
|---|---|
| The Flat phantom is a fiberglass shell phantom with 2mm+/- 0.2 mm shell thickness. It has only one measurement area for Flat phantom |  |

# 4. SAR MEASUREMENT PROCEDURE

## 4.1. Specific Absorption Rate (SAR)

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

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

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

SAR is expressed in units of Watts per kilogram (W/Kg)
SAR can be obtained using either of the following equations:

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

$$SAR = c_h \frac{dT}{dt}\Big|_{t=0}$$

Where

| | |
|---|---|
| SAR | is the specific absorption rate in watts per kilogram; |
| E | is the r.m.s. value of the electric field strength in the tissue in volts per meter; |
| σ | is the conductivity of the tissue in siemens per metre; |
| ρ | is the density of the tissue in kilograms per cubic metre; |
| $c_h$ | is the heat capacity of the tissue in joules per kilogram and Kelvin; |
| $\frac{dT}{dt} \mid t = 0$ | is the initial time derivative of temperature in the tissue in kelvins per second |

## 4.2. SAR Measurement Procedure

Step 1: Power Reference Measurement

The Power Reference Measurement and Power Drift Measurement are for monitoring the power drift of the device under test in the batch process. The minimum distance of probe sensors to surface is 2.7mm This distance cannot be smaller than the distance os sensor calibration points to probe tip as `defined in the probe properties,

Step 2: Area Scan

The Area Scan is used as a fast scan in two dimensions to find the area of high field values, before doing a fine measurement around the hot spot. The sophisticated interpolation routines implemented in SATIMO software can find the maximum locations even in relatively coarse grids. When an Area Scan has measured all reachable points, it computes the field maximal found in the scanned area, within a range of the global maximum. The range (in db) is specified in the standards for compliance testing. For example, a 2db range is required in IEEE Standard 1528 and IEC62209 standards, whereby 3db is a requirement when compliance is assessed in accordance with the ARIB standard (Japan) If one Zoom Scan follows the Area Scan, then only the absolute maximum will be taken as reference. For cases where multiple maximum are detected, the number of Zoom Scan has to be increased accordingly.

Area Scan Parameters extracted from KDB 865664 D01 SAR Measurement 100MHz to 6GHz

| | ≤ 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: $\Delta x_{Area}$, $\Delta y_{Area}$ | ≤ 2 GHz: ≤ 15 mm<br>2 – 3 GHz: ≤ 12 mm | 3 – 4 GHz: ≤ 12 mm<br>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. | |

Step 3: Zoom Scan

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

Zoom Scan Parameters extracted from KDB865664 d01 SAR Measurement 100MHz to 6GHz

| | | | | |
|---|---|---|---|---|
| Maximum zoom scan spatial resolution: $\Delta x_{Zoom}$, $\Delta y_{Zoom}$ | | | ≤ 2 GHz: ≤ 8 mm<br>2 – 3 GHz: ≤ 5 mm* | 3 – 4 GHz: ≤ 5 mm*<br>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<br>4 – 5 GHz: ≤ 3 mm<br>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<br>4 – 5 GHz: ≤ 2.5 mm<br>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<br>4 – 5 GHz: ≥ 25 mm<br>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.<br>* 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. | | | | |

Step 4: Power Drift Measurement

The Power Drift Measurement measures the field at the same location as the most recent power reference measurement within the same procedure, and with the same settings. The Power Drift Measurement gives the field difference in dB from the reading conducted within the same settings. This allows a user to monitor the power drift of the device under test within a batch process. The measurement procedure is the same as Step 1.

## 4.3. RF Exposure Conditions

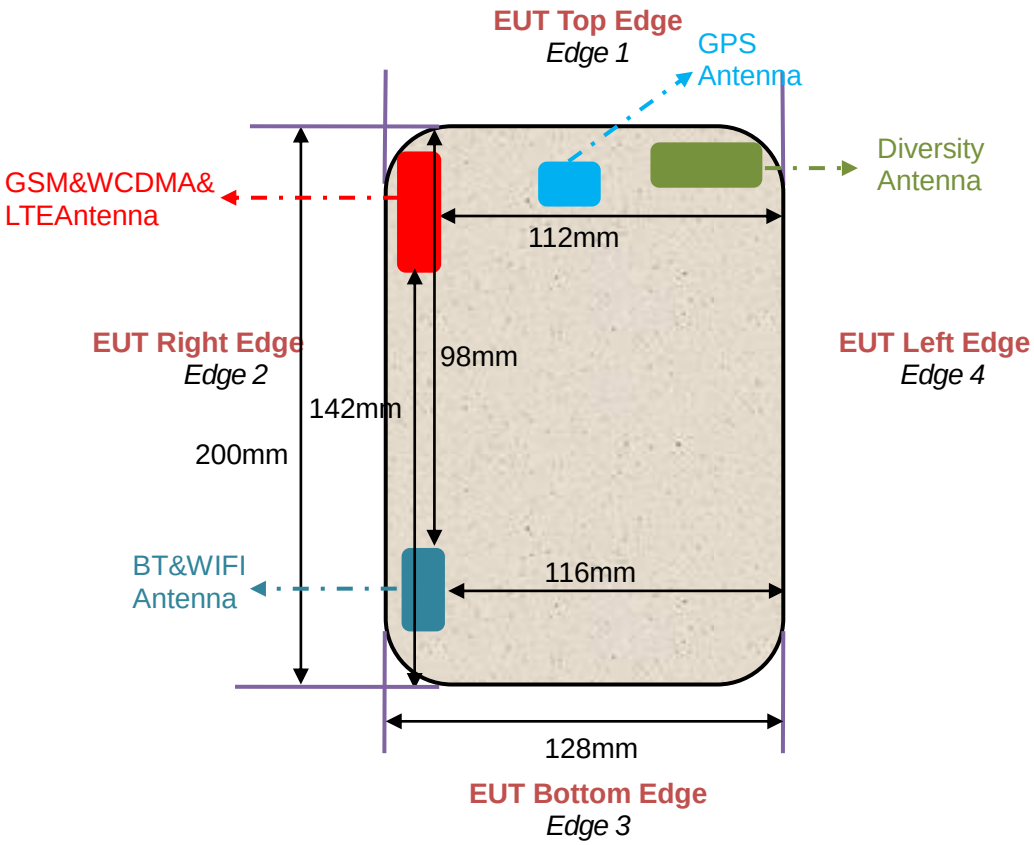
Test Configuration and setting:

The EUT is a model of GSM Portable Mobile Station (MS). It supports GSM/GPRS/EGPRS, WCDMA/HSPA, LTE, BT, WIFI, and support hot spot mode.

For WWAN SAR testing, the device was controlled by using a base station emulator. Communication between the device and the emulator were established by air link. The distance between the EUT and the antenna is larger than 50cm, and the output power radiated from the emulator antenna is at least 30db smaller than the output power of EUT.

For WLAN testing, the EUT is configured with the WLAN continuous TX tool through engineering command.

**Antenna Location: (the back view)**



For WWAN mode:

| Test Configurations | Antenna to edges/surface | SAR required | Note |
|---|---|---|---|
| Head | | | |
| Left Touch | | Yes | -- |
| Left Tilt | | Yes | -- |
| Right Touch | | Yes | -- |
| Right Tilt | | Yes | -- |
| Body | | | |
| Back | <25mm | Yes | -- |
| Front | <25mm | Yes | -- |
| Hotspot | | | |
| Back | <25mm | Yes | -- |
| Front | <25mm | Yes | -- |
| Edge 1 (Top) | 20mm | Yes | |
| Edge 2 (Right) | 5mm | Yes | -- |
| Edge 3 (Bottom) | 142mm | No | SAR is not required for the distance between the antenna and the edge is >25mm as per KDB 941225 D06 Hotspot SAR |
| Edge 4 (Left) | 112mm | No | SAR is not required for the distance between the antenna and the edge is >25mm as per KDB 941225 D06 Hotspot SAR |

For WLAN mode:

| Test Configurations | Antenna to edges/surface | SAR required | Note |
|---|---|---|---|
| Head | | | |
| Left Touch | | Yes | -- |
| Left Tilt | | Yes | -- |
| Right Touch | | Yes | -- |
| Right Tilt | | Yes | -- |
| Body | | | |
| Back | <25mm | Yes | -- |
| Front | <25mm | Yes | -- |
| Hotspot | | | |
| Back | <25mm | Yes | -- |
| Front | <25mm | Yes | -- |
| Edge 1 (Top) | 98mm | Yes | SAR is not required for the distance between the antenna and the edge is >25mm as per KDB 941225 D06 Hotspot SAR |
| Edge 2 (Right) | 5mm | No | -- |
| Edge 3 (Bottom) | 23mm | Yes | |
| Edge 4 (Left) | 116mm | No | SAR is not required for the distance between the antenna and the edge is >25mm as per KDB 941225 D06 Hotspot SAR |

# 5. TISSUE SIMULATING LIQUID

For SAR measurement of the field distribution inside the phantom, the phantom must be filled with homogeneous tissue simulating liquid to a depth of at least 15cm. For head SAR testing the liquid height from the ear reference point (ERP) of the phantom to the liquid top surface is larger than 15cm For body SAR testing, the liquid height from the center of the flat phantom to the liquid top surface is larger than 15cm.The nominal dielectric values of the tissue simulating liquids in the phantom and the tolerance of 5% are listed in 5.2

## 5.1. The composition of the tissue simulating liquid

| Ingredient (% Weight) / Frequency (MHz) | Water | Nacl | Polysorbate 20 | DGBE | 1,2 Propanediol | Triton X-100 |
|---|---|---|---|---|---|---|
| 750 Body | 55 | 1 | 0.0 | 0.0 | 44 | 0.0 |
| 835 Body | 54.00 | 1 | 0.0 | 15 | 0.0 | 30 |
| 1750 Body | 70 | 1 | 0.0 | 9 | 0.0 | 20 |
| 1900 Body | 70 | 1 | 0.0 | 9 | 0.0 | 20 |
| 2450 Body | 70 | 1 | 0.0 | 9 | 0.0 | 20 |
| 2600 Body | 70 | 1 | 0.0 | 9 | 0.0 | 20 |

## 5.2. Tissue Dielectric Parameters for Head and Body Phantoms

The head tissue dielectric parameters recommended by the IEEE 1528 have been incorporated in the following table. These head parameters are derived from planar layer models simulating the highest expected SAR for the dielectric properties and tissue thickness variations in a human head. Other head and body tissue parameters that have not been specified in IEEE 1528 are derived from the tissue dielectric parameters computed from the 4-Cole-Cole equations described in Reference [12] and extrapolated according to the head parameters specified in IEEE 1528.

| Target Frequency (MHz) | head | | body | |
|---|---|---|---|---|
| | εr | σ (S/m) | εr | σ (S/m) |
| 300 | 45.3 | 0.87 | 58.2 | 0.92 |
| 450 | 43.5 | 0.87 | 56.7 | 0.94 |
| **750** | **41.9** | **0.89** | **55.5** | **0.96** |
| **835** | **41.5** | **0.90** | **55.2** | **0.97** |
| 900 | 41.5 | 0.97 | 55.0 | 1.05 |
| 915 | 41.5 | 1.01 | 55.0 | 1.06 |
| 1450 | 40.5 | 1.20 | 54.0 | 1.30 |
| 1610 | 40.3 | 1.29 | 53.8 | 1.40 |
| **1750** | **40.1** | **1.37** | **53.4** | **1.49** |
| **1800 – 2000** | **40.0** | **1.40** | **53.3** | **1.52** |
| **2450** | **39.2** | **1.80** | **52.7** | **1.95** |
| **2600** | 39.00 | 1.96 | **52.51** | **2.16** |
| 3000 | 38.5 | 2.40 | 52.0 | 2.73 |

(εr = relative permittivity, σ = conductivity and ρ = 1000 kg/m3

## 5.3. Tissue Calibration Result

The dielectric parameters of the liquids were verified prior to the SAR evaluation using SATIMO Dielectric Probe Kit and R&S Network Analyzer ZVL6.

| Tissue Stimulant Measurement for 750MHz | | | | | |
|---|---|---|---|---|---|
| | Fr. (MHz) | Dielectric Parameters (±5%) | | Tissue Temp [oC] | Test time |
| | | εr 55.5(52.725-58.275) | δ[s/m]0.96(0.912-1.008) | | |
| Body | 709 | 55.26 | 0.95 | 21.2 | June 24,2017 |
| | 710 | 54.61 | 0.96 | | |
| | 711 | 54.03 | 0.97 | | |
| | 750 | 53.59 | 0.98 | | |

| Tissue Stimulant Measurement for 835MHz | | | | | |
|---|---|---|---|---|---|
| | Fr. (MHz) | Dielectric Parameters (±5%) | | Tissue Temp [oC] | Test time |
| | | εr 55.20(52.44-57-96) | δ[s/m]0.97(0.9215-1.0185) | | |
| Body | 824.2 | 56.77 | 0.93 | 21.8 | June 7,2017 |
| | 826.4 | 56.23 | 0.94 | | |
| | 829 | 55.84 | 0.95 | | |
| | 835 | 55.36 | 0.96 | | |
| | 836.6 | 54.91 | 0.97 | | |
| | 844 | 54.40 | 0.97 | | |
| | 846.6 | 53.99 | 0.98 | | |
| | 848.8 | 53.42 | 0.99 | | |

| Tissue Stimulant Measurement for 1750MHz | | | | | |
|---|---|---|---|---|---|
| | Fr. (MHz) | Dielectric Parameters (±5%) | | Tissue Temp [oC] | Test time |
| | | εr 53.4(50.73-56.07) | δ[s/m] 1.49(1.4155-1.5645) | | |
| Body | 1720 | 54.20 | 1.44 | 21.1 | June 16,2017 |
| | 1732.5 | 53.55 | 1.45 | | |
| | 1745 | 52.96 | 1.46 | | |
| | 1750 | 52.37 | 1.47 | | |

| Tissue Stimulant Measurement for 1900MHz | | | | | |
|---|---|---|---|---|---|
| | Fr. (MHz) | Dielectric Parameters (±5%) | | Tissue Temp [oC] | Test time |
| | | εr53.30(50.635-55.965) | δ[s/m]1.52(1.444-1.596) | | |
| Body | 1850.2 | 55.13 | 1.45 | 21.6 | June 13,2017 |
| | 1852.4 | 54.67 | 1.47 | | |
| | 1860 | 54.05 | 1.48 | | |
| | 1880 | 53.59 | 1.50 | | |
| | 1900 | 53.00 | 1.51 | | |
| | 1907.6 | 52.61 | 1.53 | | |
| | 1909.8 | 52.17 | 1.55 | | |

| Tissue Stimulant Measurement for 2450MHz | | | | | |
|---|---|---|---|---|---|
| | Fr. (MHz) | Dielectric Parameters (±5%) | | Tissue Temp [oC] | Test time |
| | | εr52.7(50.065-55.335) | δ[s/m]1.95(1.8525-2.0475) | | |
| Body | 2412 | 54.69 | 1.87 | 21.6 | June 18,2017 |
| | 2437 | 54.03 | 1.89 | | |
| | 2450 | 53.41 | 1.91 | | |
| | 2462 | 52.78 | 1.92 | | |

| Tissue Stimulant Measurement for 2600MHz | | | | | |
|---|---|---|---|---|---|
| | Fr. (MHz) | Dielectric Parameters (±5%) | | Tissue Temp [$^{o}$C] | Test time |
| | | Er52.51 (49.88-55.14) | δ[s/m] 2.16 (2.05-2.27) | | |
| Body | 2510 | 54.53 | 2.08 | 21.3 | June. 21,2017 |
| | 2535 | 53.69 | 2.10 | | |
| | 2560 | 52.98 | 2.12 | | |
| | 2600 | 52.04 | 2.15 | | |

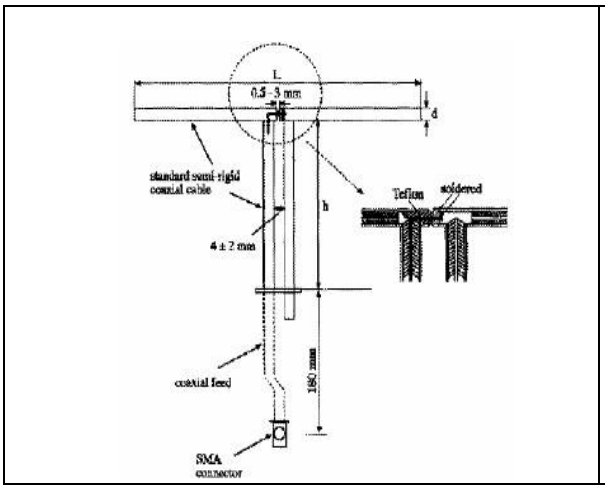
# 6. SAR SYSTEM CHECK PROCEDURE

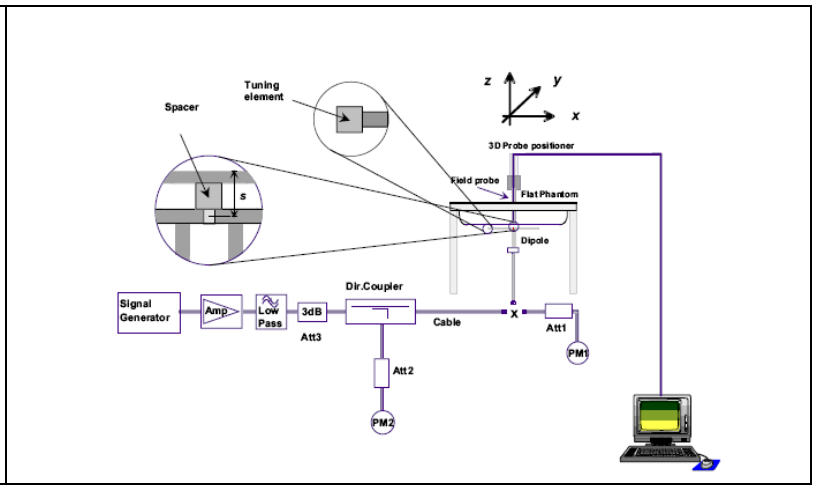
## 6.1. SAR System Check Procedures

SAR system check is required to confirm measurement accuracy, according to the tissue dielectric media, probe calibration points and other system operating parameters required for measuring the SAR of a test device. The system verification must be performed for each frequency band and within the valid range of each probe calibration point required for testing the device. The same SAR probe(s) and tissue-equivalent media combinations used with each specific SAR system for system verification must be used for device testing. When multiple probe calibration points are required to cover substantially large transmission bands, independent system verifications are required for each probe calibration point. A system verification must be performed before each series of SAR measurements using the same probe calibration point and tissue-equivalent medium. Additional system verification should be considered according to the conditions of the tissue-equivalent medium and measured tissue dielectric parameters, typically every three to four days when the liquid parameters are remeasured or sooner when marginal liquid parameters are used at the beginning of a series of measurements.

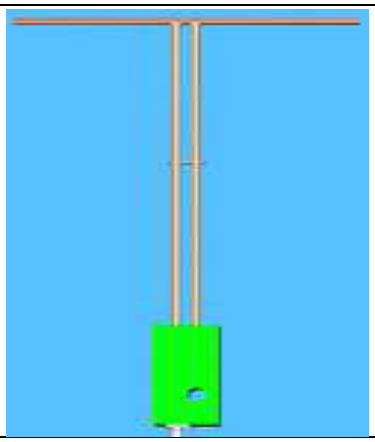
Each SATIMO system is equipped with one or more system check kits. These units, together with the predefined measurement procedures within the SATIMO software, enable the user to conduct the system check and system validation. System kit includes a dipole, and dipole device holder.

The system check verifies that the system operates within its specifications. It's performed daily or before every SAR measurement. The system check uses normal SAR measurement in the flat section of the phantom with a matched dipole at a specified distance. The system check setup is shown as below.



## 6.2. SAR System Check
### 6.2.1. Dipoles



The dipoles used is based on the IEEE-1528 standard, and is complied with mechanical and electrical specifications in line with the requirements of IEEE. the table below provides details for the mechanical and electrical
Specifications for the dipoles.

| Frequency | L (mm) | h (mm) | d (mm) |
|---|---|---|---|
| 750MHz | 176 | 100 | 6.35 |
| 835MHz | 161.0 | 89.8 | 3.6 |
| 1800MHz | 71.6 | 41.7 | 3.6 |
| 1900MHz | 68 | 39.5 | 3.6 |
| 2450MHz | 51.5 | 30.4 | 3.6 |
| 2600MHz | 48.5 | 28.8 | 3.6 |

### 6.2.2. System Check Result

| System Performance Check at 750MHz & 835MHz &1800MHz &1900MHz &2450MHz for Body | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Validation Kit: SN47/14 DIP 0G750-340& SN29/15 DIP 0G835-383& SN29/15 DIP 1G800-387&SN 29/15 DIP 1G900-389& SN 29/15DIP 2G450-393 | | | | | | | | |
| Frequency [MHz] | Target Value(W/Kg) | | Reference Result (± 10%) | | Tested Value(W/Kg) | | Tissue Temp. [°C] | Test time |
| | 1g | 10g | 1g | 10g | 1g | 10g | | |
| 750 | 8.78 | 5.86 | 7.902-9.658 | 5.274-6.446 | 9.47 | 6.14 | 21.2 | June 24,2017 |
| 835 | 9.85 | 6.45 | 8.865-10.835 | 5.805-7.095 | 10.51 | 6.85 | 21.8 | June 7,2017 |
| 1800 | 36.53 | 19.80 | 32.877-40.183 | 17.82-21.780 | 34.87 | 18.50 | 21.1 | June 16,2017 |
| 1900 | 39.38 | 20.86 | 35.442-43.318 | 18.774-22.946 | 41.86 | 19.82 | 21.6 | June 13,2017 |
| 2450 | 49.92 | 23.16 | 44.928-54.912 | 20.844-25.476 | 54.25 | 23.97 | 21.6 | June 18,2017 |
| 2600 | 52.19 | 23.58 | 46.971-57.409 | 21.222-25.938 | 54.72 | 23.61 | 21.3 | June 21,2017 |

Note:
(1) We use a CW signal of 18dBm for system check, and then all SAR value are normalized to 1W forward power. The result must be within ±10% of target value.

# 7. EUT TEST POSITION

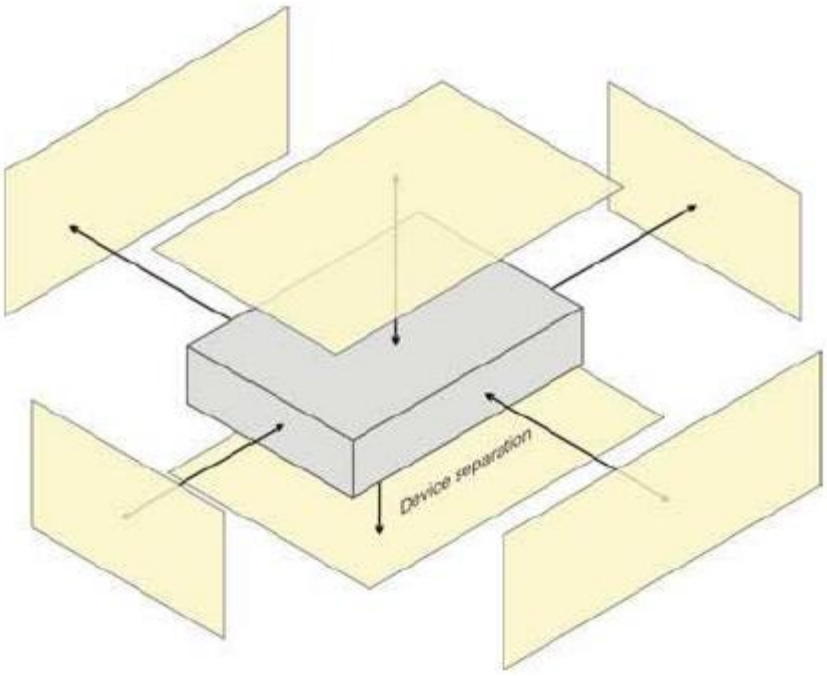
This EUT was tested in **Body back, Body front and 4 edges.**

## 7.1. Body Worn Position

(1) To position the EUT parallel to the phantom surface.

(2) To adjust the EUT parallel to the flat phantom.

(3) To adjust the distance between the EUT surface and the flat phantom to **0mm.**



# 8. SAR EXPOSURE LIMITS

SAR assessments have been made in line with the requirements of IEEE-1528, and comply with ANSI/IEEE C95.1-2005 “Uncontrolled Environments” limits. These limits apply to a location which is deemed as “Uncontrolled Environment” which can be described as a situation where the general public may be exposed to an RF source with no prior knowledge or control over their exposure.

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

| Type Exposure | Uncontrolled Environment Limit (W/kg) |
|---|---|
| Spatial Peak SAR (1g cube tissue for brain or body) | 1.60 |
| Spatial Average SAR (Whole body) | 0.08 |
| Spatial Peak SAR (Limbs) | 4.0 |

# 9. TEST EQUIPMENT LIST

| Equipment description | Manufacturer/ Model | Identification No. | Current calibration date | Next calibration date |
|---|---|---|---|---|
| SAR Probe | MVG | SN 14/16 EP307 | 07/05/2016 | 07/04/2017 |
| Phantom | SATIMO | SN_2316_ELLI39 | N/A | N/A |
| Liquid | SATIMO | - | Validated. No cal required. | Validated. No cal required. |
| Comm Tester | Agilent-8960 | GB46310822 | 03/02/2017 | 03/01/2018 |
| Comm Tester | R&S- CMW500 | S/N121209 | 07/18/2016 | 07/17/2017 |
| Multimeter | Keithley 2000 | 1188656 | 03/02/2017 | 03/01/2018 |
| Dipole | SATIMO SID750 | SN47/14 DIP 0G750-340 | 12/03/2014 | 12/02/2017 |
| Dipole | SATIMO SID835 | SN29/15 DIP 0G835-383 | 07/05/2016 | 07/04/2019 |
| Dipole | SATIMO SID1800 | SN29/15 DIP 1G800-387 | 07/05/2016 | 07/04/2019 |
| Dipole | SATIMO SID1900 | SN 29/15 DIP 1G900-389 | 07/05/2016 | 07/04/2019 |
| Dipole | SATIMO SID2450 | SN29/15 DIP 2G450-393 | 07/05/2016 | 07/04/2019 |
| Dipole | SATIMO SID2600 | SN47/14 DIP 2G600-342 | 12/03/2014 | 12/02/2017 |
| Signal Generator | Agilent-E4438C | US41461365 | 03/02/2017 | 03/01/2018 |
| Vector Analyzer | Agilent / E4440A | US40420298 | 07/02/2016 | 07/01/2017 |
| Network Analyzer | Rhode & Schwarz ZVL6 | SN100132 | 03/02/2017 | 03/01/2018 |
| Attenuator | Warison /WATT-6SR1211 | N/A | N/A | N/A |
| Attenuator | Mini-circuits / VAT-10+ | N/A | N/A | N/A |
| Amplifier | EM30180 | SN060552 | 03/02/2017 | 03/01/2018 |
| Directional Couple | Werlatone/ C5571-10 | SN99463 | 07/02/2016 | 07/01/2017 |
| Directional Couple | Werlatone/ C6026-10 | SN99482 | 07/02/2016 | 07/01/2017 |
| Power Sensor | NRP-Z21 | 1137.6000.02 | 10/10/2016 | 10/09/2017 |
| Power Sensor | NRP-Z23 | US38261498 | 03/02/2017 | 03/01/2018 |
| Power Viewer | R&S | V2.3.1.0 | N/A | N/A |

Note: Per KDB 865664 Dipole SAR Validation, AGC Lab has adopted 3 years calibration intervals. On annual basis, every measurement dipole has been evaluated and is in compliance with the following criteria:
1. There is no physical damage on the dipole;
2. System validation with specific dipole is within 10% of calibrated value;
3. Return-loss is within 20% of calibrated measurement;
4. Impedance is within 5Ω of calibrated measurement.

# 10. MEASUREMENT UNCERTAINTY

Per KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz, when the highest measured 1-g SAR within a frequency band is< 1.5 W/Kg, the extensive SAR measurement uncertainty analysis described in IEEE 1528-2013 is not required in SAR reports submitted for equipment approval.

# 11. CONDUCTED POWER MEASUREMENT

**GSM BAND**

| Mode | Frequency(MHz) | Avg. Burst Power(dBm) | Duty cycle Factor(dBm) | Frame Power(dBm) |
|---|---|---|---|---|
| Maximum Power <1> | | | | |
| GSM 850 | 824.2 | **30.82** | -9 | 21.82 |
| | 836.6 | 30.65 | -9 | 21.65 |
| | 848.8 | 30.31 | -9 | 21.31 |
| GPRS 850 （1 Slot） | 824.2 | 30.12 | -9 | 21.12 |
| | 836.6 | 30.29 | -9 | 21.29 |
| | 848.8 | 30.09 | -9 | 21.09 |
| GPRS 850 （2 Slot） | 824.2 | 27.27 | -6 | 21.27 |
| | 836.6 | 27.20 | -6 | 21.20 |
| | 848.8 | 27.15 | -6 | 21.15 |
| GPRS 850 （3 Slot） | 824.2 | 25.46 | -4.26 | 21.20 |
| | 836.6 | 25.41 | -4.26 | 21.15 |
| | 848.8 | 25.22 | -4.26 | 20.96 |
| GPRS 850 （4 Slot） | 824.2 | 24.31 | -3 | 21.31 |
| | 836.6 | 24.63 | -3 | **21.63** |
| | 848.8 | 24.25 | -3 | 21.25 |
| EGPRS 850 （1 Slot） | 824.2 | 23.52 | -9 | 14.52 |
| | 836.6 | 23.33 | -9 | 14.33 |
| | 848.8 | 23.41 | -9 | 14.41 |
| EGPRS 850 （2 Slot） | 824.2 | 20.55 | -6 | 14.55 |
| | 836.6 | 20.34 | -6 | 14.34 |
| | 848.8 | 20.40 | -6 | 14.40 |
| EGPRS 850 （3 Slot） | 824.2 | 19.27 | -4.26 | 15.01 |
| | 836.6 | 19.28 | -4.26 | 15.02 |
| | 848.8 | 19.41 | -4.26 | 15.15 |
| EGPRS 850 （4 Slot） | 824.2 | 18.23 | -3 | 15.23 |
| | 836.6 | 18.12 | -3 | 15.12 |
| | 848.8 | 18.35 | -3 | 15.35 |

**GSM BAND CONTINUE**

| Mode | Frequency(MHz) | Avg. Burst Power(dBm) | Duty cycle Factor(dBm) | Frame Power(dBm) |
|---|---|---|---|---|
| Maximum Power <1> | | | | |
| PCS1900 | 1850.2 | **26.89** | -9 | 17.89 |
| | 1880 | 26.73 | -9 | 17.73 |
| | 1909.8 | 26.68 | -9 | 17.68 |
| GPRS1900 （1 Slot） | 1850.2 | 26.29 | -9 | 17.29 |
| | 1880 | 26.33 | -9 | 17.33 |
| | 1909.8 | 26.26 | -9 | 17.26 |
| GPRS1900 （2 Slot） | 1850.2 | 23.24 | -6 | 17.24 |
| | 1880 | 23.18 | -6 | 17.18 |
| | 1909.8 | 23.40 | -6 | **17.40** |
| GPRS1900 （3 Slot） | 1850.2 | 20.79 | -4.26 | 16.53 |
| | 1880 | 20.85 | -4.26 | 16.59 |
| | 1909.8 | 20.83 | -4.26 | 16.57 |
| GPRS1900 （4 Slot） | 1850.2 | 20.12 | -3 | 17.12 |
| | 1880 | 20.06 | -3 | 17.06 |
| | 1909.8 | 20.07 | -3 | 17.07 |
| EGPRS1900 （1 Slot） | 1850.2 | 22.26 | -9 | 13.26 |
| | 1880 | 22.28 | -9 | 13.28 |
| | 1909.8 | 22.49 | -9 | 13.49 |
| EGPRS1900 （2 Slot） | 1850.2 | 20.58 | -6 | 14.58 |
| | 1880 | 20.62 | -6 | 14.62 |
| | 1909.8 | 20.60 | -6 | 14.60 |
| EGPRS1900 （3 Slot） | 1850.2 | 20.34 | -4.26 | 16.08 |
| | 1880 | 20.30 | -4.26 | 16.04 |
| | 1909.8 | 20.29 | -4.26 | 16.03 |
| EGPRS1900 （4 Slot） | 1850.2 | 19.25 | -3 | 16.25 |
| | 1880 | 19.17 | -3 | 16.17 |
| | 1909.8 | 19.09 | -3 | 16.09 |

Note 1:
The Frame Power (Source-based time-averaged Power) is scaled the maximum burst average power based on time slots. The calculated methods are show as following:
Frame Power = Max burst power (1 Up Slot) – 9 dB
Frame Power = Max burst power (2 Up Slot) – 6 dB
Frame Power = Max burst power (3 Up Slot) – 4.26 dB
Frame Power = Max burst power (4 Up Slot) – 3 dB
Note 2:
SAR is not required for GPRS (1 Slot) Mode because its output power is less than of Voice Mode

**UMTS BAND**
**HSDPA Setup Configuration:**

·The EUT was connected to Base Station Agilent E5515C referred to the Setup Configuration.

·The RF path losses were compensated into the measurements.

·A call was established between EUT and Based Station with following setting:

(1) Set Gain Factors(βc and βd) parameters set according to each

(2) Set RMC 12.2Kbps+HSDPA mode.

(3) Set Cell Power=-86dBm

(4) Set HS-DSCH Configuration Type to FRC (H-set 1, QPSK)

(5) Select HSDPA Uplink Parameters

(6) Set Delta ACK, Delta NACK and Delta CQI=8

(7) Set Ack - Nack Repetition Factor to 3

(8) Set CQI Feedback Cycle (k) to 4ms

(9) Set CQI Repetition Factor to 2

(10) Power Ctrl Mode=All Up bits

·The transmitted maximum output power was recorded.

Table C.10.2.4: β values for transmitter characteristics tests with HS-DPCCH

| Sub-test | βc (Note5) | βd | βd (SF) | βc/βd | βHS (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: ΔACK, ΔNACK and ΔCQI = 30/15 with $\beta_{hs}$ = 30/15 * $\beta_c$ .
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, ΔACK and ΔNACK = 30/15 with $\beta_{hs}$ = 30/15 * $\beta_c$ , and ΔCQI = 24/15 with $\beta_{hs}$ = 24/15 * $\beta_c$ .
Note 3: CM = 1 for βc/βd =12/15, □ hs/□ 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 □ c/□ 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 □ c =11/15 and □ d = 15/15.

**HSUPA Setup Configuration:**

· The EUT was connected to Base Station Agilent E5515C referred to the Setup Configuration.

· The RF path losses were compensated into the measurements.

· A call was established between EUT and Base Station with following setting * :

(1) Call Configs = 5.2B, 5.9B, 5.10B, and 5.13.2B with QPSK

(2) Set the Gain Factors (βc and βd) and parameters (AG Index) were set according to each specific sub-test in the following table, C11.1.3, quoted from the TS 34.121

(3) Set Cell Power = -86 dBm

(4) Set Channel Type = 12.2k + HSPA

(5) Set UE Target Power

(6) Power Ctrl Mode= Alternating bits

(7) Set and observe the E-TFCI

(8) Confirm that E-TFCI is equal to the target E-TFCI of 75 for sub-test 1, and other subtest's E-TFCI

· The transmitted maximum output power was recorded.

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

| Sub-test | βc | βd | βd (SF) | βc/βd | βHS (Note 1) | βec | βed (Note 4) (Note 5) | βed (SF) | βed (Codes) | CM (dB) (Note 2) | MPR (dB) (Note 2) (Note 6) | AG Index (Note 5) | 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 | βed1: 47/15 βed2: 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 | 0 | - | - | 5/15 | 5/15 | 47/15 | 4 | 1 | 1.0 | 0.0 | 12 | 67 |

Note 1: For sub-test 1 to 4, ΔACK, ΔNACK and ΔCQI = 30/15 with $\beta_{hs}$ = 30/15 * $\beta_c$. For sub-test 5, ΔACK, ΔNACK and ΔCQI = 5/15 with $\beta_{hs}$ = 5/15 * $\beta_c$.

Note 2: CM = 1 for βc/βd =12/15, □ hs/□ 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 □ c/□ 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 □ c = 10/15 and □ d =15/15.

Note 4: 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 5: βed cannot be set directly; it is set by Absolute Grant Value.

Note 6: For subtests 2, 3 and 4, UE may perform E-DPDCH power scaling at max power which could results in slightly smaller MPR values.

**UMTS BAND II**

| Mode | Frequency (MHz) | Avg. Burst Power (dBm) |
|---|---|---|
| WCDMA 1900 RMC | 1852.4 | **21.54** |
| | 1880 | 21.22 |
| | 1907.6 | 21.32 |
| WCDMA 1900 AMR | 1852.4 | 21.00 |
| | 1880 | 20.93 |
| | 1907.6 | 21.08 |
| HSDPA Subtest 1 | 1852.4 | 20.62 |
| | 1880 | 20.21 |
| | 1907.6 | 20.32 |
| HSDPA Subtest 2 | 1852.4 | 20.53 |
| | 1880 | 20.29 |
| | 1907.6 | 20.27 |
| HSDPA Subtest 3 | 1852.4 | 20.31 |
| | 1880 | 20.01 |
| | 1907.6 | 20.37 |
| HSDPA Subtest 4 | 1852.4 | 20.36 |
| | 1880 | 19.92 |
| | 1907.6 | 20.26 |
| HSUPA Subtest 1 | 1852.4 | 20.53 |
| | 1880 | 20.39 |
| | 1907.6 | 20.06 |
| HSUPA Subtest 2 | 1852.4 | 20.51 |
| | 1880 | 20.54 |
| | 1907.6 | 20.59 |
| HSUPA Subtest 3 | 1852.4 | 20.70 |
| | 1880 | 20.87 |
| | 1907.6 | 20.65 |
| HSUPA Subtest 4 | 1852.4 | 20.40 |
| | 1880 | 20.52 |
| | 1907.6 | 20.30 |
| HSUPA Subtest 5 | 1852.4 | 20.42 |
| | 1880 | 20.61 |
| | 1907.6 | 20.32 |

**UMTS BAND V**

| Mode | Frequency (MHz) | Avg. Burst Power (dBm) |
|---|---|---|
| WCDMA 850 RMC | 826.4 | 21.24 |
| | 836.6 | **21.55** |
| | 846.6 | 21.30 |
| WCDMA 850 AMR | 826.4 | 21.31 |
| | 836.6 | 21.27 |
| | 846.6 | 21.14 |
| HSDPA Subtest 1 | 826.4 | 20.82 |
| | 836.6 | 20.38 |
| | 846.6 | 20.73 |
| HSDPA Subtest 2 | 826.4 | 20.23 |
| | 836.6 | 20.20 |
| | 846.6 | 20.66 |
| HSDPA Subtest 3 | 826.4 | 20.01 |
| | 836.6 | 20.09 |
| | 846.6 | 20.28 |
| HSDPA Subtest 4 | 826.4 | 20.48 |
| | 836.6 | 20.18 |
| | 846.6 | 20.20 |
| HSUPA Subtest 1 | 826.4 | 20.25 |
| | 836.6 | 20.37 |
| | 846.6 | 20.22 |
| HSUPA Subtest 2 | 826.4 | 20.36 |
| | 836.6 | 20.45 |
| | 846.6 | 20.13 |
| HSUPA Subtest 3 | 826.4 | 20.40 |
| | 836.6 | 20.22 |
| | 846.6 | 20.32 |
| HSUPA Subtest 4 | 826.4 | 20.72 |
| | 836.6 | 20.40 |
| | 846.6 | 20.47 |
| HSUPA Subtest 5 | 826.4 | 20.20 |
| | 836.6 | 20.27 |
| | 846.6 | 20.35 |

According to 3GPP 25.101 sub-clause 6.2.2 , the maximum output power is allowed to be reduced by following the table.

Table 6.1aA: UE maximum output power with HS-DPCCH and E-DCH

| UE Transmit Channel Configuration | CM(db) | MPR(db) |
|---|---|---|
| For all combinations of ,DPDCH,DPCCH HS-DPDCH,E-DPDCH and E-DPCCH | 0≤ CM≤3.5 | MAX(CM-1,0) |
| Note: CM=1 for $\beta_c/\beta_d$=12/15, $\beta_{hs}/\beta_c$=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. | | |

The device supports MPR to solve linearity issues (ACLR or SEM) due to the higher peak-to average ratios (PAR) of the HSUPA signal. This prevents saturating the full range of the TX DAC inside of device and provides a reduced power output to the RF transceiver chip according to the Cubic Metric (a function of the combinations of DPDCH, DPCCH, HS-DPCCH, E-DPDCH and E-DPCCH).

When E-DPDCH channels are present the beta gains on those channels are reduced firsts to try to get the power under the allowed limit. If the beta gains are lowered as far as possible, then a hard limiting is applied at the maximum allowed level.

The SW currently recalculates the cubic metric every time the beta gains on the E-DPDCH are reduced. The cubic metric will likely get lower each time this is done .However, there is no reported reduction of maximum output power in the HSUPA mode since the device also provides a compensation for the power back-off by increasing the gain of TX_AGC in the transceiver (PA) device.

The end effect is that the DUT output power is identical to the case where there is no MPR in the device.

**LTE Band**

| Conducted Power of LTE Band II(dBm) | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Bandwidth** | **Modulation** | **RB size** | **RB offset** | **Target MPR** | **Channel** | **Channel** | **Channel** |
| | | | | | **18607** | **18900** | **19193** |
| **1.4MHz** | QPSK | 1 | 0 | 0 | 21.97 | 21.96 | 22.25 |
| | | | 3 | 0 | 22.50 | 22.55 | 22.37 |
| | | | 5 | 0 | 22.37 | 22.51 | 22.41 |
| | | 3 | 0 | 0 | 22.70 | 22.49 | 22.61 |
| | | | 2 | 0 | 21.97 | 22.21 | 22.65 |
| | | | 3 | 0 | 22.39 | 21.95 | 22.18 |
| | | 6 | 0 | 1 | 22.37 | 22.39 | 22.11 |
| | 16QAM | 1 | 0 | 1 | 22.49 | **23.24** | 22.64 |
| | | | 3 | 1 | 22.26 | 22.98 | 22.63 |
| | | | 5 | 1 | 21.74 | 22.16 | 22.31 |
| | | 3 | 0 | 1 | 22.58 | 21.97 | 21.86 |
| | | | 2 | 1 | 22.78 | 22.36 | 21.68 |
| | | | 3 | 1 | 22.05 | 21.88 | 22.20 |
| | | 6 | 0 | 2 | 21.93 | 22.73 | 22.13 |
| **Bandwidth** | **Modulation** | **RB size** | **RB offset** | **Target MPR** | **Channel** | **Channel** | **Channel** |
| | | | | | **18615** | **18900** | **19185** |
| **3MHz** | QPSK | 1 | 0 | 0 | 22.68 | 22.09 | 22.61 |
| | | | 7 | 0 | 22.76 | 22.29 | 22.95 |
| | | | 14 | 0 | 22.64 | 22.14 | 22.24 |
| | | 8 | 0 | 1 | 22.71 | 21.98 | 22.16 |
| | | | 4 | 1 | 22.57 | 21.93 | 22.16 |
| | | | 7 | 1 | 22.30 | 21.81 | 21.87 |
| | | 15 | 0 | 1 | 22.81 | 21.77 | 22.02 |
| | 16QAM | 1 | 0 | 1 | 21.83 | 22.47 | 21.86 |
| | | | 7 | 1 | 22.60 | 21.93 | 22.78 |
| | | | 14 | 1 | 22.28 | 22.66 | 22.26 |
| | | 8 | 0 | 2 | 21.93 | 21.90 | 22.86 |
| | | | 4 | 2 | 21.79 | 22.26 | 22.93 |
| | | | 7 | 2 | 22.41 | 22.25 | 22.53 |
| | | 15 | 0 | 2 | 22.58 | 22.44 | 21.87 |

| Conducted Power of LTE Band II(dBm) | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Bandwidth** | **Modulation** | **RB size** | **RB offset** | **Target MPR** | **Channel** | **Channel** | **Channel** |
| | | | | | **18625** | **18900** | **19175** |
| **5MHz** | QPSK | 1 | 0 | 0 | 22.82 | 22.25 | 22.90 |
| | | | 13 | 0 | 22.09 | 22.33 | 21.98 |
| | | | 24 | 0 | 22.81 | 22.18 | 22.31 |
| | | 12 | 0 | 1 | 21.87 | 22.71 | 22.93 |
| | | | 6 | 1 | 21.62 | 22.39 | 22.03 |
| | | | 13 | 1 | 22.97 | 22.62 | 22.23 |
| | | 25 | 0 | 1 | 22.13 | 22.14 | 21.82 |
| | 16QAM | 1 | 0 | 1 | 21.84 | 22.38 | 22.36 |
| | | | 13 | 1 | 22.56 | 22.88 | 21.78 |
| | | | 24 | 1 | 22.70 | 22.40 | 21.95 |
| | | 12 | 0 | 2 | 22.18 | 22.46 | 22.64 |
| | | | 6 | 2 | 22.66 | 22.90 | 22.00 |
| | | | 13 | 2 | 22.63 | 21.75 | 22.19 |
| | | 25 | 0 | 2 | 22.54 | 22.75 | 22.41 |
| **Bandwidth** | **Modulation** | **RB size** | **RB offset** | **Target MPR** | **Channel** | **Channel** | **Channel** |
| | | | | | **18650** | **18900** | **19150** |
| **10MHz** | QPSK | 1 | 0 | 0 | 21.87 | 22.49 | 22.60 |
| | | | 25 | 0 | 22.02 | 22.16 | 21.85 |
| | | | 49 | 0 | 22.28 | 22.72 | 22.43 |
| | | 25 | 0 | 1 | 22.32 | 22.41 | 22.50 |
| | | | 13 | 1 | 22.50 | 22.75 | 22.74 |
| | | | 25 | 1 | 21.79 | 22.65 | 23.07 |
| | | 50 | 0 | 1 | 22.10 | 21.96 | 22.72 |
| | 16QAM | 1 | 0 | 1 | 22.67 | 22.82 | 21.62 |
| | | | 25 | 1 | 22.56 | 22.03 | 22.92 |
| | | | 49 | 1 | 22.46 | 22.53 | 22.51 |
| | | 25 | 0 | 2 | 21.49 | 22.61 | 22.58 |
| | | | 13 | 2 | 22.51 | 22.36 | 22.77 |
| | | | 25 | 2 | 21.69 | 22.56 | 22.65 |
| | | 50 | 0 | 2 | 21.51 | 22.84 | 22.32 |

| Conducted Power of LTE Band II(dBm) | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Bandwidth** | **Modulation** | **RB size** | **RB offset** | **Target MPR** | **Channel** | **Channel** | **Channel** |
| | | | | | **18675** | **18900** | **19125** |
| **15MHz** | QPSK | 1 | 0 | 0 | 22.41 | 22.71 | 22.23 |
| | | | 38 | 0 | 22.68 | 22.15 | 21.90 |
| | | | 74 | 0 | 22.40 | 22.66 | 21.65 |
| | | 36 | 0 | 1 | 22.21 | 22.86 | 22.11 |
| | | | 18 | 1 | 22.53 | 22.68 | 22.53 |
| | | | 39 | 1 | 22.50 | 22.41 | 22.32 |
| | | 75 | 0 | 1 | 22.55 | 22.16 | 21.73 |
| | 16QAM | 1 | 0 | 1 | 22.39 | 22.48 | 21.83 |
| | | | 38 | 1 | 22.32 | 22.13 | 22.07 |
| | | | 74 | 1 | 22.86 | 22.37 | 21.90 |
| | | 36 | 0 | 2 | 22.14 | 22.19 | 22.64 |
| | | | 18 | 2 | 21.96 | 22.07 | 21.78 |
| | | | 39 | 2 | 21.31 | 22.65 | 21.85 |
| | | 75 | 0 | 2 | 21.61 | 22.01 | 22.09 |
| **Bandwidth** | **Modulation** | **RB size** | **RB offset** | **Target MPR** | **Channel** | **Channel** | **Channel** |
| | | | | | **18700** | **18900** | **19100** |
| **20MHz** | QPSK | 1 | 0 | 0 | 22.66 | 22.61 | 21.94 |
| | | | 50 | 0 | 22.63 | **22.75** | 22.08 |
| | | | 99 | 0 | 22.66 | 22.62 | 22.12 |
| | | 50 | 0 | 1 | 22.31 | 21.96 | 22.75 |
| | | | 25 | 1 | 22.92 | 22.77 | 22.73 |
| | | | 50 | 1 | 22.55 | 22.33 | 22.31 |
| | | 100 | 0 | 1 | 22.22 | 22.25 | 22.16 |
| | 16QAM | 1 | 0 | 1 | 22.09 | 22.67 | 22.46 |
| | | | 50 | 1 | 22.93 | 21.89 | 22.55 |
| | | | 99 | 1 | 22.62 | 22.00 | 22.18 |
| | | 50 | 0 | 2 | 22.13 | 22.38 | 22.85 |
| | | | 25 | 2 | 21.96 | 22.82 | 22.56 |
| | | | 50 | 2 | 22.09 | 22.44 | 21.88 |
| | | 100 | 0 | 2 | 22.09 | 22.17 | 22.00 |

| Conducted Power of LTE Band IV(dBm) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Bandwidth | Modulation | RB size | RB offset | Target MPR | Channel 19957 | Channel 20175 | Channel 20393 |
| 1.4MHz | QPSK | 1 | 0 | 0 | 22.02 | 22.00 | 21.76 |
| | | | 3 | 0 | 22.55 | 22.73 | 22.55 |
| | | | 5 | 0 | 22.69 | 22.29 | 21.83 |
| | | 3 | 0 | 0 | 22.53 | 22.21 | 21.99 |
| | | | 2 | 0 | 21.85 | 22.90 | 22.46 |
| | | | 3 | 0 | 22.18 | 22.66 | 22.36 |
| | | 6 | 0 | 1 | 21.62 | 21.94 | 22.00 |
| | 16QAM | 1 | 0 | 1 | 21.48 | 22.39 | 22.74 |
| | | | 3 | 1 | 22.35 | 21.88 | 22.20 |
| | | | 5 | 1 | 21.68 | 22.85 | 22.14 |
| | | 3 | 0 | 1 | 22.19 | 21.94 | 21.75 |
| | | | 2 | 1 | 21.93 | 22.23 | 21.81 |
| | | | 3 | 1 | 22.30 | 22.15 | 22.60 |
| | | 6 | 0 | 2 | 22.60 | 22.57 | 22.54 |
| Bandwidth | Modulation | RB size | RB offset | Target MPR | Channel 19965 | Channel 20175 | Channel 20385 |
| 3MHz | QPSK | 1 | 0 | 0 | 22.44 | 22.42 | 22.20 |
| | | | 7 | 0 | 22.12 | 21.92 | 22.69 |
| | | | 14 | 0 | 22.04 | 22.76 | 21.93 |
| | | 8 | 0 | 1 | 22.62 | 21.78 | 21.72 |
| | | | 4 | 1 | 22.46 | 21.82 | 22.56 |
| | | | 7 | 1 | 22.52 | 21.87 | 21.64 |
| | | 15 | 0 | 1 | 22.15 | 22.30 | 21.74 |
| | 16QAM | 1 | 0 | 1 | 22.67 | 22.52 | 21.68 |
| | | | 7 | 1 | 22.09 | 22.27 | 21.99 |
| | | | 14 | 1 | 22.51 | 21.75 | 22.20 |
| | | 8 | 0 | 2 | 21.95 | 22.27 | 21.69 |
| | | | 4 | 2 | 21.96 | 21.26 | 22.25 |
| | | | 7 | 2 | 21.92 | 22.21 | 22.02 |
| | | 15 | 0 | 2 | 22.29 | 21.93 | 21.84 |

| Conducted Power of LTE Band IV(dBm) | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Bandwidth** | **Modulation** | **RB size** | **RB offset** | **Target MPR** | **Channel** | **Channel** | **Channel** |
| | | | | | **19975** | **20175** | **20375** |
| **5MHz** | QPSK | 1 | 0 | 0 | 22.92 | 21.75 | 21.75 |
| | | | 13 | 0 | 22.28 | 22.16 | 22.33 |
| | | | 24 | 0 | 22.05 | 21.70 | 22.10 |
| | | 12 | 0 | 1 | 22.24 | 22.51 | 22.79 |
| | | | 6 | 1 | 22.47 | 22.96 | 22.01 |
| | | | 13 | 1 | 22.28 | 22.76 | 22.43 |
| | | 25 | 0 | 1 | 22.49 | 22.53 | 22.45 |
| | 16QAM | 1 | 0 | 1 | 22.65 | 22.48 | 21.82 |
| | | | 13 | 1 | 22.51 | 21.73 | 22.39 |
| | | | 24 | 1 | 22.00 | 22.47 | 22.45 |
| | | 12 | 0 | 2 | 21.99 | 21.82 | 22.01 |
| | | | 6 | 2 | 22.38 | 22.17 | 22.06 |
| | | | 13 | 2 | 21.86 | 21.91 | 22.53 |
| | | 25 | 0 | 2 | 22.46 | 21.95 | 22.41 |
| **Bandwidth** | **Modulation** | **RB size** | **RB offset** | **Target MPR** | **Channel** | **Channel** | **Channel** |
| | | | | | **20000** | **20175** | **20350** |
| **10MHz** | QPSK | 1 | 0 | 0 | 22.60 | 22.62 | 22.23 |
| | | | 25 | 0 | 21.61 | 22.96 | 21.58 |
| | | | 49 | 0 | 22.68 | 22.67 | 21.93 |
| | | 25 | 0 | 1 | 22.72 | 22.38 | 21.97 |
| | | | 13 | 1 | 21.93 | 22.29 | **22.96** |
| | | | 25 | 1 | 22.63 | 22.49 | 21.83 |
| | | 50 | 0 | 1 | 22.58 | 22.41 | 22.16 |
| | 16QAM | 1 | 0 | 1 | 21.93 | 22.38 | 21.58 |
| | | | 25 | 1 | 21.95 | 23.13 | 21.92 |
| | | | 49 | 1 | 22.42 | 21.85 | 22.09 |
| | | 25 | 0 | 2 | 22.61 | 22.62 | 22.39 |
| | | | 13 | 2 | 22.05 | 22.53 | 22.86 |
| | | | 25 | 2 | 21.87 | 22.41 | 22.58 |
| | | 50 | 0 | 2 | 22.55 | 22.41 | 22.60 |

| Conducted Power of LTE Band IV(dBm) | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Bandwidth** | **Modulation** | **RB size** | **RB offset** | **Target MPR** | **Channel** | **Channel** | **Channel** |
| | | | | | **20025** | **20175** | **20325** |
| **15MHz** | QPSK | 1 | 0 | 0 | 22.24 | 22.87 | 22.80 |
| | | | 38 | 0 | 22.33 | 22.82 | 21.57 |
| | | | 74 | 0 | 22.53 | 22.11 | 22.65 |
| | | 36 | 0 | 1 | 21.91 | 22.32 | 22.69 |
| | | | 18 | 1 | 22.23 | 22.75 | 22.55 |
| | | | 39 | 1 | 21.93 | 22.10 | 22.12 |
| | | 75 | 0 | 1 | 22.19 | 22.23 | 22.06 |
| | 16QAM | 1 | 0 | 1 | 22.36 | 22.10 | 22.07 |
| | | | 38 | 1 | 22.25 | 22.28 | 21.65 |
| | | | 74 | 1 | 22.56 | 22.32 | 22.12 |
| | | 36 | 0 | 2 | 22.40 | 22.91 | 22.82 |
| | | | 18 | 2 | 22.83 | 21.93 | 22.38 |
| | | | 39 | 2 | 22.78 | 22.51 | 22.50 |
| | | 75 | 0 | 2 | 21.37 | 22.16 | 22.28 |
| **Bandwidth** | **Modulation** | **RB size** | **RB offset** | **Target MPR** | **Channel** | **Channel** | **Channel** |
| | | | | | **20050** | **20175** | **20300** |
| **20MHz** | QPSK | 1 | 0 | 0 | 22.30 | 21.98 | **22.90** |
| | | | 50 | 0 | 22.18 | 22.68 | 22.60 |
| | | | 99 | 0 | 22.32 | 21.78 | 22.33 |
| | | 50 | 0 | 1 | 22.12 | 22.90 | 22.07 |
| | | | 25 | 1 | 22.09 | 22.14 | 22.27 |
| | | | 50 | 1 | 21.80 | 22.76 | 22.42 |
| | | 100 | 0 | 1 | 21.58 | 22.58 | 22.27 |
| | 16QAM | 1 | 0 | 1 | 22.30 | 22.51 | 22.15 |
| | | | 50 | 1 | 22.11 | 22.88 | 22.93 |
| | | | 99 | 1 | 21.87 | 21.63 | 22.73 |
| | | 50 | 0 | 2 | 22.31 | 21.78 | 22.62 |
| | | | 25 | 2 | 22.43 | 21.99 | 22.56 |
| | | | 50 | 2 | 22.13 | 22.35 | 22.36 |
| | | 100 | 0 | 2 | 21.79 | 22.63 | 22.68 |

| Conducted Power of LTE Band V(dBm) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Bandwidth | Modulation | RB size | RB offset | Target MPR | Channel | Channel | Channel |
| | | | | | 20407 | 20525 | 20643 |
| 1.4MHz | QPSK | 1 | 0 | 0 | 22.02 | 22.00 | 21.76 |
| | | | 3 | 0 | 22.51 | 22.70 | 22.55 |
| | | | 5 | 0 | 22.69 | 22.29 | 21.83 |
| | | 3 | 0 | 0 | 22.53 | 22.21 | 21.99 |
| | | | 2 | 0 | 21.81 | 22.90 | 22.47 |
| | | | 3 | 0 | 22.18 | 22.68 | 22.37 |
| | | 6 | 0 | 1 | 21.62 | 21.94 | 22.00 |
| | 16QAM | 1 | 0 | 1 | 21.48 | 22.39 | 22.74 |
| | | | 3 | 1 | 22.36 | 21.88 | 22.20 |
| | | | 5 | 1 | 21.68 | 22.85 | 22.14 |
| | | 3 | 0 | 1 | 22.19 | 21.94 | 21.75 |
| | | | 2 | 1 | 21.93 | 22.23 | 21.81 |
| | | | 3 | 1 | 22.30 | 22.15 | 22.60 |
| | | 6 | 0 | 2 | 22.60 | 22.57 | 22.54 |
| Bandwidth | Modulation | RB size | RB offset | Target MPR | Channel | Channel | Channel |
| | | | | | 20415 | 20525 | 20635 |
| 3MHz | QPSK | 1 | 0 | 0 | 22.44 | 22.42 | 22.20 |
| | | | 7 | 0 | 22.12 | 21.92 | 22.69 |
| | | | 14 | 0 | 22.04 | 22.76 | 21.93 |
| | | 8 | 0 | 1 | 22.62 | 21.78 | 21.72 |
| | | | 4 | 1 | 22.46 | 21.82 | 22.56 |
| | | | 7 | 1 | 22.52 | 21.87 | 21.64 |
| | | 15 | 0 | 1 | 22.15 | 22.30 | 21.74 |
| | 16QAM | 1 | 0 | 1 | 22.67 | 22.52 | 21.68 |
| | | | 7 | 1 | 22.09 | 22.27 | 21.99 |
| | | | 14 | 1 | 22.51 | 21.75 | 22.20 |
| | | 8 | 0 | 2 | 21.95 | 22.27 | 21.69 |
| | | | 4 | 2 | 21.96 | 21.26 | 22.25 |
| | | | 7 | 2 | 21.92 | 22.21 | 22.02 |
| | | 15 | 0 | 2 | 22.29 | 21.93 | 21.84 |

| Conducted Power of LTE Band V(dBm) | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Bandwidth** | **Modulation** | **RB size** | **RB offset** | **Target MPR** | **Channel** | **Channel** | **Channel** |
| | | | | | **20425** | **20525** | **20625** |
| **5MHz** | QPSK | 1 | 0 | 0 | 22.45 | 22.07 | 21.75 |
| | | | 13 | 0 | 22.37 | **22.91** | 21.72 |
| | | | 24 | 0 | 22.46 | 22.52 | 22.49 |
| | | 12 | 0 | 1 | 22.27 | 22.17 | 22.05 |
| | | | 6 | 1 | 22.46 | 21.74 | 22.31 |
| | | | 13 | 1 | 22.13 | 22.25 | 21.98 |
| | | 25 | 0 | 1 | 22.46 | 22.63 | 22.12 |
| | 16QAM | 1 | 0 | 1 | 21.86 | 22.12 | 22.13 |
| | | | 13 | 1 | 22.28 | 22.60 | 22.73 |
| | | | 24 | 1 | 21.84 | 21.99 | 22.28 |
| | | 12 | 0 | 2 | 22.31 | 21.89 | 22.51 |
| | | | 6 | 2 | 22.16 | 21.80 | 22.25 |
| | | | 13 | 2 | 22.39 | 22.56 | 22.40 |
| | | 25 | 0 | 2 | 22.15 | 22.15 | 22.22 |
| **Bandwidth** | **Modulation** | **RB size** | **RB offset** | **Target MPR** | **Channel** | **Channel** | **Channel** |
| | | | | | **20450** | **20525** | **20600** |
| **10MHz** | QPSK | 1 | 0 | 0 | 22.25 | 22.43 | **22.66** |
| | | | 25 | 0 | 22.08 | 22.39 | 22.43 |
| | | | 49 | 0 | 22.11 | 22.43 | 21.99 |
| | | 25 | 0 | 1 | 22.11 | 22.24 | 22.32 |
| | | | 13 | 1 | 22.40 | 22.52 | 22.73 |
| | | | 25 | 1 | 22.58 | 22.36 | 22.04 |
| | | 50 | 0 | 1 | 22.40 | 22.59 | 22.21 |
| | 16QAM | 1 | 0 | 1 | 21.75 | 21.95 | 22.65 |
| | | | 25 | 1 | 21.90 | 22.11 | 21.96 |
| | | | 49 | 1 | 21.85 | 22.24 | 21.59 |
| | | 25 | 0 | 2 | 21.86 | 22.05 | 22.83 |
| | | | 13 | 2 | 21.88 | 22.55 | 22.56 |
| | | | 25 | 2 | 22.56 | 22.54 | 22.83 |
| | | 50 | 0 | 2 | 21.18 | 21.91 | 22.57 |

| Conducted Power of LTE Band VII (dBm) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Bandwidth | Modulation | RB size | RB offset | Target MPR | Channel | Channel | Channel |
| | | | | | 20775 | 21100 | 21425 |
| 5MHz | QPSK | 1 | 0 | 0 | 21.91 | 22.16 | 22.14 |
| | | | 12 | 0 | 22.10 | 22.39 | 22.00 |
| | | | 24 | 0 | 22.19 | 21.81 | 22.13 |
| | | 12 | 0 | 1 | 22.27 | 22.17 | 22.43 |
| | | | 6 | 1 | 21.81 | 22.48 | 22.31 |
| | | | 13 | 1 | 21.82 | 22.28 | 22.44 |
| | | 25 | 0 | 1 | 22.47 | 22.30 | 22.12 |
| | 16QAM | 1 | 0 | 1 | 22.57 | 21.95 | 22.21 |
| | | | 12 | 1 | 22.24 | 22.54 | 22.08 |
| | | | 24 | 1 | 22.32 | 21.87 | 21.58 |
| | | 12 | 0 | 2 | 22.07 | 22.06 | 22.61 |
| | | | 6 | 2 | 21.74 | 21.67 | 22.17 |
| | | | 13 | 2 | 22.61 | 21.67 | 22.08 |
| | | 25 | 0 | 2 | 22.58 | 21.88 | 22.01 |
| Bandwidth | Modulation | RB size | RB offset | Target MPR | Channel | Channel | Channel |
| | | | | | 20800 | 21100 | 21400 |
| 10MHz | QPSK | 1 | 0 | 0 | **22.86** | 22.80 | 22.03 |
| | | | 24 | 0 | 22.46 | 22.47 | 22.16 |
| | | | 49 | 0 | 22.76 | 21.77 | 21.99 |
| | | 25 | 0 | 1 | 22.08 | 22.19 | 22.48 |
| | | | 12 | 1 | 22.39 | 22.06 | 22.10 |
| | | | 25 | 1 | 21.99 | 22.55 | 22.29 |
| | | 50 | 0 | 1 | 22.56 | 22.44 | 22.66 |
| | 16QAM | 1 | 0 | 1 | 22.24 | 22.04 | 22.43 |
| | | | 24 | 1 | 21.92 | 22.13 | 22.23 |
| | | | 49 | 1 | 21.79 | 21.91 | 22.02 |
| | | 25 | 0 | 2 | 22.83 | 22.26 | 22.54 |
| | | | 12 | 2 | 22.22 | 21.98 | 22.39 |
| | | | 25 | 2 | 22.22 | 22.08 | 22.70 |
| | | 50 | 0 | 2 | 21.83 | 22.37 | 21.97 |

| Conducted Power of LTE Band VII (dBm) | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Bandwidth** | **Modulation** | **RB size** | **RB offset** | **Target MPR** | **Channel** | **Channel** | **Channel** |
| | | | | | **20825** | **21100** | **21375** |
| **15MHz** | QPSK | 1 | 0 | 0 | 22.34 | 22.61 | 22.04 |
| | | | 37 | 0 | 22.71 | 22.13 | 22.64 |
| | | | 74 | 0 | 21.80 | 22.43 | 22.50 |
| | | 37 | 0 | 1 | 22.47 | 22.70 | 22.06 |
| | | | 19 | 1 | 22.11 | 22.16 | 22.58 |
| | | | 38 | 1 | 22.22 | 22.51 | 22.78 |
| | | 75 | 0 | 1 | 22.61 | 22.19 | 22.50 |
| | 16QAM | 1 | 0 | 1 | 22.50 | 22.25 | 22.50 |
| | | | 37 | 1 | 22.37 | 21.88 | 22.38 |
| | | | 74 | 1 | 21.87 | 22.31 | 22.53 |
| | | 37 | 0 | 2 | 21.96 | 22.08 | 22.31 |
| | | | 19 | 2 | 22.36 | 22.66 | 21.89 |
| | | | 38 | 2 | 22.63 | 22.50 | 22.02 |
| | | 75 | 0 | 2 | 22.51 | 22.04 | 21.87 |
| **Bandwidth** | **Modulation** | **RB size** | **RB offset** | **Target MPR** | **Channel** | **Channel** | **Channel** |
| | | | | | **20850** | **21100** | **21350** |
| **20MHz** | QPSK | 1 | 0 | 0 | 22.23 | 22.08 | 22.11 |
| | | | 49 | 0 | 22.20 | 22.18 | **22.44** |
| | | | 99 | 0 | 22.06 | 22.25 | 22.29 |
| | | 50 | 0 | 1 | 22.09 | 21.95 | 22.40 |
| | | | 25 | 1 | 22.07 | 22.74 | 21.87 |
| | | | 50 | 1 | 22.68 | 22.37 | 22.56 |
| | | 100 | 0 | 1 | 22.28 | 21.81 | 22.27 |
| | 16QAM | 1 | 0 | 1 | 22.29 | 22.48 | 22.25 |
| | | | 49 | 1 | 22.11 | 22.65 | 21.97 |
| | | | 99 | 1 | 22.08 | 22.39 | 22.02 |
| | | 50 | 0 | 2 | 22.60 | 22.16 | 21.96 |
| | | | 25 | 2 | 22.05 | 22.36 | 22.00 |
| | | | 50 | 2 | 22.60 | 21.98 | 22.42 |
| | | 100 | 0 | 2 | 21.74 | 22.24 | 22.37 |

| Conducted Power of LTE Band XVII(dBm) | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Bandwidth** | **Modulation** | **RB size** | **RB offset** | **Target MPR** | **Channel** | **Channel** | **Channel** |
| | | | | | **23755** | **23790** | **23825** |
| **5MHz** | QPSK | 1 | 0 | 0 | 22.03 | 21.96 | 22.27 |
| | | | 13 | 0 | 22.20 | 21.83 | 22.28 |
| | | | 24 | 0 | 22.01 | 22.55 | 22.66 |
| | | 12 | 0 | 1 | 21.96 | 22.46 | 22.10 |
| | | | 6 | 1 | 22.22 | 22.31 | 22.24 |
| | | | 13 | 1 | 22.55 | 21.73 | 22.05 |
| | | 25 | 0 | 1 | 22.25 | 22.05 | 21.91 |
| | 16QAM | 1 | 0 | 1 | 22.25 | 22.65 | 22.21 |
| | | | 13 | 1 | **22.85** | 22.58 | 22.41 |
| | | | 24 | 1 | 22.29 | 22.70 | 22.34 |
| | | 12 | 0 | 2 | 22.38 | 21.87 | 21.47 |
| | | | 6 | 2 | 22.03 | 21.95 | 21.61 |
| | | | 13 | 2 | 22.52 | 22.13 | 22.22 |
| | | 25 | 0 | 2 | 22.66 | 21.71 | 22.42 |
| **Bandwidth** | **Modulation** | **RB size** | **RB offset** | **Target MPR** | **Channel** | **Channel** | **Channel** |
| | | | | | **23780** | **23790** | **23800** |
| **10MHz** | QPSK | 1 | 0 | 0 | 21.81 | 21.87 | 22.05 |
| | | | 25 | 0 | **22.44** | 22.42 | 22.33 |
| | | | 49 | 0 | 22.33 | 21.72 | 22.05 |
| | | 25 | 0 | 1 | 22.32 | 21.76 | 22.27 |
| | | | 13 | 1 | 22.22 | 22.86 | 22.25 |
| | | | 25 | 1 | 21.94 | 21.71 | 21.79 |
| | | 50 | 0 | 1 | 22.11 | 22.65 | 21.72 |
| | 16QAM | 1 | 0 | 1 | 21.77 | 21.82 | 21.74 |
| | | | 25 | 1 | 22.40 | 22.78 | 22.26 |
| | | | 49 | 1 | 22.06 | 22.53 | 21.96 |
| | | 25 | 0 | 2 | 22.67 | 22.12 | 22.05 |
| | | | 13 | 2 | 22.19 | 22.66 | 21.69 |
| | | | 25 | 2 | 22.19 | 22.35 | 21.96 |
| | | 50 | 0 | 2 | 21.75 | 21.80 | 22.24 |

The following tests were conducted according to the test requirements outlined in section 6.2 of the 3GPP TS36.101 specification.
UE Power Class: 3 (23 +/- 2dBm). The allowed Maximum Power Reduction (MPR) for the maximum output power due to higher order modulation and transmit bandwidth configuration (resource blocks) is specified in Table 6.2.3.3-1 of the 3GPP TS36.101.

**Table 6.2.3.3-1 Maximum Power Reduction (MPR) for Power class3**

| Modulation | Maximum Power Reduction (MPR) for Power[RB] | | | | | | MPR(dB) |
|---|---|---|---|---|---|---|---|
| | 1.4MHz | 3MHz | 5MHz | 10MHz | 15MHz | 20MHz | |
| QPSK | ＞5 | ＞4 | ＞8 | ＞12 | ＞16 | ＞18 | ≤1 |
| 16QAM | ≤5 | ≤4 | ≤8 | ≤12 | ≤16 | ≤18 | ≤1 |
| 16QAM | ＞5 | ＞4 | ＞8 | ＞12 | ＞16 | ＞18 | ≤2 |

The allowed A-MPR values specified below in Table 6.2.4.3-1 of 3GPP TS36.101 are in addition to the allowed MPR requirements. All the measurements below were performed with A-MPR disabled, by using Network Signaling Value of “NS_01”.3

**Table 6.2.4.3-1: Additional Maximum Power Reduction (A-MPR) / Spectrum Emission requirements**

| Network Signaling value | Requirements (sub-clause) | E-UTRA Band | Channel bandwidth (MHz) | Resources Blocks ($N_{RB}$) | A-MPR (dB) |
|---|---|---|---|---|---|
| NS_01 | 6.6.2.1.1 | Table 5.2-1 | 1.4,3,5,10,15,20 | Table 5.4.2-1 | N/A |
| NS_03 | 6.6.2.2.3.1 | 2,4,10, 23, 25,35,36 | 3 | >5 | ≤ 1 |
| | | | 5 | >6 | ≤ 1 |
| | | | 10 | >6 | ≤ 1 |
| | | | 15 | >8 | ≤ 1 |
| | | | 20 | >10 | ≤ 1 |
| NS_04 | 6.6.2.2.3.2 | 41 | 5 | >6 | ≤1 |
| | | | 10, 15, 20 | Table 6.2.4.3-4 | |
| NS_05 | 6.6.3.3.3.1 | 1 | 10,15,20 | ≥ 50 | ≤ 1 |
| NS_06 | 6.6.2.2.3.3 | 12, 13, 14, 17 | 1.4, 3, 5, 10 | Table 5.4.2-1 | N/A |
| NS_07 | 6.6.2.2.3.3<br>6.6.3.3.3.2 | 13 | 10 | Table 6.2.4.3-2 | Table 6.2.4.3-2 |
| NS_08 | 6.6.3.3.3.3 | 19 | 10, 15 | > 44 | ≤ 3 |
| NS_09 | 6.6.3.3.3.4 | 21 | 10, 15 | > 40 | ≤ 1 |
| | | | | > 55 | ≤ 2 |
| NS_10 | | 20 | 15, 20 | Table 6.2.4.3-3 | Table 6.2.4.3-3 |
| NS_11 | 6.6.2.2.1<br>6.6.3.3.13 | 231 | 1.4, 3, 5, 10,15,20 | Table 6.2.4.3-5 | Table 6.2.4.3-5 |
| NS_12 | 6.6.3.3.5 | 26 | 1.4, 3, 5 | Table 6.2.4.3-6 | Table 6.2.4.3-6 |
| NS_13 | 6.6.3.3.6 | 26 | 5 | Table 6.2.4.3-7 | Table 6.2.4.3-7 |
| NS_14 | 6.6.3.3.7 | 26 | 10, 15 | Table 6.2.4.3-8 | Table 6.2.4.3-8 |
| NS_15 | 6.6.3.3.8 | 26 | 1.4, 3, 5, 10, 15 | Table 6.2.4.3-9<br>Table 6.2.4.3-10 | Table 6.2.4.3-9,<br>Table 6.2.4.3-10 |
| NS_16 | 6.6.3.3.9 | 27 | 3, 5, 10 | Table 6.2.4.3-11, Table 6.2.4.3-12, Table 6.2.4.3-13 | |
| NS_17 | 6.6.3.3.10<br>6.6.3.3.11 | 28<br>28 | 5, 10 | Table 5.4.2-1 | N/A |
| | | | 5 | ≥ 2 | ≤ 1 |
| NS_18 | | | 10, 15, 20 | ≥ 1 | ≤ 4 |
| NS_19 | | | 10, 15, 20 | Table 6.2.4.3-15 | Table 6.2.4.3-15 |
| NS_20 | | | 5, 10, 15, 20 | Table 6.2.4.3-14 | Table 6.2.4.3-14 |
| … | | | | | |
| NS_20 | - | - | - | - | - |

**WIFI**

| Mode | Data Rate (Mbps) | Channel | Frequency(MHz) | Avg. Burst Power(dBm) |
|---|---|---|---|---|
| 802.11b | 1 | 01 | 2412 | 12.00 |
| | | 06 | 2437 | 13.35 |
| | | 11 | 2462 | **14.82** |
| 802.11g | 6 | 01 | 2412 | 7.29 |
| | | 06 | 2437 | 10.94 |
| | | 11 | 2462 | 10.24 |
| 802.11n(20) | 6.5 | 01 | 2412 | 7.78 |
| | | 06 | 2437 | 10.56 |
| | | 11 | 2462 | 10.11 |
| 802.11n(40) | 13.5 | 03 | 2422 | 6.72 |
| | | 06 | 2437 | 9.94 |
| | | 09 | 2452 | 7.12 |

**Bluetooth_V4.0(EDR)**

| Modulation | Channel | Frequency(MHz) | Peak Power (dBm) |
|---|---|---|---|
| GFSK | 0 | 2402 | 2.668 |
| | 39 | 2441 | 3.714 |
| | 78 | 2480 | **5.005** |
| π /4-DQPSK | 0 | 2402 | 1.390 |
| | 39 | 2441 | 2.515 |
| | 78 | 2480 | 3.766 |
| 8-DPSK | 0 | 2402 | 1.240 |
| | 39 | 2441 | 2.359 |
| | 78 | 2480 | 3.603 |

**Bluetooth_V4.0(BLE)**

| Modulation | Channel | Frequency(MHz) | Peak Power (dBm) |
|---|---|---|---|
| GFSK | 0 | 2402 | -4.894 |
| | 19 | 2440 | -3.524 |
| | 39 | 2480 | -2.626 |

# 12. TEST RESULTS

## 12.1. SAR Test Results Summary

### 12.1.1. Test position and configuration

Body SAR was performed with the device 0mm from the phantom.

### 12.1.2. Operation Mode

1. Per KDB 447498 D01 v06 ,for each exposure position, if the highest 1-g SAR is ≤ 0.8 W/kg, testing for low and high channel is optional.
2. Per KDB 865664 D01 v01r04,for each frequency band, if the measured SAR is ≥0.8W/Kg, testing for repeated SAR measurement is required , that the highest measured SAR is only to be tested. When the SAR results are near the limit, the following procedures are required for each device to verify these types of SAR measurement related variation concerns by repeating the highest measured SAR configuration in each frequency band.
   (1) When the original highest measured SAR is ≥0.8W/Kg, repeat that measurement once.
   (2) 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.
   (3) Perform a third repeated measurement only if the original, first and second repeated measurement is ≥1.5 W/Kg and ratio of largest to smallest SAR for the original, first and second measurement is ≥ 1.20.
3. Body-worn exposure conditions are intended to voice call operations, therefore GSM voice call mode is selected to be test.
4. Per KDB 648474 D04 v01r03,when the reported SAR for a body-worn accessory measured without a headset connected to the handset is ≤1.2W/Kg, SAR testing with a headset connected is not required.
5. Per KDB 248227 D01v02r02,for 2.4GHz 802.11g/n SAR testing is not required when the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤1.2W/kg.
6. Per KDB 941225 D06 V02r01, When the same wireless mode transmission configurations for voice and data are required for SAR measurements, the more conservative configuration with a smaller separation distance should be tested for the overlapping SAR configurations.
7. Maximum Scaling SAR in order to calculate the Maximum SAR values to test under the standard Peak Power, Calculation method is as follows:
   Maximum Scaling SAR =tested SAR (Max.) ×[maximum turn-up power (mw)/ maximum measurement output power(mw) ]

8. Proximity sensor, just for avoiding the wrong operation in the phone screen when call, and has no influence on output power or SAR result

8. Per KDB 941225 D05v02r03, start with the largest channel bandwidth and measure SAR for QPSK with 1RB allocation using the RB offset and required test channel combination with highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
9. Per KDB 941125 D05v02r03, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
10. Per KDB 941125 D05v02r03. For QPSK with 100% RB allocation. SAR is not required when the highest maximum output power for 100% RB allocation is less than the highest maximum output power in 50% and 1RB allocation and the highest reported SAR is >1.45 W/Kg, the remaining required test channels must also be tested.

11. Per KDB 941125 D05v02r03. 16QAM output power for each RB allocation configuration is not 1/2 dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is ≤1.45W/Kg, Per KDB 941225 D05v02r02, 16QAM SAR testing is not required.
12. Per KDB 941125 D05v02r03. Smaller bandwidth output power for each RB allocation configuration is >not 1/2 dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤1.45W/Kg. Per KDB 941125 D05v02r03, smaller bandwidth SAR testing is not required.

## 12.1.3. Test Result

| SAR MEASUREMENT | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Depth of Liquid (cm):>15 | | | | Relative Humidity (%): 50.3 | | | | | |
| Product: rugged tablet | | | | | | | | | |
| Test Mode: GSM850 with GMSK modulation | | | | | | | | | |
| **Position** | **Mode** | **Ch.** | **Fr. (MHz)** | **Power Drift (<±5%)** | **SAR (1g) (W/kg)** | **Max. Tune-up Power (dBm)** | **Meas. output Power (dBm)** | **Scaled SAR (W/Kg)** | **Limit (W/kg)** |
| **SIM 1 Card** | | | | | | | | | |
| Body back | voice | 190 | 836.6 | 0.05 | **0.509** | 30.70 | 30.65 | 0.515 | 1.6 |
| Body front | voice | 190 | 836.6 | 0.02 | 0.241 | 30.70 | 30.65 | 0.244 | 1.6 |
| | | | | | | | | | |
| Body back | GPRS-4 slot | 128 | 824.2 | -0.06 | 0.882 | 24.70 | 24.31 | **0.965** | 1.6 |
| Body back | GPRS-4 slot | 190 | 836.6 | 0.12 | **0.929** | 24.70 | 24.63 | 0.944 | 1.6 |
| Body back | GPRS-4 slot | 251 | 848.8 | -0.23 | 0.829 | 24.70 | 24.25 | 0.920 | 1.6 |
| Body front | GPRS-4 slot | 190 | 836.6 | 0.13 | 0.386 | 24.70 | 24.63 | 0.392 | 1.6 |
| Edge 1 (Top) | GPRS-4 slot | 190 | 836.6 | -0.09 | 0.384 | 24.70 | 24.63 | 0.390 | 1.6 |
| Edge 2(Right) | GPRS-4 slot | 190 | 836.6 | 0.14 | 0.359 | 24.70 | 24.63 | 0.365 | 1.6 |
| Edge 3(Bottom) | GPRS-4 slot | 190 | 836.6 | -0.11 | 0.130 | 24.70 | 24.63 | 0.132 | 1.6 |
| Edge 4(Left) | GPRS-4 slot | 190 | 836.6 | 0.20 | 0.079 | 24.70 | 24.63 | 0.080 | 1.6 |

Note:
· When the 1-g Reported SAR is ≤ 0.8 W/kg, testing for low and high channel is optional. Refer to KDB 447498.
·The test separation of all above tableis 0mm.

| SAR MEASUREMENT | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Depth of Liquid (cm):>15 | | | | Relative Humidity (%): 53.7 | | | | | |
| Product: rugged tablet | | | | | | | | | |
| Test Mode: PCS1900 with GMSK modulation | | | | | | | | | |
| **Position** | **Mode** | **Ch.** | **Fr. (MHz)** | **Power Drift (<±5%)** | **SAR (1g) (W/kg)** | **Max. Tune-up Power (dBm)** | **Meas. output Power (dBm)** | **Scaled SAR (W/Kg)** | **Limit (W/kg)** |
| **SIM 1 Card** | | | | | | | | | |
| Body back | voice | 661 | 1880.0 | 0.06 | 0.590 | 26.73 | 26.73 | 0.590 | 1.6 |
| Body front | voice | 661 | 1880.0 | -0.08 | 0.144 | 26.73 | 26.73 | 0.144 | 1.6 |
| | | | | | | | | | |
| Body back | GPRS-2 slot | 512 | 1850.2 | -0.11 | 1.011 | 23.40 | 23.24 | 1.049 | 1.6 |
| Body back | GPRS-2 slot | 661 | 1880 | 0.12 | 0.945 | 23.40 | 23.18 | 0.994 | 1.6 |
| Body back | GPRS-2 slot | 810 | 1909.8 | -0.20 | 0.881 | 23.40 | 23.40 | 0.881 | 1.6 |
| Body front | GPRS-2 slot | 661 | 1880.0 | 0.06 | 0.247 | 23.40 | 23.18 | 0.260 | 1.6 |
| Edge 1 (Top) | GPRS-2 slot | 661 | 1880.0 | 0.05 | 0.282 | 23.40 | 23.18 | 0.297 | 1.6 |
| Edge 2(Right) | GPRS-2 slot | 512 | 1850.2 | -0.15 | 1.101 | 23.40 | 23.18 | 1.158 | 1.6 |
| Edge 2(Right) | GPRS-2 slot | 661 | 1880 | 0.08 | **1.155** | 23.40 | 23.18 | **1.215** | 1.6 |
| Edge 2(Right) | GPRS-2 slot | 810 | 1909.8 | 0.13 | 1.024 | 23.40 | 23.18 | 1.077 | 1.6 |
| Edge 3(Bottom) | GPRS-2 slot | 661 | 1880.0 | -0.01 | 0.037 | 23.40 | 23.18 | 0.039 | 1.6 |
| Edge 4(Left) | GPRS-2 slot | 661 | 1880.0 | 0.07 | 0.045 | 23.40 | 23.18 | 0.047 | 1.6 |

Note:
· When the 1-g Reported SAR is ≤ 0.8 W/kg, testing for low and high channel is optional. Refer to KDB 447498.
·The test separation of all above tableis 0mm.

| SAR MEASUREMENT | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Depth of Liquid (cm):>15 | | | | Relative Humidity (%): 53.7 | | | | | |
| Product: rugged tablet | | | | | | | | | |
| Test Mode: WCDMA Band II with QPSK modulation | | | | | | | | | |
| **Position** | **Mode** | **Ch.** | **Fr. (MHz)** | **Power Drift (<±5%)** | **SAR (1g) (W/kg)** | **Max. Tune-up Power (dBm)** | **Meas. output Power (dBm)** | **Scaled SAR (W/Kg)** | **Limit (W/kg)** |
| Body back | RMC 12.2kbps | 9262 | 1852.4 | -0.08 | 0.989 | 21.60 | 21.54 | 1.003 | 1.6 |
| Body back | RMC 12.2kbps | 9400 | 1880 | 0.12 | 0.838 | 21.60 | 21.22 | 0.915 | 1.6 |
| Body back | RMC 12.2kbps | 9538 | 1907.6 | -0.06 | 0.800 | 21.60 | 21.32 | 0.853 | 1.6 |
| Body front | RMC 12.2kbps | 9400 | 1880 | 0.00 | 0.334 | 21.60 | 21.22 | 0.365 | 1.6 |
| Edge 1 (Top) | RMC 12.2kbps | 9400 | 1880 | 0.16 | 0.105 | 21.60 | 21.22 | 0.115 | 1.6 |
| Edge 2(Right) | RMC 12.2kbps | 9262 | 1852.4 | -0.05 | 1.020 | 21.60 | 21.22 | 1.113 | 1.6 |
| Edge 2(Right) | RMC 12.2kbps | 9400 | 1880 | 0.23 | 1.022 | 21.60 | 21.22 | 1.115 | 1.6 |
| Edge 2(Right) | RMC 12.2kbps | 9538 | 1907.6 | -0.28 | **1.073** | 21.60 | 21.22 | **1.171** | 1.6 |
| Edge 3(Bottom) | RMC 12.2kbps | 9400 | 1880 | -0.12 | 0.029 | 21.60 | 21.22 | 0.032 | 1.6 |
| Edge 4(Left) | RMC 12.2kbps | 9400 | 1880 | 0.10 | 0.074 | 21.60 | 21.22 | 0.081 | 1.6 |

Note:
· When the 1-g Reported SAR is ≤ 0.8 W/kg, testing for low and high channel is optional. Refer to KDB 447498.
·The test separation of all above tableis 0mm.

| SAR MEASUREMENT | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Depth of Liquid (cm):>15 | | | | Relative Humidity (%): 50.3 | | | | | |
| Product: rugged tablet | | | | | | | | | |
| Test Mode: WCDMA Band V with QPSK modulation | | | | | | | | | |
| **Position** | **Mode** | **Ch.** | **Fr. (MHz)** | **Power Drift (<±5%)** | **SAR (1g) (W/kg)** | **Max. Tune-up Power (dBm)** | **Meas. output Power (dBm)** | **Scaled SAR (W/Kg)** | **Limit (W/kg)** |
| Body back | RMC 12.2kbps | 4183 | 836.6 | -0.15 | **0.460** | 21.60 | 21.55 | **0.465** | 1.6 |
| Body front | RMC 12.2kbps | 4183 | 836.6 | 0.22 | 0.156 | 21.60 | 21.55 | 0.158 | 1.6 |
| Edge 1 (Top) | RMC 12.2kbps | 4183 | 836.6 | -0.12 | 0.087 | 21.60 | 21.55 | 0.088 | 1.6 |
| Edge 2(Right) | RMC 12.2kbps | 4183 | 836.6 | 0.13 | 0.031 | 21.60 | 21.55 | 0.031 | 1.6 |
| Edge 3(Bottom) | RMC 12.2kbps | 4183 | 836.6 | -0.03 | 0.060 | 21.60 | 21.55 | 0.061 | 1.6 |
| Edge 4(Left) | RMC 12.2kbps | 4183 | 836.6 | -0.06 | 0.025 | 21.60 | 21.55 | 0.025 | 1.6 |

Note:
· When the 1-g Reported SAR is ≤ 0.8 W/kg, testing for low and high channel is optional. Refer to KDB 447498.
·The test separation of all above tableis 0mm.

| SAR MEASUREMENT | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Depth of Liquid (cm):>15 | | | | | Relative Humidity (%): 53.7 | | | | | | | |
| Product: rugged tablet | | | | | | | | | | | | |
| Test Mode: LTE Band II | | | | | | | | | | | | |
| BM MHz | MOD | Position | Test Mode | | Ch. | Freq. (MHz) | Power Drift (<±5%) | SAR (1g) (W/kg) | Max. Tune up Power (dBm) | Meas. output Power (dBm) | Scaled SAR (W/Kg) | Limit (W/kg) |
| | | | UL RB Allocation | UL RB START | | | | | | | | |
| 20 | QPSK | Body back | 1 | 0 | 18700 | 1860 | -0.25 | 0.892 | 22.80 | 22.75 | 0.902 | 1.6 |
| | | Body back | 1 | 0 | 18900 | 1880 | 0.16 | **0.982** | 22.80 | 22.75 | **0.993** | 1.6 |
| | | Body back | 1 | 0 | 19100 | 1900 | -0.28 | 0.960 | 22.80 | 22.75 | 0.971 | 1.6 |
| | | Body front | 1 | 0 | 18900 | 1880 | 0.22 | 0.377 | 22.80 | 22.75 | 0.381 | 1.6 |
| | | Edge 1 (Top) | 1 | 0 | 18900 | 1880 | -0.10 | 0.129 | 22.80 | 22.75 | 0.130 | 1.6 |
| | | Edge 2(Right) | 1 | 0 | 18900 | 1880 | 0.07 | 0.715 | 22.80 | 22.75 | 0.723 | 1.6 |
| | | Edge 3(Bottom) | 1 | 0 | 18900 | 1880 | 0.01 | 0.018 | 22.80 | 22.75 | 0.018 | 1.6 |
| | | Edge 4(Left) | 1 | 0 | 18900 | 1880 | 0.03 | 0.024 | 22.80 | 22.75 | 0.024 | 1.6 |

Note:
· When the 1-g Reported SAR is ≤ 0.8 W/kg, testing for low and high channel is optional. Refer to KDB 447498.
·The test separation of all above tableis 0mm.

| SAR MEASUREMENT | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Depth of Liquid (cm):>15 | | | | | Relative Humidity (%): 54.3 | | | | | | | |
| Product: rugged tablet | | | | | | | | | | | | |
| Test Mode: LTE Band IV | | | | | | | | | | | | |
| BM MHz | MOD | Position | Test Mode | | Ch. | Freq. (MHz) | Power Drift (<±5%) | SAR (1g) (W/kg) | Max. Tuneup Power (dBm) | Meas. output Power (dBm) | Scaled SAR (W/Kg) | Limit (W/kg) |
| | | | UL RB Allocation | UL RB START | | | | | | | | |
| 20 | QPSK | Body back | 1 | 0 | 20175 | 1732.5 | -0.13 | **0.645** | 22.90 | 21.98 | **0.797** | 1.6 |
| | | Body front | 1 | 0 | 20175 | 1732.5 | 0.22 | 0.201 | 22.90 | 21.98 | 0.248 | 1.6 |
| | | Edge 1 (Top) | 1 | 0 | 20175 | 1732.5 | 0.35 | 0.346 | 22.90 | 21.98 | 0.428 | 1.6 |
| | | Edge 2(Right) | 1 | 0 | 20175 | 1732.5 | -0.16 | 0.373 | 22.90 | 21.98 | 0.461 | 1.6 |
| | | Edge3(Bottom) | 1 | 0 | 20175 | 1732.5 | 0.27 | 0.042 | 22.90 | 21.98 | 0.052 | 1.6 |
| | | Edge 4(Left) | 1 | 0 | 20175 | 1732.5 | -0.14 | 0.029 | 22.90 | 21.98 | 0.036 | 1.6 |

Note:
· When the 1-g Reported SAR is ≤ 0.8 W/kg, testing for low and high channel is optional. Refer to KDB 447498.
·The test separation of all above tableis 0mm.

| SAR MEASUREMENT | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Depth of Liquid (cm):>15 | | | | | Relative Humidity (%): 50.3 | | | | | | | |
| Product: rugged tablet | | | | | | | | | | | | |
| Test Mode: LTE Band V | | | | | | | | | | | | |
| BM MHz | MOD | Position | Test Mode | | Ch. | Freq. (MHz) | Power Drift (<±5%) | SAR (1g) (W/kg) | Max. Tuneup Power (dBm) | Meas. output Power (dBm) | Scaled SAR (W/Kg) | Limit (W/kg) |
| | | | UL RB Allocation | UL RB START | | | | | | | | |
| 10 | QPSK | Body back | 1 | 0 | 20525 | 836.5 | -0.19 | **0.420** | 22.70 | 22.43 | **0.447** | 1.6 |
| | | Body front | 1 | 0 | 20525 | 836.5 | 0.27 | 0.212 | 22.70 | 22.43 | 0.226 | 1.6 |
| | | Edge 1 (Top) | 1 | 0 | 20525 | 836.5 | -0.11 | 0.213 | 22.70 | 22.43 | 0.227 | 1.6 |
| | | Edge 2(Right) | 1 | 0 | 20525 | 836.5 | 0.15 | 0.182 | 22.70 | 22.43 | 0.194 | 1.6 |
| | | Edge 3(Bottom) | 1 | 0 | 20525 | 836.5 | -0.18 | 0.069 | 22.70 | 22.43 | 0.073 | 1.6 |
| | | Edge 4(Left) | 1 | 0 | 20525 | 836.5 | -0.09 | 0.039 | 22.70 | 22.43 | 0.042 | 1.6 |

Note:
· When the 1-g Reported SAR is ≤ 0.8 W/kg, testing for low and high channel is optional. Refer to KDB 447498.
·The test separation of all above tableis 0mm.

| SAR MEASUREMENT | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Depth of Liquid (cm):>15 | | | | | Relative Humidity (%): 53.6 | | | | | | | |
| Product: rugged tablet | | | | | | | | | | | | |
| Test Mode: LTE Band VII | | | | | | | | | | | | |
| BM MHz | MOD | Position | Test Mode | | Ch. | Freq. (MHz) | Power Drift (<±5%) | SAR (1g) (W/kg) | Max. Tuneup Power (dBm) | Meas. output Power (dBm) | Scaled SAR (W/Kg) | Limit (W/kg) |
| | | | UL RB Allocation | UL RB START | | | | | | | | |
| 10 | QPSK | Body back | 1 | 0 | 20850 | 2510 | 0.11 | 0.798 | 22.44 | 22.18 | 0.847 | 1.6 |
| | | Body back | 1 | 0 | 21100 | 2535 | -0.24 | **0.826** | 22.44 | 22.18 | **0.877** | 1.6 |
| | | Body back | 1 | 0 | 21350 | 2560 | 0.15 | 0.811 | 22.44 | 22.18 | 0.861 | 1.6 |
| | | Body front | 1 | 0 | 21100 | 2535 | 0.28 | 0.109 | 22.44 | 22.18 | 0.116 | 1.6 |
| | | Edge 1 (Top) | 1 | 0 | 21100 | 2535 | -0.23 | 0.033 | 22.44 | 22.18 | 0.035 | 1.6 |
| | | Edge 2(Right) | 1 | 0 | 21100 | 2535 | -0.36 | 0.565 | 22.44 | 22.18 | 0.600 | 1.6 |
| | | Edge 3(Bottom) | 1 | 0 | 21100 | 2535 | 0.52 | 0.014 | 22.44 | 22.18 | 0.015 | 1.6 |
| | | Edge 4(Left) | 1 | 0 | 21100 | 2535 | -0.07 | 0.006 | 22.44 | 22.18 | 0.006 | 1.6 |

Note:
· When the 1-g Reported SAR is ≤ 0.8 W/kg, testing for low and high channel is optional. Refer to KDB 447498.
·The test separation of all above tableis 0mm.

| SAR MEASUREMENT | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Depth of Liquid (cm):>15 | | | | | Relative Humidity (%): 53.9 | | | | | | | |
| Product: rugged tablet | | | | | | | | | | | | |
| Test Mode: LTE Band XVII | | | | | | | | | | | | |
| **BM MHz** | **MOD** | **Position** | **Test Mode** | | **Ch.** | **Freq. (MHz)** | **Power Drift (<±5%)** | **SAR (1g) (W/kg)** | **Max. Tuneup Power (dBm)** | **Meas. output Power (dBm)** | **Scaled SAR (W/Kg)** | **Limit (W/kg)** |
| | | | **UL RB Allocation** | **UL RB START** | | | | | | | | |
| **10** | **QPSK** | Body back | 1 | 0 | 23790 | 710 | 0.02 | **0.511** | 22.50 | 22.42 | **0.521** | 1.6 |
| | | Body front | 1 | 0 | 23790 | 710 | 0.12 | 0.101 | 22.50 | 22.42 | 0.103 | 1.6 |
| | | Edge 1 (Top) | 1 | 0 | 23790 | 710 | -0.11 | 0.055 | 22.50 | 22.42 | 0.056 | 1.6 |
| | | Edge 2(Right) | 1 | 0 | 23790 | 710 | 0.13 | 0.103 | 22.50 | 22.42 | 0.105 | 1.6 |
| | | Edge 3(Bottom) | 1 | 0 | 23790 | 710 | -0.35 | 0.010 | 22.50 | 22.42 | 0.010 | 1.6 |
| | | Edge 4(Left) | 1 | 0 | 23790 | 710 | 0.26 | 0.017 | 22.50 | 22.42 | 0.017 | 1.6 |

Note:
· When the 1-g Reported SAR is ≤ 0.8 W/kg, testing for low and high channel is optional. Refer to KDB 447498.
·The test separation of all above tableis 0mm.

| SAR MEASUREMENT | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Depth of Liquid (cm):>15 | | | | Relative Humidity (%): 51.9 | | | | | |
| Product: rugged tablet | | | | | | | | | |
| Test Mode:802.11b | | | | | | | | | |
| **Position** | **Mode** | **Ch.** | **Fr. (MHz)** | **Power Drift (<±5%)** | **SAR (1g) (W/kg)** | **Max. Tune-up Power (dBm)** | **Meas. output Power (dBm)** | **Scaled SAR (W/Kg)** | **Limit (W/kg)** |
| Body back | DTS | 6 | 2437 | -0.07 | 0.026 | 14.82 | 14.82 | 0.026 | 1.6 |
| Body front | DTS | 6 | 2437 | -0.12 | 0.082 | 14.82 | 14.82 | 0.082 | 1.6 |
| Edge 2(Right) | DTS | 6 | 2437 | 0.23 | **0.124** | 14.82 | 14.82 | **0.124** | 1.6 |
| Edge 3(Bottom) | DTS | 6 | 2437 | -0.05 | 0.007 | 14.82 | 14.82 | 0.007 | 1.6 |
| Edge 4(Left) | DTS | 6 | 2437 | 0.25 | 0.001 | 14.82 | 14.82 | 0.001 | 1.6 |

Note:
· According to KDB248227, SAR is not required for 802.11n HT20/HT40 channels when the maximum average output power is less than 1/4 dB higher than that measured on the corresponding 802.11a/b channels.
· All of above “DTS” means data transmitters.
·The test separation of all above tableis 0mm.

| Repeated SAR | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Product: rugged tablet | | | | | | | | | | |
| Test Mode: GSM850& PCS1900 with GMSK modulation &WCDMA Band II with QPSK modulation | | | | | | | | | | |
| **Position** | **Mode** | **Ch.** | **Fr. (MHz)** | **Power Drift (<±5%)** | **Once SAR (1g) (W/kg)** | **Power Drift (<±5%)** | **Twice SAR (1g) (W/kg)** | **Power Drift (<±5%)** | **Third SAR (1g) (W/kg)** | **Limit W/kg** |
| Body back | GPRS-4 slot | 190 | 836.6 | 0.03 | 0.889 | | | | | |
| Edge 2(Right) | GPRS-2 slot | 661 | 1880 | -0.11 | 1.085 | | | | | |
| Edge 2(Right) | RMC 12.2kbps | 9538 | 1907.6 | 0.10 | 1.027 | | | | | |

| Repeated SAR | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Product: rugged tablet | | | | | | | | | | |
| Test Mode: LTE Band II & LTE Band VII with QPSK modulation | | | | | | | | | | |
| **Position** | **Test Mode** | | **Ch.** | **Freq. (MHz)** | **Power Drift (<±5%)** | **SAR (1g) (W/kg)** | **Max. Tune up Power (dBm)** | **Meas. output Power (dBm)** | **Scaled SAR (W/Kg)** | **Limit (W/kg)** |
| | **UL RB Allocation** | **UL RB START** | | | | | | | | |
| Body back | 1 | 0 | 18900 | 1880 | -0.22 | 0.898 | | | | 1.6 |
| Body back | 1 | 0 | 21100 | 2535 | 0.14 | 0.813 | | | | 1.6 |

| NO | Simultaneous state | Portable Handset | | |
|---|---|---|---|---|
| | | Head | Body-worn | Hotspot |
| 1 | GSM(voice)+WLAN 2.4GHz (data) | Yes | Yes | - |
| 2 | WCDMA(voice)+WLAN 2.4GHz (data) | Yes | Yes | - |
| 3 | GSM(voice)+Bluetooth(data) | - | Yes | - |
| 4 | WCDMA(voice)+Bluetooth(data) | - | Yes | - |
| 5 | GSM (Data) + Bluetooth(data) | - | Yes | |
| 6 | GSM (Data) + WLAN 2.4GHz (data) | Yes | Yes | Yes |
| 7 | WCDMA (Data) + Bluetooth(data) | -- | Yes | |
| 8 | WCDMA (Data) + WLAN 2.4GHz (data) | Yes | Yes | Yes |
| 9 | LTE + Bluetooth(data) | -- | Yes | |
| 10 | LTE + WLAN 2.4GHz (data) | Yes | Yes | Yes |

NOTE:

1. WIFI and BT share the same antenna, and cannot transmit simultaneously.
2. Simultaneous with every transmitter must be the same test position.
3. KDB 447498 D01, BT SAR is excluded as below table.
4. KDB 447498 D01, for handsets the test separation distance is determined by the smallest distance between the outer surface of the device and the user; which is 0mm body-worn SAR.
5. According to KDB 447498 D01 4.3.1, Standalone SAR test exclusion is as follow:
   For 100 MHz to 6 GHz and test separation distances ≤ 50 mm, the 1-g and 10-g SAR test exclusion thresholds are determined by the following:
   [(max. power of channel, including tune-up tolerance, mW) / (min. test separation distance, mm)] • [√f(GHz)] ≤ 3.0 for 1-g SAR, and ≤ 7.5 for 10-g extremity SAR[30], where
   - f(GHz) is the RF channel transmit frequency in GHz
   - Power and distance are rounded to the nearest mW and mm before calculation[31]
   - The result is rounded to one decimal place for comparison
   - The values 3.0 and 7.5 are referred to as numeric thresholds in step b) below

   The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm, and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm according to 4.1 f) is applied to determine SAR test exclusion.
6. If the test separation distance is <5mm, 5mm is used for excluded SAR calculation.
7. According to KDB 447498 D01 4.3.2, simultaneous transmission SAR test exclusion is as follow:
   (1) Simultaneous transmission SAR test exclusion is determined for each operating configuration and exposure condition according to the reported standalone SAR of each applicable simultaneous transmitting antenna.
   (2) Any transmitters and antennas should be considered when calculating simultaneous mode.
   (3) For mobile phone and PC, it's the sum of all transmitters and antennas at the same mode with same position in each applicable exposure condition
   (4)When the standalone SAR test exclusion of section 4.3.2 is applied to an antenna that transmits simultaneously with other antennas, the standalone SAR must be estimated according to the following to det
   (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.
8. When the sum of SAR is larger than the limit, SAR test exclusion is determined by the SAR to peak location separation ratio. The simultaneous transmitting antennas in each operating mode and exposure condition combination must be considered one pair at a time to determine the SAR to peak location separation ratio to qualify for test exclusion. The ratio is determined by (SAR1 + SAR2)1.5/Ri, rounded to two decimal digits, and must be ≤ 0.04 for all antenna pairs in the configuration to qualify for 1-g SAR test exclusion.

| Estimated SAR | | Max Power including Tune-up Tolerance | | Separation Distance (mm) | Estimated SAR (W/kg) |
|---|---|---|---|---|---|
| | | dBm | mW | | |
| **BT** | Body | 6 | 3.98 | 0 | 0.167 |

**Sum of the SAR for GSM 850 &Wi-Fi & BT:**

| RF Exposure Conditions | Test Position | Simultaneous Transmission Scenario | | | Σ1-g SAR (W/Kg) | SPLSR (Yes/No) |
|---|---|---|---|---|---|---|
| | | GSM 850 | WI-Fi DTS Band | Bluetooth | | |
| Body-worn (voice) | Rear | 0.515 | 0.026 | | 0.541 | No |
| | | 0.515 | | 0.167 | 0.682 | No |
| | Front | 0.244 | 0.082 | | 0.326 | No |
| | | 0.244 | | 0.167 | 0.411 | No |
| \Body-worn (Data) | Rear | 0.965 | | 0.167 | 1.132 | No |
| | | 0.965 | 0.026 | | 0.991 | No |
| | Front | 0.392 | | 0.167 | 0.559 | No |
| | | 0.392 | 0.082 | | 0.474 | No |
| | Edge 2 | 0.365 | 0.124 | | 0.489 | No |
| | Edge 3 | 0.132 | 0.007 | | 0.139 | No |
| | Edge 4 | 0.080 | 0.001 | | 0.081 | No |
| | Edge 2 | 0.365 | | 0.167 | 0.532 | No |
| | Edge 3 | 0.132 | | 0.167 | 0.299 | No |
| | Edge 4 | 0.080 | | 0.167 | 0.247 | No |

**Note:**

·According to KDB 447498 D01 General RF Exposure Guidance, when the simultaneous transmission SAR is less than1.6 W/Kg, SPLSR assessment is not required.

·SPLSR mean is “The SAR to Peak Location Separation Ratio “

**Sum of the SAR for GSM 1900 &Wi-Fi & BT:**

| RF Exposure Conditions | Test Position | Simultaneous Transmission Scenario | | | Σ1-g SAR (W/Kg) | SPLSR (Yes/No) |
|---|---|---|---|---|---|---|
| | | PCS 1900 | WI-Fi DTS Band | Bluetooth | | |
| Body-worn (voice) | Rear | 0.590 | 0.026 | | 0.616 | No |
| | | 0.590 | | 0.167 | 0.757 | No |
| | Front | 0.144 | 0.082 | | 0.226 | No |
| | | 0.144 | | 0.167 | 0.311 | No |
| Body-worn (Data) | Rear | 1.049 | | 0.167 | 1.216 | No |
| | | 1.049 | 0.026 | | 1.075 | No |
| | Front | 0.260 | | 0.167 | 0.427 | No |
| | | 0.260 | 0.082 | | 0.342 | No |
| | Edge 2 | 1.215 | 0.124 | | 1.339 | No |
| | Edge 3 | 0.039 | 0.007 | | 0.046 | No |
| | Edge 4 | 0.047 | 0.001 | | 0.048 | No |
| | Edge 2 | 1.215 | | 0.167 | **1.382** | No |
| | Edge 3 | 0.039 | | 0.167 | 0.206 | No |
| | Edge 4 | 0.047 | | 0.167 | 0.214 | No |

**Note:**

·According to KDB 447498 D01 General RF Exposure Guidance, when the simultaneous transmission SAR is less than1.6 W/Kg, SPLSR assessment is not required.
·SPLSR mean is “The SAR to Peak Location Separation Ratio “

**Sum of the SAR for WCDMA Band II &Wi-Fi & BT:**

| RF Exposure Conditions | Test Position | Simultaneous Transmission Scenario | | | Σ1-g SAR (W/Kg) | SPLSR (Yes/No) |
|---|---|---|---|---|---|---|
| | | WCDMA Band II | Wi-Fi DTS Band | Bluetooth | | |
| Body-worn | Rear | 1.003 | 0.026 | | 1.029 | No |
| | Front | 0.365 | 0.082 | | 0.447 | No |
| | Edge 2 | 1.171 | 0.124 | | 1.295 | No |
| | Edge 3 | 0.032 | 0.007 | | 0.039 | No |
| | Edge 4 | 0.081 | 0.001 | | 0.082 | No |
| | Rear | 1.003 | | 0.167 | 1.170 | No |
| | Front | 0.365 | | 0.167 | 0.532 | No |
| | Edge 2 | 1.171 | | 0.167 | 1.338 | No |
| | Edge 3 | 0.032 | | 0.167 | 0.199 | No |
| | Edge 4 | 0.081 | | 0.167 | 0.248 | No |

**Note:**

·According to KDB 447498 D01 General RF Exposure Guidance, when the simultaneous transmission SAR is less than1.6 W/Kg, SPLSR assessment is not required.
·SPLSR mean is “The SAR to Peak Location Separation Ratio “

**Sum of the SAR for WCDMA Band V &Wi-Fi & BT:**

| RF Exposure Conditions | Test Position | Simultaneous Transmission Scenario | | | Σ1-g SAR (W/Kg) | SPLSR (Yes/No) |
|---|---|---|---|---|---|---|
| | | WCDMA Band V | Wi-Fi DTS Band | Bluetooth | | |
| Body-worn | Rear | 0.465 | 0.026 | | 0.491 | No |
| | Front | 0.158 | 0.082 | | 0.240 | No |
| | Edge 2 | 0.031 | 0.124 | | 0.155 | No |
| | Edge 3 | 0.061 | 0.007 | | 0.068 | No |
| | Edge 4 | 0.025 | 0.001 | | 0.026 | No |
| | Rear | 0.465 | | 0.167 | 0.632 | No |
| | Front | 0.158 | | 0.167 | 0.325 | No |
| | Edge 2 | 0.031 | | 0.167 | 0.198 | No |
| | Edge 3 | 0.061 | | 0.167 | 0.228 | No |
| | Edge 4 | 0.025 | | 0.167 | 0.192 | No |

**Note:**

·According to KDB 447498 D01 General RF Exposure Guidance, when the simultaneous transmission SAR is less than1.6 W/Kg, SPLSR assessment is not required.
·SPLSR mean is “The SAR to Peak Location Separation Ratio “

**Sum of the SAR for LTE Band II &Wi-Fi & BT:**

| RF Exposure Conditions | Test Position | Simultaneous Transmission Scenario | | | Σ1-g SAR (W/Kg) | SPLSR (Yes/No) |
|---|---|---|---|---|---|---|
| | | LTE Band II | Wi-Fi DTS Band | Bluetooth | | |
| Body-worn | Rear | 0.993 | 0.026 | | 1.019 | No |
| | Front | 0.381 | 0.082 | | 0.463 | No |
| | Edge 2 | 0.723 | 0.124 | | 0.847 | No |
| | Edge 3 | 0.018 | 0.007 | | 0.025 | No |
| | Edge 4 | 0.024 | 0.001 | | 0.025 | No |
| | Rear | 0.993 | | 0.167 | 1.160 | No |
| | Front | 0.381 | | 0.167 | 0.548 | No |
| | Edge 2 | 0.723 | | 0.167 | 0.890 | No |
| | Edge 3 | 0.018 | | 0.167 | 0.185 | No |
| | Edge 4 | 0.024 | | 0.167 | 0.191 | No |

**Note:**

·According to KDB 447498 D01 General RF Exposure Guidance, when the simultaneous transmission SAR is less than1.6 W/Kg, SPLSR assessment is not required.
·SPLSR mean is “The SAR to Peak Location Separation Ratio “

**Sum of the SAR for LTE Band IV &Wi-Fi & BT:**

| RF Exposure Conditions | Test Position | Simultaneous Transmission Scenario | | | Σ1-g SAR (W/Kg) | SPLSR (Yes/No) |
|---|---|---|---|---|---|---|
| | | LTE Band IV | Wi-Fi DTS Band | Bluetooth | | |
| Body-worn | Rear | 0.797 | 0.026 | | 0.823 | No |
| | Front | 0.248 | 0.082 | | 0.330 | No |
| | Edge 2 | 0.461 | 0.124 | | 0.585 | No |
| | Edge 3 | 0.052 | 0.007 | | 0.059 | No |
| | Edge 4 | 0.036 | 0.001 | | 0.037 | No |
| | Rear | 0.797 | | 0.167 | 0.964 | No |
| | Front | 0.248 | | 0.167 | 0.415 | No |
| | Edge 2 | 0.461 | | 0.167 | 0.628 | No |
| | Edge 3 | 0.052 | | 0.167 | 0.219 | No |
| | Edge 4 | 0.036 | | 0.167 | 0.203 | No |

**Note:**

·According to KDB 447498 D01 General RF Exposure Guidance, when the simultaneous transmission SAR is less than1.6 W/Kg, SPLSR assessment is not required.
·SPLSR mean is “The SAR to Peak Location Separation Ratio “

**Sum of the SAR for LTE Band V &Wi-Fi & BT:**

| RF Exposure Conditions | Test Position | Simultaneous Transmission Scenario | | | Σ1-g SAR (W/Kg) | SPLSR (Yes/No) |
|---|---|---|---|---|---|---|
| | | LTE Band V | Wi-Fi DTS Band | Bluetooth | | |
| Body-worn | Rear | 0.447 | 0.026 | | 0.473 | No |
| | Front | 0.226 | 0.082 | | 0.308 | No |
| | Edge 2 | 0.194 | 0.124 | | 0.318 | No |
| | Edge 3 | 0.073 | 0.007 | | 0.080 | No |
| | Edge 4 | 0.042 | 0.001 | | 0.043 | No |
| | Rear | 0.447 | | 0.167 | 0.614 | No |
| | Front | 0.226 | | 0.167 | 0.393 | No |
| | Edge 2 | 0.194 | | 0.167 | 0.361 | No |
| | Edge 3 | 0.073 | | 0.167 | 0.240 | No |
| | Edge 4 | 0.042 | | 0.167 | 0.209 | No |

**Note:**

·According to KDB 447498 D01 General RF Exposure Guidance, when the simultaneous transmission SAR is less than1.6 W/Kg, SPLSR assessment is not required.
·SPLSR mean is “The SAR to Peak Location Separation Ratio “

**Sum of the SAR for LTE Band VII &Wi-Fi & BT:**

| RF Exposure Conditions | Test Position | Simultaneous Transmission Scenario | | | Σ1-g SAR (W/Kg) | SPLSR (Yes/No) |
|---|---|---|---|---|---|---|
| | | LTE Band VII | Wi-Fi DTS Band | Bluetooth | | |
| Body-worn | Rear | 0.877 | 0.026 | | 0.903 | No |
| | Front | 0.116 | 0.082 | | 0.198 | No |
| | Edge 2 | 0.600 | 0.124 | | 0.724 | No |
| | Edge 3 | 0.015 | 0.007 | | 0.022 | No |
| | Edge 4 | 0.006 | 0.001 | | 0.007 | No |
| | Rear | 0.877 | | 0.167 | 1.044 | No |
| | Front | 0.116 | | 0.167 | 0.283 | No |
| | Edge 2 | 0.600 | | 0.167 | 0.767 | No |
| | Edge 3 | 0.015 | | 0.167 | 0.182 | No |
| | Edge 4 | 0.006 | | 0.167 | 0.173 | No |

**Note:**

·According to KDB 447498 D01 General RF Exposure Guidance, when the simultaneous transmission SAR is less than1.6 W/Kg, SPLSR assessment is not required.
·SPLSR mean is “The SAR to Peak Location Separation Ratio “

**Sum of the SAR for LTE Band XVII &Wi-Fi & BT:**

| RF Exposure Conditions | Test Position | Simultaneous Transmission Scenario | | | Σ1-g SAR (W/Kg) | SPLSR (Yes/No) |
|---|---|---|---|---|---|---|
| | | LTE Band XVII | Wi-Fi DTS Band | Bluetooth | | |
| Body-worn | Rear | 0.521 | 0.026 | | 0.547 | No |
| | Front | 0.103 | 0.082 | | 0.185 | No |
| | Edge 2 | 0.105 | 0.124 | | 0.229 | No |
| | Edge 3 | 0.010 | 0.007 | | 0.017 | No |
| | Edge 4 | 0.017 | 0.001 | | 0.018 | No |
| | Rear | 0.521 | | 0.167 | 0.688 | No |
| | Front | 0.103 | | 0.167 | 0.270 | No |
| | Edge 2 | 0.105 | | 0.167 | 0.272 | No |
| | Edge 3 | 0.010 | | 0.167 | 0.177 | No |
| | Edge 4 | 0.017 | | 0.167 | 0.184 | No |

**Note:**

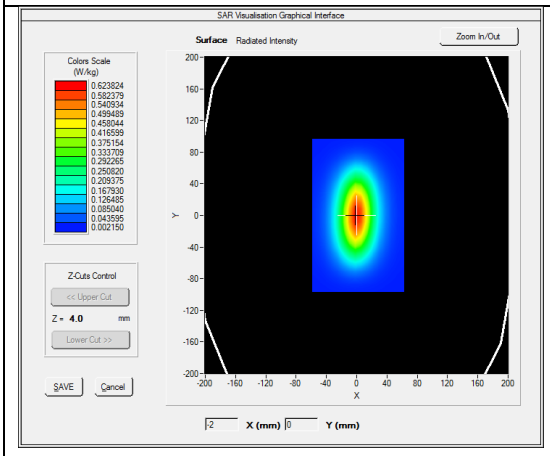
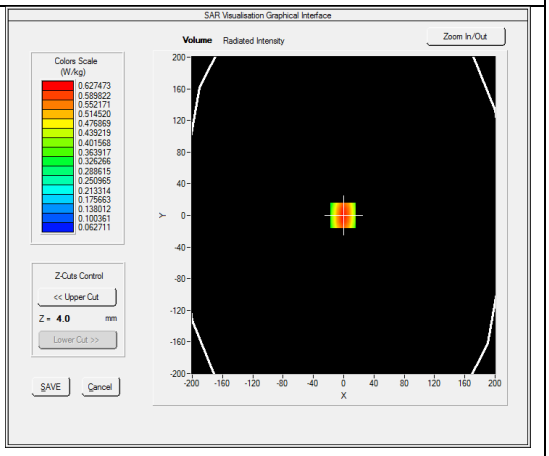
·According to KDB 447498 D01 General RF Exposure Guidance, when the simultaneous transmission SAR is less than1.6 W/Kg, SPLSR assessment is not required.
·SPLSR mean is “The SAR to Peak Location Separation Ratio “

# APPENDIX A. SAR SYSTEM CHECK DATA

**Test Laboratory: AGC Lab** **Date: June 24,2017**
**System Check Body 750 MHz**
**DUT: Dipole 750 MHz Type: SID 750**
Communication System CW; Communication System Band: D750 (750.0 MHz); Duty Cycle: 1:1; Conv.F=5.27
Frequency: 750 MHz; Medium parameters used: f = 750 MHz; σ=0.98 mho/m; εr =53.59; ρ= 1000 kg/m³ ;
Phantom section: Flat Section; Input Power=18dBm
Ambient temperature (℃):22.3, Liquid temperature (℃): 21.2

SATIMO Configuration:
- Probe: SSE5; Calibrated: 07/05/2016; Serial No.: SN 14/16 EP307
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: ELLI39 Phantom
- Measurement SW: OpenSAR V4_02_35

**Configuration/System Check 750MHz Body/Area Scan:** Measurement grid: dx=8mm, dy=8mm
**Configuration/System Check 750MHz Body/Zoom Scan:** Measurement grid: dx=8mm,dy=8mm, dz=5mm

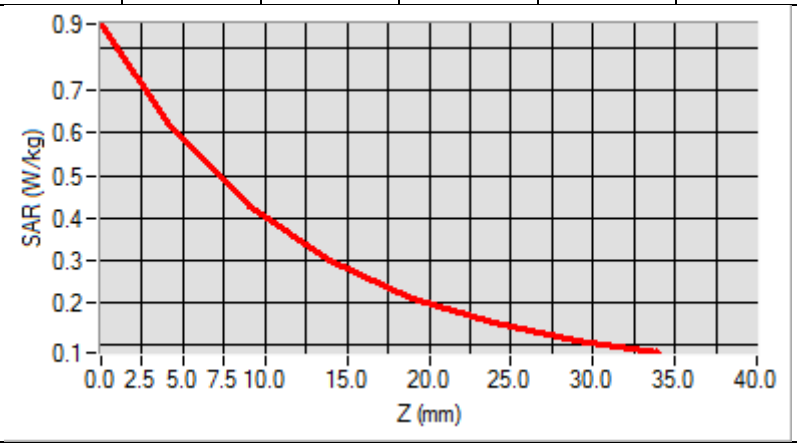
| SURFACE SAR | VOLUME SAR |
|---|---|
|  |  |

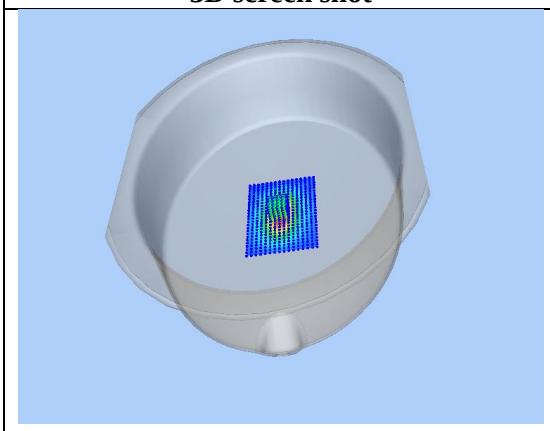
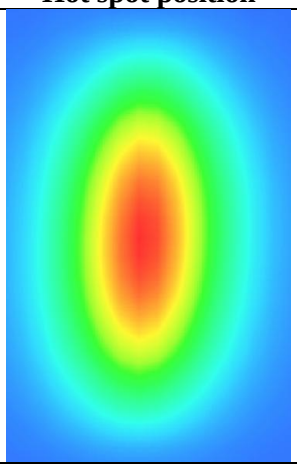


**Maximum location: X=-1.00, Y=0.00**
**SAR Peak: 0.83 W/kg**

| | |
|---|---|
| **SAR 10g (W/Kg)** | 0.387123 |
| **SAR 1g (W/Kg)** | 0.597759 |

| Z (mm) | 0.00 | 4.00 | 9.00 | 14.00 | 19.00 | 24.00 | 29.00 |
|---|---|---|---|---|---|---|---|
| SAR (W/Kg) | 0.8560 | 0.6268 | 0.4261 | 0.2976 | 0.2096 | 0.1510 | 0.1100 |

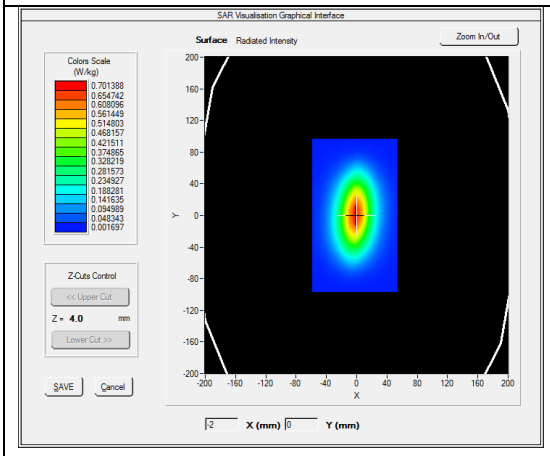
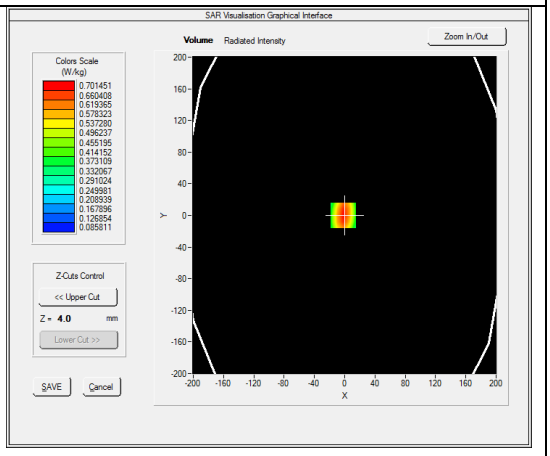



| 3D screen shot | Hot spot position |
|---|---|
|  |  |

**Test Laboratory: AGC Lab** **Date: June 7,2017**
**System Check Body 835 MHz**
**DUT: Dipole 835 MHz Type: SID 835**
Communication System CW; Communication System Band: D835 (835.0 MHz); Duty Cycle: 1:1; Conv.F=5.89
Frequency: 835 MHz; Medium parameters used: f = 835 MHz; σ=0.96 mho/m; εr =55.36; ρ= 1000 kg/m³ ;
Phantom section: Flat Section; Input Power=18dBm
Ambient temperature (℃):22.3, Liquid temperature (℃): 21.8

SATIMO Configuration:
- Probe: SSE5; Calibrated: 07/05/2016; Serial No.: SN 14/16 EP307
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: ELLI39 Phantom
- Measurement SW: OpenSAR V4_02_35

**Configuration/System Check 835MHz Body/Area Scan:** Measurement grid: dx=8mm, dy=8mm
**Configuration/System Check 835MHz Body/Zoom Scan:** Measurement grid: dx=8mm,dy=8mm, dz=5mm

| SURFACE SAR | VOLUME SAR |
|---|---|
|  |  |

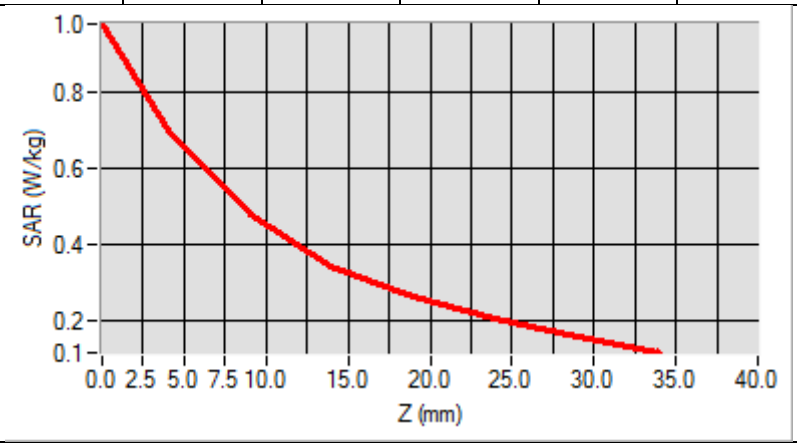


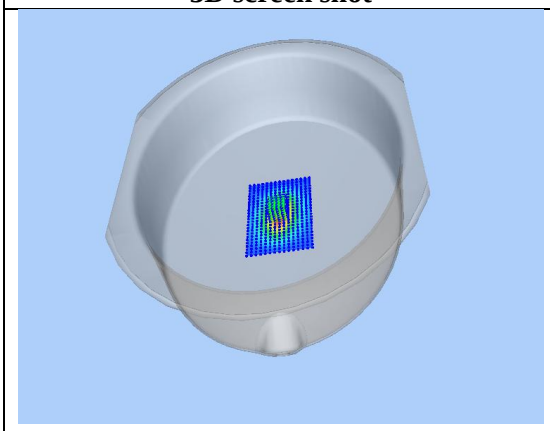
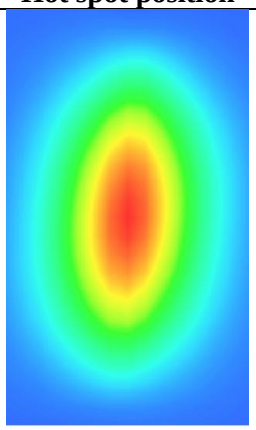


**Maximum location: X=-2.00, Y=0.00**
**SAR Peak: 0.94 W/kg**

| | |
|---|---|
| **SAR 10g (W/Kg)** | 0.432014 |
| **SAR 1g (W/Kg)** | 0.663117 |

| Z (mm) | 0.00 | 4.00 | 9.00 | 14.00 | 19.00 | 24.00 | 29.00 |
|---|---|---|---|---|---|---|---|
| SAR (W/Kg) | 0.9799 | 0.7005 | 0.4741 | 0.3413 | 0.2599 | 0.2047 | 0.1571 |

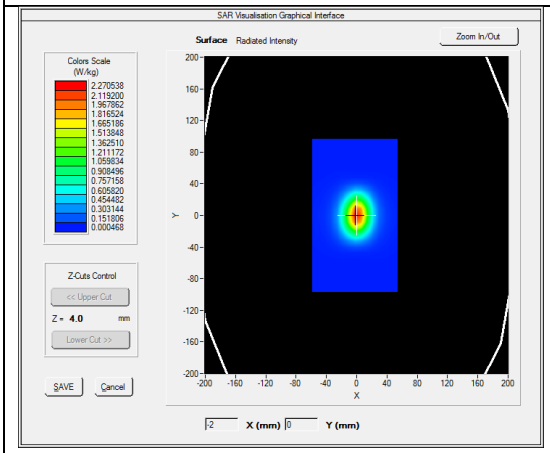
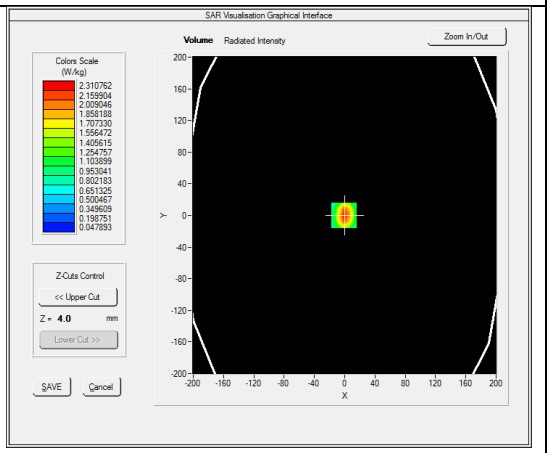



| 3D screen shot | Hot spot position |
|---|---|
|  |  |

**Test Laboratory: AGC Lab** **Date: June 16,2017**
**System Check Body 1750MHz**
**DUT: Dipole 1800 MHz; Type: SID 1800**
Communication System: CW; Communication System Band: D1700 (1750.0 MHz); Duty Cycle:1:1; Conv.F=5.06
Frequency: 1750MHz; Medium parameters used: f = 1750MHz; σ=1.47 mho/m; εr =52.37; ρ= 1000 kg/m³ ;
Phantom section: Flat Section; Input Power=18dBm
Ambient temperature (℃): 21.5, Liquid temperature (℃): 21.1

SATIMO Configuration:
Probe: SSE5; Calibrated: 07/05/2016; Serial No.: SN 14/16 EP307
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: ELLI39 Phantom
- Measurement SW: OpenSAR V4_02_35

**Configuration/System Check 1750MHz Body/Area Scan:** Measurement grid: dx=8mm,dy=8mm
**Configuration/System Check 1750MHz Body/Zoom Scan:** Measurement grid: dx=8mm,dy=8mm, dz=5mm

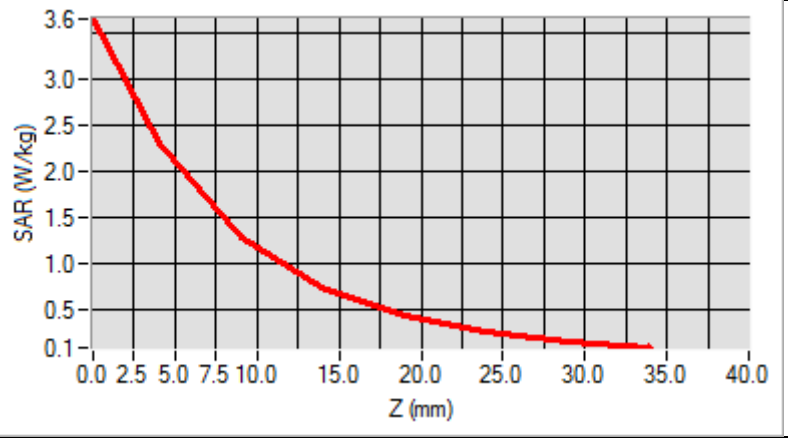
| SURFACE SAR | VOLUME SAR |
|---|---|
|  |  |

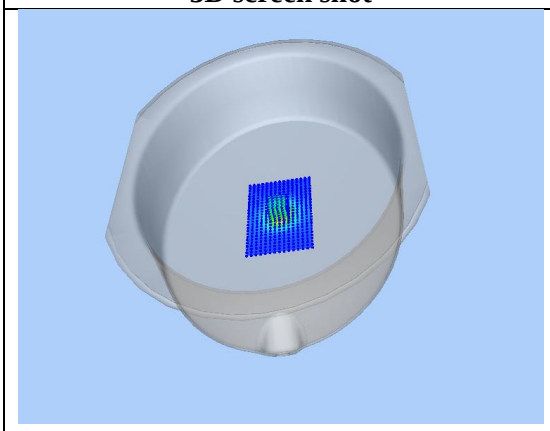
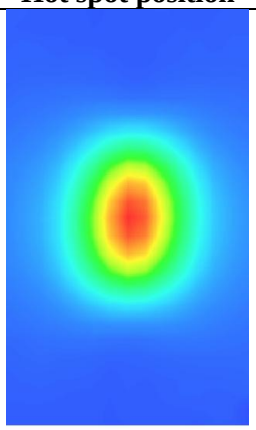


**Maximum location: X=-1.00, Y=1.00**
**SAR Peak: 3.65 W/kg**

| | |
|---|---|
| **SAR 10g (W/Kg)** | 1.167143 |
| **SAR 1g (W/Kg)** | 2.199957 |

| Z (mm) | 0.00 | 4.00 | 9.00 | 14.00 | 19.00 | 24.00 | 29.00 |
|---|---|---|---|---|---|---|---|
| SAR (W/Kg) | 3.6442 | 2.3115 | 1.2853 | 0.7488 | 0.4422 | 0.2659 | 0.1583 |

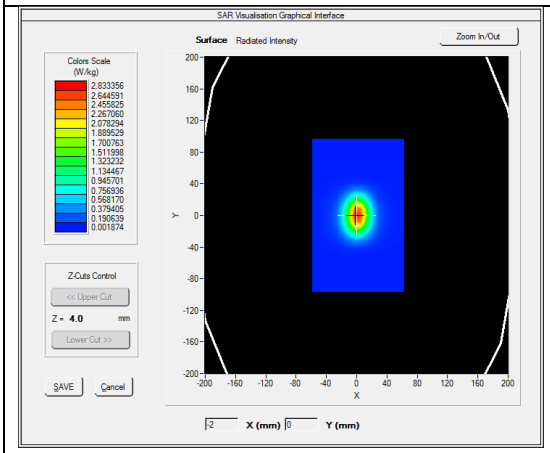
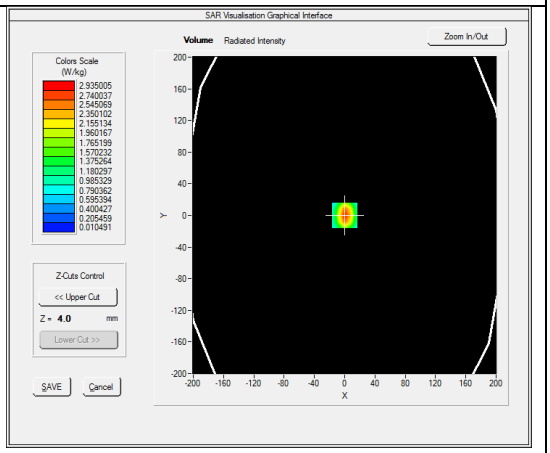



| 3D screen shot | Hot spot position |
|---|---|
|  |  |

**Test Laboratory: AGC Lab** **Date: June 13,2017**
**System Check Body 1900MHz**
**DUT: Dipole 1900 MHz; Type: SID 1900**
Communication System: CW; Communication System Band: D1900 (1900.0 MHz); Duty Cycle:1:1; Conv.F=5.34
Frequency: 1900 MHz; Medium parameters used: f = 1900 MHz; σ=1.51 mho/m; εr =53.00; ρ= 1000 kg/m³ ;
Phantom section: Flat Section; Input Power=18dBm
Ambient temperature (℃):22.1, Liquid temperature (℃): 21.6

SATIMO Configuration:
Probe: SSE5; Calibrated: 07/05/2016; Serial No.: SN 14/16 EP307
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: ELLI39 Phantom
- Measurement SW: OpenSAR V4_02_35

**Configuration/System Check 1900MHz Body/Area Scan:** Measurement grid: dx=8mm, dy=8mm
**Configuration/System Check 1900MHz Body/Zoom Scan:** Measurement grid: dx=8mm,dy=8mm, dz=5mm

| SURFACE SAR | VOLUME SAR |
|---|---|
|  |  |

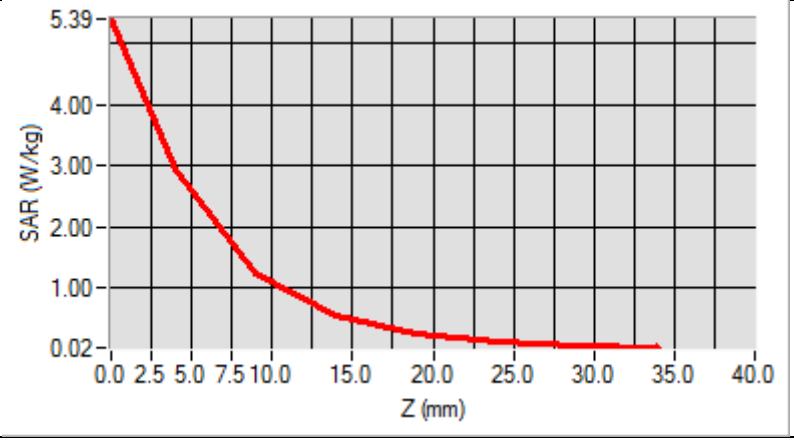


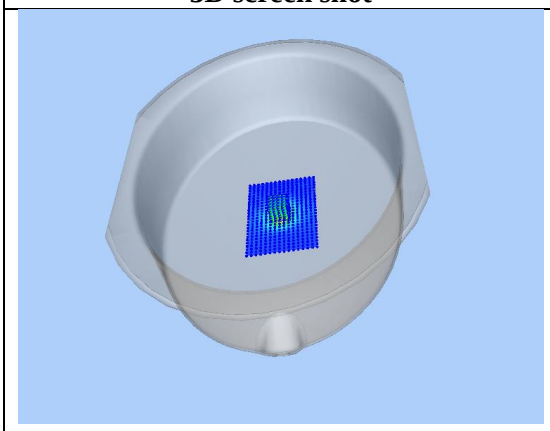
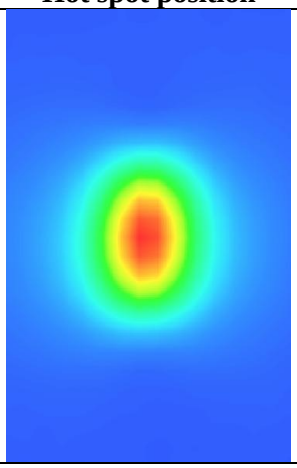


**Maximum location: X=0.00, Y=0.00**
**SAR Peak: 5.33 W/kg**

| | |
|---|---|
| **SAR 10g (W/Kg)** | 1.250413 |
| **SAR 1g (W/Kg)** | 2.641237 |

| Z (mm) | 0.00 | 4.00 | 9.00 | 14.00 | 19.00 | 24.00 | 29.00 |
|---|---|---|---|---|---|---|---|
| SAR (W/Kg) | 5.3921 | 2.9342 | 1.2340 | 0.5395 | 0.2374 | 0.1060 | 0.0478 |

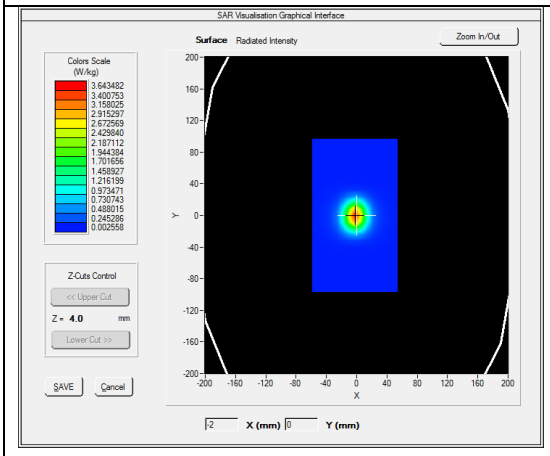
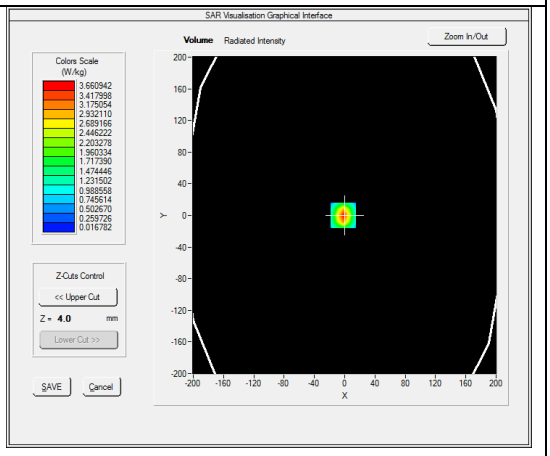



| 3D screen shot | Hot spot position |
|---|---|
|  |  |

**Test Laboratory: AGC Lab** **Date: June 18,2017**
**System Check Body 2450 MHz**
**DUT: Dipole 2450 MHz Type: SID 2450**
Communication System CW; Communication System Band: D2450 (2450.0 MHz); Duty Cycle: 1:1; Conv.F=4.75
Frequency: 2450 MHz; Medium parameters used: f = 2450 MHz; σ=1.91 mho/m; εr =53.41; ρ= 1000 kg/m³ ;
Phantom section: Flat Section; Input Power=18dBm
Ambient temperature (℃):22.3, Liquid temperature (℃): 21.6

SATIMO Configuration
- Probe: SSE5; Calibrated: 07/05/2016; Serial No.: SN 14/16 EP307
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: ELLI39 Phantom
- Measurement SW: OpenSAR V4_02_35

**Configuration/System Check 2450MHz Body/Area Scan:** Measurement grid: dx=8mm, dy=8mm
**Configuration/System Check 2450MHz Body/Zoom Scan:** Measurement grid: dx=5mm,dy=5mm, dz=5mm

| SURFACE SAR | VOLUME SAR |
|---|---|
|  |  |

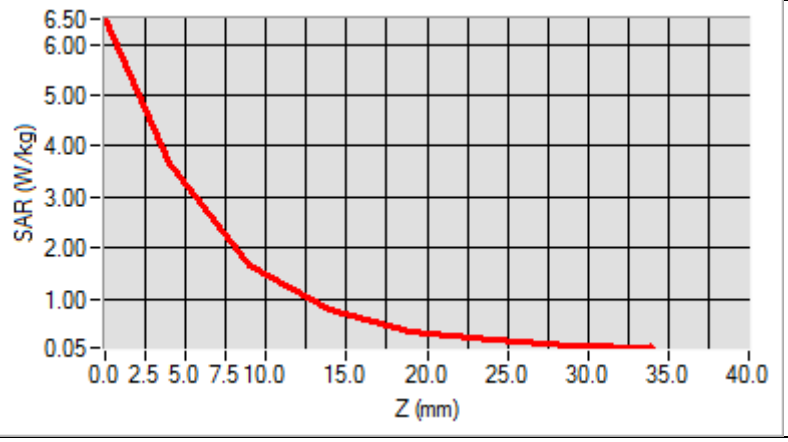


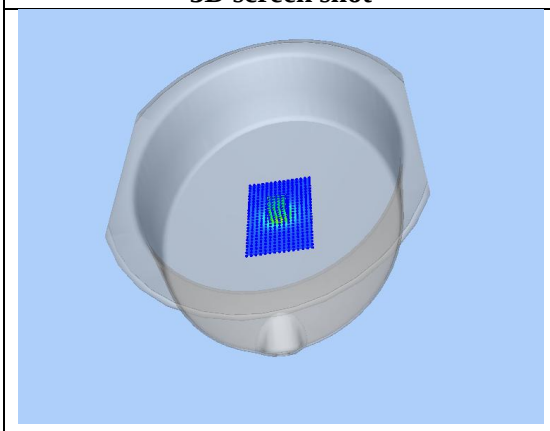
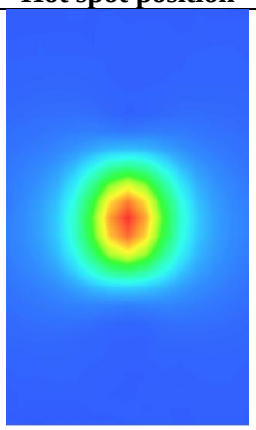


**Maximum location: X=-2.00, Y=0.00**
**SAR Peak: 6.27 W/kg**

| | |
|---|---|
| **SAR 10g (W/Kg)** | 1.512410 |
| **SAR 1g (W/Kg)** | 3.423117 |

| Z (mm) | 0.00 | 4.00 | 9.00 | 14.00 | 19.00 | 24.00 | 29.00 |
|---|---|---|---|---|---|---|---|
| SAR (W/Kg) | 6.4962 | 3.6597 | 1.6512 | 0.7843 | 0.3752 | 0.1821 | 0.0890 |

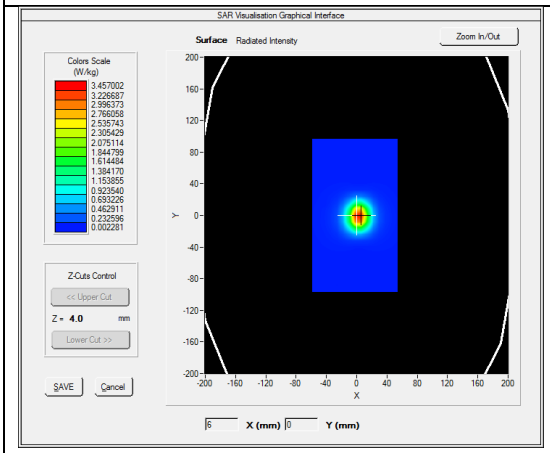
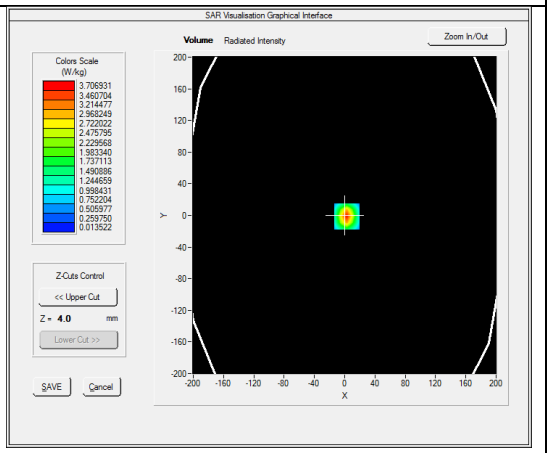



| 3D screen shot | Hot spot position |
|---|---|
|  |  |

**Test Laboratory: AGC Lab** **Date: June 21,2017**
**System Check Body 2600MHz**
**DUT: Dipole 2600 MHz; Type: SID 2600**
Communication System: CW; Communication System Band: D2600 (2600.0 MHz); Duty Cycle: 1:1; Conv.F=4.75
Frequency:2600 MHz; Medium parameters used: f = 2600 MHz; σ=2.15mho/m; εr =52.04; ρ= 1000 kg/m³ ;
Phantom section: Flat Section; Input Power=18dBm
Ambient temperature (℃): 21.7, Liquid temperature (℃): 21.3

SATIMO Configuration:
- Probe: SSE5; Calibrated: 07/05/2016; Serial No.: SN 14/16 EP307
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: ELLI39 Phantom
- Measurement SW: OpenSAR V4_02_35

**Configuration/System Check 2600 Head/Area Scan:** Measurement grid: dx=8mm,dy=8mm
**Configuration/System Check 2600 Head/Zoom Scan:** Measurement grid: dx=8mm,dy=8mm, dz=5mm

| SURFACE SAR | VOLUME SAR |
|---|---|
|  |  |

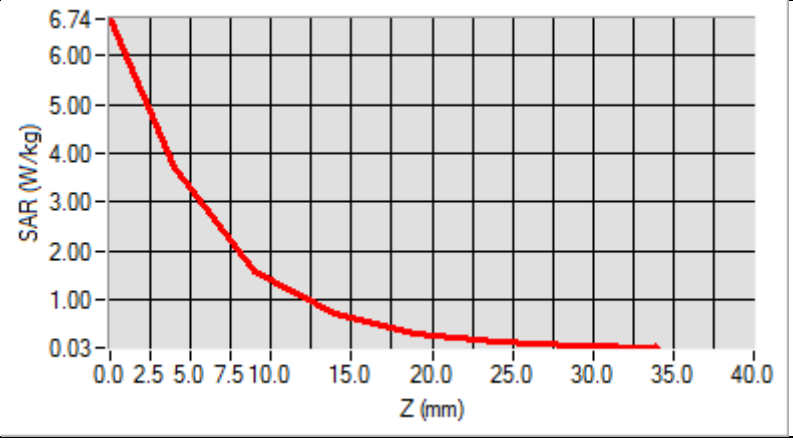


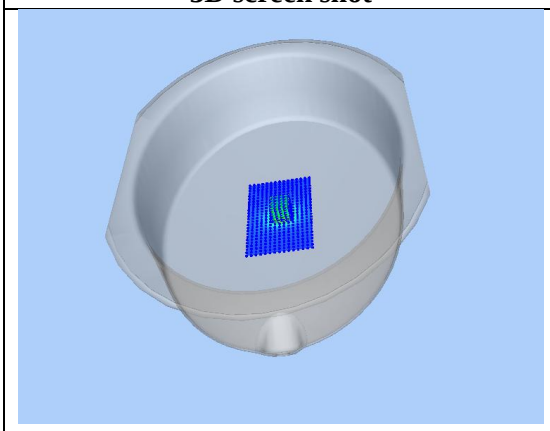
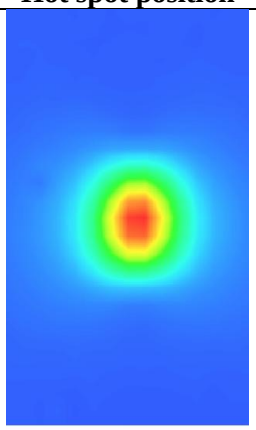


**Maximum location: X=3.00, Y=-1.00**
**SAR Peak: 6.63 W/kg**

| | |
|---|---|
| **SAR 10g (W/Kg)** | 1.489785 |
| **SAR 1g (W/Kg)** | 3.452370 |

| Z (mm) | 0.00 | 4.00 | 9.00 | 14.00 | 19.00 | 24.00 | 29.00 |
|---|---|---|---|---|---|---|---|
| SAR (W/Kg) | 6.7398 | 3.7069 | 1.5966 | 0.7227 | 0.3307 | 0.1529 | 0.0712 |




| 3D screen shot | Hot spot position |
|---|---|
|  |  |

# APPENDIX B. SAR MEASUREMENT DATA

**Test Laboratory: AGC Lab** **Date: June 7,2017**
**GSM 850 Mid- Body- Back (MS)<SIM 1>**
**DUT: rugged tablet; Type: T71V3**

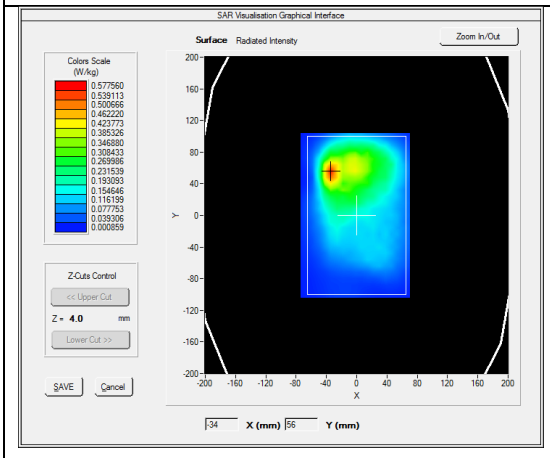
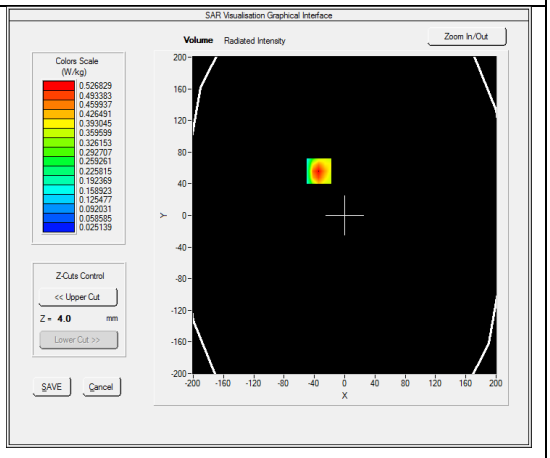
Communication System: Generic GSM; Communication System Band: GSM 850; Duty Cycle: 1:8.3; Conv.F=5.89; Frequency: 836.6 MHz; Medium parameters used: f = 835 MHz; σ= 0.97 mho/m; εr = 54.91; ρ= 1000 kg/m³ ;
Phantom section: Flat Section
Ambient temperature (℃): 22.3, Liquid temperature (℃): 21.8

SATIMO Configuration:

- Probe: SSE5; Calibrated: 07/05/2016; Serial No.: SN 14/16 EP307
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: ELLI39 Phantom
- Measurement SW: OpenSAR V4_02_35

**Configuration/GSM 850 Mid-Body-Back/Area Scan:** Measurement grid: dx=8mm, dy=8mm
**Configuration/GSM 850 Mid-Body-Back/Zoom Scan:** Measurement grid: dx=8mm,dy=8mm, dz=5mm;

| | |
|---|---|
| **Area Scan** | dx=8mm dy=8mm, h= 5.00 mm |
| **ZoomScan** | 5x5x7,dx=8mm dy=8mm dz=5mm,Complete |
| **Phantom** | ELLI |
| **Device Position** | Body Back |
| **Band** | GSM 850 |
| **Channels** | Middle |
| **Signal** | TDMA (Crest factor: 8.0) |

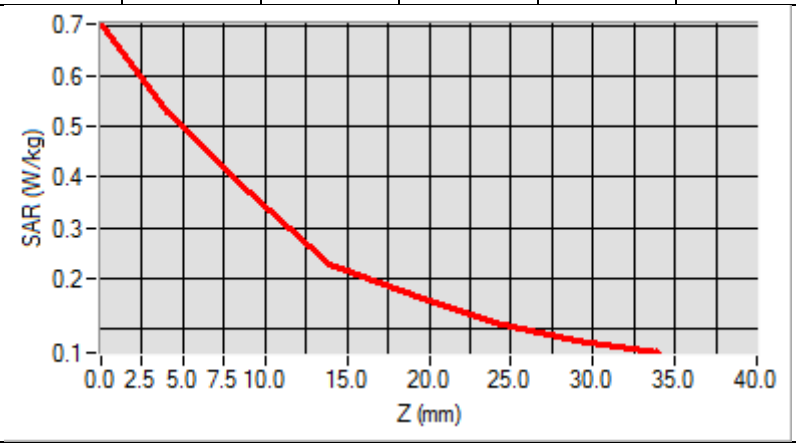
| SURFACE SAR | VOLUME SAR |
|---|---|
|  |  |

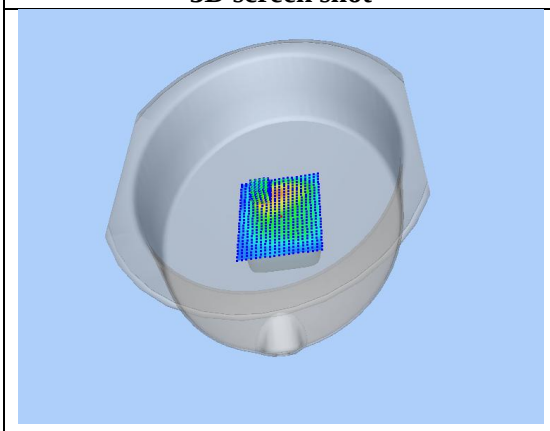
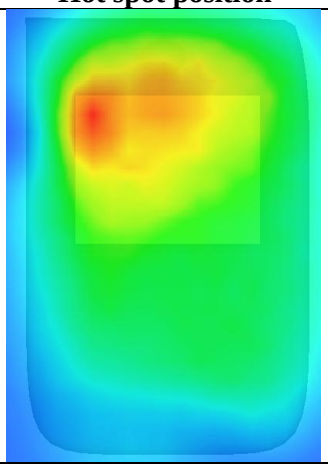


**Maximum location: X=-34.00, Y=56.00**
**SAR Peak: 0.80 W/kg**

| | |
|---|---|
| **SAR 10g (W/Kg)** | 0.302290 |
| **SAR 1g (W/Kg)** | 0.508527 |

| Z (mm) | 0.00 | 4.00 | 9.00 | 14.00 | 19.00 | 24.00 | 29.00 |
|---|---|---|---|---|---|---|---|
| SAR (W/Kg) | 0.7038 | 0.5268 | 0.3677 | 0.2249 | 0.1676 | 0.1108 | 0.0751 |




| 3D screen shot | Hot spot position |
|---|---|
|  |  |

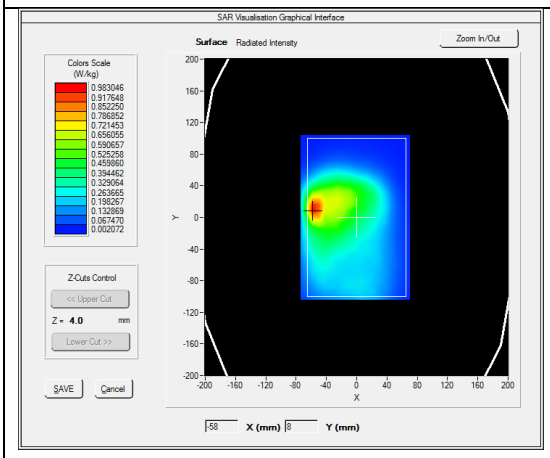
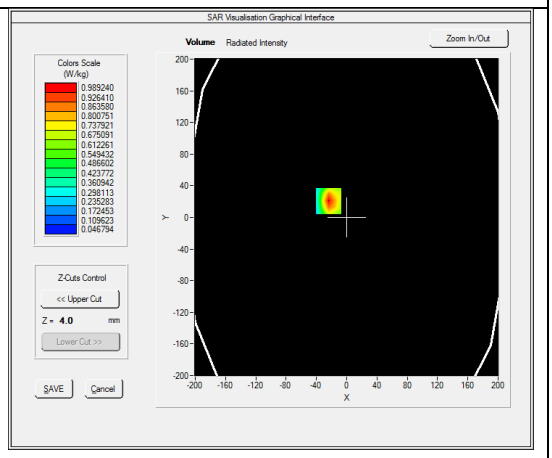
**Test Laboratory: AGC Lab** **Date: June 7,2017**
**GPRS 850 Mid- Body- Back (4up)**
**DUT: rugged tablet; Type: T71V3**

Communication System: GPRS-4 Slot; Communication System Band: GSM 850; Duty Cycle: 1:2.1; Conv.F=5.89; Frequency: 836.6 MHz; Medium parameters used: f = 835 MHz; σ= 0.97 mho/m; εr = 54.91; ρ= 1000 kg/m³ ;
Phantom section: Flat Section
Ambient temperature (℃): 22.3, Liquid temperature (℃): 21.8

SATIMO Configuration:
- Probe: SSE5; Calibrated: 07/05/2016; Serial No.: SN 14/16 EP307
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: ELLI39 Phantom
- Measurement SW: OpenSAR V4_02_35

**Configuration/GPRS 850 Mid-Body-Back/Area Scan:** Measurement grid: dx=8mm, dy=8mm
**Configuration/GPRS 850 Mid-Body-Back/Zoom Scan:** Measurement grid: dx=8mm,dy=8mm, dz=5mm;

| | |
|---|---|
| **Area Scan** | dx=8mm dy=8mm, h= 5.00 mm |
| **Zoom Scan** | 5x5x7,dx=8mm dy=8mm dz=5mm,Complete |
| **Phantom** | ELLI |
| **Device Position** | Body Back |
| **Band** | GSM 850 |
| **Channels** | Middle |
| **Signal** | TDMA (Crest factor: 2.0) |

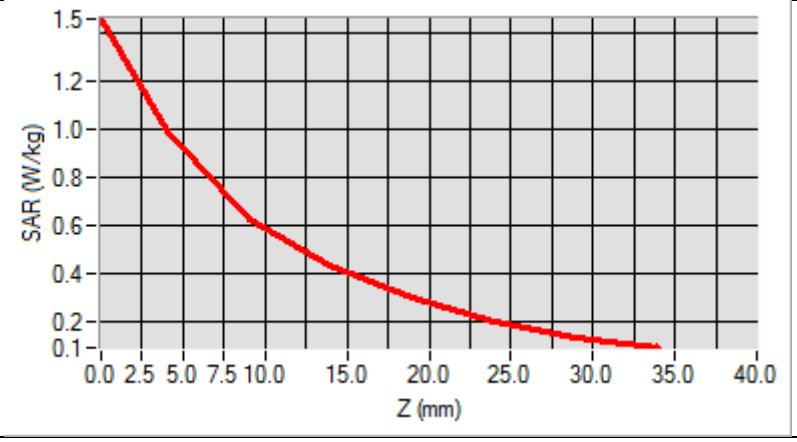
| **SURFACE SAR** | **VOLUME SAR** |
|---|---|
|  |  |

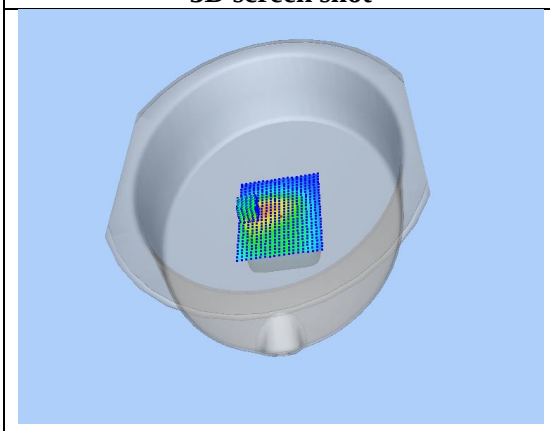
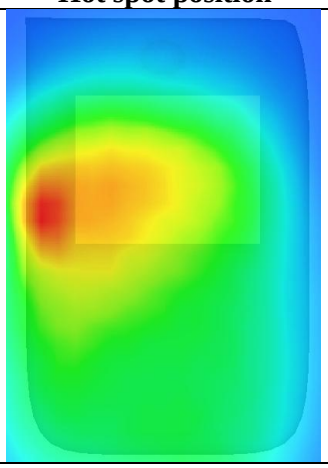


**Maximum location: X=-24.00, Y=21.00**
**SAR Peak: 1.45 W/kg**

| | |
|---|---|
| **SAR 10g (W/Kg)** | 0.560850 |
| **SAR 1g (W/Kg)** | 0.929364 |

| Z (mm) | 0.00 | 4.00 | 9.00 | 14.00 | 19.00 | 24.00 | 29.00 |
|---|---|---|---|---|---|---|---|
| SAR (W/Kg) | 1.4559 | 0.9892 | 0.6254 | 0.4377 | 0.2987 | 0.2037 | 0.1358 |




| 3D screen shot | Hot spot position |
|---|---|
|  |  |

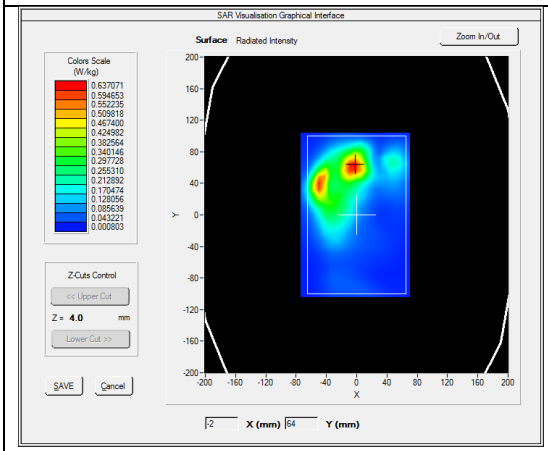
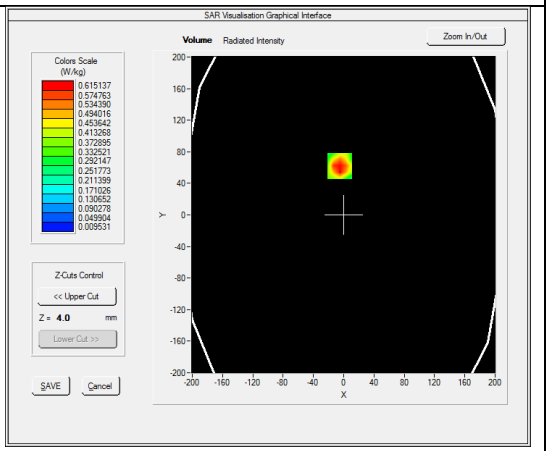
**Test Laboratory: AGC Lab** **Date: June 13,2017**
**PCS 1900 Mid-Body-Back (MS)<SIM 1>**
**DUT: rugged tablet; Type: T71V3**

Communication System: Generic GSM; Communication System Band: PCS 1900; Duty Cycle: 1:8.3; Conv.F=5.34;
Frequency: 1880 MHz; Medium parameters used: f = 1900 MHz; $\sigma$= 1.50 mho/m; $\varepsilon r$ =53.59; $\rho$= 1000 kg/m$^3$ ;
Phantom section: Flat Section
Ambient temperature (℃): 22.1, Liquid temperature (℃): 21.6

SATIMO Configuration:
- Probe: SSE5; Calibrated: 07/05/2016; Serial No.: SN 14/16 EP307
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: ELLI39 Phantom
- Measurement SW: OpenSAR V4_02_35

**Configuration/PCS1900 Mid-Body-Back/Area Scan:** Measurement grid: dx=8mm, dy=8mm
**Configuration/PCS1900 Mid-Body-Back/Zoom Scan:** Measurement grid: dx=8mm,dy=8mm, dz=5mm;

| | |
|---|---|
| **Area Scan** | dx=8mm dy=8mm, h= 5.00 mm |
| **ZoomScan** | 5x5x7,dx=8mm dy=8mm dz=5mm,Complete |
| **Phantom** | ELLI |
| **Device Position** | Body Back |
| **Band** | PCS 1900 |
| **Channels** | Middle |
| **Signal** | TDMA (Crest factor: 8.0) |

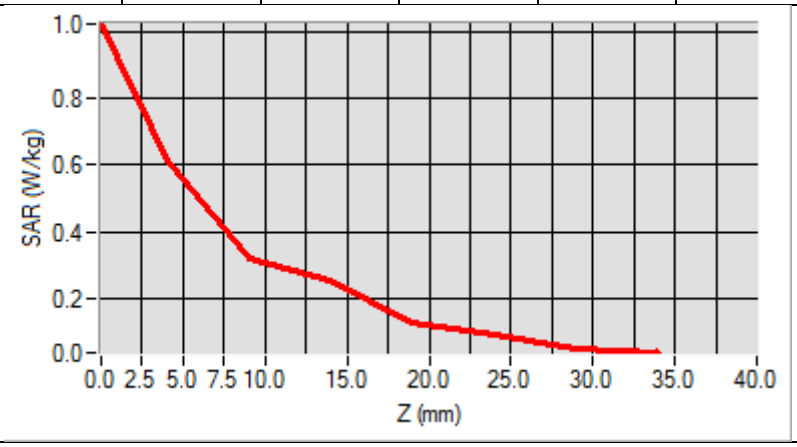
| **SURFACE SAR** | **VOLUME SAR** |
|---|---|
|  |  |

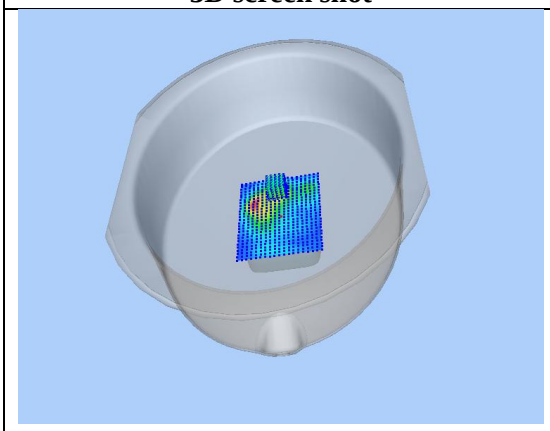
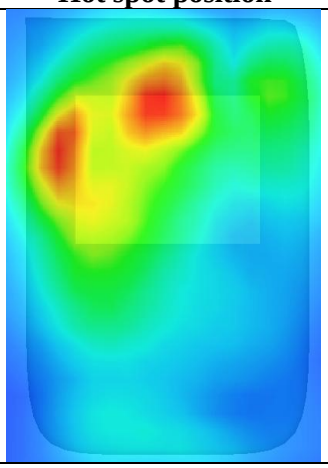


**Maximum location: X=-5.00, Y=62.00**
**SAR Peak: 0.90 W/kg**

| | |
|---|---|
| **SAR 10g (W/Kg)** | 0.336519 |
| **SAR 1g (W/Kg)** | 0.590374 |

| Z (mm) | 0.00 | 4.00 | 9.00 | 14.00 | 19.00 | 24.00 | 29.00 |
|---|---|---|---|---|---|---|---|
| SAR (W/Kg) | 1.0267 | 0.6151 | 0.3173 | 0.2508 | 0.1251 | 0.0896 | 0.0452 |




| 3D screen shot | Hot spot position |
|---|---|
|  |  |

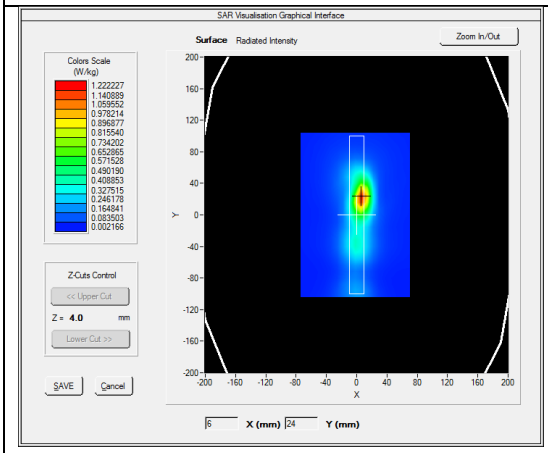
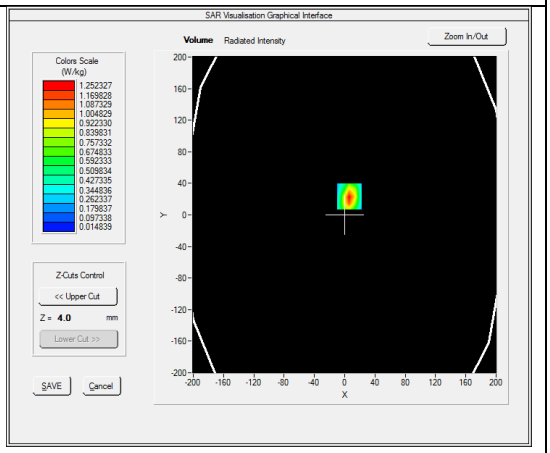
**Test Laboratory: AGC Lab** **Date: June 13,2017**
**GPRS 1900 Mid-Edge 2 (2up)**
**DUT: rugged tablet; Type: T71V3**

Communication System: GPRS-2Slot; Communication System Band: PCS 1900; Duty Cycle: 1:4.2; Conv.F=5.34; Frequency: 1880 MHz; Medium parameters used: f = 1900 MHz; σ= 1.50 mho/m; εr =53.59; ρ= 1000 kg/m³ ;
Phantom section: Flat Section
Ambient temperature (℃): 22.1, Liquid temperature (℃): 21.6

SATIMO Configuration:
- Probe: SSE5; Calibrated: 07/05/2016; Serial No.: SN 14/16 EP307
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: ELLI39 Phantom
- Measurement SW: OpenSAR V4_02_35

**Configuration/GPRS1900 Mid-Edge 2/Area Scan:** Measurement grid: dx=8mm, dy=8mm
**Configuration/GPRS1900 Mid-Edge 2/Zoom Scan:** Measurement grid: dx=8mm,dy=8mm, dz=5mm;

| | |
|---|---|
| **Area Scan** | dx=8mm dy=8mm, h= 5.00 mm |
| **Zoom Scan** | 5x5x7,dx=8mm dy=8mm dz=5mm,Complete |
| **Phantom** | ELLI |
| **Device Position** | Edge 2 |
| **Band** | PCS 1900 |
| **Channels** | Middle |
| **Signal** | TDMA (Crest factor: 4.0) |

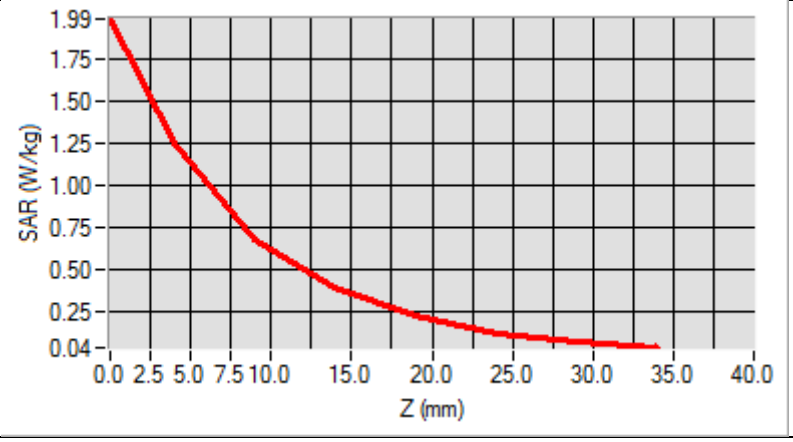
| **SURFACE SAR** | **VOLUME SAR** |
|---|---|
|  |  |

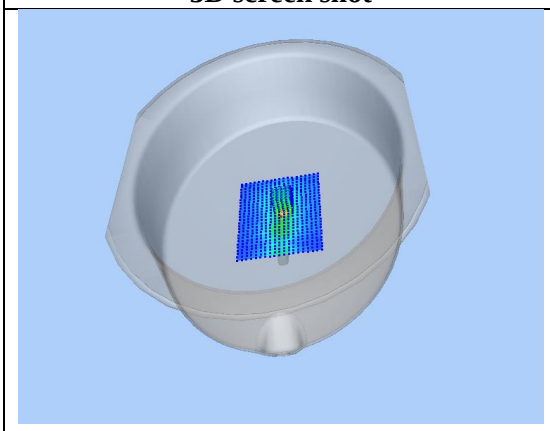
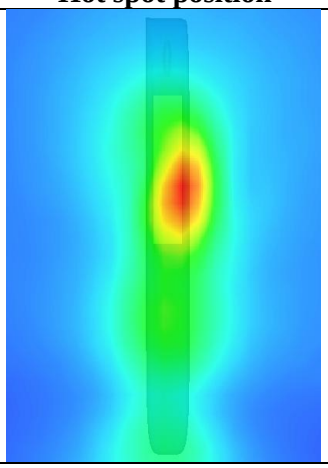


**Maximum location: X=6.00, Y=23.00**
**SAR Peak: 1.99 W/kg**

| | |
|---|---|
| **SAR 10g (W/Kg)** | 0.573140 |
| **SAR 1g (W/Kg)** | 1.155480 |

| Z (mm) | 0.00 | 4.00 | 9.00 | 14.00 | 19.00 | 24.00 | 29.00 |
|---|---|---|---|---|---|---|---|
| SAR (W/Kg) | 1.9865 | 1.2523 | 0.6847 | 0.4014 | 0.2278 | 0.1250 | 0.0741 |




| 3D screen shot | Hot spot position |
|---|---|
|  |  |

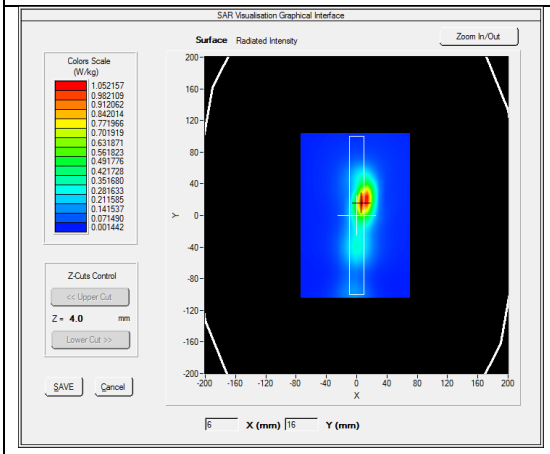
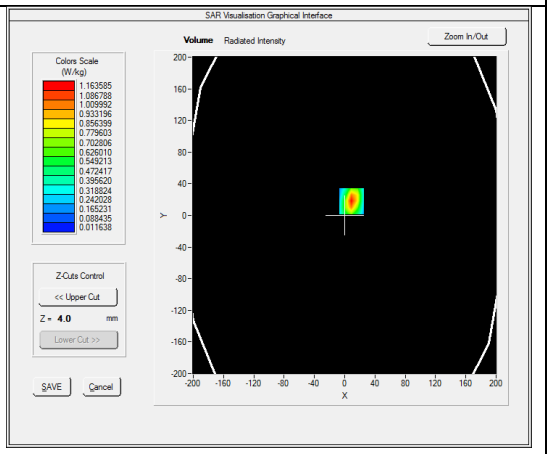
**Test Laboratory: AGC Lab** **Date: June 13,2017**
**WCDMA Band Ⅱ High -Edge 2(RMC)**
**DUT: rugged tablet; Type: T71V3**

Communication System: UMTS; Communication System Band: Band Ⅱ UTRA/FDD ;Duty Cycle:1:1; Conv.F=5.34;
Frequency: 1907.6 MHz; Medium parameters used: f = 1900 MHz; σ=1.53 mho/m; εr =52.61; ρ= 1000 kg/m³ ;
Phantom section: Flat Section
Ambient temperature (℃): 22.1, Liquid temperature (℃): 21.6

SATIMO Configuration:
- Probe: SSE5; Calibrated: 07/05/2016; Serial No.: SN 14/16 EP307
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: ELLI39 Phantom
- Measurement SW: OpenSAR V4_02_35

**Configuration/ WCDMA band Ⅱ High-Body-back/Area Scan:** Measurement grid: dx=8mm, dy=8mm
**Configuration/ WCDMA band Ⅱ High-Body-back/Zoom Scan:** Measurement grid: dx=8mm,dy=8mm, dz=5m;

| | |
|---|---|
| **Area Scan** | dx=8mm dy=8mm, h= 5.00 mm |
| **ZoomScan** | 5x5x7,dx=8mm dy=8mm dz=5mm,Complete |
| **Phantom** | ELLI |
| **Device Position** | Body Back |
| **Band** | WCDMA band Ⅱ |
| **Channels** | High |
| **Signal** | CDMA (Crest factor: 1.0) |

| **SURFACE SAR** | **VOLUME SAR** |
|---|---|
|  |  |

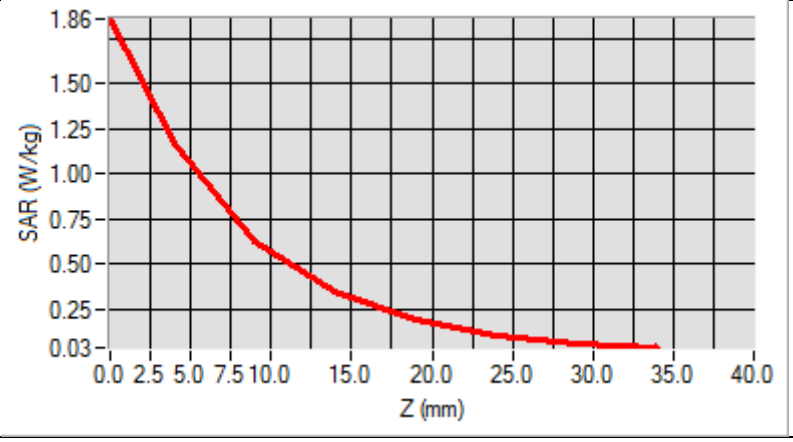


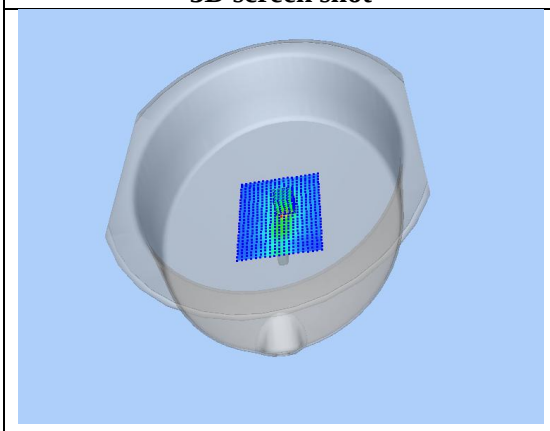
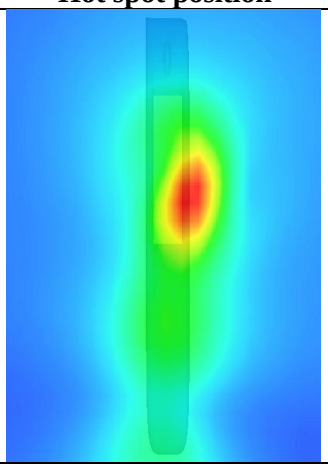


**Maximum location: X=9.00, Y=18.00**
**SAR Peak: 1.85 W/kg**

| | |
|---|---|
| **SAR 10g (W/Kg)** | 0.518644 |
| **SAR 1g (W/Kg)** | 1.072763 |

| Z (mm) | 0.00 | 4.00 | 9.00 | 14.00 | 19.00 | 24.00 | 29.00 |
|---|---|---|---|---|---|---|---|
| SAR (W/Kg) | 1.8576 | 1.1636 | 0.6273 | 0.3472 | 0.1905 | 0.1055 | 0.0583 |




| 3D screen shot | Hot spot position |
|---|---|
|  |  |

**Test Laboratory: AGC Lab** **Date: June 7,2017**

**WCDMA Band Ⅴ Mid-Body-Towards Grounds (RMC)**

**DUT: rugged tablet; Type: T71V3**

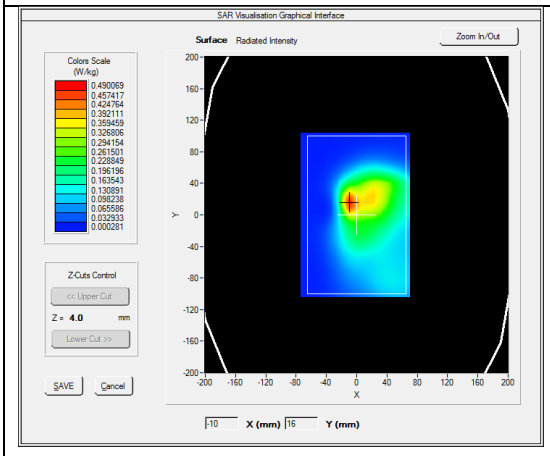
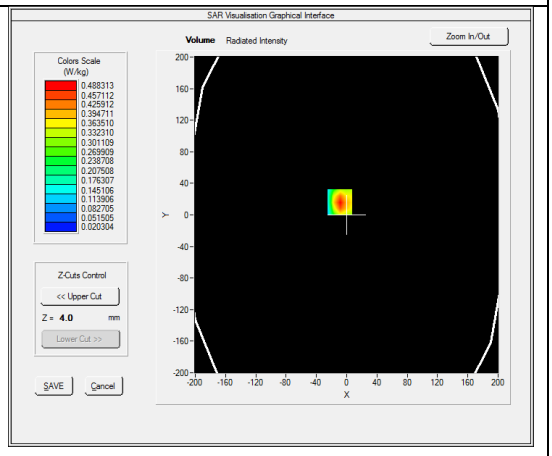
Communication System: UMTS; Communication System Band: BAND V UTRA/FDD; Duty Cycle:1: 1; Conv.F=5.89; Frequency: 836.6 MHz; Medium parameters used: f = 835MHz; σ=0.97 mho/m; εr =54.91; ρ= 1000 kg/m³ ;
Phantom section: Flat Section
Ambient temperature (℃): 22.3, Liquid temperature (℃): 21.8

SATIMO Configuration:

- Probe: SSE5; Calibrated: 07/05/2016; Serial No.: SN 14/16 EP307
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: ELLI39 Phantom
- Measurement SW: OpenSAR V4_02_35

**Configuration/ WCDMA Band V Mid-Body-Back/Area Scan:** Measurement grid: dx=8mm, dy=8mm
**Configuration/ WCDMA Band V Mid-Body-Back/Zoom Scan:** Measurement grid: dx=8mm,dy=8mm, dz=5mm;

| | |
|---|---|
| **Area Scan** | dx=8mm dy=8mm, h= 5.00 mm |
| **ZoomScan** | 5x5x7,dx=8mm dy=8mm dz=5mm,Complete |
| **Phantom** | ELLI |
| **Device Position** | Body Back |
| **Band** | WCDMA Band V |
| **Channels** | Middle |
| **Signal** | CDMA (Crest factor: 1.0) |

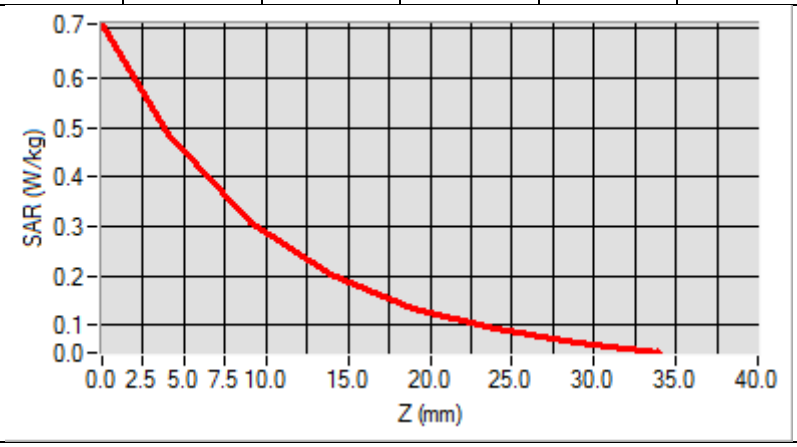
| **SURFACE SAR** | **VOLUME SAR** |
|---|---|
|  |  |

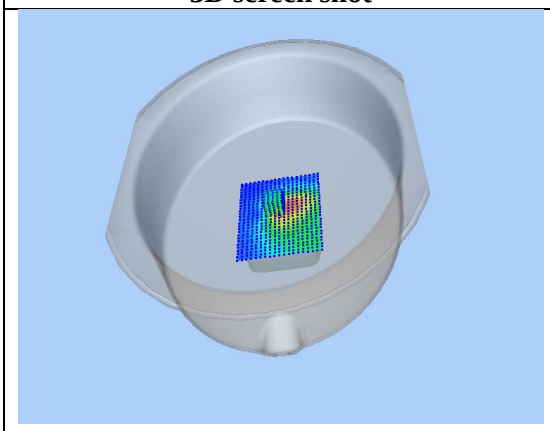
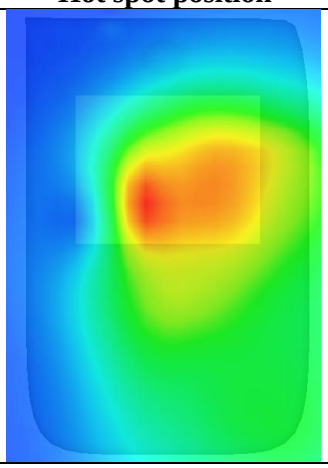


**Maximum location: X=-9.00, Y=16.00**
**SAR Peak: 0.72 W/kg**

| | |
|---|---|
| **SAR 10g (W/Kg)** | 0.278385 |
| **SAR 1g (W/Kg)** | 0.460199 |

| Z (mm) | 0.00 | 4.00 | 9.00 | 14.00 | 19.00 | 24.00 | 29.00 |
|---|---|---|---|---|---|---|---|
| SAR (W/Kg) | 0.7095 | 0.4883 | 0.3077 | 0.2017 | 0.1354 | 0.0925 | 0.0639 |




| 3D screen shot | Hot spot position |
|---|---|
|  |  |

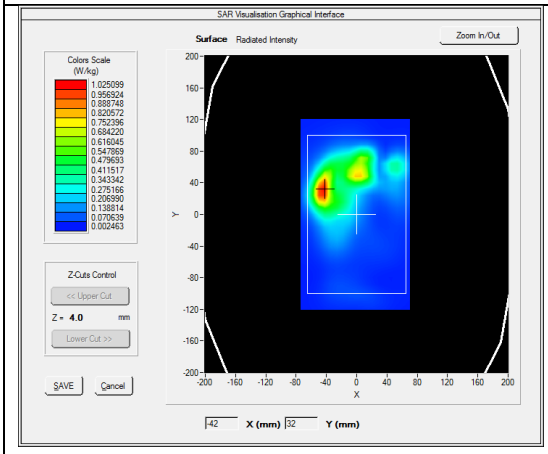
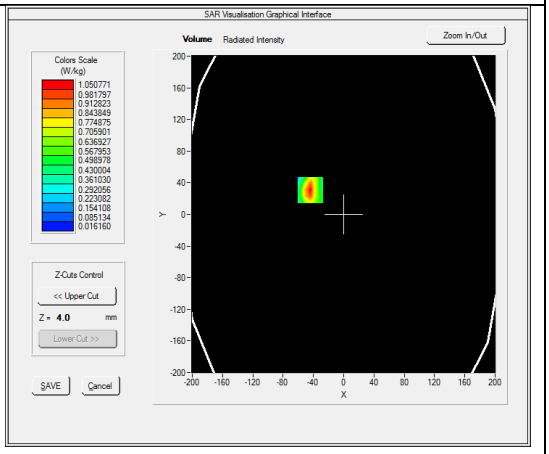
**Test Laboratory: AGC Lab** **Date: June 13,2017**
**LTE Band II Mid-Body-Back (1 RB#0)**
**DUT: rugged tablet; Type: T71V3**

Communication System: LTE; Communication System Band: LTE Band II; Duty Cycle:1:1; Conv.F=5.34; Frequency:1880MHz; Medium parameters used: f = 1900 MHz; σ= 1.50 mho/m; εr =53.59; ρ= 1000 kg/m³ ; Phantom section: Flat Section
Ambient temperature (℃): 22.1, Liquid temperature (℃): 21.6

SATIMO Configuration:
- Probe: SSE5; Calibrated: 07/05/2016; Serial No.: SN 14/16 EP307
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: ELLI39 Phantom
- Measurement SW: OpenSAR V4_02_35

**Configuration/ LTE Band II Mid-Body-back/Area Scan:** Measurement grid: dx=8mm, dy=8mm
**Configuration/ LTE Band II Mid-Body-back/Zoom Scan:** Measurement grid: dx=8mm,dy=8mm, dz=5m;

| | |
|---|---|
| **Area Scan** | dx=8mm dy=8mm, h= 5.00 mm |
| **Zoom Scan** | 5x5x7,dx=8mm dy=8mm dz=5mm |
| **Phantom** | ELLI |
| **Device Position** | Body Back |
| **Band** | LTE Band II |
| **Channels** | Middle |
| **Signal** | OFDM (Crest factor: 1.0) |

| SURFACE SAR | VOLUME SAR |
|---|---|
|  |  |

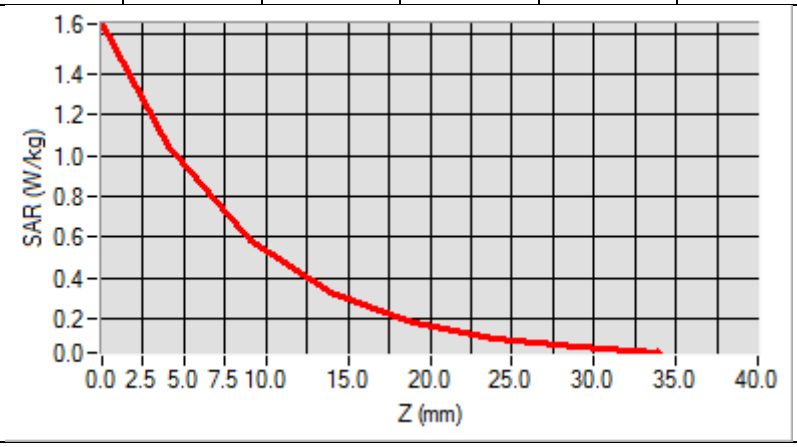


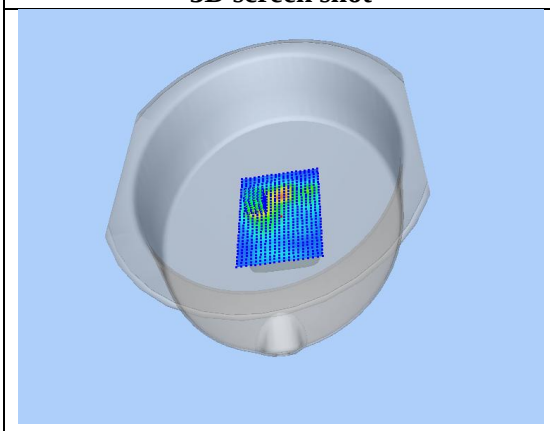
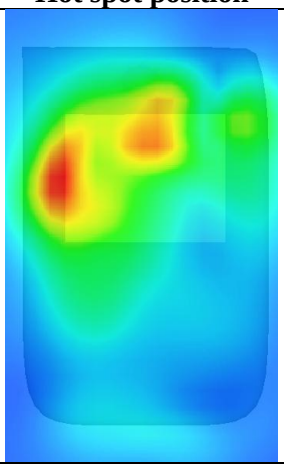


**Maximum location: X=-44.00, Y=31.00**
**SAR Peak: 1.65 W/kg**

| | |
|---|---|
| **SAR 10g (W/Kg)** | 0.500924 |
| **SAR 1g (W/Kg)** | 0.981594 |

| Z (mm) | 0.00 | 4.00 | 9.00 | 14.00 | 19.00 | 24.00 | 29.00 |
|---|---|---|---|---|---|---|---|
| SAR (W/Kg) | 1.6471 | 1.0508 | 0.5809 | 0.3275 | 0.1815 | 0.1020 | 0.0568 |




| 3D screen shot | Hot spot position |
|---|---|
|  |  |

**Test Laboratory: AGC Lab** **Date: June 16,2017**

**LTE Band Ⅳ Mid-Body-Back (1 RB#0)**

**DUT: rugged tablet; Type: T71V3**

Communication System: LTE; Communication System Band: LTE Band Ⅳ; Duty Cycle:1:1; Conv.F=5.06; Frequency:1732.5 MHz; Medium parameters used: f = 1750 MHz; σ= 1.45 mho/m; εr =53.55; ρ= 1000 kg/m³ ; Phantom section: Flat Section
Ambient temperature (℃): 21.5, Liquid temperature (℃): 21.1

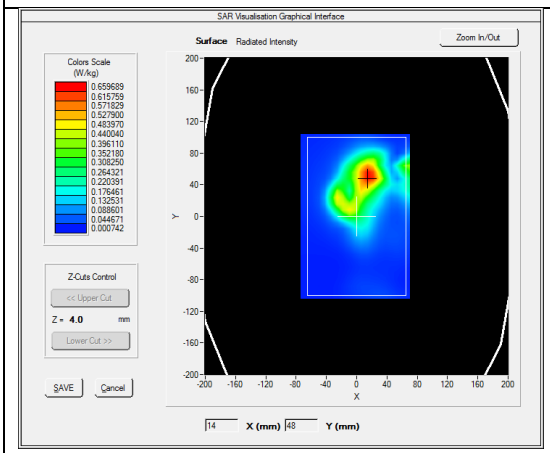
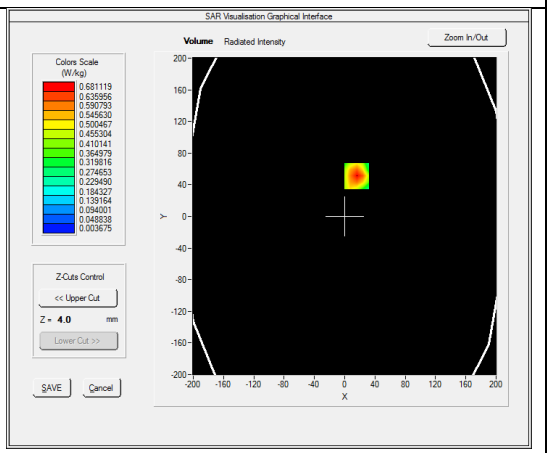
SATIMO Configuration:

- Probe: SSE5; Calibrated: 07/05/2016; Serial No.: SN 14/16 EP307
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: ELLI39 Phantom
- Measurement SW: OpenSAR V4_02_35

**Configuration/ LTE Band Ⅳ Mid-Body-back/Area Scan:** Measurement grid: dx=8mm, dy=8mm

**Configuration/ LTE Band Ⅳ Mid-Body-back/Zoom Scan:** Measurement grid: dx=8mm,dy=8mm, dz=5m;

| | |
|---|---|
| **Area Scan** | dx=8mm dy=8mm, h= 5.00 mm |
| **Zoom Scan** | 5x5x7,dx=8mm dy=8mm dz=5mm |
| **Phantom** | ELLI |
| **Device Position** | Body Back |
| **Band** | LTE Band Ⅳ |
| **Channels** | Middle |
| **Signal** | OFDM (Crest factor: 1.0) |

| **SURFACE SAR** | **VOLUME SAR** |
|---|---|
|  |  |

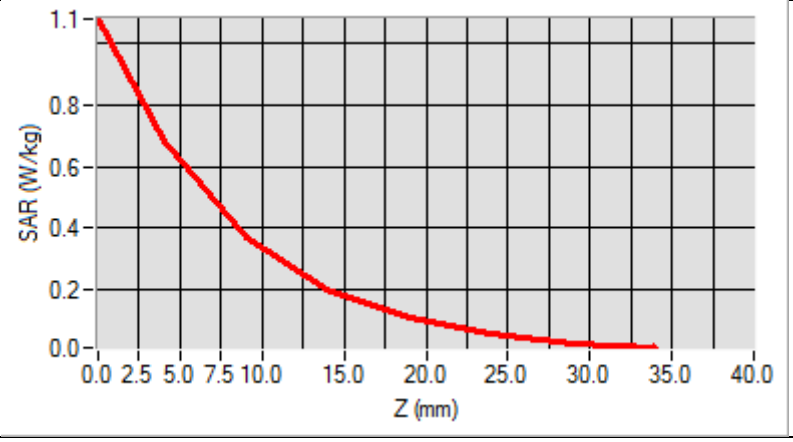


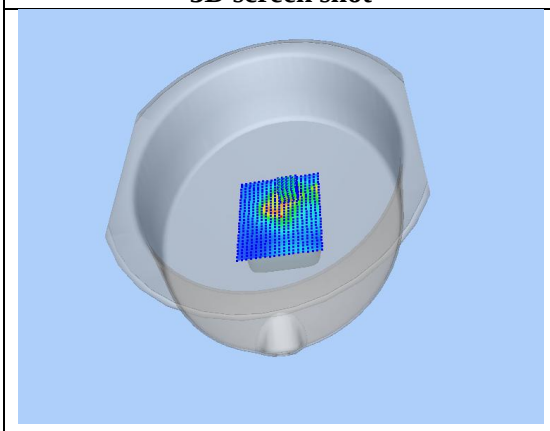
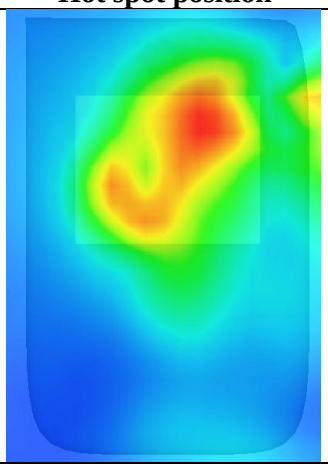
**Maximum location: X=16.00, Y=51.00**

**SAR Peak: 1.07 W/kg**

| | |
|---|---|
| **SAR 10g (W/Kg)** | 0.345074 |
| **SAR 1g (W/Kg)** | 0.645390 |

| Z (mm) | 0.00 | 4.00 | 9.00 | 14.00 | 19.00 | 24.00 | 29.00 |
|---|---|---|---|---|---|---|---|
| SAR (W/Kg) | 1.0754 | 0.6811 | 0.3709 | 0.2049 | 0.1102 | 0.0591 | 0.0313 |




| 3D screen shot | Hot spot position |
|---|---|
|  |  |

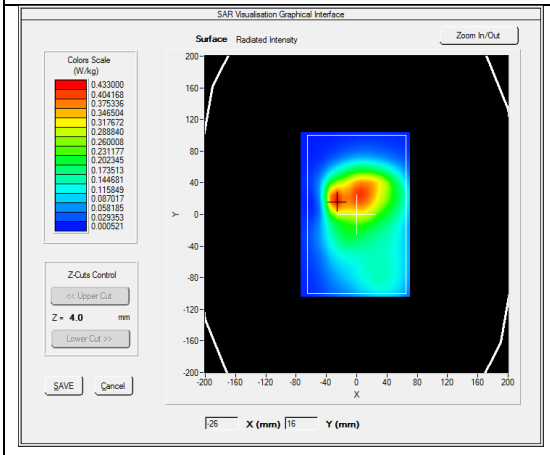
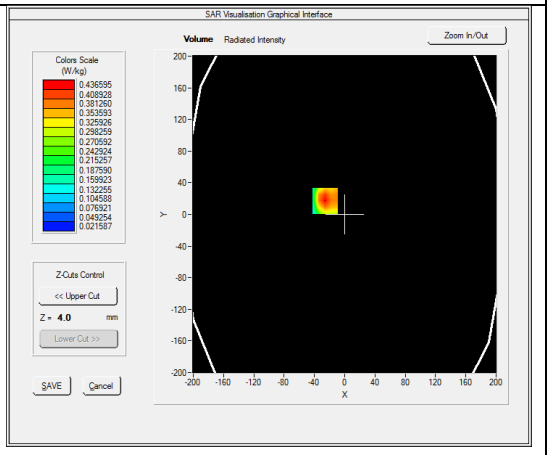
**Test Laboratory: AGC Lab** **Date: June 17,2017**
**LTE Band V Mid-Body-Back (1 RB#0)**
**DUT: rugged tablet; Type: T71V3**

Communication System: LTE; Communication System Band: LTE Band V; Duty Cycle:1:1; Conv.F=5.89
Frequency: 836.5 MHz; Medium parameters used: f = 835 MHz; σ=0.97mho/m; εr =54.91; ρ= 1000 kg/m³ ;
Phantom section: Flat Section
Ambient temperature (℃): 22.3, Liquid temperature (℃): 21.8

SATIMO Configuration:
- Probe: SSE5; Calibrated: 07/05/2016; Serial No.: SN 14/16 EP307
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: ELLI39 Phantom
- Measurement SW: OpenSAR V4_02_35

**Configuration/ LTE Band V Mid-Body-back/Area Scan:** Measurement grid: dx=8mm, dy=8mm
**Configuration/ LTE Band V Mid-Body-back/Zoom Scan:** Measurement grid: dx=8mm,dy=8mm, dz=5m;

| | |
|---|---|
| **Area Scan** | dx=8mm dy=8mm, h= 5.00 mm |
| **Zoom Scan** | 5x5x7,dx=8mm dy=8mm dz=5mm |
| **Phantom** | ELLI |
| **Device Position** | Body Back |
| **Band** | LTE Band V |
| **Channels** | Middle |
| **Signal** | OFDM (Crest factor: 1.0) |

| **SURFACE SAR** | **VOLUME SAR** |
|---|---|
|  |  |

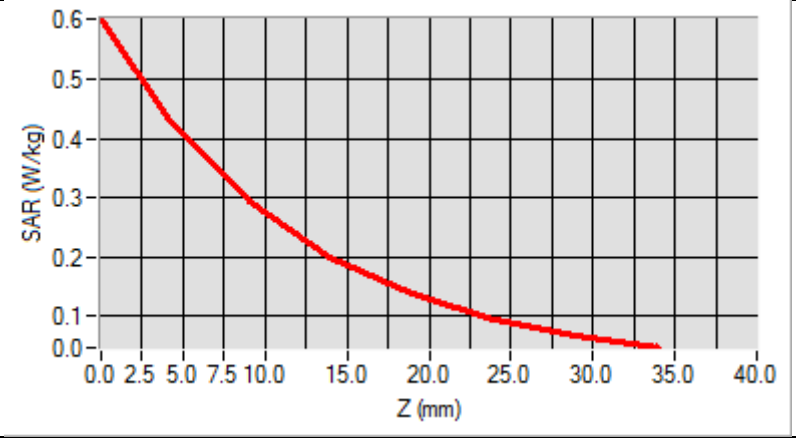


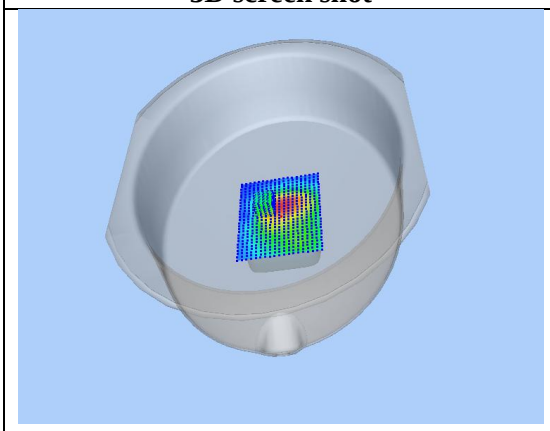
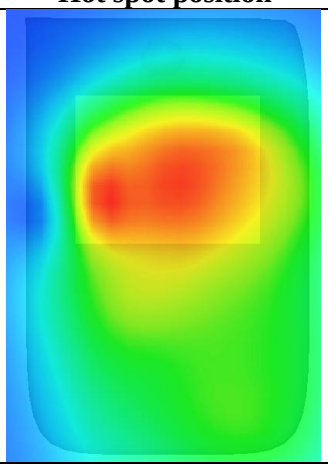


**Maximum location: X=-26.00, Y=17.00**
**SAR Peak: 0.64 W/kg**

| | |
|---|---|
| **SAR 10g (W/Kg)** | 0.266333 |
| **SAR 1g (W/Kg)** | 0.419745 |

| Z (mm) | 0.00 | 4.00 | 9.00 | 14.00 | 19.00 | 24.00 | 29.00 |
|---|---|---|---|---|---|---|---|
| SAR (W/Kg) | 0.6014 | 0.4366 | 0.2929 | 0.1989 | 0.1372 | 0.0958 | 0.0670 |




| 3D screen shot | Hot spot position |
|---|---|
|  |  |

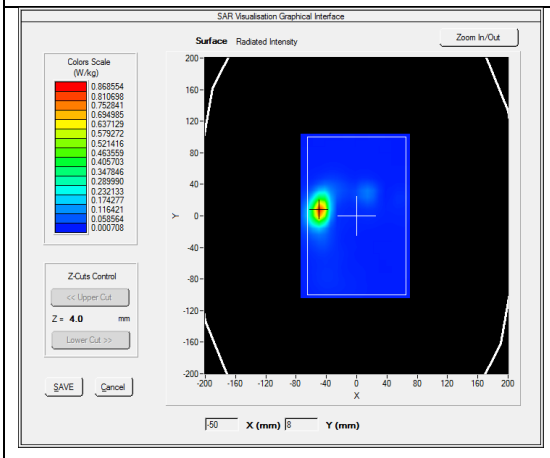
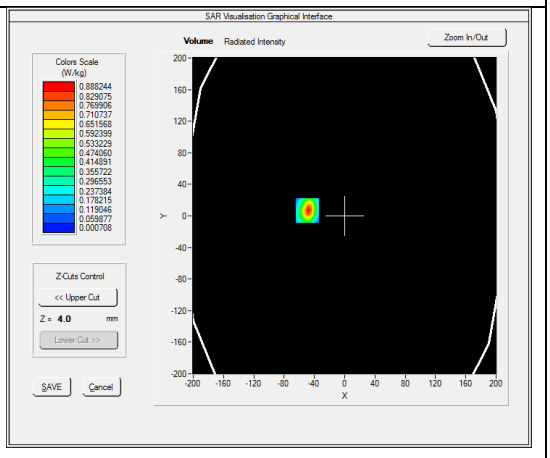
**Test Laboratory: AGC Lab** **Date: June. 21,2017**
**LTE Band VII Mid-Body-Back (1RB#0)**
**DUT: rugged tablet; Type: T71V3**

Communication System: LTE; Communication System Band: LTE Band 7; Duty Cycle:1:1; Conv.F=5.07
Frequency: 2535MHz; Medium parameters used: f =2600 MHz; σ= 2.10 mho/m; εr =53.69; ρ= 1000 kg/m³ ;
Phantom section: Flat Section
Ambient temperature (℃): 21.7, Liquid temperature (℃): 21.3

SATIMO Configuration:
- Probe: SSE5; Calibrated: 07/05/2016; Serial No.: SN 14/16 EP307
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: ELLI39 Phantom
- Measurement SW: OpenSAR V4_02_35

**Configuration/ LTE BAND VII Mid-Body-Back /Area Scan:** Measurement grid: dx=8mm, y=8mm
**Configuration/ LTE BAND VII Mid-Body-Back /Zoom Scan:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

| | |
|---|---|
| **Area Scan** | dx=8mm dy=8mm, h= 5.00 mm |
| **ZoomScan** | 5x5x7,dx=8mm dy=8mm dz=5mm |
| **Phantom** | ELLI |
| **Device Position** | Body Back |
| **Band** | LTE BAND VII |
| **Channels** | Middle |
| **Signal** | OFDM (Crest factor: 1.0) |

| **SURFACE SAR** | **VOLUME SAR** |
|---|---|
|  |  |

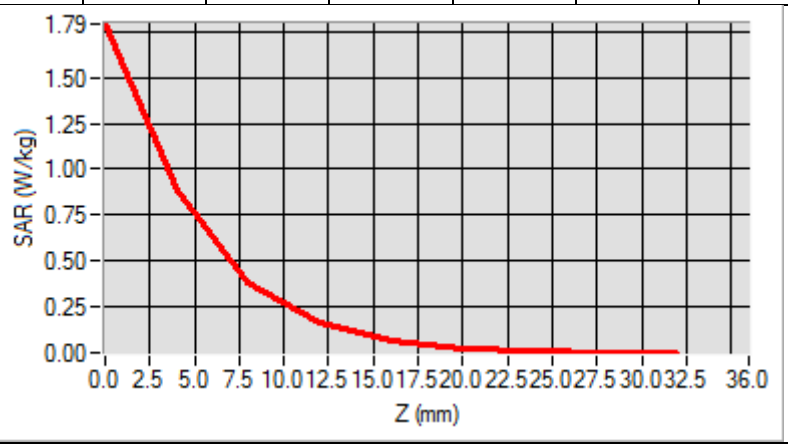


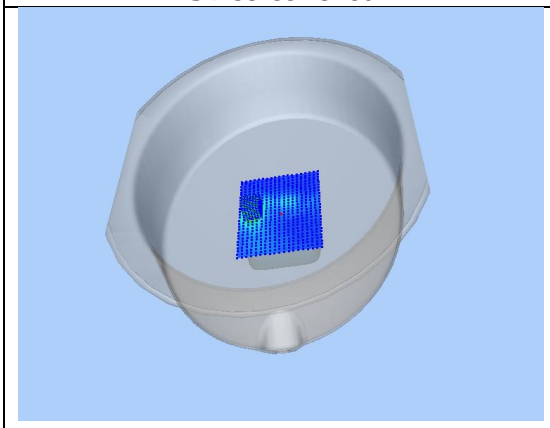
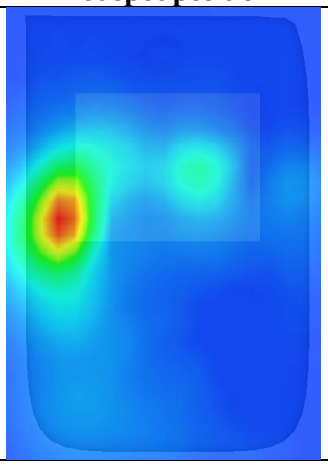


**Maximum location: X=-49.00, Y=7.00**
**SAR Peak: 1.78 W/kg**

| | |
|---|---|
| **SAR 10g (W/Kg)** | 0.314236 |
| **SAR 1g (W/Kg)** | 0.826175 |

| Z (mm) | 0.00 | 4.00 | 8.00 | 12.00 | 16.00 | 20.00 | 24.00 | 28.00 |
|---|---|---|---|---|---|---|---|---|
| SAR (W/Kg) | 1.7906 | 0.8882 | 0.3844 | 0.1612 | 0.0672 | 0.0279 | 0.0115 | 0.0048 |




| 3D screen shot | Hot spot position |
|---|---|
|  |  |

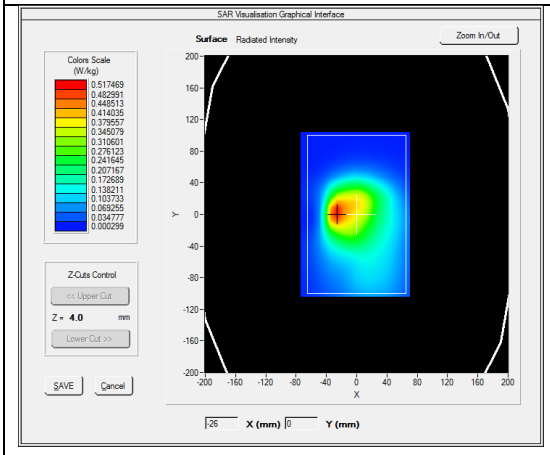
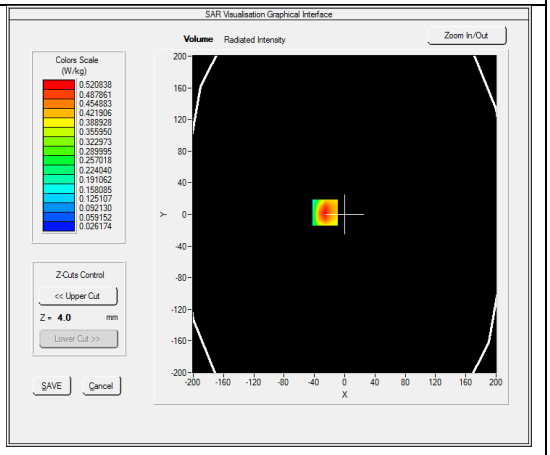
**Test Laboratory: AGC Lab** **Date: June 24,2017**
**LTE Band XVII Mid-Body-Back (1 RB#0)**
**DUT: rugged tablet; Type: T71V3**

Communication System: LTE; Communication System Band: LTE Band XVII; Duty Cycle:1:1; Conv.F=5.27;
Frequency: 710 MHz; Medium parameters used: f = 750 MHz; σ=0.96 mho/m; εr =54.61; ρ= 1000 kg/m³ ;
Phantom section: Flat Section
Ambient temperature (℃): 22.3, Liquid temperature (℃): 21.2

SATIMO Configuration:
- Probe: SSE5; Calibrated: 07/05/2016; Serial No.: SN 14/16 EP307
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: ELLI39 Phantom
- Measurement SW: OpenSAR V4_02_35

**Configuration/ LTE Band XVII Mid-Body-back/Area Scan:** Measurement grid: dx=8mm, dy=8mm
**Configuration/ LTE Band XVII Mid-Body-back/Zoom Scan:** Measurement grid: dx=8mm,dy=8mm, dz=5m;

| | |
|---|---|
| **Area Scan** | dx=8mm dy=8mm, h= 5.00 mm |
| **Zoom Scan** | 5x5x7,dx=8mm dy=8mm dz=5mm |
| **Phantom** | ELLI |
| **Device Position** | Body Back |
| **Band** | LTE Band XVII |
| **Channels** | Middle |
| **Signal** | OFDM (Crest factor: 1.0) |

| **SURFACE SAR** | **VOLUME SAR** |
|---|---|
|  |  |

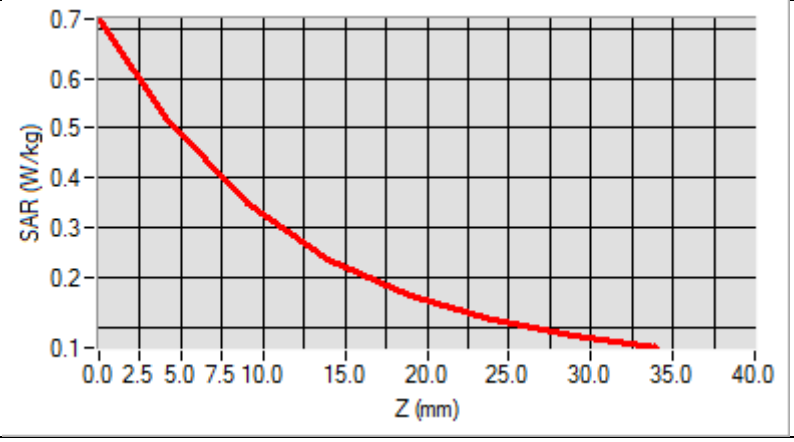


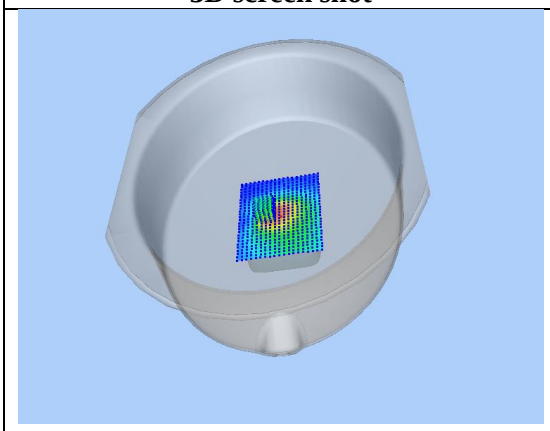
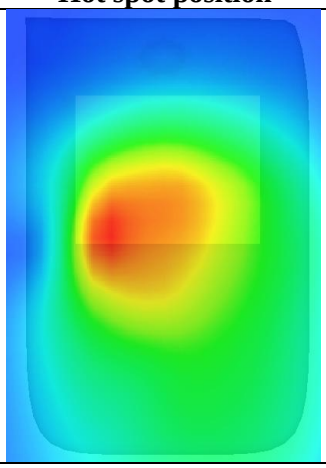


**Maximum location: X=-26.00, Y=2.00**
**SAR Peak: 0.75 W/kg**

| | |
|---|---|
| **SAR 10g (W/Kg)** | 0.325974 |
| **SAR 1g (W/Kg)** | 0.510593 |

| Z (mm) | 0.00 | 4.00 | 9.00 | 14.00 | 19.00 | 24.00 | 29.00 |
|---|---|---|---|---|---|---|---|
| SAR (W/Kg) | 0.7190 | 0.5208 | 0.3482 | 0.2366 | 0.1635 | 0.1154 | 0.0825 |




| 3D screen shot | Hot spot position |
|---|---|
|  |  |

## WIFI MODE

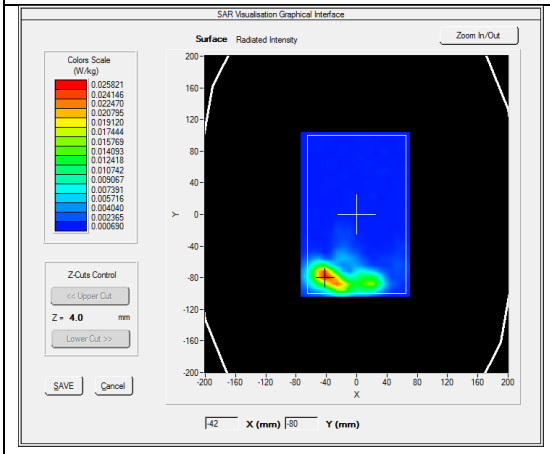
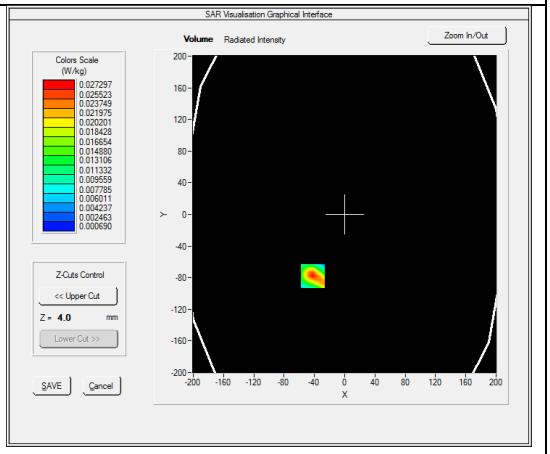
**Test Laboratory: AGC Lab** **Date: June 18,2017**
**802.11b Mid-Body-Worn- Back**
**DUT: rugged tablet; Type: T71V3**

Communication System: Wi-Fi; Communication System Band: 802.11b; Duty Cycle: 1:1; Conv.F=4.75;
Frequency: 2437 MHz; Medium parameters used: f = 2450 MHz; $\sigma$ =1.89mho/m; $\varepsilon r$ =54.03; $\rho$= 1000 kg/m$^3$ ;
Phantom section: Flat Section
Ambient temperature (℃):22.3, Liquid temperature (℃): 21.6

SATIMO Configuration:
- Probe: SSE5; Calibrated: 07/05/2016; Serial No.: SN 14/16 EP307
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: ELLI39 Phantom
- Measurement SW: OpenSAR V4_02_35

**Configuration/802.11b Mid- Body- Back /Area Scan:** Measurement grid: dx=8mm, dy=8mm
**Configuration/802.11b Mid- Body- Back /Zoom Scan:** Measurement grid: dx=5mm,dy=5mm, dz=5mm;

| | |
|---|---|
| **Area Scan** | dx=8mm dy=8mm, h= 5.00 mm |
| **ZoomScan** | 7x7x7,dx=5mm dy=5mm dz=5mm |
| **Phantom** | ELLI |
| **Device Position** | Body Back |
| **Band** | 2450MHz |
| **Channels** | Middle |
| **Signal** | Crest factor: 1.0 |

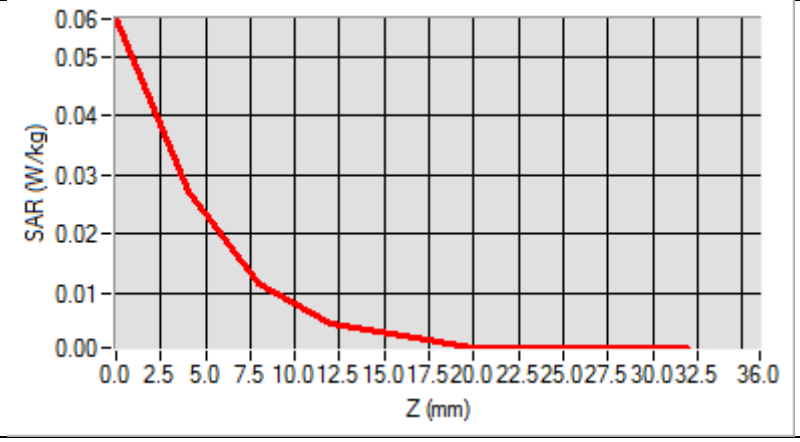
| SURFACE SAR | VOLUME SAR |
|---|---|
|  |  |

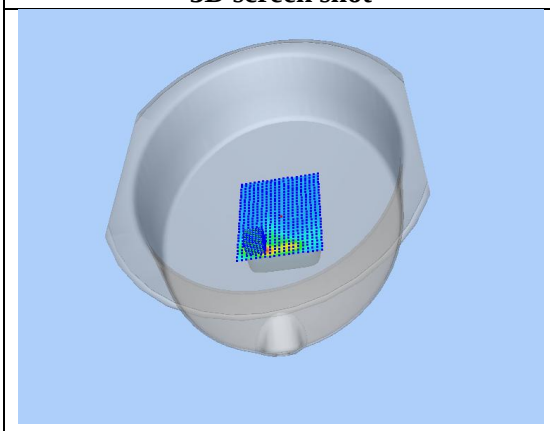
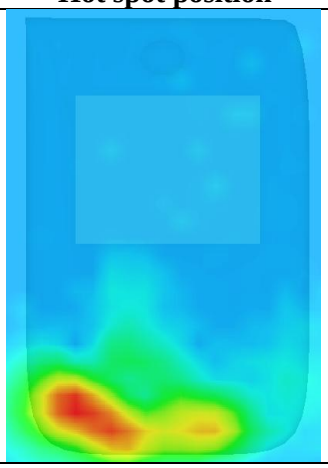


**Maximum location: X=-42.00, Y=-78.00**
**SAR Peak: 0.06 W/kg**

| | |
|---|---|
| **SAR 10g (W/Kg)** | 0.010639 |
| **SAR 1g (W/Kg)** | 0.025641 |

| Z (mm) | 0.00 | 4.00 | 8.00 | 12.00 | 16.00 | 20.00 | 24.00 | 28.00 |
|---|---|---|---|---|---|---|---|---|
| SAR (W/Kg) | 0.0564 | 0.0273 | 0.0114 | 0.0046 | 0.0028 | 0.0008 | 0.0007 | 0.0007 |




| 3D screen shot | Hot spot position |
|---|---|
|  |  |

**Repeated SAR**

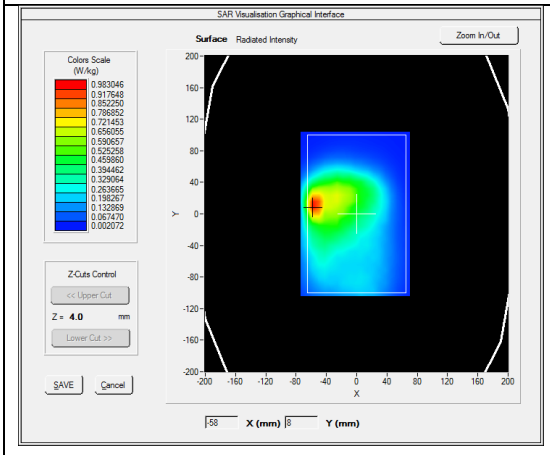
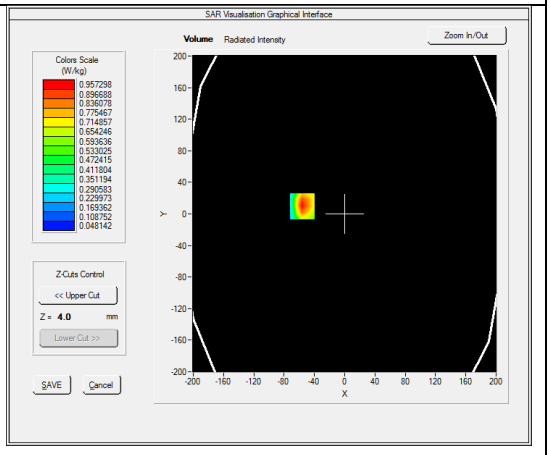
**Test Laboratory: AGC Lab** **Date: June 7,2017**
**GPRS 850 Mid- Body- Back (4up)**
**DUT: rugged tablet; Type: T71V3**

Communication System: GPRS-4 Slot; Communication System Band: GSM 850; Duty Cycle: 1:2.1; Conv.F=5.89; Frequency: 836.6 MHz; Medium parameters used: f = 835 MHz; $\sigma$= 0.97 mho/m; $\varepsilon r$ = 54.91; $\rho$= 1000 kg/m$^3$ ;
Phantom section: Flat Section
Ambient temperature (℃): 22.3, Liquid temperature (℃): 21.8

SATIMO Configuration:
- Probe: SSE5; Calibrated: 07/05/2016; Serial No.: SN 14/16 EP307
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: ELLI39 Phantom
- Measurement SW: OpenSAR V4_02_35

**Configuration/GPRS 850 Mid-Body-Back/Area Scan:** Measurement grid: dx=8mm, dy=8mm
**Configuration/GPRS 850 Mid-Body-Back/Zoom Scan:** Measurement grid: dx=8mm,dy=8mm, dz=5mm;

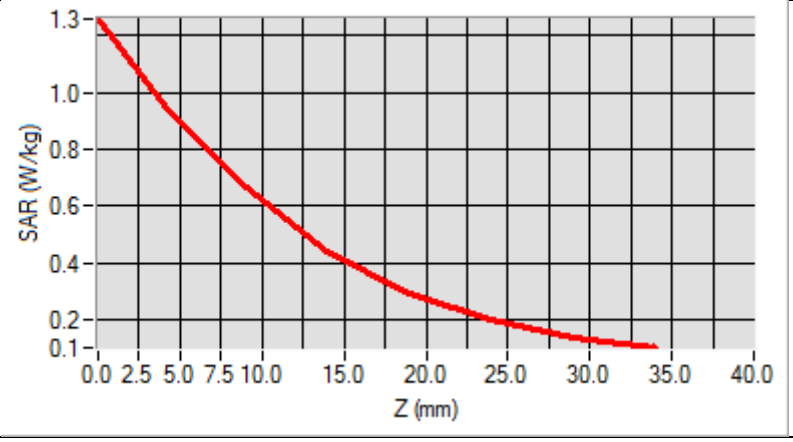
| | |
|---|---|
| **Area Scan** | dx=8mm dy=8mm, h= 5.00 mm |
| **Zoom Scan** | 5x5x7,dx=8mm dy=8mm dz=5mm,Complete |
| **Phantom** | ELLI |
| **Device Position** | Body Back |
| **Band** | GSM 850 |
| **Channels** | Middle |
| **Signal** | TDMA (Crest factor: 2.0) |

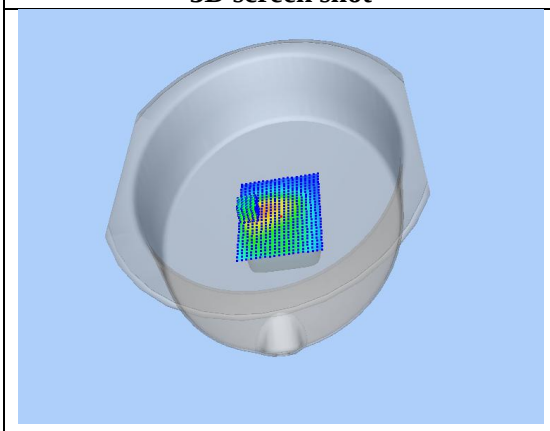
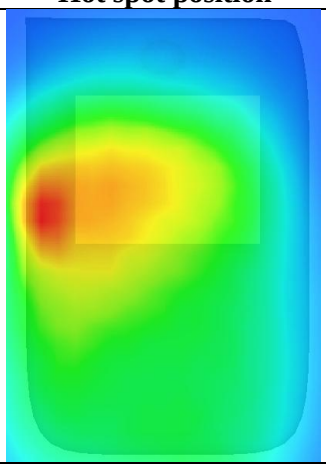
| **SURFACE SAR** | **VOLUME SAR** |
|---|---|
|  |  |

**Maximum location: X=-56.00, Y=10.00**
**SAR Peak: 1.26 W/kg**

| | |
|---|---|
| **SAR 10g (W/Kg)** | 0.566777 |
| **SAR 1g (W/Kg)** | 0.888794 |

| Z (mm) | 0.00 | 4.00 | 9.00 | 14.00 | 19.00 | 24.00 | 29.00 |
|---|---|---|---|---|---|---|---|
| SAR (W/Kg) | 1.2578 | 0.9573 | 0.6627 | 0.4441 | 0.2938 | 0.2030 | 0.1393 |




| 3D screen shot | Hot spot position |
|---|---|
|  |  |

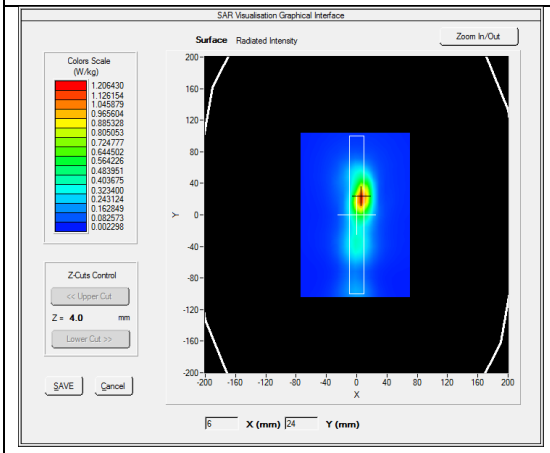
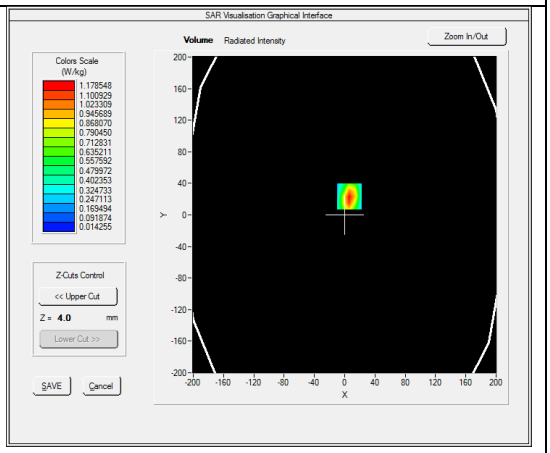
**Test Laboratory: AGC Lab** **Date: June 13,2017**
**GPRS 1900 Mid-Edge 2 (2up)**
**DUT: rugged tablet; Type: T71V3**

Communication System: GPRS-2Slot; Communication System Band: PCS 1900; Duty Cycle: 1:4.2; Conv.F=5.34; Frequency: 1880 MHz; Medium parameters used: f = 1900 MHz; σ= 1.50 mho/m; εr =53.59; ρ= 1000 kg/m³ ;
Phantom section: Flat Section
Ambient temperature (℃): 22.1, Liquid temperature (℃): 21.6

SATIMO Configuration:
- Probe: SSE5; Calibrated: 07/05/2016; Serial No.: SN 14/16 EP307
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: ELLI39 Phantom
- Measurement SW: OpenSAR V4_02_35

**Configuration/GPRS1900 Mid-Edge 2/Area Scan:** Measurement grid: dx=8mm, dy=8mm
**Configuration/GPRS1900 Mid-Edge 2/Zoom Scan:** Measurement grid: dx=8mm,dy=8mm, dz=5mm;

| | |
|---|---|
| **Area Scan** | dx=8mm dy=8mm, h= 5.00 mm |
| **Zoom Scan** | 5x5x7,dx=8mm dy=8mm dz=5mm,Complete |
| **Phantom** | ELLI |
| **Device Position** | Edge 2 |
| **Band** | PCS 1900 |
| **Channels** | Middle |
| **Signal** | TDMA (Crest factor: 4.0) |

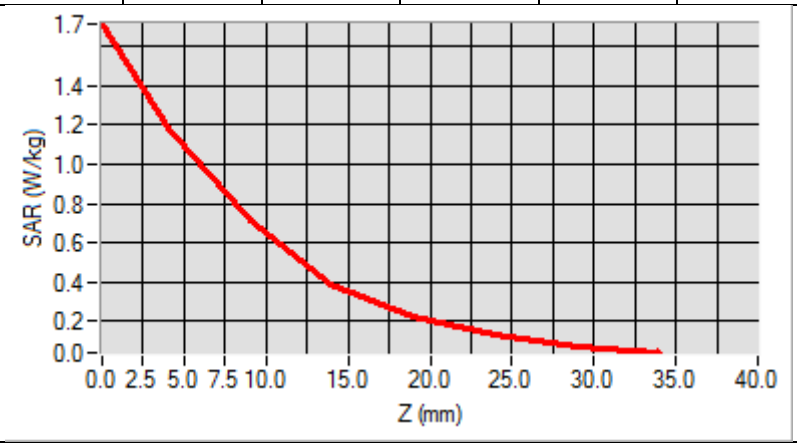
| **SURFACE SAR** | **VOLUME SAR** |
|---|---|
|  |  |

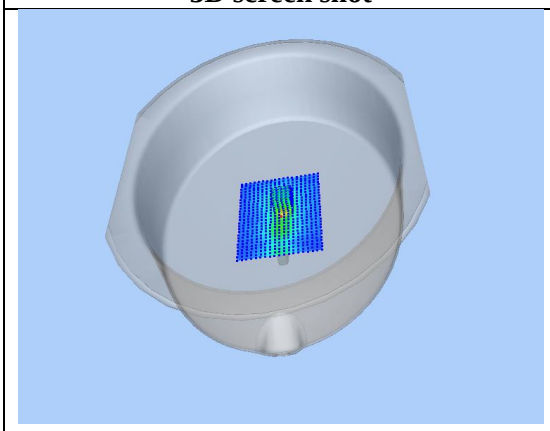
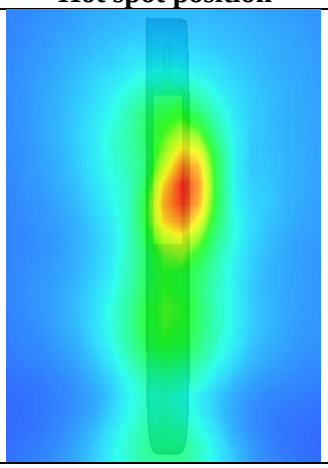


**Maximum location: X=6.00, Y=23.00**
**SAR Peak: 1.72 W/kg**

| | |
|---|---|
| **SAR 10g (W/Kg)** | 0.566233 |
| **SAR 1g (W/Kg)** | 1.085217 |

| Z (mm) | 0.00 | 4.00 | 9.00 | 14.00 | 19.00 | 24.00 | 29.00 |
|---|---|---|---|---|---|---|---|
| SAR (W/Kg) | 1.7128 | 1.1785 | 0.7154 | 0.3887 | 0.2272 | 0.1309 | 0.0714 |




| 3D screen shot | Hot spot position |
|---|---|
|  |  |

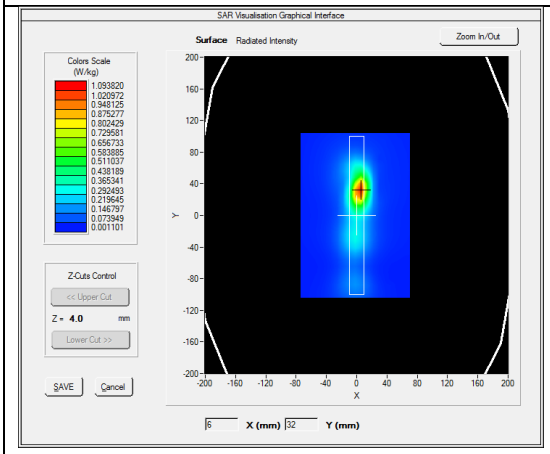
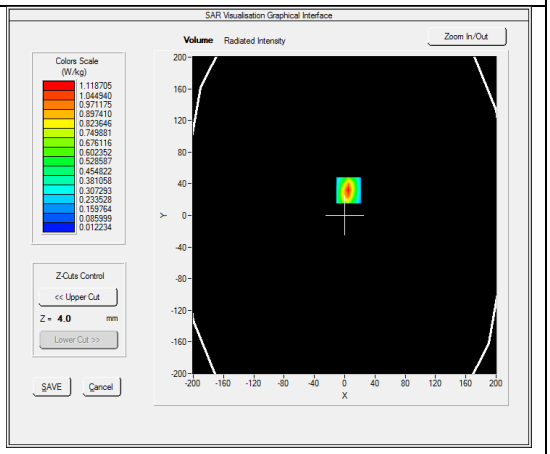
**Test Laboratory: AGC Lab** **Date: June 13,2017**
**WCDMA Band Ⅱ High-Edge 2(RMC)**
**DUT: rugged tablet; Type: T71V3**

Communication System: UMTS; Communication System Band: Band Ⅱ UTRA/FDD ;Duty Cycle:1:1; Conv.F=5.34;
Frequency: 1907.6 MHz; Medium parameters used: f = 1900 MHz; σ=1.53 mho/m; εr =52.61; ρ= 1000 kg/m³ ;
Phantom section: Flat Section
Ambient temperature (℃): 22.1, Liquid temperature (℃): 21.6

SATIMO Configuration:
- Probe: SSE5; Calibrated: 07/05/2016; Serial No.: SN 14/16 EP307
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: ELLI39 Phantom
- Measurement SW: OpenSAR V4_02_35

**Configuration/ WCDMA band Ⅱ High-Body-back/Area Scan:** Measurement grid: dx=8mm, dy=8mm
**Configuration/ WCDMA band Ⅱ High-Body-back/Zoom Scan:** Measurement grid: dx=8mm,dy=8mm, dz=5m;

| | |
|---|---|
| **Area Scan** | dx=8mm dy=8mm, h= 5.00 mm |
| **ZoomScan** | 5x5x7,dx=8mm dy=8mm dz=5mm,Complete |
| **Phantom** | ELLI |
| **Device Position** | Body Back |
| **Band** | WCDMA band Ⅱ |
| **Channels** | High |
| **Signal** | CDMA (Crest factor: 1.0) |

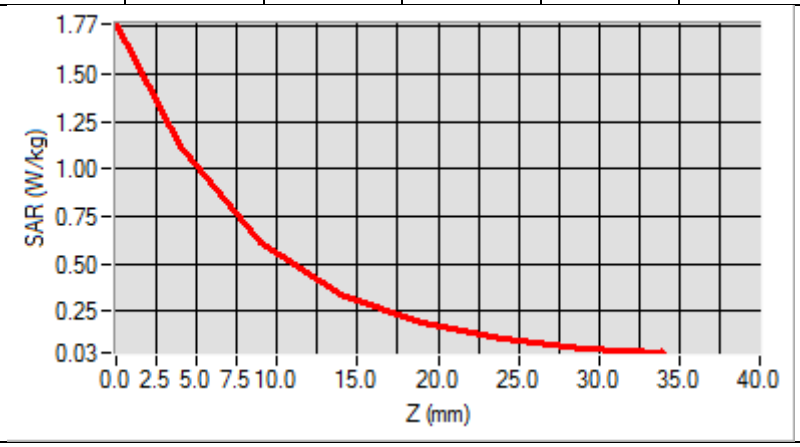
| **SURFACE SAR** | **VOLUME SAR** |
|---|---|
|  |  |

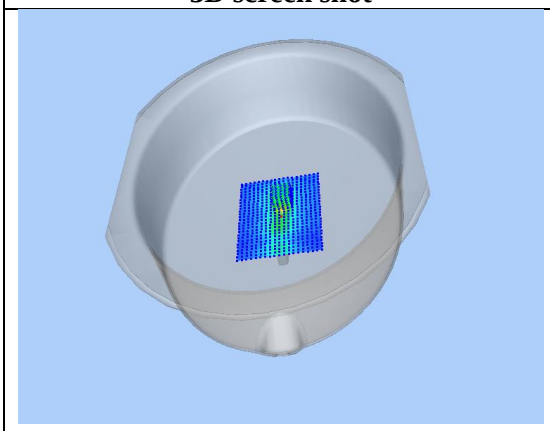
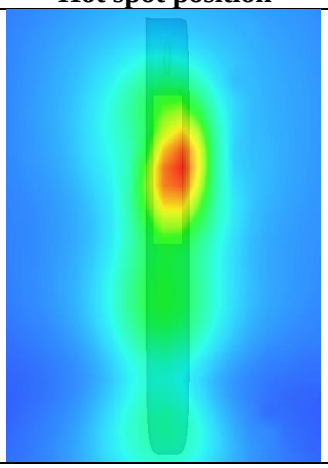


**Maximum location: X=5.00, Y=32.00**
**SAR Peak: 1.76 W/kg**

| | |
|---|---|
| **SAR 10g (W/Kg)** | 0.501762 |
| **SAR 1g (W/Kg)** | 1.026620 |

| Z (mm) | 0.00 | 4.00 | 9.00 | 14.00 | 19.00 | 24.00 | 29.00 |
|---|---|---|---|---|---|---|---|
| SAR (W/Kg) | 1.7652 | 1.1187 | 0.6117 | 0.3406 | 0.1867 | 0.1050 | 0.0585 |




| 3D screen shot | Hot spot position |
|---|---|
|  |  |

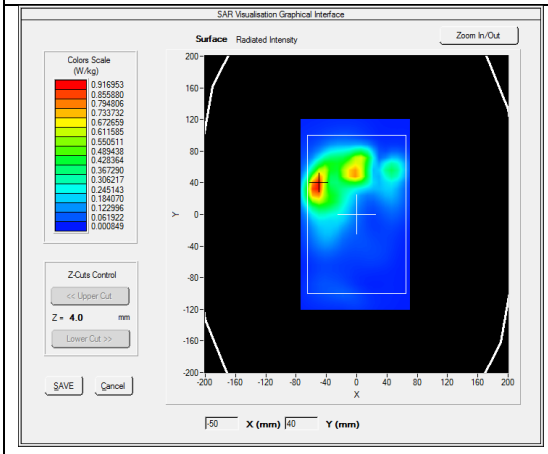
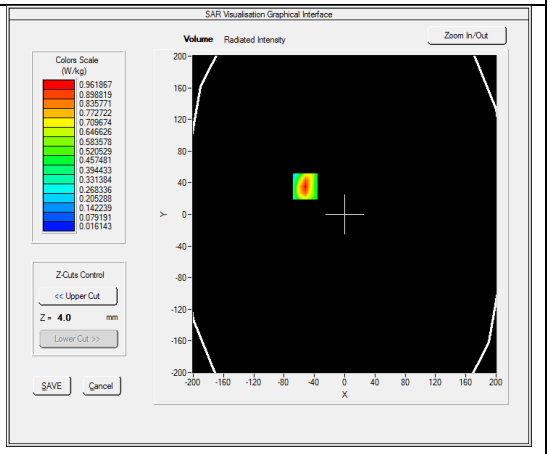
**Test Laboratory: AGC Lab** **Date: June 13,2017**
**LTE Band II Mid-Body-Back (1 RB#0)**
**DUT: rugged tablet; Type: T71V3**

Communication System: LTE; Communication System Band: LTE Band II; Duty Cycle:1:1; Conv.F=5.34; Frequency:1880MHz; Medium parameters used: f = 1900 MHz; σ= 1.50 mho/m; εr =53.59; ρ= 1000 kg/m³ ; Phantom section: Flat Section
Ambient temperature (℃): 22.1, Liquid temperature (℃): 21.6

SATIMO Configuration:
- Probe: SSE5; Calibrated: 07/05/2016; Serial No.: SN 14/16 EP307
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: ELLI39 Phantom
- Measurement SW: OpenSAR V4_02_35

**Configuration/ LTE Band II Mid-Body-back/Area Scan:** Measurement grid: dx=8mm, dy=8mm
**Configuration/ LTE Band II Mid-Body-back/Zoom Scan:** Measurement grid: dx=8mm,dy=8mm, dz=5m;

| | |
|---|---|
| **Area Scan** | dx=8mm dy=8mm, h= 5.00 mm |
| **Zoom Scan** | 5x5x7,dx=8mm dy=8mm dz=5mm |
| **Phantom** | ELLI |
| **Device Position** | Body Back |
| **Band** | LTE Band II |
| **Channels** | Middle |
| **Signal** | OFDM (Crest factor: 1.0) |

| SURFACE SAR | VOLUME SAR |
|---|---|
|  |  |

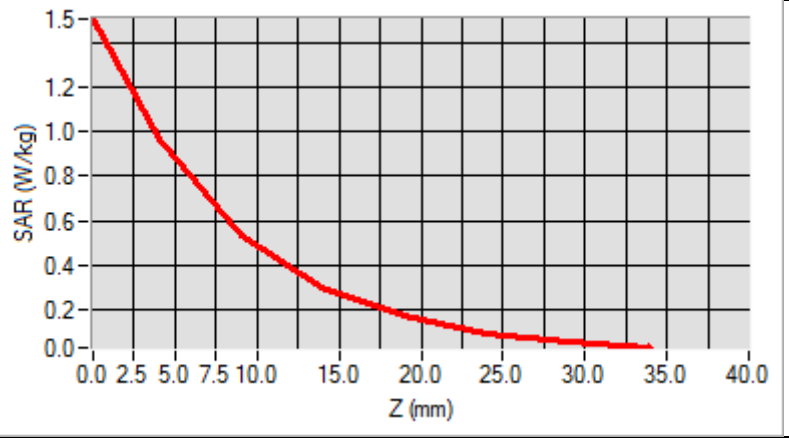


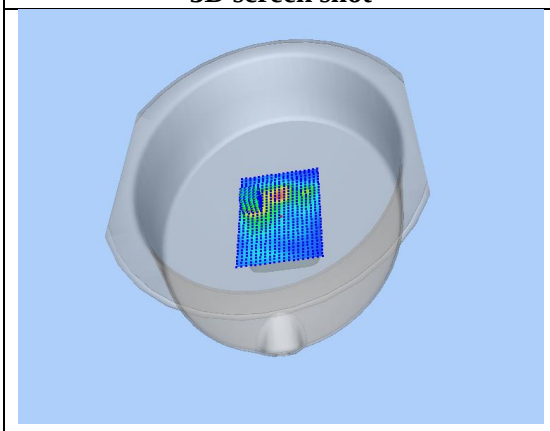
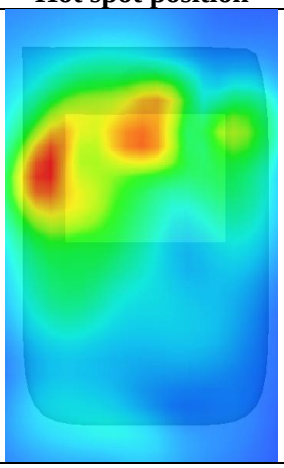


**Maximum location: X=-52.00, Y=35.00**
**SAR Peak: 1.50 W/kg**

| | |
|---|---|
| **SAR 10g (W/Kg)** | 0.464716 |
| **SAR 1g (W/Kg)** | 0.898346 |

| Z (mm) | 0.00 | 4.00 | 9.00 | 14.00 | 19.00 | 24.00 | 29.00 |
|---|---|---|---|---|---|---|---|
| SAR (W/Kg) | 1.5055 | 0.9619 | 0.5342 | 0.3040 | 0.1708 | 0.0962 | 0.0541 |




| 3D screen shot | Hot spot position |
|---|---|
|  |  |

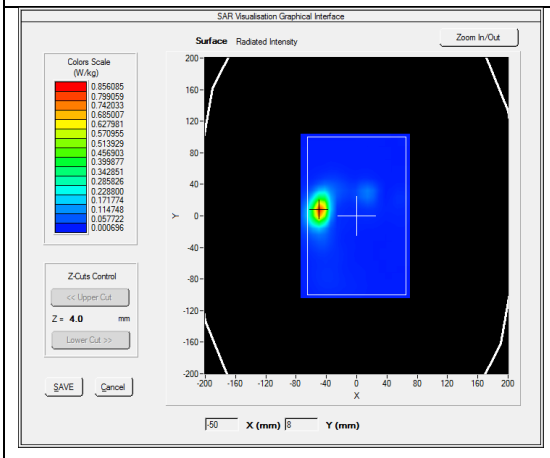
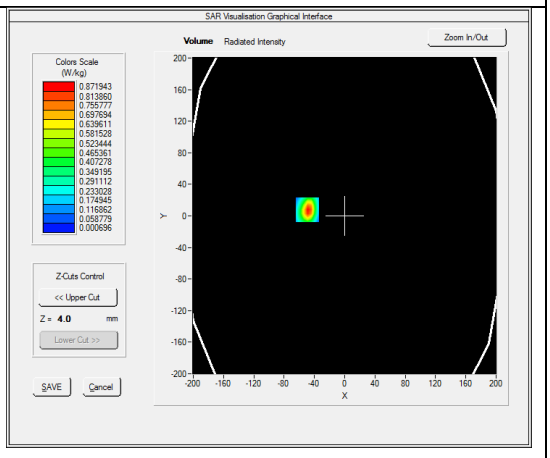
**Test Laboratory: AGC Lab** **Date: June 21,2017**
**LTE Band VII Mid-Body-Back (1RB#0)**
**DUT: rugged tablet; Type: T71V3**

Communication System: LTE; Communication System Band: LTE Band 7; Duty Cycle:1:1; Conv.F=5.07
Frequency: 2535MHz; Medium parameters used: f =2600 MHz; σ= 2.10 mho/m; εr =53.69; ρ= 1000 kg/m³ ;
Phantom section: Flat Section
Ambient temperature (℃): 21.7, Liquid temperature (℃): 21.3

SATIMO Configuration:
- Probe: SSE5; Calibrated: 07/05/2016; Serial No.: SN 14/16 EP307
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: ELLI39 Phantom
- Measurement SW: OpenSAR V4_02_35

**Configuration/ LTE BAND VII Mid-Body-Back /Area Scan:** Measurement grid: dx=8mm, y=8mm
**Configuration/ LTE BAND VII Mid-Body-Back /Zoom Scan:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

| | |
|---|---|
| **Area Scan** | dx=8mm dy=8mm, h= 5.00 mm |
| **ZoomScan** | 5x5x7,dx=8mm dy=8mm dz=5mm |
| **Phantom** | ELLI |
| **Device Position** | Body Back |
| **Band** | LTE BAND VII |
| **Channels** | Middle |
| **Signal** | OFDM (Crest factor: 1.0) |

| SURFACE SAR | VOLUME SAR |
|---|---|
|  |  |

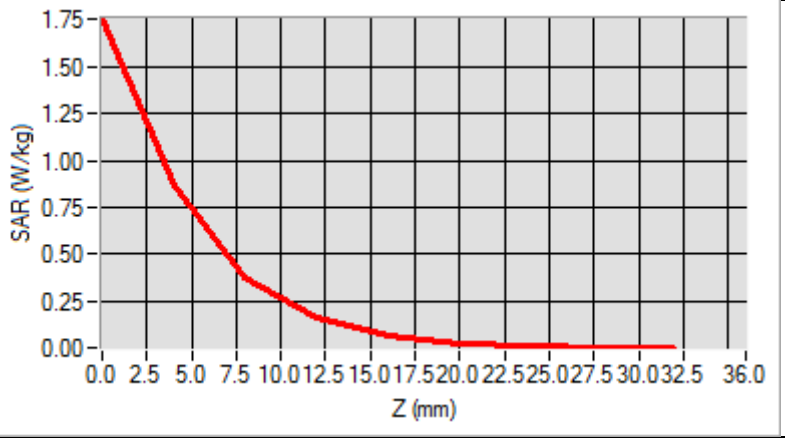


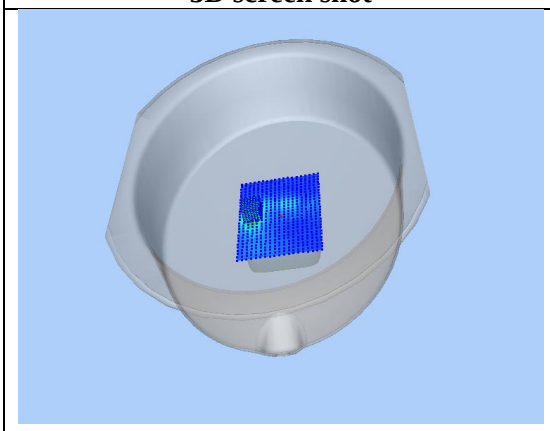
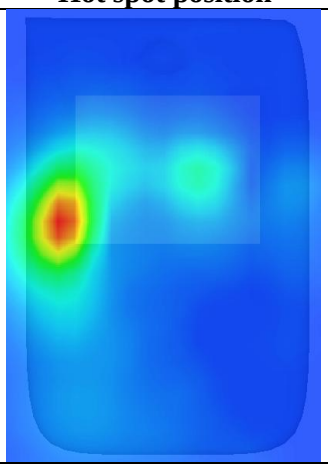


**Maximum location: X=-49.00, Y=8.00**
**SAR Peak: 1.75 W/kg**

| | |
|---|---|
| **SAR 10g (W/Kg)** | 0.309142 |
| **SAR 1g (W/Kg)** | 0.813008 |

| Z (mm) | 0.00 | 4.00 | 8.00 | 12.00 | 16.00 | 20.00 | 24.00 | 28.00 |
|---|---|---|---|---|---|---|---|---|
| SAR (W/Kg) | 1.7540 | 0.8719 | 0.3798 | 0.1584 | 0.0670 | 0.0279 | 0.0118 | 0.0045 |




| 3D screen shot | Hot spot position |
|---|---|
|  |  |