# SAR Test Report

**Project Number:** 3775885
**Report Number:** 3775885EMC06 **Revision Level:** 0
**Client:** Hi-P (SINGAPORE) TECHNOLOGY PTE LTD
**FCC ID:** 2ACUZH375I
**Equipment Under Test:** iDEN Cellular Phone with Bluetooth, Mototalk
**Model Number:** H375i

**Applicable Standards:** IEEE STD 1528: 2013
EN 62209-2:2010

**Report issued on:** 6 July 2015
**Test Result:** Compliant

| Transmit Band | Dispatch / Push to talk SAR 1g w/kg |
|---|---|
| 902.525 | 0.6345 |
| 915.025 | 0.659 |
| 927.475 | 0.577 |

Tested by: Fabian Nica, Senior Engineering Technician

Reviewed by: David Schramm, EMC/RF/SAR/HAC Manager

Remarks: This report details the results of the testing carried out on one sample, the results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

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# 1 GENERAL INFORMATION

## 1.1 CLIENT INFORMATION

Name: Hi-P (SINGAPORE) TECHNOLOGY PTE LTD
Address: 12 ANG MO KIO STREET 64 #03-02, UE BIZHUB CENTRAL (BLK A)
City, State, Zip, Country: Singapore 569088

## 1.2 TEST LABORATORY

Name: SGS North America, Inc.
Address: 620 Old Peachtree Road NW, Suite 100
City, State, Zip, Country: Suwanee, GA 30024, USA

Accrediting Body: A2LA
Type of lab: Testing Laboratory
Certificate Number: 3212.01

## 1.3 GENERAL INFORMATION OF EUT

Serial Number: 364KRJ0293
Antenna: Integral
Rated Voltage: 3.7 VDC 1830mAh Rechargeable Battery

Sample Received Date: 08 June 2015
Date of testing: 6 July 2015

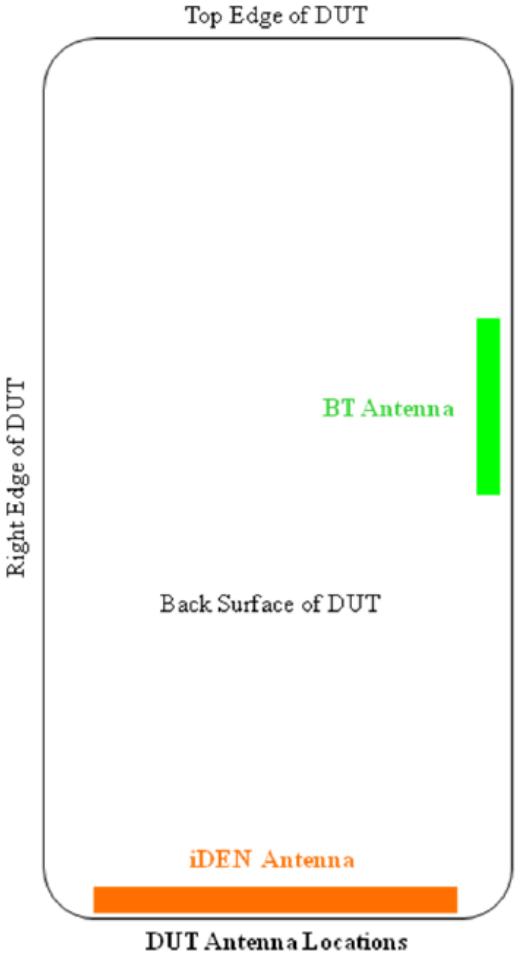
## 1.4 EQUIPMENT UNDER TEST

| | |
|---|---|
| EUT | MotoTalk Cellular Phone with Bluetooth, Mototalk |
| Normal operation: | Held to face for Mototalk mode, Push-to-talk, utilizing 50% duty cycle factor. |
| Body Worn Accessory | None provided |
| Device category: | Portable |
| Exposure category: | General Population/Uncontrolled Exposure |
| Positions Tested: | Position 1 Front of EUT towards phantom with 25mm spacing for dispatch / push to talk |

## 1.5 ANTENNA LOCATIONS

Mototalk mode uses the iDEN antenna.

| iDEN (800/900MHz) Antenna | | | Bluetooth Antenna | | |
|---|---|---|---|---|---|
| Type | Internal | | Type | Internal | |
| Location | Bottom of Transceiver | | Location | Right-Side Read of Transceiver | |
| Dimensions | Width | 13.56mm | Dimensions | Width | 5.5mm |
| | Length | 40.49mm | | Length | 21.9mm |



DUT Antenna Locations

## 1.6 DUT ACCESSORIES

None provided

## 1.7 SIMULTANEOUS TRANSMISSIONS

| | iDEN 800 | iDEN 900 | Bluetooth | Mototalk[1] |
|---|---|---|---|---|
| iDEN 800 | -- | No | Yes | No |
| iDEN 900 | No | -- | Yes | No |
| Bluetooth | Yes | Yes | -- | No |
| Mototalk[1] | No | No | No | -- |

Note 1: This mode is covered in this report.

## 1.8 SAR EXCLUSION / ESTIMATED SAR

The following shows that the Bluetooth radio in the device is excluded from SAR and provides the estimated SAR.

Stand Along SAR Test Exclusion
According to KDB447498D01 General RF Exposure Guidance v05r02

| Frequency, GHz | Min Separation distance to Body mm | Min Separation distance to Extremity mm | Max Power + Tolerance dBm | Antenna gain, dBi | Calculated Max Power, mW EIPR | 1g head / body | 10g Extremity |
|---|---|---|---|---|---|---|---|
| 2.450 | 25.0 | 25.0 | 10.50 | 0.00 | 11 | 0.69 | 0.69 |

SAR DOES NOT apply for head / body worn operating conditions
SAR DOES NOT apply for extremety operating conditions

1) The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at *test separation distances* ≤ 50 mm are determined by:
[(*max. power of channel, including tune-up tolerance, mW*)/(*min. test separation distance, mm*)] · [$\sqrt{f_{(GHz)}}$] ≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR,[25] where
- $f_{(GHz)}$ is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation[26]
- The result is rounded to one decimal place for comparison
- 3.0 and 7.5 are referred to as the numeric thresholds in the step 2 below

Estimated SAR
According to KDB447498D01 General RF Exposure Guidance v05r02

| | |
|---|---|
| Max. power of channel, including tune-up tolerance, mW: | 11 |
| Min. test separation distance, mm: | 25 |
| Square Root of F(GHz): | 1.5652 |
| **Estmated SAR for Body 1-g (W/kg):** | **0.09** |

| | |
|---|---|
| Max. power of channel, including tune-up tolerance, mW: | 11 |
| Min. test separation distance, mm: | 25 |
| Square Root of F(GHz): | 1.5652 |
| **Estmated SAR for Extremity 10g (W/kg):** | **0.04** |

2) When the standalone SAR test exclusion of section 4.3.1 is applied to an antenna that transmits simultaneously with other antennas, the standalone SAR must be estimated according to the following to determine simultaneous transmission SAR test exclusion:[30]
- (*max. power of channel, including tune-up tolerance, mW*)/(*min. test separation distance, mm*))·[$\sqrt{f_{(GHz)}}/x$] W/kg for *test separation distances* ≤ 50 mm;
  where $x$ = 7.5 for 1-g SAR, and $x$ = 18.75 for 10-g SAR.
- 0.4 W/kg for 1-g SAR and 1.0 W/kg for 10-g SAR, when the *test separation distances* is > 50 mm.[31]

This SAR estimation formula has been considered, in conjunction with the *SAR Test Exclusion Thresholds*, to result in substantially conservative SAR values of ≤ 0.4 W/kg. When SAR is estimated, the peak SAR location is assumed to be at the feed-point or geometric center of the antenna, whichever provides a smaller antenna separation distance, and must be clearly identified in test reports. The estimated SAR is only used to determine simultaneous transmission SAR test exclusion; it should not be reported as the standalone SAR. When SAR is estimated, it must be applied to determine the sum of 1-g SAR test exclusion. When SAR to peak location separation ratio test exclusion is applied, the highest reported SAR for simultaneous transmission can be an estimated standalone SAR if the estimated SAR is the highest among the simultaneously transmitting antennas (see KDB 690783). For conditions where the estimated SAR is overly conservative for certain conditions, the test lab may choose to perform standalone SAR measurements and use the measured SAR to determine simultaneous transmission SAR test exclusion. The estimated SAR values at selected frequencies, distances and power levels are illustrated in Appendix D.

# 2 TEST METHODOLOGY

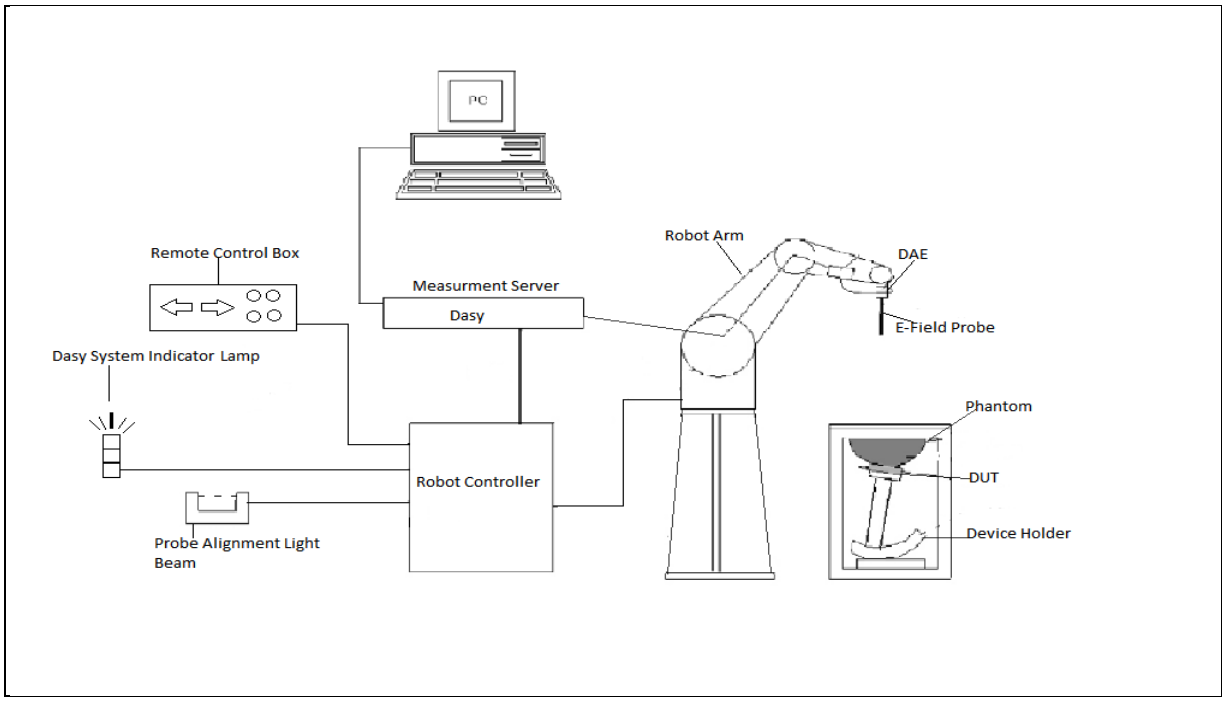
Testing was performed in accordance with the IEEE STD 1528: 2013 as well as the following:

- IEC 62209-2
- FCC KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz v01r03
- FCC KDB 865664 D02 RF Exposure Reporting v01r01
- FCC KDB 447498 D01 General RF Exposure Guidance v05r02
- FCC KDB 648474 D04 Handset SAR v01r02
- FCC KDB 941225 D01 3G SAR Procedures v03

# 3 TEST EQUIPMENT

| Equipment | Model | Manufacturer | Serial Number | Cal Date | Cal Int |
|---|---|---|---|---|---|
| Dasy5 Controller | SP1D | Stäubli | S-1188 | NA | |
| PC | Compaq 8000 Elite | HP | CZC1231RWS | NA | |
| Probe Alignment Beam | LB5/80 | Speag | SEUKS030AA | NA | |
| Phantom | Twin Sam | Speag | 1665 | NA | |
| Oval Phantom | ELI5 | Speag | 1146 | NA | |
| Device Holder | SD 00 HO1 HA | Speag | NA | NA | |
| Data Acquisition Electronics | DAE4 | Speag | 1287 | 1/20/15 | |
| Dielectric Probe Kit | Dak-3.5 | Speag | 1109 | 1/21/15 | 1yr |
| Head Simulating Liquid | HSL900 | SGS | NSN | Prior to testing | |
| E-Field Probe | EX3DV4 | Speag | 3812 | 1/26/15 | 1yr |
| System Validation Dipole | D835V2 | Speag | 4d123 | 1/23/2015 | 1yr |
| RF Cable | SF106 | Huber & Suhner | 247436 004 | 8/4/14 | 1yr |
| RF Cable | SF106 | Huber & Suhner | 24743002 | 8/4/14 | 1yr |
| Network Analyzer | E5062A | Agilent | MY44102097 | 9/26/14 | 1yr |
| Power Meter | E4419B | Agilent | G839511059 | 8/8/14 | 1yr |
| Power Sensor | E9300B | Agilent | 2702A61269 | 8/8/14 | 1yr |
| Power Sensor | E9300B | Agilent | MY41094585 | 8/8/14 | 1yr |
| Dual Directional Coupler | 778D | Hewlett Packard | 2604A13577 | 8/6/14 | 3yr |
| Signal Generator | SMB100A | Rohde & Schwarz | 104999 | 6/18/13 | 3yr |
| Thermometer | 87V | Fluke | 17130387 | 8/6/2014 | 1yr |

## 3.1 TEST SYSTEM BLOCK DIAGRAM




The Dasy5 SAR test system consists of:

- 1 Stäubli Robot and system controller cabinet
- 1 Electro Optical Converter mounted on robots arm
- Robot stand
- Robot remote controller
- Light beam for E-field probe alignment
- DASY5 measurement server
- SAM Twin Phantom
- Hand-Held/ Laptop device holder
- HP PC with DASY5 software
- Data Acquisition Electronics(DAE)
- System validation dipole kit
- Head/Body simulating liquid
- E-field probe
- Warning lamps

| Specifications listed bellow correspond with defined parameters in IEEE 1528 and IEC 62209-1 | |
|---|---|
| | |
| **Twin SAM Phantom:** | Specific Anthropomorphic Mannequin |
| Material: | Vinylester, fiber glass reinforced |
| Shell Thickness: | 2 ± 0.2mm (6 ± 0.2mm at ear point) |
| Dimensions ( wooden support incl): | 1000mm length, 500mm width, adjustable feet for height |
| Filling Volume: | approx. 25L |
| | |
| **ELI Phantom** | |
| Material: | Vinylester, fiber glass reinforced |
| Shell Thickness: | 2.0 ± 0.2mm (bottom plate) |
| Dimensions: | Major axis: 600, Minor axis: 400 |
| Filling Volume: | approx. 30L |
| | |
| **EX3DV4 Probe:** | Isotropic E-Field Probe |
| Directivity: | ±0.3dB in TSL( rotation around probe axis), ±0.5 dB in TSL (roation normal to probe axis) |
| Dimensions: | Overall length: 337mm (tip 20mm), Tip diameter: 2.5mm (Body: 12mm), Typical distance from probe tip to dipole centers: 1mm |
| | |
| **Mounting Device for Hand-Held Transmitters:** | Enables mounting and enables rotation of the mounted transmitter to specified spherical coordinates |
| | Transmitter devices can be accurately positioned according to IEC 62209-1, IEEE 1528, FCC or other specifications |
| Material: | Polyoxymethylene |

# 4 LIQUID PARAMETERS CHECK

The tissue dielectric parameters shall be measured at the beginning of the test or within 24 hours of the first SAR test. All dielectric parameters should be within the tolerance values shown in Table 3-1. For frequencies in 300 MHz to just under 6 GHz, the measured conductivity and relative permittivity should be within ±5% of the target values in table 1. The measured permittivity tolerances can be relaxed to no more than the ±10%. All efforts should be made to obtain the target values as closely as possible.

The head tissue dielectric parameters recommended by the IEEE1528-2003 Standard have been incorporated in Table 3-1.

**Table 3-1**

**Target dielectric properties of tissue equivalent material in the 300-2450 MHz frequency range**

| Frequency (MHz) | Head | | Body | |
|---|---|---|---|---|
| | Relative permittivity ($\varepsilon_r$) | Conductivity(σ) (S/m) | Relative permittivity ($\varepsilon_r$) | Conductivity(σ) (S/m) |
| 300 | 45.3 | 0.87 | 58.2 | 0.92 |
| 450 | 43.5 | 0.87 | 56.7 | 0.94 |
| 835 | 41.5 | 0.90 | 55.2 | 0.97 |
| 900 | 41.5 | 0.97 | 55 | 1.05 |
| 1450 | 40.5 | 1.20 | 54 | 1.3 |
| 1800-2000 | 40.0 | 1.40 | 53.3 | 1.52 |
| 2450 | 39.2 | 1.80 | 52.7 | 1.95 |

**Table 3-2**

**Tissue Simulating Liquid Formulations**

| | 835 MHz | | 1900 MHz | | 2450 MHz | | 5200-5800 MHz | |
|---|---|---|---|---|---|---|---|---|
| | Head | Body | Head | Body | Head | Body | Head | Body |
| Bactericide | 0.10 | 0.10 | | | | | See Note 2 | See Note 3 |
| DGBE | | | | | | | | |
| HEC | 1.00 | 1.00 | | | | | | |
| NaCL | 1.45 | 0.94 | 1.03 | 0.70 | 0.00 | 0.30 | | |
| Sucrose | 57.00 | 44.90 | | | | | | |
| Polysorbate (Tween) 20 | | | 46.10 | 28.00 | 45.25 | 28.00 | | |
| Water | 40.45 | 53.06 | 52.87 | 71.30 | 55.75 | 71.70 | | |

Note 1: Speag proprietary - Water 50-65%; Mineral Oil 10-30%; Emulsifiers 8-25%; NaCL 0-1.5%; Hexylene Glycol 1.0-2.8%
Note 2: Speag proprietary - Water 60-80%; Esters, Emulsifiers, Inhibitors 20-40%; NaCL 0-1.5%; Oleic acid 10-28%

## 4.1 TABLE 3-2 TISSUE VERIFICATION MEASURED

| Tissue Verification | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Liquid Temp °C | Date | Tissue Type | Measured Frequency (MHz) | Measured Dielectric Constant, ε | Measured Condcutivity, σ S/m | Target Dielectric Constant, ε | Target Condcutivity, σ S/m | % deviation, ε | % deviation, σ |
| 20.7 | 7/6/2015 | 900H | 835 | 39.37 | 0.87 | 41.5 | 0.90 | -5.1% | -3.3% |
| | | | 902 | 38.61 | 0.93 | 41.5 | 0.97 | -7.0% | -4.1% |
| | | | 915 | 38.47 | 0.94 | 41.5 | 0.97 | -7.3% | -3.1% |
| | | | 927 | 38.33 | 0.95 | 41.5 | 0.97 | -7.6% | -2.1% |

Using the DASY52, compensation was enabled to correct only in the positive direction.

# 5 SAR MEASUREMENT SYSTEM VERIFICATION

The system performance verification verifies the system operates within the ±10% limit. Each performance check is performed prior to any SAR testing to measure accuracy.

## 5.1 PERFORMANCE CHECK MEASUREMENT CONDITIONS

- Measurements are performed in the flat section of the SAM phantom
- Phantom is filled with Head or Body simulating liquids
- DASY5 system parameters are tested using a Isotropic E-field probe
- The dipole is mounted on an extendable tripod that is positioned below the flat phantom center. The dipole is oriented parallel with the body's axis. The standard measuring distance is 10 mm above 1 GHz or 15 mm below 1 GHz from the dipole to the simulating liquids surface.
- A grid spacing of 15 mm is aligned with the dipole
- 7x7x7 cube is selected for a zoom scan
- A 4 mm distance is set between the probe and phantom surface
- Dipole input power(forward power) is set to 100 mW
- Results are normalized to 1 W input power

## 5.2 SAR REFERENCE VALUES FOR HEAD AND BODY CALIBRATION

**Numerical reference SAR values (W/kg) for dipole and flat phantom**
***(IEEE1528-2003 Table 7)***

| Frequency (MHz) | 1g SAR | 10g SAR |
|---|---|---|
| 300 | 3.0 | 2.0 |
| 450 | 4.9 | 3.3 |
| 835 | 9.5 | 6.2 |
| 900 | 10.8 | 6.9 |
| 1450 | 29.0 | 16.0 |
| 1800 | 38.1 | 19.8 |
| 1900 | 39.7 | 20.5 |
| 2000 | 41.1 | 21.1 |
| 2450 | 52.4 | 24.0 |

### 5.2.1 SYSTEM VERIFICATION

| System Check | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Scan | Date | Ambient Temp (°C) | Liquid Temp (°C) | Input Power (W) | Tissue Frequency (MHz) | Dipole SN | Tissue Type | Measured $SAR_{1g}$ (W/kg) | 1W Target $SAR_{1g}$ (W/kg) | 1W Normalized $SAR_1$ (W/kg) | Deviation (%) | Area Measured $SAR_{1g}$ (W/kg) | Zoom vs Area %err | Validation Time |
| C1 | 7/6/2015 | 21.7 | 20.7 | 0.100 | 835 | 4d123 | Head | 0.943 | 9.25 | 9.43 | 1.9% | 0.95 | 0.4% | 9:32 AM |

# 6 SAR MEASUREMENT PROCEDURE

- Area Scan is used for a fast scan in two dimension to find the area of high field values before any finer measurement around the hotspot. The routines implemented in the DASY5 software can find the maximum locations.
- Zoom Scan is used to assess the peak spatial values within a cubic averaging volume containing 1g and 10g of simulated tissue. The scan measures a 7x7x7 area within the cube. Once measurement is done the values are displayed within the job's label.
- Power Drift will measure the field at the same location as the most recent power reference measurement within the same procedure and settings. The Power Drift Measurement gives the field difference in dB.
- Z- Scan measure points along a straight vertical line. The lines run along the z-axis of a one dimensial grid. To get a reasonable extrapolation the extrapolated distance should not be larger than the step size in z direction.

## 6.1 HEAD SAR CONFIGURATION

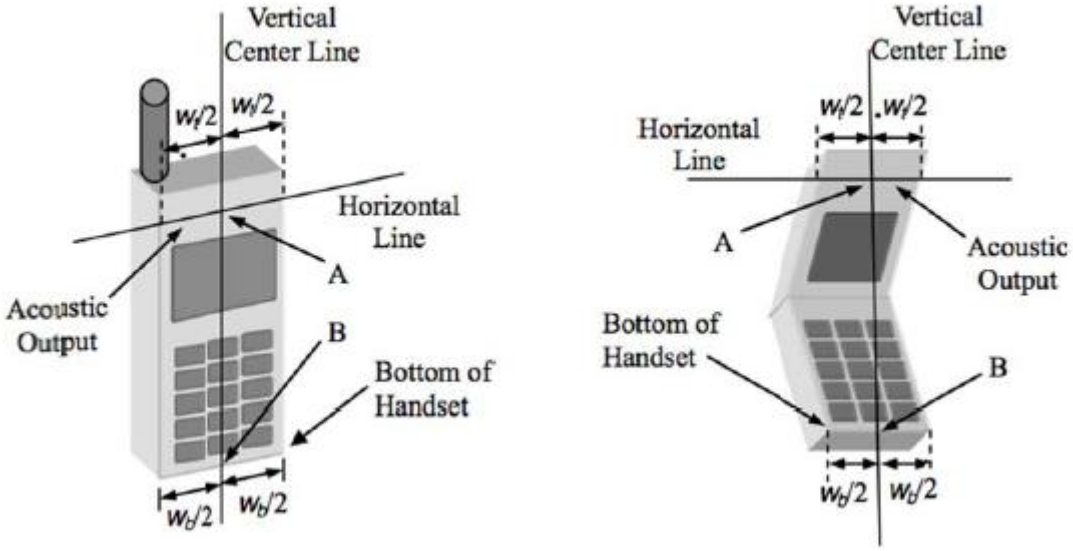
### 6.1.1 SAM SPECIFICATIONS

The Specific Anthropomorphic Mannequin (SAM) phantom corresponds to specifications defined in IEEE 1528 and IEC 62209-1. It allows dosimetric evaluation of the left, right, hand phone usage as well as body mounted usage at the flat region of the phantom

### 6.1.2 HANDSET REFERENCE POINTS

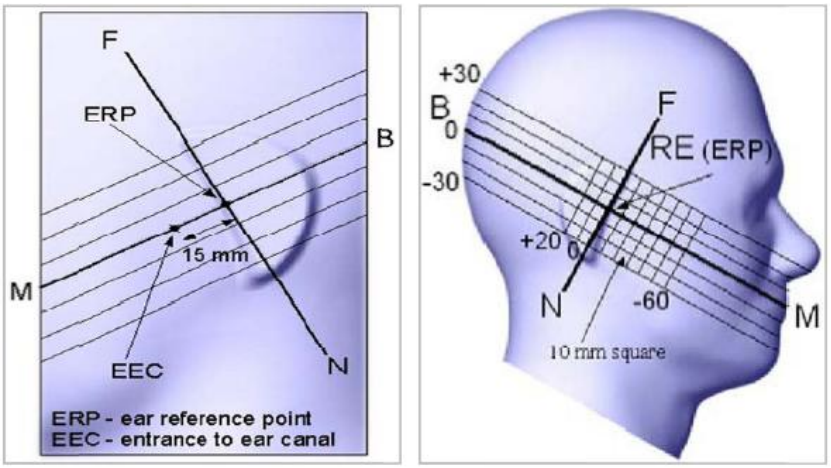
In order to identify reference points on the handset, define two imaginary lines on the handset

- The vertical centreline passes through two points on the front side of the handset. The midpoint of the width at the acoustic output and the midpoint of the width of the bottom of handset.
- The horizontal line is perpendicular to the vertical centreline and passes through the center of the acoustic output.
- The two lines intersect at point A.



### 6.1.3 EAR REFERENCE

This category includes most wireless handsets. The handset should have its earpieces located within the upper part of the device or along the centerline. The handset should be positioned with the earpiece region pressed against the ear spacer of the phantom.



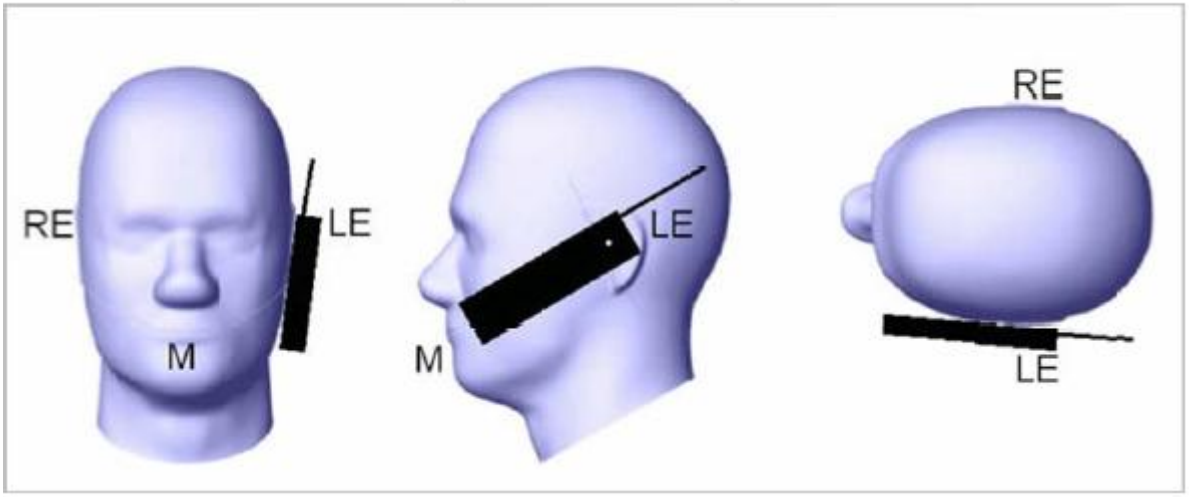

### 6.1.4 CHEEK POSITIONS

The device is attached toward the mouth part of the phantom by pivoting against the ear reference point

The test position is established when:

- Any point on the display, keypad or mouthpiece portion of the EUT is in contact with the phantom

Cheek / Touch Position

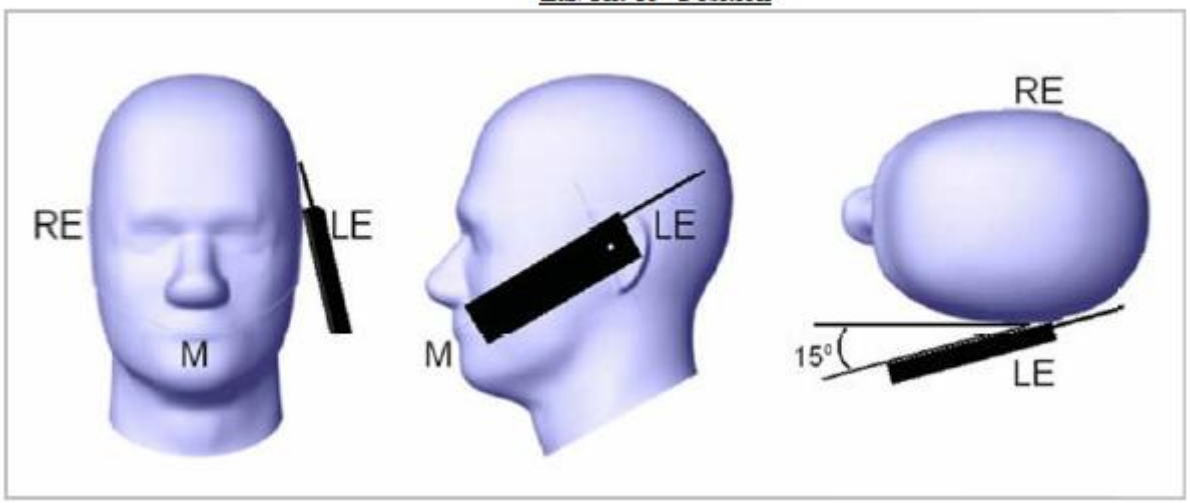


### 6.1.5 TILT POSITION

The test position is established when:

- Repeat the cheek touch position setup
- While maintaining the orientation of the handset move the handset away from the pinna along the line passing through RE and LE far enough to allow a rotation of the handset away from the cheek by 15°.
- Rotate the handset around the horizontal line by 15°
- While maintain the orientation of the handset move the handset towards the phantom on the line passing through RE and LE until any part of the handset touches the ear.
- The tilt position is obtained when the contact point is on the pinna and the antenna is at the back of the phantoms head.

Ear/Tilt 15° Position



# 7 CONDUCTED OUTPUT POWER VERIFICATION

| Frequency MHz | Power dBm | Power Watts |
|---|---|---|
| 902.525 | 29.32 | 0.855 |
| 915.025 | 29.26 | 0.843 |
| 927.475 | 29.36 | 0.863 |

# 8 MOTOTALK 900 HEAD SAR RESULTS

The EUT is iDEN capable. The sample was placed in a test mode which allows control of the transmitter without the need to establish a connection to a base station simulator. Software was configured to proper channels, transmitter power leves and transmit modes of operation.

The results listed below summarize the data obtained after the device was tested in the operating conditions described previously.

| Scan | Date | Frequency MHz | CH | Mode | Max Pwr dBm | Meas Pwr dBm | Power Drift dB | Position | | 1g SAR W/kg | PTT 50% duty factor | Scaling factor | Scaled SAR 1g W/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 100 | 7/6/2015 | 902.525 | Low | Dispatch PTT | 29.49 | 29.32 | -0.24 | PTT Front | 2.5cm | 1.22 | 50% | 0.520 | 0.634 |
| 101 | 7/6/2015 | 915.025 | Mid | Dispatch PTT | 29.49 | 29.26 | 0.01 | PTT Front | 2.5cm | 1.25 | 50% | 0.527 | 0.659 |
| 102 | 7/6/2015 | 927.475 | High | Dispatch PTT | 29.49 | 29.36 | 0.02 | PTT Front | 2.5cm | 1.12 | 50% | 0.515 | 0.577 |

# 9 UNCERTAINTY BUDGET 0.3 – 3 GHZ RANGE

| | |
|---|---|
| **Test Name:** | SAR 62209-2 (0.3 to 6 GHz range) |
| **Instrument(s) Used:** | SAR Measurement Sytem |
| **Standard(s) Reference:** | IEC 62209-2:2010 |

| Symbol | Source of Uncertainty | Value | Probability Distribution | Divisor | ci (1g) | ci (10g) | Std. Unc. (1g) | Std. Unc. (10g) | vi or veff |
|---|---|---|---|---|---|---|---|---|---|
| | **MEASUREMENT DESCRIPTION** | | | | | | | | |
| | Probe Calibration | 6.6% | N1 | 1 | 1 | 1 | 6.6% | 6.6% | inf |
| | Axial Isotropy | 4.7% | R | 1.732 | 0.7 | 0.7 | 1.9% | 1.9% | inf |
| | Hemispherical Isotropy | 9.6% | R | 1.732 | 0.7 | 0.7 | 3.9% | 3.9% | inf |
| | Linearity | 4.7% | R | 1.732 | 1 | 1 | 2.7% | 2.7% | inf |
| | System Detection Limits | 1.0% | R | 1.732 | 1 | 1 | 0.6% | 0.6% | inf |
| | Modulation Response | 2.4% | R | 1.732 | 1 | 1 | 1.4% | 1.4% | inf |
| | Boundary Effects | 2.0% | R | 1.732 | 1 | 1 | 1.2% | 1.2% | inf |
| | Readout Electronics | 0.3% | N1 | 1 | 1 | 1 | 0.3% | 0.3% | inf |
| | Response Time | 0.8% | R | 1.732 | 1 | 1 | 0.5% | 0.5% | inf |
| | Integration Time | 2.6% | R | 1.732 | 1 | 1 | 1.5% | 1.5% | inf |
| | RF Ambient Noise | 3.0% | R | 1.732 | 1 | 1 | 1.7% | 1.7% | inf |
| | RF Ambient Reflections | 3.0% | R | 1.732 | 1 | 1 | 1.7% | 1.7% | inf |
| | Probe Positioner | 0.8% | R | 1.732 | 1 | 1 | 0.5% | 0.5% | inf |
| | Probe Positioning | 6.7% | R | 1.732 | 1 | 1 | 3.9% | 3.9% | inf |
| | Post Processing | 4.0% | R | 1.732 | 1 | 1 | 2.3% | 2.3% | inf |
| | **TEST SAMPLE RELATED** | | | | | | | | |
| | Device Positioning | 2.9% | N1 | 1 | 1 | 1 | 2.9% | 2.9% | inf |
| | Device Holder | 3.6% | N1 | 1 | 1 | 1 | 3.6% | 3.6% | inf |
| | Power Drift | 5.0% | R | 1.732 | 1 | 1 | 2.9% | 2.9% | inf |
| | Power Scaling | 0.0% | R | 1.732 | 1 | 1 | 0.0% | 0.0% | inf |
| | **PHANTOM AND SETUP** | | | | | | | | |
| | Phantom Uncertainty | 7.9% | R | 1.732 | 1 | 1 | 4.6% | 4.6% | inf |
| | SAR correction | 1.9% | R | 1.732 | 1 | 0.84 | 1.1% | 0.9% | inf |
| | Liquid Conductivity(meas.) | 2.5% | N1 | 1 | 0.78 | 0.71 | 2.0% | 1.8% | inf |
| | Liquid Permittivity(meas.) | 2.5% | N1 | 1 | 0.26 | 0.26 | 0.7% | 0.7% | inf |
| | Temp. unc. - Conductivity | 1.7% | R | 1.732 | 0.78 | 0.71 | 0.8% | 0.7% | inf |
| | Temp. unc. - Permittivity | 0.3% | R | 1.732 | 0.23 | 0.26 | 0.0% | 0.0% | inf |
| | | | n1 | 1 | 1 | 1 | 0.0% | 0.0% | inf |
| uc(Fs) | Combined Standard Uncertainty | | N1 | 1 | | | 12.6% | 12.5% | |
| U(Fs) | Expanded Uncertainty | | Normal k= | 2 | | | **25.1%** | **25.1%** | |

**The Expanded Uncertainty is 25.1% for a Normal k factor equal to 2**

# 10 SYSTEM CHECK PLOTS

C1

**DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:4d123**

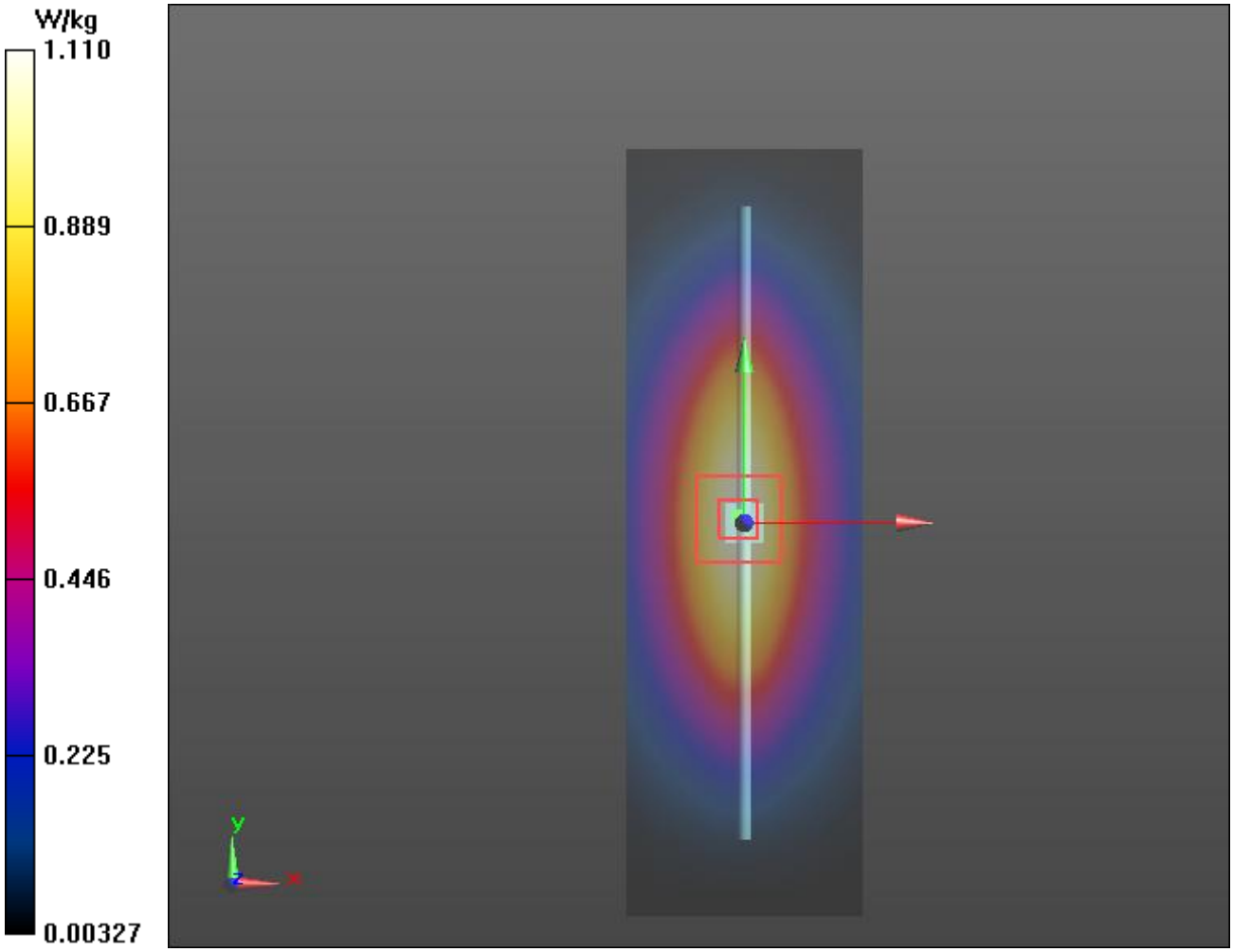
Communication System: UID 0, CW; Communication System Band: D835 (835.0 MHz); Frequency: 835 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 835 MHz; $\sigma$ = 0.872 S/m; $\varepsilon_r$ = 39.366; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- Probe: EX3DV4 - SN3812; ConvF(9.18, 9.18, 9.18); Calibrated: 1/26/2015;
- Sensor-Surface: 2.5mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn1287; Calibrated: 1/20/2015
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: 1146
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

**Configuration/835MHz HSL System Validation/Area Scan (41x131x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.11 W/kg

**Configuration/835MHz HSL System Validation/Zoom Scan (7x7x7)/Cube 0:**
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 36.09 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 1.35 W/kg
**SAR(1 g) = 0.943 W/kg; SAR(10 g) = 0.621 W/kg** (SAR corrected for target medium)
Maximum value of SAR (measured) = 1.11 W/kg


W/kg
1.110
0.889
0.667
0.446
0.225
0.00327
y
x

# 11 SAR PLOTS

Scan 100

**DUT: Hi-P Electronics; Type: Cellular Phone**

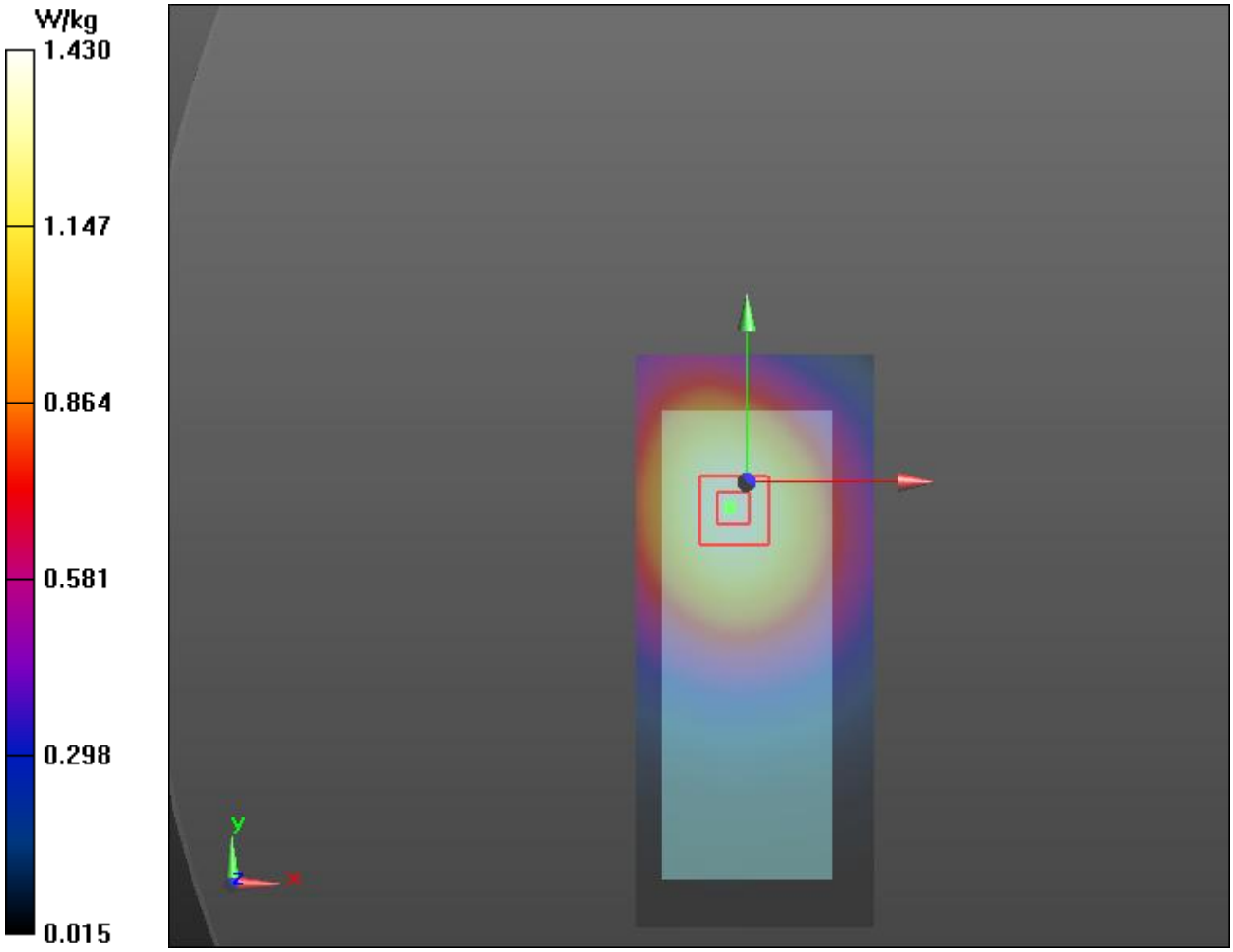
Communication System: UID 0, Moto Talk; Communication System Band: FullSpan (0.0 - 6000.0 MHz); Frequency: 902.525 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 903 MHz; $\sigma$ = 0.935 S/m; $\varepsilon_r$ = 38.608; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- Probe: EX3DV4 - SN3812; ConvF(9.05, 9.05, 9.05); Calibrated: 1/26/2015;
- Sensor-Surface: 2.5mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn1287; Calibrated: 1/20/2015
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: 1146
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

**Configuration/Scan 100/Area Scan (51x121x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.43 W/kg

**Configuration/Scan 100/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 38.76 V/m; Power Drift = -0.24 dB
Peak SAR (extrapolated) = 1.58 W/kg
**SAR(1 g) = 1.22 W/kg; SAR(10 g) = 0.890 W/kg** (SAR corrected for target medium)
Maximum value of SAR (measured) = 1.38 W/kg


W/kg
1.430
1.147
0.864
0.581
0.298
0.015
y
x

Scan 101

**DUT: Hi-P Electronics; Type: Cellular Phone**

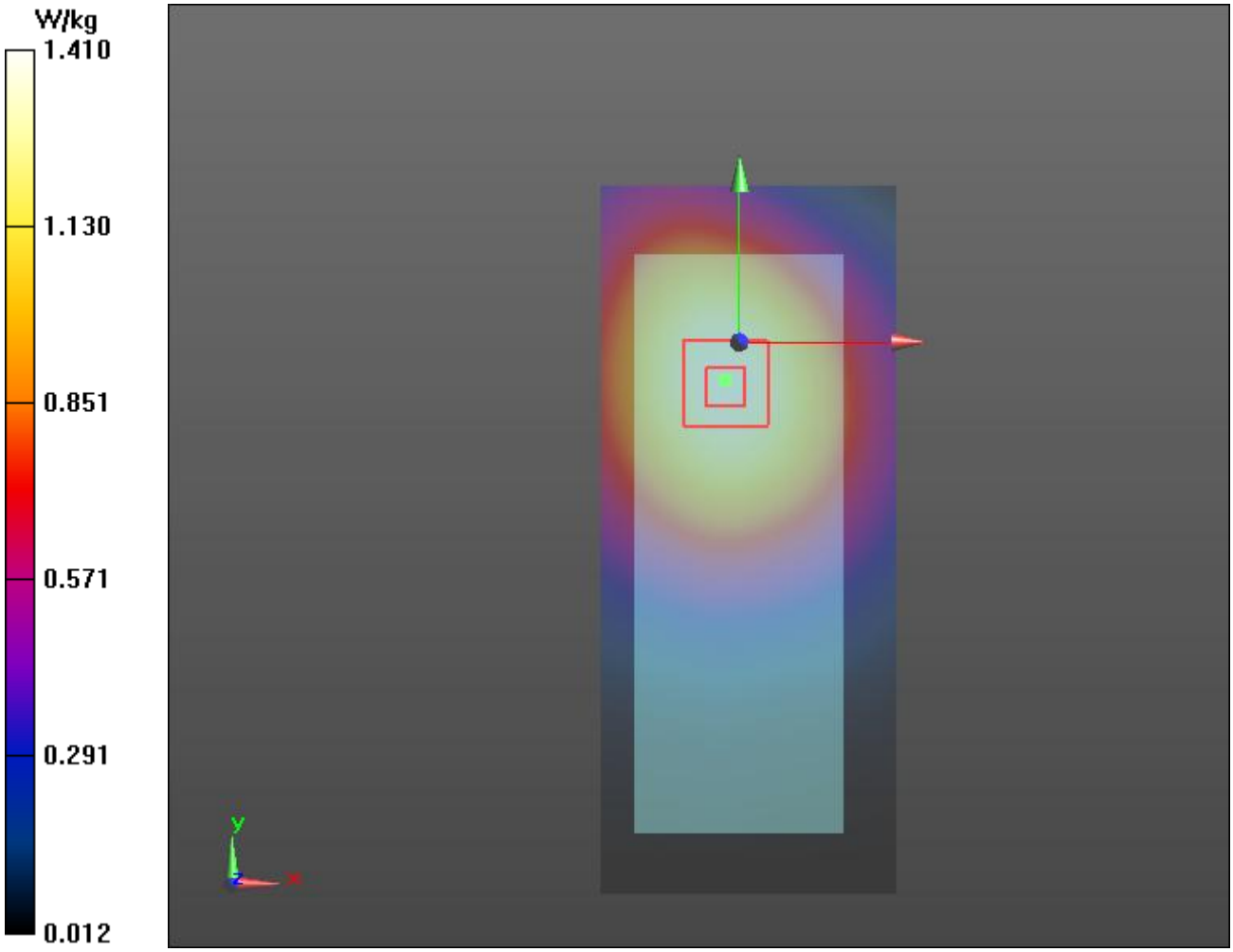
Communication System: UID 0, Moto Talk; Communication System Band: FullSpan (0.0 - 6000.0 MHz); Frequency: 915.025 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 915 MHz; $\sigma$ = 0.947 S/m; $\varepsilon_r$ = 38.473; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- Probe: EX3DV4 - SN3812; ConvF(9.05, 9.05, 9.05); Calibrated: 1/26/2015;
- Sensor-Surface: 2.5mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn1287; Calibrated: 1/20/2015
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: 1146
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

**Configuration/Scan 101/Area Scan (51x121x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.41 W/kg

**Configuration/Scan 101/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 37.91 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 1.63 W/kg
**SAR(1 g) = 1.25 W/kg; SAR(10 g) = 0.909 W/kg** (SAR corrected for target medium)
Maximum value of SAR (measured) = 1.43 W/kg


W/kg
1.410
1.130
0.851
0.571
0.291
0.012
y
x

Scan 102

**DUT: Hi-P Electronics; Type: Cellular Phone**

Communication System: UID 0, Moto Talk; Communication System Band: FullSpan (0.0 - 6000.0 MHz); Frequency: 927.475 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used (interpolated): f = 927.475 MHz; $\sigma$ = 0.958 S/m; $\varepsilon_r$ = 38.319; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

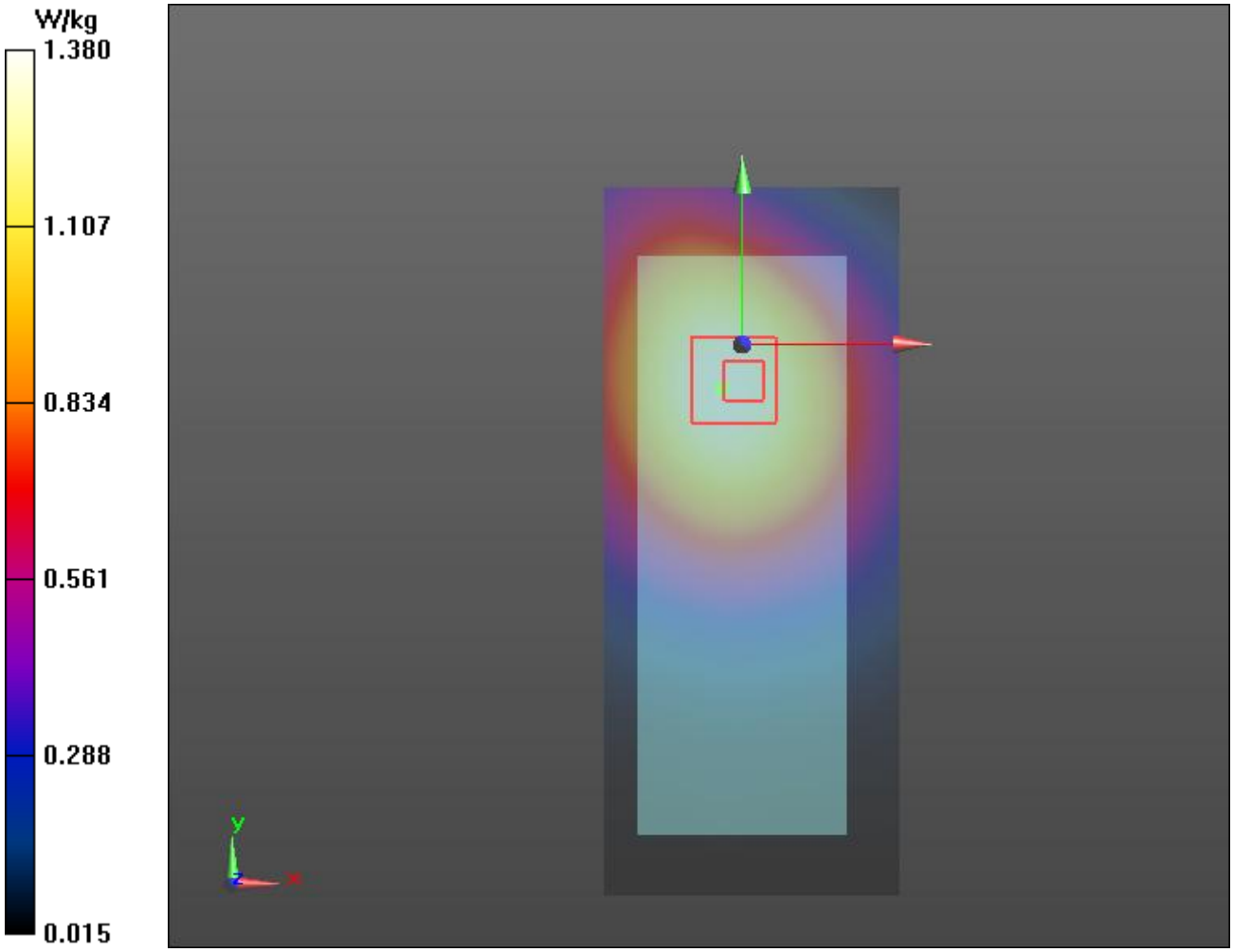
- Probe: EX3DV4 - SN3812; ConvF(9.05, 9.05, 9.05); Calibrated: 1/26/2015;
- Sensor-Surface: 2.5mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn1287; Calibrated: 1/20/2015
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: 1146
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

**Configuration/Scan 102/Area Scan (51x121x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 1.38 W/kg

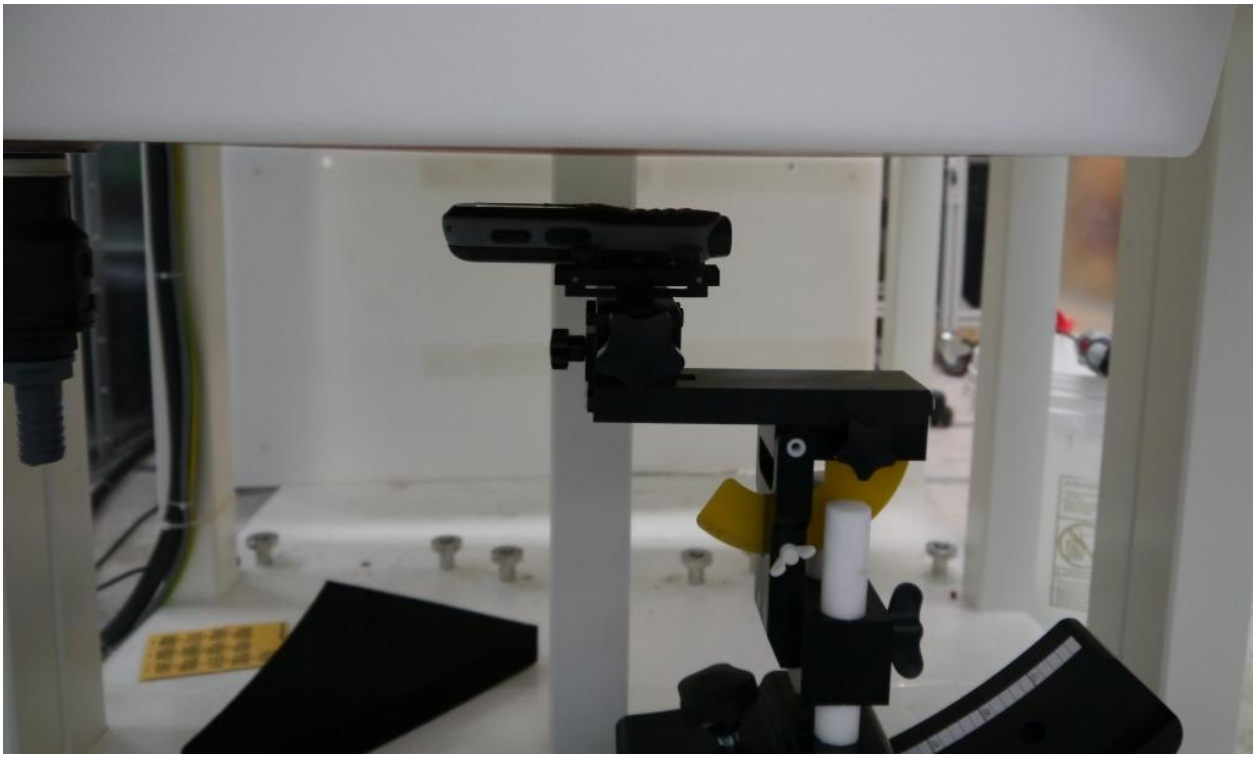
**Configuration/Scan 102/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 36.63 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 1.47 W/kg
**SAR(1 g) = 1.12 W/kg; SAR(10 g) = 0.816 W/kg** (SAR corrected for target medium)

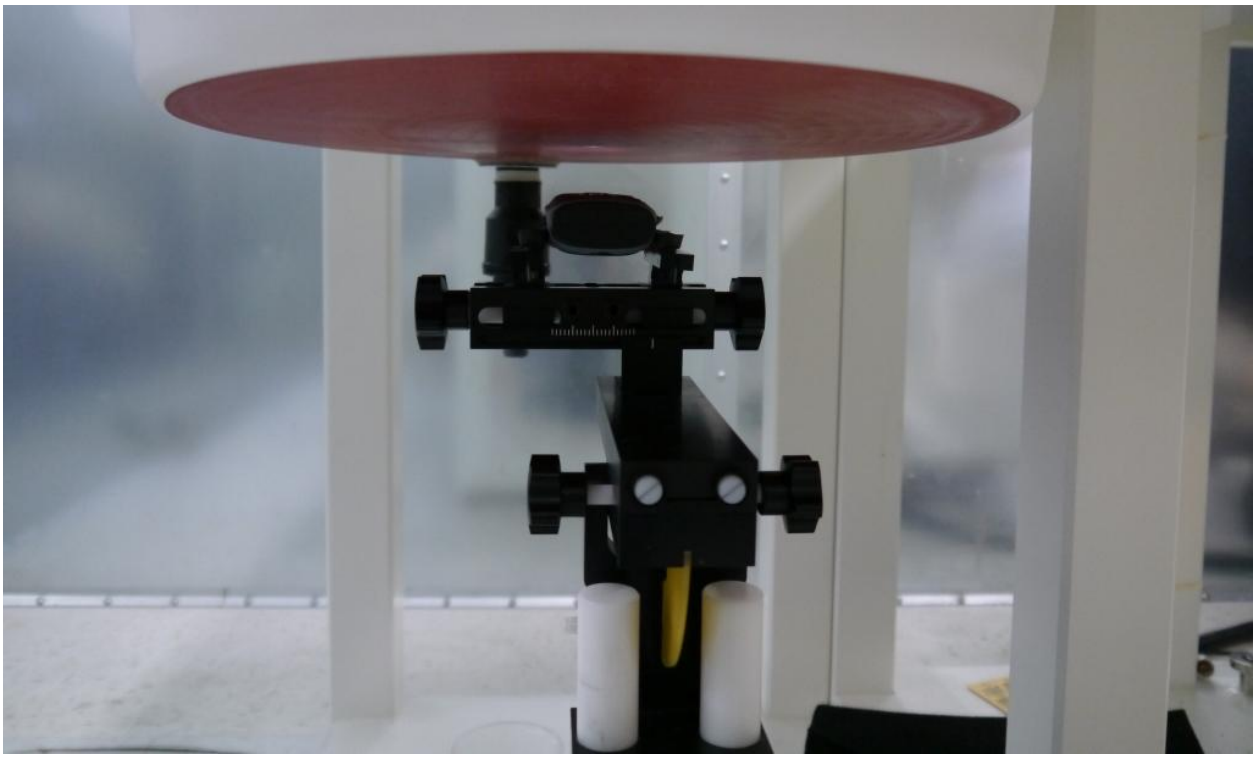
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 1.30 W/kg


W/kg
1.380
1.107
0.834
0.561
0.288
0.015
y
x

# 12 SETUP PHOTOGRAPHS

Dispatch Push to Talk front of EUT with 25mm spacing





# 13 REVISION HISTORY

| Revision Level | Description of changes | Revision Date |
|---|---|---|
| 0 | Initial release | 6 July 2015 |
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