

Appendix**Antenna Parameters with Head TSL**

| | |
|--------------------------------------|--------------------------------|
| Impedance, transformed to feed point | 52.9 Ω + 6.8 j Ω |
| Return Loss | - 22.9 dB |

Antenna Parameters with Body TSL

| | |
|--------------------------------------|--------------------------------|
| Impedance, transformed to feed point | 48.5 Ω + 7.4 j Ω |
| Return Loss | - 22.3 dB |

General Antenna Parameters and Design

| | |
|----------------------------------|----------|
| Electrical Delay (one direction) | 1.195 ns |
|----------------------------------|----------|

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

| | |
|-----------------|----------------|
| Manufactured by | SPEAG |
| Manufactured on | March 11, 2011 |

DASY5 Validation Report for Head TSL

Date: 28.02.2013

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 5d150

Communication System: CW; Frequency: 1900 MHz

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.4$ mho/m; $\epsilon_r = 40.4$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(5.01, 5.01, 5.01); Calibrated: 30.12.2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2012
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

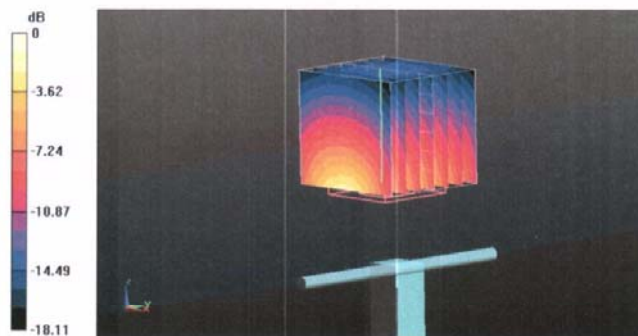
Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (8x7x7)/Cube 0:Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 92.182 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 17.6990

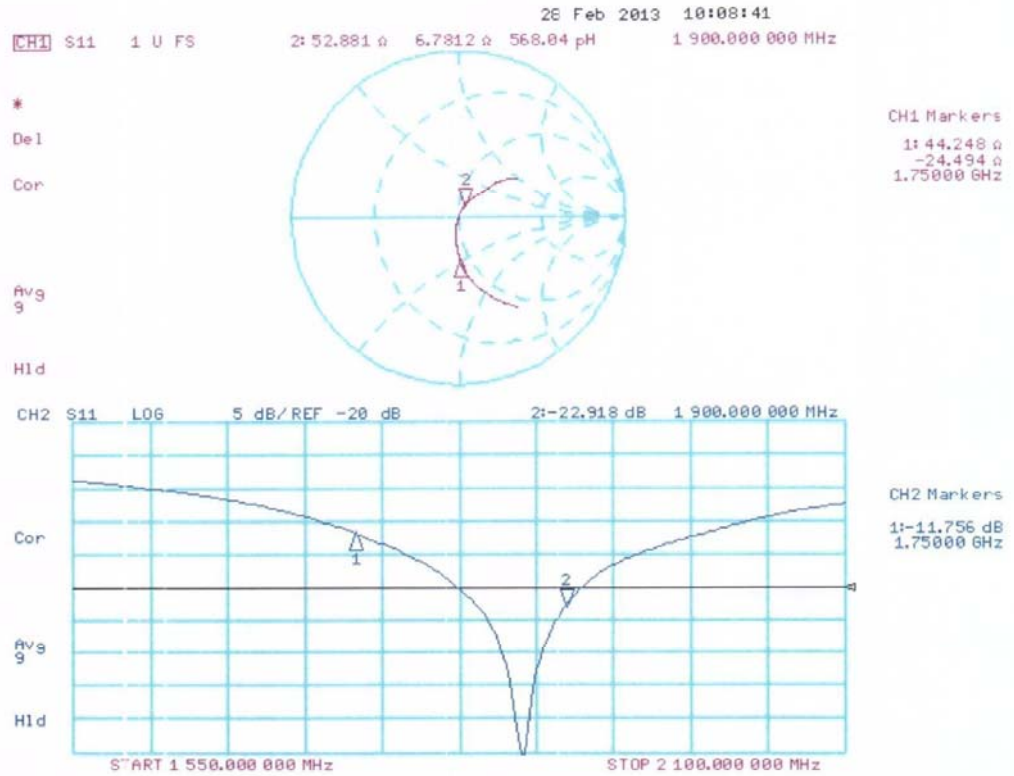
SAR(1 g) = 9.94 mW/g; SAR(10 g) = 5.24 mW/g

Maximum value of SAR (measured) = 12.584 mW/g



0 dB = 12.580mW/g = 21.99 dB mW/g

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 28.02.2013

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 5d150

Communication System: CW; Frequency: 1900 MHz

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.56$ mho/m; $\epsilon_r = 53$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.62, 4.62, 4.62); Calibrated: 30.12.2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2012
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52 8.0(692); SEMCAD X 14.6.4(4989)

Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

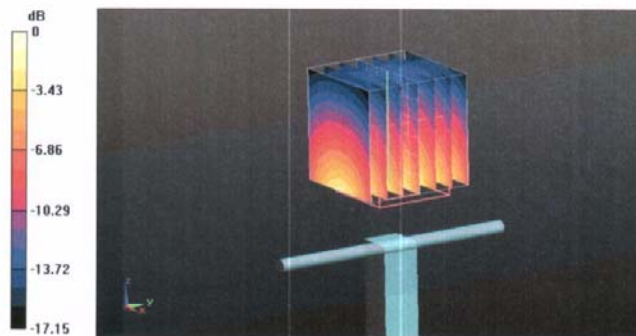
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 94.968 V/m; Power Drift = 0.0033 dB

Peak SAR (extrapolated) = 18.0350

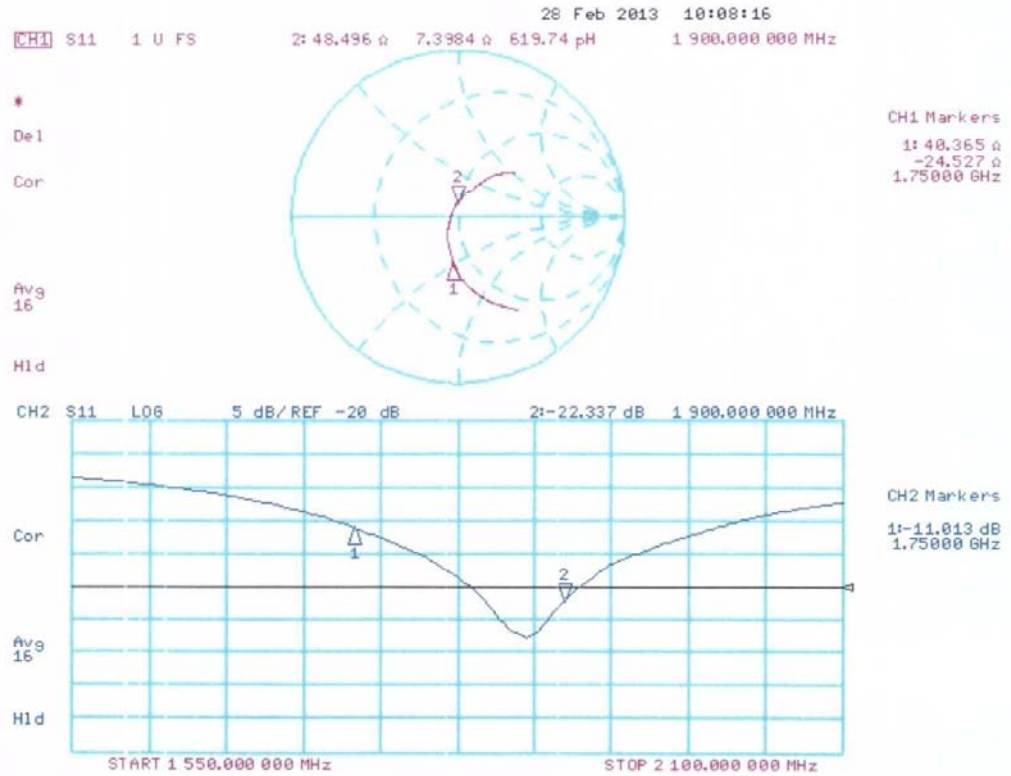
SAR(1 g) = 10.2 mW/g; SAR(10 g) = 5.32 mW/g

Maximum value of SAR (measured) = 12.901 mW/g



0 dB = 12.900mW/g = 22.21 dB mW/g

Impedance Measurement Plot for Body TSL



6.4. D2450V2 Dipole Calibration Certificate

**Calibration Laboratory of
Schmid & Partner
Engineering AG**
Zeughausstrasse 43, 8004 Zurich, Switzerland



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Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Client **CIQ SZ (Auden)**

Certificate No: **D2450V2-884_Feb13**

CALIBRATION CERTIFICATE

Object **D2450V2 - SN: 884**

Calibration procedure(s) **QA CAL-05.v8
Calibration procedure for dipole validation kits above 700 MHz**

Calibration date: **February 29, 2013**

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment: temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

| Primary Standards | ID # | Cal Date (Certificate No.) | Scheduled Calibration |
|-----------------------------|--------------------|-----------------------------------|------------------------|
| Power meter EPM-442A | GB37480704 | 05-Oct-12 (No. 217-01451) | Oct-13 |
| Power sensor HP 8481A | US37292783 | 05-Oct-12 (No. 217-01451) | Oct-13 |
| Reference 20 dB Attenuator | SN: 5086 (20g) | 29-Mar-12 (No. 217-01368) | Apr-13 |
| Type-N mismatch combination | SN: 5047.2 / 06327 | 29-Mar-12 (No. 217-01371) | Apr-13 |
| Reference Probe ES3DV3 | SN: 3205 | 30-Dec-12 (No. ES3-3205_Dec12) | Dec-13 |
| DAE4 | SN: 601 | 04-Jul-12 (No. DAE4-601_Jul12) | Jul-13 |
| Secondary Standards | ID # | Check Date (in house) | Scheduled Check |
| Power sensor HP 8481A | MY41092317 | 18-Oct-02 (in house check Oct-12) | In house check: Oct-13 |
| RF generator R&S SMT-C6 | 100005 | 04-Aug-99 (in house check Oct-12) | In house check: Oct-13 |
| Network Analyzer HP 87E3E | US37390585 S4206 | 18-Oct-01 (in house check Oct-12) | In house check: Oct-13 |

| | Name | Function | Signature |
|----------------|----------------|-----------------------|-----------|
| Calibrated by: | Israe El-Naouq | Laboratory Technician | |
| Approved by: | Katja Pokovic | Technical Manager | |

Issued: February 29, 2013

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.

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Zeughausstrasse 43, 8004 Zurich, Switzerland



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Accreditation No.: **SCS 108**

The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Glossary:

| | |
|-------|---------------------------------|
| TSL | tissue simulating liquid |
| ConvF | sensitivity in TSL / NORM x,y,z |
| N/A | not applicable or not measured |

Calibration is Performed According to the Following Standards:

- IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
- IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
- Federal Communications Commission Office of Engineering & Technology (FCC OET), "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions", Supplement C (Edition 01-01) to Bulletin 65

Additional Documentation:

- DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- SAR measured:* SAR measured at the stated antenna input power.
- SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

Measurement Conditions

DASY system configuration, as far as not given on page 1.

| | | |
|------------------------------|------------------------|-------------|
| DASY Version | DASY5 | V52.8.0 |
| Extrapolation | Advanced Extrapolation | |
| Phantom | Modular Flat Phantom | |
| Distance Dipole Center - TSL | 10 mm | with Spacer |
| Zoom Scan Resolution | dx, dy, dz = 5 mm | |
| Frequency | 2450 MHz \pm 1 MHz | |

Head TSL parameters

The following parameters and calculations were applied.

| | Temperature | Permittivity | Conductivity |
|---|---------------------|----------------|----------------------|
| Nominal Head TSL parameters | 22.0 °C | 39.2 | 1.80 mho/m |
| Measured Head TSL parameters | (22.0 \pm 0.2) °C | 38.9 \pm 6 % | 1.86 mho/m \pm 6 % |
| Head TSL temperature change during test | < 0.5 °C | ---- | ---- |

SAR result with Head TSL

| SAR averaged over 1 cm ³ (1 g) of Head TSL | Condition | |
|---|--------------------|--|
| SAR measured | 250 mW input power | 13.7 mW / g |
| SAR for nominal Head TSL parameters | normalized to 1W | 53.9 mW / g \pm 17.0 % (k=2) |

| SAR averaged over 10 cm ³ (10 g) of Head TSL | condition | |
|---|--------------------|--|
| SAR measured | 250 mW input power | 6.36 mW / g |
| SAR for nominal Head TSL parameters | normalized to 1W | 25.2 mW / g \pm 16.5 % (k=2) |

Body TSL parameters

The following parameters and calculations were applied.

| | Temperature | Permittivity | Conductivity |
|---|---------------------|----------------|----------------------|
| Nominal Body TSL parameters | 22.0 °C | 52.7 | 1.95 mho/m |
| Measured Body TSL parameters | (22.0 \pm 0.2) °C | 52.3 \pm 6 % | 2.02 mho/m \pm 6 % |
| Body TSL temperature change during test | < 0.5 °C | ---- | ---- |

SAR result with Body TSL

| SAR averaged over 1 cm ³ (1 g) of Body TSL | Condition | |
|---|--------------------|--|
| SAR measured | 250 mW input power | 12.8 mW / g |
| SAR for nominal Body TSL parameters | normalized to 1W | 50.3 mW / g \pm 17.0 % (k=2) |

| SAR averaged over 10 cm ³ (10 g) of Body TSL | condition | |
|---|--------------------|--|
| SAR measured | 250 mW input power | 5.98 mW / g |
| SAR for nominal Body TSL parameters | normalized to 1W | 23.7 mW / g \pm 16.5 % (k=2) |

Appendix

Antenna Parameters with Head TSL

| | |
|--------------------------------------|--------------------------------|
| Impedance, transformed to feed point | 53.7 Ω + 2.1 j Ω |
| Return Loss | - 27.7 dB |

Antenna Parameters with Body TSL

| | |
|--------------------------------------|--------------------------------|
| Impedance, transformed to feed point | 50.7 Ω + 3.7 j Ω |
| Return Loss | - 28.6 dB |

General Antenna Parameters and Design

| | |
|----------------------------------|----------|
| Electrical Delay (one direction) | 1.159 ns |
|----------------------------------|----------|

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

| | |
|-----------------|------------------|
| Manufactured by | SPEAG |
| Manufactured on | October 06, 2011 |

DASY5 Validation Report for Head TSL

Date: 29.02.2013

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN: 884

Communication System: CW; Frequency: 2450 MHz

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.86$ mho/m; $\epsilon_r = 38.9$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.45, 4.45, 4.45); Calibrated: 30.12.2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2012
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

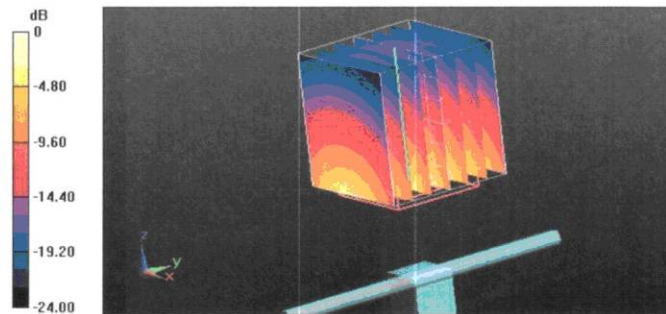
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 100.8 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 28.4450

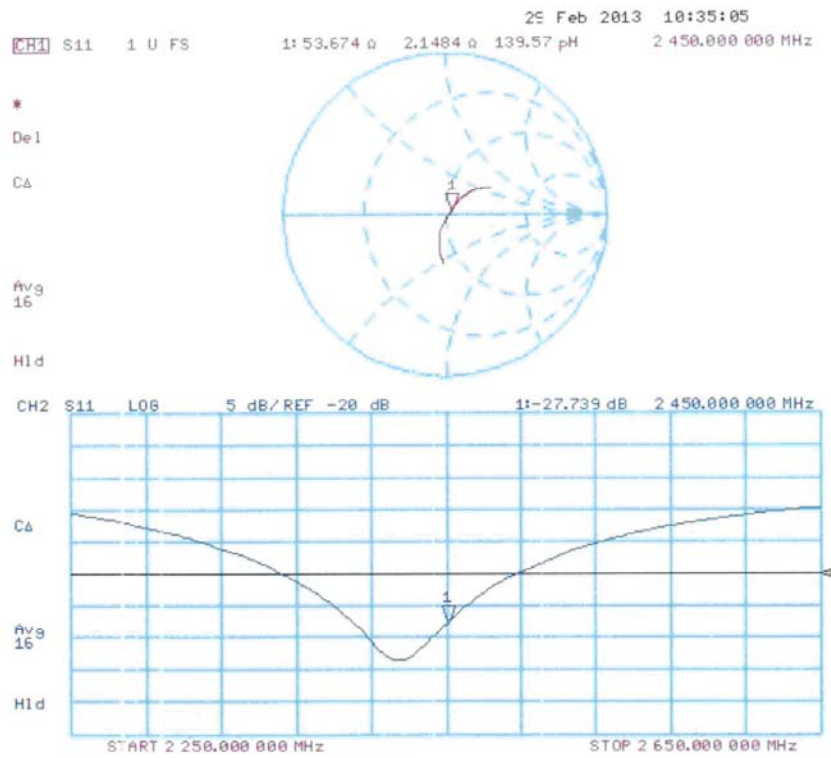
SAR(1 g) = 13.7 mW/g; SAR(10 g) = 6.36 mW/g

Maximum value of SAR (measured) = 17.648 mW/g



0 dB = 17.650mW/g = 24.93 dB mW/g

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 29.02.2013

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN: 884

Communication System: CW; Frequency: 2450 MHz

Medium parameters used: $f = 2450$ MHz; $\sigma = 2.02$ mho/m; $\epsilon_r = 52.3$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.26, 4.26, 4.26); Calibrated: 30.12.2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2012
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

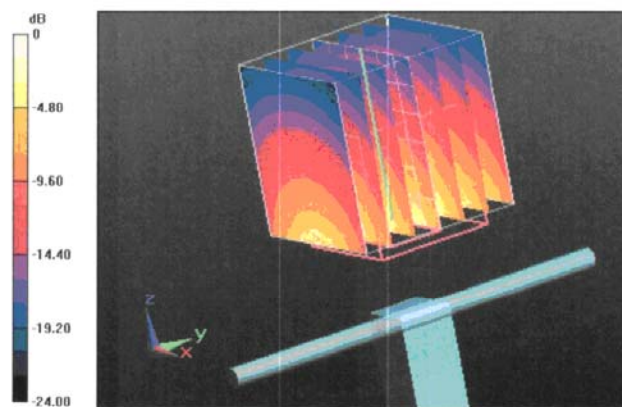
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 94.956 V/m; Power Drift = 0.0027 dB

Peak SAR (extrapolated) = 26.2360

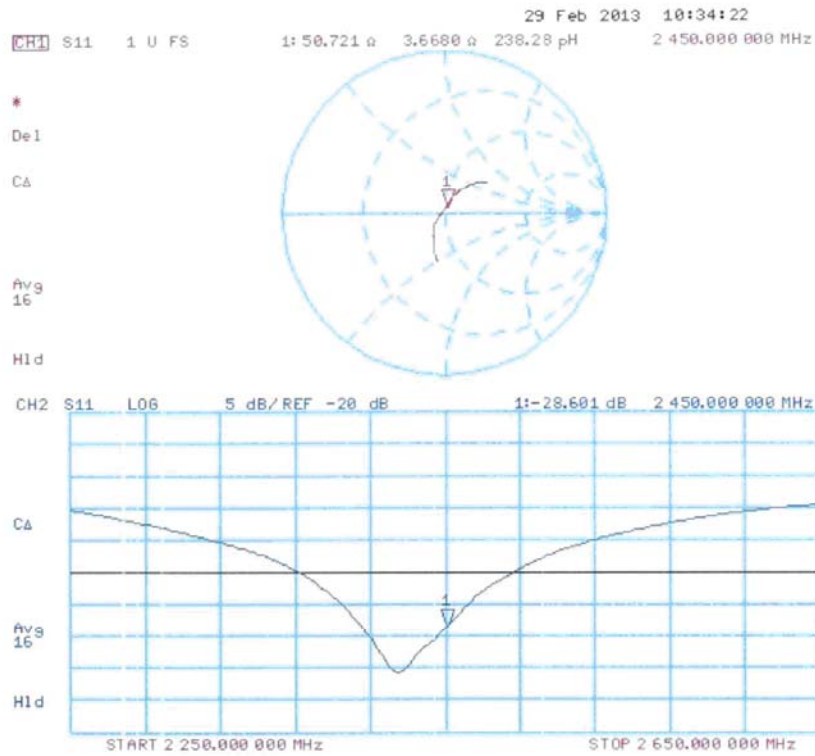
SAR(1 g) = 12.8 mW/g; SAR(10 g) = 5.98 mW/g

Maximum value of SAR (measured) = 16.972 mW/g



0 dB = 16.970mW/g = 24.59 dB mW/g

Impedance Measurement Plot for Body TSL



6.5. DAE4 Calibration Certificate

**Calibration Laboratory of
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Accreditation No.: **SCS 108**

Client **CIQ SZ (Auden)**

Certificate No: **DAE4-1315_Feb13**

| CALIBRATION CERTIFICATE | | | | | | | | | | | | | | | | | | | |
|--|---|----------------------------|---------------------------|-------------------|------|----------------------------|-----------------------|-------------------------------|-------------|----------------------|--------|---------------------|------|-----------------------|-----------------|---------------------|--------------------|----------------------------|------------------------|
| Object | DAE4 - SD 000 D04 BJ - SN: 1315 | | | | | | | | | | | | | | | | | | |
| Calibration procedure(s) | QA CAL-06.v24 Calibration procedure for the data acquisition electronics (DAE) | | | | | | | | | | | | | | | | | | |
| Calibration date: | February 27, 2013 | | | | | | | | | | | | | | | | | | |
| <p>This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI). The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.</p> <p>All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.</p> <p>Calibration Equipment used (M&TE critical for calibration)</p> <table border="1"> <thead> <tr> <th>Primary Standards</th> <th>ID #</th> <th>Cal Date (Certificate No.)</th> <th>Scheduled Calibration</th> </tr> </thead> <tbody> <tr> <td>Keithley Multimeter Type 2001</td> <td>SN: 0810278</td> <td>28-Sep-12 (No:11450)</td> <td>Sep-13</td> </tr> <tr> <th>Secondary Standards</th> <th>ID #</th> <th>Check Date (in house)</th> <th>Scheduled Check</th> </tr> <tr> <td>Calibrator Box V2.1</td> <td>SE UWS 053 AA 1001</td> <td>05-Jan-12 (in house check)</td> <td>In house check: Jan-13</td> </tr> </tbody> </table> | | | | Primary Standards | ID # | Cal Date (Certificate No.) | Scheduled Calibration | Keithley Multimeter Type 2001 | SN: 0810278 | 28-Sep-12 (No:11450) | Sep-13 | Secondary Standards | ID # | Check Date (in house) | Scheduled Check | Calibrator Box V2.1 | SE UWS 053 AA 1001 | 05-Jan-12 (in house check) | In house check: Jan-13 |
| Primary Standards | ID # | Cal Date (Certificate No.) | Scheduled Calibration | | | | | | | | | | | | | | | | |
| Keithley Multimeter Type 2001 | SN: 0810278 | 28-Sep-12 (No:11450) | Sep-13 | | | | | | | | | | | | | | | | |
| Secondary Standards | ID # | Check Date (in house) | Scheduled Check | | | | | | | | | | | | | | | | |
| Calibrator Box V2.1 | SE UWS 053 AA 1001 | 05-Jan-12 (in house check) | In house check: Jan-13 | | | | | | | | | | | | | | | | |
| Calibrated by: | Name Andrea Guntli | Function Technician | Signature | | | | | | | | | | | | | | | | |
| Approved by: | Fin Bomholt | R&D Director | | | | | | | | | | | | | | | | | |
| | | | Issued: February 27, 2013 | | | | | | | | | | | | | | | | |
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Accreditation No.: **SCS 108**

Glossary

DAE data acquisition electronics
Connector angle information used in DASY system to align probe sensor X to the robot coordinate system.

Methods Applied and Interpretation of Parameters

- *DC Voltage Measurement*: Calibration Factor assessed for use in DASY system by comparison with a calibrated instrument traceable to national standards. The figure given corresponds to the full scale range of the voltmeter in the respective range.
- *Connector angle*: The angle of the connector is assessed measuring the angle mechanically by a tool inserted. Uncertainty is not required.
- The following parameters as documented in the Appendix contain technical information as a result from the performance test and require no uncertainty.
 - *DC Voltage Measurement Linearity*: Verification of the Linearity at +10% and -10% of the nominal calibration voltage. Influence of offset voltage is included in this measurement.
 - *Common mode sensitivity*: Influence of a positive or negative common mode voltage on the differential measurement.
 - *Channel separation*: Influence of a voltage on the neighbor channels not subject to an input voltage.
 - *AD Converter Values with inputs shorted*: Values on the internal AD converter corresponding to zero input voltage
 - *Input Offset Measurement*: Output voltage and statistical results over a large number of zero voltage measurements.
 - *Input Offset Current*: Typical value for information; Maximum channel input offset current, not considering the input resistance.
 - *Input resistance*: Typical value for information: DAE input resistance at the connector, during internal auto-zeroing and during measurement.
 - *Low Battery Alarm Voltage*: Typical value for information. Below this voltage, a battery alarm signal is generated.
 - *Power consumption*: Typical value for information. Supply currents in various operating modes.

DC Voltage Measurement

A/D - Converter Resolution nominal

High Range: 1LSB = 6.1 μ V, full range = -100...+300 mV

Low Range: 1LSB = 61nV, full range = -1.....+3mV

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

| Calibration Factors | X | Y | Z |
|---------------------|--------------------------|--------------------------|--------------------------|
| High Range | 405.194 \pm 0.1% (k=2) | 405.031 \pm 0.1% (k=2) | 405.006 \pm 0.1% (k=2) |
| Low Range | 4.00179 \pm 0.7% (k=2) | 3.99504 \pm 0.7% (k=2) | 4.00535 \pm 0.7% (k=2) |

Connector Angle

| | |
|---|------------------------------------|
| Connector Angle to be used in DASY system | 20.0 $^{\circ}$ \pm 1 $^{\circ}$ |
|---|------------------------------------|

Appendix

1. DC Voltage Linearity

| High Range | Reading (μV) | Difference (μV) | Error (%) |
|-------------------|---------------------------|------------------------------|-----------|
| Channel X + Input | 199993.07 | -0.46 | -0.00 |
| Channel X + Input | 19998.21 | 0.29 | 0.00 |
| Channel X - Input | -19997.04 | 5.94 | -0.03 |
| Channel Y + Input | 199992.78 | -1.05 | -0.00 |
| Channel Y + Input | 19995.99 | -1.88 | -0.01 |
| Channel Y - Input | -20001.41 | 1.50 | -0.01 |
| Channel Z + Input | 199996.23 | 3.02 | 0.00 |
| Channel Z + Input | 19996.75 | -0.72 | -0.00 |
| Channel Z - Input | -20003.50 | -0.24 | 0.00 |

| Low Range | Reading (μV) | Difference (μV) | Error (%) |
|-------------------|---------------------------|------------------------------|-----------|
| Channel X + Input | 1999.32 | -1.73 | -0.09 |
| Channel X + Input | 200.22 | -1.03 | -0.51 |
| Channel X - Input | -198.55 | 0.32 | -0.16 |
| Channel Y + Input | 1997.53 | -3.28 | -0.16 |
| Channel Y + Input | 199.64 | -1.21 | -0.60 |
| Channel Y - Input | -199.77 | -0.78 | 0.39 |
| Channel Z + Input | 1997.90 | -2.04 | -0.10 |
| Channel Z + Input | 199.23 | -1.21 | -0.61 |
| Channel Z - Input | -200.63 | -1.12 | 0.56 |

2. Common mode sensitivity

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

| | Common mode Input Voltage (mV) | High Range Average Reading (μV) | Low Range Average Reading (μV) |
|-----------|--------------------------------|--|---|
| Channel X | 200 | -1.10 | -3.09 |
| | - 200 | 4.35 | 3.23 |
| Channel Y | 200 | -22.09 | -22.46 |
| | - 200 | 21.74 | 22.31 |
| Channel Z | 200 | -4.46 | -4.92 |
| | - 200 | 3.65 | 2.86 |

3. Channel separation

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

| | Input Voltage (mV) | Channel X (μV) | Channel Y (μV) | Channel Z (μV) |
|-----------|--------------------|-----------------------------|-----------------------------|-----------------------------|
| Channel X | 200 | - | -2.62 | -3.29 |
| Channel Y | 200 | 6.73 | - | -2.17 |
| Channel Z | 200 | 8.11 | 5.38 | - |

4. AD-Converter Values with inputs shorted

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

| | High Range (LSB) | Low Range (LSB) |
|-----------|------------------|-----------------|
| Channel X | 16132 | 15682 |
| Channel Y | 16251 | 15151 |
| Channel Z | 15551 | 15659 |

5. Input Offset Measurement

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

Input 10M Ω

| | Average (μ V) | min. Offset (μ V) | max. Offset (μ V) | Std. Deviation (μ V) |
|-----------|--------------------|------------------------|------------------------|---------------------------|
| Channel X | 1.32 | 0.22 | 2.38 | 0.46 |
| Channel Y | -1.23 | -2.04 | -0.58 | 0.36 |
| Channel Z | -1.89 | -3.56 | -1.12 | 0.39 |

6. Input Offset Current

Nominal Input circuitry offset current on all channels: <25fA

7. Input Resistance (Typical values for information)

| | Zeroing (kOhm) | Measuring (MOhm) |
|-----------|----------------|------------------|
| Channel X | 200 | 200 |
| Channel Y | 200 | 200 |
| Channel Z | 200 | 200 |

8. Low Battery Alarm Voltage (Typical values for information)

| Typical values | Alarm Level (VDC) |
|----------------|-------------------|
| Supply (+ Vcc) | +7.9 |
| Supply (- Vcc) | -7.6 |

9. Power Consumption (Typical values for information)

| Typical values | Switched off (mA) | Stand by (mA) | Transmitting (mA) |
|----------------|-------------------|---------------|-------------------|
| Supply (+ Vcc) | +0.01 | +6 | +14 |
| Supply (- Vcc) | -0.01 | -8 | -9 |

7. Test Setup Photos



Photograph of the depth in the Head Phantom (835MHz)



Photograph of the depth in the Body Phantom (835MHz)



Photograph of the depth in the Head Phantom (1900MHz)



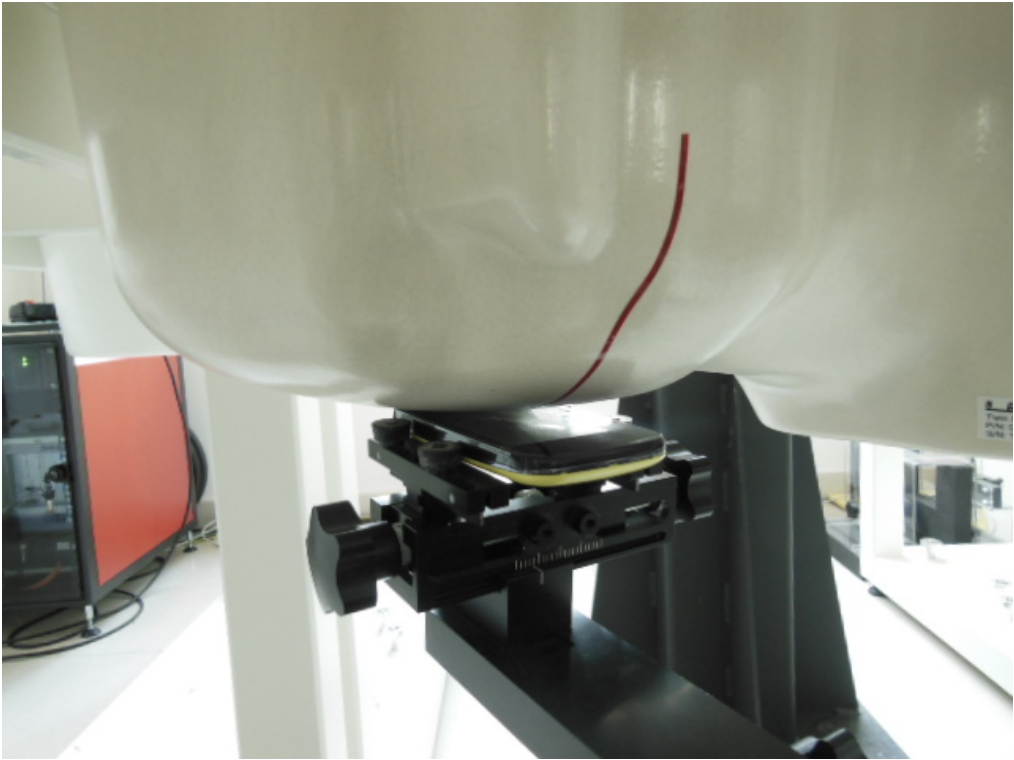
Photograph of the depth in the Body Phantom (1900MHz)



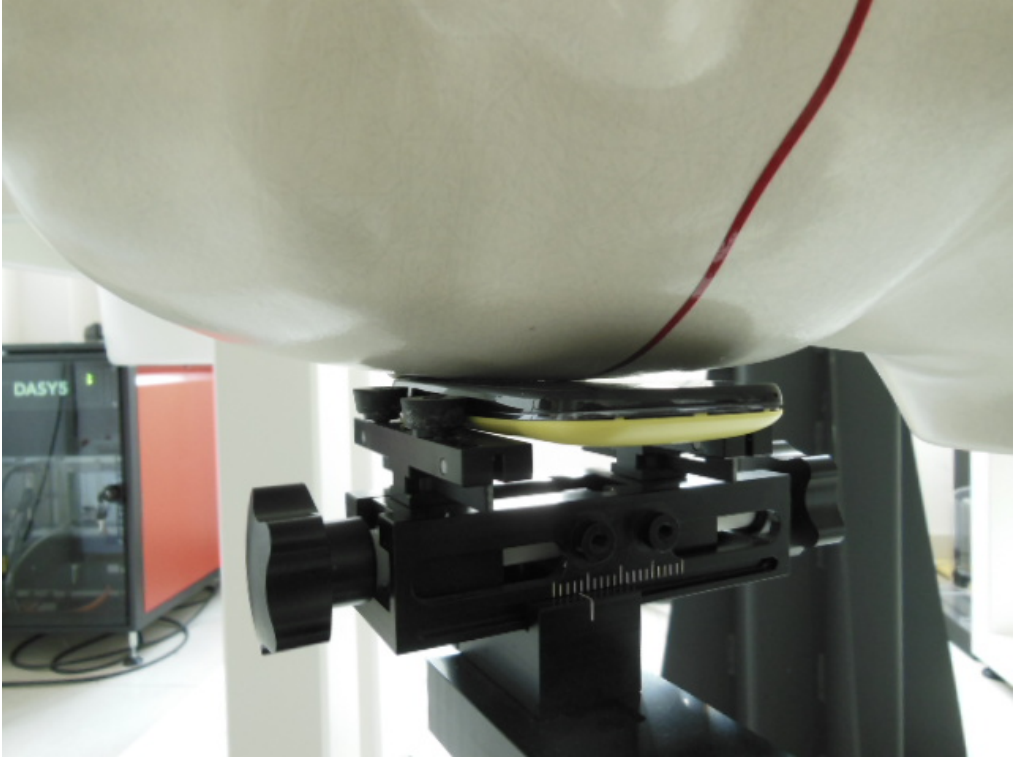
Photograph of the depth in the Head Phantom (2450MHz)



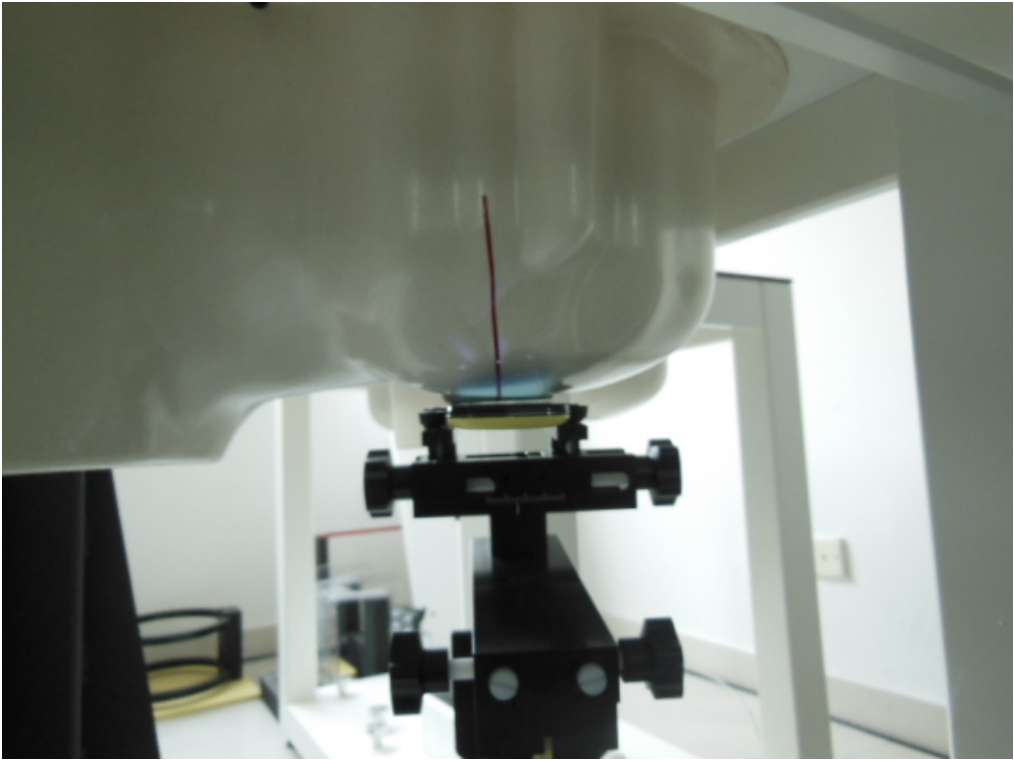
Photograph of the depth in the Body Phantom (2450MHz)



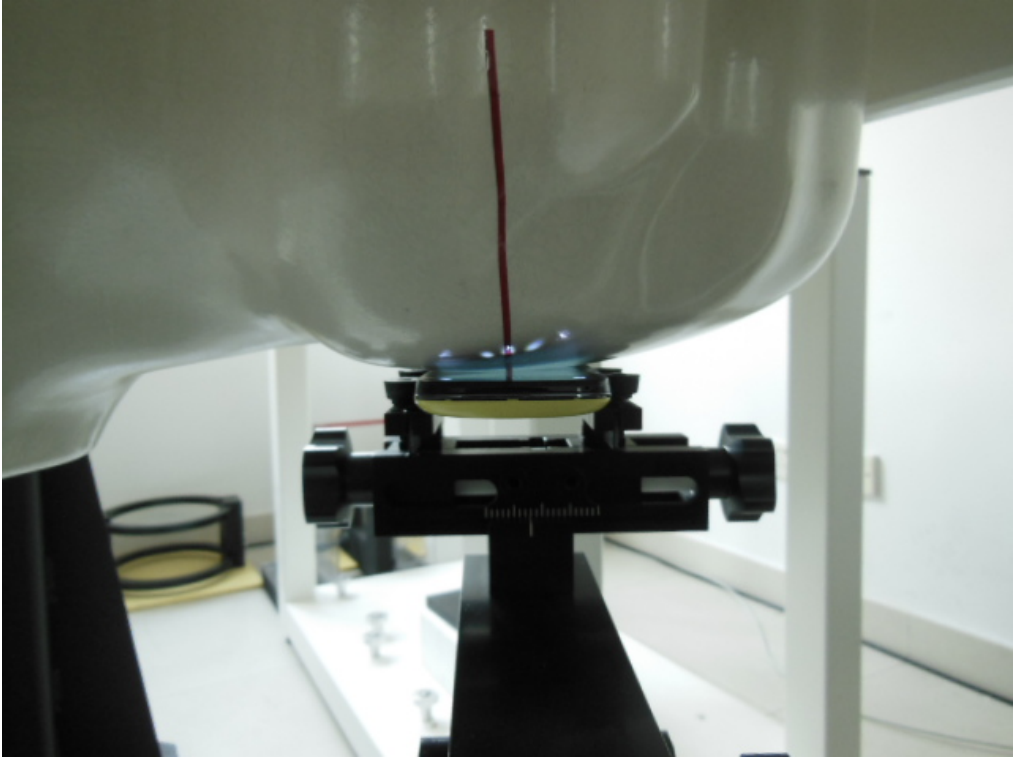
Right Head Tilt Setup Photo



Right Head Touch Setup Photo



Left Head Tilt Setup Photo



Left Head Touch Setup Photo



10mm Body-worn Rear Side Setup Photo



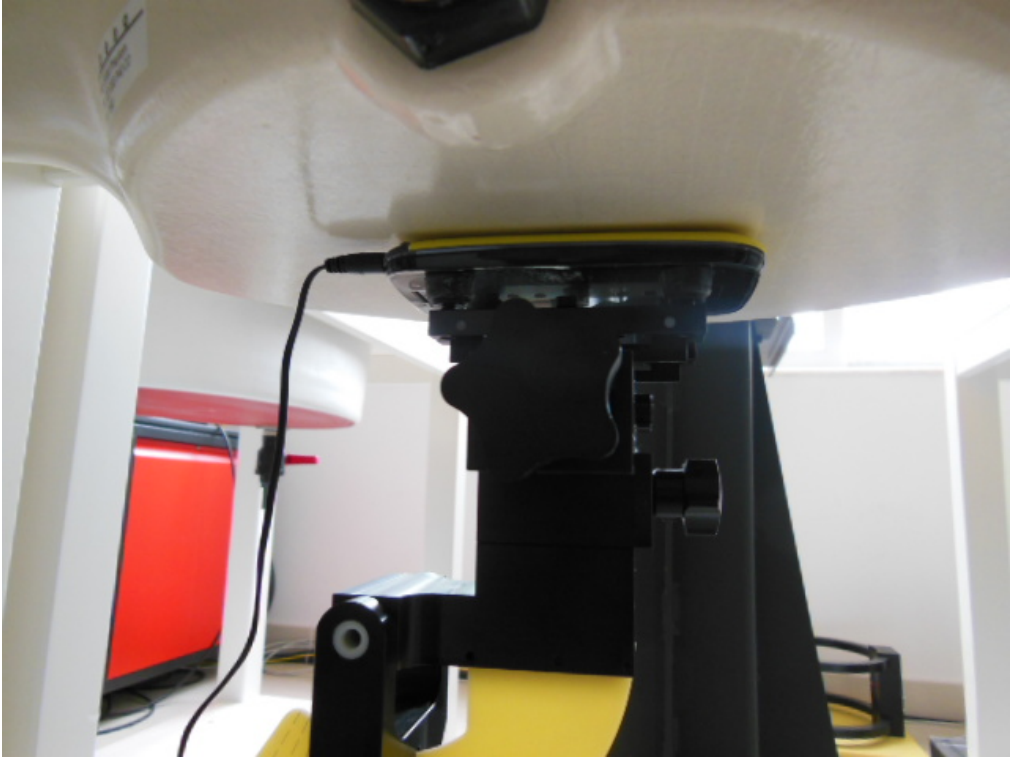
10mm Body-worn Left Side Setup Photo



10mm Body-worn Right Side Setup Photo



10mm Body-worn Bottom Side Setup Photo



10mm Body-worn Rear Side (With Headset)Setup Photo



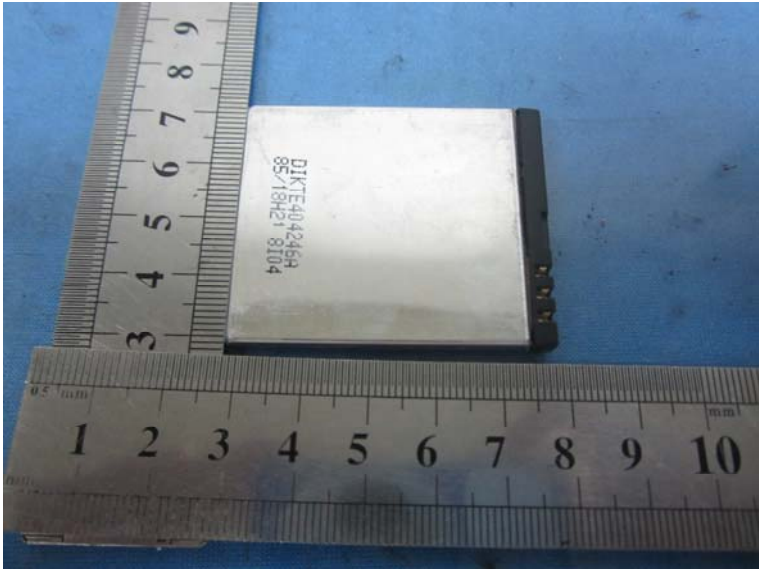
10mm Body-worn Front Side Setup Photo

8. External Photos of the EUT

External Photos







.....End of Report.....