

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



**S** Schweizerischer Kalibrierdienst  
**C** Service suisse d'étalonnage  
**S** Servizio svizzero di taratura  
**S** Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)  
The Swiss Accreditation Service is one of the signatories to the EA  
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

**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 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
- 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
- IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
- KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

**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.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor  $k=2$ , which for a normal distribution corresponds to a coverage probability of approximately 95%.

### Measurement Conditions

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

|                              |                        |             |
|------------------------------|------------------------|-------------|
| DASY Version                 | DASY5                  | V52.8.8     |
| 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 | 38.0 $\pm$ 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 <sup>3</sup> (1 g) of Head TSL | Condition          |                              |
|---|--------------------|------------------------------|
| SAR measured  | 250 mW input power | 13.5 W/kg                    |
| SAR for nominal Head TSL parameters                   | normalized to 1W   | 52.8 W/kg $\pm$ 17.0 % (k=2) |

| SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL | condition          |                              |
|---|--------------------|------------------------------|
| SAR measured  | 250 mW input power | 6.23 W/kg                    |
| SAR for nominal Head TSL parameters                     | normalized to 1W   | 24.6 W/kg $\pm$ 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 | 51.8 $\pm$ 6 % | 2.03 mho/m $\pm$ 6 % |
| Body TSL temperature change during test | < 0.5 °C            | ----           | ----                 |

### SAR result with Body TSL

| SAR averaged over 1 cm <sup>3</sup> (1 g) of Body TSL | Condition          |                              |
|---|--------------------|------------------------------|
| SAR measured  | 250 mW input power | 13.1 W/kg                    |
| SAR for nominal Body TSL parameters                   | normalized to 1W   | 51.2 W/kg $\pm$ 17.0 % (k=2) |

| SAR averaged over 10 cm <sup>3</sup> (10 g) of Body TSL | condition          |                              |
|---|--------------------|------------------------------|
| SAR measured  | 250 mW input power | 6.10 W/kg                    |
| SAR for nominal Body TSL parameters                     | normalized to 1W   | 24.1 W/kg $\pm$ 16.5 % (k=2) |

**Appendix (Additional assessments outside the scope of SCS 0108)****Antenna Parameters with Head TSL**

|                                      |                             |
|--------------------------------------|-----------------------------|
| Impedance, transformed to feed point | $53.7 \Omega + 5.1 j\Omega$ |
| Return Loss                          | - 24.3 dB                   |

**Antenna Parameters with Body TSL**

|                                      |                             |
|--------------------------------------|-----------------------------|
| Impedance, transformed to feed point | $50.0 \Omega + 4.5 j\Omega$ |
| Return Loss                          | - 27.0 dB                   |

**General Antenna Parameters and Design**

|                                  |          |
|----------------------------------|----------|
| Electrical Delay (one direction) | 1.162 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 | November 10, 2009 |

**DASY5 Validation Report for Head TSL**

Date: 25.07.2016

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 2450 MHz D2450V2; Type: D2450V2; Serial: D2450V2 - SN:853**

Communication System: UID 0 - CW; Frequency: 2450 MHz

Medium parameters used:  $f = 2450$  MHz;  $\sigma = 1.86$  S/m;  $\epsilon_r = 38$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(7.72, 7.72, 7.72); Calibrated: 15.06.2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 30.12.2015
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7372)

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

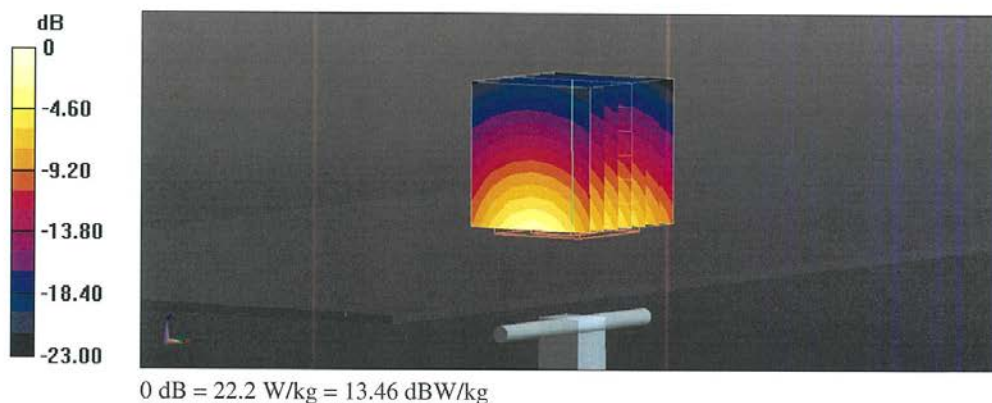
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 115.0 V/m; Power Drift = 0.00 dB

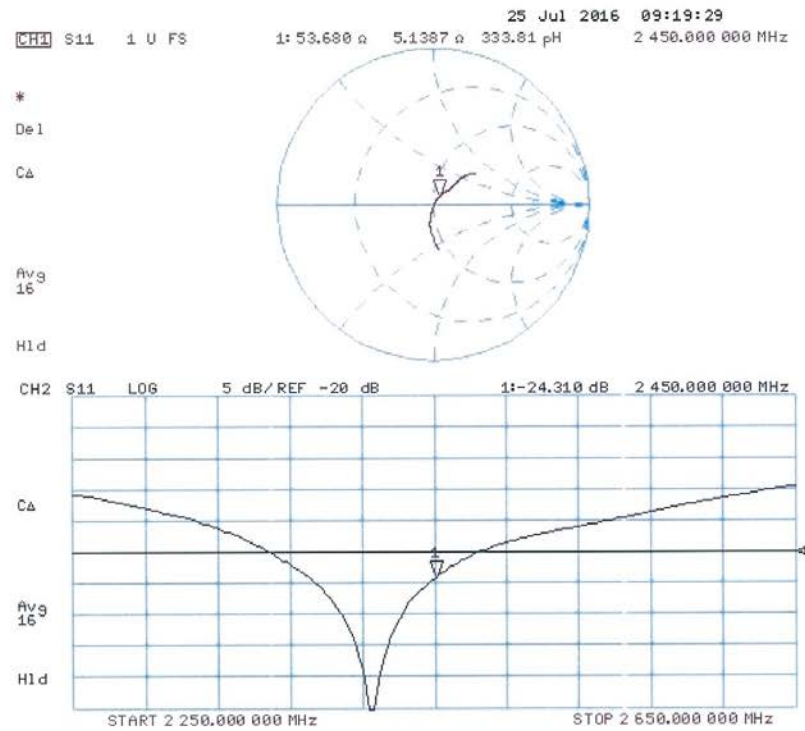
Peak SAR (extrapolated) = 27.5 W/kg

**SAR(1 g) = 13.5 W/kg; SAR(10 g) = 6.23 W/kg**

Maximum value of SAR (measured) = 22.2 W/kg



### Impedance Measurement Plot for Head TSL





**DASY5 Validation Report for Body TSL**

Date: 25.07.2016

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 2450 MHz D2450V2; Type: D2450V2; Serial: D2450V2 - SN:853**

Communication System: UID 0 - CW; Frequency: 2450 MHz

Medium parameters used:  $f = 2450$  MHz;  $\sigma = 2.03$  S/m;  $\epsilon_r = 51.8$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(7.79, 7.79, 7.79); Calibrated: 15.06.2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 30.12.2015
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7372)

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

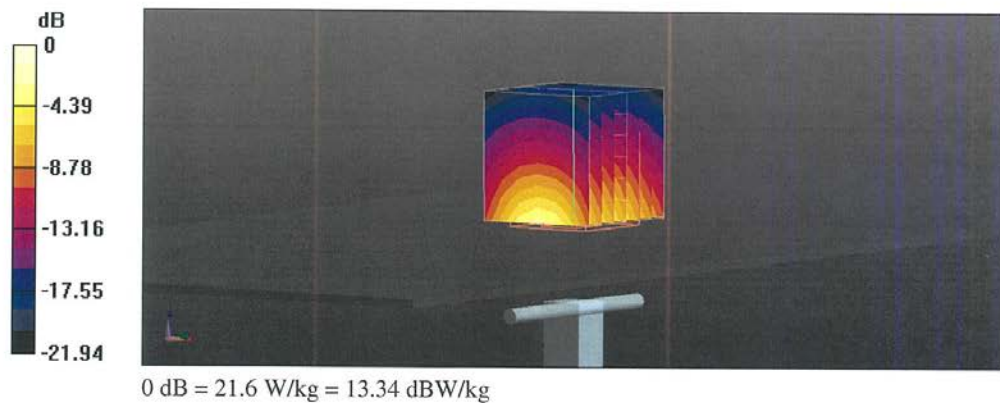
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 107.4 V/m; Power Drift = -0.02 dB

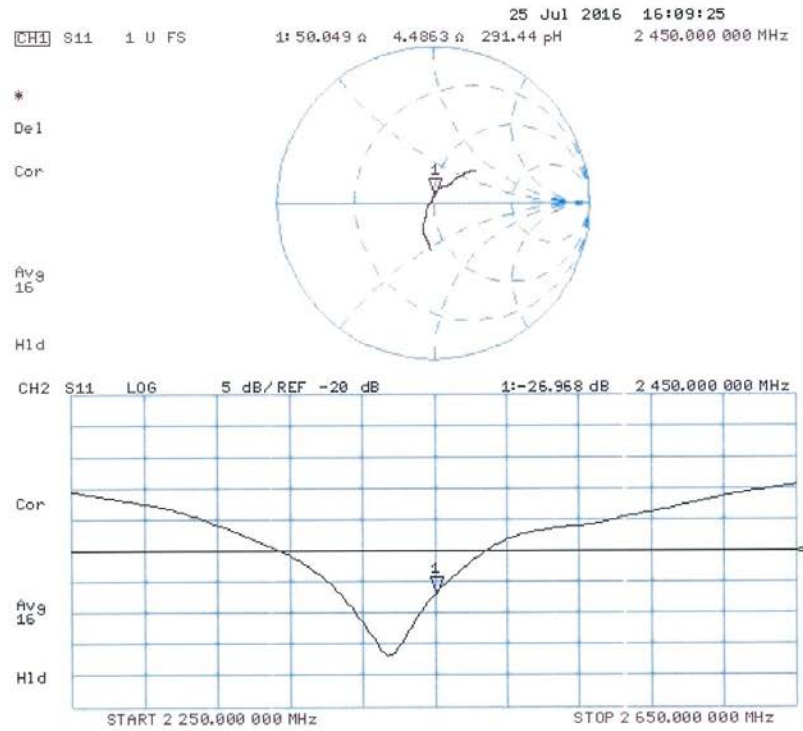
Peak SAR (extrapolated) = 26.3 W/kg

**SAR(1 g) = 13.1 W/kg; SAR(10 g) = 6.1 W/kg**

Maximum value of SAR (measured) = 21.6 W/kg



### Impedance Measurement Plot for Body TSL



**2600 MHz Dipole Calibration Certificate**

**Calibration Laboratory of**  
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Accreditation No.: **SCS 0108**

Client **CTTL-BJ (Auden)**

Certificate No: **D2600V2-1012\_Jul16**

**CALIBRATION CERTIFICATE**

Object **D2600V2 - SN:1012**

Calibration procedure(s) **QA CAL-05.v9**  
**Calibration procedure for dipole validation kits above 700 MHz**

Calibration date: **July 25, 2016**

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 ( $22 \pm 3$ )°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

| Primary Standards           | ID #               | Cal Date (Certificate No.)        | Scheduled Calibration  |
|-----------------------------|--------------------|-----------------------------------|------------------------|
| Power meter NRP             | SN: 104778         | 06-Apr-16 (No. 217-02288/02289)   | Apr-17                 |
| Power sensor NRP-Z91        | SN: 103244         | 06-Apr-16 (No. 217-02288)         | Apr-17                 |
| Power sensor NRP-Z91        | SN: 103245         | 06-Apr-16 (No. 217-02289)         | Apr-17                 |
| Reference 20 dB Attenuator  | SN: 5058 (20k)     | 05-Apr-16 (No. 217-02292)         | Apr-17                 |
| Type-N mismatch combination | SN: 5047.2 / 06327 | 05-Apr-16 (No. 217-02295)         | Apr-17                 |
| Reference Probe EX3DV4      | SN: 7349           | 15-Jun-16 (No. EX3-7349_Jun16)    | Jun-17                 |
| DAE4                        | SN: 601            | 30-Dec-15 (No. DAE4-601_Dec15)    | Dec-16                 |
| Secondary Standards         | ID #               | Check Date (in house)             | Scheduled Check        |
| Power meter EPM-442A        | SN: GB37480704     | 07-Oct-15 (No. 217-02222)         | In house check: Oct-16 |
| Power sensor HP 8481A       | SN: US37292783     | 07-Oct-15 (No. 217-02222)         | In house check: Oct-16 |
| Power sensor HP 8481A       | SN: MY41092317     | 07-Oct-15 (No. 217-02223)         | In house check: Oct-16 |
| RF generator R&S SMT-06     | SN: 100972         | 15-Jun-15 (in house check Jun-15) | In house check: Oct-16 |
| Network Analyzer HP 8753E   | SN: US37390585     | 18-Oct-01 (in house check Oct-15) | In house check: Oct-16 |

Calibrated by: **Michael Weber**      Name: **Michael Weber**      Function: **Laboratory Technician**

Approved by: **Katja Pokovic**      Technical Manager

Signature

Issued: July 26, 2016

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



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Accreditation No.: **SCS 0108**

**Glossary:**

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

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- 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
- IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
- KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

**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.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor  $k=2$ , which for a normal distribution corresponds to a coverage probability of approximately 95%.

### Measurement Conditions

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

|                              |                        |             |
|------------------------------|------------------------|-------------|
| DASY Version                 | DASY5                  | V52.8.8     |
| Extrapolation                | Advanced Extrapolation |             |
| Phantom                      | Modular Flat Phantom   |             |
| Distance Dipole Center - TSL | 10 mm                  | with Spacer |
| Zoom Scan Resolution         | dx, dy, dz = 5 mm      |             |
| Frequency                    | 2600 MHz $\pm$ 1 MHz   |             |

### Head TSL parameters

The following parameters and calculations were applied.

|   | Temperature         | Permittivity   | Conductivity         |
|---|---------------------|----------------|----------------------|
| Nominal Head TSL parameters             | 22.0 °C             | 39.0           | 1.96 mho/m           |
| Measured Head TSL parameters            | (22.0 $\pm$ 0.2) °C | 37.5 $\pm$ 6 % | 2.02 mho/m $\pm$ 6 % |
| Head TSL temperature change during test | < 0.5 °C            | ----           | ----                 |

### SAR result with Head TSL

| SAR averaged over 1 cm <sup>3</sup> (1 g) of Head TSL | Condition          |                              |
|---|--------------------|------------------------------|
| SAR measured  | 250 mW input power | 14.5 W/kg                    |
| SAR for nominal Head TSL parameters                   | normalized to 1W   | 56.7 W/kg $\pm$ 17.0 % (k=2) |

| SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL | condition          |                              |
|---|--------------------|------------------------------|
| SAR measured  | 250 mW input power | 6.39 W/kg                    |
| SAR for nominal Head TSL parameters                     | normalized to 1W   | 25.2 W/kg $\pm$ 16.5 % (k=2) |

### Body TSL parameters

The following parameters and calculations were applied.

|   | Temperature         | Permittivity   | Conductivity         |
|---|---------------------|----------------|----------------------|
| Nominal Body TSL parameters             | 22.0 °C             | 52.5           | 2.16 mho/m           |
| Measured Body TSL parameters            | (22.0 $\pm$ 0.2) °C | 51.4 $\pm$ 6 % | 2.20 mho/m $\pm$ 6 % |
| Body TSL temperature change during test | < 0.5 °C            | ----           | ----                 |

### SAR result with Body TSL

| SAR averaged over 1 cm <sup>3</sup> (1 g) of Body TSL | Condition          |                              |
|---|--------------------|------------------------------|
| SAR measured  | 250 mW input power | 14.0 W/kg                    |
| SAR for nominal Body TSL parameters                   | normalized to 1W   | 55.3 W/kg $\pm$ 17.0 % (k=2) |

| SAR averaged over 10 cm <sup>3</sup> (10 g) of Body TSL | condition          |                              |
|---|--------------------|------------------------------|
| SAR measured  | 250 mW input power | 6.25 W/kg                    |
| SAR for nominal Body TSL parameters                     | normalized to 1W   | 24.8 W/kg $\pm$ 16.5 % (k=2) |

**Appendix (Additional assessments outside the scope of SCS 0108)****Antenna Parameters with Head TSL**

|                                      |                                |
|--------------------------------------|--------------------------------|
| Impedance, transformed to feed point | 46.8 $\Omega$ - 6.6 j $\Omega$ |
| Return Loss                          | - 22.4 dB                      |

**Antenna Parameters with Body TSL**

|                                      |                                |
|--------------------------------------|--------------------------------|
| Impedance, transformed to feed point | 44.1 $\Omega$ - 4.9 j $\Omega$ |
| Return Loss                          | - 21.8 dB                      |

**General Antenna Parameters and Design**

|                                  |          |
|----------------------------------|----------|
| Electrical Delay (one direction) | 1.152 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 30, 2007 |

**DASY5 Validation Report for Head TSL**

Date: 22.07.2016

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 2600 MHz D2600V2; Type: D2600V2; Serial: D2600V2 - SN:1012**

Communication System: UID 0 - CW; Frequency: 2600 MHz

Medium parameters used:  $f = 2600$  MHz;  $\sigma = 2.02$  S/m;  $\epsilon_r = 37.5$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(7.56, 7.56, 7.56); Calibrated: 15.06.2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 30.12.2015
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7372)

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

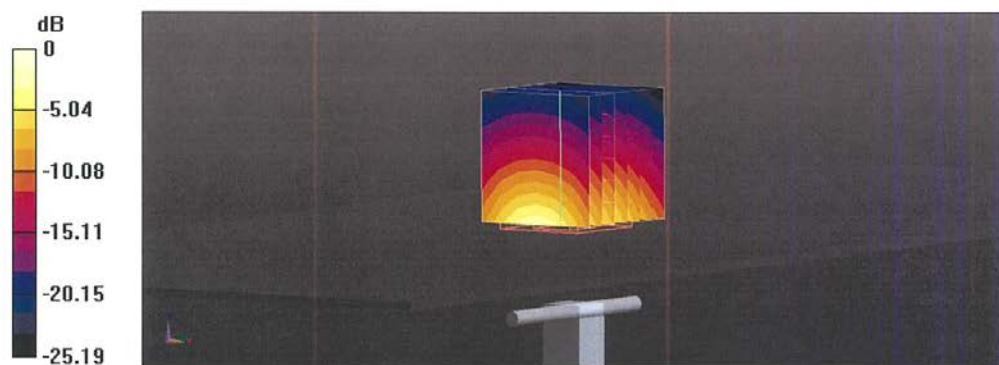
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 115.3 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 30.9 W/kg

**SAR(1 g) = 14.5 W/kg; SAR(10 g) = 6.39 W/kg**

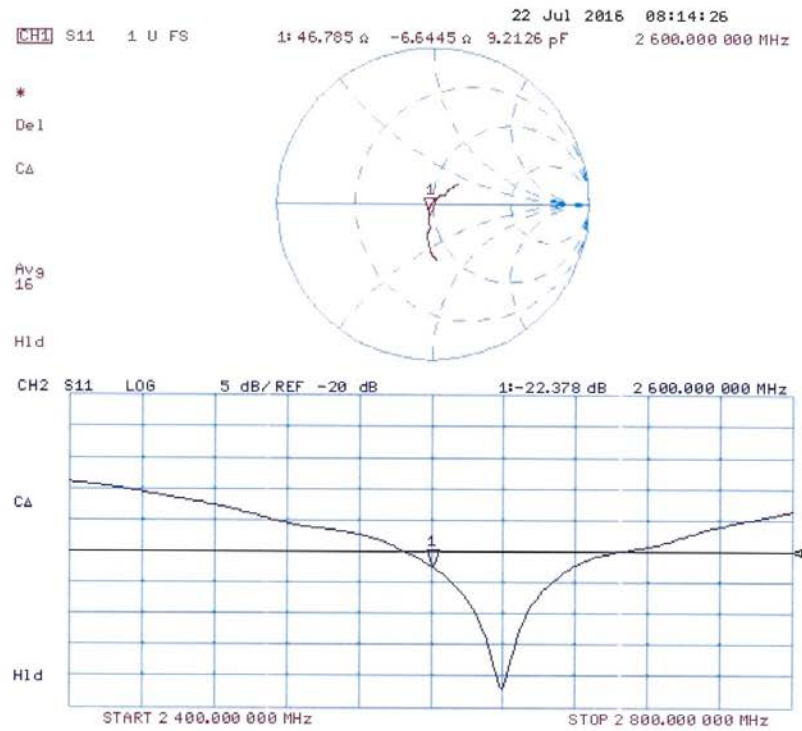
Maximum value of SAR (measured) = 24.7 W/kg



0 dB = 24.7 W/kg = 13.93 dBW/kg



### Impedance Measurement Plot for Head TSL



**DASY5 Validation Report for Body TSL**

Date: 22.07.2016

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 2600 MHz D2600V2; Type: D2600V2; Serial: D2600V2 - SN:1012**

Communication System: UID 0 - CW; Frequency: 2600 MHz

Medium parameters used:  $f = 2600$  MHz;  $\sigma = 2.2$  S/m;  $\epsilon_r = 51.4$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(7.48, 7.48, 7.48); Calibrated: 15.06.2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 30.12.2015
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7372)

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

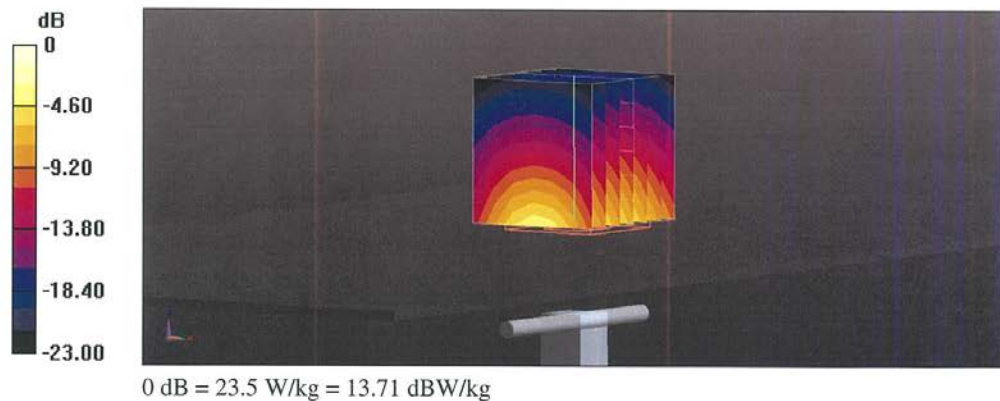
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 108.8 V/m; Power Drift = -0.03 dB

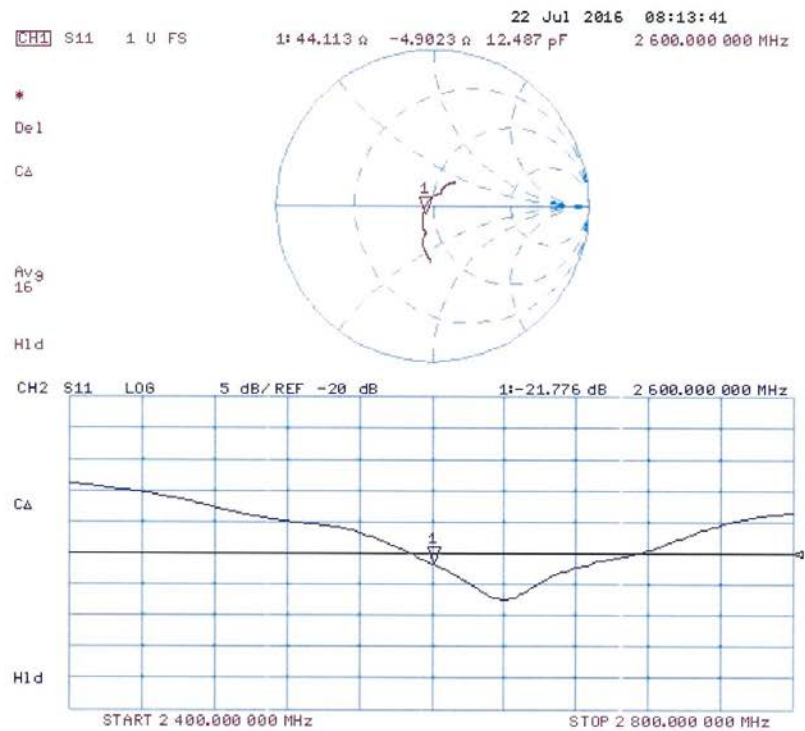
Peak SAR (extrapolated) = 28.9 W/kg

**SAR(1 g) = 14 W/kg; SAR(10 g) = 6.25 W/kg**

Maximum value of SAR (measured) = 23.5 W/kg



### Impedance Measurement Plot for Body TSL



## ANNEX I SPOT CHECK TEST

As the test lab for 4044V from TCL Communication Ltd, we, CTTL (Shouxiang), declare on our sole responsibility that, according to “Declaration of changes” provided by applicant, only the Spot check test should be performed. The test results are as below.

### I.1 Conducted power of selected case

**Table I.1-1: The conducted Power for WCDMA**

| Item  | band  | FDDV result              |                          |                          |
|-------|-------|--------------------------|--------------------------|--------------------------|
|       | ARFCN | 4132/4357<br>(826.4MHz)  | 4182/4407<br>(836.4MHz)  | 4233/4458<br>(846.6MHz)  |
| WCDMA | \     | 23.38                    | \                        | 23.26                    |
| Item  | band  | FDDII result             |                          |                          |
|       | ARFCN | 9262/9662<br>(1852.4MHz) | 9400/9800<br>(1880MHz)   | 9538/9938<br>(1907.6MHz) |
| WCDMA | \     | 23.35                    | 23.49                    | \                        |
| Item  | band  | FDDIV result             |                          |                          |
|       | ARFCN | 1312/1537<br>(1712.4MHz) | 1412/1675<br>(1732.4MHz) | 1513/1738<br>(1752.6MHz) |
| WCDMA | \     | \                        | \                        | 23.48                    |

**Table I.1-2: The conducted Power for LTE**

|                     |                 |                |       |
|---------------------|-----------------|----------------|-------|
| LTE Band2<br>20MHz  | 1RB-Low (0)     | 1900 (19100)   | \     |
|                     |                 | 1880 (18900)   | \     |
|                     |                 | 1860 (18700)   | 23.68 |
| LTE Band4<br>20MHz  | 1RB-Low (0)     | 1745 (20300)   | 23.88 |
|                     |                 | 1732.5 (20175) | \     |
|                     |                 | 1720 (20050)   | \     |
| LTE Band5<br>10MHz  | 1RB-Middle (24) | 844 (20600)    | \     |
|                     |                 | 836.5 (20525)  | 23.51 |
|                     |                 | 829 (20450)    | \     |
| LTE Band7<br>20MHz  | 1RB-Low (0)     | 2560 (21350)   | 23.76 |
|                     |                 | 2535 (21100)   | \     |
|                     |                 | 2510 (20850)   | \     |
| LTE Band12<br>10MHz | 1RB-High (49)   | 711 (23130)    | \     |
|                     |                 | 707.5 (23095)  | \     |
|                     |                 | 704 (23060)    | 23.71 |



## I.2 Measurement results

**Table I.2-1: SAR Values (WCDMA850 MHz Band - Head)**

| Ambient Temperature: 22.9 °C |      |       |               |            |                       | Liquid Temperature: 22.5 °C |                          |                          |                         |                         |                  |
|------------------------------|------|-------|---------------|------------|-----------------------|-----------------------------|--------------------------|--------------------------|-------------------------|-------------------------|------------------|
| Frequency                    |      | Side  | Test Position | Figure No. | Conducted Power (dBm) | Max. tune-up Power (dBm)    | Measured SAR(10g) (W/kg) | Reported SAR(10g) (W/kg) | Measured SAR(1g) (W/kg) | Reported SAR(1g)( W/kg) | Power Drift (dB) |
| MHz                          | Ch.  |       |               |            |                       |                             |                          |                          |                         |                         |                  |
| 826.4                        | 4132 | Right | Touch         | Fig.I.1    | 23.38                 | 24.2                        | 0.269                    | <b>0.32</b>              | 0.389                   | <b>0.47</b>             | 0.10             |

**Table I.2-2: SAR Values (WCDMA 850 MHz Band-Body)**

| Ambient Temperature: 22.9 °C |      |               |            |                       |                          | Liquid Temperature: 22.5 °C |                          |                         |                        |                  |
|------------------------------|------|---------------|------------|-----------------------|--------------------------|-----------------------------|--------------------------|-------------------------|------------------------|------------------|
| Frequency                    |      | Test Position | Figure No. | Conducted Power (dBm) | Max. tune-up Power (dBm) | Measured SAR(10g) (W/kg)    | Reported SAR(10g) (W/kg) | Measured SAR(1g) (W/kg) | Reported SAR(1g)(W/kg) | Power Drift (dB) |
| MHz                          | Ch.  |               |            |                       |                          |                             |                          |                         |                        |                  |
| 826.4                        | 4132 | Rear closed   | Fig.I.2    | 23.38                 | 24.2                     | 0.201                       | <b>0.24</b>              | 0.297                   | <b>0.36</b>            | 0.05             |

Note1: The distance between the EUT and the phantom bottom is 15mm.

**Table I.2-3: SAR Values (WCDMA1700 MHz Band - Head)**

| Ambient Temperature: 22.9 °C |      |      |               |            |                       | Liquid Temperature: 22.5 °C |                          |                          |                         |                         |                  |
|------------------------------|------|------|---------------|------------|-----------------------|-----------------------------|--------------------------|--------------------------|-------------------------|-------------------------|------------------|
| Frequency                    |      | Side | Test Position | Figure No. | Conducted Power (dBm) | Max. tune-up Power (dBm)    | Measured SAR(10g) (W/kg) | Reported SAR(10g) (W/kg) | Measured SAR(1g) (W/kg) | Reported SAR(1g)( W/kg) | Power Drift (dB) |
| MHz                          | Ch.  |      |               |            |                       |                             |                          |                          |                         |                         |                  |
| 1752.6                       | 1513 | Left | Touch         | Fig.I.3    | 23.48                 | 24.2                        | 0.149                    | <b>0.18</b>              | 0.221                   | <b>0.26</b>             | -0.02            |

**Table I.2-4: SAR Values (WCDMA1700 MHz Band-Body)**

| Ambient Temperature: 22.9 °C |      |               |            |                       |                          | Liquid Temperature: 22.5 °C |                          |                         |                        |                  |
|------------------------------|------|---------------|------------|-----------------------|--------------------------|-----------------------------|--------------------------|-------------------------|------------------------|------------------|
| Frequency                    |      | Test Position | Figure No. | Conducted Power (dBm) | Max. tune-up Power (dBm) | Measured SAR(10g) (W/kg)    | Reported SAR(10g) (W/kg) | Measured SAR(1g) (W/kg) | Reported SAR(1g)(W/kg) | Power Drift (dB) |
| MHz                          | Ch.  |               |            |                       |                          |                             |                          |                         |                        |                  |
| 1752.6                       | 1513 | Rear open     | Fig.I.4    | 23.48                 | 24.2                     | 0.552                       | <b>0.65</b>              | 0.876                   | <b>1.03</b>            | -0.01            |

Note1: The distance between the EUT and the phantom bottom is 15mm.

**Table I.2-5: SAR Values(WCDMA1900 MHz Band - Head)**

| Ambient Temperature: 22.9 °C |      |      |               |            |                       | Liquid Temperature: 22.5 °C |                          |                          |                         |                         |                  |
|------------------------------|------|------|---------------|------------|-----------------------|-----------------------------|--------------------------|--------------------------|-------------------------|-------------------------|------------------|
| Frequency                    |      | Side | Test Position | Figure No. | Conducted Power (dBm) | Max. tune-up Power (dBm)    | Measured SAR(10g) (W/kg) | Reported SAR(10g) (W/kg) | Measured SAR(1g) (W/kg) | Reported SAR(1g) (W/kg) | Power Drift (dB) |
| MHz                          | Ch.  |      |               |            |                       |                             |                          |                          |                         |                         |                  |
| 1880                         | 9400 | Left | Touch         | Fig.I.5    | 23.49                 | 24.2                        | 0.143                    | <b>0.17</b>              | 0.227                   | <b>0.27</b>             | -0.03            |

**Table I.2-6: SAR Values (WCDMA1900 MHz Band-Body)**

| Ambient Temperature: 22.9 °C |      |               |            |                       |                          | Liquid Temperature: 22.5 °C |                          |                         |                        |                  |
|------------------------------|------|---------------|------------|-----------------------|--------------------------|-----------------------------|--------------------------|-------------------------|------------------------|------------------|
| Frequency                    |      | Test Position | Figure No. | Conducted Power (dBm) | Max. tune-up Power (dBm) | Measured SAR(10g) (W/kg)    | Reported SAR(10g) (W/kg) | Measured SAR(1g) (W/kg) | Reported SAR(1g)(W/kg) | Power Drift (dB) |
| MHz                          | Ch.  |               |            |                       |                          |                             |                          |                         |                        |                  |
| 1852.4                       | 9262 | Rear open     | Fig.I.6    | 23.35                 | 24.2                     | 0.536                       | <b>0.65</b>              | 0.871                   | <b>1.06</b>            | -0.01            |

Note1: The distance between the EUT and the phantom bottom is 15mm.

**Table I.2-7: SAR Values (LTE Band2 - Head)**

| Ambient Temperature: 22.9 °C |       |         |      |               |            | Liquid Temperature: 22.5 °C |                          |                          |                          |                         |                         |                  |
|------------------------------|-------|---------|------|---------------|------------|-----------------------------|--------------------------|--------------------------|--------------------------|-------------------------|-------------------------|------------------|
| Frequency                    |       | Mode    | Side | Test Position | Figure No. | Conducted Power (dBm)       | Max. tune-up Power (dBm) | Measured SAR(10g) (W/kg) | Reported SAR(10g) (W/kg) | Measured SAR(1g) (W/kg) | Reported SAR(1g)( W/kg) | Power Drift (dB) |
| MHz                          | Ch.   |         |      |               |            |                             |                          |                          |                          |                         |                         |                  |
| 1860                         | 18700 | 1RB_Low | Left | Touch         | Fig.I.7    | 23.68                       | 24.2                     | 0.138                    | 0.16                     | 0.221                   | 0.25                    | -0.05            |

Note1: The LTE mode is QPSK\_20MHz.

**Table I.2-8: SAR Values (LTE Band2 -Body)**

| Ambient Temperature: 22.9 °C |       |         |               |            |                       | Liquid Temperature: 22.5 °C |                          |                          |                         |                        |                  |
|------------------------------|-------|---------|---------------|------------|-----------------------|-----------------------------|--------------------------|--------------------------|-------------------------|------------------------|------------------|
| Frequency                    |       | Mode    | Test Position | Figure No. | Conducted Power (dBm) | Max. tune-up Power (dBm)    | Measured SAR(10g) (W/kg) | Reported SAR(10g) (W/kg) | Measured SAR(1g) (W/kg) | Reported SAR(1g)(W/kg) | Power Drift (dB) |
| MHz                          | Ch.   |         |               |            |                       |                             |                          |                          |                         |                        |                  |
| 1860                         | 18700 | 1RB_Low | Rear closed   | Fig.I.8    | 23.68                 | 24.2                        | 0.424                    | <b>0.48</b>              | 0.688                   | <b>0.78</b>            | 0.08             |

Note1: The distance between the EUT and the phantom bottom is 15mm.

Note2: The LTE mode is QPSK\_20MHz.

**Table I.2-9: SAR Values(LTE Band4 - Head)**

| Ambient Temperature: 22.9 °C |       |         |      |               |            | Liquid Temperature: 22.5 °C |                          |                          |                          |                         |                         |                  |
|------------------------------|-------|---------|------|---------------|------------|-----------------------------|--------------------------|--------------------------|--------------------------|-------------------------|-------------------------|------------------|
| Frequency                    |       | Mode    | Side | Test Position | Figure No. | Conducted Power (dBm)       | Max. tune-up Power (dBm) | Measured SAR(10g) (W/kg) | Reported SAR(10g) (W/kg) | Measured SAR(1g) (W/kg) | Reported SAR(1g)( W/kg) | Power Drift (dB) |
| MHz                          | Ch.   |         |      |               |            |                             |                          |                          |                          |                         |                         |                  |
| 1745                         | 20300 | 1RB_Low | Left | Touch         | Fig.I.9    | 23.88                       | 24.2                     | 0.162                    | <b>0.17</b>              | 0.227                   | <b>0.24</b>             | 0.06             |

Note1: The LTE mode is QPSK\_20MHz.

**Table I.2-10: SAR Values (LTE Band4 -Body)**

| Ambient Temperature: 22.9 °C |       |         |               |            |                       | Liquid Temperature: 22.5 °C |                          |                          |                         |                        |                  |
|------------------------------|-------|---------|---------------|------------|-----------------------|-----------------------------|--------------------------|--------------------------|-------------------------|------------------------|------------------|
| Frequency                    |       | Mode    | Test Position | Figure No. | Conducted Power (dBm) | Max. tune-up Power (dBm)    | Measured SAR(10g) (W/kg) | Reported SAR(10g) (W/kg) | Measured SAR(1g) (W/kg) | Reported SAR(1g)(W/kg) | Power Drift (dB) |
| MHz                          | Ch.   |         |               |            |                       |                             |                          |                          |                         |                        |                  |
| 1745                         | 20300 | 1RB_Low | Rear open     | Fig.I.10   | 23.88                 | 24.2                        | 0.609                    | <b>0.66</b>              | 0.976                   | <b>1.05</b>            | 0.13             |

Note1: The distance between the EUT and the phantom bottom is 15mm.

Note2: The LTE mode is QPSK\_20MHz.

**Table I.2-11: SAR Values (LTE Band5 - Head)**

| Ambient Temperature: 22.9 °C |       |         |       |               |            | Liquid Temperature: 22.5 °C |                          |                          |                          |                         |                         |                  |
|------------------------------|-------|---------|-------|---------------|------------|-----------------------------|--------------------------|--------------------------|--------------------------|-------------------------|-------------------------|------------------|
| Frequency                    |       | Mode    | Side  | Test Position | Figure No. | Conducted Power (dBm)       | Max. tune-up Power (dBm) | Measured SAR(10g) (W/kg) | Reported SAR(10g) (W/kg) | Measured SAR(1g) (W/kg) | Reported SAR(1g) (W/kg) | Power Drift (dB) |
| MHz                          | Ch.   |         |       |               |            |                             |                          |                          |                          |                         |                         |                  |
| 836.5                        | 20525 | 1RB_Mid | Right | Touch         | Fig.I.11   | 23.51                       | 24.2                     | 0.317                    | <b>0.37</b>              | 0.483                   | <b>0.57</b>             | 0.16             |

Note1: The LTE mode is QPSK\_10MHz.

**Table I.2-12: SAR Values (LTE Band5 -Body)**

| Ambient Temperature: 22.9 °C |       |         |               |            |                       | Liquid Temperature: 22.5 °C |                          |                          |                         |                         |                  |
|------------------------------|-------|---------|---------------|------------|-----------------------|-----------------------------|--------------------------|--------------------------|-------------------------|-------------------------|------------------|
| Frequency                    |       | Mode    | Test Position | Figure No. | Conducted Power (dBm) | Max. tune-up Power (dBm)    | Measured SAR(10g) (W/kg) | Reported SAR(10g) (W/kg) | Measured SAR(1g) (W/kg) | Reported SAR(1g) (W/kg) | Power Drift (dB) |
| MHz                          | Ch.   |         |               |            |                       |                             |                          |                          |                         |                         |                  |
| 836.5                        | 20525 | 1RB_Mid | Rear closed   | Fig.I.12   | 23.51                 | 24.2                        | 0.189                    | 0.22                     | 0.282                   | 0.33                    | 0.02             |

Note1: The distance between the EUT and the phantom bottom is 15mm.

Note2: The LTE mode is QPSK\_10MHz.

**Table I.2-13: SAR Values (LTEBand7 - Head)**

| Ambient Temperature: 22.9 °C |       |         |      |               |            | Liquid Temperature: 22.5 °C |                          |                          |                          |                         |                         |                  |
|------------------------------|-------|---------|------|---------------|------------|-----------------------------|--------------------------|--------------------------|--------------------------|-------------------------|-------------------------|------------------|
| Frequency                    |       | Mode    | Side | Test Position | Figure No. | Conducted Power (dBm)       | Max. tune-up Power (dBm) | Measured SAR(10g) (W/kg) | Reported SAR(10g) (W/kg) | Measured SAR(1g) (W/kg) | Reported SAR(1g) (W/kg) | Power Drift (dB) |
| MHz                          | Ch.   |         |      |               |            |                             |                          |                          |                          |                         |                         |                  |
| 2560                         | 21350 | 1RB_Low | Left | Touch         | Fig.I.13   | 23.76                       | 24.5                     | 0.120                    | <b>0.14</b>              | 0.216                   | <b>0.26</b>             | 0.00             |

Note1: The LTE mode is QPSK\_20MHz.

**Table I.2-14: SAR Values (LTE Band7 -Body)**

| Ambient Temperature: 22.9 °C |       |         |               |            |                       | Liquid Temperature: 22.5 °C |                          |                          |                         |                         |                  |
|------------------------------|-------|---------|---------------|------------|-----------------------|-----------------------------|--------------------------|--------------------------|-------------------------|-------------------------|------------------|
| Frequency                    |       | Mode    | Test Position | Figure No. | Conducted Power (dBm) | Max. tune-up Power (dBm)    | Measured SAR(10g) (W/kg) | Reported SAR(10g) (W/kg) | Measured SAR(1g) (W/kg) | Reported SAR(1g) (W/kg) | Power Drift (dB) |
| MHz                          | Ch.   |         |               |            |                       |                             |                          |                          |                         |                         |                  |
| 2560                         | 21350 | 1RB_Low | Rear closed   | Fig.I.14   | 23.76                 | 24.5                        | 0.190                    | <b>0.23</b>              | 0.341                   | <b>0.40</b>             | 0.09             |

Note1: The distance between the EUT and the phantom bottom is 15mm.

Note2: The LTE mode is QPSK\_20MHz.

**Table I.2-15: SAR Values(LTE Band12 - Head)**

| Ambient Temperature: 22.9 °C |       |          |      |               |            | Liquid Temperature: 22.5 °C |                          |                          |                          |                         |                         |                  |
|------------------------------|-------|----------|------|---------------|------------|-----------------------------|--------------------------|--------------------------|--------------------------|-------------------------|-------------------------|------------------|
| Frequency                    |       | Mode     | Side | Test Position | Figure No. | Conducted Power (dBm)       | Max. tune-up Power (dBm) | Measured SAR(10g) (W/kg) | Reported SAR(10g) (W/kg) | Measured SAR(1g) (W/kg) | Reported SAR(1g) (W/kg) | Power Drift (dB) |
| MHz                          | Ch.   |          |      |               |            |                             |                          |                          |                          |                         |                         |                  |
| 704                          | 23060 | 1RB_High | Left | Touch         | Fig.I.15   | 23.71                       | 24.2                     | 0.181                    | <b>0.20</b>              | 0.263                   | <b>0.29</b>             | 0.09             |

Note1: The LTE mode is QPSK\_10MHz.

**Table I.2-16: SAR Values (LTE Band12-Body)**

| Ambient Temperature: 22.9 °C |       |          |               |            |                       | Liquid Temperature: 22.5 °C |                          |                          |                         |                         |                  |
|------------------------------|-------|----------|---------------|------------|-----------------------|-----------------------------|--------------------------|--------------------------|-------------------------|-------------------------|------------------|
| Frequency                    |       | Mode     | Test Position | Figure No. | Conducted Power (dBm) | Max. tune-up Power (dBm)    | Measured SAR(10g) (W/kg) | Reported SAR(10g) (W/kg) | Measured SAR(1g) (W/kg) | Reported SAR(1g) (W/kg) | Power Drift (dB) |
| MHz                          | Ch.   |          |               |            |                       |                             |                          |                          |                         |                         |                  |
| 704                          | 23060 | 1RB_High | Rear open     | Fig.I.16   | 23.71                 | 24.2                        | 0.353                    | 0.40                     | 0.477                   | 0.53                    | 0.17             |

Note1: The distance between the EUT and the phantom bottom is 15mm. Note2: The LTE mode is QPSK\_10MHz.

### I.3 Reported SAR Comparison

| Exposure Configuration                         | Technology Band | Reported SAR 1g (W/Kg): spot check | Reported SAR 1g (W/Kg): original |
|--|-----------------|------------------------------------|----------------------------------|
| Head<br>(Separation Distance 0mm)              | WCDMA 850       | 0.47                               | 0.58                             |
|  | WCDMA 1700      | 0.26                               | 0.39                             |
|  | WCDMA 1900      | 0.27                               | 0.28                             |
|  | LTE Band2       | 0.25                               | 0.32                             |
|  | LTE Band4       | 0.24                               | 0.25                             |
|  | LTE Band5       | 0.57                               | 0.61                             |
|  | LTE Band7       | 0.26                               | 0.30                             |
|  | LTE Band12      | 0.29                               | 0.33                             |
| Body-worn (Data)<br>(Separation Distance 15mm) | WCDMA 850       | 0.36                               | 0.40                             |
|  | WCDMA 1700      | 1.03                               | 1.11                             |
|  | WCDMA 1900      | 1.06                               | 1.14                             |
|  | LTE Band2       | 0.78                               | 0.85                             |
|  | LTE Band4       | 1.05                               | 1.14                             |
|  | LTE Band5       | 0.33                               | 0.45                             |
|  | LTE Band7       | 0.40                               | 0.40                             |
|  | LTE Band12      | 0.53                               | 0.53                             |



#### I.4 Graph Results for Spot check

##### WCDMA850\_826.4\_Right Cheek

Date: 11/16/2016

Electronics: DAE4 Sn1331

Medium: Head 850 MHz

Medium parameters used (interpolated):  $f = 826.4$  MHz;  $\sigma = 0.914$  mho/m;  $\epsilon_r = 40.885$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.9°C, Liquid Temperature: 22.5°C

Communication System: WCDMA850 Frequency: 826.4MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN7307 ConvF(10.01, 10.01, 10.01)

**Area Scan (61x161x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.449 W/kg

**Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.208 V/m; Power Drift = 0.10 dB

Peak SAR (extrapolated) = 0.577 W/kg

**SAR(1 g) = 0.389 W/kg; SAR(10 g) = 0.269 W/kg**

Maximum value of SAR (measured) = 0.445 W/kg

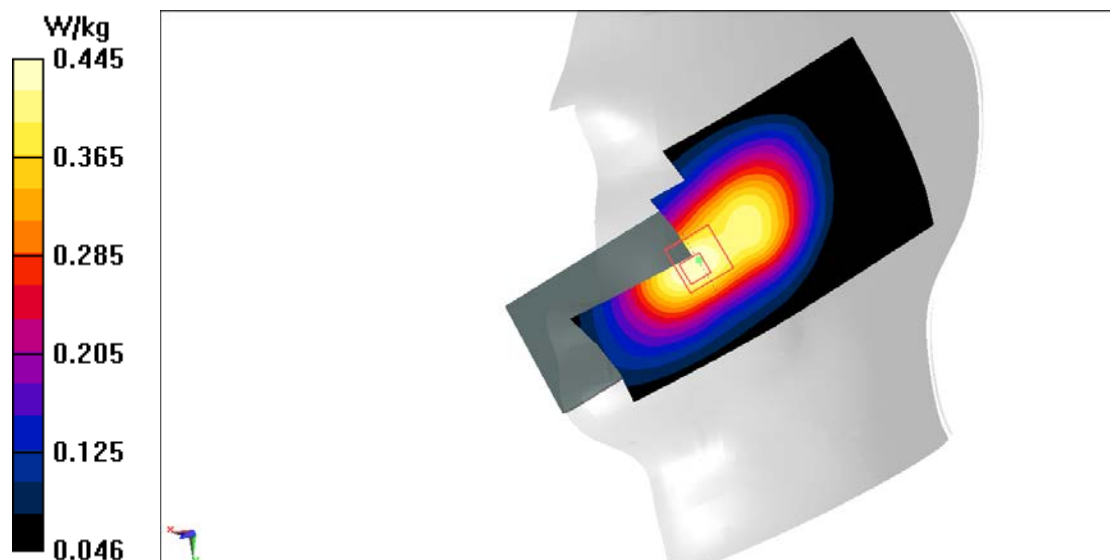


Figure I.1

**WCDMA850\_826.4\_Rear closed**

Date: 11/16/2016

Electronics: DAE4 Sn1331

Medium: Body 850 MHz

Medium parameters used (interpolated):  $f = 826.4$  MHz;  $\sigma = 0.95$  mho/m;  $\epsilon_r = 55.663$ ;  
 $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.9°C, Liquid Temperature: 22.5°C

Communication System: WCDMA850 Frequency: 826.4MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN7307 ConvF(9.83, 9.83, 9.83)

**Area Scan (121x71x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.345 W/kg

**Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 18.17 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 0.447 W/kg

**SAR(1 g) = 0.297 W/kg; SAR(10 g) = 0.201 W/kg**

Maximum value of SAR (measured) = 0.345 W/kg

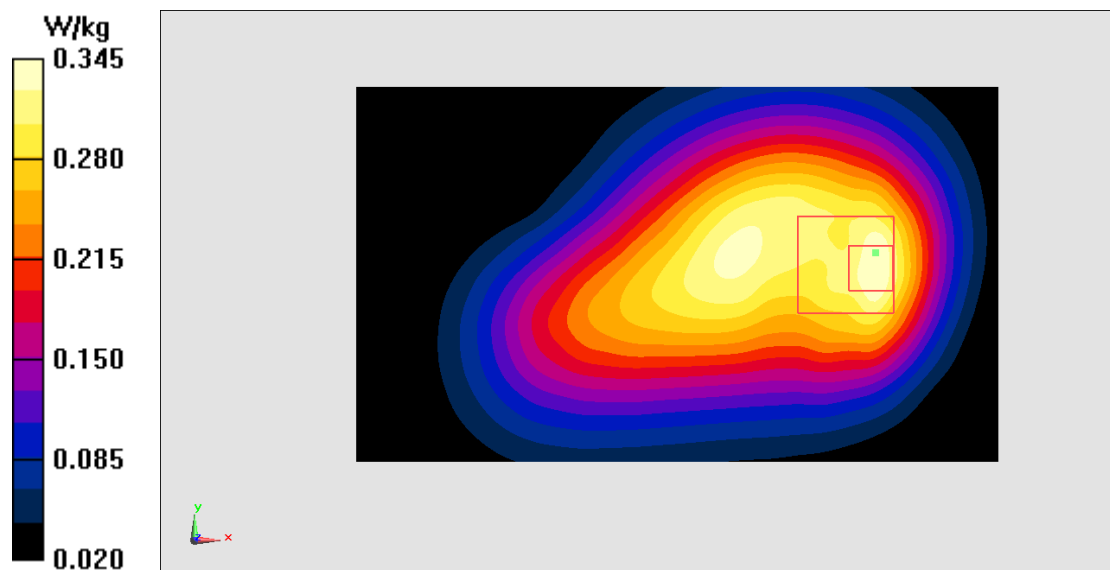


Figure I.2

**WCDMA1700\_1752.6\_Left Cheek**

Date: 11/20/2016

Electronics: DAE4 Sn1331

Medium: Head 1750 MHz

Medium parameters used (interpolated):  $f = 1752.6$  MHz;  $\sigma = 1.376$  mho/m;  $\epsilon_r = 39.633$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.9°C, Liquid Temperature: 22.5°C

Communication System: WCDMA1700 Frequency: 1752.6MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN7307 ConvF(8.37, 8.37, 8.37)

**Area Scan (71x161x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.259 W/kg

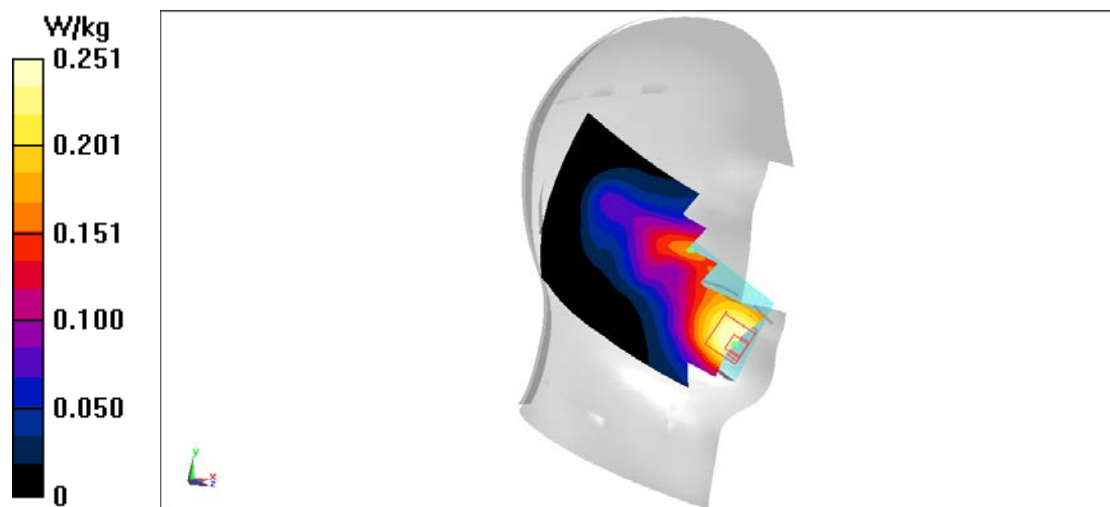
**Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 2.777 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 0.808 W/kg

**SAR(1 g) = 0.221 W/kg; SAR(10 g) = 0.149 W/kg**

Maximum value of SAR (measured) = 0.251 W/kg

**Figure I.3**

**WCDMA1700\_1752.6\_Rear open**

Date: 11/20/2016

Electronics: DAE4 Sn1331

Medium: Body 1750 MHz

Medium parameters used (interpolated):  $f = 1752.6$  MHz;  $\sigma = 1.545$  mho/m;  $\epsilon_r = 53.872$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.9°C, Liquid Temperature: 22.5°C

Communication System: WCDMA1700 Frequency: 1752.6MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN7307 ConvF(8.18, 8.18, 8.18)

**Area Scan (121x71x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 1.03 W/kg

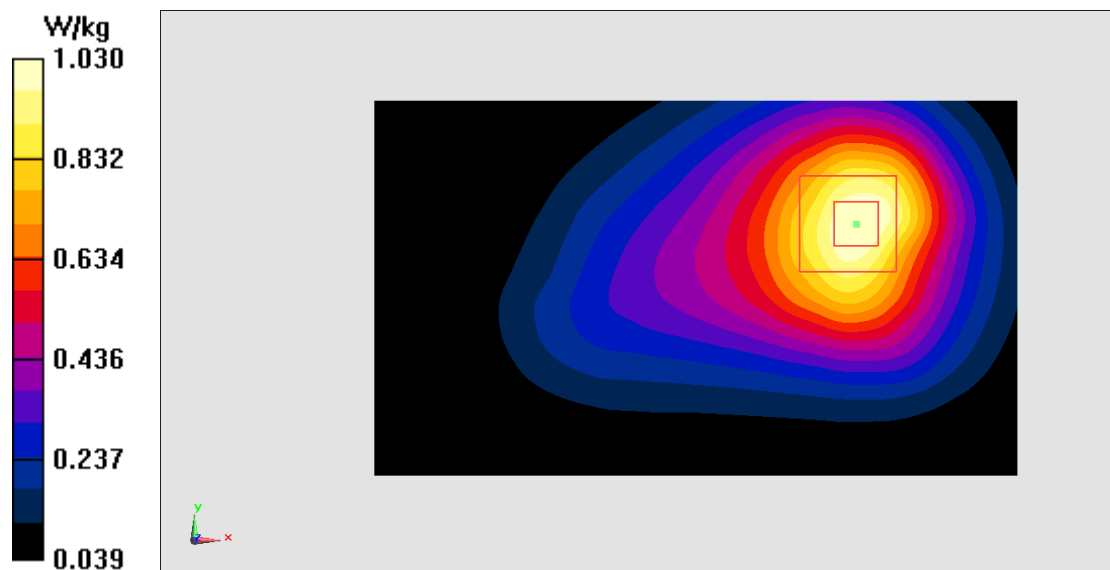
**Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 18.72 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 1.33 W/kg

**SAR(1 g) = 0.876 W/kg; SAR(10 g) = 0.552 W/kg**

Maximum value of SAR (measured) = 1.03 W/kg

**Figure I.4**

**WCDMA1900\_1880\_Left Cheek**

Date: 11/18/2016

Electronics: DAE4 Sn1331

Medium: Head 1900 MHz

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.413$  mho/m;  $\epsilon_r = 40.355$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.9°C, Liquid Temperature: 22.5°C

Communication System: WCDMA1900 Frequency: 1880MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN7307 ConvF(8.10, 8.10, 8.10)

**Area Scan (61x161x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.236 W/kg

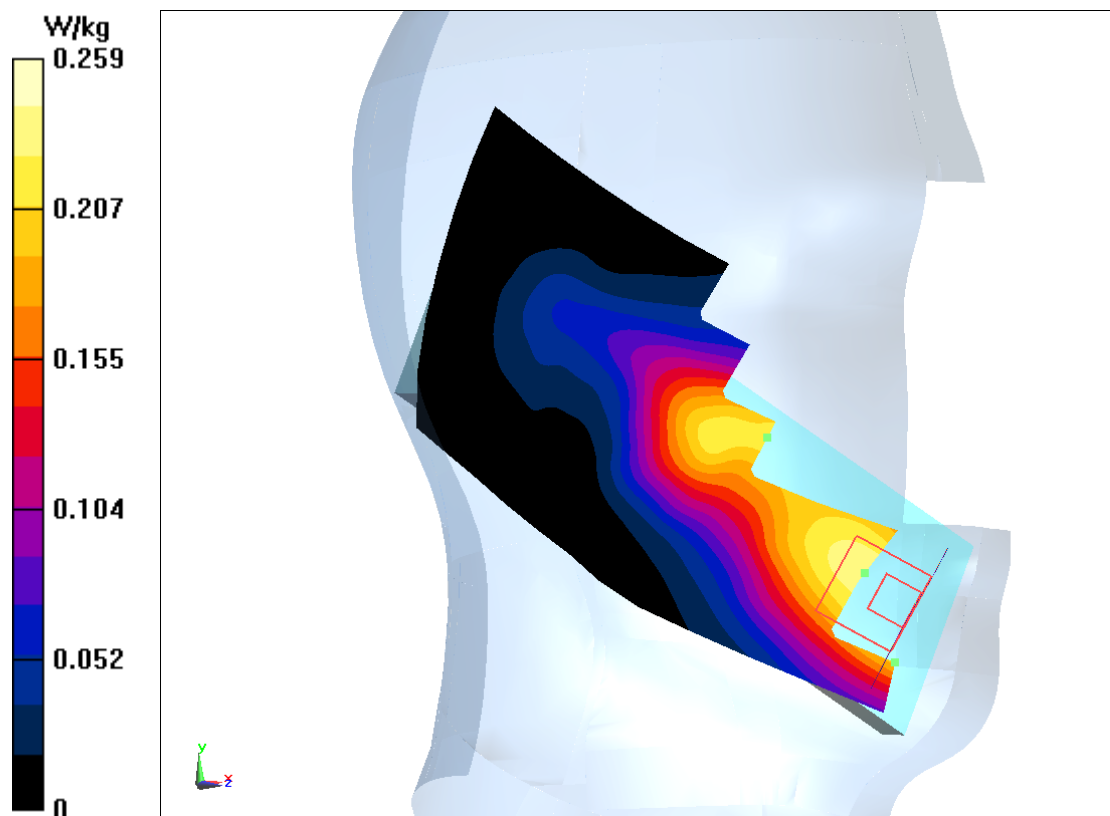
**Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 3.194 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 0.331 W/kg

**SAR(1 g) = 0.227 W/kg; SAR(10 g) = 0.143 W/kg**

Maximum value of SAR (measured) = 0.259 W/kg

**Figure I.5**



**WCDMA1900\_1852.4\_Rear open**

Date: 11/18/2016

Electronics: DAE4 Sn1331

Medium: Body 1900 MHz

Medium parameters used (interpolated):  $f = 1852.4$  MHz;  $\sigma = 1.507$  mho/m;  $\epsilon_r = 53.53$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.9°C, Liquid Temperature: 22.5°C

Communication System: WCDMA1900 Frequency: 1852.4MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN7307 ConvF(7.67, 7.67, 7.67)

**Area Scan (121x71x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 1.03 W/kg

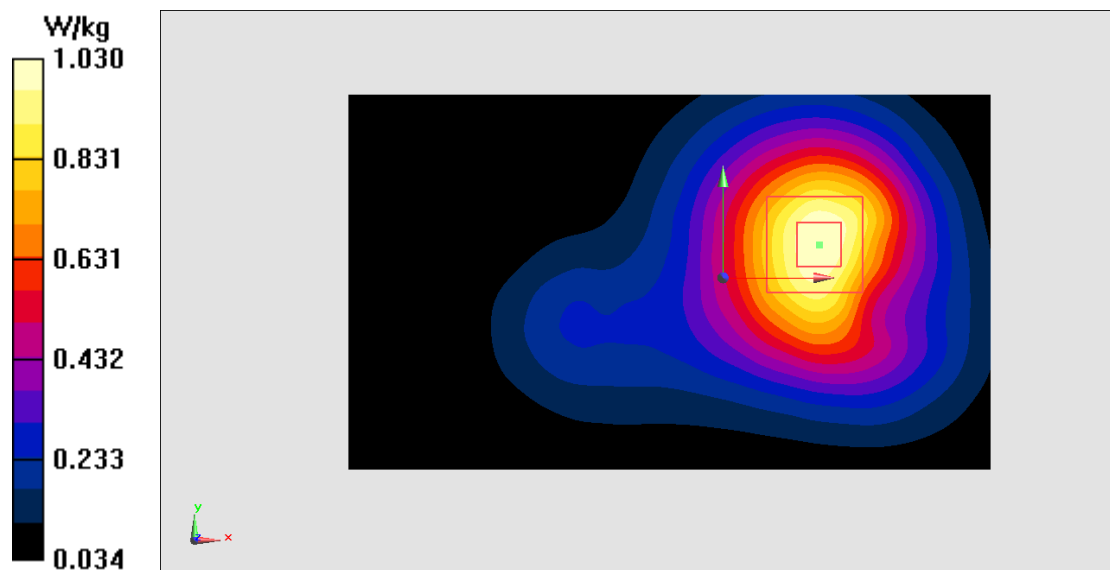
**Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 17.93 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 1.35 W/kg

**SAR(1 g) = 0.871 W/kg; SAR(10 g) = 0.536 W/kg**

Maximum value of SAR (measured) = 1.03 W/kg

**Figure I.6**

**LTEBand2\_1860\_Left Cheek**

Date: 11/18/2016

Electronics: DAE4 Sn1331

Medium: Head 1900 MHz

Medium parameters used (interpolated):  $f = 1860$  MHz;  $\sigma = 1.438$  mho/m;  $\epsilon_r = 40.91$ ;  
 $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.9°C, Liquid Temperature: 22.5°C

Communication System: LTEBand2 Frequency: 1860MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN7307 ConvF(8.10, 8.10, 8.10)

**Area Scan (61x161x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.212 W/kg

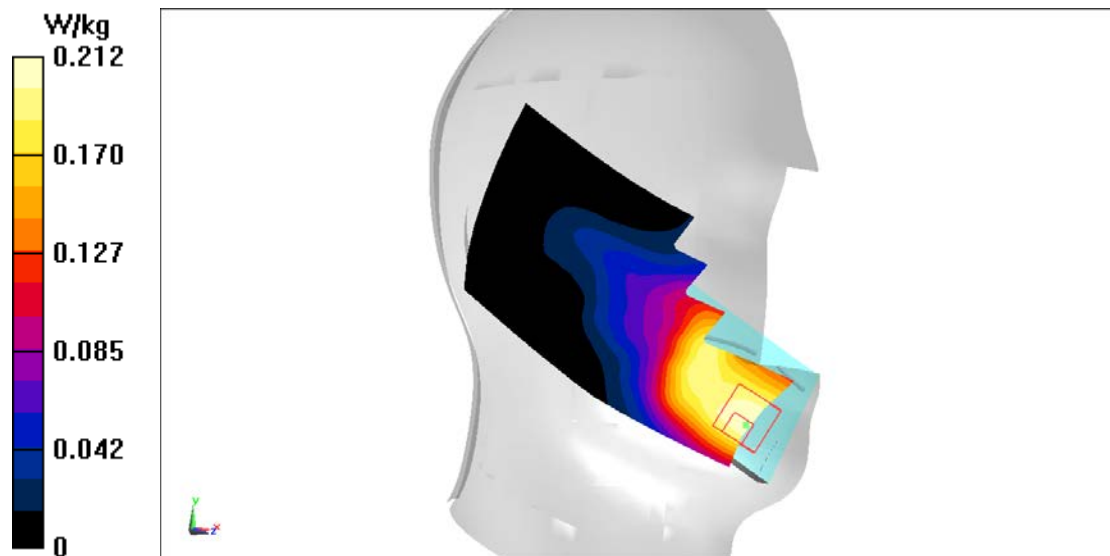
**Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 2.179 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 0.402 W/kg

**SAR(1 g) = 0.221 W/kg; SAR(10 g) = 0.138 W/kg**

Maximum value of SAR (measured) = 0.212 W/kg

**Figure I.7**

**LTEBand2\_1860\_Rear closed**

Date: 11/18/2016

Electronics: DAE4 Sn1331

Medium: Body 1900 MHz

Medium parameters used (interpolated):  $f = 1860$  MHz;  $\sigma = 1.497$  mho/m;  $\epsilon_r = 53.73$ ;  
 $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.9°C, Liquid Temperature: 22.5°C

Communication System: LTEBand2 Frequency: 1860MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN7307 ConvF(7.67, 7.67, 7.67)

**Area Scan (121x71x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.765 W/kg

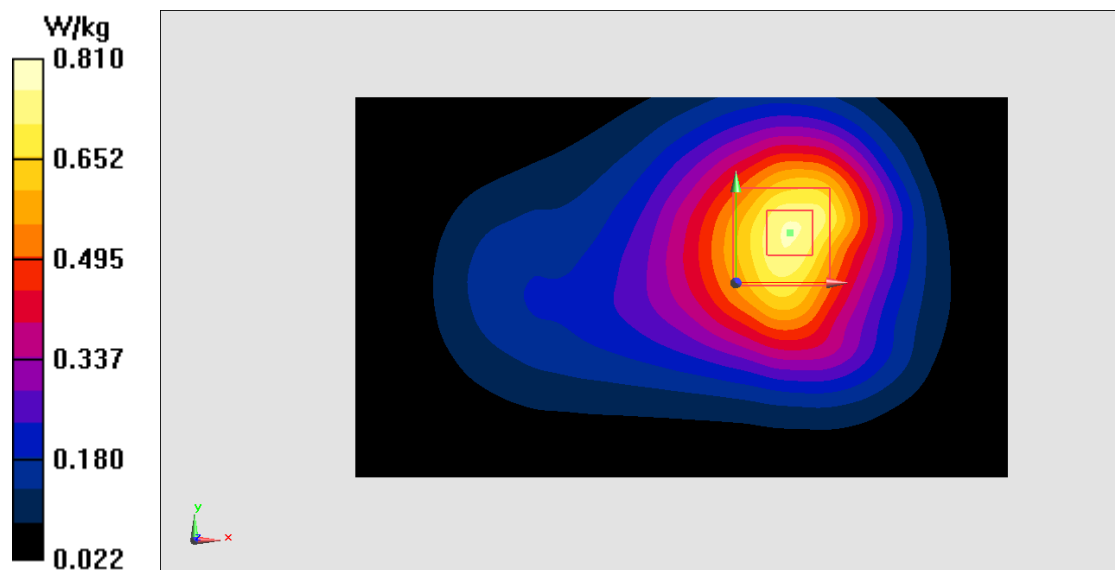
**Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 19.08 V/m; Power Drift = 0.08 dB

Peak SAR (extrapolated) = 1.08 W/kg

**SAR(1 g) = 0.688 W/kg; SAR(10 g) = 0.424 W/kg**

Maximum value of SAR (measured) = 0.810 W/kg

**Figure I.8**

**LTEBand4\_1745\_Left Cheek**

Date: 11/20/2016

Electronics: DAE4 Sn1331

Medium: Head 1750 MHz

Medium parameters used (interpolated):  $f = 1745$  MHz;  $\sigma = 1.436$  mho/m;  $\epsilon_r = 39.51$ ;  
 $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.9°C, Liquid Temperature: 22.5°C

Communication System: LTEBand4 Frequency: 1745MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN7307 ConvF(8.37, 8.37, 8.37)

**Area Scan (61x161x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.277 W/kg

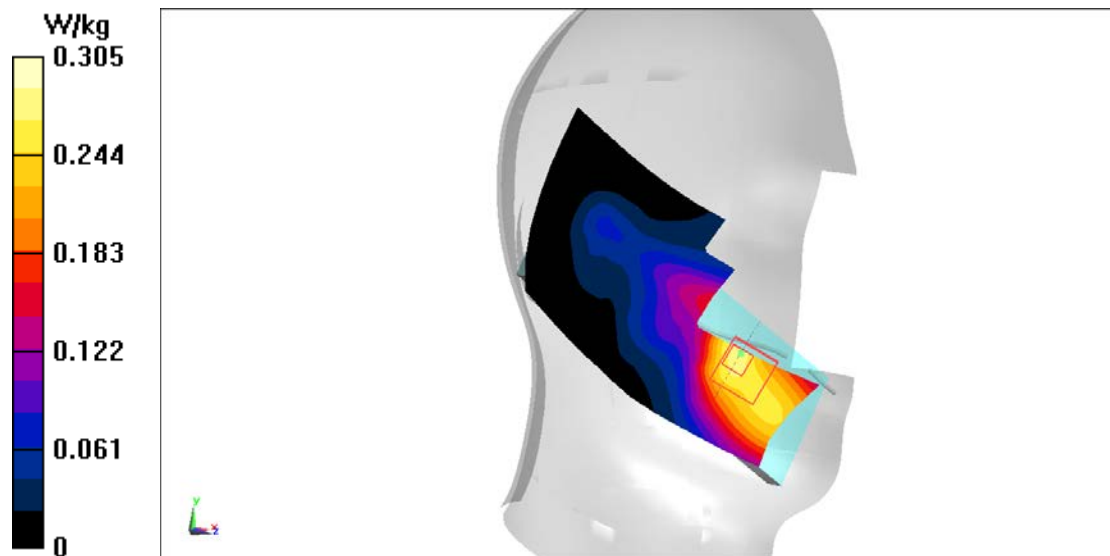
**Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 3.907 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 0.408 W/kg

**SAR(1 g) = 0.227 W/kg; SAR(10 g) = 0.162 W/kg**

Maximum value of SAR (measured) = 0.305 W/kg

**Figure I.9**

**LTEBand4\_1745\_Rear open**

Date: 11/20/2016

Electronics: DAE4 Sn1331

Medium: Body 1750 MHz

Medium parameters used (interpolated):  $f = 1745$  MHz;  $\sigma = 1.523$  mho/m;  $\epsilon_r = 54.29$ ;  
 $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.9°C, Liquid Temperature: 22.5°C

Communication System: LTEBand4 Frequency: 1745MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN7307 ConvF(8.18, 8.18, 8.18)

**Area Scan (121x71x1):** Interpolated grid:  $dx=1.000$  mm,  $dy=1.000$  mm

Maximum value of SAR (interpolated) = 1.15 W/kg

**Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5$ mm,  $dy=5$ mm,  $dz=5$ mm

Reference Value = 18.13 V/m; Power Drift = 0.13 dB

Peak SAR (extrapolated) = 1.48 W/kg

**SAR(1 g) = 0.976 W/kg; SAR(10 g) = 0.609 W/kg**

Maximum value of SAR (measured) = 1.13 W/kg

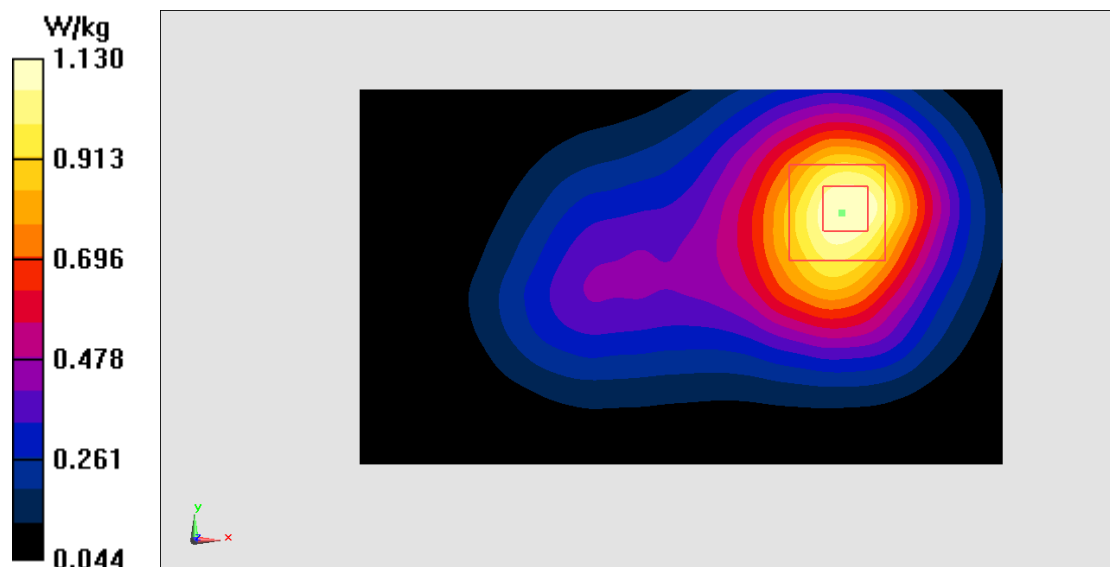


Figure I.10



**LTEBand5\_836.5\_Right Cheek**

Date: 11/16/2016

Electronics: DAE4 Sn1331

Medium: Head850 MHz

Medium parameters used (interpolated):  $f = 836.5$  MHz;  $\sigma = 0.93$  mho/m;  $\epsilon_r = 40.53$ ;  
 $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.9°C, Liquid Temperature: 22.5°C

Communication System: LTEBand5 Frequency: 836.5MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN7307 ConvF(10.01, 10.01, 10.01)

**Area Scan (61x161x1):** Interpolated grid:  $dx=1.000$  mm,  $dy=1.000$  mm

Maximum value of SAR (interpolated) = 0.539 W/kg

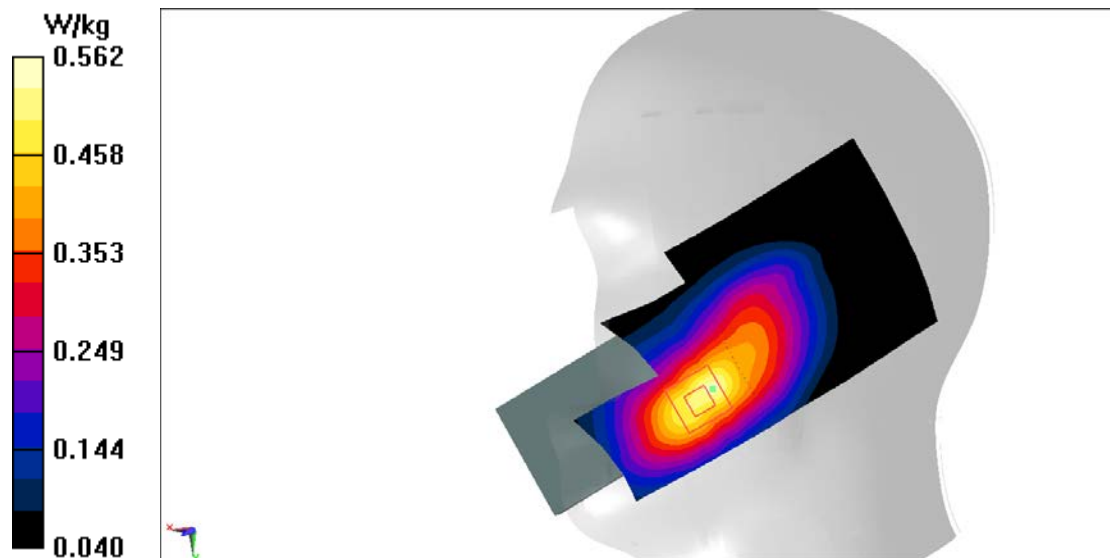
**Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5$ mm,  $dy=5$ mm,  $dz=5$ mm

Reference Value = 5.392 V/m; Power Drift = 0.16 dB

Peak SAR (extrapolated) = 0.729 W/kg

**SAR(1 g) = 0.483 W/kg; SAR(10 g) = 0.317 W/kg**

Maximum value of SAR (measured) = 0.562 W/kg

**Figure I.11**

**LTEBand5\_836.5\_Rear closed**

Date: 11/16/2016

Electronics: DAE4 Sn1331

Medium: Body850 MHz

Medium parameters used (interpolated):  $f = 836.5$  MHz;  $\sigma = 0.94$  mho/m;  $\epsilon_r = 55.67$ ;  
 $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.9°C, Liquid Temperature: 22.5°C

Communication System: LTEBand5 Frequency: 836.5MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN7307 ConvF(9.83, 9.83, 9.83)

**Area Scan (121x71x1):** Interpolated grid:  $dx=1.000$  mm,  $dy=1.000$  mm

Maximum value of SAR (interpolated) = 0.338 W/kg

**Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5$ mm,  $dy=5$ mm,  $dz=5$ mm

Reference Value = 16.93 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 0.426 W/kg

**SAR(1 g) = 0.282 W/kg; SAR(10 g) = 0.189 W/kg**

Maximum value of SAR (measured) = 0.332 W/kg

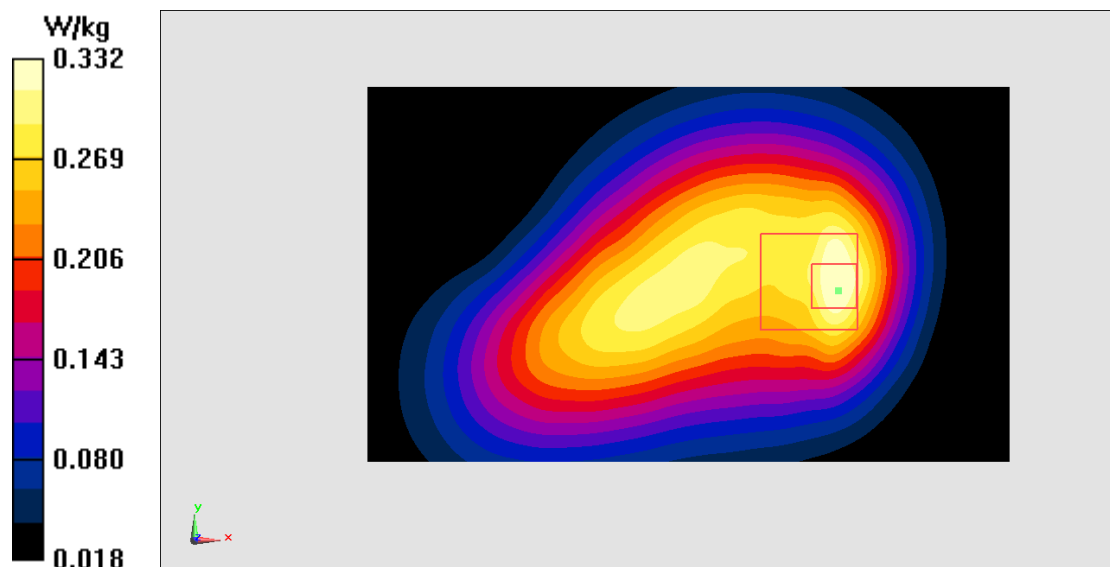


Figure I.12

**LTEBand7\_2560\_Left Cheek**

Date: 11/20/2016

Electronics: DAE4 Sn1331

Medium: Head2600 MHz

Medium parameters used (interpolated):  $f = 2560$  MHz;  $\sigma = 1.898$  mho/m;  $\epsilon_r = 37.912$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.9°C, Liquid Temperature: 22.5°C

Communication System: LTEBand7 Frequency: 2560MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN7307 ConvF(7.21, 7.21, 7.21)

**Area Scan (61x141x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.297 W/kg

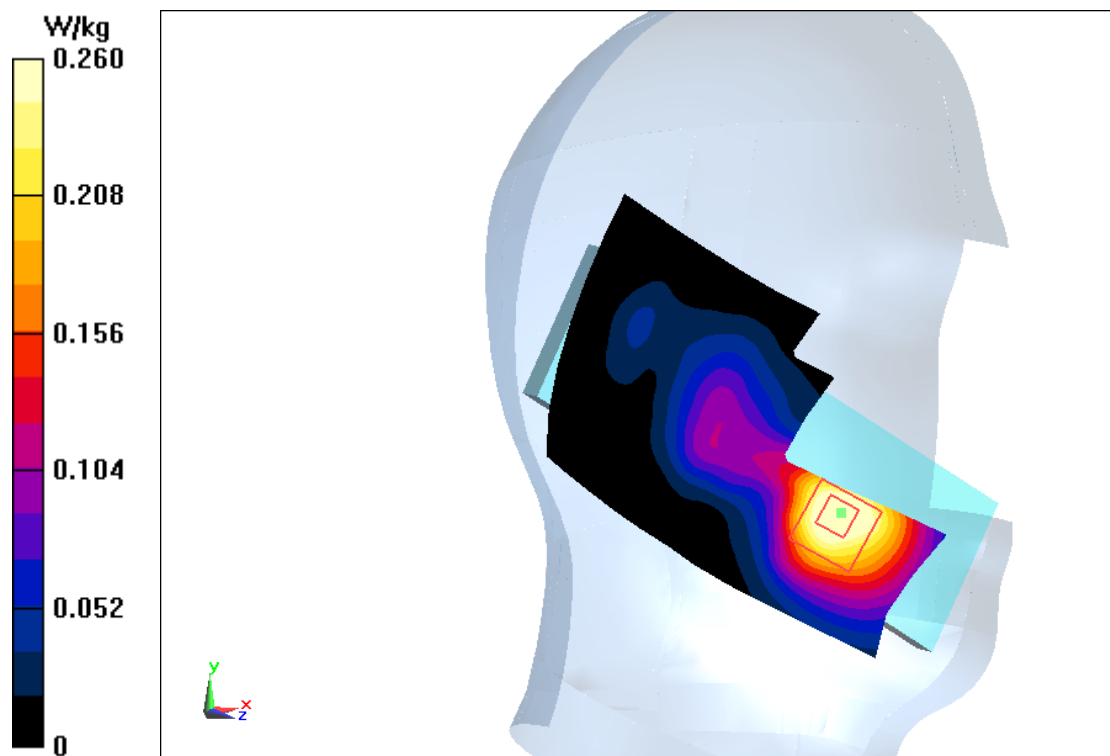
**Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 3.127 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 0.411 W/kg

**SAR(1 g) = 0.216 W/kg; SAR(10 g) = 0.120 W/kg**

Maximum value of SAR (measured) = 0.260 W/kg

**Figure I.13**

**LTEBand7\_2560\_Rear closed**

Date: 11/20/2016

Electronics: DAE4 Sn1331

Medium: Body2600 MHz

Medium parameters used (interpolated):  $f = 2560$  MHz;  $\sigma = 1.963$  mho/m;  $\epsilon_r = 51.44$ ;  
 $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.9°C, Liquid Temperature: 22.5°C

Communication System: LTEBand7 Frequency: 2560MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN7307 ConvF(7.03, 7.03, 7.03)

**Area Scan (101x61x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.410 W/kg

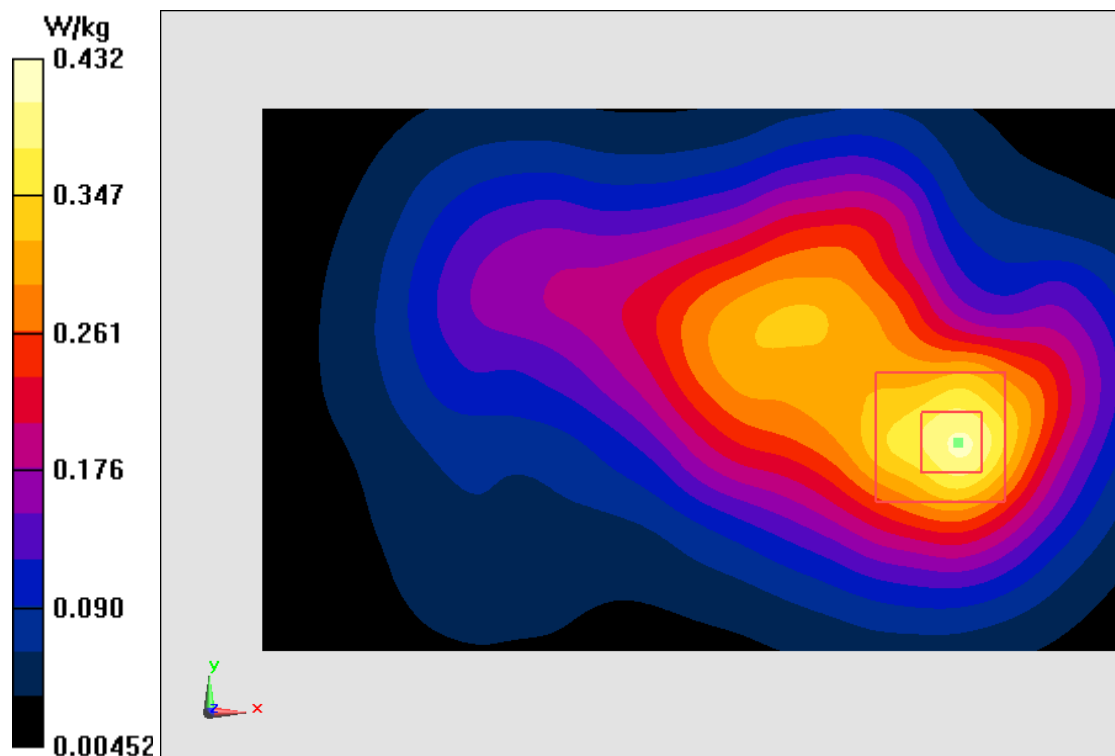
**Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 10.83 V/m; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 0.638 W/kg

**SAR(1 g) = 0.341 W/kg; SAR(10 g) = 0.190 W/kg**

Maximum value of SAR (measured) = 0.432 W/kg

**Figure I.14**

**LTEBand12\_704\_Left Cheek**

Date: 11/21/2016

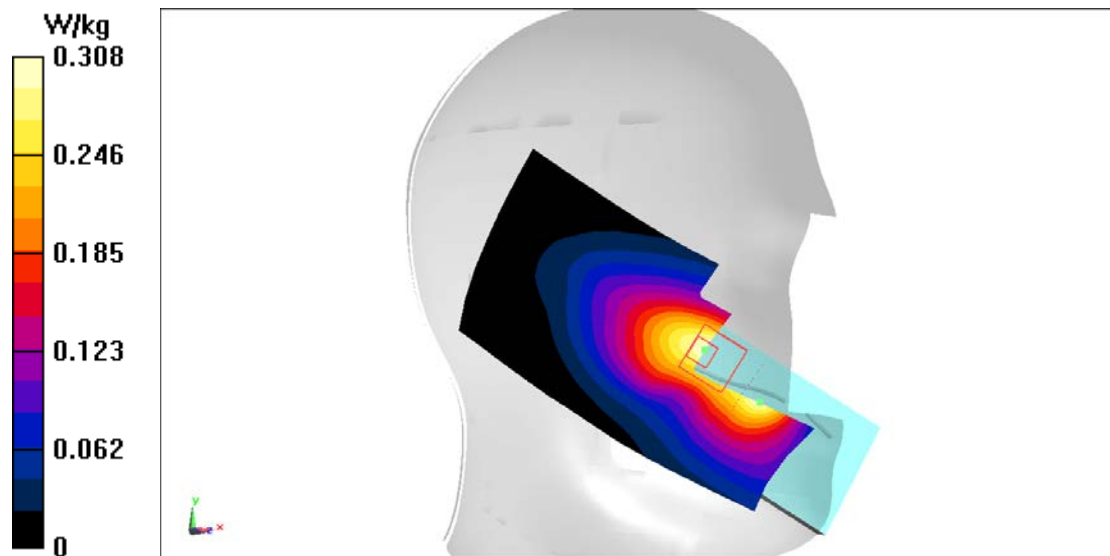
Electronics: DAE4 Sn1331

Medium: Head750 MHz

Medium parameters used (interpolated):  $f = 704 \text{ MHz}$ ;  $\sigma = 0.857 \text{ mho/m}$ ;  $\epsilon_r = 40.943$ ;  
 $\rho = 1000 \text{ kg/m}^3$ Ambient Temperature:  $22.9^\circ\text{C}$ , Liquid Temperature:  $22.5^\circ\text{C}$ 

Communication System: LTEBand12 Frequency: 704MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN7307 ConvF(10.47, 10.47, 10.47)

**Area Scan (61x161x1):** Interpolated grid:  $dx=1.000 \text{ mm}$ ,  $dy=1.000 \text{ mm}$ Maximum value of SAR (interpolated) =  $0.307 \text{ W/kg}$ **Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$ Reference Value =  $4.561 \text{ V/m}$ ; Power Drift =  $0.09 \text{ dB}$ Peak SAR (extrapolated) =  $0.395 \text{ W/kg}$ **SAR(1 g) =  $0.263 \text{ W/kg}$ ; SAR(10 g) =  $0.181 \text{ W/kg}$** Maximum value of SAR (measured) =  $0.308 \text{ W/kg}$ **Figure I.15**



## LTEBand12\_704\_Rear open

Date: 11/21/2016

Electronics: DAE4 Sn1331

Medium: Body750 MHz

Medium parameters used (interpolated):  $f = 704$  MHz;  $\sigma = 0.942$  mho/m;  $\epsilon_r = 55.93$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.9°C, Liquid Temperature: 22.5°C

Communication System: LTEBand12 Frequency: 704MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN7307 ConvF(9.93, 9.93, 9.93)

**Area Scan (121x71x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.519 W/kg

**Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 18.95 V/m; Power Drift = 0.17 dB

Peak SAR (extrapolated) = 0.621 W/kg

**SAR(1 g) = 0.477 W/kg; SAR(10 g) = 0.353 W/kg**

Maximum value of SAR (measured) = 0.525 W/kg

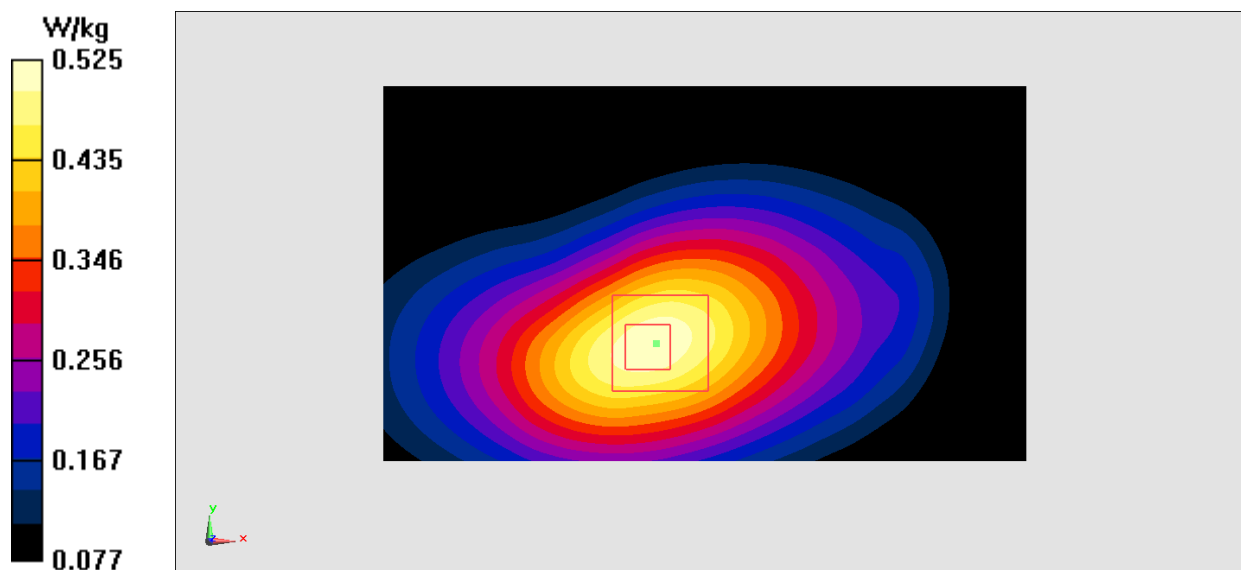


Figure I.16