

# SAR TEST REPORT

Report No. 2015SAR247

FCC ID: SRQ-ZTEBLADEV6  
Applicant: ZTE Corporation  
Product: WCDMA/LTE Multi-Mode Digital Mobile Phone  
Model: ZTE Blade V6  
HW Version: WMCQ  
SW Version: TEL\_MX\_QB25S\_P635A20V1.0.0  
Issue Date: 2015-07-20

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**Remark:** This report details the results of the testing carried out on the samples specified in this report, the results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. The report shall not be reproduced except in full, without written approval of the Company.

## Standards

|                                    |                                                                                                                                                                                                              |
|------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Applicable<br>Limit<br>Regulations | <b>ANSI/IEEE C95.1-2005</b> Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields. 3 kHz to 300 GHz                                                                         |
|                                    | <b>ANSI/IEEE C95.3-2002</b> Recommended Practice For Measurements and Computations of Radio Frequency Electromagnetic Fields with Respect to Human Exposure to such Fields. 100 kHz-300 GHz                  |
| Applicable<br>Standards            | <b>IEEE Std 1528™-2013:</b> IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques |
|                                    | <b>KDB865664 D01v01r03:</b> SAR Measurement Requirements for 100 MHz to 6 GHz                                                                                                                                |
|                                    | <b>KDB865664 D02v01r01:</b> RF Exposure Compliance Reporting and Documentation Considerations                                                                                                                |
|                                    | <b>KDB447498 D01v05r02:</b> Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies                                                                                           |
|                                    | <b>KDB648474 D03v01r02:</b> SAR Evaluation Considerations for Wireless Handsets                                                                                                                              |
|                                    | <b>KDB648474 D04v01r02:</b> Review and Approval Policies for SAR Evaluation of Handsets with Multiple Transmitters and Antennas.                                                                             |
|                                    | <b>KDB248227 D01v02r01:</b> SAR Measurement Procedures for IEEE 802.11 Wi-Fi Transmitters                                                                                                                    |
|                                    | <b>KDB941225 D01v03:</b> SAR Measurement Procedures for 3G Devices                                                                                                                                           |
|                                    | <b>KDB941225 D05v02r03:</b> SAR Test Consideration for LTE Handsets and Data Modems                                                                                                                          |
|                                    | <b>KDB941225 D06v02:</b> SAR Evaluation Procedures for Portable Devices with Wireless Router Capabilities.                                                                                                   |

## Conclusion

Localized Specific Absorption Rate (SAR) of this equipment has been measured in all cases requested by the relevant standards above. Maximum localized SAR is below exposure limits as well.

## Change History

| Version | Change Contents                                                           | Author     | Date       |
|---------|---------------------------------------------------------------------------|------------|------------|
| V1.0    | First edition                                                             | Chen Qiang | 2015-06-08 |
| V2.0    | Update few mistake words                                                  | Chen Qiang | 2015-06-23 |
| V3.0    | Update few typo of calibration date, retest GPRS850/1900 with 4 timeslots | Chen Qiang | 2015-07-15 |
| V4.0    | Update few typo of BT power limit                                         | Chen Qiang | 2015-07-17 |
| V5.0    | Add evaluation for LTE 50%RB                                              | Chen Qiang | 2015-07-20 |
|         |                                                                           |            |            |

Note: The last version will be invalid automatically while the new version is issued.

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## 1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for **ZTE CORPORATION WCDMA/LTE Multi-Mode Digital Mobile Phone ZTE Blade V6** are as follows.

### Highest standalone SAR Summary:

| Exposure Position | Frequency Band | Maximum reported 1g SAR (W/kg) | Highest reported 1g SAR (W/kg) |
|-------------------|----------------|--------------------------------|--------------------------------|
| Head              | GSM850(voice)  | <b>0.343</b>                   | 0.343                          |
|                   | GSM1900(voice) | 0.097                          |                                |
|                   | WCDMA BAND II  | 0.153                          |                                |
|                   | WCDMA BAND V   | 0.336                          |                                |
|                   | LTE BAND 2     | 0.148                          |                                |
|                   | LTE BAND 4     | 0.160                          |                                |
|                   | LTE BAND 7     | 0.085                          |                                |
|                   | LTE BAND 17    | 0.132                          |                                |
|                   | Wi-Fi (2.45G)  | 1.043                          | 1.043                          |
| Body-worn (10mm)  | GSM850         | 0.602                          | 1.254                          |
|                   | GSM1900        | 1.240                          |                                |
|                   | WCDMA BAND II  | <b>1.254</b>                   |                                |
|                   | WCDMA BAND V   | 0.345                          |                                |
|                   | LTE BAND 2     | 1.148                          |                                |
|                   | LTE BAND 4     | 1.198                          |                                |
|                   | LTE BAND 7     | 0.767                          |                                |
|                   | LTE BAND 17    | 0.288                          |                                |
|                   | Wi-Fi (2.45G)  | 0.232                          | 0.232                          |

| Evaluation for Simultaneous SAR |                   |                                |                          |
|---------------------------------|-------------------|--------------------------------|--------------------------|
| Summation BAND                  | Exposure Position | Maximum reported 1g SAR (W/kg) | Summation SAR(1g) (W/kg) |
| WWAN +WiFi                      | Head              | 0.343+1.043=1.386              | <1.6                     |
|                                 | Body-worn(10mm)   | 1.254+0.232=1.486              | <1.6                     |

|          |                 |                     |        |
|----------|-----------------|---------------------|--------|
| WWAN +BT | Head            | $0.343+0.021=0.354$ | $<1.6$ |
|          | Body-worn(10mm) | $1.254+0.010=1.264$ | $<1.6$ |

This device is in compliance with Specific Absorption Rate (SAR) for general population/uncontrolled exposure limits(1.6W/kg) specified in FCC 47 CFR part 2(2.1093) and ANSI/IEEE C95.1-2005,and had been tested in accordance with the measurement methods and procedures specified in IEEE 1528-2013.

## 2. Administrative Information

### 2.1 Project Information

Date of start test            2015-05-04  
Date of end test:            2015-05-19

### 2.2 Test Laboratory Information

Company:                    Shanghai Tejet Communications Technology Co., Ltd Testing Center  
Address:                    Room 6205-6208, Building 6, No.399 Cailun Rd. Zhangjiang Hi-Tech  
Park, Shanghai, China  
Post Code:                   210203  
Tel:                            +86-21-61650880  
Fax:                            +86-21-61650881  
Website:                    www.tejet.cn

### 2.3 Test Environment

Temperature:                 $20^{\circ}\text{C} \sim 25^{\circ}\text{C}$   
Relative Humidity:         $20\% \sim 70\%$

### **3. Client Information**

#### **3.1 Applicant information**

Company Name: ZTE Corporation  
Address: ZTE Plaza, Keji Road South, Hi-Tech Industrial Park, Nanshan  
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#### **3.2 Manufacturer Information**

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## 4. Equipment Under Test (EUT) and Accessory Equipment (AE)

### 4.1 Information of EUT

|                                 |                                                                 |
|---------------------------------|-----------------------------------------------------------------|
| Device Type                     | Portable device                                                 |
| Product                         | WCDMA/LTE Multi-Mode Digital Mobile Phone                       |
| Model                           | ZTE Blade V6                                                    |
| Type                            | Identical Prototype                                             |
| Exposure Category               | Uncontrolled environment / general population                   |
| Device operation configuration: |                                                                 |
| Operating Mode(s):              | GSM850                                                          |
|                                 | PCS1900                                                         |
|                                 | WCDMA BAND II/V                                                 |
|                                 | LTE BAND 2/4/7/17                                               |
|                                 | 802.11b/g/n (20M/40M)                                           |
| Test Modulation                 | (GSM/GPRS)GMSK, (EDGE)QPSK/8PSK<br>(WCDMA) QPSK,(LTE)QPSK/16QAM |
| GPRS Operation Class            | B                                                               |
| GPRS Multislot Class            | 12                                                              |
| EDGE Class                      | 12                                                              |
| DTM Support                     | N/A                                                             |
| AP Support                      | Yes                                                             |
| Rated Output Power              | GSM 850:33dBm                                                   |
|                                 | PCS1900: 30dBm                                                  |
|                                 | WCDMA BAND II: 23dBm                                            |
|                                 | WCDMA BAND V: 24dBm                                             |
|                                 | LTE BAND 2/7 : 23.5dBm                                          |
|                                 | LTE BAND 4/17: 23dBm                                            |
|                                 | 802.11b: 16dBm<br>802.11g: 15dBm<br>802.11n(20M/40M): 15dBm     |
|                                 | BT: -3dBm                                                       |
| Band Width                      | LTE BAND 2: 1.4,3,5,10,15,20                                    |
|                                 | LTE BAND 4: 1.4,3,5,10,15,20                                    |
|                                 | LTE BAND 7: 5,10,15,20                                          |
|                                 | LTE BAND 17: 5,10                                               |
| WCDMA category                  | 7 (uplink), 14 (downlink)                                       |
| GSM Release version             | R99                                                             |

|                               |                                                            |               |
|-------------------------------|------------------------------------------------------------|---------------|
| WCDMA Release version         | R8                                                         |               |
| LTE Release version           | R9                                                         |               |
| Antenna Type:                 | Internal antenna                                           |               |
| Operating Frequency Range(s): | Band                                                       | Tx(MHz)       |
|                               | GSM850                                                     | 824.2~848.8   |
|                               | PCS1900                                                    | 1850.2~1909.8 |
|                               | WCDMA BAND II                                              | 1852.4~1907.6 |
|                               | WCDMA BAND V                                               | 826.4~846.6   |
|                               | LTE BAND 2                                                 | 1850~1910     |
|                               | LTE BAND 4                                                 | 1710~1755     |
|                               | LTE BAND 7                                                 | 2500~2570     |
|                               | LTE BAND 17                                                | 704~716       |
| Power Class                   | GSM850: 4, test with power level 5                         |               |
|                               | PCS1900: 1, test with power level 0                        |               |
|                               | WCDMA BAND II/V: 3, test with maximum output power         |               |
|                               | LTE BAND 2/4/7/17: test with maximum output power          |               |
| EUT size                      | length, width: 14cm*7cm      diagonal length: 15.65cm      |               |
| Size of display               | length, width: 11.5cm *6.4cm      diagonal length: 13.16cm |               |

#### 4.2 Identification of EUT

| EUT ID | SN or IMEI      | HW Version | SW Version                 | Received Date |
|--------|-----------------|------------|----------------------------|---------------|
| TN013  | 867409020004391 | WMCQ       | TEL_MX_QB25S_P635A20V1.0.0 | 2015-05-04    |

\*EUT ID: identify the test sample in the lab internally.

#### 4.3 Identification of AE

| AE ID* | Description    |
|--------|----------------|
| AE1    | Battery        |
| AE2    | Travel Adaptor |
| AE3    | Earphone       |

##### AE1

|                 |                    |
|-----------------|--------------------|
| Model           | Li3822T43P3h786032 |
| Manufacturer    | ZTE CORPORATION    |
| Capacitance     | 2200mAh            |
| Nominal Voltage | 3.8V               |

##### AE2

|                   |                        |
|-------------------|------------------------|
| Model             | LPL-A005050100Z        |
| Manufacturer      | DOKOCOM                |
| Length of DC line | 0cm with USB connector |

##### AE3

|                   |        |
|-------------------|--------|
| Model             | DEM-79 |
| Manufacturer      | /      |
| Length of DC line | 140cm  |

\*AE ID: identify the test sample in the lab internally.

## 5. Operational Conditions during Test

### 5.1 General description of test procedures

A communication link is set up with a system simulator by air link, and a call is established. The absolute radio frequency channel is allocated to low, middle and high respectively in the case of each band. The EUT is commanded to operate at maximum transmitting power.

Connection to the EUT is established via air interface with CMU200, and the EUT is set to maximum output power by CMU200. The antenna connected to the output of the base station simulator shall be placed at least 50 cm away from the EUT. The signal transmitted by the simulator to the antenna feeding point shall be lower than the output power level of the EUT by at least 30dB.

The AP is supported,

According to KDB941225 D06,

1. The device size is 14.2 cm x 7.0 cm > 9 cm x 5 cm, so test separation distance was 10mm. The test separation distance is given by user manual
2. SAR must be tested for all surfaces and edges with a transmit antenna within 2.5cm, at a test separation distance of 10mm. And also the worst position of head are tested with Wi-Fi keep transmitting.

### 5.2 GSM Test Configuration

SAR test for GSM 850/1900, a communication link is set up with a system simulator by air link. Using CMU200 the power level is set to "5" in SAR of GSM850, set to "0" in SAR of GSM 1900, The tests in the band of GSM850/1900 are performed in the mode of voice and data transfer function.

For Class A devices, the SAR evaluation must take into account the maximum CS and PS time slots defined by the DTM multislot class for the device, with respect to head body-worn accessory and other near body operating configurations and exposure conditions. SAR may be evaluated for DTM with the device operating in DTM using one CS plus the number of PS time-slots that result in the highest source-based time-averaged maximum output or by summing the single time-slot CS and highest maximum output multislot PS SAR.38 A communication test set with DTM support is necessary to configure the test device for SAR measurement in DTM mode. Alternatively, the single slot CS GSM/GMSK voice mode SAR for each applicable exposure condition can be added respectively to the PS (E)GPRS multislot data-mode SAR to demonstrate SAR compliance for DTM.

### 5.3 WCDMA Test Configuration

SAR test for WCDMA BAND II/V, a communication link is set up with a system simulator by air link. Using CMU200 the power level is set to “3” in SAR of WCDMA BAND II/V. The tests in the band of WCDMA BAND II/V are performed in the mode of RMC 12.2kbps transfer function.

SAR for body exposure configurations in voice and data modes is measured using 12.2kbps RMC with TPC bits configured to all “1’s”. SAR for other spreading codes and multiple DPDCHn, when supported by the DUT, are not required when the maximum average output of each RF channel, for each spreading code and DPDCHn configuration, are less than 1/4 dB higher than those measured in 12.2 kbps RMC. Otherwise, SAR is measured on the maximum output channel with an applicable RMC configuration for the corresponding spreading code or DPDCHn using the exposure configuration that results in the highest SAR with 12.2 kbps RMC. When more than 2 DPDCHn are supported by the DUT, it may be necessary to configure additional DPDCHn for a DUT using FTM(Factory Test Mode) or other chipset based test approaches with parameters similar to those used in 384kbps and 968 kbps RMC.

### HSDPA Test Configuration

Body SAR is also measured for HSDPA when the maximum average output of each RF channel with HSDPA active is at least 1/4 dB higher than that measured without HSDPA using 12.2 kbps RMC or the maximum SAR 12.2 kbps RMC is above 75% of the SAR limit. Body SAR is measured using an FRC with H-Set 1 in Sub-test 1 and a 12.2 kbps RMC configured in Test Loop Mode 1, using the highest body SAR configuration in 12.2 kbps RMC without HSDPA.

HSDPA should be configured according to the UE category of a test device. The number of HS-DSCH/HS-PDSCHs, HARQ processes, minimum inter-TTI interval, transport block sizes and RV coding sequence are defined by the H-set f. To maintain a consistent test configuration and stable transmission condition, QPSK is used in the H-set for SAR testing. HS-DPCCH should be configured with a CQI feedback cycle of 4 ms with a CQI repetition factor of 2 to maintain a constant rate of active CQI slots. DPCCH and DODCH gain factors( $\beta_c, \beta_d$ ), and HS\_DPCCH power offset parameters( $\Delta_{ACK}, \Delta_{NACK}, \Delta_{CQI}$ ) should be set according to values indicated in the Table below. The CQI value is determined by the UE category, transport block size, number of HS\_PDSCHs and modulation used in the H-set.

**Table 1: Subtest for UMTS Release 5 HSDPA**

| Sub-set                                                                                                                                                                             | $\beta_c$ | $\beta_d$ | $B_d$ (SF) | $B_c/\beta_d$ | $\beta_{hs}$ | CM (dB) |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|-----------|------------|---------------|--------------|---------|
| 1                                                                                                                                                                                   | 2/15      | 15/15     | 64         | 2/15          | 4/15         | 0.0     |
| 2                                                                                                                                                                                   | 12/15     | 15/15     | 64         | 12/15         | 24/15        | 1.0     |
| 3                                                                                                                                                                                   | 15/15     | 8/15      | 64         | 15/8          | 30/15        | 1.5     |
| 4                                                                                                                                                                                   | 15/15     | 4/15      | 64         | 15/4          | 30/15        | 1.5     |
| Note 1: $\Delta_{ACK}, \Delta_{NACK}, \Delta_{CQI} = 8 \Leftrightarrow A_{hs} = \beta_{hs}/\beta_c = 30/15 \Leftrightarrow \beta_{hs} = 30/15c$                                     |           |           |            |               |              |         |
| Note 2: $CM = 1$ for $\beta_c/\beta_d = 12/15, \beta_{hs}/\beta_c = 24/15$                                                                                                          |           |           |            |               |              |         |
| Note 3: For subset 2 the $\beta_c/\beta_d$ ratio of 12/15 for the TFC during the measurement period(TF1, TF0) is achieved by setting the signaled gain factor for the reference TFC |           |           |            |               |              |         |

(TFC1,TF1) to  $\beta_c=11/15$  and  $\beta_d=15/15$ .

**Table 2: Settings of required H-set 1 QPSK in HSDPA mode**

| Parameter                        | Unit      | Value |
|----------------------------------|-----------|-------|
| Nominal Avg. Inf. Bit Rate       | Kbps      | 534   |
| Inter-TTI Distance               | TTI's     | 3     |
| Number of HARQ Processes         | Processes | 2     |
| Information Bit Payload          | Bitw      | 3202  |
| Number Code Blocks               | Blocks    | 1     |
| Binary Channel Bits Per TTI      | Bots      | 4800  |
| Total Available SML's in UE      | SML's     | 19200 |
| Number of SML's per HARQ Proc.   | SML's     | 9600  |
| Coding Rate                      | /         | 0.67  |
| Number of Physical Channel Codes | Codes     | 5     |
| Modulation                       | /         | QPSK  |

**Table 3: HSDPA UE category**

| HS-DSCH Category | Maximum HS_DSCH Codes Received | Minimum Inter-TTI Interval | Maximum Transport Bits/HS-DSCH | Total Channel |
|------------------|--------------------------------|----------------------------|--------------------------------|---------------|
| 1                | 5                              | 3                          | 7298                           | 19200         |
| 2                | 5                              | 3                          | 7298                           | 28800         |
| 3                | 5                              | 2                          | 7298                           | 28800         |
| 4                | 5                              | 2                          | 7298                           | 38400         |
| 5                | 5                              | 1                          | 7298                           | 57600         |
| 6                | 5                              | 1                          | 7298                           | 67200         |
| 7                | 10                             | 1                          | 14411                          | 115200        |
| 8                | 10                             | 1                          | 14411                          | 134400        |
| 9                | 15                             | 1                          | 25251                          | 172800        |
| 1 2              | 15                             | 1                          | 27952                          | 172800        |
| 1 1              | 5                              | 2                          | 3630                           | 14400         |
| 1 2              | 5                              | 1                          | 3630                           | 28800         |
| 1 3              | 15                             | 1                          | 34800                          | 259200        |
| 1 4              | 15                             | 1                          | 42196                          | 259200        |
| 1 5              | 15                             | 1                          | 23370                          | 345600        |
| 1 6              | 15                             | 1                          | 27952                          | 345600        |

#### HSUPA Test Configuration

| Sub-test | $\beta_c$            | $\beta_d$            | $\beta_d$ (SF) | $\beta_c/\beta_d$    | $\beta_{tx}^{(1)}$ | $\beta_{ec}$ | $\beta_{ed}$                                 | $\beta_{ed}$ (SF) | $\beta_{ed}$ (codes) | CM <sup>(2)</sup> (dB) | MPR (dB) | AG <sup>(4)</sup> Index | E-TFCI |
|----------|----------------------|----------------------|----------------|----------------------|--------------------|--------------|----------------------------------------------|-------------------|----------------------|------------------------|----------|-------------------------|--------|
| 1        | 11/15 <sup>(3)</sup> | 15/15 <sup>(3)</sup> | 64             | 11/15 <sup>(3)</sup> | 22/15              | 209/225      | 1039/225                                     | 4                 | 1                    | 1.0                    | 0.0      | 20                      | 75     |
| 2        | 6/15                 | 15/15                | 64             | 6/15                 | 12/15              | 12/15        | 94/75                                        | 4                 | 1                    | 3.0                    | 2.0      | 12                      | 67     |
| 3        | 15/15                | 9/15                 | 64             | 15/9                 | 30/15              | 30/15        | $\beta_{min}: 47/15$<br>$\beta_{max}: 47/15$ | 4                 | 2                    | 2.0                    | 1.0      | 15                      | 92     |
| 4        | 2/15                 | 15/15                | 64             | 2/15                 | 4/15               | 2/15         | 56/75                                        | 4                 | 1                    | 3.0                    | 2.0      | 17                      | 71     |
| 5        | 15/15 <sup>(4)</sup> | 15/15 <sup>(4)</sup> | 64             | 15/15 <sup>(4)</sup> | 30/15              | 24/15        | 134/15                                       | 4                 | 1                    | 1.0                    | 0.0      | 21                      | 81     |

Note 1:  $\Delta_{ACK}$ ,  $\Delta_{NACK}$  and  $\Delta_{CQI} = 8 \Leftrightarrow A_{tx} = \beta_{tx}/\beta_c = 30/15 \Leftrightarrow \beta_{tx} = 30/15 * \beta_c$ .

Note 2: CM = 1 for  $\beta_c/\beta_d = 12/15$ ,  $\beta_{tx}/\beta_c = 24/15$ . For all other combinations of DPDCH, DPCCH, HS-DPCCH, E-DPDCH and E-DPCCH the MPR is based on the relative CM difference.

Note 3: For subtest 1 the  $\beta_c/\beta_d$  ratio of 11/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signaled gain factors for the reference TFC (TF1, TF1) to  $\beta_c = 10/15$  and  $\beta_d = 15/15$ .

Note 4: For subtest 5 the  $\beta_c/\beta_d$  ratio of 15/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signaled gain factors for the reference TFC (TF1, TF1) to  $\beta_c = 14/15$  and  $\beta_d = 15/15$ .

Note 5: Testing UE using E-DPDCH Physical Layer category 1 Sub-test 3 is not required according to TS 25.306 Table 5.1g.

Note 6:  $\beta_{ed}$  can not be set directly; it is set by Absolute Grant Value.

applicable only if Maximum Power Reduction (MPR) is implemented according to Cubic Metric (CM) requirements.<sup>37</sup>

SAR is required for Rel. 8 DC-HSDPA when SAR is required for Rel. 5 HSDPA; otherwise, the 3G SAR test reduction procedure is applied to DC-HSDPA with 12.2 kbps RMC as the primary mode. Power is measured for DC-HSDPA according to the H-Set 12, FRC configuration in Table C.8.1.12 of 3GPP TS 34.121-1 to determine SAR test reduction. A primary and a secondary serving HS-DSCH Cell are required to perform the power measurement and for the results to be acceptable.

## 5.4 LTE Test Configuration

SAR tests for LTE are performed with a base station simulator, Anritsu MT8820C. Closed loop power control was used so the UE transmits with maximum output power during SAR testing. All powers were measured with the MT8820C.

### Maximum power reduction (MPR)

It must be clearly identified if Maximum Power Reduction (MPR) is implemented and whether it is an optional or permanent feature, i.e., built-in by design. MPR may be considered during SAR testing only when the maximum output power is permanently limited by the MPR implemented within the device, according to the RB (resource block) configurations specified in 3GPP/LTE standards. Regardless of network requirements, only those RB configurations allowed by 3GPP for the channel bandwidth and modulation combinations may be tested with MPR active. Configurations with RB allocations less than the RB thresholds required by 3GPP must be tested without MPR. A-MPR (additional MPR) must be disabled during SAR testing.

The maximum average conducted output power measured according to the following configurations, for the required test channels, channel bandwidths and uplink modulations, in each frequency band, are used to support the SAR test reduction and exclusion.



- 100% RB allocation
- 1 RB and also 50% RB allocation, offset to the upper edge, middle and lower edge of the channel bandwidth of each required test channel

Higher order modulations

For each modulation besides QPSK; e.g., 16-QAM, 64-QAM, apply the QPSK procedures in sections 4.2.1, 5.2.2 and 4.2.3 to determine the QAM configurations that may need SAR measurement. For each configuration identified as required for testing, SAR is required only when the highest maximum output power for the configuration in the higher order modulation is  $> \frac{1}{2}$  dB higher than the same configuration in QPSK or when the reported SAR for the QPSK configuration is  $> 1.45$  W/kg.

## 5.5 Bluetooth Test Configuration

The Bluetooth transmitter of the device under test can be excluded from stand-alone and simultaneous SAR evaluation, per the requirements from FCC KDB 648474, as follows:

1. The separation between the Bluetooth antenna and the main antenna is 11.0cm>5cm
  2. The maximum conducted output power of Bluetooth is -3.29dBm=0.5mW  $< P(\max) = 19$ mW
- According to FCC KDB648474, stand along SAR and Simultaneous Transmission SAR are not required.

According to FCC KDB447498v05, Appendix A

### Appendix A

#### SAR Test Exclusion Thresholds for 100 MHz – 6 GHz and $\leq 50$ mm

Approximate SAR Test Exclusion Power Thresholds at Selected Frequencies and Test Separation Distances are illustrated in the following Table.

| MHz  | 5  | 10 | 15  | 20  | 25  | mm                                      |
|------|----|----|-----|-----|-----|-----------------------------------------|
| 150  | 39 | 77 | 116 | 155 | 194 | SAR Test<br>Exclusion<br>Threshold (mW) |
| 300  | 27 | 55 | 82  | 110 | 137 |                                         |
| 450  | 22 | 45 | 67  | 89  | 112 |                                         |
| 835  | 16 | 33 | 49  | 66  | 82  |                                         |
| 900  | 16 | 32 | 47  | 63  | 79  |                                         |
| 1500 | 12 | 24 | 37  | 49  | 61  |                                         |
| 1900 | 11 | 22 | 33  | 44  | 54  |                                         |
| 2450 | 10 | 19 | 29  | 38  | 48  |                                         |
| 3600 | 8  | 16 | 24  | 32  | 40  |                                         |
| 5200 | 7  | 13 | 20  | 26  | 33  |                                         |
| 5400 | 6  | 13 | 19  | 26  | 32  |                                         |
| 5800 | 6  | 12 | 19  | 25  | 31  |                                         |

For 2450MHz, 10mm test distance,  $P(\max) = 19$ mW

For Simultaneous Transmission analysis, Bluetooth SAR is estimated per KDB 447498 D01v05 based on the formula below.

(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance,



mm)] • [  $\sqrt{f(\text{GHz})/x}$  W/kg for test separation distances  $\leq 50$  mm;

where  $x = 7.5$  for 1-g SAR, and  $x = 18.75$  for 10-g SAR.

0.4 W/kg for 1-g SAR and 1.0 W/kg for 10-g SAR, when the test separation distances is  $> 50$  mm

| Bluetooth           | Turn-up Maximum Power(dBm) | Head 0mm gap | Body-worn 10mm gap |
|---------------------|----------------------------|--------------|--------------------|
| Estimated SAR(W/kg) | -3                         | 0.021        | 0.010              |

According to FCC KDB447498v05, Apppendix D

For 2450MHz, 10mm test distance ,SAR1g (BT) =0.010W/Kg

## 5.6 Wi-Fi Test Configuration

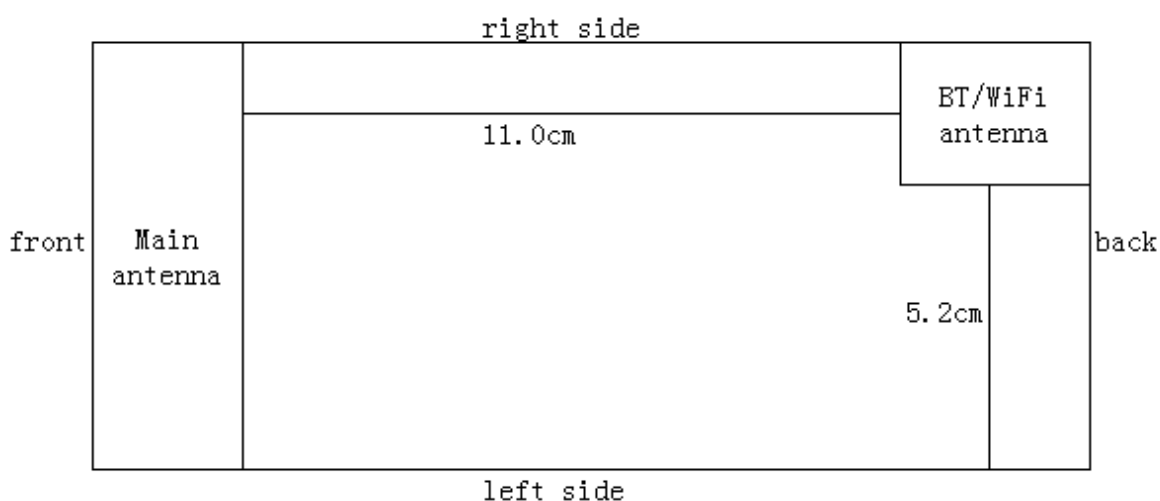
The Wi-Fi is set to different data rate and channels by the software.

According to KDB648474:

1. The separation between the Wi-Fi antenna and the main antenna is 11.0cm $>5$ cm
  - 2.The maximum conducted output power of Wi-Fi is15.37dBm=34.43mW $>P(\text{max}) =19$ mW
- So stand along SAR is needed。

According to KDB248227

SAR is not required for 802.11g channels when the maximum average output power is less than 0.25dB higher than that measured on the corresponding 802.11b channels.



Picture of antennas

According to KDB941225 D06

SAR must be tested for all surfaces and edges with a transmit antenna within 2.5cm, at a

test separation distance of 10mm

| Band | Position for test (yes or n/a) |        |                    |           |                     |                     |
|------|--------------------------------|--------|--------------------|-----------|---------------------|---------------------|
|      | Top                            | Bottom | Leftside           | Rightside | Front               | Back                |
| WWAN | yes                            | yes    | yes                | yes       | yes                 | n/a<br>11.0cm>2.5cm |
| WLAN | yes                            | yes    | n/a<br>5.2cm>2.5cm | yes       | n/a<br>11.0cm>2.5cm | yes                 |

Top—toward phantom

Bottom---towards ground

## **6. SAR Measurements system configuration**

### **6.1 SAR Measurement set-up**

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

- A standard high precision 6-axis robot (Staubli TX=RX family) with controller, teach pendant and software. An arm extension for accommodating the data acquisition electronics (DAE).
- An isotropic \_field probe optimized and calibrated for the targeted measurement.
- A data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
- The Electro-optical converter (EOC) performs the conversion from optical to electrical signals for the digital communication to the DAE. To use optical surface detection, a special version of the EOC is required. The EOC signal is transmitted to the measurement server.
- The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- The Light Beam used is for probe alignment. This improves the (absolute) accuracy of the probe positioning.
- A computer running WinXP and the DASY5 software.
- Remote control and teach pendant as well as additional circuitry for robot safety such as warning lamps, etc.
- The generic twin phantom enabling the testing of left-hand and right-hand usage.
- The device holder for handheld mobile phones.
- Tissue simulating liquid mixed according to the given recipes.
- System validation dipoles allowing to validate the proper functioning of the system.

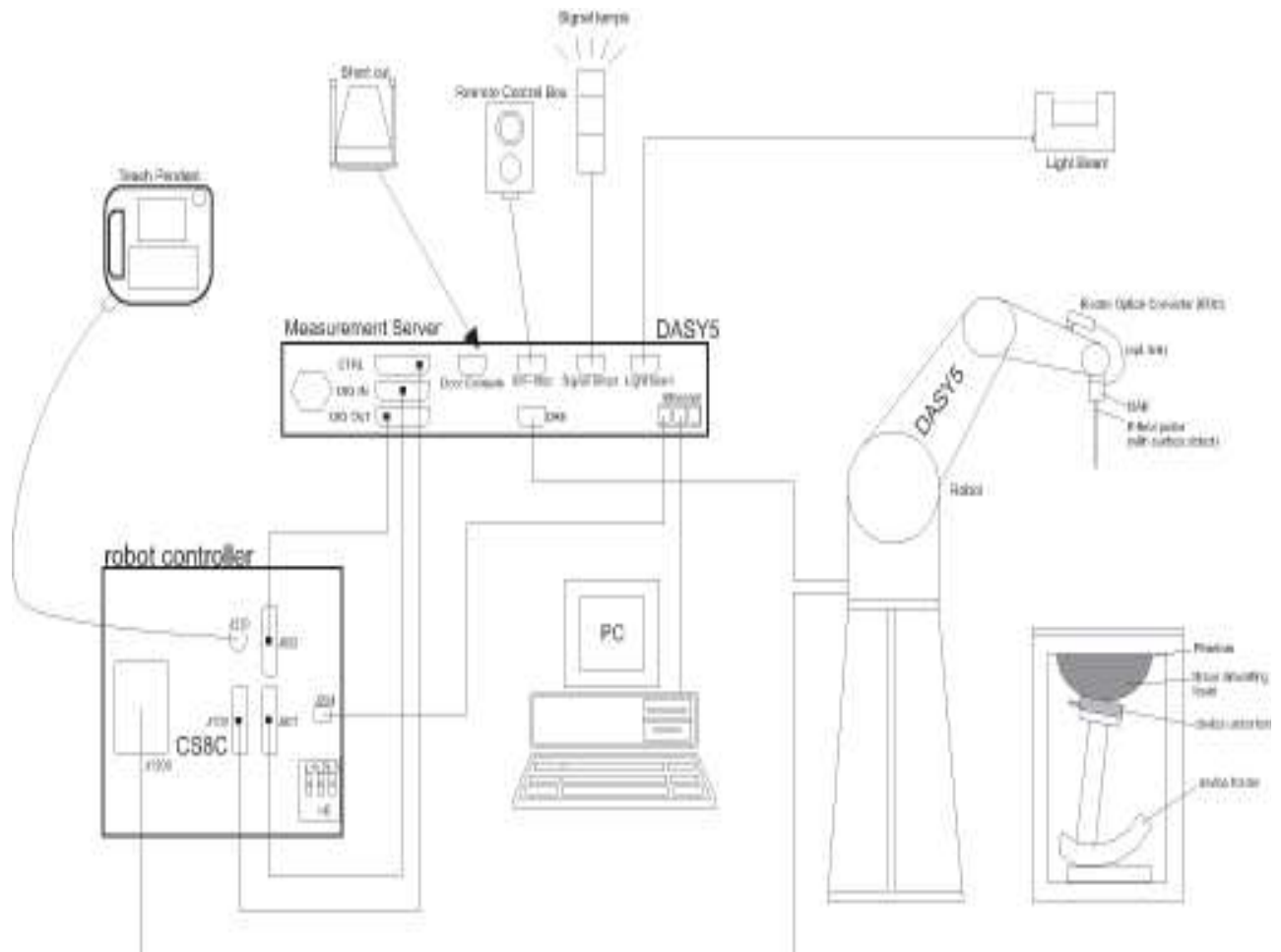


Figure 5-1 SAR Lab Test Measurement Set-up

## 6.2 DASY5 E-field Probe System

The SAR measurements were conducted with the dosimetric probe ES3DV3 (manufactured by SPEAG), designed in the classical triangular configuration and optimized for dosimetric evaluation.

### 6.2.1 Es3DV3 Probe Specification

|               |                                                                                                                                                       |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| Construction  | Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE) |
| Calibration   | Basic Broad Band Calibration in air Conversion Factors (CF) for HSL 850 and HSL 1750<br>Additional CF for other liquids and frequencies upon request  |
| Frequency     | 10 MHz to > 6 GHz<br>Linearity: $\pm 0.2$ dB (30 MHz to 6 GHz)                                                                                        |
| Directivity   | $\pm 0.3$ dB in HSL (rotation around probe axis) $\pm 0.5$ dB in tissue material (rotation normal to probe axis)                                      |
| Dynamic Range | 10 $\mu$ W/g to > 100 mW/g Linearity: $\pm 0.2$ dB (noise: typically < 1 $\mu$ W/g)                                                                   |

|             |                                                                                                                                                                                                            |
|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Dimensions  | Overall length: 330 mm (Tip: 20 mm) Tip diameter: 2.5 mm (Body: 12 mm)<br>Typical distance from probe tip to dipole centers: 1 mm                                                                          |
| Application | High precision dosimetric measurements in any exposure scenario (e.g., very strong gradient fields). Only probe which enables compliance testing for frequencies up to 6 GHz with precision of better 30%. |



Figure 5-2.ES3DV3 E-field Probe



Figure 5-3. ES3DV3 E-field probe

### 6.2.2 E-field Probe Calibration

Each probe is calibrated according to a dosimetric assessment procedure with accuracy better than  $\pm 10\%$ . The spherical isotropy was evaluated and found to be better than  $\pm 0.25\text{dB}$ . The sensitivity parameters (NormX, NormY, NormZ), the diode compression parameter (DCP) and the conversion factor (ConvF) of the probe are tested.

The free space E-field from amplified probe outputs is determined in a test chamber. This is performed in a TEM cell for frequencies below 1 GHz, and in a wave guide above 1 GHz for free space. For the free space calibration, the probe is placed in the volumetric center of the cavity and at the proper orientation with the field. The probe is then rotated 360 degrees.

E-field temperature correlation calibration is performed in a flat phantom filled with the appropriate simulated brain tissue. The measured free space E-field in the medium correlates to temperature rise in a dielectric medium. For temperature correlation calibration a RF transparent thermistor-based temperature probe is used in conjunction with the E-field probe.

$$\text{SAR} = C \frac{\Delta T}{\Delta t}$$

Where:  $\Delta t$  = Exposure time (30 seconds),  
 $C$  = Heat capacity of tissue (brain or muscle),  
 $\Delta T$  = Temperature increase due to RF exposure.  
 Or

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

Where:

$\sigma$  = Simulated tissue conductivity,

$\rho$  = Tissue density (kg/m<sup>3</sup>).

## 6.3 Other Test Equipment

### 6.3.1 Device Holder for Transmitters

The DASY5 device holder is designed to cope with the different positions given in the standard. It has two scales for device rotation (with respect to the body axis) and device inclination (with respect to the line between the ear reference points). The rotation centers for both scales are the ear reference point (ERP). Thus the device needs no repositioning when changing the angles. The amount of dielectric material has been reduced in the closest vicinity of the device, since measurements have suggested that the influence of the clamp on the test results could thus be lowered.



Figure 5-4. Device Holder

### 6.3.2 Phantom

The Generic Twin Phantom is constructed of a fiberglass shell integrated in a wooden frame. The shape of the shell is based on data from an anatomical study designed to determine the maximum exposure in at least 90% of all users. It enables the dosimetric evaluation of left and right hand phone usage as well as body mounted usage at the flat phantom region. A cover prevents the evaporation of the liquid. Reference markings on the Phantom allow the complete setup of all predefined phantom positions and measurement grids by manually teaching three points in the robot.

|                 |                                 |
|-----------------|---------------------------------|
| Shell Thickness | 2±0.1 mm                        |
| Filling Volume  | Approx. 20 liters               |
| Dimensions      | 810 x 1000 x 500 mm (H x L x W) |



**Figure 5-5. Generic Twin Phantom**

## 6.4 Scanning procedure

The DASY5 installation includes predefined files with recommended procedures for measurements and validation. They are read-only document files and destined as fully defined but unmeasured masks. All test positions (head or body-worn) are tested with the same configuration of test steps differing only in the grid definition for the different test positions.

- The “reference” and “drift” measurements are located at the beginning and end of the batch process. They measure the field drift at one single point in the liquid over the complete procedure. The indicated drift is mainly the variation of the DUT’s output power and should vary max.  $\pm 5\%$ .

- The “surface check” measurement tests the optical surface detection system of the DASY5 system by repeatedly detecting the surface with the optical and mechanical surface detector and comparing the results. The output gives the detecting heights of both systems, the difference between the two systems and the standard deviation of the detection repeatability. Air bubbles or refraction in the liquid due to separation of the sugar-water mixture gives poor repeatability (above  $\pm 0.1\text{mm}$ ). To prevent wrong results tests are only executed when the liquid is free of air bubbles. The difference between the optical surface detection and the actual surface depends on the probe and is specified with each probe. (It does not depend on the surface reflectivity or the probe angle to the surface within  $\pm 30^\circ$ .)

- Area Scan

The Area Scan is used as a fast scan in two dimensions to find the area of high field values before running a detailed measurement around the hot spot. Before starting the area scan a grid spacing of 15 mm x 15 mm is set. During the scan the distance of the probe to the phantom remains unchanged.

After finishing area scan, the field maxima within a range of 2 dB will be ascertained.

- Zoom Scan

Zoom Scans are used to estimate the peak spatial SAR values within a cubic averaging volume containing 1 g and 10 g of simulated tissue. The default Zoom Scan is done by 7x7x7 points within a cube whose base is centered around the maxima found in the preceding area scan.

- Spatial Peak Detection

The procedure for spatial peak SAR evaluation has been implemented and can determine values of masses of 1g and 10g, as well as for user-specific masses. The DASY5 system allows evaluations that combine measured data and robot positions, such as:

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

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

Extrapolation routines are used to obtain SAR values between the lowest measurement points and the inner phantom surface. The extrapolation distance is determined by the surface detection distance and the probe sensor offset. Several measurements at different distances are necessary for the extrapolation. Extrapolation routines require at least 10 measurement points in 3-D space.

They are used in the Zoom Scan to obtain SAR values between the lowest measurement points and the inner phantom surface. The routine uses the modified Quadratic Shepard's method for extrapolation. For a grid using 7x7x7 measurement points with 5mm resolution amounting to 343 measurement points, the uncertainty of the extrapolation routines is less than 1% for 1g and 10g cubes.

- A Z-axis scan measures the total SAR value at the x-and y-position of the maximum SAR value found during the cube 7x7x7 scan. The probe is moved away in z-direction from the bottom of the SAM phantom in 5mm steps.

## **6.5 Data Storage and Evaluation**

### **6.5.1 Data Storage**

The DASY5 software stores the acquired data from the data acquisition electronics as raw data (in microvolt readings from the probe sensors), together with all necessary software parameters



for the data evaluation (probe calibration data, liquid parameters and device frequency and modulation data) in measurement files with the extension “.DA4”. The software evaluates the desired unit and format for output each time the data is visualized or exported. This allows verification of the complete software setup even after the measurement and allows correction of incorrect parameter settings. For example, if a measurement has been performed with a wrong crest factor parameter in the device setup, the parameter can be corrected afterwards and the data can be re-evaluated. The measured data can be visualized or exported in different units or formats, depending on the selected probe type ([V/m], [A/m], [°C], [mW/g], [mW/cm²], [dBrel], etc.). Some of these units are not available in certain situations or show meaningless results, e.g., a SAR output in a lossless media will always be zero. Raw data can also be exported to perform the evaluation with other software packages.

### 6.5.2 Data Evaluation by SEMCAD

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

|                    |                           |                      |
|--------------------|---------------------------|----------------------|
| Probe parameters:  | - Sensitivity             | Normi, ai0, ai1, ai2 |
|                    | - Conversion factor       | ConvFi               |
|                    | - Diode compression point | Dcpi                 |
| Device parameters: | - Frequency               | f                    |
|                    | - Crest factor            | cf                   |
| Media parameters:  | - Conductivity            |                      |
|                    | - Density                 |                      |

These parameters must be set correctly in the software. They can be found in the component documents or they can be imported into the software from the configuration files issued for the DASY5 components. In the direct measuring mode of the multimeter option, the parameters of the actual system setup are used. In the scan visualization and export modes, the parameters stored in the corresponding document files are used.

The first step of the evaluation is a linearization of the filtered input signal to account for the compression characteristics of the detector diode. The compensation depends on the input signal, the diode type and the DC-transmission factor from the diode to the evaluation electronics.

If the exciting field is pulsed, the crest factor of the signal must be known to correctly compensate for peak power. The formula for each channel can be given as:

$$V_i = U_i + U_i^2 \cdot c f / d c p_i$$

With  $V_i$  = compensated signal of channel i (i = x, y, z)

$U_i$  = input signal of channel i (i = x, y, z)

**cf** = crest factor of exciting field (DASY parameter)

**dcp<sub>i</sub>** = diode compression point (DASY parameter)

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

E-field probes:  $E_i = (V_i / Norm_i \cdot ConvF)^{1/2}$

H-field probes:  $H_i = (V_i)^{1/2} \cdot (a_{i0} + a_{i1}f + a_{i2}f^2) / f$

With **V<sub>i</sub>** = compensated signal of channel i (i = x, y, z)

**Norm<sub>i</sub>** = sensor sensitivity of channel i (i = x, y, z)  
[mV/(V/m)<sup>2</sup>] for E-field Probes

**ConvF** = sensitivity enhancement in solution

**a<sub>ij</sub>** = sensor sensitivity factors for H-field probes

**f** = carrier frequency [GHz]

**E<sub>i</sub>** = electric field strength of channel i in V/m

**H<sub>i</sub>** = magnetic field strength of channel i in A/m

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

$$E_{tot} = (E_x^2 + E_y^2 + E_z^2)^{1/2}$$

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

$$SAR = (E_{tot}^2 \cdot \sigma) / (\rho \cdot 1000)$$

with **SAR** = local specific absorption rate in mW/g

**E<sub>tot</sub>** = total field strength in V/m

$\sigma$  = conductivity in [mho/m] or [Siemens/m]

$\rho$  = equivalent tissue density in g/cm<sup>3</sup>

Note that the density is normally set to 1 (or 1.06), to account for actual brain density rather than the density of the simulation liquid. The power flow density is calculated assuming the excitation field to be a free space field.

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

with  $P_{pwe}$  = equivalent power density of a plane wave in mW/cm<sup>2</sup>

$E_{tot}$  = total electric field strength in V/m

$H_{tot}$  = total magnetic field strength in A/m

## 6.6 System check

The manufacturer calibrates the probes annually. Dielectric parameters of the tissue simulates were measured every day using the dielectric probe kit and the network analyzer. A system check measurement was made following the determination of the dielectric parameters of the simulates, using the dipole validation kit. A power level of 250 mW was supplied to the dipole antenna, which was placed under the flat section of the twin SAM phantom. The system check results (dielectric parameters and SAR values) are given in the 6.2.1 and 6.2.2

System check results have to be equal or near the values determined during dipole calibration with the relevant liquids and test system ( $\pm 10\%$ ).

System check is performed regularly on all frequency bands where tests are performed with the DASY 5 system.

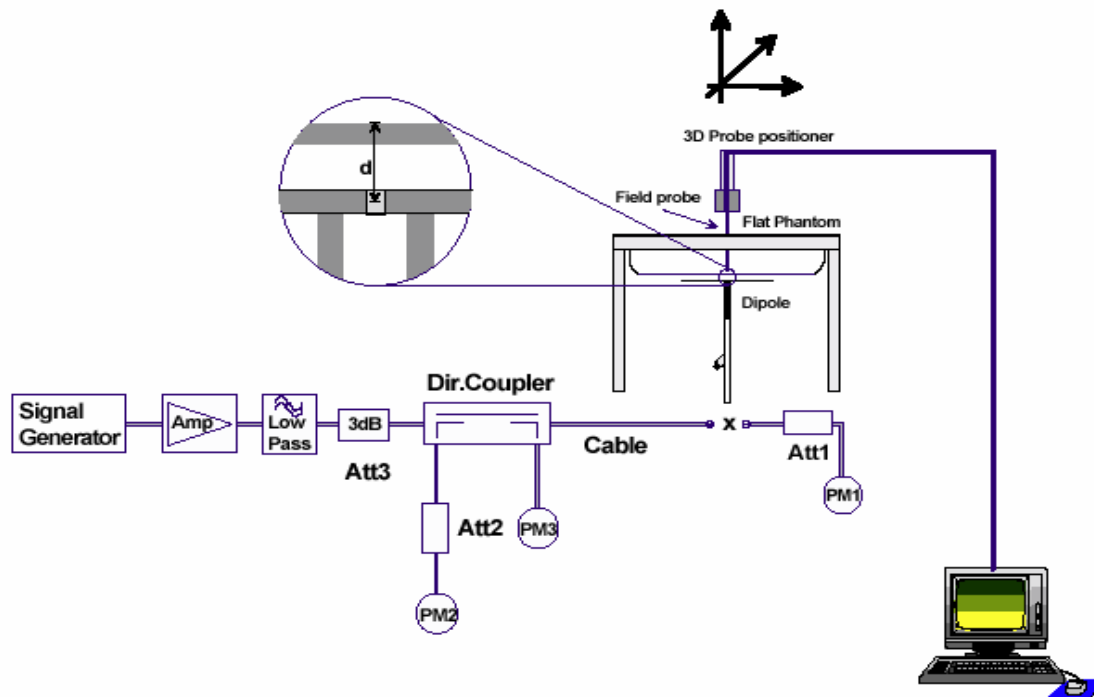


Figure 5-6. System Check Set-up

## 6.7 Equivalent Tissues

The liquid is consisted of water, salt, Glycol, Sugar, Preventol and Cellulose. The liquid has previously been proven to be suited for worst-case. The Table show the detail solution. It's

satisfying the latest tissue dielectric parameters requirements proposed by the OET 65.

| MIXTURE%                              | FREQUENCY(head) 835MHz                  |
|---------------------------------------|-----------------------------------------|
| Water                                 | 40.4                                    |
| Sugar                                 | 56                                      |
| Salt                                  | 2.5                                     |
| Preventol                             | 0.1                                     |
| Cellulose                             | 1.0                                     |
| Dielectric Parameters<br>Target Value | f=835MHz $\epsilon=41.5$ $\sigma=0.90$  |
|                                       |                                         |
| MIXTURE%                              | FREQUENCY(body) 835MHz                  |
| Water                                 | 52.5                                    |
| Sugar                                 | 45                                      |
| Salt                                  | 1.4                                     |
| Preventol                             | 0.1                                     |
| Cellulose                             | 1.0                                     |
| Dielectric Parameters<br>Target Value | f=835MHz $\epsilon=55.2$ $\sigma=0.97$  |
|                                       |                                         |
| MIXTURE%                              | FREQUENCY(head)1900MHz                  |
| Water                                 | 55.242                                  |
| Glycol monobutyl                      | 44.452                                  |
| Salt                                  | 0.306                                   |
| Dielectric Parameters<br>Target Value | f=1900MHz $\epsilon=40.0$ $\sigma=1.40$ |
|                                       |                                         |
| MIXTURE%                              | FREQUENCY(body)1900MHz                  |
| Water                                 | 69.91                                   |
| Glycol monobutyl                      | 29.96                                   |
| Salt                                  | 0.13                                    |
| Dielectric Parameters<br>Target Value | f=1900MHz $\epsilon=53.3$ $\sigma=1.52$ |
|                                       |                                         |
| MIXTURE%                              | FREQUENCY(head)2450MHz                  |
| Water                                 | 56                                      |
| Glycol monobutyl                      | 44                                      |
| Salt                                  | 0.00                                    |
| Dielectric Parameters<br>Target Value | f=2450MHz $\epsilon=39.2$ $\sigma=1.8$  |
|                                       |                                         |

|                                       |                                         |
|---------------------------------------|-----------------------------------------|
| MIXTURE%                              | FREQUENCY(body)2450MHz                  |
| Water                                 | 70                                      |
| Glycol monobutyl                      | 30                                      |
| Salt                                  | 0                                       |
| Dielectric Parameters<br>Target Value | f=2450MHz $\epsilon=52.7$ $\sigma=1.95$ |
|                                       |                                         |
| MIXTURE%                              | FREQUENCY(head)2600MHz                  |
| Water                                 | 55.49                                   |
| Glycol monobutyl                      | 44.39                                   |
| Salt                                  | 0.12                                    |
| Dielectric Parameters<br>Target Value | f=2600MHz $\epsilon=39.0$ $\sigma=1.96$ |
|                                       |                                         |
| MIXTURE%                              | FREQUENCY(head)1750MHz                  |
| Water                                 | 55.242                                  |
| Glycol monobutyl                      | 44.452                                  |
| Salt                                  | 0.306                                   |
| Dielectric Parameters<br>Target Value | f=1750MHz $\epsilon=40.0$ $\sigma=1.40$ |
|                                       |                                         |
| MIXTURE%                              | FREQUENCY(body)1750MHz                  |
| Water                                 | 69.91                                   |
| Glycol monobutyl                      | 29.96                                   |
| Salt                                  | 0.13                                    |
| Dielectric Parameters<br>Target Value | f=1750MHz $\epsilon=53.4$ $\sigma=1.49$ |
|                                       |                                         |
| MIXTURE%                              | FREQUENCY(Body)2600MHz                  |
| Water                                 | 69.5                                    |
| Glycol monobutyl                      | 30.4                                    |
| Salt                                  | 0                                       |
| Dielectric Parameters<br>Target Value | f=2600MHz $\epsilon=52.5$ $\sigma=2.16$ |
|                                       |                                         |
| MIXTURE%                              | FREQUENCY(head) 750MHz                  |
| Water                                 | 38.82                                   |
| Sugar                                 | 59.01                                   |
| Salt                                  | 1.86                                    |
| Preventol                             | 0.16                                    |

|                                       |                                        |
|---------------------------------------|----------------------------------------|
| Cellulose                             | 0.16                                   |
| Dielectric Parameters<br>Target Value | f=750MHz $\epsilon=41.9$ $\sigma=0.89$ |
|                                       |                                        |
| MIXTURE%                              | FREQUENCY(body) 750MHz                 |
| Water                                 | 50.92                                  |
| Sugar                                 | 48.01                                  |
| Salt                                  | 0.76                                   |
| Preventol                             | 0.16                                   |
| Cellulose                             | 0.16                                   |
| Dielectric Parameters<br>Target Value | f=750MHz $\epsilon=55.5$ $\sigma=0.96$ |

## 7. Summary of Test Results

### 7.1 Conducted Output Power Measurement

#### 7.1.1 Summary

The DUT is tested using CMU200/MT8820C communications tester as controller unit to set test channels and maximum output power to the DUT, as well as for measuring the conducted power.

Conducted output power was measured using an integrated RF connector and attached RF cable.

This result contains conducted output power for the EUT.

#### 7.1.2 Conducted Power Results

| GSM850         |                  | Conducted output power(dBm) |          |          |       |              |              |              |
|----------------|------------------|-----------------------------|----------|----------|-------|--------------|--------------|--------------|
|                |                  | low                         | middle   | high     |       |              |              |              |
|                |                  | CH128                       | CH189    | CH251    |       |              |              |              |
|                |                  | 824.2MHz                    | 836.6MHz | 848.8MHz |       |              |              |              |
| GSM            |                  | 32.6                        | 32.7     | 32.6     | (dB)  | CH128        | CH189        | CH251        |
| GPRS           | 1 TX-slot result | 32.6                        | 32.6     | 32.6     | -9.03 | 23.57        | 23.57        | 23.57        |
|                | 2 TX-slot result | 32.0                        | 32.0     | 32.0     | -6.02 | 25.98        | 25.98        | 25.98        |
|                | 3 TX-slot result | 30.3                        | 30.3     | 30.3     | -4.26 | 26.04        | 26.04        | 26.04        |
|                | 4 TX-slot result | 29.2                        | 29.1     | 29.2     | -3.01 | <b>26.19</b> | <b>26.09</b> | <b>26.19</b> |
| EDGE<br>(GMSK) | 1 TX-slot result | 32.6                        | 32.6     | 32.6     | -9.03 | 23.57        | 23.57        | 23.57        |
|                | 2 TX-slot result | 32.0                        | 32.0     | 32.0     | -6.02 | 25.98        | 25.98        | 25.98        |
|                | 3 TX-slot result | 30.3                        | 30.3     | 30.3     | -4.26 | 26.04        | 26.04        | 26.04        |
|                | 4 TX-slot result | 29.1                        | 29.2     | 29.2     | -3.01 | <b>26.09</b> | <b>26.19</b> | <b>26.19</b> |
| EDGE<br>(8PSK) | 1 TX-slot result | 27.2                        | 27.1     | 27.1     | -9.03 | 18.17        | 18.07        | 18.07        |
|                | 2 TX-slot result | 26.2                        | 26.1     | 26.1     | -6.02 | 20.18        | 20.08        | 20.08        |
|                | 3 TX-slot result | 24.3                        | 24.3     | 24.2     | -4.26 | 20.04        | 20.04        | 19.94        |
|                | 4 TX-slot result | 23.4                        | 23.3     | 23.3     | -3.01 | 20.39        | 20.29        | 20.29        |

| GSM1900 |  | Conducted output power(dBm) |         |           |
|---------|--|-----------------------------|---------|-----------|
|         |  | low                         | middle  | high      |
|         |  | CH512                       | CH661   | CH810     |
|         |  | 1850.2MHz                   | 1880MHz | 1909.8MHz |

| GSM            |                  | 29.7 | 29.7 | 29.6 | (dB)  | CH512        | CH661        | CH810        |
|----------------|------------------|------|------|------|-------|--------------|--------------|--------------|
| GPRS           | 1 TX-slot result | 29.7 | 29.7 | 29.8 | -9.03 | 20.67        | 20.67        | 20.77        |
|                | 2 TX-slot result | 28.9 | 28.9 | 28.9 | -6.02 | 22.88        | 22.88        | 22.88        |
|                | 3 TX-slot result | 27.2 | 27.2 | 27.2 | -4.26 | 22.94        | 22.94        | 22.94        |
|                | 4 TX-slot result | 26.4 | 26.3 | 26.2 | -3.01 | <b>23.39</b> | <b>23.29</b> | <b>23.19</b> |
| EDGE<br>(GMSK) | 1 TX-slot result | 29.6 | 29.6 | 29.7 | -9.03 | 20.57        | 20.57        | 20.67        |
|                | 2 TX-slot result | 28.9 | 28.9 | 29   | -6.02 | 22.88        | 22.88        | 22.98        |
|                | 3 TX-slot result | 27.2 | 27.2 | 27.2 | -4.26 | 22.94        | 22.94        | 22.94        |
|                | 4 TX-slot result | 26.4 | 26.3 | 26.2 | -3.01 | <b>23.39</b> | <b>23.29</b> | <b>23.19</b> |
| EDGE<br>(8PSK) | 1 TX-slot result | 26.6 | 26.5 | 26.5 | -9.03 | 17.57        | 17.47        | 17.47        |
|                | 2 TX-slot result | 25.7 | 25.6 | 25.6 | -6.02 | 19.68        | 19.58        | 19.58        |
|                | 3 TX-slot result | 23.8 | 23.7 | 23.7 | -4.26 | 19.54        | 19.44        | 19.44        |
|                | 4 TX-slot result | 22.8 | 22.7 | 22.7 | -3.01 | 19.79        | 19.69        | 19.69        |

**Note:** To average the power, the division factor is as follows:

1 TX-slot =1 transmit time slot of 8 time slots

=>conducted power divided by (8/1) =>-9.03dB

2 TX-slot =2 transmit time slot of 8 time slots

=>conducted power divided by (8/2) =>-6.02dB

3 TX-slot =3 transmit time slot of 8 time slots

=>conducted power divided by (8/3) =>-4.26dB

4 TX-slot =4 transmit time slot of 8 time slots

=>conducted power divided by (8/4) =>-3.01dB

**Head of GSM850/1900 are tested with voice.**

**Body-worn of GSM850/1900 are tested with GMSK GPRS 4 timeslots,testing for GMSK/8PSK EDGE are not required.**

| WCDMA BAND II              |            | Conducted Output power (dBm) |             |             |
|----------------------------|------------|------------------------------|-------------|-------------|
|                            |            | low                          | middle      | high        |
|                            |            | CH9262                       | CH9400      | CH9538      |
|                            |            | 1852.4MHz                    | 1800MHz     | 1907.6MHz   |
| 12.2kbps RMC               |            | <b>22.7</b>                  | <b>22.7</b> | <b>22.8</b> |
| HSDPA                      | SUB-TEST 1 | 21.7                         | 21.3        | 21.7        |
|                            | SUB-TEST 2 | 21                           | 20.9        | 21          |
|                            | SUB-TEST 3 | 19.6                         | 19.4        | 19.6        |
|                            | SUB-TEST 4 | 19.5                         | 19.5        | 19.4        |
| HSUPA                      | SUB-TEST 1 | 21.3                         | 21.2        | 21.5        |
|                            | SUB-TEST 2 | 21.3                         | 21.2        | 21.6        |
|                            | SUB-TEST 3 | 19.4                         | 19.4        | 19.5        |
|                            | SUB-TEST 4 | 21.3                         | 21.3        | 21.7        |
|                            | SUB-TEST 5 | 20.6                         | 20.3        | 20.5        |
| DC-HSDPA with 12.2kbps RMC |            | 19.8                         | 19.7        | 19..7       |



| WCDMA BAND V               |            | Conducted Output power (dBm) |             |             |
|----------------------------|------------|------------------------------|-------------|-------------|
|                            |            | low                          | middle      | high        |
|                            |            | CH4132                       | CH4183      | CH4233      |
|                            |            | 826.4 MHz                    | 836.6MHz    | 846.6MHz    |
| 12.2kbps RMC               |            | <b>22.8</b>                  | <b>22.7</b> | <b>22.9</b> |
| HSDPA                      | SUB-TEST 1 | 21.9                         | 21.8        | 21.9        |
|                            | SUB-TEST 2 | 21.4                         | 21.4        | 21.2        |
|                            | SUB-TEST 3 | 19.9                         | 19.8        | 20          |
|                            | SUB-TEST 4 | 19.9                         | 19.9        | 20.1        |
| HSUPA                      | SUB-TEST 1 | 21.8                         | 21.7        | 21.9        |
|                            | SUB-TEST 2 | 21.4                         | 21.4        | 21.5        |
|                            | SUB-TEST 3 | 19.4                         | 19.5        | 19.7        |
|                            | SUB-TEST 4 | 21.5                         | 21.4        | 21.6        |
|                            | SUB-TEST 5 | 20.4                         | 20.3        | 20.5        |
| DC-HSDPA with 12.2kbps RMC |            | 19.8                         | 19.8        | 19.7        |

**Body-worn of WCDMA BAND II/V are tested with 12.2kbps RMC.**

Testing for HSDPA/HSUPA/DC-HSDPA are not required.

| LTE Band 2 |         |                |                          |       |
|------------|---------|----------------|--------------------------|-------|
| Bandwidth  | RB      | Frequency(MHz) | Actual output power(dBm) |       |
|            |         |                | QPSK                     | 16QAM |
| 1.4MHz     | 1RB_0   | 1850.7         | 23.04                    | 22.41 |
|            |         | 1880           | 22.88                    | 22.33 |
|            |         | 1909.3         | 22.79                    | 22.33 |
|            | 1RB_2   | 1850.7         | 22.78                    | 22.34 |
|            |         | 1880           | 23.04                    | 22.26 |
|            |         | 1909.3         | 23.12                    | 22.32 |
|            | 1RB_5   | 1850.7         | 23.11                    | 22.54 |
|            |         | 1880           | 22.93                    | 22.47 |
|            |         | 1909.3         | 22.8                     | 21.99 |
|            | 50%RB_0 | 1850.7         | 23.04                    | 22.09 |
|            |         | 1880           | 22.94                    | 21.95 |
|            |         | 1909.3         | 22.97                    | 21.93 |
|            | 50%RB_1 | 1850.7         | 22.8                     | 21.94 |
|            |         | 1880           | 22.93                    | 22.14 |
|            |         | 1909.3         | 22.97                    | 22.28 |
|            | 50%RB_2 | 1850.7         | 22.79                    | 22.01 |
|            |         | 1880           | 22.89                    | 22.12 |

|      |         |        |       |       |
|------|---------|--------|-------|-------|
|      | 100%RB  | 1909.3 | 23.13 | 22.33 |
|      |         | 1850.7 | 22.22 | 21.2  |
|      |         | 1880   | 22.09 | 21.17 |
|      |         | 1909.3 | 21.94 | 21.08 |
| 3MHz | 1RB_0   | 1851.5 | 23.09 | 22.18 |
|      |         | 1880   | 22.95 | 22.21 |
|      |         | 1908.5 | 22.83 | 21.71 |
|      | 1RB_7   | 1851.5 | 22.78 | 22.01 |
|      |         | 1880   | 22.84 | 22.12 |
|      |         | 1908.5 | 23.07 | 22.26 |
|      | 1RB_14  | 1851.5 | 23.08 | 22.03 |
|      |         | 1880   | 22.92 | 22.28 |
|      |         | 1908.5 | 22.75 | 21.99 |
|      | 50%RB_0 | 1851.5 | 23.15 | 22.11 |
|      |         | 1880   | 23.09 | 22.08 |
|      |         | 1908.5 | 22.94 | 21.83 |
|      | 50%RB_4 | 1851.5 | 21.94 | 21.11 |
|      |         | 1880   | 22.09 | 21.43 |
|      |         | 1908.5 | 22.33 | 21.27 |
|      | 50%RB_7 | 1851.5 | 21.99 | 21.17 |
|      |         | 1880   | 22.15 | 21.18 |
|      |         | 1908.5 | 22.37 | 21.18 |
|      | 100%RB  | 1851.5 | 22.29 | 21.08 |
|      |         | 1880   | 22.04 | 21.09 |
|      |         | 1908.5 | 21.92 | 21.04 |
| 5MHz | 1RB_0   | 1852.5 | 23.23 | 22.3  |
|      |         | 1880   | 22.99 | 22.16 |
|      |         | 1907.5 | 22.91 | 21.75 |
|      | 1RB_12  | 1852.5 | 22.79 | 22.09 |
|      |         | 1880   | 22.83 | 22.51 |
|      |         | 1907.5 | 23.08 | 22.37 |
|      | 1RB_24  | 1852.5 | 23.18 | 22.51 |
|      |         | 1880   | 23.09 | 22.23 |
|      |         | 1907.5 | 22.83 | 21.84 |
|      | 50%RB_0 | 1852.5 | 22.27 | 21.14 |
|      |         | 1880   | 22.09 | 21.26 |
|      |         | 1907.5 | 21.91 | 21.13 |
|      | 50%RB_6 | 1852.5 | 22    | 21.17 |
|      |         | 1880   | 22.16 | 21.3  |
|      |         | 1907.5 | 22.33 | 21.38 |

|       |          |        |       |       |
|-------|----------|--------|-------|-------|
|       | 50%RB_11 | 1852.5 | 21.98 | 21.03 |
|       |          | 1880   | 22.13 | 21.36 |
|       |          | 1907.5 | 22.4  | 21.35 |
|       | 100%RB   | 1852.5 | 22.25 | 21.25 |
|       |          | 1880   | 22.05 | 21.16 |
|       |          | 1907.5 | 21.9  | 21.03 |
| 10MHz | 1RB_0    | 1855   | 23.08 | 22.36 |
|       |          | 1880   | 23.01 | 22.19 |
|       |          | 1905   | 22.83 | 22.03 |
|       | 1RB_24   | 1855   | 22.77 | 21.92 |
|       |          | 1880   | 22.89 | 21.94 |
|       |          | 1905   | 23.05 | 22.22 |
|       | 1RB_49   | 1855   | 23.14 | 21.87 |
|       |          | 1880   | 23.02 | 21.81 |
|       |          | 1905   | 22.96 | 22.28 |
|       | 50%RB_0  | 1855   | 22.16 | 21.09 |
|       |          | 1880   | 22.01 | 21.13 |
|       |          | 1905   | 21.91 | 21.05 |
|       | 50%RB_12 | 1855   | 21.95 | 20.99 |
|       |          | 1880   | 22.12 | 21.24 |
|       |          | 1905   | 22.3  | 21.18 |
|       | 50%RB_24 | 1855   | 21.93 | 21.03 |
|       |          | 1880   | 22.12 | 21.25 |
|       |          | 1905   | 22.35 | 21.24 |
|       | 100%RB   | 1855   | 22.2  | 21.29 |
|       |          | 1880   | 22.07 | 21.19 |
|       |          | 1905   | 21.98 | 21.12 |
| 15MHz | 1RB_0    | 1857.5 | 23.05 | 22.01 |
|       |          | 1880   | 22.87 | 21.98 |
|       |          | 1902.5 | 22.92 | 21.98 |
|       | 1RB_37   | 1857.5 | 22.71 | 22.09 |
|       |          | 1880   | 22.89 | 22.46 |
|       |          | 1902.5 | 23.06 | 22.36 |
|       | 1RB_74   | 1857.5 | 23.09 | 21.98 |
|       |          | 1880   | 23    | 22.47 |
|       |          | 1902.5 | 22.87 | 22.23 |
|       | 50%RB_0  | 1857.5 | 21.94 | 21.09 |
|       |          | 1880   | 22.15 | 21.27 |
|       |          | 1902.5 | 22.24 | 21.33 |

|       |          |        |              |       |
|-------|----------|--------|--------------|-------|
|       | 50%RB_18 | 1857.5 | 21.94        | 21.15 |
|       |          | 1880   | 22.15        | 21.32 |
|       |          | 1902.5 | 22.25        | 21.26 |
|       | 50%RB_37 | 1857.5 | 21.93        | 21.12 |
|       |          | 1880   | 22.14        | 21.32 |
|       |          | 1902.5 | 22.38        | 21.29 |
|       | 100%RB   | 1857.5 | 22.22        | 21.29 |
|       |          | 1880   | 22.1         | 21.24 |
|       |          | 1902.5 | 21.94        | 21.05 |
| 20MHz | 100%RB   | 1860   | 22.01        | 21.02 |
|       |          | 1880   | 22.13        | 21.28 |
|       |          | 1900   | 22.22        | 21.4  |
|       | 50%RB_0  | 1860   | 22.2         | 21.28 |
|       |          | 1880   | 22.08        | 21.21 |
|       |          | 1900   | 21.97        | 20.99 |
|       | 50%RB_24 | 1860   | 21.92        | 21.11 |
|       |          | 1880   | 22.13        | 21.3  |
|       |          | 1900   | <b>22.33</b> | 21.33 |
|       | 50%RB_49 | 1860   | 21.99        | 21.05 |
|       |          | 1880   | 22.12        | 21.34 |
|       |          | 1900   | 22.3         | 21.3  |
|       | 1RB-0    | 1860   | 23.13        | 22.37 |
|       |          | 1880   | 23.01        | 22.13 |
|       |          | 1900   | 22.85        | 22.33 |
|       | 1RB-49   | 1860   | 23.05        | 22.2  |
|       |          | 1880   | 23.04        | 22.15 |
|       |          | 1900   | 22.81        | 22.18 |
|       | 1RB-99   | 1860   | <b>23.29</b> | 22.29 |
|       |          | 1880   | <b>23.06</b> | 22.2  |
|       |          | 1900   | <b>22.84</b> | 22.16 |

| LTE Band 4 |       |                |                          |       |
|------------|-------|----------------|--------------------------|-------|
| Bandwidth  | RB    | Frequency(MHz) | Actual output power(dBm) |       |
|            |       |                | QPSK                     | 16QAM |
| 1.4MHz     | 1RB_0 | 1710.7         | 22.83                    | 22.05 |
|            |       | 1732.5         | 22.91                    | 21.9  |
|            |       | 1754.3         | 22.79                    | 22.04 |

|      |         |        |       |       |
|------|---------|--------|-------|-------|
|      | 1RB_2   | 1710.7 | 22.87 | 22.09 |
|      |         | 1732.5 | 22.85 | 22.2  |
|      |         | 1754.3 | 22.81 | 22.39 |
|      | 1RB_5   | 1710.7 | 22.87 | 22.09 |
|      |         | 1732.5 | 22.84 | 21.92 |
|      |         | 1754.3 | 22.76 | 22.16 |
|      | 50%RB_0 | 1710.7 | 22.95 | 21.96 |
|      |         | 1732.5 | 22.81 | 21.85 |
|      |         | 1754.3 | 22.89 | 21.77 |
|      | 50%RB_1 | 1710.7 | 22.83 | 22.04 |
|      |         | 1732.5 | 22.83 | 21.81 |
|      |         | 1754.3 | 22.83 | 21.94 |
|      | 50%RB_2 | 1710.7 | 22.84 | 22.04 |
|      |         | 1732.5 | 22.86 | 22.05 |
|      |         | 1754.3 | 22.86 | 22.21 |
|      | 100%RB  | 1710.7 | 21.93 | 21.15 |
|      |         | 1732.5 | 21.92 | 20.99 |
|      |         | 1754.3 | 21.86 | 20.99 |
| 3MHz | 1RB_0   | 1711.5 | 22.75 | 21.67 |
|      |         | 1732.5 | 22.73 | 21.96 |
|      |         | 1753.5 | 22.81 | 21.66 |
|      | 1RB_7   | 1711.5 | 22.82 | 22.36 |
|      |         | 1732.5 | 22.85 | 21.95 |
|      |         | 1753.5 | 22.81 | 21.93 |
|      | 1RB_14  | 1711.5 | 22.76 | 21.95 |
|      |         | 1732.5 | 22.83 | 21.98 |
|      |         | 1753.5 | 22.71 | 21.95 |
|      | 50%RB_0 | 1711.5 | 22.83 | 21.8  |
|      |         | 1732.5 | 22.81 | 21.91 |
|      |         | 1753.5 | 22.95 | 21.94 |
|      | 50%RB_4 | 1711.5 | 22.05 | 21.23 |
|      |         | 1732.5 | 22.06 | 21.19 |
|      |         | 1753.5 | 22.19 | 21.28 |
|      | 50%RB_7 | 1711.5 | 22    | 21.18 |
|      |         | 1732.5 | 22.01 | 21.21 |
|      |         | 1753.5 | 22.15 | 21.3  |
|      | 100%RB  | 1711.5 | 21.94 | 21.08 |
|      |         | 1732.5 | 21.89 | 20.93 |
|      |         | 1753.5 | 21.88 | 21.07 |

|       |          |        |       |       |
|-------|----------|--------|-------|-------|
| 5MHz  | 1RB_0    | 1712.5 | 22.82 | 22.03 |
|       |          | 1732.5 | 22.85 | 22.02 |
|       |          | 1752.5 | 22.95 | 22.11 |
|       | 1RB_12   | 1712.5 | 22.88 | 22.29 |
|       |          | 1732.5 | 22.82 | 21.85 |
|       |          | 1752.5 | 22.82 | 22.59 |
|       | 1RB_24   | 1712.5 | 22.9  | 22.13 |
|       |          | 1732.5 | 22.76 | 22.08 |
|       |          | 1752.5 | 22.73 | 22.17 |
|       | 50%RB_0  | 1712.5 | 22.01 | 21.15 |
|       |          | 1732.5 | 21.91 | 20.94 |
|       |          | 1752.5 | 21.91 | 20.94 |
|       | 50%RB_6  | 1712.5 | 22.1  | 21.14 |
|       |          | 1732.5 | 22.04 | 21.14 |
|       |          | 1752.5 | 22.18 | 21.33 |
|       | 50%RB_11 | 1712.5 | 22.05 | 21.21 |
|       |          | 1732.5 | 22.1  | 21.19 |
|       |          | 1752.5 | 22.16 | 21.33 |
|       | 100%RB   | 1712.5 | 21.98 | 21.05 |
|       |          | 1732.5 | 21.88 | 21.03 |
|       |          | 1752.5 | 21.94 | 21    |
| 10MHz | 1RB_0    | 1715   | 22.88 | 21.9  |
|       |          | 1732.5 | 22.85 | 21.81 |
|       |          | 1750   | 22.94 | 21.63 |
|       | 1RB_24   | 1715   | 22.85 | 22.5  |
|       |          | 1732.5 | 22.84 | 22.13 |
|       |          | 1750   | 22.86 | 22.25 |
|       | 1RB_49   | 1715   | 22.86 | 21.97 |
|       |          | 1732.5 | 22.6  | 21.74 |
|       |          | 1750   | 22.83 | 22.18 |
|       | 50%RB_0  | 1715   | 22.1  | 21.04 |
|       |          | 1732.5 | 21.92 | 20.95 |
|       |          | 1750   | 21.9  | 21.03 |
|       | 50%RB_12 | 1715   | 22.02 | 21.15 |
|       |          | 1732.5 | 21.99 | 21.14 |
|       |          | 1750   | 22.15 | 21.17 |
|       | 50%RB_24 | 1715   | 22.01 | 21.14 |
|       |          | 1732.5 | 21.99 | 21.12 |
|       |          | 1750   | 22.11 | 21.24 |

|       |          |        |              |       |
|-------|----------|--------|--------------|-------|
|       | 100%RB   | 1715   | 22.02        | 21.1  |
|       |          | 1732.5 | 21.89        | 21.09 |
|       |          | 1750   | 21.86        | 21    |
| 15MHz | 1RB_0    | 1717.5 | 22.89        | 22.12 |
|       |          | 1732.5 | 22.92        | 22.15 |
|       |          | 1747.5 | 22.89        | 22.17 |
|       | 1RB_37   | 1717.5 | 22.87        | 22.11 |
|       |          | 1732.5 | 22.84        | 22.1  |
|       |          | 1747.5 | 22.86        | 22.48 |
|       | 1RB_74   | 1717.5 | 22.91        | 21.84 |
|       |          | 1732.5 | 22.87        | 21.74 |
|       |          | 1747.5 | 22.75        | 21.9  |
|       | 50%RB_0  | 1717.5 | 22.84        | 22.01 |
|       |          | 1732.5 | 22.81        | 21.9  |
|       |          | 1747.5 | 22.93        | 21.87 |
|       | 50%RB_18 | 1717.5 | 22.09        | 21.17 |
|       |          | 1732.5 | 22.12        | 21.18 |
|       |          | 1747.5 | 22.19        | 21.33 |
|       | 50%RB_37 | 1717.5 | 22.04        | 21.2  |
|       |          | 1732.5 | 22.09        | 21.14 |
|       |          | 1747.5 | 22.18        | 21.31 |
|       | 100%RB   | 1717.5 | 21.87        | 21.14 |
|       |          | 1732.5 | 21.91        | 21.01 |
|       |          | 1747.5 | 21.97        | 21.04 |
| 20MHz | 100%RB   | 1720   | 22.73        | 21.86 |
|       |          | 1732.5 | 22.83        | 21.92 |
|       |          | 1745   | <b>22.93</b> | 21.93 |
|       | 50%RB_0  | 1720   | 22.16        | 21.24 |
|       |          | 1732.5 | 22.04        | 21.03 |
|       |          | 1745   | 21.91        | 21.03 |
|       | 50%RB_24 | 1720   | 22.02        | 21.23 |
|       |          | 1732.5 | 22.01        | 21.2  |
|       |          | 1745   | <b>22.22</b> | 21.3  |
|       | 50%RB_49 | 1720   | 22.01        | 21.15 |
|       |          | 1732.5 | 22.1         | 21.13 |
|       |          | 1745   | 22.18        | 21.3  |
|       | 1RB-0    | 1720   | <b>22.89</b> | 21.9  |
|       |          | 1732.5 | <b>22.91</b> | 22.18 |
|       |          | 1745   | <b>22.97</b> | 22.24 |

|  |        |        |       |       |
|--|--------|--------|-------|-------|
|  | 1RB-49 | 1720   | 22.91 | 21.95 |
|  |        | 1732.5 | 22.82 | 21.92 |
|  |        | 1745   | 22.89 | 22.14 |
|  | 1RB-99 | 1720   | 22.9  | 22.03 |
|  |        | 1732.5 | 22.91 | 21.92 |
|  |        | 1745   | 22.89 | 21.98 |

| LTE Band 7 |          |                |                          |       |
|------------|----------|----------------|--------------------------|-------|
| Bandwidth  | RB       | Frequency(MHz) | Actual output power(dBm) |       |
|            |          |                | QPSK                     | 16QAM |
| 5MHz       | 1RB_0    | 2502.5         | 23.14                    | 22.13 |
|            |          | 2535           | 23.34                    | 22.36 |
|            |          | 2567.5         | 23.28                    | 22.09 |
|            | 1RB_12   | 2502.5         | 23.17                    | 22.32 |
|            |          | 2535           | 23.34                    | 22.86 |
|            |          | 2567.5         | 23.13                    | 22.46 |
|            | 1RB_24   | 2502.5         | 23.15                    | 22.12 |
|            |          | 2535           | 23.38                    | 22.25 |
|            |          | 2567.5         | 23.01                    | 22.01 |
|            | 50%RB_0  | 2502.5         | 22.25                    | 21.36 |
|            |          | 2535           | 22.42                    | 21.54 |
|            |          | 2567.5         | 22.28                    | 21.39 |
|            | 50%RB_6  | 2502.5         | 22.52                    | 21.64 |
|            |          | 2535           | 22.57                    | 21.72 |
|            |          | 2567.5         | 22.42                    | 21.52 |
|            | 50%RB_11 | 2502.5         | 22.6                     | 21.7  |
|            |          | 2535           | 22.64                    | 21.77 |
|            |          | 2567.5         | 22.49                    | 21.49 |
|            | 100%RB   | 2502.5         | 22.27                    | 21.27 |
|            |          | 2535           | 22.37                    | 21.45 |
|            |          | 2567.5         | 22.19                    | 21.39 |
| 10MHz      | 1RB_0    | 2505           | 23.21                    | 22.33 |
|            |          | 2535           | 23.08                    | 22.11 |
|            |          | 2565           | 22.62                    | 21.87 |
|            | 1RB_24   | 2505           | 23.22                    | 22.59 |
|            |          | 2535           | 23.32                    | 22.51 |
|            |          | 2565           | 23.21                    | 22.51 |



|       |          |        |              |       |
|-------|----------|--------|--------------|-------|
|       | 1RB_49   | 2505   | 22.71        | 21.87 |
|       |          | 2535   | 22.9         | 22.05 |
|       |          | 2565   | 22.6         | 21.77 |
|       | 50%RB_0  | 2505   | 22.24        | 21.37 |
|       |          | 2535   | 22.26        | 21.42 |
|       |          | 2565   | 22.06        | 21.19 |
|       | 50%RB_12 | 2505   | 22.54        | 21.6  |
|       |          | 2535   | 22.54        | 21.64 |
|       |          | 2565   | 22.42        | 21.58 |
|       | 50%RB_24 | 2505   | 22.54        | 21.59 |
|       |          | 2535   | 22.59        | 21.68 |
|       |          | 2565   | 22.48        | 21.57 |
|       | 100%RB   | 2505   | 22.16        | 21.28 |
|       |          | 2535   | 22.34        | 21.35 |
|       |          | 2565   | 22.04        | 21.08 |
| 15MHz | 1RB_0    | 2507.5 | 23.23        | 22.12 |
|       |          | 2535   | 22.93        | 22.12 |
|       |          | 2562.5 | 22.32        | 21.6  |
|       | 1RB_37   | 2507.5 | 23.32        | 22.78 |
|       |          | 2535   | 23.3         | 22.54 |
|       |          | 2562.5 | 23.12        | 22.54 |
|       | 1RB_74   | 2507.5 | 22.67        | 21.93 |
|       |          | 2535   | 22.71        | 21.91 |
|       |          | 2562.5 | 22.85        | 21.94 |
|       | 50%RB_0  | 2507.5 | 23.34        | 22.33 |
|       |          | 2535   | 23.02        | 22.19 |
|       |          | 2562.5 | 22.35        | 21.67 |
|       | 50%RB_18 | 2507.5 | 22.56        | 21.72 |
|       |          | 2535   | 22.59        | 21.76 |
|       |          | 2562.5 | 22.48        | 21.64 |
|       | 50%RB_37 | 2507.5 | 22.69        | 21.76 |
|       |          | 2535   | 22.7         | 21.8  |
|       |          | 2562.5 | 22.43        | 21.6  |
|       | 100%RB   | 2507.5 | 22.29        | 21.43 |
|       |          | 2535   | 22.21        | 21.29 |
|       |          | 2562.5 | 22.00        | 21.03 |
| 20MHz | 100%RB   | 2510   | 23.36        | 22.41 |
|       |          | 2535   | <b>23.39</b> | 22.33 |
|       |          | 2560   | 23.37        | 22.2  |

|  |          |      |              |       |
|--|----------|------|--------------|-------|
|  | 50%RB_0  | 2510 | 22.46        | 21.56 |
|  |          | 2535 | 22.45        | 21.48 |
|  |          | 2560 | 22.43        | 21.54 |
|  | 50%RB_24 | 2510 | 22.54        | 21.73 |
|  |          | 2535 | <b>22.65</b> | 21.82 |
|  |          | 2560 | 22.6         | 21.61 |
|  | 50%RB_49 | 2510 | 22.63        | 21.8  |
|  |          | 2535 | 22.61        | 21.75 |
|  |          | 2560 | 22.5         | 21.65 |
|  | 1RB-0    | 2510 | <b>23.45</b> | 22.33 |
|  |          | 2535 | <b>23.40</b> | 22.38 |
|  |          | 2560 | <b>23.20</b> | 22.36 |
|  | 1RB-49   | 2510 | 23.28        | 22.24 |
|  |          | 2535 | 23.44        | 22.39 |
|  |          | 2560 | 23.21        | 22.47 |
|  | 1RB-99   | 2510 | 23.23        | 22.51 |
|  |          | 2535 | 23.32        | 22.76 |
|  |          | 2560 | 23.42        | 22.72 |

| LTE Band 17 |         |                |                          |       |
|-------------|---------|----------------|--------------------------|-------|
| Bandwidth   | RB      | Frequency(MHz) | Actual output power(dBm) |       |
|             |         |                | QPSK                     | 16QAM |
| 5MHz        | 1RB_0   | 713.5          | 22.64                    | 21.83 |
|             |         | 710            | 22.64                    | 22.15 |
|             |         | 706.5          | 22.79                    | 22.11 |
|             | 1RB_12  | 713.5          | 22.66                    | 22.16 |
|             |         | 710            | 22.6                     | 21.9  |
|             |         | 706.5          | 22.45                    | 21.88 |
|             | 1RB_24  | 713.5          | 22.52                    | 22.09 |
|             |         | 710            | 22.63                    | 21.81 |
|             |         | 706.5          | 22.75                    | 22.25 |
|             | 50%RB_0 | 713.5          | 21.69                    | 20.59 |
|             |         | 710            | 21.75                    | 20.76 |
|             |         | 706.5          | 21.82                    | 20.91 |
|             | 50%RB_6 | 713.5          | 21.91                    | 20.84 |
|             |         | 710            | 21.75                    | 20.85 |
|             |         | 706.5          | 21.75                    | 20.64 |

|       |          |       |              |       |
|-------|----------|-------|--------------|-------|
|       | 50%RB_11 | 713.5 | 21.88        | 20.99 |
|       |          | 710   | 21.82        | 20.8  |
|       |          | 706.5 | 21.78        | 20.79 |
|       | 100%RB   | 713.5 | 21.62        | 20.62 |
|       |          | 710   | 21.58        | 20.56 |
|       |          | 706.5 | 21.7         | 20.75 |
| 10MHz | 1RB_0    | 711   | <b>22.81</b> | 21.84 |
|       |          | 710   | <b>22.69</b> | 22.37 |
|       |          | 709   | <b>22.74</b> | 22.36 |
|       | 1RB_24   | 711   | 22.63        | 21.87 |
|       |          | 710   | 22.63        | 21.81 |
|       |          | 709   | 22.79        | 21.95 |
|       | 1RB_49   | 711   | 22.59        | 22.14 |
|       |          | 710   | 22.56        | 21.67 |
|       |          | 709   | 22.59        | 21.83 |
|       | 50%RB_0  | 711   | 21.63        | 20.61 |
|       |          | 710   | 21.67        | 20.78 |
|       |          | 709   | 21.66        | 20.62 |
|       | 50%RB_12 | 711   | 21.8         | 20.75 |
|       |          | 710   | 21.74        | 20.8  |
|       |          | 709   | 21.66        | 20.7  |
|       | 50%RB_24 | 711   | <b>21.82</b> | 20.69 |
|       |          | 710   | 21.74        | 20.8  |
|       |          | 709   | 21.74        | 20.81 |
|       | 100%RB   | 711   | <b>21.69</b> | 20.68 |
|       |          | 710   | 21.65        | 20.6  |
|       |          | 709   | 21.66        | 20.74 |

LTE BAND 2 are tested with QPSK 20MHz 1RB high and check for QPAK 20MHz 1RB mid and low ,LTE BAND 4/7 are tested with QPSK 20MHz 1RB low and check for QPAK 20MHz 1RB mid and high, LTE BAND 17 are tested with QPAK 10MHz 1RB low and check for QPSK 20MHz 1RB mid and high.

#### Maximum Power Reduction (MPR) for Power Class 3

| BAND        | 1.4 MHz<br>(RB) | 3 MHz<br>(RB) | 5 MHz<br>(RB) | 10 MHz<br>(RB) | 15 MHz<br>(RB) | 20MHz<br>(RB) | MPR (dB) |       |
|-------------|-----------------|---------------|---------------|----------------|----------------|---------------|----------|-------|
|             |                 |               |               |                |                |               | QPSK     | 16QAM |
| LTE Band 2  | > 5             | > 4           | > 8           | > 12           | > 16           | > 18          | ≤1       | ≤2    |
| LTE Band 4  | > 5             | > 4           | > 8           | > 12           | > 16           | > 18          | ≤1       | ≤2    |
| LTE Band 7  | /               | /             | > 8           | > 12           | > 16           | > 18          | ≤1       | ≤2    |
| LTE Band 17 | /               | /             | > 8           | > 12           | /              | /             | ≤1       | ≤2    |

For Bluetooth maximum conducted power is -3.29dBm

## Wi-Fi

### Average Conducted Power

802.11b (dBm)

| Channel\data rate |         |    | 1Mbps | 2Mbps | 5.5Mbps | 11Mbps |
|-------------------|---------|----|-------|-------|---------|--------|
| low               | 2412MHz | 1  | 15.37 | 15.31 | 15.29   | 15.27  |
| middle            | 2437MHz | 6  | 15.30 | 15.26 | 15.25   | 15.24  |
| high              | 2462MHz | 11 | 15.34 | 15.29 | 15.27   | 15.26  |

802.11g (dBm)

| Channel\data rate |         |    | 6Mbps | 9Mbps | 12Mbps | 18Mbps | 24Mbps | 36Mbps | 48Mbps | 54Mbps |
|-------------------|---------|----|-------|-------|--------|--------|--------|--------|--------|--------|
| low               | 2412MHz | 1  | 12.49 | /     | /      | /      | /      | /      | /      | /      |
| middle            | 2437MHz | 6  | 14.53 | 14.51 | 14.50  | 14.48  | 14.46  | 14.43  | 14.44  | 14.39  |
| high              | 2462MHz | 11 | 13.01 | /     | /      | /      | /      | /      | /      | /      |

802.11n (20M) (dBm)

| Channel\data rate |         |    | MCS0  | MCS1  | MCS2  | MCS3  | MCS4  | MCS5  | MCS6  | MCS7  |
|-------------------|---------|----|-------|-------|-------|-------|-------|-------|-------|-------|
| low               | 2412MHz | 1  | 12.53 | /     | /     | /     | /     | /     | /     | /     |
| middle            | 2437MHz | 6  | 14.81 | 14.79 | 14.76 | 14.75 | 14.73 | 14.72 | 14.71 | 14.69 |
| high              | 2462MHz | 11 | 13.05 | /     | /     | /     | /     | /     | /     | /     |

802.11n (40M) (dBm)

| Channel\data rate |         |   | MCS0  | MCS1  | MCS2  | MCS3  | MCS4  | MCS5  | MCS6  | MCS7  |
|-------------------|---------|---|-------|-------|-------|-------|-------|-------|-------|-------|
| low               | 2422MHz | 3 | 11.36 | /     | /     | /     | /     | /     | /     | /     |
| middle            | 2437MHz | 6 | 14.11 | 14.09 | 14.07 | 14.06 | 14.05 | 14.03 | 14.05 | 14.02 |
| high              | 2452MHz | 9 | 11.02 | /     | /     | /     | /     | /     | /     | /     |

The maximum conducted output power of Wi-Fi is 15.37dBm=34.43mW>P(max)=19mW..

So stand alone SAR is required.

1. Per KDB 248227D01v02., choose the highest output power channel to test SAR and determine further SAR exclusion.

2. Per KDB 248227D01v02., In the 2.4GHz band, separate SAR procedure are applied to DSSS and OFDM conditions:

1) When KDB Publication 447498 SAR test exclusion applied to the OFDM configuration.

2) When the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is  $\leq 1.2\text{W/kg}$ .

**SAR of WLAN should be tested on 802.11b 1Mbps.**

| band              | Fre'     | Duty cycle | Duty cycle factor |
|-------------------|----------|------------|-------------------|
| 802.11b<br>1Mbps. | 2412 MHz | 99.8%      | 1.002             |
|                   | 2437 MHz | 99.8%      | 1.002             |
|                   | 2462 MHz | 99.8%      | 1.002             |

## 7.2 Test Results

### 7.2.1. Dielectric Performance

#### Dielectric Performance of Tissue Simulating Liquid

| Frequency             | Description                     | Dielectric Parameters $\epsilon_r$ | $\sigma$ (s/m)     | temp °C |
|-----------------------|---------------------------------|------------------------------------|--------------------|---------|
| <b>750MHz (head)</b>  | Target value<br>5% window       | 41.9<br>39.81-44.00                | 0.89<br>0.85-0.93  | /       |
|                       | Measurement value<br>2015-05-13 | 42.75                              | 0.91               | 21.8    |
| <b>750MHz (body)</b>  | Target value<br>5% window       | 55.5<br>52.73-58.28                | 0.96<br>0.91-1.01  | /       |
|                       | Measurement value<br>2015-05-12 | 55.31                              | 0.94               | 21.7    |
| <b>835MHz (head)</b>  | Target value<br>5% window       | 41.5<br>39.43-43.58                | 0.90<br>0.86- 0.95 | /       |
|                       | Measurement value<br>2015-05-08 | 41.22                              | 0.88               | 21.9    |
| <b>835MHz (body)</b>  | Target value<br>5% window       | 55.2<br>52.44-57.96                | 0.97<br>0.92-1.02  | /       |
|                       | Measurement value<br>2015-05-04 | 54.63                              | 0.95               | 21.7    |
|                       | Measurement value<br>2015-05-05 | 54.15                              | 0.94               | 21.8    |
|                       | Measurement value<br>2015-07-06 | 54.77                              | 0.95               | 21.6    |
| <b>1750MHz (head)</b> | Target value<br>5% window       | 40.1<br>38-42                      | 1.37<br>1.30 -1.44 | /       |
|                       | Measurement value<br>2015-05-15 | 39.58                              | 1.39               | 21.9    |
| <b>1750MHz (body)</b> | Target value<br>5% window       | 53.4<br>50.63-55.96                | 1.49<br>1.42 -1.56 | /       |
|                       | Measurement value<br>2015-05-11 | 52.35                              | 1.5                | 21.7    |
| <b>1900MHz (head)</b> | Target value<br>5% window       | 40.0<br>38-42                      | 1.40<br>1.33 -1.47 | /       |
|                       | Measurement value<br>2015-05-12 | 39.65                              | 1.38               | 21.8    |
|                       | Measurement value<br>2015-05-13 | 39.36                              | 1.38               | 21.9    |
| <b>1900MHz (body)</b> | Target value<br>5% window       | 53.3<br>50.63-55.96                | 1.52<br>1.44 -1.60 | /       |

|                           |                                 |                     |                    |      |
|---------------------------|---------------------------------|---------------------|--------------------|------|
|                           | Measurement value<br>2015-05-06 | 52.37               | 1.49               | 21.8 |
|                           | Measurement value<br>2015-05-07 | 52.56               | 1.50               | 21.9 |
|                           | Measurement value<br>2015-07-06 | 52.47               | 1.49               | 21.6 |
| <b>2450MHz<br/>(head)</b> | Target value<br>5% window       | 39.2<br>37.24-41.16 | 1.8<br>1.71-1.89   | /    |
|                           | Measurement value<br>2015-05-12 | 38.59               | 1.79               | 21.7 |
| <b>2450MHz<br/>(body)</b> | Target value<br>5% window       | 52.7<br>50.06-55.33 | 1.95<br>1.85 -2.05 | /    |
|                           | Measurement value<br>2015-05-08 | 51.93               | 1.93               | 21.9 |
| <b>2600MHz<br/>(head)</b> | Target value<br>5% window       | 39.0<br>37.05-40.95 | 1.96<br>1.86-2.06  |      |
|                           | Measurement value<br>2015-05-18 | 38.9                | 1.98               | 21.8 |
| <b>2600MHz<br/>(body)</b> | Target value<br>5% window       | 52.5<br>49.88-55.13 | 2.16<br>2.05 -2.27 |      |
|                           | Measurement value<br>2015-05-19 | 51.96               | 2.13               | 21.8 |

## 7.2.2. System Check Results

### System Check for tissue simulation liquid

| Frequency                 | Description                             | SAR(W/kg)         |                   | Targeted<br>SAR1g<br>(W/kg) | Normali<br>zed<br>SAR1g<br>(W/kg) | Deviat<br>ion<br>(%) |
|---------------------------|-----------------------------------------|-------------------|-------------------|-----------------------------|-----------------------------------|----------------------|
|                           |                                         | 10g               | 1g                |                             |                                   |                      |
| <b>750 MHz<br/>(head)</b> | Recommended result<br>±10% window       | 1.45<br>1.31-1.60 | 2.18<br>1.96-2.40 | /                           | /                                 | /                    |
|                           | Measurement value<br>2015-05-13 (250mW) | 1.52              | 2.21              | 8.60                        | 8.84                              | 2.79                 |
| <b>750 MHz<br/>(body)</b> | Recommended result<br>±10% window       | 1.53<br>1.38-1.68 | 2.25<br>2.03-2.48 | /                           | /                                 | /                    |
|                           | Measurement value<br>2015-05-12 (250mW) | 1.54              | 2.28              | 9.07                        | 9.12                              | 0.55                 |

|                           |                                         |                   |                     |      |       |       |
|---------------------------|-----------------------------------------|-------------------|---------------------|------|-------|-------|
| <b>835 MHz<br/>(head)</b> | Recommended result<br>±10% window       | 1.6<br>1.44-1.76  | 2.44<br>2.2-2.68    | /    | /     | /     |
|                           | Measurement value<br>2015-05-08 (250mW) | 1.61              | 2.42                | 9.51 | 9.68  | 1.79  |
| <b>835MHz<br/>(body)</b>  | Recommended result<br>±10% window       | 1.6<br>1.44-1.76  | 2.41<br>2.17-2.65   | /    | /     | /     |
|                           | Measurement value<br>2015-05-04 (250mW) | 1.56              | 2.36                | 9.52 | 9.44  | -0.84 |
|                           | Measurement value<br>2015-05-05 (250mW) | 1.52              | 2.32                | 9.52 | 9.28  | -2.52 |
|                           | Measurement value<br>2015-07-06 (250mW) | 1.54              | 2.35                | 9.52 | 9.40  | -1.26 |
| <b>1750MHz<br/>(head)</b> | Recommended result<br>±10% window       | 4.94<br>4.45-5.43 | 9.15<br>8.24-10.07  | /    | /     | /     |
|                           | Measurement value<br>2015-05-15 (250mW) | 4.82              | 9.12                | 36.3 | 36.48 | 0.50  |
| <b>1750MHz<br/>(body)</b> | Recommended result<br>±10% window       | 5.08<br>4.57-5.59 | 9.35<br>8.42-10.29  | /    | /     | /     |
|                           | Measurement value<br>2015-05-11 (250mW) | 4.87              | 9.42                | 37.9 | 37.68 | -0.58 |
| <b>1900MHz<br/>(head)</b> | Recommended result<br>±10% window       | 5.04<br>4.54-5.54 | 9.70<br>8.73-10.67  | /    | /     | /     |
|                           | Measurement value<br>2015-05-12 (250mW) | 5.12              | 9.75                | 39.4 | 39    | -1.02 |
|                           | Measurement value<br>2015-05-13 (250mW) | 5.16              | 9.82                | 39.4 | 39.28 | -0.30 |
| <b>1900MHz<br/>(body)</b> | Recommended result<br>±10% window       | 5.28<br>4.75-5.81 | 10.1<br>9.09-11.11  | /    | /     | /     |
|                           | Measurement value<br>2015-05-06 (250mW) | 5.08              | 9.74                | 39.6 | 38.96 | -1.62 |
|                           | Measurement value<br>2015-05-07 (250mW) | 5.11              | 9.86                | 39.6 | 39.44 | -0.40 |
|                           | Measurement value<br>2015-07-06 (250mW) | 5.09              | 9.81                | 39.6 | 39.24 | -0.91 |
| <b>2450MHz<br/>(head)</b> | Recommended result<br>±10% window       | 6.01<br>5.41-6.61 | 12.9<br>11.61-14.19 | /    | /     | /     |
|                           | Measurement value<br>2015-05-12 (250mW) | 6.12              | 13.2                | 51.1 | 52.8  | 3.33  |
| <b>2450MHz<br/>(body)</b> | Recommended result<br>±10% window       | 5.95<br>5.36-6.55 | 12.7<br>11.43-13.97 | /    | /     | /     |
|                           | Measurement value<br>2015-05-08 (250mW) | 5.86              | 12.8                | 50.3 | 51.2  | 1.79  |

|                           |                                         |                   |                     |      |      |       |
|---------------------------|-----------------------------------------|-------------------|---------------------|------|------|-------|
| <b>2600MHz<br/>(head)</b> | Recommended result<br>±10% window       | 6.66<br>5.99-7.33 | 14.8<br>13.32-16.28 | /    | /    | /     |
|                           | Measurement value<br>2015-05-18 (250mW) | 6.68              | 14.9                | 58.9 | 59.6 | 1.19  |
| <b>2600MHz<br/>(body)</b> | Recommended result<br>±10% window       | 6.63<br>5.88-7.18 | 14.5<br>13.05-15.95 | /    | /    | /     |
|                           | Measurement value<br>2015-05-19 (250mW) | 6.33              | 13.9                | 58.1 | 55.6 | -4.30 |

Note: 1. the graph results see ANNEX B.1.

2 .Recommended Values used derive from the calibration certificate and 250 mW is used as feeding power to the calibrated dipole.

## 7.2.3 Test Results

### 7.2.3.1 Summary of Measurement Results (GSM850)

#### SAR Values (GSM850)

| Test Case                                            |         | Measurement<br>Result(W/kg) | Power<br>Drift(dB) | Note |
|------------------------------------------------------|---------|-----------------------------|--------------------|------|
| Different Test<br>Position                           | Channel | 1 g                         |                    |      |
|                                                      |         | Average                     |                    |      |
| Test position of Head with voice                     |         |                             |                    |      |
| Left head, Touch<br>cheek                            | middle  | 0.227                       | -0.13              |      |
| Left head, Tilt 15<br>Degree                         | middle  | 0.154                       | -0.06              |      |
| Right head, Touch<br>cheek                           | middle  | 0.300                       | -0.03              |      |
| Right head, Tilt 15<br>Degree                        | middle  | 0.174                       | 0.01               |      |
| Right head, Touch<br>cheek                           | low     | 0.224                       | -0.13              |      |
|                                                      | high    | 0.313                       | -0.02              | max  |
| Test position of Body with GPRS(4UP) (Distance 10mm) |         |                             |                    |      |
| Towards phantom                                      | middle  | 0.321                       | 0.04               |      |
| Towards Ground                                       | middle  | 0.489                       | 0.03               | max  |



|                                                  |        |       |       |          |
|--------------------------------------------------|--------|-------|-------|----------|
| Front                                            | middle | 0.207 | -0.06 |          |
| Left side                                        | middle | 0.297 | -0.11 |          |
| Right side                                       | middle | 0.402 | 0.04  |          |
| Towards Ground                                   | low    | 0.444 | 0.11  |          |
|                                                  | high   | 0.467 | -0.02 |          |
| Worst case position of Body with (Distance 10mm) |        |       |       |          |
| Towards Ground                                   | middle | 0.376 | -0.08 | earphone |

Note: 1. The value with blue color is the maximum SAR Value of test case of head and body in each test band.

- Upper and lower frequencies were measured at the worst position.
- The SAR test shall be performed at the high, middle and low frequency channels of each operating mode. If the SAR measured at mid-band channel for each test configuration is lower than the SAR limit ( $< 0.4\text{W/kg}$ ), testing at the high and low channels is optional.
- Per KDB 865664 d01v01, for each frequency band, repeated SAR measurement is required only when the measured SAR is  $\geq 0.8\text{(W/kg)}$ .

### 7.2.3.2 Summary of Measurement Results (PCS1900)

#### SAR Values (PCS1900)

| Test Case                             |         | Measurement Result(W/kg) | Power Drift(dB) | Note |
|---------------------------------------|---------|--------------------------|-----------------|------|
| Different Test Position               | Channel | 1 g                      |                 |      |
|                                       |         | Average                  |                 |      |
| Test position of Head with voice mode |         |                          |                 |      |
| Left head, Touch cheek                | middle  | 0.072                    | -0.15           |      |
| Left head, Tilt 15 Degree             | middle  | 0.0168                   | 0.18            |      |
| Right head, Touch cheek               | middle  | 0.0755                   | -0.09           |      |
| Right head, Tilt 15 Degree            | middle  | 0.0413                   | -0.12           |      |
| Right head, Touch cheek               | low     | 0.090                    | 0.04            | max  |
|                                       | high    | 0.0881                   | -0.14           |      |

| Test position of Body with GPRS(4UP) (Distance 10mm) |        |       |       |          |
|------------------------------------------------------|--------|-------|-------|----------|
| Towards phantom                                      | middle | 0.526 | -0.06 |          |
| Towards Ground                                       | middle | 0.649 | -0.03 |          |
| Front                                                | middle | 0.998 | 0.06  |          |
| Left side                                            | middle | 0.179 | 0.03  |          |
| Right side                                           | middle | 0.101 | 0.14  |          |
| Front                                                | low    | 1.08  | -0.03 | max      |
|                                                      | high   | 1.03  | 0.02  |          |
| Worst case position of Body with (Distance 10mm)     |        |       |       |          |
| Front                                                | low    | 0.735 | 0.18  | earphone |
| Front                                                | low    | 1.01  | -0.11 | repeat   |

Note: 1.The value with blue color is the maximum SAR Value of test case of head and body in each test band.

- Upper and lower frequencies were measured at the worst position.
- The SAR test shall be performed at the high, middle and low frequency channels of each operating mode. If the SAR measured at mid-band channel for each test configuration is lower than the SAR limit ( $< 0.4\text{W/kg}$ ), testing at the high and low channels is optional.
- Per KDB 865664 d01v01, for each frequency band ,repeated SAR measurement is required only when the measured SAR is  $\geq 0.8(\text{W/kg})$ .

### 7.2.3.3 Summary of Measurement Results (WCDMA BAND II)

#### SAR Values (WCDMA BANDII)

| Test Case                 |         | Measurement Result(W/kg) | Power Drift(dB) | Note |
|---------------------------|---------|--------------------------|-----------------|------|
| Different Test Position   | Channel | 1 g                      |                 |      |
|                           |         | Average                  |                 |      |
| Test position of Head     |         |                          |                 |      |
| Left head, Touch cheek    | middle  | 0.133                    | 0.13            |      |
| Left head, Tilt 15 Degree | middle  | 0.0263                   | 0.11            |      |

|                                                  |        |        |       |              |
|--------------------------------------------------|--------|--------|-------|--------------|
| Right head, Touch cheek                          | middle | 0.106  | 0.10  |              |
| Right head, Tilt 15 Degree                       | middle | 0.0518 | 0.19  |              |
| Left head, Touch cheek                           | low    | 0.143  | 0.09  | max          |
|                                                  | high   | 0.118  | 0.14  |              |
| Test position of Body (Distance 10mm)            |        |        |       |              |
| Towards phantom                                  | middle | 0.663  | -0.08 |              |
| Towards Ground                                   | middle | 0.676  | 0.10  |              |
| Front                                            | middle | 1.12   | -0.00 |              |
| Left side                                        | middle | 0.192  | 0.12  |              |
| Right side                                       | middle | 0.125  | -0.01 |              |
| Towards Ground                                   | low    | 0.663  | -0.08 |              |
|                                                  | high   | 0.676  | 0.10  |              |
| Front                                            | low    | 1.14   | -0.15 |              |
|                                                  | high   | 1.04   | 0.02  |              |
| Worst case position of Body with (Distance 10mm) |        |        |       |              |
| Front                                            | low    | 1.17   | -0.18 | max earphone |
|                                                  | middle | 1.09   | 0.02  |              |
|                                                  | High   | 1.01   | 0.04  |              |
| Front                                            | low    | 1.11   | 0.03  | repeat       |

Note: 1. The value with blue color is the maximum SAR Value of test case of head and body in each test band.

- Upper and lower frequencies were measured at the worst position.
- The SAR test shall be performed at the high, middle and low frequency channels of each operating mode. If the SAR measured at mid-band channel for each test configuration is lower than the SAR limit ( $< 0.4\text{W/kg}$ ), testing at the high and low channels is optional.
- Per KDB 865664 d01v01, for each frequency band, repeated SAR measurement is required only when the measured SAR is  $\geq 0.8\text{W/kg}$ .

### 7.2.3.4 Summary of Measurement Results (WCDMA BAND V)

#### SAR Values (WCDMA BAND V)

| Test Case                                        |         | Measurement Result(W/kg) | Power Drift(dB) | Note     |
|--------------------------------------------------|---------|--------------------------|-----------------|----------|
| Different Test Position                          | Channel | 1 g                      |                 |          |
|                                                  |         | Average                  |                 |          |
| Test position of Head                            |         |                          |                 |          |
| Left head, Touch cheek                           | middle  | 0.21                     | -0.15           |          |
| Left head, Tilt 15 Degree                        | middle  | 0.128                    | 0.16            |          |
| Right head, Touch cheek                          | middle  | 0.249                    | 0.07            | max      |
| Right head, Tilt 15 Degree                       | middle  | 0.138                    | 0.05            |          |
| Right head, Touch cheek                          | low     | 0.183                    | 0.18            |          |
|                                                  | high    | 0.241                    | 0.13            |          |
| Test position of Body (Distance 10mm)            |         |                          |                 |          |
| Towards phantom                                  | middle  | 0.191                    | -0.19           |          |
| Towards Ground                                   | middle  | 0.256                    | -0.05           | max      |
| Front                                            | middle  | 0.0874                   | 0.06            |          |
| Left side                                        | middle  | 0.011                    | 0.12            |          |
| Right side                                       | middle  | 0.0255                   | 0.10            |          |
| Towards Ground                                   | low     | 0.167                    | 0.06            |          |
|                                                  | high    | 0.172                    | -0.14           |          |
| Worst case position of Body with (Distance 10mm) |         |                          |                 |          |
| Towards Ground                                   | middle  | 0.109                    | 0.04            | earphone |

Note: 1.The value with blue color is the maximum SAR Value of test case of head and body in each test band.

2. Upper and lower frequencies were measured at the worst position.

3. The SAR test shall be performed at the high, middle and low frequency channels of each operating mode. If the SAR measured at mid-band channel for each test configuration is lower than the SAR limit ( $< 0.4\text{W/kg}$ ), testing at the high and low channels is optional.

4.Per KDB 865664 d01v01, for each frequency band ,repeated SAR measurement is

required only when the measured SAR is  $\geq 0.8(W/kg)$ .

### 7.2.3.5 Summary of Measurement Results (LTE BAND 2)

#### SAR Values (LTE BAND 2)

| Test Case                                        |                            |         | Measurement Result(W/kg) | Power Drift(dB) | Note |
|--------------------------------------------------|----------------------------|---------|--------------------------|-----------------|------|
| Different Test Position                          | Channel                    | 1 g     |                          |                 |      |
|                                                  |                            | Average |                          |                 |      |
| Test position of Head                            |                            |         |                          |                 |      |
| QPSK_20M_1RB_99                                  | Left head, Touch cheek     | middle  | 0.130                    | 0.01            | max  |
|                                                  | Left head, Tilt 15 Degree  | middle  | 0.0363                   | 0.11            |      |
|                                                  | Right head, Touch cheek    | middle  | 0.105                    | 0.07            |      |
|                                                  | Right head, Tilt 15 Degree | middle  | 0.0666                   | 0.06            |      |
|                                                  | Right head, Touch cheek    | low     | 0.12                     | 0.15            |      |
|                                                  |                            | high    | 0.127                    | 0.01            |      |
| QPSK_20M_1RB_49                                  | Left head, Touch cheek     | middle  | 0.116                    | -0.09           |      |
| QPSK_20M_1RB_0                                   | Left head, Touch cheek     | middle  | 0.127                    | 0.11            |      |
| QPSK_20M_50%RB_24                                | Left head, Touch cheek     | low     | 0.098                    | -0.12           |      |
|                                                  |                            | middle  | 0.102                    | 0.06            |      |
|                                                  |                            | high    | 0.104                    | 0.08            |      |
|                                                  | Left head, Tilt 15 Degree  | middle  | 0.0213                   | 0.11            |      |
|                                                  | Right head, Touch cheek    | middle  | 0.078                    | -0.04           |      |
|                                                  | Right head, Tilt 15 Degree | middle  | 0.0321                   | -0.14           |      |
| Worst case position of Body with (Distance 10mm) |                            |         |                          |                 |      |
| QPSK_20M_1RB_99                                  | Towards phantom            | middle  | 0.767                    | 0.08            |      |

|                                                  |                 |        |       |       |          |
|--------------------------------------------------|-----------------|--------|-------|-------|----------|
|                                                  | Towards Ground  | low    | 0.962 | -0.12 |          |
|                                                  |                 | middle | 0.948 | 0.14  |          |
|                                                  |                 | high   | 0.923 | -0.06 |          |
|                                                  | front           | middle | 1.02  | 0.10  |          |
|                                                  | left side       | middle | 0.139 | -0.18 |          |
|                                                  | right side      | middle | 0.134 | -0.12 |          |
|                                                  | front           | low    | 1.09  | 0.11  | max      |
|                                                  |                 | high   | 0.986 | 0.02  |          |
| QPSK_20M_1RB_49                                  | front           | low    | 0.94  | -0.07 |          |
| QPSK_20M_1RB_0                                   | front           | low    | 0.983 | -0.15 |          |
| QPSK_20M_50%RB_24                                | Towards phantom | middle | 0.695 | 0.05  |          |
|                                                  | Towards Ground  | middle | 0.745 | 0.06  |          |
|                                                  | left side       | middle | 0.094 | -0.11 |          |
|                                                  | right side      | middle | 0.089 | 0.03  |          |
|                                                  | front           | high   | 0.981 | 0.04  |          |
|                                                  |                 | low    | 0.906 | -0.03 |          |
|                                                  |                 | middle | 0.912 | -0.06 |          |
| QPSK_20M_100%RB                                  | front           | high   | 0.904 | 0.06  |          |
|                                                  |                 | low    | 0.857 | -0.11 |          |
|                                                  |                 | middle | 0.864 | -0.13 |          |
| Worst case position of Body with (Distance 10mm) |                 |        |       |       |          |
| QPSK_20M_1RB_99                                  | front           | low    | 0.907 | 0.04  | earphone |
|                                                  |                 | middle | 0.852 | 0.03  |          |
|                                                  |                 | high   | 0.876 | 0.06  |          |
| QPSK_20M_1RB_99                                  | front           | low    | 0.989 | 0.03  | repeat   |

Note: 1.The value with blue color is the maximum SAR Value of test case of head and body in each test band.

2. Upper and lower frequencies were measured at the worst position.
3. The SAR test shall be performed at the high, middle and low frequency channels of each operating mode. If the SAR measured at mid-band channel for each test configuration is at least 3.0 dB lower than the SAR limit ( $< 1.0\text{W/kg}$ ), testing at the high and low channels is optional.
4. 16QAM SAR for body was not required since the average output power of the 16QAM was not more than 0.25dB higher than the QPSK level and the maximum SAR for QPSK\_20M\_1RB was less than 75% SAR limit

### 7.2.3.6 Summary of Measurement Results (LTE BAND4)

#### SAR Values (LTE BAND 4)

| Test Case               |                            |         | Measurement Result(W/kg) | Power Drift(dB) | Note |
|-------------------------|----------------------------|---------|--------------------------|-----------------|------|
| Different Test Position | Channel                    | 1 g     |                          |                 |      |
|                         |                            | Average |                          |                 |      |
| Test position of Head   |                            |         |                          |                 |      |
| QPSK_20M_1RB_0          | Left head, Touch cheek     | middle  | 0.131                    | 0.17            |      |
|                         | Left head, Tilt 15 Degree  | middle  | 0.0235                   | 0.06            |      |
|                         | Right head, Touch cheek    | middle  | 0.0835                   | 0.09            |      |
|                         | Right head, Tilt 15 Degree | middle  | 0.0227                   | 0.15            |      |
|                         | Left head, Touch cheek     | low     | 0.156                    | 0.12            | max  |
|                         |                            | high    | 0.104                    | -0.10           |      |
| QPSK_20M_1RB_49         | Right head, Touch cheek    | low     | 0.0948                   | -0.07           |      |
| QPSK_20M_1RB_99         | Right head, Touch cheek    | low     | 0.0837                   | 0.07            |      |
| QPSK_20M_50%RB_24       | Left head, Touch cheek     | middle  | 0.0624                   | 0.12            |      |
|                         | Left head, Tilt 15 Degree  | middle  | 0.0124                   | 0.03            |      |
|                         | Right head, Touch cheek    | low     | 0.0813                   | -0.11           |      |
|                         |                            | middle  | 0.0786                   | -0.03           |      |
|                         |                            | high    | 0.0856                   | 0.11            |      |

|                                                  |                               |        |        |       |  |
|--------------------------------------------------|-------------------------------|--------|--------|-------|--|
|                                                  | Right head,<br>Tilt 15 Degree | middle | 0.0176 | 0.07  |  |
| Worst case position of Body with (Distance 10mm) |                               |        |        |       |  |
| QPSK_20M_1RB_0                                   | Towards phantom               | low    | 1.01   | -0.03 |  |
|                                                  |                               | middle | 0.993  | 0.05  |  |
|                                                  |                               | high   | 1.03   | -0.06 |  |
|                                                  | Towards Ground                | low    | 0.945  | 0.04  |  |
|                                                  |                               | middle | 0.923  | 0.10  |  |
|                                                  |                               | high   | 0.976  | -0.14 |  |
|                                                  | front                         | middle | 1.10   | 0.11  |  |
|                                                  | left side                     | middle | 0.184  | 0.03  |  |
|                                                  | right side                    | middle | 0.0796 | 0.01  |  |
|                                                  | front                         | low    | 1.1    | 0.06  |  |
|                                                  |                               | high   | 1.17   | 0.07  |  |
| QPSK_20M_1RB_49                                  | front                         | high   | 1.07   | 0.06  |  |
| QPSK_20M_1RB_99                                  | front                         | high   | 1.07   | 0.02  |  |
| QPSK_20M_50%RB_24                                | Towards phantom               | middle | 0.794  | -0.02 |  |
|                                                  | Towards Ground                | middle | 0.723  | -0.06 |  |
|                                                  | left side                     | middle | 0.106  | -0.11 |  |
|                                                  | right side                    | middle | 0.0578 | 0.04  |  |
|                                                  | front                         | high   | 0.996  | 0.04  |  |
|                                                  |                               | low    | 0.975  | 0.12  |  |
|                                                  |                               | middle | 0.967  | 0.11  |  |
| QPSK_20M_100%RB                                  | front                         | high   | 0.986  | 0.08  |  |
|                                                  |                               | low    | 0.958  | -0.06 |  |
|                                                  |                               | middle | 0.947  | -0.11 |  |
| Worst case position of Body with (Distance 10mm) |                               |        |        |       |  |



|                |       |        |      |       |              |
|----------------|-------|--------|------|-------|--------------|
| QPSK_20M_1RB_0 | front | low    | 1.11 | 0.07  |              |
|                |       | middle | 1.12 | -0.05 |              |
|                |       | high   | 1.19 | 0.16  | Max earphone |
| QPSK_20M_1RB_0 | front | high   | 1.15 | 0.08  | repeat       |

Note: 1. The value with blue color is the maximum SAR Value of test case of head and body in each test band.

- Upper and lower frequencies were measured at the worst position.
- The SAR test shall be performed at the high, middle and low frequency channels of each operating mode. If the SAR measured at mid-band channel for each test configuration is at least 3.0 dB lower than the SAR limit ( $< 1.0\text{W/kg}$ ), testing at the high and low channels is optional.
- 16QAM SAR for body was not required since the average output power of the 16QAM was not more than 0.25dB higher than the QPSK level and the maximum SAR for QPSK\_20M\_1RB was less than 75% SAR limit

### 7.2.3.7 Summary of Measurement Results (LTE BAND 7)

#### SAR Values (LTE BAND 7)

| Test Case               |                            |         | Measurement Result(W/kg) | Power Drift(dB) | Note |
|-------------------------|----------------------------|---------|--------------------------|-----------------|------|
| Different Test Position | Channel                    | 1 g     |                          |                 |      |
|                         |                            | Average |                          |                 |      |
| Test position of Head   |                            |         |                          |                 |      |
| QPSK_20M_1RB_0          | Left head, Touch cheek     | middle  | 0.030                    | 0.05            |      |
|                         | Left head, Tilt 15 Degree  | middle  | 0.019                    | 0.02            |      |
|                         | Right head, Touch cheek    | middle  | 0.056                    | 0.12            |      |
|                         | Right head, Tilt 15 Degree | middle  | 0.018                    | 0.06            |      |
|                         | Right head, Touch cheek    | low     | 0.084                    | -0.15           | max  |
|                         |                            | high    | 0.048                    | 0.11            |      |
| QPSK_20M_1RB_49         | Right head, Touch cheek    | low     | 0.061                    | 0.05            |      |
| QPSK_20M_1RB_99         | Right head, Touch cheek    | low     | 0.069                    | 0.04            |      |

|                                                  |                               |        |        |       |          |
|--------------------------------------------------|-------------------------------|--------|--------|-------|----------|
| QPSK_20M_50%RB_24                                | Left head,<br>Touch cheek     | middle | 0.023  | -0.03 |          |
|                                                  | Left head,<br>Tilt 15 Degree  | middle | 0.0127 | -0.05 |          |
|                                                  | Right head,<br>Touch cheek    | low    | 0.051  | -0.11 |          |
|                                                  |                               | middle | 0.052  | -0.06 |          |
|                                                  |                               | high   | 0.0497 | 0.07  |          |
|                                                  | Right head,<br>Tilt 15 Degree | middle | 0.0119 | 0.06  |          |
| Worst case position of Body with (Distance 10mm) |                               |        |        |       |          |
| QPSK_20M_1RB_0                                   | Towards<br>phantom            | middle | 0.298  | -0.05 |          |
|                                                  | Towards Ground                | middle | 0.548  | -0.01 |          |
|                                                  | front                         | middle | 0.750  | 0.13  | max      |
|                                                  | left side                     | middle | 0.085  | -0.07 |          |
|                                                  | right side                    | middle | 0.0287 | -0.17 |          |
|                                                  | front                         | low    | 0.604  | 0.06  |          |
|                                                  |                               | high   | 0.706  | 0.01  |          |
| QPSK_20M_1RB_49                                  | front                         | middle | 0.738  | -0.03 |          |
| QPSK_20M_1RB_99                                  | front                         | middle | 0.726  | 0.08  |          |
| QPSK_20M_50%RB_24                                | Towards<br>phantom            | middle | 0.184  | -0.09 |          |
|                                                  | Towards Ground                | middle | 0.443  | -0.07 |          |
|                                                  | front                         | low    | 0.654  | -0.04 |          |
|                                                  |                               | middle | 0.685  | 0.12  |          |
|                                                  |                               | high   | 0.637  | 0.06  |          |
|                                                  | left side                     | middle | 0.067  | 0.07  |          |
|                                                  | right side                    | middle | 0.0191 | 0.13  |          |
| Worst case position of Body with (Distance 10mm) |                               |        |        |       |          |
| QPSK_20M_1RB_99                                  | front                         | middle | 0.532  | -0.06 | earphone |

Note: 1.The value with blue color is the maximum SAR Value of test case of head and body in

each test band.

2. Upper and lower frequencies were measured at the worst position.
3. The SAR test shall be performed at the high, middle and low frequency channels of each operating mode. If the SAR measured at mid-band channel for each test configuration is at least 3.0 dB lower than the SAR limit ( $< 1.0\text{W/kg}$ ), testing at the high and low channels is optional.
4. 16QAM SAR for body was not required since the average output power of the 16QAM was not more than 0.25dB higher than the QPSK level and the maximum SAR for QPSK\_20M\_1RB was less than 75% SAR limit

### 7.2.3.8 Summary of Measurement Results (LTE BAND 17)

#### SAR Values (LTE BAND 17)

| Test Case               |                            |         | Measurement Result(W/kg) | Power Drift(dB) | Note |
|-------------------------|----------------------------|---------|--------------------------|-----------------|------|
| Different Test Position | Channel                    | 1 g     |                          |                 |      |
|                         |                            | Average |                          |                 |      |
| Test position of Head   |                            |         |                          |                 |      |
| QPSK_10M_1RB_0          | Left head, Touch cheek     | middle  | 0.123                    | 0.12            | MAX  |
|                         | Left head, Tilt 15 Degree  | middle  | 0.0548                   | -0.03           |      |
|                         | Right head, Touch cheek    | middle  | 0.109                    | 0.15            |      |
|                         | Right head, Tilt 15 Degree | middle  | 0.102                    | 0.15            |      |
|                         | Right head, Touch cheek    | low     | 0.0872                   | 0.15            |      |
|                         |                            | high    | 0.0778                   | -0.13           |      |
| QPSK_10M_1RB_49         | Left head, Touch cheek     | middle  | 0.0726                   | -0.19           |      |
| QPSK_10M_1RB_99         | Left head, Touch cheek     | middle  | 0.064                    | 0.15            |      |
| QPSK_10M_50%RB_24       | Left head, Touch cheek     | low     | 0.0621                   | 0.11            |      |
|                         |                            | middle  | 0.0604                   | -0.06           |      |
|                         |                            | high    | 0.0589                   | -0.17           |      |
|                         | Left head, Tilt 15 Degree  | middle  | 0.0234                   | 0.10            |      |
|                         | Right head, Touch cheek    | middle  | 0.0597                   | 0.11            |      |
|                         | Right head,                | middle  | 0.0168                   | -0.12           |      |

|                                                  |                 |        |        |       |          |
|--------------------------------------------------|-----------------|--------|--------|-------|----------|
|                                                  | Tilt 15 Degree  |        |        |       |          |
| Worst case position of Body with (Distance 10mm) |                 |        |        |       |          |
| QPSK_10M_1RB_0                                   | Towards phantom | middle | 0.218  | 0.13  |          |
|                                                  | Towards Ground  | middle | 0.231  | 0.02  |          |
|                                                  | front           | middle | 0.069  | 0.18  |          |
|                                                  | left side       | middle | 0.0124 | -0.02 |          |
|                                                  | right side      | middle | 0.0141 | 0.11  |          |
|                                                  | Towards Ground  | low    | 0.223  | 0.04  |          |
|                                                  |                 | high   | 0.23   | 0.02  |          |
| QPSK_10M_1RB_49                                  | Towards Ground  | middle | 0.235  | -0.11 |          |
| QPSK_10M_1RB_99                                  | Towards Ground  | middle | 0.268  | 0.13  | max      |
| QPSK_10M_50%RB_49                                | Towards phantom | middle | 0.164  | 0.11  |          |
|                                                  | Towards Ground  | low    | 0.196  | 0.08  |          |
|                                                  |                 | middle | 0.187  | -0.02 |          |
|                                                  |                 | high   | 0.189  | -0.04 |          |
|                                                  | front           | middle | 0.059  | -0.11 |          |
|                                                  | left side       | middle | 0.0106 | -0.13 |          |
|                                                  | right side      | middle | 0.0112 | 0.10  |          |
| Worst case position of Body with (Distance 10mm) |                 |        |        |       |          |
| QPSK_10M_1RB_99                                  | Towards Ground  | middle | 0.261  | 0.11  | earphone |

Note: 1. The value with blue color is the maximum SAR Value of test case of head and body in each test band.

- Upper and lower frequencies were measured at the worst position.
- The SAR test shall be performed at the high, middle and low frequency channels of each operating mode. If the SAR measured at mid-band channel for each test configuration is at least 3.0 dB lower than the SAR limit ( $< 1.0\text{W/kg}$ ), testing at the high and low channels is optional.
- 16QAM SAR for body was not required since the average output power of the 16QAM was not more than 0.25dB higher than the QPSK level and the maximum SAR for QPSK\_20M\_1RB was less than 75% SAR limit

### 7.2.3.9 Summary of Measurement Results (802.11b)

#### SAR Values (802.11b)

| Test Case                             |         | Measurement Result(W/kg) | Power Drift(dB) | Note |
|---------------------------------------|---------|--------------------------|-----------------|------|
| Different Test Position               | Channel | 1 g                      |                 |      |
|                                       |         | Average                  |                 |      |
| Test position of Head                 |         |                          |                 |      |
| Left head, Touch cheek                | middle  | 0.352                    | 0.13            |      |
| Left head, Tilt 15 Degree             | middle  | 0.418                    | -0.04           |      |
| Right head, Touch cheek               | middle  | 0.793                    | -0.18           |      |
| Right head, Tilt 15 Degree            | middle  | 0.849                    | -0.14           |      |
| Right head, Touch cheek               | low     | 0.717                    | -0.07           |      |
|                                       | high    | 0.894                    | -0.16           | max  |
| Right head, Touch cheek               | high    | 0.828                    | -0.09           |      |
| Test position of Body (Distance 10mm) |         |                          |                 |      |
| Towards phantom                       | middle  | 0.157                    | 0.97            |      |
| Towards Ground                        | middle  | 0.125                    | -0.12           |      |
| Back                                  | middle  | 0.10                     | 0.23            |      |
| Left side                             | middle  | 0.0941                   | 0.70            |      |
| right side                            | middle  | 0.0219                   | 0.51            |      |
| Towards phantom                       | low     | 0.167                    | 0.14            |      |
|                                       | high    | 0.199                    | 0.09            | max  |

Note: 1.The value with blue color is the maximum SAR Value of test case of head and body in each test band.

- Upper and lower frequencies were measured at the worst position.
- The SAR test shall be performed at the high, middle and low frequency channels of each operating mode. If the SAR measured at mid-band channel for each test configuration is lower than the SAR limit ( $< 0.4\text{W/kg}$ ), testing at the high and low channels is optional.
- Per KDB 865664 d01v01, for each frequency band ,repeated SAR measurement is required only when the measured SAR is  $\geq 0.8\text{(W/kg)}$ .

## 7.2.4 Maximum SAR

| BAND    | Position | CH | measuerment<br>SAR<br>(W/kg) | measuerment<br>power<br>(dBm) | turn-up<br>limit<br>(dBm) | scaled<br>factor | D C<br>factor | reported<br>SAR<br>(W/kg) |
|---------|----------|----|------------------------------|-------------------------------|---------------------------|------------------|---------------|---------------------------|
| GSM850  | HEAD     | L  | 0.224                        | 32.6                          | 33                        | 1.096            | /             | 0.246                     |
|         |          | M  | 0.300                        | 32.7                          | 33                        | 1.072            | /             | 0.322                     |
|         |          | H  | 0.313                        | 32.6                          | 33                        | 1.096            | /             | 0.343                     |
|         | BODY     | L  | 0.444                        | 29.2                          | 30                        | 1.202            | /             | 0.534                     |
|         |          | M  | 0.489                        | 29.1                          | 30                        | 1.230            | /             | 0.602                     |
|         |          | H  | 0.467                        | 29.2                          | 30                        | 1.202            | /             | 0.561                     |
| GSM1900 | HEAD     | L  | 0.09                         | 29.7                          | 30                        | 1.072            | /             | 0.096                     |
|         |          | M  | 0.0755                       | 29.7                          | 30                        | 1.072            | /             | 0.081                     |
|         |          | H  | 0.0881                       | 29.6                          | 30                        | 1.096            | /             | 0.097                     |
|         | BODY     | L  | 1.08                         | 26.4                          | 27                        | 1.148            | /             | 1.240                     |
|         |          | M  | 0.998                        | 26.3                          | 27                        | 1.175            | /             | 1.173                     |
|         |          | H  | 1.03                         | 26.2                          | 27                        | 1.202            | /             | 1.238                     |
| WCDMA 2 | HEAD     | L  | 0.143                        | 22.7                          | 23                        | 1.072            | /             | 0.153                     |
|         |          | M  | 0.133                        | 22.7                          | 23                        | 1.072            | /             | 0.143                     |
|         |          | H  | 0.118                        | 22.8                          | 23                        | 1.047            | /             | 0.124                     |
|         | BODY     | L  | 1.17                         | 22.7                          | 23                        | 1.072            | /             | 1.254                     |
|         |          | M  | 1.12                         | 22.7                          | 23                        | 1.072            | /             | 1.200                     |
|         |          | H  | 1.04                         | 22.8                          | 23                        | 1.047            | /             | 1.089                     |
| WCDMA 5 | HEAD     | L  | 0.183                        | 22.8                          | 24                        | 1.318            | /             | 0.241                     |
|         |          | M  | 0.249                        | 22.7                          | 24                        | 1.349            | /             | 0.336                     |
|         |          | H  | 0.241                        | 22.9                          | 24                        | 1.288            | /             | 0.310                     |
|         | BODY     | L  | 0.167                        | 22.8                          | 24                        | 1.318            | /             | 0.220                     |
|         |          | M  | 0.256                        | 22.7                          | 24                        | 1.349            | /             | 0.345                     |
|         |          | H  | 0.172                        | 22.9                          | 24                        | 1.288            | /             | 0.221                     |
| LTE 2   | HEAD     | L  | 0.12                         | 23.29                         | 23.5                      | 1.050            | /             | 0.126                     |
|         |          | M  | 0.13                         | 23.06                         | 23.5                      | 1.107            | /             | 0.144                     |
|         |          | H  | 0.127                        | 22.84                         | 23.5                      | 1.164            | /             | 0.148                     |
|         | BODY     | L  | 1.09                         | 23.29                         | 23.5                      | 1.050            | /             | 1.144                     |
|         |          | M  | 1.02                         | 23.06                         | 23.5                      | 1.107            | /             | 1.129                     |
|         |          | H  | 0.986                        | 22.84                         | 23.5                      | 1.164            | /             | 1.148                     |
| LTE 4   | HEAD     | L  | 0.156                        | 22.89                         | 23                        | 1.026            | /             | 0.160                     |
|         |          | M  | 0.131                        | 22.91                         | 23                        | 1.021            | /             | 0.134                     |
|         |          | H  | 0.104                        | 22.97                         | 23                        | 1.007            | /             | 0.105                     |
|         | BODY     | L  | 1.11                         | 22.89                         | 23                        | 1.026            | /             | 1.138                     |
|         |          | M  | 1.12                         | 22.91                         | 23                        | 1.021            | /             | 1.143                     |
|         |          | H  | 1.19                         | 22.97                         | 23                        | 1.007            | /             | 1.198                     |
| LTE 7   | HEAD     | L  | 0.084                        | 23.45                         | 23.5                      | 1.012            | /             | 0.085                     |
|         |          | M  | 0.056                        | 23.4                          | 23.5                      | 1.023            | /             | 0.057                     |

|         |      |   |        |       |      |       |       |       |
|---------|------|---|--------|-------|------|-------|-------|-------|
|         | BODY | H | 0.048  | 23.2  | 23.5 | 1.072 | /     | 0.051 |
|         |      | L | 0.604  | 23.45 | 23.5 | 1.012 | /     | 0.611 |
|         |      | M | 0.750  | 23.4  | 23.5 | 1.023 | /     | 0.767 |
|         |      | H | 0.706  | 23.2  | 23.5 | 1.072 | /     | 0.756 |
| LTE 17  | HEAD | L | 0.0872 | 22.81 | 23   | 1.045 | /     | 0.091 |
|         |      | M | 0.123  | 22.69 | 23   | 1.074 | /     | 0.132 |
|         |      | H | 0.0778 | 22.74 | 23   | 1.062 | /     | 0.083 |
|         | BODY | L | 0.223  | 22.81 | 23   | 1.045 | /     | 0.233 |
|         |      | M | 0.268  | 22.69 | 23   | 1.074 | /     | 0.288 |
|         |      | H | 0.23   | 22.74 | 23   | 1.062 | /     | 0.244 |
| 802.11b | HEAD | L | 0.717  | 15.37 | 16   | 1.156 | 1.002 | 0.831 |
|         |      | M | 0.793  | 15.3  | 16   | 1.175 | 1.002 | 0.934 |
|         |      | H | 0.894  | 15.34 | 16   | 1.164 | 1.002 | 1.043 |
|         | BODY | L | 0.167  | 15.37 | 16   | 1.156 | 1.002 | 0.193 |
|         |      | M | 0.157  | 15.3  | 16   | 1.175 | 1.002 | 0.185 |
|         |      | H | 0.199  | 15.34 | 16   | 1.164 | 1.002 | 0.232 |

### Evaluation for Simultaneous SAR

| Summation BAND | Exposure Position | Maximum reported 1g SAR (W/kg) | Summation SAR(1g) (W/kg) | SAR –to-peak-location Separation Ratio | Simultaneous Measurement Required? |
|----------------|-------------------|--------------------------------|--------------------------|----------------------------------------|------------------------------------|
| WWAN +WiFi     | Head              | 0.343+1.043=1.386              | <1.6                     | /                                      | No                                 |
|                | Body-worn(10mm)   | 1.254+0.232=1.486              | <1.6                     | /                                      | No                                 |
| WWAN+BT        | Head              | 0.343+0.021=0.354              | <1.6                     | /                                      | No                                 |
|                | Body-worn(10mm)   | 1.254+0.010=1.264              | <1.6                     | /                                      | No                                 |

General Judgment: PASS

## 8. Test Equipments Utilized

| No. | Name                   | Type           | S/N        | Calibration Date            | Valid Period |
|-----|------------------------|----------------|------------|-----------------------------|--------------|
| 01  | Network analyzer       | Agilent E5071E | MY46109425 | Oct 30 <sup>th</sup> , 2014 | One year     |
| 02  | Dielectric Probe Kit   | Agilent 85070E | MY44300524 | No Calibration Requested    |              |
| 03  | Power meter            | Agilent E4418B | MY50000852 | Oct 30 <sup>th</sup> , 2014 | One year     |
| 04  | Power sensor           | Agilent E9200B | MY50300011 | Oct 30 <sup>th</sup> , 2014 | One year     |
| 05  | Signal Generator       | Agilent N5182A | MY49071248 | Oct 30 <sup>th</sup> , 2014 | One year     |
| 06  | Amplifier              | ZHL-42W        | QA1020005  | No Calibration Requested    |              |
| 07  | BTS                    | CMU200         | 121464     | Oct 30 <sup>th</sup> , 2014 | One year     |
| 08  | BTS                    | MT8820C        | 6201107310 | May 23 <sup>th</sup> , 2014 | One year     |
| 09  | E-field Probe          | ES3DV3         | 3241       | Sep 29 <sup>th</sup> , 2014 | One year     |
| 10  | E-field Probe          | EX3DV4         | 3717       | Sep 02 <sup>th</sup> , 2014 | One year     |
| 11  | DAE                    | DAE4           | 1226       | Sep 15 <sup>th</sup> , 2014 | One year     |
| 12  | DAE                    | DAE4           | 1327       | Apr 21 <sup>th</sup> , 2015 | One year     |
| 13  | Validation Kit 835MHz  | D835V2         | 4d100      | Sep 23 <sup>th</sup> , 2014 | One year     |
| 14  | Validation Kit 1900MHz | D1900V2        | 5d155      | Apr 21 <sup>th</sup> , 2015 | One year     |
| 15  | Validation Kit 2450MHz | D2450V2        | 845        | Sep 17 <sup>th</sup> , 2014 | One year     |
| 16  | Validation Kit 1750MHz | D1750V2        | 1034       | Sep 19 <sup>th</sup> , 2014 | One year     |
| 17  | Validation Kit 2600MHz | D2600V2        | 1059       | Apr 27 <sup>th</sup> , 2015 | One year     |
| 18  | Validation Kit 750MHz  | D750V3         | 1080       | Apr 27 <sup>th</sup> , 2015 | One year     |



## 9. Measurement Uncertainty

| No                         | Source of Uncertainty                           | Type | Uncertainty value<br>± % | Probability<br>Distribution | Div.       | $c_i$<br>(1 g) | $c_i$<br>(10 g) | Standard<br>Unc<br>± %, (1 g) | Standard<br>Unc<br>± %, (10 g) | $\nu_i$<br>or<br>$\nu_{\text{eff}}$ |
|----------------------------|-------------------------------------------------|------|--------------------------|-----------------------------|------------|----------------|-----------------|-------------------------------|--------------------------------|-------------------------------------|
| 1                          | System repetivity                               | A    | 2.7                      | N                           | 1          | 1              | 1               | 2.7                           | 2.7                            | 9                                   |
| <i>Measurement System</i>  |                                                 |      |                          |                             |            |                |                 |                               |                                |                                     |
| 2                          | Probe Calibration                               | B    | 5.9                      | N                           | 1          | 1              | 1               | 5.9                           | 5.9                            | $\infty$                            |
| 3                          | Isotropy                                        | B    | 4.7                      | R                           | $\sqrt{3}$ | 0.7            | 0.7             | 1.9                           | 1.9                            | $\infty$                            |
| 4                          | Boundary Effect                                 | B    | 1.0                      | R                           | $\sqrt{3}$ | 1              | 1               | 0.6                           | 0.6                            | $\infty$                            |
| 5                          | Linearity                                       | B    | 4.7                      | R                           | $\sqrt{3}$ | 1              | 1               | 2.7                           | 2.7                            | $\infty$                            |
| 6                          | Detection Limits                                | B    | 1.0                      | R                           | $\sqrt{3}$ | 1              | 1               | 0.6                           | 0.6                            | $\infty$                            |
| 7                          | Readout Electronics                             | B    | 0.3                      | N                           | 1          | 1              | 1               | 0.3                           | 0.3                            | $\infty$                            |
| 8                          | Response Time                                   | B    | 0.8                      | R                           | $\sqrt{3}$ | 1              | 1               | 0.5                           | 0.5                            | $\infty$                            |
| 9                          | Integration Time                                | B    | 2.6                      | R                           | $\sqrt{3}$ | 1              | 1               | 1.5                           | 1.5                            | $\infty$                            |
| 10                         | RF ambient conditions – noise                   | B    | 0                        | R                           | $\sqrt{3}$ | 1              | 1               | 0                             | 0                              | $\infty$                            |
| 11                         | RF ambient conditions – reflections             | B    | 0                        | R                           | $\sqrt{3}$ | 1              | 1               | 0                             | 0                              | $\infty$                            |
| 12                         | Probe Positioner Mech. Restrictions             | B    | 0.4                      | R                           | $\sqrt{3}$ | 1              | 1               | 0.2                           | 0.2                            | $\infty$                            |
| 13                         | Probe Positioning with respect to Phantom Shell | B    | 2.9                      | R                           | $\sqrt{3}$ | 1              | 1               | 1.7                           | 1.7                            | $\infty$                            |
| 14                         | Post-Processing                                 | B    | 1.0                      | R                           | $\sqrt{3}$ | 1              | 1               | 0.6                           | 0.6                            | $\infty$                            |
| <i>Test Sample Related</i> |                                                 |      |                          |                             |            |                |                 |                               |                                |                                     |

|                                                 |                               |                                            |      |   |            |      |      |       |       |          |
|-------------------------------------------------|-------------------------------|--------------------------------------------|------|---|------------|------|------|-------|-------|----------|
| 15                                              | Test Sample Positioning       | A                                          | 3.3  | N | 1          | 1    | 1    | 3.3   | 3.3   | 71       |
| 16                                              | Device Holder Uncertainty     | A                                          | 4.1  | N | 1          | 1    | 1    | 4.1   | 4.1   | 5        |
| 17                                              | Drift of Output Power         | B                                          | 5.0  | R | $\sqrt{3}$ | 1    | 1    | 2.9   | 2.9   | $\infty$ |
| <i>Phantom and Set-up</i>                       |                               |                                            |      |   |            |      |      |       |       |          |
| 18                                              | Phantom Uncertainty           | B                                          | 4.0  | R | $\sqrt{3}$ | 1    | 1    | 2.3   | 2.3   | $\infty$ |
| 19                                              | Liquid Conductivity (target.) | B                                          | 5.0  | R | $\sqrt{3}$ | 0.64 | 0.43 | 1.8   | 1.2   | $\infty$ |
| 20                                              | Liquid Conductivity (meas.)   | A                                          | 2.06 | N | 1          | 0,64 | 0,43 | 1.7   | 1.4   | 43       |
| 21                                              | Liquid Permittivity (target.) | B                                          | 5.0  | R | $\sqrt{3}$ | 0,6  | 0,49 | 1.7   | 1.4   | $\infty$ |
| 22                                              | Liquid Permittivity (meas.)   | A                                          | 1.6  | N | 1          | 0,6  | 0,49 | 1.0   | 0.8   | 521      |
| Combined standard uncertainty                   |                               | $u_c = \sqrt{\sum_{i=1}^{21} c_i^2 u_i^2}$ |      |   |            |      |      | 10.54 | 10.34 |          |
| Expanded uncertainty (95 % confidence interval) |                               | k=2                                        |      |   |            |      |      | 21.08 | 20.68 |          |

## ANNEX A: Detailed Test Results

### Annex A.1 System Check Results

#### System check 750 head

Date/Time: 13/05/2015 01:20:07

Communication System: UID 10000, CW; Communication System Band: D750(750.0 MHz); Frequency: 750 MHz; Communication System PAR: 0 dB

Medium parameters used:  $f = 750$  MHz;  $\sigma = 0.913$  S/m;  $\epsilon_r = 42.748$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE1528-2013)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(6.9, 6.9, 6.9); Calibrated: 29/09/2014;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 15/09/2014
- Phantom: SAM1; Type: SAM; Serial: TP1576
- Measurement SW: DASYS2, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

**750 head/d=15mm, Pin=250 mW/Area Scan (61x121x1):** Interpolated grid:  
dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 3.25 W/kg

**750 head/d=15mm, Pin=250 mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0:**

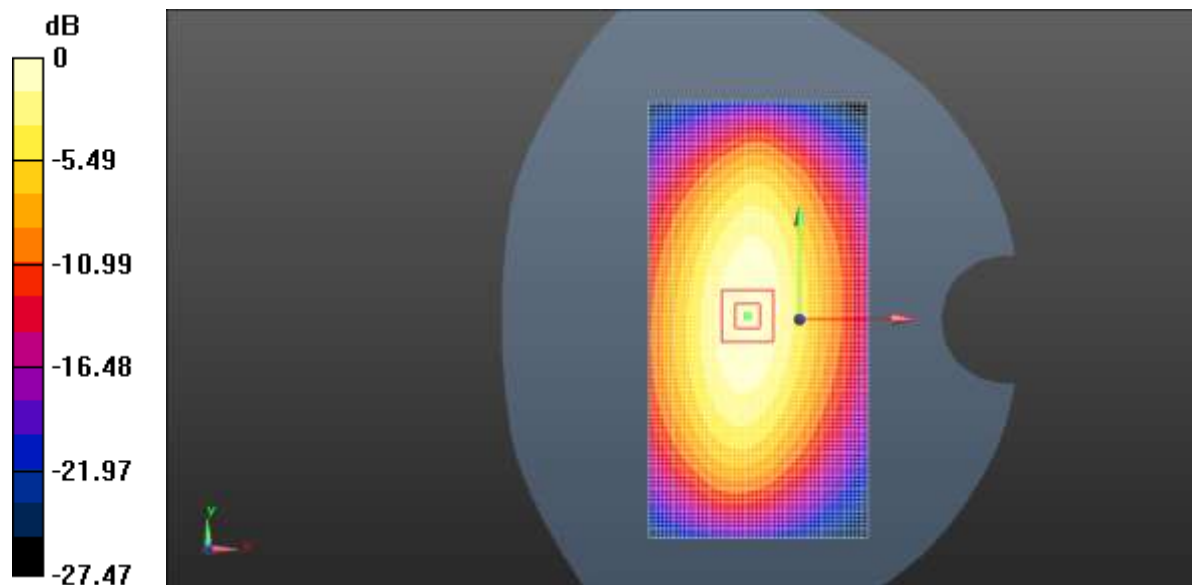
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 56.843 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 4.02 W/kg

**SAR(1 g) = 2.21 W/kg; SAR(10 g) = 1.52 W/kg**

Maximum value of SAR (measured) = 3.09 W/kg



0 dB = 3.25 W/kg = 5.12 dBW/kg

### System check 750 body

Date/Time: 12/05/2015 09:10:58

Communication System: UID 10000, CW; Communication System Band: D750 (750.0 MHz); Frequency: 750 MHz; Communication System PAR: 0 dB

Medium parameters used (interpolated):  $f = 750$  MHz;  $\sigma = 0.942$  S/m;  $\epsilon_r = 55.312$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528-2013)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(6.44, 6.44, 6.44); Calibrated: 29/09/2014;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn1226; Calibrated: 15/09/2014
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

**750body/d=15mm, Pin=250 mW/Area Scan (61x121x1):** Interpolated grid:

$dx=1.500$  mm,  $dy=1.500$  mm

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

**750body/d=15mm, Pin=250 mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0:**

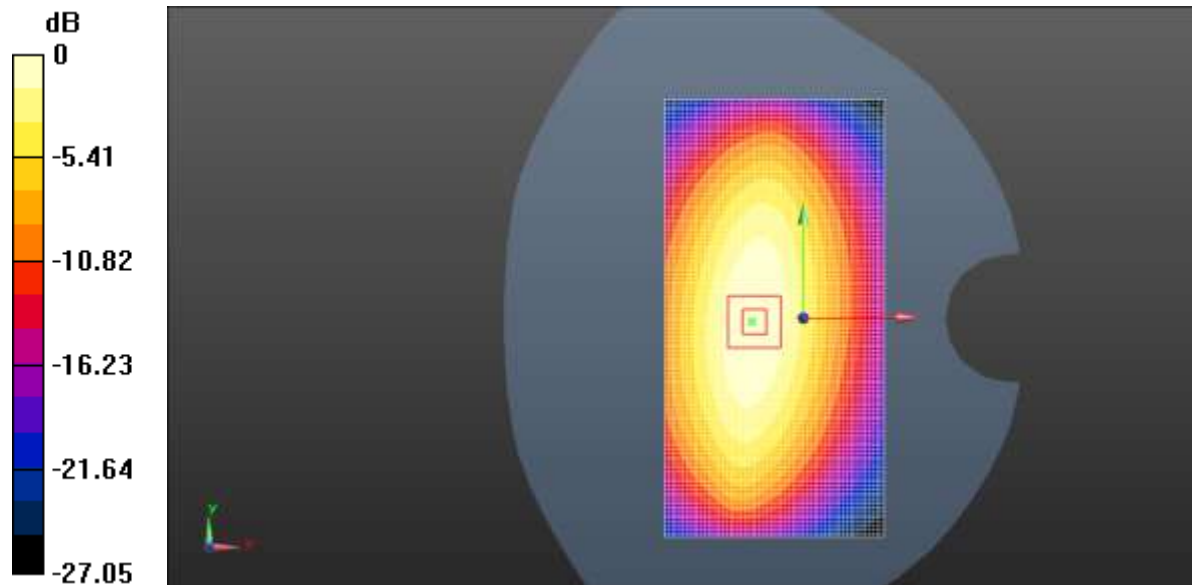
Measurement grid:  $dx=5$ mm,  $dy=5$ mm,  $dz=5$ mm

Reference Value = 55.873 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 3.43 W/kg

**SAR(1 g) = 2.28 W/kg; SAR(10 g) = 1.54 W/kg**

Maximum value of SAR (measured) = 2.67 W/kg



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

### System check 835 head

Date/Time: 08/05/2015 08:13:38

Communication System: UID 10000, CW; Communication System Band: D835 (835.0 MHz); Frequency: 835 MHz; Communication System PAR: 0 dB

Medium parameters used (interpolated):  $f = 835$  MHz;  $\sigma = 0.883$  S/m;  $\epsilon_r = 41.223$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Measurement Standard: DASY5 (IEEE1528-2013)

DASY5 Configuration:

- Probe: EX3DV4 - SN3717; ConvF(9.08, 9.08, 9.08); Calibrated: 02/09/2014;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 21/04/2015
- Phantom: SAM1; Type: SAM; Serial: TP1576
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

**835head/d=15mm, Pin=250 mW/Area Scan (61x121x1):** Interpolated grid:  
dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 3.16 W/kg

**835head/d=15mm, Pin=250 mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0:**

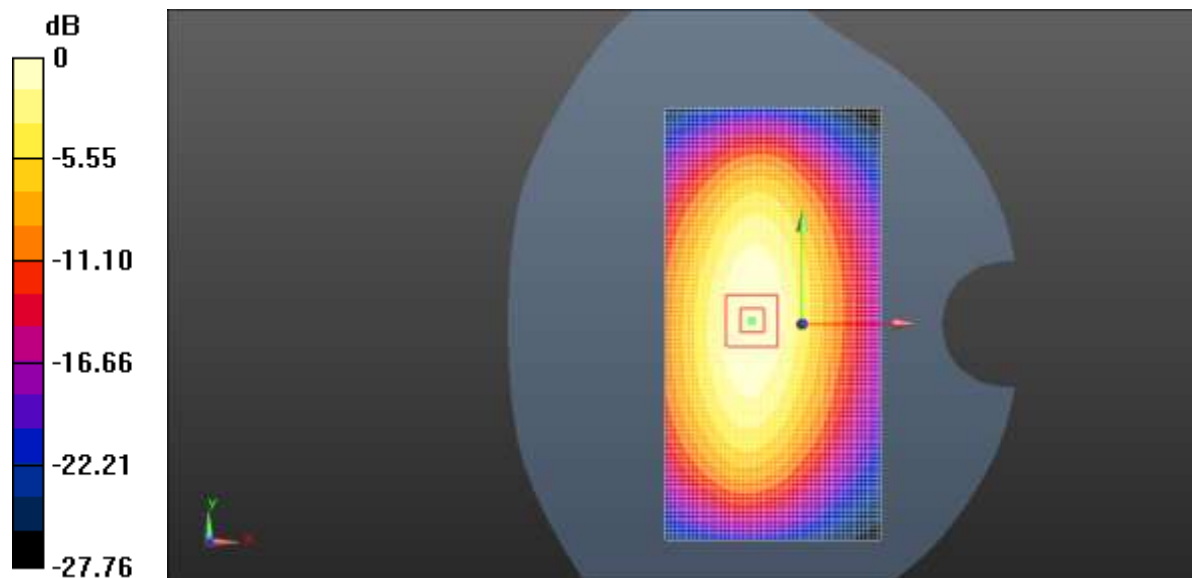
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 56.676 V/m; Power Drift = 0.08 dB

Peak SAR (extrapolated) = 4.17 W/kg

**SAR(1 g) = 2.42 W/kg; SAR(10 g) = 1.61 W/kg**

Maximum value of SAR (measured) = 3.21 W/kg



0 dB = 3.16 W/kg = 5.00 dBW/kg

# System check 835body

Date/Time: 04/05/2015 08:48:00

Communication System: UID 10000, CW; Communication System Band: D835 (835.0 MHz); Frequency: 835 MHz; Communication System PAR: 0 dB

Medium parameters used:  $f = 835$  MHz;  $\sigma = 0.948$  S/m;  $\epsilon_r = 54.625$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528-2013)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(6.37, 6.37, 6.37); Calibrated: 29/09/2014;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 15/09/2014
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

**835body/d=15mm, Pin=250 mW/Area Scan (61x121x1):** Interpolated grid:  
dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 2.39 W/kg

**835body/d=15mm, Pin=250 mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0:**

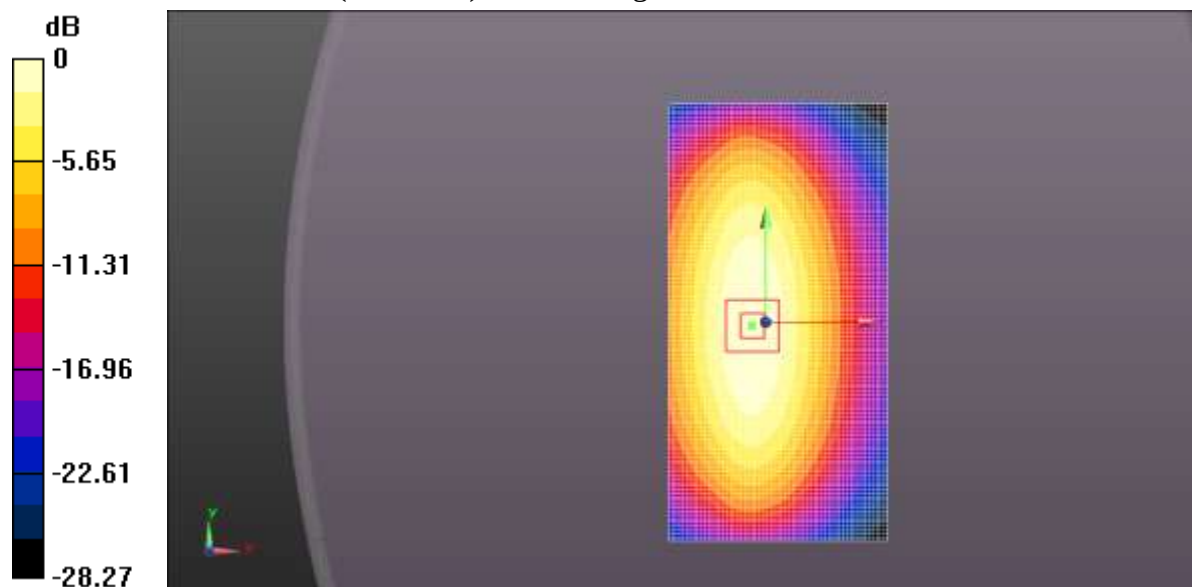
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 51.344 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 3.19 W/kg

**SAR(1 g) = 2.36 W/kg; SAR(10 g) = 1.56 W/kg**

Maximum value of SAR (measured) = 2.38 W/kg



0 dB = 2.39 W/kg = 3.78 dBW/kg

## System check 835body

Date/Time: 05/05/2015 09:23:13

Communication System: UID 10000, CW; Communication System Band: D835 (835.0 MHz); Frequency: 835 MHz; Communication System PAR: 0 dB

Medium parameters used:  $f = 835$  MHz;  $\sigma = 0.935$  S/m;  $\epsilon_r = 54.145$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528-2013)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(6.37, 6.37, 6.37); Calibrated: 29/09/2014;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 15/09/2014
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

**835body/d=15mm, Pin=250 mW/Area Scan (61x121x1):** Interpolated grid:  
dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 2.78 W/kg

**835body/d=15mm, Pin=250 mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0:**

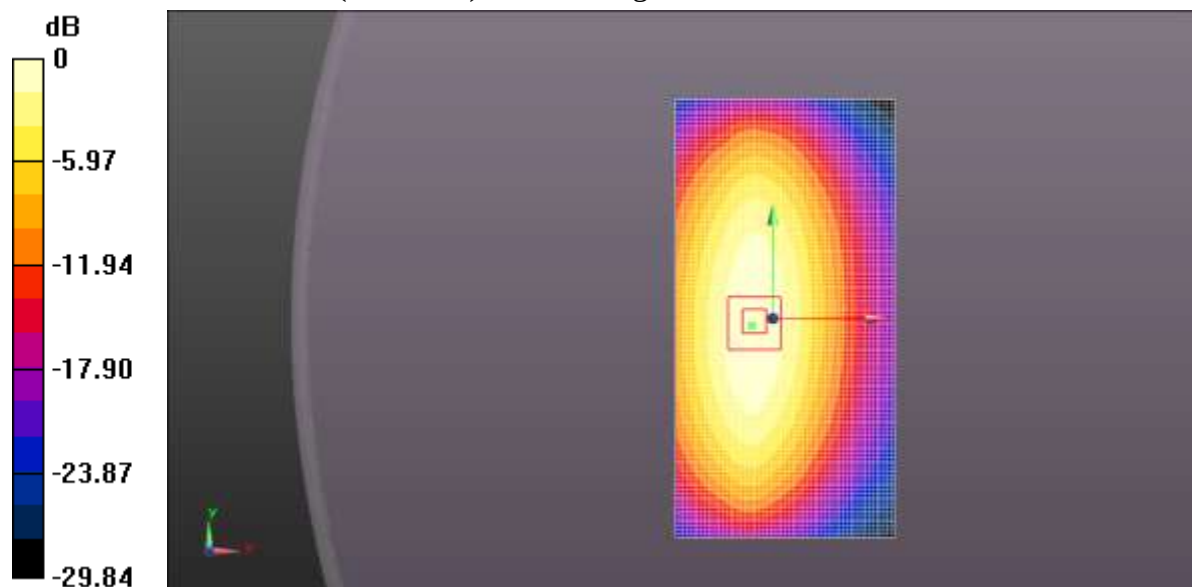
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 50.978 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 3.46 W/kg

**SAR(1 g) = 2.32 W/kg; SAR(10 g) = 1.52 W/kg**

Maximum value of SAR (measured) = 2.72 W/kg



0 dB = 2.78 W/kg = 4.43 dBW/kg

## System check 835body

Date/Time: 06/07/2015 09:34:04

Communication System: UID 10000, CW; Communication System Band: D835 (835.0 MHz); Frequency: 835 MHz; Communication System PAR: 0 dB

Medium parameters used:  $f = 835$  MHz;  $\sigma = 0.952$  S/m;  $\epsilon_r = 54.772$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528-2013)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(6.37, 6.37, 6.37); Calibrated: 29/09/2014;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 15/09/2014
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

**835body/d=15mm, Pin=250 mW/Area Scan (61x121x1):** Interpolated grid:  
dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 2.39 W/kg

**835body/d=15mm, Pin=250 mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0:**

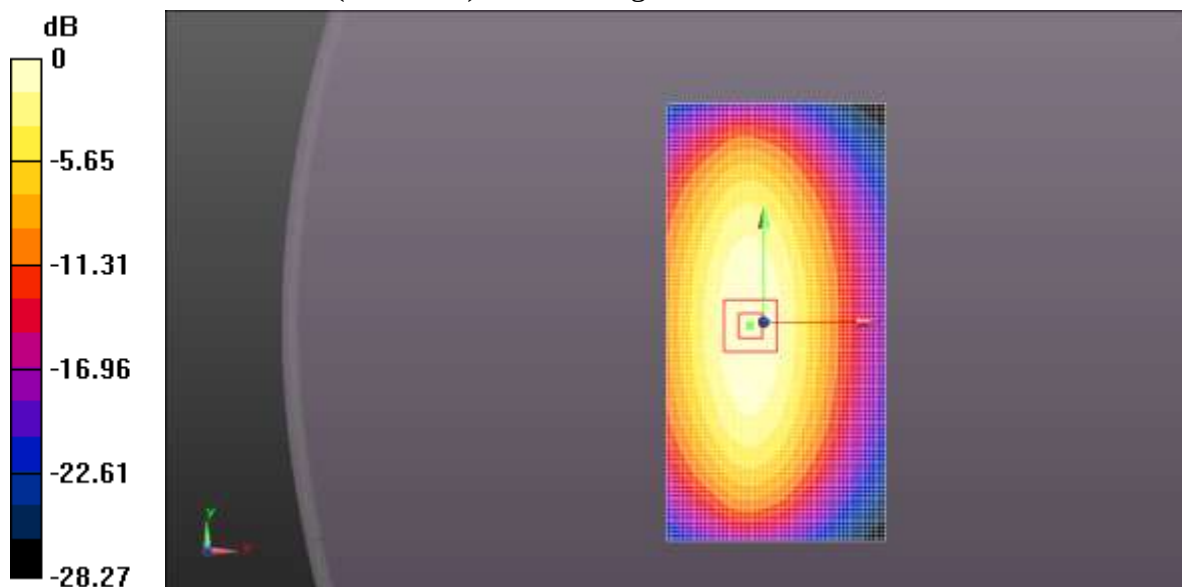
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 51.344 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 3.19 W/kg

**SAR(1 g) = 2.35W/kg; SAR(10 g) = 1.54W/kg**

Maximum value of SAR (measured) = 2.38 W/kg



0 dB = 2.39 W/kg = 3.78 dBW/kg



## System check 1750 head

Date/Time: 15/05/2015 09:35:08

Communication System: UID 10000, CW; Communication System Band: D1750 (1750.0 MHz); Frequency: 1750 MHz; Communication System PAR: 0 dB

Medium parameters used:  $f = 1750$  MHz;  $\sigma = 1.39$  S/m;  $\epsilon_r = 39.584$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528-2013)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(5.48, 5.48, 5.48); Calibrated: 29/09/2014;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 15/09/2014
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

**1750 head/d=10mm, Pin=250 mW/Area Scan (41x61x1):** Interpolated grid:  
dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 11.3 W/kg

**1750 head/d=10mm, Pin=250 mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0:**

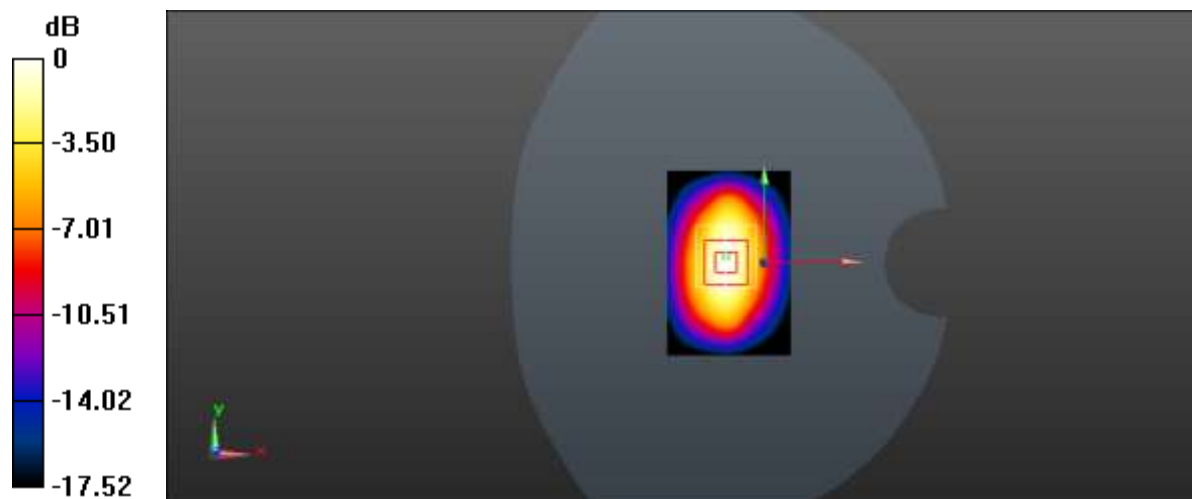
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 93.144 V/m; Power Drift = 0.08 dB

Peak SAR (extrapolated) = 15.9 W/kg

**SAR(1 g) = 9.12 W/kg; SAR(10 g) = 4.82 W/kg**

Maximum value of SAR (measured) = 11.3 W/kg



0 dB = 11.3 W/kg = 10.53 dBW/kg

## System check 1750body

Date/Time: 11/05/2015 08:21:41

Communication System: UID 10000, CW; Communication System Band: D1750 (17500.0 MHz); Frequency: 1750 MHz; Communication System PAR: 0 dB

Medium parameters used:  $f = 1750$  MHz;  $\sigma = 1.503$  S/m;  $\epsilon_r = 52.348$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528-2013)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(5.01, 5.01, 5.01); Calibrated: 29/09/2014;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 15/09/2014
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

**1750 body/d=10mm, Pin=250 mW/Area Scan (41x61x1):** Interpolated grid:  
dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 11.5 W/kg

**1750 body/d=10mm, Pin=250 mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0:**

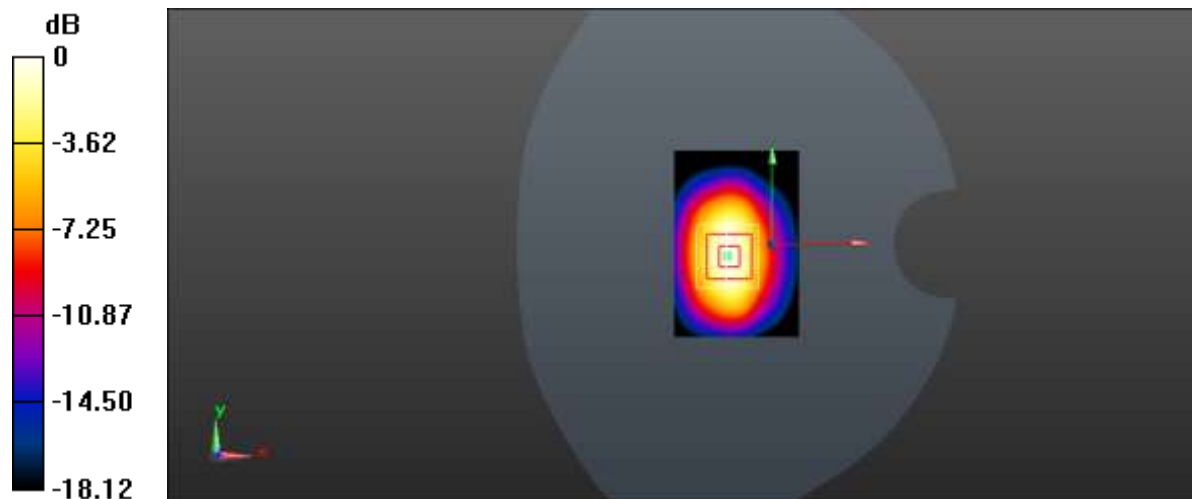
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 57.887 V/m; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 18.1 W/kg

**SAR(1 g) = 9.42 W/kg; SAR(10 g) = 4.87 W/kg**

Maximum value of SAR (measured) = 10.7 W/kg



0 dB = 10.7 W/kg = 10.29 dBW/kg

## System check 1900 head

Date/Time: 12/05/2015 02:03:19

Communication System: UID 10000, CW; Communication System Band: D1900 (1900.0 MHz); Frequency: 1900 MHz; Communication System PAR: 0 dB

Medium parameters used:  $f = 1900$  MHz;  $\sigma = 1.381$  S/m;  $\epsilon_r = 39.648$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE1528-2013)

DASY5 Configuration:

- Probe: EX3DV4 - SN3717; ConvF(7.74, 7.74, 7.74); Calibrated: 02/09/2014;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 21/04/2015
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASYS2, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

**1900head/d=10mm, Pin=250 mW/Area Scan (41x61x1):** Interpolated grid:  
dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 11.2 W/kg

**1900head/d=10mm, Pin=250 mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0:**

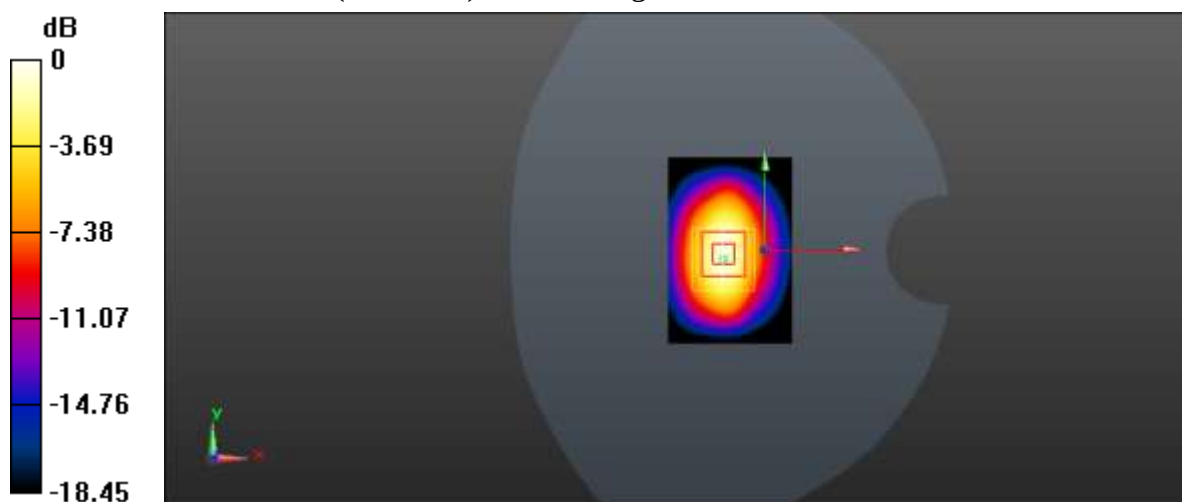
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 53.797 V/m; Power Drift = 0.33 dB

Peak SAR (extrapolated) = 18.8 W/kg

**SAR(1 g) = 9.75 W/kg; SAR(10 g) = 5.12 W/kg**

Maximum value of SAR (measured) = 10.3 W/kg



0 dB = 11.2 W/kg = 10.49 dBW/kg

## System check 1900head

Date/Time: 13/05/2015 06:08:27

Communication System: UID 10000, CW; Communication System Band: D1900 (1900.0 MHz); Frequency: 1900 MHz; Communication System PAR: 0 dB

Medium parameters used:  $f = 1900$  MHz;  $\sigma = 1.383$  S/m;  $\epsilon_r = 39.358$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528-2013)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(5.12, 5.12, 5.12); Calibrated: 29/09/2014;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 15/09/2014
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

**1900head/d=10mm, Pin=250 mW/Area Scan (41x61x1):** Interpolated grid:  
dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 12.0 W/kg

**1900head/d=10mm, Pin=250 mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0:**

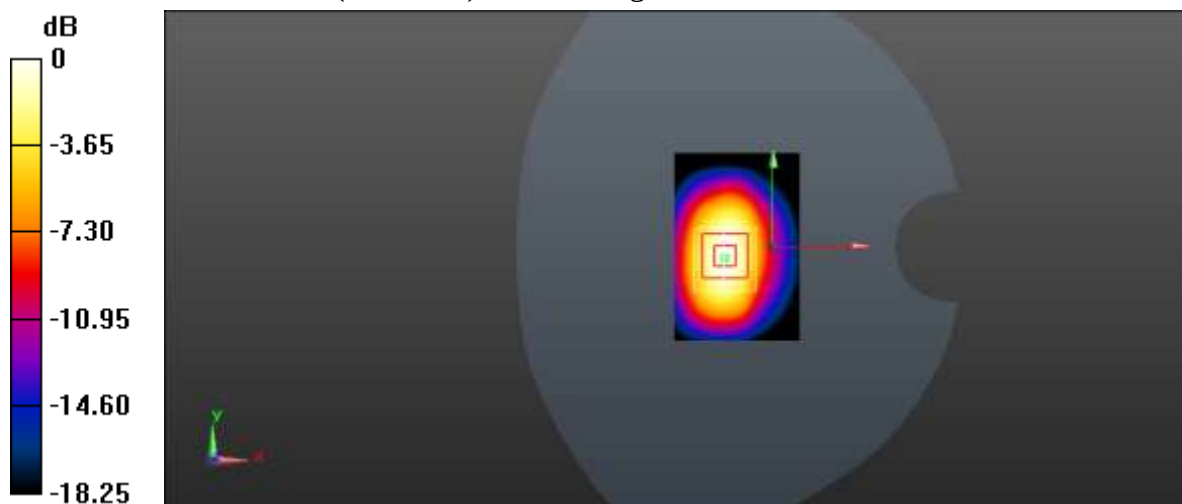
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 57.925 V/m; Power Drift = 0.14 dB

Peak SAR (extrapolated) = 19.1 W/kg

**SAR(1 g) = 9.82 W/kg; SAR(10 g) = 5.16 W/kg**

Maximum value of SAR (measured) = 11.3 W/kg



0 dB = 12.0 W/kg = 10.79 dBW/kg

## System check 1900body

Date/Time: 06/05/2015 03:37:35

Communication System: UID 0, CW (0); Communication System Band: D1900 (1900.0 MHz); Frequency: 1900 MHz; Communication System PAR: 0 dB

Medium parameters used:  $f = 1900$  MHz;  $\sigma = 1.492$  S/m;  $\epsilon_r = 52.367$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE1528-2013)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.85, 4.85, 4.85); Calibrated: 29/09/2014;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 15/09/2014
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASYS2, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

**1900body/d=10mm, Pin=250 mW/Area Scan (61x71x1):** Interpolated grid:  
dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 12.6 W/kg

**1900body/d=10mm, Pin=250 mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0:**

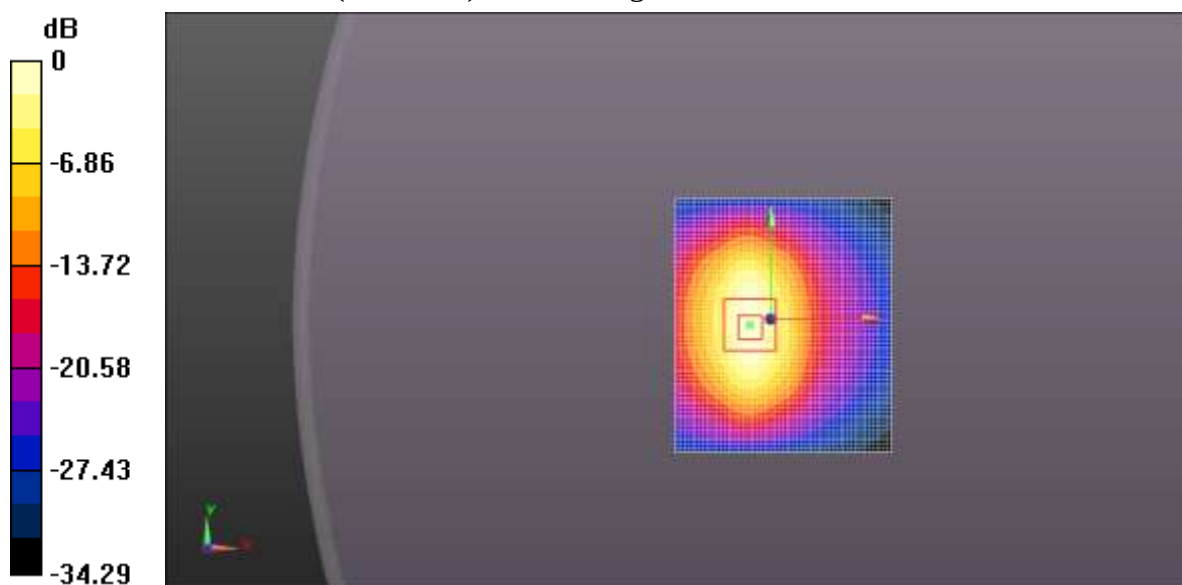
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 70.500 V/m; Power Drift = 0.13 dB

Peak SAR (extrapolated) = 16.0 W/kg

**SAR(1 g) = 9.74 W/kg; SAR(10 g) = 5.08 W/kg**

Maximum value of SAR (measured) = 11.7 W/kg



0 dB = 12.6 W/kg = 11.01 dBW/kg

## System check 1900body

Date/Time: 07/05/2015 09:08:41

Communication System: UID 0, CW (0); Communication System Band: D1900 (1900.0 MHz); Frequency: 1900 MHz; Communication System PAR: 0 dB

Medium parameters used:  $f = 1900$  MHz;  $\sigma = 1.503$  S/m;  $\epsilon_r = 52.564$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528-2013)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.85, 4.85, 4.85); Calibrated: 29/09/2014;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 15/09/2014
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

**1900body/d=10mm, Pin=250 mW/Area Scan (61x71x1):** Interpolated grid:  
dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 12.8 W/kg

**1900body/d=10mm, Pin=250 mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0:**

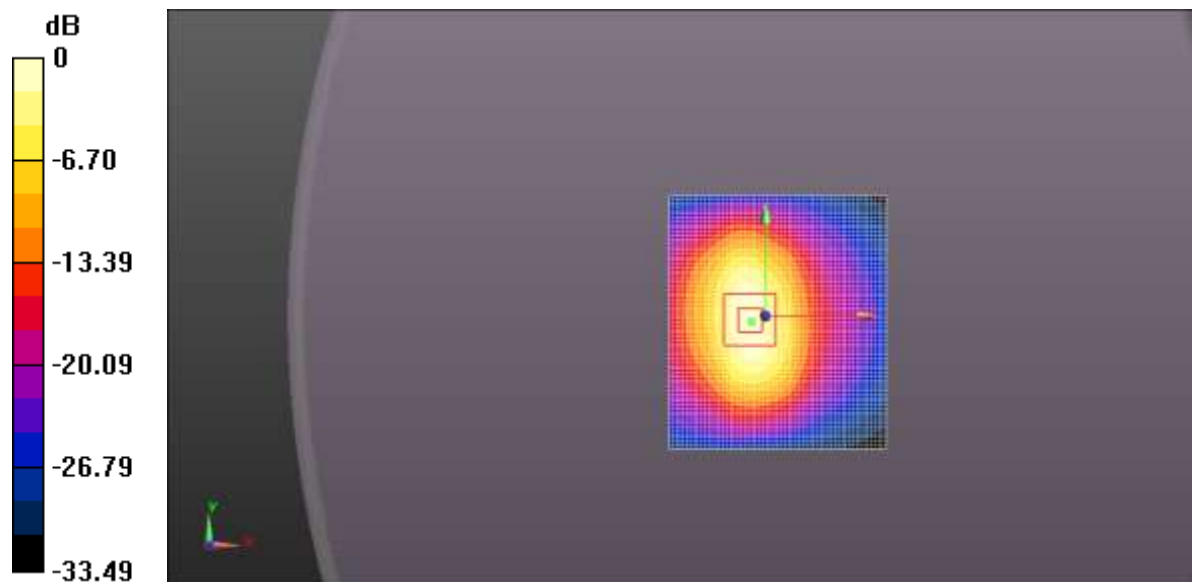
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 80.747 V/m; Power Drift = 0.18 dB

Peak SAR (extrapolated) = 16.3 W/kg

**SAR(1 g) = 9.86 W/kg; SAR(10 g) = 5.11 W/kg**

Maximum value of SAR (measured) = 11.8 W/kg



0 dB = 12.8 W/kg = 11.06 dBW/kg

## System check 1900body

Date/Time: 06/07/2015 17:21:43

Communication System: UID 0, CW (0); Communication System Band: D1900 (1900.0 MHz); Frequency: 1900 MHz; Communication System PAR: 0 dB

Medium parameters used:  $f = 1900$  MHz;  $\sigma = 1.494$  S/m;  $\epsilon_r = 52.471$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528-2013)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.85, 4.85, 4.85); Calibrated: 29/09/2014;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 15/09/2014
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

**1900body/d=10mm, Pin=250 mW/Area Scan (61x71x1):** Interpolated grid:  
dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 12.6 W/kg

**1900body/d=10mm, Pin=250 mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0:**

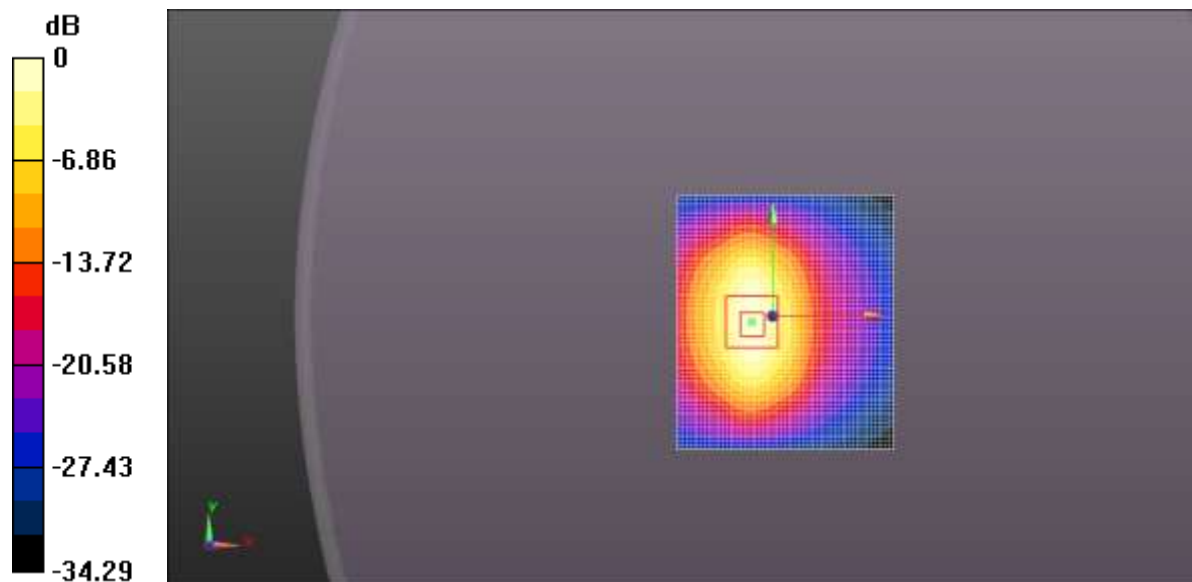
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 70.500 V/m; Power Drift = 0.13 dB

Peak SAR (extrapolated) = 16.0 W/kg

**SAR(1 g) = 9.81 W/kg; SAR(10 g) = 5.09 W/kg**

Maximum value of SAR (measured) = 11.7 W/kg



0 dB = 12.6 W/kg = 11.01 dBW/kg

## System check 2450head

Date/Time: 12/05/2015 09:34:20

Communication System: UID 0, CW (0); Communication System Band: D2450 (2450.0 MHz); Frequency: 2450 MHz; Communication System PAR: 0 dB

Medium parameters used:  $f = 2450$  MHz;  $\sigma = 1.785$  S/m;  $\epsilon_r = 38.592$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528-2013)

DASY5 Configuration:

- Probe: EX3DV4 - SN3717; ConvF(7.24, 7.24, 7.24); Calibrated: 02/09/2014;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 21/04/2015
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

**2450head/d=10mm, Pin=250 mW/Area Scan (41x61x1):** Interpolated grid:  
dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 17.7 W/kg

**2450head/d=10mm, Pin=250 mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0:**

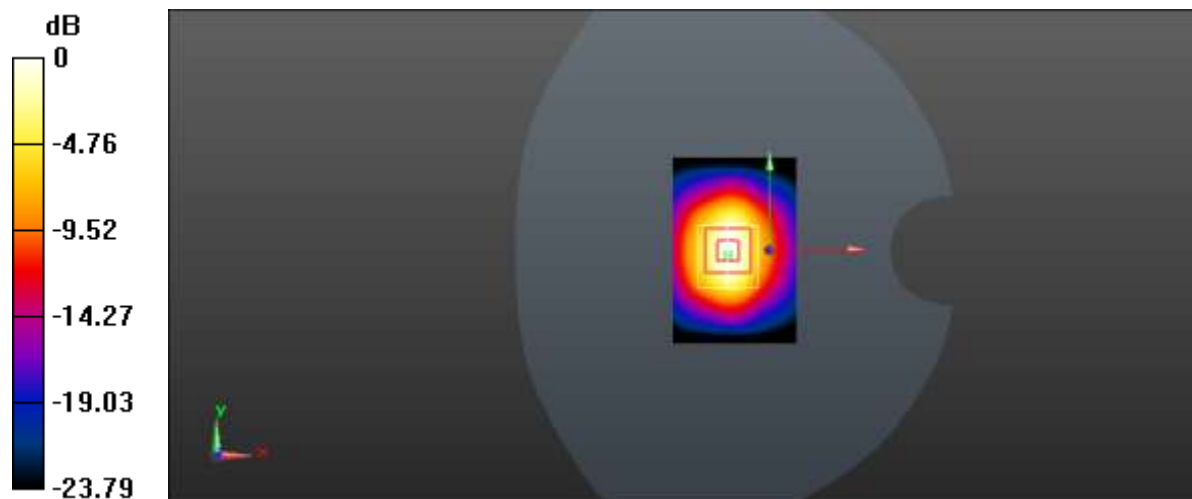
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 96.244 V/m; Power Drift = 0.08 dB

Peak SAR (extrapolated) = 28.1 W/kg

**SAR(1 g) = 13.2 W/kg; SAR(10 g) = 6.12 W/kg**

Maximum value of SAR (measured) = 17.0 W/kg



0 dB = 17.0 W/kg = 12.30 dBW/kg



## System check 2450body

Date/Time: 08/05/2015 02:20:12

Communication System: UID 10000, CW; Communication System Band: D2450 (2450.0 MHz); Frequency: 2450 MHz; Communication System PAR: 0 dB

Medium parameters used:  $f = 2450$  MHz;  $\sigma = 1.931$  S/m;  $\epsilon_r = 51.932$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528-2013)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.46, 4.46, 4.46); Calibrated: 29/09/2014;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 15/09/2014
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

**2450body/d=10mm, Pin=250 mW/Area Scan (41x61x1):** Interpolated grid:  
dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 17.6 W/kg

**2450body/d=10mm, Pin=250 mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0:**

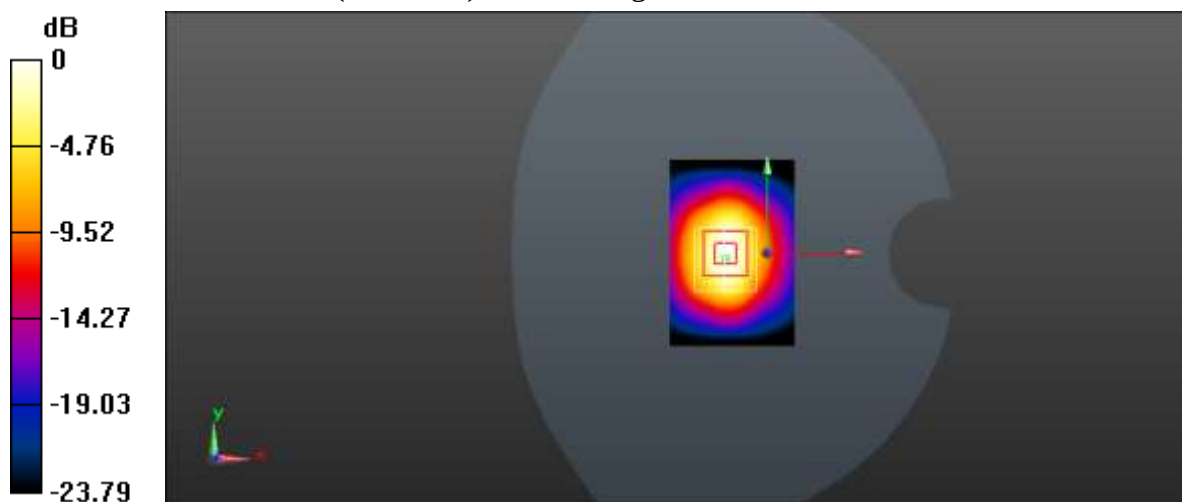
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 71.463 V/m; Power Drift = 0.12 dB

Peak SAR (extrapolated) = 26.2 W/kg

**SAR(1 g) = 12.8 W/kg; SAR(10 g) = 5.86 W/kg**

Maximum value of SAR (measured) = 16.8 W/kg



0 dB = 17.6 W/kg = 12.46 dBW/kg

## System check 2600head

Date/Time: 18/05/2015 08:26:17

Communication System: UID 0, CW; Communication System Band: D2600 (2600.0 MHz);

Frequency: 2600 MHz; Communication System PAR: 0 dB

Medium parameters used:  $f = 2600$  MHz;  $\sigma = 1.981$  S/m;  $\epsilon_r = 38.9$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528-2013)

DASY5 Configuration:

- Probe: EX3DV4 - SN3717; ConvF(7.01, 7.01, 7.01); Calibrated: 02/09/2014;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 21/04/2015
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

**2600head/d=10mm, Pin=250 mW/Area Scan (61x101x1):** Interpolated grid:

dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 18.8 W/kg

**2600head/d=10mm, Pin=250 mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0:**

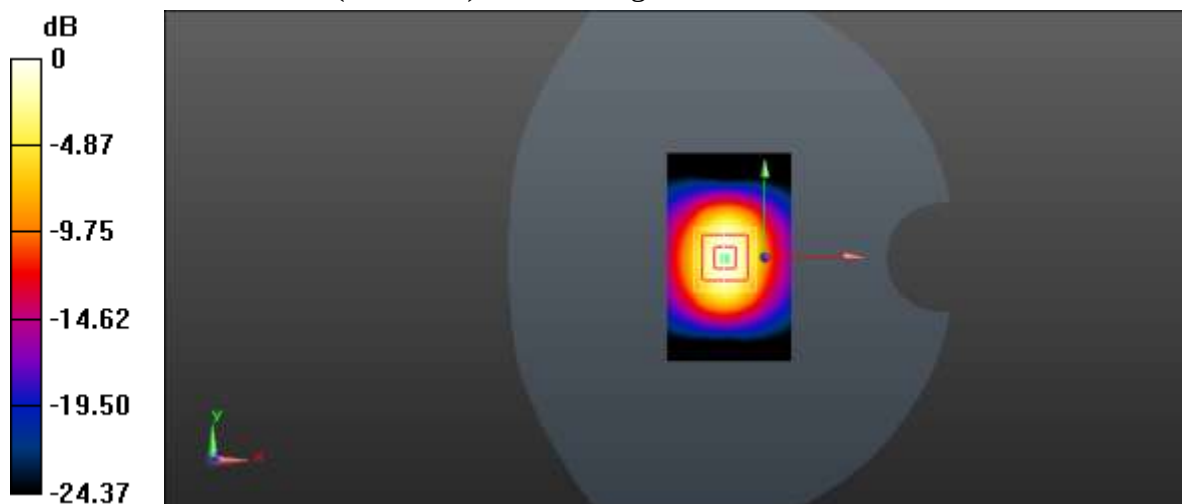
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 93.316 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 36.2 W/kg

**SAR(1 g) = 14.9 kg; SAR(10 g) = 6.68 W/kg**

Maximum value of SAR (measured) = 18.4 W/kg



0 dB = 18.8 W/kg = 12.74 dBW/kg

## System check 2600body

Date/Time: 19/05/2015 02:20:12

Communication System: UID 10000, CW; Communication System Band: D2600 (2600.0 MHz); Frequency: 2600 MHz; Communication System PAR: 0 dB

Medium parameters used:  $f = 2600$  MHz;  $\sigma = 2.132$  S/m;  $\epsilon_r = 51.962$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528-2013)

DASY5 Configuration:

- Probe: EX3DV4 - SN3717; ConvF(6.99, 6.99, 6.99); Calibrated: 02/09/2014;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 21/04/2015
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

**2600body/d=10mm, Pin=250 mW/Area Scan (41x61x1):** Interpolated grid:  
dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 17.6 W/kg

**2600body/d=10mm, Pin=250 mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0:**

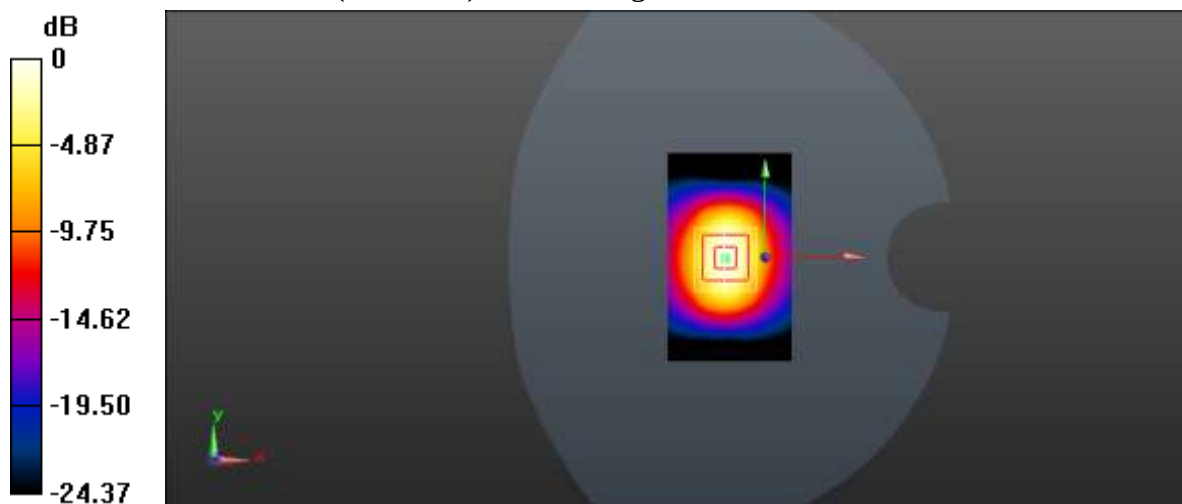
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 71.463 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 26.2 W/kg

**SAR(1 g) = 13.9 W/kg; SAR(10 g) = 6.33 W/kg**

Maximum value of SAR (measured) = 16.8 W/kg



0 dB = 17.6 W/kg = 12.46 dBW/kg

## Annex A.2 Graph Result

### GSM850 right touch high

Date/Time: 08/05/2015 19:23:56

Communication System: UID 0, GSM (0); Communication System Band: GSM850(824.0-849.0MHz); Frequency: 848.8 MHz; Communication System PAR: 9.191 dB

Medium parameters used:  $f = 849$  MHz;  $\sigma = 0.894$  S/m;  $\epsilon_r = 41.431$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE1528-2013)

DASY5 Configuration:

- Probe: EX3DV4 - SN3717; ConvF(9.08, 9.08, 9.08); Calibrated: 02/09/2014;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 21/04/2015
- Phantom: SAM1; Type: SAM; Serial: TP1576
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

**right/touch high/Area Scan (101x171x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.335 W/kg

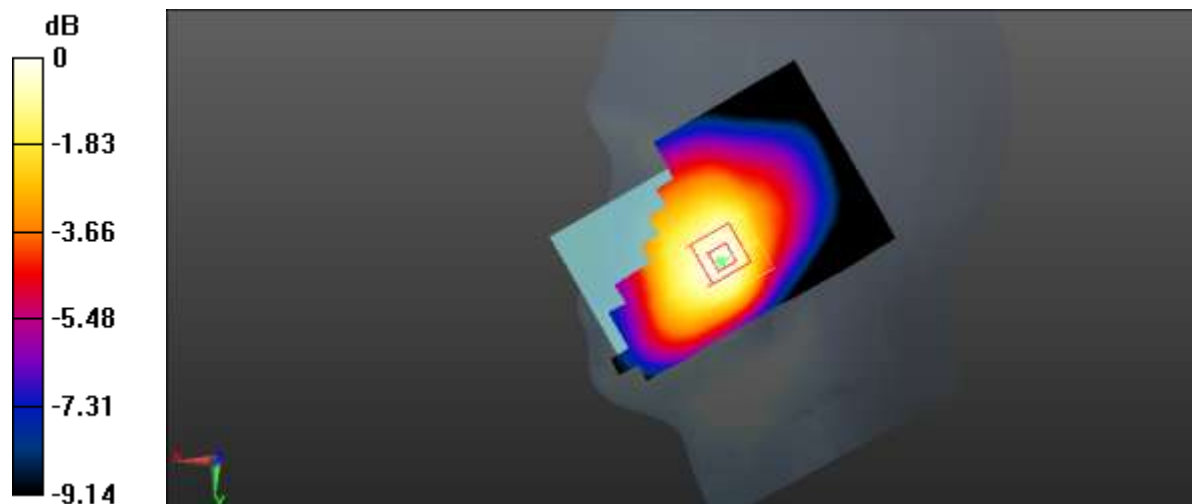
**right/touch high/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 8.220 V/m; Power Drift = -0.02 dB

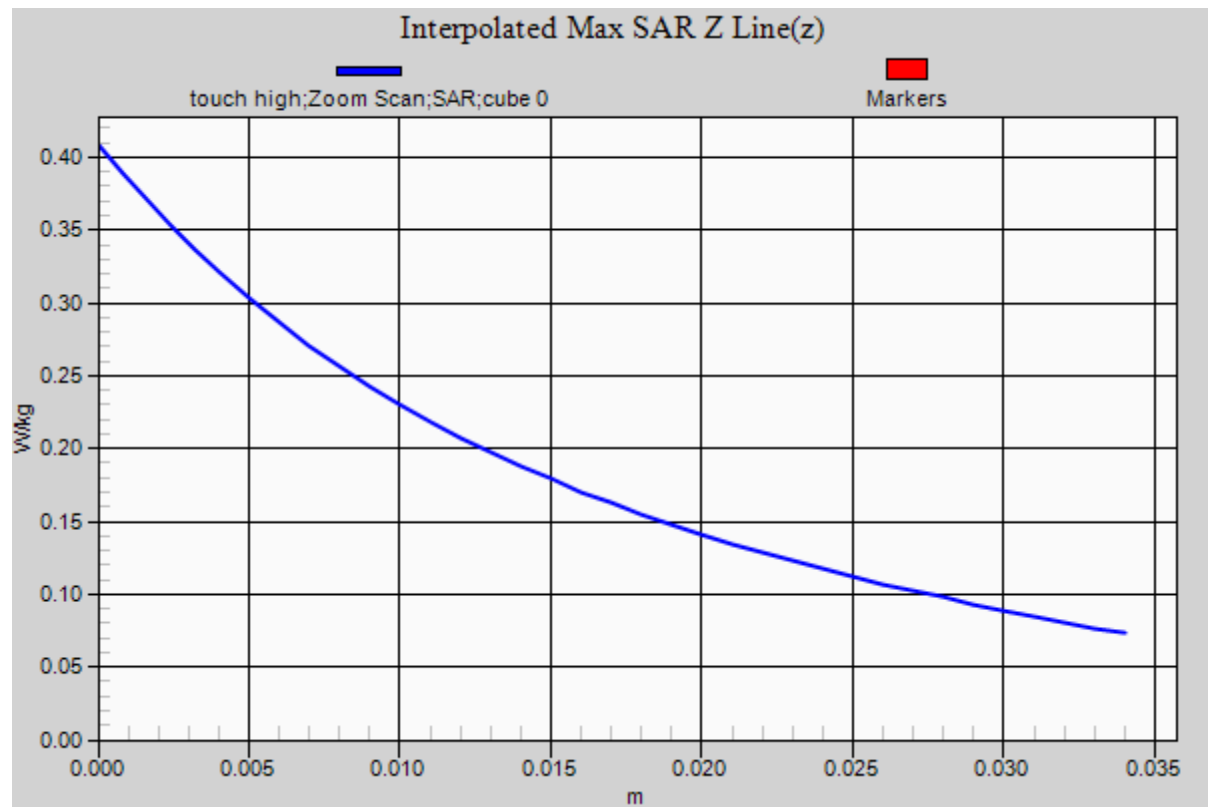
Peak SAR (extrapolated) = 0.408 W/kg

**SAR(1 g) = 0.313 W/kg; SAR(10 g) = 0.234 W/kg**

Maximum value of SAR (measured) = 0.333 W/kg



0 dB = 0.333 W/kg = -4.78 dBW/kg



## GSM 850 towards ground mid

Date/Time: 06/07/2015 22:03:15

Communication System: UID 0, GPRS/EGPRS(4up) (0); Communication System Band: GSM850; Frequency: 836.6 MHz; Communication System PAR: 3.18 dB

Medium parameters used:  $f = 837$  MHz;  $\sigma = 0.951$  S/m;  $\epsilon_r = 54.241$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528-2013)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(6.37, 6.37, 6.37); Calibrated: 29/09/2014;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 15/09/2014
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

**body/towards ground mid/Area Scan (101x171x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.558 W/kg

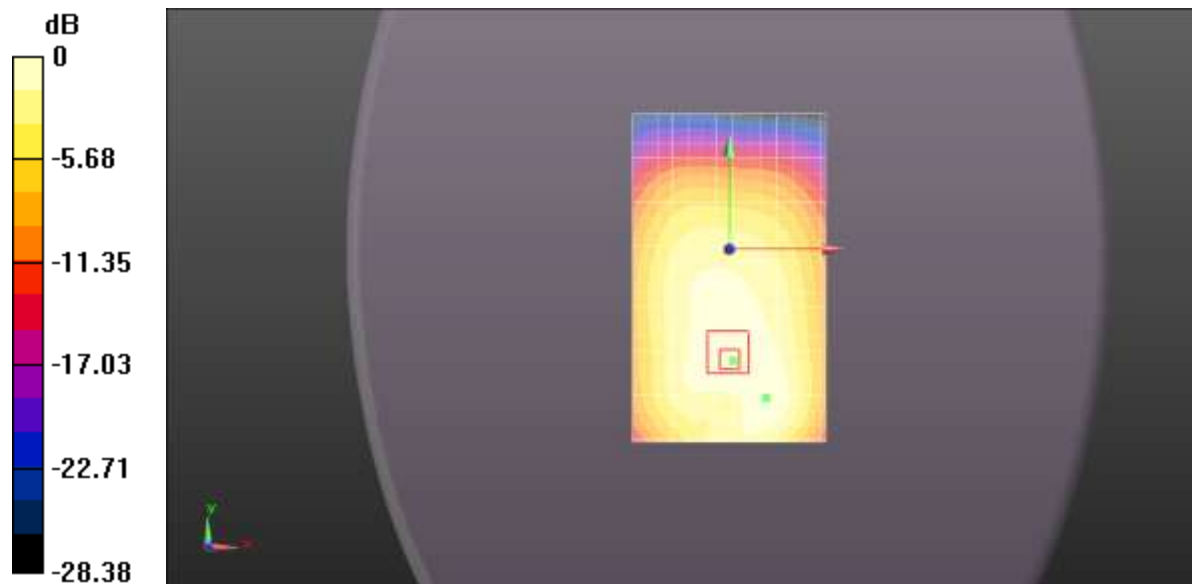
**body/towards ground mid/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 18.559 V/m; Power Drift = 0.03 dB

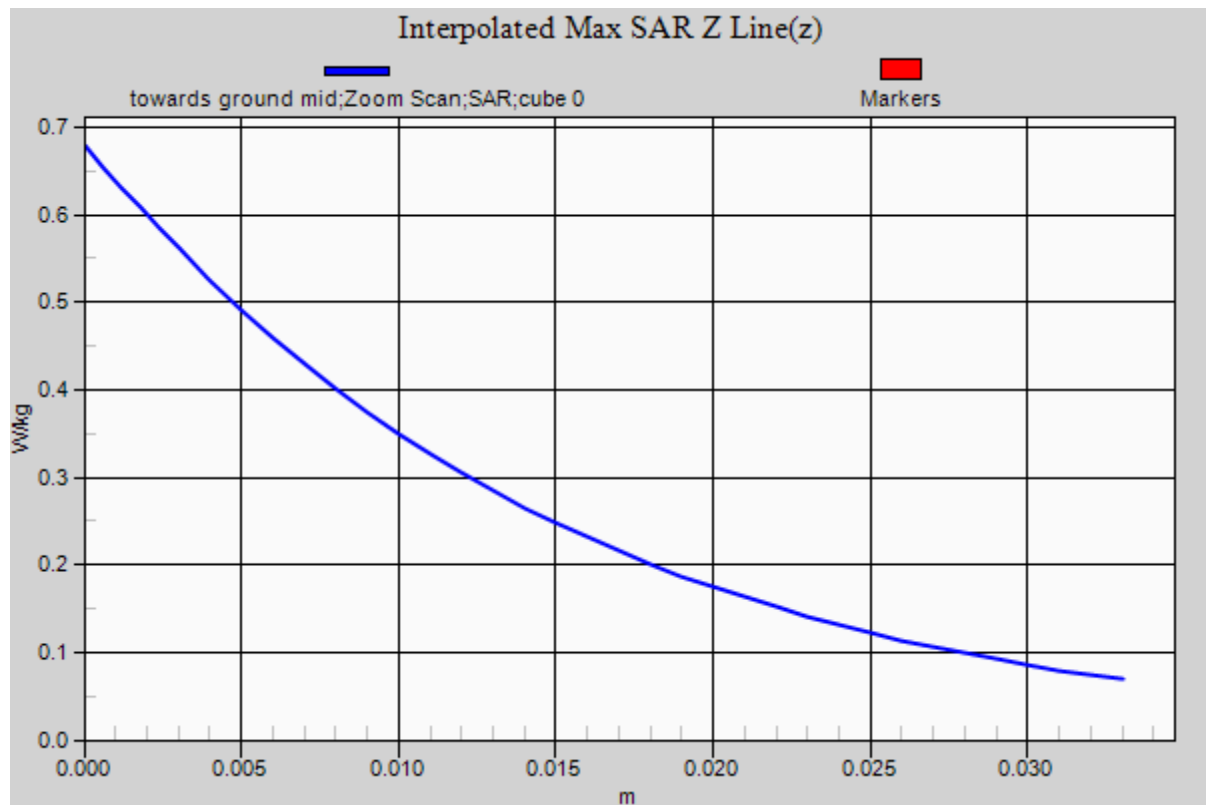
Peak SAR (extrapolated) = 0.679 W/kg

**SAR(1 g) = 0.489 W/kg; SAR(10 g) = 0.349 W/kg**

Maximum value of SAR (measured) = 0.564 W/kg



0 dB = 0.558 W/kg = -2.53 dBW/kg



# **GSM 1900 head left touch low**

Date/Time: 12/05/2015 05:55:47

Communication System: UID 0, GSM (0); Communication System Band: PCS1900(1850.0-1910.0MHz); Frequency: 1850.2 MHz; Communication System PAR: 9.191 dB

Medium parameters used (interpolated):  $f = 1850.2$  MHz;  $\sigma = 1.339$  S/m;  $\epsilon_r = 39.255$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Right Section

Measurement Standard: DASYS (IEEE1528-2013)

DASY5 Configuration:

- Probe: EX3DV4 - SN3717; ConvF(7.74, 7.74, 7.74); Calibrated: 02/09/2014;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 21/04/2015
- Phantom: SAM 2; Type: SAM; Serial: TP-1575
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

**right/touch low/Area Scan (101x181x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.0933 W/kg

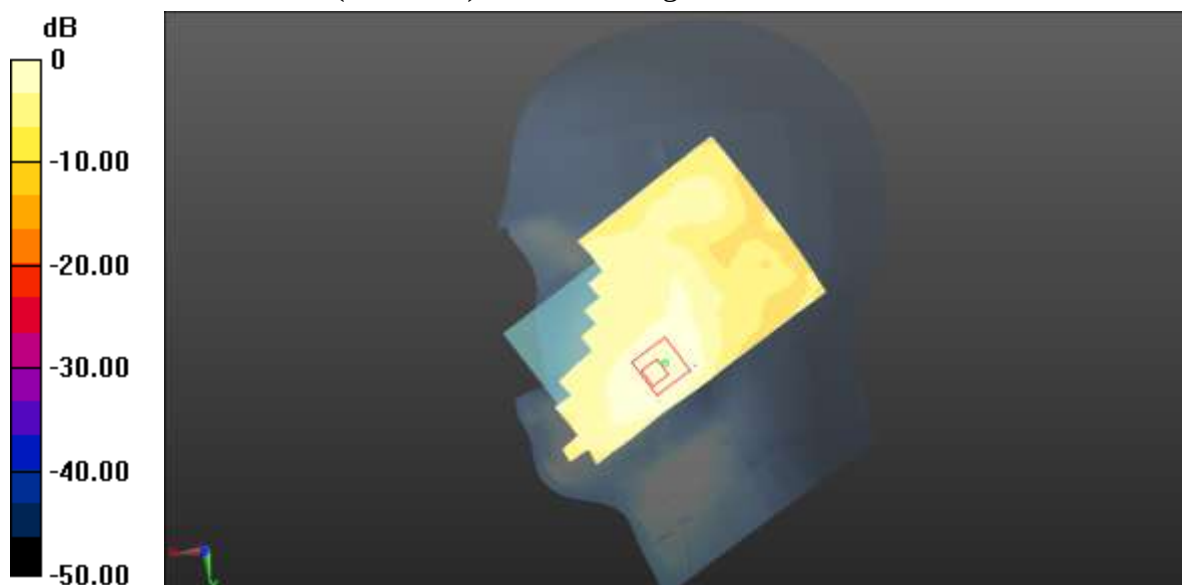
**right/touch low/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 1.663 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.142 W/kg

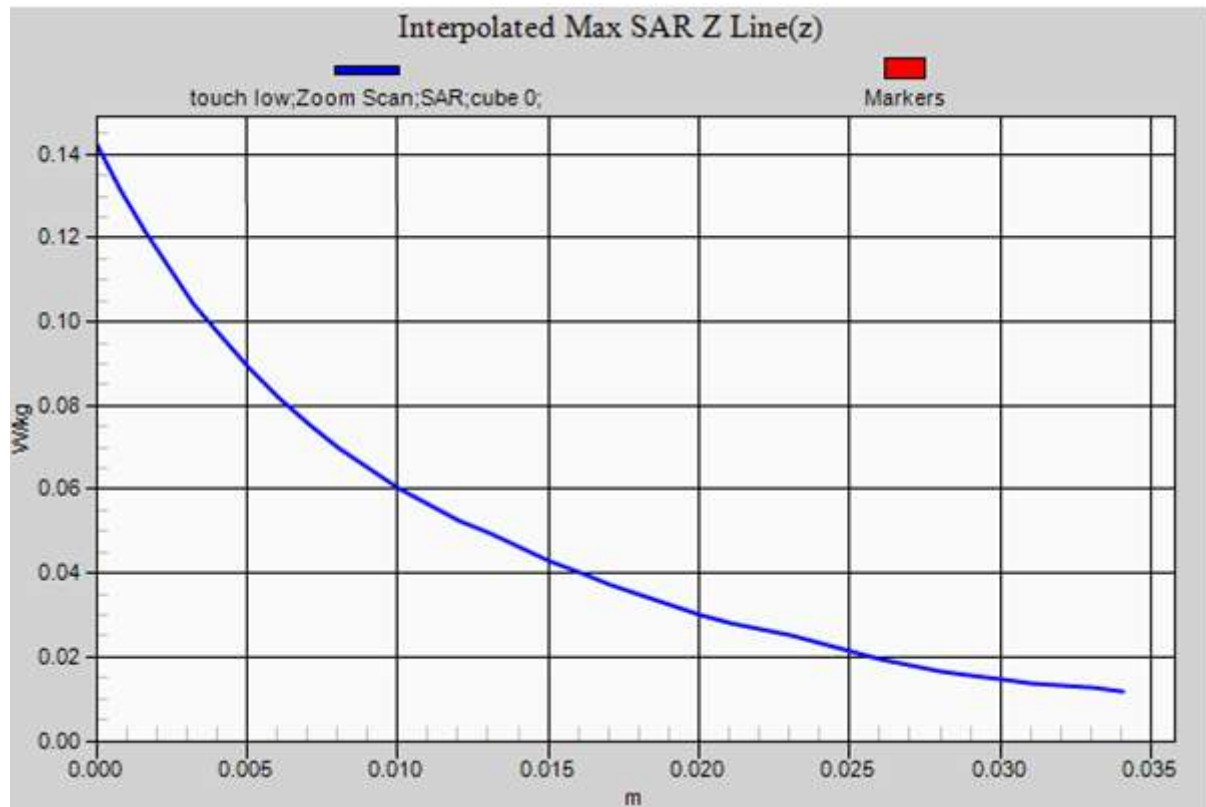
**SAR(1 g) = 0.090 W/kg; SAR(10 g) = 0.059 W/kg**

Maximum value of SAR (measured) = 0.0982 W/kg



0 dB = 0.0933 W/kg = -10.30 dBW/kg





# **GSM 1900 front low**

Date/Time: 06/07/2015 10:24:31

Communication System: UID 0, GPRS/EGPRS(4up) (0); Communication System Band: PCS1900; Frequency: 1850.2 MHz; Communication System PAR: 3.18 dB

Medium parameters used (interpolated):  $f = 1850.2$  MHz;  $\sigma = 1.448$  S/m;  $\epsilon_r = 52.486$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528-2013)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.85, 4.85, 4.85); Calibrated: 29/09/2014;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 15/09/2014
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

**Configuration/front low/Area Scan (61x101x1):** Interpolated grid:  $dx=1.000$  mm,  $dy=1.000$  mm

Maximum value of SAR (interpolated) = 1.68 W/kg

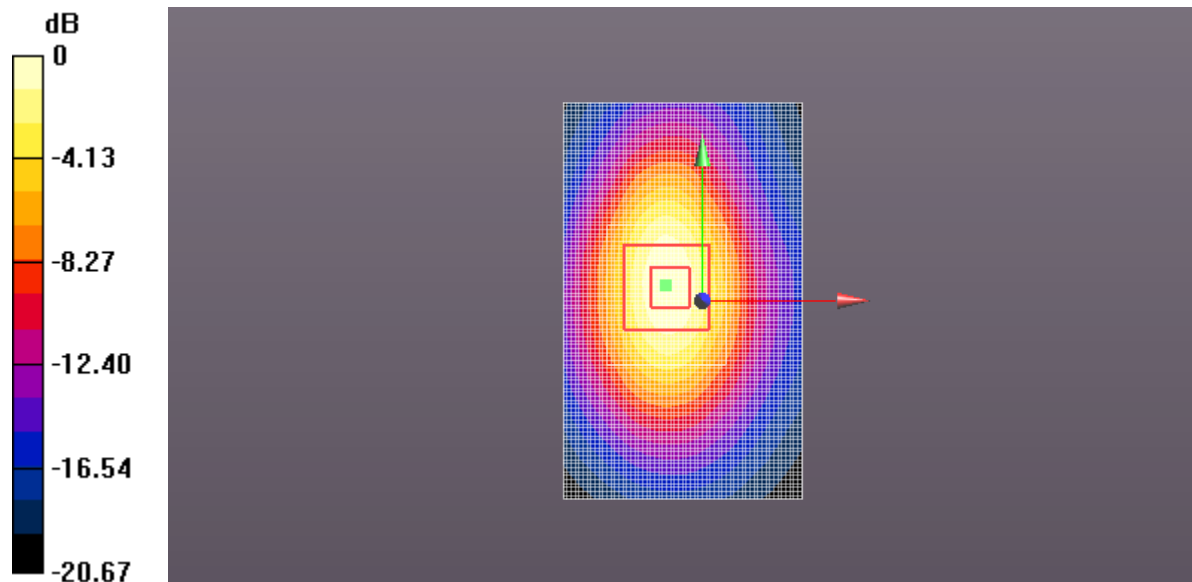
**Configuration/front low/Zoom Scan (7x8x7)/Cube 0:** Measurement grid:  $dx=5$ mm,  $dy=5$ mm,  $dz=5$ mm

Reference Value = 27.447 V/m; Power Drift = -0.03dB

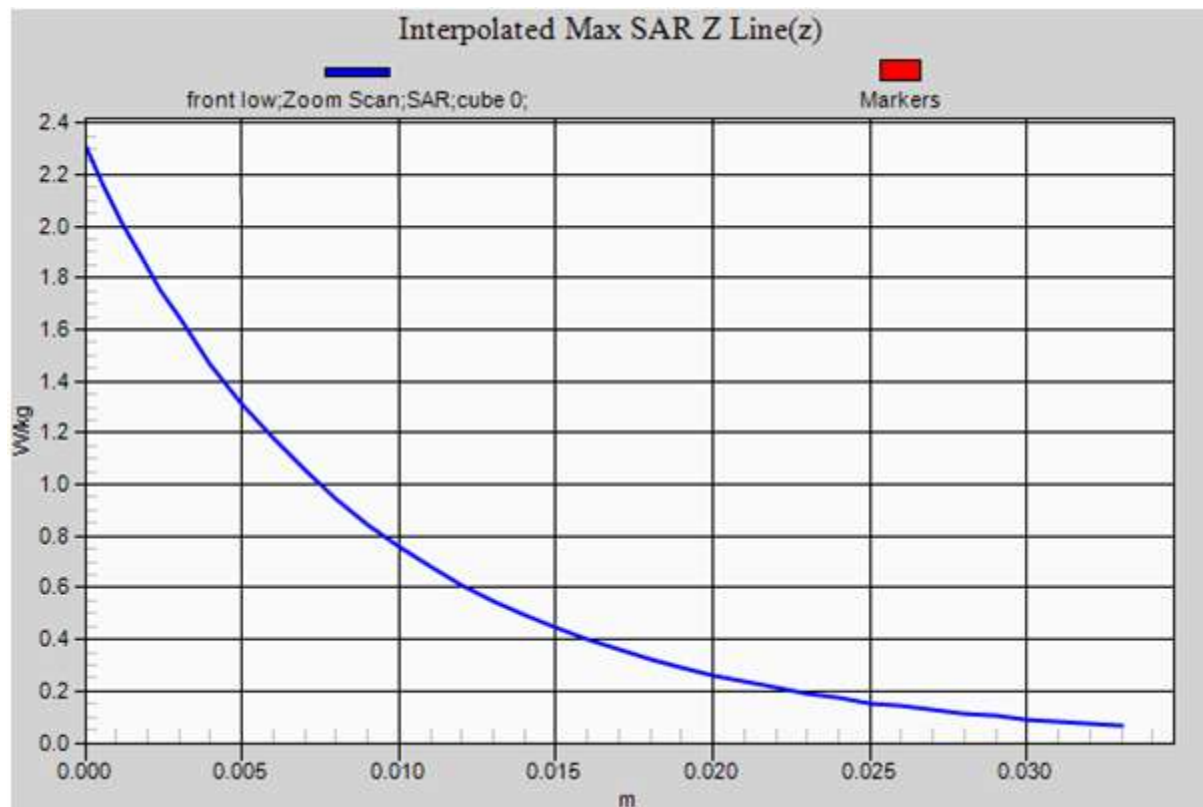
Peak SAR (extrapolated) = 2.31 W/kg

**SAR(1 g) = 1.08 W/kg; SAR(10 g) = 0.638 W/kg**

Maximum value of SAR (measured) = 1.64 W/kg



0 dB = 1.70 W/kg = 2.31 dBW/kg



## WCDMA BAND II left touch low

Date/Time: 12/05/2015 01:18:34

Communication System: UID 0, WCDMA (0); Communication System Band: BAND 2;

Frequency: 1852.4 MHz; Communication System PAR: 0 dB

Medium parameters used (interpolated):  $f = 1852.4$  MHz;  $\sigma = 1.341$  S/m;  $\epsilon_r = 39.247$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

Measurement Standard: DASY5 (IEEE1528-2013)

DASY5 Configuration:

- Probe: EX3DV4 - SN3717; ConvF(7.74, 7.74, 7.74); Calibrated: 02/09/2014;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 21/04/2015
- Phantom: SAM 2; Type: SAM; Serial: TP-1575
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

**left/touch low/Area Scan (101x171x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.174 W/kg

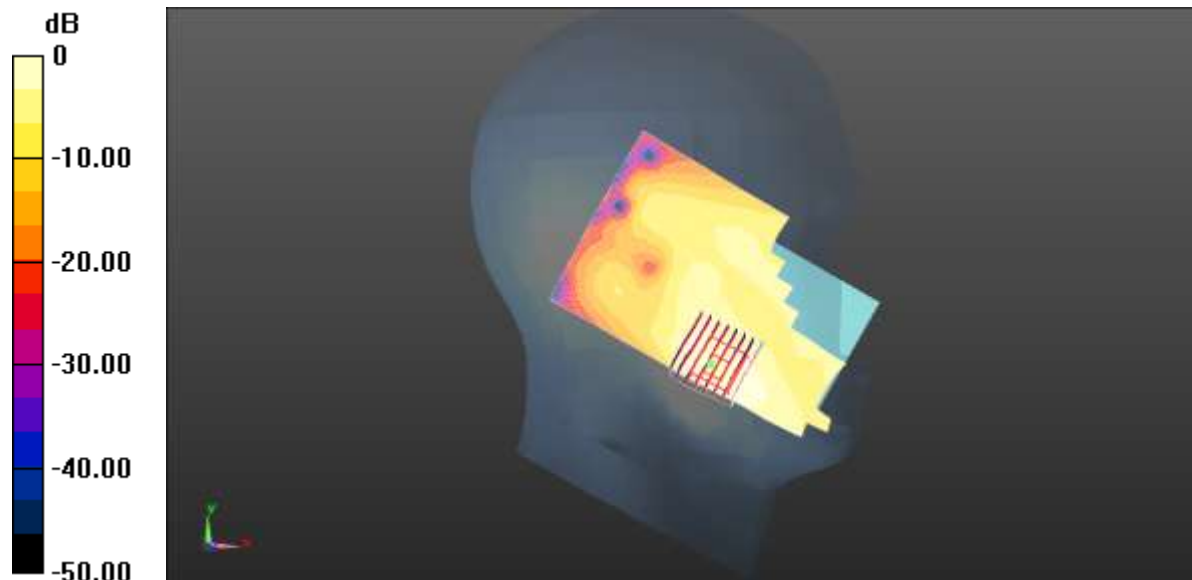
**left/touch low/Zoom Scan (8x8x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 2.353 V/m; Power Drift = 0.09 dB

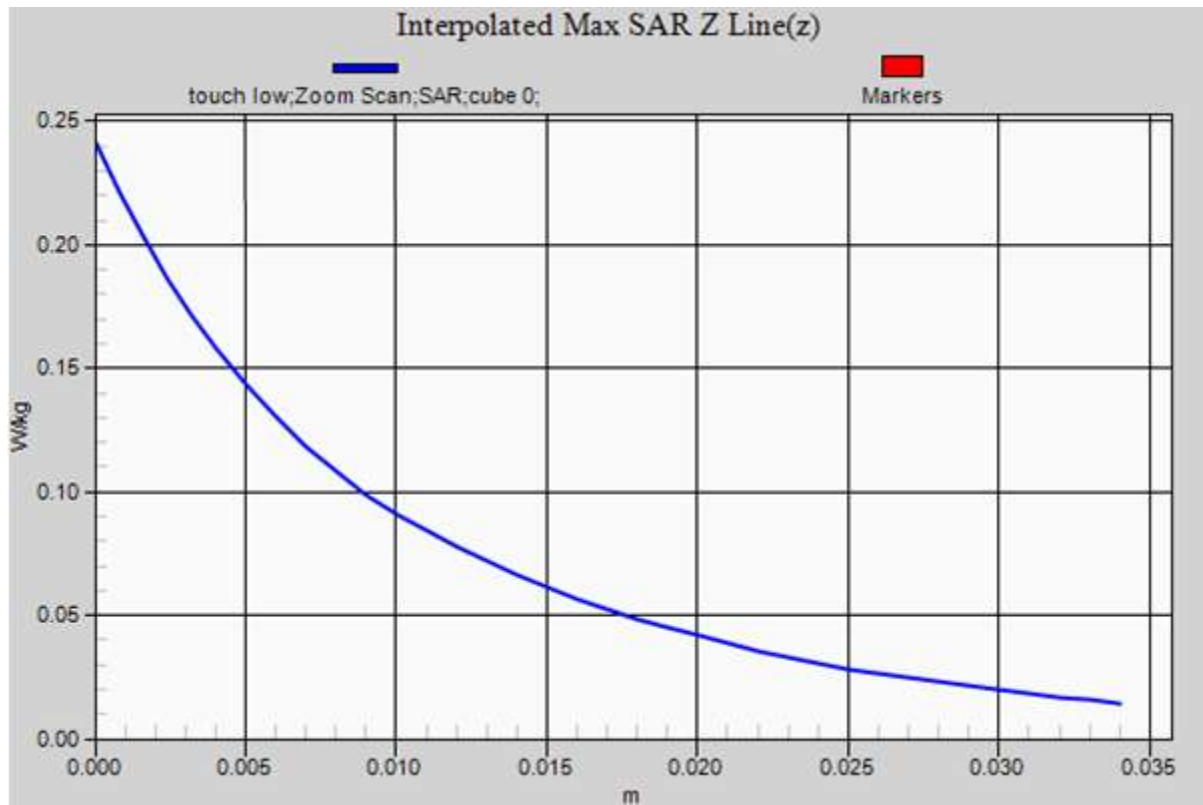
Peak SAR (extrapolated) = 0.241 W/kg

**SAR(1 g) = 0.143 W/kg; SAR(10 g) = 0.084 W/kg**

Maximum value of SAR (measured) = 0.159 W/kg



0 dB = 0.174 W/kg = -7.58 dBW/kg



## WCDMA BAND II front low with earphone

Date/Time: 07/05/2015 21:03:07

Communication System: UID 0, WCDMA (0); Communication System Band: BAND 2;

Frequency: 1852.4 MHz; Communication System PAR: 0 dB

Medium parameters used (interpolated):  $f = 1852.4$  MHz;  $\sigma = 1.451$  S/m;  $\epsilon_r = 52.481$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528-2013)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.85, 4.85, 4.85); Calibrated: 29/09/2014;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 15/09/2014
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

**body/front low with earphone/Area Scan (61x101x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 1.56 W/kg

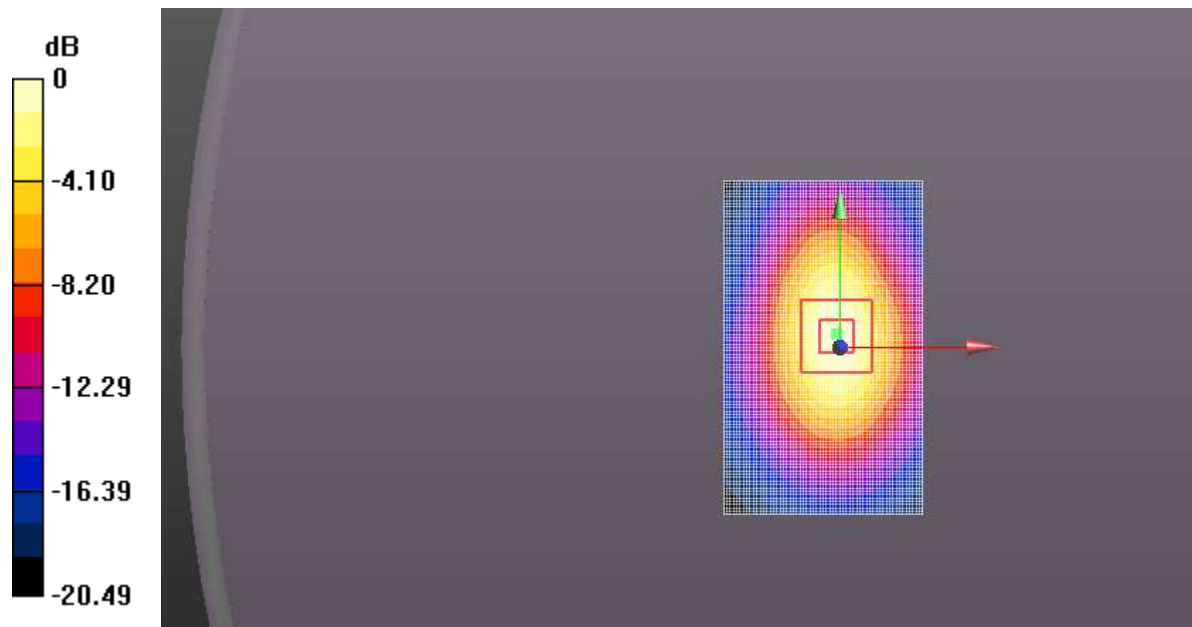
**body/front low with earphone/Zoom Scan (7x8x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 33.228 V/m; Power Drift = -0.18 dB

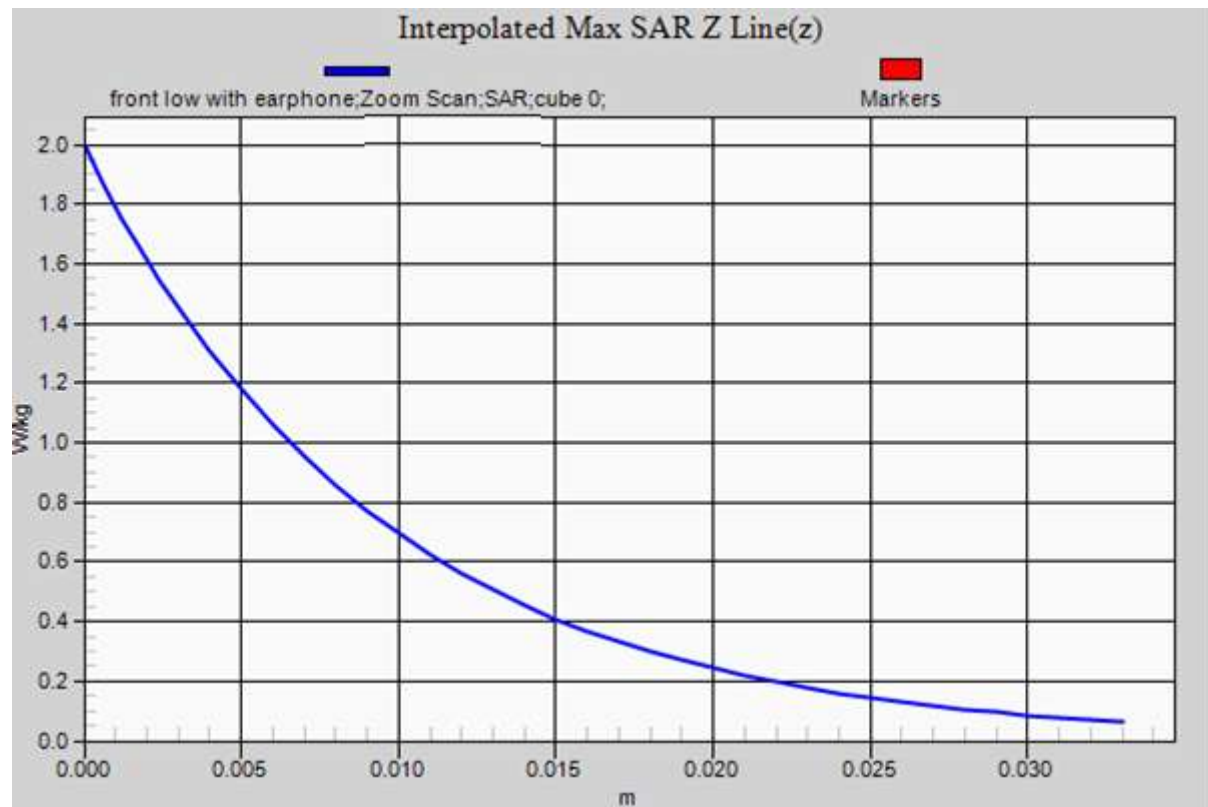
Peak SAR (extrapolated) = 2.00 W/kg

**SAR(1 g) = 1.17 W/kg; SAR(10 g) = 0.622 W/kg**

Maximum value of SAR (measured) = 1.45 W/kg



0 dB = 1.56 W/kg = 1.94 dBW/kg



# **WCDMA BAND V right touch mid**

Date/Time: 08/05/2015 20:39:35

Communication System: UID 0, WCDMA (0); Communication System Band: BAND 5;

Frequency: 836.6 MHz; Communication System PAR: 0 dB

Medium parameters used:  $f = 837$  MHz;  $\sigma = 0.882$  S/m;  $\epsilon_r = 41.635$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE1528-2013)

DASY5 Configuration:

- Probe: EX3DV4 - SN3717; ConvF(9.08, 9.08, 9.08); Calibrated: 02/09/2014;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 21/04/2015
- Phantom: SAM1; Type: SAM; Serial: TP1576
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

**right/touch mid/Area Scan (101x171x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.270 W/kg

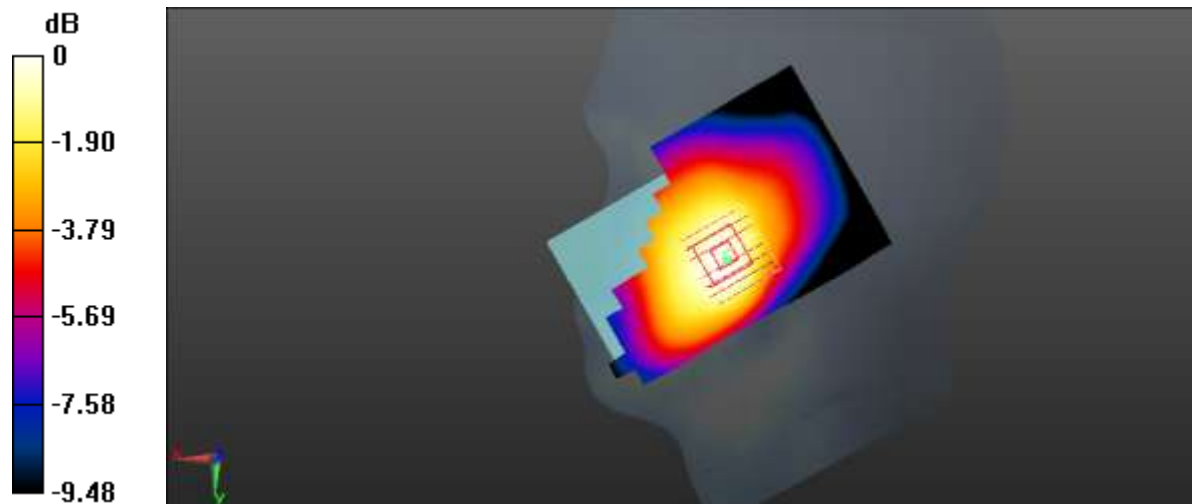
**right/touch mid/Zoom Scan (8x8x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.659 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 0.327 W/kg

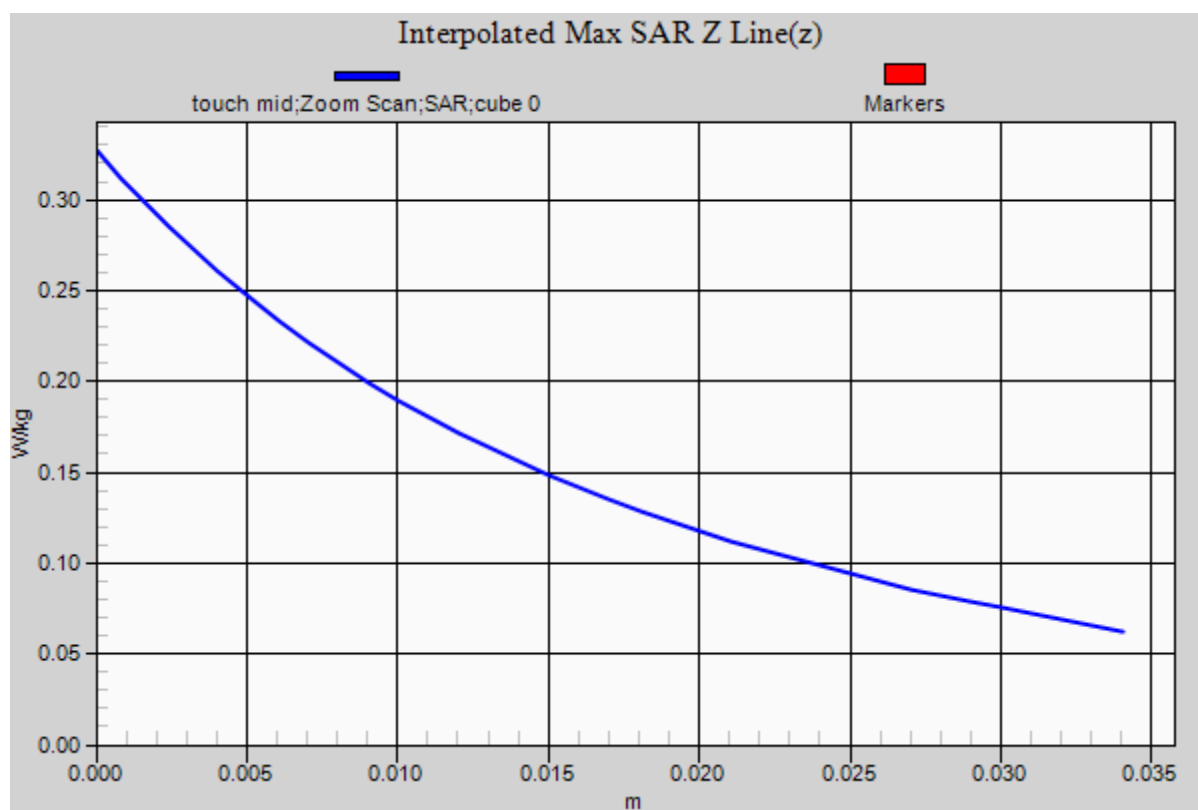
**SAR(1 g) = 0.249 W/kg; SAR(10 g) = 0.186 W/kg**

Maximum value of SAR (measured) = 0.261 W/kg



0 dB = 0.261 W/kg = -5.83 dBW/kg





## WCDMA BAND V towards ground mid

Date/Time: 04/05/2015 18:33:38

Communication System: UID 0, WCDMA (0); Communication System Band: BAND 5;

Frequency: 836.6 MHz; Communication System PAR: 0 dB

Medium parameters used:  $f = 837$  MHz;  $\sigma = 0.951$  S/m;  $\epsilon_r = 54.241$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528-2013)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(6.37, 6.37, 6.37); Calibrated: 29/09/2014;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 15/09/2014
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

**Configuration/towards grund mid/Area Scan (101x171x1):** Interpolated grid:

$dx=1.000$  mm,  $dy=1.000$  mm

Maximum value of SAR (interpolated) = 0.237 W/kg

**Configuration/towards grund mid/Zoom Scan (7x7x7)/Cube 0:** Measurement

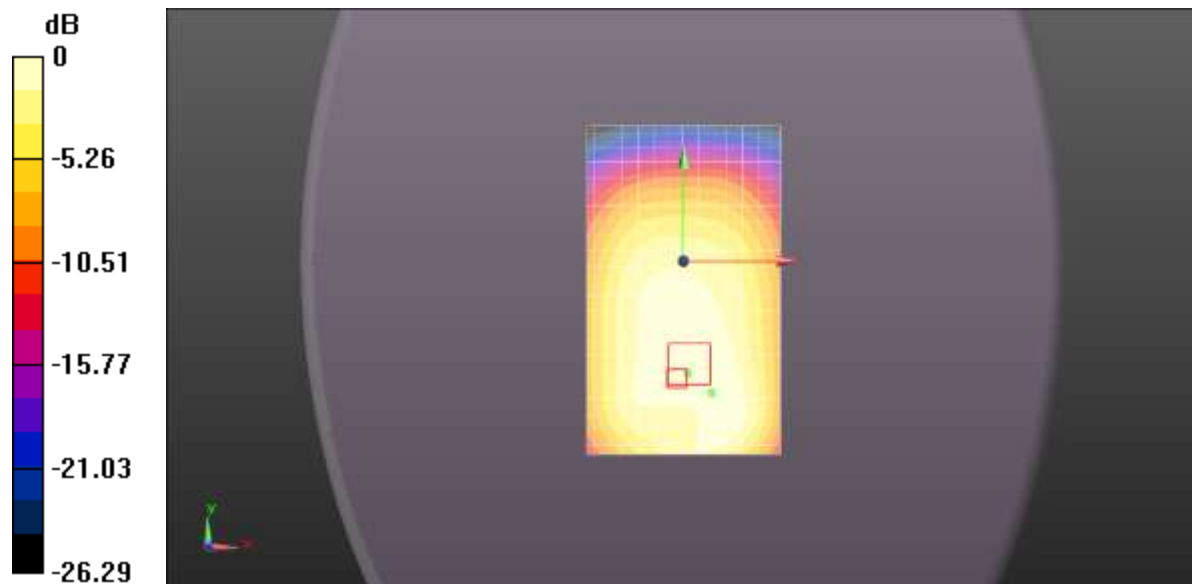
grid:  $dx=5$ mm,  $dy=5$ mm,  $dz=5$ mm

Reference Value = 12.560 V/m; Power Drift = -0.05dB

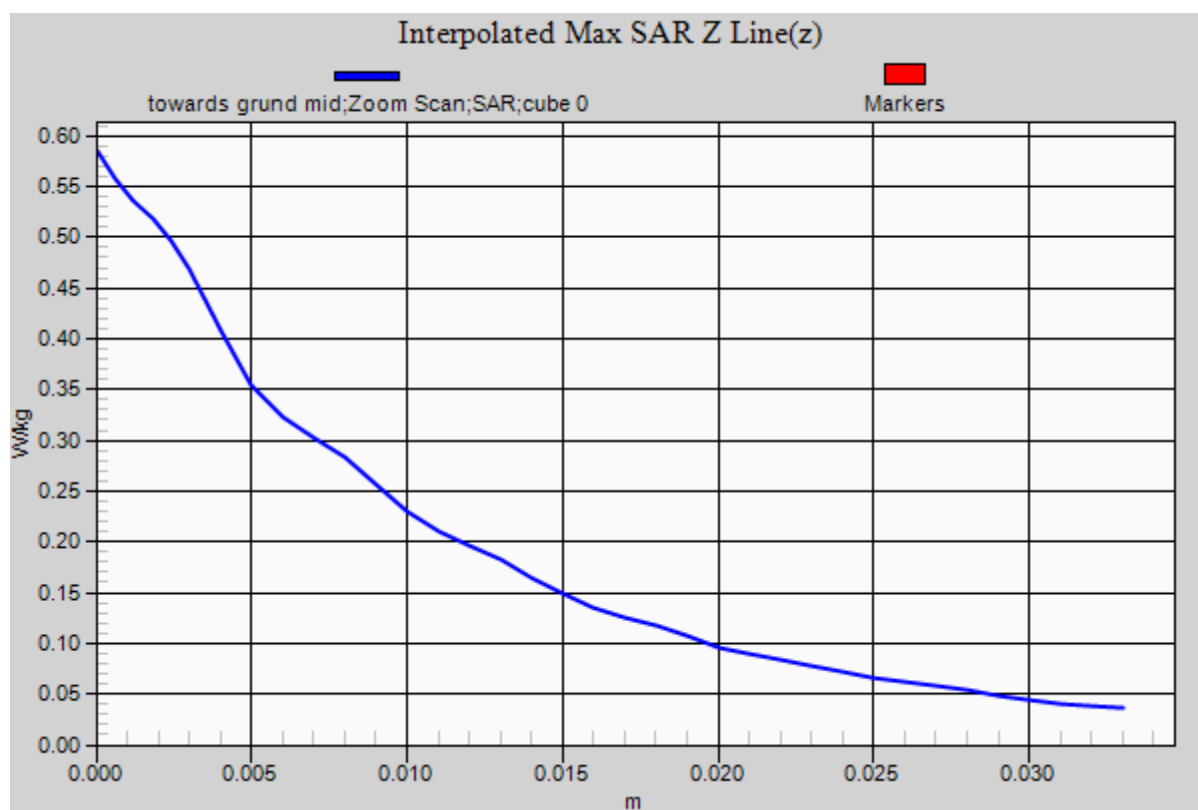
Peak SAR (extrapolated) = 0.585 W/kg

**SAR(1 g) = 0.256 W/kg; SAR(10 g) = 0.167 W/kg**

Maximum value of SAR (measured) = 0.254 W/kg



0 dB = 0.237 W/kg = -6.26 dBW/kg



## LTE 2 left touch mid QPSK\_20M\_1RB\_high

Date/Time: 13/05/2015 21:11:51

Communication System: UID 0, FDD-LTE(QPSK\_20M\_1RB) (0); Communication System

Band: BAND 2; Frequency: 1880 MHz; Communication System PAR: 0 dB

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.364$  S/m;  $\epsilon_r = 39.144$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

Measurement Standard: DASY5 (IEEE1528-2013)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(5.12, 5.12, 5.12); Calibrated: 29/09/2014;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 15/09/2014
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

**left/touch mid/Area Scan (101x171x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.155 W/kg

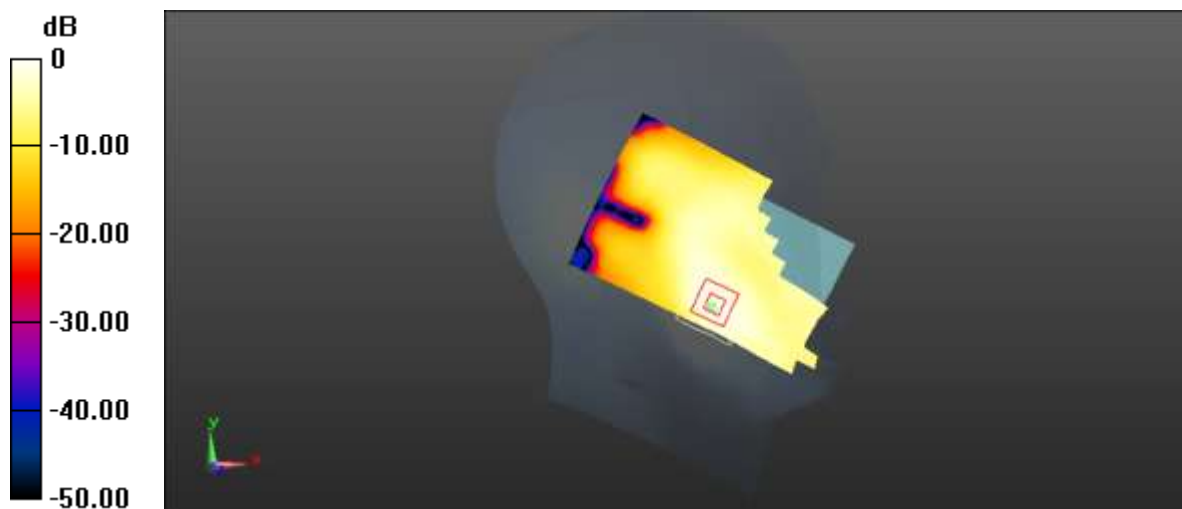
**left/touch mid/Zoom Scan (8x8x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 2.233 V/m; Power Drift = 0.01 dB

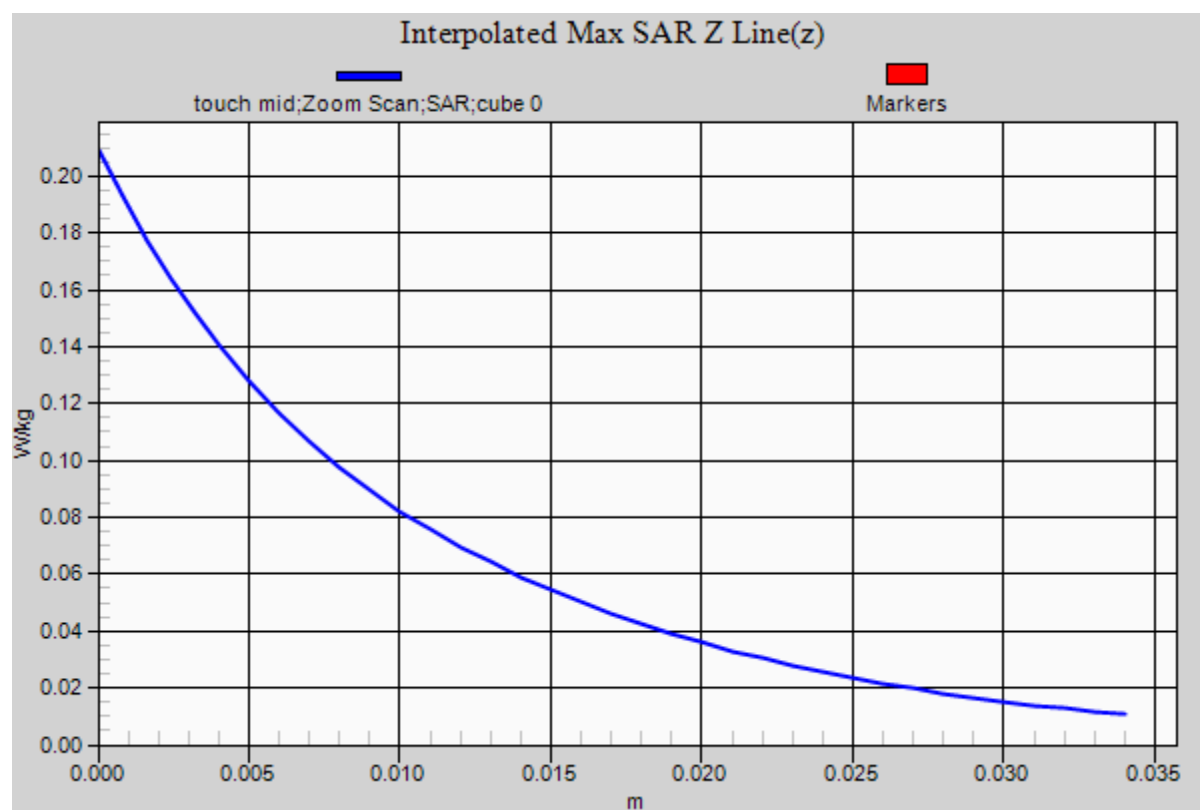
Peak SAR (extrapolated) = 0.209 W/kg

**SAR(1 g) = 0.130 W/kg; SAR(10 g) = 0.080 W/kg**

Maximum value of SAR (measured) = 0.141 W/kg



0 dB = 0.155 W/kg = -8.10 dBW/kg



## LTE 2 body front low QPSK\_20M\_1RB\_high

Date/Time: 07/05/2015 12:56:09

Communication System: UID 0, FDD-LTE(QPSK\_20M\_1RB) (0); Communication System Band: BAND 2; Frequency: 1860 MHz; Communication System PAR: 0 dB

Medium parameters used:  $f = 1860$  MHz;  $\sigma = 1.458$  S/m;  $\epsilon_r = 52.472$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528-2013)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.85, 4.85, 4.85); Calibrated: 29/09/2014;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 15/09/2014
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

**body/front low QPSK\_20M\_1RB\_high/Area Scan (61x101x1):** Interpolated grid:

$dx=1.000$  mm,  $dy=1.000$  mm

Maximum value of SAR (interpolated) = 1.36 W/kg

**body/front low QPSK\_20M\_1RB\_high/Zoom Scan (7x7x7)/Cube 0:**

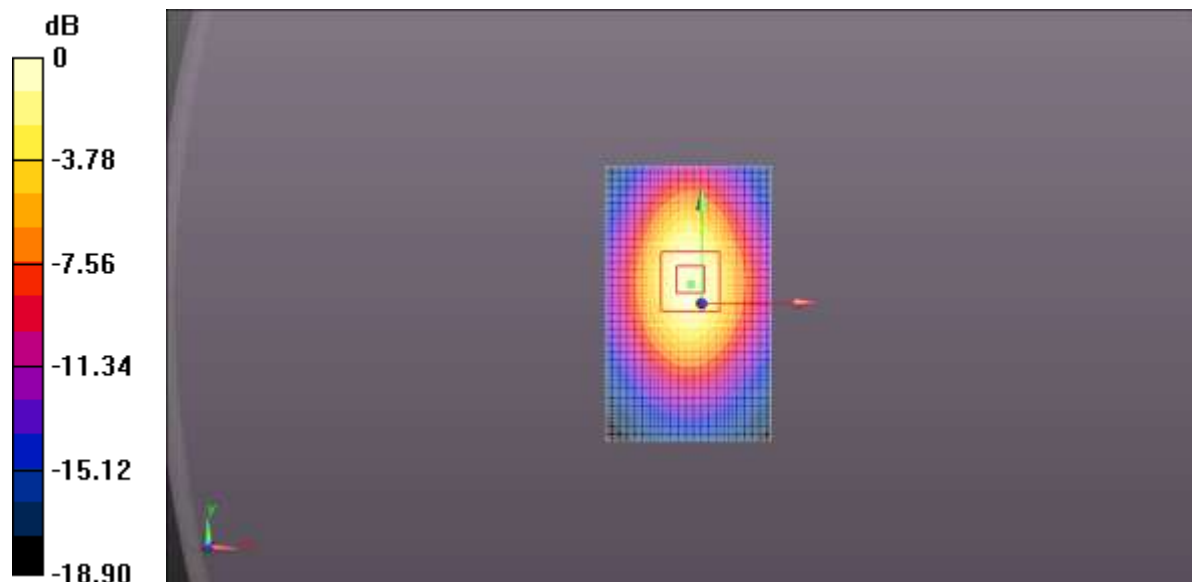
Measurement grid:  $dx=5$ mm,  $dy=5$ mm,  $dz=5$ mm

Reference Value = 28.485 V/m; Power Drift = 0.11 dB

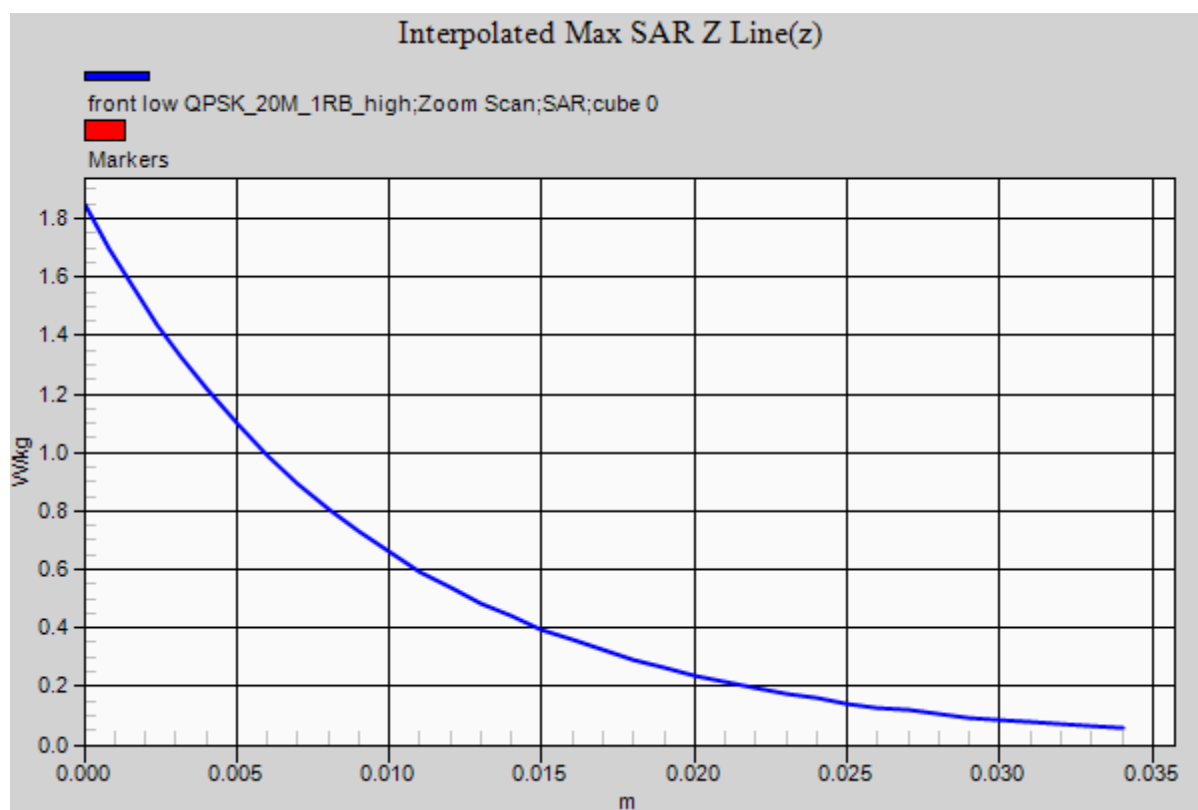
Peak SAR (extrapolated) = 1.85 W/kg

**SAR(1 g) = 1.09 W/kg; SAR(10 g) = 0.589 W/kg**

Maximum value of SAR (measured) = 1.22 W/kg



0 dB = 1.36 W/kg = 1.34 dBW/kg



# **LTE 4 left touch low QPSK \_20M\_1RB\_low**

Date/Time: 15/05/2015 12:49:35

Communication System: UID 0, FDD-LTE(QPSK\_20M\_1RB) (0); Communication System

Band: BAND 4; Frequency: 1720 MHz; Communication System PAR: 0 dB

Medium parameters used:  $f = 1720$  MHz;  $\sigma = 1.364$  S/m;  $\epsilon_r = 39.354$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

Measurement Standard: DASY5 (IEEE1528-2013)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(5.48, 5.48, 5.48); Calibrated: 29/09/2014;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 15/09/2014
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

**left/touch low/Area Scan (101x171x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.168 W/kg

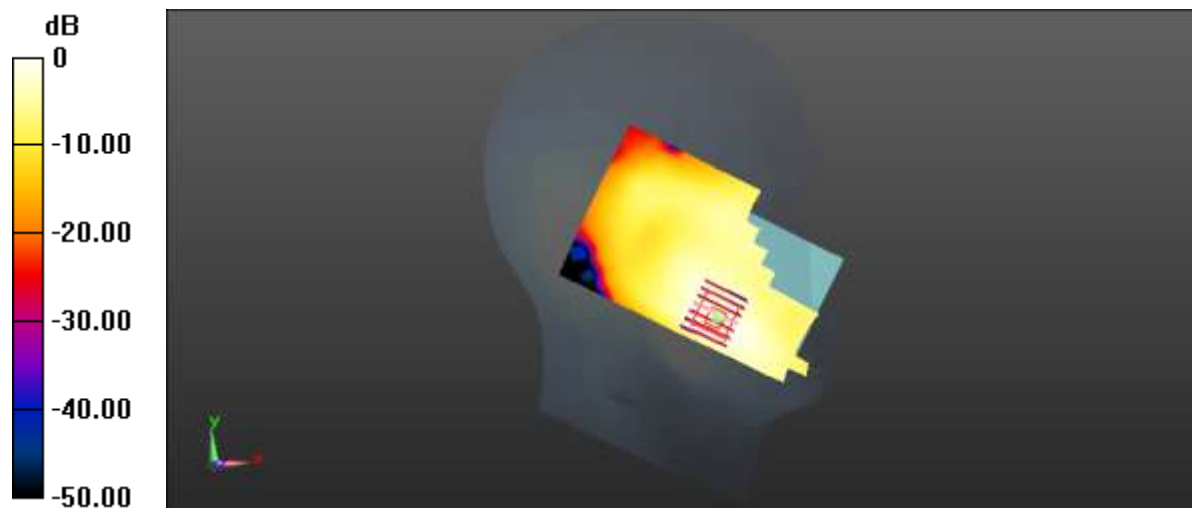
**left/touch low/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 3.852 V/m; Power Drift = 0.12 dB

Peak SAR (extrapolated) = 0.250 W/kg

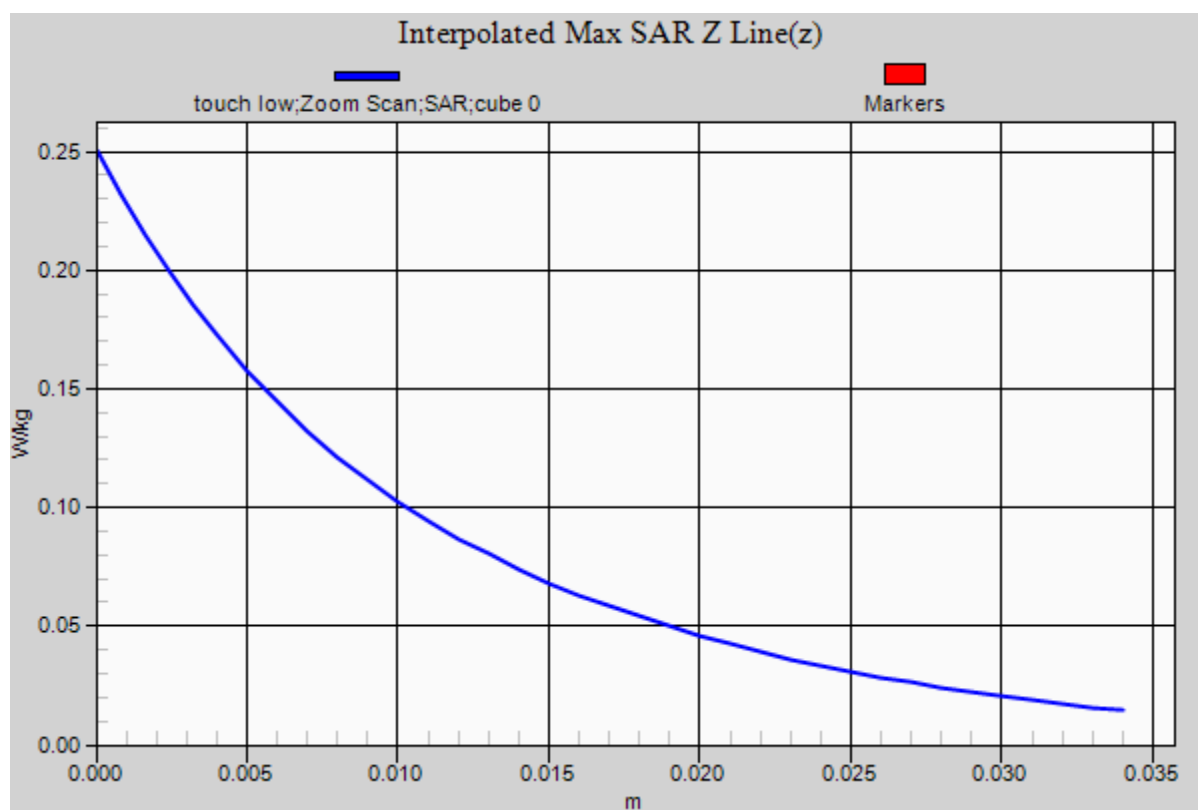
**SAR(1 g) = 0.156 W/kg; SAR(10 g) = 0.095 W/kg**

Maximum value of SAR (measured) = 0.173 W/kg



0 dB = 0.168 W/kg = -7.75 dBW/kg





# **LTE 4 front high QPSK \_20M\_1RB\_low with earphone**

Date/Time: 11/05/2015 10:21:23

Communication System: UID 0, FDD-LTE(QPSK\_20M\_1RB) (0); Communication System

Band: BAND 4; Frequency: 1745 MHz; Communication System PAR: 0 dB

Medium parameters used:  $f = 1745$  MHz;  $\sigma = 1.507$  S/m;  $\epsilon_r = 51.877$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528-2013)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(5.01, 5.01, 5.01); Calibrated: 29/09/2014;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 15/09/2014
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

## **body/front high QPSK\_20M\_1RB\_low with earphone/Area Scan (61x101x1):**

Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 1.64 W/kg

## **body/front high QPSK\_20M\_1RB\_low with earphone/Zoom Scan (7x7x7)/Cube 0:**

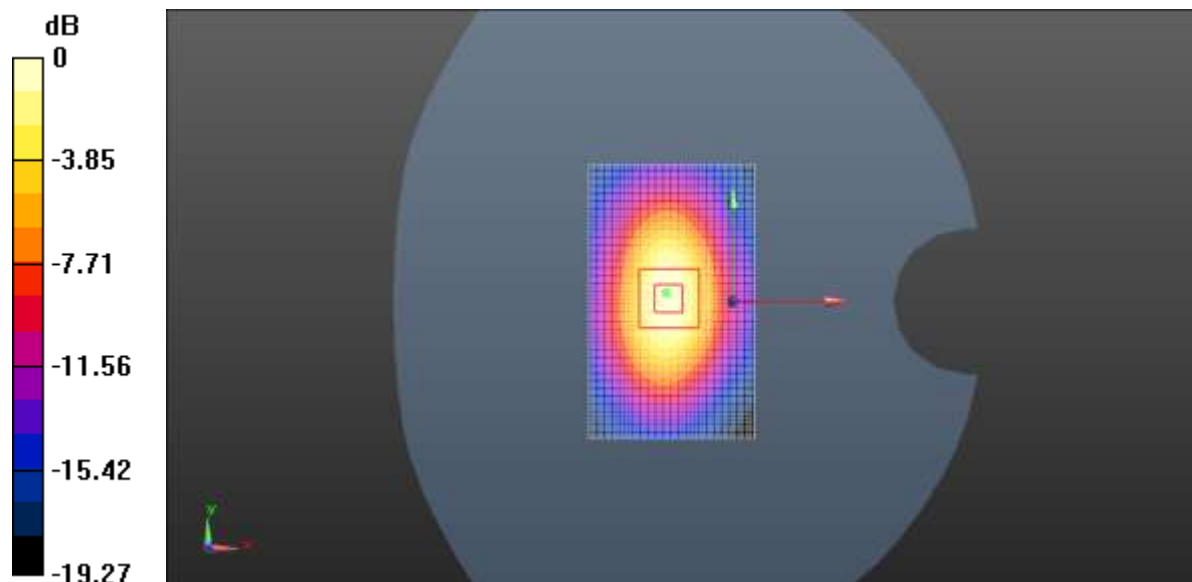
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 29.618 V/m; Power Drift = 0.16 dB

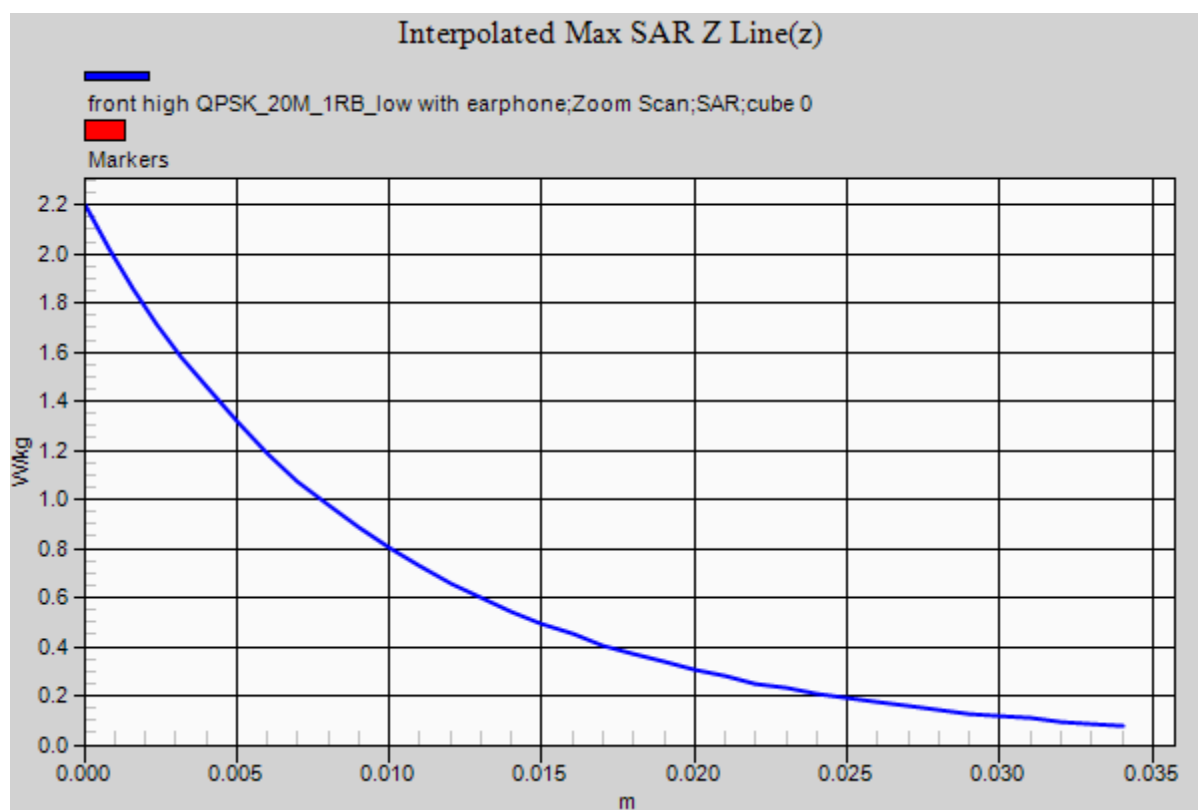
Peak SAR (extrapolated) = 2.20 W/kg

**SAR(1 g) = 1.19 W/kg; SAR(10 g) = 0.693 W/kg**

Maximum value of SAR (measured) = 1.44 W/kg



0 dB = 1.64 W/kg = 2.15 dBW/kg



# **LTE BAND 7 right touch low QPSk\_20M\_1RB\_low**

Date/Time: 18/05/2015 15:02:58

Communication System: UID 0, FDD-LTE(QPSK\_20M\_1RB) (0); Communication System

Band: BAND 7; Frequency: 2510 MHz; Communication System PAR: 0 dB

Medium parameters used:  $f = 2510$  MHz;  $\sigma = 1.814$  S/m;  $\epsilon_r = 39.28$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE1528-2013)

DASY5 Configuration:

- Probe: EX3DV4 - SN3717; ConvF(7.01, 7.01, 7.01); Calibrated: 02/09/2014;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 21/04/2015
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

**right/touch low/Area Scan (101x171x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.110 W/kg

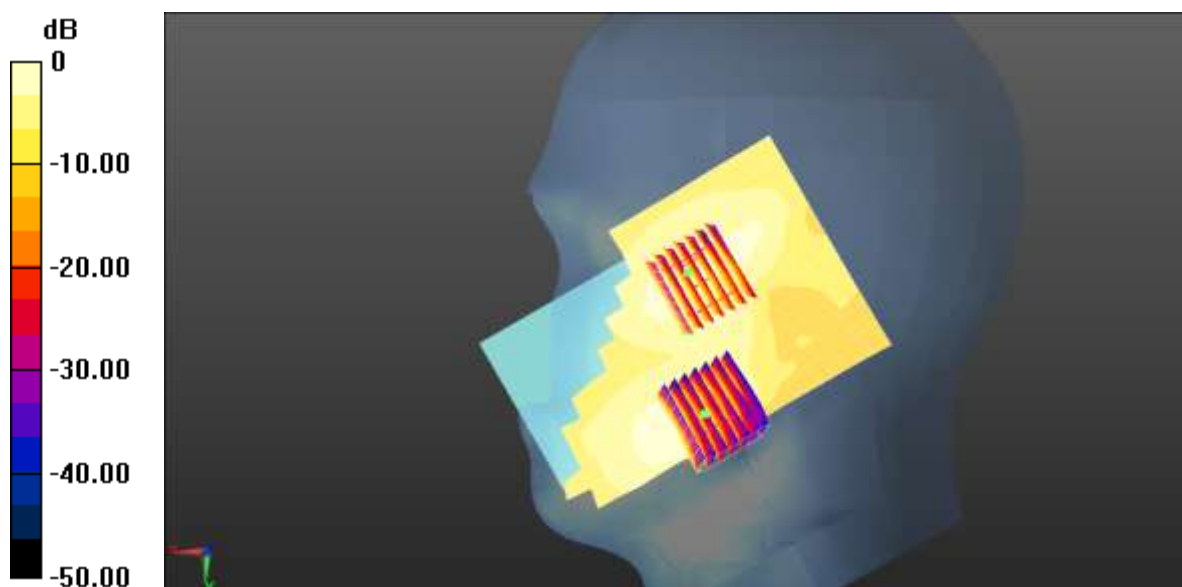
**right/touch low/Zoom Scan (8x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 3.097 V/m; Power Drift = -0.15 dB

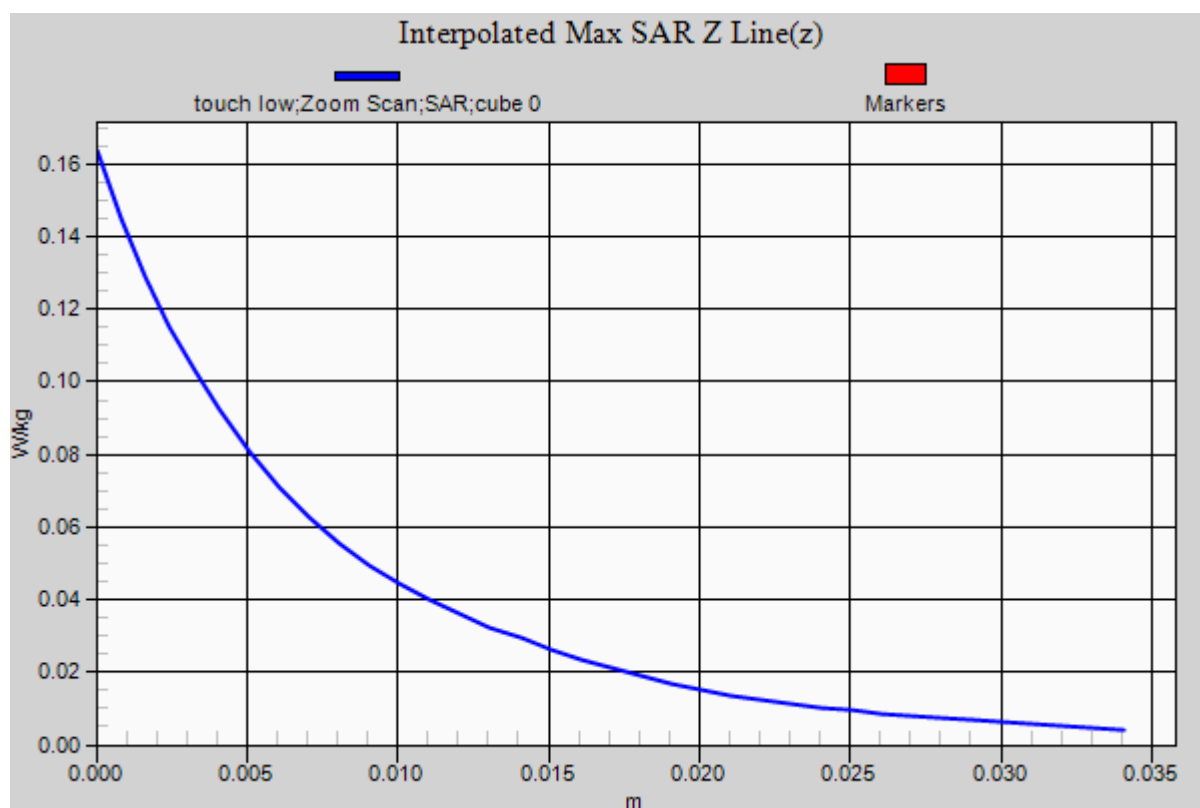
Peak SAR (extrapolated) = 0.164 W/kg

**SAR(1 g) = 0.084 W/kg; SAR(10 g) = 0.045 W/kg**

Maximum value of SAR (measured) = 0.0901 W/kg



0 dB = 0.110 W/kg = -9.58 dBW/kg



# **LTE 7 front mid QPSk\_20M\_1RB\_low**

Date/Time: 19/05/2015 03:02:27

Communication System: UID 0, FDD-LTE(QPSK\_20M\_1RB) (0); Communication System

Band: BAND 7; Frequency: 2535 MHz; Communication System PAR: 0 dB

Medium parameters used:  $f = 2535$  MHz;  $\sigma = 2.135$  S/m;  $\epsilon_r = 51.45$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528-2013)

DASY5 Configuration:

- Probe: EX3DV4 - SN3717; ConvF(6.99, 6.99, 6.99); Calibrated: 02/09/2014;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 21/04/2015
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

## **body/front mid QPSK\_20M\_1RB\_low/Area Scan (61x101x1):** Interpolated grid:

$dx=1.000$  mm,  $dy=1.000$  mm

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

## **body/front mid QPSK\_20M\_1RB\_low/Zoom Scan (7x7x7)/Cube 0:**

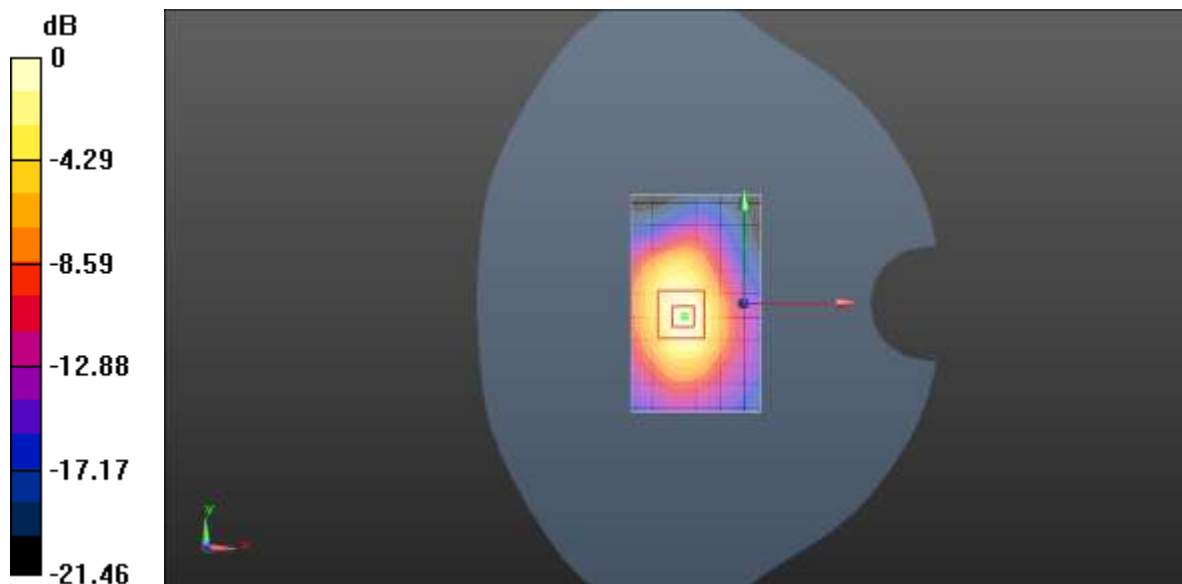
Measurement grid:  $dx=5$ mm,  $dy=5$ mm,  $dz=5$ mm

Reference Value = 14.859 V/m; Power Drift = 0.13 dB

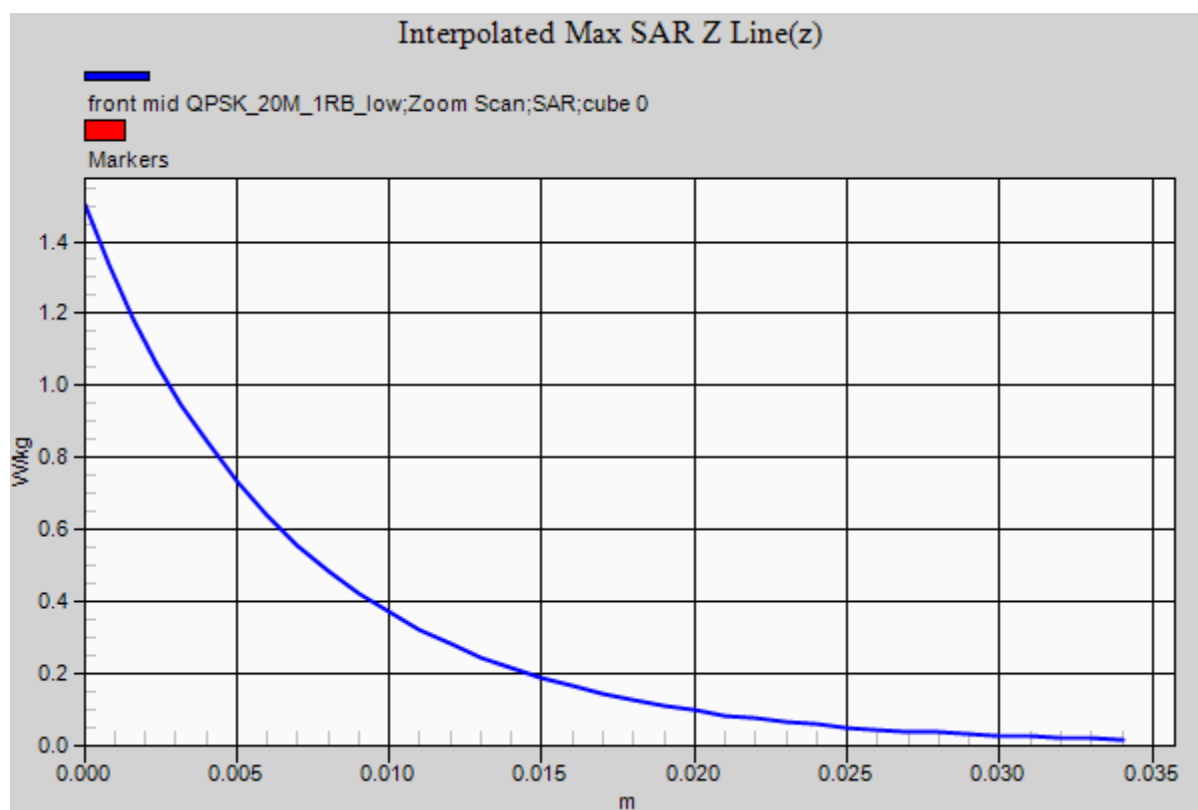
Peak SAR (extrapolated) = 1.50 W/kg

**SAR(1 g) = 0.750 W/kg; SAR(10 g) = 0.361 W/kg**

Maximum value of SAR (measured) = 0.843 W/kg



0 dB = 1.03 W/kg = 0.11 dBW/kg



# **LTE 17 left touch mid QPSK\_10M\_1RB\_low**

Date/Time: 13/05/2015 04:54:32

Communication System: UID 0, FDD-LTE(QPSK\_10M\_1RB) (0); Communication System

Band: BAND 17; Frequency: 710 MHz; Communication System PAR: 0 dB

Medium parameters used:  $f = 710$  MHz;  $\sigma = 0.837$  S/m;  $\epsilon_r = 43.053$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

Measurement Standard: DASY5 (IEEE1528-2013)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(6.9, 6.9, 6.9); Calibrated: 29/09/2014;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 15/09/2014
- Phantom: SAM1; Type: SAM; Serial: TP1576
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

**left/ touch mid QPSK\_10M\_1RB\_low/Area Scan (101x171x1):** Interpolated grid:

$dx=1.000$  mm,  $dy=1.000$  mm

Maximum value of SAR (interpolated) = 0.133 W/kg

**left/ touch mid QPSK\_10M\_1RB\_low/Zoom Scan (8x8x7)/Cube 0:**

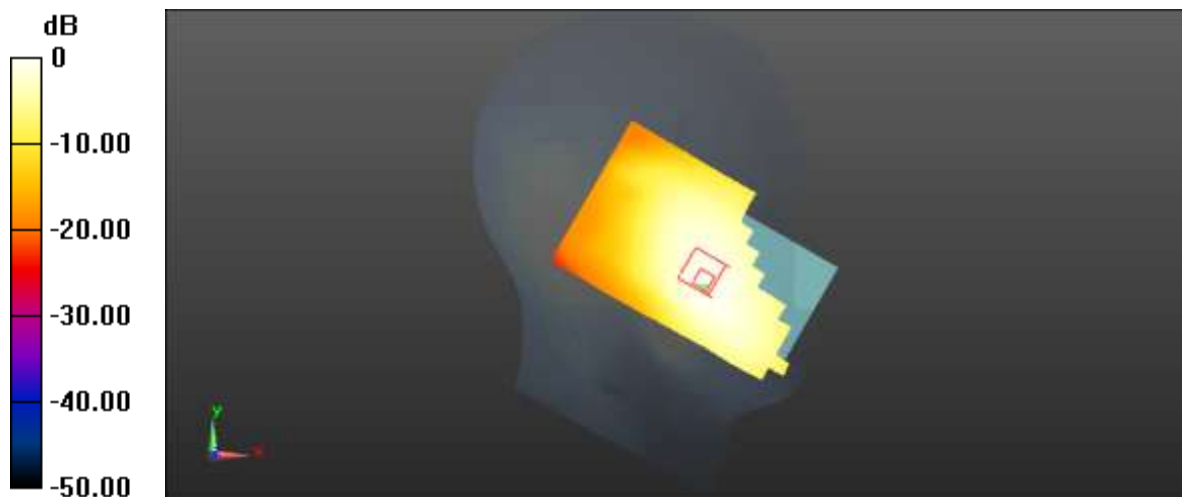
Measurement grid:  $dx=5$ mm,  $dy=5$ mm,  $dz=5$ mm

Reference Value = 3.210 V/m; Power Drift = 0.12 dB

Peak SAR (extrapolated) = 0.161 W/kg

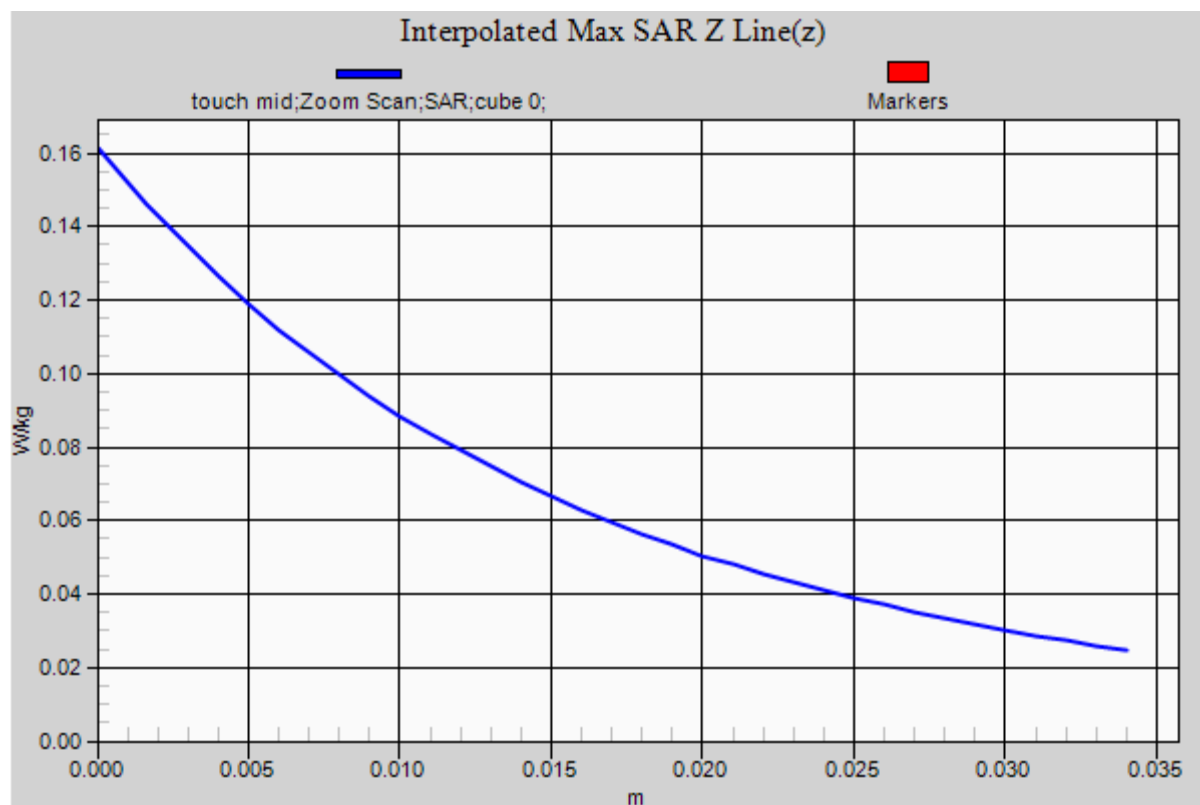
**SAR(1 g) = 0.123 W/kg; SAR(10 g) = 0.093 W/kg**

Maximum value of SAR (measured) = 0.129 W/kg



0 dB = 0.133 W/kg = -8.76 dBW/kg





# **LTE17 towards ground mid QPSK\_10M\_1RB\_high**

Date/Time: 12/05/2015 23:38:04

Communication System: UID 0, FDD-LTE(QPSK\_10M\_1RB) (0); Communication System

Band: BAND 17; Frequency: 710 MHz; Communication System PAR: 0 dB

Medium parameters used:  $f = 710$  MHz;  $\sigma = 0.899$  S/m;  $\epsilon_r = 54.864$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528-2013)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(6.44, 6.44, 6.44); Calibrated: 29/09/2014;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 15/09/2014
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

## **body/towards ground mid QPSK\_10M\_1RB\_high/Area Scan (101x171x1):**

Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.313 W/kg

## **body/towards ground mid QPSK\_10M\_1RB\_high/Zoom Scan (7x7x7)/Cube**

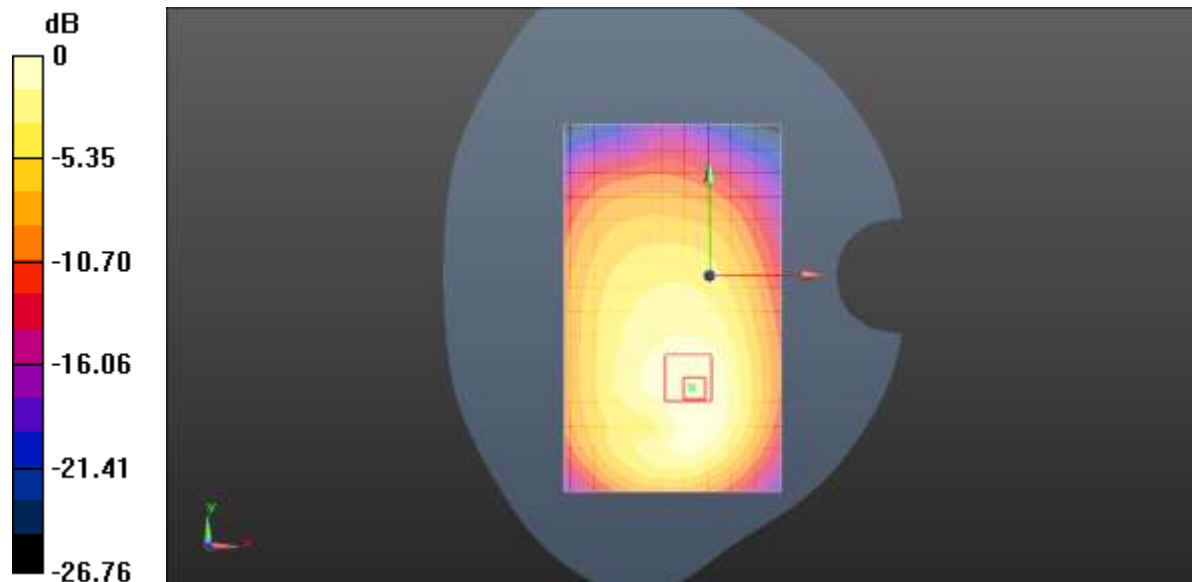
**0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 12.326 V/m; Power Drift = 0.13 dB

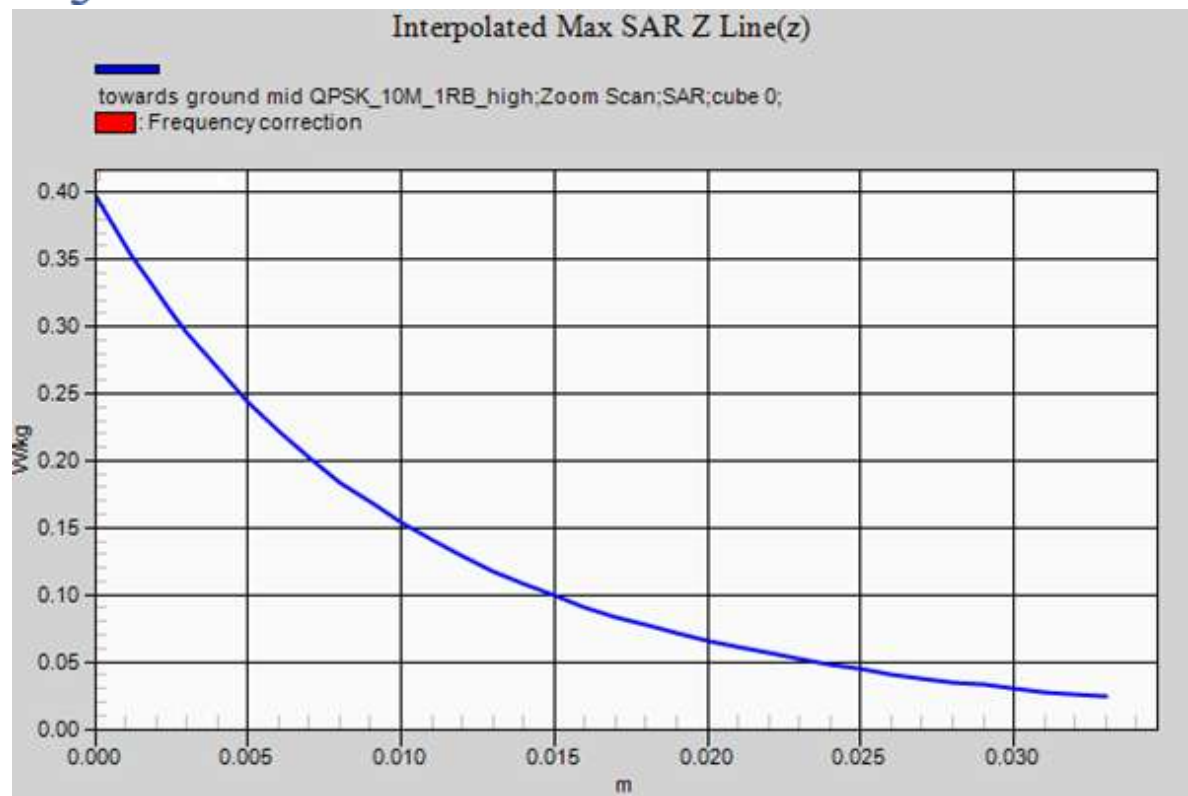
Peak SAR (extrapolated) = 0.398 W/kg

**SAR(1 g) = 0.268 W/kg; SAR(10 g) = 0.181 W/kg**

Maximum value of SAR (measured) = 0.313 W/kg



0 dB = 0.313 W/kg = -5.04 dBW/kg



### 802.11b Date rate:1Mbps right touch high

Date/Time: 12/05/2015 13:56:23

Communication System: UID 0, 802.11b/g/n 2.45GHz (0); Communication System Band: 2400-2483.5; Frequency: 2462 MHz; Communication System PAR: 0 dB

Medium parameters used:  $f = 2462$  MHz;  $\sigma = 1.789$  S/m;  $\epsilon_r = 37.883$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE1528-2013)

DASY5 Configuration:

- Probe: EX3DV4 - SN3717; ConvF(7.24, 7.24, 7.24); Calibrated: 02/09/2014;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 21/04/2015
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

**right/touch high/Area Scan (101x171x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.943 W/kg

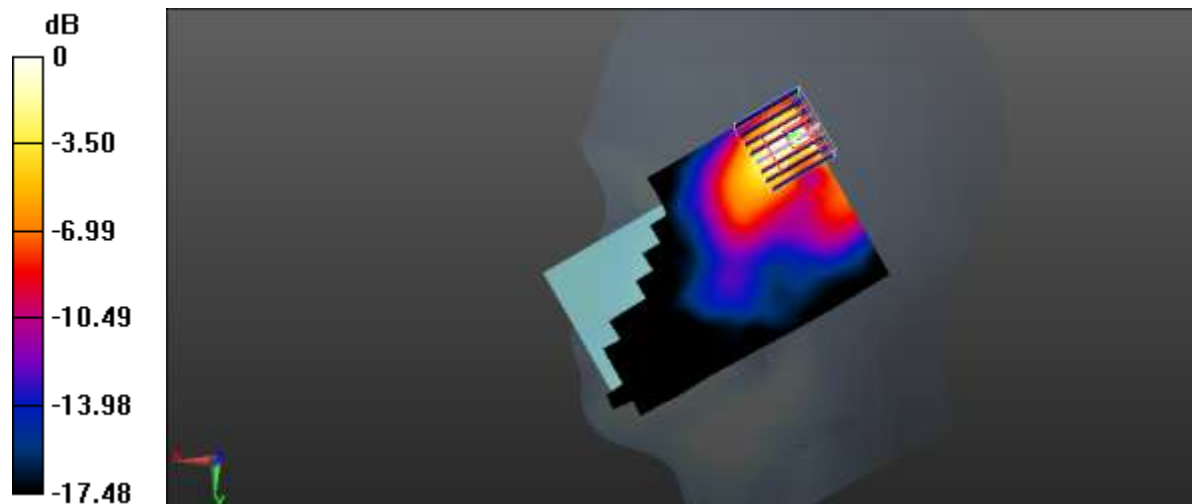
**right/touch high/Zoom Scan (8x8x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 8.674 V/m; Power Drift = -0.16 dB

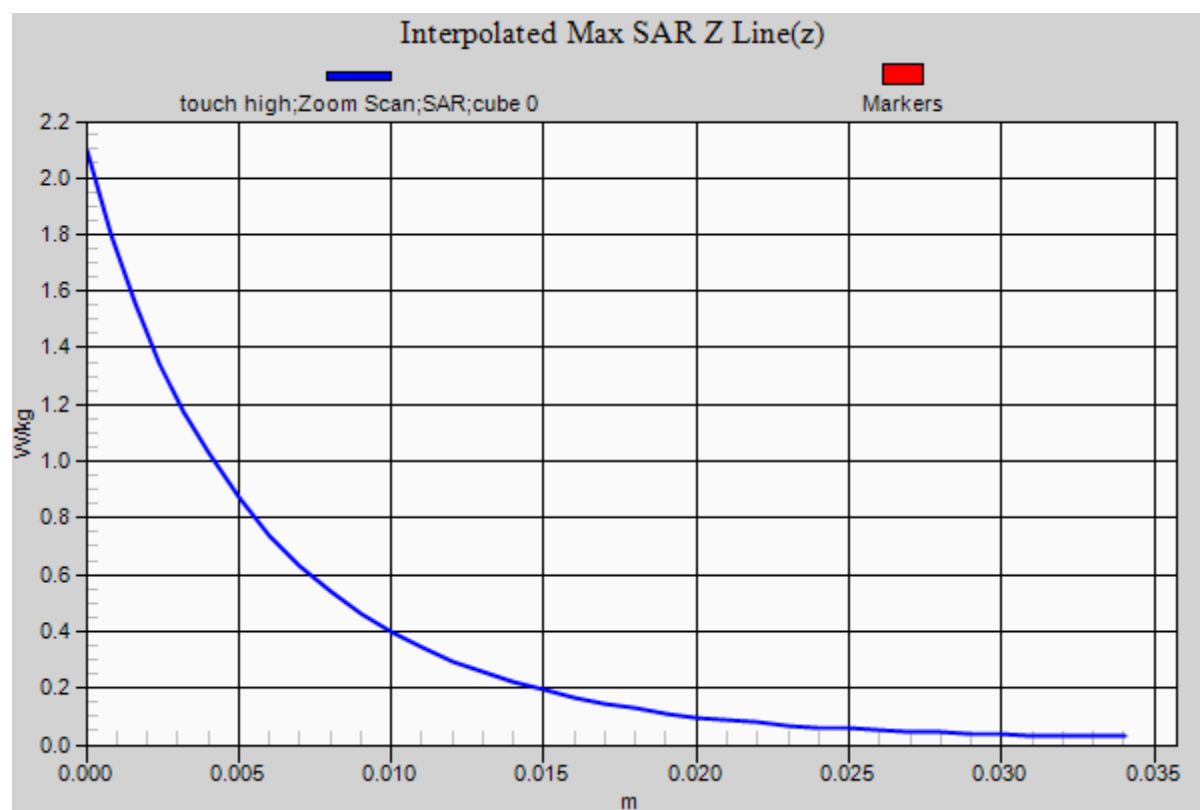
Peak SAR (extrapolated) = 2.09 W/kg

**SAR(1 g) = 0.894 W/kg; SAR(10 g) = 0.394 W/kg**

Maximum value of SAR (measured) = 1.01 W/kg



0 dB = 1.01 W/kg = 0.04 dBW/kg



## 802.11b Data rate:1 Mbps towards phantom high

Date/Time: 08/05/2015 14:15:18

Communication System: UID 0, 802.11b/g/n 2.45GHz (0); Communication System Band: 2400-2483.5; Frequency: 2462 MHz; Communication System PAR: 0 dB

Medium parameters used:  $f = 2462$  MHz;  $\sigma = 1.934$  S/m;  $\epsilon_r = 51.886$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528-2013)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.46, 4.46, 4.46); Calibrated: 29/09/2014;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 15/09/2014
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

## Configuration/towards phantom high/Area Scan (101x171x1): Interpolated grid:

dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.264 W/kg

## Configuration/towards phantom high/Zoom Scan (7x7x7)/Cube 0:

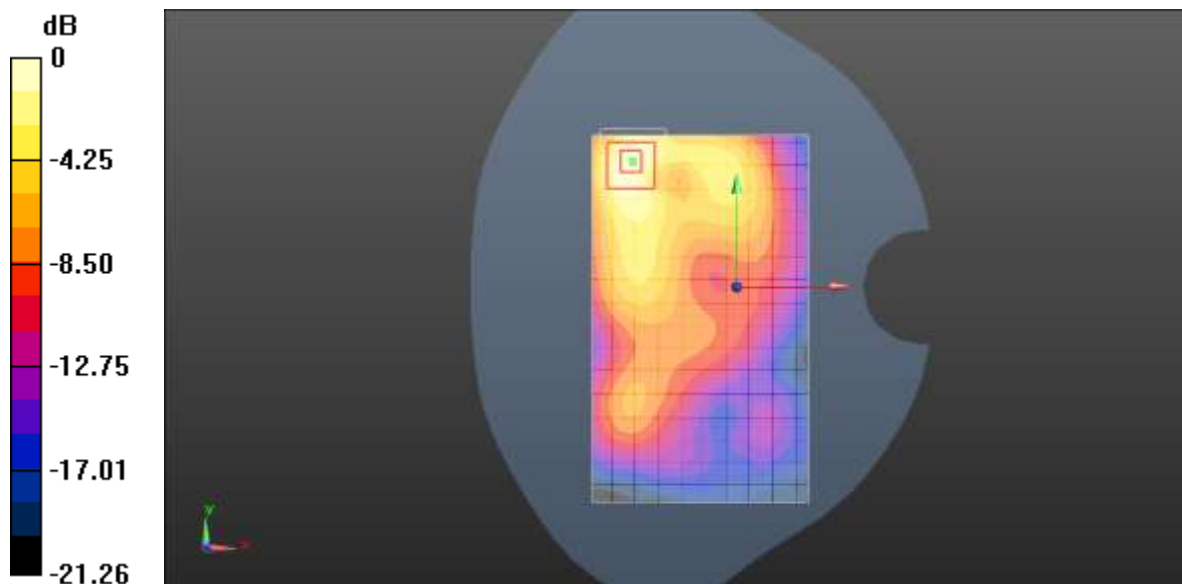
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 4.235 V/m; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 0.403 W/kg

**SAR(1 g) = 0.199 W/kg; SAR(10 g) = 0.097 W/kg**

Maximum value of SAR (measured) = 0.258 W/kg



0 dB = 0.264 W/kg = -5.79 dBW/kg

