



# TEST REPORT

No.I22N01585-SAR

For

**TCL Communication Ltd.**

**Mobile Phone**

**Model Name: T506A**

**With**

**Hardware Version: V01**

**Software Version: vVJ52**

**FCC ID: 2ACCJB186**

**Issued Date: 2022-09-08**

**Designation Number: CN1210**

**Note:**

The test results in this test report relate only to the devices specified in this report. This report shall not be reproduced except in full without the written approval of SAICT.

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No.I22N01585-SAR

## **REPORT HISTORY**

| <b>Report Number</b> | <b>Revision</b> | <b>Description</b> | <b>Issue Date</b> |
|----------------------|-----------------|--------------------|-------------------|
| I22N01585-SAR        | Rev.0           | 1st edition        | 2022-09-08        |

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No.I22N01585-SAR

## 1. Summary of Test Report

### 1.1. Test Items

|                      |                        |
|----------------------|------------------------|
| Description:         | Mobile Phone           |
| Model Name:          | T506A                  |
| Code Name:           | T506A                  |
| Applicant's Name:    | TCL Communication Ltd. |
| Manufacturer's Name: | TCL Communication Ltd. |

### 1.2. Test Standards

ANSI C95.1:1992, IEEE 1528:2013

### 1.3. Test Result

Pass. Please refer to "13. Summary of Test Results"

### 1.4. Testing Location

Address: Building G, Shenzhen International Innovation Center, No.1006 Shennan Road, Futian District, Shenzhen, Guangdong, P. R. China

### 1.5. Project Data

Testing Start Date: 2022-08-19

Testing End Date: 2022-09-02

### 1.6. Signature

Li Yongfu

(Prepared this test report)

Zhang Yunzhan

(Reviewed this test report)

Cao Junfei

(Approved this test report)

## 2. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for TCL Communication Ltd. Mobile Phone T506A are as follows:

**Table 2.1: Highest Reported SAR for Head (1g)**

| Exposure Configuration            | Technology Band | Highest Reported SAR<br>1g(W/Kg) | Equipment Class |
|-----------------------------------|-----------------|----------------------------------|-----------------|
| Head<br>(Separation Distance 0mm) | GSM 850         | <b>1.23</b>                      | PCE             |
|                                   | GSM 1900        | 0.13                             |                 |
|                                   | WCDMA Band 2    | 0.18                             |                 |
|                                   | WCDMA Band 4    | 0.15                             |                 |
|                                   | WCDMA Band 5    | 1.08                             |                 |
|                                   | LTE Band 2      | 0.20                             |                 |
|                                   | LTE Band 5      | 1.14                             |                 |
|                                   | LTE Band 7      | 0.32                             |                 |
|                                   | LTE Band 12/17  | 0.70                             |                 |
|                                   | LTE Band 13     | 1.17                             |                 |
|                                   | LTE Band 26     | 1.02                             |                 |
|                                   | LTE Band 38     | 0.20                             |                 |
|                                   | LTE Band 66/4   | 0.28                             |                 |
|                                   | Bluetooth       | 0.10                             | DSS             |
|                                   | WLAN 2.4GHz     | 0.48                             | DTS             |
|                                   | WLAN 5GHz       | 0.35                             | NII             |

**Table 2.2: Highest Reported SAR for Hotspot (1g)**

| Exposure Configuration                | Technology Band | Highest Reported SAR<br>1g(W/Kg) | Equipment Class |
|---------------------------------------|-----------------|----------------------------------|-----------------|
| Hotspot<br>(Separation Distance 10mm) | GSM 850         | 0.16                             | PCE             |
|                                       | GSM 1900        | 0.98                             |                 |
|                                       | WCDMA Band 2    | 1.19                             |                 |
|                                       | WCDMA Band 4    | 1.18                             |                 |
|                                       | WCDMA Band 5    | 0.32                             |                 |
|                                       | LTE Band 2      | 1.10                             |                 |
|                                       | LTE Band 5      | 0.35                             |                 |
|                                       | LTE Band 7      | 1.17                             |                 |
|                                       | LTE Band 12/17  | 0.41                             |                 |
|                                       | LTE Band 13     | 0.46                             |                 |
|                                       | LTE Band 26     | 0.43                             |                 |
|                                       | LTE Band 38     | 0.85                             |                 |
|                                       | LTE Band 66/4   | <b>1.32</b>                      |                 |
|                                       | Bluetooth       | 0.04                             | DSS             |
|                                       | WLAN 2.4GHz     | 0.17                             | DTS             |
|                                       | WLAN 5GHz       | 0.17                             | NII             |

**Table 2.3: Highest Reported SAR for Body-worn (1g)**

| Exposure Configuration                        | Technology Band | Highest Reported SAR<br>1g(W/Kg) | Equipment Class |
|-----------------------------------------------|-----------------|----------------------------------|-----------------|
| Body-worn<br>(Separation Distance<br>10/15mm) | GSM 850         | 0.16                             | PCE             |
|                                               | GSM 1900        | 0.73                             |                 |
|                                               | WCDMA Band 2    | 0.60                             |                 |
|                                               | WCDMA Band 4    | 1.02                             |                 |
|                                               | WCDMA Band 5    | 0.32                             |                 |
|                                               | LTE Band 2      | 0.97                             |                 |
|                                               | LTE Band 5      | 0.35                             |                 |
|                                               | LTE Band 7      | 0.83                             |                 |
|                                               | LTE Band 12/17  | 0.41                             |                 |
|                                               | LTE Band 13     | 0.46                             |                 |
|                                               | LTE Band 26     | 0.32                             |                 |
|                                               | LTE Band 38     | 0.56                             |                 |
|                                               | LTE Band 66/4   | <b>1.11</b>                      |                 |
|                                               | Bluetooth       | 0.04                             | DSS             |
|                                               | WLAN 2.4GHz     | 0.17                             | DTS             |
|                                               | WLAN 5GHz       | 0.16                             | NII             |

**Table 2.4: Highest Reported Extremity SAR (10g)**

| Exposure Configuration                 | Technology Band | Highest Reported SAR<br>10g(W/Kg) | Equipment Class |
|----------------------------------------|-----------------|-----------------------------------|-----------------|
| Extremity<br>(Separation Distance 0mm) | LTE Band 66     | <b>2.25</b>                       | PCE             |
|                                        | WLAN 5GHz       | 0.35                              | NII             |

The SAR values found for the Mobile Phone are below the maximum recommended levels of 1.6 W/Kg as averaged over any 1g tissue according to the ANSI C95.1-1992.

The measurement together with the test system set-up is described in annex C of this test report. A detailed description of the equipment under test can be found in chapter 4 of this test report.

The highest reported SAR value is obtained at the case of (Table 2.1 & 2.2 & 2.3 & 2.4), Head value is **1.23 kg (1g)**, Hotspot value is **1.32 kg (1g)**, Body-worn value is **1.11 kg (1g)** and Extremity SAR value is **2.25g (10g)**.

**Table 2.5: Maximum Simultaneous Transmission SAR**

| /                                           | Position                                                       | Sum (W/kg) |
|---------------------------------------------|----------------------------------------------------------------|------------|
| Highest reported SAR value<br>for Head      | Right Cheek<br>(GSM850 + WLAN 2.4GHz)                          | 1.42       |
| Highest reported SAR value<br>for Hotspot   | Bottom Side<br>(LTE Band 66 + WLAN 2.4GHz/WLAN 5GHz/Bluetooth) | 1.32       |
| Highest reported SAR value<br>for Body-worn | Rear Side<br>(LTE Band 66 + WLAN 2.4GHz)                       | 1.28       |
| Highest reported SAR value<br>for Extremity | Bottom Side<br>(LTE Band 66 + WLAN 5GHz )                      | 2.25       |

Note: the test positions of above tables are for the worse case that has been evaluated.

According to the above tables, the highest sum of reported SAR values is **1.42 W/kg (1g)** and **2.25 W/kg (10g)**.

The detail for simultaneous transmission consideration is described in chapter 12.



### 3. Client Information

#### 3.1. Applicant Information

|               |                                                                                               |
|---------------|-----------------------------------------------------------------------------------------------|
| Company Name: | TCL Communication Ltd.                                                                        |
| Address:      | 5/F, Building 22E, 22 Science Park East Avenue, Hong Kong Science Park, Shatin, NT, Hong Kong |
| City:         | Hong Kong                                                                                     |
| Country:      | China                                                                                         |
| Telephone:    | +86 755 3661 1621                                                                             |

#### 3.2. Manufacturer Information

|               |                                                                                               |
|---------------|-----------------------------------------------------------------------------------------------|
| Company Name: | TCL Communication Ltd.                                                                        |
| Address:      | 5/F, Building 22E, 22 Science Park East Avenue, Hong Kong Science Park, Shatin, NT, Hong Kong |
| City:         | Hong Kong                                                                                     |
| Country:      | China                                                                                         |
| Telephone:    | +86 755 3661 1621                                                                             |

## 4. Equipment under Test (EUT) and Ancillary Equipment (AE)

### 4.1. About EUT

|                                                                                                                                                     |                                                                                                              |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|
| Description:                                                                                                                                        | Mobile Phone                                                                                                 |
| Model Name:                                                                                                                                         | T506A                                                                                                        |
| Condition of EUT as received:                                                                                                                       | No obvious damage in appearance                                                                              |
| Frequency Bands:                                                                                                                                    | GSM 850/1900, WCDMA Band 2/4/5,<br>LTE Band 2/4/5/7/12/13/17/26/38/66,<br>Bluetooth, WLAN 2.4GHz, WLAN 5GHz, |
| Tested Tx Frequency:                                                                                                                                | 824 – 849MHz (GSM850)                                                                                        |
|                                                                                                                                                     | 1850 – 1910MHz (GSM1900)                                                                                     |
|                                                                                                                                                     | 1850 – 1910MHz (WCDMA Band 2)                                                                                |
|                                                                                                                                                     | 1710 – 1755MHz (WCDMA Band 4)                                                                                |
|                                                                                                                                                     | 824 – 849MHz (WCDMA Band 5)                                                                                  |
|                                                                                                                                                     | 1850 – 1910MHz (LTE Band 2)                                                                                  |
|                                                                                                                                                     | 1710 – 1755MHz (LTE Band 4)                                                                                  |
|                                                                                                                                                     | 824 – 849MHz (LTE Band 5)                                                                                    |
|                                                                                                                                                     | 2500 – 2570MHz (LTE Band 7)                                                                                  |
|                                                                                                                                                     | 699 – 716MHz (LTE Band 12)                                                                                   |
|                                                                                                                                                     | 777 – 787MHz (LTE Band 13)                                                                                   |
|                                                                                                                                                     | 704 – 716MHz (LTE Band 17)                                                                                   |
|                                                                                                                                                     | 814 – 849MHz (LTE Band 26)                                                                                   |
|                                                                                                                                                     | 2570 – 2620MHz (LTE Band 38)                                                                                 |
|                                                                                                                                                     | 1710 – 1780MHz (LTE Band 66)                                                                                 |
|                                                                                                                                                     | 2402 – 2480MHz (Bluetooth)                                                                                   |
|                                                                                                                                                     | 2412 – 2462MHz (WLAN 2.4GHz)                                                                                 |
|                                                                                                                                                     | 5150 – 5850MHz (WLAN 5GHz)                                                                                   |
| GPRS / EGPRS Multislot Class:                                                                                                                       | 12                                                                                                           |
| GPRS capability Class:                                                                                                                              | B                                                                                                            |
| Test device Production information:                                                                                                                 | Production unit                                                                                              |
| Device type:                                                                                                                                        | Portable device                                                                                              |
| Antenna type:                                                                                                                                       | Integrated antenna                                                                                           |
| Hotspot mode:                                                                                                                                       | Support                                                                                                      |
| Product Dimensions:                                                                                                                                 | Long 164.66mm; Wide 75.4mm; Overall Diagonal 174.7mm                                                         |
| <b>Remark:</b><br>1. This device does not support DTM operation.<br>2. This device WLAN 5GHz U-NII-2A and U-NII-2C don't support hotspot operation. |                                                                                                              |

#### 4.2. Internal Identification of EUT used during the test

| EUT ID* | IMEI            | HW Version | SW Version | Receipt Date |
|---------|-----------------|------------|------------|--------------|
| UT07aa  | 353380549998630 | V01        | vVJ52      | 2022-08-11   |
| UT08aa  | 358132476402111 | V01        | vVJ52      | 2022-08-11   |
| UT23aa  | 353380540006169 | V01        | vVJ52      | 2022-08-11   |
| UT24aa  | 353380540006102 | V01        | vVJ52      | 2022-08-11   |
| UT26aa  | 353380540006748 | V01        | vVJ52      | 2022-08-11   |

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

**Note:** It is performed to test SAR with the UT23aa & UT24aa & UT26aa, and conducted power with the UT07aa & UT08aa.

#### 4.3. Internal Identification of AE used during the test

| AE ID* | Description | Model         | Manufacturer                         |
|--------|-------------|---------------|--------------------------------------|
| AE1    | Battery     | TLp048A8      | Dongguan Ganfeng Electronics co.,LTD |
| AE2    | Battery     | TLp048A7      | VEKEN                                |
| AE3    | Headset     | JWEP0903-T01R | JWELL                                |

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

**Note:** The device has two types of batteries. We'll perform the main SAR measurement with AE1 battery and Spot check test with AE2 battery.

## 5. Test Methodology

### 5.1. Applicable Limit Regulations

**ANSI C95.1:1992** IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz.

It specifies the maximum exposure limit of **1.6 W/kg** as averaged over any 1 gram of tissue for portable devices being used within 20 cm of the user in the uncontrolled environment.

### 5.2. Applicable Measurement Standards

**IEEE 1528:2013** Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Experimental Techniques.

**KDB 447498 D01 General RF Exposure Guidance v06** RF Exposure Procedures and Equipment Authorization Policies for Mobile and Portable Devices

**KDB 648474 D04 Handset SAR v01r03** SAR Evaluation Considerations for Wireless Handsets.

**KDB 941225 D01 SAR test for 3G devices v03r01** SAR Measurement Procedures for 3G Devices

**KDB 941225 D05 SAR for LTE Devices v02r05** SAR Evaluation Considerations for LTE Devices

**KDB 941225 D06 Hot Spot SAR v02r01** SAR Evaluation Procedures for Portable Devices with Wireless Router Capabilities

**KDB 248227 D01 802.11 Wi-Fi SAR v02r02** SAR Guidance for IEEE 802.11 (Wi-Fi) Transmitters.

**KDB 865664 D01 SAR measurement 100 MHz to 6 GHz v01r04** SAR Measurement Requirements for 100 MHz to 6 GHz

**KDB 865664 D02 RF Exposure Reporting v01r02** RF Exposure Compliance Reporting and Documentation Considerations

**KDB 941225 D07 UMPC Mini Tablet v01r02** SAR Evaluation Procedures for UMPC Mini-Tablet Devices

**TCB workshop April 2019; RF Exposure Procedures (Tissue Simulating Liquids)**

## 6. Specific Absorption Rate (SAR)

### 6.1. Introduction

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

### 6.2. SAR Definition

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

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

SAR is expressed in units of Watts per kilogram (W/kg)

SAR measurement can be either related to the temperature elevation in tissue by

$$SAR = c \left( \frac{\delta T}{\delta t} \right)$$

Where:  $C$  is the specific heat capacity,  $\delta T$  is the temperature rise and  $\delta t$  is the exposure duration, or related to the electrical field in the tissue by

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

Where:  $\sigma$  is the conductivity of the tissue,  $\rho$  is the mass density of tissue and  $E$  is the RMS electrical field strength.

However for evaluating SAR of low power transmitter, electrical field measurement is typically applied.

## 7. Tissue Simulating Liquids

### 7.1. Targets for tissue simulating liquid

**Table 7.1: Targets for tissue simulating liquid**

| Frequency (MHz) | Liquid Type | Conductivity ( $\sigma$ ) | $\pm 5\%$ Range | Permittivity ( $\epsilon$ ) | $\pm 5\%$ Range |
|-----------------|-------------|---------------------------|-----------------|-----------------------------|-----------------|
| 750             | Head        | 0.89                      | 0.85~0.93       | 41.9                        | 39.8~44.0       |
| 835             | Head        | 0.90                      | 0.86~0.95       | 41.5                        | 39.4~43.6       |
| 1750            | Head        | 1.37                      | 1.30~1.44       | 40.1                        | 38.1~42.1       |
| 1900            | Head        | 1.40                      | 1.33~1.47       | 40.0                        | 38.0~42.0       |
| 2450            | Head        | 1.80                      | 1.71~1.89       | 39.2                        | 37.2~41.2       |
| 2550            | Head        | 1.91                      | 1.81~2.01       | 39.1                        | 37.1~41.0       |
| 5250            | Head        | 4.71                      | 4.47~4.95       | 35.9                        | 34.1~37.7       |
| 5600            | Head        | 5.07                      | 4.82~5.32       | 35.5                        | 33.8~37.3       |
| 5750            | Head        | 5.22                      | 4.96~5.48       | 35.4                        | 33.6~37.1       |

### 7.2. Dielectric Performance

**Table 7.2: Dielectric Performance of Tissue Simulating Liquid**

| Measurement Date (yyyy-mm-dd) | Type | Frequency (MHz) | Conductivity $\sigma$ (S/m) | Drift (%) | Permittivity $\epsilon$ | Drift (%) |
|-------------------------------|------|-----------------|-----------------------------|-----------|-------------------------|-----------|
| 2022-08-23                    | Head | 750             | 0.899                       | 1.01      | 41.17                   | -1.74     |
| 2022-09-01                    | Head | 835             | 0.921                       | 2.33      | 40.83                   | -1.61     |
| 2022-08-24                    | Head | 1750            | 1.356                       | -1.02     | 39.82                   | -0.70     |
| 2022-08-31                    | Head | 1900            | 1.418                       | 1.29      | 39.44                   | -1.40     |
| 2022-08-21                    | Head | 2450            | 1.842                       | 2.33      | 38.36                   | -2.14     |
| 2022-09-02                    | Head | 2550            | 1.887                       | -1.20     | 39.65                   | 1.41      |
| 2022-08-19                    | Head | 5250            | 4.772                       | 1.32      | 35.26                   | -1.78     |
| 2022-08-19                    | Head | 5600            | 5.178                       | 2.13      | 34.98                   | -1.46     |
| 2022-08-19                    | Head | 5750            | 5.084                       | -2.61     | 36.20                   | 2.26      |

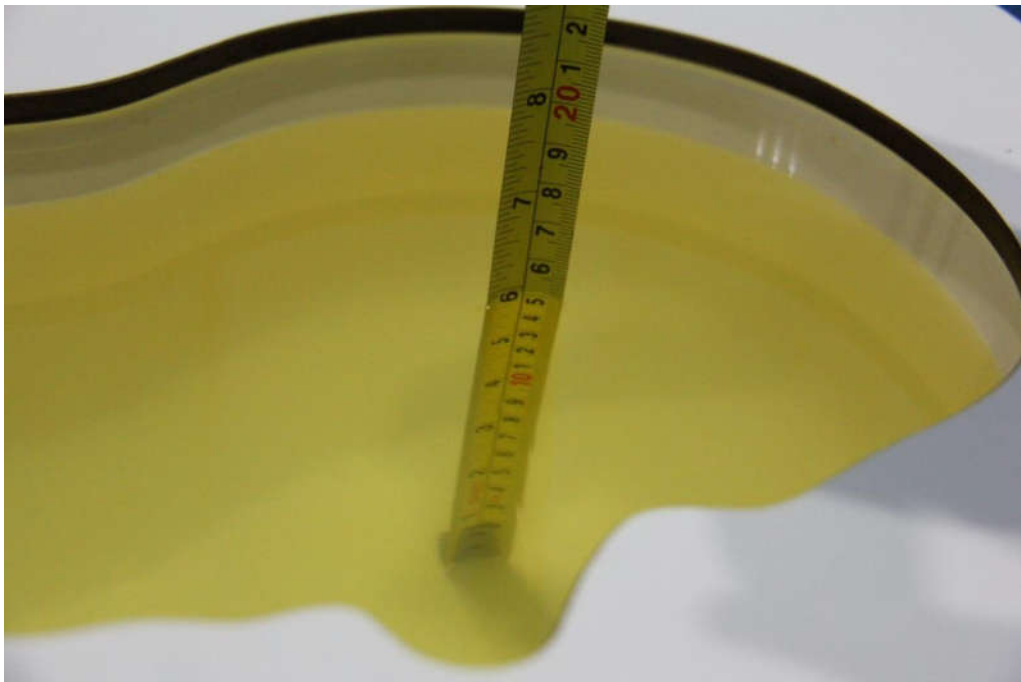
Note: The liquid temperature is 22.0°C.



**Picture 7-1: Liquid depth in the Head Phantom (750MHz)**



**Picture 7-2: Liquid depth in the Head Phantom (835MHz)**

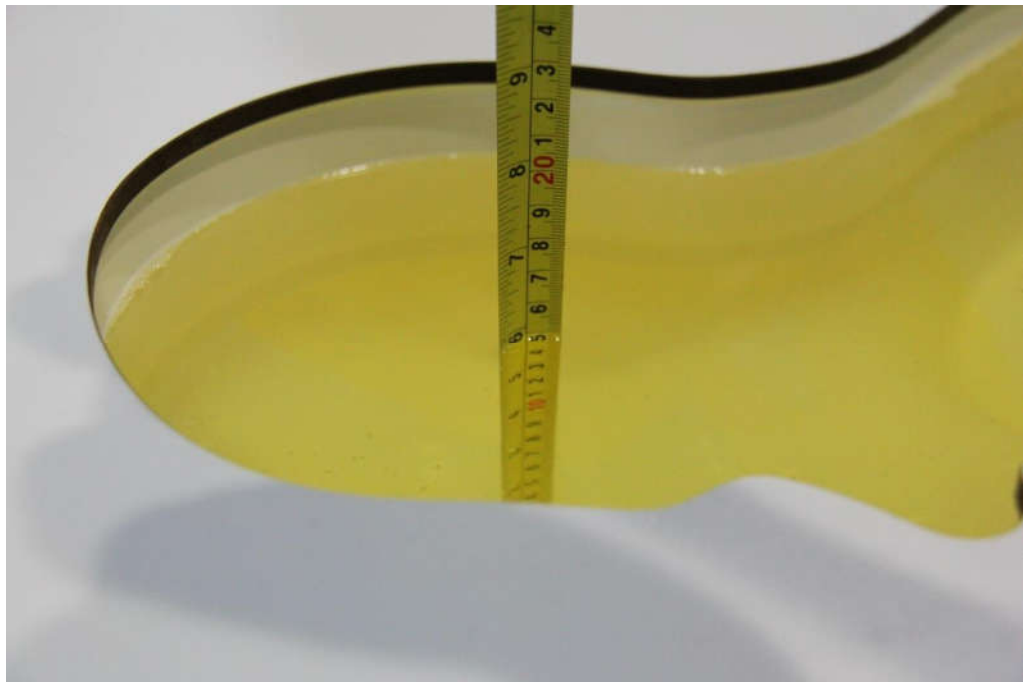


**Picture 7-3: Liquid depth in the Head Phantom (1750MHz)**



**Picture 7-4: Liquid depth in the Head Phantom (1900MHz)**





**Picture 7-5: Liquid depth in the Head Phantom(2450MHz)**



**Picture 7-6: Liquid depth in the Head Phantom(2550MHz)**

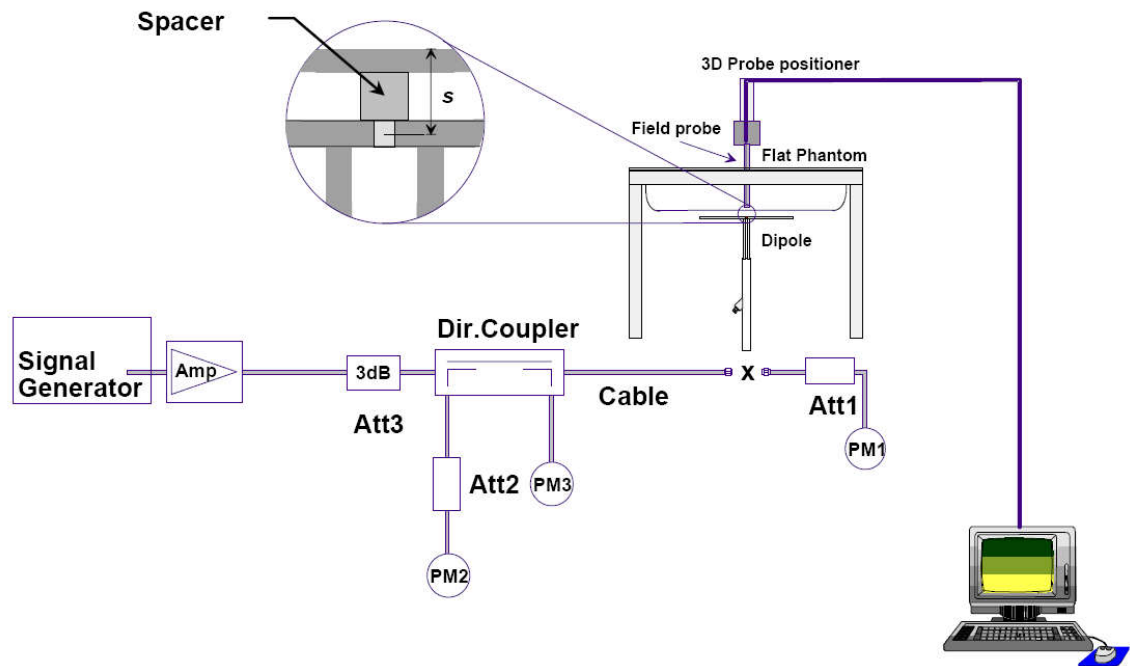


**Picture 7-7: Liquid depth in the Head Phantom(5GHz)**

## 8. System verification

### 8.1. System Setup

In the simplified setup for system evaluation, the DUT is replaced by a calibrated dipole and the power source is replaced by a continuous wave that comes from a signal generator. The calibrated dipole must be placed beneath the flat phantom section of the SAM twin phantom with the correct distance holder. The distance holder should touch the phantom surface with a light pressure at the reference marking and be oriented parallel to the long side of the phantom. The equipment setup is shown below:



**Picture 8.1 System Setup for System Evaluation**

For the dipole below 3GHz, the output power on dipole port must be calibrated to 24 dBm (250mW) before dipole is connected.

For the dipole above 3GHz, the output power on dipole port must be calibrated to 20 dBm (100mW) before dipole is connected.



Picture 8.2 Photo of Dipole Setup

## 8.2. System Verification

SAR system verification is required to confirm measurement accuracy, according to the tissue dielectric media, probe calibration points and other system operating parameters required for measuring the SAR of a test device. The system verification must be performed for each frequency band and within the valid range of each probe calibration point required for testing the device.

Table 8.1: System Verification of Head

| Measurement<br>Date | Frequency<br><br>(MHz) | Target value<br>(W/kg) |       | Measured value (W/kg) |      |                 |       | Deviation (%) |       |
|---------------------|------------------------|------------------------|-------|-----------------------|------|-----------------|-------|---------------|-------|
|                     |                        |                        |       | /                     |      | Normalize to 1W |       |               |       |
|                     |                        | 10 g                   | 1 g   | 10 g                  | 1 g  | 10 g            | 1 g   | 10 g          | 1 g   |
| 2022-08-23          | 750                    | 5.70                   | 8.53  | 1.45                  | 2.21 | 5.80            | 8.84  | 1.75          | 3.63  |
| 2022-09-01          | 835                    | 6.29                   | 9.64  | 1.61                  | 2.50 | 6.44            | 10.00 | 2.38          | 3.73  |
| 2022-08-24          | 1750                   | 19.30                  | 36.40 | 4.72                  | 8.74 | 18.88           | 34.96 | -2.18         | -3.96 |
| 2022-08-31          | 1900                   | 20.50                  | 40.20 | 5.25                  | 10.5 | 21.00           | 42.00 | 2.44          | 4.48  |
| 2022-08-21          | 2450                   | 24.20                  | 53.20 | 6.16                  | 13.8 | 24.64           | 55.20 | 1.82          | 3.76  |
| 2022-09-02          | 2550                   | 25.20                  | 55.90 | 6.20                  | 13.6 | 24.80           | 54.40 | -1.59         | -2.68 |
| 2022-08-19          | 2550                   | 22.30                  | 78.00 | 2.27                  | 8.07 | 22.70           | 80.70 | 1.79          | 3.46  |
| 2022-08-19          | 5250                   | 22.70                  | 79.50 | 2.33                  | 8.29 | 23.30           | 82.90 | 2.64          | 4.28  |
| 2022-08-19          | 5750                   | 22.20                  | 78.40 | 2.16                  | 7.50 | 21.60           | 75.00 | -2.70         | -4.34 |

## 9. Measurement Procedures

### 9.1. Tests to be performed

In order to determine the highest value of the peak spatial-average SAR of a handset, all device positions, configurations and operational modes shall be tested for each frequency band according to steps 1 to 3 below. A flowchart of the test process is shown in picture 9.1.

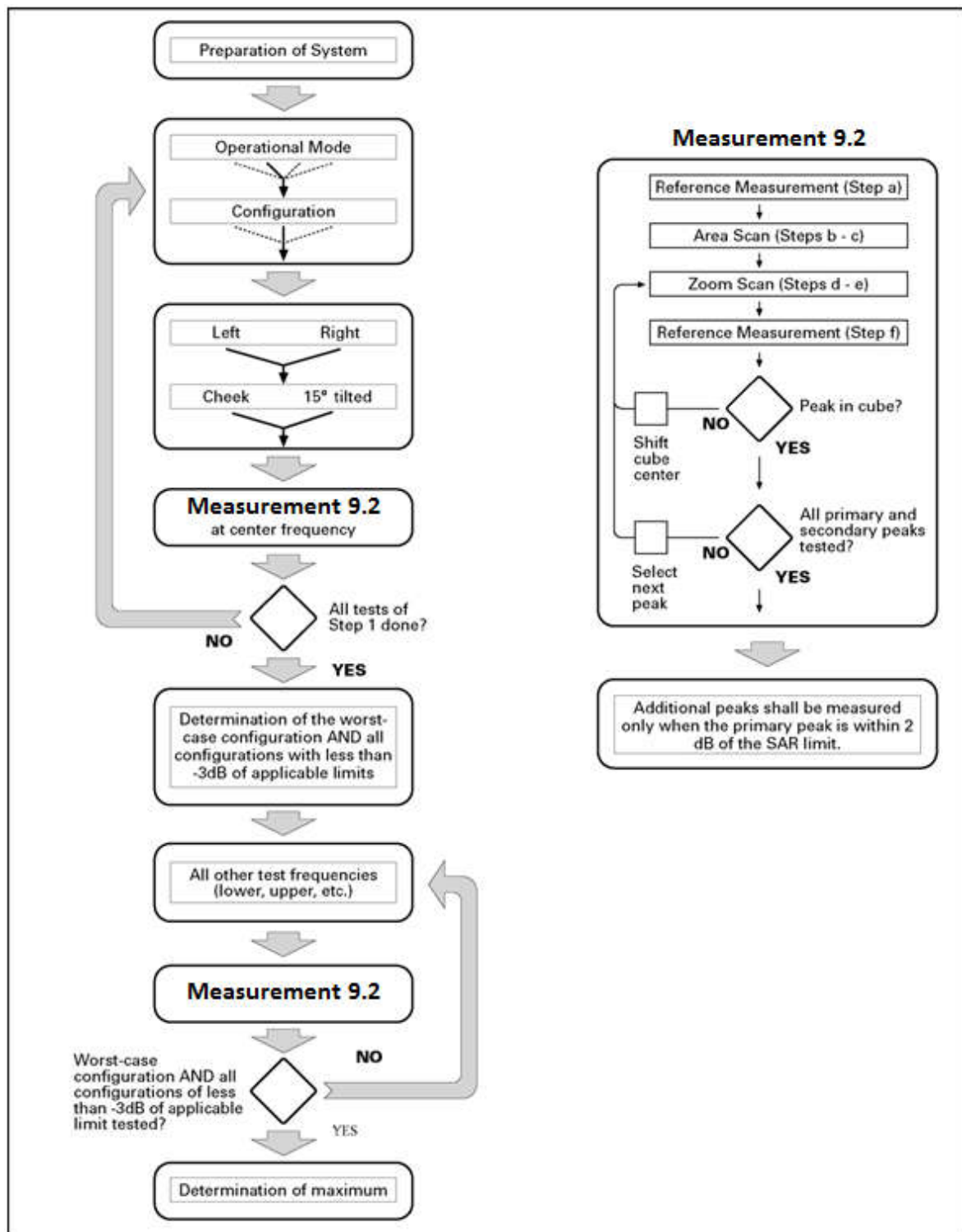
**Step 1:** The tests described in 9.2 shall be performed at the channel that is closest to the center of the transmit frequency band ( $f_c$ ) for:

- a) all device positions (cheek and tilt, for both left and right sides of the SAM phantom, as described in annex D),
- b) all configurations for each device position in a), e.g., antenna extended and retracted, and
- c) all operational modes, e.g., analogue and digital, for each device position in a) and configuration in b) in each frequency band.

If more than three frequencies need to be tested according to 11.1 (i.e.,  $N_c > 3$ ), then all frequencies, configurations and modes shall be tested for all of the above test conditions.

**Step 2:** For the condition providing highest peak spatial-average SAR determined in Step 1, perform all tests described in 9.2 at all other test frequencies, i.e., lowest and highest frequencies. In addition, for all other conditions (device position, configuration and operational mode) where the peak spatial-average SAR value determined in Step 1 is within 3 dB of the applicable SAR limit, it is recommended that all other test frequencies shall be tested as well.

**Step 3:** Examine all data to determine the highest value of the peak spatial-average SAR found in Steps 1 to 2.



Picture 9.1 Block diagram of the tests to be performed

## 9.2. General Measurement Procedure

The area and zoom scan resolutions specified in the table below must be applied to the SAR measurements and fully documented in SAR reports to qualify for TCB approval. Probe boundary effect error compensation is required for measurements with the probe tip closer than half a probe tip diameter to the phantom surface. Both the probe tip diameter and sensor offset distance must satisfy measurement protocols; to ensure probe boundary effect errors are minimized and the higher fields closest to the phantom surface can be correctly measured and extrapolated to the phantom surface for computing 1-g SAR. Tolerances of the post-processing algorithms must be verified by the test laboratory for the scan resolutions used in the SAR measurements, according to the reference distribution functions specified in IEEE Std 1528-2013. The results should be documented as part of the system validation records and may be requested to support test results when all the measurement parameters in the following table are not satisfied.

|                                                                                                                                                                                                                                                                                                                                    |                                    |                                                                                      | $\leq 3\text{ GHz}$                                                                                                                                                                                                                                                    | $> 3\text{ GHz}$                                                                                                        |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|--------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|
| Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface                                                                                                                                                                                                                             |                                    |                                                                                      | $5 \pm 1\text{ mm}$                                                                                                                                                                                                                                                    | $\frac{1}{2} \cdot \delta \cdot \ln(2) \pm 0.5\text{ mm}$                                                               |
| Maximum probe angle from probe axis to phantom surface normal at the measurement location                                                                                                                                                                                                                                          |                                    |                                                                                      | $30^\circ \pm 1^\circ$                                                                                                                                                                                                                                                 | $20^\circ \pm 1^\circ$                                                                                                  |
| Maximum area scan spatial resolution: $\Delta x_{Area}$ , $\Delta y_{Area}$                                                                                                                                                                                                                                                        |                                    |                                                                                      | $\leq 2\text{ GHz}: \leq 15\text{ mm}$<br>$2 - 3\text{ GHz}: \leq 12\text{ mm}$                                                                                                                                                                                        | $3 - 4\text{ GHz}: \leq 12\text{ mm}$<br>$4 - 6\text{ GHz}: \leq 10\text{ mm}$                                          |
|                                                                                                                                                                                                                                                                                                                                    |                                    |                                                                                      | When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be $\leq$ the corresponding x or y dimension of the test device with at least one measurement point on the test device. |                                                                                                                         |
| Maximum zoom scan spatial resolution: $\Delta x_{Zoom}$ , $\Delta y_{Zoom}$                                                                                                                                                                                                                                                        |                                    |                                                                                      | $\leq 2\text{ GHz}: \leq 8\text{ mm}$<br>$2 - 3\text{ GHz}: \leq 5\text{ mm}^*$                                                                                                                                                                                        | $3 - 4\text{ GHz}: \leq 5\text{ mm}^*$<br>$4 - 6\text{ GHz}: \leq 4\text{ mm}^*$                                        |
| Maximum zoom scan spatial resolution, normal to phantom surface                                                                                                                                                                                                                                                                    | uniform grid: $\Delta z_{Zoom}(n)$ |                                                                                      | $\leq 5\text{ mm}$                                                                                                                                                                                                                                                     | $3 - 4\text{ GHz}: \leq 4\text{ mm}$<br>$4 - 5\text{ GHz}: \leq 3\text{ mm}$<br>$5 - 6\text{ GHz}: \leq 2\text{ mm}$    |
|                                                                                                                                                                                                                                                                                                                                    | graded grid                        | $\Delta z_{Zoom}(1)$ : between 1 <sup>st</sup> two points closest to phantom surface | $\leq 4\text{ mm}$                                                                                                                                                                                                                                                     | $3 - 4\text{ GHz}: \leq 3\text{ mm}$<br>$4 - 5\text{ GHz}: \leq 2.5\text{ mm}$<br>$5 - 6\text{ GHz}: \leq 2\text{ mm}$  |
|                                                                                                                                                                                                                                                                                                                                    |                                    | $\Delta z_{Zoom}(n>1)$ : between subsequent points                                   | $\leq 1.5 \cdot \Delta z_{Zoom}(n-1)$                                                                                                                                                                                                                                  |                                                                                                                         |
| Minimum zoom scan volume                                                                                                                                                                                                                                                                                                           | x, y, z                            |                                                                                      | $\geq 30\text{ mm}$                                                                                                                                                                                                                                                    | $3 - 4\text{ GHz}: \geq 28\text{ mm}$<br>$4 - 5\text{ GHz}: \geq 25\text{ mm}$<br>$5 - 6\text{ GHz}: \geq 22\text{ mm}$ |
| Note: $\delta$ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see draft standard IEEE P1528-2011 for details.                                                                                                                                                                                  |                                    |                                                                                      |                                                                                                                                                                                                                                                                        |                                                                                                                         |
| * When zoom scan is required and the <u>reported</u> SAR from the area scan based 1-g SAR estimation procedures of KDB 447498 is $\leq 1.4\text{ W/kg}$ , $\leq 8\text{ mm}$ , $\leq 7\text{ mm}$ and $\leq 5\text{ mm}$ zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz. |                                    |                                                                                      |                                                                                                                                                                                                                                                                        |                                                                                                                         |



### 9.3. WCDMA Measurement Procedures for SAR

The following procedures are applicable to WCDMA handsets operating under 3GPP Release99, Release 5 and Release 6. The default test configuration is to measure SAR with an established radio link between the DUT and a communication test set using a 12.2kbps RMC (reference measurement channel) configured in Test Loop Mode 1. SAR is selectively confirmed for other physical channel configurations (DPCCH & DPDCH<sub>n</sub>), HSDPA and HSPA (HSUPA/HSDPA) modes according to output power, exposure conditions and device operating capabilities. Both uplink and downlink should be configured with the same RMC or AMR, when required. SAR for Release 5 HSDPA and Release 6 HSPA are measured using the applicable FRC (fixed reference channel) and E-DCH reference channel configurations. Maximum output power is verified according to applicable versions of 3GPP TS 34.121 and SAR must be measured according to these maximum output conditions. When Maximum Power Reduction (MPR) is not implemented according to Cubic Metric (CM) requirements for Release 6 HSPA, the following procedures do not apply.

#### For Release 5 HSDPA Data Devices:

| Sub-test | $\beta_c$ | $\beta_d$ | $\beta_d$ (SF) | $\beta_c / \beta_d$ | $\beta_{hs}$ | CM/dB |
|----------|-----------|-----------|----------------|---------------------|--------------|-------|
| 1        | 2/15      | 15/15     | 64             | 2/15                | 4/15         | 0.0   |
| 2        | 12/15     | 15/15     | 64             | 12/15               | 24/25        | 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   |

#### For Release 6 HSPA Data Devices

| Sub-test | $\beta_c$ | $\beta_d$ | $\beta_d$ (SF) | $\beta_c / \beta_d$ | $\beta_{hs}$ | $\beta_{ec}$ | $\beta_{ed}$                               | $\beta_{ed}$ (SF) | $\beta_{ed}$ (codes) | CM (dB) | MPR (dB) | AG Index | E-TFCI |
|----------|-----------|-----------|----------------|---------------------|--------------|--------------|--------------------------------------------|-------------------|----------------------|---------|----------|----------|--------|
| 1        | 11/15     | 15/15     | 64             | 11/15               | 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        | 12/15                                      | 4                 | 1                    | 3.0     | 2.0      | 12       | 67     |
| 3        | 15/15     | 9/15      | 64             | 15/9                | 30/15        | 30/15        | $\beta_{ed1}:47/15$<br>$\beta_{ed2}:47/15$ | 4                 | 2                    | 2.0     | 1.0      | 15       | 92     |
| 4        | 2/15      | 15/15     | 64             | 2/15                | 4/15         | 4/15         | 56/75                                      | 4                 | 1                    | 3.0     | 2.0      | 17       | 71     |
| 5        | 15/15     | 15/15     | 64             | 15/15               | 24/15        | 30/15        | 134/15                                     | 4                 | 1                    | 1.0     | 0.0      | 21       | 81     |



#### 9.4. SAR Measurement for LTE

SAR tests for LTE are performed with a base station simulator, Anristu MT8820C. Closed loop power control was used so the UE transmits with maximum output power during SAR testing. All powers were measured with the Anristu MT8820C. It is performed for conducted power and SAR based on the KDB941225 D05.

SAR is evaluated separately according to the following procedures for the different test positions in each exposure condition – head, body, body-worn accessories and other use conditions. The procedures in the following subsections are applied separately to test each LTE frequency band.

1) QPSK with 1 RB allocation

Start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power among RB offsets at the upper edge, middle and lower edge of each required test channel. When the reported SAR is  $\leq 0.8$  W/kg, testing of the remaining RB offset configurations and required test channels is not required for 1 RB allocation; otherwise, SAR is required for the remaining required test channels and only for the RB offset configuration with the highest output power for that channel. When the reported SAR of a required test channel is  $> 1.45$  W/kg, SAR is required for all three RB offset configurations for that required test channel.

2) QPSK with 50% RB allocation

The procedures required for 1 RB allocation in 1) are applied to measure the SAR for QPSK with 50% RB allocation.

3) QPSK with 100% RB allocation

For QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation in 1) and 2) are  $\leq 0.8$  W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is  $> 1.45$  W/kg, the remaining required test channels must also be tested.

#### 9.5. LTE (TDD) Considerations

According to KDB 941225 D05 SAR for LTE Devices, for Time-Division Duplex (TDD) systems, SAR must be tested using a fixed periodic duty factor according to the highest transmission duty factor implemented for the device and supported by the defined 3GPP LTE TDD configurations.

SAR was tested with the highest transmission duty factor (63.33%) using Uplink-downlink configuration 0 and Special subframe configuration 7.

LTE TDD Band 38 support 3GPP TS 36.211 section 4.2 for Type 2 Frame Structure and Table 4.2-2 for uplink-downlink configurations and Table 4.2-1 for Special subframe configurations.

| Special subframe configuration | Normal cyclic prefix in downlink |                                |                                  | Extended cyclic prefix in downlink |                                |                                  |
|--------------------------------|----------------------------------|--------------------------------|----------------------------------|------------------------------------|--------------------------------|----------------------------------|
|                                | DwPTS                            | UpPTS                          |                                  | DwPTS                              | UpPTS                          |                                  |
|                                |                                  | Normal cyclic prefix in uplink | Extended cyclic prefix in uplink |                                    | Normal cyclic prefix in uplink | Extended cyclic prefix in uplink |
| 0                              | $6592 \cdot T_s$                 | $2192 \cdot T_s$               | $2560 \cdot T_s$                 | $7680 \cdot T_s$                   | $2192 \cdot T_s$               | $2560 \cdot T_s$                 |
| 1                              | $19760 \cdot T_s$                |                                |                                  | $20480 \cdot T_s$                  |                                |                                  |
| 2                              | $21952 \cdot T_s$                |                                |                                  | $23040 \cdot T_s$                  |                                |                                  |
| 3                              | $24144 \cdot T_s$                |                                |                                  | $25600 \cdot T_s$                  |                                |                                  |
| 4                              | $26336 \cdot T_s$                |                                |                                  | $7680 \cdot T_s$                   |                                |                                  |
| 5                              | $6592 \cdot T_s$                 | $4384 \cdot T_s$               | $5120 \cdot T_s$                 | $20480 \cdot T_s$                  | $4384 \cdot T_s$               | $5120 \cdot T_s$                 |
| 6                              | $19760 \cdot T_s$                |                                |                                  | $23040 \cdot T_s$                  |                                |                                  |
| 7                              | $21952 \cdot T_s$                |                                |                                  | $12800 \cdot T_s$                  |                                |                                  |
| 8                              | $24144 \cdot T_s$                |                                |                                  | -                                  | -                              | -                                |
| 9                              | $13168 \cdot T_s$                |                                |                                  | -                                  | -                              | -                                |

Configuration of special subframe (lengths of DwPTS/GP/UpPTS)

| Uplink-Downlink Configuration | Downlink-to-Uplink Switch-point Periodicity | Subframe Number |   |   |   |   |   |   |   |   |   | Calculated Duty Cycle (%) |
|-------------------------------|---------------------------------------------|-----------------|---|---|---|---|---|---|---|---|---|---------------------------|
|                               |                                             | 0               | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |                           |
| 0                             | 5 ms                                        | D               | S | U | U | U | D | S | U | U | U | 63.33                     |
| 1                             | 5 ms                                        | D               | S | U | U | D | D | S | U | U | D | 43.33                     |
| 2                             | 5 ms                                        | D               | S | U | D | D | D | S | U | D | D | 23.33                     |
| 3                             | 10 ms                                       | D               | S | U | U | U | D | D | D | D | D | 31.67                     |
| 4                             | 10 ms                                       | D               | S | U | U | D | D | D | D | D | D | 21.67                     |
| 5                             | 10 ms                                       | D               | S | U | D | D | D | D | D | D | D | 11.67                     |
| 6                             | 5 ms                                        | D               | S | U | U | U | D | S | U | U | D | 53.33                     |

Calculated Duty Cycle

Calculated Duty Cycle = Extended cyclic prefix in uplink  $\times (T_s) \times \#$  of S +  $\#$  of U

Example for Calculated Duty Cycle for Uplink-Downlink Configuration 0:

Calculated Duty Cycle =  $5120 \times [1/(15000 \times 2048)] \times 2 + 6 \text{ ms} = 63.33\%$

Where

$T_s = 1/(15000 \times 2048)$  seconds

## **9.6. Bluetooth & WLAN Measurement Procedures for SAR**

Normal network operating configurations are not suitable for measuring the SAR of 802.11 transmitters in general. Unpredictable fluctuations in network traffic and antenna diversity conditions can introduce undesirable variations in SAR results. The SAR for these devices should be measured using chipset based test mode software to ensure that the results are consistent and reliable.

Chipset based test mode software is hardware dependent and generally varies among manufacturers. The device operating parameters established in a test mode for SAR measurements must be identical to those programmed in production units, including output power levels, amplifier gain settings and other RF performance tuning parameters. The test frequencies should correspond to actual channel frequencies defined for domestic use. SAR for devices with switched diversity should be measured with only one antenna transmitting at a time during each SAR measurement, according to a fixed modulation and data rate. The same data pattern should be used for all measurements.

## **9.7. Power Drift**

To control the output power stability during the SAR test, DASY5 system calculates the power drift by measuring the E-field at the same location at the beginning and at the end of the measurement for each test position. These drift values can be found in Section 14 labeled as: (Power Drift [dB]). This ensures that the power drift during one measurement is within 5%.

## 10. Conducted Output Power

**Table 10.1: Summary of power level - WWAN antenna**

| Receiver on<br>(Head) | Receiver off + Hotspot on/Hotspot off<br>(Body) |
|-----------------------|-------------------------------------------------|
| <b>Power Level A1</b> | <b>Power Level B1</b>                           |

### 10.1. GSM Measurement result

During the process of testing, the EUT was controlled via Agilent Digital Radio Communication tester (E5515C) to ensure the maximum power transmission and proper modulation. This result contains conducted output power for the EUT. In all cases, the measured peak output power should be greater and within 5% than EMI measurement.

**Table 10.2: The conducted power measurement results for GSM / GPRS/ EGPRS**

| <b>Power Level A1/B1</b> |                    |                      |              |              |             |                      |              |              |
|--------------------------|--------------------|----------------------|--------------|--------------|-------------|----------------------|--------------|--------------|
| GSM 850<br>Speech        | <b>Tune<br/>up</b> | Measured Power (dBm) |              |              | calculation | Averaged Power (dBm) |              |              |
|                          |                    | Ch.251               | Ch.190       | Ch.128       |             | Ch.251               | Ch.190       | Ch.128       |
| 1Tx slot                 | <b>34.0</b>        | <b>32.45</b>         | <b>32.41</b> | <b>32.46</b> | /           | /                    | /            | /            |
| GPRS850/<br>EGPRS850     | /                  | Measured Power (dBm) |              |              | calculation | Averaged Power (dBm) |              |              |
|                          |                    | Ch.251               | Ch.190       | Ch.128       |             | Ch.251               | Ch.190       | Ch.128       |
| 1Tx-slots                | <b>34.0</b>        | 32.37                | 32.36        | 32.36        | -9.03dB     | 23.34                | 23.33        | 23.33        |
| 2Tx-slots                | <b>32.5</b>        | 31.65                | 31.60        | 31.74        | -6.02dB     | 25.63                | 25.58        | 25.72        |
| 3Tx-slots                | <b>30.5</b>        | 29.85                | 29.93        | 30.08        | -4.26dB     | 25.59                | 25.67        | 25.82        |
| <b>4Tx-slots</b>         | <b>29.5</b>        | 28.67                | <b>28.70</b> | 28.80        | -3.01dB     | <b>25.66</b>         | <b>25.69</b> | <b>25.79</b> |
| EGPRS 850<br>(8PSK)      | /                  | Measured Power (dBm) |              |              | calculation | Averaged Power (dBm) |              |              |
|                          |                    | Ch.251               | Ch.190       | Ch.128       |             | Ch.251               | Ch.190       | Ch.128       |
| 1Tx-slots                | <b>28.5</b>        | 27.12                | 27.37        | 27.65        | -9.03dB     | 18.09                | 18.34        | 18.62        |
| 2Tx-slots                | <b>27.5</b>        | 26.01                | 26.25        | 26.73        | -6.02dB     | 19.99                | 20.23        | 20.71        |
| 3Tx-slots                | <b>25.5</b>        | 23.83                | 24.28        | 24.62        | -4.26dB     | 19.57                | 20.02        | 20.36        |
| 4Tx-slots                | <b>24.5</b>        | 22.85                | 23.23        | 23.75        | -3.01dB     | 19.84                | 20.22        | 20.74        |

| Power Level A1         |            |                      |        |        |             |                      |        |        |
|------------------------|------------|----------------------|--------|--------|-------------|----------------------|--------|--------|
| GSM 1900<br>Speech     | Tune<br>up | Measured Power (dBm) |        |        | calculation | Averaged Power (dBm) |        |        |
|                        |            | Ch.810               | Ch.661 | Ch.512 |             | Ch.810               | Ch.661 | Ch.512 |
| 1Tx slot               | 31.0       | 29.71                | 29.79  | 29.88  | /           | /                    | /      | /      |
| GPRS1900/<br>EGPRS1900 | /          | Measured Power (dBm) |        |        | calculation | Averaged Power (dBm) |        |        |
|                        |            | Ch.810               | Ch.661 | Ch.512 |             | Ch.810               | Ch.661 | Ch.512 |
| 1Tx-slots              | 31.0       | 29.62                | 29.73  | 29.89  | -9.03dB     | 20.59                | 20.70  | 20.86  |
| 2Tx-slots              | 30.0       | 28.81                | 29.06  | 29.00  | -6.02dB     | 22.79                | 23.04  | 22.98  |
| 3Tx-slots              | 28.5       | 26.97                | 27.39  | 27.74  | -4.26dB     | 22.71                | 23.13  | 23.48  |
| 4Tx-slots              | 27.0       | 25.83                | 26.24  | 26.36  | -3.01dB     | 22.82                | 23.23  | 23.35  |
| EGPRS1900<br>(8PSK)    | /          | Measured Power (dBm) |        |        | calculation | Averaged Power (dBm) |        |        |
|                        |            | Ch.810               | Ch.661 | Ch.512 |             | Ch.810               | Ch.661 | Ch.512 |
| 1Tx-slots              | 27.0       | 25.98                | 25.99  | 26.32  | -9.03dB     | 16.95                | 16.96  | 17.29  |
| 2Tx-slots              | 26.0       | 24.93                | 25.03  | 25.46  | -6.02dB     | 18.91                | 19.01  | 19.44  |
| 3Tx-slots              | 24.0       | 23.15                | 23.15  | 23.58  | -4.26dB     | 18.89                | 18.89  | 21.32  |
| 4Tx-slots              | 23.0       | 22.16                | 22.19  | 22.59  | -3.01dB     | 19.15                | 19.18  | 19.58  |
| Power Level B1         |            |                      |        |        |             |                      |        |        |
| GSM 1900<br>Speech     | Tune<br>up | Measured Power (dBm) |        |        | calculation | Averaged Power (dBm) |        |        |
|                        |            | Ch.810               | Ch.661 | Ch.512 |             | Ch.810               | Ch.661 | Ch.512 |
| 1Tx slot               | 31.5       | 30.29                | 30.33  | 30.46  | /           | /                    | /      | /      |
| GPRS1900/<br>EGPRS1900 | /          | Measured Power (dBm) |        |        | calculation | Averaged Power (dBm) |        |        |
|                        |            | Ch.810               | Ch.661 | Ch.512 |             | Ch.810               | Ch.661 | Ch.512 |
| 1Tx-slots              | 31.5       | 30.27                | 30.30  | 30.42  | -9.03dB     | 21.24                | 21.27  | 21.39  |
| 2Tx-slots              | 28.0       | 27.03                | 27.27  | 27.29  | -6.02dB     | 21.01                | 21.25  | 21.27  |
| 3Tx-slots              | 26.5       | 25.07                | 25.47  | 25.61  | -4.26dB     | 20.81                | 21.21  | 21.35  |
| 4Tx-slots              | 25.0       | 23.74                | 24.16  | 24.33  | -3.01dB     | 20.73                | 21.15  | 21.32  |
| EGPRS1900<br>(8PSK)    | /          | Measured Power (dBm) |        |        | calculation | Averaged Power (dBm) |        |        |
|                        |            | Ch.810               | Ch.661 | Ch.512 |             | Ch.810               | Ch.661 | Ch.512 |
| 1Tx-slots              | 27.0       | 26.01                | 25.98  | 26.39  | -9.03dB     | 16.98                | 16.95  | 17.36  |
| 2Tx-slots              | 24.0       | 23.23                | 23.26  | 23.61  | -6.02dB     | 17.21                | 17.24  | 17.59  |
| 3Tx-slots              | 22.0       | 21.31                | 21.28  | 21.73  | -4.26dB     | 17.05                | 17.02  | 17.47  |
| 4Tx-slots              | 21.0       | 20.27                | 20.13  | 20.49  | -3.01dB     | 17.26                | 17.12  | 17.48  |

Notes:

1) Division Factors

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

1TX-slot = 1 transmit time slot out of 8 time slots=> conducted power divided by (8/1) => -9.03dB

2TX-slots = 2 transmit time slots out of 8 time slots=> conducted power divided by (8/2) => -6.02dB

3TX-slots = 3 transmit time slots out of 8 time slots=> conducted power divided by (8/3) => -4.26dB

4TX-slots = 4 transmit time slots out of 8 time slots=> conducted power divided by (8/4) => -3.01dB

**According to the conducted power as above, the body measurements are performed with 4Tx slots for GSM850 and 1Tx slot GSM1900.**

## 10.2. WCDMA Measurement result

Table 10.3: The conducted power measurement results WCDMA

| Power Level A1 |       |              |                        |                      |                        |
|----------------|-------|--------------|------------------------|----------------------|------------------------|
| Item           | band  | WCDMA Band 2 |                        |                      |                        |
|                | ARFCN | Tune up      | Ch.9538<br>(1907.6MHz) | Ch.9400<br>(1880MHz) | Ch.9262<br>(1852.4MHz) |
| WCDMA          | \     | 23.5         | 23.10                  | 23.00                | 23.00                  |
| HSUPA          | 1     | 21.5         | 20.60                  | 20.60                | 20.70                  |
|                | 2     | 21.0         | 20.10                  | 20.10                | 20.10                  |
|                | 3     | 22.0         | 21.00                  | 21.00                | 21.10                  |
|                | 4     | 20.5         | 19.60                  | 19.60                | 19.70                  |
|                | 5     | 22.0         | 21.00                  | 21.10                | 21.00                  |
| HSDPA          | 1     | 23.0         | 22.10                  | 22.10                | 22.20                  |
|                | 2     | 23.0         | 22.00                  | 22.10                | 22.10                  |
|                | 3     | 22.5         | 21.50                  | 21.60                | 21.60                  |
|                | 4     | 22.5         | 21.50                  | 21.60                | 21.50                  |
| DC-HSDPA       | 1     | 23.0         | 22.10                  | 22.10                | 22.10                  |
|                | 2     | 23.0         | 21.90                  | 22.00                | 22.10                  |
|                | 3     | 22.5         | 21.60                  | 21.60                | 21.60                  |
|                | 4     | 22.5         | 21.40                  | 21.60                | 21.50                  |
| Power Level B1 |       |              |                        |                      |                        |
| Item           | band  | WCDMA Band 2 |                        |                      |                        |
|                | ARFCN | Tune up      | Ch.9538<br>(1907.6MHz) | Ch.9400<br>(1880MHz) | Ch.9262<br>(1852.4MHz) |
| WCDMA          | \     | 22.5         | 22.20                  | 22.20                | 22.20                  |
| HSUPA          | 1     | 20.5         | 19.80                  | 19.80                | 19.80                  |
|                | 2     | 20.0         | 19.20                  | 19.30                | 19.20                  |
|                | 3     | 21.0         | 20.20                  | 20.20                | 20.30                  |
|                | 4     | 19.5         | 18.70                  | 18.80                | 18.80                  |
|                | 5     | 21.0         | 20.20                  | 20.30                | 20.20                  |
| HSDPA          | 1     | 22.0         | 21.20                  | 21.30                | 21.20                  |
|                | 2     | 22.0         | 21.20                  | 21.20                | 21.20                  |
|                | 3     | 21.5         | 20.70                  | 20.70                | 20.70                  |
|                | 4     | 21.5         | 20.70                  | 20.70                | 20.70                  |
| DC-HSDPA       | 1     | 22.0         | 21.10                  | 21.20                | 21.20                  |
|                | 2     | 22.0         | 21.10                  | 21.20                | 21.30                  |
|                | 3     | 21.5         | 20.60                  | 20.70                | 20.70                  |
|                | 4     | 21.5         | 20.50                  | 20.70                | 20.60                  |

| Power Level A1 |       |              |                        |                        |                        |
|----------------|-------|--------------|------------------------|------------------------|------------------------|
| Item           | band  | WCDMA Band 4 |                        |                        |                        |
|                | ARFCN | Tune up      | Ch.1513<br>(1752.6MHz) | Ch.1413<br>(1732.6MHz) | Ch.1312<br>(1712.4MHz) |
| WCDMA          | \     | 23.5         | 23.00                  | 23.10                  | 23.10                  |
| HSUPA          | 1     | 21.5         | 20.60                  | 20.60                  | 20.60                  |
|                | 2     | 21.0         | 20.10                  | 20.20                  | 20.10                  |
|                | 3     | 22.0         | 21.10                  | 21.20                  | 21.10                  |
|                | 4     | 20.5         | 19.60                  | 19.70                  | 19.70                  |
|                | 5     | 22.0         | 21.00                  | 21.10                  | 21.20                  |
| HSDPA          | 1     | 23.0         | 22.00                  | 22.10                  | 22.10                  |
|                | 2     | 23.0         | 22.00                  | 22.10                  | 22.10                  |
|                | 3     | 22.5         | 21.60                  | 21.60                  | 21.60                  |
|                | 4     | 22.5         | 21.50                  | 21.60                  | 21.60                  |
| DC-HSDPA       | 1     | 23.0         | 22.00                  | 22.00                  | 22.00                  |
|                | 2     | 23.0         | 21.90                  | 22.00                  | 22.10                  |
|                | 3     | 22.5         | 21.40                  | 21.50                  | 21.60                  |
|                | 4     | 22.5         | 21.50                  | 21.50                  | 21.60                  |
| Power Level B1 |       |              |                        |                        |                        |
| Item           | band  | WCDMA Band 4 |                        |                        |                        |
|                | ARFCN | Tune up      | Ch.1513<br>(1752.6MHz) | Ch.1413<br>(1732.6MHz) | Ch.1312<br>(1712.4MHz) |
| WCDMA          | \     | 22.5         | 21.40                  | 21.50                  | 21.50                  |
| HSUPA          | 1     | 20.5         | 19.80                  | 19.90                  | 20.00                  |
|                | 2     | 20.0         | 19.40                  | 19.50                  | 19.50                  |
|                | 3     | 21.0         | 20.40                  | 20.30                  | 20.40                  |
|                | 4     | 19.5         | 18.90                  | 18.90                  | 19.00                  |
|                | 5     | 21.0         | 20.30                  | 20.50                  | 20.30                  |
| HSDPA          | 1     | 22.0         | 21.40                  | 21.40                  | 21.50                  |
|                | 2     | 22.0         | 21.30                  | 21.40                  | 21.50                  |
|                | 3     | 21.5         | 20.80                  | 20.90                  | 21.00                  |
|                | 4     | 21.5         | 20.80                  | 20.80                  | 21.00                  |
| DC-HSDPA       | 1     | 22.0         | 21.40                  | 21.40                  | 21.40                  |
|                | 2     | 22.0         | 21.20                  | 21.30                  | 21.30                  |
|                | 3     | 21.5         | 20.90                  | 20.90                  | 20.90                  |
|                | 4     | 21.5         | 20.80                  | 20.90                  | 21.00                  |

| Power Level A1/B1 |       |              |                       |                       |                       |
|-------------------|-------|--------------|-----------------------|-----------------------|-----------------------|
| Item              | band  | WCDMA Band 5 |                       |                       |                       |
|                   | ARFCN | Tune up      | Ch.4233<br>(846.6MHz) | Ch.4183<br>(836.6MHz) | Ch.4132<br>(826.4MHz) |
| WCDMA             | \     | 24.0         | 23.30                 | 23.30                 | 23.30                 |
| HSUPA             | 1     | 21.5         | 20.80                 | 20.80                 | 20.80                 |
|                   | 2     | 21.0         | 20.20                 | 20.30                 | 20.30                 |
|                   | 3     | 22.0         | 21.30                 | 21.30                 | 21.30                 |
|                   | 4     | 20.5         | 19.80                 | 19.90                 | 19.80                 |
|                   | 5     | 22.0         | 21.20                 | 21.30                 | 21.30                 |
| HSDPA             | 1     | 23.0         | 22.30                 | 22.40                 | 22.40                 |
|                   | 2     | 23.0         | 22.30                 | 22.30                 | 22.30                 |
|                   | 3     | 22.5         | 21.80                 | 21.80                 | 21.80                 |
|                   | 4     | 22.5         | 21.80                 | 21.90                 | 21.80                 |
| DC-HSDPA          | 1     | 23.0         | 22.20                 | 22.30                 | 22.40                 |
|                   | 2     | 23.0         | 22.10                 | 22.20                 | 22.20                 |
|                   | 3     | 22.5         | 21.80                 | 21.80                 | 21.80                 |
|                   | 4     | 22.5         | 21.70                 | 21.90                 | 21.80                 |



### 10.3. LTE Measurement result

According to April 2015 TCB workshop, SAR Test exclusion can be applied for testing overlapping LTE Bands as follows:

- The maximum out power, including tolerance, for the smaller band must be  $\leq$  the larger band to qualify for SAR test exclusion.
- The channel bandwidth and other operating parameters for the smaller band must be fully supported by the larger band.

LTE Band 4 (1710-1755MHz) is covered by LTE Band 66 (1710-1780MHz)

LTE Band 17 (704-716MHz) is covered by LTE Band 12 (699-716MHz)

**Table 10.4: The conducted Power for LTE**

| Power Level A1 |                    |                 |                           |       |       |            |       |       |
|----------------|--------------------|-----------------|---------------------------|-------|-------|------------|-------|-------|
| LTE Band 2     |                    |                 | Actual output Power (dBm) |       |       | Tune up    |       |       |
| Band -width    | RB No. / RB offset | Frequency (MHz) | Modulation                |       |       | Modulation |       |       |
|                |                    |                 | QPSK                      | 16QAM | 64QAM | QPSK       | 16QAM | 64QAM |
| 1.4 MHz        | 1RB_5              | 1909.3          | 22.24                     | 21.57 | /     | 23.5       | 22.5  | /     |
|                |                    | 1880.0          | 22.16                     | 21.48 | /     |            |       |       |
|                |                    | 1850.7          | 22.20                     | 21.60 | /     |            |       |       |
|                | 1RB_3              | 1909.3          | 22.40                     | 21.65 | /     |            |       |       |
|                |                    | 1880.0          | 22.28                     | 21.63 | /     |            |       |       |
|                |                    | 1850.7          | 22.30                     | 21.70 | /     |            |       |       |
|                | 1RB_0              | 1909.3          | 22.26                     | 21.56 | /     |            |       |       |
|                |                    | 1880.0          | 22.19                     | 21.55 | /     |            |       |       |
|                |                    | 1850.7          | 22.20                     | 21.62 | /     |            |       |       |
|                | 3RB_3              | 1909.3          | 22.36                     | 21.38 | /     |            |       |       |
|                |                    | 1880.0          | 22.25                     | 21.38 | /     |            |       |       |
|                |                    | 1850.7          | 22.28                     | 21.36 | /     |            |       |       |
|                | 3RB_1              | 1909.3          | 22.42                     | 21.45 | /     |            |       |       |
|                |                    | 1880.0          | 22.36                     | 21.46 | /     |            |       |       |
|                |                    | 1850.7          | 22.37                     | 21.38 | /     |            |       |       |
|                | 3RB_0              | 1909.3          | 22.38                     | 21.40 | /     |            |       |       |
|                |                    | 1880.0          | 22.26                     | 21.35 | /     |            |       |       |
|                |                    | 1850.7          | 22.31                     | 21.35 | /     |            |       |       |
|                | 6RB_0              | 1909.3          | 21.43                     | 20.54 | /     | 22.5       | 21.5  | /     |
|                |                    | 1880.0          | 21.31                     | 20.41 | /     |            |       |       |
|                |                    | 1850.7          | 21.37                     | 20.42 | /     |            |       |       |

| Power Level A1 |                       |                    |                           |       |       |            |       |       |
|----------------|-----------------------|--------------------|---------------------------|-------|-------|------------|-------|-------|
| LTE Band 2     |                       |                    | Actual output Power (dBm) |       |       | Tune up    |       |       |
| Band<br>-width | RB No. /<br>RB offset | Frequency<br>(MHz) | Modulation                |       |       | Modulation |       |       |
|                |                       |                    | QPSK                      | 16QAM | 64QAM | QPSK       | 16QAM | 64QAM |
| 3 MHz          | 1RB_14                | 1908.5             | 22.28                     | 21.56 | /     | 23.5       | 22.5  | /     |
|                |                       | 1880.0             | 22.22                     | 21.59 | /     |            |       |       |
|                |                       | 1851.5             | 22.27                     | 21.66 | /     |            |       |       |
|                | 1RB_7                 | 1908.5             | 22.52                     | 21.72 | /     |            |       |       |
|                |                       | 1880.0             | 22.44                     | 21.77 | /     |            |       |       |
|                |                       | 1851.5             | 22.39                     | 21.79 | /     |            |       |       |
|                | 1RB_0                 | 1908.5             | 22.27                     | 21.60 | /     |            |       |       |
|                |                       | 1880.0             | 22.21                     | 21.62 | /     |            |       |       |
|                |                       | 1851.5             | 22.21                     | 21.67 | /     |            |       |       |
|                | 8RB_7                 | 1908.5             | 21.31                     | 20.31 | /     | 22.5       | 21.5  | /     |
|                |                       | 1880.0             | 21.29                     | 20.33 | /     |            |       |       |
|                |                       | 1851.5             | 21.31                     | 20.36 | /     |            |       |       |
|                | 8RB_4                 | 1908.5             | 21.36                     | 20.38 | /     |            |       |       |
|                |                       | 1880.0             | 21.32                     | 20.38 | /     |            |       |       |
|                |                       | 1851.5             | 21.33                     | 20.42 | /     |            |       |       |
|                | 8RB_0                 | 1908.5             | 21.39                     | 20.40 | /     |            |       |       |
|                |                       | 1880.0             | 21.27                     | 20.36 | /     |            |       |       |
|                |                       | 1851.5             | 21.35                     | 20.41 | /     |            |       |       |
|                | 15RB_0                | 1908.5             | 21.35                     | 20.35 | /     |            |       |       |
|                |                       | 1880.0             | 21.29                     | 20.29 | /     |            |       |       |
|                |                       | 1851.5             | 21.31                     | 20.35 | /     |            |       |       |

| Power Level A1 |                       |                    |                           |       |       |            |       |       |
|----------------|-----------------------|--------------------|---------------------------|-------|-------|------------|-------|-------|
| LTE Band 2     |                       |                    | Actual output Power (dBm) |       |       | Tune up    |       |       |
| Band<br>-width | RB No. /<br>RB offset | Frequency<br>(MHz) | Modulation                |       |       | Modulation |       |       |
|                |                       |                    | QPSK                      | 16QAM | 64QAM | QPSK       | 16QAM | 64QAM |
| 5 MHz          | 1RB_24                | 1907.5             | 22.16                     | 21.49 | /     | 23.5       | 22.5  | /     |
|                |                       | 1880.0             | 22.09                     | 21.63 | /     |            |       |       |
|                |                       | 1852.5             | 22.14                     | 21.55 | /     |            |       |       |
|                | 1RB_12                | 1907.5             | 22.46                     | 21.81 | /     |            |       |       |
|                |                       | 1880.0             | 22.36                     | 21.75 | /     |            |       |       |
|                |                       | 1852.5             | 22.44                     | 21.85 | /     |            |       |       |
|                | 1RB_0                 | 1907.5             | 22.14                     | 21.58 | /     |            |       |       |
|                |                       | 1880.0             | 22.12                     | 21.51 | /     |            |       |       |
|                |                       | 1852.5             | 22.14                     | 21.56 | /     |            |       |       |
|                | 12RB_13               | 1907.5             | 21.24                     | 20.22 | /     | 22.5       | 21.5  | /     |
|                |                       | 1880.0             | 21.38                     | 20.31 | /     |            |       |       |
|                |                       | 1852.5             | 21.28                     | 20.33 | /     |            |       |       |
|                | 12RB_6                | 1907.5             | 21.41                     | 20.39 | /     |            |       |       |
|                |                       | 1880.0             | 21.34                     | 20.33 | /     |            |       |       |
|                |                       | 1852.5             | 21.38                     | 20.38 | /     |            |       |       |
|                | 12RB_0                | 1907.5             | 21.35                     | 20.32 | /     |            |       |       |
|                |                       | 1880.0             | 21.26                     | 20.30 | /     |            |       |       |
|                |                       | 1852.5             | 21.34                     | 20.32 | /     |            |       |       |
|                | 25RB_0                | 1907.5             | 21.32                     | 20.30 | /     |            |       |       |
|                |                       | 1880.0             | 21.32                     | 20.36 | /     |            |       |       |
|                |                       | 1852.5             | 21.31                     | 20.31 | /     |            |       |       |

| Power Level A1 |                       |                    |                           |       |       |            |       |       |
|----------------|-----------------------|--------------------|---------------------------|-------|-------|------------|-------|-------|
| LTE Band 2     |                       |                    | Actual output Power (dBm) |       |       | Tune up    |       |       |
| Band<br>-width | RB No. /<br>RB offset | Frequency<br>(MHz) | Modulation                |       |       | Modulation |       |       |
|                |                       |                    | QPSK                      | 16QAM | 64QAM | QPSK       | 16QAM | 64QAM |
| 10 MHz         | 1RB_49                | 1905.0             | 22.21                     | 21.53 | /     | 23.5       | 22.5  | /     |
|                |                       | 1880.0             | 22.18                     | 21.48 | /     |            |       |       |
|                |                       | 1855.0             | 22.21                     | 21.54 | /     |            |       |       |
|                | 1RB_24                | 1905.0             | 22.36                     | 21.70 | /     |            |       |       |
|                |                       | 1880.0             | 22.30                     | 21.64 | /     |            |       |       |
|                |                       | 1855.0             | 22.40                     | 21.70 | /     |            |       |       |
|                | 1RB_0                 | 1905.0             | 22.20                     | 21.59 | /     |            |       |       |
|                |                       | 1880.0             | 22.18                     | 21.55 | /     |            |       |       |
|                |                       | 1855.0             | 22.25                     | 21.59 | /     |            |       |       |
|                | 25RB_25               | 1905.0             | 21.33                     | 20.33 | /     | 22.5       | 21.5  | /     |
|                |                       | 1880.0             | 21.39                     | 20.44 | /     |            |       |       |
|                |                       | 1855.0             | 21.29                     | 20.34 | /     |            |       |       |
|                | 25RB_12               | 1905.0             | 21.37                     | 20.37 | /     |            |       |       |
|                |                       | 1880.0             | 21.32                     | 20.36 | /     |            |       |       |
|                |                       | 1855.0             | 21.38                     | 20.38 | /     |            |       |       |
|                | 25RB_0                | 1905.0             | 21.30                     | 20.32 | /     |            |       |       |
|                |                       | 1880.0             | 21.26                     | 20.33 | /     |            |       |       |
|                |                       | 1855.0             | 21.43                     | 20.40 | /     |            |       |       |
|                | 50RB_0                | 1905.0             | 21.29                     | 20.29 | /     |            |       |       |
|                |                       | 1880.0             | 21.37                     | 20.37 | /     |            |       |       |
|                |                       | 1855.0             | 21.40                     | 20.40 | /     |            |       |       |

| Power Level A1 |                       |                    |                           |       |       |            |       |       |
|----------------|-----------------------|--------------------|---------------------------|-------|-------|------------|-------|-------|
| LTE Band 2     |                       |                    | Actual output Power (dBm) |       |       | Tune up    |       |       |
| Band<br>-width | RB No. /<br>RB offset | Frequency<br>(MHz) | Modulation                |       |       | Modulation |       |       |
|                |                       |                    | QPSK                      | 16QAM | 64QAM | QPSK       | 16QAM | 64QAM |
| 15 MHz         | 1RB_74                | 1902.5             | 22.15                     | 21.50 | /     | 23.5       | 22.5  | /     |
|                |                       | 1880.0             | 22.14                     | 21.51 | /     |            |       |       |
|                |                       | 1857.5             | 22.16                     | 21.53 | /     |            |       |       |
|                | 1RB_37                | 1902.5             | 22.23                     | 21.59 | /     |            |       |       |
|                |                       | 1880.0             | 22.21                     | 21.59 | /     |            |       |       |
|                |                       | 1857.5             | 22.27                     | 21.66 | /     |            |       |       |
|                | 1RB_0                 | 1902.5             | 22.14                     | 21.54 | /     |            |       |       |
|                |                       | 1880.0             | 22.22                     | 21.46 | /     |            |       |       |
|                |                       | 1857.5             | 22.20                     | 21.52 | /     |            |       |       |
|                | 36RB_38               | 1902.5             | 21.38                     | 20.41 | /     | 22.5       | 21.5  | /     |
|                |                       | 1880.0             | 21.36                     | 20.36 | /     |            |       |       |
|                |                       | 1857.5             | 21.31                     | 20.30 | /     |            |       |       |
|                | 36RB_19               | 1902.5             | 21.40                     | 20.38 | /     |            |       |       |
|                |                       | 1880.0             | 21.37                     | 20.36 | /     |            |       |       |
|                |                       | 1857.5             | 21.37                     | 20.37 | /     |            |       |       |
|                | 36RB_0                | 1902.5             | 21.35                     | 20.37 | /     |            |       |       |
|                |                       | 1880.0             | 21.27                     | 20.28 | /     |            |       |       |
|                |                       | 1857.5             | 21.39                     | 20.43 | /     |            |       |       |
|                | 75RB_0                | 1902.5             | 21.38                     | 20.37 | /     |            |       |       |
|                |                       | 1880.0             | 21.35                     | 20.34 | /     |            |       |       |
|                |                       | 1857.5             | 21.41                     | 20.39 | /     |            |       |       |

| Power Level A1 |                       |                    |                           |       |       |            |       |       |
|----------------|-----------------------|--------------------|---------------------------|-------|-------|------------|-------|-------|
| LTE Band 2     |                       |                    | Actual output Power (dBm) |       |       | Tune up    |       |       |
| Band<br>-width | RB No. /<br>RB offset | Frequency<br>(MHz) | Modulation                |       |       | Modulation |       |       |
|                |                       |                    | QPSK                      | 16QAM | 64QAM | QPSK       | 16QAM | 64QAM |
| 20 MHz         | 1RB_99                | 1900.0             | 22.50                     | 21.37 | /     | 23.5       | 22.5  | /     |
|                |                       | 1880.0             | 21.92                     | 21.29 | /     |            |       |       |
|                |                       | 1860.0             | 21.93                     | 21.39 | /     |            |       |       |
|                | 1RB_50                | 1900.0             | 22.75                     | 21.71 | /     |            |       |       |
|                |                       | 1880.0             | 22.37                     | 21.62 | /     |            |       |       |
|                |                       | 1860.0             | 22.29                     | 21.75 | /     |            |       |       |
|                | 1RB_0                 | 1900.0             | 22.50                     | 21.30 | /     |            |       |       |
|                |                       | 1880.0             | 21.99                     | 21.42 | /     |            |       |       |
|                |                       | 1860.0             | 22.02                     | 21.40 | /     |            |       |       |
|                | 50RB_50               | 1900.0             | 21.95                     | 20.47 | /     | 22.5       | 21.5  | /     |
|                |                       | 1880.0             | 21.28                     | 20.30 | /     |            |       |       |
|                |                       | 1860.0             | 21.22                     | 20.25 | /     |            |       |       |
|                | 50RB_25               | 1900.0             | 21.86                     | 20.37 | /     |            |       |       |
|                |                       | 1880.0             | 21.62                     | 20.36 | /     |            |       |       |
|                |                       | 1860.0             | 21.29                     | 20.34 | /     |            |       |       |
|                | 50RB_0                | 1900.0             | 21.96                     | 20.46 | /     |            |       |       |
|                |                       | 1880.0             | 21.61                     | 20.26 | /     |            |       |       |
|                |                       | 1860.0             | 21.47                     | 20.51 | /     |            |       |       |
|                | 100RB_0               | 1900.0             | 21.45                     | 20.50 | /     |            |       |       |
|                |                       | 1880.0             | 21.49                     | 20.28 | /     |            |       |       |
|                |                       | 1860.0             | 21.39                     | 20.38 | /     |            |       |       |

| Power Level B1 |                       |                    |                           |       |       |            |       |       |
|----------------|-----------------------|--------------------|---------------------------|-------|-------|------------|-------|-------|
| LTE Band 2     |                       |                    | Actual output Power (dBm) |       |       | Tune up    |       |       |
| Band<br>-width | RB No. /<br>RB offset | Frequency<br>(MHz) | Modulation                |       |       | Modulation |       |       |
|                |                       |                    | QPSK                      | 16QAM | 64QAM | QPSK       | 16QAM | 64QAM |
| 1.4 MHz        | 1RB_5                 | 1909.3             | 20.14                     | 20.47 | /     | 21.5       | 21.5  | /     |
|                |                       | 1880.0             | 20.14                     | 20.43 | /     |            |       |       |
|                |                       | 1850.7             | 20.15                     | 20.49 | /     |            |       |       |
|                | 1RB_3                 | 1909.3             | 20.25                     | 20.59 | /     |            |       |       |
|                |                       | 1880.0             | 20.20                     | 20.62 | /     |            |       |       |
|                |                       | 1850.7             | 20.32                     | 20.60 | /     |            |       |       |
|                | 1RB_0                 | 1909.3             | 20.18                     | 20.47 | /     |            |       |       |
|                |                       | 1880.0             | 20.11                     | 20.49 | /     |            |       |       |
|                |                       | 1850.7             | 20.19                     | 20.50 | /     |            |       |       |
|                | 3RB_3                 | 1909.3             | 20.27                     | 20.29 | /     |            |       |       |
|                |                       | 1880.0             | 20.18                     | 20.20 | /     |            |       |       |
|                |                       | 1850.7             | 20.26                     | 20.23 | /     |            |       |       |
|                | 3RB_1                 | 1909.3             | 20.31                     | 20.27 | /     |            |       |       |
|                |                       | 1880.0             | 20.23                     | 20.31 | /     |            |       |       |
|                |                       | 1850.7             | 20.29                     | 20.30 | /     |            |       |       |
|                | 3RB_0                 | 1909.3             | 20.25                     | 20.25 | /     |            |       |       |
|                |                       | 1880.0             | 20.22                     | 20.17 | /     |            |       |       |
|                |                       | 1850.7             | 20.25                     | 20.24 | /     |            |       |       |
|                | 6RB_0                 | 1909.3             | 20.32                     | 20.39 | /     | 21.5       | 21.5  | /     |
|                |                       | 1880.0             | 20.24                     | 20.30 | /     |            |       |       |
|                |                       | 1850.7             | 20.24                     | 20.33 | /     |            |       |       |

| Power Level B1 |                       |                    |                           |       |       |            |       |       |
|----------------|-----------------------|--------------------|---------------------------|-------|-------|------------|-------|-------|
| LTE Band 2     |                       |                    | Actual output Power (dBm) |       |       | Tune up    |       |       |
| Band<br>-width | RB No. /<br>RB offset | Frequency<br>(MHz) | Modulation                |       |       | Modulation |       |       |
|                |                       |                    | QPSK                      | 16QAM | 64QAM | QPSK       | 16QAM | 64QAM |
| 3 MHz          | 1RB_14                | 1908.5             | 20.20                     | 20.54 | /     | 21.5       | 21.5  | /     |
|                |                       | 1880.0             | 20.10                     | 20.44 | /     |            |       |       |
|                |                       | 1851.5             | 20.18                     | 20.53 | /     |            |       |       |
|                | 1RB_7                 | 1908.5             | 20.37                     | 20.81 | /     |            |       |       |
|                |                       | 1880.0             | 20.25                     | 20.63 | /     |            |       |       |
|                |                       | 1851.5             | 20.32                     | 20.70 | /     |            |       |       |
|                | 1RB_0                 | 1908.5             | 20.18                     | 20.56 | /     |            |       |       |
|                |                       | 1880.0             | 20.14                     | 20.48 | /     |            |       |       |
|                |                       | 1851.5             | 20.22                     | 20.53 | /     |            |       |       |
|                | 8RB_7                 | 1908.5             | 20.21                     | 20.27 | /     | 21.5       | 21.5  | /     |
|                |                       | 1880.0             | 20.16                     | 20.25 | /     |            |       |       |
|                |                       | 1851.5             | 20.20                     | 20.27 | /     |            |       |       |
|                | 8RB_4                 | 1908.5             | 20.23                     | 20.30 | /     |            |       |       |
|                |                       | 1880.0             | 20.18                     | 20.28 | /     |            |       |       |
|                |                       | 1851.5             | 20.19                     | 20.28 | /     |            |       |       |
|                | 8RB_0                 | 1908.5             | 20.25                     | 20.32 | /     |            |       |       |
|                |                       | 1880.0             | 20.16                     | 20.28 | /     |            |       |       |
|                |                       | 1851.5             | 20.21                     | 20.32 | /     |            |       |       |
|                | 15RB_0                | 1908.5             | 20.21                     | 20.27 | /     |            |       |       |
|                |                       | 1880.0             | 20.16                     | 20.23 | /     |            |       |       |
|                |                       | 1851.5             | 20.18                     | 20.24 | /     |            |       |       |



| Power Level B1 |                       |                    |                           |       |       |            |       |       |
|----------------|-----------------------|--------------------|---------------------------|-------|-------|------------|-------|-------|
| LTE Band 2     |                       |                    | Actual output Power (dBm) |       |       | Tune up    |       |       |
| Band<br>-width | RB No. /<br>RB offset | Frequency<br>(MHz) | Modulation                |       |       | Modulation |       |       |
|                |                       |                    | QPSK                      | 16QAM | 64QAM | QPSK       | 16QAM | 64QAM |
| 5 MHz          | 1RB_24                | 1907.5             | 20.15                     | 20.34 | /     | 21.5       | 21.5  | /     |
|                |                       | 1880.0             | 20.13                     | 20.36 | /     |            |       |       |
|                |                       | 1852.5             | 20.08                     | 20.46 | /     |            |       |       |
|                | 1RB_12                | 1907.5             | 20.65                     | 20.63 | /     |            |       |       |
|                |                       | 1880.0             | 20.36                     | 20.58 | /     |            |       |       |
|                |                       | 1852.5             | 20.35                     | 20.79 | /     |            |       |       |
|                | 1RB_0                 | 1907.5             | 20.09                     | 20.35 | /     |            |       |       |
|                |                       | 1880.0             | 20.06                     | 20.35 | /     |            |       |       |
|                |                       | 1852.5             | 20.08                     | 20.44 | /     |            |       |       |
|                | 12RB_13               | 1907.5             | 20.13                     | 20.13 | /     | 21.5       | 21.5  | /     |
|                |                       | 1880.0             | 20.19                     | 20.26 | /     |            |       |       |
|                |                       | 1852.5             | 20.17                     | 20.22 | /     |            |       |       |
|                | 12RB_6                | 1907.5             | 20.33                     | 20.25 | /     |            |       |       |
|                |                       | 1880.0             | 20.19                     | 20.20 | /     |            |       |       |
|                |                       | 1852.5             | 20.28                     | 20.34 | /     |            |       |       |
|                | 12RB_0                | 1907.5             | 20.22                     | 20.23 | /     |            |       |       |
|                |                       | 1880.0             | 20.17                     | 20.15 | /     |            |       |       |
|                |                       | 1852.5             | 20.18                     | 20.25 | /     |            |       |       |
|                | 25RB_0                | 1907.5             | 20.22                     | 20.18 | /     |            |       |       |
|                |                       | 1880.0             | 20.17                     | 20.23 | /     |            |       |       |
|                |                       | 1852.5             | 20.24                     | 20.22 | /     |            |       |       |

| Power Level B1 |                       |                    |                           |       |       |            |       |       |
|----------------|-----------------------|--------------------|---------------------------|-------|-------|------------|-------|-------|
| LTE Band 2     |                       |                    | Actual output Power (dBm) |       |       | Tune up    |       |       |
| Band<br>-width | RB No. /<br>RB offset | Frequency<br>(MHz) | Modulation                |       |       | Modulation |       |       |
|                |                       |                    | QPSK                      | 16QAM | 64QAM | QPSK       | 16QAM | 64QAM |
| 10 MHz         | 1RB_49                | 1905.0             | 20.71                     | 20.49 | /     | 21.5       | 21.5  | /     |
|                |                       | 1880.0             | 20.05                     | 20.45 | /     |            |       |       |
|                |                       | 1855.0             | 20.16                     | 20.39 | /     |            |       |       |
|                | 1RB_24                | 1905.0             | 20.85                     | 20.56 | /     |            |       |       |
|                |                       | 1880.0             | 20.30                     | 20.58 | /     |            |       |       |
|                |                       | 1855.0             | 20.30                     | 20.59 | /     |            |       |       |
|                | 1RB_0                 | 1905.0             | 20.31                     | 20.51 | /     |            |       |       |
|                |                       | 1880.0             | 20.19                     | 20.52 | /     |            |       |       |
|                |                       | 1855.0             | 20.21                     | 20.42 | /     |            |       |       |
|                | 25RB_25               | 1905.0             | 20.21                     | 20.26 | /     | 21.5       | 21.5  | /     |
|                |                       | 1880.0             | 20.25                     | 20.30 | /     |            |       |       |
|                |                       | 1855.0             | 20.16                     | 20.25 | /     |            |       |       |
|                | 25RB_12               | 1905.0             | 20.23                     | 20.28 | /     |            |       |       |
|                |                       | 1880.0             | 20.18                     | 20.21 | /     |            |       |       |
|                |                       | 1855.0             | 20.24                     | 20.28 | /     |            |       |       |
|                | 25RB_0                | 1905.0             | 20.18                     | 20.18 | /     |            |       |       |
|                |                       | 1880.0             | 20.20                     | 20.22 | /     |            |       |       |
|                |                       | 1855.0             | 20.28                     | 20.30 | /     |            |       |       |
|                | 50RB_0                | 1905.0             | 20.21                     | 20.23 | /     |            |       |       |
|                |                       | 1880.0             | 20.19                     | 20.30 | /     |            |       |       |
|                |                       | 1855.0             | 20.22                     | 20.33 | /     |            |       |       |

| Power Level B1 |                       |                    |                           |       |       |            |       |       |
|----------------|-----------------------|--------------------|---------------------------|-------|-------|------------|-------|-------|
| LTE Band 2     |                       |                    | Actual output Power (dBm) |       |       | Tune up    |       |       |
| Band<br>-width | RB No. /<br>RB offset | Frequency<br>(MHz) | Modulation                |       |       | Modulation |       |       |
|                |                       |                    | QPSK                      | 16QAM | 64QAM | QPSK       | 16QAM | 64QAM |
| 15 MHz         | 1RB_74                | 1902.5             | 20.65                     | 20.42 | /     | 21.5       | 21.5  | /     |
|                |                       | 1880.0             | 20.34                     | 20.40 | /     |            |       |       |
|                |                       | 1857.5             | 20.08                     | 20.46 | /     |            |       |       |
|                | 1RB_37                | 1902.5             | 20.71                     | 20.50 | /     |            |       |       |
|                |                       | 1880.0             | 20.34                     | 20.51 | /     |            |       |       |
|                |                       | 1857.5             | 20.24                     | 20.55 | /     |            |       |       |
|                | 1RB_0                 | 1902.5             | 20.62                     | 20.44 | /     |            |       |       |
|                |                       | 1880.0             | 20.11                     | 20.47 | /     |            |       |       |
|                |                       | 1857.5             | 20.16                     | 20.51 | /     |            |       |       |
|                | 36RB_38               | 1902.5             | 20.84                     | 20.29 | /     | 21.5       | 21.5  | /     |
|                |                       | 1880.0             | 20.34                     | 20.23 | /     |            |       |       |
|                |                       | 1857.5             | 20.21                     | 20.22 | /     |            |       |       |
|                | 36RB_19               | 1902.5             | 20.78                     | 20.27 | /     |            |       |       |
|                |                       | 1880.0             | 20.49                     | 20.21 | /     |            |       |       |
|                |                       | 1857.5             | 20.39                     | 20.24 | /     |            |       |       |
|                | 36RB_0                | 1902.5             | 20.47                     | 20.25 | /     |            |       |       |
|                |                       | 1880.0             | 20.21                     | 20.13 | /     |            |       |       |
|                |                       | 1857.5             | 20.24                     | 20.31 | /     |            |       |       |
|                | 75RB_0                | 1902.5             | 20.27                     | 20.31 | /     |            |       |       |
|                |                       | 1880.0             | 20.25                     | 20.25 | /     |            |       |       |
|                |                       | 1857.5             | 20.25                     | 20.28 | /     |            |       |       |

| Power Level B1 |                       |                    |                           |       |       |            |       |       |
|----------------|-----------------------|--------------------|---------------------------|-------|-------|------------|-------|-------|
| LTE Band 2     |                       |                    | Actual output Power (dBm) |       |       | Tune up    |       |       |
| Band<br>-width | RB No. /<br>RB offset | Frequency<br>(MHz) | Modulation                |       |       | Modulation |       |       |
|                |                       |                    | QPSK                      | 16QAM | 64QAM | QPSK       | 16QAM | 64QAM |
| 20 MHz         | 1RB_99                | 1900.0             | 20.46                     | 20.27 | /     | 21.5       | 21.5  | /     |
|                |                       | 1880.0             | 20.38                     | 20.29 | /     |            |       |       |
|                |                       | 1860.0             | 19.87                     | 20.33 | /     |            |       |       |
|                | 1RB_50                | 1900.0             | <b>20.81</b>              | 20.56 | /     |            |       |       |
|                |                       | 1880.0             | 20.79                     | 20.66 | /     |            |       |       |
|                |                       | 1860.0             | 20.56                     | 20.66 | /     |            |       |       |
|                | 1RB_0                 | 1900.0             | 20.45                     | 20.30 | /     |            |       |       |
|                |                       | 1880.0             | 20.24                     | 20.39 | /     |            |       |       |
|                |                       | 1860.0             | 20.49                     | 20.43 | /     |            |       |       |
|                | 50RB_50               | 1900.0             | 20.85                     | 20.39 | /     | 21.5       | 21.5  | /     |
|                |                       | 1880.0             | 20.73                     | 20.29 | /     |            |       |       |
|                |                       | 1860.0             | 20.70                     | 20.17 | /     |            |       |       |
|                | 50RB_25               | 1900.0             | 20.79                     | 20.27 | /     |            |       |       |
|                |                       | 1880.0             | 20.73                     | 20.24 | /     |            |       |       |
|                |                       | 1860.0             | 20.70                     | 20.26 | /     |            |       |       |
|                | 50RB_0                | 1900.0             | <b>20.86</b>              | 20.39 | /     |            |       |       |
|                |                       | 1880.0             | 20.74                     | 20.16 | /     |            |       |       |
|                |                       | 1860.0             | 20.71                     | 20.40 | /     |            |       |       |
|                | 100RB_0               | 1900.0             | 20.92                     | 20.36 | /     |            |       |       |
|                |                       | 1880.0             | 20.59                     | 20.22 | /     |            |       |       |
|                |                       | 1860.0             | 20.69                     | 20.32 | /     |            |       |       |

| Power Level A1/B1 |                       |                    |                           |       |       |            |       |       |
|-------------------|-----------------------|--------------------|---------------------------|-------|-------|------------|-------|-------|
| LTE Band 5        |                       |                    | Actual output Power (dBm) |       |       | Tune up    |       |       |
| Band<br>-width    | RB No. /<br>RB offset | Frequency<br>(MHz) | Modulation                |       |       | Modulation |       |       |
|                   |                       |                    | QPSK                      | 16QAM | 64QAM | QPSK       | 16QAM | 64QAM |
| 1.4 MHz           | 1RB_5                 | 848.3              | 23.37                     | 22.48 | /     | 24.5       | 23.5  | /     |
|                   |                       | 836.5              | 23.39                     | 22.59 | /     |            |       |       |
|                   |                       | 824.7              | 23.44                     | 22.63 | /     |            |       |       |
|                   | 1RB_3                 | 848.3              | 23.40                     | 22.59 | /     |            |       |       |
|                   |                       | 836.5              | 23.50                     | 22.72 | /     |            |       |       |
|                   |                       | 824.7              | 23.48                     | 22.79 | /     |            |       |       |
|                   | 1RB_0                 | 848.3              | 23.29                     | 22.50 | /     |            |       |       |
|                   |                       | 836.5              | 23.35                     | 22.60 | /     |            |       |       |
|                   |                       | 824.7              | 23.41                     | 22.57 | /     |            |       |       |
|                   | 3RB_3                 | 848.3              | 23.41                     | 22.32 | /     |            |       |       |
|                   |                       | 836.5              | 23.42                     | 22.44 | /     |            |       |       |
|                   |                       | 824.7              | 23.48                     | 22.42 | /     |            |       |       |
|                   | 3RB_1                 | 848.3              | 23.45                     | 22.44 | /     |            |       |       |
|                   |                       | 836.5              | 23.49                     | 22.47 | /     |            |       |       |
|                   |                       | 824.7              | 23.54                     | 22.47 | /     |            |       |       |
|                   | 3RB_0                 | 848.3              | 23.43                     | 22.36 | /     |            |       |       |
|                   |                       | 836.5              | 23.44                     | 22.41 | /     |            |       |       |
|                   |                       | 824.7              | 23.48                     | 22.45 | /     |            |       |       |
|                   | 6RB_0                 | 848.3              | 22.43                     | 21.49 | /     | 23.5       | 22.5  | /     |
|                   |                       | 836.5              | 22.48                     | 21.58 | /     |            |       |       |
|                   |                       | 824.7              | 22.50                     | 21.59 | /     |            |       |       |

| Power Level A1/B1 |                       |                    |                           |       |       |            |       |       |
|-------------------|-----------------------|--------------------|---------------------------|-------|-------|------------|-------|-------|
| LTE Band 5        |                       |                    | Actual output Power (dBm) |       |       | Tune up    |       |       |
| Band<br>-width    | RB No. /<br>RB offset | Frequency<br>(MHz) | Modulation                |       |       | Modulation |       |       |
|                   |                       |                    | QPSK                      | 16QAM | 64QAM | QPSK       | 16QAM | 64QAM |
| 3 MHz             | 1RB_14                | 847.5              | 23.39                     | 22.56 | /     | 24.5       | 23.5  | /     |
|                   |                       | 836.5              | 23.49                     | 22.76 | /     |            |       |       |
|                   |                       | 825.5              | 23.48                     | 22.61 | /     |            |       |       |
|                   | 1RB_7                 | 847.5              | 23.56                     | 22.71 | /     |            |       |       |
|                   |                       | 836.5              | 23.58                     | 22.81 | /     |            |       |       |
|                   |                       | 825.5              | 23.70                     | 22.86 | /     |            |       |       |
|                   | 1RB_0                 | 847.5              | 23.39                     | 22.59 | /     |            |       |       |
|                   |                       | 836.5              | 23.45                     | 22.64 | /     |            |       |       |
|                   |                       | 825.5              | 23.42                     | 22.64 | /     |            |       |       |
|                   | 8RB_7                 | 847.5              | 22.39                     | 21.44 | /     | 23.5       | 22.5  | /     |
|                   |                       | 836.5              | 22.47                     | 21.53 | /     |            |       |       |
|                   |                       | 825.5              | 22.46                     | 21.55 | /     |            |       |       |
|                   | 8RB_4                 | 847.5              | 22.45                     | 21.48 | /     |            |       |       |
|                   |                       | 836.5              | 22.48                     | 21.55 | /     |            |       |       |
|                   |                       | 825.5              | 22.47                     | 21.57 | /     |            |       |       |
|                   | 8RB_0                 | 847.5              | 22.40                     | 21.49 | /     |            |       |       |
|                   |                       | 836.5              | 22.49                     | 21.55 | /     |            |       |       |
|                   |                       | 825.5              | 22.45                     | 21.49 | /     |            |       |       |
|                   | 15RB_0                | 847.5              | 22.44                     | 21.45 | /     |            |       |       |
|                   |                       | 836.5              | 22.51                     | 21.52 | /     |            |       |       |
|                   |                       | 825.5              | 22.47                     | 21.44 | /     |            |       |       |

| Power Level A1/B1 |                       |                    |                           |       |       |            |       |       |
|-------------------|-----------------------|--------------------|---------------------------|-------|-------|------------|-------|-------|
| LTE Band 5        |                       |                    | Actual output Power (dBm) |       |       | Tune up    |       |       |
| Band<br>-width    | RB No. /<br>RB offset | Frequency<br>(MHz) | Modulation                |       |       | Modulation |       |       |
|                   |                       |                    | QPSK                      | 16QAM | 64QAM | QPSK       | 16QAM | 64QAM |
| 5 MHz             | 1RB_24                | 846.5              | 23.29                     | 22.47 | /     | 24.5       | 23.5  | /     |
|                   |                       | 836.5              | 23.36                     | 22.57 | /     |            |       |       |
|                   |                       | 826.5              | 23.33                     | 22.55 | /     |            |       |       |
|                   | 1RB_12                | 846.5              | 23.51                     | 22.76 | /     |            |       |       |
|                   |                       | 836.5              | 23.57                     | 22.83 | /     |            |       |       |
|                   |                       | 826.5              | 23.53                     | 22.87 | /     |            |       |       |
|                   | 1RB_0                 | 846.5              | 23.34                     | 22.52 | /     |            |       |       |
|                   |                       | 836.5              | 23.32                     | 22.59 | /     |            |       |       |
|                   |                       | 826.5              | 23.32                     | 22.64 | /     |            |       |       |
|                   | 12RB_13               | 846.5              | 22.35                     | 21.33 | /     | 23.5       | 22.5  | /     |
|                   |                       | 836.5              | 22.42                     | 21.44 | /     |            |       |       |
|                   |                       | 826.5              | 22.55                     | 21.50 | /     |            |       |       |
|                   | 12RB_6                | 846.5              | 22.47                     | 21.52 | /     |            |       |       |
|                   |                       | 836.5              | 22.54                     | 21.56 | /     |            |       |       |
|                   |                       | 826.5              | 22.58                     | 21.54 | /     |            |       |       |
|                   | 12RB_0                | 846.5              | 22.51                     | 21.54 | /     |            |       |       |
|                   |                       | 836.5              | 22.53                     | 21.57 | /     |            |       |       |
|                   |                       | 826.5              | 22.42                     | 21.41 | /     |            |       |       |
|                   | 25RB_0                | 846.5              | 22.43                     | 21.46 | /     |            |       |       |
|                   |                       | 836.5              | 22.53                     | 21.55 | /     |            |       |       |
|                   |                       | 826.5              | 22.54                     | 21.52 | /     |            |       |       |

| Power Level A1/B1 |                       |                    |                           |       |       |            |       |       |
|-------------------|-----------------------|--------------------|---------------------------|-------|-------|------------|-------|-------|
| LTE Band 5        |                       |                    | Actual output Power (dBm) |       |       | Tune up    |       |       |
| Band<br>-width    | RB No. /<br>RB offset | Frequency<br>(MHz) | Modulation                |       |       | Modulation |       |       |
|                   |                       |                    | QPSK                      | 16QAM | 64QAM | QPSK       | 16QAM | 64QAM |
| 10 MHz            | 1RB_49                | 844.0              | 23.44                     | 22.55 | /     | 24.5       | 23.5  | /     |
|                   |                       | 836.5              | 23.51                     | 22.72 | /     |            |       |       |
|                   |                       | 829.0              | 23.48                     | 22.64 | /     |            |       |       |
|                   | 1RB_24                | 844.0              | 23.54                     | 22.58 | /     |            |       |       |
|                   |                       | 836.5              | 23.61                     | 22.75 | /     |            |       |       |
|                   |                       | 829.0              | 23.52                     | 22.68 | /     |            |       |       |
|                   | 1RB_0                 | 844.0              | 23.44                     | 22.57 | /     |            |       |       |
|                   |                       | 836.5              | 23.43                     | 22.59 | /     |            |       |       |
|                   |                       | 829.0              | 23.45                     | 22.62 | /     |            |       |       |
|                   | 25RB_25               | 844.0              | 22.34                     | 21.33 | /     | 23.5       | 22.5  | /     |
|                   |                       | 836.5              | 22.58                     | 21.60 | /     |            |       |       |
|                   |                       | 829.0              | 22.57                     | 21.57 | /     |            |       |       |
|                   | 25RB_12               | 844.0              | 22.54                     | 21.56 | /     |            |       |       |
|                   |                       | 836.5              | 22.55                     | 21.57 | /     |            |       |       |
|                   |                       | 829.0              | 22.56                     | 21.51 | /     |            |       |       |
|                   | 25RB_0                | 844.0              | 22.55                     | 21.50 | /     |            |       |       |
|                   |                       | 836.5              | 22.68                     | 21.66 | /     |            |       |       |
|                   |                       | 829.0              | 22.58                     | 21.47 | /     |            |       |       |
|                   | 50RB_0                | 844.0              | 22.44                     | 21.48 | /     |            |       |       |
|                   |                       | 836.5              | 22.65                     | 21.65 | /     |            |       |       |
|                   |                       | 829.0              | 22.51                     | 21.47 | /     |            |       |       |



| Power Level A1/B1 |                       |                    |                           |       |       |            |       |       |
|-------------------|-----------------------|--------------------|---------------------------|-------|-------|------------|-------|-------|
| LTE Band 7        |                       |                    | Actual output Power (dBm) |       |       | Tune up    |       |       |
| Band<br>-width    | RB No. /<br>RB offset | Frequency<br>(MHz) | Modulation                |       |       | Modulation |       |       |
|                   |                       |                    | QPSK                      | 16QAM | 64QAM | QPSK       | 16QAM | 64QAM |
| 5 MHz             | 1RB_24                | 2567.5             | 22.06                     | 21.24 | /     | 23.5       | 22.5  | /     |
|                   |                       | 2535.0             | 21.95                     | 21.21 | /     |            |       |       |
|                   |                       | 2502.5             | 21.80                     | 21.02 | /     |            |       |       |
|                   | 1RB_12                | 2567.5             | 22.28                     | 21.56 | /     |            |       |       |
|                   |                       | 2535.0             | 22.20                     | 21.51 | /     |            |       |       |
|                   |                       | 2502.5             | 22.07                     | 21.30 | /     |            |       |       |
|                   | 1RB_0                 | 2567.5             | 22.06                     | 21.22 | /     |            |       |       |
|                   |                       | 2535.0             | 21.88                     | 21.19 | /     |            |       |       |
|                   |                       | 2502.5             | 21.80                     | 21.08 | /     |            |       |       |
|                   | 12RB_13               | 2567.5             | 21.28                     | 20.23 | /     | 22.5       | 21.5  | /     |
|                   |                       | 2535.0             | 21.16                     | 20.11 | /     |            |       |       |
|                   |                       | 2502.5             | 21.00                     | 19.96 | /     |            |       |       |
|                   | 12RB_6                | 2567.5             | 21.27                     | 20.25 | /     |            |       |       |
|                   |                       | 2535.0             | 21.16                     | 20.18 | /     |            |       |       |
|                   |                       | 2502.5             | 20.98                     | 19.97 | /     |            |       |       |
|                   | 12RB_0                | 2567.5             | 21.21                     | 20.23 | /     |            |       |       |
|                   |                       | 2535.0             | 21.01                     | 19.99 | /     |            |       |       |
|                   |                       | 2502.5             | 20.86                     | 19.84 | /     |            |       |       |
|                   | 25RB_0                | 2567.5             | 21.25                     | 20.20 | /     |            |       |       |
|                   |                       | 2535.0             | 21.12                     | 20.12 | /     |            |       |       |
|                   |                       | 2502.5             | 20.94                     | 19.92 | /     |            |       |       |

| Power Level A1/B1 |                       |                    |                           |       |       |            |       |       |
|-------------------|-----------------------|--------------------|---------------------------|-------|-------|------------|-------|-------|
| LTE Band 7        |                       |                    | Actual output Power (dBm) |       |       | Tune up    |       |       |
| Band<br>-width    | RB No. /<br>RB offset | Frequency<br>(MHz) | Modulation                |       |       | Modulation |       |       |
|                   |                       |                    | QPSK                      | 16QAM | 64QAM | QPSK       | 16QAM | 64QAM |
| 10 MHz            | 1RB_49                | 2565.0             | 22.16                     | 21.36 | /     | 23.5       | 22.5  | /     |
|                   |                       | 2535.0             | 22.05                     | 21.19 | /     |            |       |       |
|                   |                       | 2505.0             | 21.94                     | 21.15 | /     |            |       |       |
|                   | 1RB_24                | 2565.0             | 22.24                     | 21.47 | /     |            |       |       |
|                   |                       | 2535.0             | 22.16                     | 21.33 | /     |            |       |       |
|                   |                       | 2505.0             | 22.00                     | 21.30 | /     |            |       |       |
|                   | 1RB_0                 | 2565.0             | 22.08                     | 21.34 | /     |            |       |       |
|                   |                       | 2535.0             | 21.98                     | 21.14 | /     |            |       |       |
|                   |                       | 2505.0             | 21.91                     | 21.15 | /     |            |       |       |
|                   | 25RB_25               | 2565.0             | 21.34                     | 20.32 | /     | 22.5       | 21.5  | /     |
|                   |                       | 2535.0             | 21.24                     | 20.24 | /     |            |       |       |
|                   |                       | 2505.0             | 21.07                     | 20.00 | /     |            |       |       |
|                   | 25RB_12               | 2565.0             | 21.32                     | 20.31 | /     |            |       |       |
|                   |                       | 2535.0             | 21.12                     | 20.12 | /     |            |       |       |
|                   |                       | 2505.0             | 20.98                     | 19.96 | /     |            |       |       |
|                   | 25RB_0                | 2565.0             | 21.26                     | 20.28 | /     |            |       |       |
|                   |                       | 2535.0             | 21.06                     | 20.04 | /     |            |       |       |
|                   |                       | 2505.0             | 20.87                     | 19.89 | /     |            |       |       |
|                   | 50RB_0                | 2565.0             | 21.33                     | 20.28 | /     |            |       |       |
|                   |                       | 2535.0             | 21.18                     | 20.13 | /     |            |       |       |
|                   |                       | 2505.0             | 20.96                     | 19.96 | /     |            |       |       |

| Power Level A1/B1 |                       |                    |                           |       |       |            |       |       |
|-------------------|-----------------------|--------------------|---------------------------|-------|-------|------------|-------|-------|
| LTE Band 7        |                       |                    | Actual output Power (dBm) |       |       | Tune up    |       |       |
| Band<br>-width    | RB No. /<br>RB offset | Frequency<br>(MHz) | Modulation                |       |       | Modulation |       |       |
|                   |                       |                    | QPSK                      | 16QAM | 64QAM | QPSK       | 16QAM | 64QAM |
| 15 MHz            | 1RB_74                | 2562.5             | 22.18                     | 21.25 | /     | 23.5       | 22.5  | /     |
|                   |                       | 2535.0             | 22.03                     | 21.16 | /     |            |       |       |
|                   |                       | 2507.5             | 21.90                     | 21.14 | /     |            |       |       |
|                   | 1RB_37                | 2562.5             | 22.17                     | 21.33 | /     |            |       |       |
|                   |                       | 2535.0             | 22.06                     | 21.24 | /     |            |       |       |
|                   |                       | 2507.5             | 21.91                     | 21.14 | /     |            |       |       |
|                   | 1RB_0                 | 2562.5             | 21.99                     | 21.16 | /     |            |       |       |
|                   |                       | 2535.0             | 21.88                     | 21.02 | /     |            |       |       |
|                   |                       | 2507.5             | 21.81                     | 21.08 | /     |            |       |       |
|                   | 36RB_38               | 2562.5             | 21.34                     | 20.31 | /     | 22.5       | 21.5  | /     |
|                   |                       | 2535.0             | 21.25                     | 20.18 | /     |            |       |       |
|                   |                       | 2507.5             | 21.03                     | 20.00 | /     |            |       |       |
|                   | 36RB_19               | 2562.5             | 21.29                     | 20.26 | /     |            |       |       |
|                   |                       | 2535.0             | 21.15                     | 20.11 | /     |            |       |       |
|                   |                       | 2507.5             | 21.05                     | 19.96 | /     |            |       |       |
|                   | 36RB_0                | 2562.5             | 21.24                     | 20.23 | /     |            |       |       |
|                   |                       | 2535.0             | 21.09                     | 20.03 | /     |            |       |       |
|                   |                       | 2507.5             | 20.90                     | 19.83 | /     |            |       |       |
|                   | 75RB_0                | 2562.5             | 21.30                     | 20.27 | /     |            |       |       |
|                   |                       | 2535.0             | 21.14                     | 20.14 | /     |            |       |       |
|                   |                       | 2507.5             | 20.96                     | 19.91 | /     |            |       |       |

| Power Level A1/B1 |                       |                    |                           |       |       |            |       |       |
|-------------------|-----------------------|--------------------|---------------------------|-------|-------|------------|-------|-------|
| LTE Band 7        |                       |                    | Actual output Power (dBm) |       |       | Tune up    |       |       |
| Band<br>-width    | RB No. /<br>RB offset | Frequency<br>(MHz) | Modulation                |       |       | Modulation |       |       |
|                   |                       |                    | QPSK                      | 16QAM | 64QAM | QPSK       | 16QAM | 64QAM |
| 20 MHz            | 1RB_99                | 2560.0             | 22.03                     | 21.23 | /     | 23.5       | 22.5  | /     |
|                   |                       | 2535.0             | 21.86                     | 21.13 | /     |            |       |       |
|                   |                       | 2510.0             | 21.76                     | 21.10 | /     |            |       |       |
|                   | 1RB_50                | 2560.0             | <b>22.26</b>              | 21.45 | /     |            |       |       |
|                   |                       | 2535.0             | 22.09                     | 21.42 | /     |            |       |       |
|                   |                       | 2510.0             | 22.01                     | 21.31 | /     |            |       |       |
|                   | 1RB_0                 | 2560.0             | 21.79                     | 21.03 | /     |            |       |       |
|                   |                       | 2535.0             | 21.66                     | 20.97 | /     |            |       |       |
|                   |                       | 2510.0             | 21.67                     | 20.94 | /     |            |       |       |
|                   | 50RB_50               | 2560.0             | <b>21.37</b>              | 20.31 | /     | 22.5       | 21.5  | /     |
|                   |                       | 2535.0             | 21.35                     | 20.34 | /     |            |       |       |
|                   |                       | 2510.0             | 21.02                     | 19.82 | /     |            |       |       |
|                   | 50RB_25               | 2560.0             | 21.33                     | 20.30 | /     |            |       |       |
|                   |                       | 2535.0             | 21.12                     | 20.15 | /     |            |       |       |
|                   |                       | 2510.0             | 21.01                     | 20.03 | /     |            |       |       |
|                   | 50RB_0                | 2560.0             | 21.27                     | 20.26 | /     |            |       |       |
|                   |                       | 2535.0             | 20.96                     | 19.97 | /     |            |       |       |
|                   |                       | 2510.0             | 20.83                     | 19.82 | /     |            |       |       |
|                   | 100RB_0               | 2560.0             | 21.29                     | 20.27 | /     |            |       |       |
|                   |                       | 2535.0             | 21.19                     | 20.18 | /     |            |       |       |
|                   |                       | 2510.0             | 20.80                     | 19.79 | /     |            |       |       |

| Power Level A1/B1 |                       |                    |                           |       |       |            |       |       |
|-------------------|-----------------------|--------------------|---------------------------|-------|-------|------------|-------|-------|
| LTE Band 12       |                       |                    | Actual output Power (dBm) |       |       | Tune up    |       |       |
| Band<br>-width    | RB No. /<br>RB offset | Frequency<br>(MHz) | Modulation                |       |       | Modulation |       |       |
|                   |                       |                    | QPSK                      | 16QAM | 64QAM | QPSK       | 16QAM | 64QAM |
| 1.4 MHz           | 1RB_5                 | 715.3              | 23.60                     | 22.74 | /     | 24.5       | 23.5  | /     |
|                   |                       | 707.5              | 23.68                     | 22.92 | /     |            |       |       |
|                   |                       | 699.7              | 23.78                     | 23.03 | /     |            |       |       |
|                   | 1RB_3                 | 715.3              | 23.68                     | 22.92 | /     |            |       |       |
|                   |                       | 707.5              | 23.82                     | 23.03 | /     |            |       |       |
|                   |                       | 699.7              | 23.89                     | 23.10 | /     |            |       |       |
|                   | 1RB_0                 | 715.3              | 23.61                     | 22.79 | /     |            |       |       |
|                   |                       | 707.5              | 23.70                     | 22.90 | /     |            |       |       |
|                   |                       | 699.7              | 23.77                     | 22.98 | /     |            |       |       |
|                   | 3RB_3                 | 715.3              | 23.71                     | 22.62 | /     |            |       |       |
|                   |                       | 707.5              | 23.79                     | 22.82 | /     |            |       |       |
|                   |                       | 699.7              | 23.90                     | 22.90 | /     |            |       |       |
|                   | 3RB_1                 | 715.3              | 23.72                     | 22.70 | /     |            |       |       |
|                   |                       | 707.5              | 23.82                     | 22.84 | /     |            |       |       |
|                   |                       | 699.7              | 23.99                     | 22.93 | /     |            |       |       |
|                   | 3RB_0                 | 715.3              | 23.71                     | 22.64 | /     |            |       |       |
|                   |                       | 707.5              | 23.79                     | 22.81 | /     |            |       |       |
|                   |                       | 699.7              | 23.92                     | 22.87 | /     |            |       |       |
|                   | 6RB_0                 | 715.3              | 22.81                     | 21.87 | /     | 23.5       | 22.5  | /     |
|                   |                       | 707.5              | 22.89                     | 21.92 | /     |            |       |       |
|                   |                       | 699.7              | 23.00                     | 21.99 | /     |            |       |       |

| Power Level A1/B1 |                       |                    |                           |       |       |            |       |       |
|-------------------|-----------------------|--------------------|---------------------------|-------|-------|------------|-------|-------|
| LTE Band 12       |                       |                    | Actual output Power (dBm) |       |       | Tune up    |       |       |
| Band<br>-width    | RB No. /<br>RB offset | Frequency<br>(MHz) | Modulation                |       |       | Modulation |       |       |
|                   |                       |                    | QPSK                      | 16QAM | 64QAM | QPSK       | 16QAM | 64QAM |
| 3 MHz             | 1RB_14                | 714.5              | 23.61                     | 22.81 | /     | 24.5       | 23.5  | /     |
|                   |                       | 707.5              | 23.73                     | 23.02 | /     |            |       |       |
|                   |                       | 700.5              | 23.83                     | 23.04 | /     |            |       |       |
|                   | 1RB_7                 | 714.5              | 23.73                     | 23.07 | /     |            |       |       |
|                   |                       | 707.5              | 23.85                     | 23.18 | /     |            |       |       |
|                   |                       | 700.5              | 23.96                     | 23.23 | /     |            |       |       |
|                   | 1RB_0                 | 714.5              | 23.64                     | 22.85 | /     |            |       |       |
|                   |                       | 707.5              | 23.71                     | 22.97 | /     |            |       |       |
|                   |                       | 700.5              | 23.81                     | 23.11 | /     |            |       |       |
|                   | 8RB_7                 | 714.5              | 22.74                     | 21.75 | /     | 23.5       | 22.5  | /     |
|                   |                       | 707.5              | 22.84                     | 21.83 | /     |            |       |       |
|                   |                       | 700.5              | 22.89                     | 21.99 | /     |            |       |       |
|                   | 8RB_4                 | 714.5              | 22.74                     | 21.79 | /     |            |       |       |
|                   |                       | 707.5              | 22.86                     | 21.95 | /     |            |       |       |
|                   |                       | 700.5              | 22.91                     | 21.98 | /     |            |       |       |
|                   | 8RB_0                 | 714.5              | 22.72                     | 21.78 | /     |            |       |       |
|                   |                       | 707.5              | 22.82                     | 21.91 | /     |            |       |       |
|                   |                       | 700.5              | 22.90                     | 21.96 | /     |            |       |       |
|                   | 15RB_0                | 714.5              | 22.74                     | 21.73 | /     |            |       |       |
|                   |                       | 707.5              | 22.87                     | 21.87 | /     |            |       |       |
|                   |                       | 700.5              | 22.96                     | 21.97 | /     |            |       |       |

| Power Level A1/B1 |                       |                    |                           |       |       |            |       |       |
|-------------------|-----------------------|--------------------|---------------------------|-------|-------|------------|-------|-------|
| LTE Band 12       |                       |                    | Actual output Power (dBm) |       |       | Tune up    |       |       |
| Band<br>-width    | RB No. /<br>RB offset | Frequency<br>(MHz) | Modulation                |       |       | Modulation |       |       |
|                   |                       |                    | QPSK                      | 16QAM | 64QAM | QPSK       | 16QAM | 64QAM |
| 5 MHz             | 1RB_24                | 713.5              | 23.54                     | 22.64 | /     | 24.5       | 23.5  | /     |
|                   |                       | 707.5              | 23.63                     | 22.84 | /     |            |       |       |
|                   |                       | 701.5              | 23.66                     | 22.95 | /     |            |       |       |
|                   | 1RB_12                | 713.5              | 23.85                     | 22.94 | /     |            |       |       |
|                   |                       | 707.5              | 23.98                     | 23.04 | /     |            |       |       |
|                   |                       | 701.5              | 23.89                     | 23.26 | /     |            |       |       |
|                   | 1RB_0                 | 713.5              | 23.54                     | 22.74 | /     |            |       |       |
|                   |                       | 707.5              | 23.63                     | 22.87 | /     |            |       |       |
|                   |                       | 701.5              | 23.68                     | 22.93 | /     |            |       |       |
|                   | 12RB_13               | 713.5              | 22.78                     | 21.76 | /     | 23.5       | 22.5  | /     |
|                   |                       | 707.5              | 22.83                     | 21.82 | /     |            |       |       |
|                   |                       | 701.5              | 22.90                     | 21.92 | /     |            |       |       |
|                   | 12RB_6                | 713.5              | 22.85                     | 21.85 | /     |            |       |       |
|                   |                       | 707.5              | 22.90                     | 21.88 | /     |            |       |       |
|                   |                       | 701.5              | 22.98                     | 21.94 | /     |            |       |       |
|                   | 12RB_0                | 713.5              | 22.76                     | 21.75 | /     |            |       |       |
|                   |                       | 707.5              | 22.84                     | 21.91 | /     |            |       |       |
|                   |                       | 701.5              | 22.93                     | 21.91 | /     |            |       |       |
|                   | 25RB_0                | 713.5              | 22.76                     | 21.78 | /     |            |       |       |
|                   |                       | 707.5              | 22.90                     | 21.85 | /     |            |       |       |
|                   |                       | 701.5              | 22.94                     | 21.87 | /     |            |       |       |

| Power Level A1/B1 |                       |                    |                           |       |       |            |       |       |
|-------------------|-----------------------|--------------------|---------------------------|-------|-------|------------|-------|-------|
| LTE Band 12       |                       |                    | Actual output Power (dBm) |       |       | Tune up    |       |       |
| Band<br>-width    | RB No. /<br>RB offset | Frequency<br>(MHz) | Modulation                |       |       | Modulation |       |       |
|                   |                       |                    | QPSK                      | 16QAM | 64QAM | QPSK       | 16QAM | 64QAM |
| 10 MHz            | 1RB_49                | 711.0              | 23.70                     | 22.86 | /     | 24.5       | 23.5  | /     |
|                   |                       | 707.5              | 23.73                     | 23.00 | /     |            |       |       |
|                   |                       | 704.0              | 23.77                     | 23.11 | /     |            |       |       |
|                   | 1RB_24                | 711.0              | 23.86                     | 23.06 | /     |            |       |       |
|                   |                       | 707.5              | 23.82                     | 23.13 | /     |            |       |       |
|                   |                       | 704.0              | 23.87                     | 23.18 | /     |            |       |       |
|                   | 1RB_0                 | 711.0              | 23.69                     | 22.96 | /     |            |       |       |
|                   |                       | 707.5              | 23.70                     | 23.05 | /     |            |       |       |
|                   |                       | 704.0              | 23.75                     | 23.09 | /     |            |       |       |
|                   | 25RB_25               | 711.0              | 22.93                     | 21.94 | /     | 23.5       | 22.5  | /     |
|                   |                       | 707.5              | 22.93                     | 21.91 | /     |            |       |       |
|                   |                       | 704.0              | 22.93                     | 21.89 | /     |            |       |       |
|                   | 25RB_12               | 711.0              | 22.95                     | 21.83 | /     |            |       |       |
|                   |                       | 707.5              | 22.94                     | 21.90 | /     |            |       |       |
|                   |                       | 704.0              | 22.96                     | 21.94 | /     |            |       |       |
|                   | 25RB_0                | 711.0              | 22.85                     | 21.85 | /     |            |       |       |
|                   |                       | 707.5              | 22.93                     | 21.87 | /     |            |       |       |
|                   |                       | 704.0              | 22.92                     | 21.90 | /     |            |       |       |
|                   | 50RB_0                | 711.0              | 22.88                     | 21.89 | /     |            |       |       |
|                   |                       | 707.5              | 22.94                     | 21.93 | /     |            |       |       |
|                   |                       | 704.0              | 22.92                     | 21.93 | /     |            |       |       |



| Power Level A1/B1 |                    |                 |                           |       |       |            |       |       |      |      |   |
|-------------------|--------------------|-----------------|---------------------------|-------|-------|------------|-------|-------|------|------|---|
| LTE Band 13       |                    |                 | Actual output Power (dBm) |       |       | Tune up    |       |       |      |      |   |
| Band -width       | RB No. / RB offset | Frequency (MHz) | Modulation                |       |       | Modulation |       |       |      |      |   |
|                   |                    |                 | QPSK                      | 16QAM | 64QAM | QPSK       | 16QAM | 64QAM |      |      |   |
| 5 MHz             | 1RB_24             | 784.5           | 23.59                     | 22.72 | /     | 24.5       | 23.5  | /     |      |      |   |
|                   |                    | 782.0           | 23.60                     | 22.72 | /     |            |       |       |      |      |   |
|                   |                    | 779.5           | 23.66                     | 22.75 | /     |            |       |       |      |      |   |
|                   | 1RB_12             | 784.5           | 23.86                     | 22.92 | /     |            |       |       | 23.5 | 22.5 | / |
|                   |                    | 782.0           | 23.83                     | 22.95 | /     |            |       |       |      |      |   |
|                   |                    | 779.5           | 23.88                     | 23.09 | /     |            |       |       |      |      |   |
|                   | 1RB_0              | 784.5           | 23.62                     | 22.71 | /     |            |       |       |      |      |   |
|                   |                    | 782.0           | 23.66                     | 22.77 | /     |            |       |       |      |      |   |
|                   |                    | 779.5           | 23.63                     | 22.84 | /     |            |       |       |      |      |   |
|                   | 12RB_13            | 784.5           | 22.73                     | 21.75 | /     |            |       |       |      |      |   |
|                   |                    | 782.0           | 22.75                     | 21.73 | /     |            |       |       |      |      |   |
|                   |                    | 779.5           | 22.87                     | 21.88 | /     |            |       |       |      |      |   |
|                   | 12RB_6             | 784.5           | 22.83                     | 21.76 | /     |            |       |       |      |      |   |
|                   |                    | 782.0           | 22.83                     | 21.81 | /     |            |       |       |      |      |   |
|                   |                    | 779.5           | 22.85                     | 21.89 | /     |            |       |       |      |      |   |
|                   | 12RB_0             | 784.5           | 22.78                     | 21.80 | /     |            |       |       |      |      |   |
|                   |                    | 782.0           | 22.75                     | 21.77 | /     |            |       |       |      |      |   |
|                   |                    | 779.5           | 22.78                     | 21.79 | /     |            |       |       |      |      |   |
|                   | 25RB_0             | 784.5           | 22.81                     | 21.77 | /     |            |       |       |      |      |   |
|                   |                    | 782.0           | 22.75                     | 21.78 | /     |            |       |       |      |      |   |
|                   |                    | 779.5           | 22.82                     | 21.86 | /     |            |       |       |      |      |   |
| Power Level A1/B1 |                    |                 |                           |       |       |            |       |       |      |      |   |
| LTE Band 13       |                    |                 | Actual output Power (dBm) |       |       | Tune up    |       |       |      |      |   |
| Band -width       | RB No. / RB offset | Frequency (MHz) | Modulation                |       |       | Modulation |       |       |      |      |   |
|                   |                    |                 | QPSK                      | 16QAM | 64QAM | QPSK       | 16QAM | 64QAM |      |      |   |
| 10 MHz            | 1RB_49             | 782.0           | 23.22                     | 22.88 | /     | 24.5       | 23.5  | /     |      |      |   |
|                   | 1RB_24             | 782.0           | 23.38                     | 22.96 | /     |            |       |       |      |      |   |
|                   | 1RB_0              | 782.0           | 23.26                     | 23.01 | /     |            |       |       |      |      |   |
|                   | 25RB_25            | 782.0           | 22.50                     | 21.77 | /     | 23.5       | 22.5  | /     |      |      |   |
|                   | 25RB_12            | 782.0           | 22.84                     | 21.87 | /     |            |       |       |      |      |   |
|                   | 25RB_0             | 782.0           | 22.75                     | 21.75 | /     |            |       |       |      |      |   |
|                   | 50RB_0             | 782.0           | 22.80                     | 21.79 | /     |            |       |       |      |      |   |

| Power Level A1/B1 |                       |                    |                           |       |       |            |       |       |
|-------------------|-----------------------|--------------------|---------------------------|-------|-------|------------|-------|-------|
| LTE Band 26       |                       |                    | Actual output Power (dBm) |       |       | Tune up    |       |       |
| Band<br>-width    | RB No. /<br>RB offset | Frequency<br>(MHz) | Modulation                |       |       | Modulation |       |       |
|                   |                       |                    | QPSK                      | 16QAM | 64QAM | QPSK       | 16QAM | 64QAM |
| 1.4 MHz           | 1RB_5                 | 848.3              | 23.65                     | 22.30 | /     | 24.5       | 23.5  | /     |
|                   |                       | 831.5              | 23.87                     | 22.47 | /     |            |       |       |
|                   |                       | 814.7              | 24.04                     | 23.21 | /     |            |       |       |
|                   | 1RB_3                 | 848.3              | 23.70                     | 22.53 | /     |            |       |       |
|                   |                       | 831.5              | 23.98                     | 22.59 | /     |            |       |       |
|                   |                       | 814.7              | 24.15                     | 23.14 | /     |            |       |       |
|                   | 1RB_0                 | 848.3              | 23.59                     | 22.30 | /     |            |       |       |
|                   |                       | 831.5              | 23.85                     | 22.64 | /     |            |       |       |
|                   |                       | 814.7              | 24.00                     | 22.89 | /     |            |       |       |
|                   | 3RB_3                 | 848.3              | 23.74                     | 22.17 | /     |            |       |       |
|                   |                       | 831.5              | 23.96                     | 22.62 | /     |            |       |       |
|                   |                       | 814.7              | 24.19                     | 22.61 | /     |            |       |       |
|                   | 3RB_1                 | 848.3              | 23.72                     | 22.22 | /     |            |       |       |
|                   |                       | 831.5              | 24.01                     | 22.65 | /     |            |       |       |
|                   |                       | 814.7              | 24.21                     | 22.62 | /     |            |       |       |
|                   | 3RB_0                 | 848.3              | 23.66                     | 22.13 | /     |            |       |       |
|                   |                       | 831.5              | 23.94                     | 22.72 | /     |            |       |       |
|                   |                       | 814.7              | 24.11                     | 22.70 | /     |            |       |       |
|                   | 6RB_0                 | 848.3              | 22.67                     | 21.32 | /     | 23.5       | 22.5  | /     |
|                   |                       | 831.5              | 22.94                     | 21.97 | /     |            |       |       |
|                   |                       | 814.7              | 23.16                     | 22.05 | /     |            |       |       |

| Power Level A1/B1 |                       |                    |                           |       |       |            |       |       |
|-------------------|-----------------------|--------------------|---------------------------|-------|-------|------------|-------|-------|
| LTE Band 26       |                       |                    | Actual output Power (dBm) |       |       | Tune up    |       |       |
| Band<br>-width    | RB No. /<br>RB offset | Frequency<br>(MHz) | Modulation                |       |       | Modulation |       |       |
|                   |                       |                    | QPSK                      | 16QAM | 64QAM | QPSK       | 16QAM | 64QAM |
| 3 MHz             | 1RB_14                | 847.5              | 23.64                     | 22.92 | /     | 24.5       | 23.5  | /     |
|                   |                       | 831.5              | 23.89                     | 23.12 | /     |            |       |       |
|                   |                       | 815.5              | 23.99                     | 23.13 | /     |            |       |       |
|                   | 1RB_7                 | 847.5              | 23.82                     | 23.07 | /     |            |       |       |
|                   |                       | 831.5              | 24.06                     | 23.15 | /     |            |       |       |
|                   |                       | 815.5              | 24.05                     | 23.18 | /     |            |       |       |
|                   | 1RB_0                 | 847.5              | 23.64                     | 22.92 | /     |            |       |       |
|                   |                       | 831.5              | 23.88                     | 23.05 | /     |            |       |       |
|                   |                       | 815.5              | 24.00                     | 23.03 | /     |            |       |       |
|                   | 8RB_7                 | 847.5              | 22.67                     | 21.82 | /     | 23.5       | 22.5  | /     |
|                   |                       | 831.5              | 22.89                     | 22.03 | /     |            |       |       |
|                   |                       | 815.5              | 23.01                     | 22.00 | /     |            |       |       |
|                   | 8RB_4                 | 847.5              | 22.68                     | 21.81 | /     |            |       |       |
|                   |                       | 831.5              | 22.98                     | 22.04 | /     |            |       |       |
|                   |                       | 815.5              | 23.04                     | 22.04 | /     |            |       |       |
|                   | 8RB_0                 | 847.5              | 22.70                     | 21.85 | /     |            |       |       |
|                   |                       | 831.5              | 22.90                     | 21.99 | /     |            |       |       |
|                   |                       | 815.5              | 23.01                     | 21.98 | /     |            |       |       |
|                   | 15RB_0                | 847.5              | 22.70                     | 21.71 | /     |            |       |       |
|                   |                       | 831.5              | 23.00                     | 21.94 | /     |            |       |       |
|                   |                       | 815.5              | 23.04                     | 21.94 | /     |            |       |       |

| Power Level A1/B1 |                       |                    |                           |       |       |            |       |       |
|-------------------|-----------------------|--------------------|---------------------------|-------|-------|------------|-------|-------|
| LTE Band 26       |                       |                    | Actual output Power (dBm) |       |       | Tune up    |       |       |
| Band<br>-width    | RB No. /<br>RB offset | Frequency<br>(MHz) | Modulation                |       |       | Modulation |       |       |
|                   |                       |                    | QPSK                      | 16QAM | 64QAM | QPSK       | 16QAM | 64QAM |
| 5 MHz             | 1RB_24                | 846.5              | 23.55                     | 22.69 | /     | 24.5       | 23.5  | /     |
|                   |                       | 831.5              | 23.76                     | 22.98 | /     |            |       |       |
|                   |                       | 816.5              | 23.96                     | 23.21 | /     |            |       |       |
|                   | 1RB_12                | 846.5              | 23.74                     | 23.02 | /     |            |       |       |
|                   |                       | 831.5              | 24.12                     | 23.14 | /     |            |       |       |
|                   |                       | 816.5              | 24.26                     | 23.45 | /     |            |       |       |
|                   | 1RB_0                 | 846.5              | 23.59                     | 22.75 | /     |            |       |       |
|                   |                       | 831.5              | 23.82                     | 22.87 | /     |            |       |       |
|                   |                       | 816.5              | 23.96                     | 23.09 | /     |            |       |       |
|                   | 12RB_13               | 846.5              | 22.59                     | 21.55 | /     | 23.5       | 22.5  | /     |
|                   |                       | 831.5              | 22.85                     | 21.83 | /     |            |       |       |
|                   |                       | 816.5              | 23.05                     | 22.01 | /     |            |       |       |
|                   | 12RB_6                | 846.5              | 22.76                     | 21.72 | /     |            |       |       |
|                   |                       | 831.5              | 22.94                     | 21.88 | /     |            |       |       |
|                   |                       | 816.5              | 23.15                     | 22.11 | /     |            |       |       |
|                   | 12RB_0                | 846.5              | 22.80                     | 21.75 | /     |            |       |       |
|                   |                       | 831.5              | 22.93                     | 21.86 | /     |            |       |       |
|                   |                       | 816.5              | 23.13                     | 22.04 | /     |            |       |       |
|                   | 25RB_0                | 846.5              | 22.71                     | 21.68 | /     |            |       |       |
|                   |                       | 831.5              | 22.95                     | 21.88 | /     |            |       |       |
|                   |                       | 816.5              | 23.11                     | 22.05 | /     |            |       |       |

| Power Level A1/B1 |                       |                    |                           |       |       |            |       |       |
|-------------------|-----------------------|--------------------|---------------------------|-------|-------|------------|-------|-------|
| LTE Band 26       |                       |                    | Actual output Power (dBm) |       |       | Tune up    |       |       |
| Band<br>-width    | RB No. /<br>RB offset | Frequency<br>(MHz) | Modulation                |       |       | Modulation |       |       |
|                   |                       |                    | QPSK                      | 16QAM | 64QAM | QPSK       | 16QAM | 64QAM |
| 10 MHz            | 1RB_49                | 844.0              | 23.62                     | 22.85 | /     | 24.5       | 23.5  | /     |
|                   |                       | 831.5              | 23.84                     | 23.06 | /     |            |       |       |
|                   |                       | 819.0              | 23.96                     | 23.21 | /     |            |       |       |
|                   | 1RB_24                | 844.0              | 23.70                     | 22.96 | /     |            |       |       |
|                   |                       | 831.5              | 23.98                     | 23.02 | /     |            |       |       |
|                   |                       | 819.0              | 24.08                     | 23.43 | /     |            |       |       |
|                   | 1RB_0                 | 844.0              | 23.72                     | 22.92 | /     |            |       |       |
|                   |                       | 831.5              | 23.88                     | 22.96 | /     |            |       |       |
|                   |                       | 819.0              | 23.98                     | 23.24 | /     |            |       |       |
|                   | 25RB_25               | 844.0              | 22.55                     | 21.51 | /     | 23.5       | 22.5  | /     |
|                   |                       | 831.5              | 22.84                     | 21.82 | /     |            |       |       |
|                   |                       | 819.0              | 23.17                     | 22.12 | /     |            |       |       |
|                   | 25RB_12               | 844.0              | 22.77                     | 21.73 | /     |            |       |       |
|                   |                       | 831.5              | 22.96                     | 21.92 | /     |            |       |       |
|                   |                       | 819.0              | 23.10                     | 22.06 | /     |            |       |       |
|                   | 25RB_0                | 844.0              | 22.74                     | 21.71 | /     |            |       |       |
|                   |                       | 831.5              | 22.96                     | 21.87 | /     |            |       |       |
|                   |                       | 819.0              | 23.24                     | 22.21 | /     |            |       |       |
|                   | 50RB_0                | 844.0              | 22.65                     | 21.63 | /     |            |       |       |
|                   |                       | 831.5              | 22.92                     | 21.86 | /     |            |       |       |
|                   |                       | 819.0              | 23.22                     | 22.15 | /     |            |       |       |

| Power Level A1/B1 |                       |                    |                           |       |       |            |       |       |
|-------------------|-----------------------|--------------------|---------------------------|-------|-------|------------|-------|-------|
| LTE Band 26       |                       |                    | Actual output Power (dBm) |       |       | Tune up    |       |       |
| Band<br>-width    | RB No. /<br>RB offset | Frequency<br>(MHz) | Modulation                |       |       | Modulation |       |       |
|                   |                       |                    | QPSK                      | 16QAM | 64QAM | QPSK       | 16QAM | 64QAM |
| 15 MHz            | 1RB_74                | 841.5              | 23.54                     | 22.64 | /     | 24.5       | 23.5  | /     |
|                   |                       | 831.5              | 23.75                     | 22.99 | /     |            |       |       |
|                   |                       | 821.5              | 23.82                     | 22.94 | /     |            |       |       |
|                   | 1RB_37                | 841.5              | 23.74                     | 22.86 | /     |            |       |       |
|                   |                       | 831.5              | 23.88                     | 22.94 | /     |            |       |       |
|                   |                       | 821.5              | 24.00                     | 23.24 | /     |            |       |       |
|                   | 1RB_0                 | 841.5              | 23.68                     | 22.78 | /     |            |       |       |
|                   |                       | 831.5              | 23.81                     | 22.98 | /     |            |       |       |
|                   |                       | 821.5              | 23.87                     | 23.08 | /     |            |       |       |
|                   | 36RB_38               | 841.5              | 22.67                     | 21.62 | /     | 23.5       | 22.5  | /     |
|                   |                       | 831.5              | 22.85                     | 21.81 | /     |            |       |       |
|                   |                       | 821.5              | 23.12                     | 22.04 | /     |            |       |       |
|                   | 36RB_19               | 841.5              | 22.82                     | 21.75 | /     |            |       |       |
|                   |                       | 831.5              | 22.96                     | 21.90 | /     |            |       |       |
|                   |                       | 821.5              | 23.07                     | 22.04 | /     |            |       |       |
|                   | 36RB_0                | 841.5              | 22.90                     | 21.87 | /     |            |       |       |
|                   |                       | 831.5              | 22.92                     | 21.84 | /     |            |       |       |
|                   |                       | 821.5              | 23.14                     | 22.12 | /     |            |       |       |
|                   | 75RB_0                | 841.5              | 22.76                     | 21.75 | /     |            |       |       |
|                   |                       | 831.5              | 22.94                     | 21.81 | /     |            |       |       |
|                   |                       | 821.5              | 23.11                     | 22.09 | /     |            |       |       |

| Power Level A1/B1 |                       |                    |                           |       |       |            |       |       |
|-------------------|-----------------------|--------------------|---------------------------|-------|-------|------------|-------|-------|
| LTE Band 38       |                       |                    | Actual output Power (dBm) |       |       | Tune up    |       |       |
| Band<br>-width    | RB No. /<br>RB offset | Frequency<br>(MHz) | Modulation                |       |       | Modulation |       |       |
|                   |                       |                    | QPSK                      | 16QAM | 64QAM | QPSK       | 16QAM | 64QAM |
| 5 MHz             | 1RB_24                | 2617.5             | 22.23                     | 21.30 | /     | 24.0       | 23.0  | /     |
|                   |                       | 2595.0             | 22.33                     | 21.43 | /     |            |       |       |
|                   |                       | 2572.5             | 22.45                     | 21.45 | /     |            |       |       |
|                   | 1RB_12                | 2617.5             | 22.46                     | 21.49 | /     |            |       |       |
|                   |                       | 2595.0             | 22.56                     | 21.58 | /     |            |       |       |
|                   |                       | 2572.5             | 22.61                     | 21.64 | /     |            |       |       |
|                   | 1RB_0                 | 2617.5             | 22.26                     | 21.34 | /     |            |       |       |
|                   |                       | 2595.0             | 22.41                     | 21.38 | /     |            |       |       |
|                   |                       | 2572.5             | 22.43                     | 21.51 | /     |            |       |       |
|                   | 12RB_13               | 2617.5             | 21.44                     | 20.33 | /     | 23.0       | 22.0  | /     |
|                   |                       | 2595.0             | 21.47                     | 20.44 | /     |            |       |       |
|                   |                       | 2572.5             | 21.63                     | 20.55 | /     |            |       |       |
|                   | 12RB_6                | 2617.5             | 21.52                     | 20.43 | /     |            |       |       |
|                   |                       | 2595.0             | 21.54                     | 20.51 | /     |            |       |       |
|                   |                       | 2572.5             | 21.67                     | 20.60 | /     |            |       |       |
|                   | 12RB_0                | 2617.5             | 21.47                     | 20.39 | /     |            |       |       |
|                   |                       | 2595.0             | 21.58                     | 20.41 | /     |            |       |       |
|                   |                       | 2572.5             | 21.63                     | 20.52 | /     |            |       |       |
|                   | 25RB_0                | 2617.5             | 21.39                     | 20.36 | /     |            |       |       |
|                   |                       | 2595.0             | 21.44                     | 20.44 | /     |            |       |       |
|                   |                       | 2572.5             | 21.55                     | 20.55 | /     |            |       |       |

| Power Level A1/B1 |                       |                    |                           |       |       |            |       |       |
|-------------------|-----------------------|--------------------|---------------------------|-------|-------|------------|-------|-------|
| LTE Band 38       |                       |                    | Actual output Power (dBm) |       |       | Tune up    |       |       |
| Band<br>-width    | RB No. /<br>RB offset | Frequency<br>(MHz) | Modulation                |       |       | Modulation |       |       |
|                   |                       |                    | QPSK                      | 16QAM | 64QAM | QPSK       | 16QAM | 64QAM |
| 10 MHz            | 1RB_49                | 2615.0             | 22.33                     | 21.43 | /     | 24.0       | 23.0  | /     |
|                   |                       | 2595.0             | 22.45                     | 21.50 | /     |            |       |       |
|                   |                       | 2575.0             | 22.52                     | 21.60 | /     |            |       |       |
|                   | 1RB_24                | 2615.0             | 22.56                     | 21.57 | /     |            |       |       |
|                   |                       | 2595.0             | 22.61                     | 21.64 | /     |            |       |       |
|                   |                       | 2575.0             | 22.71                     | 21.72 | /     |            |       |       |
|                   | 1RB_0                 | 2615.0             | 22.41                     | 21.46 | /     |            |       |       |
|                   |                       | 2595.0             | 22.48                     | 21.54 | /     |            |       |       |
|                   |                       | 2575.0             | 22.60                     | 21.58 | /     |            |       |       |
|                   | 25RB_25               | 2615.0             | 21.43                     | 20.44 | /     | 23.0       | 22.0  | /     |
|                   |                       | 2595.0             | 21.55                     | 20.53 | /     |            |       |       |
|                   |                       | 2575.0             | 21.57                     | 20.58 | /     |            |       |       |
|                   | 25RB_12               | 2615.0             | 21.51                     | 20.47 | /     |            |       |       |
|                   |                       | 2595.0             | 21.58                     | 20.54 | /     |            |       |       |
|                   |                       | 2575.0             | 21.58                     | 20.60 | /     |            |       |       |
|                   | 25RB_0                | 2615.0             | 21.51                     | 20.50 | /     |            |       |       |
|                   |                       | 2595.0             | 21.57                     | 20.52 | /     |            |       |       |
|                   |                       | 2575.0             | 21.61                     | 20.60 | /     |            |       |       |
|                   | 50RB_0                | 2615.0             | 21.41                     | 20.45 | /     |            |       |       |
|                   |                       | 2595.0             | 21.46                     | 20.51 | /     |            |       |       |
|                   |                       | 2575.0             | 21.50                     | 20.55 | /     |            |       |       |



| Power Level A1/B1 |                       |                    |                           |       |       |            |       |       |
|-------------------|-----------------------|--------------------|---------------------------|-------|-------|------------|-------|-------|
| LTE Band 38       |                       |                    | Actual output Power (dBm) |       |       | Tune up    |       |       |
| Band<br>-width    | RB No. /<br>RB offset | Frequency<br>(MHz) | Modulation                |       |       | Modulation |       |       |
|                   |                       |                    | QPSK                      | 16QAM | 64QAM | QPSK       | 16QAM | 64QAM |
| 15 MHz            | 1RB_74                | 2612.5             | 22.23                     | 21.28 | /     | 24.0       | 23.0  | /     |
|                   |                       | 2595.0             | 22.35                     | 21.40 | /     |            |       |       |
|                   |                       | 2577.5             | 22.40                     | 21.47 | /     |            |       |       |
|                   | 1RB_37                | 2612.5             | 22.35                     | 21.41 | /     |            |       |       |
|                   |                       | 2595.0             | 22.41                     | 21.51 | /     |            |       |       |
|                   |                       | 2577.5             | 22.49                     | 21.55 | /     |            |       |       |
|                   | 1RB_0                 | 2612.5             | 22.33                     | 21.35 | /     |            |       |       |
|                   |                       | 2595.0             | 22.36                     | 21.45 | /     |            |       |       |
|                   |                       | 2577.5             | 22.47                     | 21.51 | /     |            |       |       |
|                   | 36RB_38               | 2612.5             | 21.43                     | 20.37 | /     | 23.0       | 22.0  | /     |
|                   |                       | 2595.0             | 21.53                     | 20.46 | /     |            |       |       |
|                   |                       | 2577.5             | 21.59                     | 20.51 | /     |            |       |       |
|                   | 36RB_19               | 2612.5             | 21.50                     | 20.41 | /     |            |       |       |
|                   |                       | 2595.0             | 21.49                     | 20.46 | /     |            |       |       |
|                   |                       | 2577.5             | 21.62                     | 20.55 | /     |            |       |       |
|                   | 36RB_0                | 2612.5             | 21.53                     | 20.45 | /     |            |       |       |
|                   |                       | 2595.0             | 21.55                     | 20.49 | /     |            |       |       |
|                   |                       | 2577.5             | 21.63                     | 20.59 | /     |            |       |       |
|                   | 75RB_0                | 2612.5             | 21.42                     | 20.35 | /     |            |       |       |
|                   |                       | 2595.0             | 21.43                     | 20.42 | /     |            |       |       |
|                   |                       | 2577.5             | 21.54                     | 20.47 | /     |            |       |       |

| Power Level A1/B1 |                       |                    |                           |       |       |            |       |       |
|-------------------|-----------------------|--------------------|---------------------------|-------|-------|------------|-------|-------|
| LTE Band 38       |                       |                    | Actual output Power (dBm) |       |       | Tune up    |       |       |
| Band<br>-width    | RB No. /<br>RB offset | Frequency<br>(MHz) | Modulation                |       |       | Modulation |       |       |
|                   |                       |                    | QPSK                      | 16QAM | 64QAM | QPSK       | 16QAM | 64QAM |
| 20 MHz            | 1RB_99                | 2610.0             | 22.08                     | 21.08 | /     | 24.0       | 23.0  | /     |
|                   |                       | 2595.0             | 22.13                     | 21.20 | /     |            |       |       |
|                   |                       | 2580.0             | 22.21                     | 21.26 | /     |            |       |       |
|                   | 1RB_50                | 2610.0             | 22.47                     | 21.52 | /     |            |       |       |
|                   |                       | 2595.0             | 22.50                     | 21.52 | /     |            |       |       |
|                   |                       | 2580.0             | 22.53                     | 21.58 | /     |            |       |       |
|                   | 1RB_0                 | 2610.0             | 22.16                     | 21.20 | /     |            |       |       |
|                   |                       | 2595.0             | 22.27                     | 21.27 | /     |            |       |       |
|                   |                       | 2580.0             | 22.25                     | 21.33 | /     |            |       |       |
|                   | 50RB_50               | 2610.0             | 21.23                     | 20.25 | /     | 23.0       | 22.0  | /     |
|                   |                       | 2595.0             | 21.36                     | 20.37 | /     |            |       |       |
|                   |                       | 2580.0             | 21.47                     | 20.55 | /     |            |       |       |
|                   | 50RB_25               | 2610.0             | 21.34                     | 20.32 | /     |            |       |       |
|                   |                       | 2595.0             | 21.34                     | 20.39 | /     |            |       |       |
|                   |                       | 2580.0             | 21.43                     | 20.47 | /     |            |       |       |
|                   | 50RB_0                | 2610.0             | 21.37                     | 20.36 | /     |            |       |       |
|                   |                       | 2595.0             | 21.39                     | 20.40 | /     |            |       |       |
|                   |                       | 2580.0             | 21.49                     | 20.48 | /     |            |       |       |
|                   | 100RB_0               | 2610.0             | 21.41                     | 20.38 | /     |            |       |       |
|                   |                       | 2595.0             | 21.49                     | 20.48 | /     |            |       |       |
|                   |                       | 2580.0             | 21.59                     | 20.53 | /     |            |       |       |

| Power Level A1 |                       |                    |                           |       |       |            |       |       |
|----------------|-----------------------|--------------------|---------------------------|-------|-------|------------|-------|-------|
| LTE Band 66    |                       |                    | Actual output Power (dBm) |       |       | Tune up    |       |       |
| Band<br>-width | RB No. /<br>RB offset | Frequency<br>(MHz) | Modulation                |       |       | Modulation |       |       |
|                |                       |                    | QPSK                      | 16QAM | 64QAM | QPSK       | 16QAM | 64QAM |
| 1.4 MHz        | 1RB_5                 | 1779.3             | 22.50                     | 21.77 | /     | 24.0       | 23.0  | /     |
|                |                       | 1745.0             | 22.48                     | 21.82 | /     |            |       |       |
|                |                       | 1710.7             | 22.43                     | 21.67 | /     |            |       |       |
|                | 1RB_3                 | 1779.3             | 22.63                     | 21.89 | /     |            |       |       |
|                |                       | 1745.0             | 22.57                     | 21.91 | /     |            |       |       |
|                |                       | 1710.7             | 22.54                     | 21.79 | /     |            |       |       |
|                | 1RB_0                 | 1779.3             | 22.51                     | 21.80 | /     |            |       |       |
|                |                       | 1745.0             | 22.48                     | 21.79 | /     |            |       |       |
|                |                       | 1710.7             | 22.42                     | 21.69 | /     |            |       |       |
|                | 3RB_3                 | 1779.3             | 22.62                     | 21.56 | /     |            |       |       |
|                |                       | 1745.0             | 22.56                     | 21.52 | /     |            |       |       |
|                |                       | 1710.7             | 22.55                     | 21.47 | /     |            |       |       |
|                | 3RB_1                 | 1779.3             | 22.66                     | 21.57 | /     |            |       |       |
|                |                       | 1745.0             | 22.65                     | 21.59 | /     |            |       |       |
|                |                       | 1710.7             | 22.59                     | 21.57 | /     |            |       |       |
|                | 3RB_0                 | 1779.3             | 22.61                     | 21.55 | /     |            |       |       |
|                |                       | 1745.0             | 22.58                     | 21.52 | /     |            |       |       |
|                |                       | 1710.7             | 22.55                     | 21.50 | /     |            |       |       |
|                | 6RB_0                 | 1779.3             | 21.63                     | 20.70 | /     | 23.0       | 22.0  | /     |
|                |                       | 1745.0             | 21.62                     | 20.68 | /     |            |       |       |
|                |                       | 1710.7             | 21.57                     | 20.64 | /     |            |       |       |

| Power Level A1 |                       |                    |                           |       |       |            |       |       |
|----------------|-----------------------|--------------------|---------------------------|-------|-------|------------|-------|-------|
| LTE Band 66    |                       |                    | Actual output Power (dBm) |       |       | Tune up    |       |       |
| Band<br>-width | RB No. /<br>RB offset | Frequency<br>(MHz) | Modulation                |       |       | Modulation |       |       |
|                |                       |                    | QPSK                      | 16QAM | 64QAM | QPSK       | 16QAM | 64QAM |
| 3 MHz          | 1RB_14                | 1778.5             | 22.88                     | 21.77 | /     | 24.0       | 23.0  | /     |
|                |                       | 1745.0             | 22.53                     | 21.74 | /     |            |       |       |
|                |                       | 1711.5             | 22.49                     | 21.80 | /     |            |       |       |
|                | 1RB_7                 | 1778.5             | 22.77                     | 21.93 | /     |            |       |       |
|                |                       | 1745.0             | 22.68                     | 21.87 | /     |            |       |       |
|                |                       | 1711.5             | 22.63                     | 21.86 | /     |            |       |       |
|                | 1RB_0                 | 1778.5             | 22.56                     | 21.75 | /     |            |       |       |
|                |                       | 1745.0             | 22.53                     | 21.75 | /     |            |       |       |
|                |                       | 1711.5             | 22.50                     | 21.74 | /     |            |       |       |
|                | 8RB_7                 | 1778.5             | 21.58                     | 20.64 | /     | 23.0       | 22.0  | /     |
|                |                       | 1745.0             | 21.55                     | 20.60 | /     |            |       |       |
|                |                       | 1711.5             | 21.49                     | 20.58 | /     |            |       |       |
|                | 8RB_4                 | 1778.5             | 21.58                     | 20.63 | /     |            |       |       |
|                |                       | 1745.0             | 21.58                     | 20.73 | /     |            |       |       |
|                |                       | 1711.5             | 21.52                     | 20.83 | /     |            |       |       |
|                | 8RB_0                 | 1778.5             | 21.59                     | 20.62 | /     |            |       |       |
|                |                       | 1745.0             | 21.57                     | 20.62 | /     |            |       |       |
|                |                       | 1711.5             | 21.50                     | 20.67 | /     |            |       |       |
|                | 15RB_0                | 1778.5             | 21.62                     | 20.61 | /     |            |       |       |
|                |                       | 1745.0             | 21.57                     | 20.66 | /     |            |       |       |
|                |                       | 1711.5             | 21.56                     | 20.99 | /     |            |       |       |

| Power Level A1 |                       |                    |                           |       |       |            |       |       |
|----------------|-----------------------|--------------------|---------------------------|-------|-------|------------|-------|-------|
| LTE Band 66    |                       |                    | Actual output Power (dBm) |       |       | Tune up    |       |       |
| Band<br>-width | RB No. /<br>RB offset | Frequency<br>(MHz) | Modulation                |       |       | Modulation |       |       |
|                |                       |                    | QPSK                      | 16QAM | 64QAM | QPSK       | 16QAM | 64QAM |
| 5 MHz          | 1RB_24                | 1777.5             | 22.85                     | 21.71 | /     | 24.0       | 23.0  | /     |
|                |                       | 1745.0             | 22.42                     | 21.66 | /     |            |       |       |
|                |                       | 1712.5             | 22.36                     | 21.87 | /     |            |       |       |
|                | 1RB_12                | 1777.5             | 22.67                     | 22.05 | /     |            |       |       |
|                |                       | 1745.0             | 22.73                     | 22.01 | /     |            |       |       |
|                |                       | 1712.5             | 22.68                     | 21.94 | /     |            |       |       |
|                | 1RB_0                 | 1777.5             | 22.43                     | 21.74 | /     |            |       |       |
|                |                       | 1745.0             | 22.47                     | 21.66 | /     |            |       |       |
|                |                       | 1712.5             | 22.40                     | 21.88 | /     |            |       |       |
|                | 12RB_13               | 1777.5             | 21.58                     | 20.59 | /     | 23.0       | 22.0  | /     |
|                |                       | 1745.0             | 21.56                     | 20.56 | /     |            |       |       |
|                |                       | 1712.5             | 21.56                     | 20.52 | /     |            |       |       |
|                | 12RB_6                | 1777.5             | 21.61                     | 20.63 | /     |            |       |       |
|                |                       | 1745.0             | 21.62                     | 20.97 | /     |            |       |       |
|                |                       | 1712.5             | 21.58                     | 20.93 | /     |            |       |       |
|                | 12RB_0                | 1777.5             | 21.61                     | 20.60 | /     |            |       |       |
|                |                       | 1745.0             | 21.55                     | 20.80 | /     |            |       |       |
|                |                       | 1712.5             | 21.50                     | 20.89 | /     |            |       |       |
|                | 25RB_0                | 1777.5             | 21.59                     | 20.58 | /     |            |       |       |
|                |                       | 1745.0             | 21.60                     | 20.95 | /     |            |       |       |
|                |                       | 1712.5             | 21.47                     | 20.71 | /     |            |       |       |

| Power Level A1 |                       |                    |                           |       |       |            |       |       |
|----------------|-----------------------|--------------------|---------------------------|-------|-------|------------|-------|-------|
| LTE Band 66    |                       |                    | Actual output Power (dBm) |       |       | Tune up    |       |       |
| Band<br>-width | RB No. /<br>RB offset | Frequency<br>(MHz) | Modulation                |       |       | Modulation |       |       |
|                |                       |                    | QPSK                      | 16QAM | 64QAM | QPSK       | 16QAM | 64QAM |
| 10 MHz         | 1RB_49                | 1775.0             | 22.99                     | 21.78 | /     | 24.0       | 23.0  | /     |
|                |                       | 1745.0             | 22.50                     | 21.82 | /     |            |       |       |
|                |                       | 1715.0             | 22.47                     | 22.04 | /     |            |       |       |
|                | 1RB_24                | 1775.0             | 23.16                     | 21.97 | /     |            |       |       |
|                |                       | 1745.0             | 22.65                     | 22.05 | /     |            |       |       |
|                |                       | 1715.0             | 22.59                     | 21.97 | /     |            |       |       |
|                | 1RB_0                 | 1775.0             | 22.77                     | 21.84 | /     |            |       |       |
|                |                       | 1745.0             | 22.58                     | 22.11 | /     |            |       |       |
|                |                       | 1715.0             | 22.58                     | 22.22 | /     |            |       |       |
|                | 25RB_25               | 1775.0             | 21.67                     | 20.60 | /     | 23.0       | 22.0  | /     |
|                |                       | 1745.0             | 21.60                     | 20.61 | /     |            |       |       |
|                |                       | 1715.0             | 21.64                     | 20.67 | /     |            |       |       |
|                | 25RB_12               | 1775.0             | 21.64                     | 20.74 | /     |            |       |       |
|                |                       | 1745.0             | 21.73                     | 21.04 | /     |            |       |       |
|                |                       | 1715.0             | 22.00                     | 21.11 | /     |            |       |       |
|                | 25RB_0                | 1775.0             | 21.81                     | 20.78 | /     |            |       |       |
|                |                       | 1745.0             | 21.70                     | 21.00 | /     |            |       |       |
|                |                       | 1715.0             | 21.54                     | 21.06 | /     |            |       |       |
|                | 50RB_0                | 1775.0             | 21.69                     | 20.76 | /     |            |       |       |
|                |                       | 1745.0             | 21.87                     | 21.13 | /     |            |       |       |
|                |                       | 1715.0             | 21.86                     | 21.08 | /     |            |       |       |

| Power Level A1 |                       |                    |                           |       |       |            |       |       |
|----------------|-----------------------|--------------------|---------------------------|-------|-------|------------|-------|-------|
| LTE Band 66    |                       |                    | Actual output Power (dBm) |       |       | Tune up    |       |       |
| Band<br>-width | RB No. /<br>RB offset | Frequency<br>(MHz) | Modulation                |       |       | Modulation |       |       |
|                |                       |                    | QPSK                      | 16QAM | 64QAM | QPSK       | 16QAM | 64QAM |
| 15 MHz         | 1RB_74                | 1772.5             | 22.87                     | 22.15 | /     | 24.0       | 23.0  | /     |
|                |                       | 1745.0             | 22.84                     | 22.06 | /     |            |       |       |
|                |                       | 1717.5             | 22.77                     | 22.06 | /     |            |       |       |
|                | 1RB_37                | 1772.5             | 23.04                     | 22.30 | /     |            |       |       |
|                |                       | 1745.0             | 23.01                     | 22.23 | /     |            |       |       |
|                |                       | 1717.5             | 22.92                     | 22.19 | /     |            |       |       |
|                | 1RB_0                 | 1772.5             | 22.97                     | 22.24 | /     |            |       |       |
|                |                       | 1745.0             | 22.94                     | 22.17 | /     |            |       |       |
|                |                       | 1717.5             | 22.86                     | 22.08 | /     |            |       |       |
|                | 36RB_38               | 1772.5             | 22.14                     | 21.05 | /     | 23.0       | 22.0  | /     |
|                |                       | 1745.0             | 21.99                     | 21.03 | /     |            |       |       |
|                |                       | 1717.5             | 22.11                     | 21.04 | /     |            |       |       |
|                | 36RB_19               | 1772.5             | 22.18                     | 21.12 | /     |            |       |       |
|                |                       | 1745.0             | 22.13                     | 21.10 | /     |            |       |       |
|                |                       | 1717.5             | 22.08                     | 21.09 | /     |            |       |       |
|                | 36RB_0                | 1772.5             | 22.18                     | 21.12 | /     |            |       |       |
|                |                       | 1745.0             | 22.18                     | 21.14 | /     |            |       |       |
|                |                       | 1717.5             | 22.01                     | 20.97 | /     |            |       |       |
|                | 75RB_0                | 1772.5             | 22.17                     | 21.13 | /     |            |       |       |
|                |                       | 1745.0             | 22.11                     | 21.08 | /     |            |       |       |
|                |                       | 1717.5             | 22.06                     | 20.99 | /     |            |       |       |

| Power Level A1 |                       |                    |                           |       |       |            |       |       |
|----------------|-----------------------|--------------------|---------------------------|-------|-------|------------|-------|-------|
| LTE Band 66    |                       |                    | Actual output Power (dBm) |       |       | Tune up    |       |       |
| Band<br>-width | RB No. /<br>RB offset | Frequency<br>(MHz) | Modulation                |       |       | Modulation |       |       |
|                |                       |                    | QPSK                      | 16QAM | 64QAM | QPSK       | 16QAM | 64QAM |
| 20 MHz         | 1RB_99                | 1770.0             | 22.73                     | 22.08 | /     | 24.0       | 23.0  | /     |
|                |                       | 1745.0             | 22.68                     | 21.95 | /     |            |       |       |
|                |                       | 1720.0             | 22.63                     | 21.92 | /     |            |       |       |
|                | 1RB_50                | 1770.0             | 23.04                     | 22.46 | /     |            |       |       |
|                |                       | 1745.0             | 23.02                     | 22.33 | /     |            |       |       |
|                |                       | 1720.0             | 22.93                     | 22.31 | /     |            |       |       |
|                | 1RB_0                 | 1770.0             | 22.79                     | 22.20 | /     |            |       |       |
|                |                       | 1745.0             | 22.75                     | 22.02 | /     |            |       |       |
|                |                       | 1720.0             | 22.69                     | 21.99 | /     |            |       |       |
|                | 50RB_50               | 1770.0             | 22.12                     | 21.10 | /     | 23.0       | 22.0  | /     |
|                |                       | 1745.0             | 22.01                     | 21.00 | /     |            |       |       |
|                |                       | 1720.0             | 22.00                     | 20.99 | /     |            |       |       |
|                | 50RB_25               | 1770.0             | 22.19                     | 21.16 | /     |            |       |       |
|                |                       | 1745.0             | 22.13                     | 21.13 | /     |            |       |       |
|                |                       | 1720.0             | 22.02                     | 21.02 | /     |            |       |       |
|                | 50RB_0                | 1770.0             | 22.22                     | 21.18 | /     |            |       |       |
|                |                       | 1745.0             | 22.21                     | 21.16 | /     |            |       |       |
|                |                       | 1720.0             | 22.03                     | 20.94 | /     |            |       |       |
|                | 100RB_0               | 1770.0             | 22.12                     | 21.11 | /     |            |       |       |
|                |                       | 1745.0             | 22.09                     | 21.06 | /     |            |       |       |
|                |                       | 1720.0             | 21.96                     | 20.93 | /     |            |       |       |



| Power Level B1 |                       |                    |                           |       |       |            |       |       |
|----------------|-----------------------|--------------------|---------------------------|-------|-------|------------|-------|-------|
| LTE Band 66    |                       |                    | Actual output Power (dBm) |       |       | Tune up    |       |       |
| Band<br>-width | RB No. /<br>RB offset | Frequency<br>(MHz) | Modulation                |       |       | Modulation |       |       |
|                |                       |                    | QPSK                      | 16QAM | 64QAM | QPSK       | 16QAM | 64QAM |
| 1.4 MHz        | 1RB_5                 | 1779.3             | 20.21                     | 20.57 | /     | 21.5       | 21.5  | /     |
|                |                       | 1745.0             | 20.22                     | 20.49 | /     |            |       |       |
|                |                       | 1710.7             | 20.14                     | 20.46 | /     |            |       |       |
|                | 1RB_3                 | 1779.3             | 20.32                     | 20.70 | /     |            |       |       |
|                |                       | 1745.0             | 20.33                     | 20.65 | /     |            |       |       |
|                |                       | 1710.7             | 20.31                     | 20.61 | /     |            |       |       |
|                | 1RB_0                 | 1779.3             | 20.22                     | 20.50 | /     |            |       |       |
|                |                       | 1745.0             | 20.24                     | 20.53 | /     |            |       |       |
|                |                       | 1710.7             | 20.21                     | 20.48 | /     |            |       |       |
|                | 3RB_3                 | 1779.3             | 20.30                     | 20.30 | /     |            |       |       |
|                |                       | 1745.0             | 20.32                     | 20.31 | /     |            |       |       |
|                |                       | 1710.7             | 20.27                     | 20.15 | /     |            |       |       |
|                | 3RB_1                 | 1779.3             | 20.35                     | 20.38 | /     |            |       |       |
|                |                       | 1745.0             | 20.31                     | 20.38 | /     |            |       |       |
|                |                       | 1710.7             | 20.28                     | 20.26 | /     |            |       |       |
|                | 3RB_0                 | 1779.3             | 20.33                     | 20.29 | /     |            |       |       |
|                |                       | 1745.0             | 20.29                     | 20.31 | /     |            |       |       |
|                |                       | 1710.7             | 20.26                     | 20.20 | /     |            |       |       |
|                | 6RB_0                 | 1779.3             | 20.36                     | 20.43 | /     | 21.5       | 21.5  | /     |
|                |                       | 1745.0             | 20.31                     | 20.43 | /     |            |       |       |
|                |                       | 1710.7             | 20.28                     | 20.36 | /     |            |       |       |

| Power Level B1 |                       |                    |                           |       |       |            |       |       |
|----------------|-----------------------|--------------------|---------------------------|-------|-------|------------|-------|-------|
| LTE Band 66    |                       |                    | Actual output Power (dBm) |       |       | Tune up    |       |       |
| Band<br>-width | RB No. /<br>RB offset | Frequency<br>(MHz) | Modulation                |       |       | Modulation |       |       |
|                |                       |                    | QPSK                      | 16QAM | 64QAM | QPSK       | 16QAM | 64QAM |
| 3 MHz          | 1RB_14                | 1778.5             | 20.30                     | 20.51 | /     | 21.5       | 21.5  | /     |
|                |                       | 1745.0             | 20.26                     | 20.61 | /     |            |       |       |
|                |                       | 1711.5             | 20.25                     | 20.57 | /     |            |       |       |
|                | 1RB_7                 | 1778.5             | 20.43                     | 20.63 | /     |            |       |       |
|                |                       | 1745.0             | 20.28                     | 20.82 | /     |            |       |       |
|                |                       | 1711.5             | 20.39                     | 20.72 | /     |            |       |       |
|                | 1RB_0                 | 1778.5             | 20.28                     | 20.56 | /     |            |       |       |
|                |                       | 1745.0             | 20.31                     | 20.65 | /     |            |       |       |
|                |                       | 1711.5             | 20.25                     | 20.52 | /     |            |       |       |
|                | 8RB_7                 | 1778.5             | 20.29                     | 20.31 | /     | 21.5       | 21.5  | /     |
|                |                       | 1745.0             | 20.31                     | 20.33 | /     |            |       |       |
|                |                       | 1711.5             | 20.25                     | 20.27 | /     |            |       |       |
|                | 8RB_4                 | 1778.5             | 20.36                     | 20.36 | /     |            |       |       |
|                |                       | 1745.0             | 20.34                     | 20.35 | /     |            |       |       |
|                |                       | 1711.5             | 20.29                     | 20.31 | /     |            |       |       |
|                | 8RB_0                 | 1778.5             | 20.29                     | 20.32 | /     |            |       |       |
|                |                       | 1745.0             | 20.29                     | 20.30 | /     |            |       |       |
|                |                       | 1711.5             | 20.24                     | 20.31 | /     |            |       |       |
|                | 15RB_0                | 1778.5             | 20.32                     | 20.33 | /     |            |       |       |
|                |                       | 1745.0             | 20.29                     | 20.31 | /     |            |       |       |
|                |                       | 1711.5             | 20.25                     | 20.32 | /     |            |       |       |

| Power Level B1 |                       |                    |                           |       |       |            |       |       |
|----------------|-----------------------|--------------------|---------------------------|-------|-------|------------|-------|-------|
| LTE Band 66    |                       |                    | Actual output Power (dBm) |       |       | Tune up    |       |       |
| Band<br>-width | RB No. /<br>RB offset | Frequency<br>(MHz) | Modulation                |       |       | Modulation |       |       |
|                |                       |                    | QPSK                      | 16QAM | 64QAM | QPSK       | 16QAM | 64QAM |
| 5 MHz          | 1RB_24                | 1777.5             | 20.14                     | 20.40 | /     | 21.5       | 21.5  | /     |
|                |                       | 1745.0             | 20.12                     | 20.41 | /     |            |       |       |
|                |                       | 1712.5             | 20.14                     | 20.36 | /     |            |       |       |
|                | 1RB_12                | 1777.5             | 20.42                     | 20.71 | /     |            |       |       |
|                |                       | 1745.0             | 20.44                     | 20.66 | /     |            |       |       |
|                |                       | 1712.5             | 20.46                     | 20.61 | /     |            |       |       |
|                | 1RB_0                 | 1777.5             | 20.20                     | 20.45 | /     |            |       |       |
|                |                       | 1745.0             | 20.18                     | 20.38 | /     |            |       |       |
|                |                       | 1712.5             | 20.13                     | 20.34 | /     |            |       |       |
|                | 12RB_13               | 1777.5             | 20.31                     | 20.26 | /     | 21.5       | 21.5  | /     |
|                |                       | 1745.0             | 20.27                     | 20.25 | /     |            |       |       |
|                |                       | 1712.5             | 20.32                     | 20.24 | /     |            |       |       |
|                | 12RB_6                | 1777.5             | 20.35                     | 20.34 | /     |            |       |       |
|                |                       | 1745.0             | 20.36                     | 20.35 | /     |            |       |       |
|                |                       | 1712.5             | 20.29                     | 20.26 | /     |            |       |       |
|                | 12RB_0                | 1777.5             | 20.33                     | 20.31 | /     |            |       |       |
|                |                       | 1745.0             | 20.31                     | 20.30 | /     |            |       |       |
|                |                       | 1712.5             | 20.19                     | 20.19 | /     |            |       |       |
|                | 25RB_0                | 1777.5             | 20.34                     | 20.31 | /     |            |       |       |
|                |                       | 1745.0             | 20.27                     | 20.30 | /     |            |       |       |
|                |                       | 1712.5             | 20.25                     | 20.24 | /     |            |       |       |

| Power Level B1 |                       |                    |                           |       |       |            |       |       |
|----------------|-----------------------|--------------------|---------------------------|-------|-------|------------|-------|-------|
| LTE Band 66    |                       |                    | Actual output Power (dBm) |       |       | Tune up    |       |       |
| Band<br>-width | RB No. /<br>RB offset | Frequency<br>(MHz) | Modulation                |       |       | Modulation |       |       |
|                |                       |                    | QPSK                      | 16QAM | 64QAM | QPSK       | 16QAM | 64QAM |
| 10 MHz         | 1RB_49                | 1775.0             | 20.24                     | 20.49 | /     | 21.5       | 21.5  | /     |
|                |                       | 1745.0             | 20.25                     | 20.51 | /     |            |       |       |
|                |                       | 1715.0             | 20.26                     | 20.51 | /     |            |       |       |
|                | 1RB_24                | 1775.0             | 20.43                     | 20.71 | /     |            |       |       |
|                |                       | 1745.0             | 20.39                     | 20.69 | /     |            |       |       |
|                |                       | 1715.0             | 20.32                     | 20.63 | /     |            |       |       |
|                | 1RB_0                 | 1775.0             | 20.29                     | 20.58 | /     |            |       |       |
|                |                       | 1745.0             | 20.29                     | 20.62 | /     |            |       |       |
|                |                       | 1715.0             | 20.24                     | 20.50 | /     |            |       |       |
|                | 25RB_25               | 1775.0             | 20.36                     | 20.38 | /     | 21.5       | 21.5  | /     |
|                |                       | 1745.0             | 20.33                     | 20.37 | /     |            |       |       |
|                |                       | 1715.0             | 20.37                     | 20.42 | /     |            |       |       |
|                | 25RB_12               | 1775.0             | 20.43                     | 20.40 | /     |            |       |       |
|                |                       | 1745.0             | 20.37                     | 20.43 | /     |            |       |       |
|                |                       | 1715.0             | 20.36                     | 20.38 | /     |            |       |       |
|                | 25RB_0                | 1775.0             | 20.42                     | 20.43 | /     |            |       |       |
|                |                       | 1745.0             | 20.44                     | 20.46 | /     |            |       |       |
|                |                       | 1715.0             | 20.23                     | 20.23 | /     |            |       |       |
|                | 50RB_0                | 1775.0             | 20.42                     | 20.40 | /     |            |       |       |
|                |                       | 1745.0             | 20.39                     | 20.40 | /     |            |       |       |
|                |                       | 1715.0             | 20.38                     | 20.36 | /     |            |       |       |

| Power Level B1 |                       |                    |                           |       |       |            |       |       |
|----------------|-----------------------|--------------------|---------------------------|-------|-------|------------|-------|-------|
| LTE Band 66    |                       |                    | Actual output Power (dBm) |       |       | Tune up    |       |       |
| Band<br>-width | RB No. /<br>RB offset | Frequency<br>(MHz) | Modulation                |       |       | Modulation |       |       |
|                |                       |                    | QPSK                      | 16QAM | 64QAM | QPSK       | 16QAM | 64QAM |
| 15 MHz         | 1RB_74                | 1772.5             | 20.22                     | 20.52 | /     | 21.5       | 21.5  | /     |
|                |                       | 1745.0             | 20.17                     | 20.44 | /     |            |       |       |
|                |                       | 1717.5             | 20.17                     | 20.45 | /     |            |       |       |
|                | 1RB_37                | 1772.5             | 20.39                     | 20.65 | /     |            |       |       |
|                |                       | 1745.0             | 20.34                     | 20.62 | /     |            |       |       |
|                |                       | 1717.5             | 20.28                     | 20.58 | /     |            |       |       |
|                | 1RB_0                 | 1772.5             | 20.29                     | 20.52 | /     |            |       |       |
|                |                       | 1745.0             | 20.29                     | 20.53 | /     |            |       |       |
|                |                       | 1717.5             | 20.18                     | 20.48 | /     |            |       |       |
|                | 36RB_38               | 1772.5             | 20.39                     | 20.32 | /     | 21.5       | 21.5  | /     |
|                |                       | 1745.0             | 20.34                     | 20.28 | /     |            |       |       |
|                |                       | 1717.5             | 20.30                     | 20.27 | /     |            |       |       |
|                | 36RB_19               | 1772.5             | 20.41                     | 20.37 | /     |            |       |       |
|                |                       | 1745.0             | 20.41                     | 20.35 | /     |            |       |       |
|                |                       | 1717.5             | 20.32                     | 20.32 | /     |            |       |       |
|                | 36RB_0                | 1772.5             | 20.40                     | 20.39 | /     |            |       |       |
|                |                       | 1745.0             | 20.40                     | 20.35 | /     |            |       |       |
|                |                       | 1717.5             | 20.26                     | 20.22 | /     |            |       |       |
|                | 75RB_0                | 1772.5             | 20.42                     | 20.40 | /     |            |       |       |
|                |                       | 1745.0             | 20.34                     | 20.30 | /     |            |       |       |
|                |                       | 1717.5             | 20.33                     | 20.27 | /     |            |       |       |

| Power Level B1 |                       |                    |                           |       |       |            |       |       |
|----------------|-----------------------|--------------------|---------------------------|-------|-------|------------|-------|-------|
| LTE Band 66    |                       |                    | Actual output Power (dBm) |       |       | Tune up    |       |       |
| Band<br>-width | RB No. /<br>RB offset | Frequency<br>(MHz) | Modulation                |       |       | Modulation |       |       |
|                |                       |                    | QPSK                      | 16QAM | 64QAM | QPSK       | 16QAM | 64QAM |
| 20 MHz         | 1RB_99                | 1770.0             | 20.01                     | 20.37 | /     | 21.5       | 21.5  | /     |
|                |                       | 1745.0             | 20.01                     | 20.38 | /     |            |       |       |
|                |                       | 1720.0             | 20.00                     | 20.29 | /     |            |       |       |
|                | 1RB_50                | 1770.0             | 20.48                     | 20.73 | /     |            |       |       |
|                |                       | 1745.0             | 20.41                     | 20.73 | /     |            |       |       |
|                |                       | 1720.0             | 20.50                     | 20.67 | /     |            |       |       |
|                | 1RB_0                 | 1770.0             | 20.09                     | 20.45 | /     |            |       |       |
|                |                       | 1745.0             | 20.14                     | 20.45 | /     |            |       |       |
|                |                       | 1720.0             | 20.09                     | 20.38 | /     |            |       |       |
|                | 50RB_50               | 1770.0             | 20.35                     | 20.36 | /     | 21.5       | 21.5  | /     |
|                |                       | 1745.0             | 20.28                     | 20.26 | /     |            |       |       |
|                |                       | 1720.0             | 20.28                     | 20.29 | /     |            |       |       |
|                | 50RB_25               | 1770.0             | 20.46                     | 20.47 | /     |            |       |       |
|                |                       | 1745.0             | 20.45                     | 20.42 | /     |            |       |       |
|                |                       | 1720.0             | 20.48                     | 20.28 | /     |            |       |       |
|                | 50RB_0                | 1770.0             | 20.44                     | 20.45 | /     |            |       |       |
|                |                       | 1745.0             | 20.43                     | 20.46 | /     |            |       |       |
|                |                       | 1720.0             | 20.41                     | 20.24 | /     |            |       |       |
|                | 100RB_0               | 1770.0             | 20.40                     | 20.33 | /     |            |       |       |
|                |                       | 1745.0             | 20.36                     | 20.37 | /     |            |       |       |
|                |                       | 1720.0             | 20.31                     | 20.20 | /     |            |       |       |

#### 10.4. Bluetooth and WLAN Measurement result

**Table 10.5: The conducted Power measurement results for Bluetooth**

| Averaged Power (dBm) |                |                |                 |                 |
|----------------------|----------------|----------------|-----------------|-----------------|
| Mode                 | <b>Tune up</b> | Ch.0 (2402MHz) | Ch.39 (2441MHz) | Ch.78 (2480MHz) |
| GFSK                 | <b>11.0</b>    | <b>10.08</b>   | 9.91            | 10.03           |
| EDR2M-4_DQPSK        | <b>10.5</b>    | 9.74           | 9.09            | 9.37            |
| EDR3M-8DPSK          | <b>10.5</b>    | 9.74           | 9.07            | 9.36            |
| /                    | <b>/</b>       | Ch.0 (2402MHz) | Ch.19 (2440MHz) | Ch.39 (2480MHz) |
| BLE (1M)             | <b>-2.0</b>    | -3.05          | -2.63           | -2.52           |

**Table 10.6: The conducted Power measurement results for WLAN 2.4GHz**

| Averaged Power (dBm)    Duty Cycle: <b>100%</b> |                |                |                |                 |
|-------------------------------------------------|----------------|----------------|----------------|-----------------|
| Mode                                            | <b>Tune up</b> | Ch.1 (2412MHz) | Ch.6 (2437MHz) | Ch.11 (2462MHz) |
| 802.11b                                         | <b>17.0</b>    | 15.71          | <b>15.92</b>   | 15.72           |
| 802.11g                                         | <b>15.0</b>    | 13.75          | 13.69          | 13.33           |
| 802.11n(20MHz)                                  | <b>15.0</b>    | 13.39          | 13.86          | 13.65           |
| /                                               | <b>/</b>       | Ch.3 (2422MHz) | Ch.6 (2437MHz) | Ch.9 (2452MHz)  |
| 802.11n(40MHz)                                  | <b>15.0</b>    | 14.13          | 14.04          | 13.81           |

**Table 10.7: The conducted Power measurement results for WLAN 5GHz**

| Averaged Power (dBm) Duty Cycle: <b>100%</b> |              |                   |                    |              |                   |                    |              |                    |
|----------------------------------------------|--------------|-------------------|--------------------|--------------|-------------------|--------------------|--------------|--------------------|
| Mode                                         | 802.11a      | 802.11n<br>-20MHz | 802.11ac<br>-20MHz | Mode         | 802.11n<br>-40MHz | 802.11ac<br>-40MHz | Mode         | 802.11ac<br>-80MHz |
| Channel                                      | 6Mbps        | MCS0              | MCS0               | Channel      | MCS0              | MCS0               | Channel      | MCS0               |
| <U-NII-1>                                    |              |                   |                    |              |                   |                    |              |                    |
| <b>Tune up</b>                               | <b>15.5</b>  | <b>15.0</b>       | <b>15.0</b>        | /            | <b>14.5</b>       | <b>14.5</b>        | /            | <b>14.5</b>        |
| 36(5180MHz)                                  | 14.38        | 13.96             | 13.93              | 38(5190MHz)  | 13.63             | 13.56              | 42(5210MHz)  | 13.78              |
| 40(5200MHz)                                  | 14.30        | 13.89             | 13.87              | 46(5230MHz)  | 13.71             | 13.62              | /            | /                  |
| 44(5220MHz)                                  | 14.41        | 13.92             | 13.91              | /            | /                 | /                  | /            | /                  |
| 48(5240MHz)                                  | <b>14.42</b> | 13.98             | 13.98              | /            | /                 | /                  | /            | /                  |
| <U-NII-2A>                                   |              |                   |                    |              |                   |                    |              |                    |
| <b>Tune up</b>                               | <b>15.5</b>  | <b>15.0</b>       | <b>15.0</b>        | /            | <b>14.5</b>       | <b>14.5</b>        | /            | <b>14.5</b>        |
| 52(5260MHz)                                  | <b>14.49</b> | 13.88             | 14.05              | 54(5270MHz)  | 13.70             | 13.64              | 58(5290MHz)  | 13.91              |
| 56(5280MHz)                                  | 14.38        | 13.97             | 13.94              | 62(5310MHz)  | 13.82             | 13.67              | /            | /                  |
| 60(5300MHz)                                  | 14.46        | 13.94             | 14.02              | /            | /                 | /                  | /            | /                  |
| 64(5320MHz)                                  | 14.43        | 13.90             | 13.96              | /            | /                 | /                  | /            | /                  |
| <U-NII-2C>                                   |              |                   |                    |              |                   |                    |              |                    |
| <b>Tune up</b>                               | <b>15.5</b>  | <b>15.0</b>       | <b>15.0</b>        | /            | <b>14.5</b>       | <b>14.5</b>        | /            | <b>14.5</b>        |
| 100(5500MHz)                                 | 14.55        | 14.12             | 14.10              | 102(5510MHz) | 13.88             | 13.78              | 106(5530MHz) | 13.92              |
| 116(5580MHz)                                 | <b>14.73</b> | 14.25             | 14.26              | 110(5550MHz) | 13.94             | 13.85              | 122(5610MHz) | 13.90              |
| 124(5620MHz)                                 | 14.64        | 14.24             | 14.23              | 126(5630MHz) | 13.94             | 13.87              | 138(5690MHz) | 13.94              |
| 132(5660MHz)                                 | 14.71        | 14.16             | 14.14              | 134(5670MHz) | 13.95             | 13.87              | /            | /                  |
| 140(5700MHz)                                 | 14.68        | 14.27             | 14.15              | 142(5710MHz) | 13.92             | 13.82              | /            | /                  |
| 144(5720MHz)                                 | 14.65        | 14.21             | 14.31              | /            | /                 | /                  | /            | /                  |
| <U-NII-3>                                    |              |                   |                    |              |                   |                    |              |                    |
| <b>Tune up</b>                               | <b>15.5</b>  | <b>15.0</b>       | <b>15.0</b>        | /            | <b>14.5</b>       | <b>14.5</b>        | /            | <b>14.5</b>        |
| 149(5745MHz)                                 | 14.67        | 14.27             | 14.28              | 151(5755MHz) | 13.98             | 13.92              | 155(5775MHz) | 13.99              |
| 157(5785MHz)                                 | 14.69        | 14.32             | 14.30              | 159(5795MHz) | 14.06             | 13.97              | /            | /                  |
| 165(5825MHz)                                 | <b>14.72</b> | 14.26             | 14.31              | /            | /                 | /                  | /            | /                  |



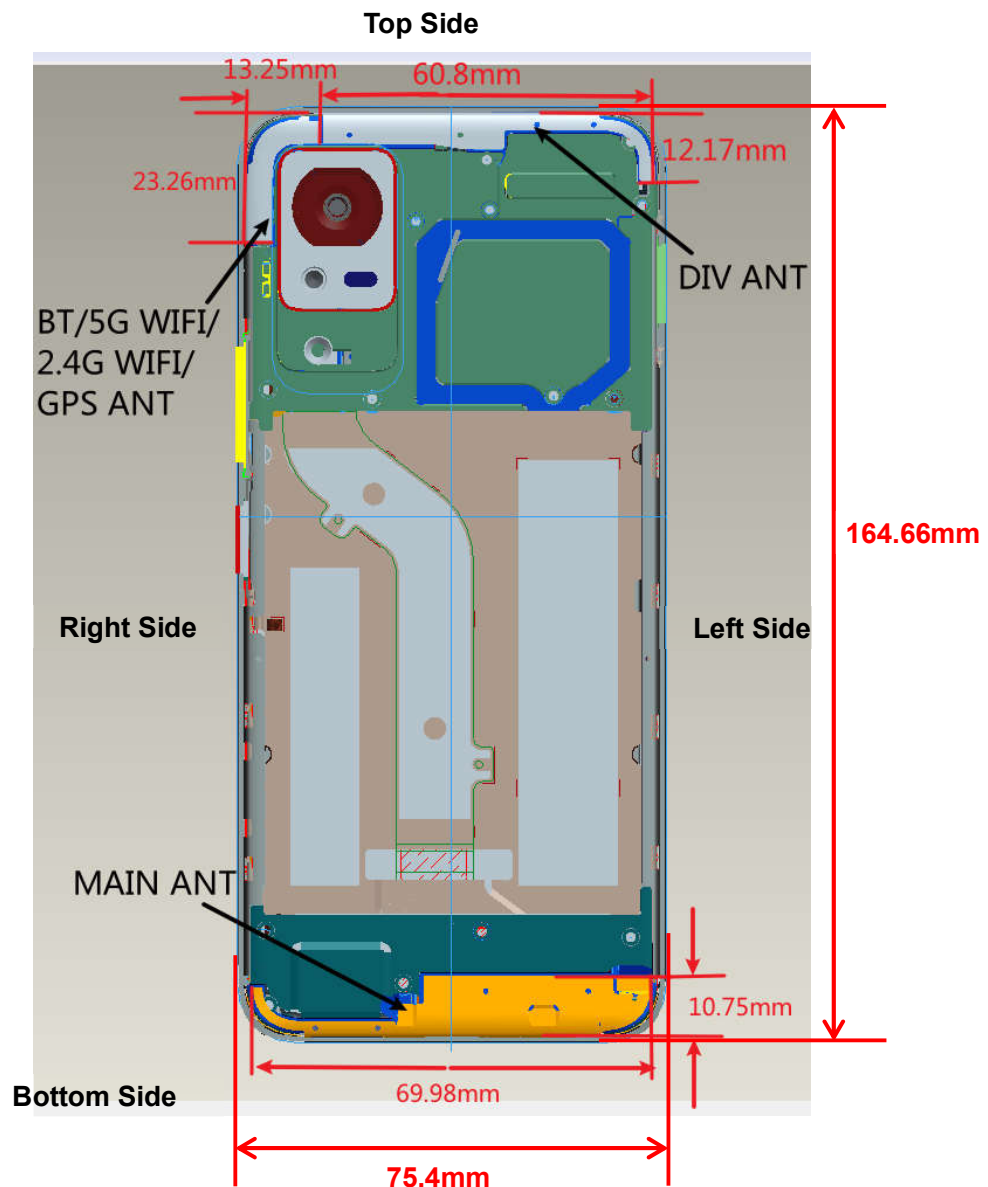
## 11. Simultaneous TX SAR Considerations

### 11.1. Introduction

The following procedures adopted from “FCC SAR Considerations for Cell Phones with Multiple Transmitters” are applicable to handsets with built-in unlicensed transmitters such as 802.11 a/b/g and Bluetooth devices which may simultaneously transmit with the licensed transmitter.

For this device, the Bluetooth and WLAN can transmit simultaneous with other transmitters.

### 11.2. Transmit Antenna Separation Distances



Picture 11.1 Antenna Locations (Back View)

**Note:**

|          |                                               |
|----------|-----------------------------------------------|
| /        | Frequency Bands                               |
| DIV ANT  | GSM850, WCDMA Band 5, LTE Band 5/12/13/17/26  |
| Main ANT | GSM1900, WCDMA Band 2/4, LTE Band 2/4/7/38/66 |

**11.3. SAR Measurement Positions**

According to the KDB941225 D06 Hot Spot SAR, the edges with less than 25mm distance to the antennas need to be tested for SAR.

| SAR measurement positions |       |      |           |            |          |             |
|---------------------------|-------|------|-----------|------------|----------|-------------|
| Mode                      | Front | Rear | Left edge | Right edge | Top edge | Bottom edge |
| DIV ANT                   | Yes   | Yes  | Yes       | Yes        | Yes      | No          |
| Main ANT                  | Yes   | Yes  | Yes       | Yes        | No       | Yes         |
| Bluetooth/WLAN ANT        | Yes   | Yes  | Yes       | Yes        | Yes      | No          |

## 12. Evaluation of Simultaneous

| No. | Simultaneous Transmission Configuration |
|-----|-----------------------------------------|
| 1   | WWAN + Bluetooth                        |
| 2   | WWAN + WLAN 2.4GHz                      |
| 3   | WWAN + WLAN 5GHz                        |

**Table 12.1: Maximum Simultaneous Transmission SAR**

| /                                           | Position                                                       | Sum (W/kg) |
|---------------------------------------------|----------------------------------------------------------------|------------|
| Highest reported SAR value<br>for Head      | Right Cheek<br>(GSM850 + WLAN 2.4GHz)                          | 1.42       |
| Highest reported SAR value<br>for Hotspot   | Bottom Side<br>(LTE Band 66 + WLAN 2.4GHz/WLAN 5GHz/Bluetooth) | 1.32       |
| Highest reported SAR value<br>for Body-worn | Rear Side<br>(LTE Band 66 + WLAN 2.4GHz)                       | 1.28       |
| Highest reported SAR value<br>for Extremity | Bottom Side<br>(LTE Band 66 + WLAN 5GHz )                      | 2.25       |

Note: the test positions of above tables are for the worse case that has been evaluated.

### Conclusion:

According to the above tables, the sum of reported SAR values is < 1.6W/kg. So the simultaneous transmission SAR with volume scans is not required.

### 13. Summary of Test Results

According to the client's decision rule in the test registration form, which is "based on the measurement results as the basis of the conformity statement", the test conclusion of this report meets the limit requirements.

The calculated SAR is obtained by the following formula:

$$\text{Reported SAR} = \text{Measured SAR} \times 10^{(P_{\text{Target}} - P_{\text{Measured}})/10}$$

Where  $P_{\text{Target}}$  is the power of manufacturing upper limit;

$P_{\text{Measured}}$  is the measured power in chapter 10.

**General Note:**

1. Per KDB648474 D04v01r03, for smart phones with a display diagonal dimension > 15.0 cm or an overall diagonal dimension > 16.0 cm, when hotspot mode applies, 10-g extremity SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg, however, when power reduction applies to hotspot mode the measured SAR must be scaled to the maximum output power, including tolerance, allowed for phablet modes to compare with the 1.2 W/kg SAR test reduction threshold.

a. WLAN 5GHz U-NII-2A and U-NII-2C tested the product specific 10g SAR since it has no hotspot mode.

b. When 10-g product specific 10g SAR is considered, SAR thresholds is specified in the procedures for SAR test reduction and exclusion should be multiplied by 2.5.

2. B2: Battery (VEKEN)

3. The device support dual SIMs, SIM1 was used for the all configuration SAR testing and SIM2 test the worst case SAR of SIM1.

**Duty Cycle**

| Mode           | Duty Cycle |
|----------------|------------|
| Speech for GSM | 1:8.3      |
| GPRS           | 1:8.3/1:2  |
| WCDMA          | 1:1        |
| FDD_LTE        | 1:1        |
| TDD_LTE        | 1:1.58     |
| Bluetooth      | 1:1        |
| WLAN           | 1:1        |

**13.1. Testing Environment**

|                             |              |
|-----------------------------|--------------|
| Temperature:                | 18°C~25°C    |
| Relative humidity:          | 30%~70%      |
| Ground system resistance:   | <4 $\Omega$  |
| Ambient noise & Reflection: | < 0.012 W/kg |

## 13.2. SAR results

**Table 13.1: SAR Values (GSM850 - Head) - Power level A1**

| Frequency |       | Test Mode | Test Position | Figure No./ Note | Conducted Power (dBm) | Max. tune-up Power (dBm) | Measured SAR(1g) (W/kg) | Reported SAR(1g) (W/kg) | Power Drift(dB) |
|-----------|-------|-----------|---------------|------------------|-----------------------|--------------------------|-------------------------|-------------------------|-----------------|
| Ch.       | MHz   |           |               |                  |                       |                          |                         |                         |                 |
| 128       | 824.2 | Speech    | Left Cheek    | /                | 32.46                 | 34.0                     | 0.479                   | <b>0.68</b>             | 0.04            |
| 128       | 824.2 | Speech    | Left Tilt     | /                | 32.46                 | 34.0                     | 0.316                   | <b>0.45</b>             | 0.12            |
| 128       | 824.2 | Speech    | Right Cheek   | /                | 32.46                 | 34.0                     | 0.635                   | <b>0.91</b>             | 0.03            |
| 128       | 824.2 | Speech    | Right Tilt    | /                | 32.46                 | 34.0                     | 0.490                   | <b>0.70</b>             | 0.04            |
| 251       | 848.8 | Speech    | Right Cheek   | <b>1</b>         | 32.45                 | 34.0                     | <b>0.861</b>            | <b>1.23</b>             | -0.12           |
| 190       | 836.6 | Speech    | Right Cheek   | /                | 32.41                 | 34.0                     | 0.700                   | <b>1.01</b>             | -0.01           |
| 251       | 848.8 | Speech    | Right Cheek   | B2               | 32.45                 | 34.0                     | 0.832                   | <b>1.19</b>             | 0.03            |
| 251       | 848.8 | Speech    | Right Cheek   | SIM2             | 32.45                 | 34.0                     | 0.844                   | <b>1.21</b>             | 0.05            |

**Table 13.2: SAR Values (GSM850 - Body) - Power level B1**

| Frequency                            |       | Test Mode | Test Position | Figure No./ Note | Conducted Power (dBm) | Max. tune-up Power (dBm) | Measured SAR(1g) (W/kg) | Reported SAR(1g) (W/kg) | Power Drift(dB) |
|--------------------------------------|-------|-----------|---------------|------------------|-----------------------|--------------------------|-------------------------|-------------------------|-----------------|
| Ch.                                  | MHz   |           |               |                  |                       |                          |                         |                         |                 |
| Hotspot / Body-Worn Test Data (10mm) |       |           |               |                  |                       |                          |                         |                         |                 |
| 128                                  | 824.2 | GPRS-4    | Front         | /                | 28.70                 | 29.5                     | 0.110                   | 0.13                    | -0.06           |
| 128                                  | 824.2 | GPRS-4    | Rear          | 2                | 28.70                 | 29.5                     | 0.133                   | 0.16                    | 0.11            |
| 128                                  | 824.2 | GPRS-4    | Rear          | B2               | 28.70                 | 29.5                     | 0.129                   | 0.16                    | 0.05            |
| Hotspot Test Data (10mm)             |       |           |               |                  |                       |                          |                         |                         |                 |
| 128                                  | 824.2 | GPRS-4    | Left          | /                | 28.70                 | 29.5                     | 0.099                   | 0.12                    | -0.18           |
| 128                                  | 824.2 | GPRS-4    | Right         | /                | 28.70                 | 29.5                     | 0.044                   | 0.05                    | 0.08            |
| 128                                  | 824.2 | GPRS-4    | Top           | /                | 28.70                 | 29.5                     | 0.123                   | 0.15                    | 0.02            |

**Table 13.3: SAR Values (GSM1900 - Head) - Power level A1**

| Frequency |        | Test Mode | Test Position | Figure No./ Note | Conducted Power (dBm) | Max. tune-up Power (dBm) | Measured SAR(1g) (W/kg) | Reported SAR(1g) (W/kg) | Power Drift(dB) |
|-----------|--------|-----------|---------------|------------------|-----------------------|--------------------------|-------------------------|-------------------------|-----------------|
| Ch.       | MHz    |           |               |                  |                       |                          |                         |                         |                 |
| 661       | 1880.0 | Speech    | Left Cheek    | /                | 29.79                 | 31.0                     | 0.082                   | <b>0.11</b>             | 0.16            |
| 661       | 1880.0 | Speech    | Left Tilt     | /                | 29.79                 | 31.0                     | 0.076                   | <b>0.10</b>             | -0.05           |
| 661       | 1880.0 | Speech    | Right Cheek   | <b>3</b>         | 29.79                 | 31.0                     | <b>0.100</b>            | <b>0.13</b>             | -0.07           |
| 661       | 1880.0 | Speech    | Right Tilt    | /                | 29.79                 | 31.0                     | 0.070                   | <b>0.09</b>             | 0.02            |
| 661       | 1880.0 | Speech    | Right Cheek   | B2               | 29.79                 | 31.0                     | 0.089                   | <b>0.12</b>             | 0.02            |

**Table 13.4: SAR Values (GSM1900 - Body) - Power level B1**

| Frequency                            |        | Test Mode | Test Position | Figure No./ Note | Conducted Power (dBm) | Max. tune-up Power (dBm) | Measured SAR(1g) (W/kg) | Reported SAR(1g) (W/kg) | Power Drift(dB) |
|--------------------------------------|--------|-----------|---------------|------------------|-----------------------|--------------------------|-------------------------|-------------------------|-----------------|
| Ch.                                  | MHz    |           |               |                  |                       |                          |                         |                         |                 |
| Hotspot / Body-Worn Test Data (10mm) |        |           |               |                  |                       |                          |                         |                         |                 |
| 661                                  | 1880.0 | GPRS-1    | Front         | /                | 30.30                 | 31.5                     | 0.289                   | 0.38                    | -0.10           |
| 661                                  | 1880.0 | GPRS-1    | Rear          | /                | 30.30                 | 31.5                     | 0.550                   | 0.73                    | 0.11            |
| Hotspot Test Data (10mm)             |        |           |               |                  |                       |                          |                         |                         |                 |
| 661                                  | 1880.0 | GPRS-1    | Left          | /                | 30.30                 | 31.5                     | 0.209                   | 0.28                    | -0.16           |
| 661                                  | 1880.0 | GPRS-1    | Right         | /                | 30.30                 | 31.5                     | 0.002                   | 0.00                    | 0.15            |
| 661                                  | 1880.0 | GPRS-1    | Bottom        | /                | 30.30                 | 31.5                     | 0.726                   | 0.96                    | -0.05           |
| 810                                  | 1909.8 | GPRS-1    | Bottom        | /                | 30.27                 | 31.5                     | 0.737                   | 0.98                    | 0.06            |
| 512                                  | 1850.2 | GPRS-1    | Bottom        | 4                | 30.42                 | 31.5                     | 0.745                   | 0.96                    | 0.07            |
| 810                                  | 1909.8 | GPRS-1    | Bottom        | B2               | 30.27                 | 31.5                     | 0.688                   | 0.91                    | 0.02            |

**Table 13.5: SAR Values (WCDMA Band 2 - Head) - Power level A1**

| Frequency |        | Test Mode | Test Position | Figure No./ Note | Conducted Power (dBm) | Max. tune-up Power (dBm) | Measured SAR(1g) (W/kg) | Reported SAR(1g) (W/kg) | Power Drift(dB) |
|-----------|--------|-----------|---------------|------------------|-----------------------|--------------------------|-------------------------|-------------------------|-----------------|
| Ch.       | MHz    |           |               |                  |                       |                          |                         |                         |                 |
| 9400      | 1880.0 | RMC       | Left Cheek    | /                | 23.00                 | 23.5                     | 0.153                   | <b>0.17</b>             | 0.04            |
| 9400      | 1880.0 | RMC       | Left Tilt     | /                | 23.00                 | 23.5                     | 0.125                   | <b>0.14</b>             | 0.03            |
| 9400      | 1880.0 | RMC       | Right Cheek   | <b>5</b>         | 23.00                 | 23.5                     | <b>0.160</b>            | <b>0.18</b>             | 0.04            |
| 9400      | 1880.0 | RMC       | Right Tilt    | /                | 23.00                 | 23.5                     | 0.087                   | <b>0.10</b>             | 0.03            |
| 9400      | 1880.0 | RMC       | Right Cheek   | B2               | 23.00                 | 23.5                     | 0.153                   | <b>0.17</b>             | 0.02            |

**Table 13.6: SAR Values (WCDMA Band 2 - Body) - Power level B1**

| Frequency                            |        | Test Mode | Test Position | Figure No./ Note | Conducted Power (dBm) | Max. tune-up Power (dBm) | Measured SAR(1g) (W/kg) | Reported SAR(1g) (W/kg) | Power Drift(dB) |
|--------------------------------------|--------|-----------|---------------|------------------|-----------------------|--------------------------|-------------------------|-------------------------|-----------------|
| Ch.                                  | MHz    |           |               |                  |                       |                          |                         |                         |                 |
| Hotspot / Body-Worn Test Data (10mm) |        |           |               |                  |                       |                          |                         |                         |                 |
| 9400                                 | 1880.0 | RMC       | Front         | /                | 22.20                 | 22.5                     | 0.426                   | 0.46                    | 0.01            |
| 9400                                 | 1880.0 | RMC       | Rear          | /                | 22.20                 | 22.5                     | 0.556                   | 0.60                    | -0.05           |
| Hotspot Test Data (10mm)             |        |           |               |                  |                       |                          |                         |                         |                 |
| 9400                                 | 1880.0 | RMC       | Left          | /                | 22.20                 | 22.5                     | 0.266                   | 0.29                    | 0.07            |
| 9400                                 | 1880.0 | RMC       | Right         | /                | 22.20                 | 22.5                     | 0.044                   | 0.05                    | 0.18            |
| 9400                                 | 1880.0 | RMC       | Bottom        | /                | 22.20                 | 22.5                     | 0.973                   | 1.04                    | 0.09            |
| 9538                                 | 1908.0 | RMC       | Bottom        | /                | 22.20                 | 22.5                     | 0.876                   | 0.94                    | -0.10           |
| 9262                                 | 1852.4 | RMC       | Bottom        | /                | 22.20                 | 22.5                     | 1.030                   | 1.10                    | 0.04            |
| 9262                                 | 1852.4 | RMC       | Bottom        | 6/B2             | 22.20                 | 22.5                     | 1.110                   | 1.19                    | 0.12            |



**Table 13.7: SAR Values (WCDMA Band 4 - Head) - Power level A1**

| Frequency |        | Test Mode | Test Position | Figure No./ Note | Conducted Power (dBm) | Max. tune-up Power (dBm) | Measured SAR(1g) (W/kg) | Reported SAR(1g) (W/kg) | Power Drift(dB) |
|-----------|--------|-----------|---------------|------------------|-----------------------|--------------------------|-------------------------|-------------------------|-----------------|
| Ch.       | MHz    |           |               |                  |                       |                          |                         |                         |                 |
| 1413      | 1732.6 | RMC       | Left Cheek    | /                | 23.10                 | 23.5                     | 0.104                   | <b>0.11</b>             | 0.07            |
| 1413      | 1732.6 | RMC       | Left Tilt     | /                | 23.10                 | 23.5                     | 0.094                   | <b>0.10</b>             | 0.02            |
| 1413      | 1732.6 | RMC       | Right Cheek   | <b>7</b>         | 23.10                 | 23.5                     | <b>0.140</b>            | <b>0.15</b>             | 0.05            |
| 1413      | 1732.6 | RMC       | Right Tilt    | /                | 23.10                 | 23.5                     | 0.083                   | <b>0.09</b>             | 0.02            |
| 1413      | 1732.6 | RMC       | Right Cheek   | B2               | 23.10                 | 23.5                     | 0.134                   | <b>0.15</b>             | 0.01            |

**Table 13.8: SAR Values ( WCDMA Band 4 - Body) - Power level B1**

| Frequency                            |        | Test Mode | Test Position | Figure No./ Note | Conducted Power (dBm) | Max. tune-up Power (dBm) | Measured SAR(1g) (W/kg) | Reported SAR(1g) (W/kg) | Power Drift(dB) |
|--------------------------------------|--------|-----------|---------------|------------------|-----------------------|--------------------------|-------------------------|-------------------------|-----------------|
| Ch.                                  | MHz    |           |               |                  |                       |                          |                         |                         |                 |
| Hotspot / Body-Worn Test Data (10mm) |        |           |               |                  |                       |                          |                         |                         |                 |
| 1413                                 | 1732.6 | RMC       | Front         | /                | 21.50                 | 22.0                     | 0.249                   | 0.28                    | -0.01           |
| 1413                                 | 1732.6 | RMC       | Rear          | /                | 21.50                 | 22.0                     | 0.909                   | 1.02                    | 0.02            |
| 1513                                 | 1752.6 | RMC       | Rear          | /                | 21.40                 | 22.0                     | 0.826                   | 0.95                    | 0.18            |
| 1312                                 | 1712.4 | RMC       | Rear          | /                | 21.50                 | 22.0                     | 0.865                   | 0.97                    | 0.19            |
| Hotspot Test Data (10mm)             |        |           |               |                  |                       |                          |                         |                         |                 |
| 1413                                 | 1732.6 | RMC       | Left          | /                | 21.50                 | 22.0                     | 0.117                   | 0.13                    | 0.10            |
| 1413                                 | 1732.6 | RMC       | Right         | /                | 21.50                 | 22.0                     | 0.018                   | 0.02                    | -0.11           |
| 1413                                 | 1732.6 | RMC       | Bottom        | /                | 21.50                 | 22.0                     | 1.020                   | 1.14                    | 0.01            |
| 1513                                 | 1752.6 | RMC       | Bottom        | 8                | 21.40                 | 22.0                     | 1.030                   | 1.18                    | 0.03            |
| 1312                                 | 1712.4 | RMC       | Bottom        | /                | 21.50                 | 22.0                     | 0.997                   | 1.12                    | 0.06            |
| 1513                                 | 1752.6 | RMC       | Bottom        | B2               | 21.40                 | 22.0                     | 1.010                   | 1.16                    | 0.03            |

**Table 13.9: SAR Values (WCDMA Band 5 - Head) - Power level A1**

| Frequency |       | Test Mode | Test Position | Figure No./ Note | Conducted Power (dBm) | Max. tune-up Power (dBm) | Measured SAR(1g) (W/kg) | Reported SAR(1g) (W/kg) | Power Drift(dB) |
|-----------|-------|-----------|---------------|------------------|-----------------------|--------------------------|-------------------------|-------------------------|-----------------|
| Ch.       | MHz   |           |               |                  |                       |                          |                         |                         |                 |
| 4183      | 836.6 | RMC       | Left Cheek    | /                | 23.30                 | 24.0                     | 0.733                   | <b>0.86</b>             | 0.04            |
| 4183      | 836.6 | RMC       | Left Tilt     | /                | 23.30                 | 24.0                     | 0.450                   | <b>0.53</b>             | 0.12            |
| 4183      | 836.6 | RMC       | Right Cheek   | /                | 23.30                 | 24.0                     | 0.866                   | <b>1.02</b>             | 0.03            |
| 4183      | 836.6 | RMC       | Right Tilt    | /                | 23.30                 | 24.0                     | 0.686                   | <b>0.81</b>             | 0.04            |
| 4233      | 846.6 | RMC       | Left Cheek    | /                | 23.30                 | 24.0                     | 0.713                   | <b>0.84</b>             | 0.06            |
| 4132      | 826.4 | RMC       | Left Cheek    | /                | 23.30                 | 24.0                     | 0.759                   | <b>0.89</b>             | 0.07            |
| 4233      | 846.6 | RMC       | Right Cheek   | /                | 23.30                 | 24.0                     | 0.859                   | <b>1.01</b>             | 0.03            |
| 4132      | 826.4 | RMC       | Right Cheek   | <b>9</b>         | 23.30                 | 24.0                     | <b>0.923</b>            | <b>1.08</b>             | 0.06            |
| 4132      | 826.4 | RMC       | Right Cheek   | B2               | 23.30                 | 24.0                     | 0.767                   | <b>0.90</b>             | 0.04            |

**Table 13.10: SAR Values (WCDMA Band 5 - Body) - Power level B1**

| Frequency                            |       | Test Mode | Test Position | Figure No./ Note | Conducted Power (dBm) | Max. tune-up Power (dBm) | Measured SAR(1g) (W/kg) | Reported SAR(1g) (W/kg) | Power Drift(dB) |
|--------------------------------------|-------|-----------|---------------|------------------|-----------------------|--------------------------|-------------------------|-------------------------|-----------------|
| Ch.                                  | MHz   |           |               |                  |                       |                          |                         |                         |                 |
| Hotspot / Body-Worn Test Data (10mm) |       |           |               |                  |                       |                          |                         |                         |                 |
| 4183                                 | 836.6 | RMC       | Front         | /                | 23.30                 | 24.0                     | 0.195                   | 0.23                    | 0.04            |
| 4183                                 | 836.6 | RMC       | Rear          | 10               | 23.30                 | 24.0                     | 0.273                   | 0.32                    | -0.12           |
| 4183                                 | 836.6 | RMC       | Rear          | B2               | 23.30                 | 24.0                     | 0.272                   | 0.32                    | 0.01            |
| Hotspot Test Data (10mm)             |       |           |               |                  |                       |                          |                         |                         |                 |
| 4183                                 | 836.6 | RMC       | Left          | /                | 23.30                 | 24.0                     | 0.205                   | 0.24                    | 0.03            |
| 4183                                 | 836.6 | RMC       | Right         | /                | 23.30                 | 24.0                     | 0.060                   | 0.07                    | 0.14            |
| 4183                                 | 836.6 | RMC       | Top           | /                | 23.30                 | 24.0                     | 0.214                   | 0.25                    | 0.03            |

**Table 13.11: SAR Values (LTE Band 2 - Head) - Power level A1**

| Frequency |        | Test Mode | Test Position | Figure No./ Note | Conducted Power (dBm) | Max. tune-up Power (dBm) | Measured SAR(1g) (W/kg) | Reported SAR(1g) (W/kg) | Power Drift(dB) |
|-----------|--------|-----------|---------------|------------------|-----------------------|--------------------------|-------------------------|-------------------------|-----------------|
| Ch.       | MHz    |           |               |                  |                       |                          |                         |                         |                 |
| 19100     | 1900.0 | 1RB50     | Left Cheek    | /                | 22.75                 | 23.5                     | 0.145                   | <b>0.17</b>             | 0.04            |
| 19100     | 1900.0 | 50RB0     | Left Cheek    | /                | 21.96                 | 22.5                     | 0.110                   | <b>0.12</b>             | 0.06            |
| 19100     | 1900.0 | 1RB50     | Left Tilt     | /                | 22.75                 | 23.5                     | 0.106                   | <b>0.13</b>             | 0.05            |
| 19100     | 1900.0 | 50RB0     | Left Tilt     | /                | 21.96                 | 22.5                     | 0.082                   | <b>0.09</b>             | 0.02            |
| 19100     | 1900.0 | 1RB50     | Right Cheek   | <b>11</b>        | 22.75                 | 23.5                     | <b>0.169</b>            | <b>0.20</b>             | 0.13            |
| 19100     | 1900.0 | 50RB0     | Right Cheek   | /                | 21.96                 | 22.5                     | 0.131                   | <b>0.15</b>             | 0.07            |
| 19100     | 1900.0 | 1RB50     | Right Tilt    | /                | 22.75                 | 23.5                     | 0.086                   | <b>0.10</b>             | 0.02            |
| 19100     | 1900.0 | 50RB0     | Right Tilt    | /                | 21.96                 | 22.5                     | 0.064                   | <b>0.07</b>             | 0.02            |
| 19100     | 1900.0 | 1RB50     | Right Cheek   | B2               | 22.75                 | 23.5                     | 0.138                   | <b>0.16</b>             | 0.02            |

**Table 13.12: SAR Values (LTE Band 2 - Body) - Power level B1**

| Frequency                            |        | Test Mode | Test Position | Figure No./ Note | Conducted Power (dBm) | Max. tune-up Power (dBm) | Measured SAR(1g) (W/kg) | Reported SAR(1g) (W/kg) | Power Drift(dB) |
|--------------------------------------|--------|-----------|---------------|------------------|-----------------------|--------------------------|-------------------------|-------------------------|-----------------|
| Ch.                                  | MHz    |           |               |                  |                       |                          |                         |                         |                 |
| Hotspot / Body-Worn Test Data (10mm) |        |           |               |                  |                       |                          |                         |                         |                 |
| 19100                                | 1900.0 | 1RB50     | Front         | /                | 20.81                 | 21.5                     | 0.230                   | 0.27                    | -0.06           |
| 19100                                | 1900.0 | 50RB0     | Front         | /                | 20.86                 | 21.5                     | 0.243                   | 0.28                    | 0.12            |
| 19100                                | 1900.0 | 1RB50     | Rear          | /                | 20.81                 | 21.5                     | 0.803                   | 0.94                    | -0.09           |
| 19100                                | 1900.0 | 50RB0     | Rear          | /                | 20.86                 | 21.5                     | 0.769                   | 0.89                    | 0.06            |
| 18900                                | 1880.0 | 1RB50     | Rear          | /                | 20.79                 | 21.5                     | 0.811                   | 0.96                    | 0.03            |
| 18700                                | 1860.0 | 1RB50     | Rear          | /                | 20.56                 | 21.5                     | 0.782                   | 0.97                    | 0.06            |
| 18900                                | 1880.0 | 50RB0     | Rear          | /                | 20.74                 | 21.5                     | 0.770                   | 0.92                    | 0.02            |
| 18700                                | 1860.0 | 50RB0     | Rear          | /                | 20.71                 | 21.5                     | 0.753                   | 0.90                    | 0.06            |
| Hotspot Test Data (10mm)             |        |           |               |                  |                       |                          |                         |                         |                 |
| 19100                                | 1900.0 | 1RB50     | Left          | /                | 20.81                 | 21.5                     | 0.114                   | 0.13                    | 0.01            |
| 19100                                | 1900.0 | 50RB0     | Left          | /                | 20.86                 | 21.5                     | 0.129                   | 0.15                    | 0.13            |
| 19100                                | 1900.0 | 1RB50     | Right         | /                | 20.81                 | 21.5                     | 0.041                   | 0.05                    | -0.11           |
| 19100                                | 1900.0 | 50RB0     | Right         | /                | 20.86                 | 21.5                     | 0.033                   | 0.04                    | 0.04            |
| 19100                                | 1900.0 | 1RB50     | Bottom        | /                | 20.81                 | 21.5                     | 0.851                   | 1.00                    | -0.18           |
| 19100                                | 1900.0 | 50RB0     | Bottom        | /                | 20.86                 | 21.5                     | 0.782                   | 0.91                    | -0.19           |
| 18900                                | 1880.0 | 1RB50     | Bottom        | /                | 20.79                 | 21.5                     | 0.857                   | 1.01                    | 0.16            |
| 18700                                | 1860.0 | 1RB50     | Bottom        | /                | 20.56                 | 21.5                     | 0.833                   | 1.03                    | -0.15           |
| 18900                                | 1880.0 | 50RB0     | Bottom        | 12               | 20.74                 | 21.5                     | 0.927                   | 1.10                    | 0.07            |
| 18700                                | 1860.0 | 50RB0     | Bottom        | /                | 20.71                 | 21.5                     | 0.870                   | 1.04                    | -0.07           |
| 19100                                | 1900.0 | 100RB     | Bottom        | /                | 20.92                 | 21.5                     | 0.844                   | 0.96                    | -0.02           |
| 18900                                | 1880.0 | 1RB50     | Bottom        | B2               | 20.79                 | 21.5                     | 0.816                   | 0.96                    | 0.05            |

**Table 13.13: SAR Values (LTE Band 5 - Head) - Power level A1**

| Frequency |       | Test Mode | Test Position | Figure No./ Note | Conducted Power (dBm) | Max. tune-up Power (dBm) | Measured SAR(1g) (W/kg) | Reported SAR(1g) (W/kg) | Power Drift(dB) |
|-----------|-------|-----------|---------------|------------------|-----------------------|--------------------------|-------------------------|-------------------------|-----------------|
| Ch.       | MHz   |           |               |                  |                       |                          |                         |                         |                 |
| 20525     | 836.5 | 1RB24     | Left Cheek    | /                | 23.61                 | 24.5                     | 0.719                   | <b>0.88</b>             | 0.15            |
| 20525     | 836.5 | 25RB0     | Left Cheek    | /                | 22.68                 | 23.5                     | 0.586                   | <b>0.71</b>             | 0.16            |
| 20525     | 836.5 | 1RB24     | Left Tilt     | /                | 23.61                 | 24.5                     | 0.487                   | <b>0.60</b>             | -0.14           |
| 20525     | 836.5 | 25RB0     | Left Tilt     | /                | 22.68                 | 23.5                     | 0.396                   | <b>0.48</b>             | 0.01            |
| 20525     | 836.5 | 1RB24     | Right Cheek   | /                | 23.61                 | 24.5                     | 0.887                   | <b>1.09</b>             | -0.11           |
| 20525     | 836.5 | 25RB0     | Right Cheek   | /                | 22.68                 | 23.5                     | 0.727                   | <b>0.88</b>             | -0.06           |
| 20525     | 836.5 | 1RB24     | Right Tilt    | /                | 23.61                 | 24.5                     | 0.688                   | <b>0.84</b>             | 0.03            |
| 20525     | 836.5 | 25RB0     | Right Tilt    | /                | 22.68                 | 23.5                     | 0.565                   | <b>0.68</b>             | -0.11           |
| 20600     | 844.0 | 1RB24     | Left Cheek    | /                | 23.54                 | 24.5                     | 0.687                   | <b>0.86</b>             | 0.05            |
| 20450     | 829.0 | 1RB24     | Left Cheek    | /                | 23.52                 | 24.5                     | 0.736                   | <b>0.92</b>             | 0.09            |
| 20525     | 836.5 | 50RB      | Left Cheek    | /                | 22.65                 | 23.5                     | 0.541                   | <b>0.66</b>             | -0.05           |
| 20600     | 844.0 | 1RB24     | Right Cheek   | /                | 23.54                 | 24.5                     | 0.848                   | <b>1.06</b>             | -0.14           |
| 20450     | 829.0 | 1RB24     | Right Cheek   | <b>13</b>        | 23.52                 | 24.5                     | <b>0.913</b>            | <b>1.14</b>             | -0.01           |
| 20600     | 844.0 | 25RB0     | Right Cheek   | /                | 22.55                 | 23.5                     | 0.668                   | <b>0.83</b>             | 0.00            |
| 20450     | 829.0 | 25RB0     | Right Cheek   | /                | 22.58                 | 23.5                     | 0.740                   | <b>0.91</b>             | -0.07           |
| 20525     | 836.5 | 50RB      | Right Cheek   | /                | 22.65                 | 23.5                     | 0.668                   | <b>0.81</b>             | -0.01           |
| 20600     | 844.0 | 1RB24     | Right Tilt    | /                | 23.54                 | 24.5                     | 0.658                   | <b>0.82</b>             | 0.08            |
| 20450     | 829.0 | 1RB24     | Right Tilt    | /                | 23.52                 | 24.5                     | 0.710                   | <b>0.89</b>             | -0.06           |
| 20525     | 836.5 | 50RB      | Right Tilt    | /                | 22.65                 | 23.5                     | 0.518                   | <b>0.63</b>             | -0.12           |
| 20450     | 829.0 | 1RB24     | Right Cheek   | B2               | 23.52                 | 24.5                     | 0.905                   | <b>1.13</b>             | 0.08            |

**Table 13.14: SAR Values (LTE Band 5 - Body) - Power level B1**

| Frequency                            |       | Test Mode | Test Position | Figure No./ Note | Conducted Power (dBm) | Max. tune-up Power (dBm) | Measured SAR(1g) (W/kg) | Reported SAR(1g) (W/kg) | Power Drift(dB) |
|--------------------------------------|-------|-----------|---------------|------------------|-----------------------|--------------------------|-------------------------|-------------------------|-----------------|
| Ch.                                  | MHz   |           |               |                  |                       |                          |                         |                         |                 |
| Hotspot / Body-Worn Test Data (10mm) |       |           |               |                  |                       |                          |                         |                         |                 |
| 20525                                | 836.5 | 1RB24     | Front         | /                | 23.61                 | 24.5                     | 0.200                   | 0.25                    | 0.05            |
| 20525                                | 836.5 | 25RB0     | Front         | /                | 22.68                 | 23.5                     | 0.169                   | 0.20                    | -0.13           |
| 20525                                | 836.5 | 1RB24     | Rear          | 14               | 23.61                 | 24.5                     | 0.289                   | 0.35                    | -0.04           |
| 20525                                | 836.5 | 25RB0     | Rear          | /                | 22.68                 | 23.5                     | 0.227                   | 0.27                    | 0.11            |
| 20525                                | 836.5 | 1RB24     | Rear          | B2               | 23.61                 | 24.5                     | 0.275                   | 0.34                    | 0.10            |
| Hotspot Test Data (10mm)             |       |           |               |                  |                       |                          |                         |                         |                 |
| 20525                                | 836.5 | 1RB24     | Left          | /                | 23.61                 | 24.5                     | 0.266                   | 0.33                    | -0.15           |
| 20525                                | 836.5 | 25RB0     | Left          | /                | 22.68                 | 23.5                     | 0.218                   | 0.26                    | -0.03           |
| 20525                                | 836.5 | 1RB24     | Right         | /                | 23.61                 | 24.5                     | 0.108                   | 0.13                    | -0.07           |
| 20525                                | 836.5 | 25RB0     | Right         | /                | 22.68                 | 23.5                     | 0.094                   | 0.11                    | 0.15            |
| 20525                                | 836.5 | 1RB24     | Top           | /                | 23.61                 | 24.5                     | 0.225                   | 0.28                    | -0.02           |
| 20525                                | 836.5 | 25RB0     | Top           | /                | 22.68                 | 23.5                     | 0.216                   | 0.26                    | -0.12           |

**Table 13.15: SAR Values (LTE Band 7 - Head) - Power level A1**

| Frequency |        | Test Mode | Test Position | Figure No./ Note | Conducted Power (dBm) | Max. tune-up Power (dBm) | Measured SAR(1g) (W/kg) | Reported SAR(1g) (W/kg) | Power Drift(dB) |
|-----------|--------|-----------|---------------|------------------|-----------------------|--------------------------|-------------------------|-------------------------|-----------------|
| Ch.       | MHz    |           |               |                  |                       |                          |                         |                         |                 |
| 21350     | 2560.0 | 1RB50     | Left Cheek    | /                | 22.26                 | 23.5                     | 0.203                   | <b>0.27</b>             | 0.02            |
| 21350     | 2560.0 | 50RB50    | Left Cheek    | /                | 21.37                 | 22.5                     | 0.145                   | <b>0.19</b>             | 0.03            |
| 21350     | 2560.0 | 1RB50     | Left Tilt     | /                | 22.26                 | 23.5                     | 0.121                   | <b>0.16</b>             | 0.06            |
| 21350     | 2560.0 | 50RB50    | Left Tilt     | /                | 21.37                 | 22.5                     | 0.091                   | <b>0.12</b>             | 0.12            |
| 21350     | 2560.0 | 1RB50     | Right Cheek   | /                | 22.26                 | 23.5                     | 0.122                   | <b>0.16</b>             | 0.03            |
| 21350     | 2560.0 | 50RB50    | Right Cheek   | /                | 21.37                 | 22.5                     | 0.100                   | <b>0.13</b>             | 0.15            |
| 21350     | 2560.0 | 1RB50     | Right Tilt    | /                | 22.26                 | 23.5                     | 0.075                   | <b>0.10</b>             | 0.09            |
| 21350     | 2560.0 | 50RB50    | Right Tilt    | /                | 21.37                 | 22.5                     | 0.057                   | <b>0.07</b>             | 0.14            |
| 21350     | 2560.0 | 1RB50     | Left Cheek    | <b>15/B2</b>     | 22.26                 | 23.5                     | <b>0.241</b>            | <b>0.32</b>             | 0.03            |

**Table 13.16: SAR Values (LTE Band 7 - Body) - Power level B1**

| Frequency                            |        | Test Mode | Test Position | Figure No./ Note | Conducted Power (dBm) | Max. tune-up Power (dBm) | Measured SAR(1g) (W/kg) | Reported SAR(1g) (W/kg) | Power Drift(dB) |
|--------------------------------------|--------|-----------|---------------|------------------|-----------------------|--------------------------|-------------------------|-------------------------|-----------------|
| Ch.                                  | MHz    |           |               |                  |                       |                          |                         |                         |                 |
| Hotspot / Body-Worn Test Data (10mm) |        |           |               |                  |                       |                          |                         |                         |                 |
| 21350                                | 2560.0 | 1RB50     | Front         | /                | 22.26                 | 23.5                     | 0.361                   | 0.48                    | 0.01            |
| 21350                                | 2560.0 | 50RB50    | Front         | /                | 21.37                 | 22.5                     | 0.276                   | 0.36                    | 0.19            |
| 21350                                | 2560.0 | 1RB50     | Rear          | /                | 22.26                 | 23.5                     | 0.612                   | 0.81                    | -0.04           |
| 21350                                | 2560.0 | 50RB50    | Rear          | /                | 21.37                 | 22.5                     | 0.490                   | 0.64                    | 0.03            |
| 21100                                | 2535.0 | 1RB50     | Rear          | /                | 22.09                 | 23.5                     | 0.599                   | 0.83                    | -0.03           |
| 20850                                | 2510.0 | 1RB50     | Rear          | /                | 22.01                 | 23.5                     | 0.507                   | 0.71                    | 0.04            |
| Hotspot Test Data (10mm)             |        |           |               |                  |                       |                          |                         |                         |                 |
| 21350                                | 2560.0 | 1RB50     | Left          | /                | 22.26                 | 23.5                     | 0.124                   | 0.16                    | 0.08            |
| 21350                                | 2560.0 | 50RB50    | Left          | /                | 21.37                 | 22.5                     | 0.070                   | 0.09                    | -0.12           |
| 21350                                | 2560.0 | 1RB50     | Right         | /                | 22.26                 | 23.5                     | 0.054                   | 0.07                    | 0.01            |
| 21350                                | 2560.0 | 50RB50    | Right         | /                | 21.37                 | 22.5                     | 0.049                   | 0.06                    | 0.17            |
| 21350                                | 2560.0 | 1RB50     | Bottom        | /                | 22.26                 | 23.5                     | 0.837                   | 1.11                    | 0.12            |
| 21350                                | 2560.0 | 50RB50    | Bottom        | /                | 21.37                 | 22.5                     | 0.642                   | 0.83                    | -0.05           |
| 21100                                | 2535.0 | 1RB50     | Bottom        | /                | 22.09                 | 23.5                     | 0.837                   | 1.16                    | 0.03            |
| 20850                                | 2510.0 | 1RB50     | Bottom        | /                | 22.01                 | 23.5                     | 0.561                   | 0.79                    | 0.05            |
| 21100                                | 2535.0 | 50RB50    | Bottom        | /                | 21.35                 | 22.5                     | 0.829                   | 1.08                    | 0.13            |
| 20850                                | 2510.0 | 50RB50    | Bottom        | /                | 21.02                 | 22.5                     | 0.616                   | 0.87                    | 0.03            |
| 21350                                | 2560.0 | 100RB     | Bottom        | /                | 21.29                 | 22.5                     | 0.558                   | 0.74                    | -0.15           |
| 21100                                | 2535.0 | 1RB50     | Bottom        | 16/B2            | 22.09                 | 23.5                     | 0.849                   | 1.17                    | -0.05           |

**Table 13.17: SAR Values (LTE Band 12 - Head) - Power level A1**

| Frequency |       | Test Mode | Test Position | Figure No./ Note | Conducted Power (dBm) | Max. tune-up Power (dBm) | Measured SAR(1g) (W/kg) | Reported SAR(1g) (W/kg) | Power Drift(dB) |
|-----------|-------|-----------|---------------|------------------|-----------------------|--------------------------|-------------------------|-------------------------|-----------------|
| Ch.       | MHz   |           |               |                  |                       |                          |                         |                         |                 |
| 23060     | 704.0 | 1RB24     | Left Cheek    | /                | 23.87                 | 24.5                     | 0.429                   | <b>0.50</b>             | 0.08            |
| 23060     | 704.0 | 25RB12    | Left Cheek    | /                | 22.96                 | 23.5                     | 0.345                   | <b>0.39</b>             | 0.17            |
| 23060     | 704.0 | 1RB24     | Left Tilt     | /                | 23.87                 | 24.5                     | 0.290                   | <b>0.34</b>             | 0.06            |
| 23060     | 704.0 | 25RB12    | Left Tilt     | /                | 22.96                 | 23.5                     | 0.232                   | <b>0.26</b>             | -0.13           |
| 23060     | 704.0 | 1RB24     | Right Cheek   | /                | 23.87                 | 24.5                     | 0.600                   | <b>0.69</b>             | -0.13           |
| 23060     | 704.0 | 25RB12    | Right Cheek   | /                | 22.96                 | 23.5                     | 0.444                   | <b>0.50</b>             | 0.08            |
| 23060     | 704.0 | 1RB24     | Right Tilt    | /                | 23.87                 | 24.5                     | 0.433                   | <b>0.50</b>             | -0.01           |
| 23060     | 704.0 | 25RB12    | Right Tilt    | /                | 22.96                 | 23.5                     | 0.351                   | <b>0.40</b>             | 0.06            |
| 23060     | 704.0 | 1RB24     | Right Cheek   | 17/B2            | 23.87                 | 24.5                     | <b>0.602</b>            | <b>0.70</b>             | -0.06           |

**Table 13.18: SAR Values (LTE Band 12 - Body) - Power level B1**

| Frequency                            |       | Test Mode | Test Position | Figure No./ Note | Conducted Power (dBm) | Max. tune-up Power (dBm) | Measured SAR(1g) (W/kg) | Reported SAR(1g) (W/kg) | Power Drift(dB) |
|--------------------------------------|-------|-----------|---------------|------------------|-----------------------|--------------------------|-------------------------|-------------------------|-----------------|
| Ch.                                  | MHz   |           |               |                  |                       |                          |                         |                         |                 |
| Hotspot / Body-Worn Test Data (10mm) |       |           |               |                  |                       |                          |                         |                         |                 |
| 23060                                | 704.0 | 1RB24     | Front         | /                | 23.87                 | 24.5                     | 0.200                   | 0.23                    | 0.06            |
| 23060                                | 704.0 | 25RB12    | Front         | /                | 22.96                 | 23.5                     | 0.161                   | 0.18                    | 0.13            |
| 23060                                | 704.0 | 1RB24     | Rear          | 18               | 23.87                 | 24.5                     | 0.358                   | 0.41                    | 0.04            |
| 23060                                | 704.0 | 25RB12    | Rear          | /                | 22.96                 | 23.5                     | 0.247                   | 0.28                    | 0.04            |
| 23060                                | 704.0 | 1RB24     | Rear          | B2               | 23.87                 | 24.5                     | 0.355                   | 0.41                    | 0.06            |
| Hotspot Test Data (10mm)             |       |           |               |                  |                       |                          |                         |                         |                 |
| 23060                                | 704.0 | 1RB24     | Left          | /                | 23.87                 | 24.5                     | 0.191                   | 0.22                    | -0.11           |
| 23060                                | 704.0 | 25RB12    | Left          | /                | 22.96                 | 23.5                     | 0.176                   | 0.20                    | 0.06            |
| 23060                                | 704.0 | 1RB24     | Right         | /                | 23.87                 | 24.5                     | 0.138                   | 0.16                    | 0.17            |
| 23060                                | 704.0 | 25RB12    | Right         | /                | 22.96                 | 23.5                     | 0.105                   | 0.12                    | 0.02            |
| 23060                                | 704.0 | 1RB24     | Top           | /                | 23.87                 | 24.5                     | 0.085                   | 0.10                    | 0.03            |
| 23060                                | 704.0 | 25RB12    | Top           | /                | 22.96                 | 23.5                     | 0.089                   | 0.10                    | 0.05            |

**Note:** SAR for LTE Band 17 is covered by LTE Band 12 due to similar frequency range, same maximum tune-up limit and same channel bandwidth.

**Table 13.19: SAR Values (LTE Band 13 - Head) - Power level A1**

| Frequency |       | Test Mode | Test Position | Figure No./ Note | Conducted Power (dBm) | Max. tune-up Power (dBm) | Measured SAR(1g) (W/kg) | Reported SAR(1g) (W/kg) | Power Drift(dB) |
|-----------|-------|-----------|---------------|------------------|-----------------------|--------------------------|-------------------------|-------------------------|-----------------|
| Ch.       | MHz   |           |               |                  |                       |                          |                         |                         |                 |
| 23230     | 782.0 | 1RB24     | Left Cheek    | /                | 23.38                 | 24.5                     | 0.652                   | <b>0.84</b>             | 0.07            |
| 23230     | 782.0 | 25RB12    | Left Cheek    | /                | 22.84                 | 23.5                     | 0.521                   | <b>0.61</b>             | 0.14            |
| 23230     | 782.0 | 1RB24     | Left Tilt     | /                | 23.38                 | 24.5                     | 0.386                   | <b>0.50</b>             | 0.05            |
| 23230     | 782.0 | 25RB12    | Left Tilt     | /                | 22.84                 | 23.5                     | 0.306                   | <b>0.36</b>             | 0.08            |
| 23230     | 782.0 | 1RB24     | Right Cheek   | /                | 23.38                 | 24.5                     | 0.828                   | <b>1.07</b>             | -0.10           |
| 23230     | 782.0 | 25RB12    | Right Cheek   | /                | 22.84                 | 23.5                     | 0.680                   | <b>0.79</b>             | 0.09            |
| 23230     | 782.0 | 1RB24     | Right Tilt    | /                | 23.38                 | 24.5                     | 0.607                   | <b>0.79</b>             | -0.11           |
| 23230     | 782.0 | 25RB12    | Right Tilt    | /                | 22.84                 | 23.5                     | 0.480                   | <b>0.56</b>             | 0.06            |
| 23230     | 782.0 | 50RB      | Right Cheek   | /                | 22.80                 | 23.5                     | 0.655                   | <b>0.77</b>             | 0.09            |
| 23230     | 782.0 | 1RB24     | Right Cheek   | <b>19/B2</b>     | 23.38                 | 24.5                     | <b>0.904</b>            | <b>1.17</b>             | -0.07           |

**Table 13.20: SAR Values (LTE Band 13 - Body) - Power level B1**

| Frequency                            |       | Test Mode | Test Position | Figure No./ Note | Conducted Power (dBm) | Max. tune-up Power (dBm) | Measured SAR(1g) (W/kg) | Reported SAR(1g) (W/kg) | Power Drift(dB) |
|--------------------------------------|-------|-----------|---------------|------------------|-----------------------|--------------------------|-------------------------|-------------------------|-----------------|
| Ch.                                  | MHz   |           |               |                  |                       |                          |                         |                         |                 |
| Hotspot / Body-Worn Test Data (10mm) |       |           |               |                  |                       |                          |                         |                         |                 |
| 23230                                | 782.0 | 1RB24     | Front         | /                | 23.38                 | 24.5                     | 0.232                   | 0.30                    | 0.05            |
| 23230                                | 782.0 | 25RB12    | Front         | /                | 22.84                 | 23.5                     | 0.183                   | 0.21                    | 0.08            |
| 23230                                | 782.0 | 1RB24     | Rear          | 20               | 23.38                 | 24.5                     | 0.357                   | 0.46                    | 0.03            |
| 23230                                | 782.0 | 25RB12    | Rear          | /                | 22.84                 | 23.5                     | 0.269                   | 0.31                    | 0.06            |
| 23230                                | 782.0 | 1RB24     | Rear          | B2               | 23.38                 | 24.5                     | 0.308                   | 0.40                    | 0.08            |
| Hotspot Test Data (10mm)             |       |           |               |                  |                       |                          |                         |                         |                 |
| 23230                                | 782.0 | 1RB24     | Left          | /                | 23.38                 | 24.5                     | 0.273                   | 0.35                    | 0.14            |
| 23230                                | 782.0 | 25RB12    | Left          | /                | 22.84                 | 23.5                     | 0.232                   | 0.27                    | 0.08            |
| 23230                                | 782.0 | 1RB24     | Right         | /                | 23.38                 | 24.5                     | 0.133                   | 0.17                    | -0.01           |
| 23230                                | 782.0 | 25RB12    | Right         | /                | 22.84                 | 23.5                     | 0.104                   | 0.12                    | -0.04           |
| 23230                                | 782.0 | 1RB24     | Top           | /                | 23.38                 | 24.5                     | 0.197                   | 0.25                    | 0.06            |
| 23230                                | 782.0 | 25RB12    | Top           | /                | 22.84                 | 23.5                     | 0.152                   | 0.18                    | 0.13            |

**Table 13.21: SAR Values (LTE Band 26 - Head) - Power level A1**

| Frequency |       | Test Mode | Test Position | Figure No./ Note | Conducted Power (dBm) | Max. tune-up Power (dBm) | Measured SAR(1g) (W/kg) | Reported SAR(1g) (W/kg) | Power Drift(dB) |
|-----------|-------|-----------|---------------|------------------|-----------------------|--------------------------|-------------------------|-------------------------|-----------------|
| Ch.       | MHz   |           |               |                  |                       |                          |                         |                         |                 |
| 26765     | 821.5 | 1RB37     | Left Cheek    | /                | 24.00                 | 24.5                     | 0.694                   | <b>0.78</b>             | 0.15            |
| 26765     | 821.5 | 36RB0     | Left Cheek    | /                | 23.14                 | 23.5                     | 0.540                   | <b>0.59</b>             | -0.16           |
| 26765     | 821.5 | 1RB37     | Left Tilt     | /                | 24.00                 | 24.5                     | 0.452                   | <b>0.51</b>             | 0.06            |
| 26765     | 821.5 | 36RB0     | Left Tilt     | /                | 23.14                 | 23.5                     | 0.350                   | <b>0.38</b>             | -0.04           |
| 26765     | 821.5 | 1RB37     | Right Cheek   | /                | 24.00                 | 24.5                     | 0.863                   | <b>0.97</b>             | -0.06           |
| 26765     | 821.5 | 36RB0     | Right Cheek   | /                | 23.14                 | 23.5                     | 0.675                   | <b>0.73</b>             | 0.02            |
| 26765     | 821.5 | 1RB37     | Right Tilt    | /                | 24.00                 | 24.5                     | 0.664                   | <b>0.75</b>             | 0.13            |
| 26765     | 821.5 | 36RB0     | Right Tilt    | /                | 23.14                 | 23.5                     | 0.513                   | <b>0.56</b>             | 0.10            |
| 26965     | 841.5 | 1RB37     | Right Cheek   | /                | 23.74                 | 24.5                     | 0.809                   | <b>0.96</b>             | 0.06            |
| 26865     | 831.5 | 1RB37     | Right Cheek   | /                | 23.88                 | 24.5                     | 0.839                   | <b>0.97</b>             | -0.17           |
| 26765     | 821.5 | 75RB      | Right Cheek   | /                | 23.11                 | 23.5                     | 0.669                   | <b>0.73</b>             | 0.08            |
| 26765     | 821.5 | 1RB37     | Right Cheek   | <b>21/B2</b>     | 24.00                 | 24.5                     | <b>0.910</b>            | <b>1.02</b>             | -0.05           |

**Table 13.22: SAR Values (LTE Band 26 - Body) - Power level B1**

| Frequency                            |       | Test Mode | Test Position | Figure No./ Note | Conducted Power (dBm) | Max. tune-up Power (dBm) | Measured SAR(1g) (W/kg) | Reported SAR(1g) (W/kg) | Power Drift(dB) |
|--------------------------------------|-------|-----------|---------------|------------------|-----------------------|--------------------------|-------------------------|-------------------------|-----------------|
| Ch.                                  | MHz   |           |               |                  |                       |                          |                         |                         |                 |
| Hotspot / Body-Worn Test Data (10mm) |       |           |               |                  |                       |                          |                         |                         |                 |
| 26765                                | 821.5 | 1RB37     | Front         | /                | 24.00                 | 24.5                     | 0.231                   | 0.26                    | 0.07            |
| 26765                                | 821.5 | 36RB0     | Front         | /                | 23.14                 | 23.5                     | 0.184                   | 0.20                    | 0.15            |
| 26765                                | 821.5 | 1RB37     | Rear          | /                | 24.00                 | 24.5                     | 0.287                   | 0.32                    | 0.06            |
| 26765                                | 821.5 | 36RB0     | Rear          | /                | 23.14                 | 23.5                     | 0.226                   | 0.25                    | 0.08            |
| Hotspot Test Data (10mm)             |       |           |               |                  |                       |                          |                         |                         |                 |
| 26765                                | 821.5 | 1RB37     | Left          | 22               | 24.00                 | 24.5                     | 0.382                   | 0.43                    | 0.09            |
| 26765                                | 821.5 | 36RB0     | Left          | /                | 23.14                 | 23.5                     | 0.224                   | 0.24                    | 0.12            |
| 26765                                | 821.5 | 1RB37     | Right         | /                | 24.00                 | 24.5                     | 0.145                   | 0.16                    | -0.04           |
| 26765                                | 821.5 | 36RB0     | Right         | /                | 23.14                 | 23.5                     | 0.102                   | 0.11                    | 0.03            |
| 26765                                | 821.5 | 1RB37     | Top           | /                | 24.00                 | 24.5                     | 0.266                   | 0.30                    | 0.18            |
| 26765                                | 821.5 | 36RB0     | Top           | /                | 23.14                 | 23.5                     | 0.195                   | 0.21                    | 0.01            |
| 26765                                | 821.5 | 1RB37     | Left          | B2               | 24.00                 | 24.5                     | 0.187                   | 0.21                    | -0.02           |



**Table 13.23: SAR Values (LTE Band 38 - Head) - Power level A1**

| Frequency |        | Test Mode | Test Position | Figure No./ Note | Conducted Power (dBm) | Max. tune-up Power (dBm) | Measured SAR(1g) (W/kg) | Reported SAR(1g) (W/kg) | Power Drift(dB) |
|-----------|--------|-----------|---------------|------------------|-----------------------|--------------------------|-------------------------|-------------------------|-----------------|
| Ch.       | MHz    |           |               |                  |                       |                          |                         |                         |                 |
| 37850     | 2580.0 | 1RB50     | Left Cheek    | /                | 22.53                 | 24.0                     | 0.136                   | <b>0.19</b>             | 0.16            |
| 37850     | 2580.0 | 50RB0     | Left Cheek    | /                | 21.49                 | 23.0                     | 0.096                   | <b>0.14</b>             | 0.03            |
| 37850     | 2580.0 | 1RB50     | Left Tilt     | /                | 22.53                 | 24.0                     | 0.076                   | <b>0.11</b>             | 0.19            |
| 37850     | 2580.0 | 50RB0     | Left Tilt     | /                | 21.49                 | 23.0                     | 0.056                   | <b>0.08</b>             | 0.14            |
| 37850     | 2580.0 | 1RB50     | Right Cheek   | /                | 22.53                 | 24.0                     | 0.077                   | <b>0.11</b>             | 0.01            |
| 37850     | 2580.0 | 50RB0     | Right Cheek   | /                | 21.49                 | 23.0                     | 0.070                   | <b>0.10</b>             | 0.05            |
| 37850     | 2580.0 | 1RB50     | Right Tilt    | /                | 22.53                 | 24.0                     | 0.053                   | <b>0.07</b>             | 0.03            |
| 37850     | 2580.0 | 50RB0     | Right Tilt    | /                | 21.49                 | 23.0                     | 0.038                   | <b>0.05</b>             | 0.03            |
| 37850     | 2580.0 | 1RB50     | Left Cheek    | <b>23/B2</b>     | 22.53                 | 24.0                     | <b>0.143</b>            | <b>0.20</b>             | 0.04            |

**Table 13.24: SAR Values (LTE Band 38 - Body) - Power level B1**

| Frequency                            |        | Test Mode | Test Position | Figure No./ Note | Conducted Power (dBm) | Max. tune-up Power (dBm) | Measured SAR(1g) (W/kg) | Reported SAR(1g) (W/kg) | Power Drift(dB) |
|--------------------------------------|--------|-----------|---------------|------------------|-----------------------|--------------------------|-------------------------|-------------------------|-----------------|
| Ch.                                  | MHz    |           |               |                  |                       |                          |                         |                         |                 |
| Hotspot / Body-Worn Test Data (10mm) |        |           |               |                  |                       |                          |                         |                         |                 |
| 37850                                | 2580.0 | 1RB50     | Front         | /                | 22.53                 | 24.0                     | 0.272                   | 0.38                    | 0.06            |
| 37850                                | 2580.0 | 50RB0     | Front         | /                | 21.49                 | 23.0                     | 0.215                   | 0.30                    | -0.03           |
| 37850                                | 2580.0 | 1RB50     | Rear          | /                | 22.53                 | 24.0                     | 0.397                   | 0.56                    | 0.19            |
| 37850                                | 2580.0 | 50RB0     | Rear          | /                | 21.49                 | 23.0                     | 0.324                   | 0.46                    | 0.01            |
| Hotspot Test Data (10mm)             |        |           |               |                  |                       |                          |                         |                         |                 |
| 37850                                | 2580.0 | 1RB50     | Left          | /                | 22.53                 | 24.0                     | 0.078                   | 0.11                    | 0.11            |
| 37850                                | 2580.0 | 50RB0     | Left          | /                | 21.49                 | 23.0                     | 0.039                   | 0.05                    | -0.14           |
| 37850                                | 2580.0 | 1RB50     | Right         | /                | 22.53                 | 24.0                     | 0.029                   | 0.04                    | 0.07            |
| 37850                                | 2580.0 | 50RB0     | Right         | /                | 21.49                 | 23.0                     | 0.012                   | 0.02                    | 0.03            |
| 37850                                | 2580.0 | 1RB50     | Bottom        | /                | 22.53                 | 24.0                     | 0.584                   | 0.82                    | 0.04            |
| 37850                                | 2580.0 | 50RB0     | Bottom        | /                | 21.49                 | 23.0                     | 0.475                   | 0.67                    | 0.16            |
| 38150                                | 2610.0 | 1RB50     | Bottom        | 24               | 22.47                 | 24.0                     | 0.600                   | 0.85                    | 0.05            |
| 38000                                | 2595.0 | 1RB50     | Bottom        | /                | 22.50                 | 24.0                     | 0.598                   | 0.84                    | 0.06            |
| 37850                                | 2580.0 | 100RB     | Bottom        | /                | 21.59                 | 23.0                     | 0.473                   | 0.65                    | 0.08            |
| 38150                                | 2610.0 | 1RB50     | Bottom        | B2               | 22.47                 | 24.0                     | 0.599                   | 0.85                    | -0.03           |

**Table 13.25: SAR Values (LTE Band 66 - Head) - Power level A1**

| Frequency |        | Test Mode | Test Position | Figure No./ Note | Conducted Power (dBm) | Max. tune-up Power (dBm) | Measured SAR(1g) (W/kg) | Reported SAR(1g) (W/kg) | Power Drift(dB) |
|-----------|--------|-----------|---------------|------------------|-----------------------|--------------------------|-------------------------|-------------------------|-----------------|
| Ch.       | MHz    |           |               |                  |                       |                          |                         |                         |                 |
| 132572    | 1770.0 | 1RB50     | Left Cheek    | /                | 23.04                 | 24.0                     | 0.055                   | <b>0.07</b>             | 0.05            |
| 132572    | 1770.0 | 50RB0     | Left Cheek    | /                | 22.22                 | 23.0                     | 0.054                   | <b>0.06</b>             | 0.12            |
| 132572    | 1770.0 | 1RB50     | Left Tilt     | /                | 23.04                 | 25.0                     | 0.068                   | <b>0.11</b>             | 0.04            |
| 132572    | 1770.0 | 50RB0     | Left Tilt     | /                | 22.22                 | 24.0                     | 0.054                   | <b>0.08</b>             | 0.06            |
| 132572    | 1770.0 | 1RB50     | Right Cheek   | /                | 23.04                 | 25.0                     | 0.116                   | <b>0.18</b>             | 0.05            |
| 132572    | 1770.0 | 50RB0     | Right Cheek   | /                | 22.22                 | 24.0                     | 0.087                   | <b>0.13</b>             | 0.06            |
| 132572    | 1770.0 | 1RB50     | Right Tilt    | /                | 23.04                 | 25.0                     | 0.052                   | <b>0.08</b>             | 0.04            |
| 132572    | 1770.0 | 50RB0     | Right Tilt    | /                | 22.22                 | 24.0                     | 0.039                   | <b>0.06</b>             | 0.03            |
| 132572    | 1770.0 | 1RB50     | Right Cheek   | <b>25/B2</b>     | 23.04                 | 25.0                     | <b>0.179</b>            | <b>0.28</b>             | -0.08           |

**Table 13.26: SAR Values (LTE Band 66 - Body) - Power level B1**

| Frequency                            |        | Test Mode | Test Position | Figure No./ Note | Conducted Power (dBm) | Max. tune-up Power (dBm) | Measured SAR(1g) (W/kg) | Reported SAR(1g) (W/kg) | Power Drift(dB) |
|--------------------------------------|--------|-----------|---------------|------------------|-----------------------|--------------------------|-------------------------|-------------------------|-----------------|
| Ch.                                  | MHz    |           |               |                  |                       |                          |                         |                         |                 |
| Hotspot / Body-Worn Test Data (10mm) |        |           |               |                  |                       |                          |                         |                         |                 |
| 132072                               | 1720.0 | 1RB50     | Front         | /                | 20.50                 | 21.5                     | 0.230                   | 0.29                    | -0.17           |
| 132072                               | 1720.0 | 50RB25    | Front         | /                | 20.48                 | 21.5                     | 0.235                   | 0.30                    | -0.16           |
| 132072                               | 1720.0 | 1RB50     | Rear          | /                | 20.50                 | 21.5                     | 0.866                   | 1.09                    | 0.04            |
| 132072                               | 1720.0 | 50RB25    | Rear          | /                | 20.48                 | 21.5                     | 0.850                   | 1.08                    | 0.06            |
| 132572                               | 1770.0 | 1RB50     | Rear          | /                | 20.48                 | 21.5                     | 0.858                   | 1.09                    | 0.12            |
| 132322                               | 1745.0 | 1RB50     | Rear          | /                | 20.41                 | 21.5                     | 0.848                   | 1.09                    | -0.11           |
| 132572                               | 1770.0 | 50RB25    | Rear          | /                | 20.46                 | 21.5                     | 0.874                   | 1.11                    | -0.19           |
| 132322                               | 1745.0 | 50RB25    | Rear          | /                | 20.45                 | 21.5                     | 0.868                   | 1.11                    | -0.14           |
| Hotspot Test Data (10mm)             |        |           |               |                  |                       |                          |                         |                         |                 |
| 132072                               | 1720.0 | 1RB50     | Left          | /                | 20.50                 | 21.5                     | 0.088                   | 0.11                    | 0.11            |
| 132072                               | 1720.0 | 50RB25    | Left          | /                | 20.48                 | 21.5                     | 0.062                   | 0.08                    | 0.14            |
| 132072                               | 1720.0 | 1RB50     | Right         | /                | 20.50                 | 21.5                     | 0.008                   | 0.01                    | 0.08            |
| 132072                               | 1720.0 | 50RB25    | Right         | /                | 20.48                 | 21.5                     | 0.008                   | 0.01                    | 0.08            |
| 132072                               | 1720.0 | 1RB50     | Bottom        | /                | 20.50                 | 21.5                     | 0.876                   | 1.10                    | 0.05            |
| 132072                               | 1720.0 | 50RB25    | Bottom        | /                | 20.48                 | 21.5                     | 0.874                   | 1.11                    | 0.03            |
| 132572                               | 1770.0 | 1RB50     | Bottom        | /                | 20.48                 | 21.5                     | 0.955                   | 1.21                    | -0.12           |
| 132322                               | 1745.0 | 1RB50     | Bottom        | /                | 20.41                 | 21.5                     | 0.858                   | 1.10                    | -0.03           |
| 132572                               | 1770.0 | 50RB25    | Bottom        | /                | 20.46                 | 21.5                     | 0.884                   | 1.12                    | -0.12           |
| 132322                               | 1745.0 | 50RB25    | Bottom        | /                | 20.45                 | 21.5                     | 0.878                   | 1.12                    | -0.17           |
| 132572                               | 1770.0 | 100RB     | Bottom        | /                | 20.40                 | 21.5                     | 0.910                   | 1.17                    | -0.15           |
| 132572                               | 1770.0 | 1RB50     | Bottom        | 26/B2            | 20.48                 | 21.5                     | 1.040                   | 1.32                    | -0.18           |
| 132572                               | 1770.0 | 1RB50     | Bottom        | SIM2             | 20.48                 | 21.5                     | 1.020                   | 1.29                    | 0.10            |

**Note:** SAR for LTE Band 4 is covered by LTE Band 66 due to similar frequency range, same maximum tune-up limit and same channel bandwidth.

**Table 13.27: SAR Values (Bluetooth - Head)**

| Frequency |        | Test Mode | Test Position | Figure No./ Note | Conducted Power (dBm) | Max. tune-up Power (dBm) | Measured SAR(1g) (W/kg) | Reported SAR(1g) (W/kg) | Power Drift(dB) |
|-----------|--------|-----------|---------------|------------------|-----------------------|--------------------------|-------------------------|-------------------------|-----------------|
| Ch.       | MHz    |           |               |                  |                       |                          |                         |                         |                 |
| 0         | 2402.0 | GFSK      | Left Cheek    | <b>27</b>        | 10.08                 | 11.0                     | <b>0.083</b>            | <b>0.10</b>             | -0.10           |
| 0         | 2402.0 | GFSK      | Left Tilt     | /                | 10.08                 | 11.0                     | 0.056                   | <b>0.07</b>             | 0.06            |
| 0         | 2402.0 | GFSK      | Right Cheek   | /                | 10.08                 | 11.0                     | 0.032                   | <b>0.04</b>             | 0.09            |
| 0         | 2402.0 | GFSK      | Right Tilt    | /                | 10.08                 | 11.0                     | 0.038                   | <b>0.05</b>             | 0.04            |
| 0         | 2402.0 | GFSK      | Left Cheek    | B2               | 10.08                 | 11.0                     | 0.077                   | <b>0.10</b>             | 0.06            |

**Table 13.28: SAR Values (Bluetooth - Body)**

| Frequency        |        | Test Mode | Test Position | Figure No./ Note | Conducted Power (dBm) | Max. tune-up Power (dBm) | Measured SAR(1g) (W/kg) | Reported SAR(1g) (W/kg) | Power Drift(dB) |
|------------------|--------|-----------|---------------|------------------|-----------------------|--------------------------|-------------------------|-------------------------|-----------------|
| Ch.              | MHz    |           |               |                  |                       |                          |                         |                         |                 |
| Test Data (10mm) |        |           |               |                  |                       |                          |                         |                         |                 |
| 0                | 2402.0 | GFSK      | Front         | /                | 10.08                 | 11.0                     | 0.015                   | 0.02                    | 0.03            |
| 0                | 2402.0 | GFSK      | Rear          | 28               | 10.08                 | 11.0                     | 0.034                   | 0.04                    | 0.12            |
| 0                | 2402.0 | GFSK      | Left          | /                | 10.08                 | 11.0                     | 0.002                   | 0.00                    | 0.04            |
| 0                | 2402.0 | GFSK      | Right         | /                | 10.08                 | 11.0                     | 0.020                   | 0.02                    | 0.03            |
| 0                | 2402.0 | GFSK      | Top           | /                | 10.08                 | 11.0                     | 0.018                   | 0.02                    | 0.05            |
| 0                | 2402.0 | GFSK      | Rear          | B2               | 10.08                 | 11.0                     | 0.031                   | 0.04                    | 0.05            |

### 13.3. WLAN Evaluation for 2.4G

According to the KDB248227 D01, SAR is measured for 2.4GHz 802.11b DSSS using the initial test position procedure.

**Table 13.29: SAR Values (WLAN 2.4GHz - Head)**

| Frequency |        | Test Mode | Test Position | Figure No./ Note | Conducted Power (dBm) | Max. tune-up Power (dBm) | Measured SAR(1g) (W/kg) | Reported SAR(1g) (W/kg) | Power Drift(dB) |
|-----------|--------|-----------|---------------|------------------|-----------------------|--------------------------|-------------------------|-------------------------|-----------------|
| Ch.       | MHz    |           |               |                  |                       |                          |                         |                         |                 |
| 6         | 2437.0 | 802.11b   | Left Cheek    | <b>29</b>        | 15.92                 | 17.0                     | <b>0.378</b>            | <b>0.48</b>             | 0.02            |
| 6         | 2437.0 | 802.11b   | Left Tilt     | /                | 15.92                 | 17.0                     | 0.235                   | <b>0.30</b>             | -0.14           |
| 6         | 2437.0 | 802.11b   | Right Cheek   | /                | 15.92                 | 17.0                     | 0.147                   | <b>0.19</b>             | 0.12            |
| 6         | 2437.0 | 802.11b   | Right Tilt    | /                | 15.92                 | 17.0                     | 0.163                   | <b>0.21</b>             | 0.12            |
| 6         | 2437.0 | 802.11b   | Left Cheek    | B2               | 15.92                 | 17.0                     | 0.327                   | <b>0.42</b>             | 0.01            |

Note: For all positions/configurations tested using the initial test position and subsequent test positions, when the reported SAR is > 0.8 W/kg, SAR is measured for these test positions/configurations on the subsequent next highest measured output power channel until the reported SAR is  $\leq 1.2$  W/kg or all required channels are tested.

According to the KDB248227 D01, The reported SAR must be scaled to 100% transmission duty factor to determine compliance at the maximum tune-up tolerance limit.

**Table 13.30: SAR Values (WLAN - Head) - 802.11b (Scaled Reported SAR)**

| Frequency |        | Test Position | Actual duty factor | maximum duty factor | Reported SAR (1g)(W/kg) | Scaled reported SAR (1g)(W/kg) |
|-----------|--------|---------------|--------------------|---------------------|-------------------------|--------------------------------|
| Ch.       | MHz    |               |                    |                     |                         |                                |
| 6         | 2437.0 | Left Cheek    | 100%               | 100%                | 0.48                    | <b>0.48</b>                    |

SAR is not required for OFDM because the 802.11b adjusted SAR  $\leq 1.2$  W/kg.

**Table 13.31: SAR Values (WLAN 2.4GHz - Body)**

| Frequency                            |        | Test Mode | Test Position | Figure No./ Note | Conducted Power (dBm) | Max. tune-up Power (dBm) | Measured SAR(1g) (W/kg) | Reported SAR(1g) (W/kg) | Power Drift(dB) |
|--------------------------------------|--------|-----------|---------------|------------------|-----------------------|--------------------------|-------------------------|-------------------------|-----------------|
| Ch.                                  | MHz    |           |               |                  |                       |                          |                         |                         |                 |
| Hotspot / Body-Worn Test Data (10mm) |        |           |               |                  |                       |                          |                         |                         |                 |
| 6                                    | 2437.0 | 802.11b   | Front         | /                | 15.92                 | 17.0                     | 0.074                   | 0.09                    | 0.04            |
| 6                                    | 2437.0 | 802.11b   | Rear          | 30               | 15.92                 | 17.0                     | 0.133                   | 0.17                    | -0.09           |
| 6                                    | 2437.0 | 802.11b   | Rear          | B2               | 15.92                 | 17.0                     | 0.125                   | 0.16                    | 0.03            |
| Hotspot Test Data (10mm)             |        |           |               |                  |                       |                          |                         |                         |                 |
| 6                                    | 2437.0 | 802.11b   | Left          | /                | 15.92                 | 17.0                     | 0.011                   | 0.01                    | 0.12            |
| 6                                    | 2437.0 | 802.11b   | Right         | /                | 15.92                 | 17.0                     | 0.061                   | 0.08                    | -0.17           |
| 6                                    | 2437.0 | 802.11b   | Top           | /                | 15.92                 | 17.0                     | 0.061                   | 0.08                    | -0.07           |

Note: For all positions/configurations tested using the initial test position and subsequent test positions, when the reported SAR is > 0.8 W/kg, SAR is measured for these test positions/configurations on the subsequent next highest measured output power channel until the reported SAR is ≤ 1.2 W/kg or all required channels are tested.

According to the KDB248227 D01, The reported SAR must be scaled to 100% transmission duty factor to determine compliance at the maximum tune-up tolerance limit.

**Table 13.32: SAR Values (WLAN - Body) - 802.11b (Scaled Reported SAR)**

| Frequency |        | Test Position | Actual duty factor | maximum duty factor | Reported SAR (1g)(W/kg) | Scaled reported SAR (1g)(W/kg) |
|-----------|--------|---------------|--------------------|---------------------|-------------------------|--------------------------------|
| Ch.       | MHz    |               |                    |                     |                         |                                |
| 6         | 2437.0 | Rear          | 100%               | 100%                | 0.17                    | <b>0.17</b>                    |

SAR is not required for OFDM because the 802.11b adjusted SAR ≤ 1.2 W/kg.

### 13.4. WLAN Evaluation for 5G

**Table 13.33: SAR Values (WLAN 5GHz - Head)**

| Frequency |        | Test Mode | Test Position | Figure No./ Note | Conducted Power (dBm) | Max. tune-up Power (dBm) | Measured SAR(1g) (W/kg) | Reported SAR(1g) (W/kg) | Power Drift(dB) |
|-----------|--------|-----------|---------------|------------------|-----------------------|--------------------------|-------------------------|-------------------------|-----------------|
| Ch.       | MHz    |           |               |                  |                       |                          |                         |                         |                 |
| U-NII-2A  |        |           |               |                  |                       |                          |                         |                         |                 |
| 52        | 5260.0 | 802.11a   | Left Cheek    | /                | 14.49                 | 15.5                     | 0.217                   | <b>0.27</b>             | 0.03            |
| 52        | 5260.0 | 802.11a   | Left Tilt     | /                | 14.49                 | 15.5                     | 0.271                   | <b>0.34</b>             | 0.07            |
| 52        | 5260.0 | 802.11a   | Right Cheek   | /                | 14.49                 | 15.5                     | 0.141                   | <b>0.18</b>             | 0.12            |
| 52        | 5260.0 | 802.11a   | Right Tilt    | /                | 14.49                 | 15.5                     | 0.161                   | <b>0.20</b>             | 0.03            |
| U-NII-2C  |        |           |               |                  |                       |                          |                         |                         |                 |
| 116       | 5580.0 | 802.11a   | Left Cheek    | /                | 14.73                 | 15.5                     | 0.136                   | <b>0.16</b>             | -0.02           |
| 116       | 5580.0 | 802.11a   | Left Tilt     | /                | 14.73                 | 15.5                     | 0.133                   | <b>0.16</b>             | -0.02           |
| 116       | 5580.0 | 802.11a   | Right Cheek   | /                | 14.73                 | 15.5                     | 0.121                   | <b>0.14</b>             | -0.16           |
| 116       | 5580.0 | 802.11a   | Right Tilt    | /                | 14.73                 | 15.5                     | 0.179                   | <b>0.21</b>             | 0.11            |
| U-NII-3   |        |           |               |                  |                       |                          |                         |                         |                 |
| 165       | 5825.0 | 802.11a   | Left Cheek    | <b>31</b>        | 14.72                 | 15.5                     | <b>0.296</b>            | <b>0.35</b>             | 0.04            |
| 165       | 5825.0 | 802.11a   | Left Tilt     | /                | 14.72                 | 15.5                     | 0.245                   | <b>0.29</b>             | -0.11           |
| 165       | 5825.0 | 802.11a   | Right Cheek   | /                | 14.72                 | 15.5                     | 0.136                   | <b>0.16</b>             | 0.14            |
| 165       | 5825.0 | 802.11a   | Right Tilt    | /                | 14.72                 | 15.5                     | 0.169                   | <b>0.20</b>             | 0.10            |
| 165       | 5825.0 | 802.11a   | Left Cheek    | B2               | 14.72                 | 15.5                     | 0.288                   | <b>0.34</b>             | 0.01            |

**Note:**

1. The maximum output of U-NII-2A is greater than that of U-NII-1; SAR is measured for U-NII-2A band first. Adjusted SAR of U-NII-2A band is  $\leq 1.2$ W/kg, SAR is not required for U-NII-1 band.
2. For all positions/configurations tested using the initial test position and subsequent test positions, when the reported SAR is  $> 0.8$  W/kg, SAR is measured for these test positions/configurations on the subsequent next highest measured output power channel until the reported SAR is  $\leq 1.2$  W/kg or all required channels are tested.

According to the KDB248227 D01, The reported SAR must be scaled to 100% transmission duty factor to determine compliance at the maximum tune-up tolerance limit.

**Table 13.34: SAR Values (WLAN - Head) - 802.11a (Scaled Reported SAR)**

| Frequency |        | Test Position | Actual duty factor | maximum duty factor | Reported SAR (1g)(W/kg) | Scaled reported SAR (1g)(W/kg) |
|-----------|--------|---------------|--------------------|---------------------|-------------------------|--------------------------------|
| Ch.       | MHz    |               |                    |                     |                         |                                |
| 165       | 5825.0 | Left Cheek    | 100%               | 100%                | 0.35                    | <b>0.35</b>                    |

**Table 13.35: SAR Values (WLAN 5GHz - Body)**

| Frequency                               |        | Test Mode | Test Position | Figure No./ Note | Conducted Power (dBm) | Max. tune-up Power (dBm) | Measured SAR(1g) (W/kg) | Reported SAR(1g) (W/kg) | Power Drift(dB) |
|-----------------------------------------|--------|-----------|---------------|------------------|-----------------------|--------------------------|-------------------------|-------------------------|-----------------|
| Ch.                                     | MHz    |           |               |                  |                       |                          |                         |                         |                 |
| <U-NII-1> - Hotspot Test Data (10mm)    |        |           |               |                  |                       |                          |                         |                         |                 |
| 48                                      | 5280.0 | 802.11a   | Front         | /                | 14.42                 | 15.5                     | 0.047                   | 0.06                    | -0.11           |
| 48                                      | 5280.0 | 802.11a   | Rear          | 32               | 14.42                 | 15.5                     | 0.132                   | 0.17                    | 0.10            |
| 48                                      | 5280.0 | 802.11a   | Left          | /                | 14.42                 | 15.5                     | 0.057                   | 0.07                    | -0.16           |
| 48                                      | 5280.0 | 802.11a   | Right         | /                | 14.42                 | 15.5                     | 0.043                   | 0.05                    | 0.11            |
| 48                                      | 5280.0 | 802.11a   | Top           | /                | 14.42                 | 15.5                     | 0.122                   | 0.16                    | -0.19           |
| 48                                      | 5280.0 | 802.11a   | Rear          | B2               | 14.42                 | 15.5                     | 0.131                   | 0.17                    | 0.09            |
| <U-NII-3> - Hotspot Test Data (10mm)    |        |           |               |                  |                       |                          |                         |                         |                 |
| 165                                     | 5825.0 | 802.11a   | Front         | /                | 14.72                 | 15.5                     | 0.072                   | 0.09                    | 0.08            |
| 165                                     | 5825.0 | 802.11a   | Rear          | /                | 14.72                 | 15.5                     | 0.083                   | 0.10                    | -0.19           |
| 165                                     | 5825.0 | 802.11a   | Left          | /                | 14.72                 | 15.5                     | 0.038                   | 0.05                    | -0.10           |
| 165                                     | 5825.0 | 802.11a   | Right         | /                | 14.72                 | 15.5                     | 0.061                   | 0.07                    | -0.17           |
| 165                                     | 5825.0 | 802.11a   | Top           | /                | 14.72                 | 15.5                     | 0.108                   | 0.13                    | 0.08            |
| <U-NII-2A> - Body-Worn Test Data (15mm) |        |           |               |                  |                       |                          |                         |                         |                 |
| 52                                      | 5260.0 | 802.11a   | Front         | /                | 14.49                 | 15.5                     | 0.065                   | 0.08                    | 0.03            |
| 52                                      | 5260.0 | 802.11a   | Rear          | /                | 14.49                 | 15.5                     | 0.123                   | 0.16                    | -0.01           |
| <U-NII-2C> - Body-Worn Test Data (15mm) |        |           |               |                  |                       |                          |                         |                         |                 |
| 116                                     | 5580.0 | 802.11a   | Front         | /                | 14.73                 | 15.5                     | 0.075                   | 0.09                    | 0.02            |
| 116                                     | 5580.0 | 802.11a   | Rear          | /                | 14.73                 | 15.5                     | 0.119                   | 0.14                    | 0.01            |
| <U-NII-3> - Body-Worn Test Data (10mm)  |        |           |               |                  |                       |                          |                         |                         |                 |
| 165                                     | 5825.0 | 802.11a   | Front         | /                | 14.72                 | 15.5                     | 0.072                   | 0.09                    | 0.08            |
| 165                                     | 5825.0 | 802.11a   | Rear          | /                | 14.72                 | 15.5                     | 0.083                   | 0.10                    | -0.19           |

**Note:**

1. The maximum output of U-NII-2A is greater than that of U-NII-1; SAR is measured for U-NII-2A band first. Adjusted SAR of U-NII-2A band is  $\leq 1.2$ W/kg, SAR is not required for U-NII-1 band.
2. For all positions/configurations tested using the initial test position and subsequent test positions, when the reported SAR is  $> 0.8$  W/kg, SAR is measured for these test positions/configurations on the subsequent next highest measured output power channel until the reported SAR is  $\leq 1.2$  W/kg or all required channels are tested.

According to the KDB248227 D01, The reported SAR must be scaled to 100% transmission duty factor to determine compliance at the maximum tune-up tolerance limit.

**Table 13.36: SAR Values (WLAN - Body) - 802.11a (Scaled Reported SAR)**

| Frequency |        | Test Position | Actual duty factor | maximum duty factor | Reported SAR (1g)(W/kg) | Scaled reported SAR (1g)(W/kg) |
|-----------|--------|---------------|--------------------|---------------------|-------------------------|--------------------------------|
| Ch.       | MHz    |               |                    |                     |                         |                                |
| 48        | 5280.0 | Rear          | 100%               | 100%                | 0.17                    | <b>0.17</b>                    |

### 13.5. Product specific 10g SAR

**Table 13.37: SAR Values (LTE Band 66 - Extremity)**

| Frequency       |        | Test Mode | Test Position | Figure No./ Note | Conducted Power (dBm) | Max. tune-up Power (dBm) | Measured SAR(10g) (W/kg) | Reported SAR(10g) (W/kg) | Power Drift(dB) |
|-----------------|--------|-----------|---------------|------------------|-----------------------|--------------------------|--------------------------|--------------------------|-----------------|
| Ch.             | MHz    |           |               |                  |                       |                          |                          |                          |                 |
| Test Data (0mm) |        |           |               |                  |                       |                          |                          |                          |                 |
| 132572          | 1770.0 | 1RB50     | Bottom        | 33               | 20.48                 | 21.5                     | 1.760                    | 2.23                     | 0.19            |
| 132322          | 1745.0 | 1RB50     | Bottom        | /                | 20.41                 | 21.5                     | 1.730                    | 2.22                     | -0.11           |
| 132072          | 1720.0 | 1RB50     | Bottom        | /                | 20.50                 | 21.5                     | 1.680                    | 2.11                     | 0.06            |
| 132572          | 1770.0 | 100RB     | Bottom        | /                | 20.40                 | 21.5                     | 1.750                    | 2.25                     | 0.02            |
| 132572          | 1770.0 | 100RB     | Bottom        | B2               | 20.40                 | 21.5                     | 1.720                    | 2.22                     | 0.07            |

**Table 13.38: SAR Values (WLAN 5GHz - Extremity)**

| Frequency                   |        | Test Mode | Test Position | Figure No./ Note | Conducted Power (dBm) | Max. tune-up Power (dBm) | Measured SAR(10g) (W/kg) | Reported SAR(10g) (W/kg) | Power Drift(dB) |
|-----------------------------|--------|-----------|---------------|------------------|-----------------------|--------------------------|--------------------------|--------------------------|-----------------|
| Ch.                         | MHz    |           |               |                  |                       |                          |                          |                          |                 |
| <U-NII-2A> -Test Data (0mm) |        |           |               |                  |                       |                          |                          |                          |                 |
| 52                          | 5260.0 | 802.11a   | Front         | /                | 14.49                 | 15.5                     | 0.075                    | 0.09                     | -0.05           |
| 52                          | 5260.0 | 802.11a   | Rear          | /                | 14.49                 | 15.5                     | 0.207                    | 0.26                     | 0.09            |
| 52                          | 5260.0 | 802.11a   | Left          | /                | 14.49                 | 15.5                     | 0.021                    | 0.03                     | -0.07           |
| 52                          | 5260.0 | 802.11a   | Right         | /                | 14.49                 | 15.5                     | 0.033                    | 0.04                     | -0.17           |
| 52                          | 5260.0 | 802.11a   | Top           | /                | 14.49                 | 15.5                     | 0.195                    | 0.25                     | 0.09            |
| <U-NII-2C> -Test Data (0mm) |        |           |               |                  |                       |                          |                          |                          |                 |
| 116                         | 5580.0 | 802.11a   | Front         | /                | 14.73                 | 15.5                     | 0.136                    | 0.16                     | -0.04           |
| 116                         | 5580.0 | 802.11a   | Rear          | /                | 14.73                 | 15.5                     | 0.273                    | 0.33                     | 0.10            |
| 116                         | 5580.0 | 802.11a   | Left          | /                | 14.73                 | 15.5                     | 0.033                    | 0.04                     | 0.03            |
| 116                         | 5580.0 | 802.11a   | Right         | /                | 14.73                 | 15.5                     | 0.111                    | 0.13                     | -0.14           |
| 116                         | 5580.0 | 802.11a   | Top           | 34               | 14.73                 | 15.5                     | 0.293                    | 0.35                     | 0.06            |
| 116                         | 5580.0 | 802.11a   | Top           | B2               | 14.73                 | 15.5                     | 0.288                    | 0.34                     | -0.03           |



## 14. SAR Measurement Variability

SAR measurement variability must be assessed for each frequency band, which is determined by the SAR probe calibration point and tissue-equivalent medium used for the device measurements. When both head and body tissue-equivalent media are required for SAR measurements in a frequency band, the variability measurement procedures should be applied to the tissue medium with the highest measured SAR, using the highest measured SAR configuration for that tissue-equivalent medium.

The following procedures are applied to determine if repeated measurements are required.

- 1) Repeated measurement is not required when the original highest measured SAR is  $< 0.80$  W/kg; steps 2) through 4) do not apply.
- 2) When the original highest measured SAR is  $\geq 0.80$  W/kg, repeat that measurement once.
- 3) Perform a second repeated measurement only if the ratio of largest to smallest SAR for the original and first repeated measurements is  $> 1.20$  or when the original or repeated measurement is  $\geq 1.45$  W/kg ( $\sim 10\%$  from the 1-g SAR limit).
- 4) Perform a third repeated measurement only if the original, first or second repeated measurement is  $\geq 1.5$  W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is  $> 1.20$ .

**Table 14.1: SAR Measurement Variability for Head - GSM850**

| Frequency |       | Test Position | Original   | 1 <sup>st</sup> Repeated | Ratio | 2 <sup>nd</sup> Repeated |
|-----------|-------|---------------|------------|--------------------------|-------|--------------------------|
| Ch.       | MHz   |               | SAR (W/kg) | SAR (W/kg)               |       | SAR (W/kg)               |
| 251       | 848.8 | Right Cheek   | 0.861      | 0.849                    | 1.01  | /                        |

**Table 14.2: SAR Measurement Variability for Body - WCDMA Band 2**

| Frequency |        | Test Position | Original   | 1 <sup>st</sup> Repeated | Ratio | 2 <sup>nd</sup> Repeated |
|-----------|--------|---------------|------------|--------------------------|-------|--------------------------|
| Ch.       | MHz    |               | SAR (W/kg) | SAR (W/kg)               |       | SAR (W/kg)               |
| 9262      | 1852.4 | Bottom        | 1.110      | 1.080                    | 1.03  | /                        |

**Table 14.3: SAR Measurement Variability for Body - WCDMA Band 4**

| Frequency |        | Test Position | Original   | 1 <sup>st</sup> Repeated | Ratio | 2 <sup>nd</sup> Repeated |
|-----------|--------|---------------|------------|--------------------------|-------|--------------------------|
| Ch.       | MHz    |               | SAR (W/kg) | SAR (W/kg)               |       | SAR (W/kg)               |
| 1513      | 1752.6 | Bottom        | 1.030      | 1.01                     | 1.02  | /                        |

**Table 14.4: SAR Measurement Variability for Head - WCDMA Band 5**

| Frequency |       | Test Position | Original   | 1 <sup>st</sup> Repeated | Ratio | 2 <sup>nd</sup> Repeated |
|-----------|-------|---------------|------------|--------------------------|-------|--------------------------|
| Ch.       | MHz   |               | SAR (W/kg) | SAR (W/kg)               |       | SAR (W/kg)               |
| 4132      | 826.4 | Right Cheek   | 0.923      | 0.896                    | 1.03  | /                        |

**Table 14.5: SAR Measurement Variability for Body - LTE Band 2**

| Frequency |        | Test Position | Original   | 1 <sup>st</sup> Repeated | Ratio | 2 <sup>nd</sup> Repeated |
|-----------|--------|---------------|------------|--------------------------|-------|--------------------------|
| Ch.       | MHz    |               | SAR (W/kg) | SAR (W/kg)               |       | SAR (W/kg)               |
| 18900     | 1880.0 | Bottom        | 0.927      | 0.912                    | 1.02  | /                        |

**Table 14.6: SAR Measurement Variability for Head - LTE Band 5**

| Frequency |       | Test Position | Original   | 1 <sup>st</sup> Repeated | Ratio | 2 <sup>nd</sup> Repeated |
|-----------|-------|---------------|------------|--------------------------|-------|--------------------------|
| Ch.       | MHz   |               | SAR (W/kg) | SAR (W/kg)               |       | SAR (W/kg)               |
| 20450     | 829.0 | Right Cheek   | 0.913      | 0.884                    | 1.03  | /                        |

**Table 14.7: SAR Measurement Variability for Body - LTE Band 7**

| Frequency |        | Test Position | Original   | 1 <sup>st</sup> Repeated | Ratio | 2 <sup>nd</sup> Repeated |
|-----------|--------|---------------|------------|--------------------------|-------|--------------------------|
| Ch.       | MHz    |               | SAR (W/kg) | SAR (W/kg)               |       | SAR (W/kg)               |
| 21100     | 2535.0 | Bottom        | 0.849      | 0.826                    | 1.03  | /                        |

**Table 14.8: SAR Measurement Variability for Head - LTE Band 13**

| Frequency |       | Test Position | Original   | 1 <sup>st</sup> Repeated | Ratio | 2 <sup>nd</sup> Repeated |
|-----------|-------|---------------|------------|--------------------------|-------|--------------------------|
| Ch.       | MHz   |               | SAR (W/kg) | SAR (W/kg)               |       | SAR (W/kg)               |
| 23230     | 782.0 | Right Cheek   | 0.904      | 0.865                    | 1.05  | /                        |

**Table 14.9: SAR Measurement Variability for Head - LTE Band 26**

| Frequency |       | Test Position | Original   | 1 <sup>st</sup> Repeated | Ratio | 2 <sup>nd</sup> Repeated |
|-----------|-------|---------------|------------|--------------------------|-------|--------------------------|
| Ch.       | MHz   |               | SAR (W/kg) | SAR (W/kg)               |       | SAR (W/kg)               |
| 26765     | 821.5 | Right Cheek   | 0.910      | 0.877                    | 1.04  | /                        |

**Table 14.10: SAR Measurement Variability for Body - LTE Band 66**

| Frequency |        | Test Position | Original   | 1 <sup>st</sup> Repeated | Ratio | 2 <sup>nd</sup> Repeated |
|-----------|--------|---------------|------------|--------------------------|-------|--------------------------|
| Ch.       | MHz    |               | SAR (W/kg) | SAR (W/kg)               |       | SAR (W/kg)               |
| 132572    | 1770.0 | Bottom        | 1.040      | 1.00                     | 1.04  | /                        |

## 15. Measurement Uncertainty

### 15.1. Measurement Uncertainty for Normal SAR Tests (300MHz~3GHz)

| No.                                                | Error Description                               | Type                                        | Uncertainty value | Probably Distribution | Div.       | (Ci) 1g      | (Ci) 10g     | Std. Unc. (1g) | Std. Unc. (10g) | Degree of freedom |
|----------------------------------------------------|-------------------------------------------------|---------------------------------------------|-------------------|-----------------------|------------|--------------|--------------|----------------|-----------------|-------------------|
| <b>Measurement system</b>                          |                                                 |                                             |                   |                       |            |              |              |                |                 |                   |
| 1                                                  | Probe calibration                               | B                                           | 12                | N                     | 2          | 1            | 1            | 6.0            | 6.0             | $\infty$          |
| 2                                                  | Axial isotropy                                  | B                                           | 4.7               | R                     | $\sqrt{3}$ | $\sqrt{0.5}$ | $\sqrt{0.5}$ | 4.3            | 4.3             | $\infty$          |
| 3                                                  | Hemispherical isotropy                          | B                                           | 9.6               | R                     | $\sqrt{3}$ | 1            | 1            | 4.8            | 4.8             | $\infty$          |
| 4                                                  | Boundary effect                                 | B                                           | 1.1               | 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 limit                                 | B                                           | 1.0               | R                     | $\sqrt{3}$ | 1            | 1            | 0.6            | 0.6             | $\infty$          |
| 7                                                  | Modulation response                             | B                                           | 4.0               | R                     | $\sqrt{3}$ | 1            | 1            | 2.3            | 2.3             | $\infty$          |
| 8                                                  | Readout electronics                             | B                                           | 1.0               | N                     | 1          | 1            | 1            | 1.0            | 1.0             | $\infty$          |
| 9                                                  | Response time                                   | B                                           | 0.8               | R                     | $\sqrt{3}$ | 1            | 1            | 0.5            | 0.5             | $\infty$          |
| 10                                                 | Integration time                                | B                                           | 1.7               | R                     | $\sqrt{3}$ | 1            | 1            | 1.0            | 1.0             | $\infty$          |
| 11                                                 | RF ambient conditions-noise                     | B                                           | 3.0               | R                     | $\sqrt{3}$ | 1            | 1            | 1.7            | 1.7             | $\infty$          |
| 12                                                 | RF ambient conditions-reflection                | B                                           | 3.0               | R                     | $\sqrt{3}$ | 1            | 1            | 1.7            | 1.7             | $\infty$          |
| 13                                                 | Probe positioned mech. restrictions             | B                                           | 0.35              | R                     | $\sqrt{3}$ | 1            | 1            | 0.2            | 0.2             | $\infty$          |
| 14                                                 | Probe positioning with respect to phantom shell | B                                           | 2.9               | R                     | $\sqrt{3}$ | 1            | 1            | 1.7            | 1.7             | $\infty$          |
| 15                                                 | Post-processing                                 | B                                           | 1.0               | R                     | $\sqrt{3}$ | 1            | 1            | 0.6            | 0.6             | $\infty$          |
| <b>Test sample related</b>                         |                                                 |                                             |                   |                       |            |              |              |                |                 |                   |
| 16                                                 | Test sample positioning                         | A                                           | 3.3               | N                     | 1          | 1            | 1            | 3.3            | 3.3             | 5                 |
| 17                                                 | Device holder uncertainty                       | A                                           | 3.4               | N                     | 1          | 1            | 1            | 3.4            | 3.4             | 5                 |
| 18                                                 | Drift of output power                           | B                                           | 5.0               | R                     | $\sqrt{3}$ | 1            | 1            | 2.9            | 2.9             | $\infty$          |
| <b>Phantom and set-up</b>                          |                                                 |                                             |                   |                       |            |              |              |                |                 |                   |
| 19                                                 | Phantom uncertainty                             | B                                           | 1.0               | R                     | $\sqrt{3}$ | 1            | 1            | 0.6            | 0.6             | $\infty$          |
| 20                                                 | Liquid conductivity (target)                    | B                                           | 5.0               | R                     | $\sqrt{3}$ | 0.64         | 0.43         | 1.8            | 1.2             | $\infty$          |
| 21                                                 | Liquid conductivity (meas.)                     | A                                           | 1.3               | N                     | 1          | 0.64         | 0.43         | 0.83           | 0.56            | 9                 |
| 22                                                 | Liquid permittivity (target)                    | B                                           | 5.0               | R                     | $\sqrt{3}$ | 0.6          | 0.49         | 1.7            | 1.4             | $\infty$          |
| 23                                                 | Liquid permittivity (meas.)                     | A                                           | 1.6               | N                     | 1          | 0.6          | 0.49         | 0.96           | 0.78            | 9                 |
| Combined standard uncertainty                      |                                                 | $u'_c = \sqrt{\sum_{i=1}^{23} c_i^2 u_i^2}$ |                   |                       |            |              |              | 11.3           | 11.2            | 95.5              |
| Expanded uncertainty (Confidence interval of 95 %) |                                                 | $u_e = 2u_c$                                |                   |                       |            |              |              | 22.6           | 22.4            |                   |

### 15.2. Measurement Uncertainty for Normal SAR Tests (3GHz~6GHz)

| No.                                                | Error Description                               | Type                                       | Uncertainty value | Probably Distribution | Div.       | (Ci) 1g      | (Ci) 10g     | Std. Unc. (1g) | Std. Unc. (10g) | Degree of freedom |
|----------------------------------------------------|-------------------------------------------------|--------------------------------------------|-------------------|-----------------------|------------|--------------|--------------|----------------|-----------------|-------------------|
| <b>Measurement system</b>                          |                                                 |                                            |                   |                       |            |              |              |                |                 |                   |
| 1                                                  | Probe calibration                               | B                                          | 13.1              | N                     | 2          | 1            | 1            | 6.65           | 6.65            | $\infty$          |
| 2                                                  | Axial isotropy                                  | B                                          | 4.7               | R                     | $\sqrt{3}$ | $\sqrt{0.5}$ | $\sqrt{0.5}$ | 4.3            | 4.3             | $\infty$          |
| 3                                                  | Hemispherical isotropy                          | B                                          | 9.6               | R                     | $\sqrt{3}$ | 1            | 1            | 4.8            | 4.8             | $\infty$          |
| 4                                                  | Boundary effect                                 | B                                          | 1.1               | 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 limit                                 | B                                          | 1.0               | R                     | $\sqrt{3}$ | 1            | 1            | 0.6            | 0.6             | $\infty$          |
| 7                                                  | modulation response                             | B                                          | 4.0               | R                     | $\sqrt{3}$ | 1            | 1            | 2.3            | 2.3             | $\infty$          |
| 8                                                  | Readout electronics                             | B                                          | 1.0               | N                     | 1          | 1            | 1            | 1.0            | 1.0             | $\infty$          |
| 9                                                  | Response time                                   | B                                          | 0.0               | R                     | $\sqrt{3}$ | 1            | 1            | 0.0            | 0.0             | $\infty$          |
| 10                                                 | Integration time                                | B                                          | 1.7               | R                     | $\sqrt{3}$ | 1            | 1            | 1.0            | 1.0             | $\infty$          |
| 11                                                 | RF ambient conditions-noise                     | B                                          | 3.0               | R                     | $\sqrt{3}$ | 1            | 1            | 1.7            | 1.7             | $\infty$          |
| 12                                                 | RF ambient conditions-reflection                | B                                          | 3.0               | R                     | $\sqrt{3}$ | 1            | 1            | 1.7            | 1.7             | $\infty$          |
| 13                                                 | Probe positioned mech. Restrictions             | B                                          | 0.35              | R                     | $\sqrt{3}$ | 1            | 1            | 0.2            | 0.2             | $\infty$          |
| 14                                                 | Probe positioning with respect to phantom shell | B                                          | 2.9               | R                     | $\sqrt{3}$ | 1            | 1            | 1.7            | 1.7             | $\infty$          |
| 15                                                 | Post-processing                                 | B                                          | 1.0               | R                     | $\sqrt{3}$ | 1            | 1            | 0.6            | 0.6             | $\infty$          |
| <b>Test sample related</b>                         |                                                 |                                            |                   |                       |            |              |              |                |                 |                   |
| 16                                                 | Test sample positioning                         | A                                          | 3.3               | N                     | 1          | 1            | 1            | 3.3            | 3.3             | 5                 |
| 17                                                 | Device holder uncertainty                       | A                                          | 3.4               | N                     | 1          | 1            | 1            | 3.4            | 3.4             | 5                 |
| 18                                                 | Drift of output power                           | B                                          | 5.0               | R                     | $\sqrt{3}$ | 1            | 1            | 2.9            | 2.9             | $\infty$          |
| <b>Phantom and set-up</b>                          |                                                 |                                            |                   |                       |            |              |              |                |                 |                   |
| 19                                                 | Phantom uncertainty                             | B                                          | 1.0               | R                     | $\sqrt{3}$ | 1            | 1            | 0.6            | 0.6             | $\infty$          |
| 20                                                 | Liquid conductivity (target)                    | B                                          | 5.0               | R                     | $\sqrt{3}$ | 0.64         | 0.43         | 1.8            | 1.2             | $\infty$          |
| 21                                                 | Liquid conductivity (meas.)                     | A                                          | 1.3               | N                     | 1          | 0.64         | 0.43         | 0.83           | 0.56            | 43                |
| 22                                                 | Liquid permittivity (target)                    | B                                          | 5.0               | R                     | $\sqrt{3}$ | 0.6          | 0.49         | 1.7            | 1.4             | $\infty$          |
| 23                                                 | Liquid permittivity (meas.)                     | A                                          | 1.6               | N                     | 1          | 0.6          | 0.49         | 0.96           | 0.78            | 521               |
| Combined standard uncertainty                      |                                                 | $u_c = \sqrt{\sum_{i=1}^{22} c_i^2 u_i^2}$ |                   |                       |            |              |              | 11.6           | 11.5            | 257               |
| Expanded uncertainty (Confidence interval of 95 %) |                                                 | $u_e = 2u_c$                               |                   |                       |            |              |              | 23.2           | 23.0            |                   |

## 16. Main Test Instruments

**Table 16.1: List of Main Instruments**

| No. | Name                  | Type    | Serial Number | Calibration Date | Valid Period |
|-----|-----------------------|---------|---------------|------------------|--------------|
| 01  | Network analyzer      | E5071C  | MY46103759    | 2021-11-15       | One year     |
| 02  | Dielectric probe      | 85070E  | MY44300317    | /                | /            |
| 03  | Power meter           | E4418B  | MY50000366    | 2021-12-13       | One year     |
| 04  | Power sensor          | E9304A  | MY50000188    | 2021-12-13       | One year     |
| 05  | Power meter           | NRP     | 101260        | 2021-12-30       | One year     |
| 06  | Power sensor          | NRP-Z91 | 102211        | 2021-12-30       | One year     |
| 07  | Signal Generator      | E8257D  | MY47461211    | 2022-01-14       | One year     |
| 08  | Amplifier             | VTL5400 | 0404          | /                | /            |
| 09  | E-field Probe         | EX3DV4  | 7621          | 2022-05-06       | One year     |
| 10  | DAE                   | DAE4    | 1527          | 2022-06-21       | One year     |
| 11  | Dipole Validation Kit | D750V3  | 1163          | 2019-09-03       | Three years  |
| 12  | Dipole Validation Kit | D835V2  | 4d057         | 2021-10-18       | Three years  |
| 13  | Dipole Validation Kit | D1750V2 | 1152          | 2019-08-30       | Three years  |
| 14  | Dipole Validation Kit | D1900V2 | 5d088         | 2021-10-18       | Three years  |
| 15  | Dipole Validation Kit | D2450V2 | 873           | 2021-10-21       | Three years  |
| 16  | Dipole Validation Kit | D2550V2 | 1010          | 2021-05-21       | Three years  |
| 17  | Dipole Validation Kit | D5GHzV2 | 1238          | 2019-08-29       | Three years  |
| 18  | BTS                   | MT8820C | 6201341853    | 2022-01-14       | One year     |
| 19  | BTS                   | E5515C  | GB46110722    | 2022-01-14       | One year     |
| 20  | BTS                   | CMW500  | 152499        | 2022-07-15       | One year     |
| 21  | Software              | DASY5   | /             | /                | /            |

## ANNEX A: Graph Results

### GSM850 Head

Date: 2022-9-1

Electronics: DAE4 Sn1527

Medium: Head 835MHz

Medium parameters used (interpolated):  $f = 848.8$  MHz;  $\sigma = 0.934$  S/m;  $\epsilon_r = 40.667$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Communication System: UID 0, GSM (0) Frequency: 848.8 MHz Duty Cycle: 1:8.3

Probe: EX3DV4 - SN7621 ConvF (11.12, 11.12, 11.12)

**Right Cheek Middle/Area Scan (61x61x1):** Interpolated grid:  $dx=1.500$  mm,  $dy=1.500$  mm

Maximum value of SAR (interpolated) = 1.19 W/kg

**Right Cheek Middle/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8$ mm,  $dy=8$ mm,  $dz=5$ mm

Reference Value = 28.23 V/m; Power Drift = -0.12 dB

Peak SAR (extrapolated) = 1.67 W/kg

**SAR(1 g) = 0.861 W/kg; SAR(10 g) = 0.568 W/kg**

Maximum value of SAR (measured) = 1.19 W/kg

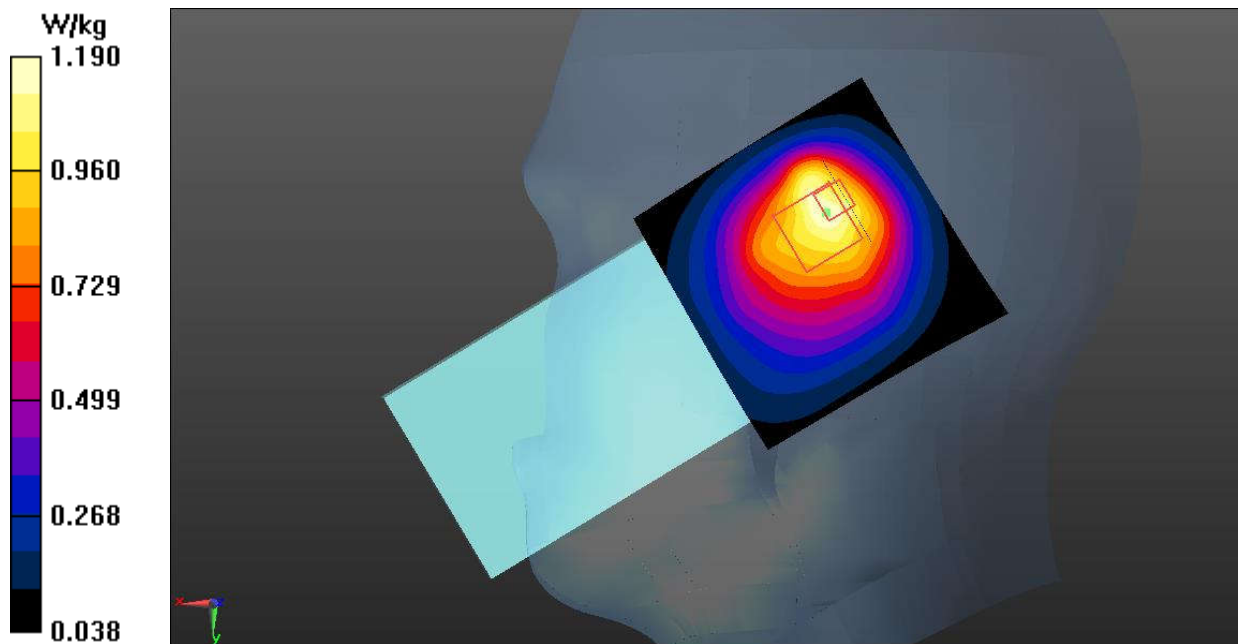


Fig.1 GSM850 Head

### GSM850 Body

Date: 2022-9-1

Electronics: DAE4 Sn1527

Medium: Head 835MHz

Medium parameters used (interpolated):  $f = 824.2$  MHz;  $\sigma = 0.911$  S/m;  $\epsilon_r = 40.963$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Communication System: UID 0, 4 slot GPRS (0) Frequency: 824.2 MHz Duty Cycle: 1:2

Probe: EX3DV4 - SN7621 ConvF (11.12, 11.12, 11.12)

**Rear Side Low/Area Scan (61x111x1):** Interpolated grid:  $dx=1.500$  mm,  $dy=1.500$  mm

Maximum value of SAR (interpolated) = 0.199 W/kg

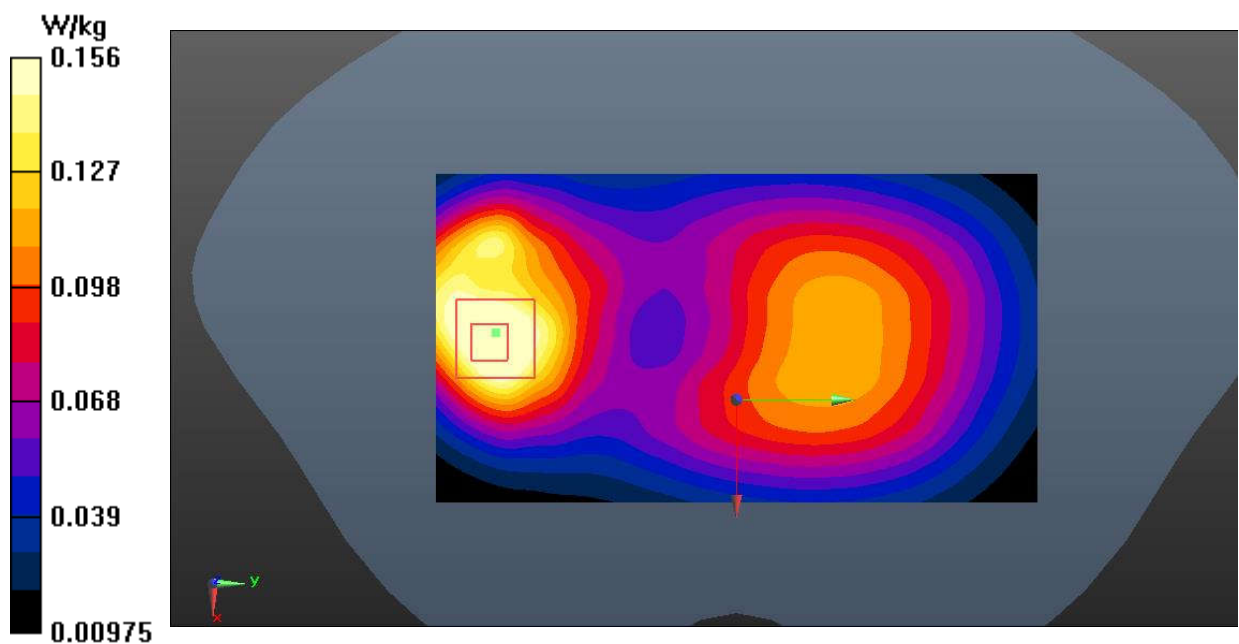
**Rear Side Low/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8$ mm,  $dy=8$ mm,  $dz=5$ mm

Reference Value = 14.23 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 0.229 W/kg

**SAR(1 g) = 0.133 W/kg; SAR(10 g) = 0.084 W/kg**

Maximum value of SAR (measured) = 0.156 W/kg



**Fig.2 GSM850 Body**

### GSM1900 Head

Date: 2022-8-31

Electronics: DAE4 Sn1527

Medium: Head 1900MHz

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.401$  S/m;  $\epsilon_r = 39.52$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Communication System: UID 0, GSM (0) Frequency: 1880 MHz Duty Cycle: 1:8.3

Probe: EX3DV4 - SN7621 ConvF (8.90, 8.90, 8.90)

**Right Cheek Middle/Area Scan (61x61x1):** Interpolated grid:  $dx=1.500$  mm,  $dy=1.500$  mm

Maximum value of SAR (interpolated) = 0.136 W/kg

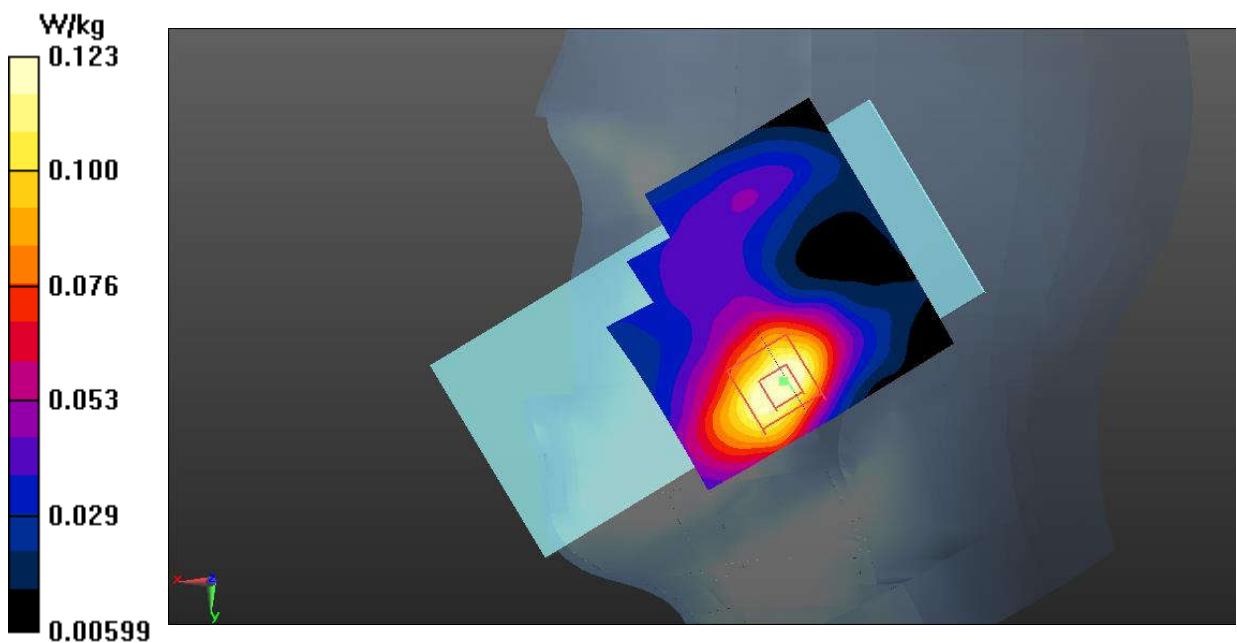
**Right Cheek Middle/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8$ mm,  $dy=8$ mm,  $dz=5$ mm

Reference Value = 4.397 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 0.152 W/kg

**SAR(1 g) = 0.100 W/kg; SAR(10 g) = 0.064 W/kg**

Maximum value of SAR (measured) = 0.123 W/kg



**Fig.3 GSM1900 Head**



### GSM1900 Body

Date: 2022-8-31

Electronics: DAE4 Sn1527

Medium: Head 1900MHz

Medium parameters used (interpolated):  $f = 1850.2$  MHz;  $\sigma = 1.374$  S/m;  $\epsilon_r = 39.636$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Communication System: UID 0, 1 slot GPRS (0) Frequency: 1850.2 MHz Duty Cycle: 1:8.3

Probe: EX3DV4 - SN7621 ConvF (8.90, 8.90, 8.90)

**Bottom Side Low/Area Scan (41x71x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 1.08 W/kg

**Bottom Side Low/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 24.04 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 1.26 W/kg

**SAR(1 g) = 0.745 W/kg; SAR(10 g) = 0.411 W/kg**

Maximum value of SAR (measured) = 1.02 W/kg

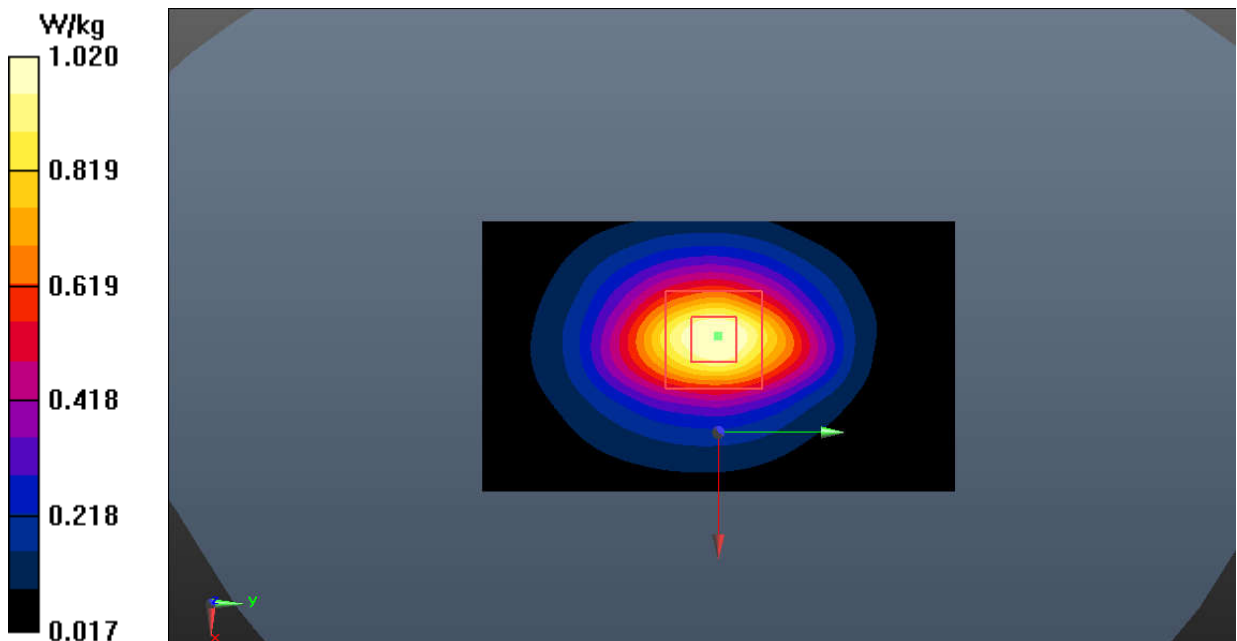


Fig.4 GSM1900 Body

### WCDMA Band 2 Head

Date: 2022-8-31

Electronics: DAE4 Sn1527

Medium: Head 1900MHz

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.401$  S/m;  $\epsilon_r = 39.52$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Communication System: UID 0, WCDMA (0) Frequency: 1880 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7621 ConvF (8.90, 8.90, 8.90)

**Right Cheek Middle/Area Scan (61x61x1):** Interpolated grid:  $dx=1.500$  mm,  $dy=1.500$  mm

Maximum value of SAR (interpolated) = 0.227 W/kg

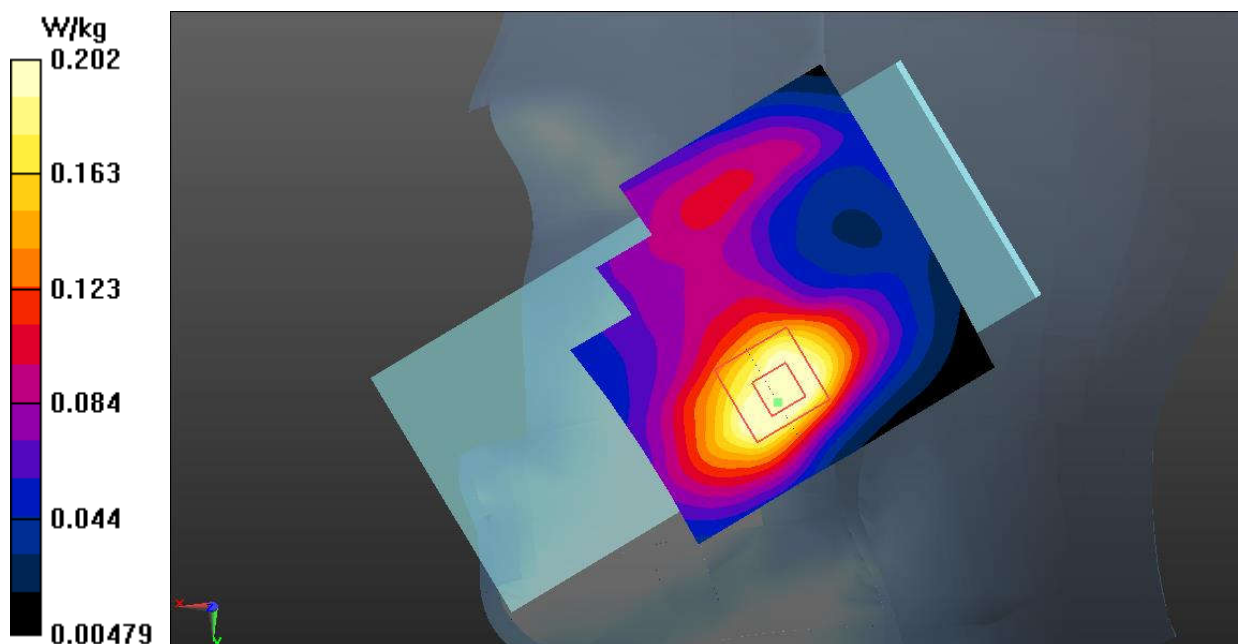
**Right Cheek Middle/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8$ mm,  $dy=8$ mm,  $dz=5$ mm

Reference Value = 4.258 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.245 W/kg

**SAR(1 g) = 0.160 W/kg; SAR(10 g) = 0.101 W/kg**

Maximum value of SAR (measured) = 0.202 W/kg



**Fig.5 WCDMA Band 2 Head**

### WCDMA Band 2 Body

Date: 2022-8-31

Electronics: DAE4 Sn1527

Medium: Head 1900MHz

Medium parameters used (interpolated):  $f = 1852.4$  MHz;  $\sigma = 1.376$  S/m;  $\epsilon_r = 39.628$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Communication System: UID 0, WCDMA (0) Frequency: 1852.4 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7621 ConvF (8.90, 8.90, 8.90)

**Bottom Side Low/Area Scan (41x71x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 1.48 W/kg

**Bottom Side Low/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 28.12 V/m; Power Drift = 0.12 dB

Peak SAR (extrapolated) = 1.76 W/kg

**SAR(1 g) = 1.11 W/kg; SAR(10 g) = 0.612 W/kg**

Maximum value of SAR (measured) = 1.25 W/kg

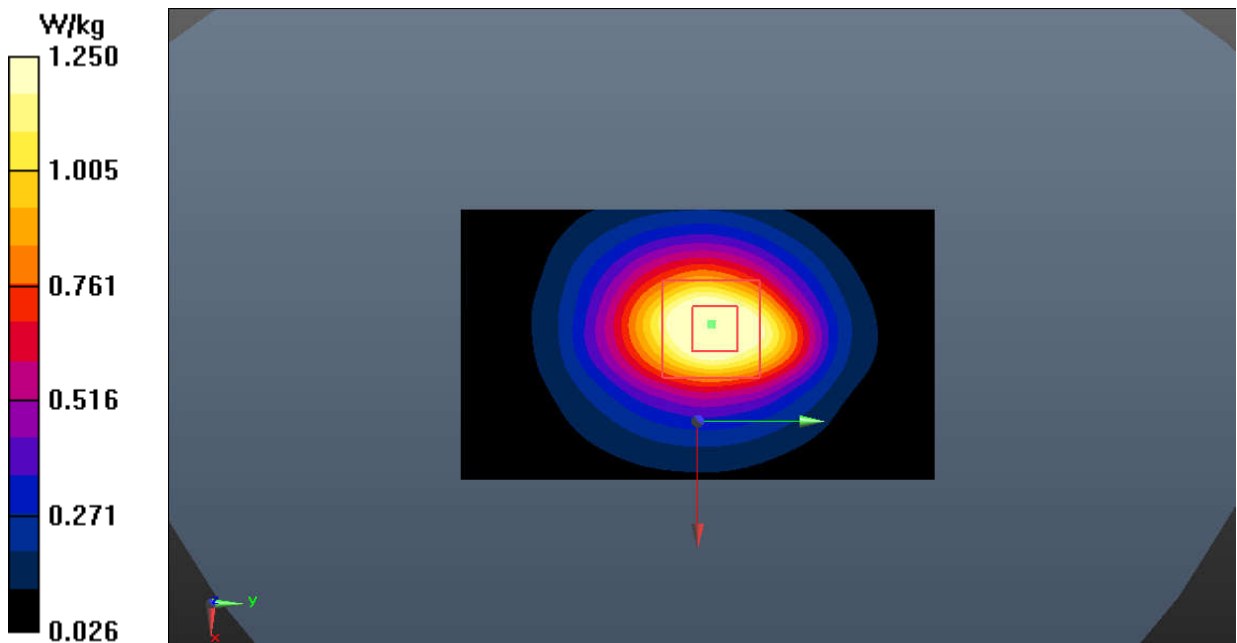


Fig.6 WCDMA Band 2 Body

### WCDMA Band 4 Head

Date: 2022-8-24

Electronics: DAE4 Sn1527

Medium: Head 1750MHz

Medium parameters used:  $f = 1733$  MHz;  $\sigma = 1.341$  S/m;  $\epsilon_r = 39.884$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Communication System: UID 0, WCDMA (0) Frequency: 1732.6 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7621 ConvF (9.22, 9.22, 9.22)

**Right Cheek Middle/Area Scan (61x61x1):** Interpolated grid:  $dx=1.500$  mm,  $dy=1.500$  mm

Maximum value of SAR (interpolated) = 0.179 W/kg

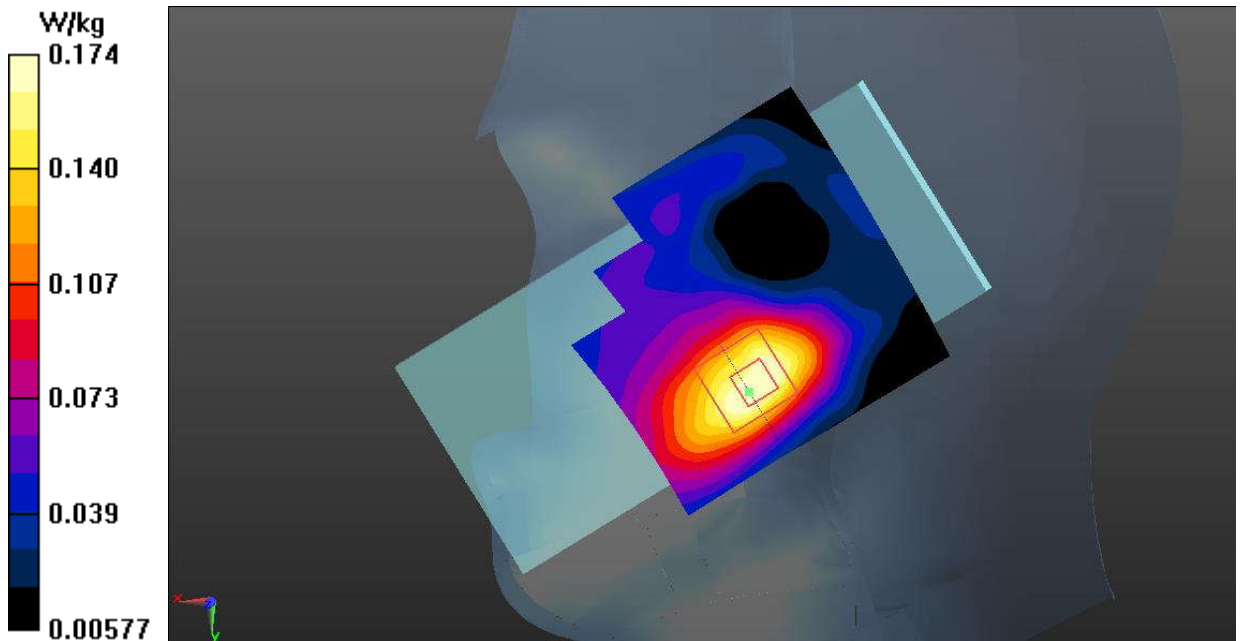
**Right Cheek Middle/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8$ mm,  $dy=8$ mm,  $dz=5$ mm

Reference Value = 4.397 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 0.212 W/kg

**SAR(1 g) = 0.140 W/kg; SAR(10 g) = 0.090 W/kg**

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



**Fig.7 WCDMA Band 4 Head**

### WCDMA Band 4 Body

Date: 2022-8-24

Electronics: DAE4 Sn1527

Medium: Head 1750MHz

Medium parameters used:  $f = 1753$  MHz;  $\sigma = 1.359$  S/m;  $\epsilon_r = 39.806$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Communication System: UID 0, WCDMA (0) Frequency: 1752.6 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7621 ConvF (9.22, 9.22, 9.22)

**Bottom Side High/Area Scan (41x71x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 1.49 W/kg

**Bottom Side High/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 27.67 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 1.74 W/kg

**SAR(1 g) = 1.03 W/kg; SAR(10 g) = 0.573 W/kg**

Maximum value of SAR (measured) = 1.27 W/kg

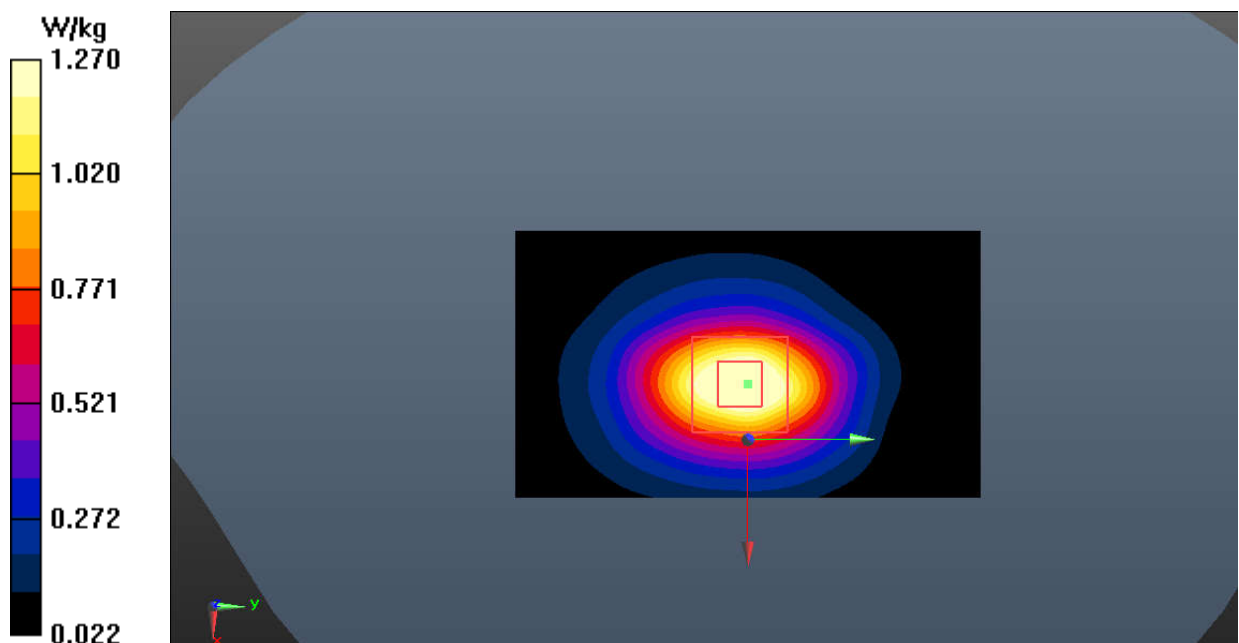


Fig.8 WCDMA Band 4 Body

### WCDMA Band 5 Head

Date: 2022-9-1

Electronics: DAE4 Sn1527

Medium: Head 835MHz

Medium parameters used (interpolated):  $f = 826.4$  MHz;  $\sigma = 0.913$  S/m;  $\epsilon_r = 40.936$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Communication System: UID 0, WCDMA (0) Frequency: 826.4 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7621 ConvF (11.12, 11.12, 11.12)

**Right Cheek Low/Area Scan (61x71x1):** Interpolated grid:  $dx=1.500$  mm,  $dy=1.500$  mm

Maximum value of SAR (interpolated) = 1.47 W/kg

**Right Cheek Low/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8$ mm,  $dy=8$ mm,  $dz=5$ mm

Reference Value = 28.11 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 1.80 W/kg

**SAR(1 g) = 0.923 W/kg; SAR(10 g) = 0.597 W/kg**

Maximum value of SAR (measured) = 1.18 W/kg

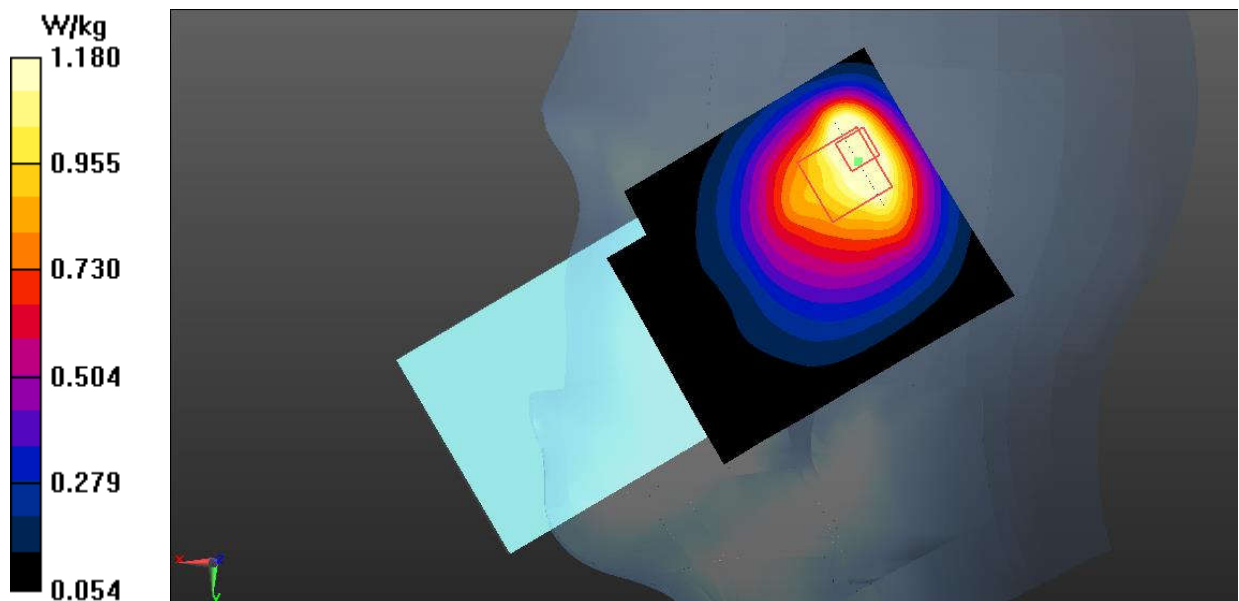


Fig.9 WCDMA Band 5 Head

### WCDMA Band 5 Body

Date: 2022-9-1

Electronics: DAE4 Sn1527

Medium: Head 835MHz

Medium parameters used (interpolated):  $f = 836.6$  MHz;  $\sigma = 0.922$  S/m;  $\epsilon_r = 40.814$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Communication System: UID 0, WCDMA (0) Frequency: 836.6 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7621 ConvF (11.12, 11.12, 11.12)

**Rear Side Middle/Area Scan (61x111x1):** Interpolated grid:  $dx=1.500$  mm,  $dy=1.500$  mm

Maximum value of SAR (interpolated) = 0.375 W/kg

**Rear Side Middle/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8$ mm,  $dy=8$ mm,  $dz=5$ mm

Reference Value = 12.75 V/m; Power Drift = -0.12 dB

Peak SAR (extrapolated) = 0.472 W/kg

**SAR(1 g) = 0.273 W/kg; SAR(10 g) = 0.166 W/kg**

Maximum value of SAR (measured) = 0.319 W/kg

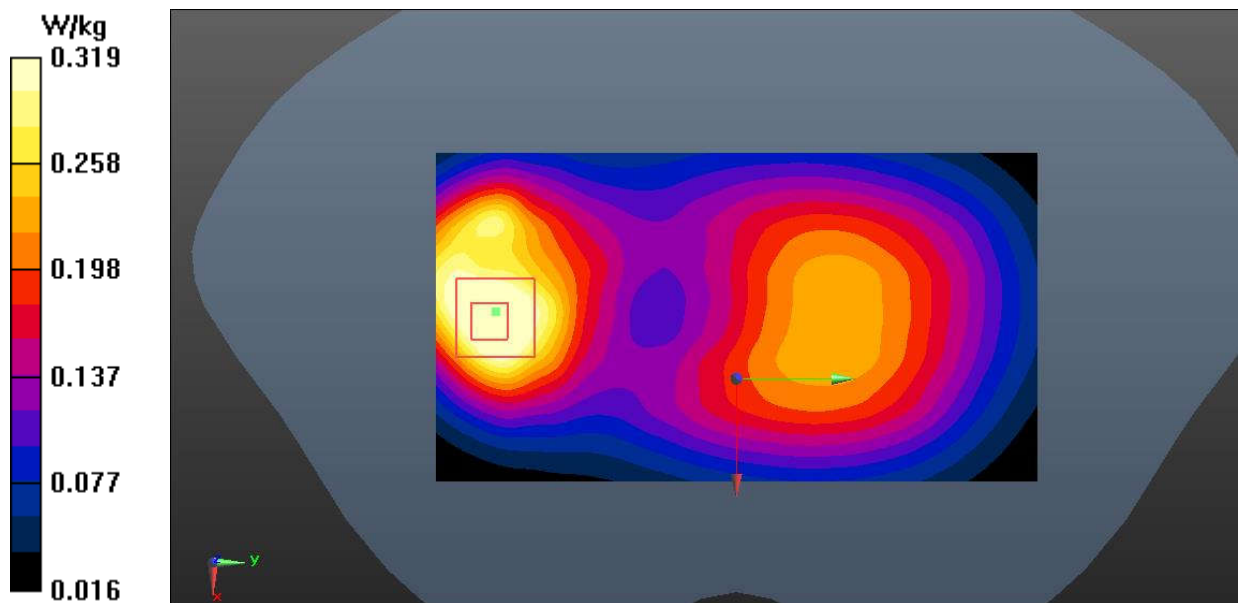


Fig.10 WCDMA Band 5 Body

### LTE Band 2 Head

Date: 2022-8-31

Electronics: DAE4 Sn1527

Medium: Head 1900MHz

Medium parameters used:  $f = 1900 \text{ MHz}$ ;  $\sigma = 1.418 \text{ S/m}$ ;  $\epsilon_r = 39.442$ ;  $\rho = 1000 \text{ kg/m}^3$

Communication System: UID 0, LTE\_FDD (0) Frequency: 1900 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7621 ConvF (8.90, 8.90, 8.90)

**Right Cheek High 1RB50/Area Scan (61x61x1):** Interpolated grid:  $dx=1.500 \text{ mm}$ ,  $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) =  $0.218 \text{ W/kg}$

**Right Cheek High 1RB50/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value =  $4.114 \text{ V/m}$ ; Power Drift =  $0.13 \text{ dB}$

Peak SAR (extrapolated) =  $0.251 \text{ W/kg}$

**SAR(1 g) =  $0.169 \text{ W/kg}$ ; SAR(10 g) =  $0.108 \text{ W/kg}$**

Maximum value of SAR (measured) =  $0.210 \text{ W/kg}$

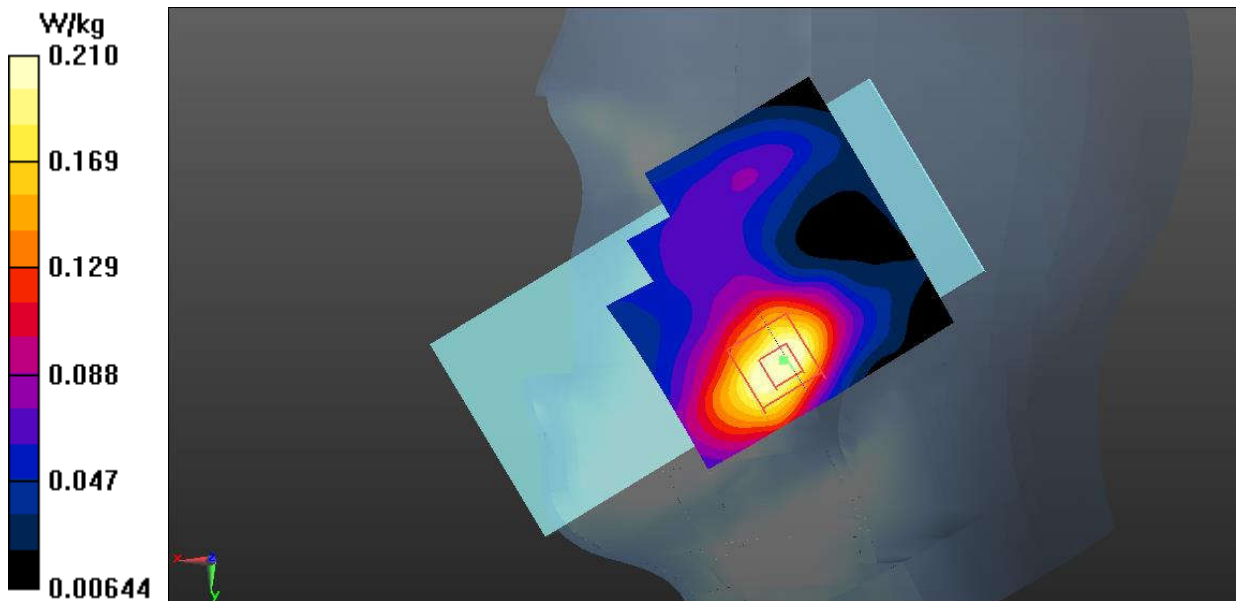


Fig.11 LTE Band 2 Head



### LTE Band 2 Body

Date: 2022-8-31

Electronics: DAE4 Sn1527

Medium: Head 1900MHz

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.401$  S/m;  $\epsilon_r = 39.52$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Communication System: UID 0, LTE\_FDD (0) Frequency: 1880 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7621 ConvF (8.90, 8.90, 8.90)

**Bottom Side Middle 50RB0/Area Scan (41x71x1):** Interpolated grid:  $dx=1.500$  mm,  $dy=1.500$  mm  
Maximum value of SAR (interpolated) = 1.33 W/kg

**Bottom Side Middle 50RB0/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8$ mm,  $dy=8$ mm,  $dz=5$ mm

Reference Value = 16.36 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 1.55 W/kg

**SAR(1 g) = 0.927 W/kg; SAR(10 g) = 0.510 W/kg**

Maximum value of SAR (measured) = 1.12 W/kg

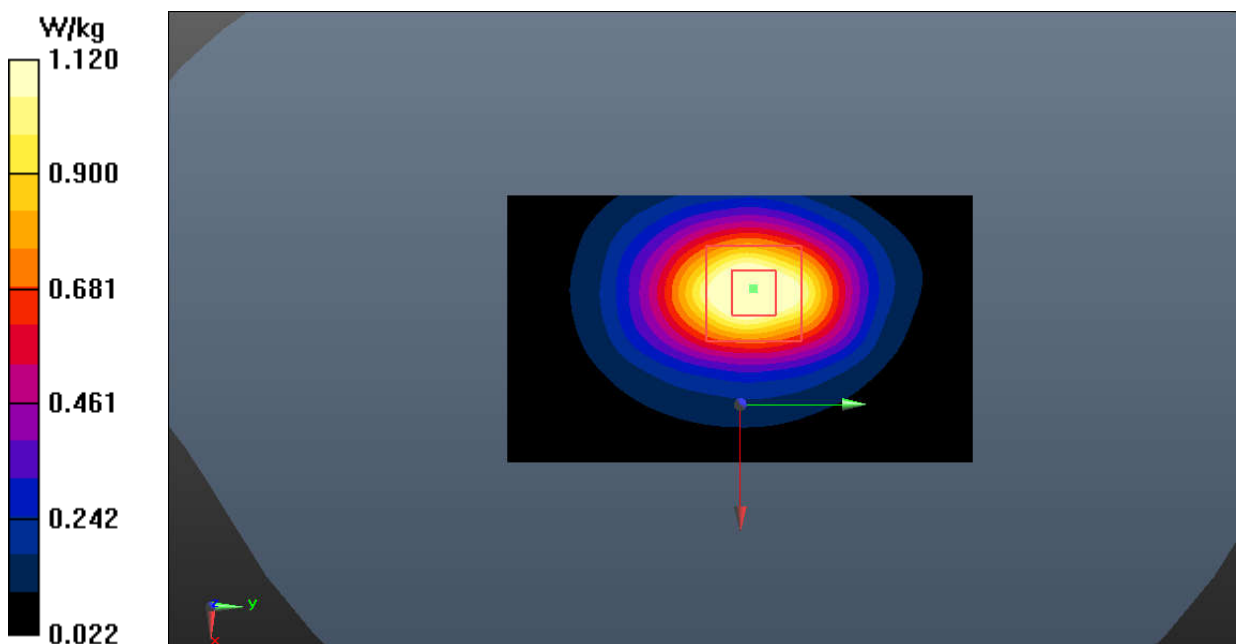


Fig.12 LTE Band 2 Body

### LTE Band 5 Head

Date: 2022-9-1

Electronics: DAE4 Sn1527

Medium: Head 835MHz

Medium parameters used (interpolated):  $f = 829$  MHz;  $\sigma = 0.916$  S/m;  $\epsilon_r = 40.905$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Communication System: UID 0, LTE\_FDD (0) Frequency: 829 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7621 ConvF (11.12, 11.12, 11.12)

**Right Cheek Low 1RB24/Area Scan (61x61x1):** Interpolated grid:  $dx=1.500$  mm,  $dy=1.500$  mm  
Maximum value of SAR (interpolated) = 1.34 W/kg

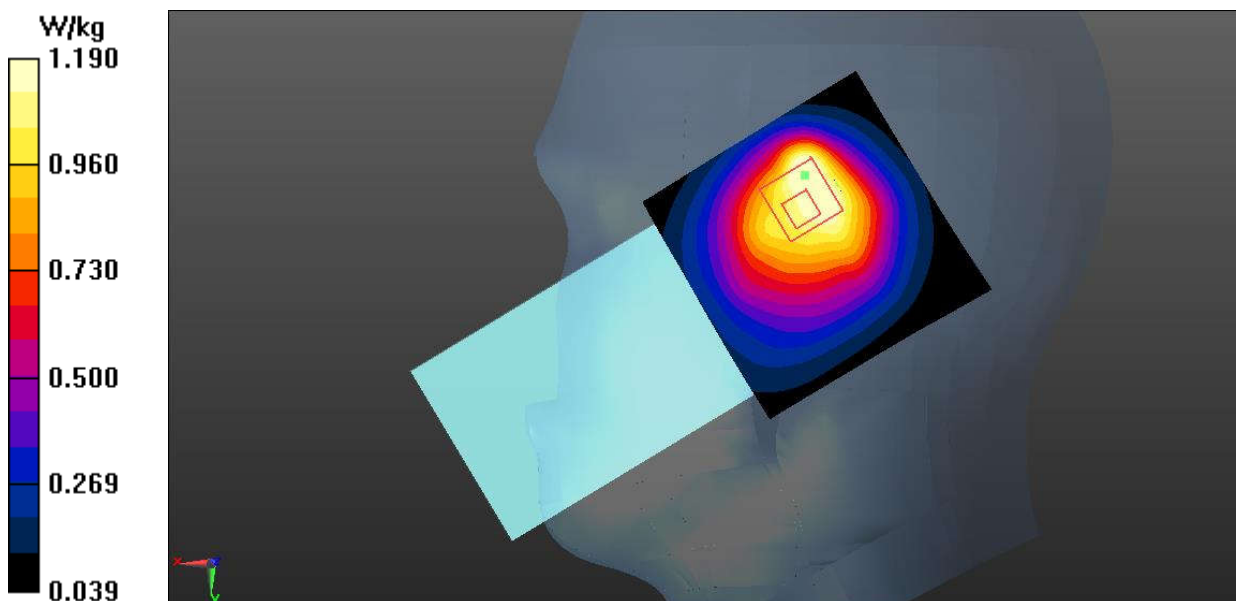
**Right Cheek Low 1RB24/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8$ mm,  $dy=8$ mm,  $dz=5$ mm

Reference Value = 28.29 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 1.63 W/kg

**SAR(1 g) = 0.913 W/kg; SAR(10 g) = 0.630 W/kg**

Maximum value of SAR (measured) = 1.19 W/kg



**Fig.13 LTE Band 5 Head**

### LTE Band 5 Body

Date: 2022-9-1

Electronics: DAE4 Sn1527

Medium: Head 835MHz

Medium parameters used (interpolated):  $f = 836.5$  MHz;  $\sigma = 0.922$  S/m;  $\epsilon_r = 40.815$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Communication System: UID 0, LTE\_FDD (0) Frequency: 836.5 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7621 ConvF (11.12, 11.12, 11.12)

**Rear Side Middle 1RB24/Area Scan (61x101x1):** Interpolated grid:  $dx=1.500$  mm,  $dy=1.500$  mm

Maximum value of SAR (interpolated) = 0.381 W/kg

**Rear Side Middle 1RB24/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8$ mm,  $dy=8$ mm,  $dz=5$ mm

Reference Value = 16.41 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 0.500 W/kg

**SAR(1 g) = 0.289 W/kg; SAR(10 g) = 0.177 W/kg**

Maximum value of SAR (measured) = 0.344 W/kg

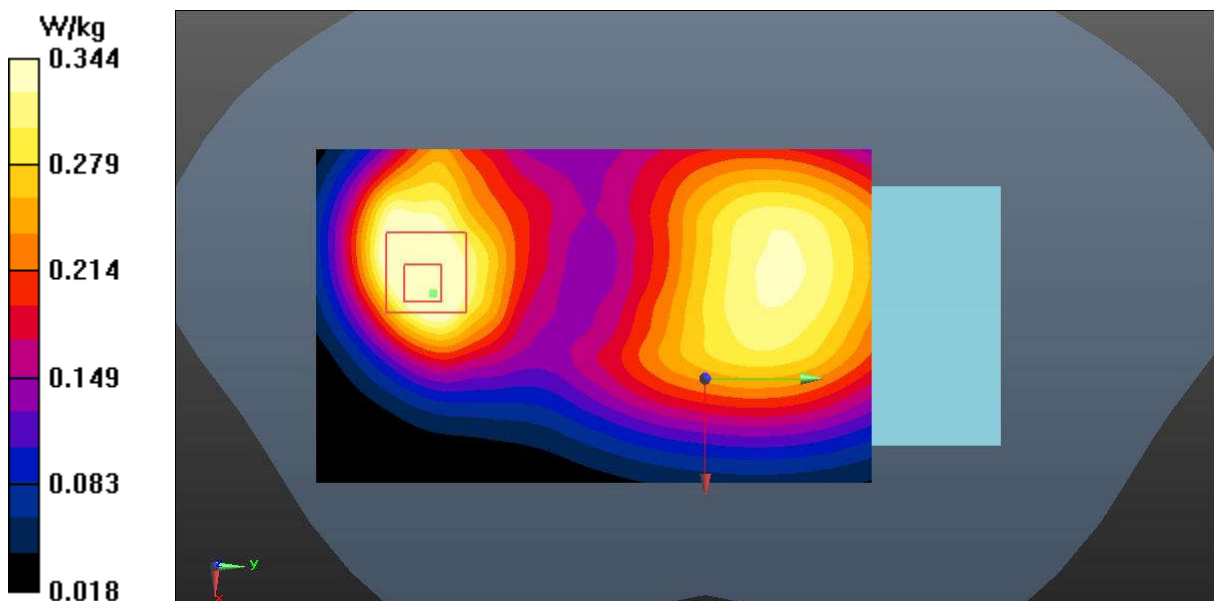


Fig.14 LTE Band 5 Body

### LTE Band 7 Head

Date: 2022-9-2

Electronics: DAE4 Sn1527

Medium: Head 2550MHz

Medium parameters used:  $f = 2560$  MHz;  $\sigma = 1.899$  S/m;  $\epsilon_r = 39.618$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Communication System: UID 0, LTE\_FDD (0) Frequency: 2560 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7621 ConvF (7.93, 7.93, 7.93)

**Left Cheek High 1RB50/Area Scan (91x91x1):** Interpolated grid:  $dx=1.000$  mm,  $dy=1.000$  mm

Maximum value of SAR (interpolated) = 0.374 W/kg

**Left Cheek High 1RB50/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5$ mm,  $dy=5$ mm,  $dz=5$ mm

Reference Value = 1.903 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 0.449 W/kg

**SAR(1 g) = 0.241 W/kg; SAR(10 g) = 0.128 W/kg**

Maximum value of SAR (measured) = 0.340 W/kg

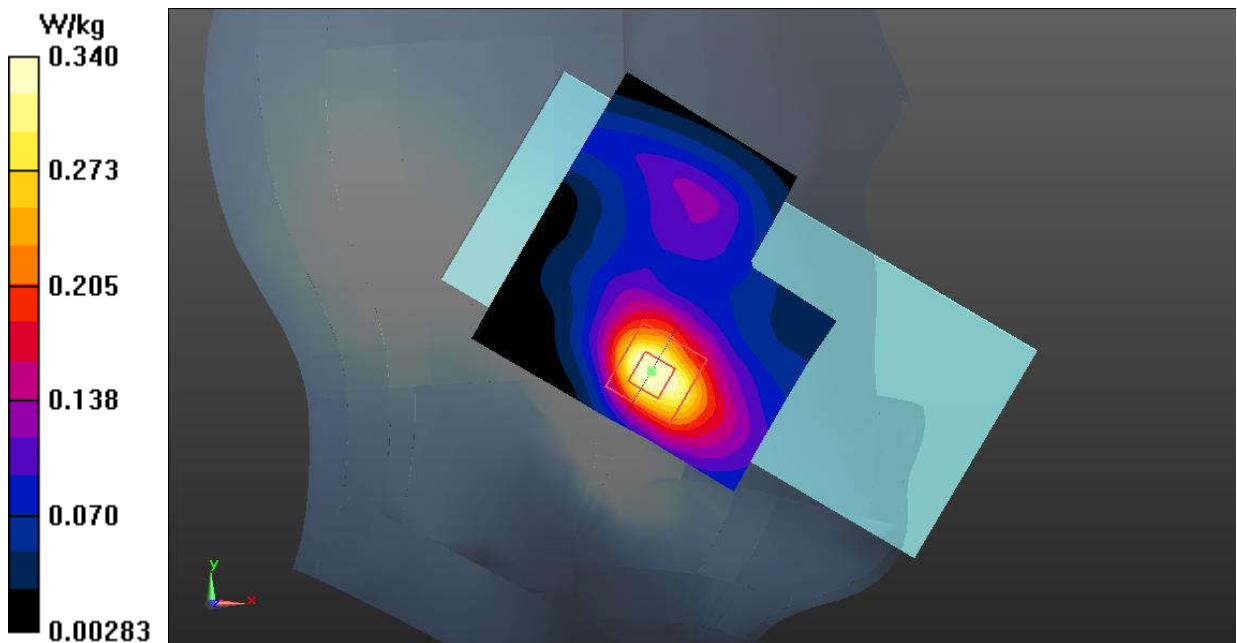


Fig.15 LTE Band 7 Head

### LTE Band 7 Body

Date: 2022-9-2

Electronics: DAE4 Sn1527

Medium: Head 2550MHz

Medium parameters used (interpolated):  $f = 2535$  MHz;  $\sigma = 1.869$  S/m;  $\epsilon_r = 39.701$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Communication System: UID 0, LTE\_FDD (0) Frequency: 2535 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7621 ConvF (8.17, 8.17, 8.17)

**Bottom Side Middle 1RB50/Area Scan (61x101x1):** Interpolated grid:  $dx=1.000$  mm,  $dy=1.000$  mm

Maximum value of SAR (interpolated) = 1.42 W/kg

**Bottom Side Middle 1RB50/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5$ mm,  $dy=5$ mm,  $dz=5$ mm

Reference Value = 21.48 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 1.68 W/kg

**SAR(1 g) = 0.849 W/kg; SAR(10 g) = 0.421 W/kg**

Maximum value of SAR (measured) = 1.08 W/kg

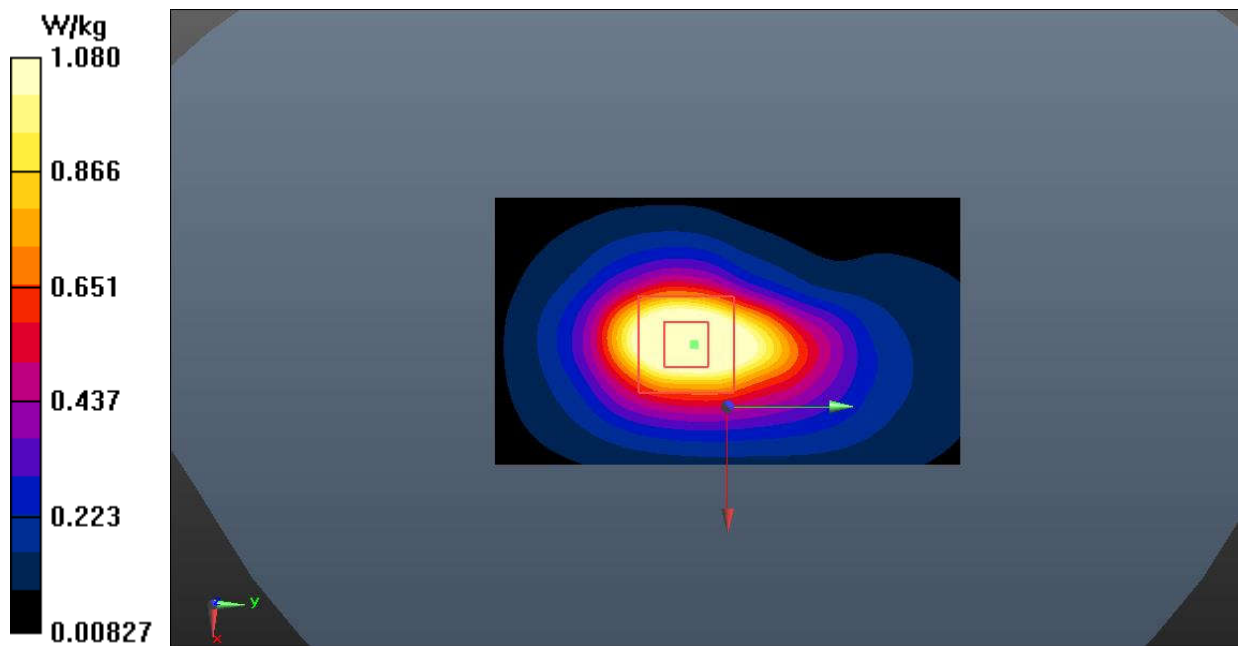


Fig.16 LTE Band 7 Body

### LTE Band 12 Head

Date: 2022-8-23

Electronics: DAE4 Sn1527

Medium: Head 750MHz

Medium parameters used:  $f = 704 \text{ MHz}$ ;  $\sigma = 0.871 \text{ S/m}$ ;  $\epsilon_r = 41.723$ ;  $\rho = 1000 \text{ kg/m}^3$

Communication System: UID 0, LTE\_FDD (0) Frequency: 704 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7621 ConvF (11.12, 11.12, 11.12)

**Right Cheek Low 1RB24/Area Scan (61x61x1):** Interpolated grid:  $dx=1.500 \text{ mm}$ ,  $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) =  $0.925 \text{ W/kg}$

**Right Cheek Low 1RB24/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

Reference Value =  $25.53 \text{ V/m}$ ; Power Drift =  $-0.06 \text{ dB}$

Peak SAR (extrapolated) =  $1.07 \text{ W/kg}$

**SAR(1 g) =  $0.602 \text{ W/kg}$ ; SAR(10 g) =  $0.395 \text{ W/kg}$**

Maximum value of SAR (measured) =  $0.769 \text{ W/kg}$

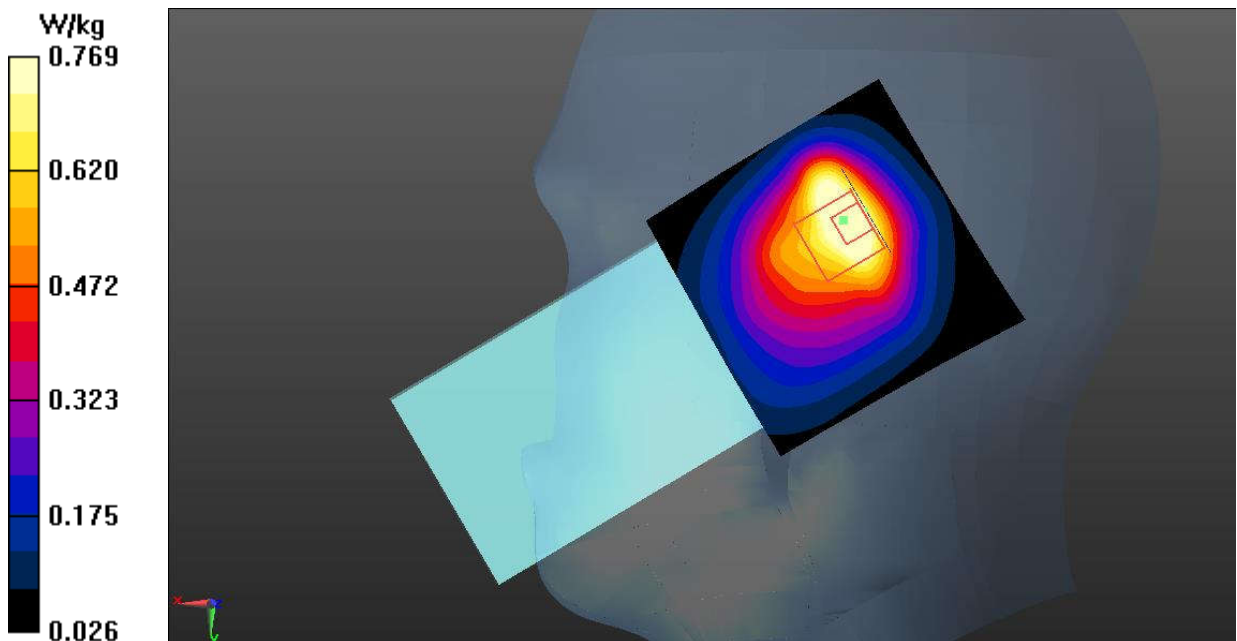


Fig.17 LTE Band 12 Head

### LTE Band 12 Body

Date: 2022-8-23

Electronics: DAE4 Sn1527

Medium: Head 750MHz

Medium parameters used:  $f = 704 \text{ MHz}$ ;  $\sigma = 0.871 \text{ S/m}$ ;  $\epsilon_r = 41.723$ ;  $\rho = 1000 \text{ kg/m}^3$

Communication System: UID 0, LTE\_FDD (0) Frequency: 704 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7621 ConvF (11.12, 11.12, 11.12)

**Rear Side Low 1RB24/Area Scan (61x101x1):** Interpolated grid:  $dx=1.500 \text{ mm}$ ,  $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) =  $0.417 \text{ W/kg}$

**Rear Side Low 1RB24/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

Reference Value =  $20.21 \text{ V/m}$ ; Power Drift =  $0.04 \text{ dB}$

Peak SAR (extrapolated) =  $0.450 \text{ W/kg}$

**SAR(1 g) =  $0.358 \text{ W/kg}$ ; SAR(10 g) =  $0.275 \text{ W/kg}$**

Maximum value of SAR (measured) =  $0.392 \text{ W/kg}$

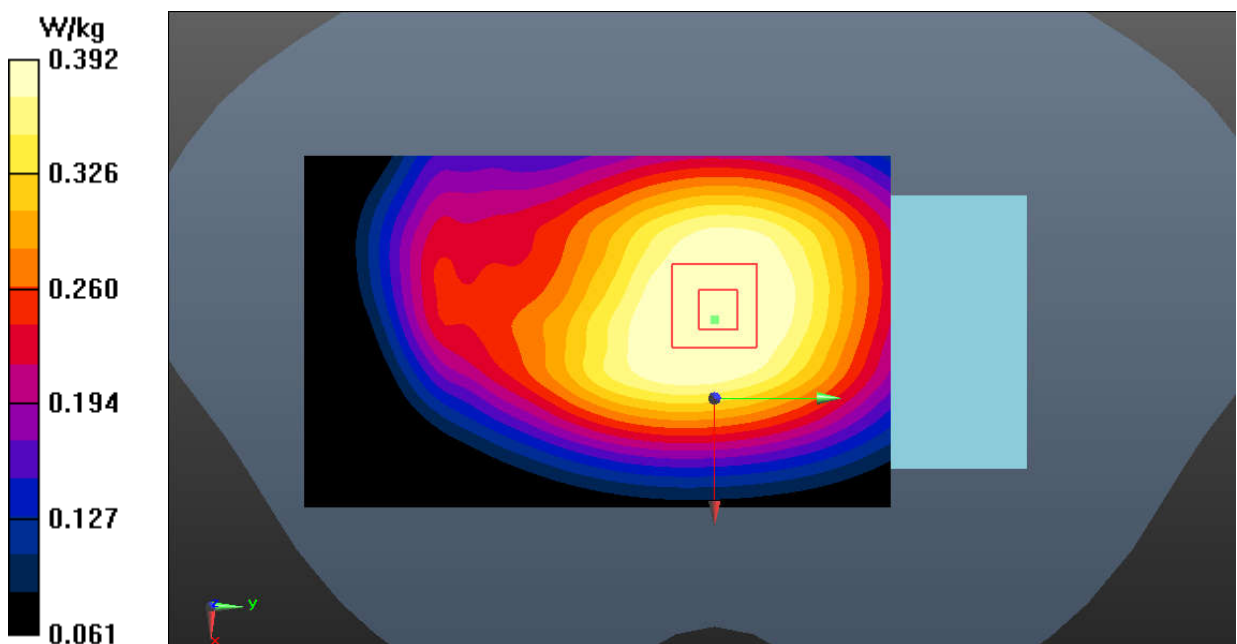


Fig.18 LTE Band 12 Body

### LTE Band 13 Head

Date: 2022-8-23

Electronics: DAE4 Sn1527

Medium: Head 750MHz

Medium parameters used:  $f = 782 \text{ MHz}$ ;  $\sigma = 0.919 \text{ S/m}$ ;  $\epsilon_r = 40.787$ ;  $\rho = 1000 \text{ kg/m}^3$

Communication System: UID 0, LTE\_FDD (0) Frequency: 782 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7621 ConvF (11.12, 11.12, 11.12)

**Right Cheek Low 1RB24/Area Scan (61x61x1):** Interpolated grid:  $dx=1.500 \text{ mm}$ ,  $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) =  $1.39 \text{ W/kg}$

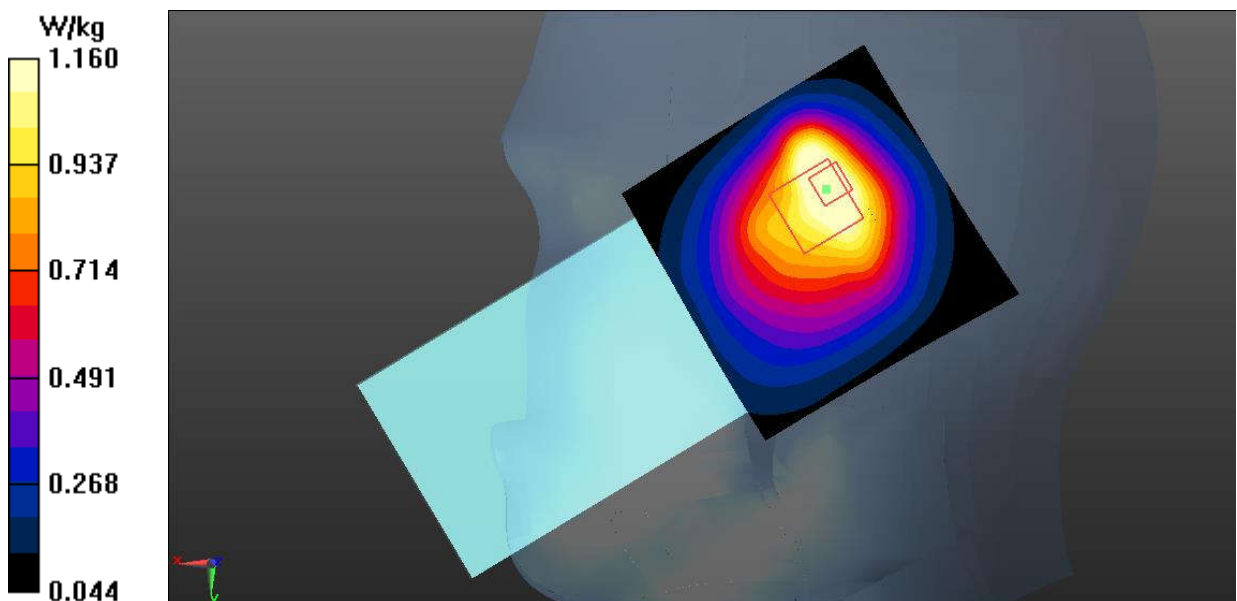
**Right Cheek Low 1RB24/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

Reference Value =  $30.40 \text{ V/m}$ ; Power Drift =  $-0.07 \text{ dB}$

Peak SAR (extrapolated) =  $1.60 \text{ W/kg}$

**SAR(1 g) =  $0.904 \text{ W/kg}$ ; SAR(10 g) =  $0.609 \text{ W/kg}$**

Maximum value of SAR (measured) =  $1.16 \text{ W/kg}$



**Fig.19 LTE Band 13 Head**



### LTE Band 13 Body

Date: 2022-8-23

Electronics: DAE4 Sn1527

Medium: Head 750MHz

Medium parameters used:  $f = 782 \text{ MHz}$ ;  $\sigma = 0.919 \text{ S/m}$ ;  $\epsilon_r = 40.787$ ;  $\rho = 1000 \text{ kg/m}^3$

Communication System: UID 0, LTE\_FDD (0) Frequency: 782 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7621 ConvF (11.12, 11.12, 11.12)

**Rear Side Low 1RB24/Area Scan (61x101x1):** Interpolated grid:  $dx=1.500 \text{ mm}$ ,  $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) =  $0.417 \text{ W/kg}$

**Rear Side Low 1RB24/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

Reference Value =  $19.29 \text{ V/m}$ ; Power Drift =  $0.03 \text{ dB}$

Peak SAR (extrapolated) =  $0.450 \text{ W/kg}$

**SAR(1 g) =  $0.357 \text{ W/kg}$ ; SAR(10 g) =  $0.273 \text{ W/kg}$**

Maximum value of SAR (measured) =  $0.392 \text{ W/kg}$

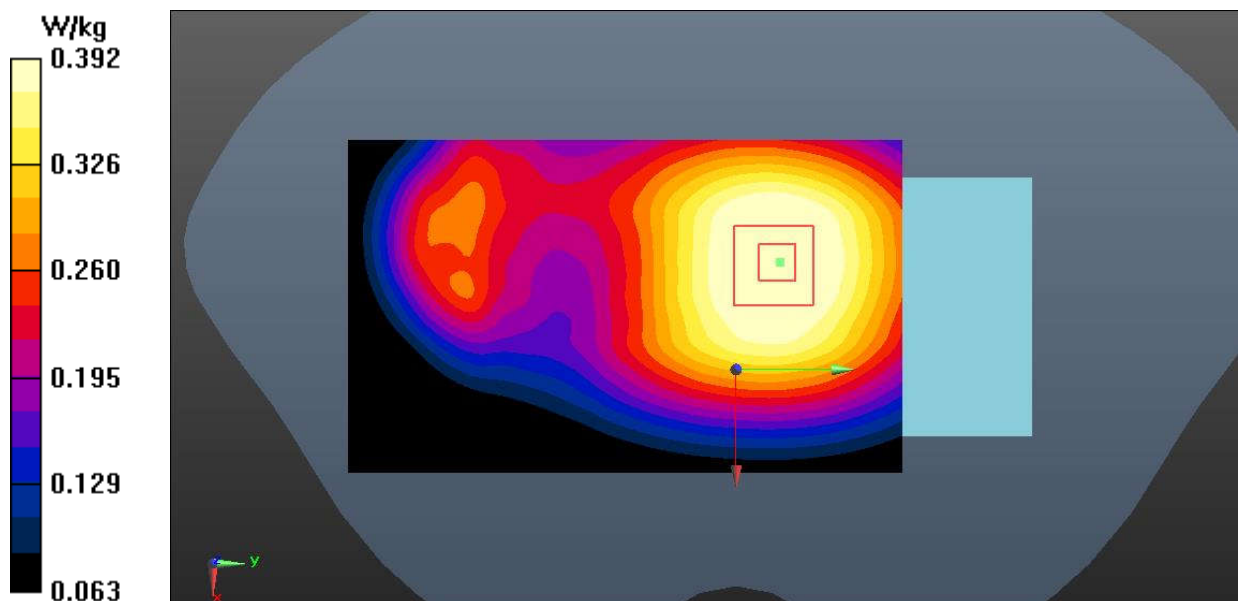


Fig.20 LTE Band 13 Body

### LTE Band 26 Head

Date: 2022-9-1

Electronics: DAE4 Sn1527

Medium: Head 835MHz

Medium parameters used (interpolated):  $f = 821.5$  MHz;  $\sigma = 0.909$  S/m;  $\epsilon_r = 40.995$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Communication System: UID 0, LTE\_FDD (0) Frequency: 821.5 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7621 ConvF (11.12, 11.12, 11.12)

**Right Cheek Low 1RB37/Area Scan (61x61x1):** Interpolated grid:  $dx=1.500$  mm,  $dy=1.500$  mm

Maximum value of SAR (interpolated) = 1.35 W/kg

**Right Cheek Low 1RB37/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8$ mm,  $dy=8$ mm,  $dz=5$ mm

Reference Value = 29.64 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 1.63 W/kg

**SAR(1 g) = 0.910 W/kg; SAR(10 g) = 0.613 W/kg**

Maximum value of SAR (measured) = 1.19 W/kg

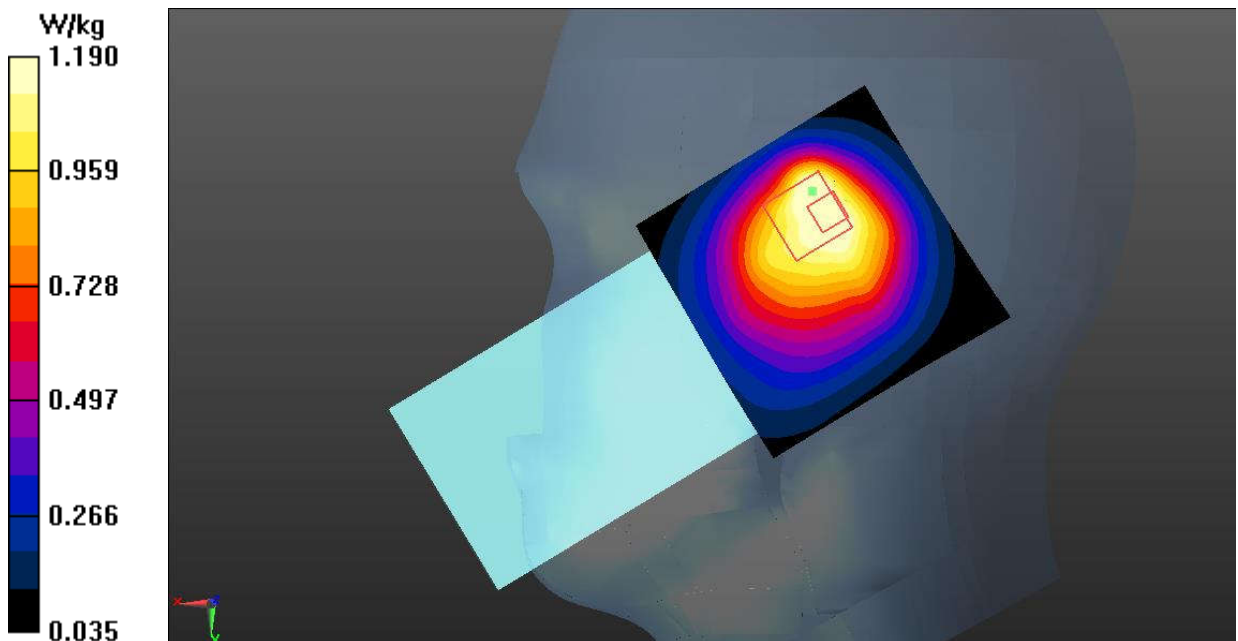


Fig.21 LTE Band 26 Head

### LTE Band 26 Body

Date: 2022-9-1

Electronics: DAE4 Sn1527

Medium: Head 835MHz

Medium parameters used (interpolated):  $f = 821.5$  MHz;  $\sigma = 0.909$  S/m;  $\epsilon_r = 40.995$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Communication System: UID 0, LTE\_FDD (0) Frequency: 821.5 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7621 ConvF (11.12, 11.12, 11.12)

**Left Side Low 1RB37/Area Scan (41x111x1):** Interpolated grid:  $dx=1.500$  mm,  $dy=1.500$  mm

Maximum value of SAR (interpolated) = 0.474 W/kg

**Left Side Low 1RB37/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8$ mm,  $dy=8$ mm,  $dz=5$ mm

Reference Value = 19.99 V/m; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 0.545 W/kg

**SAR(1 g) = 0.382 W/kg; SAR(10 g) = 0.262 W/kg**

Maximum value of SAR (measured) = 0.440 W/kg

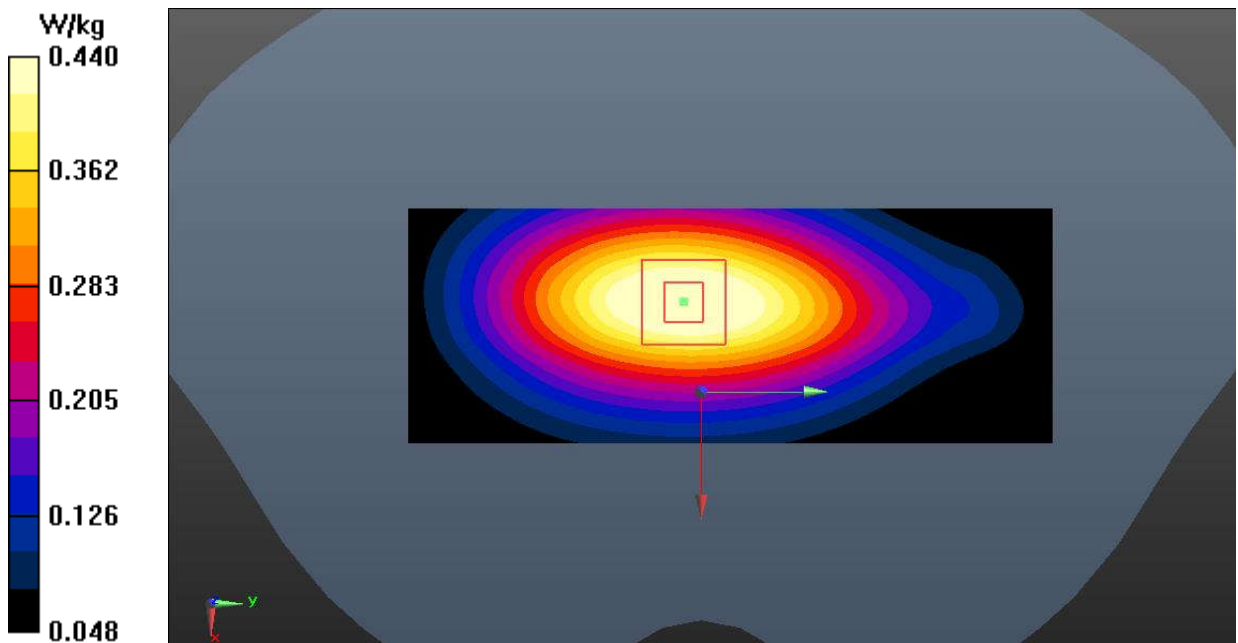


Fig.22 LTE Band 26 Body

### LTE Band 38 Head

Date: 2022-9-2

Electronics: DAE4 Sn1527

Medium: Head 2550MHz

Medium parameters used:  $f = 2580$  MHz;  $\sigma = 1.922$  S/m;  $\epsilon_r = 39.552$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Communication System: UID 0, LTE\_TDD (0) Frequency: 2580 MHz Duty Cycle: 1:1.58

Probe: EX3DV4 - SN7621 ConvF (7.93, 7.93, 7.93)

**Left Cheek Low 1RB50/Area Scan (91x91x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.209 W/kg

**Left Cheek Low 1RB50/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 0.8460 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.274 W/kg

**SAR(1 g) = 0.143 W/kg; SAR(10 g) = 0.075 W/kg**

Maximum value of SAR (measured) = 0.203 W/kg

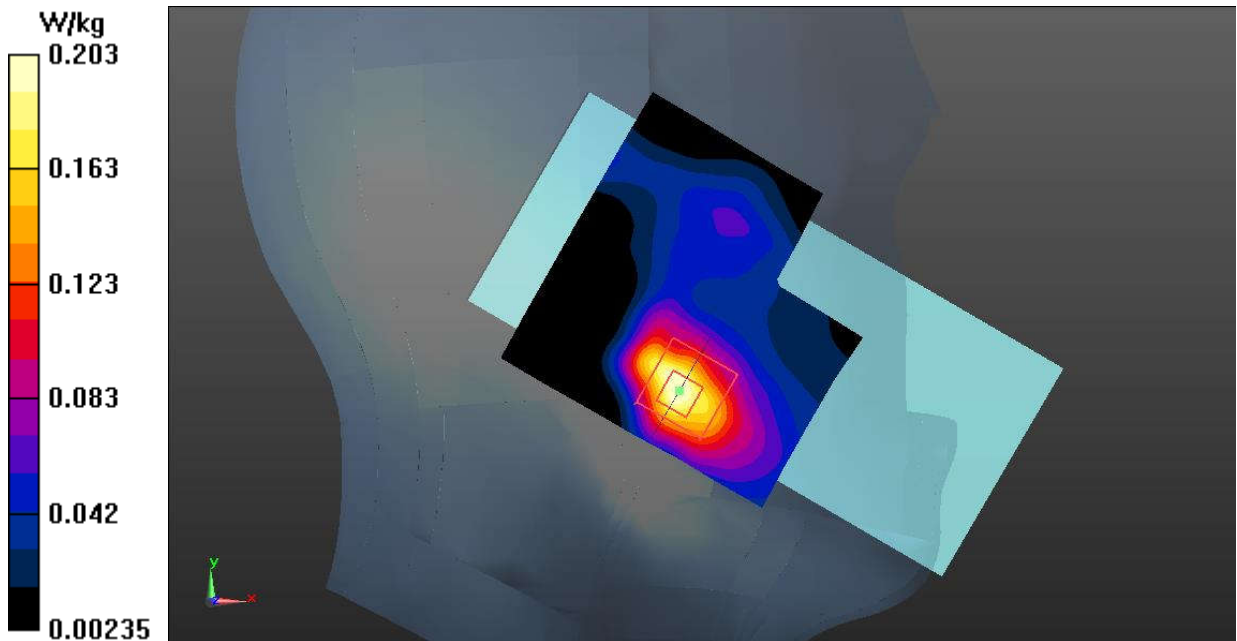


Fig.23 LTE Band 38 Head

### LTE Band 38 Body

Date: 2022-9-2

Electronics: DAE4 Sn1527

Medium: Head 2550MHz

Medium parameters used:  $f = 2610$  MHz;  $\sigma = 1.958$  S/m;  $\epsilon_r = 39.453$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Communication System: UID 0, LTE\_TDD (0) Frequency: 2610 MHz Duty Cycle: 1:1.58

Probe: EX3DV4 - SN7621 ConvF (7.93, 7.93, 7.93)

**Bottom Side High 1RB50/Area Scan (61x101x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm  
Maximum value of SAR (interpolated) = 0.911 W/kg

**Bottom Side High 1RB50/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 10.48 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 1.19 W/kg

**SAR(1 g) = 0.600 W/kg; SAR(10 g) = 0.299 W/kg**

Maximum value of SAR (measured) = 0.757 W/kg

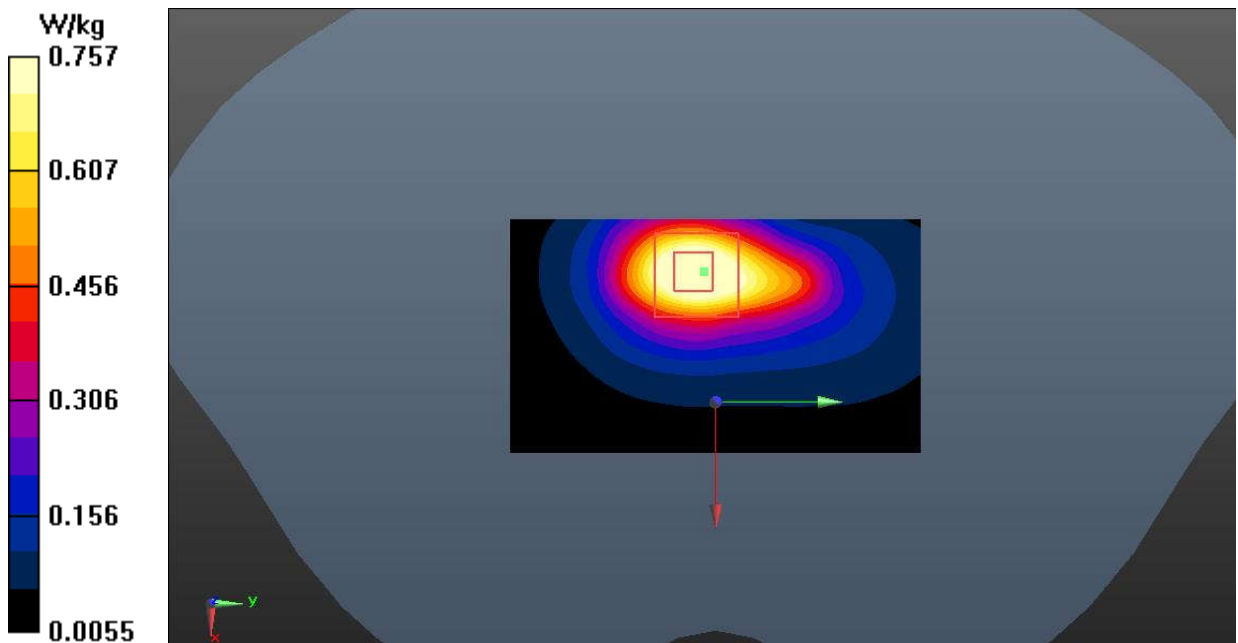


Fig.24 LTE Band 38 Body

### LTE Band 66 Head

Date: 2022-8-24

Electronics: DAE4 Sn1527

Medium: Head 1750MHz

Medium parameters used:  $f = 1770$  MHz;  $\sigma = 1.374$  S/m;  $\epsilon_r = 39.74$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Communication System: UID 0, LTE\_FDD (0) Frequency: 1770 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7621 ConvF (9.22, 9.22, 9.22)

**Right Cheek Middle 1RB50/Area Scan (61x61x1):** Interpolated grid:  $dx=1.500$  mm,  $dy=1.500$  mm  
Maximum value of SAR (interpolated) = 0.238 W/kg

**Right Cheek Middle 1RB50/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5$ mm,  $dy=5$ mm,  $dz=5$ mm

Reference Value = 5.821 V/m; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 0.262 W/kg

**SAR(1 g) = 0.179 W/kg; SAR(10 g) = 0.117 W/kg**

Maximum value of SAR (measured) = 0.224 W/kg

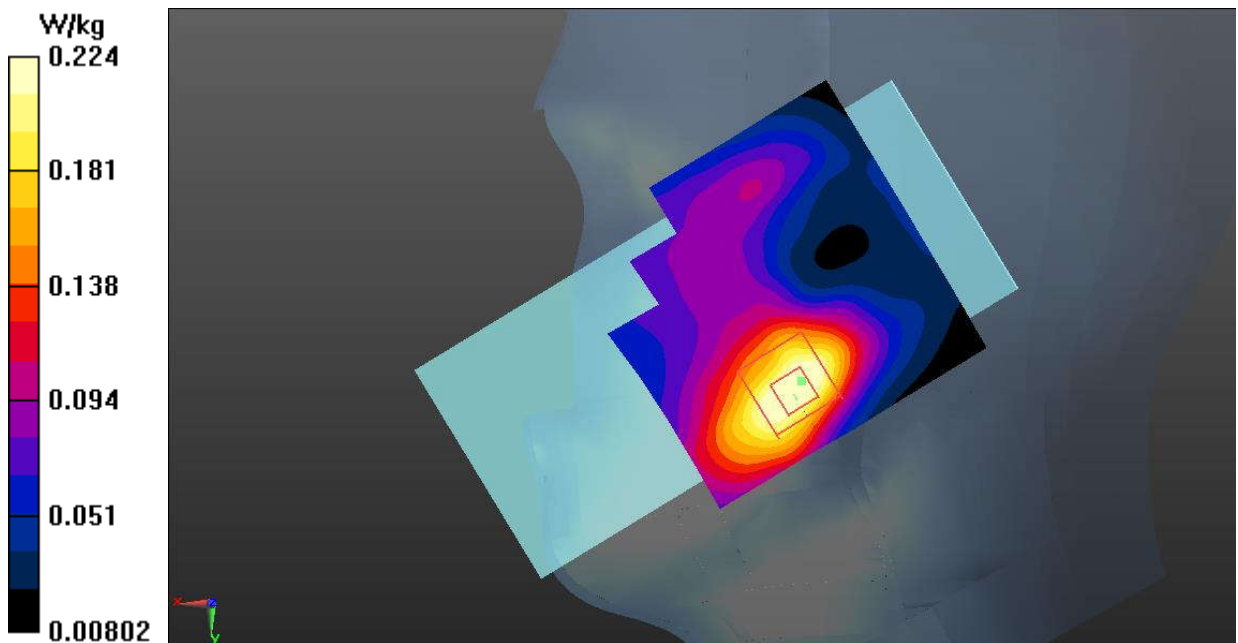


Fig.25 LTE Band 66 Head

### LTE Band 66 Body

Date: 2022-8-24

Electronics: DAE4 Sn1527

Medium: Head 1750MHz

Medium parameters used:  $f = 1770$  MHz;  $\sigma = 1.374$  S/m;  $\epsilon_r = 39.74$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Communication System: UID 0, LTE\_FDD (0) Frequency: 1770 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7621 ConvF (9.22, 9.22, 9.22)

**Bottom Side High 1RB50/Area Scan (41x71x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm  
Maximum value of SAR (interpolated) = 1.48 W/kg

**Bottom Side High 1RB50/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 28.39 V/m; Power Drift = -0.18 dB

Peak SAR (extrapolated) = 1.74 W/kg

**SAR(1 g) = 1.04 W/kg; SAR(10 g) = 0.578 W/kg**

Maximum value of SAR (measured) = 1.26 W/kg

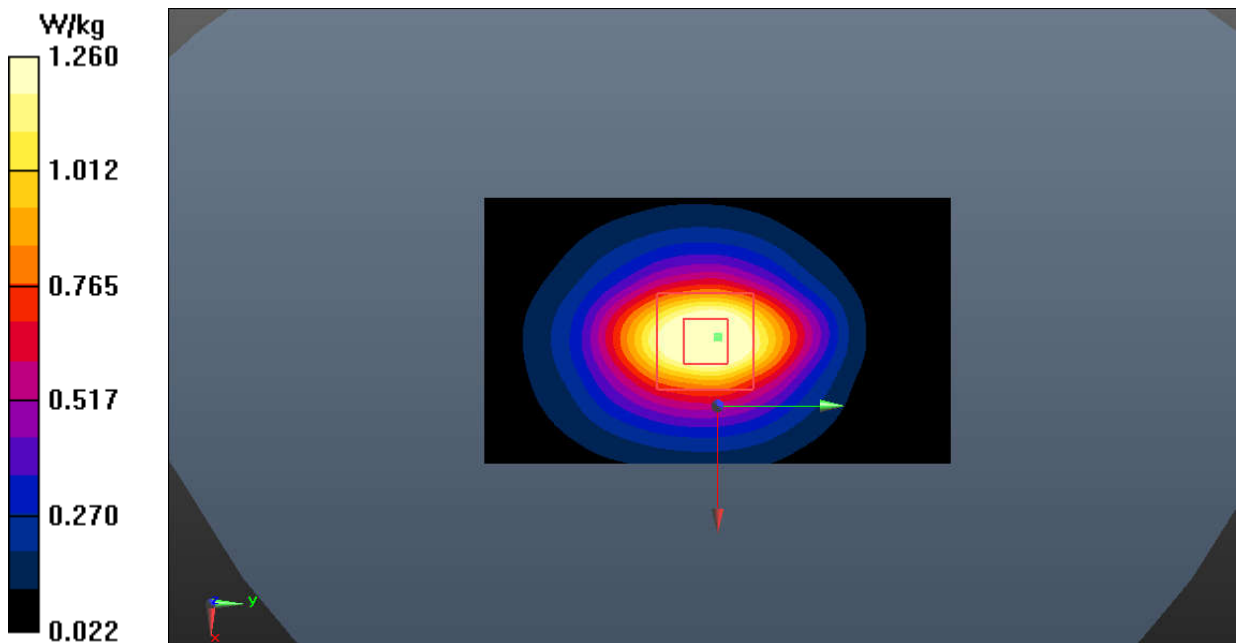


Fig.26 LTE Band 66 Body

### Bluetooth Head

Date: 2022-8-21

Electronics: DAE4 Sn1527

Medium: Head 2450MHz

Medium parameters used:  $f = 2402$  MHz;  $\sigma = 1.785$  S/m;  $\epsilon_r = 38.514$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Communication System: UID 0, BT (0) Frequency: 2402 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7621 ConvF (8.17, 8.17, 8.17)

**Left Cheek Ch.0/Area Scan (101x141x1):** Interpolated grid:  $dx=1.000$  mm,  $dy=1.000$  mm

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

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

Reference Value = 3.940 V/m; Power Drift = -0.10 dB

Peak SAR (extrapolated) = 0.168 W/kg

**SAR(1 g) = 0.083 W/kg; SAR(10 g) = 0.040 W/kg**

Maximum value of SAR (measured) = 0.123 W/kg

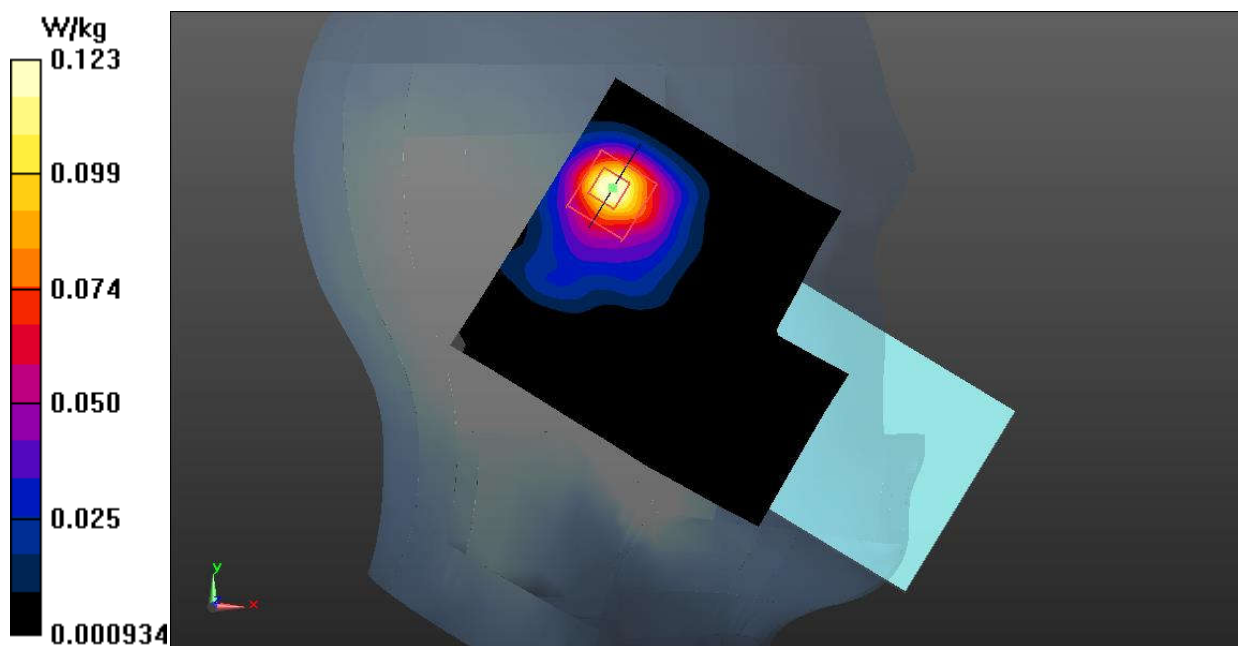


Fig.27 Bluetooth Head



### Bluetooth Body

Date: 2022-8-21

Electronics: DAE4 Sn1527

Medium: Head 2450MHz

Medium parameters used:  $f = 2402$  MHz;  $\sigma = 1.785$  S/m;  $\epsilon_r = 38.514$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Communication System: UID 0, BT (0) Frequency: 2402 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7621 ConvF (8.17, 8.17, 8.17)

**Rear Side Ch.0/Area Scan (91x91x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.0462 W/kg

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

Reference Value = 0.8950 V/m; Power Drift = 0.12 dB

Peak SAR (extrapolated) = 0.0760 W/kg

**SAR(1 g) = 0.034 W/kg; SAR(10 g) = 0.016 W/kg**

Maximum value of SAR (measured) = 0.0401 W/kg

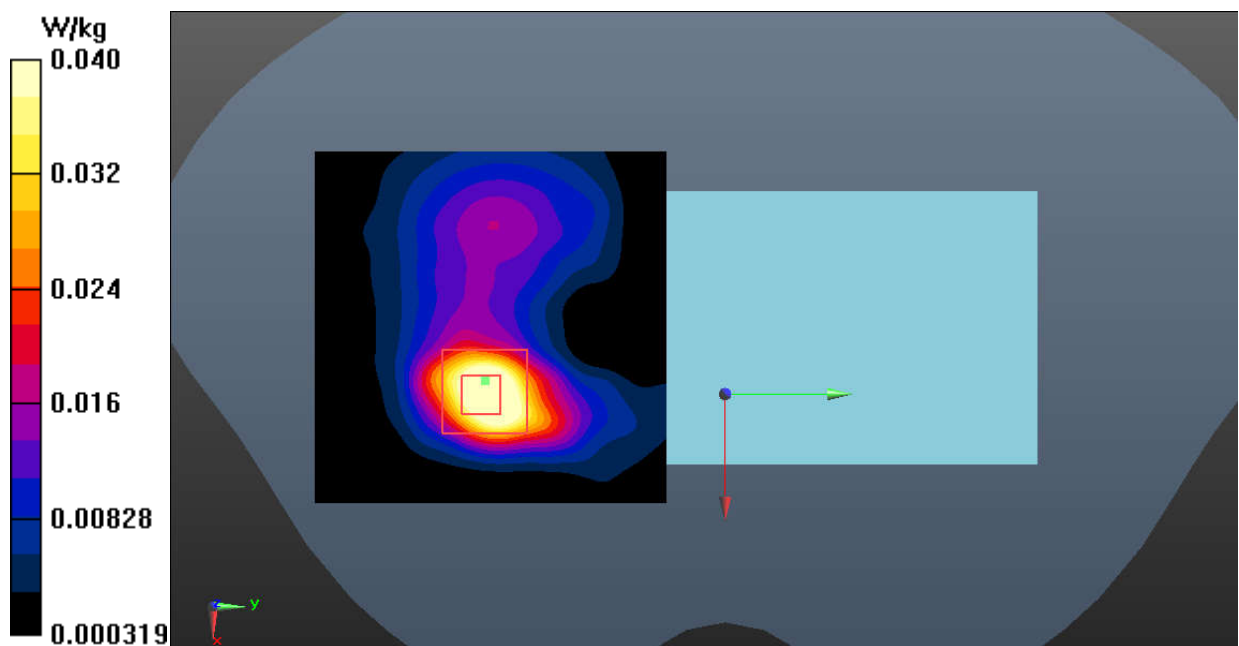


Fig.28 Bluetooth Body

# WLAN 2.4GHz Head

Date: 2022-8-21

Electronics: DAE4 Sn1527

Medium: Head 2450MHz

Medium parameters used (interpolated):  $f = 2437$  MHz;  $\sigma = 1.827$  S/m;  $\epsilon_r = 38.399$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Communication System: UID 0, WLAN (0) Frequency: 2437 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7621 ConvF (8.17, 8.17, 8.17)

**Left Cheek Ch.6/Area Scan (91x91x1):** Interpolated grid:  $dx=1.000$  mm,  $dy=1.000$  mm

Maximum value of SAR (interpolated) = 0.481 W/kg

**Left Cheek Ch.6/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5$ mm,  $dy=5$ mm,  $dz=5$ mm

Reference Value = 6.609 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 0.766 W/kg

**SAR(1 g) = 0.378 W/kg; SAR(10 g) = 0.182 W/kg**

Maximum value of SAR (measured) = 0.535 W/kg

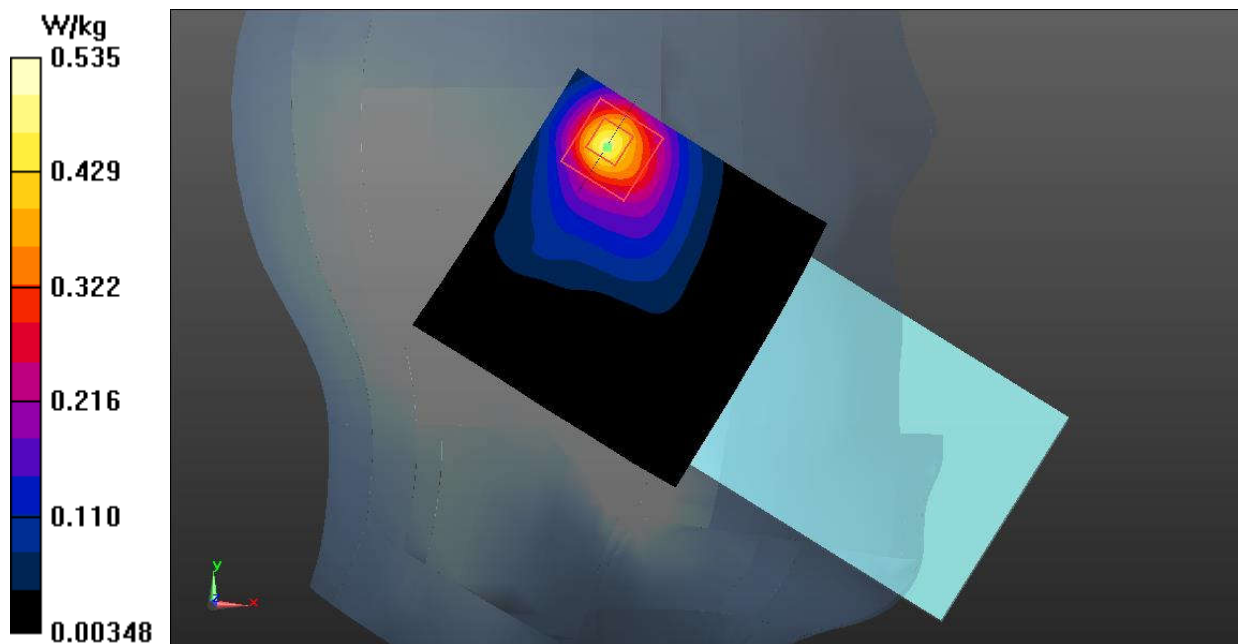


Fig.29 WLAN 2.4GHz Head

### WLAN 2.4GHz Body

Date: 2022-8-21

Electronics: DAE4 Sn1527

Medium: Head 2450MHz

Medium parameters used (interpolated):  $f = 2437$  MHz;  $\sigma = 1.827$  S/m;  $\epsilon_r = 38.399$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Communication System: UID 0, WLAN (0) Frequency: 2437 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7621 ConvF (8.17, 8.17, 8.17)

**Rear Side Ch.6/Area Scan (91x91x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.196 W/kg

**Rear Side Ch.6/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 2.227 V/m; Power Drift = -0.09 dB

Peak SAR (extrapolated) = 0.280 W/kg

**SAR(1 g) = 0.133 W/kg; SAR(10 g) = 0.064 W/kg**

Maximum value of SAR (measured) = 0.161 W/kg

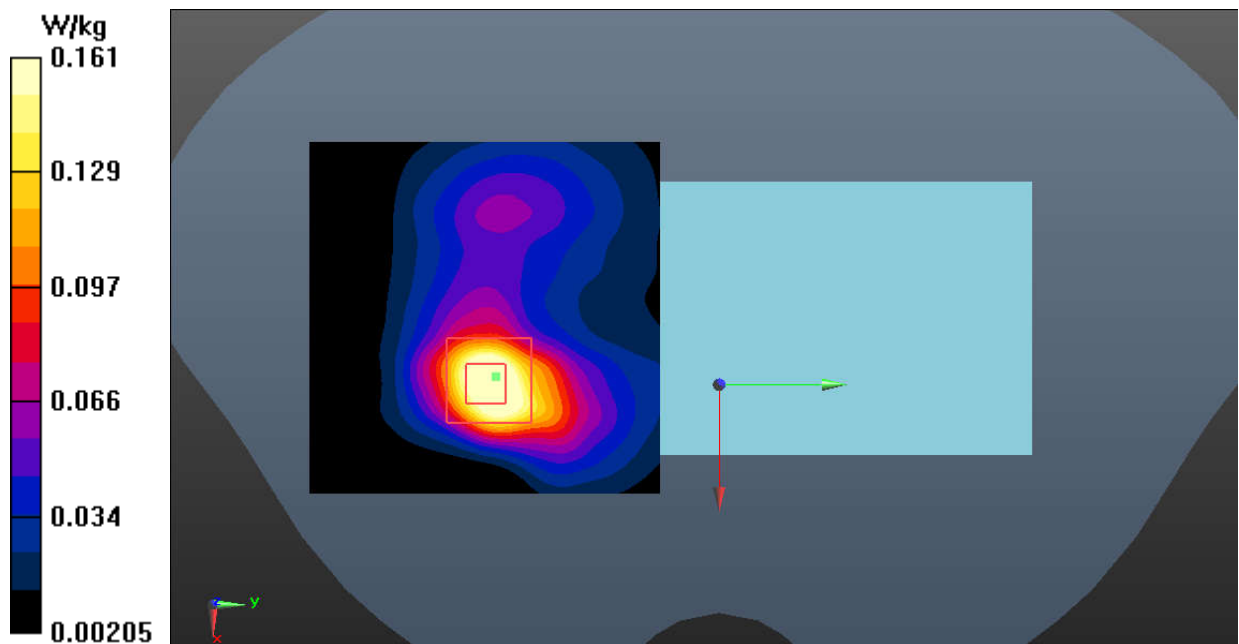


Fig.30 WLAN 2.4GHz Body

# WLAN 5GHz Head

Date: 2022-8-19

Electronics: DAE4 Sn1527

Medium: Head 5750MHz

Medium parameters used (interpolated):  $f = 5825$  MHz;  $\sigma = 5.185$  S/m;  $\epsilon_r = 36.002$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Communication System: UID 0, WLAN 5G (0) Frequency: 5825 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7621 ConvF (5.40, 5.40, 5.40)

**Left Cheek Ch.165/Area Scan (91x91x1):** Interpolated grid:  $dx=1.000$  mm,  $dy=1.000$  mm

Maximum value of SAR (interpolated) = 0.509 W/kg

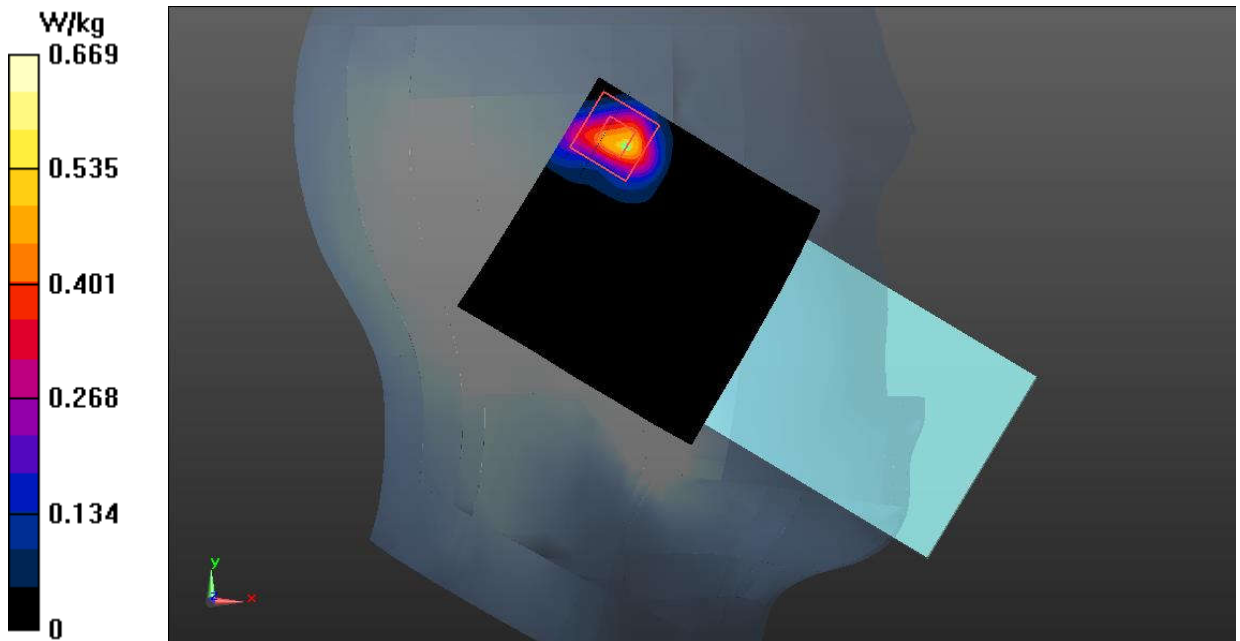
**Left Cheek Ch.165/Zoom Scan (8x8x21)/Cube 0:** Measurement grid:  $dx=4$ mm,  $dy=4$ mm,  $dz=1.4$ mm

Reference Value = 1.888 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.991 W/kg

**SAR(1 g) = 0.296 W/kg; SAR(10 g) = 0.093 W/kg**

Maximum value of SAR (measured) = 0.669 W/kg



**Fig.31 WLAN 5GHz Head**

### WLAN 5GHz Body

Date: 2022-8-19

Electronics: DAE4 Sn1527

Medium: Head 5250MHz

Medium parameters used:  $f = 5240$  MHz;  $\sigma = 4.759$  S/m;  $\epsilon_r = 35.291$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Communication System: UID 0, WLAN 5G (0) Frequency: 5240 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7621 ConvF (5.98, 5.98, 5.98)

**Rear Side Ch.48/Area Scan (81x81x1):** Interpolated grid:  $dx=1.000$  mm,  $dy=1.000$  mm

Maximum value of SAR (interpolated) = 0.280 W/kg

**Rear Side Ch.48/Zoom Scan (8x8x21)/Cube 0:** Measurement grid:  $dx=4$ mm,  $dy=4$ mm,  $dz=1.4$ mm

Reference Value = 0.2270 V/m; Power Drift = 0.10 dB

Peak SAR (extrapolated) = 0.376 W/kg

**SAR(1 g) = 0.132 W/kg; SAR(10 g) = 0.044 W/kg**

Maximum value of SAR (measured) = 0.211 W/kg

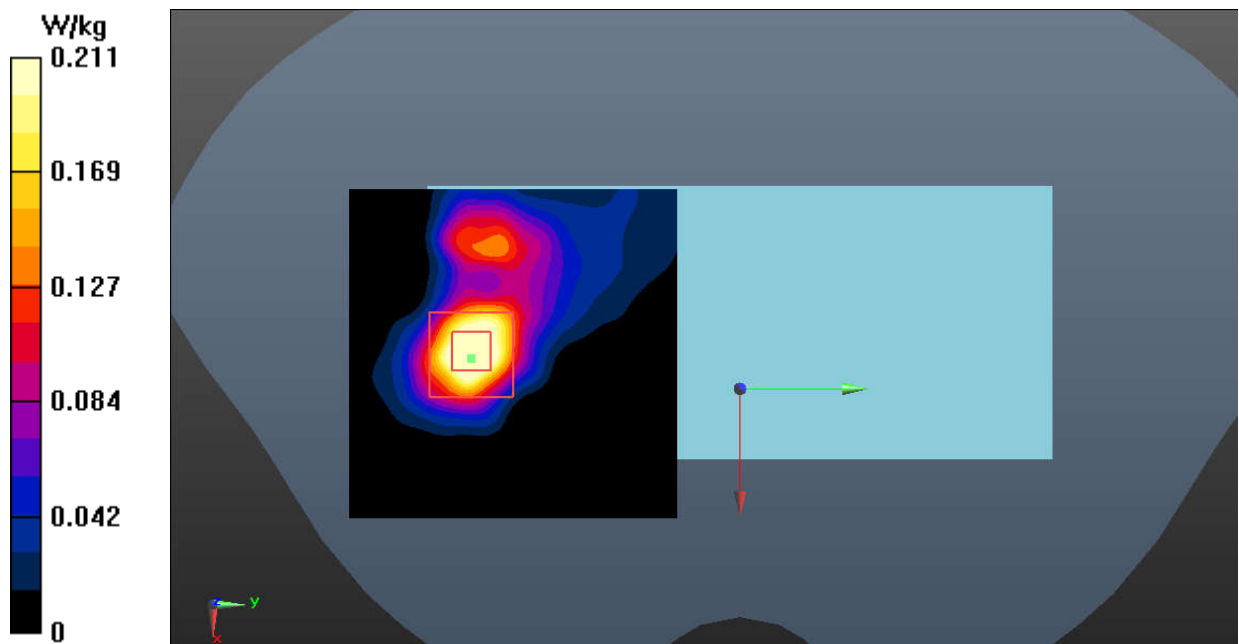


Fig.32 WLAN 5GHz Body

### LTE Band 66 Extremity

Date: 2022-8-24

Electronics: DAE4 Sn1527

Medium: Head 1750MHz

Medium parameters used:  $f = 1770$  MHz;  $\sigma = 1.374$  S/m;  $\epsilon_r = 39.74$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Communication System: UID 0, LTE\_FDD (0) Frequency: 1770 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7621 ConvF (9.22, 9.22, 9.22)

**Bottom Side High 1RB50/Area Scan (41x71x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 5.72 W/kg

**Bottom Side High 1RB50/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 48.78 V/m; Power Drift = 0.19 dB

Peak SAR (extrapolated) = 7.23 W/kg

**SAR(1 g) = 3.66 W/kg; SAR(10 g) = 1.76 W/kg**

Maximum value of SAR (measured) = 5.57 W/kg

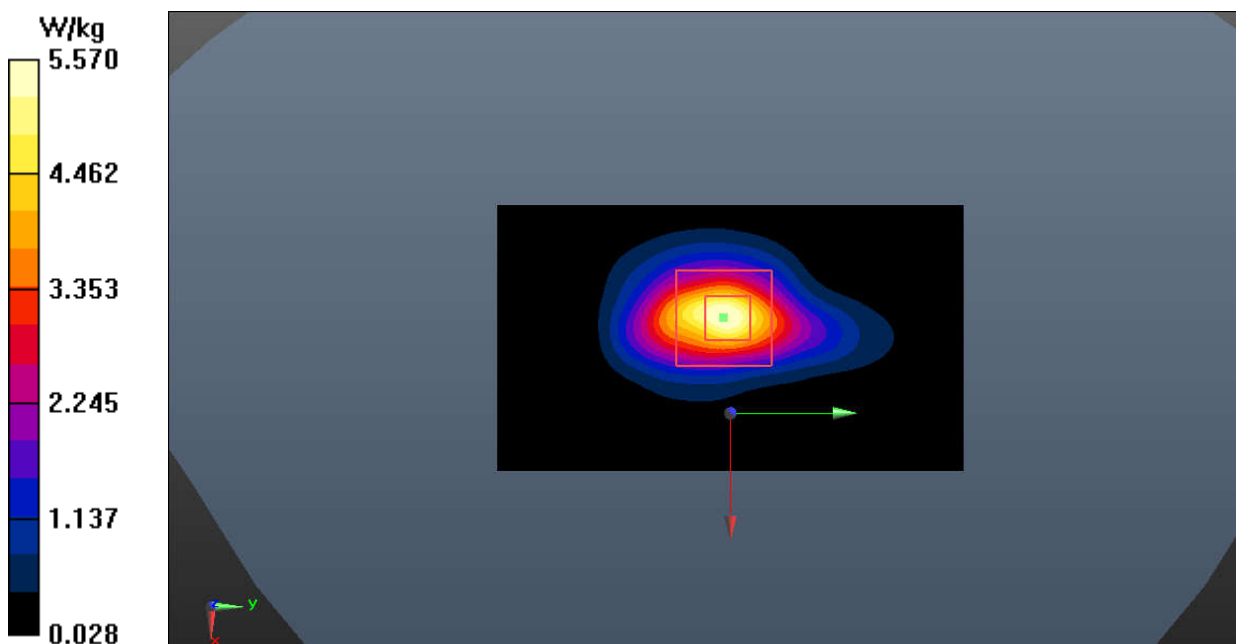


Fig.33 LTE Band 66 Body

### WLAN 5GHz Extremity

Date: 2022-8-19

Electronics: DAE4 Sn1527

Medium: Head 5600MHz

Medium parameters used:  $f = 5580$  MHz;  $\sigma = 5.151$  S/m;  $\epsilon_r = 35.033$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Communication System: UID 0, WLAN 5G (0) Frequency: 5580 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7621 ConvF (5.47, 5.47, 5.47)

**Top Side Ch.116/Area Scan (61x111x1):** Interpolated grid:  $dx=1.000$  mm,  $dy=1.000$  mm

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

**Top Side Ch.116/Zoom Scan (8x8x21)/Cube 0:** Measurement grid:  $dx=4$ mm,  $dy=4$ mm,  $dz=1.4$ mm

Reference Value = 3.153 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 9.25 W/kg

**SAR(1 g) = 1.16 W/kg; SAR(10 g) = 0.293 W/kg**

Maximum value of SAR (measured) = 1.92 W/kg

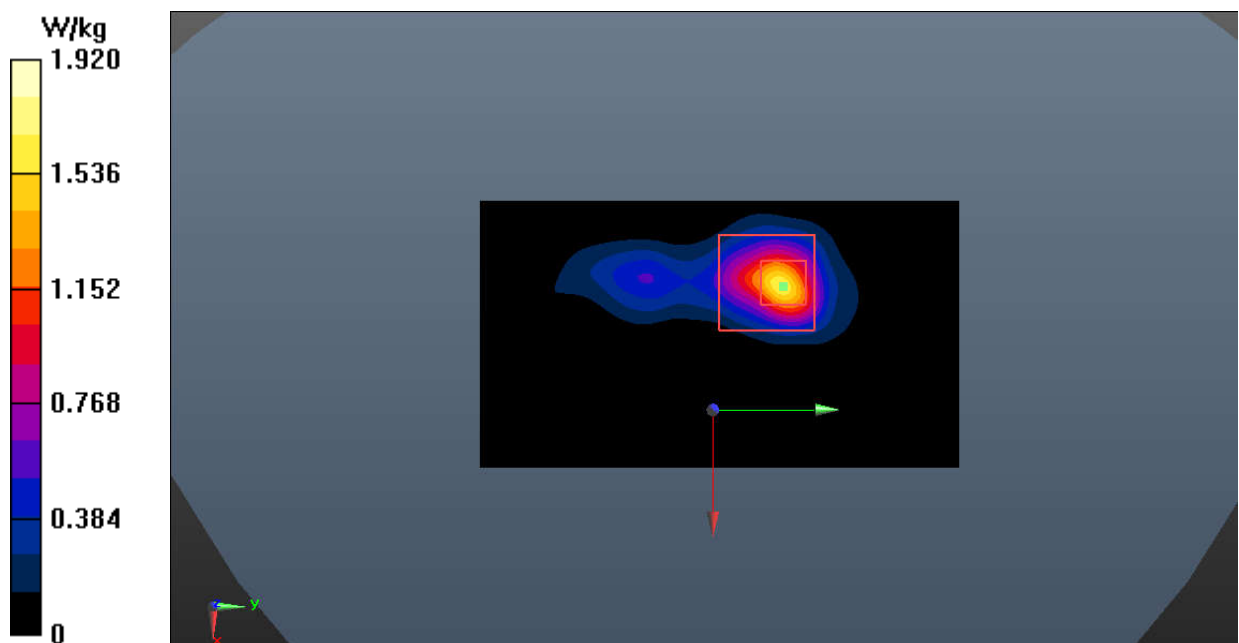


Fig.34 WLAN 5GHz Extremity

## ANNEX B: SystemVerification Results

### 750MHz

Date: 2022-8-23

Electronics: DAE4 Sn1527

Medium: Head 750MHz

Medium parameters used:  $f = 750 \text{ MHz}$ ;  $\sigma = 0.899 \text{ S/m}$ ;  $\epsilon_r = 41.171$ ;  $\rho = 1000 \text{ kg/m}^3$

Communication System: CW\_TMC Frequency: 750 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7621 ConvF (11.12, 11.12, 11.12)

**System Validation/Area Scan (81x161x1):** Interpolated grid:  $dx=1.000 \text{ mm}$ ,  $dy=1.000 \text{ mm}$

Reference Value = 61.248 V/m; Power Drift = 0.13 dB

**SAR(1 g) = 2.17 W/kg; SAR(10 g) = 1.43 W/kg**

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

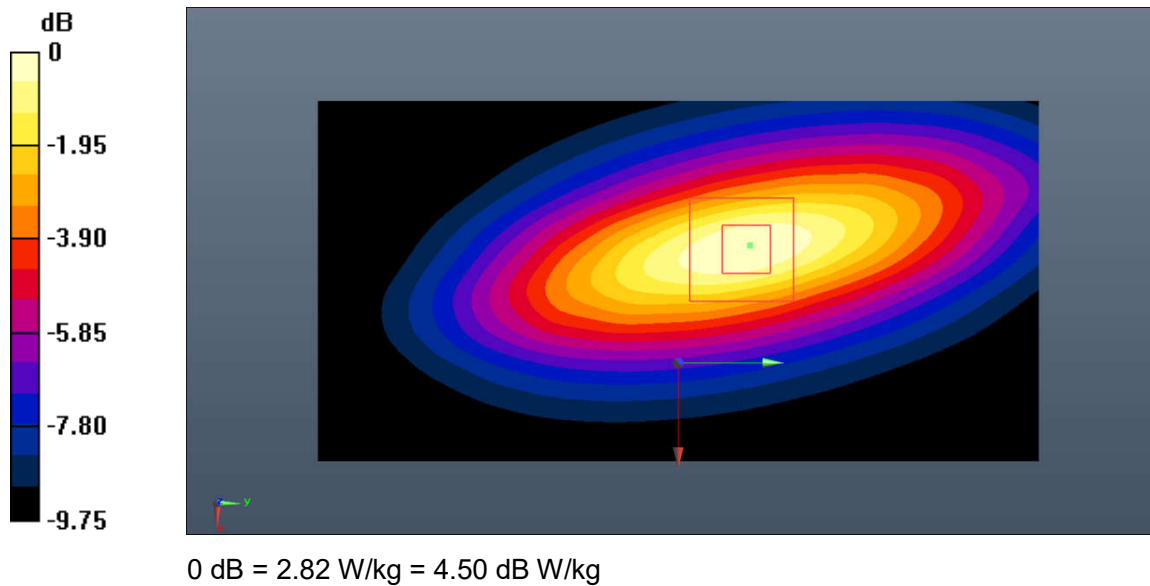
**System Validation/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 61.248 V/m; Power Drift = 0.13 dB

Peak SAR (extrapolated) = 3.25 W/kg

**SAR(1 g) = 2.21 W/kg; SAR(10 g) = 1.45 W/kg**

Maximum value of SAR (measured) = 2.82 W/kg



**Fig.B.1. Validation 750MHz 250mW**



### 835MHz

Date: 2022-9-1

Electronics: DAE4 Sn1527

Medium: Head 835MHz

Medium parameters used:  $f = 835 \text{ MHz}$ ;  $\sigma = 0.921 \text{ S/m}$ ;  $\epsilon_r = 40.833$ ;  $\rho = 1000 \text{ kg/m}^3$

Communication System: CW\_TMC Frequency: 835 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7621 ConvF (11.12, 11.12, 11.12)

**System Validation/Area Scan (91x161x1):** Interpolated grid:  $dx=1.000 \text{ mm}$ ,  $dy=1.000 \text{ mm}$

Reference Value = 65.895 V/m; Power Drift = 0.07 dB

**SAR(1 g) = 2.46 W/kg; SAR(10 g) = 1.58 W/kg**

Maximum value of SAR (interpolated) = 3.38 W/kg

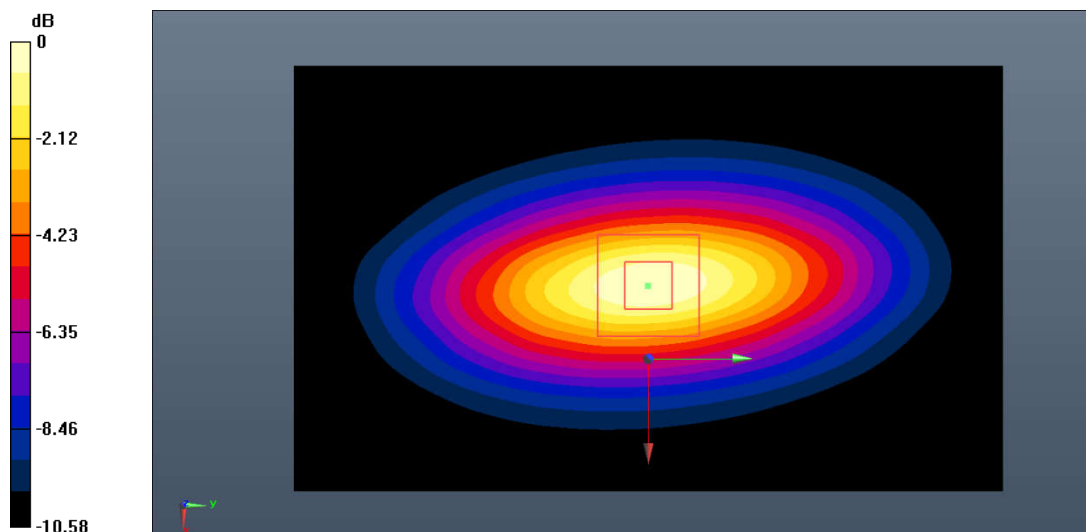
**System Validation /Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 65.895 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 3.93 W/kg

**SAR(1 g) = 2.50 W/kg; SAR(10 g) = 1.61 W/kg**

Maximum value of SAR (measured) = 3.41 W/kg



0 dB = 3.41 W/kg = 5.32 dB W/kg

**Fig.B.2. Validation 835MHz 250mW**

### 1750MHz

Date: 2022-8-24

Electronics: DAE4 Sn1527

Medium: Head 1750MHz

Medium parameters used:  $f = 1750 \text{ MHz}$ ;  $\sigma = 1.356 \text{ S/m}$ ;  $\epsilon_r = 39.818$ ;  $\rho = 1000 \text{ kg/m}^3$

Communication System: CW\_TMC Frequency: 1750 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7621 ConvF (9.22, 9.22, 9.22)

**System Validation/Area Scan (81x121x1):** Interpolated grid:  $dx=1.000 \text{ mm}$ ,  $dy=1.000 \text{ mm}$

Reference Value = 77.916 V/m; Power Drift = -0.10 dB

**SAR(1 g) = 9.03 W/kg; SAR(10 g) = 4.85 W/kg**

Maximum value of SAR (interpolated) = 10.9 W/kg

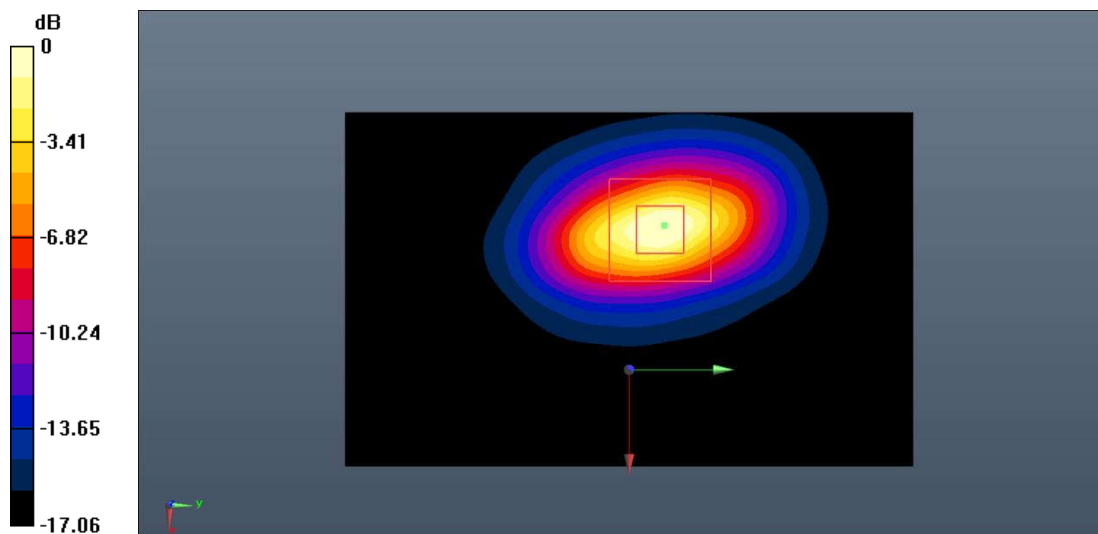
**System Validation/Zoom Scan (7x7x7)/Cube0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 77.916 V/m; Power Drift = -0.10 dB

Peak SAR (extrapolated) = 20.4 W/kg

**SAR(1 g) = 8.74 W/kg; SAR(10 g) = 4.72 W/kg**

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



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

**Fig.B.3. Validation 1750MHz 250mW**

# 1900MHz

Date: 2022-8-31

Electronics: DAE4 Sn1527

Medium: Head 1900MHz

Medium parameters used:  $f = 1900 \text{ MHz}$ ;  $\sigma = 1.418 \text{ S/m}$ ;  $\epsilon_r = 39.442$ ;  $\rho = 1000 \text{ kg/m}^3$

Communication System: CW\_TMC Frequency: 1900 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7621 ConvF (8.90, 8.90, 8.90)

**System Validation/Area Scan (91x91x1):** Interpolated grid:  $dx=1.000 \text{ mm}$ ,  $dy=1.000 \text{ mm}$

Reference Value =  $84.109 \text{ V/m}$ ; Power Drift =  $0.08 \text{ dB}$

**SAR(1 g) =  $10.2 \text{ W/kg}$ ; SAR(10 g) =  $5.12 \text{ W/kg}$**

Maximum value of SAR (interpolated) =  $12.3 \text{ W/kg}$

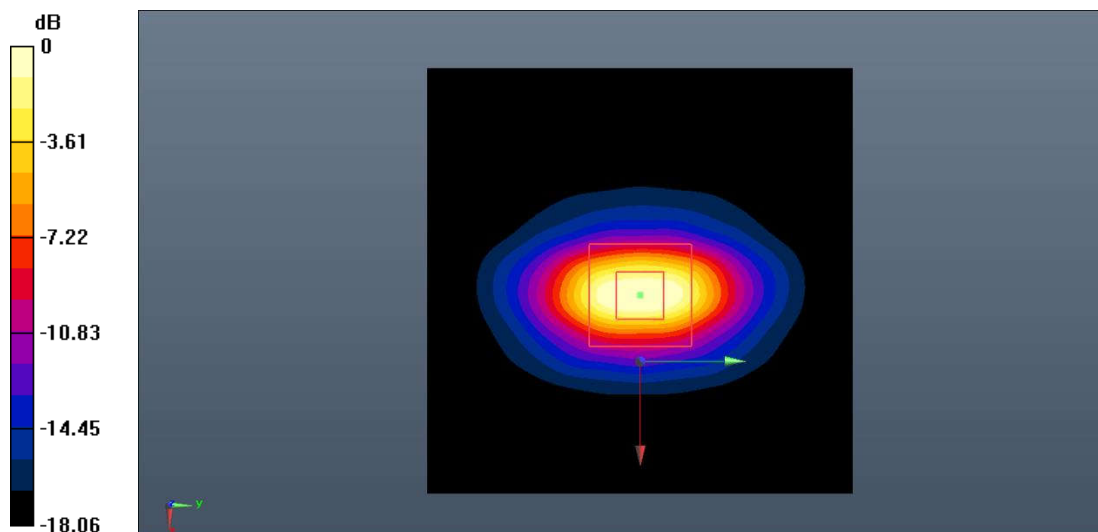
**System Validation/Zoom Scan (7x7x7)/Cube0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value =  $84.109 \text{ V/m}$ ; Power Drift =  $0.08 \text{ dB}$

Peak SAR (extrapolated) =  $26.5 \text{ W/kg}$

**SAR(1 g) =  $10.5 \text{ W/kg}$ ; SAR(10 g) =  $5.25 \text{ W/kg}$**

Maximum value of SAR (measured) =  $12.5 \text{ W/kg}$



0 dB =  $12.5 \text{ W/kg}$  =  $10.97 \text{ dB W/kg}$

**Fig.B.4. Validation 1900MHz 250mW**

## 2450MHz

Date: 2022-8-21

Electronics: DAE4 Sn1527

Medium: Head 2450MHz

Medium parameters used:  $f = 2450$  MHz;  $\sigma = 1.842$  S/m;  $\epsilon_r = 38.356$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Communication System: CW\_TMC Frequency: 2450 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7621 ConvF (8.17, 8.17, 8.17)

**System Validation/Area Scan (81x121x1):** Interpolated grid:  $dx=1.000$  mm,  $dy=1.000$  mm

Reference Value = 92.784 V/m; Power Drift = 0.05 dB

**SAR(1 g) = 13.5 W/kg; SAR(10 g) = 6.03 W/kg**

Maximum value of SAR (interpolated) = 15.6 W/kg

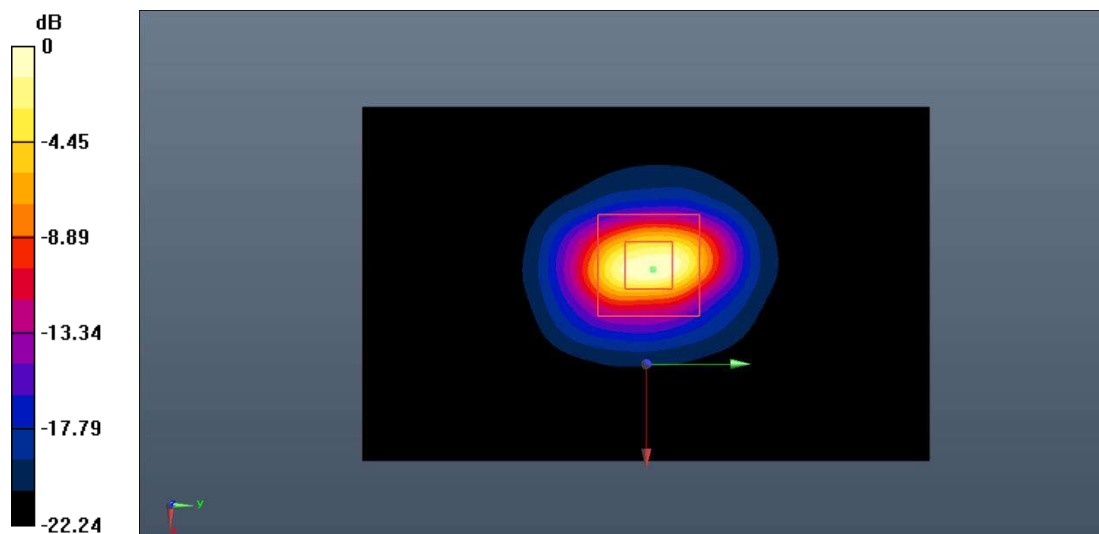
**System Validation/Zoom Scan (7x7x7)/Cube0:** Measurement grid:  $dx=5$ mm,  $dy=5$ mm,  $dz=5$ mm

Reference Value = 92.784 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 36.1 W/kg

**SAR(1 g) = 13.8 W/kg; SAR(10 g) = 6.16 W/kg**

Maximum value of SAR (measured) = 15.9 W/kg



0 dB = 15.9 W/kg = 12.01 dB W/kg

**Fig.B.5. Validation 2450MHz 250mW**

## 2550MHz

Date: 2022-9-2

Electronics: DAE4 Sn1527

Medium: Head 2550MHz

Medium parameters used:  $f = 2550 \text{ MHz}$ ;  $\sigma = 1.887 \text{ S/m}$ ;  $\epsilon_r = 39.651$ ;  $\rho = 1000 \text{ kg/m}^3$

Communication System: CW\_TMC Frequency: 2550 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7621 ConvF (8.17, 8.17, 8.17)

**System Validation/Area Scan (91x91x1):** Interpolated grid:  $dx=1.000 \text{ mm}$ ,  $dy=1.000 \text{ mm}$

Reference Value = 93.045 V/m; Power Drift = -0.06 dB

**SAR(1 g) = 13.9 W/kg; SAR(10 g) = 6.35 W/kg**

Maximum value of SAR (interpolated) = 15.8 W/kg

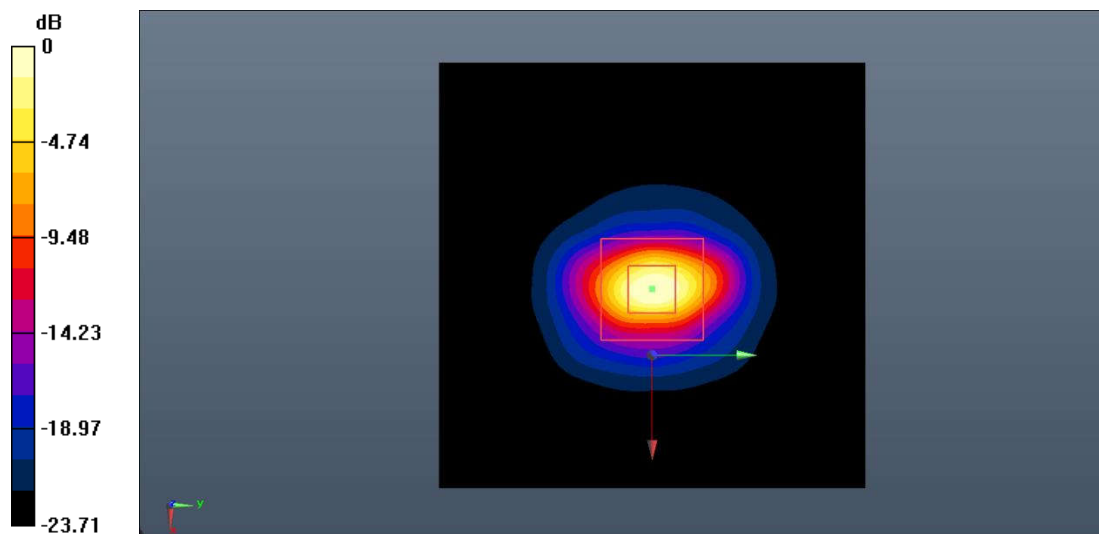
**System Validation/Zoom Scan (7x7x7)/Cube0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 93.045 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 35.7 W/kg

**SAR(1 g) = 13.6 W/kg; SAR(10 g) = 6.20 W/kg**

Maximum value of SAR (measured) = 15.6 W/kg



0 dB = 15.6 W/kg = 11.93 dB W/kg

**Fig.B.6. Validation 2550MHz 250mW**

### 5250MHz

Date: 2022-8-19

Electronics: DAE4 Sn1527

Medium: Head 5250MHz

Medium parameters used:  $f = 5250 \text{ MHz}$ ;  $\sigma = 4.772 \text{ S/m}$ ;  $\epsilon_r = 35.264$ ;  $\rho = 1000 \text{ kg/m}^3$

Communication System: CW\_TMC Frequency: 5250 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7621 ConvF (5.98, 5.98, 5.98)

**System Validation/Area Scan (61x91x1):** Interpolated grid:  $dx=1.000 \text{ mm}$ ,  $dy=1.000 \text{ mm}$

Reference Value = 65.935 V/m; Power Drift = 0.11 dB

**SAR(1 g) = 7.86 W/kg; SAR(10 g) = 2.24 W/kg**

Maximum value of SAR (interpolated) = 9.97 W/kg

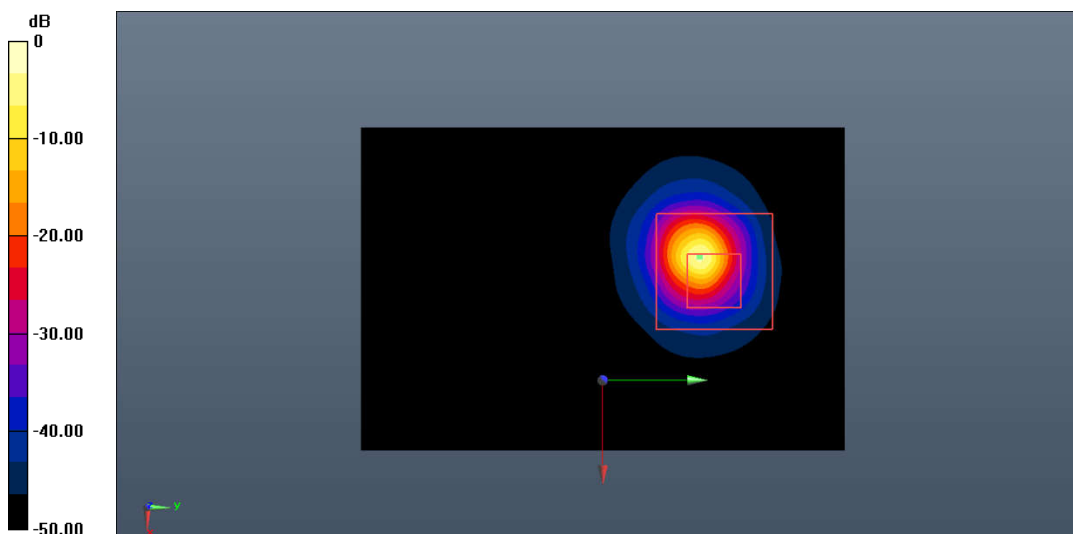
**System Validation/Zoom Scan (8x8x21)/Cube0:** Measurement grid:  $dx=4\text{mm}$ ,  $dy=4\text{mm}$ ,  $dz=1.4\text{mm}$

Reference Value = 65.935 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 25.8 W/kg

**SAR(1 g) = 8.07 W/kg; SAR(10 g) = 2.27 W/kg**

Maximum value of SAR (measured) = 10.1 W/kg



0 dB = 10.1 W/kg = 10.04 dB W/kg

**Fig.B.7. Validation 5250MHz 100mW**

### 5600MHz

Date: 2022-8-19

Electronics: DAE4 Sn1527

Medium: Head 5600MHz

Medium parameters used:  $f = 5600$  MHz;  $\sigma = 5.178$  S/m;  $\epsilon_r = 34.979$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Communication System: CW\_TMC Frequency: 5600 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7621 ConvF (5.47, 5.47, 5.47)

**System Validation/Area Scan (61x91x1):** Interpolated grid:  $dx=1.000$  mm,  $dy=1.000$  mm

Reference Value = 66.128 V/m; Power Drift = 0.13 dB

**SAR(1 g) = 8.03 W/kg; SAR(10 g) = 2.29 W/kg**

Maximum value of SAR (interpolated) = 10.1 W/kg

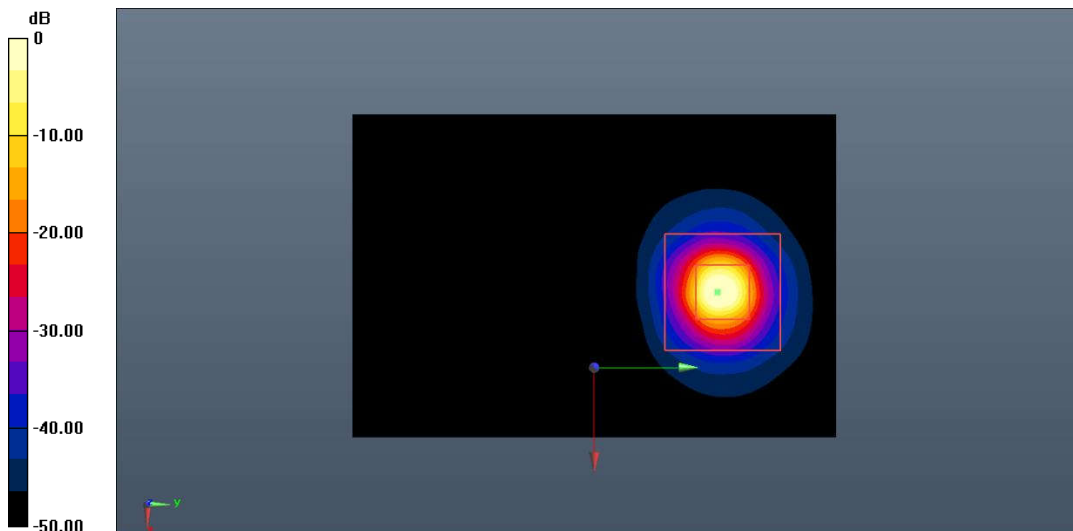
**System Validation/Zoom Scan (8x8x21)/Cube0:** Measurement grid:  $dx=4$ mm,  $dy=4$ mm,  $dz=1.4$ mm

Reference Value = 66.128 V/m; Power Drift = 0.13 dB

Peak SAR (extrapolated) = 26.6 W/kg

**SAR(1 g) = 8.29 W/kg; SAR(10 g) = 2.33 W/kg**

Maximum value of SAR (measured) = 10.4 W/kg



0 dB = 10.4 W/kg = 10.17 dB W/kg

**Fig.B.8. Validation 5600MHz 100mW**

### 5750MHz

Date: 2022-8-19

Electronics: DAE4 Sn1527

Medium: Head 5750MHz

Medium parameters used:  $f = 5750 \text{ MHz}$ ;  $\sigma = 5.084 \text{ S/m}$ ;  $\epsilon_r = 36.204$ ;  $\rho = 1000 \text{ kg/m}^3$

Communication System: CW\_TMC Frequency: 5750 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7621 ConvF (5.40, 5.40, 5.40)

**System Validation/Area Scan (61x91x1):** Interpolated grid:  $dx=1.000 \text{ mm}$ ,  $dy=1.000 \text{ mm}$

Reference Value = 63.852 V/m; Power Drift = -0.02 dB

**SAR(1 g) = 7.66 W/kg; SAR(10 g) = 2.18 W/kg**

Maximum value of SAR (interpolated) = 9.86 W/kg

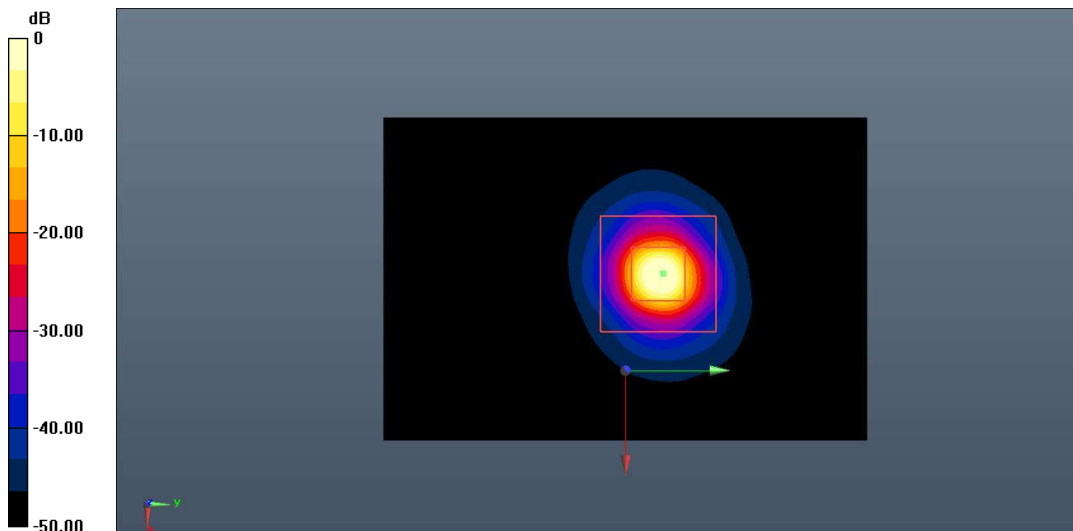
**System Validation/Zoom Scan (8x8x21)/Cube0:** Measurement grid:  $dx=4\text{mm}$ ,  $dy=4\text{mm}$ ,  $dz=1.4\text{mm}$

Reference Value = 63.852 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 23.5 W/kg

**SAR(1 g) = 7.50 W/kg; SAR(10 g) = 2.16 W/kg**

Maximum value of SAR (measured) = 9.78 W/kg



0 dB = 9.78 W/kg = 9.90 dB W/kg

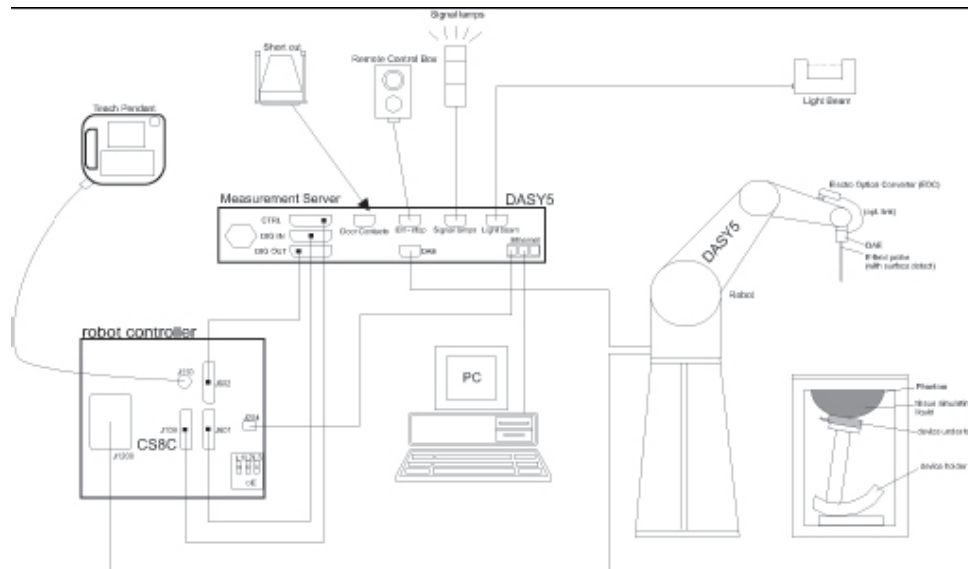
**Fig.B.9. Validation 5750MHz 100mW**



## ANNEX C: SAR Measurement Setup

### C.1. Measurement Set-up

DASY5 system for performing compliance tests is illustrated above graphically. This system consists of the following items:



Picture C.1 SAR Lab Test Measurement Set-up

- A standard high precision 6-axis robot (Stäubli 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 phantom, the device holder and other accessories according to the targeted measurement.

## C.2. DASY5 E-field Probe System

The SAR measurements were conducted with the dosimetric probe designed in the classical triangular configuration and optimized for dosimetric evaluation. The probe is constructed using the thick film technique; with printed resistive lines on ceramic substrates. The probe is equipped with an optical multifiber line ending at the front of the probe tip. It is connected to the EOC box on the robot arm and provides an automatic detection of the phantom surface. Half of the fibers are connected to a pulsed infrared transmitter, the other half to a synchronized receiver. As the probe approaches the surface, the reflection from the surface produces a coupling from the transmitting to the receiving fibers. This reflection increases first during the approach, reaches maximum and then decreases. If the probe is flatly touching the surface, the coupling is zero. The distance of the coupling maximum to the surface is independent of the surface reflectivity and largely independent of the surface to probe angle. The DASY5 software reads the reflection during a software approach and looks for the maximum using 2<sup>nd</sup> order curve fitting. The approach is stopped at reaching the maximum.

### Probe Specifications:

|                       |                                                                                                            |
|-----------------------|------------------------------------------------------------------------------------------------------------|
| <b>Model:</b>         | <b>ES3DV3, EX3DV4</b>                                                                                      |
| <b>Frequency</b>      | <b>10MHz — 6.0GHz(EX3DV4)</b>                                                                              |
| <b>Range:</b>         | <b>10MHz — 4GHz(ES3DV3)</b>                                                                                |
| <b>Calibration:</b>   | <b>In head and body simulating tissue at<br/>Frequencies from 835 up to 5800MHz</b>                        |
| <b>Linearity:</b>     | <b>± 0.2 dB(30 MHz to 6 GHz) for EX3DV4<br/>± 0.2 dB(30 MHz to 4 GHz) for ES3DV3</b>                       |
| <b>Dynamic Range:</b> | <b>10 mW/kg — 100W/kg</b>                                                                                  |
| <b>Probe Length:</b>  | <b>330 mm</b>                                                                                              |
| <b>Probe Tip</b>      |                                                                                                            |
| <b>Length:</b>        | <b>20 mm</b>                                                                                               |
| <b>Body Diameter:</b> | <b>12 mm</b>                                                                                               |
| <b>Tip Diameter:</b>  | <b>2.5 mm (3.9 mm for ES3DV3)</b>                                                                          |
| <b>Tip-Center:</b>    | <b>1 mm (2.0mm for ES3DV3)</b>                                                                             |
| <b>Application:</b>   | <b>SAR Dosimetry Testing<br/>Compliance tests of mobile phones<br/>Dosimetry in strong gradient fields</b> |



Picture C.2 Near-field Probe



Picture C.3 E-field Probe

### C.3. E-field Probe Calibration

Each E-Probe/Probe Amplifier combination has unique calibration parameters. A TEM cell calibration procedure is conducted to determine the proper amplifier settings to enter in the probe parameters. The amplifier settings are determined for a given frequency by subjecting the probe to a known E-field density (1 mW/cm<sup>2</sup>) using an RF Signal generator, TEM cell, and RF Power Meter.

The free space E-field from amplified probe outputs is determined in a test chamber. This calibration can be performed in a TEM cell if the frequency is below 1 GHz and in a waveguide or other methodologies 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 until the three channels show the maximum reading. The power density readings equates to 1 mW/ cm<sup>2</sup>.

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

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

Where:

$\Delta t$  = Exposure time (30 seconds),

C = Heat capacity of tissue (brain or muscle),

$\Delta T$  = Temperature increase due to RF exposure.

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

Where:

$\sigma$  = Simulated tissue conductivity,

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

## C.4. Other Test Equipment

### C.4.1. Data Acquisition Electronics (DAE)

The data acquisition electronics consist of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16 bit AD-converter and a command decoder with a control logic unit. Transmission to the measurement server is accomplished through an optical downlink for data and status information, as well as an optical uplink for commands and the clock.

The mechanical probe mounting device includes two different sensor systems for frontal and sideways probe contacts. They are used for mechanical surface detection and probe collision detection.

The input impedance of the DAE is 200 MOhm; the inputs are symmetrical and floating. Common mode rejection is above 80 dB.



PictureC.4: DAE

### C.4.2. Robot

The SPEAG DASY system uses the high precision robots (DASY5: RX160L) type from Stäubli SA (France). For the 6-axis controller system, the robot controller version from Stäubli is used. The Stäubli robot series have many features that are important for our application:

- High precision (repeatability 0.02mm)
- High reliability (industrial design)
- Low maintenance costs (virtually maintenance free due to direct drive gears; no belt drives)
- Jerk-free straight movements (brushless synchron motors; no stepper motors)
- Low ELF interference (motor control fields shielded via the closed metallic construction shields)



Picture C.5 DASY 5

### C.4.3. Measurement Server

The Measurement server is based on a PC/104 CPU board with CPU (DASY5: 400 MHz, Intel Celeron), chipdisk (DASY5:128MB), RAM (DASY5:128MB). The necessary circuits for communication with the DAE electronic box, as well as the 16 bit AD converter system for optical detection and digital I/O interface are contained on the DASY I/O board, which is directly connected to the PC/104 bus of the CPU board.

The measurement server performs all real-time data evaluation of field measurements and surface detection, controls robot movements and handles safety operation. The PC operating system cannot interfere with these time critical processes. All connections are supervised by a watchdog, and disconnection of any of the cables to the measurement server will automatically disarm the robot and disable all program-controlled robot movements. Furthermore, the measurement server is equipped with an expansion port which is reserved for future applications. Please note that this expansion port does not have a standardized pinout, and therefore only devices provided by SPEAG can be connected. Devices from any other supplier could seriously damage the measurement server.



Picture C.6 Server for DASY 5

### C.4.4. Device Holder for Phantom

The SAR in the phantom is approximately inversely proportional to the square of the distance between the source and the liquid surface. For a source at 5mm distance, a positioning uncertainty of  $\pm 0.5\text{mm}$  would produce a SAR uncertainty of  $\pm 20\%$ . Accurate device positioning is therefore crucial for accurate and repeatable measurements. The positions in which the devices must be measured are defined by the standards.

The DASY 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 is the ear reference point (ERP). Thus the device needs no repositioning when changing the angles.

The DASY device holder is constructed of low-loss POM material having the following dielectric

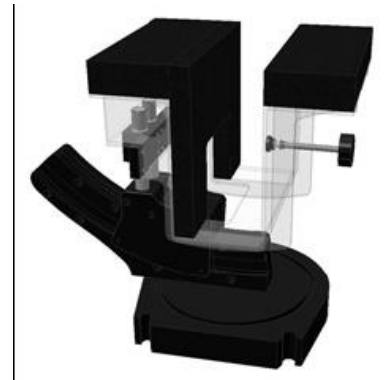
parameters: relative permittivity  $\epsilon = 3$  and loss tangent  $\delta = 0.02$ . The amount of dielectric material has been reduced in the closest vicinity of the device, since measurements have suggested that the influence of the clamp on the test results could thus be lowered.

<Laptop Extension Kit>

The extension is lightweight and made of POM, acrylic glass and foam. It fits easily on the upper part of the Mounting Device in place of the phone positioner. The extension is fully compatible with the Twin-SAM and ELI phantoms.



**Picture C.7-1: Device Holder**



**Picture C.7-2: Laptop Extension Kit**

#### **C.4.5. Phantom**

The SAM Twin Phantom V4.0 is constructed of a fiberglass shell integrated in a table. The shape of the shell is based on data from an anatomical study designed to Represent the 90<sup>th</sup> percentile of the population. The phantom enables the dissymmetric evaluation of SAR for both left and right handed handset usage, as well as body-worn usage using the flat phantom region. 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. The shell phantom has a 2mm shell thickness (except the ear region where shell thickness increases to 6 mm).

Shell Thickness:  $2 \pm 0.2$  mm  
 Filling Volume: Approx. 25 liters  
 Dimensions: 810 x 1000 x 500 mm (H x L x W)  
 Available: Special

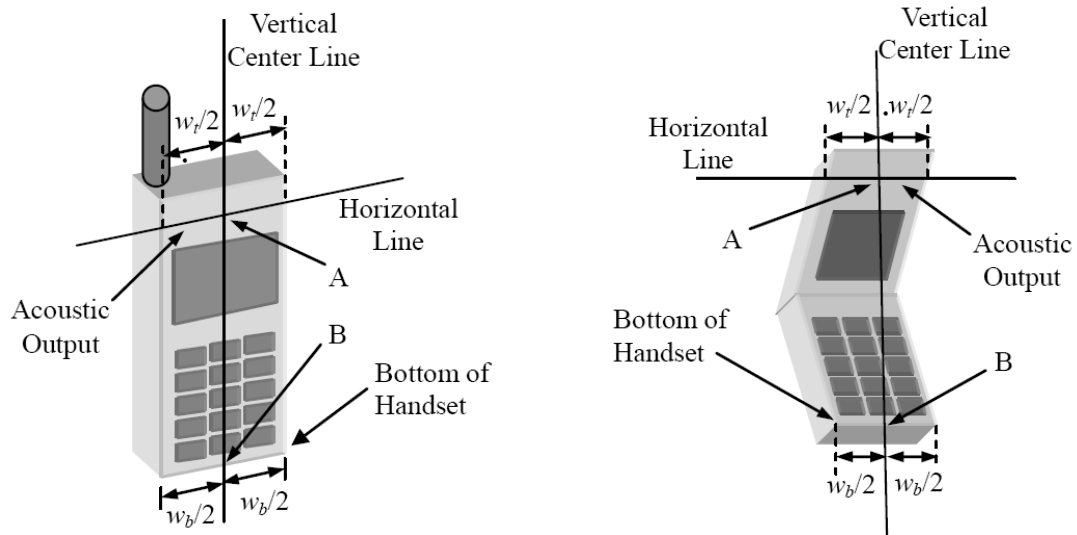


**Picture C.8: SAM Twin Phantom**

## ANNEX D: Position of the wireless device in relation to the phantom

### D.1. General considerations

This standard specifies two handset test positions against the head phantom – the “cheek” position and the “tilt” position.



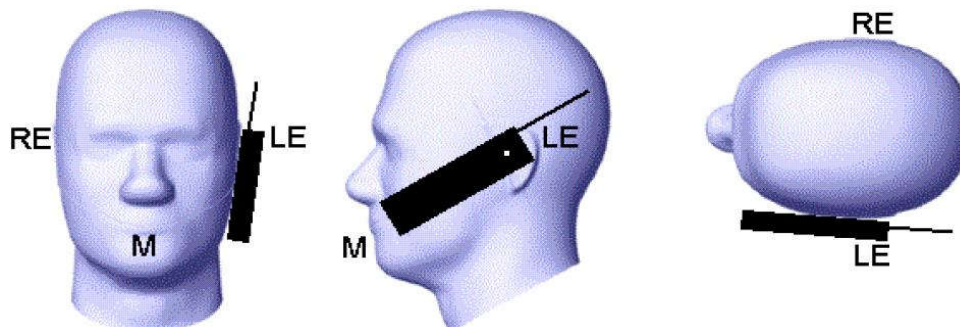
$w_t$  Width of the handset at the level of the acoustic

$w_b$  Width of the bottom of the handset

A Midpoint of the width  $w_t$  of the handset at the level of the acoustic output

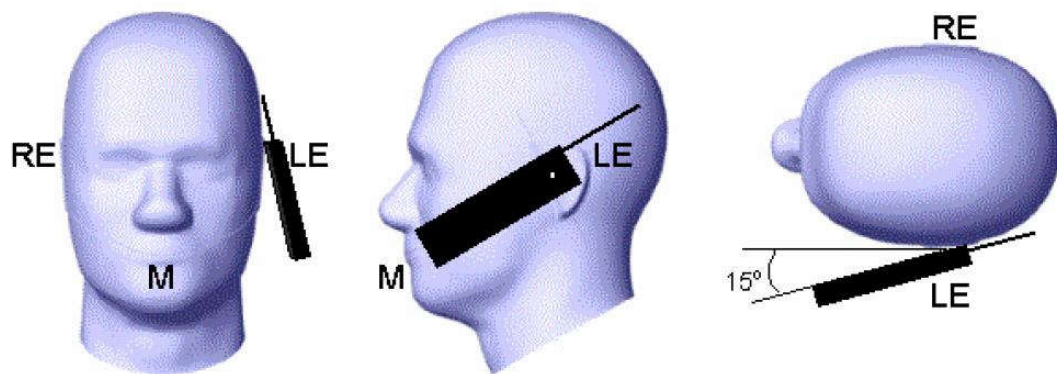
B Midpoint of the width  $w_b$  of the bottom of the handset

Picture D.1-a Typical “fixed” case handset      Picture D.1-b Typical “clam-shell” case handset



Picture D.2 Cheek position of the wireless device on the left side of SAM

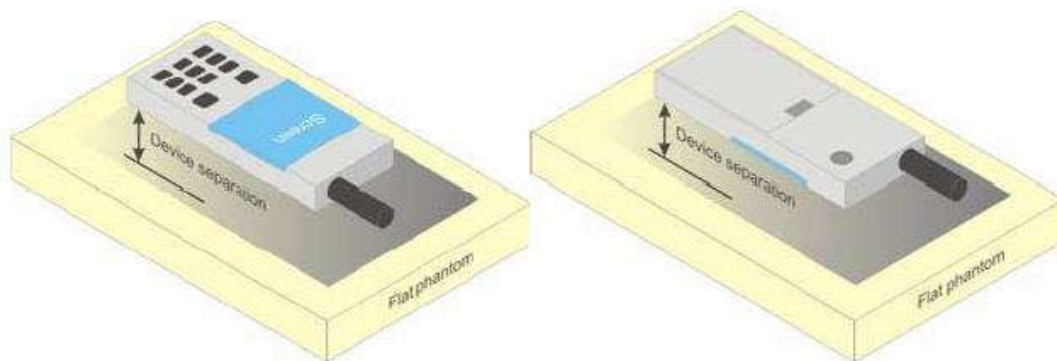




Picture D.3 Tilt position of the wireless device on the left side of SAM

## D.2. Body-worn device

A typical example of a body-worn device is a mobile phone, wireless enabled PDA or other battery operated wireless device with the ability to transmit while mounted on a person's body using a carry accessory approved by the wireless device manufacturer.



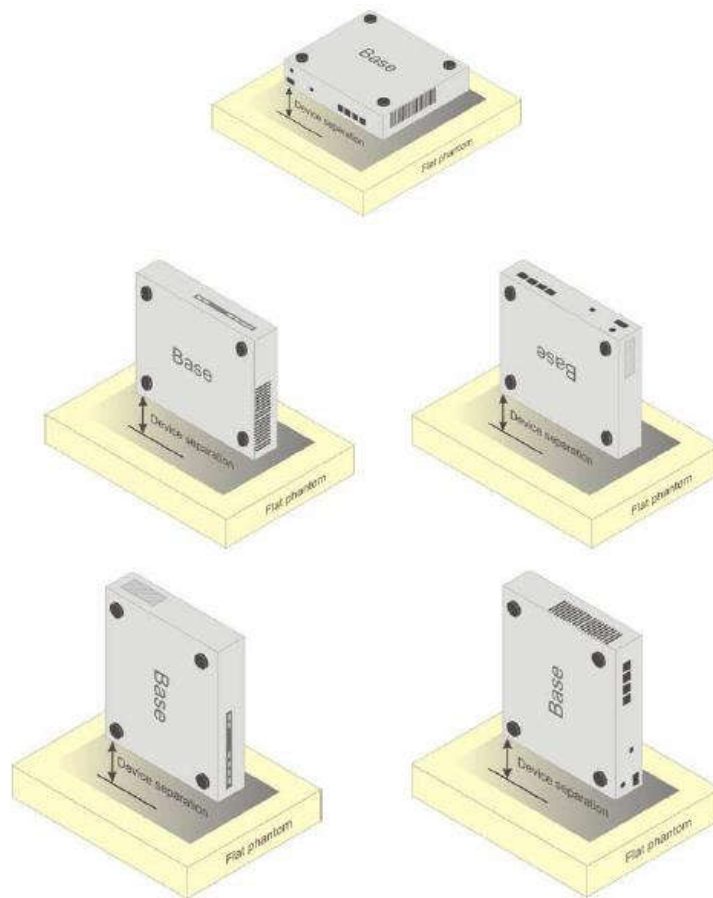
Picture D.4 Test positions for body-worn devices

## D.3. Desktop device

A typical example of a desktop device is a wireless enabled desktop computer placed on a table or desk when used.

The DUT shall be positioned at the distance and in the orientation to the phantom that corresponds to the intended use as specified by the manufacturer in the user instructions. For devices that employ an external antenna with variable positions, tests shall be performed for all antenna positions specified. Picture 8.5 show positions for desktop device SAR tests. If the intended use is not specified, the device shall be tested directly against the flat phantom.





Picture D.5 Test positions for desktop devices

#### D.4. DUT Setup Photos



Picture D.6

## ANNEX E: Equivalent Media Recipes

The liquid used for the frequency range of 700-6000 MHz consisted of water, sugar, salt, preventol, glycol monobutyl and Cellulose. The liquid has been previously proven to be suited for worst-case. The Table E.1 shows the detail solution. It's satisfying the latest tissue dielectric parameters requirements proposed by the IEEE 1528 and IEC 62209.

**Table E.1: Composition of the Tissue Equivalent Matter**

| Frequency (MHz)                    | 835                              | 1750                              | 1900                             | 2450                              | 2600                              | 5200                              | 5800                              |
|------------------------------------|----------------------------------|-----------------------------------|----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|
| Water                              | 41.45                            | 55.242                            | 55.242                           | 58.79                             | 58.79                             | 65.53                             | 66.10                             |
| Sugar                              | 56.0                             | /                                 | /                                | /                                 | /                                 | /                                 | /                                 |
| Salt                               | 1.45                             | 0.306                             | 0.306                            | 0.06                              | 0.06                              |                                   |                                   |
| Preventol                          | 0.1                              | /                                 | /                                | /                                 | /                                 | 17.24                             | 16.95                             |
| Cellulose                          | 1.0                              | /                                 | /                                | /                                 | /                                 | 17.24                             | 16.95                             |
| Glycol Monobutyl                   | /                                | 44.452                            | 44.452                           | 41.15                             | 41.15                             | /                                 | /                                 |
| Diethylenglycol monohexylether     | /                                | /                                 | /                                | /                                 | /                                 | /                                 | /                                 |
| Triton X-100                       | /                                | /                                 | /                                | /                                 | /                                 | /                                 | /                                 |
| Dielectric Parameters Target Value | $\epsilon=41.5$<br>$\sigma=0.90$ | $\epsilon=40.08$<br>$\sigma=1.37$ | $\epsilon=40.0$<br>$\sigma=1.40$ | $\epsilon=39.20$<br>$\sigma=1.80$ | $\epsilon=39.01$<br>$\sigma=1.96$ | $\epsilon=35.99$<br>$\sigma=4.66$ | $\epsilon=35.30$<br>$\sigma=5.27$ |

**Note:** There is a little adjustment respectively for 750, 5300 and 5600, based on the recipe of closest frequency in table E.1

## ANNEX F: System Validation

The SAR system must be validated against its performance specifications before it is deployed. When SAR probes, system components or software are changed, upgraded or recalibrated, these must be validated with the SAR system(s) that operates with such components.

**Table F.1: System Validation**

| Probe SN. | Liquid name  | Validation date | Frequency point | Status (OK or Not) |
|-----------|--------------|-----------------|-----------------|--------------------|
| 7621      | Head 750MHz  | 2022-05-09      | 750MHz          | OK                 |
| 7621      | Head 835MHz  | 2022-05-09      | 835MHz          | OK                 |
| 7621      | Head 1750MHz | 2022-05-09      | 1750MHz         | OK                 |
| 7621      | Head 1900MHz | 2022-05-09      | 1900MHz         | OK                 |
| 7621      | Head 2300MHz | 2022-05-09      | 2300MHz         | OK                 |
| 7621      | Head 2450MHz | 2022-05-08      | 2450MHz         | OK                 |
| 7621      | Head 2550MHz | 2022-05-08      | 2550MHz         | OK                 |
| 7621      | Head 3500MHz | 2022-05-10      | 3500MHz         | OK                 |
| 7621      | Head 3700MHz | 2022-05-10      | 3700MHz         | OK                 |
| 7621      | Head 3900MHz | 2022-05-10      | 3900MHz         | OK                 |
| 7621      | Head 5250MHz | 2022-05-08      | 5250MHz         | OK                 |
| 7621      | Head 5600MHz | 2022-05-08      | 5600MHz         | OK                 |
| 7621      | Head 5750MHz | 2022-05-08      | 5750MHz         | OK                 |

## ANNEX G: DAE Calibration Certificate

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



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

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

Accreditation No.: SCS 0108

Client **Saict-SZ (Auden)**

Certificate No: DAE4-1527\_Jun22

| CALIBRATION CERTIFICATE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                   |                                   |                                                                                                    |                   |      |                            |                       |                               |             |                      |        |                     |      |                       |                 |                           |                    |                            |                        |                     |                    |                            |                        |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------|----------------------------------------------------------------------------------------------------|-------------------|------|----------------------------|-----------------------|-------------------------------|-------------|----------------------|--------|---------------------|------|-----------------------|-----------------|---------------------------|--------------------|----------------------------|------------------------|---------------------|--------------------|----------------------------|------------------------|
| Object                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | DAE4 - SD 000 D04 BM - SN: 1527                                                   |                                   |                                                                                                    |                   |      |                            |                       |                               |             |                      |        |                     |      |                       |                 |                           |                    |                            |                        |                     |                    |                            |                        |
| Calibration procedure(s)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | QA CAL-06.v30<br>Calibration procedure for the data acquisition electronics (DAE) |                                   |                                                                                                    |                   |      |                            |                       |                               |             |                      |        |                     |      |                       |                 |                           |                    |                            |                        |                     |                    |                            |                        |
| Calibration date:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | June 21, 2022                                                                     |                                   |                                                                                                    |                   |      |                            |                       |                               |             |                      |        |                     |      |                       |                 |                           |                    |                            |                        |                     |                    |                            |                        |
| <p>This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).<br/>The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.</p> <p>All calibrations have been conducted in the closed laboratory facility: environment temperature <math>(22 \pm 3)^{\circ}\text{C}</math> and humidity <math>&lt; 70\%</math>.</p> <p>Calibration Equipment used (M&amp;TE critical for calibration)</p> <table border="1"> <thead> <tr> <th>Primary Standards</th> <th>ID #</th> <th>Cal Date (Certificate No.)</th> <th>Scheduled Calibration</th> </tr> </thead> <tbody> <tr> <td>Keithley Multimeter Type 2001</td> <td>SN: 0810278</td> <td>31-Aug-21 (No:31368)</td> <td>Aug-22</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th>Secondary Standards</th> <th>ID #</th> <th>Check Date (In house)</th> <th>Scheduled Check</th> </tr> </thead> <tbody> <tr> <td>Auto DAE Calibration Unit</td> <td>SE UWS 053 AA 1001</td> <td>24-Jan-22 (in house check)</td> <td>In house check: Jan-23</td> </tr> <tr> <td>Calibrator Box V2.1</td> <td>SE UMS 006 AA 1002</td> <td>24-Jan-22 (in house check)</td> <td>In house check: Jan-23</td> </tr> </tbody> </table> |                                                                                   |                                   |                                                                                                    | Primary Standards | ID # | Cal Date (Certificate No.) | Scheduled Calibration | Keithley Multimeter Type 2001 | SN: 0810278 | 31-Aug-21 (No:31368) | Aug-22 | Secondary Standards | ID # | Check Date (In house) | Scheduled Check | Auto DAE Calibration Unit | SE UWS 053 AA 1001 | 24-Jan-22 (in house check) | In house check: Jan-23 | Calibrator Box V2.1 | SE UMS 006 AA 1002 | 24-Jan-22 (in house check) | In house check: Jan-23 |
| Primary Standards                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | ID #                                                                              | Cal Date (Certificate No.)        | Scheduled Calibration                                                                              |                   |      |                            |                       |                               |             |                      |        |                     |      |                       |                 |                           |                    |                            |                        |                     |                    |                            |                        |
| Keithley Multimeter Type 2001                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | SN: 0810278                                                                       | 31-Aug-21 (No:31368)              | Aug-22                                                                                             |                   |      |                            |                       |                               |             |                      |        |                     |      |                       |                 |                           |                    |                            |                        |                     |                    |                            |                        |
| Secondary Standards                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | ID #                                                                              | Check Date (In house)             | Scheduled Check                                                                                    |                   |      |                            |                       |                               |             |                      |        |                     |      |                       |                 |                           |                    |                            |                        |                     |                    |                            |                        |
| Auto DAE Calibration Unit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | SE UWS 053 AA 1001                                                                | 24-Jan-22 (in house check)        | In house check: Jan-23                                                                             |                   |      |                            |                       |                               |             |                      |        |                     |      |                       |                 |                           |                    |                            |                        |                     |                    |                            |                        |
| Calibrator Box V2.1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | SE UMS 006 AA 1002                                                                | 24-Jan-22 (in house check)        | In house check: Jan-23                                                                             |                   |      |                            |                       |                               |             |                      |        |                     |      |                       |                 |                           |                    |                            |                        |                     |                    |                            |                        |
| Calibrated by:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Name<br>Adrian Gehring                                                            | Function<br>Laboratory Technician | Signature<br> |                   |      |                            |                       |                               |             |                      |        |                     |      |                       |                 |                           |                    |                            |                        |                     |                    |                            |                        |
| Approved by:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Sven Kühn                                                                         | Technical Manager                 |               |                   |      |                            |                       |                               |             |                      |        |                     |      |                       |                 |                           |                    |                            |                        |                     |                    |                            |                        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                   |                                   | Issued: June 21, 2022                                                                              |                   |      |                            |                       |                               |             |                      |        |                     |      |                       |                 |                           |                    |                            |                        |                     |                    |                            |                        |
| This calibration certificate shall not be reproduced except in full without written approval of the laboratory.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                   |                                   |                                                                                                    |                   |      |                            |                       |                               |             |                      |        |                     |      |                       |                 |                           |                    |                            |                        |                     |                    |                            |                        |

Certificate No: DAE4-1527\_Jun22

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

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

Accreditation No.: **SCS 0108**

### Glossary

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

### Methods Applied and Interpretation of Parameters

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

### DC Voltage Measurement

A/D - Converter Resolution nominal

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

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

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

| Calibration Factors | X                     | Y                     | Z                     |
|---------------------|-----------------------|-----------------------|-----------------------|
| High Range          | 403.865 ± 0.02% (k=2) | 403.595 ± 0.02% (k=2) | 403.805 ± 0.02% (k=2) |
| Low Range           | 3.95898 ± 1.50% (k=2) | 3.98939 ± 1.50% (k=2) | 3.96763 ± 1.50% (k=2) |

### Connector Angle

|                                           |              |
|-------------------------------------------|--------------|
| Connector Angle to be used in DASY system | 61.0 ° ± 1 ° |
|-------------------------------------------|--------------|



## Appendix (Additional assessments outside the scope of SCS0108)

### 1. DC Voltage Linearity

| High Range        | Reading ( $\mu\text{V}$ ) | Difference ( $\mu\text{V}$ ) | Error (%) |
|-------------------|---------------------------|------------------------------|-----------|
| Channel X + Input | 200037.59                 | 1.98                         | 0.00      |
| Channel X + Input | 20007.61                  | 1.34                         | 0.01      |
| Channel X - Input | -20004.09                 | 1.79                         | -0.01     |
| Channel Y + Input | 200037.45                 | 1.53                         | 0.00      |
| Channel Y + Input | 20002.68                  | -3.42                        | -0.02     |
| Channel Y - Input | -20007.17                 | -1.14                        | 0.01      |
| Channel Z + Input | 200037.73                 | 2.17                         | 0.00      |
| Channel Z + Input | 20005.72                  | -0.34                        | -0.00     |
| Channel Z - Input | -20006.63                 | -0.49                        | 0.00      |

| Low Range         | Reading ( $\mu\text{V}$ ) | Difference ( $\mu\text{V}$ ) | Error (%) |
|-------------------|---------------------------|------------------------------|-----------|
| Channel X + Input | 2001.36                   | -0.15                        | -0.01     |
| Channel X + Input | 201.70                    | 0.16                         | 0.08      |
| Channel X - Input | -198.10                   | 0.49                         | -0.24     |
| Channel Y + Input | 2001.44                   | 0.07                         | 0.00      |
| Channel Y + Input | 201.07                    | -0.21                        | -0.11     |
| Channel Y - Input | -199.66                   | -0.98                        | 0.50      |
| Channel Z + Input | 2001.52                   | 0.21                         | 0.01      |
| Channel Z + Input | 200.61                    | -0.41                        | -0.20     |
| Channel Z - Input | -199.00                   | -0.15                        | 0.07      |

### 2. Common mode sensitivity

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

|           | Common mode<br>Input Voltage (mV) | High Range<br>Average Reading ( $\mu\text{V}$ ) | Low Range<br>Average Reading ( $\mu\text{V}$ ) |
|-----------|-----------------------------------|-------------------------------------------------|------------------------------------------------|
| Channel X | 200                               | -3.95                                           | -5.31                                          |
|           | - 200                             | 5.96                                            | 4.97                                           |
| Channel Y | 200                               | -16.18                                          | -16.25                                         |
|           | - 200                             | 14.41                                           | 14.34                                          |
| Channel Z | 200                               | 3.01                                            | 2.86                                           |
|           | - 200                             | -3.93                                           | -4.13                                          |

### 3. Channel separation

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

|           | Input Voltage (mV) | Channel X ( $\mu\text{V}$ ) | Channel Y ( $\mu\text{V}$ ) | Channel Z ( $\mu\text{V}$ ) |
|-----------|--------------------|-----------------------------|-----------------------------|-----------------------------|
| Channel X | 200                | -                           | -0.68                       | -2.76                       |
| Channel Y | 200                | 5.43                        | -                           | -0.31                       |
| Channel Z | 200                | 10.73                       | 3.29                        | -                           |

#### 4. AD-Converter Values with inputs shorted

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

|           | High Range (LSB) | Low Range (LSB) |
|-----------|------------------|-----------------|
| Channel X | 16059            | 17078           |
| Channel Y | 15965            | 16219           |
| Channel Z | 15888            | 13556           |

#### 5. Input Offset Measurement

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

Input 10M $\Omega$

|           | Average ( $\mu$ V) | min. Offset ( $\mu$ V) | max. Offset ( $\mu$ V) | Std. Deviation ( $\mu$ V) |
|-----------|--------------------|------------------------|------------------------|---------------------------|
| Channel X | 1.40               | 0.30                   | 2.25                   | 0.35                      |
| Channel Y | -0.62              | -1.30                  | 0.47                   | 0.33                      |
| Channel Z | -0.18              | -0.90                  | 0.60                   | 0.31                      |

#### 6. Input Offset Current

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

#### 7. Input Resistance (Typical values for information)

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

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

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

#### 9. Power Consumption (Typical values for information)

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

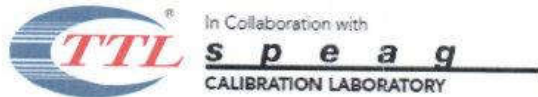


# ANNEX H: Probe Calibration Certificate

|                                                                                                                                                                                                                                                                           |                                                                       |                                                                                                                                                                                                                      |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  In Collaboration with<br><b>s p e a g</b><br>CALIBRATION LABORATORY                                                                                                                     |                                                                       |   中国认可<br>国际互认<br>校准<br>CALIBRATION<br>CNAS L0570 |
| Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China<br>Tel: +86-10-62304633-2117<br>E-mail: cttl@chinattl.com      http://www.caict.ac.cn                                                                                                                |                                                                       |                                                                                                                                                                                                                      |
| Client                                                                                                                                                                                                                                                                    | SAICT                                                                 | Certificate No: Z22-60124                                                                                                                                                                                            |
| <b>CALIBRATION CERTIFICATE</b>                                                                                                                                                                                                                                            |                                                                       |                                                                                                                                                                                                                      |
| Object                                                                                                                                                                                                                                                                    | EX3DV4 - SN : 7621                                                    |                                                                                                                                                                                                                      |
| Calibration Procedure(s)                                                                                                                                                                                                                                                  | FF-Z11-004-02<br>Calibration Procedures for Dosimetric E-field Probes |                                                                                                                                                                                                                      |
| Calibration date:                                                                                                                                                                                                                                                         | May 06, 2022                                                          |                                                                                                                                                                                                                      |
| This calibration Certificate documents the traceability to national standards, which realize the physical units of measurements(SI). The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate. |                                                                       |                                                                                                                                                                                                                      |
| All calibrations have been conducted in the closed laboratory facility: environment temperature(22±3)°C and humidity<70%.                                                                                                                                                 |                                                                       |                                                                                                                                                                                                                      |
| Calibration Equipment used (M&TE critical for calibration)                                                                                                                                                                                                                |                                                                       |                                                                                                                                                                                                                      |
| Primary Standards                                                                                                                                                                                                                                                         | ID #                                                                  | Cal Date(Calibrated by, Certificate No.)                                                                                                                                                                             |
| Power Meter NRP2                                                                                                                                                                                                                                                          | 101919                                                                | 15-Jun-21(CTTL, No.J21X04466)                                                                                                                                                                                        |
| Power sensor NRP-Z91                                                                                                                                                                                                                                                      | 101547                                                                | 15-Jun-21(CTTL, No.J21X04466)                                                                                                                                                                                        |
| Power sensor NRP-Z91                                                                                                                                                                                                                                                      | 101548                                                                | 15-Jun-21(CTTL, No.J21X04466)                                                                                                                                                                                        |
| Reference 10dBAttenuator                                                                                                                                                                                                                                                  | 18N50W-10dB                                                           | 20-Jan-21(CTTL, No.J21X00486)                                                                                                                                                                                        |
| Reference 20dBAttenuator                                                                                                                                                                                                                                                  | 18N50W-20dB                                                           | 20-Jan-21(CTTL, No.J21X00485)                                                                                                                                                                                        |
| Reference Probe EX3DV4                                                                                                                                                                                                                                                    | SN 7464                                                               | 26-Jan-22(SPEAG, No.EX3-7464_Jan22)                                                                                                                                                                                  |
| DAE4                                                                                                                                                                                                                                                                      | SN 1555                                                               | 20-Aug-21(SPEAG, No.DAE4-1555_Aug21/2)                                                                                                                                                                               |
| Scheduled Calibration                                                                                                                                                                                                                                                     |                                                                       |                                                                                                                                                                                                                      |
| Jun-22                                                                                                                                                                                                                                                                    |                                                                       |                                                                                                                                                                                                                      |
| Jun-22                                                                                                                                                                                                                                                                    |                                                                       |                                                                                                                                                                                                                      |
| Jun-22                                                                                                                                                                                                                                                                    |                                                                       |                                                                                                                                                                                                                      |
| Jan-23                                                                                                                                                                                                                                                                    |                                                                       |                                                                                                                                                                                                                      |
| Jan-23                                                                                                                                                                                                                                                                    |                                                                       |                                                                                                                                                                                                                      |
| Jan-23                                                                                                                                                                                                                                                                    |                                                                       |                                                                                                                                                                                                                      |
| Aug-22                                                                                                                                                                                                                                                                    |                                                                       |                                                                                                                                                                                                                      |
| Secondary Standards                                                                                                                                                                                                                                                       | ID #                                                                  | Cal Date(Calibrated by, Certificate No.)                                                                                                                                                                             |
| SignalGenerator MG3700A                                                                                                                                                                                                                                                   | 6201052605                                                            | 16-Jun-21(CTTL, No.J21X04467)                                                                                                                                                                                        |
| Network Analyzer E5071C                                                                                                                                                                                                                                                   | MY46110673                                                            | 14-Jan-22(CTTL, No.J22X00406)                                                                                                                                                                                        |
| Scheduled Calibration                                                                                                                                                                                                                                                     |                                                                       |                                                                                                                                                                                                                      |
| Jun-22                                                                                                                                                                                                                                                                    |                                                                       |                                                                                                                                                                                                                      |
| Jan-23                                                                                                                                                                                                                                                                    |                                                                       |                                                                                                                                                                                                                      |
| Calibrated by:                                                                                                                                                                                                                                                            | Name                                                                  | Function                                                                                                                                                                                                             |
|                                                                                                                                                                                                                                                                           | Yu Zongying                                                           | SAR Test Engineer                                                                                                                                                                                                    |
| Reviewed by:                                                                                                                                                                                                                                                              | Lin Hao                                                               | SAR Test Engineer                                                                                                                                                                                                    |
| Approved by:                                                                                                                                                                                                                                                              | Qi Dianyuan                                                           | SAR Project Leader                                                                                                                                                                                                   |
|                                                                                                                                                                                                                                                                           |                                                                       | Signature                                                                                                                                                                                                            |
|                                                                                                                                                                                                                                                                           |                                                                       |                                                                                                                                 |
|                                                                                                                                                                                                                                                                           |                                                                       |                                                                                                                                 |
|                                                                                                                                                                                                                                                                           |                                                                       |                                                                                                                                 |
| Issued: May 23, 2022                                                                                                                                                                                                                                                      |                                                                       |                                                                                                                                                                                                                      |
| This calibration certificate shall not be reproduced except in full without written approval of the laboratory.                                                                                                                                                           |                                                                       |                                                                                                                                                                                                                      |

Certificate No: Z22-60124

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#### Glossary:

|                       |                                                                                                                                               |
|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| TSL                   | tissue simulating liquid                                                                                                                      |
| NORM <sub>x,y,z</sub> | sensitivity in free space                                                                                                                     |
| ConvF                 | sensitivity in TSL / NORM <sub>x,y,z</sub>                                                                                                    |
| DCP                   | diode compression point                                                                                                                       |
| CF                    | crest factor (1/duty_cycle) of the RF signal                                                                                                  |
| A,B,C,D               | modulation dependent linearization parameters                                                                                                 |
| Polarization $\Phi$   | $\Phi$ rotation around probe axis                                                                                                             |
| Polarization $\theta$ | $\theta$ rotation around an axis that is in the plane normal to probe axis (at measurement center), $i$<br>$\theta=0$ is normal to probe axis |

Connector Angle: information used in DASY system to align probe sensor X to the robot coordinate system

#### Calibration is Performed According to the Following Standards:

- IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
- IEC 62209-1, "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
- IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
- KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

#### Methods Applied and Interpretation of Parameters:

- NORM<sub>x,y,z</sub>:** Assessed for E-field polarization  $\theta=0$  ( $f \leq 900\text{MHz}$  in TEM-cell;  $f > 1800\text{MHz}$ : waveguide). NORM<sub>x,y,z</sub> are only intermediate values, i.e., the uncertainties of NORM<sub>x,y,z</sub> does not effect the  $E^2$ -field uncertainty inside TSL (see below ConvF).
- NORM( $f$ )<sub>x,y,z</sub> = NORM<sub>x,y,z</sub> \* frequency\_response** (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of ConvF.
- DCP<sub>x,y,z</sub>:** DCP are numerical linearization parameters assessed based on the data of power sweep (no uncertainty required). DCP does not depend on frequency nor media.
- PAR:** PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics.
- A<sub>x,y,z</sub>; B<sub>x,y,z</sub>; C<sub>x,y,z</sub>; VR<sub>x,y,z</sub>:** A,B,C are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. VR is the maximum calibration range expressed in RMS voltage across the diode.
- ConvF and Boundary Effect Parameters:** Assessed in flat phantom using E-field (or Temperature Transfer Standard for  $f \leq 800\text{MHz}$ ) and inside waveguide using analytical field distributions based on power measurements for  $f > 800\text{MHz}$ . The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty valued are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to NORM<sub>x,y,z</sub> \* ConvF whereby the uncertainty corresponds to that given for ConvF. A frequency dependent ConvF is used in DASY version 4.4 and higher which allows extending the validity from  $\pm 50\text{MHz}$  to  $\pm 100\text{MHz}$ .
- Spherical isotropy (3D deviation from isotropy):** in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- Sensor Offset:** The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.
- Connector Angle:** The angle is assessed using the information gained by determining the NORM<sub>x</sub> (no uncertainty required).

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## DASY/EASY – Parameters of Probe: EX3DV4 – SN:7621

### Basic Calibration Parameters

|                                                          | Sensor X | Sensor Y | Sensor Z | Unc (k=2) |
|----------------------------------------------------------|----------|----------|----------|-----------|
| Norm( $\mu\text{V}/(\text{V}/\text{m})^2$ ) <sup>A</sup> | 0.71     | 0.71     | 0.56     | ±10.0%    |
| DCP(mV) <sup>B</sup>                                     | 111.7    | 111.8    | 115.7    |           |

### Modulation Calibration Parameters

| UID | Communication System Name |   | A<br>dB | B<br>dB- $\mu\text{V}$ | C   | D<br>dB | VR<br>mV | Unc <sup>E</sup><br>(k=2) |
|-----|---------------------------|---|---------|------------------------|-----|---------|----------|---------------------------|
| 0   | CW                        | X | 0.0     | 0.0                    | 1.0 | 0.00    | 210.8    | ±3.5%                     |
|     |                           | Y | 0.0     | 0.0                    | 1.0 |         | 218.6    |                           |
|     |                           | Z | 0.0     | 0.0                    | 1.0 |         | 190.8    |                           |

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

<sup>A</sup> The uncertainties of Norm X, Y, Z do not affect the E<sup>2</sup>-field uncertainty inside TSL (see Page 4).

<sup>B</sup> Numerical linearization parameter: uncertainty not required.

<sup>E</sup> Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.



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## DASY/EASY – Parameters of Probe: EX3DV4 – SN:7621

### Calibration Parameter Determined in Head Tissue Simulating Media

| f [MHz] <sup>C</sup> | Relative Permittivity <sup>F</sup> | Conductivity (S/m) <sup>F</sup> | ConvF X | ConvF Y | ConvF Z | Alpha <sup>G</sup> | Depth <sup>G</sup> (mm) | Unct. (k=2) |
|----------------------|------------------------------------|---------------------------------|---------|---------|---------|--------------------|-------------------------|-------------|
| 750                  | 41.9                               | 0.89                            | 11.12   | 11.12   | 11.12   | 0.18               | 1.14                    | ±12.1%      |
| 900                  | 41.5                               | 0.97                            | 10.68   | 10.68   | 10.68   | 0.14               | 1.14                    | ±12.1%      |
| 1450                 | 40.5                               | 1.20                            | 9.65    | 9.65    | 9.65    | 0.21               | 0.91                    | ±12.1%      |
| 1750                 | 40.1                               | 1.37                            | 9.22    | 9.22    | 9.22    | 0.31               | 0.90                    | ±12.1%      |
| 1900                 | 40.0                               | 1.40                            | 8.90    | 8.90    | 8.90    | 0.35               | 0.84                    | ±12.1%      |
| 2100                 | 39.8                               | 1.49                            | 8.95    | 8.95    | 8.95    | 0.23               | 1.13                    | ±12.1%      |
| 2300                 | 39.5                               | 1.67                            | 8.60    | 8.60    | 8.60    | 0.44               | 0.78                    | ±12.1%      |
| 2450                 | 39.2                               | 1.80                            | 8.17    | 8.17    | 8.17    | 0.49               | 0.78                    | ±12.1%      |
| 2600                 | 39.0                               | 1.96                            | 7.93    | 7.93    | 7.93    | 0.51               | 0.75                    | ±12.1%      |
| 3300                 | 38.2                               | 2.71                            | 7.74    | 7.74    | 7.74    | 0.45               | 0.92                    | ±13.3%      |
| 3500                 | 37.9                               | 2.91                            | 7.56    | 7.56    | 7.56    | 0.44               | 1.00                    | ±13.3%      |
| 3700                 | 37.7                               | 3.12                            | 7.18    | 7.18    | 7.18    | 0.38               | 1.05                    | ±13.3%      |
| 3900                 | 37.5                               | 3.32                            | 7.26    | 7.26    | 7.26    | 0.35               | 1.35                    | ±13.3%      |
| 4100                 | 37.2                               | 3.53                            | 7.21    | 7.21    | 7.21    | 0.25               | 1.30                    | ±13.3%      |
| 4400                 | 36.9                               | 3.84                            | 7.01    | 7.01    | 7.01    | 0.25               | 1.65                    | ±13.3%      |
| 4600                 | 36.7                               | 4.04                            | 6.90    | 6.90    | 6.90    | 0.30               | 1.72                    | ±13.3%      |
| 4800                 | 36.4                               | 4.25                            | 6.79    | 6.79    | 6.79    | 0.30               | 1.85                    | ±13.3%      |
| 4950                 | 36.3                               | 4.40                            | 6.44    | 6.44    | 6.44    | 0.30               | 1.80                    | ±13.3%      |
| 5250                 | 35.9                               | 4.71                            | 5.98    | 5.98    | 5.98    | 0.35               | 1.63                    | ±13.3%      |
| 5600                 | 35.5                               | 5.07                            | 5.47    | 5.47    | 5.47    | 0.40               | 1.65                    | ±13.3%      |
| 5750                 | 35.4                               | 5.22                            | 5.40    | 5.40    | 5.40    | 0.40               | 1.55                    | ±13.3%      |

<sup>C</sup> Frequency validity above 300 MHz of ±100MHz only applies for DASY v4.4 and higher (Page 2), else it is restricted to ±50MHz. The uncertainty is the RSS of ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ± 10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Above 5 GHz frequency validity can be extended to ± 110 MHz.

<sup>F</sup> At frequency below 3 GHz, the validity of tissue parameters ( $\epsilon$  and  $\sigma$ ) can be relaxed to ±10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters ( $\epsilon$  and  $\sigma$ ) is restricted to ±5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

<sup>G</sup> Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ± 1% for frequencies below 3 GHz and below ± 2% for the frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

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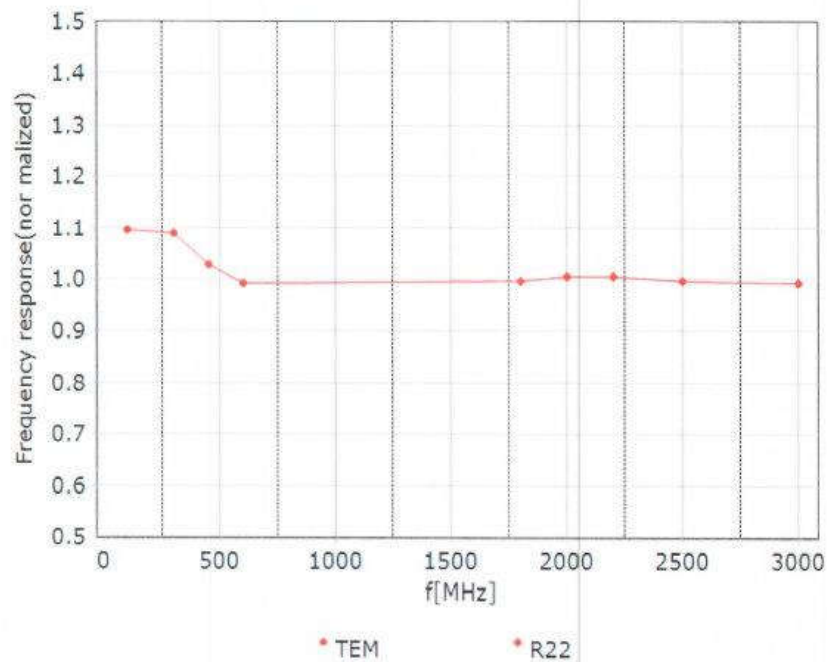


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### Frequency Response of E-Field (TEM-Cell: ifi110 EXX, Waveguide: R22)



Uncertainty of Frequency Response of E-field:  $\pm 7.4\%$  ( $k=2$ )