

# TEST REPORT

Applicant Name : Shenzhen Youmi Intelligent Technology Co., Ltd.  
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Report Number : SZ1231208-73855E-20A  
FCC ID: 2ATZ4-G7TABPRO

## Test Standard (s)

FCC Part 2.1093

## Sample Description

Product Type: Smart Tablet  
Model No.: TG2403GBA  
Multiple Models: N/A  
Trade Mark: UMIDIGI  
Date Received: 2023/12/12  
Date of Test: 2024/03/05-2024/03/07  
Issue Date: 2024/03/15

|              |       |
|--------------|-------|
| Test Result: | Pass* |
|--------------|-------|

\* In the configuration tested, the EUT complied with the standards above.

## Prepared and Checked By:

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Sid Luo  
SAR Engineer

## Approved By:

*Luke Jiang*

Luke Jiang  
SAR Engineer

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| Attestation of Test Results  |   |                                  |              |
|--|---|----------------------------------|--------------|
| MODE   |   | Max. SAR Level(s) Reported(W/kg) | Limit (W/kg) |
| <b>GSM 850</b>   | 1g Body SAR   | 0.64                             | <b>1.6</b>   |
| <b>PCS 1900</b>  | 1g Body SAR   | 0.94                             |              |
| <b>WCDMA Band 2</b>  | 1g Body SAR   | <b>1.02</b>                      |              |
| <b>WCDMA Band 5</b>  | 1g Body SAR   | 0.49                             |              |
| <b>LTE Band 2</b>  | 1g Body SAR   | 0.78                             |              |
| <b>LTE Band 5</b>  | 1g Body SAR   | 0.66                             |              |
| <b>LTE Band 7</b>  | 1g Body SAR   | 0.79                             |              |
| <b>LTE Band 12</b>   | 1g Body SAR   | 0.73                             |              |
| <b>LTE Band 41</b>   | 1g Body SAR   | 0.92                             |              |
| <b>2.4G Wi-Fi</b>  | 1g Body SAR   | 0.38                             |              |
| <b>5.2G Wi-Fi</b>  | 1g Body SAR   | 0.42                             |              |
| <b>5.8G Wi-Fi</b>  | 1g Body SAR   | <b>0.54</b>                      |              |
| <b>Simultaneous</b>  | 1g Body SAR   | <b>1.56</b>                      |              |
| <b>Applicable Standards</b>  | <b>FCC 47 CFR part 2.1093</b><br>Radiofrequency radiation exposure evaluation: portable devices   |                                  |              |
|  | <b>RF Exposure Procedures: TCB Workshop October 2016(Bluetooth Duty Factor)</b>   |                                  |              |
|  | <b>IEEE1528:2013</b><br>IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques  |                                  |              |
|  | <b>KDB procedures</b><br>KDB 447498 D01 General RF Exposure Guidance v06<br>KDB 616217 D04 SAR for laptop and tablets v01r02<br>KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz v01r04<br>KDB 865664 D02 RF Exposure Reporting v01r02<br>KDB 941225 D01 3G SAR Procedures v03r01<br>KDB 941225 D05 SAR for LTE Devices v02r05<br>KDB 248227 D01 802 11 Wi-Fi SAR v02r02 |                                  |              |
| <p><b>Note:</b> This wireless device has been shown to be capable of compliance for localized specific absorption rate (SAR) for General Population/Uncontrolled Exposure limits specified in <b>FCC 47 CFR part 2.1093</b> and has been tested in Accordance with the measurement procedures specified in IEEE 1528-2013 and RF exposure KDB procedures.</p> <p><b>The results and statements contained in this report pertain only to the device(s) evaluated.</b></p> |   |                                  |              |

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**DOCUMENT REVISION HISTORY**

| Revision Number | Report Number        | Description of Revision | Date of Revision |
|-----------------|----------------------|-------------------------|------------------|
| 0               | SZ1231208-73855E-20A | Original Report         | 2024/03/15       |

## EUT DESCRIPTION

This report has been prepared on behalf of *Shenzhen Youmi Intelligent Technology Co., Ltd.* and their product *Smart Tablet*, Model: **TG2403GBA**, SN: **2F2C-1**, FCC: **2ATZ4-G7TABPRO** or the EUT (Equipment under Test) as referred to in the rest of this report.

### Technical Specification

|                               |   |
|-------------------------------|---|
| <b>Device Type:</b>           | Portable  |
| <b>Device Size:</b>           | 256mm x 166mm x 7mm   |
| <b>Exposure Category:</b>     | Population / Uncontrolled   |
| <b>Antenna Type(s):</b>       | Internal Antenna  |
| <b>Power Sensor</b>           | None  |
| <b>DTM Type:</b>              | Class B   |
| <b>Multi-slot Class:</b>      | GPRS/EGPRS(Class 12)  |
| <b>Power Class</b>            | LTE Band 41 for power class 3   |
| <b>Body-Worn Accessories:</b> | Headset   |
| <b>Face-Head Accessories:</b> | None  |
| <b>Proximity Sensor:</b>      | None Proximity Sensor for power reduction   |
| <b>Operation Mode :</b>       | GSM Voice<br>WCDMA( R99 (Voice+Data))<br>FDD-LTE, TDD-LTE, Wi-Fi and Bluetooth  |
| <b>Frequency Band:</b>        | GSM 850: 824-849 MHz(TX); 869-894 MHz(RX)<br>PCS 1900: 1850-1910 MHz(TX); 1930-1990 MHz(RX)<br>WCDMA Band 2: 1850-1910 MHz(TX); 1930-1990 MHz(RX)<br>WCDMA Band 5: 824-849 MHz(TX); 869-894 MHz(RX)<br>LTE Band 2: 1850-1910 MHz(TX); 1930-1990 MHz(RX)<br>LTE Band 5: 824-849 MHz(TX) ; 869-894 MHz (RX)<br>LTE Band 7: 2500-2570MHz(TX); 2620-2690MHz(RX)<br>LTE Band 12: 699-716 MHz(TX) ; 729-746 MHz(RX)<br>LTE Band 41: 2535-2655 MHz(TX&RX)<br>Wi-Fi 2.4G: 2412 -2462 MHz(TX&RX)<br>Wi-Fi 5.2G:5180-5240MHz(TX&RX)<br>Wi-Fi 5.8G:5745-5825MHz(TX&RX)<br>Bluetooth: 2402 -2480 MHz(TX&RX)<br>BLE: 2402 -2480 MHz(TX&RX) |
| <b>Power Source:</b>          | Rechargeable Battery  |
| <b>Normal Operation:</b>      | Body-worn   |

## REFERENCE, STANDARDS, AND GUIDELINES

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### FCC:

The Report and Order requires routine SAR evaluation prior to equipment authorization of portable transmitter devices, including portable telephones. For consumer products, the applicable limit is 1.6 mW/g as recommended by the ANSI/IEEE standard C95.1-1992 [6] for an uncontrolled environment (Paragraph 65). According to the Supplement C of OET Bulletin 65 "Evaluating Compliance with FCC Guide-lines for Human Exposure to Radio frequency Electromagnetic Fields", released on Jun 29, 2001 by the FCC, the device should be evaluated at maximum output power (radiated from the antenna) under "worst-case" conditions for normal or intended use, incorporating normal antenna operating positions, device peak performance frequencies and positions for maximum RF energy coupling.

This report describes the methodology and results of experiments performed on wireless data terminal. The objective was to determine if there is RF radiation and if radiation is found, what is the extent of radiation with respect to safety limits. SAR (Specific Absorption Rate) is the measure of RF exposure determined by the amount of RF energy absorbed by human body (or its parts) – to determine how the RF energy couples to the body or head which is a primary health concern for body worn devices. The limit below which the exposure to RF is considered safe by regulatory bodies in North America is 1.6 mW/g average over 1 gram of tissue mass.

### IC:

The Report and Order requires routine SAR evaluation prior to equipment authorization of portable transmitter devices, including portable telephones. For consumer products, the applicable limit is 1.6 mW/g as recommended by the ISS-102 for an uncontrolled environment. According to the Safety Code 6 Health Canada's Radiofrequency Exposure Guidelines, the device should be evaluated at maximum output power (radiated from the antenna) under "worst-case" conditions for normal or intended use, incorporating normal antenna operating positions, device peak performance frequencies and positions for maximum RF energy coupling.

This report describes the methodology and results of experiments performed on wireless data terminal. The objective was to determine if there is RF radiation and if radiation is found, what is the extent of radiation with respect to safety limits. SAR (Specific Absorption Rate) is the measure of RF exposure determined by the amount of RF energy absorbed by human body (or its parts) – to determine how the RF energy couples to the body or head which is a primary health concern for body worn devices. The limit below which the exposure to RF is considered safe by regulatory bodies in North America is 1.6 mW/g average over 1 gram of tissue mass.

**SAR Limits**

**FCC Limit(1g Tissue)**

| EXPOSURE LIMITS   | SAR (W/kg)   |  |
|---|--|--|
|   | (General Population / Uncontrolled Exposure Environment) | (Occupational / Controlled Exposure Environment) |
| Spatial Average<br>(averaged over the whole body)             | 0.08   | 0.4  |
| Spatial Peak<br>(averaged over any 1 g of tissue)             | <b>1.60</b>  | 8.0  |
| Spatial Peak<br>(hands/wrists/feet/ankles averaged over 10 g) | 4.0  | 20.0   |

**IC Limit(1g Tissue)**

| EXPOSURE LIMITS   | SAR (W/kg)   |  |
|---|--|--|
|   | (General Population / Uncontrolled Exposure Environment) | (Occupational / Controlled Exposure Environment) |
| Spatial Average<br>(averaged over the whole body)             | 0.08   | 0.4  |
| Spatial Peak<br>(averaged over any 1 g of tissue)             | <b>1.60</b>  | 8.0  |
| Spatial Peak<br>(hands/wrists/feet/ankles averaged over 10 g) | 4.0  | 20.0   |

Population/Uncontrolled Environments are defined as locations where there is the exposure of individual who have no knowledge or control of their exposure.

Occupational/Controlled Environments are defined as locations where there is exposure that may be incurred by people who are aware of the potential for exposure (i.e. as a result of employment or occupation).

General Population/Uncontrolled environments Spatial Peak limit 1.6W/kg (FCC&IC) applied to the EUT.

## **FACILITIES**

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The test site used by Bay Area Compliance Laboratories Corp. (Shenzhen) to collect data is located at 5F(B-West) ,6F,7F,the 3rd Phase of Wan Li Industrial Building D,Shihua Rd, FuTian Free Trade Zone, Shenzhen, China

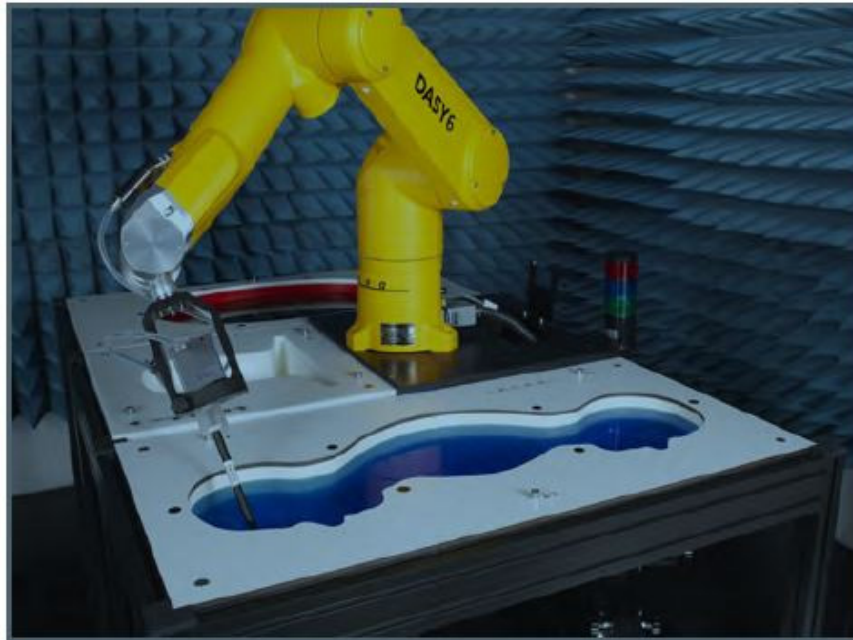
The lab has been recognized as the FCC accredited lab under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No.: 715558, the FCC Designation No.: CN5045.

Each test item follows test standards and with no deviation.



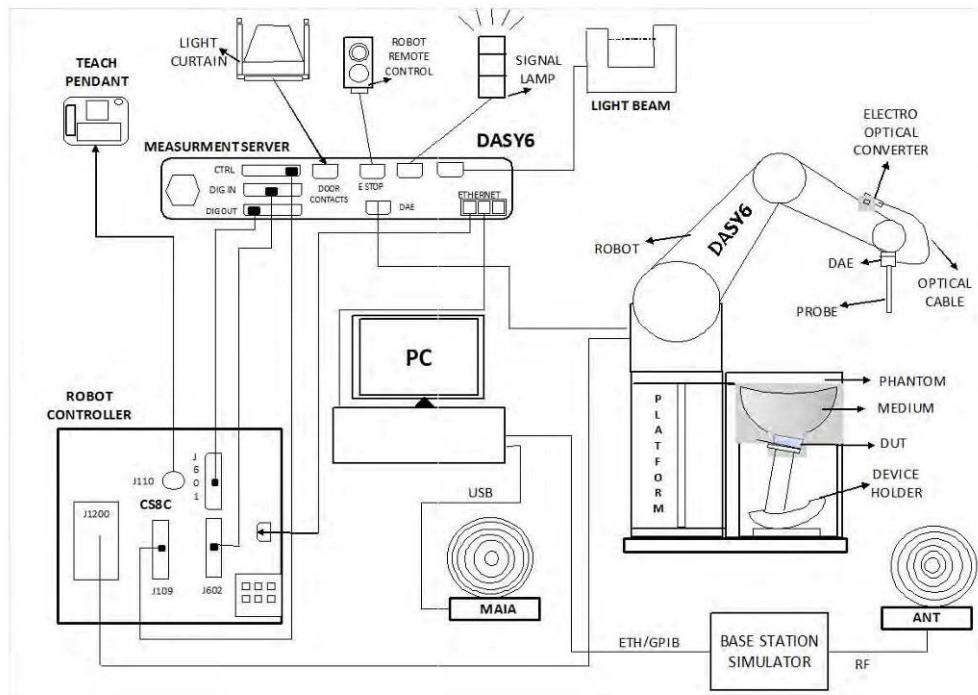
## DESCRIPTION OF TEST SYSTEM

These measurements were performed with the automated near-field scanning system DASY6 from Schmid & Partner Engineering AG (SPEAG) which is the Fifth generation of the system shown in the figure hereinafter:



### DASY6 System Description

The DASY6 system for performing compliance tests consists of the following items:



- A standard high precision 6-axis robot (Staubli TX=RX family) with controller, teach pendant and software. An arm extension for accommodating the data acquisition electronics (DAE).
- An isotropic field probe optimized and calibrated for the targeted measurement.
- A data acquisition electronics (DAE) which performs the signal application, 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 Win7 professional operating system and the DASY52 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.

### DASY6 Measurement Server

The DASY6 measurement server is based on a PC/104 CPU board with a 400 MHz Intel ULV Celeron, 128 MB chip-disk and 128 MB RAM. The necessary circuits for communication with the DAE4 (or DAE3) electronics box, as well as the 16-bit AD converter system for optical detection and digital I/O interface are contained on the DASY6 I/O board, which is directly connected to the PC/104 bus of the CPU board.



The measurement server performs all real-time data evaluations of field measurements and surface detection, controls robot movements, and handles safety operations. 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. Connection of devices from any other supplier could seriously damage the measurement server.

### Data Acquisition Electronics

The data acquisition electronics (DAE4) 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 both the DAE4 as well as of the DAE3 box is 200M $\Omega$ ; the inputs are symmetrical and floating. Common mode rejection is above 80 dB.

**EX3DV4 E-Field Probes**

|                      |   |
|----------------------|---|
| <b>Frequency</b>     | 4 MHz to >10 GHz<br>Linearity: ± 0.2 dB (30 MHz to 10 GHz)  |
| <b>Directivity</b>   | ± 0.1 dB in TSL (rotation around probe axis)<br>± 0.3 dB in TSL (rotation normal to probe axis)   |
| <b>Dynamic Range</b> | 10 µW/g to > 100 mW/g<br>Linearity: ± 0.2 dB (noise: typically < 1 µW/g)  |
| <b>Dimensions</b>    | Overall length: 337 mm (Tip: 20 mm)<br>Tip diameter: 2.5 mm (Body: 12 mm)<br>Typical distance from probe tip to dipole centers: 1 mm  |
| <b>Application</b>   | High precision dosimetric measurements in any exposure scenario (e.g., very strong gradient fields); the only probe that enables compliance testing for frequencies up to 6 GHz with precision of better 30%. |
| <b>Compatibility</b> | DASY3, DASY4, DASY52 SAR and higher, EASY6, EASY4/MRI   |

**SAM Twin Phantom**

The SAM Twin Phantom (shown in front of DASY6) is a fiberglass shell phantom with shell thickness 2 mm, except in the ear region where the thickness is increased to 6 mm. The phantom has three measurement areas: 1) Left Head, 2) Right Head, and 3) Flat Section. For larger devices, the use of the ELI-Phantom (shown behind DASY6) is required. For devices such as glasses with a wireless link, the Face Down Phantom is the most suitable (between the SAM Twin and ELI phantoms).

When the phantom is mounted inside allocated slot of the DASY6 platform, phantom reference points can be taught directly in the DASY5 V5.2 software. When the DASY6 platform is used to mount the

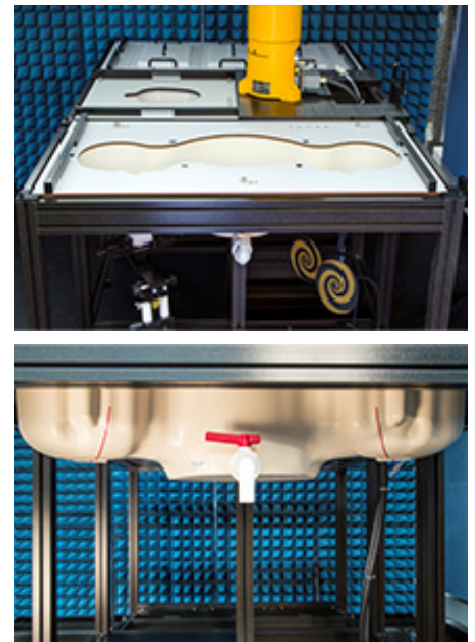
Phantom, some of the phantom teaching points cannot be reached by the robot in DASY5 V5.2. A special tool called P1a-P2aX-Former is provided to transform two of the three points, P1 and P2, to reachable locations. To use these new teaching points, a revised phantom configuration file is required.

In addition to our standard broadband liquids, the phantom can be used with the following tissue simulating liquids:

Sugar-water-based liquids can be left permanently in the phantom. Always cover the liquid when the system is not in use to prevent changes in liquid parameters due to water evaporation.

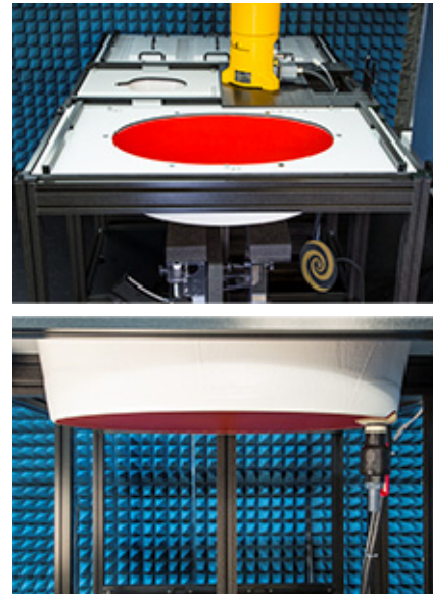
DGBE-based liquids should be used with care. As DGBE is a softener for most plastics, the liquid should be taken out of the phantom, and the phantom should be dried when the system is not in use (desirable at least once a week).

Do not use other organic solvents without previously testing the solvent resistivity of the phantom. Approximately 25 liters of liquid is required to fill the SAM Twin phantom.



## ELI Phantom

The ELI phantom is intended for compliance testing of handheld and body-mounted wireless devices in the frequency range of 30MHz to 6 GHz. ELI is fully compatible with the latest draft of the standard IEC 62209-2 and the use of all known tissue simulating liquids. ELI has been optimized for performance and can be integrated into a SPEAG standard phantom table. A cover is provided to prevent evaporation of water and changes in liquid parameters. Reference markings on the phantom allow installation of the complete setup, including all predefined phantom positions and measurement grids, by teaching three points.



The phantom can be used with the following tissue simulating liquids:

- Sugar-water-based liquids can be left permanently in the phantom. Always cover the liquid when the system is not in use to prevent changes in liquid parameters due to water evaporation.
- DGBE-based liquids should be used with care. As DGBE is a softener for most plastics, the liquid should be taken out of the phantom, and the phantom should be dried when the system is not in use (desirable at least once a week).
- Do not use other organic solvents without previously testing the solvent resistivity of the phantom.

Approximately 25 liters of liquid is required to fill the ELI phantom.

## Robots

The DASY6 system uses the high-precision industrial robots TX60L, TX90XL, and RX160L from Staubli SA (France). The TX robot family - the successor of the well-known RX robot family - continues to offer the features important for DASY6 applications:

- 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 synchrony motors; no stepper motors)
- Low ELF interference (motor control fields shielded via the closed metallic construction shields)

The robots are controlled by the Staubli CS8c robot controllers. All information regarding the use and maintenance of the robot arm and the robot controller is provided

**Calibration Frequency Points for EX3DV4 E-Field Probes SN: 7382 Calibrated: 2023/09/27**

| Calibration Frequency Point(MHz) | Frequency Range(MHz) |      | Conversion Factor |       |       |
|----------------------------------|----------------------|------|-------------------|-------|-------|
|                                  | From                 | To   | X                 | Y     | Z     |
| 750 Head                         | 650                  | 850  | 10.65             | 10.65 | 10.65 |
| 900 Head                         | 850                  | 1000 | 10.19             | 10.19 | 10.19 |
| 1750 Head                        | 1650                 | 1850 | 8.60              | 8.60  | 8.60  |
| 1900 Head                        | 1850                 | 2000 | 8.30              | 8.30  | 8.30  |
| 2300 Head                        | 2200                 | 2400 | 8.16              | 8.16  | 8.16  |
| 2450 Head                        | 2400                 | 2550 | 7.89              | 7.89  | 7.89  |
| 2600 Head                        | 2550                 | 2700 | 7.65              | 7.65  | 7.65  |
| 3300 Head                        | 3200                 | 3400 | 7.39              | 7.39  | 7.39  |
| 3500 Head                        | 3400                 | 3600 | 7.24              | 7.24  | 7.24  |
| 3700 Head                        | 3600                 | 3800 | 7.10              | 7.10  | 7.10  |
| 3900 Head                        | 3800                 | 4000 | 6.98              | 6.98  | 6.98  |
| 5250 Head                        | 5140                 | 5360 | 5.62              | 5.62  | 5.62  |
| 5500 Head                        | 5390                 | 5610 | 5.10              | 5.10  | 5.10  |
| 5750 Head                        | 5640                 | 5860 | 5.08              | 5.08  | 5.08  |

**Area scan parameters**

|  | ≤ 3 GHz   | > 3 GHz   |
|--|---|---|
| Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface | 5 mm ± 1 mm   | $\frac{1}{2} \cdot \delta \cdot \ln(2)$ mm ± 0.5 mm |
| Maximum probe angle from probe axis to phantom surface normal at the measurement location              | 30° ± 1°  | 20° ± 1°  |
| Maximum area scan spatial resolution: $\Delta x_{Area}$ , $\Delta y_{Area}$                            | ≤ 2 GHz: ≤ 15 mm<br>2 – 3 GHz: ≤ 12 mm  | 3 – 4 GHz: ≤ 12 mm<br>4 – 6 GHz: ≤ 10 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 ≤ the corresponding x or y dimension of the test device with at least one measurement point on the test device. |   |

**Zoom scan parameters**

|   |                                    |  |   |
|---|------------------------------------|--|---|
| Maximum zoom scan spatial resolution, normal to phantom surface | uniform grid: $\Delta z_{Zoom}(n)$ |  | ≤ 5 mm<br><br>3 – 4 GHz: ≤ 4 mm<br>4 – 5 GHz: ≤ 3 mm<br>5 – 6 GHz: ≤ 2 mm   |
|   | graded grid                        | $\Delta z_{Zoom}(1)$ : between 1 <sup>st</sup> two points closest to phantom surface | ≤ 4 mm<br><br>3 – 4 GHz: ≤ 3 mm<br>4 – 5 GHz: ≤ 2.5 mm<br>5 – 6 GHz: ≤ 2 mm |
|   |                                    | $\Delta z_{Zoom}(n>1)$ : between subsequent points                                   | ≤ 1.5 · $\Delta z_{Zoom}(n-1)$ mm   |
| Minimum zoom scan volume  | x, y, z                            | ≥ 30 mm<br><br>3 – 4 GHz: ≥ 28 mm<br>4 – 5 GHz: ≥ 25 mm<br>5 – 6 GHz: ≥ 22 mm        |   |

Note:  $\delta$  is the penetration depth of a plane-wave at normal incidence to the tissue medium; see IEEE Std 1528-2013 for details.

\* When zoom scan is required and the *reported* SAR from the *area scan based 1-g SAR estimation* procedures of KDB Publication 447498 is ≤ 1.4 W/kg, ≤ 8 mm, ≤ 7 mm and ≤ 5 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.

### Tissue Dielectric Parameters for Head

The averaging zoom scan volume utilized in the DASY5 software is in the shape of a cube and the side dimension of a 1 g or 10 g mass is dependent on the density of the liquid representing the simulated tissue. A density of 1000 kg/m<sup>3</sup> is used to represent the head and body tissue density and not the phantom liquid density, in order to be consistent with the definition of the liquid dielectric properties, i.e. the side length of the 1g cube is 5mm,with the side length of the 10g cube is 21.5mm.

Zoom Scan Parameters extracted from KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz

|  |                                    |  |   |
|--|------------------------------------|--|---|
| Maximum zoom scan spatial resolution: $\Delta x_{Zoom}, \Delta y_{Zoom}$   |                                    | $\leq 2$ GHz: $\leq 8$ mm<br>2 – 3 GHz: $\leq 5$ mm*                                 | 3 – 4 GHz: $\leq 5$ mm*<br>4 – 6 GHz: $\leq 4$ mm*                            |
| Maximum zoom scan spatial resolution, normal to phantom surface  | uniform grid: $\Delta z_{Zoom}(n)$ | $\leq 5$ mm  | 3 – 4 GHz: $\leq 4$ mm<br>4 – 5 GHz: $\leq 3$ mm<br>5 – 6 GHz: $\leq 2$ mm    |
|  | graded grid                        | $\Delta z_{Zoom}(1)$ : between 1 <sup>st</sup> two points closest to phantom surface | $\leq 4$ mm   |
|  |                                    | $\Delta z_{Zoom}(n>1)$ : between subsequent points                                   | $\leq 1.5 \cdot \Delta z_{Zoom}(n-1)$ mm                                      |
| Minimum zoom scan volume   | x, y, z                            | $\geq 30$ mm   | 3 – 4 GHz: $\geq 28$ mm<br>4 – 5 GHz: $\geq 25$ mm<br>5 – 6 GHz: $\geq 22$ mm |
| <p>Note: <math>\delta</math> is the penetration depth of a plane-wave at normal incidence to the tissue medium; see IEEE Std 1528-2013 for details.</p> <p>* When zoom scan is required and the <i>reported</i> SAR from the <i>area scan based 1-g SAR estimation</i> procedures of KDB Publication 447498 is <math>\leq 1.4</math> W/kg, <math>\leq 8</math> mm, <math>\leq 7</math> mm and <math>\leq 5</math> 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.</p> |                                    |  |   |

## Tissue Dielectric Parameters for Head and Body Phantoms

The head tissue dielectric parameters recommended by the KDB 865664 D01

### Recommended Tissue Dielectric Parameters for Head liquid

| Frequency<br>MHz | Relative permittivity<br>$\epsilon_r$ | Conductivity ( $\sigma$ )<br>S/m |
|------------------|---------------------------------------|----------------------------------|
| 300              | 45,3                                  | 0,87                             |
| 450              | 43,5                                  | 0,87                             |
| <i>750</i>       | <i>41,9</i>                           | <i>0,89</i>                      |
| 835              | 41,5                                  | 0,90                             |
| 900              | 41,5                                  | 0,97                             |
| 1 450            | 40,5                                  | 1,20                             |
| <i>1 500</i>     | <i>40,4</i>                           | <i>1,23</i>                      |
| <i>1 640</i>     | <i>40,2</i>                           | <i>1,31</i>                      |
| <i>1 750</i>     | <i>40,1</i>                           | <i>1,37</i>                      |
| 1 800            | 40,0                                  | 1,40                             |
| 1 900            | 40,0                                  | 1,40                             |
| 2 000            | 40,0                                  | 1,40                             |
| <i>2 100</i>     | <i>39,8</i>                           | <i>1,49</i>                      |
| <i>2 300</i>     | <i>39,5</i>                           | <i>1,67</i>                      |
| 2 450            | 39,2                                  | 1,80                             |
| <i>2 600</i>     | <i>39,0</i>                           | <i>1,96</i>                      |
| 3 000            | 38,5                                  | 2,40                             |
| <i>3 500</i>     | <i>37,9</i>                           | <i>2,91</i>                      |
| <i>4 000</i>     | <i>37,4</i>                           | <i>3,43</i>                      |
| <i>4 500</i>     | <i>36,8</i>                           | <i>3,94</i>                      |
| <i>5 000</i>     | <i>36,2</i>                           | <i>4,45</i>                      |
| <i>5 200</i>     | <i>36,0</i>                           | <i>4,66</i>                      |
| <i>5 400</i>     | <i>35,8</i>                           | <i>4,86</i>                      |
| <i>5 600</i>     | <i>35,5</i>                           | <i>5,07</i>                      |
| <i>5 800</i>     | <i>35,3</i>                           | <i>5,27</i>                      |
| <i>6 000</i>     | <i>35,1</i>                           | <i>5,48</i>                      |

NOTE For convenience, permittivity and conductivity values at those frequencies which are not part of the original data provided by Drossos et al. [33] or the extension to 5 800 MHz are provided (i.e. the values shown *in italics*). These values were linearly interpolated between the values in this table that are immediately above and below these values, except the values at 6 000 MHz that were linearly extrapolated from the values at 3 000 MHz and 5 800 MHz.



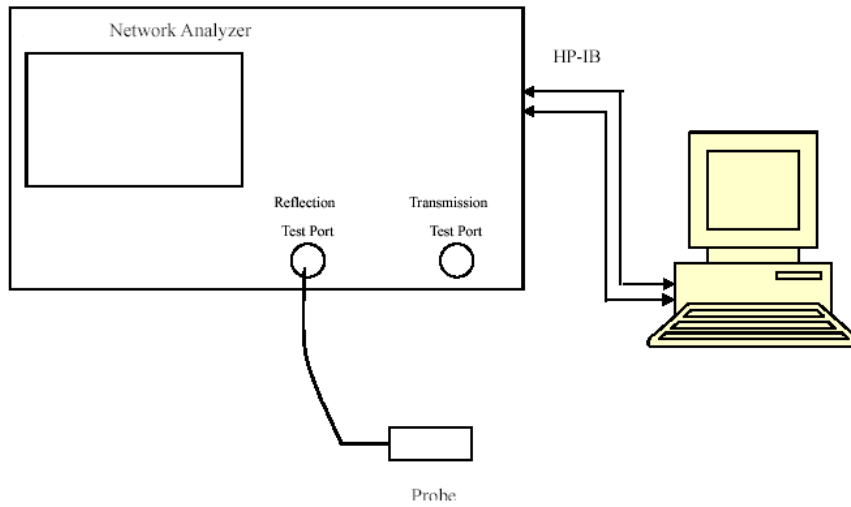
## EQUIPMENT LIST AND CALIBRATION

### Equipments List & Calibration Information

| Equipment                            | Model           | S/N            | Calibration Date | Calibration Due Date |
|--------------------------------------|-----------------|----------------|------------------|----------------------|
| DASY5 Test Software                  | DASY52 52.10.2  | N/A            | NCR              | NCR                  |
| DASY6 Measurement Server             | DASY6 6.0.31    | N/A            | NCR              | NCR                  |
| Data Acquisition Electronics         | DAE4            | 1325           | 2023/9/27        | 2024/9/26            |
| E-Field Probe                        | EX3DV4          | 7382           | 2023/9/27        | 2024/9/26            |
| Mounting Device                      | MD4HHTV5        | SD 000 H01 KA  | NCR              | NCR                  |
| SAM Twin Phantom                     | SAM-Twin V8.0   | 1962           | NCR              | NCR                  |
| Dipole, 750 MHz                      | D750V3          | 1229           | 2023/3/24        | 2026/3/23            |
| Dipole, 1900 MHz                     | D1900V2         | 5d231          | 2023/2/17        | 2026/2/16            |
| Dipole, 2450 MHz                     | D2450V2         | 1103           | 2023/3/27        | 2026/3/26            |
| Dipole,2600 MHz                      | D2600V2         | 1207           | 2023/3/27        | 2026/3/26            |
| Dipole,5GHz                          | D5GHzV2         | 1374           | 2023/3/27        | 2026/3/26            |
| Simulated Tissue Liquid Head         | HBBL600-10000V6 | 180622-2       | Each Time        | /                    |
| Network Analyzer                     | E5071C          | SER MY46519680 | 2023/06/08       | 2024/06/07           |
| Dielectric Assessment Kit            | DAK-3.5         | 1248           | NCR              | NCR                  |
| MXG Analog Signal Generator          | N5181A          | MY48180408     | 2023/06/08       | 2024/06/07           |
| USB wideband power sensor            | U2021XA         | MY52350001     | 2023/06/08       | 2024/06/07           |
| Directional Coupler                  | 855673          | 3307           | NCR              | NCR                  |
| 20dB Attenuator                      | 2               | BH9879         | NCR              | NCR                  |
| RF Power Amplifier                   | 5205FE          | 1014           | NCR              | NCR                  |
| Temperature & Humidity Meter         | DTM3000         | N/A            | 2024/01/16       | 2025/01/15           |
| Universal Radio Communication Tester | CMU200          | 110 825        | 2023/3/31        | 2024/3/30            |
| Wideband Radio Communication Tester  | CMW500          | 149218         | 2023/3/31        | 2024/3/30            |
| Spectrum Analyzer                    | FSV40           | 101943         | 2023/3/31        | 2024/3/30            |

# SAR MEASUREMENT SYSTEM VERIFICATION

## Liquid Verification



Liquid Verification Setup Block Diagram

### Liquid Verification Results

| Frequency (MHz) | Liquid Type                  | Liquid Parameter |                | Target Value |                | Delta (%)          |                      | Tolerance (%) |
|-----------------|------------------------------|------------------|----------------|--------------|----------------|--------------------|----------------------|---------------|
|                 |                              | $\epsilon_r$     | $\sigma$ (S/m) | $\epsilon_r$ | $\sigma$ (S/m) | $\Delta\epsilon_r$ | $\Delta\sigma$ (S/m) |               |
| 704             | Simulated Tissue Liquid Head | 43.495           | 0.869          | 42.18        | 0.89           | 3.12               | -2.36                | ±5            |
| 707.5           | Simulated Tissue Liquid Head | 43.53            | 0.865          | 42.13        | 0.89           | 3.32               | -2.81                | ±5            |
| 711             | Simulated Tissue Liquid Head | 43.565           | 0.869          | 42.11        | 0.89           | 3.46               | -2.36                | ±5            |
| 750             | Simulated Tissue Liquid Head | 43.402           | 0.867          | 41.90        | 0.89           | 3.58               | -2.58                | ±5            |
| 824.2           | Simulated Tissue Liquid Head | 42.677           | 0.925          | 41.55        | 0.90           | 2.71               | 2.78                 | ±5            |
| 826.4           | Simulated Tissue Liquid Head | 42.875           | 0.922          | 41.54        | 0.90           | 3.21               | 2.44                 | ±5            |
| 829             | Simulated Tissue Liquid Head | 42.831           | 0.918          | 41.53        | 0.90           | 3.13               | 2                    | ±5            |
| 836.5           | Simulated Tissue Liquid Head | 42.716           | 0.92           | 41.50        | 0.90           | 2.93               | 2.22                 | ±5            |
| 836.6           | Simulated Tissue Liquid Head | 42.79            | 0.925          | 41.50        | 0.90           | 3.11               | 2.78                 | ±5            |
| 844             | Simulated Tissue Liquid Head | 42.734           | 0.924          | 41.50        | 0.91           | 2.97               | 1.54                 | ±5            |
| 846.6           | Simulated Tissue Liquid Head | 42.631           | 0.918          | 41.50        | 0.91           | 2.73               | 0.88                 | ±5            |
| 848.8           | Simulated Tissue Liquid Head | 42.645           | 0.92           | 41.50        | 0.91           | 2.76               | 1.1                  | ±5            |

\*Liquid Verification above was performed on 2024/03/05.

| Frequency (MHz) | Liquid Type                  | Liquid Parameter |                | Target Value |                | Delta (%)          |                      | Tolerance (%) |
|-----------------|------------------------------|------------------|----------------|--------------|----------------|--------------------|----------------------|---------------|
|                 |                              | $\epsilon_r$     | $\sigma$ (S/m) | $\epsilon_r$ | $\sigma$ (S/m) | $\Delta\epsilon_r$ | $\Delta\sigma$ (S/m) |               |
| 1850.2          | Simulated Tissue Liquid Head | 41.231           | 1.449          | 40.00        | 1.40           | 3.08               | 3.5                  | ±5            |
| 1852.4          | Simulated Tissue Liquid Head | 41.38            | 1.459          | 40.00        | 1.40           | 3.45               | 4.21                 | ±5            |
| 1860            | Simulated Tissue Liquid Head | 41.476           | 1.451          | 40.00        | 1.40           | 3.69               | 3.64                 | ±5            |
| 1880            | Simulated Tissue Liquid Head | 41.379           | 1.459          | 40.00        | 1.40           | 3.45               | 4.21                 | ±5            |
| 1900            | Simulated Tissue Liquid Head | 41.498           | 1.465          | 40.00        | 1.40           | 3.74               | 4.64                 | ±5            |
| 1907.6          | Simulated Tissue Liquid Head | 41.339           | 1.448          | 40.00        | 1.40           | 3.35               | 3.43                 | ±5            |
| 1909.8          | Simulated Tissue Liquid Head | 41.137           | 1.446          | 40.00        | 1.40           | 2.84               | 3.29                 | ±5            |

\*Liquid Verification above was performed on 2024/03/05.

| Frequency (MHz) | Liquid Type                  | Liquid Parameter |                | Target Value |                | Delta (%)          |                      | Tolerance (%) |
|-----------------|------------------------------|------------------|----------------|--------------|----------------|--------------------|----------------------|---------------|
|                 |                              | $\epsilon_r$     | $\sigma$ (S/m) | $\epsilon_r$ | $\sigma$ (S/m) | $\Delta\epsilon_r$ | $\Delta\sigma$ (S/m) |               |
| 2412            | Simulated Tissue Liquid Head | 40.708           | 1.801          | 39.26        | 1.78           | 3.69               | 1.18                 | ±5            |
| 2437            | Simulated Tissue Liquid Head | 40.484           | 1.831          | 39.22        | 1.79           | 3.22               | 2.29                 | ±5            |
| 2450            | Simulated Tissue Liquid Head | 40.159           | 1.839          | 39.20        | 1.80           | 2.45               | 2.17                 | ±5            |
| 2462            | Simulated Tissue Liquid Head | 39.692           | 1.841          | 39.18        | 1.81           | 1.31               | 1.71                 | ±5            |

\*Liquid Verification above was performed on 2024/03/06.

| Frequency (MHz) | Liquid Type                  | Liquid Parameter |                | Target Value |                | Delta (%)          |                      | Tolerance (%) |
|-----------------|------------------------------|------------------|----------------|--------------|----------------|--------------------|----------------------|---------------|
|                 |                              | $\epsilon_r$     | $\sigma$ (S/m) | $\epsilon_r$ | $\sigma$ (S/m) | $\Delta\epsilon_r$ | $\Delta\sigma$ (S/m) |               |
| 2510            | Simulated Tissue Liquid Head | 39.443           | 1.85           | 39.12        | 1.87           | 0.83               | -1.07                | ±5            |
| 2535            | Simulated Tissue Liquid Head | 40.112           | 1.885          | 39.09        | 1.89           | 2.61               | -0.26                | ±5            |
| 2545            | Simulated Tissue Liquid Head | 40.281           | 1.902          | 39.07        | 1.90           | 3.1                | 0.11                 | ±5            |
| 2560            | Simulated Tissue Liquid Head | 40.333           | 1.928          | 39.06        | 1.92           | 3.26               | 0.42                 | ±5            |
| 2570            | Simulated Tissue Liquid Head | 40.537           | 1.943          | 39.03        | 1.94           | 3.86               | 0.15                 | ±5            |
| 2595            | Simulated Tissue Liquid Head | 40.787           | 1.987          | 39.01        | 1.95           | 4.56               | 1.9                  | ±5            |
| 2600            | Simulated Tissue Liquid Head | 40.629           | 1.997          | 39.00        | 1.96           | 4.18               | 1.89                 | ±5            |
| 2620            | Simulated Tissue Liquid Head | 40.268           | 1.999          | 38.99        | 1.97           | 3.28               | 1.47                 | ±5            |
| 2645            | Simulated Tissue Liquid Head | 39.953           | 2.004          | 38.94        | 2.01           | 2.6                | -0.3                 | ±5            |

\*Liquid Verification above was performed on 2024/03/06.

| Frequency (MHz) | Liquid Type                  | Liquid Parameter |                | Target Value |                | Delta (%)          |                | Tolerance (%) |
|-----------------|------------------------------|------------------|----------------|--------------|----------------|--------------------|----------------|---------------|
|                 |                              | $\epsilon_r$     | $\sigma$ (S/m) | $\epsilon_r$ | $\sigma$ (S/m) | $\Delta\epsilon_r$ | $\Delta\sigma$ |               |
| 5180            | Simulated Tissue Liquid Head | 37.529           | 4.786          | 36.02        | 4.65           | 4.19               | 2.92           | ±5            |
| 5200            | Simulated Tissue Liquid Head | 37.361           | 4.794          | 36.00        | 4.66           | 3.78               | 2.88           | ±5            |
| 5240            | Simulated Tissue Liquid Head | 37.399           | 4.81           | 35.96        | 4.70           | 4                  | 2.34           | ±5            |
| 5250            | Simulated Tissue Liquid Head | 36.08            | 4.876          | 35.95        | 4.71           | 0.36               | 3.52           | ±5            |

\*Liquid Verification above was performed on 2024/03/06.

| Frequency (MHz) | Liquid Type                  | Liquid Parameter |                | Target Value |                | Delta (%)          |                | Tolerance (%) |
|-----------------|------------------------------|------------------|----------------|--------------|----------------|--------------------|----------------|---------------|
|                 |                              | $\epsilon_r$     | $\sigma$ (S/m) | $\epsilon_r$ | $\sigma$ (S/m) | $\Delta\epsilon_r$ | $\Delta\sigma$ |               |
| 5745            | Simulated Tissue Liquid Head | 35.658           | 5.188          | 35.36        | 5.21           | 0.84               | -0.42          | ±5            |
| 5785            | Simulated Tissue Liquid Head | 36.164           | 5.271          | 35.32        | 5.26           | 2.39               | 0.21           | ±5            |
| 5800            | Simulated Tissue Liquid Head | 36.047           | 5.268          | 35.30        | 5.27           | 2.12               | -0.04          | ±5            |
| 5825            | Simulated Tissue Liquid Head | 36.244           | 5.265          | 35.28        | 5.29           | 2.73               | -0.47          | ±5            |

\*Liquid Verification above was performed on 2024/03/07.

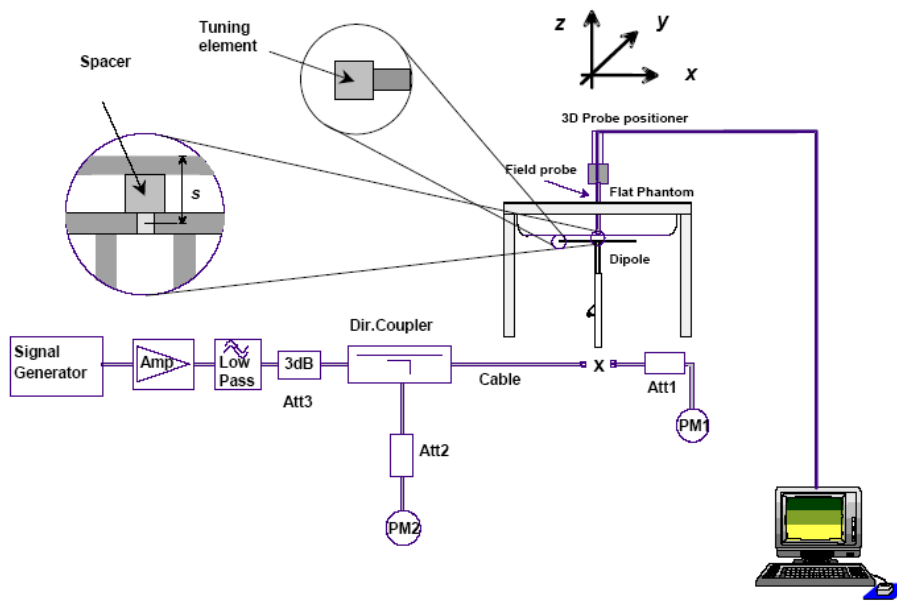
### System Accuracy Verification

Prior to the assessment, the system validation kit was used to test whether the system was operating within its specifications of  $\pm 10\%$ . The validation results are tabulated below. And also the corresponding SAR plot is attached as well in the SAR plots files.

The spacing distances in the **System Verification Setup Block Diagram** is given by the following:

- a)  $s = 15 \text{ mm} \pm 0,2 \text{ mm}$  for  $300 \text{ MHz} \leq f \leq 1 \text{ 000 MHz}$ ;
- b)  $s = 10 \text{ mm} \pm 0,2 \text{ mm}$  for  $1 \text{ 000 MHz} < f \leq 6 \text{ 000 MHz}$ ;

### System Verification Setup Block Diagram



### System Accuracy Check Results

| Date       | Frequency Band | Liquid Type | Input Power (mW) | Measured SAR (W/kg) |       | Normalized to 1W (W/kg) | Target Value (W/kg) | Delta (%) | Tolerance (%) |
|------------|----------------|-------------|------------------|---------------------|-------|-------------------------|---------------------|-----------|---------------|
| 2024/03/05 | 750 MHz        | Head        | 100              | 1g                  | 0.859 | 8.59                    | 8.41                | 2.140     | $\pm 10$      |
| 2024/03/05 | 1900 MHz       | Head        | 100              | 1g                  | 4.12  | 41.2                    | 39.9                | 3.258     | $\pm 10$      |
| 2024/03/06 | 2450 MHz       | Head        | 100              | 1g                  | 5.45  | 54.5                    | 51.7                | 5.416     | $\pm 10$      |
| 2024/03/06 | 2600 MHz       | Head        | 100              | 1g                  | 5.73  | 57.3                    | 55.2                | 3.804     | $\pm 10$      |
| 2024/03/06 | 5250 MHz       | Head        | 100              | 1g                  | 7.86  | 78.6                    | 80.1                | -1.873    | $\pm 10$      |
| 2024/03/07 | 5800 MHz       | Head        | 100              | 1g                  | 7.94  | 79.4                    | 81.4                | -2.457    | $\pm 10$      |

\*The SAR values above are normalized to 1 Watt forward power.

## SAR SYSTEM VALIDATION DATA

### System Performance 750 MHz

**DUT: Dipole 750 MHz; Type: D750V3; Serial: 1229**

Communication System: UID 0, CW (0); Frequency: 750 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 750 \text{ MHz}$ ;  $\sigma = 0.867 \text{ S/m}$ ;  $\epsilon_r = 43.402$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7382; ConvF(10.65, 10.65, 10.65) @ 750 MHz;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1325; Calibrated: 9/27/2023
- Phantom: SAM-Twin V8.0 P1aP2a; Type: QD 000 P41 AA ; Serial: 1962
- Measurement SW: DASY52, Version 52.10 (2);

**Configuration/Head 750MHz Pin=100mW/Area Scan (11x19x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 0.877 W/kg

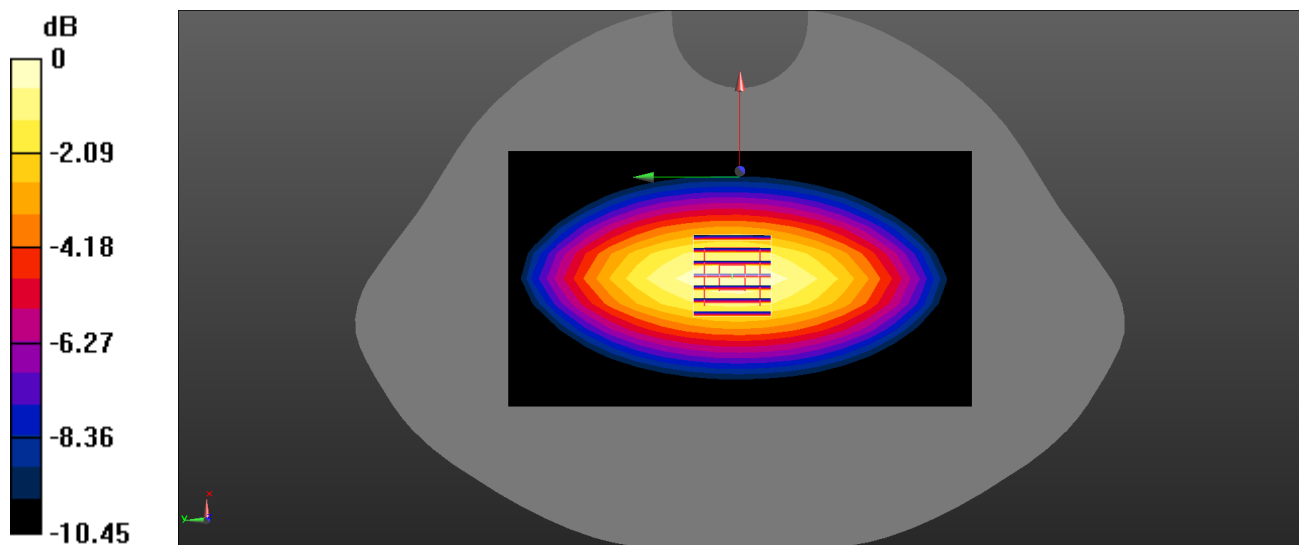
**Configuration/Head 750MHz Pin=100mW/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 32.73 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 1.25 W/kg

**SAR(1 g) = 0.871 W/kg; SAR(10 g) = 0.539 W/kg**

Maximum value of SAR (measured) = 0.887 W/kg



0 dB = 0.887 W/kg = -0.52 dBW/kg

**System Performance 1900MHz**

**DUT: Dipole 1900 MHz; Type: D1900V2; Serial: 5d231**

Communication System: UID 0, CW (0); Frequency: 1900 MHz;Duty Cycle: 1:1

Medium parameters used:  $f = 1900 \text{ MHz}$ ;  $\sigma = 1.465 \text{ S/m}$ ;  $\epsilon_r = 41.498$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7382; ConvF(8.3, 8.3, 8.3) @ 1900 MHz;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1325; Calibrated: 9/27/2023
- Phantom: SAM-Twin V8.0 P1aP2a; Type: QD 000 P41 AA ; Serial: 1962
- Measurement SW: DASY52, Version 52.10 (2);

**Configuration/Head 1900MHz Pin=100mW/Area Scan (9x13x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 6.99 W/kg

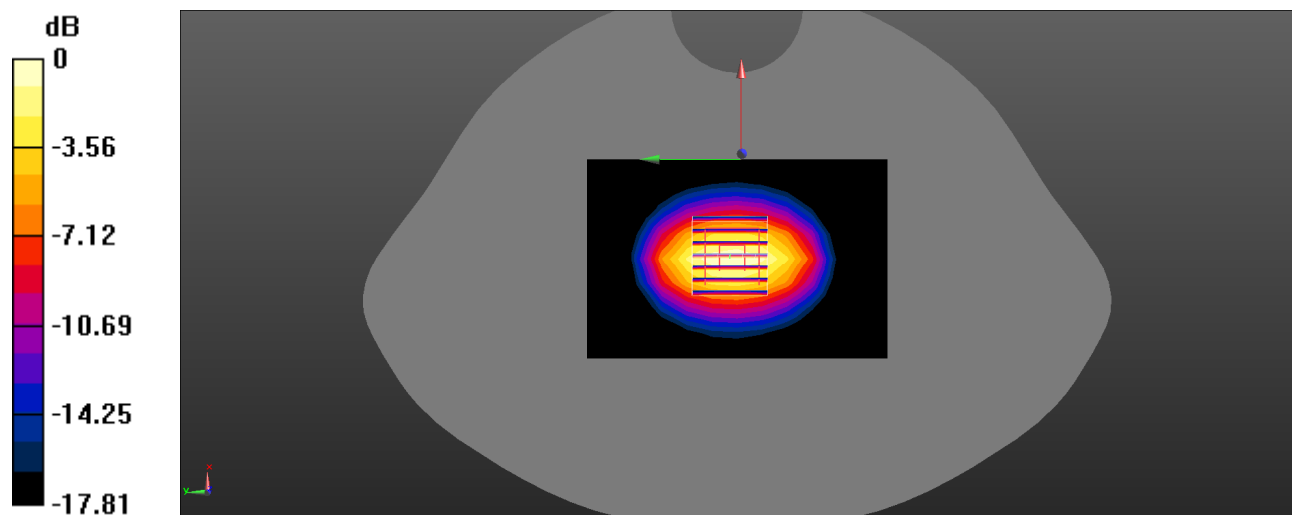
**Configuration/Head 1900MHz Pin=100mW/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 59.45 V/m; Power Drift = -0.19 dB

Peak SAR (extrapolated) = 8.23 W/kg

**SAR(1 g) = 4.12 W/kg; SAR(10 g) = 2.25 W/kg**

Maximum value of SAR (measured) = 6.84 W/kg



0 dB = 6.84 W/kg = 8.35 dBW/kg

**System Performance 2450MHz**

**DUT: Dipole 2450 MHz; Type: D2450V2; Serial: 1103**

Communication System: UID 0, CW (0); Frequency: 2450 MHz;Duty Cycle: 1:1

Medium parameters used:  $f = 2450 \text{ MHz}$ ;  $\sigma = 1.839 \text{ S/m}$ ;  $\epsilon_r = 40.159$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7382; ConvF(7.89, 7.89, 7.89) @ 2450 MHz;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1325; Calibrated: 9/27/2023
- Phantom: SAM-Twin V8.0 P1aP2a; Type: QD 000 P41 AA ; Serial: 1962
- Measurement SW: DASY52, Version 52.10 (2);

**Configuration/Head 2450MHz Pin=100mW/Area Scan (9x10x1):** Measurement grid:  $dx=10\text{mm}$ ,  $dy=10\text{mm}$

Maximum value of SAR (measured) = 9.03 W/kg

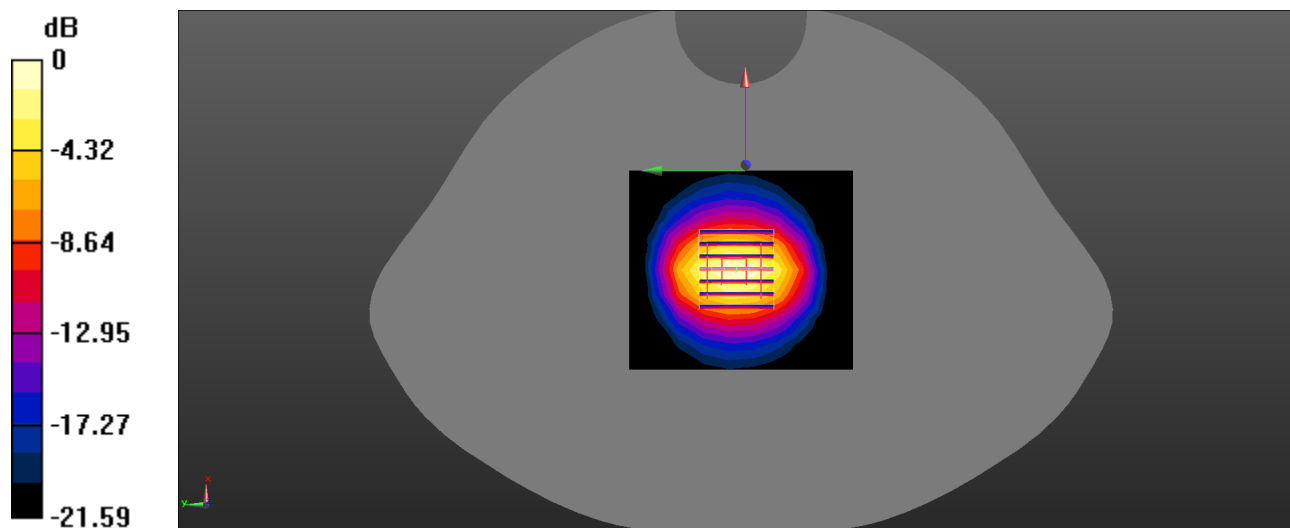
**Configuration/Head 2450MHz Pin=100mW/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 60.86 V/m; Power Drift = -0.14 dB

Peak SAR (extrapolated) = 11.0 W/kg

**SAR(1 g) = 5.45 W/kg; SAR(10 g) = 2.53 W/kg**

Maximum value of SAR (measured) = 8.98 W/kg



0 dB = 8.98 W/kg = 9.53 dBW/kg



## System Performance 2600MHz

**DUT: Dipole 2600 MHz; Type: D2600V2; Serial: 1207**

Communication System: UID 0, CW (0); Frequency: 2600 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 2600$  MHz;  $\sigma = 1.997$  S/m;  $\epsilon_r = 40.629$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7382; ConvF(7.65, 7.65, 7.65) @ 2600 MHz;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1325; Calibrated: 9/27/2023
- Phantom: SAM-Twin V8.0 P1aP2a; Type: QD 000 P41 AA ; Serial: 1962
- Measurement SW: DASY52, Version 52.10 (2);

**Configuration/Head 2600MHz Pin=100mW/Area Scan (9x10x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 8.28 W/kg

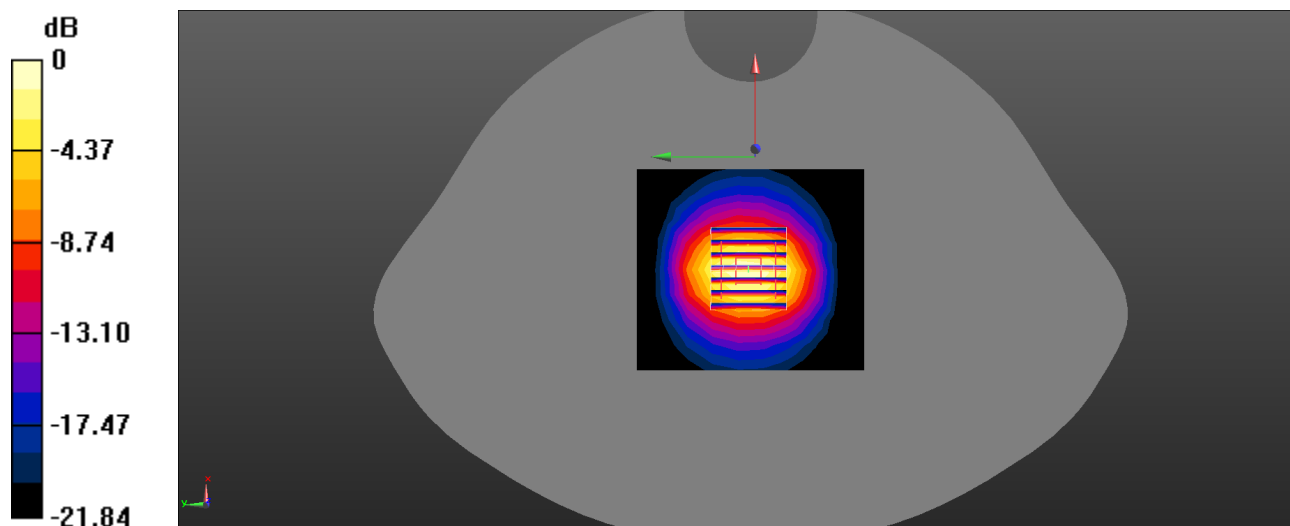
**Configuration/Head 2600MHz Pin=100mW/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 58.47 V/m; Power Drift = -0.19 dB

Peak SAR (extrapolated) = 10.2 W/kg

**SAR(1 g) = 5.73 W/kg; SAR(10 g) = 2.38 W/kg**

Maximum value of SAR (measured) = 8.46 W/kg



0 dB = 8.46 W/kg = 9.27 dBW/kg

**System Performance 5250 MHz**

**DUT: Dipole D5GHz; Type: D5GHzV2; Serial: 1374**

Communication System: UID 0, CW (0); Frequency: 5250 MHz;Duty Cycle: 1:1  
 Medium parameters used:  $f = 5250 \text{ MHz}$ ;  $\sigma = 4.876 \text{ S/m}$ ;  $\epsilon_r = 36.08$ ;  $\rho = 1000 \text{ kg/m}^3$   
 Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7382; ConvF(5.62, 5.62, 5.62) @ 5250 MHz;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1325; Calibrated: 9/27/2023
- Phantom: SAM-Twin V8.0 P1aP2a; Type: QD 000 P41 AA ; Serial: 1962
- Measurement SW: DASY52, Version 52.10 (2);

**Configuration/Head 5250MHz Pin=100mW/Area Scan (7x9x1):** Measurement grid:  $dx=10\text{mm}$ ,  $dy=10\text{mm}$   
 Maximum value of SAR (measured) = 15.2 W/kg

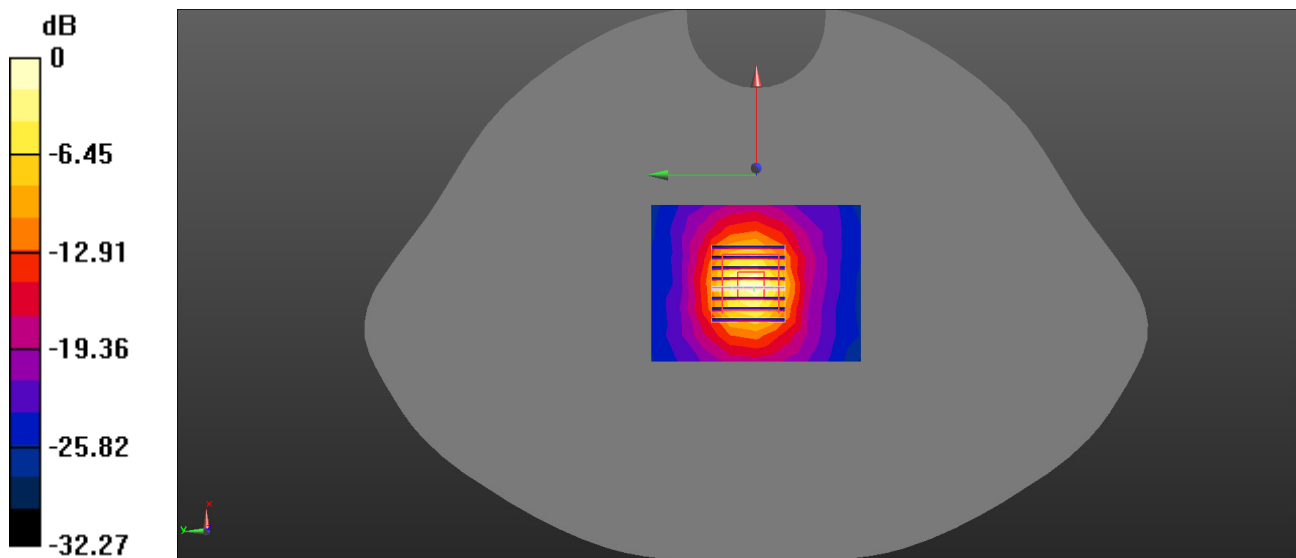
**Configuration/Head 5250MHz Pin=100mW/Zoom Scan (8x8x12)/Cube 0:** Measurement grid:  $dx=4\text{mm}$ ,  $dy=4\text{mm}$ ,  
 $dz=2\text{mm}$

Reference Value = 43.71 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 29.5 W/kg

**SAR(1 g) = 7.86 W/kg; SAR(10 g) = 2.28 W/kg**

Maximum value of SAR (measured) = 15.2 W/kg



0 dB = 15.2 W/kg = 11.82 dBW/kg

**System Performance 5800 MHz**

**DUT: Dipole D5GHz; Type: D5GHzV2; Serial: 1374**

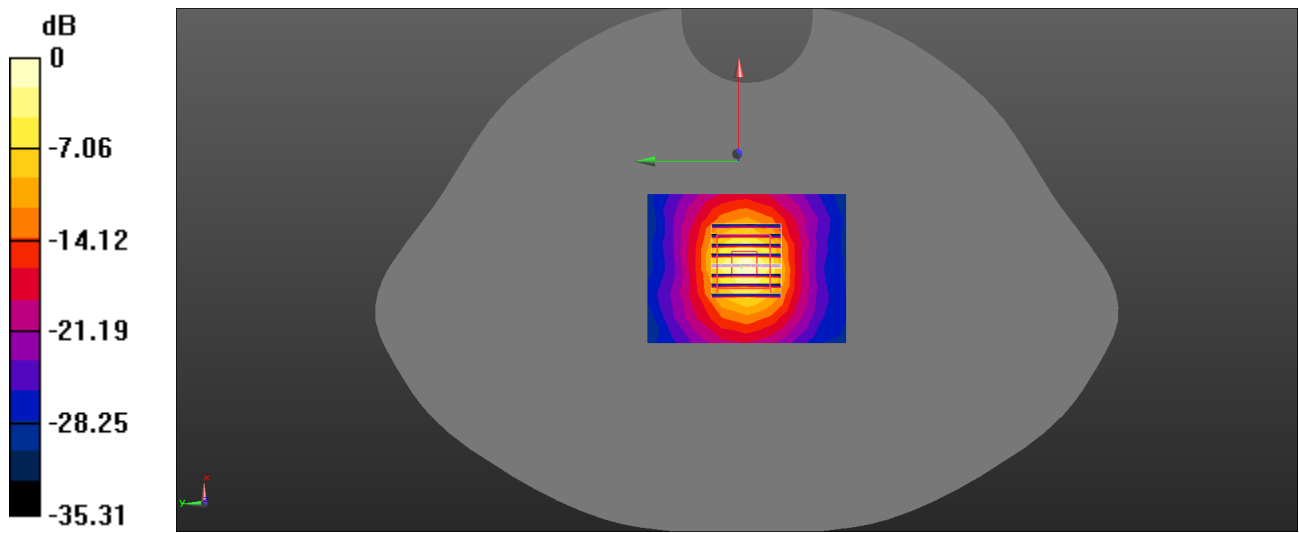
Communication System: UID 0, CW (0); Frequency: 5800 MHz;Duty Cycle: 1:1  
 Medium parameters used:  $f = 5800 \text{ MHz}$ ;  $\sigma = 5.268 \text{ S/m}$ ;  $\epsilon_r = 36.047$ ;  $\rho = 1000 \text{ kg/m}^3$   
 Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7382; ConvF(5.08, 5.08, 5.08) @ 5800 MHz;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1325; Calibrated: 9/27/2023
- Phantom: SAM-Twin V8.0 P1aP2a; Type: QD 000 P41 AA ; Serial: 1962
- Measurement SW: DASY52, Version 52.10 (2);

**Configuration/Head 5800MHz Pin=100mW/Area Scan (7x9x1):** Measurement grid:  $dx=10\text{mm}$ ,  $dy=10\text{mm}$   
 Maximum value of SAR (measured) = 21.4 W/kg

**Configuration/Head 5800MHz Pin=100mW/Zoom Scan (8x8x12)/Cube 0:** Measurement grid:  $dx=4\text{mm}$ ,  $dy=4\text{mm}$ ,  
 $dz=2\text{mm}$   
 Reference Value = 42.44 V/m; Power Drift = -0.03 dB  
 Peak SAR (extrapolated) = 35.2 W/kg  
**SAR(1 g) = 7.94 W/kg; SAR(10 g) = 2.43 W/kg**  
 Maximum value of SAR (measured) = 21.1 W/kg



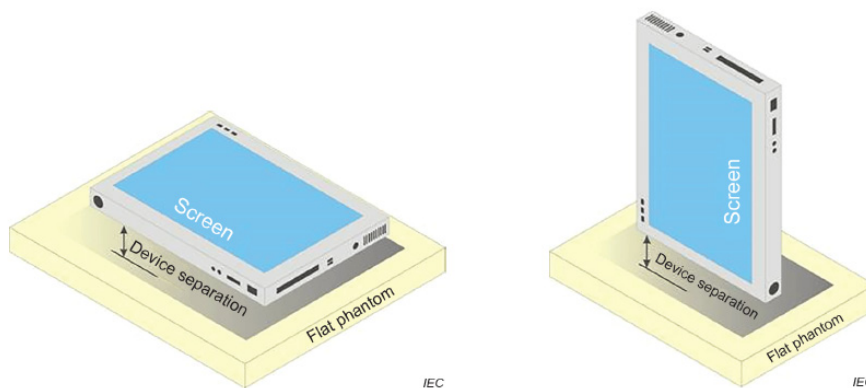
0 dB = 21.1 W/kg = 13.24 dBW/kg

## EUT TEST STRATEGY AND METHODOLOGY

### Test positions for body-worn and other configurations

Body-worn operating configurations should be tested with the belt-clips and holsters attached to the device and positioned against a flat phantom in normal use configurations. Devices with a headset output should be tested with a headset connected to the device. When multiple accessories that do not contain metallic components are supplied with the device, the device may be tested with only the accessory that dictates the closest spacing to the body. When multiple accessories that contain metallic components are supplied with the device, the device must be tested with each accessory that contains a unique metallic component. If multiple accessories share an identical metallic component (e.g., the same metallic belt-clip used with different holsters with no other metallic components), only the accessory that dictates the closest spacing to the body must be tested.

Body-worn accessories may not always be supplied or available as options for some devices that are intended to be authorized for body-worn use. A separation distance of 1.5 cm between the back of the device and a flat phantom is recommended for testing body-worn SAR compliance under such circumstances. Other separation distances may be used, but they should not exceed 2.5 cm. In these cases, the device may use body-worn accessories that provide a separation distance greater than that tested for the device provided however that the accessory contains no metallic components.



a) Tablet form factor portable computer

### Test Distance for SAR Evaluation

For this case the EUT(Equipment Under Test) is set 0mm away from the phantom, the test distance is 0mm.

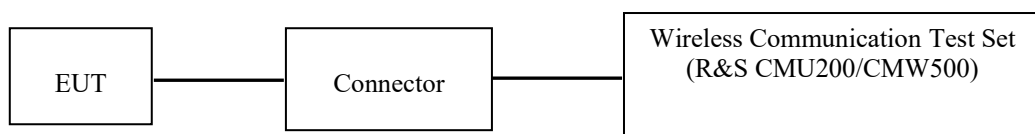
## SAR Evaluation Procedure

The evaluation was performed with the following procedure:

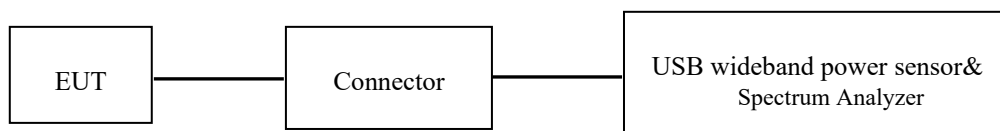
- Step 1: Measurement of the SAR value at a fixed location above the ear point or central position was used as a reference value for assessing the power drop. The SAR at this point is measured at the start of the test and then again at the end of the testing.
- Step 2: The SAR distribution at the exposed side of the head was measured at a distance of 4 mm from the inner surface of the shell. The area covered the entire dimension of the head or radiating structures of the EUT, the horizontal grid spacing was 15 mm x 15 mm, and the SAR distribution was determined by integrated grid of 1.5mm x 1.5mm. Based on these data, the area of the maximum absorption was determined by spline interpolation. The first Area Scan covers the entire dimension of the EUT to ensure that the hotspot was correctly identified.
- Step 3: Around this point, a volume of 30 mm x 30 mm x 30 mm was assessed by measuring 7x 7 x 7 points. On the basis of this data set, the spatial peak SAR value was evaluated under the following procedure:
- 1) The data at the surface were extrapolated, since the center of the dipoles is 1.2 mm away from the tip of the probe and the distance between the surface and the lowest measuring point is 1.3 mm. The extrapolation was based on a least square algorithm. A polynomial of the fourth order was calculated through the points in z-axes. This polynomial was then used to evaluate the points between the surface and the probe tip.
  - 2) The maximum interpolated value was searched with a straightforward algorithm. Around this maximum the SAR values averaged over the spatial volumes (1 g or 10 g) were computed by the 3D-Spline interpolation algorithm. The 3D-Spline is composed of three one dimensional splines with the "Not a knot"-condition (in x, y and z-directions). The volume was integrated with the trapezoidal-algorithm. One thousand points (10 x 10 x 10) were interpolated to calculate the averages.
- All neighboring volumes were evaluated until no neighboring volume with a higher average value was found.
- Step 4: Re-measurement of the SAR value at the same location as in Step 1. If the value changed by more than 5%, the evaluation was repeated.

## CONDUCTED OUTPUT POWER MEASUREMENT

### Test Procedure



### GSM/WCDMA/LTE



### WLAN/ Bluetooth

### Radio Configuration

The power measurement was configured by the Wireless Communication Test Set.

### GSM/GPRS

Function: Menu select > GSM Mobile Station > GSM 850/1900

Press Connection control to choose the different menus

Press RESET > choose all the reset all settings

Connection Press Signal Off to turn off the signal and change settings

Network Support > GSM + GPRS

Main Service > Packet Data

Service selection > Test Mode A – Auto Slot Config. off

MS Signal Press Slot Config Bottom on the right twice to select and change the number of time slots and power setting

> Slot configuration > Uplink/Gamma

> 33 dBm for GPRS 850

> 30 dBm for GPRS 1900

BS Signal Enter the same channel number for TCH channel (test channel) and BCCH channel

Frequency Offset > + 0 Hz

Mode > BCCH and TCH

BCCH Level > -85 dBm (May need to adjust if link is not stable)

BCCH Channel > choose desired test channel [Enter the same channel number for TCH channel (test channel) and BCCH channel]

Channel Type > Off

P0 > 4 dB

Slot Config > Unchanged (if already set under MS signal)

TCH > choose desired test channel

Hopping > Off

Main Timeslot > 3

Network Coding Scheme > CS4 (GPRS)

Bit Stream > 2E9-1 PSR Bit Stream

AF/RF Enter appropriate offsets for Ext. Att. Output and Ext. Att. Input

Connection Press Signal on to turn on the signal and change settings

**WCDMA Release 99**

The following tests were conducted according to the test requirements outlines in section 5.2 of the 3GPP TS34.121-1 specification. The EUT has a nominal maximum output power of 24dBm (+1.7/-3.7).

|                                       |                         |              |
|---------------------------------------|-------------------------|--------------|
| <b>WCDMA<br/>General<br/>Settings</b> | Loopback Mode           | Test Mode 1  |
|                                       | Rel99 RMC               | 12.2kbps RMC |
|                                       | Power Control Algorithm | Algorithm2   |
|                                       | $\beta_c/\beta_d$       | 8/15         |

**HSDPA**

The following tests were conducted according to the test requirements outlines in section 5.2 of the 3GPP TS34.121-1 specification.

|  | Mode                        | HSDPA        | HSDPA | HSDPA | HSDPA |
|--|-----------------------------|--------------|-------|-------|-------|
|  | Subset                      | 1            | 2     | 3     | 4     |
| <b>WCDMA<br/>General<br/>Settings</b>  | Loopback Mode               | Test Mode 1  |       |       |       |
|  | Rel99 RMC                   | 12.2kbps RMC |       |       |       |
|  | HSDPA FRC                   | H-Set1       |       |       |       |
|  | Power Control Algorithm     | Algorithm2   |       |       |       |
|  | $\beta_c$                   | 2/15         | 12/15 | 15/15 | 15/15 |
|  | $\beta_d$                   | 15/15        | 15/15 | 8/15  | 4/15  |
|  | $\beta_d$ (SF)              | 64           |       |       |       |
|  | $\beta_c/\beta_d$           | 2/15         | 12/15 | 15/8  | 15/4  |
|  | $\beta_{hs}$                | 4/15         | 24/15 | 30/15 | 30/15 |
| MPR(dB)                                | 0                           | 0            | 0.5   | 0.5   |       |
| <b>HSDPA<br/>Specific<br/>Settings</b> | DACK                        | 8            |       |       |       |
|  | DNAK                        | 8            |       |       |       |
|  | DCQI                        | 8            |       |       |       |
|  | Ack-Nack repetition factor  | 3            |       |       |       |
|  | CQI Feedback                | 4ms          |       |       |       |
|  | CQI Repetition Factor       | 2            |       |       |       |
|  | $A_{hs}=\beta_{hs}/\beta_c$ | 30/15        |       |       |       |

**HSUPA**

The following tests were conducted according to the test requirements outlines in section 5.2 of the 3GPP TS34.121-1 specification.

|  | <b>Mode</b>                            | <b>HSUPA</b>   | <b>HSUPA</b>   | <b>HSUPA</b>   | <b>HSUPA</b>   | <b>HSUPA</b> |
|--|--|--|--|--|--|--------------|
|  | <b>Subset</b>                          | <b>1</b>   | <b>2</b>   | <b>3</b>   | <b>4</b>   | <b>5</b>     |
| <b>WCDMA<br/>General<br/>Settings</b>  | Loopback Mode                          | Test Mode 1  |  |  |  |              |
|  | Rel99 RMC                              | 12.2kbps RMC   |  |  |  |              |
|  | HSDPA FRC                              | H-Set1   |  |  |  |              |
|  | HSUPA Test                             | HSUPA Loopback   |  |  |  |              |
|  | Power Control<br>Algorithm             | Algorithm2   |  |  |  |              |
|  | $\beta_c$                              | 11/15  | 6/15   | 15/15  | 2/15   | 15/15        |
|  | $\beta_d$                              | 15/15  | 15/15  | 9/15   | 15/15  | 0            |
|  | $\beta_{ec}$                           | 209/225  | 12/15  | 30/15  | 2/15   | 5/15         |
|  | $\beta_c / \beta_d$                    | 11/15  | 6/15   | 15/9   | 2/15   | -            |
|  | $\beta_{hs}$                           | 22/15  | 12/15  | 30/15  | 4/15   | 5/15         |
|  | CM(dB)                                 | 1.0  | 3.0  | 2.0  | 3.0  | 1.0          |
| MPR(dB)                                | 0                                      | 2  | 1  | 2  | 0  |              |
| <b>HSDPA<br/>Specific<br/>Settings</b> | DACK                                   | 8  |  |  |  |              |
|  | DNAK                                   | 8  |  |  |  |              |
|  | DCQI                                   | 8  |  |  |  |              |
|  | Ack-Nack<br>repetition factor          | 3  |  |  |  |              |
|  | CQI Feedback                           | 4ms  |  |  |  |              |
|  | CQI Repetition<br>Factor               | 2  |  |  |  |              |
|  | $A_{hs} = \beta_{hs} / \beta_c$        | 30/15  |  |  |  |              |
| <b>HSUPA<br/>Specific<br/>Settings</b> | DE-DPCCH                               | 6  | 8  | 8  | 5  | 7            |
|  | DHARQ                                  | 0  | 0  | 0  | 0  | 0            |
|  | AG Index                               | 20   | 12   | 15   | 17   | 21           |
|  | ETFCI                                  | 75   | 67   | 92   | 71   | 81           |
|  | Associated Max<br>UL Data Rate<br>kbps | 242.1  | 174.9  | 482.8  | 205.8  | 308.9        |
|  | Reference E_FCIs                       | E-TFCI 11 E<br>E-TFCI PO 4<br>E-TFCI 67<br>E-TFCI PO 18<br>E-TFCI 71<br>E-TFCI PO23<br>E-TFCI 75<br>E-TFCI PO26<br>E-TFCI 81<br>E-TFCI PO 27 | E-TFCI<br>11<br>E-TFCI<br>PO4<br>E-TFCI<br>92<br>E-TFCI<br>PO 18 | E-TFCI<br>11<br>E-TFCI<br>PO 18<br>E-TFCI<br>71<br>E-TFCI<br>PO23<br>E-TFCI<br>75<br>E-TFCI<br>PO 18 | E-TFCI 11 E<br>E-TFCI PO 4<br>E-TFCI 67<br>E-TFCI PO 18<br>E-TFCI 71<br>E-TFCI PO23<br>E-TFCI 75<br>E-TFCI PO26<br>E-TFCI 81<br>E-TFCI PO 27 |              |



**HSPA+**

| Sub-test | $\beta_c$<br>(Note3) | $\beta_d$ | $\beta_{HS}$<br>(Note1) | $\beta_{ec}$ | $\beta_{ed}$<br>(2xSF2)<br>(Note 4)            | $\beta_{ed}$<br>(2xSF4)<br>(Note 4)            | CM<br>(dB)<br>(Note 2) | MPR<br>(dB)<br>(Note 2) | AG<br>Index<br>(Note 4) | E-TFCI<br>(Note 5) | E-TFCI<br>(boost) |
|----------|----------------------|-----------|-------------------------|--------------|--|--|------------------------|-------------------------|-------------------------|--------------------|-------------------|
| 1        | 1                    | 0         | 30/15                   | 30/15        | $\beta_{ed1}$ : 30/15<br>$\beta_{ed2}$ : 30/15 | $\beta_{ed3}$ : 24/15<br>$\beta_{ed4}$ : 24/15 | 3.5                    | 2.5                     | 14                      | 105                | 105               |

- Note 1:  $\Delta_{ACK}, \Delta_{NACK}$  and  $\Delta_{CQI} = 30/15$  with  $\beta_{hs} = 30/15 * \beta_c$ .
- Note 2: CM = 3.5 and the MPR is based on the relative CM difference, MPR = MAX(CM-1,0).
- Note 3: DPDCH is not configured, therefore the  $\beta_c$  is set to 1 and  $\beta_d = 0$  by default.
- Note 4:  $\beta_{ed}$  can not be set directly; it is set by Absolute Grant Value.
- Note 5: All the sub-tests require the UE to transmit 2SF2+2SF4 16QAM EDCH and they apply for UE using E-DPDCH category 7. E-DCH TTI is set to 2ms TTI and E-DCH table index = 2. To support these E-DCH configurations DPDCH is not allocated. The UE is signalled to use the extrapolation algorithm.

The following tests were conducted according to the test requirements in Table C.11.1.4 of 3GPP TS 34.121-1

**FDD-LTE**

For UE Power Class 1 and 3, the allowed Maximum Power Reduction (MPR) for the maximum output power in Table 6.2.2-1 due to higher order modulation and transmit bandwidth configuration (resource blocks) is specified in Table 6.2.3-1.

**Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 1 and 3**

| Modulation | Channel bandwidth / Transmission bandwidth ( $N_{RB}$ ) |         |       |        |        |        | MPR (dB) |
|------------|---|---------|-------|--------|--------|--------|----------|
|            | 1.4 MHz   | 3.0 MHz | 5 MHz | 10 MHz | 15 MHz | 20 MHz |          |
| QPSK       | > 5   | > 4     | > 8   | > 12   | > 16   | > 18   | ≤ 1      |
| 16 QAM     | ≤ 5   | ≤ 4     | ≤ 8   | ≤ 12   | ≤ 16   | ≤ 18   | ≤ 1      |
| 16 QAM     | > 5   | > 4     | > 8   | > 12   | > 16   | > 18   | ≤ 2      |

For UE Power Class 1 and 3 the specific requirements and identified sub clauses are specified in Table 6.2.4-1 along with the allowed A-MPR values that may be used to meet these requirements. The allowed A-MPR values specified below in Table 6.2.4.-1 to 6.2.4-15 are in addition to the allowed MPR requirements specified in sub clause 6.2.3.

**Table 6.2.4-1: Additional Maximum Power Reduction (A-MPR)**

| Network Signalling value | Requirements (subclause) | E-UTRA Band              | Channel bandwidth (MHz) | Resources Blocks ( $N_{RB}$ )                  | A-MPR (dB) |
|--------------------------|--------------------------|--------------------------|-------------------------|--|------------|
| NS_01                    | 6.6.2.1.1                | Table 5.5-1              | 1.4, 3, 5, 10, 15, 20   | Table 5.6-1                                    | N/A        |
| NS_03                    | 6.6.2.2.1                | 2, 4, 10, 23, 25, 35, 36 | 3                       | >5   | ≤ 1        |
|                          |                          |                          | 5                       | >6   | ≤ 1        |
|                          |                          |                          | 10                      | >6   | ≤ 1        |
|                          |                          |                          | 15                      | >8   | ≤ 1        |
|                          |                          |                          | 20                      | >10  | ≤ 1        |
| NS_04                    | 6.6.2.2.2                | 41                       | 5                       | >6   | ≤ 1        |
|                          |                          |                          | 10, 15, 20              | Table 6.2.4-4                                  |            |
| NS_05                    | 6.6.3.3.1                | 1                        | 10, 15, 20              | ≥ 50   | ≤ 1        |
| NS_06                    | 6.6.2.2.3                | 12, 13, 14, 17           | 1.4, 3, 5, 10           | Table 5.6-1                                    | N/A        |
| NS_07                    | 6.6.2.2.3                | 13                       | 10                      | Table 6.2.4-2                                  |            |
|                          | 6.6.3.3.2                |                          |                         |  |            |
| NS_08                    | 6.6.3.3.3                | 19                       | 10, 15                  | > 44   | ≤ 3        |
|                          |                          |                          |                         | > 40   | ≤ 1        |
| NS_09                    | 6.6.3.3.4                | 21                       | 10, 15                  | > 55   | ≤ 2        |
|                          |                          |                          |                         | Table 6.2.4-3                                  |            |
| NS_10                    |                          | 20                       | 15, 20                  | Table 6.2.4-3                                  |            |
| NS_11                    | 6.6.2.2.1                | 23                       | 1.4, 3, 5, 10, 15, 20   | Table 6.2.4-5                                  |            |
| NS_12                    | 6.6.3.3.5                | 26                       | 1.4, 3, 5               | Table 6.2.4-6                                  |            |
| NS_13                    | 6.6.3.3.6                | 26                       | 5                       | Table 6.2.4-7                                  |            |
| NS_14                    | 6.6.3.3.7                | 26                       | 10, 15                  | Table 6.2.4-8                                  |            |
| NS_15                    | 6.6.3.3.8                | 26                       | 1.4, 3, 5, 10, 15       | Table 6.2.4-9                                  |            |
|                          |                          |                          |                         | Table 6.2.4-10                                 |            |
| NS_16                    | 6.6.3.3.9                | 27                       | 3, 5, 10                | Table 6.2.4-11, Table 6.2.4-12, Table 6.2.4-13 |            |
| NS_17                    | 6.6.3.3.10               | 28                       | 5, 10                   | Table 5.6-1                                    | N/A        |
|                          |                          |                          | 5                       | ≥ 2  | ≤ 1        |
| NS_18                    | 6.6.3.3.11               | 28                       | 10, 15, 20              | ≥ 1  | ≤ 4        |
|                          |                          |                          | Table 6.2.4-14          |  |            |
| NS_19                    | 6.6.3.3.12               | 44                       | 10, 15, 20              | Table 6.2.4-14                                 |            |
| NS_20                    | 6.2.2                    | 23                       | 5, 10, 15, 20           | Table 6.2.4-15                                 |            |
|                          | 6.6.2.2.1                |                          |                         |  |            |
|                          | 6.6.3.2                  |                          |                         |  |            |
| NS_32                    | -                        | -                        | -                       | -  | -          |

**TDD-LTE**

LTE TDD Band 41 supports 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.

Table 4.2-1: Configuration of special subframe (lengths of DwPTS/GP/UpPTS).

| 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                              | $13168 \cdot T_s$                |                                |                                  | -                                  |                                | -                                |

Table 4.2-2: Uplink-downlink configurations.

| Uplink-downlink configuration | Downlink-to-Uplink Switch-point periodicity | Subframe number |   |   |   |   |   |   |   |   |   |
|-------------------------------|---|-----------------|---|---|---|---|---|---|---|---|---|
|                               |   | 0               | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 0                             | 5 ms  | D               | S | U | U | U | D | S | U | U | U |
| 1                             | 5 ms  | D               | S | U | U | D | D | S | U | U | D |
| 2                             | 5 ms  | D               | S | U | D | D | D | S | U | D | D |
| 3                             | 10 ms                                       | D               | S | U | U | U | D | D | D | D | D |
| 4                             | 10 ms                                       | D               | S | U | U | D | D | D | D | D | D |
| 5                             | 10 ms                                       | D               | S | U | D | D | D | D | D | D | D |
| 6                             | 5 ms  | D               | S | U | U | U | D | S | U | U | D |

**Calculated Duty Cycle**

| 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                     |

Note: This device supports uplink-downlink configurations 0-6. The configuration with highest duty cycle was used for SAR Testing: configuration 0 at 63.33% duty cycle.

**Maximum Target Output Power**

| <b>Max Target Power(dBm)</b> |                |               |             |
|------------------------------|----------------|---------------|-------------|
| <b>Mode/Band</b>             | <b>Channel</b> |               |             |
|                              | <b>Low</b>     | <b>Middle</b> | <b>High</b> |
| GSM 850                      | 24.5           | 24.5          | 24.5        |
| PCS 1900                     | 24.5           | 24.5          | 24.5        |
| WCDMA Band 2                 | 17             | 17            | 17          |
| WCDMA Band 5                 | 17             | 17            | 17          |
| LTE Band 2                   | 17             | 17            | 17          |
| LTE Band 5                   | 17.5           | 17.5          | 17.5        |
| LTE Band 7                   | 17             | 17            | 17          |
| LTE Band 12                  | 18             | 18            | 18          |
| LTE Band 41                  | 16.5           | 16.5          | 16.5        |
| WLAN 2.4G 802.11b            | 12             | 12            | 12          |
| WLAN 2.4G 802.11g/n          | 7              | 7             | 7           |
| WLAN 5.2G                    | 13.5           | 13.5          | 13.5        |
| WLAN 5.8G                    | 13.5           | 13.5          | 13.5        |
| Bluetooth                    | 1              | 1             | 1           |
| BLE                          | 3              | 3             | 3           |

**Test Results:**

**GSM:**

| Band     | Channel No. | Frequency (MHz) | RF Output Power (dBm) |
|----------|-------------|-----------------|-----------------------|
| GSM 850  | 128         | 824.2           | 24.22                 |
|          | 190         | 836.6           | 24.36                 |
|          | 251         | 848.8           | 24.17                 |
| PCS 1900 | 512         | 1850.2          | 24.32                 |
|          | 661         | 1880            | 24.37                 |
|          | 810         | 1909.8          | 24.35                 |

**Note:**

1. Rohde & Schwarz Radio Communication Tester (CMU500) was used for the measurement of GSM peak and average output power for active timeslots.
2. For GSM voice, 1 timeslot has been activated with power level 5 (850 MHz band) and 0 (1900 MHz band).

**WCDMA Band 2:**

| Test Condition | Test Mode | 3GPP Sub Test | Averaged Mean Power (dBm) |               |                |
|----------------|-----------|---------------|---------------------------|---------------|----------------|
|                |           |               | Low Frequency             | Mid Frequency | High Frequency |
| Normal         | RMC12.2k  |               | 16.72                     | 16.78         | 16.69          |
|                | HSDPA     | 1             | /                         | /             | /              |
|                |           | 2             | /                         | /             | /              |
|                |           | 3             | /                         | /             | /              |
|                |           | 4             | /                         | /             | /              |
|                | HSUPA     | 1             | /                         | /             | /              |
|                |           | 2             | /                         | /             | /              |
|                |           | 3             | /                         | /             | /              |
|                |           | 4             | /                         | /             | /              |
|                |           | 5             | /                         | /             | /              |
|                | HSPA+     | 1             | /                         | /             | /              |

**WCDMA Band 5:**

| Test Condition | Test Mode | 3GPP Sub Test | Averaged Mean Power (dBm) |               |                |
|----------------|-----------|---------------|---------------------------|---------------|----------------|
|                |           |               | Low Frequency             | Mid Frequency | High Frequency |
| Normal         | RMC12.2k  |               | 16.64                     | 16.75         | 16.67          |
|                | HSDPA     | 1             | /                         | /             | /              |
|                |           | 2             | /                         | /             | /              |
|                |           | 3             | /                         | /             | /              |
|                |           | 4             | /                         | /             | /              |
|                | HSUPA     | 1             | /                         | /             | /              |
|                |           | 2             | /                         | /             | /              |
|                |           | 3             | /                         | /             | /              |
|                |           | 4             | /                         | /             | /              |
|                |           | 5             | /                         | /             | /              |
|                | HSPA+     | 1             | /                         | /             | /              |

**Note:**

1. The default test configuration is to measure SAR with an established radio link between the EUT and a communication test set using a 12.2 kbps RMC (reference measurement Channel) Configured in Test Loop Model 1.
2. KDB 941225 D01-Body SAR is not required for HSDPA/HSUPA/ HSPA+ when the maximum average output of each RF channel is less than ¼ dB higher than measured 12.2kbps RMC or the maximum SAR for 12.2kbps RMC is < 75% of SAR limit.

**LTE Band 2:**

| Test Bandwidth | Test Modulation | Resource Block & RB offset | Target MPR | Meas MPR | Low Channel (dBm) | Middle Channel (dBm) | High Channel (dBm) |
|----------------|-----------------|----------------------------|------------|----------|-------------------|----------------------|--------------------|
| 1.4M           | QPSK            | RB1#0                      | 0          | 0        | 16.57             | 16.49                | 16.46              |
|                |                 | RB1#3                      | 0          | 0        | 16.38             | 16.48                | 16.42              |
|                |                 | RB1#5                      | 0          | 0        | 16.40             | 16.51                | 16.44              |
|                |                 | RB3#0                      | 1          | 1        | 16.56             | 16.48                | 16.45              |
|                |                 | RB3#3                      | 1          | 1        | 16.37             | 16.47                | 16.41              |
|                |                 | RB6#0                      | 1          | 1        | 16.39             | 16.50                | 16.43              |
|                | 16-QAM          | RB1#0                      | 1          | 1        | 16.26             | 16.32                | 16.11              |
|                |                 | RB1#3                      | 1          | 1        | 16.19             | 16.27                | 16.10              |
|                |                 | RB1#5                      | 1          | 1        | 16.26             | 16.28                | 16.08              |
|                |                 | RB3#0                      | 2          | 2        | 16.24             | 16.30                | 16.09              |
|                |                 | RB3#3                      | 2          | 2        | 16.17             | 16.25                | 16.08              |
|                |                 | RB6#0                      | 2          | 2        | 16.24             | 16.26                | 16.06              |
| 3M             | QPSK            | RB1#0                      | 0          | 0        | 16.60             | 16.52                | 16.49              |
|                |                 | RB1#8                      | 0          | 0        | 16.41             | 16.51                | 16.45              |
|                |                 | RB1#14                     | 0          | 0        | 16.43             | 16.54                | 16.47              |
|                |                 | RB6#0                      | 1          | 1        | 16.40             | 16.35                | 16.31              |
|                |                 | RB6#9                      | 1          | 1        | 16.28             | 16.49                | 16.24              |
|                |                 | RB15#0                     | 1          | 1        | 16.30             | 16.33                | 16.14              |
|                | 16-QAM          | RB1#0                      | 1          | 1        | 16.29             | 16.35                | 16.14              |
|                |                 | RB1#8                      | 1          | 1        | 16.22             | 16.30                | 16.13              |
|                |                 | RB1#14                     | 1          | 1        | 16.29             | 16.31                | 16.11              |
|                |                 | RB6#0                      | 2          | 2        | 16.11             | 16.18                | 16.00              |
|                |                 | RB6#9                      | 2          | 2        | 16.19             | 16.16                | 15.99              |
|                |                 | RB15#0                     | 2          | 2        | 16.06             | 16.19                | 16.01              |
| 5M             | QPSK            | RB1#0                      | 0          | 0        | 16.63             | 16.55                | 16.52              |
|                |                 | RB1#13                     | 0          | 0        | 16.44             | 16.54                | 16.48              |
|                |                 | RB1#24                     | 0          | 0        | 16.46             | 16.57                | 16.50              |
|                |                 | RB15#0                     | 1          | 1        | 16.43             | 16.38                | 16.34              |
|                |                 | RB15#10                    | 1          | 1        | 16.31             | 16.52                | 16.27              |
|                |                 | RB25#0                     | 1          | 1        | 16.33             | 16.36                | 16.17              |
|                | 16-QAM          | RB1#0                      | 1          | 1        | 16.32             | 16.38                | 16.17              |
|                |                 | RB1#13                     | 1          | 1        | 16.25             | 16.33                | 16.16              |
|                |                 | RB1#24                     | 1          | 1        | 16.32             | 16.34                | 16.14              |
|                |                 | RB15#0                     | 2          | 2        | 16.14             | 16.21                | 16.03              |
|                |                 | RB15#10                    | 2          | 2        | 16.22             | 16.19                | 16.02              |
|                |                 | RB25#0                     | 2          | 2        | 16.09             | 16.22                | 16.04              |
| 10M            | QPSK            | RB1#0                      | 0          | 0        | 16.65             | 16.57                | 16.54              |
|                |                 | RB1#25                     | 0          | 0        | 16.46             | 16.56                | 16.50              |
|                |                 | RB1#49                     | 0          | 0        | 16.48             | 16.59                | 16.52              |
|                |                 | RB25#0                     | 1          | 1        | 16.45             | 16.40                | 16.36              |
|                |                 | RB25#25                    | 1          | 1        | 16.33             | 16.54                | 16.29              |
|                |                 | RB50#0                     | 1          | 1        | 16.35             | 16.38                | 16.19              |
|                | 16-QAM          | RB1#0                      | 1          | 1        | 16.34             | 16.40                | 16.19              |
|                |                 | RB1#25                     | 1          | 1        | 16.27             | 16.35                | 16.18              |

|     |        |         |   |   |       |              |       |
|-----|--------|---------|---|---|-------|--------------|-------|
|     |        | RB1#49  | 1 | 1 | 16.34 | 16.36        | 16.16 |
|     |        | RB25#0  | 2 | 2 | 16.16 | 16.23        | 16.05 |
|     |        | RB25#25 | 2 | 2 | 16.24 | 16.21        | 16.04 |
|     |        | RB50#0  | 2 | 2 | 16.11 | 16.24        | 16.06 |
| 15M | QPSK   | RB1#0   | 0 | 0 | 16.68 | 16.60        | 16.57 |
|     |        | RB1#38  | 0 | 0 | 16.49 | 16.59        | 16.53 |
|     |        | RB1#74  | 0 | 0 | 16.51 | 16.62        | 16.55 |
|     |        | RB36#0  | 1 | 1 | 16.48 | 16.43        | 16.39 |
|     |        | RB36#39 | 1 | 1 | 16.36 | 16.57        | 16.32 |
|     |        | RB75#0  | 1 | 1 | 16.38 | 16.41        | 16.22 |
|     | 16-QAM | RB1#0   | 1 | 1 | 16.37 | 16.43        | 16.22 |
|     |        | RB1#38  | 1 | 1 | 16.30 | 16.38        | 16.21 |
|     |        | RB1#74  | 1 | 1 | 16.37 | 16.39        | 16.19 |
|     |        | RB36#0  | 2 | 2 | 16.19 | 16.26        | 16.08 |
|     |        | RB36#39 | 2 | 2 | 16.27 | 16.24        | 16.07 |
|     |        | RB75#0  | 2 | 2 | 16.14 | 16.27        | 16.09 |
| 20M | QPSK   | RB1#0   | 0 | 0 | 16.75 | <b>16.82</b> | 16.68 |
|     |        | RB1#50  | 0 | 0 | 16.72 | 16.78        | 16.61 |
|     |        | RB1#99  | 0 | 0 | 16.69 | 16.74        | 16.58 |
|     |        | RB50#0  | 1 | 1 | 16.63 | 16.65        | 16.50 |
|     |        | RB50#50 | 1 | 1 | 16.56 | 16.61        | 16.47 |
|     |        | RB100#0 | 1 | 1 | 16.51 | 16.58        | 16.39 |
|     | 16-QAM | RB1#0   | 1 | 1 | 16.45 | 16.52        | 16.33 |
|     |        | RB1#50  | 1 | 1 | 16.42 | 16.49        | 16.30 |
|     |        | RB1#99  | 1 | 1 | 16.41 | 16.48        | 16.29 |
|     |        | RB50#0  | 2 | 2 | 16.33 | 16.40        | 16.21 |
|     |        | RB50#50 | 2 | 2 | 16.32 | 16.39        | 16.20 |
|     |        | RB100#0 | 2 | 2 | 16.27 | 16.34        | 16.15 |



**LTE Band 5:**

| Test Bandwidth | Test Modulation | Resource Block & RB offset | Target MPR | Meas MPR | Low Channel (dBm) | Middle Channel (dBm) | High Channel (dBm) |
|----------------|-----------------|----------------------------|------------|----------|-------------------|----------------------|--------------------|
| 1.4M           | QPSK            | RB1#0                      | 0          | 0        | 16.91             | 16.95                | 16.87              |
|                |                 | RB1#3                      | 0          | 0        | 16.78             | 16.80                | 16.82              |
|                |                 | RB1#5                      | 0          | 0        | 16.78             | 16.74                | 16.70              |
|                |                 | RB3#0                      | 1          | 1        | 16.89             | 16.93                | 16.85              |
|                |                 | RB3#3                      | 1          | 1        | 16.76             | 16.78                | 16.80              |
|                |                 | RB6#0                      | 1          | 1        | 16.76             | 16.72                | 16.68              |
|                | 16-QAM          | RB1#0                      | 1          | 1        | 16.63             | 16.57                | 16.48              |
|                |                 | RB1#3                      | 1          | 1        | 16.57             | 16.60                | 16.48              |
|                |                 | RB1#5                      | 1          | 1        | 16.52             | 16.53                | 16.49              |
|                |                 | RB3#0                      | 2          | 2        | 16.62             | 16.56                | 16.47              |
|                |                 | RB3#3                      | 2          | 2        | 16.56             | 16.59                | 16.47              |
|                |                 | RB6#0                      | 2          | 2        | 16.51             | 16.52                | 16.48              |
| 3M             | QPSK            | RB1#0                      | 0          | 0        | 16.95             | 16.99                | 16.91              |
|                |                 | RB1#8                      | 0          | 0        | 16.82             | 16.84                | 16.86              |
|                |                 | RB1#14                     | 0          | 0        | 16.82             | 16.78                | 16.74              |
|                |                 | RB6#0                      | 1          | 1        | 16.78             | 16.81                | 16.71              |
|                |                 | RB6#9                      | 1          | 1        | 16.70             | 16.64                | 16.63              |
|                |                 | RB15#0                     | 1          | 1        | 16.70             | 16.65                | 16.61              |
|                | 16-QAM          | RB1#0                      | 1          | 1        | 16.67             | 16.61                | 16.52              |
|                |                 | RB1#8                      | 1          | 1        | 16.61             | 16.64                | 16.52              |
|                |                 | RB1#14                     | 1          | 1        | 16.56             | 16.57                | 16.53              |
|                |                 | RB6#0                      | 2          | 2        | 16.32             | 16.27                | 16.27              |
|                |                 | RB6#9                      | 2          | 2        | 16.28             | 16.29                | 16.24              |
|                |                 | RB15#0                     | 2          | 2        | 16.22             | 16.23                | 16.13              |
| 5M             | QPSK            | RB1#0                      | 0          | 0        | 17.01             | 17.05                | 16.97              |
|                |                 | RB1#13                     | 0          | 0        | 16.88             | 16.90                | 16.92              |
|                |                 | RB1#24                     | 0          | 0        | 16.88             | 16.84                | 16.80              |
|                |                 | RB15#0                     | 1          | 1        | 16.84             | 16.87                | 16.77              |
|                |                 | RB15#10                    | 1          | 1        | 16.76             | 16.70                | 16.69              |
|                |                 | RB25#0                     | 1          | 1        | 16.76             | 16.71                | 16.67              |
|                | 16-QAM          | RB1#0                      | 1          | 1        | 16.73             | 16.67                | 16.58              |
|                |                 | RB1#13                     | 1          | 1        | 16.67             | 16.70                | 16.58              |
|                |                 | RB1#24                     | 1          | 1        | 16.62             | 16.63                | 16.59              |
|                |                 | RB15#0                     | 2          | 2        | 16.38             | 16.33                | 16.33              |
|                |                 | RB15#10                    | 2          | 2        | 16.34             | 16.35                | 16.30              |
|                |                 | RB25#0                     | 2          | 2        | 16.28             | 16.29                | 16.19              |
| 10M            | QPSK            | RB1#0                      | 0          | 0        | 17.09             | 17.11                | 17.04              |
|                |                 | RB1#25                     | 0          | 0        | 17.02             | 17.04                | 16.99              |
|                |                 | RB1#49                     | 0          | 0        | 16.95             | 16.97                | 16.95              |
|                |                 | RB25#0                     | 1          | 1        | 16.91             | 16.94                | 16.88              |
|                |                 | RB25#25                    | 1          | 1        | 16.88             | 16.86                | 16.82              |
|                |                 | RB50#0                     | 1          | 1        | 16.82             | 16.83                | 16.77              |
|                | 16-QAM          | RB1#0                      | 1          | 1        | 16.77             | 16.78                | 16.72              |
|                |                 | RB1#25                     | 1          | 1        | 16.74             | 16.75                | 16.69              |

|  |  |         |   |   |       |       |       |
|--|--|---------|---|---|-------|-------|-------|
|  |  | RB1#49  | 1 | 1 | 16.73 | 16.74 | 16.68 |
|  |  | RB25#0  | 2 | 2 | 16.44 | 16.45 | 16.39 |
|  |  | RB25#25 | 2 | 2 | 16.43 | 16.44 | 16.38 |
|  |  | RB50#0  | 2 | 2 | 16.38 | 16.39 | 16.33 |

**LTE Band 7:**

| Test Bandwidth | Test Modulation | Resource Block & RB offset | Target MPR | Meas MPR | Low Channel (dBm) | Middle Channel (dBm) | High Channel (dBm) |
|----------------|-----------------|----------------------------|------------|----------|-------------------|----------------------|--------------------|
| 5M             | QPSK            | RB1#0                      | 0          | 0        | 16.40             | 16.45                | 16.36              |
|                |                 | RB1#13                     | 0          | 0        | 16.36             | 16.46                | 16.25              |
|                |                 | RB1#24                     | 0          | 0        | 16.29             | 16.39                | 16.23              |
|                |                 | RB15#0                     | 1          | 1        | 16.23             | 16.30                | 16.21              |
|                |                 | RB15#10                    | 1          | 1        | 16.15             | 16.31                | 16.21              |
|                |                 | RB25#0                     | 1          | 1        | 16.18             | 16.21                | 16.14              |
|                | 16-QAM          | RB1#0                      | 1          | 1        | 16.17             | 16.19                | 16.13              |
|                |                 | RB1#13                     | 1          | 1        | 16.11             | 16.18                | 16.10              |
|                |                 | RB1#24                     | 1          | 1        | 16.10             | 16.20                | 16.10              |
|                |                 | RB15#0                     | 2          | 2        | 16.07             | 16.08                | 15.97              |
|                |                 | RB15#10                    | 2          | 2        | 16.02             | 16.09                | 15.99              |
|                |                 | RB25#0                     | 2          | 2        | 16.00             | 16.02                | 15.96              |
| 10M            | QPSK            | RB1#0                      | 0          | 0        | 16.44             | 16.49                | 16.40              |
|                |                 | RB1#25                     | 0          | 0        | 16.40             | 16.50                | 16.29              |
|                |                 | RB1#49                     | 0          | 0        | 16.33             | 16.43                | 16.27              |
|                |                 | RB25#0                     | 1          | 1        | 16.27             | 16.34                | 16.25              |
|                |                 | RB25#25                    | 1          | 1        | 16.19             | 16.35                | 16.25              |
|                |                 | RB50#0                     | 1          | 1        | 16.22             | 16.25                | 16.18              |
|                | 16-QAM          | RB1#0                      | 1          | 1        | 16.21             | 16.23                | 16.17              |
|                |                 | RB1#25                     | 1          | 1        | 16.15             | 16.22                | 16.14              |
|                |                 | RB1#49                     | 1          | 1        | 16.14             | 16.24                | 16.14              |
|                |                 | RB25#0                     | 2          | 2        | 16.11             | 16.12                | 16.01              |
|                |                 | RB25#25                    | 2          | 2        | 16.06             | 16.13                | 16.03              |
|                |                 | RB50#0                     | 2          | 2        | 16.04             | 16.06                | 16.00              |
| 15M            | QPSK            | RB1#0                      | 0          | 0        | 16.50             | 16.55                | 16.46              |
|                |                 | RB1#38                     | 0          | 0        | 16.46             | 16.56                | 16.35              |
|                |                 | RB1#74                     | 0          | 0        | 16.39             | 16.49                | 16.33              |
|                |                 | RB36#0                     | 1          | 1        | 16.33             | 16.40                | 16.31              |
|                |                 | RB36#39                    | 1          | 1        | 16.25             | 16.41                | 16.31              |
|                |                 | RB75#0                     | 1          | 1        | 16.28             | 16.31                | 16.24              |
|                | 16-QAM          | RB1#0                      | 1          | 1        | 16.27             | 16.29                | 16.23              |
|                |                 | RB1#38                     | 1          | 1        | 16.21             | 16.28                | 16.20              |
|                |                 | RB1#74                     | 1          | 1        | 16.20             | 16.30                | 16.20              |
|                |                 | RB36#0                     | 2          | 2        | 16.17             | 16.18                | 16.07              |
|                |                 | RB36#39                    | 2          | 2        | 16.12             | 16.19                | 16.09              |
|                |                 | RB75#0                     | 2          | 2        | 16.10             | 16.12                | 16.06              |
| 20M            | QPSK            | RB1#0                      | 0          | 0        | 16.58             | <b>16.66</b>         | 16.52              |
|                |                 | RB1#50                     | 0          | 0        | 16.52             | 16.61                | 16.49              |
|                |                 | RB1#99                     | 0          | 0        | 16.45             | 16.55                | 16.46              |
|                |                 | RB50#0                     | 1          | 1        | 16.42             | 16.52                | 16.43              |
|                |                 | RB50#50                    | 1          | 1        | 16.39             | 16.49                | 16.38              |
|                |                 | RB100#0                    | 1          | 1        | 16.37             | 16.42                | 16.32              |
|                | 16-QAM          | RB1#0                      | 1          | 1        | 16.32             | 16.37                | 16.27              |
|                |                 | RB1#50                     | 1          | 1        | 16.29             | 16.34                | 16.24              |

|  |  |         |   |   |       |       |       |
|--|--|---------|---|---|-------|-------|-------|
|  |  | RB1#99  | 1 | 1 | 16.28 | 16.33 | 16.23 |
|  |  | RB50#0  | 2 | 2 | 16.20 | 16.25 | 16.15 |
|  |  | RB50#50 | 2 | 2 | 16.19 | 16.24 | 16.14 |
|  |  | RB100#0 | 2 | 2 | 16.14 | 16.19 | 16.09 |

**LTE Band 12:**

| Test Bandwidth | Test Modulation | Resource Block & RB offset | Target MPR | Meas MPR | Low Channel (dBm) | Middle Channel (dBm) | High Channel (dBm) |
|----------------|-----------------|----------------------------|------------|----------|-------------------|----------------------|--------------------|
| 1.4M           | QPSK            | RB1#0                      | 0          | 0        | 17.31             | 17.44                | 17.31              |
|                |                 | RB1#3                      | 0          | 0        | 17.29             | 17.44                | 17.22              |
|                |                 | RB1#5                      | 0          | 0        | 17.28             | 17.26                | 17.13              |
|                |                 | RB3#0                      | 1          | 1        | 17.29             | 17.42                | 17.29              |
|                |                 | RB3#3                      | 1          | 1        | 17.27             | 17.42                | 17.20              |
|                |                 | RB6#0                      | 1          | 1        | 17.26             | 17.24                | 17.11              |
|                | 16-QAM          | RB1#0                      | 1          | 1        | 17.04             | 17.11                | 16.88              |
|                |                 | RB1#3                      | 1          | 1        | 16.97             | 17.02                | 16.85              |
|                |                 | RB1#5                      | 1          | 1        | 17.01             | 17.01                | 16.85              |
|                |                 | RB3#0                      | 2          | 2        | 17.03             | 17.10                | 16.87              |
|                |                 | RB3#3                      | 2          | 2        | 16.96             | 17.01                | 16.84              |
|                |                 | RB6#0                      | 2          | 2        | 17.00             | 17.00                | 16.84              |
| 3M             | QPSK            | RB1#0                      | 0          | 0        | 17.35             | 17.48                | 17.35              |
|                |                 | RB1#8                      | 0          | 0        | 17.33             | 17.48                | 17.26              |
|                |                 | RB1#14                     | 0          | 0        | 17.32             | 17.30                | 17.17              |
|                |                 | RB6#0                      | 1          | 1        | 17.21             | 17.25                | 17.12              |
|                |                 | RB6#9                      | 1          | 1        | 17.15             | 17.23                | 17.07              |
|                |                 | RB15#0                     | 1          | 1        | 17.13             | 17.12                | 16.96              |
|                | 16-QAM          | RB1#0                      | 1          | 1        | 17.08             | 17.15                | 16.92              |
|                |                 | RB1#8                      | 1          | 1        | 17.01             | 17.06                | 16.89              |
|                |                 | RB1#14                     | 1          | 1        | 17.05             | 17.05                | 16.89              |
|                |                 | RB6#0                      | 2          | 2        | 16.86             | 16.91                | 16.80              |
|                |                 | RB6#9                      | 2          | 2        | 16.86             | 16.93                | 16.74              |
|                |                 | RB15#0                     | 2          | 2        | 16.81             | 16.85                | 16.69              |
| 5M             | QPSK            | RB1#0                      | 0          | 0        | 17.41             | 17.54                | 17.41              |
|                |                 | RB1#13                     | 0          | 0        | 17.39             | 17.54                | 17.32              |
|                |                 | RB1#24                     | 0          | 0        | 17.38             | 17.36                | 17.23              |
|                |                 | RB15#0                     | 1          | 1        | 17.27             | 17.31                | 17.18              |
|                |                 | RB15#10                    | 1          | 1        | 17.21             | 17.29                | 17.13              |
|                |                 | RB25#0                     | 1          | 1        | 17.19             | 17.18                | 17.02              |
|                | 16-QAM          | RB1#0                      | 1          | 1        | 17.14             | 17.21                | 16.98              |
|                |                 | RB1#13                     | 1          | 1        | 17.07             | 17.12                | 16.95              |
|                |                 | RB1#24                     | 1          | 1        | 17.11             | 17.11                | 16.95              |
|                |                 | RB15#0                     | 2          | 2        | 16.92             | 16.97                | 16.86              |
|                |                 | RB15#10                    | 2          | 2        | 16.92             | 16.99                | 16.80              |
|                |                 | RB25#0                     | 2          | 2        | 16.87             | 16.91                | 16.75              |
| 10M            | QPSK            | RB1#0                      | 0          | 0        | 17.56             | <b>17.68</b>         | 17.49              |
|                |                 | RB1#25                     | 0          | 0        | 17.51             | 17.61                | 17.40              |
|                |                 | RB1#49                     | 0          | 0        | 17.47             | 17.51                | 17.35              |
|                |                 | RB25#0                     | 1          | 1        | 17.40             | 17.46                | 17.24              |
|                |                 | RB25#25                    | 1          | 1        | 17.32             | 17.37                | 17.19              |
|                |                 | RB50#0                     | 1          | 1        | 17.25             | 17.32                | 17.13              |
|                | 16-QAM          | RB1#0                      | 1          | 1        | 17.20             | 17.27                | 17.08              |
|                |                 | RB1#25                     | 1          | 1        | 17.17             | 17.24                | 17.05              |

|  |  |         |   |   |       |       |       |
|--|--|---------|---|---|-------|-------|-------|
|  |  | RB1#49  | 1 | 1 | 17.16 | 17.23 | 17.04 |
|  |  | RB25#0  | 2 | 2 | 17.03 | 17.10 | 16.91 |
|  |  | RB25#25 | 2 | 2 | 17.02 | 17.09 | 16.90 |
|  |  | RB50#0  | 2 | 2 | 16.97 | 17.04 | 16.85 |

**LTE Band 41:**

| Test Bandwidth | Test Modulation | Resource Block & RB offset | Target MP R | Meas M PR | Low Channel (dBm ) | Low-Mid Channel (dBm) | Mid Channel (dBm) | Mid-High Channel (dBm) | High Channel (dBm ) |
|----------------|-----------------|----------------------------|-------------|-----------|--------------------|-----------------------|-------------------|------------------------|---------------------|
| 5M             | QPSK            | RB1#0                      | 0           | 0         | 16.16              | 16.12                 | 16.19             | 16.07                  | 16.00               |
|                |                 | RB1#13                     | 0           | 0         | 15.98              | 16.05                 | 16.10             | 15.93                  | 15.85               |
|                |                 | RB1#24                     | 0           | 0         | 15.89              | 15.98                 | 16.04             | 15.89                  | 15.84               |
|                |                 | RB15#0                     | 1           | 1         | 15.83              | 15.96                 | 16.02             | 15.84                  | 15.80               |
|                |                 | RB15#10                    | 1           | 1         | 15.72              | 15.95                 | 16.01             | 15.76                  | 15.72               |
|                |                 | RB25#0                     | 1           | 1         | 15.67              | 15.87                 | 15.99             | 15.73                  | 15.66               |
|                | 16-QAM          | RB1#0                      | 1           | 1         | 15.66              | 15.80                 | 15.98             | 15.70                  | 15.59               |
|                |                 | RB1#13                     | 1           | 1         | 15.62              | 15.75                 | 15.94             | 15.68                  | 15.57               |
|                |                 | RB1#24                     | 1           | 1         | 15.48              | 15.63                 | 15.90             | 15.53                  | 15.55               |
|                |                 | RB15#0                     | 2           | 2         | 15.47              | 15.60                 | 15.89             | 15.50                  | 15.52               |
|                |                 | RB15#10                    | 2           | 2         | 15.32              | 15.45                 | 15.88             | 15.34                  | 15.38               |
|                |                 | RB25#0                     | 2           | 2         | 15.31              | 15.44                 | 15.81             | 15.29                  | 15.29               |
| 10M            | QPSK            | RB1#0                      | 0           | 0         | 16.19              | 16.15                 | 16.22             | 16.10                  | 16.03               |
|                |                 | RB1#25                     | 0           | 0         | 16.01              | 16.08                 | 16.13             | 15.96                  | 15.88               |
|                |                 | RB1#49                     | 0           | 0         | 15.92              | 16.01                 | 16.07             | 15.92                  | 15.87               |
|                |                 | RB25#0                     | 1           | 1         | 15.86              | 15.99                 | 16.05             | 15.87                  | 15.83               |
|                |                 | RB25#25                    | 1           | 1         | 15.75              | 15.98                 | 16.04             | 15.79                  | 15.75               |
|                |                 | RB50#0                     | 1           | 1         | 15.70              | 15.90                 | 16.02             | 15.76                  | 15.69               |
|                | 16-QAM          | RB1#0                      | 1           | 1         | 15.69              | 15.83                 | 16.01             | 15.73                  | 15.62               |
|                |                 | RB1#25                     | 1           | 1         | 15.65              | 15.78                 | 15.97             | 15.71                  | 15.60               |
|                |                 | RB1#49                     | 1           | 1         | 15.51              | 15.66                 | 15.93             | 15.56                  | 15.58               |
|                |                 | RB25#0                     | 2           | 2         | 15.50              | 15.63                 | 15.92             | 15.53                  | 15.55               |
|                |                 | RB25#25                    | 2           | 2         | 15.35              | 15.48                 | 15.91             | 15.37                  | 15.41               |
|                |                 | RB50#0                     | 2           | 2         | 15.34              | 15.47                 | 15.84             | 15.32                  | 15.32               |
| 15M            | QPSK            | RB1#0                      | 0           | 0         | 16.23              | 16.19                 | 16.26             | 16.14                  | 16.07               |
|                |                 | RB1#38                     | 0           | 0         | 16.05              | 16.12                 | 16.17             | 16.00                  | 15.92               |
|                |                 | RB1#74                     | 0           | 0         | 15.96              | 16.05                 | 16.11             | 15.96                  | 15.91               |
|                |                 | RB36#0                     | 1           | 1         | 15.90              | 16.03                 | 16.09             | 15.91                  | 15.87               |
|                |                 | RB36#39                    | 1           | 1         | 15.79              | 16.02                 | 16.08             | 15.83                  | 15.79               |
|                |                 | RB75#0                     | 1           | 1         | 15.74              | 15.94                 | 16.06             | 15.80                  | 15.73               |
|                | 16-QAM          | RB1#0                      | 1           | 1         | 15.73              | 15.87                 | 16.05             | 15.77                  | 15.66               |
|                |                 | RB1#38                     | 1           | 1         | 15.69              | 15.82                 | 16.01             | 15.75                  | 15.64               |
|                |                 | RB1#74                     | 1           | 1         | 15.55              | 15.70                 | 15.97             | 15.60                  | 15.62               |
|                |                 | RB36#0                     | 2           | 2         | 15.54              | 15.67                 | 15.96             | 15.57                  | 15.59               |
|                |                 | RB36#39                    | 2           | 2         | 15.39              | 15.52                 | 15.95             | 15.41                  | 15.45               |
|                |                 | RB75#0                     | 2           | 2         | 15.38              | 15.51                 | 15.88             | 15.36                  | 15.36               |
| 20M            | QPSK            | RB1#0                      | 0           | 0         | 16.28              | 16.25                 | <b>16.30</b>      | 16.19                  | 16.13               |
|                |                 | RB1#50                     | 0           | 0         | 16.11              | 16.18                 | 16.23             | 16.06                  | 15.98               |
|                |                 | RB1#99                     | 0           | 0         | 16.02              | 16.11                 | 16.17             | 16.02                  | 15.97               |
|                |                 | RB50#0                     | 1           | 1         | 15.96              | 16.09                 | 16.15             | 15.97                  | 15.93               |
|                |                 | RB50#50                    | 1           | 1         | 15.85              | 16.08                 | 16.14             | 15.89                  | 15.85               |
|                |                 | RB100#0                    | 1           | 1         | 15.80              | 16.00                 | 16.12             | 15.86                  | 15.79               |
|                | 16-QAM          | RB1#0                      | 1           | 1         | 15.79              | 15.93                 | 16.11             | 15.83                  | 15.72               |

|  |  |         |   |   |       |       |       |       |       |
|--|--|---------|---|---|-------|-------|-------|-------|-------|
|  |  | RB1#50  | 1 | 1 | 15.75 | 15.88 | 16.07 | 15.81 | 15.70 |
|  |  | RB1#99  | 1 | 1 | 15.61 | 15.76 | 16.03 | 15.66 | 15.68 |
|  |  | RB50#0  | 2 | 2 | 15.60 | 15.73 | 16.02 | 15.63 | 15.65 |
|  |  | RB50#50 | 2 | 2 | 15.45 | 15.58 | 16.01 | 15.47 | 15.51 |
|  |  | RB100#0 | 2 | 2 | 15.43 | 15.56 | 15.99 | 15.46 | 15.49 |

The frequency range of LTE Band 41 is 2535 ~ 2655MHz. Per KDB 447498 D01, according to the following formula Calculate  $N_c$  is 4, We chose to test 5 frequency points.

KDB procedures, the following should be applied to determine the number of required test channels. The test channels should be evenly spread across the transmission frequency band of each wireless mode.<sup>14</sup>

$$N_c = Round \left\{ \left[ 100(f_{high} - f_{low}) / f_c \right]^{0.5} \times (f_c / 100)^{0.2} \right\},$$

where

- $N_c$  is the number of test channels, rounded to the nearest integer,
- $f_{high}$  and  $f_{low}$  are the highest and lowest channel frequencies within the transmission band,
- $f_c$  is the mid-band channel frequency,
- all frequencies are in MHz.



**Bluetooth:**

| Mode                 | Channel frequency (MHz) | RF Output Power (dBm) |
|----------------------|-------------------------|-----------------------|
| BDR(GFSK)            | 2402                    | -0.56                 |
|                      | 2441                    | 0.71                  |
|                      | 2480                    | -0.22                 |
| EDR( $\pi/4$ -DQPSK) | 2402                    | -1.18                 |
|                      | 2441                    | 0.17                  |
|                      | 2480                    | -0.78                 |
| EDR(8DPSK)           | 2402                    | -1.26                 |
|                      | 2441                    | 0.09                  |
|                      | 2480                    | -1.01                 |
| BLE(1M)              | 2402                    | 1.21                  |
|                      | 2440                    | 2.91                  |
|                      | 2480                    | 1.90                  |
| BLE(2M)              | 2402                    | 1.15                  |
|                      | 2440                    | 2.82                  |
|                      | 2480                    | 1.79                  |

**Wi-Fi 2.4G:**

| Mode         | Channel frequency (MHz) | Data Rate | Conducted Average Output Power(dBm) |
|--------------|-------------------------|-----------|-------------------------------------|
| 802.11b      | 2412                    | 1Mbps     | 11.65                               |
|              | 2437                    |           | 11.84                               |
|              | 2462                    |           | 11.72                               |
| 802.11g      | 2412                    | 6Mbps     | 6.56                                |
|              | 2437                    |           | 6.76                                |
|              | 2462                    |           | 6.34                                |
| 802.11n HT20 | 2412                    | MCS0      | 6.53                                |
|              | 2437                    |           | 6.53                                |
|              | 2462                    |           | 6.56                                |
| 802.11n HT40 | 2422                    | MCS0      | 6.85                                |
|              | 2437                    |           | 6.91                                |
|              | 2452                    |           | 6.72                                |

**WLAN 5G:**

| Mode       | Channel frequency | Data Rate | RF Output Power(dBm) |
|------------|-------------------|-----------|----------------------|
| 802.11a    | 5180              | 6Mbps     | 12.95                |
|            | 5200              |           | 12.98                |
|            | 5240              |           | 13.12                |
| 802.11AC20 | 5180              | MCS0      | 12.79                |
|            | 5200              |           | 12.88                |
|            | 5240              |           | 12.91                |
| 802.11AC40 | 5190              | MCS0      | 12.93                |
|            | 5230              |           | 13.02                |

| Mode       | Channel frequency | Data Rate | RF Output Power(dBm) |
|------------|-------------------|-----------|----------------------|
| 802.11a    | 5745              | 6Mbps     | 12.89                |
|            | 5785              |           | 12.96                |
|            | 5825              |           | 13.15                |
| 802.11AC20 | 5745              | MCS0      | 12.86                |
|            | 5785              |           | 12.91                |
|            | 5825              |           | 13.02                |
| 802.11AC40 | 5755              | MCS0      | 12.98                |
|            | 5795              |           | 13.12                |

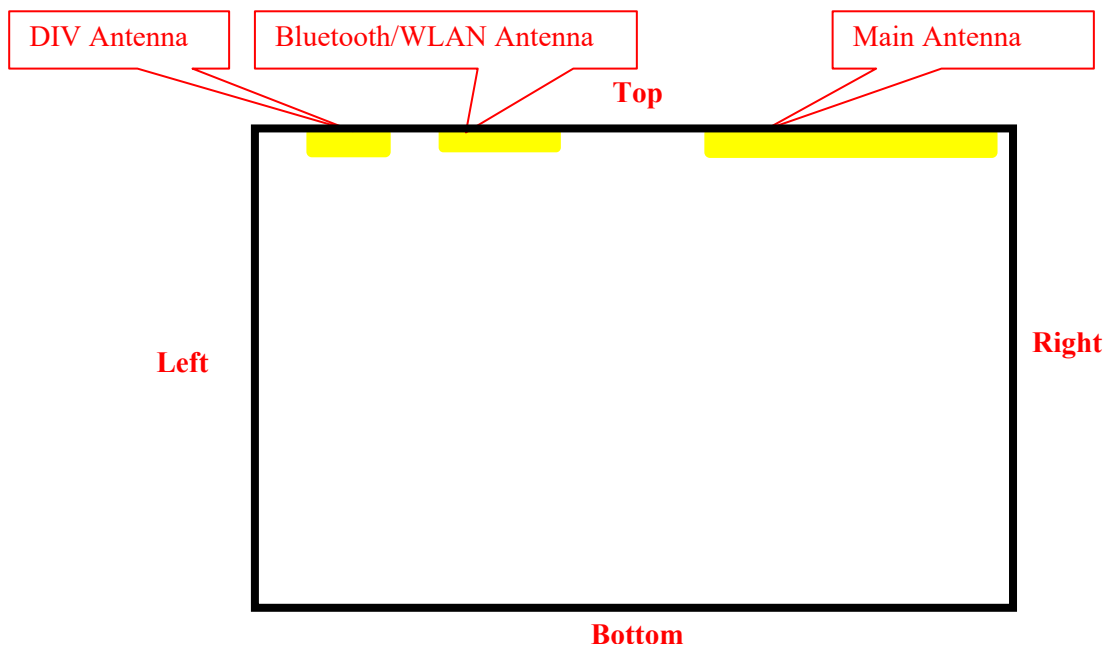
**Duty Cycle:**

| Test Mode      | Duty Cycle [%] |
|----------------|----------------|
| 802.11b        | 100.00         |
| 802.11g        | 100.00         |
| 802.11n-HT20   | 100.00         |
| 802.11n-HT40   | 100.00         |
| BLE 1M         | 85.03          |
| BLE 2M         | 57.18          |
| 802.11A        | 100.00         |
| 802.11AC-VHT20 | 100.00         |
| 802.11AC-VHT40 | 100.00         |

Note: Duty cycle data is derived from radio reports.

## Standalone SAR test exclusion considerations

### Antennas Location:



EUT Front View

*Note: The DIV antenna can only receive.*

### Antenna Distance To Edge:

| Antenna Distance To Edge(mm) |       |      |      |       |     |        |
|------------------------------|-------|------|------|-------|-----|--------|
| Antenna                      | Front | Back | Left | Right | Top | Bottom |
| Main Antenna                 | < 5   | < 5  | 152  | < 5   | < 5 | 151    |
| BT/BLE/WLAN Antenna          | < 5   | < 5  | 62   | 164   | < 5 | 153    |

**Standalone SAR test exclusion considerations:**

| Mode          | Frequency (MHz) | Output Power (dBm) | Output Power (mW) | Distance (mm) | Calculated value | Threshold (1-g) | SAR Test Exclusion |
|---------------|-----------------|--------------------|-------------------|---------------|------------------|-----------------|--------------------|
| Bluetooth/BLE | 2480            | 3                  | 2                 | 0             | 0.6              | 3               | Yes                |
| 2.4G WLAN     | 2462            | 12                 | 15.85             | 0             | 5.0              | 3               | No                 |
| 5.2G WLAN     | 5240            | 13.5               | 22.39             | 0             | 10.2             | 3               | No                 |
| 5.8G WLAN     | 5825            | 13.5               | 22.39             | 0             | 10.8             | 3               | No                 |

**NOTE:**

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

$$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0 \text{ for 1-g SAR and } \leq 7.5 \text{ for 10-g extremity SAR, where}$$

- f(GHz) is the RF channel transmit frequency in GHz.
- Power and distance are rounded to the nearest mW and mm before calculation.
- The result is rounded to one decimal place for comparison.
- When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test Exclusion.

**Standalone SAR estimation:**

| Mode    | Frequency (MHz) | Output Power (dBm) | Output Power (mW) | Distance (mm) | Estimated 1-g (W/kg) |
|---------|-----------------|--------------------|-------------------|---------------|----------------------|
| BT Body | 2441            | 4                  | 2.51              | 0             | 0.10                 |

When standalone SAR test exclusion applies to an antenna that transmits simultaneously with other antennas, the standalone SAR must be estimated according to following to determine simultaneous transmission SAR test exclusion:

$$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})/x}]$$

W/kg for test separation distances ≤ 50 mm;

where x = 7.5 for 1-g SAR.

When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test Exclusion

**Standalone SAR test exclusion considerations:**

According to KDB 616217 Section 4.3, SAR evaluation for the front surface of tablet display screens are generally not necessary.

| Mode       | Back       | Left       | Right      | Top        | Bottom     |
|------------|------------|------------|------------|------------|------------|
| 2.4G Wi-Fi | Required   | Exclusion  | Exclusion  | Required   | Exclusion  |
| 5G Wi-Fi   | Required   | Exclusion  | Exclusion  | Required   | Exclusion  |
| WWAN       | Required   | Exclusion  | Required   | Required   | Exclusion  |
| Bluetooth  | Exclusion* | Exclusion* | Exclusion* | Exclusion* | Exclusion* |

**Note:**

**Required:** The distance to Edge is less than 25mm, testing is required.

**Exclusion:** The distance to Edge is more than 25 mm, testing is not required.

**Exclusion\*:** SAR test exclusion evaluation has been done above.

## SAR MEASUREMENT RESULTS

This page summarizes the results of the performed dosimetric evaluation.

### SAR Test Data

#### Environmental Conditions

|                           |              |              |              |
|---------------------------|--------------|--------------|--------------|
| <b>Temperature:</b>       | 22.6-23.8 °C | 22.3-23.6 °C | 22.5-23.4 °C |
| <b>Relative Humidity:</b> | 52-63 %      | 46-58 %      | 42-56 %      |
| <b>ATM Pressure:</b>      | 101 kPa      | 105 kPa      | 102 kPa      |
| <b>Test Date:</b>         | 2024/03/05   | 2024/03/06   | 2024/03/07   |

Testing was performed by Sid Luo, Calvin Li and Bob Lu.

#### GSM 850 :

| EUT Position         | Frequency (MHz) | Test Mode | Max. Meas. Power (dBm) | Max. Rated Power (dBm) | 1g SAR (W/kg) |           |            |      |
|----------------------|-----------------|-----------|------------------------|------------------------|---------------|-----------|------------|------|
|                      |                 |           |                        |                        | Scaled Factor | Meas. SAR | Scaled SAR | Plot |
| Body Worn Back (0mm) | 824.2           | GSM       | 24.22                  | 24.5                   | 1.067         | 0.598     | 0.64       | 1#   |
|                      | 836.6           | GSM       | 24.36                  | 24.5                   | 1.033         | 0.552     | 0.57       | 2#   |
|                      | 848.8           | GSM       | 24.17                  | 24.5                   | 1.079         | 0.586     | 0.63       | 3#   |

#### Note:

1. The EUT transmit and receive through the same GSM antenna while testing SAR.
2. When SAR or MPE is not measured at the maximum power level allowed for production units, the results must be scaled to the maximum tune-up tolerance limit according to the power applied to the individual channels tested to determine compliance.
3. When the maximum output power variation across the required test channels is > 0.5 dB, instead of the middle channel, the highest output power channel must be used.

#### PCS 1900 :

| EUT Position         | Frequency (MHz) | Test Mode | Max. Meas. Power (dBm) | Max. Rated Power (dBm) | 1g SAR (W/kg) |           |            |      |
|----------------------|-----------------|-----------|------------------------|------------------------|---------------|-----------|------------|------|
|                      |                 |           |                        |                        | Scaled Factor | Meas. SAR | Scaled SAR | Plot |
| Body Worn Back (0mm) | 1850.2          | GSM       | 24.32                  | 24.5                   | 1.042         | 0.862     | 0.90       | 4#   |
|                      | 1880            | GSM       | 24.37                  | 24.5                   | 1.030         | 0.889     | 0.92       | 5#   |
|                      | 1909.8          | GSM       | 24.35                  | 24.5                   | 1.035         | 0.906     | 0.94       | 6#   |

#### Note:

1. The EUT transmit and receive through the same GSM antenna while testing SAR.
2. When SAR or MPE is not measured at the maximum power level allowed for production units, the results must be scaled to the maximum tune-up tolerance limit according to the power applied to the individual channels tested to determine compliance.
3. When the maximum output power variation across the required test channels is > 0.5 dB, instead of the middle channel, the highest output power channel must be used.

**WCDMA Band 2 :**

| EUT Position     | Frequency (MHz) | Test Mode | Max. Meas. Power (dBm) | Max. Rated Power (dBm) | 1g SAR (W/kg) |           |            |      |
|------------------|-----------------|-----------|------------------------|------------------------|---------------|-----------|------------|------|
|                  |                 |           |                        |                        | Scaled Factor | Meas. SAR | Scaled SAR | Plot |
| Body Back (0mm)  | 1852.4          | RMC       | /                      | /                      | /             | /         | /          | /    |
|                  | 1880            | RMC       | 16.78                  | 17.0                   | 1.052         | 0.881     | 0.93       | 7#   |
|                  | 1907.6          | RMC       | /                      | /                      | /             | /         | /          | /    |
| Body Right (0mm) | 1852.4          | RMC       | /                      | /                      | /             | /         | /          | /    |
|                  | 1880            | RMC       | 16.78                  | 17.0                   | 1.052         | 0.252     | 0.27       | 8#   |
|                  | 1907.6          | RMC       | /                      | /                      | /             | /         | /          | /    |
| Body Top (0mm)   | 1852.4          | RMC       | 16.72                  | 17.0                   | 1.067         | 0.957     | 1.02       | 9#   |
|                  | 1880            | RMC       | 16.78                  | 17.0                   | 1.052         | 0.972     | 1.02       | 10#  |
|                  | 1907.6          | RMC       | 16.69                  | 17.0                   | 1.074         | 0.916     | 0.98       | 11#  |

**WCDMA Band 5 :**

| EUT Position     | Frequency (MHz) | Test Mode | Max. Meas. Power (dBm) | Max. Rated Power (dBm) | 1g SAR (W/kg) |           |            |      |
|------------------|-----------------|-----------|------------------------|------------------------|---------------|-----------|------------|------|
|                  |                 |           |                        |                        | Scaled Factor | Meas. SAR | Scaled SAR | Plot |
| Body Back (0mm)  | 826.4           | RMC       | 16.64                  | 17.0                   | 1.086         | 0.425     | 0.46       | 12#  |
|                  | 836.6           | RMC       | 16.75                  | 17.0                   | 1.059         | 0.46      | 0.49       | 13#  |
|                  | 846.6           | RMC       | 16.67                  | 17.0                   | 1.079         | 0.45      | 0.49       | 14#  |
| Body Right (0mm) | 826.4           | RMC       | /                      | /                      | /             | /         | /          | /    |
|                  | 836.6           | RMC       | 16.75                  | 17.0                   | 1.059         | 0.127     | 0.13       | 15#  |
|                  | 846.6           | RMC       | /                      | /                      | /             | /         | /          | /    |
| Body Top (0mm)   | 826.4           | RMC       | /                      | /                      | /             | /         | /          | /    |
|                  | 836.6           | RMC       | 16.75                  | 17.0                   | 1.059         | 0.405     | 0.43       | 16#  |
|                  | 846.6           | RMC       | /                      | /                      | /             | /         | /          | /    |

**Note:**

1. The EUT transmit and receive through the same antenna while testing SAR.
2. The default test configuration is to measure SAR with an established radio link between the EUT and a communication test set using a 12.2 kbps RMC (reference measurement Channel) Configured in Test Loop Model.
3. When SAR or MPE is not measured at the maximum power level allowed for production units, the results must be scaled to the maximum tune-up tolerance limit according to the power applied to the individual channels tested to determine compliance.

**LTE Band 2 :**

| EUT Position     | Frequency (MHz) | Bandwidth (MHz) | Test Mode | Max. Meas. Power (dBm) | Max. Rated Power (dBm) | 1g SAR (W/kg) |           |            |      |
|------------------|-----------------|-----------------|-----------|------------------------|------------------------|---------------|-----------|------------|------|
|                  |                 |                 |           |                        |                        | Scaled Factor | Meas. SAR | Scaled SAR | Plot |
| Body Back (0mm)  | 1860            | 20              | 1RB       | /                      | /                      | /             | /         | /          | /    |
|                  | 1880            | 20              | 1RB       | 16.82                  | 17.0                   | 1.042         | 0.656     | 0.68       | 17#  |
|                  | 1900            | 20              | 1RB       | /                      | /                      | /             | /         | /          | /    |
|                  | 1880            | 20              | 50%RB     | 16.65                  | 17.0                   | 1.084         | 0.601     | 0.65       | 18#  |
| Body Right (0mm) | 1860            | 20              | 1RB       | /                      | /                      | /             | /         | /          | /    |
|                  | 1880            | 20              | 1RB       | 16.82                  | 17.0                   | 1.042         | 0.209     | 0.22       | 19#  |
|                  | 1900            | 20              | 1RB       | /                      | /                      | /             | /         | /          | /    |
|                  | 1880            | 20              | 50%RB     | 16.65                  | 17.0                   | 1.084         | 0.187     | 0.20       | 20#  |
| Body Top (0mm)   | 1860            | 20              | 1RB       | 16.75                  | 17.0                   | 1.059         | 0.724     | 0.77       | 21#  |
|                  | 1880            | 20              | 1RB       | 16.82                  | 17.0                   | 1.042         | 0.753     | 0.78       | 22#  |
|                  | 1900            | 20              | 1RB       | 16.68                  | 17.0                   | 1.076         | 0.705     | 0.76       | 23#  |
|                  | 1880            | 20              | 50%RB     | 16.65                  | 17.0                   | 1.084         | 0.701     | 0.76       | 24#  |

**LTE Band 5 :**

| EUT Position     | Frequency (MHz) | Bandwidth (MHz) | Test Mode | Max. Meas. Power (dBm) | Max. Rated Power (dBm) | 1g SAR (W/kg) |           |            |      |
|------------------|-----------------|-----------------|-----------|------------------------|------------------------|---------------|-----------|------------|------|
|                  |                 |                 |           |                        |                        | Scaled Factor | Meas. SAR | Scaled SAR | Plot |
| Body Back (0mm)  | 829             | 10              | 1RB       | /                      | /                      | /             | /         | /          | /    |
|                  | 836.5           | 10              | 1RB       | 17.11                  | 17.5                   | 1.094         | 0.322     | 0.35       | 25#  |
|                  | 844             | 10              | 1RB       | /                      | /                      | /             | /         | /          | /    |
|                  | 836.5           | 10              | 50%RB     | 16.94                  | 17.5                   | 1.138         | 0.301     | 0.34       | 26#  |
| Body Right (0mm) | 829             | 10              | 1RB       | /                      | /                      | /             | /         | /          | /    |
|                  | 836.5           | 10              | 1RB       | 17.11                  | 17.5                   | 1.094         | 0.119     | 0.13       | 27#  |
|                  | 844             | 10              | 1RB       | /                      | /                      | /             | /         | /          | /    |
|                  | 836.5           | 10              | 50%RB     | 16.94                  | 17.5                   | 1.138         | 0.108     | 0.12       | 28#  |
| Body Top (0mm)   | 829             | 10              | 1RB       | 17.09                  | 17.5                   | 1.099         | 0.584     | 0.64       | 29#  |
|                  | 836.5           | 10              | 1RB       | 17.11                  | 17.5                   | 1.094         | 0.599     | 0.66       | 30#  |
|                  | 844             | 10              | 1RB       | 17.04                  | 17.5                   | 1.112         | 0.587     | 0.65       | 31#  |
|                  | 836.5           | 10              | 50%RB     | 16.94                  | 17.5                   | 1.138         | 0.43      | 0.49       | 32#  |

**LTE Band 7 :**

| EUT Position     | Frequency (MHz) | Bandwidth (MHz) | Test Mode | Max. Meas. Power (dBm) | Max. Rated Power (dBm) | 1g SAR (W/kg) |           |            |            |
|------------------|-----------------|-----------------|-----------|------------------------|------------------------|---------------|-----------|------------|------------|
|                  |                 |                 |           |                        |                        | Scaled Factor | Meas. SAR | Scaled SAR | Plot       |
| Body Back (0mm)  | 2510            | 20              | 1RB       | 16.58                  | 17.0                   | 1.102         | 0.703     | 0.77       | 33#        |
|                  | 2535            | 20              | 1RB       | 16.66                  | 17.0                   | 1.081         | 0.728     | 0.79       | <b>34#</b> |
|                  | 2560            | 20              | 1RB       | 16.52                  | 17.0                   | 1.117         | 0.704     | 0.79       | 35#        |
|                  | 2510            | 20              | 50%RB     | 16.52                  | 17.0                   | 1.117         | 0.708     | 0.79       | 36#        |
| Body Right (0mm) | 2510            | 20              | 1RB       | /                      | /                      | /             | /         | /          | /          |
|                  | 2535            | 20              | 1RB       | 16.66                  | 17.0                   | 1.081         | 0.169     | 0.18       | 37#        |
|                  | 2560            | 20              | 1RB       | /                      | /                      | /             | /         | /          | /          |
|                  | 2510            | 20              | 50%RB     | 16.52                  | 17.0                   | 1.117         | 0.141     | 0.16       | 38#        |
| Body Top (0mm)   | 2510            | 20              | 1RB       | /                      | /                      | /             | /         | /          | /          |
|                  | 2535            | 20              | 1RB       | 16.66                  | 17.0                   | 1.081         | 0.604     | 0.65       | 39#        |
|                  | 2560            | 20              | 1RB       | /                      | /                      | /             | /         | /          | /          |
|                  | 2510            | 20              | 50%RB     | 16.52                  | 17.0                   | 1.117         | 0.565     | 0.63       | 40#        |

**LTE Band 12 :**

| EUT Position     | Frequency (MHz) | Bandwidth (MHz) | Test Mode | Max. Meas. Power (dBm) | Max. Rated Power (dBm) | 1g SAR (W/kg) |           |            |            |
|------------------|-----------------|-----------------|-----------|------------------------|------------------------|---------------|-----------|------------|------------|
|                  |                 |                 |           |                        |                        | Scaled Factor | Meas. SAR | Scaled SAR | Plot       |
| Body Back (0mm)  | 704             | 10              | 1RB       | /                      | /                      | /             | /         | /          | /          |
|                  | 707.5           | 10              | 1RB       | 17.68                  | 18.0                   | 1.076         | 0.303     | 0.33       | 41#        |
|                  | 711             | 10              | 1RB       | /                      | /                      | /             | /         | /          | /          |
|                  | 707.5           | 10              | 50%RB     | 17.46                  | 18.0                   | 1.132         | 0.257     | 0.29       | 42#        |
| Body Right (0mm) | 704             | 10              | 1RB       | /                      | /                      | /             | /         | /          | /          |
|                  | 707.5           | 10              | 1RB       | 17.68                  | 18.0                   | 1.076         | 0.116     | 0.12       | 43#        |
|                  | 711             | 10              | 1RB       | /                      | /                      | /             | /         | /          | /          |
|                  | 707.5           | 10              | 50%RB     | 17.46                  | 18.0                   | 1.132         | 0.107     | 0.12       | 44#        |
| Body Top (0mm)   | 704             | 10              | 1RB       | 17.56                  | 18.0                   | 1.107         | 0.619     | 0.69       | 45#        |
|                  | 707.5           | 10              | 1RB       | 17.68                  | 18.0                   | 1.076         | 0.614     | 0.66       | 46#        |
|                  | 711             | 10              | 1RB       | 17.49                  | 18.0                   | 1.125         | 0.645     | 0.73       | <b>47#</b> |
|                  | 707.5           | 10              | 50%RB     | 17.46                  | 18.0                   | 1.132         | 0.525     | 0.59       | 48#        |



**LTE Band 41 (Power Class 3):**

| EUT Position     | Frequency (MHz) | Bandwidth (MHz) | Test Mode | Max. Meas. Power (dBm) | Max. Rated Power (dBm) | 1g SAR (W/kg) |           |            |      |
|------------------|-----------------|-----------------|-----------|------------------------|------------------------|---------------|-----------|------------|------|
|                  |                 |                 |           |                        |                        | Scaled Factor | Meas. SAR | Scaled SAR | Plot |
| Body Back (0mm)  | 2545            | 20              | 1RB       | /                      | /                      | /             | /         | /          | /    |
|                  | 2570            | 20              | 1RB       | /                      | /                      | /             | /         | /          | /    |
|                  | 2595            | 20              | 1RB       | 16.30                  | 16.5                   | 1.047         | 0.6       | 0.63       | 49#  |
|                  | 2620            | 20              | 1RB       | /                      | /                      | /             | /         | /          | /    |
|                  | 2645            | 20              | 1RB       | /                      | /                      | /             | /         | /          | /    |
|                  | 2595            | 20              | 50%RB     | 16.15                  | 16.5                   | 1.084         | 0.594     | 0.64       | 50#  |
| Body Right (0mm) | 2545            | 20              | 1RB       | /                      | /                      | /             | /         | /          | /    |
|                  | 2570            | 20              | 1RB       | /                      | /                      | /             | /         | /          | /    |
|                  | 2595            | 20              | 1RB       | 16.30                  | 16.5                   | 1.047         | 0.146     | 0.15       | 51#  |
|                  | 2620            | 20              | 1RB       | /                      | /                      | /             | /         | /          | /    |
|                  | 2645            | 20              | 1RB       | /                      | /                      | /             | /         | /          | /    |
|                  | 2595            | 20              | 50%RB     | 16.15                  | 16.5                   | 1.084         | 0.107     | 0.12       | 52#  |
| Body Top (0mm)   | 2545            | 20              | 1RB       | 16.28                  | 16.5                   | 1.052         | 0.824     | 0.87       | 53#  |
|                  | 2570            | 20              | 1RB       | 16.25                  | 16.5                   | 1.059         | 0.703     | 0.74       | 54#  |
|                  | 2595            | 20              | 1RB       | 16.30                  | 16.5                   | 1.047         | 0.875     | 0.92       | 55#  |
|                  | 2620            | 20              | 1RB       | 16.19                  | 16.5                   | 1.074         | 0.647     | 0.69       | 56#  |
|                  | 2645            | 20              | 1RB       | 16.13                  | 16.5                   | 1.089         | 0.752     | 0.82       | 57#  |
|                  | 2595            | 20              | 50%RB     | 16.15                  | 16.5                   | 1.084         | 0.777     | 0.84       | 58#  |
|                  | 2595            | 20              | 100%RB    | 16.12                  | 16.5                   | 1.091         | 0.694     | 0.76       | 59#  |

**Note:**

1. SAR for LTE band exposure configurations is measured according to the procedures of KDB 941225 D05 SAR for LTE Devices v02.
2. KDB941225D05-SAR for higher order modulation is required only when the highest maximum output power for the configuration in the higher order modulation is > 0.5 dB higher than the same configuration in QPSK or when the reported SAR for the QPSK configuration is > 1.45 W/kg
3. KDB941225D05-For QPSK with 100% RB allocation, when the reported SAR measured for the Highest output power channel is <1.45 W/kg, tests for the remaining required test channels are optional.
- 4.KDB941225D05- 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 are ≤ 0.8 W/kg.
5. KDB941225D05- 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 offset the upper edge, middle and lower edge of each required test channel.
6. KDB941225D05- other channel bandwidths SAR test is required when the highest maximum output power of a configuration requiring testing in the smaller channel bandwidth is > 0.5 dB higher than the equivalent channel configurations in the largest channel bandwidth configuration or the reported SAR of a configuration for the largest channel bandwidth is > 1.45 W/kg.
7. Worst case SAR for 50% RB allocation is selected to be tested.
8. From May 2017 TCB Workshop, SAR tested were performed using Power Class 3 and maximum output power (Tune-up Limit) PC3 is higher from PC2.

**WLAN 2.4G:**

| EUT Position    | Frequency (MHz) | Test Mode | Max. Meas. Power (dBm) | Max. Rated Power (dBm) | Scaled Factor | 1g SAR (W/kg)  |           |            |      |
|-----------------|-----------------|-----------|------------------------|------------------------|---------------|----------------|-----------|------------|------|
|                 |                 |           |                        |                        |               | Duty Cycle (%) | Meas. SAR | Scaled SAR | Plot |
| Body Back (0mm) | 2412            | 802.11b   | /                      | /                      | /             | /              | /         | /          | /    |
|                 | 2437            | 802.11b   | 11.84                  | 12.0                   | 1.038         | 100            | 0.294     | 0.31       | 60#  |
|                 | 2462            | 802.11b   | /                      | /                      | /             | /              | /         | /          | /    |
| Body Top (0mm)  | 2412            | 802.11b   | 11.65                  | 12.0                   | 1.084         | 100            | 0.263     | 0.29       | 61#  |
|                 | 2437            | 802.11b   | 11.84                  | 12.0                   | 1.038         | 100            | 0.305     | 0.32       | 62#  |
|                 | 2462            | 802.11b   | 11.72                  | 12.0                   | 1.067         | 100            | 0.36      | 0.38       | 63#  |

**Note:**

1. For 802.11b DSSS SAR measurements, DSSS SAR procedure applies to fixed exposure test position and initial test position procedure. When OFDM tune up power is greater than DSSS, the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is  $\leq 1.2$  W/kg, OFDM SAR is not required.
2. When SAR or MPE is not measured at the maximum power level allowed for production units, the results must be scaled to the maximum tune-up tolerance limit according to the power applied to the individual channels tested to determine compliance.
3. When the same maximum power is specified for multiple transmission modes in a frequency band, the largest channel bandwidth, lowest order modulation, lowest data rate and lowest order 802.11b/g/n mode is use for SAR measurement, on the highest measured output power channel in the initial test configuration, for each frequency band.
4. According 2016 Oct. TCB, for SAR testing of 2.4G WIFI 802.11b signal with non-100% duty cycle, the measured SAR is scaled-up by the duty cycle scaling factor which is equal to "1/( duty cycle)".

**WLAN 5G:**

| EUT Position    | Frequency (MHz) | Test Mode | Max. Meas. Power (dBm) | Max. Rated Power (dBm) | Scaled Factor | 1g SAR (W/kg)  |           |            |      |
|-----------------|-----------------|-----------|------------------------|------------------------|---------------|----------------|-----------|------------|------|
|                 |                 |           |                        |                        |               | Duty Cycle (%) | Meas. SAR | Scaled SAR | Plot |
| Body Back (0mm) | 5180            | 802.11a   | 12.95                  | 13.5                   | 1.135         | 100            | 0.374     | 0.42       | 64#  |
|                 | 5200            | 802.11a   | 12.98                  | 13.5                   | 1.127         | 100            | 0.354     | 0.40       | 65#  |
|                 | 5240            | 802.11a   | 13.12                  | 13.5                   | 1.091         | 100            | 0.363     | 0.40       | 66#  |
| Body Top (0mm)  | 5180            | 802.11a   | /                      | /                      | /             | /              | /         | /          | /    |
|                 | 5200            | 802.11a   | 12.98                  | 13.5                   | 1.127         | 100            | 0.283     | 0.32       | 67#  |
|                 | 5240            | 802.11a   | /                      | /                      | /             | /              | /         | /          | /    |

| EUT Position    | Frequency (MHz) | Test Mode | Max. Meas. Power (dBm) | Max. Rated Power (dBm) | Scaled Factor | 1g SAR (W/kg)  |           |            |      |
|-----------------|-----------------|-----------|------------------------|------------------------|---------------|----------------|-----------|------------|------|
|                 |                 |           |                        |                        |               | Duty Cycle (%) | Meas. SAR | Scaled SAR | Plot |
| Body Back (0mm) | 5745            | 802.11a   | 12.89                  | 13.5                   | 1.151         | 100            | 0.444     | 0.50       | 68#  |
|                 | 5785            | 802.11a   | 12.96                  | 13.5                   | 1.132         | 100            | 0.469     | 0.54       | 69#  |
|                 | 5825            | 802.11a   | 13.15                  | 13.5                   | 1.084         | 100            | 0.343     | 0.37       | 70#  |
| Body Top (0mm)  | 5745            | 802.11a   | /                      | /                      | /             | /              | /         | /          | /    |
|                 | 5785            | 802.11a   | 12.96                  | 13.5                   | 1.132         | 100            | 0.299     | 0.34       | 71#  |
|                 | 5825            | 802.11a   | /                      | /                      | /             | /              | /         | /          | /    |

**Note:**

1. When SAR or MPE is not measured at the maximum power level allowed for production units, the results must be scaled to the maximum tune-up tolerance limit according to the power applied to the individual channels tested to determine compliance
2. When the same maximum power is specified for multiple transmission modes in a frequency band, the largest channel bandwidth, lowest order modulation, lowest data rate and lowest order 802.11a/n20/n40/ac20/ac40/ac80 mode is use for SAR measurement, on the highest measured output power channel in the initial test configuration, for each frequency band, 802.11a is the initial position for the SAR test.
2. According 2016 Oct. TCB, for SAR testing of 5G WIFI 802.11a signal with non-100% duty cycle, the measured SAR is scaled-up by the duty cycle scaling factor which is equal to “1/( duty cycle)”.

## SAR Measurement Variability

In accordance with published RF Exposure KDB procedure 865664 D01 SAR measurement 100 MHz to 6 GHz v01. These additional measurements are repeated after the completion of all measurements requiring the same head or body tissue-equivalent medium in a frequency band. The test device should be returned to ambient conditions (normal room temperature) with the battery fully charged before it is re-mounted on the device holder for the repeated measurement(s) to minimize any unexpected variations in the repeated results

- 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 (~ 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.

### The Highest Measured SAR Configuration in Each Frequency Band

#### Body

| SAR probe calibration point | Frequency Band | Freq.(MHz) | EUT Position | Meas. SAR (W/kg) |          | Largest to Smallest SAR Ratio |
|-----------------------------|----------------|------------|--------------|------------------|----------|-------------------------------|
|                             |                |            |              | Original         | Repeated |                               |
| 1900 MHz (1850-1950MHz)     | PCS 1900       | 1880       | Body Top     | 0.906            | 0.902    | 1.00                          |
| 1900 MHz (1850-1950MHz)     | WCDMA Band 2   | 1880       | Body Top     | 0.972            | 0.962    | 1.01                          |
| 2600 MHz (2550-2700MHz)     | LTE Band 41    | 2545       | Body Top     | 0.875            | 0.866    | 1.01                          |

#### Note:

1. Second Repeated Measurement is not required since the ratio of the largest to smallest SAR for the original and first repeated measurement is not > 1.20.
2. The measured SAR results **do not** have to be scaled to the maximum tune-up tolerance to determine if repeated measurements are required.
3. 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.

## SAR SIMULTANEOUS TRANSMISSION DESCRIPTION

### Simultaneous Transmission:

| Description of Simultaneous Transmit Capabilities |               |          |
|---|---------------|----------|
| Transmitter Combination                           | Simultaneous? | Hotspot? |
| WWAN + Bluetooth                                  | √             | ×        |
| WWAN + WLAN                                       | √             | √        |
| WLAN + Bluetooth                                  | ×             | ×        |

### Simultaneous and Hotspot SAR test exclusion considerations:

| Mode(SAR1+SAR2) | Position | Reported SAR(W/kg) |      | ΣSAR < 1.6W/kg |
|-----------------|----------|--------------------|------|----------------|
|                 |          | SAR1               | SAR2 |                |
| WWAN+WLAN       | Body     | 1.02               | 0.54 | <b>1.56</b>    |
| WWAN+BT         | Body     | 1.02               | 0.10 | 1.12           |

### Conclusion:

Sum of SAR: ΣSAR ≤ 1.6 W/kg therefore simultaneous transmission SAR with SPLSR is **not required**.

## **SAR Plots**

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**Please Refer to the Attachment.**

### APPENDIX A MEASUREMENT UNCERTAINTY

The uncertainty budget has been determined for the measurement system and is given in the following Table.  
**Measurement uncertainty evaluation for IEEE1528-2013 SAR test**

| Source of uncertainty                                | Tolerance/ uncertainty ± % | Probability distribution | Divisor | ci (1 g) | ci (10 g) | Standard uncertainty ± %, (1 g) | Standard uncertainty ± %, (10 g) |
|--|----------------------------|--------------------------|---------|----------|-----------|---------------------------------|----------------------------------|
| <b>Measurement system</b>                            |                            |                          |         |          |           |                                 |                                  |
| Probe calibration                                    | 6.55                       | N                        | 1       | 1        | 1         | 6.6                             | 6.6                              |
| Axial Isotropy                                       | 4.7                        | R                        | √3      | 1        | 1         | 2.7                             | 2.7                              |
| Hemispherical Isotropy                               | 9.6                        | R                        | √3      | 0        | 0         | 0.0                             | 0.0                              |
| Boundary effect                                      | 1.0                        | R                        | √3      | 1        | 1         | 0.6                             | 0.6                              |
| Linearity  | 4.7                        | R                        | √3      | 1        | 1         | 2.7                             | 2.7                              |
| Detection limits                                     | 1.0                        | R                        | √3      | 1        | 1         | 0.6                             | 0.6                              |
| Readout electronics                                  | 0.3                        | N                        | 1       | 1        | 1         | 0.3                             | 0.3                              |
| Response time  | 0.0                        | R                        | √3      | 1        | 1         | 0.0                             | 0.0                              |
| Integration time                                     | 0.0                        | R                        | √3      | 1        | 1         | 0.0                             | 0.0                              |
| RF ambient conditions – noise                        | 1.0                        | R                        | √3      | 1        | 1         | 0.6                             | 0.6                              |
| RF ambient conditions–reflections                    | 1.0                        | R                        | √3      | 1        | 1         | 0.6                             | 0.6                              |
| Probe positioner mech. Restrictions                  | 0.8                        | R                        | √3      | 1        | 1         | 0.5                             | 0.5                              |
| Probe positioning with respect to phantom shell      | 6.7                        | R                        | √3      | 1        | 1         | 3.9                             | 3.9                              |
| Post-processing                                      | 2.0                        | R                        | √3      | 1        | 1         | 1.2                             | 1.2                              |
| <b>Test sample related</b>                           |                            |                          |         |          |           |                                 |                                  |
| Test sample positioning                              | 2.8                        | N                        | 1       | 1        | 1         | 2.8                             | 2.8                              |
| Device holder uncertainty                            | 6.3                        | N                        | 1       | 1        | 1         | 6.3                             | 6.3                              |
| Drift of output power                                | 5.0                        | R                        | √3      | 1        | 1         | 2.9                             | 2.9                              |
| <b>Phantom and set-up</b>                            |                            |                          |         |          |           |                                 |                                  |
| Phantom uncertainty (shape and thickness tolerances) | 4.0                        | R                        | √3      | 1        | 1         | 2.3                             | 2.3                              |
| Liquid conductivity target)                          | 5.0                        | R                        | √3      | 0.64     | 0.43      | 1.8                             | 1.2                              |
| Liquid conductivity meas.)                           | 2.5                        | N                        | 1       | 0.64     | 0.43      | 1.6                             | 1.1                              |
| Liquid permittivity target)                          | 5.0                        | R                        | √3      | 0.6      | 0.49      | 1.7                             | 1.4                              |
| Liquid permittivity meas.)                           | 2.5                        | N                        | 1       | 0.6      | 0.49      | 1.5                             | 1.2                              |
| Combined standard uncertainty                        |                            | RSS                      |         |          |           | 12.2                            | 12.0                             |
| Expanded uncertainty 95 % confidence interval)       |                            |                          |         |          |           | 24.3                            | 23.9                             |

## APPENDIX B EUT TEST POSITION PHOTOS

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**Please Refer to the Attachment.**



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## APPENDIX C PROBE CALIBRATION CERTIFICATES

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**Please Refer to the Attachment.**

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## APPENDIX D DIPOLE CALIBRATION CERTIFICATES

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**Please Refer to the Attachment.**

**\*\*\*\*\* END OF REPORT \*\*\*\*\***