

# TEST REPORT

Applicant Name: Blackshark Technologies (Nanchang) Co., Ltd  
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Province, China  
Report Number: 2501U64129E-SAA  
FCC ID: 2BCNP-BM-PAD

## Test Standard (s)

FCC 47 CFR part 2.1093

## Sample Description

Product Name: Black Shark Tablet  
Model No.: BSM1  
Multiple Model(s) No.: BSM2, BSM3, BSM4  
Trade Mark: BLACK SHARK  
Serial Number: 34GR-1  
Date Received: 2025/06/13  
Date of Test: 2025/07/05~2025/07/10  
Issue Date: 2025/08/14

|              |       |
|--------------|-------|
| Test Result: | Pass▲ |
|--------------|-------|

▲ In the configuration tested, the EUT complied with the standards above.

## Prepared and Checked By:

Bob Lu

Bob Lu  
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) |
| GSM 850                     | 1g Body SAR    | 0.93                             | 1.6          |
| PCS 1900                    | 1g Body SAR    | 0.64                             |              |
| WCDMA Band 2                | 1g Body SAR    | 0.36                             |              |
| WCDMA Band 4                | 1g Body SAR    | 0.96                             |              |
| WCDMA Band 5                | 1g Body SAR    | 0.95                             |              |
| LTE Band 2                  | 1g Body SAR    | 0.50                             |              |
| LTE Band 4                  | 1g Body SAR    | 0.86                             |              |
| LTE Band 7                  | 1g Body SAR    | 0.63                             |              |
| LTE Band 12 & 17            | 1g Body SAR    | 0.70                             |              |
| LTE Band 26 & 5             | 1g Body SAR    | 0.97                             |              |
| LTE Band 41 & 38            | 1g Body SAR    | 0.42                             |              |
| 2.4G Wi-Fi                  | 1g Body SAR    | 0.37                             |              |
| 5G Wi-Fi                    | 1g Body SAR    | 0.34                             |              |
| Simultaneous(tx)            | 1g Body SAR    | 1.37                             |              |
|                             | 1g Hotspot SAR | 1.34                             |              |

Note:

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

|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                               |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Applicable Standards</b>                                                                                                                                                                                                                                                                                                                                                                                                                                   | <b>FCC 47 CFR part 2.1093</b><br>Radiation exposure evaluation: portable devices                                                                                                                                                                                                                                                                                                                              |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <b>IEEE 1528:2013</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 941225 D06 Hotspot Mode v02r01<br>KDB 248227 D01 802.11 Wi-Fi SAR v02r02 |
| <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.<br><b>The results and statements contained in this report pertain only to the device(s) evaluated.</b> |                                                                                                                                                                                                                                                                                                                                                                                                               |

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DOCUMENT REVISION HISTORY

| Revision Number | Report Number   | Description of Revision | Date of Revision |
|-----------------|-----------------|-------------------------|------------------|
| 0               | 2501U64129E-SAA | Original Report         | 2025/08/14       |

## EUT DESCRIPTION

This report has been prepared on behalf of **Blackshark Technologies (Nanchang) Co., Ltd** and their product **Black Shark Tablet**, Model: **BSM1, BSM2, BSM3, BSM4**, Test Model: **BSM1**, FCC ID: **2BCNP-BM-PAD** or the EUT (Equipment under Test) as referred to in the rest of this report.

*\*All measurement and test data in this report was gathered from production sample serial number: 34GR-1 (Assigned by BACL, Shenzhen). The EUT supplied by the applicant was received on 2025/06/13.*

### Technical Specification

|                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Product Type:</b>                                                                                                                                                                                                                         | Portable                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Exposure Category:</b>                                                                                                                                                                                                                    | Population / Uncontrolled                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Antenna Type(s):</b>                                                                                                                                                                                                                      | Internal Antenna                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Body-Worn Accessories:</b>                                                                                                                                                                                                                | None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Multi-slot Class:</b>                                                                                                                                                                                                                     | GPRS/EGPRS(Class 12)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Body-Worn Accessories:</b>                                                                                                                                                                                                                | None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Face-Head Accessories:</b>                                                                                                                                                                                                                | None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Operation modes:</b>                                                                                                                                                                                                                      | GSM Voice, GPRS/EGPRS Data, WCDMA, LTE<br>Wi-Fi, Bluetooth, BLE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Frequency Band:</b>                                                                                                                                                                                                                       | GSM 850: 824-849MHz(TX); 869-894MHz(RX)<br>PCS 1900: 1850-1910MHz(TX); 1930-1990MHz(RX)<br>WCDMA Band 2: 1850-1910MHz(TX); 1930-1990MHz(RX)<br>WCDMA Band 4: 1710-1755MHz(TX); 2110-2155MHz(RX)<br>WCDMA Band 5: 824-849MHz(TX); 869-894MHz(RX)<br>LTE Band 2: 1850-1910MHz(TX);1930-1990MHz(RX)<br>LTE Band 4: 1710-1755MHz(TX) ; 2110-2155MHz (RX)<br>LTE Band 5: 824-849MHz(TX);869-894MHz(RX)<br>LTE Band 7: 2500-2570MHz(TX); 2620-2690MHz(RX)<br>LTE Band 12: 699-716MHz(TX);729-746MHz(RX)<br>LTE Band 17: 704-716MHz(TX); 734-746MHz(RX)<br>LTE Band 26: 814-849MHz(TX); 859-894MHz(RX)<br>LTE Band 38: 2570-2620MHz(TX & RX)<br>LTE Band 41:2496-2690MHz(TX);2496-2690MHz(RX)<br>WIFI 2.4G: 2412-2462MHz(TX/RX)<br>WIFI 5.2G: 5150-5250MHz(TX/RX)<br>WIFI 5.3G: 5250-5350MHz(TX/RX)<br>WIFI 5.6G: 5470-5725MHz(TX/RX)<br>WIFI 5.8G: 5725-5850MHz(TX/RX)<br>Bluetooth: 2402 -2480MHz(TX/RX)<br>BLE: 2402 -2480MHz(TX/RX) |
| <b>Dimensions (L×W×H):</b>                                                                                                                                                                                                                   | 169 × 257 × 8 mm(All models are the same size)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Power Source:</b>                                                                                                                                                                                                                         | DC 3.85V from battery                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Normal Operation:</b>                                                                                                                                                                                                                     | Body                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Note: The Multiple models are electrically identical with the test model except for model name, appearance color and sales channel. Please refer to the declaration letter <sup>#</sup> for more detail, which was provided by manufacturer. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

## REFERENCE, STANDARDS, AND GUIDELINES

### 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.

### SAR Limits

#### FCC Limit(1g Tissue)

| EXPOSURE LIMITS                                                  | SAR (W/kg)                                                     |                                                        |
|------------------------------------------------------------------|----------------------------------------------------------------|--------------------------------------------------------|
|                                                                  | (General Population /<br>Uncontrolled Exposure<br>Environment) | (Occupational /<br>Controlled Exposure<br>Environment) |
| Spatial Average<br>(averaged over the whole body)                | 0.08                                                           | 0.4                                                    |
| Spatial Peak<br>(averaged over any 1 g of tissue)                | <b>1.6</b>                                                     | 8.0                                                    |
| Spatial Peak<br>(hands/wrists/feet/ankles<br>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 maybe 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 for 1g SAR 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

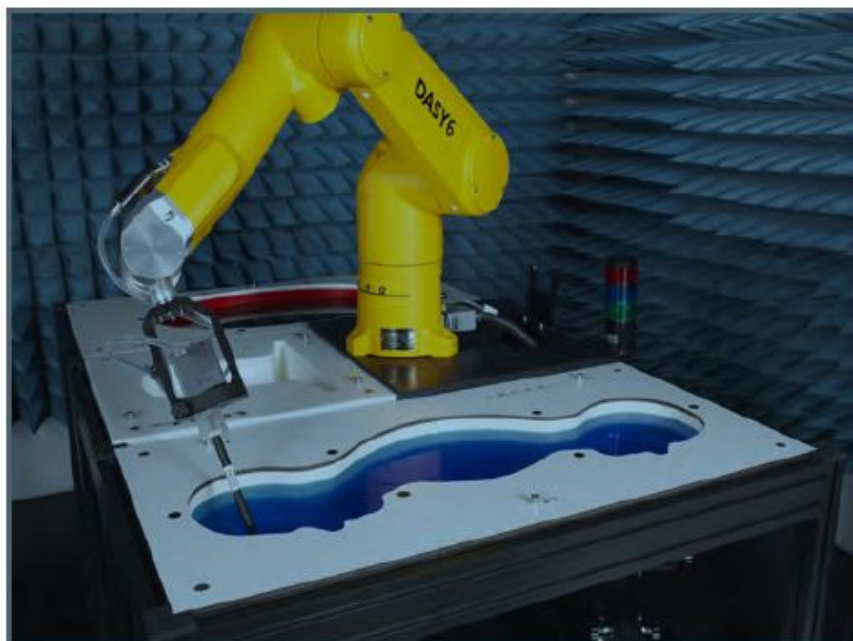
The lab has been recognized as the FCC accredited lab under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No.: 715558, the FCC Designation No.: CN5045.

Each test item follows test standards and with no deviation.



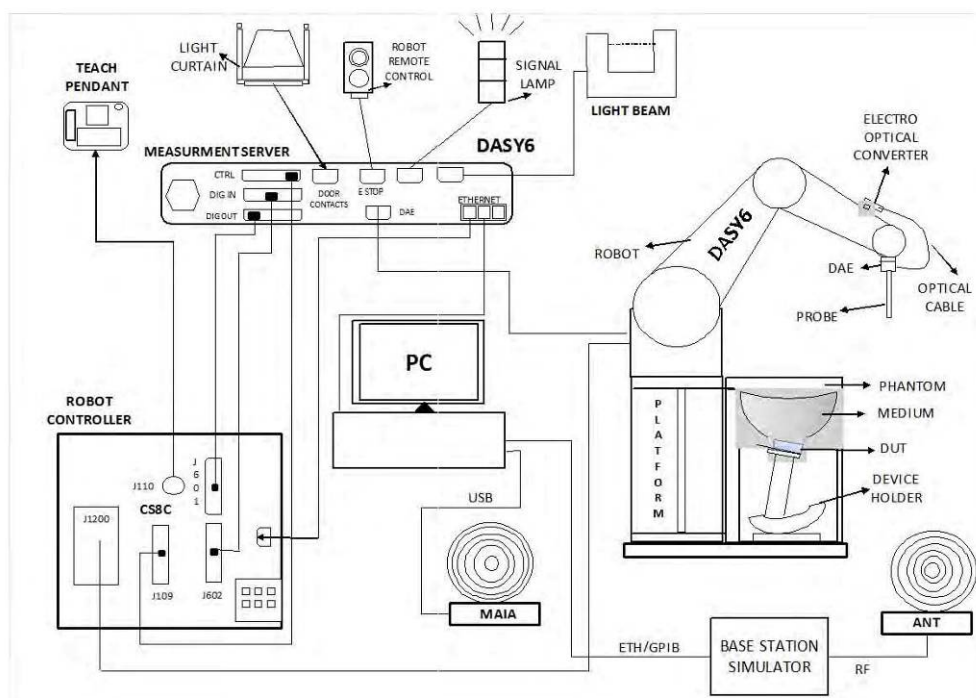
## DESCRIPTION OF TEST SYSTEM

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: $\pm 0.2$ dB (30 MHz to 10 GHz)                                                                                                                                                |
| <b>Directivity</b>   | $\pm 0.1$ dB in TSL (rotation around probe axis)<br>$\pm 0.3$ dB in TSL (rotation normal to probe axis)                                                                                                       |
| <b>Dynamic Range</b> | 10 $\mu$ W/g to > 100 mW/g<br>Linearity: $\pm 0.2$ dB (noise: typically < 1 $\mu$ W/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

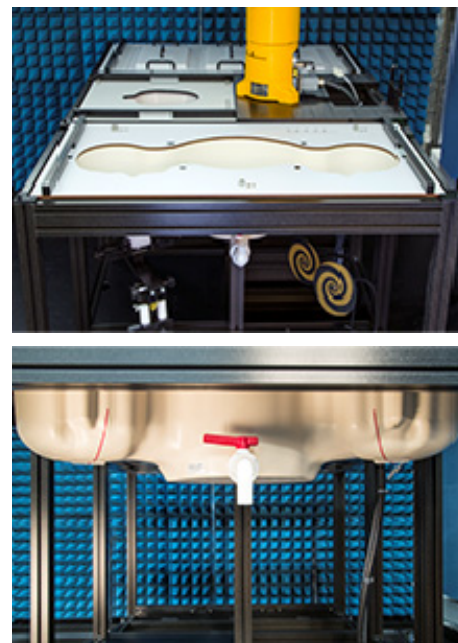
Phantom, some of the phantom teaching points cannot be reached by the robot in DASY5 V5.2. A special tool called P1a-P2aX-Former is provided to transform two of the three points, P1 and P2, to reachable locations. To use these new teaching points, a revised phantom configuration file is required.

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.



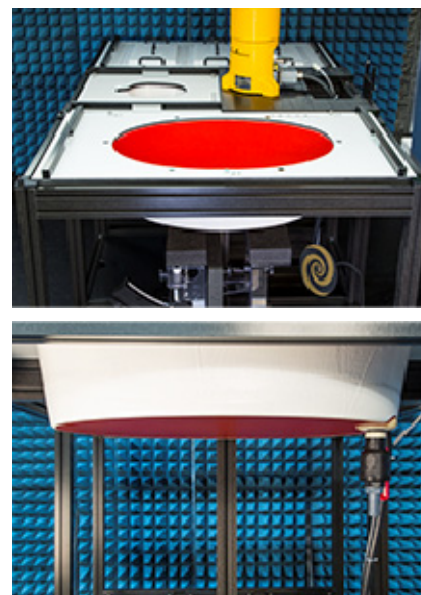
## ELI Phantom

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 IEEE 1528:2013 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: 7896 Calibrated: 2024/11/07**

| Calibration Frequency Point (MHz) | Frequency Range (MHz) |      | Conversion Factor |      |      |
|-----------------------------------|-----------------------|------|-------------------|------|------|
|                                   | From                  | To   | X                 | Y    | Z    |
| 750 Head                          | 650                   | 810  | 8.72              | 9.14 | 9.15 |
| 900 Head                          | 810                   | 1000 | 8.08              | 8.47 | 8.48 |
| 1750 Head                         | 1650                  | 1810 | 7.20              | 7.55 | 7.56 |
| 1900 Head                         | 1810                  | 2000 | 6.96              | 7.29 | 7.30 |
| 2300 Head                         | 2200                  | 2399 | 6.79              | 7.12 | 7.13 |
| 2450 Head                         | 2399                  | 2500 | 6.54              | 6.85 | 6.86 |
| 2600 Head                         | 2500                  | 2700 | 6.60              | 6.92 | 6.93 |
| 3300 Head                         | 3200                  | 3400 | 5.83              | 6.12 | 6.12 |
| 3500 Head                         | 3400                  | 3600 | 5.91              | 6.19 | 6.20 |
| 3700 Head                         | 3600                  | 3800 | 5.92              | 6.20 | 6.21 |
| 3900 Head                         | 3800                  | 4000 | 5.79              | 6.07 | 6.07 |
| 5250 Head                         | 5140                  | 5360 | 4.86              | 5.09 | 5.09 |
| 5600 Head                         | 5490                  | 5700 | 4.52              | 4.74 | 4.74 |
| 5800 Head                         | 5700                  | 5900 | 4.56              | 4.78 | 4.78 |
| 6500 Head                         | 5900                  | 7200 | 4.74              | 4.96 | 4.97 |

**SAR Scan Procedures****Step 1: Power Reference Measurement**

The Power Reference Measurement and Power Drift Measurements are for monitoring the power drift of the device under test in the batch process. The minimum distance of probe sensors to surface determines the closest measurement point to phantom surface. The minimum distance of probe sensors to surface is 1.4 mm. This distance cannot be smaller than the distance of sensor calibration points to probe tip as defined in the probe properties.

**Step 2: Area Scans**

Area scans are defined prior to the measurement process being executed with a user defined variable spacing between each measurement point (integral) allowing low uncertainty measurements to be conducted. Scans defined for FCC applications utilize a 15mm<sup>2</sup> step integral, with 1.5mm interpolation used to locate the peak SAR area used for zoom scan assessments.

Where the system identifies multiple SAR peaks (which are within 25% of peak value) the system will provide the user with the option of assessing each peak location individually for zoom scan averaging.

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

|                                                                                                        | ≤ 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. |                                                     |



### Step 3: Zoom Scan (Cube Scan Averaging)

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: $\Delta x_{\text{Zoom}}, \Delta y_{\text{Zoom}}$                                                                                                                                                                                                                                                                    |                                           |                                                                                             | $\leq 2 \text{ GHz}: \leq 8 \text{ mm}$<br>$2 - 3 \text{ GHz}: \leq 5 \text{ mm}^*$ | $3 - 4 \text{ GHz}: \leq 5 \text{ mm}^*$<br>$4 - 6 \text{ GHz}: \leq 4 \text{ mm}^*$                                          |
| Maximum zoom scan spatial resolution, normal to phantom surface                                                                                                                                                                                                                                                                                           | uniform grid: $\Delta z_{\text{Zoom}}(n)$ |                                                                                             | $\leq 5 \text{ mm}$                                                                 | $3 - 4 \text{ GHz}: \leq 4 \text{ mm}$<br>$4 - 5 \text{ GHz}: \leq 3 \text{ mm}$<br>$5 - 6 \text{ GHz}: \leq 2 \text{ mm}$    |
|                                                                                                                                                                                                                                                                                                                                                           | graded grid                               | $\Delta z_{\text{Zoom}}(1)$ : between 1 <sup>st</sup> two points closest to phantom surface | $\leq 4 \text{ mm}$                                                                 | $3 - 4 \text{ GHz}: \leq 3 \text{ mm}$<br>$4 - 5 \text{ GHz}: \leq 2.5 \text{ mm}$<br>$5 - 6 \text{ GHz}: \leq 2 \text{ mm}$  |
|                                                                                                                                                                                                                                                                                                                                                           |                                           | $\Delta z_{\text{Zoom}}(n>1)$ : between subsequent points                                   | $\leq 1.5 \cdot \Delta z_{\text{Zoom}}(n-1) \text{ mm}$                             |                                                                                                                               |
| Minimum zoom scan volume                                                                                                                                                                                                                                                                                                                                  | x, y, z                                   |                                                                                             | $\geq 30 \text{ mm}$                                                                | $3 - 4 \text{ GHz}: \geq 28 \text{ mm}$<br>$4 - 5 \text{ GHz}: \geq 25 \text{ mm}$<br>$5 - 6 \text{ GHz}: \geq 22 \text{ mm}$ |
| Note: $\delta$ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see IEEE Std 1528-2013 for details.                                                                                                                                                                                                                     |                                           |                                                                                             |                                                                                     |                                                                                                                               |
| * When zoom scan is required and the <u>reported</u> SAR from the <i>area scan based 1-g SAR estimation</i> procedures of KDB Publication 447498 is $\leq 1.4 \text{ W/kg}$ , $\leq 8 \text{ mm}$ , $\leq 7 \text{ mm}$ and $\leq 5 \text{ mm}$ zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz. |                                           |                                                                                             |                                                                                     |                                                                                                                               |

### Step 4: Power Drift Measurement

The Power Drift Measurement measures the field at the same location as the most recent power reference measurement within the same procedure, and with the same settings. The Power Drift Measurement gives the field difference in dB from the reading conducted within the last Power Reference Measurement. This allows a user to monitor the power drift of the device under test within a batch process. The measurement procedure is the same as Step 1.

When the cube intersects with the surface of the phantom, it is oriented so that 3 vertices touch the surface of the shell or the center of a face is tangent to the surface. The face of the cube closest to the surface is modified in order to conform to the tangent surface.

The zoom scan integer steps can be user defined so as to reduce uncertainty, but normal practice for typical test applications (including FCC) utilize a physical step of 7 x 7 x 7 (5mmx5mmx5mm) providing a volume of 30 mm in the X & Y & Z axis.

## Tissue Dielectric Parameters for Head and Body Phantoms

The head tissue dielectric parameters recommended by the IEEE 1528:2013

### Recommended Tissue Dielectric Parameters for Head liquid

**Table A.3 – Dielectric properties of the head tissue-equivalent 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>                      |
| 6 000            | 35,1                                  | 5,48                             |

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

### Equipment's List & Calibration Information

| Equipment                           | Model           | S/N            | Calibration Date | Calibration Due Date |
|-------------------------------------|-----------------|----------------|------------------|----------------------|
| DASY5 Test Software                 | DASY52 52.10.4  | N/A            | NCR              | NCR                  |
| DASY6 Measurement Server            | DASY6 6.0.31    | N/A            | NCR              | NCR                  |
| Data Acquisition Electronics        | DAE4            | 1325           | 2024/10/08       | 2025/10/07           |
| Dosimetric E-field Probes           | EX3DV4          | 7896           | 2024/11/07       | 2025/11/06           |
| Mounting Device                     | MD4HHTV5        | SD 000 H01 KA  | NCR              | NCR                  |
| SAM Twin Phantom                    | SAM-Twin V8.0   | 1962           | NCR              | NCR                  |
| Dipole, 750MHz                      | D750V3          | 1229           | 2023/03/24       | 2026/03/23           |
| Dipole, 900MHz                      | D900V2          | 132            | 2023/09/26       | 2026/09/25           |
| Dipole, 1750MHz                     | D1750V2         | 1199           | 2023/03/27       | 2026/03/26           |
| Dipole, 1900MHz                     | D1900V2         | 5d231          | 2023/02/17       | 2026/02/16           |
| Dipole, 2450MHz                     | D2450V2         | 1103           | 2023/03/27       | 2026/03/26           |
| Dipole, 2600MHz                     | D2600V2         | 1207           | 2023/03/27       | 2026/03/26           |
| Dipole,5GHz                         | D5GHzV2         | 1374           | 2023/03/27       | 2026/03/26           |
| Simulated Tissue Liquid Head        | HBBL600-10000V6 | 2200808-2      | Each Time        | /                    |
| Network Analyzer                    | E5071C          | SER MY46519680 | 2025/04/29       | 2026/04/28           |
| Dielectric Assessment Kit           | DAK-3.5         | 1248           | NCR              | NCR                  |
| MXG Analog Signal Generator         | N5181A          | MY48180408     | 2024/12/04       | 2025/12/03           |
| USB wideband power sensor           | U2021XA         | MY52350001     | 2025/04/29       | 2026/04/28           |
| Directional Coupler                 | 855673          | 3307           | NCR              | NCR                  |
| 20dB Attenuator                     | 2               | BH9879         | NCR              | NCR                  |
| RF Power Amplifier                  | 5205FE          | 1014           | NCR              | NCR                  |
| Wideband Radio Communication Tester | CMW500          | 141718         | 2024/08/06       | 2025/08/05           |
| Thermometer                         | DTM3000         | N/A            | 2024/12/10       | 2025/12/09           |
| Temperature & Humidity Meter        | 10316377        | N/A            | 2024/12/10       | 2025/12/09           |
| Spectrum Analyzer                   | FSV40           | 101942         | 2024/09/20       | 2025/09/19           |
| Straight Steel Ruler                | 600mm           | N/A            | 2024/12/11       | 2027/12/10           |

**Note:**

**NCR:** No Calibration Required.

**The Dipole calibration methods and procedures used were as detailed in:**

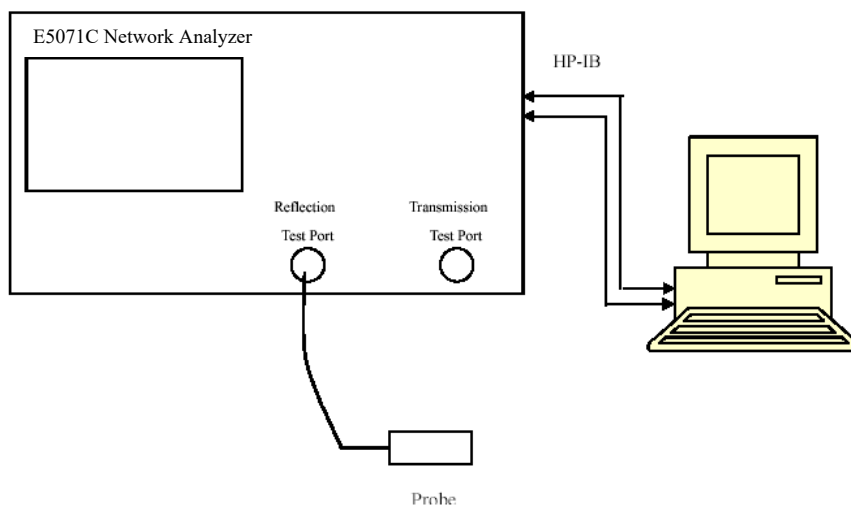
FCC KDB Publication Number: "KDB865664 D01 SAR Measurement 100 MHz to 6 GHz"

1. The return-loss does not deviate more than 20% from the previous measurement and meets the required 20dB minimum return-loss requirement.
2. The measurement of real or imaginary parts of impedance does not deviate more than 5Ω from the previous measurement.
3. The verify result is on APPENDIX D.



## 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 | 40.836           | 0.897          | 42.15        | 0.89           | -3.12              | 0.79                 | $\pm 5$       |
| 707.5           | Simulated Tissue Liquid Head | 40.827           | 0.897          | 42.13        | 0.89           | -3.09              | 0.79                 | $\pm 5$       |
| 711             | Simulated Tissue Liquid Head | 40.817           | 0.897          | 42.11        | 0.89           | -3.07              | 0.79                 | $\pm 5$       |
| 750             | Simulated Tissue Liquid Head | 40.709           | 0.901          | 41.90        | 0.89           | -2.84              | 1.24                 | $\pm 5$       |

\*Liquid Verification above was performed on 2025/07/05.

| 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) |               |
| 821.5           | Simulated Tissue Liquid Head | 40.819           | 0.916          | 41.56        | 0.90           | -1.78              | 1.78                 | $\pm 5$       |
| 824.2           | Simulated Tissue Liquid Head | 40.810           | 0.918          | 41.55        | 0.90           | -1.78              | 2.00                 | $\pm 5$       |
| 826.4           | Simulated Tissue Liquid Head | 40.803           | 0.920          | 41.54        | 0.90           | -1.77              | 2.22                 | $\pm 5$       |
| 831.5           | Simulated Tissue Liquid Head | 40.786           | 0.924          | 41.52        | 0.90           | -1.77              | 2.67                 | $\pm 5$       |
| 836.6           | Simulated Tissue Liquid Head | 40.768           | 0.928          | 41.50        | 0.90           | -1.76              | 3.11                 | $\pm 5$       |
| 841.5           | Simulated Tissue Liquid Head | 40.752           | 0.931          | 41.50        | 0.91           | -1.80              | 2.31                 | $\pm 5$       |
| 846.6           | Simulated Tissue Liquid Head | 40.735           | 0.935          | 41.50        | 0.91           | -1.84              | 2.75                 | $\pm 5$       |
| 848.8           | Simulated Tissue Liquid Head | 40.727           | 0.936          | 41.50        | 0.91           | -1.86              | 2.86                 | $\pm 5$       |
| 900             | Simulated Tissue Liquid Head | 40.555           | 0.975          | 41.50        | 0.97           | -2.28              | 0.52                 | $\pm 5$       |

\*Liquid Verification above was performed on 2025/07/06.

| Frequency (MHz) | Liquid Type                  | Liquid Parameter |                | Target Value |                | Delta (%)          |                | Tolerance (%) |
|-----------------|------------------------------|------------------|----------------|--------------|----------------|--------------------|----------------|---------------|
|                 |                              | $\epsilon_r$     | $\sigma$ (S/m) | $\epsilon_r$ | $\sigma$ (S/m) | $\Delta\epsilon_r$ | $\Delta\sigma$ |               |
| 1712.4          | Simulated Tissue Liquid Head | 41.518           | 1.368          | 40.13        | 1.35           | 3.46               | 1.33           | $\pm 5$       |
| 1720            | Simulated Tissue Liquid Head | 41.509           | 1.373          | 40.11        | 1.35           | 3.49               | 1.70           | $\pm 5$       |
| 1732.5          | Simulated Tissue Liquid Head | 41.494           | 1.382          | 40.10        | 1.36           | 3.48               | 1.62           | $\pm 5$       |
| 1732.6          | Simulated Tissue Liquid Head | 41.494           | 1.382          | 40.10        | 1.36           | 3.48               | 1.62           | $\pm 5$       |
| 1745            | Simulated Tissue Liquid Head | 41.479           | 1.391          | 40.08        | 1.37           | 3.49               | 1.53           | $\pm 5$       |
| 1750            | Simulated Tissue Liquid Head | 41.473           | 1.394          | 40.07        | 1.37           | 3.50               | 1.75           | $\pm 5$       |
| 1752.6          | Simulated Tissue Liquid Head | 41.470           | 1.396          | 40.07        | 1.37           | 3.49               | 1.90           | $\pm 5$       |

\*Liquid Verification above was performed on 2025/07/07.

| 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 | 39.423           | 1.356          | 40.00        | 1.40           | -1.44              | -3.14                | $\pm 5$       |
| 1852.4          | Simulated Tissue Liquid Head | 39.413           | 1.356          | 40.00        | 1.40           | -1.47              | -3.14                | $\pm 5$       |
| 1860            | Simulated Tissue Liquid Head | 39.378           | 1.356          | 40.00        | 1.40           | -1.56              | -3.14                | $\pm 5$       |
| 1880            | Simulated Tissue Liquid Head | 39.285           | 1.357          | 40.00        | 1.40           | -1.79              | -3.07                | $\pm 5$       |
| 1900            | Simulated Tissue Liquid Head | 39.193           | 1.357          | 40.00        | 1.40           | -2.02              | -3.07                | $\pm 5$       |
| 1907.6          | Simulated Tissue Liquid Head | 39.158           | 1.358          | 40.00        | 1.40           | -2.11              | -3.00                | $\pm 5$       |
| 1909.8          | Simulated Tissue Liquid Head | 39.148           | 1.358          | 40.00        | 1.40           | -2.13              | -3.00                | $\pm 5$       |

\*Liquid Verification above was performed on 2025/07/10.

| Frequency (MHz) | Liquid Type                  | Liquid Parameter |                | Target Value |                | Delta (%)          |                | Tolerance (%) |
|-----------------|------------------------------|------------------|----------------|--------------|----------------|--------------------|----------------|---------------|
|                 |                              | $\epsilon_r$     | $\sigma$ (S/m) | $\epsilon_r$ | $\sigma$ (S/m) | $\Delta\epsilon_r$ | $\Delta\sigma$ |               |
| 2412            | Simulated Tissue Liquid Head | 38.580           | 1.721          | 39.27        | 1.77           | -1.76              | -2.77          | $\pm 5$       |
| 2437            | Simulated Tissue Liquid Head | 38.542           | 1.755          | 39.22        | 1.79           | -1.73              | -1.96          | $\pm 5$       |
| 2450            | Simulated Tissue Liquid Head | 38.523           | 1.772          | 39.20        | 1.80           | -1.73              | -1.56          | $\pm 5$       |
| 2462            | Simulated Tissue Liquid Head | 38.504           | 1.789          | 39.18        | 1.81           | -1.73              | -1.16          | $\pm 5$       |

\*Liquid Verification above was performed on 2025/07/06.

| Frequency (MHz) | Liquid Type                  | Liquid Parameter |                | Target Value |                | Delta (%)          |                | Tolerance (%) |
|-----------------|------------------------------|------------------|----------------|--------------|----------------|--------------------|----------------|---------------|
|                 |                              | $\epsilon_r$     | $\sigma$ (S/m) | $\epsilon_r$ | $\sigma$ (S/m) | $\Delta\epsilon_r$ | $\Delta\sigma$ |               |
| 2506            | Simulated Tissue Liquid Head | 38.681           | 1.831          | 39.13        | 1.86           | -1.15              | -1.56          | $\pm 5$       |
| 2510            | Simulated Tissue Liquid Head | 38.669           | 1.835          | 39.12        | 1.86           | -1.15              | -1.34          | $\pm 5$       |
| 2535            | Simulated Tissue Liquid Head | 38.594           | 1.861          | 39.09        | 1.89           | -1.27              | -1.53          | $\pm 5$       |
| 2549.5          | Simulated Tissue Liquid Head | 38.551           | 1.876          | 39.07        | 1.91           | -1.33              | -1.78          | $\pm 5$       |
| 2560            | Simulated Tissue Liquid Head | 38.520           | 1.887          | 39.05        | 1.92           | -1.36              | -1.72          | $\pm 5$       |
| 2593            | Simulated Tissue Liquid Head | 38.421           | 1.921          | 39.01        | 1.95           | -1.51              | -1.49          | $\pm 5$       |
| 2600            | Simulated Tissue Liquid Head | 38.400           | 1.928          | 39.00        | 1.96           | -1.54              | -1.63          | $\pm 5$       |
| 2636.5          | Simulated Tissue Liquid Head | 38.291           | 1.966          | 38.95        | 2.00           | -1.69              | -1.70          | $\pm 5$       |
| 2680            | Simulated Tissue Liquid Head | 38.161           | 2.011          | 38.90        | 2.05           | -1.90              | -1.90          | $\pm 5$       |

\*Liquid Verification above was performed on 2025/07/09.

| Frequency (MHz) | Liquid Type                  | Liquid Parameter |                | Target Value |                | Delta (%)          |                | Tolerance (%) |
|-----------------|------------------------------|------------------|----------------|--------------|----------------|--------------------|----------------|---------------|
|                 |                              | $\epsilon_r$     | $\sigma$ (S/m) | $\epsilon_r$ | $\sigma$ (S/m) | $\Delta\epsilon_r$ | $\Delta\sigma$ |               |
| 5500            | Simulated Tissue Liquid Head | 35.685           | 4.886          | 35.65        | 4.97           | 0.10               | -1.69          | $\pm 5$       |
| 5580            | Simulated Tissue Liquid Head | 35.594           | 5.045          | 35.53        | 5.05           | 0.18               | -0.10          | $\pm 5$       |
| 5600            | Simulated Tissue Liquid Head | 35.571           | 5.085          | 35.50        | 5.07           | 0.20               | 0.30           | $\pm 5$       |
| 5700            | Simulated Tissue Liquid Head | 35.457           | 5.283          | 35.40        | 5.17           | 0.16               | 2.19           | $\pm 5$       |

\*Liquid Verification above was performed on 2025/07/09.

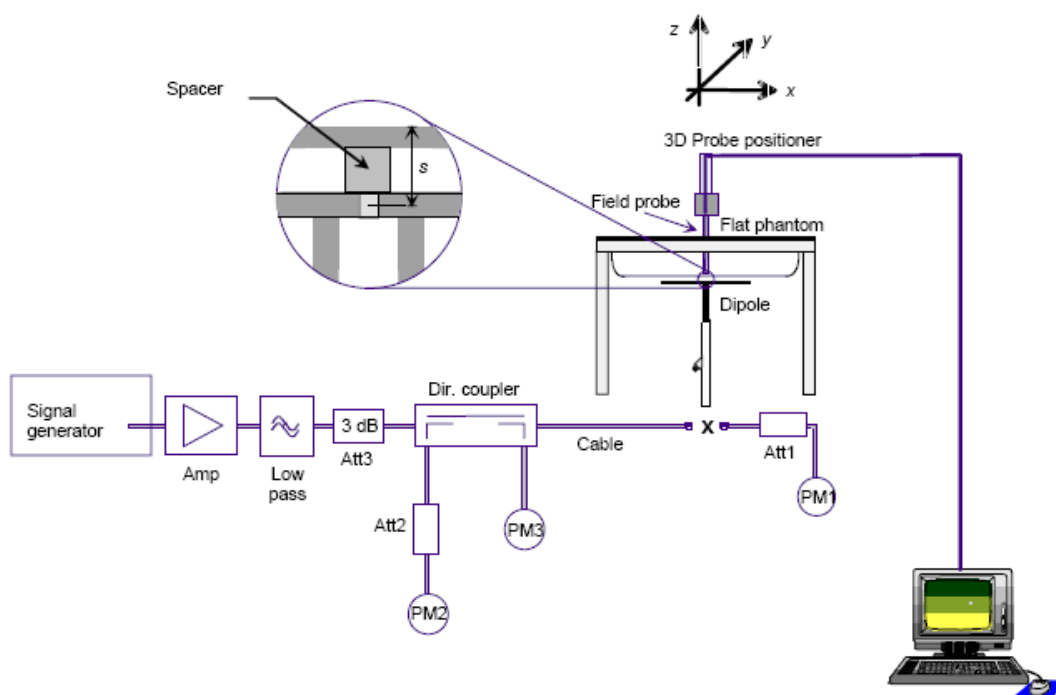
## System Accuracy Verification

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:

- $s = 15 \text{ mm} \pm 0,2 \text{ mm}$  for  $300 \text{ MHz} \leq f \leq 1\,000 \text{ MHz}$ ;
- $s = 10 \text{ mm} \pm 0,2 \text{ mm}$  for  $1\,000 \text{ MHz} < f \leq 3\,000 \text{ MHz}$ ;
- $s = 10 \text{ mm} \pm 0,2 \text{ mm}$  for  $3\,000 \text{ MHz} < f \leq 6\,000 \text{ MHz}$ .

## System Verification Setup Block Diagram



## System Accuracy Check Results

| Date       | Frequency Band (MHz) | Liquid Type | Input Power (mW) | Measured SAR (W/kg) |       | Normalized to 1W (W/kg) | Target Value (W/Kg) | Delta (%) | Tolerance (%) |
|------------|----------------------|-------------|------------------|---------------------|-------|-------------------------|---------------------|-----------|---------------|
| 2025/07/05 | 750                  | Head        | 100              | 1g                  | 0.827 | 8.27                    | 8.41                | -1.665    | $\pm 10$      |
| 2025/07/06 | 900                  | Head        | 100              | 1g                  | 1.08  | 10.8                    | 10.8                | 0.000     | $\pm 10$      |
| 2025/07/07 | 1750                 | Head        | 100              | 1g                  | 3.47  | 34.7                    | 36.0                | -3.611    | $\pm 10$      |
| 2025/07/10 | 1900                 | Head        | 100              | 1g                  | 3.8   | 38.0                    | 39.9                | -4.762    | $\pm 10$      |
| 2025/07/06 | 2450                 | Head        | 100              | 1g                  | 4.89  | 48.9                    | 51.7                | -5.416    | $\pm 10$      |
| 2025/07/09 | 2600                 | Head        | 100              | 1g                  | 5.14  | 51.4                    | 55.2                | -6.884    | $\pm 10$      |
| 2025/07/09 | 5600                 | Head        | 100              | 1g                  | 8.16  | 81.6                    | 83.6                | -2.392    | $\pm 10$      |

### Note:

All the SAR values are normalized to 1Watt 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:  $f = 750$  MHz;  $\sigma = 0.901$  S/m;  $\epsilon_r = 40.709$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7896; ConvF(8.72, 9.14, 9.15) @ 750 MHz; Calibrated: 11/7/2024
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1325; Calibrated: 10/8/2024
- Phantom: SAM-Twin V8.0 P1aP2a; Type: QD 000 P41 AA ;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

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

Maximum value of SAR (measured) = 0.950 W/kg

**Configuration/Head 750MHz Pin=100mW/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 30.14 V/m; Power Drift = 0.02 dB

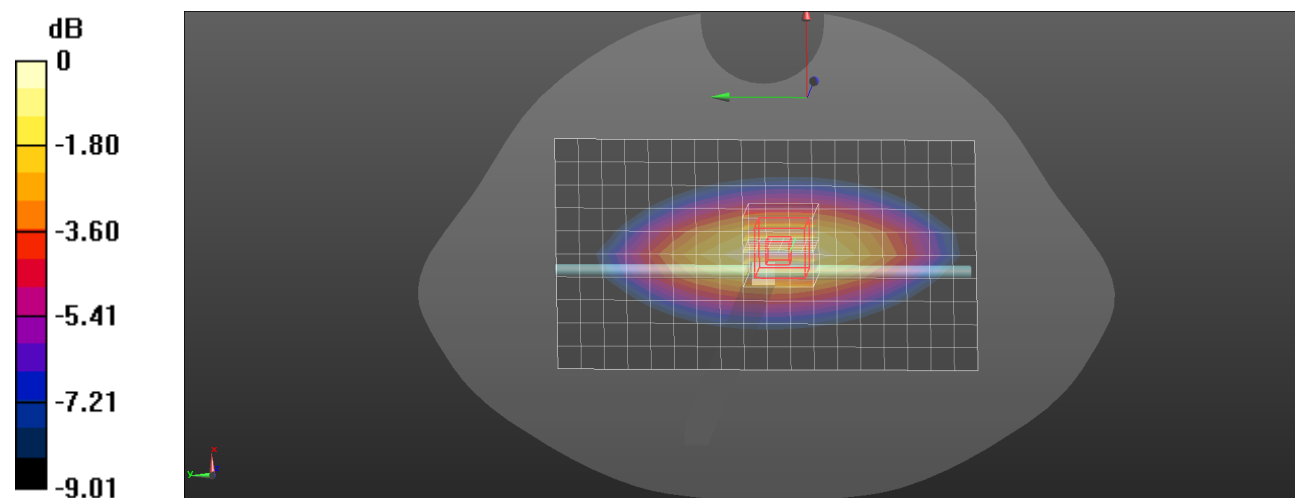
Peak SAR (extrapolated) = 1.14 W/kg

**SAR(1 g) = 0.827 W/kg; SAR(10 g) = 0.573 W/kg**

Smallest distance from peaks to all points 3 dB below = 19.2 mm

Ratio of SAR at M2 to SAR at M1 = 71.9%

Maximum value of SAR (measured) = 1.05 W/kg



0 dB = 1.05 W/kg = 0.21 dBW/kg

**System Performance 900 MHz****DUT: Dipole 900 MHz; Type: D900V2; Serial: 132**

Communication System: UID 0, CW (0); Frequency: 900 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 900$  MHz;  $\sigma = 0.975$  S/m;  $\epsilon_r = 40.555$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7896; ConvF(8.08, 8.47, 8.48) @ 900 MHz; Calibrated: 11/7/2024
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1325; Calibrated: 10/8/2024
- Phantom: SAM-Twin V8.0 P1aP2a; Type: QD 000 P41 AA ;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

**Configuration/Head 900MHz Pin=100mW/Area Scan (7x12x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 1.43 W/kg

**Configuration/Head 900MHz Pin=100mW/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 36.07 V/m; Power Drift = -0.10 dB

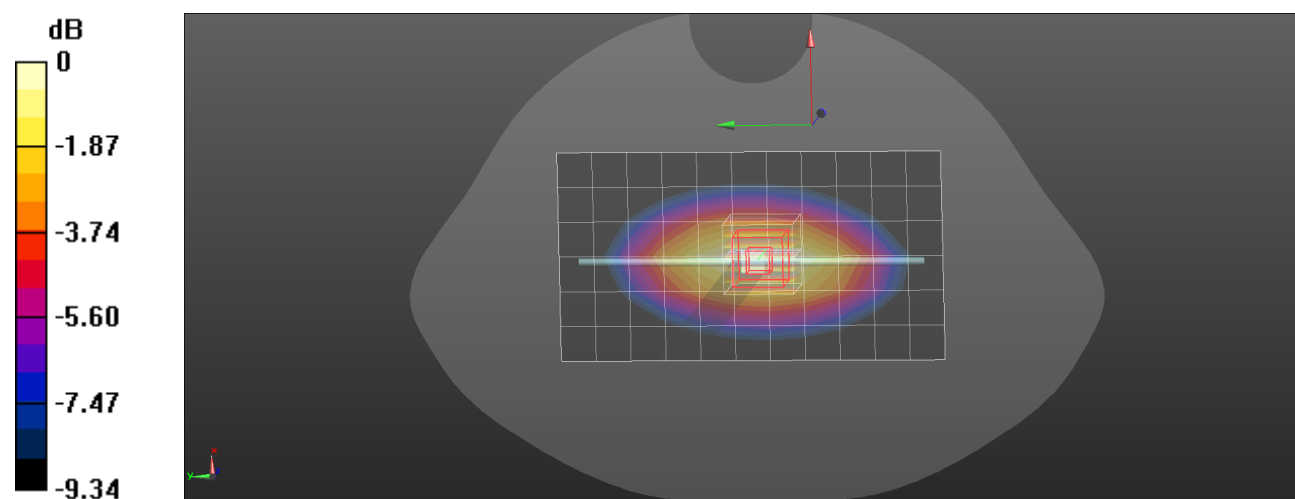
Peak SAR (extrapolated) = 1.50 W/kg

**SAR(1 g) = 1.08 W/kg; SAR(10 g) = 0.738 W/kg**

Smallest distance from peaks to all points 3 dB below = 18.4 mm

Ratio of SAR at M2 to SAR at M1 = 72.7%

Maximum value of SAR (measured) = 1.38 W/kg



0 dB = 1.38 W/kg = 1.40 dBW/kg

**System Performance 1750 MHz****DUT: Dipole 1750 MHz; Type: D1750V2; Serial: 1199**

Communication System: UID 0, CW (0); Frequency: 1750 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 1750$  MHz;  $\sigma = 1.394$  S/m;  $\epsilon_r = 41.473$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7896; ConvF(7.2, 7.55, 7.56) @ 1750 MHz; Calibrated: 11/7/2024
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1325; Calibrated: 10/8/2024
- Phantom: SAM-Twin V8.0 P1aP2a; Type: QD 000 P41 AA ;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

**Configuration/Head 1750MHz Pin=100mW/Area Scan (7x8x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 4.56 W/kg

**Configuration/Head 1750MHz Pin=100mW/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 53.01 V/m; Power Drift = -0.14 dB

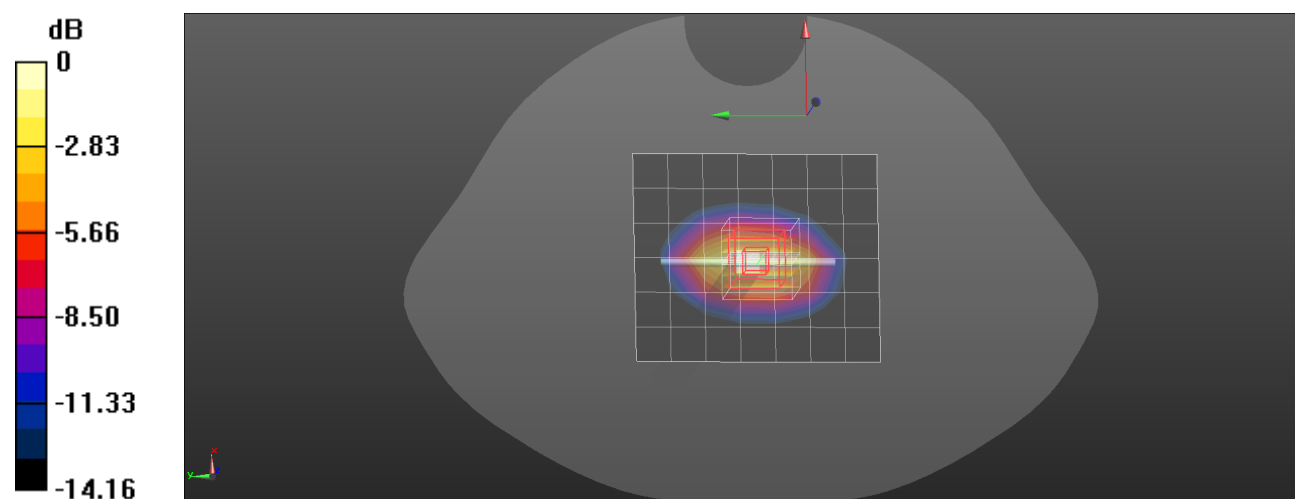
Peak SAR (extrapolated) = 5.57 W/kg

**SAR(1 g) = 3.47 W/kg; SAR(10 g) = 1.99 W/kg**

Smallest distance from peaks to all points 3 dB below = 10 mm

Ratio of SAR at M2 to SAR at M1 = 62.9%

Maximum value of SAR (measured) = 4.94 W/kg



0 dB = 4.94 W/kg = 6.94 dBW/kg

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

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

Medium parameters used:  $f = 1900$  MHz;  $\sigma = 1.357$  S/m;  $\epsilon_r = 39.193$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7896; ConvF(6.96, 7.29, 7.3) @ 1900 MHz; Calibrated: 11/7/2024
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1325; Calibrated: 10/8/2024
- Phantom: SAM-Twin V8.0 P1aP2a; Type: QD 000 P41 AA ;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

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

Maximum value of SAR (measured) = 5.82 W/kg

**Configuration/Head 1900MHz Pin=100mW/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 60.23 V/m; Power Drift = -0.03 dB

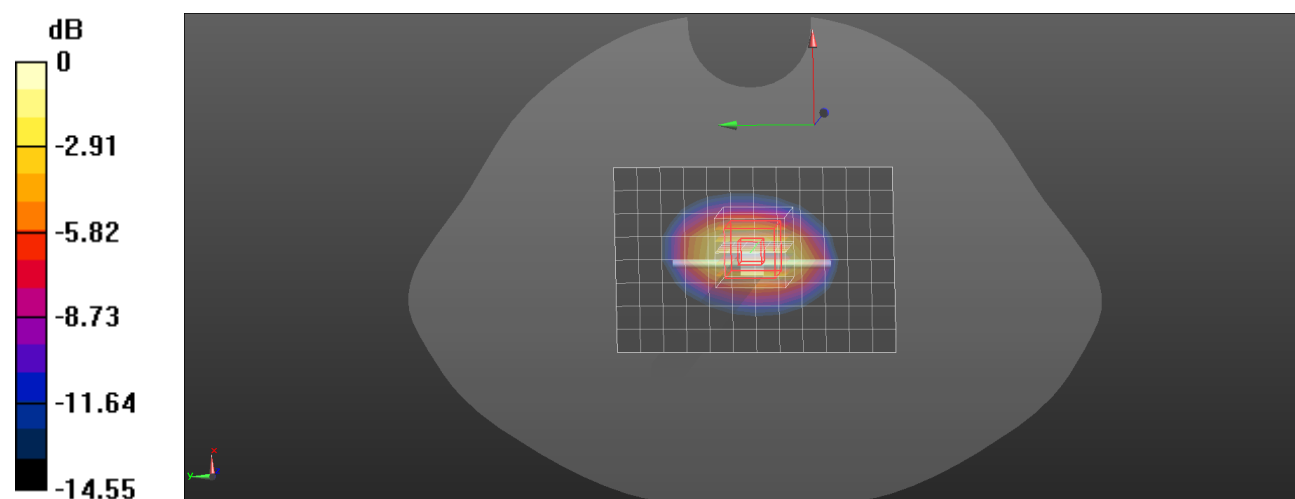
Peak SAR (extrapolated) = 6.16 W/kg

**SAR(1 g) = 3.8 W/kg; SAR(10 g) = 2.12 W/kg**

Smallest distance from peaks to all points 3 dB below = 10 mm

Ratio of SAR at M2 to SAR at M1 = 62%

Maximum value of SAR (measured) = 5.44 W/kg





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

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

Medium parameters used:  $f = 2450$  MHz;  $\sigma = 1.772$  S/m;  $\epsilon_r = 38.523$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7896; ConvF(6.54, 6.85, 6.86) @ 2450 MHz; Calibrated: 11/7/2024
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1325; Calibrated: 10/8/2024
- Phantom: SAM-Twin V8.0 P1aP2a; Type: QD 000 P41 AA ;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

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

Maximum value of SAR (measured) = 7.21 W/kg

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

Reference Value = 60.06 V/m; Power Drift = -0.03 dB

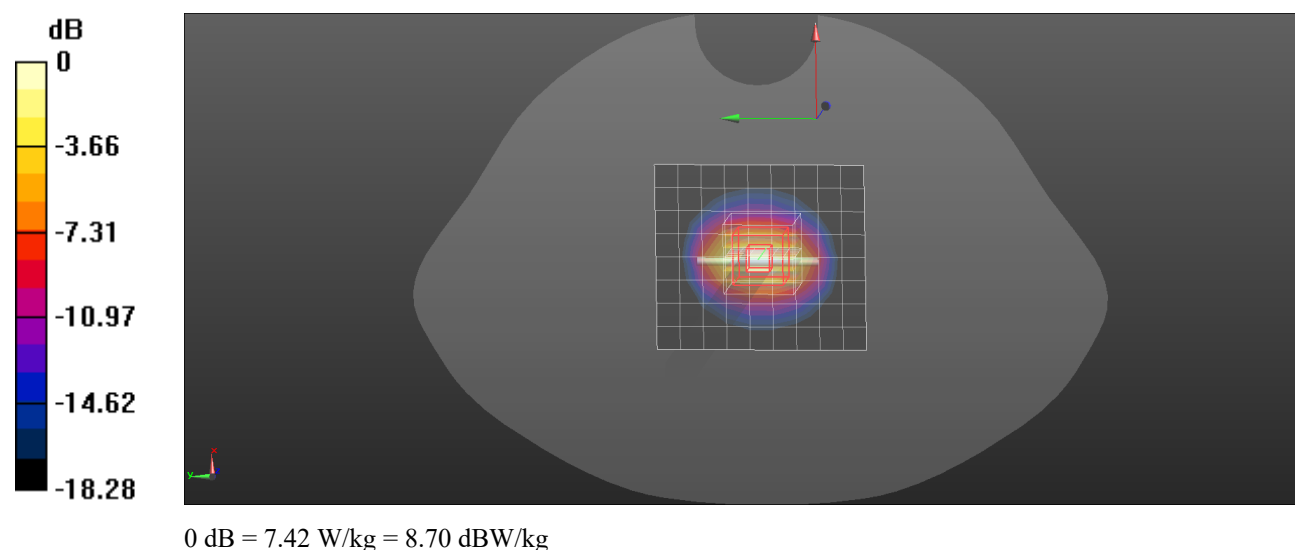
Peak SAR (extrapolated) = 8.52 W/kg

**SAR(1 g) = 4.89 W/kg; SAR(10 g) = 2.47 W/kg**

Smallest distance from peaks to all points 3 dB below = 9.2 mm

Ratio of SAR at M2 to SAR at M1 = 58.2%

Maximum value of SAR (measured) = 7.42 W/kg



**System Performance 2600 MHz****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;  $\sigma = 1.928$  S/m;  $\epsilon_r = 38.4$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7896; ConvF(6.6, 6.92, 6.93) @ 2600 MHz; Calibrated: 11/7/2024
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1325; Calibrated: 10/8/2024
- Phantom: SAM-Twin V8.0 P1aP2a; Type: QD 000 P41 AA ;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

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

Maximum value of SAR (measured) = 7.12 W/kg

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

Reference Value = 56.48 V/m; Power Drift = -0.08 dB

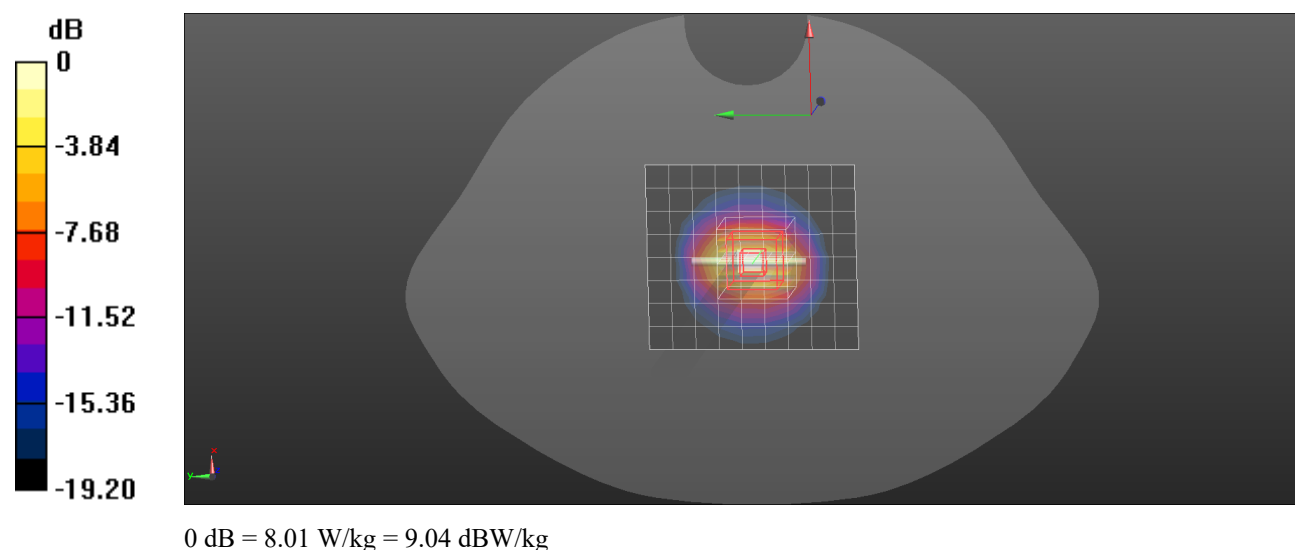
Peak SAR (extrapolated) = 9.26 W/kg

**SAR(1 g) = 5.14 W/kg; SAR(10 g) = 2.52 W/kg**

Smallest distance from peaks to all points 3 dB below = 9 mm

Ratio of SAR at M2 to SAR at M1 = 56.6%

Maximum value of SAR (measured) = 8.01 W/kg



**System Performance 5600 MHz****DUT: Dipole D5GHz; Type: D5GHzV2; Serial: 1374**

Communication System: UID 0, CW (0); Frequency: 5600 MHz;Duty Cycle: 1:1

Medium parameters used:  $f = 5600$  MHz;  $\sigma = 5.085$  S/m;  $\epsilon_r = 35.571$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7896; ConvF(4.52, 4.74, 4.74) @ 5600 MHz; Calibrated: 11/7/2024
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1325; Calibrated: 10/8/2024
- Phantom: SAM-Twin V8.0 P1aP2a; Type: QD 000 P41 AA ;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

**Configuration/Head 5600MHz Pin=100mW/Area Scan (7x9x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 16.9 W/kg

**Configuration/Head 5600MHz Pin=100mW/Zoom Scan (8x8x12)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 41.35 V/m; Power Drift = 0.09 dB

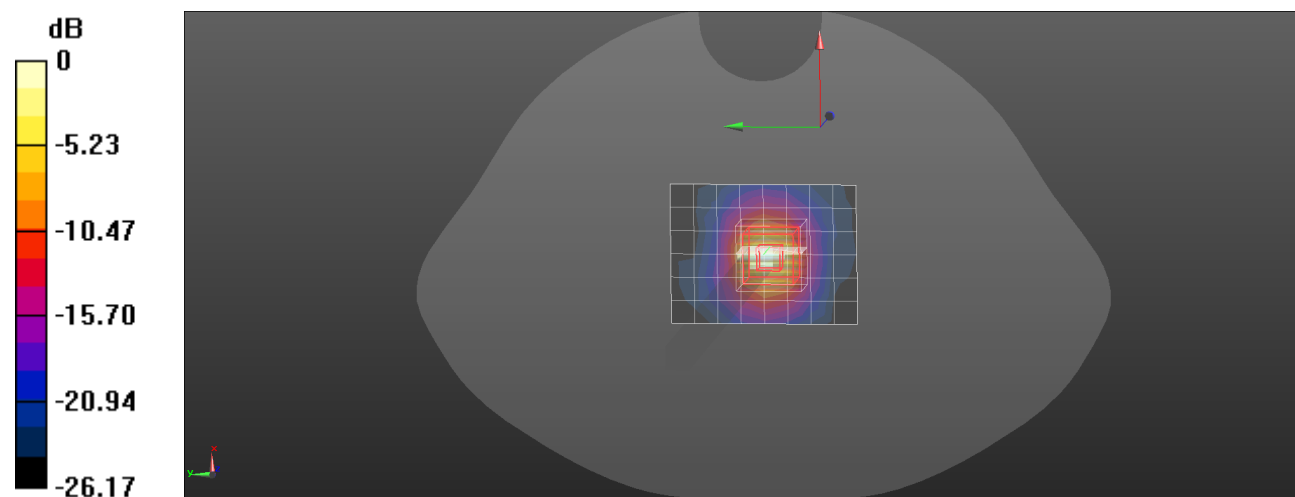
Peak SAR (extrapolated) = 29.4 W/kg

**SAR(1 g) = 8.16 W/kg; SAR(10 g) = 2.42 W/kg**

Smallest distance from peaks to all points 3 dB below = 7.4 mm

Ratio of SAR at M2 to SAR at M1 = 58.5%

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



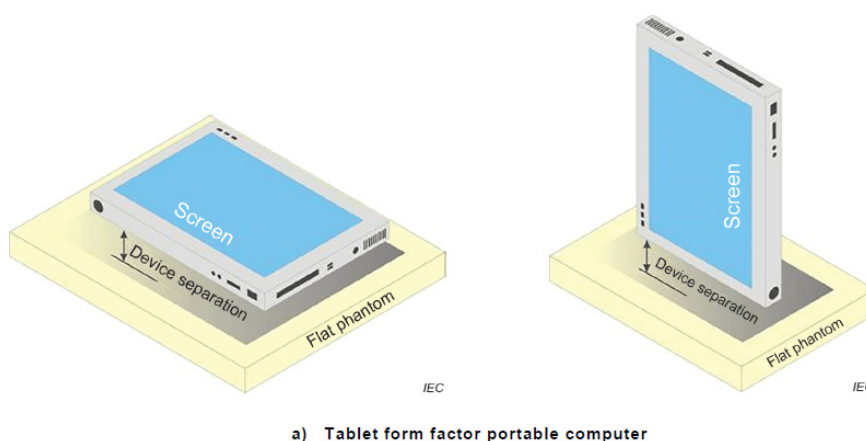
0 dB = 17.7 W/kg = 12.48 dBW/kg

## 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.

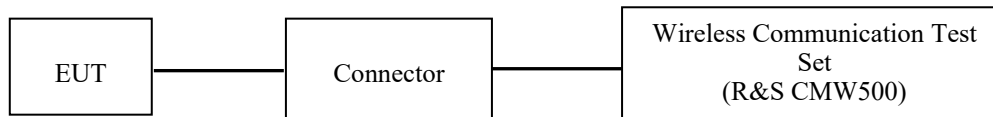
Step 4: Re-measurement of the SAR value at the same location as in Step 1. If the value changed by more than 5%, the evaluation was repeated.

## CONDUCTED OUTPUT POWER MEASUREMENT

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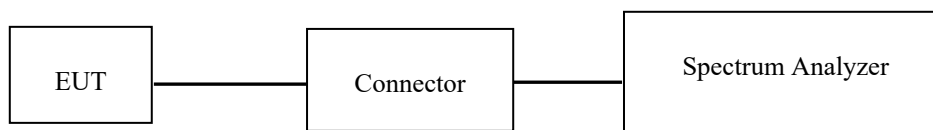
### Test Procedure

The RF output of the transmitter was connected to the input of the Wireless Communication Test Set through Connector.



### GSM/WCDMA/LTE

The RF output of the transmitter was connected to the input port of the Spectrum Analyzer through Connector.



### BT/BLE/WLAN

## Description of Test Configuration

### EUT Operation Condition:

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                               |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|
| <b>EUT Operation Mode:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | The system was configured for testing in each operation mode. |
| <b>Equipment Modifications:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | No                                                            |
| <b>EUT Exercise Software:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | No                                                            |
| <p>The maximum power was configured per 3GPP Standard for each operation modes as below setting:</p> <p><b>GSM/GPRS/EGPRS</b></p> <p>Function: Menu select &gt; GSM Mobile Station &gt; GSM 850/1900<br/>           Press Connection control to choose the different menus<br/>           Press RESET &gt; choose all the reset all settings<br/>           Connection Press Signal Off to turn off the signal and change settings<br/>           Network Support &gt; GSM + GPRS or GSM + EGSM<br/>           Main Service &gt; Packet Data<br/>           Service selection &gt; Test Mode A – Auto Slot Config. off<br/>           MS Signal Press Slot Config Bottom on the right twice to select and change the number of time slots and power setting<br/>               &gt; Slot configuration &gt; Uplink/Gamma<br/>               &gt; 33 dBm for GPRS 850<br/>               &gt; 30 dBm for GPRS 1900<br/>               &gt; 27 dBm for EGPRS 850<br/>               &gt; 26 dBm for EGPRS 1900<br/>           BS Signal channel Enter the same channel number for TCH channel (test channel) and BCCH<br/>           Frequency Offset &gt; + 0 Hz<br/>           Mode &gt; BCCH and TCH</p> <p>BCCH Level &gt; -85 dBm (May need to adjust if link is not stable)<br/>           BCCH Channel &gt; choose desire test channel [Enter the same channel number for TCH channel (test channel) and BCCH channel]</p> <p>Channel Type &gt; Off<br/>           P0 &gt; 4 dB<br/>           Slot Config&gt; Unchanged (if already set under MS signal)<br/>           TCH &gt; choose desired test channel<br/>           Hopping &gt; Off<br/>           Main Timeslot &gt; 3<br/>           Network Coding Scheme &gt; CS4 (GPRS) and MCS5 (EGPRS)</p> <p>Bit Stream &gt; 2E9-1 PSR Bit Stream<br/>           AF/RF Enter appropriate offsets for Ext. Att. Output and Ext. Att.<br/>           Input<br/>           Connection Press Sign</p> |                                                               |

**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 Settings</b> | Loopback Mode           | Test Mode 1  |
|                                   | Rel99 RMC               | 12.2kbps RMC |
|                                   | Power Control Algorithm | Algorithm2   |
|                                   | $\beta$ / $\beta_d$     | 8/15         |

**WCDMA 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/>Set ings</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 |
|                                        | $\beta_d$                  | 1 /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            |       |       |       |
|                                        | Ahs= $\beta_{hs}/\beta_c$  | 30/15        |       |       |       |



**WCDMA HSUPA**

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

|                                | Mode                             | HSUPA                                                                                                                                        | HSUPA                                                | HSUPA                                                                                                                                        | HSUPA | HSUPA |
|--------------------------------|----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|
|                                | Subset                           | 1                                                                                                                                            | 2                                                    | 3                                                                                                                                            | 4     | 5     |
| <b>WCDMA General Settings</b>  | Loopback Mode                    | Test Mode 1                                                                                                                                  |                                                      |                                                                                                                                              |       |       |
|                                | Rel99 RMC                        | 12.2kbps RMC                                                                                                                                 |                                                      |                                                                                                                                              |       |       |
|                                | HSDPA FRC                        | H-Set1                                                                                                                                       |                                                      |                                                                                                                                              |       |       |
|                                | HSUPA Test                       | HSUPA Loopback                                                                                                                               |                                                      |                                                                                                                                              |       |       |
|                                | Power Control 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 Specific 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                                                                                                                                        |                                                      |                                                                                                                                              |       |       |
| <b>HSUPA Specific 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 UL Data Rate k ps | 242.1                                                                                                                                        | 174.9                                                | 482.8                                                                                                                                        | 205.8 | 308.9 |
|                                | Reference E_FCI                  | 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 11<br>E-TFCI PO4<br>E-TFCI 92<br>E-TFCI 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+**

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

| 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.

**LTE (FDD):**

The following tests were conducted according to the test requirements in 3GPP TS36.101

The following tests were conducted according to the test requirements outlined in section 6.2 of the 3GPP TS36.101 specification.

UE Power Class: 3 (23 +/- 2dBm). The allowed Maximum Power Reduction (MPR) for the maximum output power due to higher order modulation and transmit bandwidth configuration (resource blocks) is specified in Table 6.2.3-1 of the 3GPP TS36.101.

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

| Modulation | Channel bandwidth / Transmission bandwidth (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      |
| 64 QAM     | > 5                                             | > 4     | > 8   | > 12   | > 16   | > 18   | ≤ 2      |

The allowed A-MPR values specified below in Table 6.2.4-1 of 3GPP TS36.101 are in addition to the allowed MPR requirements. All the measurements below were performed with A-MPR disabled, by using Network Signaling Value of "NS\_01".

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

| Network Signalling value | Requirements (sub-clause) | 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                   | NA            |
| 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           |
| NS_04                    | 6.6.2.2.2                 | 41                       | 20                      | >10                           | ≤ 1           |
|                          |                           |                          | 5                       | >6                            | ≤ 1           |
| NS_05                    | 6.6.3.3.1                 | 1                        | 10, 15, 20              | See Table 6.2.4-4             | ≤ 1           |
| NS_06                    | 6.6.2.2.3                 | 12, 13, 14, 17           | 1.4, 3, 5, 10           | ≥ 50                          | n/a           |
| NS_07                    | 6.6.2.2.3                 | 13                       | 1.4, 3, 5, 10           | Table 5.6-1                   | Table 6.2.4-2 |
| NS_08                    | 6.6.3.3.3                 | 19                       | 10, 15                  | Table 6.2.4-2                 | Table 6.2.4-2 |
| NS_09                    | 6.6.3.3.4                 | 21                       | 10, 15                  | > 44                          | ≤ 3           |
| NS_10                    | 6.6.3.3.4                 | 21                       | 10, 15                  | > 40                          | ≤ 1           |
| NS_11                    | 6.6.2.2.1                 | 23 <sup>1</sup>          | 1.4, 3, 5, 10           | > 55                          | ≤ 2           |
| NS_12                    | 6.6.2.2.1                 | 23 <sup>1</sup>          | 1.4, 3, 5, 10           | Table 6.2.4-3                 | Table 6.2.4-3 |
| NS_13                    | 6.6.2.2.1                 | 23 <sup>1</sup>          | 1.4, 3, 5, 10           | Table 6.2.4-5                 | Table 6.2.4-5 |
| NS_32                    | -                         | -                        | -                       | -                             | -             |

Note 1: Applies to the lower block of Band 23, i.e. a carrier placed in the 2000-2010 MHz region.

## 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                              | $26336 \cdot T_s$                | $4384 \cdot T_s$               | $5120 \cdot T_s$                 | $7680 \cdot T_s$                   | $4384 \cdot T_s$               | $5120 \cdot T_s$                 |
| 5                              | $6592 \cdot T_s$                 |                                |                                  | $20480 \cdot T_s$                  |                                |                                  |
| 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                     |

We used configuration 0 for LTE Band 38/41 SAR test, that is 63.33%(1:1.58)for 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                      | 33.0           | 33.0          | 33.0        |
| GPRS 1 TX Slot               | 33.5           | 33.5          | 33.5        |
| GPRS 2 TX Slot               | 32.0           | 32.0          | 32.0        |
| GPRS 3 TX Slot               | 31.0           | 31.0          | 31.0        |
| GPRS 4 TX Slot               | 29.8           | 29.8          | 29.8        |
| EGPRS 1 TX Slot              | 27.0           | 27.0          | 27.0        |
| EGPRS 2 TX Slot              | 26.5           | 26.5          | 26.5        |
| EGPRS 3 TX Slot              | 25.0           | 25.0          | 25.0        |
| EGPRS 4 TX Slot              | 23.5           | 23.5          | 23.5        |
| PCS 1900                     | 29.5           | 29.5          | 29.5        |
| GPRS 1 TX Slot               | 30.0           | 30.0          | 30.0        |
| GPRS 2 TX Slot               | 29.0           | 29.0          | 29.0        |
| GPRS 3 TX Slot               | 27.0           | 27.0          | 27.0        |
| GPRS 4 TX Slot               | 26.0           | 26.0          | 26.0        |
| EGPRS 1 TX Slot              | 26.0           | 26.0          | 26.0        |
| EGPRS 2 TX Slot              | 25.5           | 25.5          | 25.5        |
| EGPRS 3 TX Slot              | 24.5           | 24.5          | 24.5        |
| EGPRS 4 TX Slot              | 23.0           | 23.0          | 23.0        |
| WCDMA Band 2(RMC)            | 16.0           | 16.0          | 16.0        |
| HSDPA                        | 15.0           | 15.0          | 15.0        |
| HSUPA                        | 15.0           | 15.0          | 15.0        |
| HSPA+                        | 15.0           | 15.0          | 15.0        |
| WCDMA Band 4(RMC)            | 21.4           | 21.4          | 21.4        |
| HSDPA                        | 20.5           | 20.5          | 20.5        |
| HSUPA                        | 20.5           | 20.5          | 20.5        |
| HSPA+                        | 20.5           | 20.5          | 20.5        |
| WCDMA Band 5(RMC)            | 23.5           | 23.5          | 23.5        |
| HSDPA                        | 22.0           | 22.0          | 22.0        |
| HSUPA                        | 22.0           | 22.0          | 22.0        |
| HSPA+                        | 22.0           | 22.0          | 22.0        |
| LTE Band 2                   | 15.8           | 15.8          | 15.8        |
| LTE Band 4                   | 21.0           | 21.0          | 21.0        |
| LTE Band 5                   | 24.0           | 24.0          | 24.0        |
| LTE Band 7                   | 18.0           | 18.0          | 18.0        |
| LTE Band 12                  | 23.5           | 23.5          | 23.5        |
| LTE Band 17                  | 22.5           | 22.5          | 22.5        |
| LTE Band 26                  | 24.3           | 24.3          | 24.3        |
| LTE Band 38                  | 24.0           | 24.0          | 24.0        |
| LTE Band 41                  | 25.0           | 25.0          | 25.0        |

Note: The Maximum Target Power for LTE bands corresponds to their maximum power in QPSK modes with maximum bandwidth.

| Max Target Power(dBm) |         |        |      |            |
|-----------------------|---------|--------|------|------------|
| Mode/Band             | Channel |        |      |            |
|                       | Low     | Middle | High | Additional |
| WLAN 2.4G(802.11b)    | 16.0    | 16.0   | 16.0 | /          |
| WLAN 2.4G(802.11g)    | 10.5    | 10.5   | 10.5 | /          |
| WLAN 2.4G(802.11n20)  | 10.5    | 10.5   | 10.5 | /          |
| WLAN 5.2G(802.11a)    | 7.5     | 7.5    | 7.5  | /          |
| WLAN 5.2G(802.11ac20) | 7.3     | 7.3    | 7.3  | /          |
| WLAN 5.2G(802.11ac40) | 7.3     | /      | 7.3  | /          |
| WLAN 5.2G(802.11ac80) | /       | 7.3    | /    | /          |
| WLAN 5.3G(802.11a)    | 8.0     | 8.0    | 8.0  | /          |
| WLAN 5.3G(802.11ac20) | 7.8     | 7.8    | 7.8  | /          |
| WLAN 5.3G(802.11ac40) | 7.8     | /      | 7.8  | /          |
| WLAN 5.3G(802.11ac80) | /       | 7.8    | /    | /          |
| WLAN 5.6G(802.11a)    | 8.0     | 8.0    | 6.0  | 6.0        |
| WLAN 5.6G(802.11ac20) | 7.8     | 7.0    | 6.0  | 6.0        |
| WLAN 5.6G(802.11ac40) | 7.8     | 7.0    | 6.0  | 6.0        |
| WLAN 5.6G(802.11ac80) | 7.8     | /      | 7.0  | 6.0        |
| WLAN 5.8G(802.11a)    | 6.5     | 6.5    | 6.5  | /          |
| WLAN 5.8G(802.11ac20) | 6.3     | 6.3    | 6.3  | /          |
| WLAN 5.8G(802.11ac40) | 6.3     | /      | 6.3  | /          |
| WLAN 5.8G(802.11ac80) | /       | 6.3    | /    | /          |
| Bluetooth             | 6.5     | 6.5    | 9.8  | 9.8        |
| BLE                   | -3.0    | -3.0   | -3.0 | /          |

**Test Results:****GSM:**

| Band     | Channel No. | Frequency (MHz) | RF Output Power (dBm) |
|----------|-------------|-----------------|-----------------------|
| GSM 850  | 128         | 824.2           | 32.56                 |
|          | 190         | 836.6           | 32.56                 |
|          | 251         | 848.8           | 32.73                 |
| PCS 1900 | 512         | 1850.2          | 29.03                 |
|          | 661         | 1880            | 28.91                 |
|          | 810         | 1909.8          | 29.31                 |

**GPRS:**

| Band     | Channel No. | Frequency (MHz) | RF Output Power (dBm) |         |         |         |
|----------|-------------|-----------------|-----------------------|---------|---------|---------|
|          |             |                 | 1 slot                | 2 slots | 3 slots | 4 slots |
| GSM 850  | 128         | 824.2           | 32.73                 | 31.69   | 30.26   | 29.22   |
|          | 190         | 836.6           | 32.88                 | 31.29   | 30.20   | 29.33   |
|          | 251         | 848.8           | 32.60                 | 31.54   | 30.38   | 29.29   |
| PCS 1900 | 512         | 1850.2          | 29.08                 | 28.33   | 26.77   | 25.68   |
|          | 661         | 1880            | 29.10                 | 28.26   | 26.81   | 25.70   |
|          | 810         | 1909.8          | 29.06                 | 28.55   | 26.52   | 25.24   |

**EGPRS:**

| Band     | Channel No. | Frequency (MHz) | RF Output Power (dBm) |         |         |         |
|----------|-------------|-----------------|-----------------------|---------|---------|---------|
|          |             |                 | 1 slot                | 2 slots | 3 slots | 4 slots |
| GSM 850  | 128         | 824.2           | 27.03                 | 25.98   | 24.31   | 23.05   |
|          | 190         | 836.6           | 26.80                 | 25.61   | 24.07   | 22.41   |
|          | 251         | 848.8           | 26.66                 | 25.78   | 24.55   | 22.83   |
| PCS 1900 | 512         | 1850.2          | 25.51                 | 24.83   | 23.96   | 22.45   |
|          | 661         | 1880            | 25.46                 | 24.57   | 23.38   | 21.99   |
|          | 810         | 1909.8          | 25.44                 | 25.04   | 23.56   | 22.02   |

For SAR, the time based average power is relevant, the difference in between depends on the duty cycle of the TDMA signal.

| Number of Time slot                                  | 1     | 2     | 3        | 4     |
|------------------------------------------------------|-------|-------|----------|-------|
| Duty Cycle                                           | 1:8   | 1:4   | 1:2.66   | 1:2   |
| Time based Ave. power compared to slotted Ave. power | -9 dB | -6 dB | -4.25 dB | -3 dB |
| Crest Factor                                         | 8     | 4     | 2.66     | 2     |

**The time based average power for GSM**

| Band     | Channel No. | Frequency (MHz) | RF Output Power (dBm) |
|----------|-------------|-----------------|-----------------------|
| GSM 850  |             | 824.2           | 23.56                 |
|          |             | 836.6           | 23.56                 |
|          |             | 848.8           | <b>23.73</b>          |
| PCS 1900 |             | 1850.2          | 20.03                 |
|          |             | 1880            | 19.91                 |
|          |             | 1909.8          | <b>20.31</b>          |

**The time based average power for GPRS**

| Band     | Channel No. | Frequency (MHz) | Time based average Power (dBm) |        |         |              |
|----------|-------------|-----------------|--------------------------------|--------|---------|--------------|
|          |             |                 | 1 slot                         | 2 slot | 3 slots | 4 slots      |
| GSM 850  | 128         | 824.2           | 23.73                          | 25.69  | 26.01   | 26.22        |
|          | 190         | 836.6           | 23.88                          | 25.29  | 25.95   | <b>26.33</b> |
|          | 251         | 848.8           | 23.60                          | 25.54  | 26.13   | 26.29        |
| PCS 1900 | 512         | 1850.2          | 20.08                          | 22.33  | 22.52   | 22.68        |
|          | 661         | 1880            | 20.10                          | 22.26  | 22.56   | <b>22.70</b> |
|          | 810         | 1909.8          | 20.06                          | 22.55  | 22.27   | 22.24        |

**The time based average power for EGPRS**

| Band     | Channel No. | Frequency (MHz) | Time based average Power (dBm) |        |              |         |
|----------|-------------|-----------------|--------------------------------|--------|--------------|---------|
|          |             |                 | 1 slot                         | 2 slot | 3 slots      | 4 slots |
| GSM 850  | 128         | 824.2           | 18.03                          | 19.98  | 20.06        | 20.05   |
|          | 190         | 836.6           | 17.80                          | 19.61  | 19.82        | 19.41   |
|          | 251         | 848.8           | 17.66                          | 19.78  | <b>20.30</b> | 19.83   |
| PCS 1900 | 512         | 1850.2          | 16.51                          | 18.83  | <b>19.71</b> | 19.45   |
|          | 661         | 1880            | 16.46                          | 18.57  | 19.13        | 18.99   |
|          | 810         | 1909.8          | 16.44                          | 19.04  | 19.31        | 19.02   |

**Note:**

1. Rohde & Schwarz Radio Communication Tester (CMW500) 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).
3. For GPRS, 1, 2, 3 and 4 timeslots has been activated separately with power level 3(850 MHz band) and 3(1900 MHz band).
4. For EGPRS, 1, 2, 3 and 4 timeslots has been activated separately with power control level 6 (850 MHz band) and 5 (1900MHz band).

**WCDMA:****WCDMA Band 2:**

| Test Mode       | Conducted Average Output Power(dBm) |                |                 |
|-----------------|-------------------------------------|----------------|-----------------|
|                 | Lowest Channel                      | Middle Channel | Highest Channel |
| WCDMA R99       | 15.64                               | <b>15.90</b>   | 15.37           |
| HSDPA Subtest 1 | 14.39                               | 14.90          | 14.75           |
| HSDPA Subtest 2 | 14.58                               | 14.70          | 14.49           |
| HSDPA Subtest 3 | 14.29                               | 13.85          | 14.15           |
| HSDPA Subtest 4 | 14.09                               | 13.98          | 13.85           |
| HSUPA Subtest 1 | 13.70                               | 13.68          | 13.94           |
| HSUPA Subtest 2 | 14.91                               | 14.63          | 14.69           |
| HSUPA Subtest 3 | 13.68                               | 13.35          | 13.83           |
| HSUPA Subtest 4 | 14.75                               | 14.53          | 14.92           |
| HSUPA Subtest 5 | 13.65                               | 13.55          | 13.63           |
| HSPA+ Subtest 1 | 14.12                               | 14.11          | 14.51           |

**WCDMA Band 4:**

| Test Mode       | Conducted Average Output Power(dBm) |                |                 |
|-----------------|-------------------------------------|----------------|-----------------|
|                 | Lowest Channel                      | Middle Channel | Highest Channel |
| WCDMA R99       | <b>20.91</b>                        | 20.49          | 20.56           |
| HSDPA Subtest 1 | 19.81                               | 19.96          | 19.77           |
| HSDPA Subtest 2 | 19.38                               | 19.73          | 19.27           |
| HSDPA Subtest 3 | 18.98                               | 18.93          | 19.42           |
| HSDPA Subtest 4 | 19.39                               | 18.77          | 18.97           |
| HSUPA Subtest 1 | 18.82                               | 18.91          | 19.34           |
| HSUPA Subtest 2 | 19.79                               | 19.74          | 19.86           |
| HSUPA Subtest 3 | 18.78                               | 18.67          | 18.58           |
| HSUPA Subtest 4 | 19.95                               | 19.62          | 19.73           |
| HSUPA Subtest 5 | 18.78                               | 18.90          | 18.78           |
| HSPA+ Subtest 1 | 18.89                               | 18.69          | 18.66           |



**WCDMA Band 5:**

| Test Mode       | Conducted Average Output Power(dBm) |                |                 |
|-----------------|-------------------------------------|----------------|-----------------|
|                 | Lowest Channel                      | Middle Channel | Highest Channel |
| WCDMA R99       | 22.33                               | 22.48          | <b>22.86</b>    |
| HSDPA Subtest 1 | 21.80                               | 21.88          | 21.63           |
| HSDPA Subtest 2 | 21.55                               | 21.19          | 21.64           |
| HSDPA Subtest 3 | 20.89                               | 21.15          | 21.31           |
| HSDPA Subtest 4 | 21.21                               | 21.10          | 20.86           |
| HSUPA Subtest 1 | 20.99                               | 20.80          | 21.06           |
| HSUPA Subtest 2 | 21.55                               | 21.75          | 21.25           |
| HSUPA Subtest 3 | 20.71                               | 20.60          | 20.64           |
| HSUPA Subtest 4 | 21.68                               | 21.69          | 21.87           |
| HSUPA Subtest 5 | 20.40                               | 20.79          | 20.44           |
| HSPA+ Subtest 1 | 21.28                               | 21.44          | 21.10           |

**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 All 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****Band 2:**

| Test<br>Bandwidth &<br>Modulation | Resource<br>Block & RB<br>offset | Conducted Average Output Power(dBm) |                   |                    |
|-----------------------------------|----------------------------------|-------------------------------------|-------------------|--------------------|
|                                   |                                  | Lowest<br>Channel                   | Middle<br>Channel | Highest<br>Channel |
| 1.4MHz QPSK                       | RB1#0                            | 15.46                               | 15.51             | 14.91              |
|                                   | RB1#3                            | 15.60                               | 15.62             | 15.11              |
|                                   | RB1#5                            | 15.73                               | 15.58             | 15.13              |
|                                   | RB3#0                            | 15.37                               | 15.54             | 15.11              |
|                                   | RB3#1                            | 15.66                               | 15.21             | 15.08              |
|                                   | RB3#3                            | 15.74                               | 15.39             | 15.33              |
|                                   | RB6#0                            | 14.71                               | 14.37             | 14.08              |
| 1.4MHz<br>16QAM                   | RB1#0                            | 14.25                               | 14.68             | 13.90              |
|                                   | RB1#3                            | 14.62                               | 14.75             | 14.29              |
|                                   | RB1#5                            | 14.10                               | 14.45             | 14.27              |
|                                   | RB3#0                            | 14.79                               | 14.56             | 14.75              |
|                                   | RB3#1                            | 14.58                               | 14.98             | 14.68              |
|                                   | RB3#3                            | 15.00                               | 14.75             | 14.70              |
|                                   | RB6#0                            | 14.06                               | 13.08             | 13.51              |
| 3MHz QPSK                         | RB1#0                            | 15.40                               | 15.41             | 15.44              |
|                                   | RB1#8                            | 15.15                               | 15.62             | 15.29              |
|                                   | RB1#14                           | 15.11                               | 15.08             | 15.74              |
|                                   | RB8#0                            | 14.23                               | 14.34             | 14.21              |
|                                   | RB8#4                            | 14.65                               | 14.77             | 14.12              |
|                                   | RB8#7                            | 14.21                               | 14.53             | 14.56              |
|                                   | RB15#0                           | 14.39                               | 14.22             | 14.61              |
| 3MHz 16QAM                        | RB1#0                            | 14.60                               | 14.33             | 14.68              |
|                                   | RB1#8                            | 14.34                               | 14.42             | 14.99              |
|                                   | RB1#14                           | 14.54                               | 14.12             | 14.79              |
|                                   | RB8#0                            | 13.32                               | 13.81             | 13.30              |
|                                   | RB8#4                            | 13.62                               | 13.41             | 13.34              |
|                                   | RB8#7                            | 13.41                               | 13.31             | 13.59              |
|                                   | RB15#0                           | 13.79                               | 13.65             | 13.08              |
| 5MHz QPSK                         | RB1#0                            | 15.24                               | 15.49             | 15.03              |
|                                   | RB1#12                           | 15.64                               | 15.52             | 15.27              |
|                                   | RB1#24                           | 15.42                               | 15.11             | 14.96              |
|                                   | RB12#0                           | 14.60                               | 14.45             | 14.65              |
|                                   | RB12#7                           | 14.68                               | 14.32             | 14.65              |
|                                   | RB12#13                          | 14.32                               | 14.27             | 14.16              |
|                                   | RB25#0                           | 14.57                               | 14.09             | 14.53              |

| Test<br>Bandwidth &<br>Modulation | Resource<br>Block & RB<br>offset | Conducted Average Output Power(dBm) |                   |                    |
|-----------------------------------|----------------------------------|-------------------------------------|-------------------|--------------------|
|                                   |                                  | Lowest<br>Channel                   | Middle<br>Channel | Highest<br>Channel |
| 5MHz 16QAM                        | RB1#0                            | 14.49                               | 14.28             | 14.87              |
|                                   | RB1#12                           | 14.80                               | 14.43             | 14.88              |
|                                   | RB1#24                           | 14.58                               | 14.09             | 14.99              |
|                                   | RB12#0                           | 13.31                               | 13.15             | 13.63              |
|                                   | RB12#7                           | 13.77                               | 13.32             | 13.29              |
|                                   | RB12#13                          | 13.29                               | 13.65             | 13.60              |
|                                   | RB25#0                           | 13.18                               | 13.45             | 13.38              |
| 10MHz QPSK                        | RB1#0                            | 14.63                               | 14.60             | 14.42              |
|                                   | RB1#25                           | 15.22                               | 14.96             | 14.87              |
|                                   | RB1#49                           | 14.34                               | 14.67             | 14.36              |
|                                   | RB25#0                           | 13.89                               | 13.63             | 13.90              |
|                                   | RB25#12                          | 14.11                               | 13.79             | 13.63              |
|                                   | RB25#25                          | 13.94                               | 13.68             | 13.87              |
|                                   | RB50#0                           | 13.79                               | 13.70             | 13.87              |
| 10MHz<br>16QAM                    | RB1#0                            | 13.70                               | 13.56             | 13.61              |
|                                   | RB1#25                           | 14.12                               | 13.98             | 14.00              |
|                                   | RB1#49                           | 13.34                               | 13.82             | 13.52              |
|                                   | RB25#0                           | 12.81                               | 13.00             | 12.57              |
|                                   | RB25#12                          | 12.71                               | 12.78             | 12.96              |
|                                   | RB25#25                          | 13.04                               | 12.73             | 12.98              |
|                                   | RB50#0                           | 12.60                               | 12.70             | 12.50              |
| 15MHz QPSK                        | RB1#0                            | 14.73                               | 14.86             | 14.45              |
|                                   | RB1#37                           | 14.72                               | 15.01             | 14.71              |
|                                   | RB1#74                           | 14.53                               | 14.99             | 14.51              |
|                                   | RB36#0                           | 13.97                               | 13.95             | 14.03              |
|                                   | RB36#20                          | 13.70                               | 13.67             | 13.67              |
|                                   | RB36#39                          | 13.73                               | 13.43             | 13.81              |
|                                   | RB75#0                           | 14.02                               | 13.74             | 13.91              |
| 15MHz<br>16QAM                    | RB1#0                            | 14.14                               | 13.80             | 13.98              |
|                                   | RB1#37                           | 13.93                               | 13.94             | 13.76              |
|                                   | RB1#74                           | 13.77                               | 14.15             | 13.82              |
|                                   | RB36#0                           | 12.92                               | 12.72             | 12.55              |
|                                   | RB36#20                          | 12.56                               | 12.67             | 12.60              |
|                                   | RB36#39                          | 13.10                               | 12.69             | 12.53              |
|                                   | RB75#0                           | 12.88                               | 12.77             | 12.96              |

| Test<br>Bandwidth &<br>Modulation | Resource<br>Block & RB<br>offset | Conducted Average Output Power(dBm) |                   |                    |
|-----------------------------------|----------------------------------|-------------------------------------|-------------------|--------------------|
|                                   |                                  | Lowest<br>Channel                   | Middle<br>Channel | Highest<br>Channel |
| 20MHz QPSK                        | RB1#0                            | 15.71                               | 15.54             | 15.47              |
|                                   | RB1#49                           | 15.68                               | 14.53             | <b>15.77</b>       |
|                                   | RB1#99                           | 15.39                               | 14.35             | 14.36              |
|                                   | RB50#0                           | 14.99                               | 14.93             | 14.83              |
|                                   | RB50#24                          | 14.01                               | 14.47             | 14.42              |
|                                   | RB50#50                          | 14.57                               | 14.01             | 14.13              |
|                                   | RB100#0                          | 14.64                               | 14.91             | 14.09              |
| 20MHz<br>16QAM                    | RB1#0                            | 14.58                               | 13.73             | 13.84              |
|                                   | RB1#49                           | 14.66                               | 13.96             | 14.03              |
|                                   | RB1#99                           | 14.24                               | 13.54             | 13.90              |
|                                   | RB50#0                           | 12.74                               | 12.95             | 12.72              |
|                                   | RB50#24                          | 12.64                               | 12.95             | 12.45              |
|                                   | RB50#50                          | 12.55                               | 12.79             | 12.79              |
|                                   | RB100#0                          | 12.64                               | 12.88             | 12.63              |

**Band 4:**

| Test<br>Bandwidth &<br>Modulation | Resource<br>Block & RB<br>offset | Conducted Average Output Power(dBm) |                   |                    |
|-----------------------------------|----------------------------------|-------------------------------------|-------------------|--------------------|
|                                   |                                  | Lowest<br>Channel                   | Middle<br>Channel | Highest<br>Channel |
| 1.4MHz QPSK                       | RB1#0                            | 19.86                               | 20.13             | 19.53              |
|                                   | RB1#3                            | 20.27                               | 20.33             | 20.12              |
|                                   | RB1#5                            | 19.81                               | 20.14             | 19.86              |
|                                   | RB3#0                            | 20.07                               | 19.94             | 19.77              |
|                                   | RB3#1                            | 20.42                               | 20.05             | 19.94              |
|                                   | RB3#3                            | 20.12                               | 20.20             | 20.18              |
|                                   | RB6#0                            | 19.45                               | 19.28             | 19.01              |
| 1.4MHz<br>16QAM                   | RB1#0                            | 18.73                               | 19.27             | 18.55              |
|                                   | RB1#3                            | 19.07                               | 19.67             | 19.07              |
|                                   | RB1#5                            | 18.89                               | 19.55             | 18.53              |
|                                   | RB3#0                            | 19.22                               | 19.44             | 19.40              |
|                                   | RB3#1                            | 19.80                               | 19.50             | 19.13              |
|                                   | RB3#3                            | 19.54                               | 19.68             | 19.26              |
|                                   | RB6#0                            | 18.14                               | 18.09             | 18.10              |
| 3MHz QPSK                         | RB1#0                            | 19.95                               | 20.13             | 19.90              |
|                                   | RB1#8                            | 19.88                               | 20.22             | 20.19              |
|                                   | RB1#14                           | 19.96                               | 20.05             | 20.26              |
|                                   | RB8#0                            | 19.07                               | 19.01             | 19.07              |
|                                   | RB8#4                            | 19.04                               | 18.89             | 19.06              |
|                                   | RB8#7                            | 18.98                               | 18.85             | 18.74              |
|                                   | RB15#0                           | 18.89                               | 18.87             | 19.01              |
| 3MHz 16QAM                        | RB1#0                            | 18.86                               | 19.30             | 19.49              |
|                                   | RB1#8                            | 18.72                               | 18.93             | 19.39              |
|                                   | RB1#14                           | 19.17                               | 18.91             | 19.39              |
|                                   | RB8#0                            | 18.11                               | 18.20             | 18.31              |
|                                   | RB8#4                            | 18.49                               | 18.44             | 18.31              |
|                                   | RB8#7                            | 18.16                               | 17.98             | 18.27              |
|                                   | RB15#0                           | 18.25                               | 18.07             | 17.98              |
| 5MHz QPSK                         | RB1#0                            | 20.36                               | 19.74             | 19.95              |
|                                   | RB1#12                           | 20.40                               | 20.22             | 20.12              |
|                                   | RB1#24                           | 20.19                               | 19.89             | 19.57              |
|                                   | RB12#0                           | 19.08                               | 19.02             | 18.77              |
|                                   | RB12#7                           | 19.39                               | 18.91             | 19.12              |
|                                   | RB12#13                          | 19.35                               | 19.08             | 18.92              |
|                                   | RB25#0                           | 18.92                               | 19.23             | 19.07              |

| Test<br>Bandwidth &<br>Modulation | Resource<br>Block & RB<br>offset | Conducted Average Output Power(dBm) |                   |                    |
|-----------------------------------|----------------------------------|-------------------------------------|-------------------|--------------------|
|                                   |                                  | Lowest<br>Channel                   | Middle<br>Channel | Highest<br>Channel |
| 5MHz 16QAM                        | RB1#0                            | 18.77                               | 19.04             | 19.29              |
|                                   | RB1#12                           | 19.50                               | 19.21             | 19.90              |
|                                   | RB1#24                           | 19.05                               | 18.99             | 19.39              |
|                                   | RB12#0                           | 17.92                               | 18.30             | 18.11              |
|                                   | RB12#7                           | 18.22                               | 18.19             | 18.35              |
|                                   | RB12#13                          | 18.29                               | 18.38             | 17.89              |
|                                   | RB25#0                           | 17.96                               | 18.28             | 18.32              |
| 10MHz QPSK                        | RB1#0                            | 20.16                               | 19.32             | 19.87              |
|                                   | RB1#25                           | 19.76                               | 19.61             | 19.49              |
|                                   | RB1#49                           | 20.15                               | 19.67             | 19.79              |
|                                   | RB25#0                           | 18.95                               | 18.36             | 18.41              |
|                                   | RB25#12                          | 18.96                               | 18.81             | 18.26              |
|                                   | RB25#25                          | 19.32                               | 18.42             | 18.20              |
|                                   | RB50#0                           | 19.26                               | 18.34             | 18.59              |
| 10MHz<br>16QAM                    | RB1#0                            | 18.75                               | 18.68             | 19.06              |
|                                   | RB1#25                           | 19.25                               | 18.44             | 18.85              |
|                                   | RB1#49                           | 18.80                               | 18.30             | 18.57              |
|                                   | RB25#0                           | 18.11                               | 17.32             | 17.81              |
|                                   | RB25#12                          | 17.79                               | 17.93             | 17.49              |
|                                   | RB25#25                          | 17.80                               | 17.74             | 17.71              |
|                                   | RB50#0                           | 17.44                               | 17.50             | 17.56              |
| 15MHz QPSK                        | RB1#0                            | 19.78                               | 20.08             | 20.40              |
|                                   | RB1#37                           | 19.68                               | 19.92             | 20.36              |
|                                   | RB1#74                           | 19.46                               | 19.43             | 19.79              |
|                                   | RB36#0                           | 18.33                               | 19.00             | 19.14              |
|                                   | RB36#20                          | 18.63                               | 19.10             | 18.87              |
|                                   | RB36#39                          | 18.52                               | 18.92             | 18.67              |
|                                   | RB75#0                           | 18.51                               | 18.76             | 18.67              |
| 15MHz<br>16QAM                    | RB1#0                            | 18.45                               | 19.27             | 19.18              |
|                                   | RB1#37                           | 19.08                               | 19.49             | 19.71              |
|                                   | RB1#74                           | 18.70                               | 18.63             | 19.49              |
|                                   | RB36#0                           | 17.84                               | 17.99             | 17.75              |
|                                   | RB36#20                          | 17.84                               | 18.14             | 18.29              |
|                                   | RB36#39                          | 18.00                               | 18.39             | 17.68              |
|                                   | RB75#0                           | 18.38                               | 18.09             | 18.06              |

| Test<br>Bandwidth &<br>Modulation | Resource<br>Block & RB<br>offset | Conducted Average Output Power(dBm) |                   |                    |
|-----------------------------------|----------------------------------|-------------------------------------|-------------------|--------------------|
|                                   |                                  | Lowest<br>Channel                   | Middle<br>Channel | Highest<br>Channel |
| 20MHz QPSK                        | RB1#0                            | 19.61                               | 20.19             | 19.95              |
|                                   | RB1#49                           | 20.23                               | <b>20.46</b>      | 20.42              |
|                                   | RB1#99                           | 19.61                               | 19.90             | 19.69              |
|                                   | RB50#0                           | 19.91                               | 19.90             | 19.36              |
|                                   | RB50#24                          | 19.94                               | 20.28             | 20.04              |
|                                   | RB50#50                          | 20.28                               | 19.91             | 20.23              |
|                                   | RB100#0                          | 20.07                               | 20.03             | 20.09              |
| 20MHz<br>16QAM                    | RB1#0                            | 19.16                               | 19.54             | 19.09              |
|                                   | RB1#49                           | 19.29                               | 20.20             | 19.57              |
|                                   | RB1#99                           | 18.93                               | 19.63             | 18.77              |
|                                   | RB50#0                           | 18.03                               | 17.98             | 17.40              |
|                                   | RB50#24                          | 18.35                               | 17.98             | 17.92              |
|                                   | RB50#50                          | 17.83                               | 18.32             | 17.77              |
|                                   | RB100#0                          | 17.96                               | 18.17             | 17.70              |

**Band 5:**

| Test<br>Bandwidth &<br>Modulation | Resource<br>Block & RB<br>offset | Conducted Average Output Power(dBm) |                   |                    |
|-----------------------------------|----------------------------------|-------------------------------------|-------------------|--------------------|
|                                   |                                  | Lowest<br>Channel                   | Middle<br>Channel | Highest<br>Channel |
| 1.4MHz QPSK                       | RB1#0                            | 23.75                               | 23.51             | 23.00              |
|                                   | RB1#3                            | 23.55                               | 23.52             | 23.25              |
|                                   | RB1#5                            | 23.25                               | 23.40             | 23.05              |
|                                   | RB3#0                            | 23.47                               | 23.51             | 23.25              |
|                                   | RB3#1                            | 23.66                               | 23.62             | 23.76              |
|                                   | RB3#3                            | 23.82                               | 23.41             | 23.35              |
|                                   | RB6#0                            | 22.71                               | 22.19             | 22.27              |
| 1.4MHz<br>16QAM                   | RB1#0                            | 22.52                               | 22.93             | 22.16              |
|                                   | RB1#3                            | 22.33                               | 23.29             | 22.58              |
|                                   | RB1#5                            | 22.19                               | 22.93             | 22.43              |
|                                   | RB3#0                            | 22.61                               | 23.17             | 22.81              |
|                                   | RB3#1                            | 23.10                               | 22.71             | 22.56              |
|                                   | RB3#3                            | 22.64                               | 23.14             | 22.68              |
|                                   | RB6#0                            | 21.51                               | 21.64             | 21.38              |
| 3MHz QPSK                         | RB1#0                            | 23.43                               | 23.43             | 23.92              |
|                                   | RB1#14                           | 23.20                               | 23.71             | 23.42              |
|                                   | RB1#8                            | 23.23                               | 23.71             | 23.64              |
|                                   | RB8#0                            | 22.49                               | 22.46             | 22.46              |
|                                   | RB8#4                            | 22.30                               | 22.38             | 22.24              |
|                                   | RB8#7                            | 22.85                               | 22.26             | 22.41              |
|                                   | RB15#0                           | 22.43                               | 22.65             | 22.54              |
| 3MHz 16QAM                        | RB1#0                            | 22.27                               | 22.53             | 22.84              |
|                                   | RB1#14                           | 22.44                               | 22.56             | 22.90              |
|                                   | RB1#8                            | 22.34                               | 22.72             | 22.85              |
|                                   | RB8#0                            | 21.74                               | 21.73             | 21.51              |
|                                   | RB8#4                            | 21.83                               | 21.44             | 21.80              |
|                                   | RB8#7                            | 21.40                               | 21.72             | 21.71              |
|                                   | RB15#0                           | 21.85                               | 21.39             | 21.69              |
| 5MHz QPSK                         | RB1#0                            | 23.22                               | 23.47             | 23.09              |
|                                   | RB1#12                           | 23.42                               | 23.40             | 23.37              |
|                                   | RB1#24                           | 23.23                               | 23.75             | 23.55              |
|                                   | RB12#0                           | 22.27                               | 22.85             | 22.30              |
|                                   | RB12#7                           | 22.36                               | 22.33             | 22.51              |
|                                   | RB12#13                          | 22.90                               | 22.67             | 22.52              |
|                                   | RB25#0                           | 22.65                               | 22.70             | 22.40              |



| Test<br>Bandwidth &<br>Modulation | Resource<br>Block & RB<br>offset | Conducted Average Output Power(dBm) |                   |                    |
|-----------------------------------|----------------------------------|-------------------------------------|-------------------|--------------------|
|                                   |                                  | Lowest<br>Channel                   | Middle<br>Channel | Highest<br>Channel |
| 5MHz 16QAM                        | RB1#0                            | 22.54                               | 22.82             | 23.22              |
|                                   | RB1#12                           | 22.97                               | 22.68             | 23.02              |
|                                   | RB1#24                           | 22.48                               | 22.38             | 22.75              |
|                                   | RB12#0                           | 22.28                               | 21.81             | 21.41              |
|                                   | RB12#7                           | 22.02                               | 21.95             | 21.61              |
|                                   | RB12#13                          | 21.44                               | 21.55             | 21.29              |
|                                   | RB25#0                           | 21.83                               | 21.82             | 21.71              |
| 10MHz QPSK                        | RB1#0                            | 23.82                               | 23.25             | 23.39              |
|                                   | RB1#25                           | 23.72                               | 23.76             | <b>23.93</b>       |
|                                   | RB1#49                           | 23.26                               | 23.76             | 23.87              |
|                                   | RB25#0                           | 22.42                               | 22.67             | 22.41              |
|                                   | RB25#12                          | 22.52                               | 22.40             | 22.38              |
|                                   | RB25#25                          | 22.53                               | 22.84             | 22.80              |
|                                   | RB50#0                           | 22.61                               | 22.86             | 22.28              |
| 10MHz<br>16QAM                    | RB1#0                            | 22.36                               | 22.36             | 22.81              |
|                                   | RB1#25                           | 22.36                               | 22.59             | 22.75              |
|                                   | RB1#49                           | 22.22                               | 22.65             | 23.05              |
|                                   | RB25#0                           | 22.09                               | 21.58             | 21.36              |
|                                   | RB25#12                          | 21.65                               | 21.52             | 21.56              |
|                                   | RB25#25                          | 21.96                               | 21.81             | 21.37              |
|                                   | RB50#0                           | 21.65                               | 21.41             | 21.44              |

**Band 7:**

| Test<br>Bandwidth &<br>Modulation | Resource<br>Block & RB<br>offset | Conducted Average Output Power(dBm) |                   |                    |
|-----------------------------------|----------------------------------|-------------------------------------|-------------------|--------------------|
|                                   |                                  | Lowest<br>Channel                   | Middle<br>Channel | Highest<br>Channel |
| 5MHz QPSK                         | RB1#0                            | 17.06                               | 17.31             | 17.24              |
|                                   | RB1#12                           | 17.35                               | 17.60             | 17.20              |
|                                   | RB1#24                           | 17.21                               | 17.21             | 16.87              |
|                                   | RB12#0                           | 16.16                               | 16.45             | 15.97              |
|                                   | RB12#7                           | 15.92                               | 16.50             | 16.25              |
|                                   | RB12#13                          | 16.14                               | 16.40             | 16.48              |
|                                   | RB25#0                           | 15.75                               | 16.39             | 16.20              |
| 5MHz 16QAM                        | RB1#0                            | 16.16                               | 16.34             | 16.51              |
|                                   | RB1#12                           | 16.39                               | 16.65             | 16.69              |
|                                   | RB1#24                           | 16.24                               | 16.43             | 16.53              |
|                                   | RB12#0                           | 15.22                               | 15.48             | 15.04              |
|                                   | RB12#7                           | 15.44                               | 15.54             | 15.64              |
|                                   | RB12#13                          | 15.34                               | 15.46             | 15.54              |
|                                   | RB25#0                           | 15.18                               | 15.35             | 15.51              |
| 10MHz QPSK                        | RB1#0                            | 17.09                               | 17.36             | 17.42              |
|                                   | RB1#25                           | 17.25                               | 17.44             | 17.33              |
|                                   | RB1#49                           | 16.84                               | 16.99             | 17.06              |
|                                   | RB25#0                           | 15.96                               | 16.13             | 15.95              |
|                                   | RB25#12                          | 16.31                               | 16.41             | 16.10              |
|                                   | RB25#25                          | 16.25                               | 16.29             | 15.99              |
|                                   | RB50#0                           | 16.01                               | 16.38             | 16.07              |
| 10MHz<br>16QAM                    | RB1#0                            | 16.95                               | 17.14             | 17.58              |
|                                   | RB1#25                           | 16.99                               | 17.44             | 16.91              |
|                                   | RB1#49                           | 16.44                               | 17.25             | 16.86              |
|                                   | RB25#0                           | 15.87                               | 16.07             | 16.32              |
|                                   | RB25#12                          | 16.25                               | 16.50             | 15.72              |
|                                   | RB25#25                          | 16.33                               | 16.13             | 15.92              |
|                                   | RB50#0                           | 15.73                               | 16.32             | 16.15              |
| 15MHz QPSK                        | RB1#0                            | 17.24                               | 17.28             | 16.95              |
|                                   | RB1#37                           | 17.63                               | 17.58             | 17.07              |
|                                   | RB1#74                           | 17.38                               | 17.05             | 16.70              |
|                                   | RB36#0                           | 16.27                               | 15.90             | 15.82              |
|                                   | RB36#20                          | 16.21                               | 16.30             | 15.95              |
|                                   | RB36#39                          | 16.39                               | 16.35             | 15.94              |
|                                   | RB75#0                           | 16.29                               | 16.44             | 15.87              |

| Test<br>Bandwidth &<br>Modulation | Resource<br>Block & RB<br>offset | Conducted Average Output Power(dBm) |                   |                    |
|-----------------------------------|----------------------------------|-------------------------------------|-------------------|--------------------|
|                                   |                                  | Lowest<br>Channel                   | Middle<br>Channel | Highest<br>Channel |
| 15MHz<br>16QAM                    | RB1#0                            | 17.50                               | 17.39             | 16.62              |
|                                   | RB1#37                           | 17.59                               | 17.80             | 16.92              |
|                                   | RB1#74                           | 17.52                               | 17.19             | 16.62              |
|                                   | RB36#0                           | 16.15                               | 15.88             | 15.34              |
|                                   | RB36#20                          | 16.15                               | 16.07             | 16.27              |
|                                   | RB36#39                          | 16.43                               | 16.30             | 15.68              |
|                                   | RB75#0                           | 16.30                               | 16.24             | 16.06              |
| 20MHz QPSK                        | RB1#0                            | 17.39                               | 16.96             | 17.23              |
|                                   | RB1#49                           | <b>17.83</b>                        | 17.53             | 17.68              |
|                                   | RB1#99                           | 17.68                               | 16.98             | 16.61              |
|                                   | RB50#0                           | 16.27                               | 16.41             | 16.64              |
|                                   | RB50#24                          | 16.25                               | 16.30             | 16.58              |
|                                   | RB50#50                          | 16.33                               | 16.30             | 16.30              |
|                                   | RB100#0                          | 16.39                               | 16.22             | 16.25              |
| 20MHz<br>16QAM                    | RB1#0                            | 16.42                               | 16.94             | 16.49              |
|                                   | RB1#49                           | 17.49                               | 16.62             | 17.09              |
|                                   | RB1#99                           | 16.93                               | 16.44             | 16.81              |
|                                   | RB50#0                           | 16.22                               | 16.23             | 16.03              |
|                                   | RB50#24                          | 16.50                               | 16.47             | 15.64              |
|                                   | RB50#50                          | 16.25                               | 16.05             | 15.82              |
|                                   | RB100#0                          | 16.10                               | 15.87             | 16.15              |

**Band 12:**

| Test<br>Bandwidth &<br>Modulation | Resource<br>Block & RB<br>offset | Conducted Average Output Power(dBm) |                   |                    |
|-----------------------------------|----------------------------------|-------------------------------------|-------------------|--------------------|
|                                   |                                  | Lowest<br>Channel                   | Middle<br>Channel | Highest<br>Channel |
| 1.4MHz QPSK                       | RB1#0                            | 22.54                               | 22.73             | 22.12              |
|                                   | RB1#3                            | 23.00                               | 22.96             | 22.19              |
|                                   | RB1#5                            | 22.32                               | 22.43             | 22.22              |
|                                   | RB3#0                            | 22.73                               | 22.58             | 21.96              |
|                                   | RB3#1                            | 22.90                               | 22.20             | 22.05              |
|                                   | RB3#3                            | 22.59                               | 22.21             | 22.35              |
|                                   | RB6#0                            | 21.48                               | 21.41             | 21.12              |
| 1.4MHz<br>16QAM                   | RB1#0                            | 21.14                               | 21.48             | 21.12              |
|                                   | RB1#3                            | 21.71                               | 21.71             | 20.95              |
|                                   | RB1#5                            | 21.63                               | 21.66             | 21.03              |
|                                   | RB3#0                            | 21.81                               | 21.61             | 21.39              |
|                                   | RB3#1                            | 21.71                               | 21.64             | 21.41              |
|                                   | RB3#3                            | 21.67                               | 21.73             | 21.53              |
|                                   | RB6#0                            | 20.67                               | 20.54             | 20.56              |
| 3MHz QPSK                         | RB1#0                            | 22.38                               | 22.52             | 22.57              |
|                                   | RB1#8                            | 22.71                               | 22.53             | 22.14              |
|                                   | RB1#14                           | 22.57                               | 22.22             | 22.47              |
|                                   | RB8#0                            | 21.39                               | 21.05             | 21.04              |
|                                   | RB8#4                            | 21.42                               | 21.45             | 21.12              |
|                                   | RB8#7                            | 21.77                               | 21.12             | 21.16              |
|                                   | RB15#0                           | 21.56                               | 21.26             | 21.40              |
| 3MHz 16QAM                        | RB1#0                            | 21.20                               | 21.19             | 21.77              |
|                                   | RB1#8                            | 21.32                               | 21.14             | 21.60              |
|                                   | RB1#14                           | 21.18                               | 21.29             | 21.77              |
|                                   | RB8#0                            | 20.44                               | 20.11             | 20.06              |
|                                   | RB8#4                            | 20.83                               | 20.16             | 20.45              |
|                                   | RB8#7                            | 20.67                               | 20.10             | 20.25              |
|                                   | RB15#0                           | 20.81                               | 20.29             | 20.23              |
| 5MHz QPSK                         | RB1#0                            | 22.38                               | 22.31             | 22.38              |
|                                   | RB1#12                           | 22.81                               | 22.56             | 22.52              |
|                                   | RB1#24                           | 22.11                               | 22.12             | 22.20              |
|                                   | RB12#0                           | 21.74                               | 21.53             | 21.35              |
|                                   | RB12#7                           | 21.35                               | 21.64             | 21.49              |
|                                   | RB12#13                          | 21.58                               | 21.53             | 20.91              |
|                                   | RB25#0                           | 21.42                               | 21.71             | 21.02              |

| Test<br>Bandwidth &<br>Modulation | Resource<br>Block & RB<br>offset | Conducted Average Output Power(dBm) |                   |                    |
|-----------------------------------|----------------------------------|-------------------------------------|-------------------|--------------------|
|                                   |                                  | Lowest<br>Channel                   | Middle<br>Channel | Highest<br>Channel |
| 5MHz 16QAM                        | RB1#0                            | 21.77                               | 21.40             | 22.20              |
|                                   | RB1#12                           | 22.01                               | 21.49             | 22.08              |
|                                   | RB1#24                           | 21.13                               | 21.51             | 21.86              |
|                                   | RB12#0                           | 20.54                               | 20.60             | 20.54              |
|                                   | RB12#7                           | 20.54                               | 20.77             | 20.38              |
|                                   | RB12#13                          | 20.38                               | 20.38             | 20.19              |
|                                   | RB25#0                           | 20.44                               | 20.26             | 20.09              |
| 10MHz QPSK                        | RB1#0                            | <b>23.07</b>                        | 22.88             | 22.67              |
|                                   | RB1#25                           | 22.40                               | 22.60             | 22.75              |
|                                   | RB1#49                           | 22.45                               | 22.12             | 22.29              |
|                                   | RB25#0                           | 22.29                               | 21.96             | 21.98              |
|                                   | RB25#12                          | 21.94                               | 21.96             | 21.92              |
|                                   | RB25#25                          | 21.91                               | 21.97             | 21.87              |
|                                   | RB50#0                           | 21.99                               | 21.67             | 21.79              |
| 10MHz<br>16QAM                    | RB1#0                            | 21.14                               | 21.65             | 21.74              |
|                                   | RB1#25                           | 21.27                               | 21.28             | 22.02              |
|                                   | RB1#49                           | 21.32                               | 21.26             | 21.41              |
|                                   | RB25#0                           | 20.81                               | 20.49             | 20.23              |
|                                   | RB25#12                          | 20.77                               | 20.85             | 20.75              |
|                                   | RB25#25                          | 20.80                               | 20.78             | 20.09              |
|                                   | RB50#0                           | 20.44                               | 20.53             | 20.16              |

**Band 17:**

| Test<br>Bandwidth &<br>Modulation | Resource<br>Block & RB<br>offset | Conducted Average Output Power(dBm) |                   |                    |
|-----------------------------------|----------------------------------|-------------------------------------|-------------------|--------------------|
|                                   |                                  | Lowest<br>Channel                   | Middle<br>Channel | Highest<br>Channel |
| 5MHz QPSK                         | RB1#0                            | 21.60                               | 21.82             | 21.99              |
|                                   | RB1#12                           | 21.72                               | 21.54             | 21.51              |
|                                   | RB1#24                           | 21.52                               | 21.50             | 21.47              |
|                                   | RB12#0                           | 20.96                               | 20.45             | 20.91              |
|                                   | RB12#7                           | 20.98                               | 20.81             | 20.80              |
|                                   | RB12#13                          | 20.82                               | 21.01             | 20.77              |
|                                   | RB25#0                           | 20.47                               | 20.78             | 20.74              |
| 5MHz 16QAM                        | RB1#0                            | 20.57                               | 20.90             | 21.06              |
|                                   | RB1#12                           | 20.95                               | 20.97             | 21.15              |
|                                   | RB1#24                           | 20.84                               | 20.81             | 21.15              |
|                                   | RB12#0                           | 19.77                               | 19.70             | 19.76              |
|                                   | RB12#7                           | 20.08                               | 20.04             | 20.05              |
|                                   | RB12#13                          | 19.90                               | 19.97             | 19.71              |
|                                   | RB25#0                           | 19.94                               | 19.90             | 19.49              |
| 10MHz QPSK                        | RB1#0                            | 21.76                               | 22.08             | 21.98              |
|                                   | RB1#25                           | <b>22.36</b>                        | 21.86             | 22.30              |
|                                   | RB1#49                           | 21.86                               | 21.28             | 21.98              |
|                                   | RB25#0                           | 20.94                               | 20.96             | 20.59              |
|                                   | RB25#12                          | 20.87                               | 20.89             | 20.60              |
|                                   | RB25#25                          | 20.85                               | 20.53             | 20.89              |
|                                   | RB50#0                           | 20.78                               | 20.98             | 20.51              |
| 10MHz<br>16QAM                    | RB1#0                            | 20.37                               | 20.63             | 21.10              |
|                                   | RB1#25                           | 20.64                               | 20.76             | 21.66              |
|                                   | RB1#49                           | 20.36                               | 20.71             | 21.22              |
|                                   | RB25#0                           | 19.84                               | 19.69             | 19.74              |
|                                   | RB25#12                          | 20.07                               | 19.87             | 19.87              |
|                                   | RB25#25                          | 20.06                               | 19.98             | 19.47              |
|                                   | RB50#0                           | 19.75                               | 19.64             | 19.53              |

**Band 26:**

| Test<br>Bandwidth &<br>Modulation | Resource<br>Block & RB<br>offset | Conducted Average Output Power(dBm) |                   |                    |
|-----------------------------------|----------------------------------|-------------------------------------|-------------------|--------------------|
|                                   |                                  | Lowest<br>Channel                   | Middle<br>Channel | Highest<br>Channel |
| 1.4MHz QPSK                       | RB1#0                            | 23.36                               | 23.58             | 23.45              |
|                                   | RB1#3                            | 23.61                               | 23.74             | 23.29              |
|                                   | RB1#5                            | 23.29                               | 23.48             | 23.40              |
|                                   | RB3#0                            | 23.49                               | 23.39             | 23.64              |
|                                   | RB3#1                            | 23.59                               | 23.25             | 23.44              |
|                                   | RB3#3                            | 23.94                               | 23.59             | 23.69              |
|                                   | RB6#0                            | 22.44                               | 22.69             | 22.09              |
| 1.4MHz<br>16QAM                   | RB1#0                            | 22.47                               | 22.36             | 22.10              |
|                                   | RB1#3                            | 22.61                               | 22.44             | 22.40              |
|                                   | RB1#5                            | 22.62                               | 22.06             | 22.08              |
|                                   | RB3#0                            | 22.61                               | 22.58             | 22.89              |
|                                   | RB3#1                            | 23.10                               | 22.91             | 22.39              |
|                                   | RB3#3                            | 22.54                               | 22.46             | 22.44              |
|                                   | RB6#0                            | 22.02                               | 21.42             | 21.71              |
| 3MHz QPSK                         | RB1#0                            | 23.66                               | 23.15             | 23.20              |
|                                   | RB1#8                            | 23.41                               | 23.03             | 23.07              |
|                                   | RB1#14                           | 23.53                               | 22.95             | 22.94              |
|                                   | RB8#0                            | 22.47                               | 22.12             | 22.62              |
|                                   | RB8#4                            | 22.59                               | 22.20             | 22.46              |
|                                   | RB8#7                            | 22.55                               | 22.03             | 22.40              |
|                                   | RB15#0                           | 22.71                               | 22.66             | 22.32              |
| 3MHz 16QAM                        | RB1#0                            | 22.69                               | 22.23             | 22.49              |
|                                   | RB1#8                            | 23.21                               | 22.46             | 22.21              |
|                                   | RB1#14                           | 22.62                               | 22.19             | 22.03              |
|                                   | RB8#0                            | 21.55                               | 21.58             | 21.54              |
|                                   | RB8#4                            | 21.44                               | 21.23             | 21.66              |
|                                   | RB8#7                            | 21.92                               | 21.29             | 21.17              |
|                                   | RB15#0                           | 21.83                               | 21.15             | 21.31              |
| 5MHz QPSK                         | RB1#0                            | 23.37                               | 23.51             | 23.46              |
|                                   | RB1#12                           | 23.75                               | 23.54             | 23.29              |
|                                   | RB1#24                           | 23.36                               | 22.97             | 23.10              |
|                                   | RB12#0                           | 22.62                               | 22.24             | 22.54              |
|                                   | RB12#7                           | 22.77                               | 22.24             | 22.76              |
|                                   | RB12#13                          | 22.45                               | 22.12             | 22.19              |
|                                   | RB25#0                           | 22.59                               | 22.09             | 22.61              |

| Test<br>Bandwidth &<br>Modulation | Resource<br>Block & RB<br>offset | Conducted Average Output Power(dBm) |                   |                    |
|-----------------------------------|----------------------------------|-------------------------------------|-------------------|--------------------|
|                                   |                                  | Lowest<br>Channel                   | Middle<br>Channel | Highest<br>Channel |
| 5MHz 16QAM                        | RB1#0                            | 23.25                               | 22.21             | 22.15              |
|                                   | RB1#12                           | 23.08                               | 22.61             | 22.84              |
|                                   | RB1#24                           | 22.97                               | 22.31             | 22.54              |
|                                   | RB12#0                           | 21.69                               | 21.75             | 21.26              |
|                                   | RB12#7                           | 21.55                               | 21.31             | 21.60              |
|                                   | RB12#13                          | 21.70                               | 21.79             | 21.47              |
|                                   | RB25#0                           | 21.61                               | 21.35             | 21.74              |
| 10MHz QPSK                        | RB1#0                            | 23.50                               | 23.76             | 23.60              |
|                                   | RB1#25                           | 23.55                               | 24.05             | 23.64              |
|                                   | RB1#49                           | 23.59                               | 23.53             | 23.24              |
|                                   | RB25#0                           | 22.30                               | 22.72             | 22.54              |
|                                   | RB25#12                          | 22.71                               | 22.76             | 22.31              |
|                                   | RB25#25                          | 22.71                               | 22.49             | 22.56              |
|                                   | RB50#0                           | 22.49                               | 22.59             | 22.32              |
| 10MHz<br>16QAM                    | RB1#0                            | 23.26                               | 22.86             | 23.04              |
|                                   | RB1#25                           | 22.97                               | 22.83             | 22.79              |
|                                   | RB1#49                           | 22.91                               | 22.46             | 22.68              |
|                                   | RB25#0                           | 21.28                               | 21.62             | 21.21              |
|                                   | RB25#12                          | 21.69                               | 21.52             | 21.47              |
|                                   | RB25#25                          | 21.59                               | 21.71             | 21.51              |
|                                   | RB50#0                           | 21.25                               | 21.22             | 21.74              |
| 15MHz QPSK                        | RB1#0                            | 23.50                               | 23.18             | 23.34              |
|                                   | RB1#37                           | <b>24.29</b>                        | 24.09             | 24.08              |
|                                   | RB1#74                           | 23.12                               | 23.18             | 23.19              |
|                                   | RB36#0                           | 22.79                               | 22.40             | 23.68              |
|                                   | RB36#20                          | 23.61                               | 23.40             | 22.66              |
|                                   | RB36#39                          | 22.34                               | 22.43             | 22.16              |
|                                   | RB75#0                           | 23.60                               | 23.48             | 23.33              |
| 15MHz<br>16QAM                    | RB1#0                            | 22.42                               | 22.17             | 22.29              |
|                                   | RB1#37                           | 22.70                               | 22.70             | 22.60              |
|                                   | RB1#74                           | 22.47                               | 22.41             | 22.20              |
|                                   | RB36#0                           | 21.82                               | 21.81             | 21.80              |
|                                   | RB36#20                          | 21.44                               | 21.47             | 21.80              |
|                                   | RB36#39                          | 21.37                               | 21.64             | 21.21              |
|                                   | RB75#0                           | 21.35                               | 21.50             | 21.71              |



**Band 38:**

| Test<br>Bandwidth &<br>Modulation | Resource<br>Block & RB<br>offset | Conducted Average Output Power(dBm) |                   |                    |
|-----------------------------------|----------------------------------|-------------------------------------|-------------------|--------------------|
|                                   |                                  | Lowest<br>Channel                   | Middle<br>Channel | Highest<br>Channel |
| 5MHz QPSK                         | RB1#0                            | 23.70                               | 23.63             | 23.37              |
|                                   | RB1#12                           | 23.49                               | 23.60             | 23.71              |
|                                   | RB1#24                           | 23.57                               | 23.52             | 23.75              |
|                                   | RB12#0                           | 22.57                               | 22.27             | 22.41              |
|                                   | RB12#7                           | 22.24                               | 22.51             | 22.67              |
|                                   | RB12#13                          | 22.66                               | 22.19             | 22.70              |
|                                   | RB25#0                           | 22.12                               | 22.64             | 22.32              |
| 5MHz 16QAM                        | RB1#0                            | 22.59                               | 22.05             | 22.71              |
|                                   | RB1#12                           | 22.70                               | 22.50             | 22.46              |
|                                   | RB1#24                           | 22.42                               | 22.32             | 22.70              |
|                                   | RB12#0                           | 21.53                               | 21.40             | 21.36              |
|                                   | RB12#7                           | 21.56                               | 21.13             | 21.43              |
|                                   | RB12#13                          | 21.44                               | 21.32             | 21.40              |
|                                   | RB25#0                           | 21.34                               | 21.45             | 21.28              |
| 10MHz QPSK                        | RB1#0                            | 23.23                               | 23.31             | 23.39              |
|                                   | RB1#25                           | 23.92                               | 23.43             | 23.91              |
|                                   | RB1#49                           | 23.26                               | 23.39             | 23.72              |
|                                   | RB25#0                           | 22.35                               | 22.75             | 22.24              |
|                                   | RB25#12                          | 22.20                               | 22.30             | 22.31              |
|                                   | RB25#25                          | 22.39                               | 22.12             | 22.59              |
|                                   | RB50#0                           | 22.39                               | 22.23             | 22.38              |
| 10MHz<br>16QAM                    | RB1#0                            | 22.25                               | 22.12             | 22.60              |
|                                   | RB1#25                           | 22.86                               | 22.13             | 22.63              |
|                                   | RB1#49                           | 22.62                               | 22.32             | 22.66              |
|                                   | RB25#0                           | 21.34                               | 21.50             | 21.45              |
|                                   | RB25#12                          | 21.42                               | 21.29             | 21.41              |
|                                   | RB25#25                          | 21.47                               | 21.13             | 21.32              |
|                                   | RB50#0                           | 21.32                               | 21.14             | 21.73              |
| 15MHz QPSK                        | RB1#0                            | 23.31                               | 23.16             | 23.59              |
|                                   | RB1#37                           | 23.13                               | 23.46             | 23.67              |
|                                   | RB1#74                           | 23.59                               | 23.29             | 23.15              |
|                                   | RB36#0                           | 22.66                               | 22.63             | 22.78              |
|                                   | RB36#20                          | 22.75                               | 22.83             | 22.28              |
|                                   | RB36#39                          | 22.48                               | 22.66             | 22.37              |
|                                   | RB75#0                           | 22.60                               | 22.61             | 22.52              |

| Test<br>Bandwidth &<br>Modulation | Resource<br>Block & RB<br>offset | Conducted Average Output Power(dBm) |                   |                    |
|-----------------------------------|----------------------------------|-------------------------------------|-------------------|--------------------|
|                                   |                                  | Lowest<br>Channel                   | Middle<br>Channel | Highest<br>Channel |
| 15MHz<br>16QAM                    | RB1#0                            | 22.32                               | 22.30             | 22.57              |
|                                   | RB1#37                           | 22.35                               | 21.89             | 22.08              |
|                                   | RB1#74                           | 22.60                               | 21.99             | 22.53              |
|                                   | RB36#0                           | 21.53                               | 21.50             | 21.51              |
|                                   | RB36#20                          | 21.51                               | 21.57             | 21.12              |
|                                   | RB36#39                          | 21.55                               | 21.75             | 21.54              |
|                                   | RB75#0                           | 21.23                               | 21.49             | 21.55              |
| 20MHz QPSK                        | RB1#0                            | 23.44                               | 23.19             | 23.15              |
|                                   | RB1#49                           | 23.56                               | <b>23.94</b>      | 23.80              |
|                                   | RB1#99                           | 23.04                               | 23.05             | 23.08              |
|                                   | RB50#0                           | 22.49                               | 22.18             | 22.31              |
|                                   | RB50#24                          | 22.47                               | 22.14             | 22.72              |
|                                   | RB50#50                          | 22.33                               | 22.12             | 22.50              |
|                                   | RB100#0                          | 22.47                               | 22.26             | 22.08              |
| 20MHz<br>16QAM                    | RB1#0                            | 21.87                               | 21.93             | 22.20              |
|                                   | RB1#49                           | 22.31                               | 22.60             | 22.40              |
|                                   | RB1#99                           | 22.35                               | 22.30             | 21.89              |
|                                   | RB50#0                           | 21.14                               | 21.64             | 21.66              |
|                                   | RB50#24                          | 21.12                               | 21.52             | 21.31              |
|                                   | RB50#50                          | 21.43                               | 21.37             | 21.27              |
|                                   | RB100#0                          | 21.61                               | 21.63             | 21.38              |

**Band 41:**

| Test<br>Bandwidth &<br>Modulation | Resource<br>Block & RB<br>offset | Conducted Average Output Power(dBm) |               |                   |               |                    |
|-----------------------------------|----------------------------------|-------------------------------------|---------------|-------------------|---------------|--------------------|
|                                   |                                  | Lowest<br>Channel                   | 2549.5<br>MHz | Middle<br>Channel | 2636.5<br>MHz | Highest<br>Channel |
| 5MHz QPSK                         | RB1#0                            | 24.01                               | 23.81         | 23.85             | 23.64         | 24.22              |
|                                   | RB1#12                           | 23.88                               | 24.15         | 23.93             | 24.20         | 24.09              |
|                                   | RB1#24                           | 23.71                               | 23.95         | 23.76             | 23.99         | 23.82              |
|                                   | RB12#0                           | 22.88                               | 22.77         | 22.88             | 23.03         | 23.22              |
|                                   | RB12#7                           | 23.16                               | 23.27         | 22.85             | 22.91         | 23.55              |
|                                   | RB12#13                          | 22.98                               | 22.99         | 22.68             | 22.76         | 23.17              |
|                                   | RB25#0                           | 23.28                               | 23.11         | 22.51             | 22.98         | 23.18              |
| 5MHz 16QAM                        | RB1#0                            | 23.15                               | 22.57         | 22.93             | 22.65         | 23.21              |
|                                   | RB1#12                           | 22.74                               | 22.78         | 22.93             | 23.23         | 22.97              |
|                                   | RB1#24                           | 22.81                               | 23.07         | 22.83             | 23.01         | 22.83              |
|                                   | RB12#0                           | 21.98                               | 21.86         | 21.63             | 21.87         | 21.83              |
|                                   | RB12#7                           | 22.10                               | 21.77         | 21.73             | 21.67         | 22.34              |
|                                   | RB12#13                          | 22.08                               | 21.79         | 22.06             | 21.70         | 22.02              |
|                                   | RB25#0                           | 22.07                               | 22.06         | 21.70             | 21.66         | 22.46              |
| 10MHz QPSK                        | RB1#0                            | 23.94                               | 24.07         | 23.93             | 23.65         | 24.33              |
|                                   | RB1#25                           | 24.42                               | 24.22         | 24.25             | 23.94         | 24.61              |
|                                   | RB1#49                           | 23.86                               | 24.28         | 23.85             | 24.15         | 23.97              |
|                                   | RB25#0                           | 23.29                               | 23.03         | 23.19             | 22.91         | 23.10              |
|                                   | RB25#12                          | 23.13                               | 22.85         | 22.99             | 22.99         | 23.04              |
|                                   | RB25#25                          | 23.10                               | 23.11         | 22.65             | 22.90         | 23.39              |
|                                   | RB50#0                           | 23.02                               | 22.90         | 22.58             | 22.88         | 23.20              |
| 10MHz<br>16QAM                    | RB1#0                            | 23.00                               | 22.88         | 22.81             | 22.34         | 23.11              |
|                                   | RB1#25                           | 22.88                               | 22.92         | 22.55             | 22.63         | 23.20              |
|                                   | RB1#49                           | 22.83                               | 22.67         | 22.74             | 22.34         | 22.98              |
|                                   | RB25#0                           | 21.92                               | 22.08         | 21.98             | 21.50         | 22.19              |
|                                   | RB25#12                          | 22.32                               | 22.18         | 21.92             | 21.87         | 21.91              |
|                                   | RB25#25                          | 22.29                               | 22.11         | 21.72             | 21.95         | 22.21              |
|                                   | RB50#0                           | 22.21                               | 22.20         | 21.90             | 21.93         | 21.90              |
| 15MHz QPSK                        | RB1#0                            | 24.13                               | 23.95         | 24.01             | 23.81         | 23.85              |
|                                   | RB1#37                           | 23.65                               | 23.65         | 23.68             | 23.82         | 23.95              |
|                                   | RB1#74                           | 24.04                               | 23.83         | 24.02             | 24.06         | 24.36              |
|                                   | RB36#0                           | 23.17                               | 23.06         | 23.04             | 23.09         | 23.27              |
|                                   | RB36#20                          | 22.77                               | 23.21         | 23.21             | 23.05         | 23.14              |
|                                   | RB36#39                          | 22.94                               | 23.24         | 22.87             | 23.10         | 23.20              |
|                                   | RB75#0                           | 23.10                               | 23.14         | 22.95             | 22.94         | 23.04              |

| Test<br>Bandwidth &<br>Modulation | Resource<br>Block & RB<br>offset | Conducted Average Output Power(dBm) |               |                   |               |                    |
|-----------------------------------|----------------------------------|-------------------------------------|---------------|-------------------|---------------|--------------------|
|                                   |                                  | Lowest<br>Channel                   | 2549.5<br>MHz | Middle<br>Channel | 2636.5<br>MHz | Highest<br>Channel |
| 15MHz<br>16QAM                    | RB1#0                            | 22.91                               | 22.87         | 22.34             | 22.28         | 23.22              |
|                                   | RB1#37                           | 23.20                               | 23.14         | 22.32             | 22.36         | 22.99              |
|                                   | RB1#74                           | 22.96                               | 22.93         | 22.32             | 22.61         | 22.90              |
|                                   | RB36#0                           | 21.85                               | 22.09         | 22.06             | 21.76         | 21.81              |
|                                   | RB36#20                          | 21.87                               | 22.17         | 21.95             | 21.66         | 21.94              |
|                                   | RB36#39                          | 21.94                               | 21.78         | 21.66             | 21.63         | 22.34              |
|                                   | RB75#0                           | 21.75                               | 22.22         | 22.01             | 21.81         | 22.00              |
| 20MHz QPSK                        | RB1#0                            | 23.96                               | 23.86         | 23.99             | 23.76         | 24.03              |
|                                   | RB1#49                           | 24.05                               | 24.18         | <b>24.68</b>      | 23.96         | 24.66              |
|                                   | RB1#99                           | 24.11                               | 23.58         | 23.94             | 23.38         | 24.13              |
|                                   | RB50#0                           | 23.14                               | 23.56         | 23.96             | 23.60         | 23.49              |
|                                   | RB50#24                          | 23.69                               | 23.49         | 23.31             | 23.51         | 23.55              |
|                                   | RB50#50                          | 23.55                               | 23.53         | 23.04             | 23.09         | 23.31              |
|                                   | RB100#0                          | 23.17                               | 23.11         | 23.02             | 23.04         | 23.01              |
| 20MHz<br>16QAM                    | RB1#0                            | 22.67                               | 22.80         | 22.51             | 22.77         | 22.61              |
|                                   | RB1#49                           | 23.48                               | 22.95         | 23.01             | 23.24         | 23.42              |
|                                   | RB1#99                           | 22.90                               | 22.83         | 23.00             | 22.59         | 22.70              |
|                                   | RB50#0                           | 21.95                               | 21.92         | 21.76             | 21.90         | 21.86              |
|                                   | RB50#24                          | 22.32                               | 21.73         | 21.74             | 22.02         | 21.88              |
|                                   | RB50#50                          | 21.97                               | 22.15         | 21.62             | 21.61         | 21.89              |
|                                   | RB100#0                          | 22.91                               | 22.87         | 22.34             | 22.28         | 23.22              |

**WLAN 2.4G:**

| Mode       | Channel frequency (MHz) | Data Rate | Duty Cycle [%] | RF Average Output Power (dBm) |
|------------|-------------------------|-----------|----------------|-------------------------------|
| 802.11b    | 2412                    | 1Mbps     | 99.60          | 15.35                         |
|            | 2437                    |           |                | <b>15.39</b>                  |
|            | 2462                    |           |                | 15.29                         |
| 802.11g    | 2412                    | 6Mbps     | 96.98          | 10.10                         |
|            | 2437                    |           |                | 9.96                          |
|            | 2462                    |           |                | 9.69                          |
| 802.11 n20 | 2412                    | MCS0      | 96.72          | 9.65                          |
|            | 2437                    |           |                | 9.92                          |
|            | 2462                    |           |                | 9.79                          |

*Note: Duty cycle was from the Radio report.*

**WLAN 5.2G:**

| Mode       | Channel frequency (MHz) | Data Rate | Duty Cycle [%] | RF Average Output Power (dBm) |
|------------|-------------------------|-----------|----------------|-------------------------------|
| 802.11a    | 5180                    | 1Mbps     | 96.77          | 6.65                          |
|            | 5200                    |           |                | 6.74                          |
|            | 5240                    |           |                | <b>7.05</b>                   |
| 802.11ac20 | 5180                    | MCS0      | 96.72          | 6.28                          |
|            | 5200                    |           |                | 6.18                          |
|            | 5240                    |           |                | 6.41                          |
| 802.11ac40 | 5190                    | MCS0      | 93.68          | 6.79                          |
|            | 5230                    |           |                | 6.51                          |
| 802.11ac80 | 5210                    | MCS0      | 88.04          | 7.01                          |

**WLAN 5.3G:**

| Mode       | Channel frequency (MHz) | Data Rate | Duty Cycle [%] | RF Average Output Power (dBm) |
|------------|-------------------------|-----------|----------------|-------------------------------|
| 802.11a    | 5260                    | 1Mbps     | 96.77          | 7.58                          |
|            | 5280                    |           |                | 7.53                          |
|            | 5320                    |           |                | <b>7.98</b>                   |
| 802.11ac20 | 5260                    | MCS0      | 96.72          | 7.40                          |
|            | 5280                    |           |                | 7.44                          |
|            | 5320                    |           |                | 7.77                          |
| 802.11ac40 | 5270                    | MCS0      | 93.68          | 7.15                          |
|            | 5310                    |           |                | 7.76                          |
| 802.11ac80 | 5290                    | MCS0      | 88.04          | 7.30                          |

**WLAN 5.6G:**

| Mode       | Channel frequency (MHz) | Data Rate | Duty Cycle [%] | RF Average Output Power (dBm) |
|------------|-------------------------|-----------|----------------|-------------------------------|
| 802.11a    | 5500                    | 6Mbps     | 96.77          | 7.34                          |
|            | 5580                    |           |                | <b>7.40</b>                   |
|            | 5700                    |           |                | 5.21                          |
|            | 5720                    |           |                | 5.17                          |
| 802.11ac20 | 5500                    | MCS0      | 96.72          | 7.22                          |
|            | 5580                    |           |                | 6.17                          |
|            | 5700                    |           |                | 5.36                          |
|            | 5720                    |           |                | 4.41                          |
| 802.11ac40 | 5510                    | MCS0      | 93.68          | 7.35                          |
|            | 5550                    |           |                | 6.51                          |
|            | 5670                    |           |                | 5.54                          |
|            | 5710                    |           |                | 5.30                          |
| 802.11ac80 | 5530                    | MCS0      | 88.04          | 6.92                          |
|            | 5610                    |           |                | 6.08                          |
|            | 5690                    |           |                | 5.48                          |

**WLAN 5.8G:**

| Mode       | Channel frequency (MHz) | Data Rate | Duty Cycle [%] | RF Average Output Power (dBm) |
|------------|-------------------------|-----------|----------------|-------------------------------|
| 802.11a    | 5745                    | 1Mbps     | 96.77          | 5.44                          |
|            | 5785                    |           |                | 5.50                          |
|            | 5825                    |           |                | <b>5.69</b>                   |
| 802.11ac20 | 5745                    | MCS0      | 96.72          | 5.59                          |
|            | 5785                    |           |                | 5.58                          |
|            | 5825                    |           |                | 5.54                          |
| 802.11ac40 | 5755                    | MCS0      | 93.68          | 5.09                          |
|            | 5795                    |           |                | 5.49                          |
| 802.11ac80 | 5775                    | MCS0      | 88.04          | 5.23                          |

Note:

1. Note: Duty cycle was from the Radio report.

2. 5720/5710/5690MHz is WLAN 5.6G additional across the channel.

3. The device support 802.11a/n20/n40/ac20/ac40/ac80, the n20/n40 mode was reduced test as identical parameter with ac20/ac40 mode.

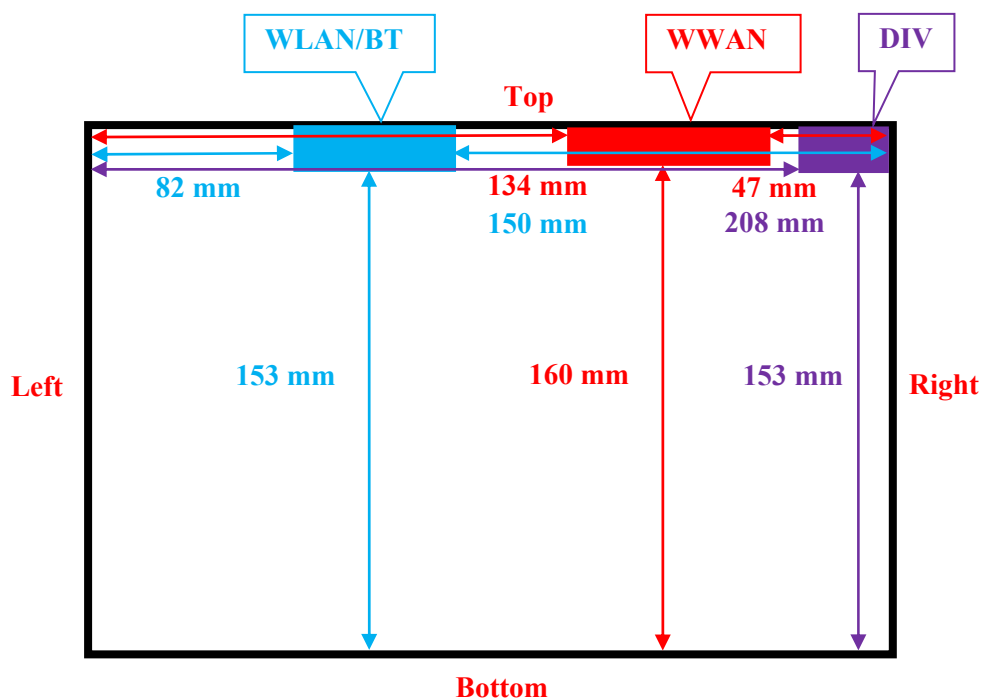
**Bluetooth:**

| Mode   | Channel frequency (MHz) | Duty cycle (%) | RF Conducted Output Power (dBm) |
|--------|-------------------------|----------------|---------------------------------|
| DH5    | 2402                    | /              | 5.43                            |
|        | 2419                    |                | 9.39                            |
|        | 2441                    |                | 5.78                            |
|        | 2480                    |                | 8.65                            |
| 2DH5   | 2402                    |                | 5.27                            |
|        | 2420                    |                | 9.35                            |
|        | 2441                    |                | 5.59                            |
|        | 2480                    |                | 8.85                            |
| 3DH5   | 2402                    |                | 5.40                            |
|        | 2418                    |                | <b>9.44</b>                     |
|        | 2441                    |                | 5.75                            |
|        | 2480                    |                | 8.50                            |
| BLE 1M | 2402                    |                | -3.61                           |
|        | 2440                    |                | <b>-3.35</b>                    |
|        | 2480                    |                | -4.31                           |

Note: 2418/2419/2420MHz is the BT additional channel.

## STANDALONE SAR TEST EXCLUSION CONSIDERATIONS

### Antennas Location:



EUT Front View

| Antenna | Description                                                      |
|---------|------------------------------------------------------------------|
| WWAN    | GSM 850, PCS 1900<br>WCDMA B2/4/5<br>LTE B2/4/5/7/12/17/26/38/41 |
| WLAN/BT | WLAN 2.4/5.2/5.3/5.6/5.8G<br>Bluetooth, BLE 1M                   |

### Note:

1. The above statistics only include antennas with transmitting
2. The DIV antenna only receives, not transmits.

### Antenna Distance To Edge:

| Antenna Distance To Edge(mm) |       |      |      |       |     |        |
|------------------------------|-------|------|------|-------|-----|--------|
| Antenna                      | Front | Back | Left | Right | Top | Bottom |
| WWAN                         | < 5   | < 5  | 134  | 47    | < 5 | 160    |
| WLAN/BT                      | < 5   | < 5  | 82   | 150   | < 5 | 153    |
| DIV                          | < 5   | < 5  | 208  | < 5   | < 5 | 153    |



**Standalone SAR test exclusion considerations:**

| Mode          | Frequency (MHz) | P <sub>Target</sub> (dBm) | P <sub>Target</sub> (mW) | Distance (mm) | Calculated value | Threshold (1-g) | SAR Test Exclusion |
|---------------|-----------------|---------------------------|--------------------------|---------------|------------------|-----------------|--------------------|
| 2.4G WLAN     | 2462            | 16.0                      | 39.81                    | 0             | 12.5             | 3               | No                 |
| 5.2G WLAN     | 5240            | 7.5                       | 5.62                     | 0             | 2.6              | 3               | Yes                |
| 5.3G WLAN     | 5320            | 8.0                       | 6.31                     | 0             | 2.9              | 3               | Yes                |
| 5.6G WLAN     | 5720            | 8.0                       | 6.31                     | 0             | 3.0              | 3               | Yes                |
| 5.8G WLAN     | 5825            | 6.5                       | 4.47                     | 0             | 2.2              | 3               | Yes                |
| Bluetooth/BLE | 2480            | 9.8                       | 9.55                     | 0             | 3.0              | 3               | Yes                |

**Note:**

1. The WLAN based average power for calculation, and the Bluetooth based peak power for calculation.
2. Since 5.6G WLAN is close to the critical threshold value, we selectively tested 5.6G WLAN.

**NOTE:**

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

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

$[\sqrt{f(\text{GHz})}] \leq 3.0$  for 1-g SAR and  $\leq 7.5$  for 10-g extremity SAR, where

1.  $f(\text{GHz})$  is the RF channel transmit frequency in GHz.
2. Power and distance are rounded to the nearest mW and mm before calculation.
3. The result is rounded to one decimal place for comparison.
4. 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) | P <sub>Target</sub> (dBm) | P <sub>Target</sub> (mW) | Distance (mm) | Estimated 1-g (W/kg) |
|---------------|-----------------|---------------------------|--------------------------|---------------|----------------------|
| 5.2G WLAN     | 5240            | 7.5                       | 5.62                     | 0             | 0.34                 |
| 5.3G WLAN     | 5320            | 8.0                       | 6.31                     | 0             | 0.39                 |
| 5.8G WLAN     | 5825            | 6.5                       | 4.47                     | 0             | 0.29                 |
| Bluetooth/BLE | 2480            | 9.8                       | 9.55                     | 0             | 0.40                 |

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  $\leq 50$  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

**SAR test exclusion for the EUT edge considerations Result**

According to the KDB 941225 D06 Hotspot Mode v02r01, the edges with less than 25 mm distance to the antennas need to be tested for SAR.

| Mode             | Front      | Back       | Left       | Right      | Top        | Bottom     |
|------------------|------------|------------|------------|------------|------------|------------|
| GSM 850          | Required   | Required   | Exclusion  | Exclusion  | Required   | Exclusion  |
| PCS 1900         | Required   | Required   | Exclusion  | Exclusion  | Required   | Exclusion  |
| WCDMA Band 2     | Required   | Required   | Exclusion  | Exclusion  | Required   | Exclusion  |
| WCDMA Band 4     | Required   | Required   | Exclusion  | Exclusion  | Required   | Exclusion  |
| WCDMA Band 5     | Required   | Required   | Exclusion  | Exclusion  | Required   | Exclusion  |
| LTE Band 2       | Required   | Required   | Exclusion  | Exclusion  | Required   | Exclusion  |
| LTE Band 4       | Required   | Required   | Exclusion  | Exclusion  | Required   | Exclusion  |
| LTE Band 7       | Required   | Required   | Exclusion  | Exclusion  | Required   | Exclusion  |
| LTE Band 12 & 17 | Required   | Required   | Exclusion  | Exclusion  | Required   | Exclusion  |
| LTE Band 26 & 5  | Required   | Required   | Exclusion  | Exclusion  | Required   | Exclusion  |
| LTE Band 41 & 38 | Required   | Required   | Exclusion  | Exclusion  | Required   | Exclusion  |
| WLAN 2.4G        | Required   | Required   | Exclusion  | Exclusion  | Required   | Exclusion  |
| WLAN 5.2G        | Exclusion* | Exclusion* | Exclusion* | Exclusion* | Exclusion* | Exclusion* |
| WLAN 5.3G        | Exclusion* | Exclusion* | Exclusion* | Exclusion* | Exclusion* | Exclusion* |
| WLAN 5.6G        | Required   | Required   | Exclusion  | Exclusion  | Required   | Exclusion  |
| WLAN 5.8G        | Exclusion* | Exclusion* | Exclusion* | Exclusion* | Exclusion* | Exclusion* |
| Bluetooth/BLE    | Exclusion* | 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 test exclusion for the EUT edge considerations detail:****Distance< 50mm(To Edges)**

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

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

1.f(GHz) is the RF channel transmit frequency in GHz.

2.Power and distance are rounded to the nearest mW and mm before calculation.

3.The result is rounded to one decimal place for comparison.

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

**Distance> 50mm(To Edges)**

At 100 MHz to 6 GHz and for test separation distances  $> 50$  mm, the SAR test exclusion threshold is determined according to the following:

a.[Power allowed at numeric threshold for 50 mm in step 1) + (test separation distance - 50 mm)·( f(MHz)/150)] mW, at 100 MHz to 1500 MHz

b.[Power allowed at numeric threshold for 50 mm in step 1) + (test separation distance - 50 mm)·10] mW at  $> 1500$  MHz and  $\leq 6$  GHz.

## SAR MEASUREMENT RESULTS

This page summarizes the results of the performed dosimetric evaluation.

### Test Results:

#### Environmental Conditions:

|                           |              |              |              |              |              |
|---------------------------|--------------|--------------|--------------|--------------|--------------|
| <b>Temperature:</b>       | 19.7 ~ 20.8℃ | 20.8 ~ 21.2℃ | 19.9 ~ 20.7℃ | 20.3 ~ 22.1℃ | 21.1 ~ 22.8℃ |
| <b>Relative Humidity:</b> | 41 ~ 66%     | 50 ~ 54%     | 50 ~ 67%     | 49 ~ 62%     | 50 ~ 58%     |
| <b>ATM Pressure:</b>      | 100.5 kPa    | 100.2 kPa    | 100.1 kPa    | 99.4 kPa     | 99.3 kPa     |
| <b>Test Date:</b>         | 2025/07/05   | 2025/07/06   | 2025/07/07   | 2025/07/09   | 2025/07/10   |

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

#### 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 Front (0 mm) | 824.2           | GPRS      | 29.22                  | 29.8                   | 1.143         | 0.810     | <b>0.93</b> | <b>1#</b> |
|                   | 836.6           | GPRS      | 29.33                  | 29.8                   | 1.114         | 0.734     | 0.82        | /         |
|                   | 848.8           | GPRS      | 29.29                  | 29.8                   | 1.125         | 0.622     | 0.70        | /         |
| Body Back (0 mm)  | 824.2           | GPRS      | /                      | /                      | /             | /         | /           | /         |
|                   | 836.6           | GPRS      | 29.33                  | 29.8                   | 1.114         | 0.127     | 0.15        | /         |
|                   | 848.8           | GPRS      | /                      | /                      | /             | /         | /           | /         |
| Body Top (0 mm)   | 824.2           | GPRS      | /                      | /                      | /             | /         | /           | /         |
|                   | 836.6           | GPRS      | 29.33                  | 29.8                   | 1.114         | 0.302     | 0.34        | /         |
|                   | 848.8           | GPRS      | /                      | /                      | /             | /         | /           | /         |

#### Note:

1. When the 1-g SAR is  $\leq 0.8\text{W/Kg}$ , testing for other channels are optional.
2. The EUT transmit and receive through the same GSM antenna while testing SAR.
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.
4. When the maximum output power variation across the required test channels is  $> 0.5\text{ dB}$ , instead of the middle channel, the highest output power channel must be used.
5. The Multi-slot Classes of EUT is Class 12 which has maximum 4 Downlink slots and 4 Uplink slots, the maximum active slots is 5, when perform the multiple slots scan, 1DL+4UL is the worst case.
6. The max. time based average power of GSM/GPRS/EGPRS mode was selected to Body SAR testing.

**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 Front (0 mm) | 1850.2          | GPRS      | /                      | /                      | /             | /         | /           | /         |
|                   | 1880            | GPRS      | 25.70                  | 26.0                   | 1.072         | 0.377     | 0.41        | /         |
|                   | 1909.8          | GPRS      | /                      | /                      | /             | /         | /           | /         |
| Body Back (0 mm)  | 1850.2          | GPRS      | /                      | /                      | /             | /         | /           | /         |
|                   | 1880            | GPRS      | 25.70                  | 26.0                   | 1.072         | 0.487     | 0.53        | /         |
|                   | 1909.8          | GPRS      | /                      | /                      | /             | /         | /           | /         |
| Body Top (0 mm)   | 1850.2          | GPRS      | /                      | /                      | /             | /         | /           | /         |
|                   | 1880            | GPRS      | 25.70                  | 26.0                   | 1.072         | 0.588     | <b>0.64</b> | <b>2#</b> |
|                   | 1909.8          | GPRS      | /                      | /                      | /             | /         | /           | /         |

**Note:**

1. When the 1-g SAR is  $\leq 0.8\text{W/Kg}$ , testing for other channels are optional.
2. The EUT transmit and receive through the same GSM antenna while testing SAR.
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.
4. When the maximum output power variation across the required test channels is  $> 0.5\text{ dB}$ , instead of the middle channel, the highest output power channel must be used.
5. The Multi-slot Classes of EUT is Class 12 which has maximum 4 Downlink slots and 4 Uplink slots, the maximum active slots is 5, when perform the multiple slots scan, 1DL+4UL is the worst case.
6. The max. time based average power of GSM/GPRS/EGPRS mode was selected to Body SAR testing.

**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 Front (0 mm) | 1852.4          | RMC       | /                      | /                      | /             | /         | /           | /         |
|                   | 1880            | RMC       | 15.90                  | 16.0                   | 1.023         | 0.214     | 0.22        | /         |
|                   | 1907.6          | RMC       | /                      | /                      | /             | /         | /           | /         |
| Body Back (0 mm)  | 1852.4          | RMC       | /                      | /                      | /             | /         | /           | /         |
|                   | 1880            | RMC       | 15.90                  | 16.0                   | 1.023         | 0.321     | 0.33        | /         |
|                   | 1907.6          | RMC       | /                      | /                      | /             | /         | /           | /         |
| Body Top (0 mm)   | 1852.4          | RMC       | /                      | /                      | /             | /         | /           | /         |
|                   | 1880            | RMC       | 15.90                  | 16.0                   | 1.023         | 0.343     | <b>0.36</b> | <b>3#</b> |
|                   | 1907.6          | RMC       | /                      | /                      | /             | /         | /           | /         |

**WCDMA Band 4 :**

| 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 Front (0 mm) | 1712.4          | RMC       | /                      | /                      | /             | /         | /           | /         |
|                   | 1732.6          | RMC       | 20.49                  | 21.4                   | 1.233         | 0.581     | 0.72        | /         |
|                   | 1752.6          | RMC       | /                      | /                      | /             | /         | /           | /         |
| Body Back (0 mm)  | 1712.4          | RMC       | 20.91                  | 21.4                   | 1.119         | 0.770     | 0.87        | /         |
|                   | 1732.6          | RMC       | 20.49                  | 21.4                   | 1.233         | 0.771     | <b>0.96</b> | <b>4#</b> |
|                   | 1752.6          | RMC       | 20.56                  | 21.4                   | 1.213         | 0.779     | 0.95        | /         |
| Body Top (0 mm)   | 1712.4          | RMC       | 20.91                  | 21.4                   | 1.119         | 0.718     | 0.81        | /         |
|                   | 1732.6          | RMC       | 20.49                  | 21.4                   | 1.233         | 0.754     | 0.93        | /         |
|                   | 1752.6          | RMC       | 20.56                  | 21.4                   | 1.213         | 0.698     | 0.85        | /         |

**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 Front (0 mm) | 826.4           | RMC       | 22.33                  | 23.5                   | 1.309         | 0.573     | 0.76        | /         |
|                   | 836.6           | RMC       | 22.48                  | 23.5                   | 1.265         | 0.747     | <b>0.95</b> | <b>5#</b> |
|                   | 846.6           | RMC       | 22.86                  | 23.5                   | 1.159         | 0.645     | 0.75        | /         |
| Body Back (0 mm)  | 826.4           | RMC       | /                      | /                      | /             | /         | /           | /         |
|                   | 836.6           | RMC       | 22.48                  | 23.5                   | 1.265         | 0.211     | 0.27        | /         |
|                   | 846.6           | RMC       | /                      | /                      | /             | /         | /           | /         |
| Body Top (0 mm)   | 826.4           | RMC       | /                      | /                      | /             | /         | /           | /         |
|                   | 836.6           | RMC       | 22.48                  | 23.5                   | 1.265         | 0.401     | 0.51        | /         |
|                   | 846.6           | RMC       | /                      | /                      | /             | /         | /           | /         |

**Note:**

1. When the 1-g SAR is  $\leq 0.8\text{W/Kg}$ , testing for other channels are optional.
2. The EUT transmit and receive through the same antenna while testing SAR.
3. 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 All 1.
4. KDB 941225 D01-Body SAR is not required for HSDPA/HSUPA/HSPA+ when the maximum average output of each RF channel is less than  $\frac{1}{4}$  dB higher than measured 12.2kbps RMC or the maximum SAR for 12.2kbps RMC is  $< 75\%$  of SAR limit.
5. 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 Front (0 mm) | 1860            | 20              | /         | /                      | /                      | /             | /         | /           | /         |
|                   | 1880            | 20              | 1RB       | 15.54                  | 15.8                   | 1.062         | 0.230     | 0.25        | /         |
|                   | 1900            | 20              | /         | /                      | /                      | /             | /         | /           | /         |
|                   | 1880            | 20              | 50%RB     | 14.93                  | 15.8                   | 1.222         | 0.188     | 0.23        | /         |
| Body Back (0 mm)  | 1860            | 20              | /         | /                      | /                      | /             | /         | /           | /         |
|                   | 1880            | 20              | 1RB       | 15.54                  | 15.8                   | 1.062         | 0.322     | 0.35        | /         |
|                   | 1900            | 20              | /         | /                      | /                      | /             | /         | /           | /         |
|                   | 1880            | 20              | 50%RB     | 14.93                  | 15.8                   | 1.222         | 0.256     | 0.32        | /         |
| Body Top (0 mm)   | 1860            | 20              | /         | /                      | /                      | /             | /         | /           | /         |
|                   | 1880            | 20              | 1RB       | 15.54                  | 15.8                   | 1.062         | 0.469     | <b>0.50</b> | <b>6#</b> |
|                   | 1900            | 20              | /         | /                      | /                      | /             | /         | /           | /         |
|                   | 1880            | 20              | 50%RB     | 14.93                  | 15.8                   | 1.222         | 0.383     | 0.47        | /         |

**LTE Band 4 :**

| 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 Front (0 mm) | 1720            | 20              | 1RB       | /                      | /                      | /             | /         | /           | /         |
|                   | 1732.5          | 20              | 1RB       | 20.46                  | 21.0                   | 1.132         | 0.567     | 0.65        | /         |
|                   | 1745            | 20              | 1RB       | /                      | /                      | /             | /         | /           | /         |
|                   | 1732.5          | 20              | 50%RB     | 20.28                  | 21.0                   | 1.180         | 0.456     | 0.54        | /         |
| Body Back (0 mm)  | 1720            | 20              | 1RB       | 20.23                  | 21.0                   | 1.194         | 0.719     | <b>0.86</b> | <b>7#</b> |
|                   | 1732.5          | 20              | 1RB       | 20.46                  | 21.0                   | 1.132         | 0.718     | 0.82        | /         |
|                   | 1745            | 20              | 1RB       | 20.42                  | 21.0                   | 1.143         | 0.726     | 0.83        | /         |
|                   | 1720            | 20              | 50%RB     | 20.28                  | 21.0                   | 1.180         | 0.669     | 0.79        | /         |
|                   | 1732.5          | 20              | 50%RB     | 20.28                  | 21.0                   | 1.180         | 0.603     | 0.72        | /         |
|                   | 1745            | 20              | 50%RB     | 20.23                  | 21.0                   | 1.194         | 0.564     | 0.68        | /         |
|                   | 1720            | 20              | 100%RB    | 20.07                  | 21.0                   | 1.239         | 0.647     | 0.81        | /         |
|                   | 1732.5          | 20              | 100%RB    | 20.03                  | 21.0                   | 1.250         | 0.641     | 0.81        | /         |
|                   | 1745            | 20              | 100%RB    | 20.09                  | 21.0                   | 1.233         | 0.575     | 0.71        | /         |
| Body Top (0 mm)   | 1720            | 20              | 1RB       | /                      | /                      | /             | /         | /           | /         |
|                   | 1732.5          | 20              | 1RB       | 20.46                  | 21.0                   | 1.132         | 0.694     | 0.79        | /         |
|                   | 1745            | 20              | 1RB       | /                      | /                      | /             | /         | /           | /         |
|                   | 1732.5          | 20              | 50%RB     | 20.28                  | 21.0                   | 1.180         | 0.571     | 0.68        | /         |

**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 Front (0 mm) | 2510            | 20              | 1RB       | /                      | /                      | /             | /         | /           | /         |
|                   | 2535            | 20              | 1RB       | 17.53                  | 18.0                   | 1.114         | 0.234     | 0.27        | /         |
|                   | 2560            | 20              | 1RB       | /                      | /                      | /             | /         | /           | /         |
|                   | 2535            | 20              | 50%RB     | 16.41                  | 18.0                   | 1.442         | 0.199     | 0.29        | /         |
| Body Back (0 mm)  | 2510            | 20              | 1RB       | /                      | /                      | /             | /         | /           | /         |
|                   | 2535            | 20              | 1RB       | 17.53                  | 18.0                   | 1.114         | 0.532     | 0.60        | /         |
|                   | 2560            | 20              | 1RB       | /                      | /                      | /             | /         | /           | /         |
|                   | 2535            | 20              | 50%RB     | 16.41                  | 18.0                   | 1.442         | 0.436     | <b>0.63</b> | <b>8#</b> |
| Body Top (0 mm)   | 2510            | 20              | 1RB       | /                      | /                      | /             | /         | /           | /         |
|                   | 2535            | 20              | 1RB       | 17.53                  | 18.0                   | 1.114         | 0.383     | 0.43        | /         |
|                   | 2560            | 20              | 1RB       | /                      | /                      | /             | /         | /           | /         |
|                   | 2535            | 20              | 50%RB     | 16.41                  | 18.0                   | 1.442         | 0.307     | 0.45        | /         |

**LTE Band 12 & 17 :**

| 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 Front (0 mm) | 704             | 10              | 1RB       | /                      | /                      | /             | /         | /           | /         |
|                   | 707.5           | 10              | 1RB       | 22.88                  | 23.5                   | 1.153         | 0.584     | 0.68        | /         |
|                   | 711             | 10              | 1RB       | /                      | /                      | /             | /         | /           | /         |
|                   | 707.5           | 10              | 50%RB     | 21.97                  | 23.5                   | 1.422         | 0.492     | <b>0.70</b> | <b>9#</b> |
| Body Back (0 mm)  | 704             | 10              | 1RB       | /                      | /                      | /             | /         | /           | /         |
|                   | 707.5           | 10              | 1RB       | 22.88                  | 23.5                   | 1.153         | 0.145     | 0.17        | /         |
|                   | 711             | 10              | 1RB       | /                      | /                      | /             | /         | /           | /         |
|                   | 707.5           | 10              | 50%RB     | 21.97                  | 23.5                   | 1.422         | 0.119     | 0.17        | /         |
| Body Top (0 mm)   | 704             | 10              | 1RB       | /                      | /                      | /             | /         | /           | /         |
|                   | 707.5           | 10              | 1RB       | 22.88                  | 23.5                   | 1.153         | 0.469     | 0.55        | /         |
|                   | 711             | 10              | 1RB       | /                      | /                      | /             | /         | /           | /         |
|                   | 707.5           | 10              | 50%RB     | 21.97                  | 23.5                   | 1.422         | 0.364     | 0.52        | /         |

Note: The LTE Band 17 is a subset of LTE Band 12, with the same modulation type, and the rated output power of LTE band 17 is not greater than LTE band 12, so LTE band 17 does not need to be tested.

**LTE Band 26 & 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 Front<br>(0 mm) | 821.5           | 15              | 1RB       | 24.29                  | 24.3                   | 1.002         | 0.841     | 0.85        | /          |
|                      | 831.5           | 15              | 1RB       | 24.09                  | 24.3                   | 1.050         | 0.782     | 0.83        | /          |
|                      | 841.5           | 15              | 1RB       | 24.08                  | 24.3                   | 1.052         | 0.920     | <b>0.97</b> | <b>10#</b> |
|                      | 821.5           | 15              | 50%RB     | 23.61                  | 24.3                   | 1.172         | 0.720     | 0.85        | /          |
|                      | 831.5           | 15              | 50%RB     | 23.40                  | 24.3                   | 1.230         | 0.786     | 0.97        | /          |
|                      | 841.5           | 15              | 50%RB     | 23.68                  | 24.3                   | 1.153         | 0.752     | 0.87        | /          |
|                      | 821.5           | 15              | 100%RB    | 23.60                  | 24.3                   | 1.175         | 0.733     | 0.87        | /          |
|                      | 831.5           | 15              | 100%RB    | 23.48                  | 24.3                   | 1.208         | 0.696     | 0.85        | /          |
|                      | 841.5           | 15              | 100%RB    | 23.33                  | 24.3                   | 1.250         | 0.765     | 0.96        | /          |
| Body Back<br>(0 mm)  | 821.5           | 15              | 1RB       | /                      | /                      | /             | /         | /           | /          |
|                      | 831.5           | 15              | 1RB       | 24.09                  | 24.3                   | 1.050         | 0.271     | 0.29        | /          |
|                      | 841.5           | 15              | 1RB       | /                      | /                      | /             | /         | /           | /          |
|                      | 831.5           | 15              | 50%RB     | 23.40                  | 24.3                   | 1.230         | 0.295     | 0.37        | /          |
| Body Top<br>(0 mm)   | 821.5           | 15              | 1RB       | /                      | /                      | /             | /         | /           | /          |
|                      | 831.5           | 15              | 1RB       | 24.09                  | 24.3                   | 1.050         | 0.482     | 0.51        | /          |
|                      | 841.5           | 15              | 1RB       | /                      | /                      | /             | /         | /           | /          |
|                      | 831.5           | 15              | 50%RB     | 23.40                  | 24.3                   | 1.230         | 0.516     | 0.64        | /          |

*Note: The LTE Band 5 is a subset of LTE Band 26, with the same modulation type, and the rated output power of LTE band 5 is not greater than LTE band 26, so LTE band 5 does not need to be tested.*



**LTE Band 41 & 38 :**

| 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 Front (0 mm) | 2506            | 20              | 1RB       | /                      | /                      | /             | /         | /           | /          |
|                   | 2549.5          | 20              | 1RB       | /                      | /                      | /             | /         | /           | /          |
|                   | 2593            | 20              | 1RB       | 24.68                  | 25.0                   | 1.076         | 0.265     | 0.29        | /          |
|                   | 2636.5          | 20              | 1RB       | /                      | /                      | /             | /         | /           | /          |
|                   | 2680            | 20              | 1RB       | /                      | /                      | /             | /         | /           | /          |
|                   | 2593            | 20              | 50%RB     | 23.96                  | 25.0                   | 1.271         | 0.231     | 0.30        | /          |
| Body Back (0 mm)  | 2506            | 20              | 1RB       | /                      | /                      | /             | /         | /           | /          |
|                   | 2549.5          | 20              | 1RB       | /                      | /                      | /             | /         | /           | /          |
|                   | 2593            | 20              | 1RB       | 24.68                  | 25.0                   | 1.076         | 0.387     | <b>0.42</b> | <b>11#</b> |
|                   | 2636.5          | 20              | 1RB       | /                      | /                      | /             | /         | /           | /          |
|                   | 2680            | 20              | 1RB       | /                      | /                      | /             | /         | /           | /          |
|                   | 2593            | 20              | 50%RB     | 23.96                  | 25.0                   | 1.271         | 0.315     | 0.41        | /          |
| Body Top (0 mm)   | 2506            | 20              | 1RB       | /                      | /                      | /             | /         | /           | /          |
|                   | 2549.5          | 20              | 1RB       | /                      | /                      | /             | /         | /           | /          |
|                   | 2593            | 20              | 1RB       | 24.68                  | 25.0                   | 1.076         | 0.235     | 0.26        | /          |
|                   | 2636.5          | 20              | 1RB       | /                      | /                      | /             | /         | /           | /          |
|                   | 2680            | 20              | 1RB       | /                      | /                      | /             | /         | /           | /          |
|                   | 2593            | 20              | 50%RB     | 23.96                  | 25.0                   | 1.271         | 0.205     | 0.27        | /          |

Note:

1. The LTE Band 38 is a subset of LTE Band 41, with the same modulation type, and the rated output power of LTE band 38 is not greater than LTE band 41, so LTE band 38 does not need to be tested.

2. The frequency range of LTE Band 41 is 2496~ 2690MHz. Per KDB 447498 D01, according to the following formula Calculate  $N_c$  is 5.

3. 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.

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

where

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

4. The power class 3 used for LTE Band 41 SAR testing.

**Note:**

1. When the reported 1-g SAR for the mid-Band or highest output power channel is:  
 $\leq 0.8\text{W/Kg}$ , testing for other channels are optional, when the transmission band is  $\leq 100\text{ MHz}$   
 $\leq 0.6\text{W/Kg}$ , testing for other channels are optional, when the transmission band is between 100 MHz and 200 MHz  
 $\leq 0.4\text{W/Kg}$ , testing for other channels are optional, when the transmission band is  $\geq 200\text{ MHz}$
2. SAR for LTE band exposure configurations is measured according to the procedures of KDB 941225 D05 SAR for LTE Devices v02r05.
3. KDB 941225 D05-SAR for higher order modulation is required only when the highest maximum output power for the configuration in the higher order modulation is  $> 0.5\text{ dB}$  higher than the same configuration in QPSK or when the reported SAR for the QPSK configuration is  $> 1.45\text{ W/kg}$
4. KDB 941225 D05-For QPSK with 100% RB allocation, when the reported SAR measured for the Highest output power channel is  $< 1.45\text{ W/kg}$ , tests for the remaining required test channels are optional.
5. KDB 941225 D05- 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  $\leq 0.8\text{ W/kg}$ .
6. KDB 941225 D05- 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.
7. KDB 941225 D05- other channel bandwidths SAR test is required when the highest maximum output power of a configuration requiring testing in the smaller channel bandwidth is  $> 0.5\text{ dB}$  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  $> 1.45\text{ W/kg}$ .

**WLAN 2.4G:**

| EUT Position      | Frequency (MHz) | Test Mode | Max. Meas. Power (dBm) | Max. Rated Power (dBm) | 1g SAR (W/kg) |                   |           |             |            |
|-------------------|-----------------|-----------|------------------------|------------------------|---------------|-------------------|-----------|-------------|------------|
|                   |                 |           |                        |                        | Scaled Factor | Duty cycle Factor | Meas. SAR | Scaled SAR  | Plot       |
| Body Front (0 mm) | 2412            | 802.11 b  | /                      | /                      | /             | /                 | /         | /           | /          |
|                   | 2437            | 802.11 b  | 15.39                  | 16.0                   | 1.151         | 1.004             | 0.259     | 0.30        | /          |
|                   | 2462            | 802.11 b  | /                      | /                      | /             | /                 | /         | /           | /          |
| Body Back (0 mm)  | 2412            | 802.11 b  | /                      | /                      | /             | /                 | /         | /           | /          |
|                   | 2437            | 802.11 b  | 15.39                  | 16.0                   | 1.151         | 1.004             | 0.277     | 0.32        | /          |
|                   | 2462            | 802.11 b  | /                      | /                      | /             | /                 | /         | /           | /          |
| Body Top (0 mm)   | 2412            | 802.11 b  | /                      | /                      | /             | /                 | /         | /           | /          |
|                   | 2437            | 802.11 b  | 15.39                  | 16.0                   | 1.151         | 1.004             | 0.317     | <b>0.37</b> | <b>12#</b> |
|                   | 2462            | 802.11 b  | /                      | /                      | /             | /                 | /         | /           | /          |

**Note:**

1. When the 1-g SAR is  $\leq 0.8\text{W/kg}$ , testing for other channels are optional.
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. For 802.11 b mode power is the largest among 802.11 b/g/n20, 802.11 b mode as initial test configuration is selected to test.
4. According KDB 248227 D01, for SAR testing of 802.11 WIFI 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 5.6G:**

| EUT Position      | Frequency (MHz) | Test Mode | Max. Meas. Power (dBm) | Max. Rated Power (dBm) | 1g SAR (W/kg) |                   |           |             |            |
|-------------------|-----------------|-----------|------------------------|------------------------|---------------|-------------------|-----------|-------------|------------|
|                   |                 |           |                        |                        | Scaled Factor | Duty cycle Factor | Meas. SAR | Scaled SAR  | Plot       |
| Body Front (0 mm) | 5500            | 802.11 a  | /                      | /                      | /             | /                 | /         | /           | /          |
|                   | 5580            | 802.11 a  | 7.40                   | 8.0                    | 1.148         | 1.033             | 0.285     | 0.34        | /          |
|                   | 5700            | 802.11 a  | /                      | /                      | /             | /                 | /         | /           | /          |
| Body Back (0 mm)  | 5500            | 802.11 a  | /                      | /                      | /             | /                 | /         | /           | /          |
|                   | 5580            | 802.11 a  | 7.40                   | 8.0                    | 1.148         | 1.033             | 0.264     | 0.31        | /          |
|                   | 5700            | 802.11 a  | /                      | /                      | /             | /                 | /         | /           | /          |
| Body Top (0 mm)   | 5500            | 802.11 a  | /                      | /                      | /             | /                 | /         | /           | /          |
|                   | 5580            | 802.11 a  | 7.40                   | 8.0                    | 1.148         | 1.033             | 0.286     | <b>0.34</b> | <b>13#</b> |
|                   | 5700            | 802.11 a  | /                      | /                      | /             | /                 | /         | /           | /          |

**Note:**

1. When the 1-g SAR is  $\leq 0.8\text{W/kg}$ , testing for other channels are optional.
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. For 802.11 a mode power is the largest among 802.11 a/n20/n40/ac20/ac40/ac80, 802.11 a mode as initial test configuration is selected to test.
4. According KDB 248227 D01, for SAR testing of 802.11 WIFI 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 ( $\sim 10\%$  from the 1-g SAR limit).
- 4) Perform a third repeated measurement only if the original, first or second repeated measurement is  $\geq 1.5$  W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is  $> 1.20$ .

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

#### Head

| SAR probe calibration point | Frequency Band | Freq.(MHz) | EUT Position | Meas. SAR (W/kg) |          | Largest to Smallest SAR Ratio |
|-----------------------------|----------------|------------|--------------|------------------|----------|-------------------------------|
|                             |                |            |              | Original         | Repeated |                               |
| /                           | /              | /          | /            | /                | /        | /                             |

#### Body

| SAR probe calibration point | Frequency Band  | Freq.(MHz) | EUT Position | Meas. SAR (W/kg) |          | Largest to Smallest SAR Ratio |
|-----------------------------|-----------------|------------|--------------|------------------|----------|-------------------------------|
|                             |                 |            |              | Original         | Repeated |                               |
| 900MHz                      | GSM 850         | 824.2      | Body Front   | 0.810            | 0.709    | 1.14                          |
| 900MHz                      | LTE Band 26 & 5 | 841.5      | Body Front   | 0.920            | 0.805    | 1.14                          |

#### 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 DUT HOLDER PERTURBATIONS

In accordance with TCB workshop October 2016:

1) SAR perturbation due to test device holders, depending on antenna locations, buttons locations on phones or device, form factor (e.g. dongles etc.), the measured SAR could be influenced by the relative positions of the test device and its holder

2) SAR measurement standards have included protocols to evaluate this with a flat phantom, with and without the device holder

3) When the highest reported SAR of an antenna is  $> 1.2$  W/kg, holder perturbation verification is required for each antenna, using the highest SAR configuration among all applicable frequency bands in the same exact device and holder positions used for head and body SAR measurements; i.e. same device/button locations in the holder

Per IEEE 1528: 2013/Annex E/E.4.1.1: Device holder perturbation tolerance for a specific test device: Type B When it is unknown if a device holder perturbs the fields of a test device, the SAR uncertainty shall be assessed with a flat phantom (see Clause 5) by comparing the SAR with and without the device holder according to the following tests:

The SAR tolerance for device holder disturbance is computed using Equation (E.21) and entered in the corresponding row of the appropriate uncertainty table with an assumed rectangular probability distribution and  $\nu_i = \infty$  degrees of freedom:

$$SAR_{\text{tolerance}} [\%] = 100 \times \left( \frac{SAR_{\text{w/holder}} - SAR_{\text{w/o holder}}}{SAR_{\text{w/o holder}}} \right) \quad (\text{E.21})$$

### The Highest Measured SAR Configuration among all applicable Frequency Band

#### Head

| Frequency Band | Freq.(MHz) | EUT Position | Meas. SAR (W/kg) |   | The Device holder perturbation uncertainty |
|----------------|------------|--------------|------------------|---|--------------------------------------------|
|                |            |              |                  |   |                                            |
| /              | /          | /            | /                | / | /                                          |

#### Body

| Frequency Band | Freq.(MHz) | EUT Position | Meas. SAR (W/kg) |   | The Device holder perturbation uncertainty |
|----------------|------------|--------------|------------------|---|--------------------------------------------|
|                |            |              |                  |   |                                            |
| /              | /          | /            | /                | / | /                                          |

## SAR SIMULTANEOUS TRANSMISSION DESCRIPTION

### Simultaneous Transmission:

| Description of Simultaneous Transmit Capabilities |   |   |
|---------------------------------------------------|---|---|
|                                                   |   |   |
| WWAN(GSM/WCDMA/LTE) + WIFI 2.4G                   | √ | √ |
| WWAN(GSM/WCDMA/LTE) + WIFI 5.2G                   | √ | √ |
| WWAN(GSM/WCDMA/LTE) + WIFI 5.3G                   | √ | × |
| WWAN(GSM/WCDMA/LTE) + WIFI 5.6G                   | √ | × |
| WWAN(GSM/WCDMA/LTE) + WIFI 5.8G                   | √ | √ |
| WLAN 2.4/5G + Bluetooth                           | × | × |

### Simultaneous SAR test exclusion considerations:

| Mode (SAR1+SAR2)                              | Position | Reported SAR(W/kg) |      | $\Sigma$ SAR < 1.6W/kg |
|-----------------------------------------------|----------|--------------------|------|------------------------|
|                                               |          | SAR1               | SAR2 |                        |
| MAX.WWAN(GSM/WCDMA/LTE) + WIFI 2.4G (Hotspot) | Body     | 0.97               | 0.37 | 1.34                   |
| MAX.WWAN(GSM/WCDMA/LTE) + WIFI 5.2G (Hotspot) | Body     | 0.97               | 0.34 | 1.31                   |
| MAX.WWAN(GSM/WCDMA/LTE) + WIFI 5.3G           | Body     | 0.97               | 0.39 | 1.36                   |
| MAX.WWAN(GSM/WCDMA/LTE) + WIFI 5.6G           | Body     | 0.97               | 0.34 | 1.31                   |
| MAX.WWAN(GSM/WCDMA/LTE) + WIFI 5.8G (Hotspot) | Body     | 0.97               | 0.29 | 1.26                   |

| Mode (SAR1+SAR2)                    | Position | Reported SAR(W/kg) |      | $\Sigma$ SAR < 1.6W/kg |
|-------------------------------------|----------|--------------------|------|------------------------|
|                                     |          | SAR1               | SAR2 |                        |
| MAX.WWAN(GSM/WCDMA/LTE) + Bluetooth | Body     | 0.97               | 0.40 | <b>1.37</b>            |

### Conclusion:

Sum of SAR:  $\Sigma$ SAR  $\leq$  1.6 W/kg therefore simultaneous transmission SAR with Volume Scans 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/<br>uncertainty<br>y<br>± % | Probability<br>distributio<br>n | Divisor    | ci<br>(1 g) | ci<br>(10 g) | Standard<br>uncertai<br>nty<br>± %, (1 g) | Standard<br>uncertai<br>nty<br>± %, (10 g) |
|-----------------------------------------------------------------------------------|---------------------------------------|---------------------------------|------------|-------------|--------------|-------------------------------------------|--------------------------------------------|
| <b>Measurement system</b>                                                         |                                       |                                 |            |             |              |                                           |                                            |
| Probe calibration                                                                 | 13.9                                  | N                               | 1          | 1           | 1            | 13.9                                      | 13.9                                       |
| Axial Isotropy                                                                    | 4.7                                   | R                               | $\sqrt{3}$ | 1           | 1            | 2.7                                       | 2.7                                        |
| Hemispherical Isotropy                                                            | 9.6                                   | R                               | $\sqrt{3}$ | 0           | 0            | 0.0                                       | 0.0                                        |
| Boundary effect                                                                   | 1.0                                   | R                               | $\sqrt{3}$ | 1           | 1            | 0.6                                       | 0.6                                        |
| Linearity                                                                         | 4.7                                   | R                               | $\sqrt{3}$ | 1           | 1            | 2.7                                       | 2.7                                        |
| Detection limits                                                                  | 1.0                                   | R                               | $\sqrt{3}$ | 1           | 1            | 0.6                                       | 0.6                                        |
| Modulation response                                                               | 4.0                                   | R                               | $\sqrt{3}$ | 1           | 1            | 2.3                                       | 2.3                                        |
| Readout electronics                                                               | 0.3                                   | N                               | 1          | 1           | 1            | 0.3                                       | 0.3                                        |
| Response time                                                                     | 0.0                                   | R                               | $\sqrt{3}$ | 1           | 1            | 0.0                                       | 0.0                                        |
| Integration time                                                                  | 0.0                                   | R                               | $\sqrt{3}$ | 1           | 1            | 0.0                                       | 0.0                                        |
| RF ambient conditions – noise                                                     | 1.0                                   | R                               | $\sqrt{3}$ | 1           | 1            | 0.6                                       | 0.6                                        |
| RF ambient conditions—reflections                                                 | 1.0                                   | R                               | $\sqrt{3}$ | 1           | 1            | 0.6                                       | 0.6                                        |
| Probe positioner mech. Restrictions                                               | 0.8                                   | R                               | $\sqrt{3}$ | 1           | 1            | 0.5                                       | 0.5                                        |
| Probe positioning with respect to phantom shell                                   | 6.7                                   | R                               | $\sqrt{3}$ | 1           | 1            | 3.9                                       | 3.9                                        |
| Extrapolation, interpolation, and integrations algorithms for max. SAR evaluation | 3.9                                   | R                               | $\sqrt{3}$ | 1           | 1            | 2.3                                       | 2.3                                        |
| <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                               | $\sqrt{3}$ | 1           | 1            | 2.9                                       | 2.9                                        |
| SAR scaling                                                                       | 2.0                                   | R                               | $\sqrt{3}$ | 1           | 1            | 1.2                                       | 1.2                                        |
| <b>Phantom and tissue parameters</b>                                              |                                       |                                 |            |             |              |                                           |                                            |
| Phantom uncertainty (shape and thickness tolerances)                              | 4.0                                   | R                               | $\sqrt{3}$ | 1           | 1            | 2.3                                       | 2.3                                        |
| Uncertainty in SAR correction for deviations in permittivity and conductivity     | 1.9                                   | N                               | 1          | 1           | 0.84         | 1.9                                       | 1.6                                        |
| Liquid conductivity measurement                                                   | 5.5                                   | N                               | 1          | 0.78        | 0.71         | 4.3                                       | 3.9                                        |
| Liquid permittivity measurement                                                   | 2.9                                   | N                               | 1          | 0.23        | 0.26         | 0.7                                       | 0.8                                        |
| Liquid conductivity—temperature uncertainty                                       | 1.7                                   | R                               | $\sqrt{3}$ | 0.78        | 0.71         | 0.8                                       | 0.7                                        |
| Liquid permittivity—temperature uncertainty                                       | 2.7                                   | R                               | $\sqrt{3}$ | 0.23        | 0.26         | 0.4                                       | 0.4                                        |
| 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.**

## APPENDIX C CALIBRATION CERTIFICATES

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**Please Refer to the Attachment.**

## APPENDIX D RETURN LOSS&IMPEDANCE MEASUREMENT

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**Please Refer to the Attachment.**

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