# TEST REPORT

| | | |
|---|---|---|
| **APPLICANT** | **:** | Ascom (Sweden) AB |
| **PRODUCT NAME** | **:** | Myco 4 DECT Wi-Fi, Myco 4 DECT Wi-Fi EEA |
| **MODEL NAME** | **:** | SH4-AADE, SH4-AADB |
| **BRAND NAME** | **:** | ascom |
| **FCC ID** | **:** | BXZSH4D |
| **STANDARD(S)** | **:** | FCC 47 CFR Part 2 (2.1093)<br>IEC TR 63170:2018<br>IEEE 1528-2013<br>IEC/IEEE 62209-1528:2020 |
| **RECEIPT DATE** | **:** | 2024-09-23 |
| **TEST DATE** | **:** | 2024-10-15 to 2024-10-30 |
| **ISSUE DATE** | **:** | 2024-12-01 |

Edited by: Xie Yiyun

Xie Yiyun (Rapporteur)

Approved by: Gan Yueming

Gan Yueming (Supervisor)

# DIRECTORY

| Changed History | | |
|---|---|---|
| **Version** | **Date** | **Reason for Change** |
| 1.0 | 2024-12-01 | First edition |
| | | |

# 1. SAR Results Summary

The maximum results of Specific Absorption Rate (SAR) found during test as bellows:

<Highest Reported SAR Summary>

| Frequency Band | | Highest SAR Summary | | | |
|---|---|---|---|---|---|
| | | Head (Gap 0mm) | Body-worn (Gap 10mm) | Hotspot (Gap 10mm) | Extremity (Gap 0mm) |
| | | 1g SAR (W/kg) | | | 10g SAR (W/kg) |
| N/A | DECT | 0.051 | 0.051 | 0.051 | N/A |
| WLAN | 2.4GHz WLAN | 1.089 | 0.430 | 0.430 | N/A |
| | 5GHz WLAN | 0.830 | 0.740 | 0.527 | 0.815 |
| | 6GHz WLAN | 0.382 | 0.262 | N/A | 0.406 |
| 2.4GHz Band | Bluetooth | 0.091 | 0.072 | 0.072 | N/A |

| Frequency Band | | APD | Scaled PD |
|---|---|---|---|
| | | $4cm^2$ ($mW/cm^2$) | $4cm^2$ psPD ($mW/cm^2$) |
| WLAN | 6GHz WLAN | 0.822 | 0.695 |

| Highest Simultaneous Transmission $SAR_{1g}$ (W/Kg): | 1.318 | Limit (W/kg): 1.6 |
|---|---|---|

| Highest Simultaneous Transmission with Multiple transmitters | Total Exposure Ratio | Limit |
|---|---|---|
| SAR & Power Density | 0.993 | 1.0 |

**Note:**

1. This device is compliance with Specific Absorption Rate (SAR) for general population or uncontrolled exposure limits (1.6 W/kg for 1g SAR, 1.0 $mW/cm^2$ for iPD and APD in $4cm^2$) specified in FCC 47 CFR Part 1 (1.1310) and IEEE C95.1-1991), and had been tested in accordance with the measurement methods and procedures specified in IEC/IEEE 62209-1528, IEEE 1528-2013, TCBC workshop notes, IEC TR 63170 and FCC KDB publications.
2. When the test result is a critical value, we will use the measurement uncertainty give the judgment result based on the 95% confidence intervals.

# 2. Technical Information

**Note:** Provide by applicant.

## 2.1. Applicant and Manufacturer Information

| | |
|---|---|
| **Applicant:** | Ascom (Sweden) AB |
| **Applicant Address:** | Grimbodalen 2, SE-417 49 Gothenburg, Sweden |
| **Manufacturer:** | Ascom (Sweden) AB |
| **Manufacturer Address:** | Grimbodalen 2, SE-417 49 Gothenburg, Sweden |

## 2.2. Equipment under Test (EUT) Description

| | |
|---|---|
| **Product Name:** | Myco 4 DECT Wi-Fi, Myco 4 DECT Wi-Fi EEA |
| **EUT NO.:** | 3#,15# |
| **Hardware Version:** | V0.40 |
| **Software Version:** | SH4_ASCOM_A14_025.00 |
| **Frequency Bands:** | DECT: 1920 MHz ~ 1930 MHz<br>WLAN 2.4GHz: 2412 MHz ~ 2462 MHz<br>WLAN 5.2GHz: 5180 MHz ~ 5240 MHz<br>WLAN 5.3GHz: 5260 MHz ~ 5320 MHz<br>WLAN 5.5GHz: 5500 MHz ~ 5720 MHz<br>WLAN 5.8GHz: 5745 MHz ~ 5825 MHz<br>WLAN 6.2GHz (U-NII-5): 5925 MHz ~ 6425 MHz<br>WLAN 6.5GHz (U-NII-6): 6425 MHz ~ 6525 MHz<br>WLAN 6.7GHz (U-NII-7): 6525 MHz ~ 6875 MHz<br>WLAN 7.0GHz (U-NII-8): 6875 MHz ~ 7125 MHz<br>Bluetooth: 2402 MHz ~ 2480 MHz<br>NFC: 13.56 MHz |
| **Modulation Mode:** | DECT: GFSK<br>802.11b: DSSS<br>802.11a/g/n-HT20/HT40/ac-VHT20/40/80/160: OFDM<br>802.11ax-HEW20/40/80/160: OFDMA<br>BR+EDR: GFSK (1Mbps), π/4-DQPSK (2Mbps), 8-DPSK (3Mbps)<br>Bluetooth LE: GFSK (1Mbps, 2Mbps)<br>NFC: ASK |
| **Hotspot Mode:** | Support (except WLAN 5GHz B2/3 & WLAN 6GHz) |
| **Antenna Type:** | DECT: PIFA Antenna & Loop Antenna<br>WLAN: PIFA Antenna<br>Bluetooth: PIFA Antenna |

| | |
|---|---|
| | NFC: Loop Antenna |
| **SIM Cards Description:** | N/A |

## 2.3. Accessories Information

| | | |
|---|---|---|
| **Battery 1:**<br>**(Built-in small battery)** | Manufacturer: | Zhejiang Liwinon Energy Technology Co., Ltd. |
| | Brand Name: | N/A |
| | Model: | 685261 |
| | Capacity: | 3950mAh |
| | Rated Voltage: | 3.87 V |
| **Battery 2:**<br>**(Built-in large battery)** | Manufacturer: | Zhejiang Liwinon Energy Technology Co., Ltd. |
| | Brand Name: | N/A |
| | Model: | 291342 |
| | Capacity: | 150mAh |
| | Rated Voltage: | 3.8V |

**Note:**

1. There are two models in this report, SH4-AADE and SH4-AADB, both of them are different from the model names, sales markets and software versions. The SH4-AADB was used as the main test model.
2. For more detailed description, please refer to specification or user manual supplied by the applicant and/or manufacturer.

## 2.4. Environment of Test Site/Conditions

| | |
|---|---|
| Normal Temperature (NT): | 20-25 °C |
| Relative Humidity: | 30-75 % |

| | |
|---|---|
| Test Frequency: | DECT<br>WLAN 2.4GHz<br>WLAN 5GHz<br>WLAN 6GHz<br>Bluetooth |
| Operation Mode: | Call established |
| Power Level: | DECT;<br>WLAN 2.4GHz;<br>WLAN 5GHz;<br>WLAN 6GHz;<br>Bluetooth |

During SAR test, EUT is in Traffic Mode (Channel Allocated) at Normal Voltage Condition. A communication link is set up with a System Simulator (SS) by air link, and a call is established.

The EUT shall use its internal transmitter. The antenna(s), battery and accessories shall be those specified by the Factory. The EUT battery must be fully charged and checked periodically during the test to ascertain uniform power output. If a wireless link is used, the antenna connected to the output of the base station simulator shall be placed at least 50 cm away from the handset.
The signal transmitted by the simulator to the antenna feeding point shall be lower than the output power level of the handset by at least 35 dB.

# 3. Specific Absorption Rate (SAR)

## 3.1. Introduction

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

## 3.2. SAR Definition

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

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

SAR is expressed in units of Watts per kilogram (W/kg).
SAR measurement can be either related to the temperature elevation in tissue by,

$$\mathbf{SAR} = \mathbf{C}\left(\frac{\boldsymbol{\delta}\mathbf{T}}{\boldsymbol{\delta}\mathbf{t}}\right)$$

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

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

Where σ is the conductivity of the tissue, ρ is the mass density of the tissue and $|\mathrm{E}|$ is the rmselectrical field strength.

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

# 4. RF Exposure Limits

## 4.1. Uncontrolled Environment

Uncontrolled Environments are defined as locations where there is the exposure of individuals who have no knowledge or control of their exposure. The general population/uncontrolled exposure limits are applicable to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Members of the general public would come under this category when exposure is not employment-related; for example, in the case of a wireless transmitter that exposes persons in its vicinity.

**Limits for General Population/Uncontrolled Exposure (W/kg)**

| Type Exposure | Uncontrolled Environment Limit |
|---|---|
| Spatial Peak SAR (1g cube tissue for head and trunk) | 1.6 W/kg |
| Spatial Peak SAR (10g cube tissue for limbs) | 4.0 W/kg |
| Spatial Peak SAR (1g cube tissue for whole body) | 0.08 W/kg |

| Frequency range (MHz) | Electric field strength (V/m) | Magnetic field strength (A/m) | Power density (mW/cm$^2$) | Averaging time (minutes) |
|---|---|---|---|---|
| (A) Limits for Occupational/Controlled Exposures | | | | |
| 0.3-3.0 | 614 | 1.63 | *(100) | 6 |
| 3.0-30 | 1842/f | 4.89/f | *(900/f2) | 6 |
| 30-300 | 61.4 | 0.163 | 1.0 | 6 |
| 300-1500 | | | f/300 | 6 |
| 1500-100,000 | | | 5 | 6 |
| (B) Limits for General Population/Uncontrolled Exposure | | | | |
| 0.3-1.34 | 614 | 1.63 | *(100) | 30 |
| 1.34-30 | 824/f | 2.19/f | *(180/f2) | 30 |
| 30-300 | 27.5 | 0.073 | 0.2 | 30 |
| 300-1500 | | | f/1500 | 30 |
| 1500-100,000 | | | 1.0 | 30 |

**Note:**

1. Occupational/Uncontrolled Environments are defined as locations where there is exposure that may be incurred by people who are aware of the potential for exposure (i.e. as a result of employment or occupation).
2. Whole-Body SAR is averaged over the entire body, partial-body SAR is averaged over any 1gram of tissue defined as a tissue volume in the shape of a cube. SAR for hands, wrists, feet and ankles is averaged over any 10 grams of tissue defined as a tissue volume in the shape of a cube.

## 4.2. Controlled Environment

Controlled Environments are defined as locations where there is exposure that may be incurred by persons who are aware of the potential for exposure, (i.e. as a result of employment or occupation). In general, occupational/controlled exposure limits are applicable to situations in which persons are exposed as a consequence of their employment, who have been made fully aware of the potential for exposure and can exercise control over their exposure. The exposure category is also applicable when the exposure is of a transient nature due to incidental passage through a location where the exposure levels may be higher than the general population/uncontrolled limits, but the exposed person is fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

# 5. Applied Reference Documents

Leading reference documents for testing:

| Identity | Document Title | Method Determination /Remark |
|---|---|---|
| FCC 47 CFR Part 2 (2.1093) | Radio Frequency Radiation Exposure Evaluation: Portable Devices | No deviation |
| IEC/IEEE 62209-1528:2020 | Measurement procedure for the assessment of specific absorption rate of human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices –Part 1528: Human models, instrumentation, and procedures (Frequency range of 4 MHz to 10 GHz) | No deviation |
| IEC TR 63170:2018 | Measurement procedure for the evaluation of power density related to human exposure to radio frequency fields from wireless communication devices operating between 6 GHz and 100 GHz | No deviation |
| IEEE 1528-2013 | IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques | No deviation |
| KDB 447498 D01v06 | General RF Exposure Guidance | No deviation |
| KDB 248227 D01v02r02 | SAR Measurement Procedures for 802.11 Transmitters | No deviation |
| KDB 865664 D01v01r04 | SAR Measurement 100 MHz to 6 GHz | No deviation |
| KDB 865664 D02v01r02 | RF Exposure Reporting | No deviation |
| KDB 648474 D04v01r03 | Handset SAR | No deviation |
| KDB 941225 D06v02r01 | SAR Evaluation Procedures for Portable Devices With Wireless Router Capabilities | No deviation |
| KDB 941225 D07v01r02 | SAR Evaluation Procedures For UMPC Mini-Tablet Devices | No deviation |
| **Note 1:** Additions to, deviation, or exclusions from the method shall be judged in the "method determination" column of add, deviate or exclude from the specific method shall be explained in the "Remark" of the above table. | | |

# 6. SAR Measurement System

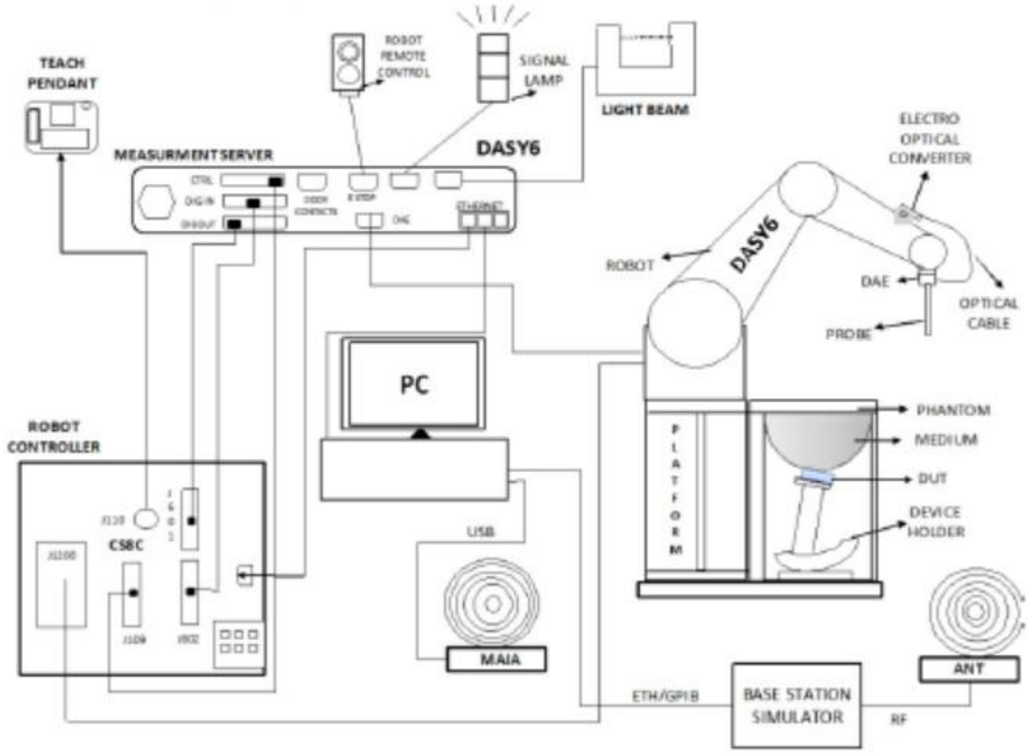



**Fig 6.1 SPEAG DASY System Configurations**

The DASY system for performance compliance tests is illustrated above graphically. This system consists of the following items:

- A standard high precision 6-axis robot with controller, a teach pendant and software.
- A data acquisition electronic (DAE) attached to the robot arm extension.
- A dosimetric probe equipped with an optical surface detector system.
- The electro-optical converter (ECO) performs the conversion between optical and electrical signals
- A measurement server performs the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- A probe alignment unit which improves the accuracy of the probe positioning.
- A computer operating Windows XP.
- DASY software.
- Remove control with teach pendant and additional circuitry for robot safety such as warming lamps, etc.
- The SAM twin phantom.
- A device holder.
- Tissue simulating liquid.
- Dipole for evaluating the proper functioning of the system.

➢ Some of the components are described in details in the following sub-sections.

## 6.1. E-Field Probe

The SAR measurement is conducted with the dosimetric probe (manufactured by SPEAG). The probe is specially designed and calibrated for use in liquid with high permittivity. The dosimetric probe has special calibration in liquid at different frequency. This probe has a built in optical surface detection system to prevent from collision with phantom.

➢ **E-Field Probe Specification**

**<ES3DV3 Probe>**

| | |
|---|---|
| **Construction** | Symmetrical design with triangular core<br>Built-in optical fiber for surface detection system.<br>Built-in shielding against static charges. PEEK enclosure material (resistant to organic solvents, e.g., DGBE) |
| **Frequency** | 10 MHz to 3 GHz; Linearity: ± 0.2 dB |
| **Directivity** | ± 0.2 dB in HSL (rotation around probe axis)<br>± 0.4 dB in HSL (rotation normal to probe axis) |
| **Dynamic Range** | 5 µW/g to 100 mW/g; Linearity: ± 0.2 dB |
| **Dimensions** | Overall length: 330 mm (Tip: 16 mm)<br>Tip diameter: 6.8 mm (Body: 12 mm)<br>Distance from probe tip to dipole centers: 2.7 mm |

**Fig 6.2 Photo of ES3DV3**

**<EX3DV4 Probe>**

| | |
|---|---|
| **Construction** | Symmetrical design with triangular core<br>Built-in shielding against static charges<br>PEEK enclosure material (resistant to organic solvents, e.g., DGBE) |
| **Frequency** | 10 MHz to 10 GHz; Linearity: ± 0.2 dB |
| **Directivity** | ± 0.3 dB in HSL (rotation around probe axis)<br>± 0.5 dB in tissue material (rotation normal to probe axis) |
| **Dynamic Range** | 10 µW/g to 100 mW/g; Linearity: ± 0.2 dB |
| **Dimensions** | Overall length: 330 mm (Tip: 20 mm)<br>Tip diameter: 2.5 mm (Body: 12 mm)<br>Typical distance from probe tip to dipole centers: 1 mm |

**Fig 6.3 Photo of EX3DV4**

➢ **E-Field Probe Calibration**

Each probe needs to be calibrated according to a dosimetric assessment procedure with accuracy better than ± 10%. The spherical isotropy shall be evaluated and within ± 0.25 dB. The sensitivity parameters (NormX, NormY, and NormZ), the diode compression parameter (DCP) and the conversion factor (ConvF) of the probe are tested. The calibration data can be referred to appendix C of this report.

## 6.2. Data Acquisition Electronics (DAE)

The data acquisition electronics (DAE) consists of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast16 bit AD-converter and a command decoder and control logic unit. AD-converter and a command decoder and 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 input impedance of the DAE is 200 MOhm; the inputs are symmetrical and floating. Common mode rejection is above 80 dB.

**Fig 6.4 Photo of DAE**

## 6.3. Robot

The SPEAG DASY system uses the high precision robots (DASY4: RX90BL; DASY5: TX90XL) type from Stäubli SA (France). For the 6-axis controller system, the robot controller version (DASY4: CS7MB; DASY5: CS8c) from Stäubli is used. The Stäubli robot series have many features that are important for our application:

High precision (repeatability ±0.035 mm)

High reliability (industrial design)

Jerk-free straight movements

Low ELF interference (the closed metallic construction shields against motor control fields)

**Fig 6.5 Photo of DASY5**

## 6.4. Measurement Server

The measurement server is based on a PC/104 CPU board with CPU (DASY4: 166 MHz, Intel Pentium; DASY5: 400 MHz, Intel Celeron), chip disk (DASY4: 32 MB; DASY5: 128 MB), RAM (DASY4: 64 MB, DASY5: 128 MB). The necessary circuits for communication with the DAE electronic box, as well as the 16 bits AD converter system for optical detection and digital I/O interface are contained on the DASY I/O board, which is directly connected to the PC/104 bus of the CPU board. The measurement server performs all the real-time data evaluation for field measurements and surface detection, controls robot movements and handles safety operations.


**Fig 6.6 Photo of Server for DASY5**

## 6.5. Light Beam Unit

The light beam switch allows automatic "tooling" of the probe. During the process, the actual position of the probe tip with respect to the robot arm is measured, as well as the probe length and the horizontal probe offset. The software then corrects all movements, such that the robot coordinates are valid for the probe tip.

The repeatability of this process is better than 0.1 mm. If a position has been taught with an aligned probe, the same position will be reached with another aligned probe within 0.1 mm, even if the other probe has different dimensions. During probe rotations, the probe tip will keep its actual position.


**Fig. 6.7 Photo of Light Beam**

## 6.6. Phantom

**<SAM Twin Phantom>**

| | |
|---|---|
| **Shell Thickness** | 2 ± 0.2 mm (sagging: <1%)<br>Center ear point: 6 ± 0.2 mm |
| **Filling Volume** | Approx. 25 liters |
| **Dimensions** | Length: 1000 mm; Width: 500 mm;<br>Height: adjustable feet |
| **Measurement Areas** | Left Head, Right Head, Flat Phantom |

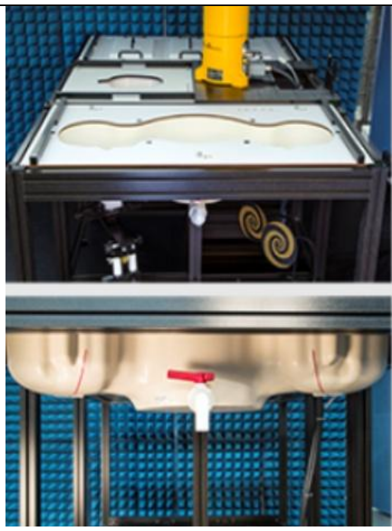


**Fig. 6.8 Photo of SAM Phantom**

The bottom plate contains three pair of bolts for locking the device holder. The device holder positions are adjusted to the standard measurement positions in the three sections. A white cover is provided to tap the phantom during off-periods to prevent water evaporation and changes in the liquid parameters. On the phantom top, three reference markers are provided to identify the phantom position with respect to the robot.

## 6.7. Device Holder

**<Device Holder for SAM Twin Phantom>**

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

The DASY device holder is designed to cope with different positions given in the standard. It has two scales for the device rotation (with respect to the body axis) and the device inclination (with respect to the line between the ear reference points). The rotation center for both scales is the ear reference point (EPR). Thus the device needs no repositioning when changing the angles.

The DASY device holder is constructed of low-loss POM material having the following dielectric parameters: relative permittivity ε = 3 and loss tangent δ = 0.02. The amount of dielectric material has been reduced in the closest vicinity of the device, since measurements have suggested that the influence of the clamp on the test results could thus be lowered.

**<Laptop Extension Kit>**

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

**Fig 6.9 Device Holder**

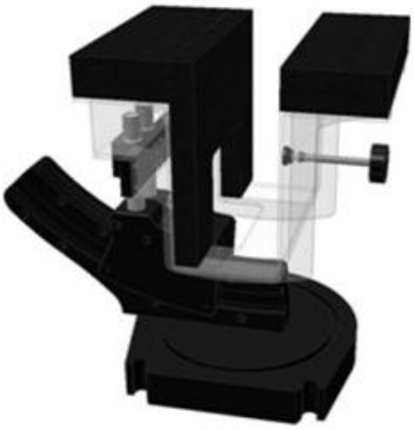


**Fig 6.10 Laptop Extension Kit**

## 6.8. Data Storage and Evaluation

➢ **Data Storage**

The DASY software stores the assessed data from the data acquisition electronics as raw data (in microvolt readings from the probe sensors), together with all the necessary software parameters for the data evaluation (probe calibration data, liquid parameters and device frequency and modulation data) in measurement files. The post-processing software evaluates the desired unit and format for output each time the data is visualized or exported. This allows verification of the complete software setup even after the measurement and allows correction of erroneous parameter settings. For example, if a measurement has been performed with an incorrect crest factor parameter in the device setup, the parameter can be corrected afterwards and the data can be reevaluated.

The measured data can be visualized or exported in different units or formats, depending on the selected probe type (e.g., [V/m], [A/m], [mW/g]). Some of these units are not available in certain situations or give meaningless results, e.g., a SAR-output in a non-lose media, will always be zero. Raw data can also be exported to perform the evaluation with other software packages.

➢ **Data Evaluation**

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

| | | |
|---|---|---|
| **Probe parameters:** | - Sensitivity | $Norm_i$, $a_{i0}$, $a_{i1}$, $a_{i2}$ |
| | - Conversion factor | $ConvF_i$ |

| | | |
|---|---|---|
| | - Diode compression point | dcpi |
| **Device parameters:** | - Frequency | f |
| | - Crest factor | cf |
| **Media parameters:** | - Conductivity | σ |
| | - Density | ρ |

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

The first step of the evaluation is a linearization of the filtered input signal to account for the compression characteristics of the detector diode. The compensation depends on the input signal, the diode type and the DC-transmission factor from the diode to the evaluation electronics. If the exciting field is pulsed, the crest factor of the signal must be known to correctly compensate for peak power.

The formula for each channel can be given as:

$$V_i = U_i + U_i^2 \times \frac{cf}{dcp_i}$$

With Vi = compensated signal of channel i, (i = x, y, z)
Ui = input signal of channel i, (i = x, y, z)
cf = crest factor of exciting field (DASY parameter)
dcpi = diode compression point (DASY parameter)

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

$$\text{E-field Probes:} E_i = \sqrt{\frac{V_i}{Norm_i \times ConvF}}$$

$$\text{H-field Probes:} H_i = \sqrt{V_i} \times \frac{a_{i0} + a_{i1} + a_{i2} f^2}{f}$$

With $V_i$ = compensated signal of channel i, (i = x, y, z)
$Norm_i$ = sensor sensitivity of channel i, (i = x, y, z), μV/(V/m)$^2$ forE-field
Probes ConvF = sensitivity enhancement in solution
$a_{ij}$ = sensor sensitivity factors for H-field probes
f = carrier frequency [GHz]
$E_i$ = electric field strength of channel i in V/m
$H_i$ = magnetic field strength of channel i in A/m

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

$$E_{tot} = \sqrt{E_x^2 + E_y^2 + E_z^2}$$

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

$$SAR = E_{tot}^2 \times \frac{\sigma}{\rho \times 1000}$$

with SAR = local specific absorption rate in mW/g

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

σ = conductivity in [mho/m] or [Siemens/m]

ρ = equivalent tissue density in $g/cm^3$

Note that the density is set to 1, to account for actual head tissue density rather than the density of the tissue simulating liquid.

## 6.9. Test Equipment List

| Manufacturer | Name of Equipment | Type/Model | Serial No./ SW Version | Calibration | |
|---|---|---|---|---|---|
| | | | | Last Cal. | Due Date |
| SPEAG | 2000MHz System Validation Kit | D2000V2 | 1050 | 2021.12.18 | 2024.12.17 |
| SPEAG | 2450MHz System Validation Kit | D2450V2 | 805 | 2021.12.17 | 2024.12.16 |
| SPEAG | 5000MHz System Validation Kit | D5GHzV2 | 1176 | 2021.12.19 | 2024.12.18 |
| SPEAG | D6.5GHz System Validation Kit | D6.5GHzV2 | 1054 | 2021.11.01 | 2024.10.31 |
| SPEAG | 5G Verification Source | 10GHz | 1019 | 2023.12.03 | 2026.12.02 |
| SPEAG | DOSIMETRIC ASSESSMENT SYSTEM Software | DASY52 | 52.10.4.1527 | NCR | NCR |
| SPEAG | DOSIMETRIC ASSESSMENT SYSTEM Software | cDASY6 | 16.0.0.116 | NCR | NCR |
| SPEAG | DOSIMETRIC ASSESSMENT SYSTEM | cDASY6 mmWave | V2.0.2.34 | NCR | NCR |
| SPEAG | Dosimetric E-Field Probe | EX3DV4 | 7608 | 2024.03.21 | 2025.03.20 |
| SPEAG | Dosimetric E-Field Probe | ES3DV3 | 3295 | 2024.07.17 | 2025.07.16 |
| SPEAG | EUmmWave Probe | EUmmMV4 | 9602 | 2024.03.12 | 2025.03.11 |
| SPEAG | Data Acquisition Electronics | DAE4 | 1423 | 2024.03.17 | 2025.03.16 |
| SPEAG | Data Acquisition Electronics | DAE4 | 1324 | 2024.07.05 | 2025.07.04 |
| SPEAG | SAM Twin Phantom 2 | QD000P40CC | TP-1464 | NCR | NCR |
| SPEAG | Twin-SAM | QD 000 P41 Ax | 2020 | NCR | NCR |
| SPEAG | Phone Positioner | N/A | N/A | NCR | NCR |
| Agilent | MAX Signal Analyzer | N9020A | MY52091436 | 2024.05.30 | 2025.05.29 |
| Agilent | Network Analyzer | E5071B | MY42404762 | 2024.01.25 | 2025.01.24 |
| SPEAG | Dielectric Assessment KIT | DAK-3.5 | 1279 | 2024.03.18 | 2025.03.17 |
| mini-circuits | Amplifier | ZHL-42W+ | 608501717 | NCR | NCR |
| mini-circuits | Amplifier | ZVE-8G+ | 754401735 | NCR | NCR |
| Agilent | Signal Generator | N5182B | MY53050509 | 2024.09.11 | 2025.09.10 |
| R&S | Power Senor | NRP8S | 103215 | 2024.01.25 | 2025.01.24 |
| Agilent | Power Meter | E4416A | MY45102093 | 2024.09.11 | 2025.09.10 |
| R&S | Power Sensor | NRP8S | 103240 | 2024.01.25 | 2025.01.24 |
| Anritsu | Power Meter | E4418B | GB43318055 | 2024.05.30 | 2025.05.29 |
| Agilent | Dual Directional Coupler | 778D | 50422 | NA | NA |
| MCL | Attenuation | 351-218-010 | N/A | NA | NA |
| R&S | Spectrum Analyzer | N9030A | MY54170556 | 2024.09.18 | 2025.09.17 |

| | | | | | |
|---|---|---|---|---|---|
| KTJ | Thermo meter | TA298 | N/A | 2023.11.22 | 2024.11.21 |
| SPEAG | Tissue Simulating Liquids | HBBL600-10000V6 | | 24H | |

**Note:**

1. The calibration certificate of DASY can be referred to appendix G of this report.
2. The Insertion Loss calibration of Dual Directional Coupler and Attenuator were characterized via the network analyzer and compensated during system check.
3. The dielectric probe kit was calibrated via the network analyzer, with the specified procedure (calibrated in pure water) and calibration kit (standard) short circuit, before the dielectric measurement. The specific procedure and calibration kit are provided by Speag.
4. In system check we need to monitor the level on the power meter, and adjust the power amplifier level to have precise power level to the dipole; the measured SAR will be normalized to 1W input power according to the ratio of 1W to the input power to the dipole. For system check, the calibration of the power amplifier is deemed not critically required for correct measurement; the power meter is critical and we do have calibration for it.
5. Attenuator insertion loss is calibrated by the network Analyzer, which the calibration is valid, before system check.
6. N.C.R means No Calibration Requirement.

# 7. Tissue Simulating Liquids

For SAR measurement of the field distribution inside the phantom, the phantom must be filled with homogeneous tissue simulating liquid to a depth of at least 15cm.For head SAR testing, the liquid height from the ear reference point (ERP) of the phantom to the liquid top surface is larger than 15cm. For body SAR testing, the liquid height from the center of the flat phantom to the liquid top surface is larger than 15cm, which is shown in Fig. 7.1. For body SAR testing, the liquid height from the center of the flat phantom to the liquid top surface is larger than 15 cm, which is shown in Fig. 7.2. The nominal dielectric values of the tissue simulating liquids in the phantom and the tolerance of 5% are listed in below table.

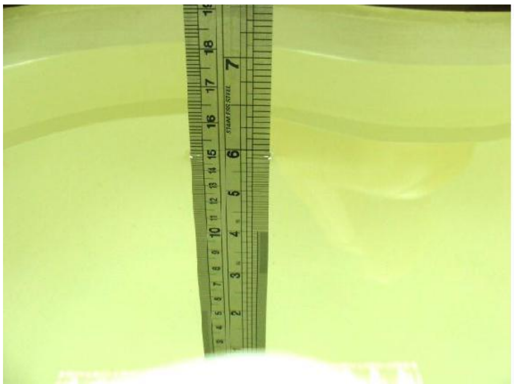


**Fig 7.1 Photo of Liquid Height for Head SAR**

**Fig 7.2 Photo of Liquid Height for Body SAR**

**The following table gives the recipes for tissue simulating liquids**

| Frequency (MHz) | Water (%) | Sugar (%) | Cellulose (%) | Salt (%) | Preventol (%) | DGBE (%) | Conductivity (σ) | Permittivity (εr) |
|---|---|---|---|---|---|---|---|---|
| Head | | | | | | | | |
| 750 | 41.1 | 57.0 | 0.2 | 1.4 | 0.2 | 0 | 0.89 | 41.9 |
| 835 | 40.3 | 57.9 | 0.2 | 1.4 | 0.2 | 0 | 0.90 | 41.5 |
| 1800,1900,2000 | 55.2 | 0 | 0 | 0.3 | 0 | 44.5 | 1.40 | 40.0 |
| 2450 | 55.0 | 0 | 0 | 0 | 0 | 45.0 | 1.80 | 39.2 |
| 2600 | 54.8 | 0 | 0 | 0.1 | 0 | 45.1 | 1.96 | 39.0 |
| Body | | | | | | | | |
| 750 | 51.7 | 47.2 | 0 | 0.9 | 0.1 | 0 | 0.96 | 55.5 |
| 835 | 50.8 | 48.2 | 0 | 0.9 | 0.1 | 0 | 0.97 | 55.2 |
| 1800,1900,2000 | 70.2 | 0 | 0 | 0.4 | 0 | 29.4 | 1.52 | 53.3 |
| 2450 | 68.6 | 0 | 0 | 0 | 0 | 31.4 | 1.95 | 52.7 |
| 2600 | 68.1 | 0 | 0 | 0.1 | 0 | 31.8 | 2.16 | 52.5 |

Simulating Liquid for 5GHz, Manufactured by SPEAG.

| Ingredients | (% by weight) |
|---|---|
| Water | 64~78% |
| Mineral oil | 11~18% |
| Emulsifiers | 9~15% |
| Additives and Salt | 2~3% |

**Note:** Please refer to the validation results for dielectric parameters of each frequency band.
The dielectric properties of the tissue simulating liquids were verified prior to the SAR evaluation using a SPEAG Dielectric Assessment KIT and an Agilent Network Analyzer.

**Table 1: Dielectric Performance of Tissue Simulating Liquid**

| Frequency (MHz) | Tissue Type | Liquid Temp. (℃) | Conductivity (σ) | Conductivity Target (σ) | Delta (σ) (%) | Limit (%) | Date |
|---|---|---|---|---|---|---|---|
| 2000 | HSL | 22.3 | 1.436 | 1.40 | 2.57 | ±5 | 2024.10.16 |
| 2450 | HSL | 22.1 | 1.843 | 1.80 | 2.39 | ±5 | 2024.10.17 |
| 2450 | HSL | 22.1 | 1.834 | 1.80 | 1.89 | ±5 | 2024.10.21 |
| 5250 | HSL | 22.4 | 4.811 | 4.71 | 2.14 | ±5 | 2024.10.18 |
| 5250 | HSL | 22.3 | 4.817 | 4.71 | 2.27 | ±5 | 2024.10.22 |
| 5250 | HSL | 22.2 | 4.822 | 4.71 | 2.38 | ±5 | 2024.10.24 |
| 5250 | HSL | 22.3 | 4.805 | 4.71 | 2.02 | ±5 | 2024.10.26 |
| 5250 | HSL | 22.3 | 4.809 | 4.71 | 2.10 | ±5 | 2024.10.27 |
| 5600 | HSL | 22.2 | 5.145 | 5.07 | 1.48 | ±5 | 2024.10.19 |
| 5600 | HSL | 22.2 | 5.169 | 5.07 | 1.95 | ±5 | 2024.10.23 |
| 5600 | HSL | 22.1 | 5.183 | 5.07 | 2.23 | ±5 | 2024.10.28 |
| 5750 | HSL | 22.3 | 5.317 | 5.22 | 1.86 | ±5 | 2024.10.20 |
| 5750 | HSL | 22.1 | 5.298 | 5.22 | 1.49 | ±5 | 2024.10.25 |
| 6500 | HSL | 22.1 | 6.180 | 6.07 | 1.81 | ±5 | 2024.10.15 |
| 6500 | HSL | 22.2 | 6.140 | 6.07 | 1.15 | ±5 | 2024.10.17 |
| 6500 | HSL | 22 | 6.080 | 6.07 | 0.16 | ±5 | 2024.10.21 |
| 6500 | HSL | 22.4 | 6.000 | 6.07 | -1.15 | ±5 | 2024.10.29 |
| 6500 | HSL | 22.5 | 6.090 | 6.07 | 0.33 | ±5 | 2024.10.30 |
| | | | | | | | |
| **Frequency (MHz)** | **Tissue Type** | **Liquid Temp. (℃)** | **Permittivity (εr)** | **Permittivity Target (εr)** | **Delta (εr) (%)** | **Limit (%)** | **Date** |
| 2000 | HSL | 22.3 | 40.525 | 40.00 | 1.31 | ±5 | 2024.10.16 |
| 2450 | HSL | 22.1 | 39.937 | 39.20 | 1.88 | ±5 | 2024.10.17 |
| 2450 | HSL | 22.1 | 40.016 | 39.20 | 2.08 | ±5 | 2024.10.21 |
| 5250 | HSL | 22.4 | 36.861 | 35.95 | 2.53 | ±5 | 2024.10.18 |
| 5250 | HSL | 22.3 | 36.729 | 35.95 | 2.17 | ±5 | 2024.10.22 |
| 5250 | HSL | 22.2 | 36.684 | 35.95 | 2.04 | ±5 | 2024.10.24 |
| 5250 | HSL | 22.3 | 36.905 | 35.95 | 2.66 | ±5 | 2024.10.26 |
| 5250 | HSL | 22.3 | 36.891 | 35.95 | 2.62 | ±5 | 2024.10.27 |
| 5600 | HSL | 22.2 | 36.224 | 35.50 | 2.04 | ±5 | 2024.10.19 |
| 5600 | HSL | 22.2 | 36.047 | 35.50 | 1.54 | ±5 | 2024.10.23 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 5600 | HSL | 22.1 | 35.976 | 35.50 | 1.34 | ±5 | 2024.10.28 |
| 5750 | HSL | 22.3 | 35.708 | 35.35 | 1.01 | ±5 | 2024.10.20 |
| 5750 | HSL | 22.1 | 35.933 | 35.35 | 1.65 | ±5 | 2024.10.25 |
| 6500 | HSL | 22.1 | 34.660 | 34.46 | 0.58 | ±5 | 2024.10.15 |
| 6500 | HSL | 22.2 | 34.730 | 34.46 | 0.78 | ±5 | 2024.10.17 |
| 6500 | HSL | 22 | 34.000 | 34.46 | -1.33 | ±5 | 2024.10.21 |
| 6500 | HSL | 22.4 | 34.070 | 34.46 | -1.13 | ±5 | 2024.10.29 |
| 6500 | HSL | 22.5 | 34.100 | 34.46 | -1.04 | ±5 | 2024.10.30 |

# 8. SAR System Verification

Each DASY system is equipped with one or more system validation kits. These units, together with the predefined measurement procedures within the DASY software, enable the user to conduct the system performance check and system validation. System validation kit includes a dipole, tripod holder to fix it underneath the flat phantom and a corresponding distance holder.

## 8.1. Purpose of System Performance check

The system performance check verifies that the system operates within its specifications. System and operator errors can be detected and corrected. It is recommended that the system performance check be performed prior to any usage of the system in order to guarantee reproducible results. The system performance check uses normal SAR measurements in a simplified setup with a well characterized source. This setup was selected to give a high sensitivity to all parameters that might fail or vary over time. The system check does not intend to replace the calibration of the components, but indicates situations where the system uncertainty is exceeded due to drift or failure.

## 8.2. System Setup

The output power on dipole port must be calibrated to 24 dBm (250 mW) before dipole is connected. In the simplified setup for system evaluation, the DUT is replaced by a calibrated dipole and the power source is replaced by a continuous wave which comes from a signal generator. The calibrated dipole must be placed beneath the flat phantom section of the SAM twin phantom with the correct distance holder. The distance holder should touch the phantom surface with a light pressure at the reference marking and be oriented parallel to the long side of the phantom. The system check verifies that the system operates within its specifications. It is performed daily or before every SAR measurement. The system check uses normal SAR measurements in the flat section of the phantom with a matched dipole at a specified distance. The system verification setup is shown as below.

**Fig 8.1 Photo of Dipole Setup**

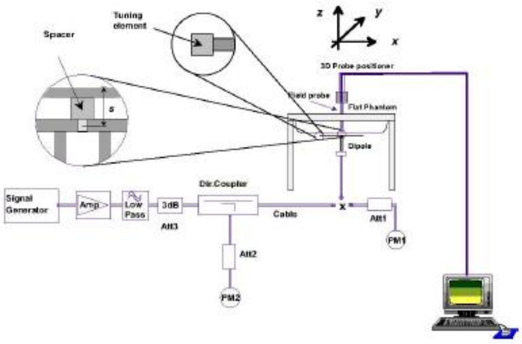



**Fig 8.2 System Setup for System Evaluation**

## 8.3. Validation Results

After system check testing, the SAR result will be normalized to 1W forward input power and compared with the reference SAR value derived from validation dipole certificate report. The deviation of system check should be within 10%.

**<Validation Setup>**

| Frequency (MHz) | Tissue Type | Input Power (mW) | Dipole S/N | Probe S/N | DAE S/N |
|---|---|---|---|---|---|
| 2000 | HSL | 250 | D2000V2-1050 | 3295 | 1423 |
| 2450 | HSL | 250 | D2450V2-805 | 3295 | 1423 |
| 5250 | HSL | 100 | D5GHzV2-1176-5250 | 7608 | 1423 |
| 5600 | HSL | 100 | D5GHzV2-1176-5600 | 7608 | 1423 |
| 5750 | HSL | 100 | D5GHzV2-1176-5750 | 7608 | 1423 |
| 6500 | HSL | 100 | D6.5GHzV2-1176-6500 | 7608 | 1324 |

**<System Validation>**

| Frequency (MHz) | Tissue Type | Conductivity (σ) | Permittivity (εr) | CW Signal Validation | | |
|---|---|---|---|---|---|---|
| | | | | Sensitivity | Probe Linearity | Probe Isotropy |
| 750 | HSL | 0.851 | 42.43 | PASS | PASS | PASS |
| 835 | HSL | 0.898 | 41.88 | PASS | PASS | PASS |
| 1750 | HSL | 1.386 | 39.91 | PASS | PASS | PASS |
| 1800 | HSL | 1.449 | 41.26 | PASS | PASS | PASS |
| 1900 | HSL | 1.435 | 39.65 | PASS | PASS | PASS |
| 2000 | HSL | 1.451 | 39.42 | PASS | PASS | PASS |
| 2300 | HSL | 1.764 | 38.99 | PASS | PASS | PASS |
| 2450 | HSL | 1.863 | 38.85 | PASS | PASS | PASS |
| 2600 | HSL | 1.973 | 38.58 | PASS | PASS | PASS |
| 3400 | HSL | 2.88 | 38.10 | PASS | PASS | PASS |
| 3500 | HSL | 2.91 | 37.90 | PASS | PASS | PASS |
| 3700 | HSL | 3.05 | 37.70 | PASS | PASS | PASS |
| 3900 | HSL | 3.15 | 37.50 | PASS | PASS | PASS |
| 4100 | HSL | 3.25 | 37.20 | PASS | PASS | PASS |
| 4200 | HSL | 3.34 | 37.00 | PASS | PASS | PASS |
| 4400 | HSL | 3.58 | 36.70 | PASS | PASS | PASS |
| 4600 | HSL | 3.70 | 36.60 | PASS | PASS | PASS |
| 4800 | HSL | 3.82 | 36.40 | PASS | PASS | PASS |
| 4900 | HSL | 3.96 | 36.20 | PASS | PASS | PASS |

| | | | | | | |
|---|---|---|---|---|---|---|
| 5250 | HSL | 4.528 | 35.32 | PASS | PASS | PASS |
| 5600 | HSL | 4.905 | 34.89 | PASS | PASS | PASS |
| 5750 | HSL | 5.077 | 34.28 | PASS | PASS | PASS |
| 6500 | HSL | 6.07 | 34.46 | PASS | PASS | PASS |

| **Frequency (MHz)** | **Tissue Type** | **Conductivity (σ)** | **Permittivity (εr)** | **Modulation Signal Validation** | | |
|---|---|---|---|---|---|---|
| | | | | **Mod. Type** | **Duty Factor** | **PAR** |
| 750 | HSL | 0.851 | 42.43 | N/A | N/A | N/A |
| 835 | HSL | 0.898 | 41.88 | GMSK | PASS | N/A |
| 1750 | HSL | 1.386 | 39.91 | N/A | N/A | N/A |
| 1800 | HSL | 1.449 | 41.26 | N/A | N/A | N/A |
| 1900 | HSL | 1.435 | 39.65 | GMSK | PASS | N/A |
| 2000 | HSL | 1.451 | 39.42 | GMSK | PASS | N/A |
| 2300 | HSL | 1.764 | 38.99 | OFDM | PASS | PASS |
| 2450 | HSL | 1.863 | 38.85 | OFDM | PASS | PASS |
| 2600 | HSL | 1.973 | 38.58 | TDD | PASS | N/A |
| 3400 | HSL | 2.88 | 38.10 | OFDM | PASS | PASS |
| 3500 | HSL | 2.91 | 37.90 | OFDM | PASS | PASS |
| 3700 | HSL | 3.05 | 37.70 | OFDM | PASS | PASS |
| 3900 | HSL | 3.15 | 37.50 | OFDM | PASS | PASS |
| 4100 | HSL | 3.25 | 37.20 | OFDM | PASS | PASS |
| 4200 | HSL | 3.34 | 37.00 | OFDM | PASS | PASS |
| 4400 | HSL | 3.58 | 36.70 | OFDM | PASS | PASS |
| 4600 | HSL | 3.70 | 36.60 | OFDM | PASS | PASS |
| 4800 | HSL | 3.82 | 36.40 | OFDM | PASS | PASS |
| 4900 | HSL | 3.96 | 36.20 | OFDM | PASS | PASS |
| 5250 | HSL | 4.528 | 35.32 | OFDM | N/A | PASS |
| 5600 | HSL | 4.905 | 34.89 | OFDM | N/A | PASS |
| 5750 | HSL | 5.077 | 34.28 | OFDM | N/A | PASS |
| 6500 | HSL | 6.07 | 34.46 | OFDM | N/A | PASS |

**<Validation Results>**

| Date | Frequency (MHz) | Tissue Type | Measured 1g SAR (W/kg) | Targeted 1g SAR (W/kg) | Normalized 1g SAR (W/kg) | Deviation (%) |
|---|---|---|---|---|---|---|
| 2024.10.16 | 2000 | HSL | 10.75 | 41.60 | 43 | 3.37 |
| 2024.10.17 | 2450 | HSL | 13.69 | 52.30 | 54.76 | 4.70 |
| 2024.10.21 | 2450 | HSL | 13.67 | 52.30 | 54.68 | 4.55 |
| 2024.10.18 | 5250 | HSL | 8.08 | 76.70 | 80.8 | 5.35 |
| 2024.10.22 | 5250 | HSL | 8.11 | 76.70 | 81.1 | 5.74 |
| 2024.10.24 | 5250 | HSL | 8.04 | 76.70 | 80.4 | 4.82 |
| 2024.10.26 | 5250 | HSL | 8.03 | 76.70 | 80.3 | 4.69 |
| 2024.10.27 | 5250 | HSL | 8.07 | 76.70 | 80.7 | 5.22 |
| 2024.10.19 | 5600 | HSL | 8.37 | 80.80 | 83.7 | 3.59 |
| 2024.10.23 | 5600 | HSL | 8.42 | 80.80 | 84.2 | 4.21 |
| 2024.10.28 | 5600 | HSL | 8.52 | 80.80 | 85.2 | 5.45 |
| 2024.10.20 | 5750 | HSL | 8.26 | 78.70 | 82.6 | 4.96 |
| 2024.10.25 | 5750 | HSL | 8.35 | 78.70 | 83.5 | 6.10 |
| 2024.10.15 | 6500 | HSL | 30.40 | 288.00 | 304 | 5.56 |
| 2024.10.17 | 6500 | HSL | 29.30 | 288.00 | 293 | 1.74 |
| 2024.10.21 | 6500 | HSL | 30.10 | 288.00 | 301 | 4.51 |
| 2024.10.29 | 6500 | HSL | 30.30 | 288.00 | 303 | 5.21 |
| 2024.10.30 | 6500 | HSL | 29.50 | 288.00 | 295 | 2.43 |

| Date | Frequency (MHz) | Tissue Type | Measured 10g SAR (W/kg) | Targeted 10g SAR (W/kg) | Normalized 10g SAR (W/kg) | Deviation (%) |
|---|---|---|---|---|---|---|
| 2024.10.16 | 2000 | HSL | 5.39 | 20.70 | 21.56 | 4.15 |
| 2024.10.17 | 2450 | HSL | 6.52 | 23.90 | 26.08 | 9.12 |
| 2024.10.21 | 2450 | HSL | 6.38 | 23.90 | 25.52 | 6.78 |
| 2024.10.18 | 5250 | HSL | 2.34 | 22.10 | 23.4 | 5.88 |
| 2024.10.22 | 5250 | HSL | 2.36 | 22.10 | 23.6 | 6.79 |
| 2024.10.24 | 5250 | HSL | 2.31 | 22.10 | 23.1 | 4.52 |
| 2024.10.26 | 5250 | HSL | 2.32 | 22.10 | 23.2 | 4.98 |
| 2024.10.27 | 5250 | HSL | 2.35 | 22.10 | 23.5 | 6.33 |
| 2024.10.19 | 5600 | HSL | 2.45 | 23.30 | 24.5 | 5.15 |
| 2024.10.23 | 5600 | HSL | 2.47 | 23.30 | 24.7 | 6.01 |
| 2024.10.28 | 5600 | HSL | 2.51 | 23.30 | 25.1 | 7.73 |
| 2024.10.20 | 5750 | HSL | 2.39 | 22.50 | 23.9 | 6.22 |
| 2024.10.25 | 5750 | HSL | 2.42 | 22.50 | 24.2 | 7.56 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 2024.10.15 | 6500 | HSL | 5.29 | 53.10 | 52.9 | -0.38 |
| 2024.10.17 | 6500 | HSL | 5.31 | 53.10 | 53.1 | 0.00 |
| 2024.10.21 | 6500 | HSL | 5.63 | 53.10 | 56.3 | 6.03 |
| 2024.10.29 | 6500 | HSL | 5.42 | 53.10 | 54.2 | 2.07 |
| 2024.10.30 | 6500 | HSL | 5.34 | 53.10 | 53.4 | 0.56 |

| Date | Frequency (MHz) | Tissue Type | Measured 4cm$^2$ APD ($W/m^2$) | Targeted 4cm$^2$ APD ($W/m^2$) | Normalized 4cm$^2$ APD ($W/m^2$) | Deviation (%) |
|---|---|---|---|---|---|---|
| 2024.10.15 | 6500 | HSL | 141.00 | 1310.00 | 1410 | 7.63 |
| 2024.10.17 | 6500 | HSL | 132.00 | 1310.00 | 1320 | 0.76 |
| 2024.10.21 | 6500 | HSL | 143.00 | 1310.00 | 1430 | 9.16 |
| 2024.10.29 | 6500 | HSL | 134.00 | 1310.00 | 1340 | 2.29 |
| 2024.10.30 | 6500 | HSL | 128.00 | 1310.00 | 1280 | -2.29 |

**Note:** System checks the specific test data please see Annex C.

## 8.4. PD System Verification Source

➢ **General description**

The EUT is replaced by a calibrated source, the same spatial resolution, measurement region and test separation used in the calibration was applied to system check. Through visual inspection into the measured power density distribution, both the spatially (shape) and numerically (level) have no noticeable difference. The measurement results should be within ±10% of the calibrated targets.

| Frequency [GHz] | Grid step | Grid extent X/Y [mm] | Measurement points |
|---|---|---|---|
| 10 | 0.25 ($\frac{\lambda}{4}$) | 120/120 | 16 × 16 |
| 30 | 0.25 ($\frac{\lambda}{4}$) | 60/60 | 24 × 24 |
| 60 | 0.25 ($\frac{\lambda}{4}$) | 32.5/32.5 | 26 × 26 |
| 90 | 0.25 ($\frac{\lambda}{4}$) | 30/30 | 36 × 36 |

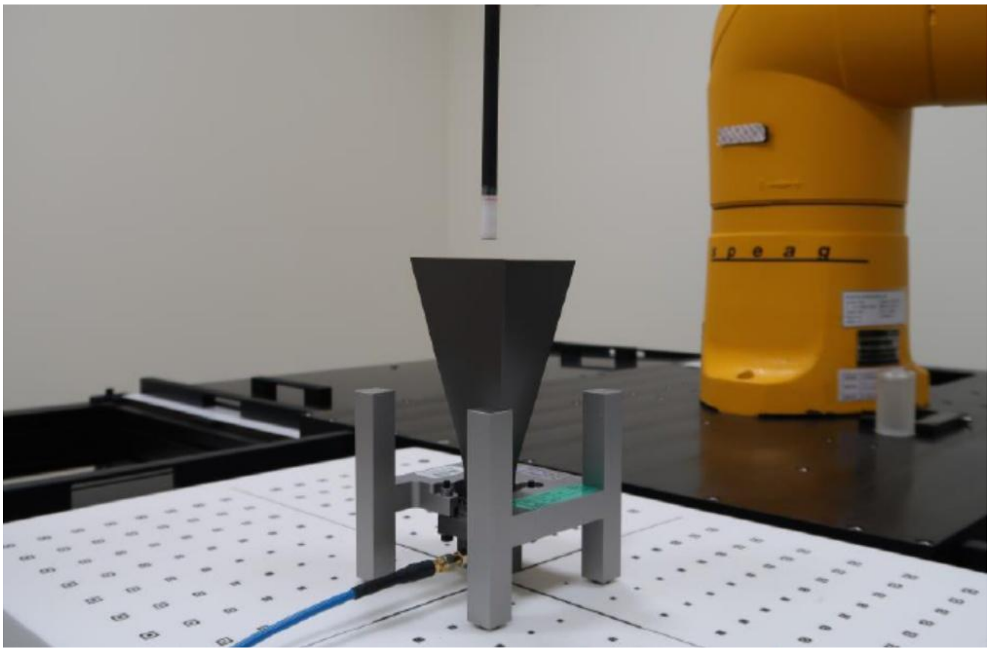



**Fig 8.3 Photos of Verification Setup**

➢ **Validation Results**

After system check testing, the results of power density will be compared with the reference value derived from the certificate report. The deviation of system check should be within ±10%.

**<Validation Setup>**

| Frequency (GHz) | 6.5G Verification Source | Probe S/N | DAE S/N |
|---|---|---|---|
| 10 | 10GHz-SN 1019 | 9602 | 1324 |

**<Validation Results>**

| Date | Frequency (GHz) | Test Distance (mm) | Measured 4cm² pStotavg (W/m²) | Targeted 4cm² pStotavg (W/m²) | Deviation (%) |
|---|---|---|---|---|---|
| 2024.10.25 | 10 | 5.5 | 41.5 | 44.8 | -7.4 |
| 2024.10.22 | 10 | 5.5 | 40.4 | 44.8 | -9.8 |
| 2024.10.23 | 10 | 5.5 | 41.1 | 44.8 | -8.3 |
| 2024.10.27 | 10 | 5.5 | 42.8 | 44.8 | -4.5 |

**Note:** System checks the specific test data please see Annex C.

# 9. EUT Testing Position

This EUT was tested in ten different positions. They are right cheek/right tilted/left cheek/left tilted for head, Front/Back/Left/Right/Top/Bottom of the EUT with phantom 10 mm gap, as illustrated below, please refer to Appendix B for the test setup photos.

## 9.1. Handset Reference Points

The vertical centre line passes through two points on the front side of the handset – the midpoint of the width wt of the handset at the level of the acoustic output, and the midpoint of the width wb of the bottom of the handset.
The horizontal line is perpendicular to the vertical centre line and passes the center of the acoustic output. The horizontal line is also tangential to the handset at point A.
The two lines intersect at point A. Note that for many handsets, point A coincides with the center of the acoustic output; however, the acoustic output may be located elsewhere on the horizontal line.
Also note that the vertical centre line is not necessarily parallel to the front face of the handset, especially for clamshell handsets, handsets with flip covers, and other irregularly shaped handsets.


**Fig. 9.1 Illustration for Cheek Position**

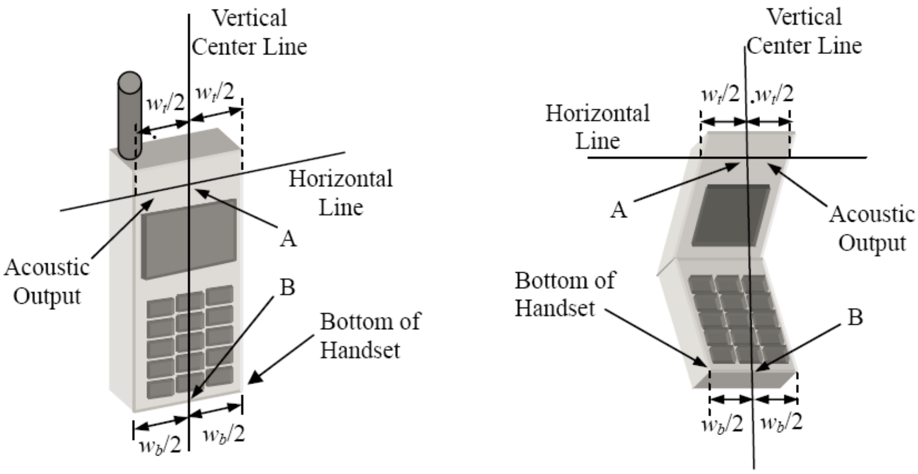



**Fig. 9.2 Illustration for Handset Vertical and Horizontal Reference Lines**

## 9.2. Positioning for Cheek / Touch

To position the device with the vertical center line of the body of the device and the horizontal line crossing the center piece in a plane parallel to the sagittal plane of the phantom. While maintaining the device in this plane, align the vertical center line with the reference plane containing the three ear and mouth reference point (M: Mouth, RE: Right Ear and LE: Left Ear) and align the center of the ear piece with the line RE-LE.

To move the device towards the phantom with the ear piece aligned with the line LE-RE until the phone touched the ear. While maintaining the device in the reference plane and maintaining the phone contact with the ear, move the bottom of the phone until any point on the front side is in contact with the cheek of the phantom or until contact with the ear is lost (see below figure)

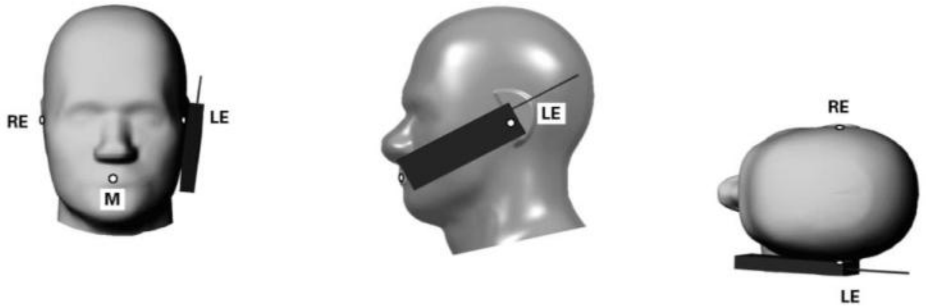



**Fig 9.3 Illustration for Cheek Position**

## 9.3. Positioning for Ear / 15º Tilt

To position the device in the “cheek” position described above.
While maintaining the device the reference plane described above and pivoting against the ear, moves it outward away from the mouth by an angle of 15 degrees or until contact with the ear is lost (see figure below).

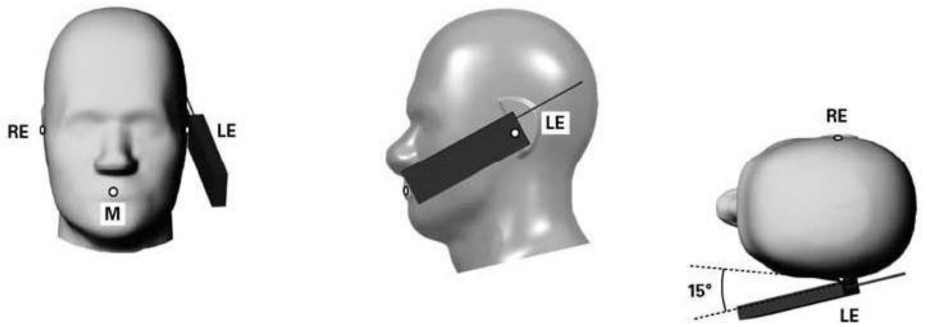



**Fig 9.4 Illustration for Tilted Position**

## 9.4. SAR Evaluation near the Mouth/Jaw Regions of the Phantom

Antennas located near the bottom of a phone may require SAR measurements around the mouth and jaw regions of the SAM head phantom. This typically applies to clam-shell style phones that are generally longer in the unfolded normal use positions or to certain older style long rectangular phones.

Under these circumstances, the following procedures apply, adopted from the FCC guidance on SAR handsets document FCC KDB Publication 648474 D04v01r03. The SAR required in these regions of SAM should be measured using a flat phantom. The phone should be positioned with a separation distance of 4 mm between the ear reference point (ERP) and the outer surface of the flat phantom shell. While maintaining this distance at the ERP location, the low (bottom) edge of the phone should be lowered from the phantom to establish the same separation distance between the peak SAR locations identified by the truncated partial SAR distribution measured with the SAM phantom. The distance from the peak SAR location to the phone is determined by the straight line passing perpendicularly through the phantom surface. When it is not feasible to maintain 4 mm separation at the ERP while also establishing the required separation at the peak SAR location, the top edge of the phone will be allowed to touch the phantom with a separation < 4 mm at the ERP. The phone should not be tilted to the left or right while placed in this inclined position to the flat phantom.

## 9.5. Body-worn Configurations

The body-worn configurations shall be tested with the supplied accessories (belt-clips, holsters, etc.) attached to the device in normal use configuration.

For body-worn and other configurations a flat phantom shall be used which is comprised of material with electrical properties similar to the corresponding tissues.

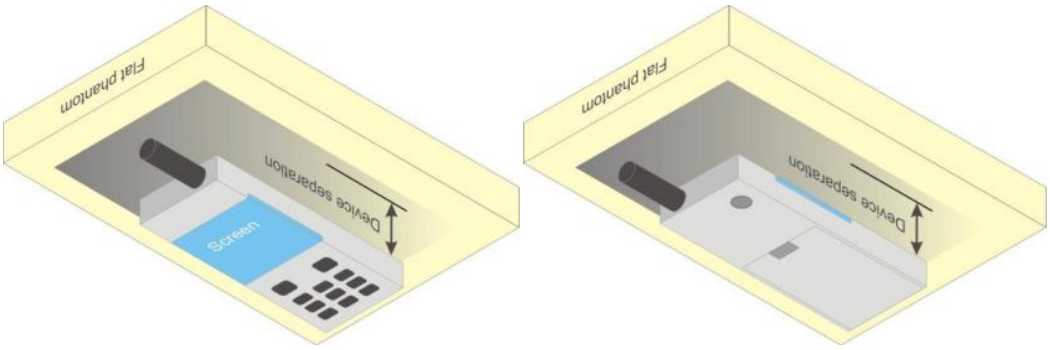



**Fig 9.5 Illustration for Body Worn Position**

## 9.6. Hotspot Mode Exposure Position Conditions

For handsets that support hotspot mode operations, with wireless router capabilities and various web browsing functions, the relevant hand and body exposure conditions are tested according to the hotspot SAR procedures in KDB 941225. A test separation distance of 10 mm is required between the phantom and all surfaces and edges with a transmitting antenna located within 25 mm from that surface or edge. When the form factor of a handset is smaller than 9 cm x 5 cm, a test separation distance of 5 mm (instead of 10 mm) is required for testing hotspot mode. When the separation distance required for body-worn accessory testing is larger than or equal to that tested for hotspot mode, in the same wireless mode and for the same surface of the phone, the hotspot mode SAR data may be used to support body-worn accessory SAR compliance for that particular configuration (surface).

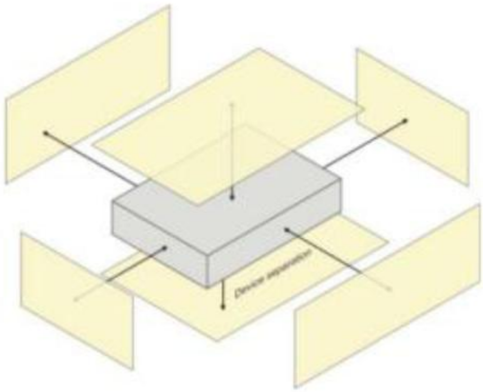



**Fig 9.6 Illustration for Hotspot Position**

# 10. Measurement Procedures

The measurement procedures are as follows:

**<Conducted power measurement>**

(a) For WWAN power measurement, use base station simulator to configure EUT WWAN transmission in conducted connection with RF cable, at maximum power in each supported wireless interface and frequency band.

(b) Read the WWAN RF power level from the base station simulator.

(c) For WLAN/BT power measurement, use engineering software to configure EUT WLAN/BT continuously transmission, at maximum RF power in each supported wireless interface and frequency band.

(d) Connect EUT RF port through RF cable to the power meter, and measure WLAN/BT output power.

**<SAR measurement>**

(a) Use base station simulator to configure EUT WWAN transmission in radiated connection, and engineering software to configure EUT WLAN/BT continuously transmission, at maximum RF power, in the highest power channel.

(b) Place the EUT in the positions as Appendix D demonstrates.

(c) Set scan area, grid size and other setting on the DASY software.

(d) Measure SAR results for the highest power channel on each testing position.

(e) Find out the largest SAR result on these testing positions of each band.

(f) Measure SAR results for other channels in worst SAR testing position if the reported SAR of highest power channel is larger than 0.8 W/kg.

According to the test standard, the recommended procedure for assessing the peak spatial-average SAR value consists of the following steps:

(a) Power reference measurement.

(b) Area scan.

(c) Zoom scan.

(d) Power drift measurement.

## 10.1. Spatial Peak SAR Evaluation

The procedure for spatial peak SAR evaluation has been implemented according to the test standard. It can be conducted for 1g and 10g, as well as for user-specific masses. The DASY software includes all numerical procedures necessary to evaluate the spatial peak SAR value.

The base for the evaluation is a "cube" measurement. The measured volume must include the 1g and 10g cubes with the highest averaged SAR values. For that purpose, the center of the measured volume is aligned to the interpolated peak SAR value of a previously performed area scan.

The entire evaluation of the spatial peak values is performed within the post-processing engine (SEMCAD). The system always gives the maximum values for the 1g and 10g cubes. The algorithm to find the cube with highest averaged SAR is divided into the following stages:

(a) Extraction of the measured data (grid and values) from the Zoom Scan.
(b) Calculation of the SAR value at every measurement point based on all stored data (A/D values and measurement parameters).
(c) Generation of a high-resolution mesh within the measured volume.
(d) Interpolation of all measured values from the measurement grid to the high-resolution grid.
(e) Extrapolation of the entire 3-D field distribution to the phantom surface over the distance from sensor to surface.
(f)Calculation of the averaged SAR within masses of 1g and 10g.

## 10.2. 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. This distance cannot be smaller than the distance of sensor calibration points to probe tip as defined in the probe properties.

## 10.3. Area Scan & Zoom Scan Procedures

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 a10mm$^2$ step integral, with 1mm interpolation used to locate the peak SAR area used for zoom scan assessments.

When an Area Scan has measured all reachable points, it computes the field maxima founding the scanned area, within a range of the global maximum. The range (in dB) is specified in the standards for compliance testing. For example, a 2 dB range is required in IEC/IEEE 62209-1528:2020.

Zoom Scans are used to assess the peak spatial SAR values within a cubic averaging volume containing 1 g and 10 g of simulated tissue. A density of 1000 kg/m$^3$ 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 10mm, with the side length of the 10 g cube 21,5mm.The zoom scan integer steps can be user defined so as to reduce uncertainty, but normal practice for typical test applications utilize a physical step of 5x5x7 (8mmx8mmx5mm) providing a volume of 32mm in the X & Y axis, and 30mm in the Z axis.

## 10.4. SAR Averaged Methods

In DASY, the interpolation and extrapolation are both based on the modified Quadratic Sheppard's method. The interpolation scheme combines a least-square fitted function method and a weighted average method which are the two basic types of computational interpolation and approximation.

Extrapolation routines are used to obtain SAR values between the lowest measurement points and the inner phantom surface. The extrapolation distance is determined by the surface detection distance and the probe sensor offset. The uncertainty increases with the extrapolation distance. To keep the uncertainty within 1% for the 1 g and 10 g cubes, the extrapolation distance should not be larger than 5 mm.

## 10.5. Power Drift Monitoring

All SAR testing is under the DUT install full charged battery and transmit maximum output power. In DASY measurement software, the power reference measurement and power drift measurement procedures are used for monitoring the power drift of DUT during SAR test. Both these procedures measure the field at a specified reference position before and after the SAR testing. The software will calculate the field difference in dB. If the power drift more than 5%, the SAR will be retested.

# 11. Power Density Measurement Procedure

➢ **Computation of the Electric Field Polarization Ellipse**

For the numerical description of an arbitrarily oriented ellipse in three-dimensional space, five parameters are needed: the semi-major axis (a), the semi-minor axis (b), two angles describing the orientation of the normal vector of the ellipse (φ ,θ), and one angle describing the tilt of the semi-major axis (Ψ). For the two extreme cases, i.e. circular and linear polarizations, three parameters only (a, φ and θ) are sufficient for the description of the incident field.

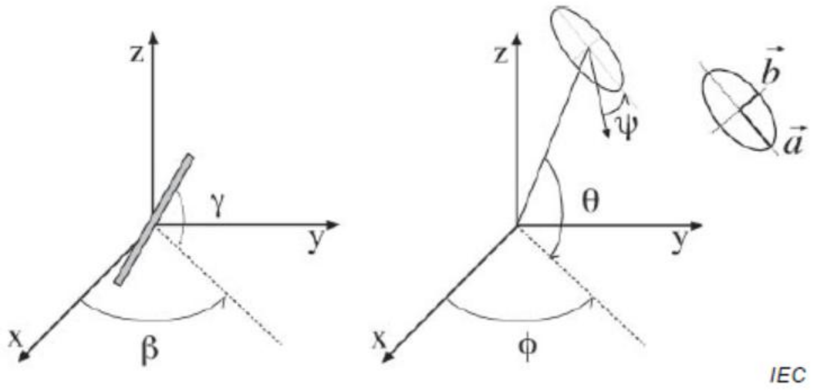



**Fig 11.1 Illustration of the angles used for the numerical description of the sensor and the orientation of an ellipse in 3-D space**

For the construction of the ellipse parameters from measured data, the problem can be reformulated as a nonlinear search problem. The semi-major and semi-minor axes of an elliptical field can be express as functions of the three angles (φ , θ and Ψ). The parameters can be uniquely determined towards minimizing the error based on least-squares for the given set of angles and the measured data. In this way, the numbers of three parameters is reduced from five to three, which means that least three sensors readings are necessary to gain sufficient information for the reconstruction of ellipse parameters. However, to suppress the noise and increase the reconstruction accuracy, it is desirable to have an over determined system of equations. The solution to use a probe consisting of two sensors angled byγ 1 and γ 2 toward the probe axis and to perform measurements at three angular positions of the probe, i.e. at
β 1, β 2 and β 3, results in over determination of two. If there is a need for more information or increased accuracy, more rotation angles can be added.

The reconstruction of ellipse parameters can be separated into linear and non-linear parts that are best solved by the givens algorithm combined with a downhill simplex algorithm. To minimize the mutual coupling, sensor angles are set with a 90° shift (γ 1=γ 2+90°), and, to simplify, the first rotation angle of the probe (β 1) can be set to 0°.

- **Total Field and Power Flux Density Reconstruction**

Computation of the power density in general requires knowledge of the electric and magnetic field amplitudes and phases in the plane of incidence. Reconstruction of these quantities from pseudo-vector E-field measurements is feasible, as they are constrained by Maxi well,s equations. The SPEAG have developed a reconstruction approach based on the Gerchberg-Saxton algorithm, which benefits from the availability of the E-Field polarization ellipse information obtained with the EUmmWV2 probe. This reconstruction algorithm, together with the ability of the probe to measure extremely close to the source without perturbing the field, permits reconstruction of the E-field and H-field, as well as of the power density, on measurement planes located as near as λ/5 away.

- **Power Flux Density Averaging**

The average of the reconstructed power density is evaluated over a circular area in each measurement plane. The area of the circle is defined by the user; the default is 1cm2. The computed peak average value is displayed in the box at the top right. Note that the average is evaluated only for grid points where the averaging circle is completely filed with values; for points at the edge where the averaging circle is only partly filled with values, the average power density is set to zero. Two average power density values are computed.

# 12. SAR Measurement Procedure

## 12.1. Test Procedure

Probe boundary effect error compensation is required for measurements with the probe tip closer than half a probe tip diameter to the phantom surface. Both the probe tip diameter and sensor offset distance must satisfy measurement protocols; to ensure probe boundary effect errors are minimized and the higher fields closest to the phantom surface can be correctly measured and extrapolated to the phantom surface for computing 1-g SAR. Tolerances of the post-processing algorithms must be verified by the test laboratory for the scan resolutions used in the SAR measurements, according to the reference distribution functions specified in IEC/IEEE 62209-1528:2020.

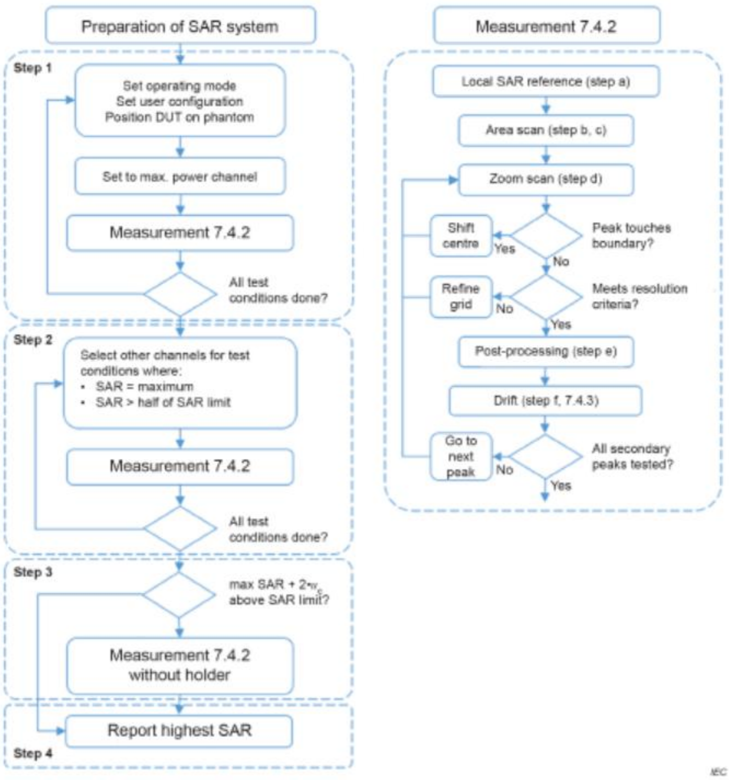



**Fig 12.1 Block diagram of the tests to be performed**

The SAR test procedure shall be performed for each test configuration should follows the requirements specified in IEC/IEEE 62209-1528. The Following steps are used for each test position shown in fig 12.1：

1. Establish a call with the maximum output power with a base station simulator. The connection between the mobile and the base station simulator is established via air interface.
2. Measurement of the local E-field value at a fixed location. This value serves as a reference value for calculating a possible power drift.

## 12.2. Scanning Requirements

- **Area Scan Parameters**

Measure the two-dimensional SAR distribution within the phantom (i.e. the area scan). Table 1 provides the measurement parameters required for the area scan.

**Table 1 Area scan parameters**

| Parameter | DUT transmit frequency being tested | |
|---|---|---|
| | $f \le 3$ GHz | 3 GHz < $f \le 10$ GHz |
| Maximum distance between the measured points (geometric centre of the sensors) and the inner phantom surface ($z_{M1}$ in Figure 20 in mm) | 5 ± 1 | $\delta \ln(2)/2 \pm 0{,}5$ [a] |
| Maximum spacing between adjacent measured points in mm (see O.8.3.1)[b] | 20, or half of the corresponding zoom scan length, whichever is smaller | $60/f$, or half of the corresponding zoom scan length, whichever is smaller |
| Maximum angle between the probe axis and the phantom surface normal ($\alpha$ in Figure 20)[c] | 5° (flat phantom only)<br>30° (other phantoms) | 5° (flat phantom only)<br>20° (other phantoms) |
| Tolerance in the probe angle | 1° | 1° |

[a] $\delta$ is the penetration depth for a plane-wave incident normally on a planar half-space.

[b] See Clause O.8 on how $\Delta x$ and $\Delta y$ may be selected for individual area scan requirements.

[c] The probe angle relative to the phantom surface normal is restricted due to the degradation in the measurement accuracy in fields with steep spatial gradients. The measurement accuracy decreases with increasing probe angle and increasing frequency. This is the reason for the tighter probe angle restriction at frequencies above 3 GHz.

1. The area over which the SAR measurement is performed shall cover at least an area larger than the projection of the DUT, including its antenna. For some DUTs, the area projected onto the phantom can be relatively large, such that the probe might not reach all points. In this case, rotated phantoms may be used, and the area may be assessed by multiple overlapping area scans. The measurement resolution and spatial resolution for interpolation shall be selected to allow identification of the local peak locations to within one-half of the linear dimension of the corresponding side of the zoom-scan volume.
2. For the flat phantom, the boundary of the measurement area shall not be closer than 20 mm from the phantom side walls.

- **Zoom Scan Parameters**

Measure the three-dimensional SAR distribution at each of the local maxima locations identified in step c) (i.e. the zoom scan).

**Table 2 Zoom scan parameters**

| Parameter | DUT transmit frequency being tested | |
|---|---|---|
| | $f \leq 3$ GHz | 3 GHz $< f \leq 10$ GHz |
| Maximum distance between the closest measured points and the phantom surface ($z_{M1}$ in Figure 20 and Table 3, in mm) | 5 | $\delta \ln(2)/2$ [a] |
| Maximum angle between the probe axis and the phantom surface normal ($\alpha$ in Figure 20) | 5° (flat phantom only)<br>30° (other phantoms) | 5° (flat phantom only)<br>20° (other phantoms) |
| Maximum spacing between measured points in the $x$- and $y$-directions ($\Delta x$ and $\Delta y$, in mm) | 8 | $24 / f$ [b] |
| For uniform grids: Maximum spacing between measured points in the direction normal to the phantom shell ($\Delta z_1$ in Figure 20, in mm) | 5 | $10 / (f - 1)$ |
| For graded grids: Maximum spacing between the two closest measured points in the direction normal to the phantom shell ($\Delta z_1$ in Figure 20, in mm) | 4 | $12 / f$ |
| For graded grids: Maximum incremental increase in the spacing between measured points in the direction normal to the phantom shell ($R_z = \Delta z_2 / \Delta z_1$ in Figure 20) | 1,5 | 1,5 |
| Minimum edge length of the zoom scan volume in the $x$- and $y$-directions ($L_z$ in O.8.3.2, in mm) | 30 | 22 |
| Minimum edge length of the zoom scan volume in the direction normal to the phantom shell ($L_h$ in O.8.3.2 in mm) | 30 | 22 |
| Tolerance in the probe angle | 1° | 1° |
| [a] $\delta$ is the penetration depth for a plane-wave incident normally on a planar half-space.<br>[b] This is the maximum spacing allowed, which might not work for all circumstances. | | |

1. For frequencies at or below 3 GHz, the following procedure shall be applied (see Table 2).
   1) The minimum size of the zoom scan volume shall be 30 mm by 30 mm by 30 mm.
   2) The horizontal grid step shall be 8 mm or less.
   3) The grid step in the vertical direction shall be 5 mm, or less if uniform spacing is used.
   4) If variable spacing is used in the vertical direction, the maximum spacing between the two closest measured points to the phantom shell (M1 and M2, see Figure 20 of IEC/IEEE 62209-1528 section 7.4.2) shall be 4 mm or less, and the spacing between the farther points shall increase by a factor of 1.5 or less.
   5) For other parameters, see Table 4.
2. For frequencies above 3 GHz, the following procedure shall be applied.

1) The minimum size of the zoom scan volume may be reduced to 22 mm by 22 mm by 22 mm.
2) The horizontal grid step shall be (24 / f [GHz]) mm or less.
3) If uniform spacing in the vertical direction is used, the grid step in the vertical direction shall be (10 / (f [GHz] − 1)) mm or less.
4) If variable spacing is used in the vertical direction, the maximum spacing between the two measured points closest to the phantom shell shall be (12 / f [GHz]) mm or less, and the spacing between farther points shall increase by a factor of 1.5 or less.

3. If the highest SAR 1 g or 10 g cube is touching the boundary of a zoom-scan volume, the entire zoom scan shall be repeated with the new centre located at the maximum psSAR location indicated by the preceding zoom scan measurement. It is also acceptable to expand the zoom scan during measurement until the 1 g or 10 g cube is no longer touching the boundary of the zoom-scan volume.
4. If the zoom scan measured as specified in the preceding paragraphs complies with both i) and ii), or if the psSAR is below 0.1 W/kg, no additional measurements are needed.
   1) The smallest horizontal distance from the local SAR peaks to all points 3 dB below the SAR peak shall be larger than the horizontal grid steps in both x- and y-directions (Δ x, Δ y). This shall be checked for the measured zoom scan plane conformal to the phantom at the distance zM1. The minimum distance shall be recorded in the SAR test report.
   2) ii) The ratio of the SAR at the second measured point (M2) to the SAR at the closest measured point (M1) at the x-y location of the measured maximum SAR value shall be at least 30 % (Figure 20). This ratio (in %) shall be recorded in the SAR test report.

## 12.3. Description of Interpolation/Extrapolation Scheme

The local SAR inside the phantom is measured using small dipole sensing elements inside a probe body. The probe tip must not be in contact with the phantom surface in order to minimize measurements errors, but the highest local SAR will occur at the surface of the phantom.

An extrapolation is using to determinate this highest local SAR values. The extrapolation is based on a fourth-order least-square polynomial fit of measured data. The local SAR value is then extrapolated from the liquid surface with a 1mm step.

The measurements have to be performed over a limited time (due to the duration of the battery) so the step of measurement is high. It could vary between 5 and 8 mm. To obtain an accurate assessment of the maximum SAR averaged over 10 grams and 1 gram requires a very fine resolution in the three dimensional scanned data array.

## 12.4. Wireless Router

Some battery-operated handsets have the capability to transmit and receive user through simultaneous transmission of WIFI simultaneously with a separate licensed transmitter. The FCC has provided guidance in FCC KDB Publication 941225 D06 v02r01 where SAR test considerations for handsets (L x W ≥ 9 cm x 5 cm) are based on a composite test separation distance of 10 from the front, back and edges of the device containing transmitting antennas within 2.5cm of their edges, determined form general mixed use conditions for this type of devices. Since the hotspot SAR results may overlap with the body-worn accessory SAR requirements, the more conservative configurations can be considered, thus excluding some body-worn accessory SAR tests.

When the user enables the personal wireless router functions for the handset, actual operations include simultaneous transmission of both the WIFI transmitter and another licensed transmitter. Both transmitters often do not transmit at the same transmitting frequency and thus cannot be evaluated for SAR under actual use conditions due to the limitations of the SAR assessment probes. Therefore, SAR must be evaluated for each frequency transmission and mode separately and spatially summed with the WIFI transmitter according to FCC KDB Publication 447498 D01v06 publication procedures. The “Portable Hotspot” feature on the handset was NOT activated during SAR assessments, to ensure the SAR measurements were evaluated for a single transmission frequency RF signal at a time.

# 13. SAR Test Configuration

**<WLAN 2.4GHz>**

1. SAR is measured for 2.4 GHz 802.11b DSSS using either the fixed test position or, when applicable, the initial test position procedure. SAR test reduction is determined according to the following:
   a. When the reported SAR of the highest measured maximum output power channel for the exposure configuration is ≤ 0.8 W/kg, no further SAR testing is required for 802.11b DSSS in that exposure configuration.
   b. When the reported SAR is > 0.8 W/kg, SAR is required for that position using the next highest measured output power channel. When any reported SAR is > 1.2 W/kg, SAR is required for the third channel; i.e., all channels require testing.
2. 2.4 GHz 802.11 g/n OFDM are additionally evaluated for SAR if the highest reported SAR for 802.11b, adjusted by the ratio of the OFDM to DSSS specified maximum output power, is > 1.2 W/kg. When SAR is required for OFDM modes in 2.4 GHz band, the Initial Test configuration Procedures should be followed.
3. For held-to-ear and hotspot operations, the initial test position procedures were applied. The test position with the highest extrapolated peak SAR will be used as the initial test position. When reported SAR for the initial test position is ≤ 0.4 W/kg, no additional testing for the remaining test positions was required. Otherwise, SAR is evaluated at the subsequent highest peak SAR positions until the reported SAR result is ≤ 0.8 W/kg or all test positions are measured.
4. Justification for test configurations for WLAN per KDB Publication 248227 D02DR02-41929 for 2.4 GHz WI-FI single transmission chain operations, the highest measured maximum output power channel for DSSS was selected for SAR measurement. SAR for OFDM modes (2.4 GHz802.11g/n) was not required due to the maximum allowed powers and the highest reported DSSSSAR.
5. A fixed level power reduction is applied for WiFi when handset operates "held to the body" condition or "held to the ear" condition, the power reduction triggered by audio receiver detection and call establish status.
6. Per KDB 248227 D01v02r02, In the 2.4 GHz band, separate SAR procedures are applied to DSSS and OFDM configurations to simplify DSSS test requirements. SAR is not required for the following 2.4 GHz OFDM conditions:
   a. When KDB Publication 447498 SAR test exclusion applies to the OFDM configuration.
   b. When the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg.

**<WLAN 5GHz>**

**A) U-NII-1 and U-NII-2A Bands**

For devices that operate in only one of the U-NII-1 and U-NII-2A bands, the normally required SAR procedures for OFDM configurations are applied. For devices that operate in both U-NII bands using the same transmitter and antenna(s), SAR test reduction is determined according to the following：

1. When the same maximum output power is specified for both bands, begin SAR measurement in U-NII-2A band by applying the OFDM SAR requirements. If the highest reported SAR for a test configuration is ≤ 1.2 W/kg, SAR is not required for U-NII-1 band for that configuration (802.11 mode and exposure condition); otherwise, both bands are tested independently for SAR.
2. When different maximum output power is specified for the bands, begin SAR measurement in the band with higher specified maximum output power. The highest reported SAR for the tested configuration is adjusted by the ratio of lower to higher specified maximum output power for the two bands. When the adjusted SAR is ≤ 1.2 W/kg, SAR is not required for the band with lower maximum output power in that test configuration; otherwise, both bands are tested independently for SAR.
3. The two U-NII bands may be aggregated to support a 160 MHz channel on channel number 50.
4. Without additional testing, the maximum output power for this is limited to the lower of the maximum output power certified for the two bands. When SAR measurement is required for at least one of the bands and the highest reported SAR adjusted by the ratio of specified maximum output power of aggregated to standalone band is > 1.2 W/kg, SAR is required for the 160 MHz channel. This procedure does not apply to an aggregated band with maximum output higher than the standalone band(s); the aggregated band must be tested independently for SAR. SAR is not required when the 160 MHz channel is operating at a reduced maximum power and also qualifies for SAR test exclusion.

**B) U-NII-2C and U-NII-3 Bands**

The frequency range covered by these bands is 380 MHz (5.47 – 5.85 GHz), which requires a minimum of at least two SAR probe calibration frequency points to support SAR measurements. when Terminal Doppler Weather Radar (TDWR) restriction applies, all channels that operate at 5.60 – 5.65 GHz must be included to apply the SAR test reduction and measurement procedures.

When the same transmitter and antenna(s) are used for U-NII-2C band and U-NII-3 band or 5.8 GHz band of §15.247, the bands may be aggregated to enable additional channels with 20, 40 or 80 MHz bandwidth to span across the band gap, as illustrated in Appendix B. The maximum output power for the additional band gap channels is limited to the lower of those certified for the bands. Unless band gap channels are permanently disabled, they must be considered for SAR testing. The frequency range covered by these bands is 380 MHz (5.47 – 5.85 GHz), which requires a minimum of at least two SAR probe calibration frequency points to support SAR measurements. To maintain SAR measurement accuracy and to facilitate test reduction, the channels in U-NII-2C band above 5.65

GHz may be grouped with the 5.8 GHz channels in U-NII-3 or §15.247 band to enable two SAR probe calibration frequency points to cover the bands, including the band gap channels. When band gap channels are supported and the bands are not aggregated for SAR testing, band gap channels must be considered independently in each band according to the normally required OFDM SAR measurement and probe calibration frequency points requirements.

**C) OFDM Transmission Mode SAR Test Configuration and Channel Selection Requirements**

The initial test configuration for 5 GHz OFDM transmission modes is determined by the 802.11 configuration with the highest maximum output power specified for production units, including tune-up tolerance, in each standalone and aggregated frequency band. SAR for the initial test configuration is measured using the highest maximum output power channel determined by the default power measurement procedures. When multiple configurations in a frequency band have the same specified maximum output power, the initial test configuration is determined according to the following steps applied sequentially.

1. The largest channel bandwidth configuration is selected among the multiple configurations with the same specified maximum output power.
2. If multiple configurations have the same specified maximum output power and largest channel bandwidth, the lowest order modulation among the largest channel bandwidth configurations is selected.
3. If multiple configurations have the same specified maximum output power, largest channel band width and lowest order modulation, the lowest data rate configuration among these configurations is selected.
4. When multiple transmission modes (802.11a/g/n/ac) have the same specified maximum output power, largest channel bandwidth, lowest order modulation and lowest data rate, the lowest order 802.11 mode is selected; i.e., 802.11a is chosen over 802.11n then 802.11ac or 802.11g is chosen over 802.11n. After an initial test configuration is determined, if multiple test channels have the same measured maximum output power, the channel chosen for SAR measurement is determined according to the following. These channel selection procedures apply to both the initial test configuration and subsequent test configuration(s), with respect to the default power measurement procedures or additional power measurements required for further SAR test reduction. The same procedures also apply to subsequent highest output power channel(s) selection.
5. The channel closest to mid-band frequency is selected for SAR measurement.
6. For channels with equal separation from mid-band frequency; for example, high and low channels or two mid-band channels, the higher frequency (number) channel is selected for SAR measurement.

**D) SAR Test Requirements for OFDM configurations**

When SAR measurement is required for 802.11 a/n/ac OFDM configurations, each standalone and frequency aggregated band is considered separately for SAR test reduction. When the sametransmitter and antenna(s) are used for U-NII-1 and U-NII-2A bands, additional SAR test reduction Vapplies. When band gap channels between U-NII-2C band and 5.8 GHz U-NII-3 or §15.247 bandare supported, the highest maximum output power transmission mode configuration and maximumoutput power channel across the bands must be used to determine SAR test reduction, accordingto the initial test configuration and subsequent test configuration requirements. In applying theinitial test configuration and subsequent test configuration procedures, the 802.11 transmissionconfiguration with the highest specified maximum output power and the channel within a testconfiguration with the highest measured maximum output power should be clearly distinguished toapply the procedures.

# 14. Conducted Power List

Remark: The output power of DECT/WLAN/Bluetooth was recorded in annex E of this report.

# 15. Hotspot Mode Evaluation Procedure

➢ **EUT Antenna Location**

| The location of antenna was recorded in annex B |
|---|
| ANT 0:<br>TX/RX: DECT<br><br>ANT 1:<br>TX/RX: DECT<br><br>ANT 2:<br>TX/RX: WLAN 5GHz/6GHz Chain 0<br><br>ANT 3:<br>TX/RX: WLAN 2.4GHz/Bluetooth Chain 0<br><br>ANT 4:<br>TX/RX: WLAN 2.4GHz Chain 1<br><br>ANT 5:<br>TX/RX: WLAN 5GHz/6GHz Chain 1<br><br>ANT 6:<br>TX/RX: NFC |

➢ **EUT Antenna Distance**

| Antenna Location | Front | Back | Left | Right | Top | Bottom |
|---|---|---|---|---|---|---|
| ANT 0 | ＜5mm | ＜5mm | ＜5mm | ＞25mm | ＜25mm | ＞25mm |
| ANT 1 | ＜5mm | ＜5mm | ＜5mm | ＞25mm | 25mm | ＞25mm |
| ANT 2 | ＜5mm | ＜5mm | ＞25mm | ＜25mm | ＜25mm | ＞25mm |
| ANT 3 | ＜5mm | ＜5mm | ＞25mm | ＜25mm | ＜25mm | ＞25mm |
| ANT 4 | ＜5mm | ＜5mm | ＞25mm | ＜25mm | ＜25mm | ＞25mm |
| ANT 5 | ＜5mm | ＜5mm | ＞25mm | ＜25mm | ＞25mm | ＞25mm |

- **Hotspot Evaluation**

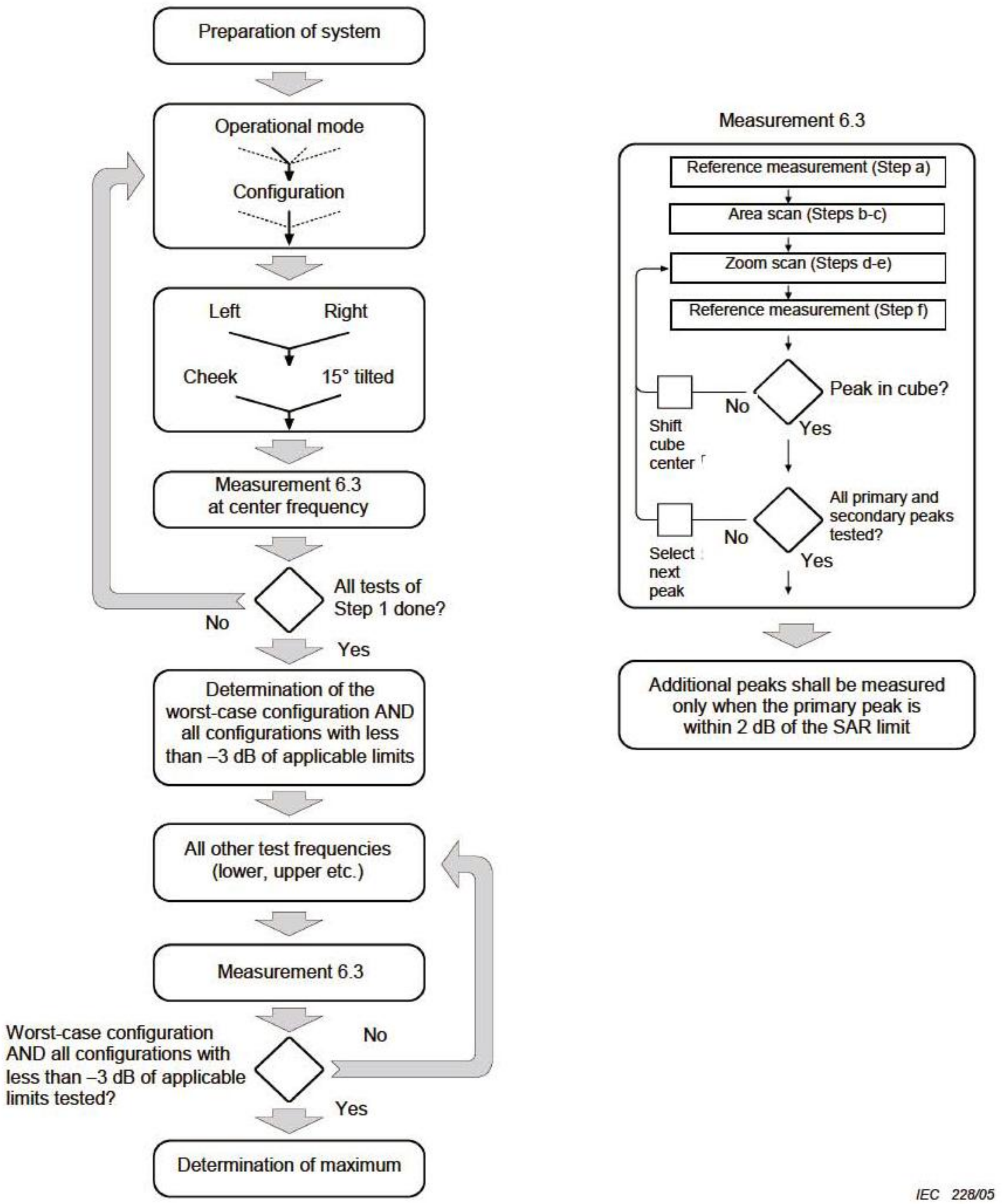
| Assessment | Hotspot Side for SAR Test Distance: 10mm | | | | | |
|---|---|---|---|---|---|---|
| Antennas | Front | Back | Left | Right | Top | Bottom |
| ANT 0 | Yes | Yes | Yes | No | Yes | No |
| ANT 1 | Yes | Yes | Yes | No | Yes | No |
| ANT 2 | Yes | Yes | No | Yes | Yes | No |
| ANT 3 | Yes | Yes | No | Yes | Yes | No |
| ANT 4 | Yes | Yes | No | Yes | Yes | No |
| ANT 5 | Yes | Yes | No | Yes | No | No |

**Note :**

1. The SAR evaluation procedures for Portable Devices with Wireless Router function is according to KDB 941225 D06 Hotspot SAR v02r01.
2. Head/Body-worn/Hotspot mode SAR assessments are required.
3. Referring to KDB 941225 D06, when the overall device length and width are ≥ 9cm*5cm, the test distance is 10 mm. SAR must be measured for all sides and surfaces with a transmitting antenna located within 25mm from that surface or edge.
4. For WLAN bands, all of surface or edges would be tested except the left side and bottom side in this report.
5. For DECT bands, all of surface or edges would be tested except the right side and bottom side in this report.

# 16. Block Diagram of the Tests to be Performed

## 16.1. Head



## 16.2. Body

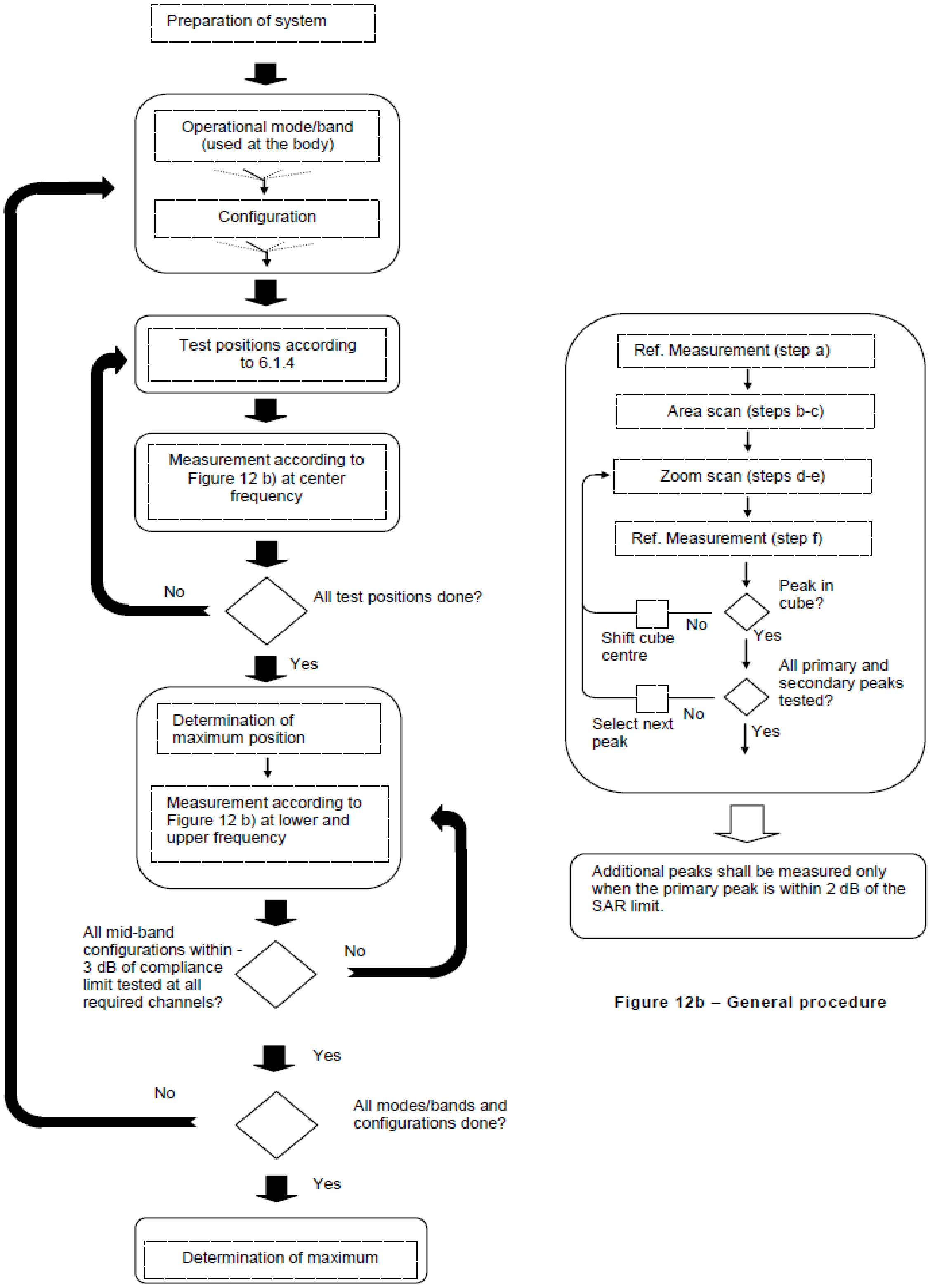



**Figure 12b – General procedure**

# 17. Test Results List

## 17.1. Test Guidance

1. Per KDB 447498 D01v06, the reported SAR is the measured SAR value adjusted for maximum tune-up tolerance.
   a. Tune-up scaling Factor = tune-up limit power (mW) / EUT RF power (mW), where tune-up limit is the maximum rated power among all production units.
   b. For SAR testing of WLAN 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)".
   c. For WLAN/Bluetooth: Reported SAR(W/kg) = Measured SAR (W/kg) * Duty Cycle scaling factor * Tune-up scaling factor.
2. Per KDB 447498 D01v06, for each exposure position, testing of other required channels within the operating mode of a frequency band is not required when the *reported* 1-g or 10-g SAR for the mid-band or highest output power channel is:
   a. ≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100 MHz
   b. ≤ 0.6 W/kg or 1.5 W/kg, for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz
   c. ≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz
3. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required only when the measured SAR is ≥0.8W/kg.
4. Per KDB 648474 D04v01r03, when the reported SAR for a body-worn accessory measured without a headset connected to the handset is ≤ 1.2 W/kg, SAR testing with a headset connected to the handset is not required.
5. Per KDB648474 D04v01r03, for smart phones with a display diagonal dimension > 15.0 cm or an overall diagonal dimension > 16.0 cm, when hotspot mode applies, 10-g extremity SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg, however, when power reduction applies to hotspot mode the measured SAR must be scaled to the maximum output power, including tolerance, allowed for tablet modes to compare with the 1.2 W/kg SAR test reduction threshold.
6. Per KDB248227 D01v02r02, a Wi-Fi device must be configured to transmit continuously at the required data rate, channel bandwidth and signal modulation, using the highest transmission duty factor supported by the test mode tools for SAR measurement. The test frequencies established using test mode must correspond to the actual channel frequencies required for operations in the U.S. When 802.11 frame gaps are accounted for in the transmission, a maximum transmission duty factor of 92 - 96% is typically achievable in most test mode configurations. A minimum transmission duty factor of 85% is required to avoid certain hardware and device implementation issues related to wide range SAR scaling. In addition, a periodic transmission duty factor is required for current generation SAR systems to measure SAR

correctly. Unless it is permitted by specific KDB procedures or continuous transmission is specifically restricted by the device, the reported SAR must be scaled to 100% transmission duty factor to determine compliance at the maximum tune-up tolerance limit. When a device is not capable of sustaining continuous transmission or the output can become nonlinear, and it is limited by hardware design and unable to transmit at higher than 85% duty factor, a periodic duty factor within 15% of the maximum duty factor the device is capable of transmitting should be used. The reported SAR must be scaled to the maximum transmission duty factor to determine compliance. Descriptions of the procedures applied to establish the specific duty factor used for SAR testing are required in SAR reports to support the test results.

7. Evaluate SAR / APD with DASY6 Module SAR V16.0 or higher. The configurations to be tested are defined in the relevant Knowledge Database (KDB). The 4cm$^2$ psSAR and absorbed psPD are reported.
8. The maximum power of NFC is less than 1mW per the manual information, therefore it is not required for RF exposure.
9. The principle of the SAR power reduction mechanism is as follows:

| | |
|---|---|
| 1. Judgment logic begins, software needs to judge whether the wifi is connected, Yes, judging next condition, No, call table 0. | |
| 2. then needs to judge whether the DECT connection is established, Yes or No, judging next condition. | |
| 2.1.1. If last condition is Yes, judging whether the Hotspot is ON, Yes, call table 9, No, judging next condition. | 2.2.1. If last condition is No, judging whether the Hotspot is ON, Yes, call table 6, No, judging next condition. |
| 2.1.2. Judging whether the earpiece is ON, Yes, call table 10, No, judging next condition. | 2.2.2. Judging whether the earpiece is ON, Yes, call table7, No, judging next condition. |
| 2.1.3. Judging whether the SAR sensor is triggered, Yes, call table11, No, call table 5 . | 2.2.3. Judging whether the SAR sensor is triggered, Yes, call table8,No,call table 5 . |
| 3. Continuously monitoring whether the SAR sensor state or call state change, Yes, restart judgment, No, maintain current state. | |

| Table & DSI | SAR usage scenario |
|---|---|
| Table 0 | Full Power |
| Table 6 | The power reduction is used for standalone transmission of Hotspot SAR |
| Table7 | The power reduction is used for standalone transmission of Head SAR |
| Table 8 | The power reduction is used for standalone transmission of Hotspot SAR Body-worn/ Extremity SAR |
| Table 9 | The power reduction is used for simultaneous transmission of Hotspot SAR |

| Table10 | The power reduction is used for simultaneous transmission of Head SAR |
|---|---|
| Table11 | The power reduction is used for simultaneous transmission of Hotspot SAR Body-worn/ Extremity SAR |
| Table 5 | Normal OTA |

10. The reduced power level 1 of WLAN will be applied to head SAR for simultaneous transmission and the reduced power level 2 of WLAN will be applied to body-worn/ extremity SAR for simultaneous transmission.

## 17.2. Head SAR Data

- **DECT Head SAR**

| Plot No. | Band/Mode | Test Position | CH. | Ave. Power (dBm) | Tune-up Limit (dBm) | Tune-up Scaling Factor | Power Drift (dB) | Meas. $SAR_{1g}$ (W/kg) | Reported $SAR_{1g}$ (W/kg) |
|---|---|---|---|---|---|---|---|---|---|
| Full Power (ANT 0) | | | | | | | | | |
| | DECT / 00011 | Right Cheek | 3 | 20.01 | 20.20 | 1.045 | -0.02 | 0.040 | 0.042 |
| | DECT / 00011 | Right Tilt | 3 | 20.01 | 20.20 | 1.045 | -0.01 | 0.022 | 0.023 |
| | DECT / 00011 | Left Cheek | 3 | 20.01 | 20.20 | 1.045 | -0.08 | 0.025 | 0.026 |
| | DECT / 00011 | Left Tilt | 3 | 20.01 | 20.20 | 1.045 | 0.14 | 0.020 | 0.021 |
| | DECT / 00011 | Right Cheek | 1 | 19.99 | 20.20 | 1.050 | -0.13 | 0.036 | 0.038 |
| | DECT / 00011 | Right Cheek | 5 | 20.01 | 20.20 | 1.045 | 0.01 | 0.034 | 0.036 |
| Full Power (ANT 1) | | | | | | | | | |
| 1# | DECT / 00011 | Right Cheek | 3 | 19.78 | 20.20 | 1.102 | 0.01 | 0.046 | 0.051 |
| | DECT / 00011 | Right Tilt | 3 | 19.78 | 20.20 | 1.102 | 0.02 | 0.024 | 0.026 |
| | DECT / 00011 | Left Cheek | 3 | 19.78 | 20.20 | 1.102 | 0.07 | 0.030 | 0.033 |
| | DECT / 00011 | Left Tilt | 3 | 19.78 | 20.20 | 1.102 | -0.07 | 0.019 | 0.021 |
| | DECT / 00011 | Right Cheek | 1 | 19.77 | 20.20 | 1.104 | 0.01 | 0.039 | 0.043 |
| | DECT / 00011 | Right Cheek | 5 | 19.78 | 20.20 | 1.102 | 0.06 | 0.035 | 0.039 |

## WLAN Head SAR

| Plot No. | Band/Mode | Test Position | CH. | Ave. Power (dBm) | Tune-up Limit (dBm) | Tune-up Scaling Factor | Power Drift (dB) | Meas. $SAR_{1g}$ (W/kg) | Reported $SAR_{1g}$ (W/kg) |
|---|---|---|---|---|---|---|---|---|---|
| Full Power (ANT 3) | | | | | | | | | |
| | WLAN 2.4GHz / 802.11b | Right Cheek | 6 | 19.18 | 20.50 | 1.355 | -0.06 | 0.270 | 0.368 |
| | WLAN 2.4GHz / 802.11b | Right Tilt | 6 | 19.18 | 20.50 | 1.355 | -0.04 | 0.200 | 0.273 |
| | WLAN 2.4GHz / 802.11b | Left Cheek | 6 | 19.18 | 20.50 | 1.355 | -0.03 | 0.643 | 0.877 |
| | WLAN 2.4GHz / 802.11b | Left Tilt | 6 | 19.18 | 20.50 | 1.355 | -0.02 | 0.346 | 0.472 |
| 2# | WLAN 2.4GHz / 802.11b | Left Cheek | 1 | 19.08 | 20.50 | 1.387 | 0.02 | 0.780 | 1.089 |
| | WLAN 2.4GHz / 802.11b | Left Cheek | 11 | 18.57 | 20.50 | 1.560 | -0.11 | 0.637 | 1.000 |
| Full Power (ANT 4) | | | | | | | | | |
| | WLAN 2.4GHz / 802.11b | Right Cheek | 11 | 19.16 | 20.50 | 1.361 | -0.08 | 0.068 | 0.093 |
| | WLAN 2.4GHz / 802.11b | Right Tilt | 11 | 19.16 | 20.50 | 1.361 | -0.08 | 0.041 | 0.056 |
| | WLAN 2.4GHz / 802.11b | Left Cheek | 11 | 19.16 | 20.50 | 1.361 | 0.03 | 0.238 | 0.326 |
| | WLAN 2.4GHz / 802.11b | Left Tilt | 11 | 19.16 | 20.50 | 1.361 | -0.04 | 0.076 | 0.104 |
| | WLAN 2.4GHz / 802.11b | Left Cheek | 1 | 18.86 | 20.50 | 1.459 | -0.12 | 0.159 | 0.234 |
| | WLAN 2.4GHz / 802.11b | Left Cheek | 6 | 18.97 | 20.50 | 1.422 | -0.06 | 0.172 | 0.246 |
| Full Power (MIMO) | | | | | | | | | |
| | WLAN 2.4GHz / 802.11n20 | Right Cheek | 6 | 20.73 | 22.00 | 1.340 | -0.14 | 0.247 | 0.332 |
| | WLAN 2.4GHz / 802.11n20 | Right Tilt | 6 | 20.73 | 22.00 | 1.340 | -0.01 | 0.182 | 0.245 |
| | WLAN 2.4GHz / 802.11n20 | Left Cheek | 6 | 20.73 | 22.00 | 1.340 | -0.09 | 0.691 | 0.928 |
| | WLAN 2.4GHz / 802.11n20 | Left Tilt | 6 | 20.73 | 22.00 | 1.340 | -0.07 | 0.407 | 0.547 |
| | WLAN 2.4GHz / 802.11n20 | Left Cheek | 1 | 20.65 | 22.00 | 1.365 | 0.01 | 0.589 | 0.806 |
| | WLAN 2.4GHz / 802.11n20 | Left Cheek | 11 | 20.63 | 22.00 | 1.371 | -0.12 | 0.610 | 0.839 |
| Reduced Power Level 1 for simultaneous transmission (ANT 3) | | | | | | | | | |
| | WLAN 2.4GHz / 802.11b | Right Cheek | 6 | 14.18 | 15.50 | 1.355 | 0.06 | 0.084 | 0.115 |
| | WLAN 2.4GHz / 802.11b | Right Tilt | 6 | 14.18 | 15.50 | 1.355 | 0.14 | 0.060 | 0.082 |
| | WLAN 2.4GHz / 802.11b | Left Cheek | 6 | 14.18 | 15.50 | 1.355 | 0.09 | 0.201 | 0.274 |
| | WLAN 2.4GHz / 802.11b | Left Tilt | 6 | 14.18 | 15.50 | 1.355 | -0.04 | 0.103 | 0.141 |
| | WLAN 2.4GHz / 802.11b | Left Cheek | 1 | 14.08 | 15.50 | 1.387 | -0.11 | 0.232 | 0.324 |
| | WLAN 2.4GHz / 802.11b | Left Cheek | 11 | 13.57 | 15.50 | 1.560 | -0.13 | 0.199 | 0.313 |
| Reduced Power Level 1 for simultaneous transmission (ANT 4) | | | | | | | | | |
| | WLAN 2.4GHz / 802.11b | Right Cheek | 11 | 14.16 | 15.50 | 1.361 | 0.08 | 0.022 | 0.030 |
| | WLAN 2.4GHz / 802.11b | Right Tilt | 11 | 14.16 | 15.50 | 1.361 | 0.03 | 0.015 | 0.021 |
| | WLAN 2.4GHz / 802.11b | Left Cheek | 11 | 14.16 | 15.50 | 1.361 | -0.02 | 0.073 | 0.100 |
| | WLAN 2.4GHz / 802.11b | Left Tilt | 11 | 14.16 | 15.50 | 1.361 | -0.08 | 0.024 | 0.033 |
| | WLAN 2.4GHz / 802.11b | Left Cheek | 1 | 13.86 | 15.50 | 1.459 | 0.02 | 0.051 | 0.075 |
| | WLAN 2.4GHz / 802.11b | Left Cheek | 6 | 13.97 | 15.50 | 1.422 | 0.05 | 0.055 | 0.079 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Reduced Power Level 1 for simultaneous transmission (MIMO) | | | | | | | | | |
| | WLAN 2.4GHz / 802.11n20 | Right Cheek | 6 | 15.73 | 17.00 | 1.340 | 0.04 | 0.078 | 0.105 |
| | WLAN 2.4GHz / 802.11n20 | Right Tilt | 6 | 15.73 | 17.00 | 1.340 | 0.06 | 0.055 | 0.074 |
| | WLAN 2.4GHz / 802.11n20 | Left Cheek | 6 | 15.73 | 17.00 | 1.340 | -0.13 | 0.197 | 0.265 |
| | WLAN 2.4GHz / 802.11n20 | Left Tilt | 6 | 15.73 | 17.00 | 1.340 | -0.04 | 0.128 | 0.172 |
| | WLAN 2.4GHz / 802.11n20 | Left Cheek | 1 | 15.65 | 17.00 | 1.365 | 0.04 | 0.184 | 0.252 |
| | WLAN 2.4GHz / 802.11n20 | Left Cheek | 11 | 15.63 | 17.00 | 1.371 | 0.07 | 0.189 | 0.260 |
| Full Power (ANT 5) | | | | | | | | | |
| | WLAN 5.2GHz / 802.11a | Right Cheek | 44 | 18.99 | 20.00 | 1.262 | -0.03 | 0.027 | 0.034 |
| | WLAN 5.2GHz / 802.11a | Right Tilt | 44 | 18.99 | 20.00 | 1.262 | 0.05 | 0.025 | 0.032 |
| | WLAN 5.2GHz / 802.11a | Left Cheek | 44 | 18.99 | 20.00 | 1.262 | -0.04 | 0.029 | 0.037 |
| | WLAN 5.2GHz / 802.11a | Left Tilt | 44 | 18.99 | 20.00 | 1.262 | -0.01 | 0.006 | 0.008 |
| | WLAN 5.2GHz / 802.11a | Left Cheek | 36 | 18.93 | 20.00 | 1.279 | -0.03 | 0.019 | 0.024 |
| | WLAN 5.2GHz / 802.11a | Left Cheek | 48 | 18.92 | 20.00 | 1.282 | 0.09 | 0.020 | 0.026 |
| Full Power (ANT 2) | | | | | | | | | |
| | WLAN 5.2GHz / 802.11a | Right Cheek | 44 | 19.44 | 20.00 | 1.138 | 0.12 | 0.340 | 0.391 |
| | WLAN 5.2GHz / 802.11a | Right Tilt | 44 | 19.44 | 20.00 | 1.138 | -0.04 | 0.337 | 0.387 |
| 3# | WLAN 5.2GHz / 802.11a | Left Cheek | 44 | 19.44 | 20.00 | 1.138 | 0.08 | 0.629 | 0.723 |
| | WLAN 5.2GHz / 802.11a | Left Tilt | 44 | 19.44 | 20.00 | 1.138 | -0.06 | 0.434 | 0.499 |
| | WLAN 5.2GHz / 802.11a | Left Cheek | 36 | 19.25 | 20.00 | 1.189 | 0.13 | 0.572 | 0.687 |
| | WLAN 5.2GHz / 802.11a | Left Cheek | 48 | 19.25 | 20.00 | 1.189 | 0.12 | 0.592 | 0.711 |
| Full Power (MIMO) | | | | | | | | | |
| | WLAN 5.2GHz / 802.11n40 | Right Cheek | 38 | 18.53 | 19.50 | 1.250 | 0.04 | 0.108 | 0.136 |
| | WLAN 5.2GHz / 802.11n40 | Right Tilt | 38 | 18.53 | 19.50 | 1.250 | -0.08 | 0.085 | 0.107 |
| | WLAN 5.2GHz / 802.11n40 | Left Cheek | 38 | 18.53 | 19.50 | 1.250 | -0.09 | 0.229 | 0.287 |
| | WLAN 5.2GHz / 802.11n40 | Left Tilt | 38 | 18.53 | 19.50 | 1.250 | -0.02 | 0.186 | 0.233 |
| | WLAN 5.2GHz / 802.11n40 | Left Cheek | 46 | 18.50 | 19.50 | 1.259 | -0.03 | 0.235 | 0.297 |
| Reduced Power Level 1 for simultaneous transmission (ANT 5) | | | | | | | | | |
| | WLAN 5.2GHz / 802.11a | Right Cheek | 44 | 16.99 | 18.00 | 1.262 | 0.07 | 0.015 | 0.019 |
| | WLAN 5.2GHz / 802.11a | Right Tilt | 44 | 16.99 | 18.00 | 1.262 | -0.09 | 0.014 | 0.018 |
| | WLAN 5.2GHz / 802.11a | Left Cheek | 44 | 16.99 | 18.00 | 1.262 | 0.01 | 0.017 | 0.022 |
| | WLAN 5.2GHz / 802.11a | Left Tilt | 44 | 16.99 | 18.00 | 1.262 | 0.09 | 0.003 | 0.004 |
| | WLAN 5.2GHz / 802.11a | Left Cheek | 36 | 16.93 | 18.00 | 1.279 | -0.07 | 0.011 | 0.014 |
| | WLAN 5.2GHz / 802.11a | Left Cheek | 48 | 16.92 | 18.00 | 1.282 | 0.12 | 0.012 | 0.015 |
| Reduced Power Level 1 for simultaneous transmission (ANT 2) | | | | | | | | | |
| | WLAN 5.2GHz / 802.11a | Right Cheek | 44 | 17.44 | 18.00 | 1.138 | -0.15 | 0.195 | 0.224 |
| | WLAN 5.2GHz / 802.11a | Right Tilt | 44 | 17.44 | 18.00 | 1.138 | -0.11 | 0.192 | 0.221 |
| | WLAN 5.2GHz / 802.11a | Left Cheek | 44 | 17.44 | 18.00 | 1.138 | 0.04 | 0.359 | 0.412 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | WLAN 5.2GHz / 802.11a | Left Tilt | 44 | 17.44 | 18.00 | 1.138 | -0.14 | 0.248 | 0.285 |
| | WLAN 5.2GHz / 802.11a | Left Cheek | 36 | 17.25 | 18.00 | 1.189 | 0.01 | 0.327 | 0.393 |
| | WLAN 5.2GHz / 802.11a | Left Cheek | 48 | 17.25 | 18.00 | 1.189 | 0.02 | 0.341 | 0.409 |
| Reduced Power Level 1 for simultaneous transmission (MIMO) | | | | | | | | | |
| | WLAN 5.2GHz / 802.11n40 | Right Cheek | 38 | 16.53 | 17.50 | 1.250 | -0.1 | 0.062 | 0.078 |
| | WLAN 5.2GHz / 802.11n40 | Right Tilt | 38 | 16.53 | 17.50 | 1.250 | 0.06 | 0.049 | 0.062 |
| | WLAN 5.2GHz / 802.11n40 | Left Cheek | 38 | 16.53 | 17.50 | 1.250 | -0.01 | 0.131 | 0.164 |
| | WLAN 5.2GHz / 802.11n40 | Left Tilt | 38 | 16.53 | 17.50 | 1.250 | 0.1 | 0.106 | 0.133 |
| | WLAN 5.2GHz / 802.11n40 | Left Cheek | 46 | 16.50 | 17.50 | 1.259 | 0.1 | 0.133 | 0.168 |
| Full Power (ANT 5) | | | | | | | | | |
| | WLAN 5.3GHz / 802.11a | Right Cheek | 52 | 19.23 | 20.50 | 1.340 | -0.12 | 0.030 | 0.040 |
| | WLAN 5.3GHz / 802.11a | Right Tilt | 52 | 19.23 | 20.50 | 1.340 | -0.03 | 0.013 | 0.018 |
| | WLAN 5.3GHz / 802.11a | Left Cheek | 52 | 19.23 | 20.50 | 1.340 | 0.09 | 0.037 | 0.050 |
| | WLAN 5.3GHz / 802.11a | Left Tilt | 52 | 19.23 | 20.50 | 1.340 | -0.09 | 0.027 | 0.036 |
| | WLAN 5.3GHz / 802.11a | Left Cheek | 60 | 18.95 | 20.50 | 1.429 | 0.02 | 0.033 | 0.047 |
| | WLAN 5.3GHz / 802.11a | Left Cheek | 64 | 18.75 | 20.50 | 1.496 | -0.1 | 0.028 | 0.042 |
| Full Power (ANT 2) | | | | | | | | | |
| | WLAN 5.3GHz / 802.11a | Right Cheek | 52 | 19.22 | 20.50 | 1.343 | 0.14 | 0.401 | 0.541 |
| | WLAN 5.3GHz / 802.11a | Right Tilt | 52 | 19.22 | 20.50 | 1.343 | 0.1 | 0.471 | 0.636 |
| 4# | WLAN 5.3GHz / 802.11a | Left Cheek | 52 | 19.22 | 20.50 | 1.343 | 0.09 | 0.615 | 0.830 |
| | WLAN 5.3GHz / 802.11a | Left Tilt | 52 | 19.22 | 20.50 | 1.343 | 0.12 | 0.532 | 0.718 |
| | WLAN 5.3GHz / 802.11a | Left Cheek | 60 | 19.05 | 20.50 | 1.396 | -0.09 | 0.566 | 0.794 |
| | WLAN 5.3GHz / 802.11a | Left Cheek | 64 | 18.99 | 20.50 | 1.416 | 0.06 | 0.543 | 0.773 |
| Full Power (MIMO) | | | | | | | | | |
| | WLAN 5.3GHz / 802.11n40 | Right Cheek | 54 | 18.73 | 19.50 | 1.194 | 0.06 | 0.157 | 0.188 |
| | WLAN 5.3GHz / 802.11n40 | Right Tilt | 54 | 18.73 | 19.50 | 1.194 | 0.08 | 0.191 | 0.229 |
| | WLAN 5.3GHz / 802.11n40 | Left Cheek | 54 | 18.73 | 19.50 | 1.194 | -0.11 | 0.250 | 0.300 |
| | WLAN 5.3GHz / 802.11n40 | Left Tilt | 54 | 18.73 | 19.50 | 1.194 | 0.09 | 0.171 | 0.205 |
| | WLAN 5.3GHz / 802.11n40 | Left Cheek | 62 | 18.54 | 19.50 | 1.247 | -0.07 | 0.223 | 0.279 |
| Reduced Power Level 1 for simultaneous transmission (ANT 5) | | | | | | | | | |
| | WLAN 5.3GHz / 802.11a | Right Cheek | 52 | 17.23 | 18.50 | 1.340 | 0.03 | 0.018 | 0.024 |
| | WLAN 5.3GHz / 802.11a | Right Tilt | 52 | 17.23 | 18.50 | 1.340 | 0.06 | 0.009 | 0.012 |
| | WLAN 5.3GHz / 802.11a | Left Cheek | 52 | 17.23 | 18.50 | 1.340 | 0.12 | 0.022 | 0.030 |
| | WLAN 5.3GHz / 802.11a | Left Tilt | 52 | 17.23 | 18.50 | 1.340 | 0.07 | 0.016 | 0.022 |
| | WLAN 5.3GHz / 802.11a | Left Cheek | 60 | 16.95 | 18.50 | 1.429 | 0.11 | 0.020 | 0.029 |
| | WLAN 5.3GHz / 802.11a | Left Cheek | 64 | 16.75 | 18.50 | 1.496 | -0.04 | 0.017 | 0.026 |
| Reduced Power Level 1 for simultaneous transmission (ANT 2) | | | | | | | | | |
| | WLAN 5.3GHz / 802.11a | Right Cheek | 52 | 17.22 | 18.50 | 1.343 | 0.11 | 0.236 | 0.318 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | WLAN 5.3GHz / 802.11a | Right Tilt | 52 | 17.22 | 18.50 | 1.343 | 0.11 | 0.277 | 0.374 |
| | WLAN 5.3GHz / 802.11a | Left Cheek | 52 | 17.22 | 18.50 | 1.343 | -0.03 | 0.369 | 0.498 |
| | WLAN 5.3GHz / 802.11a | Left Tilt | 52 | 17.22 | 18.50 | 1.343 | 0.11 | 0.312 | 0.421 |
| | WLAN 5.3GHz / 802.11a | Left Cheek | 60 | 17.05 | 18.50 | 1.396 | -0.03 | 0.334 | 0.469 |
| | WLAN 5.3GHz / 802.11a | Left Cheek | 64 | 16.99 | 18.50 | 1.416 | 0.03 | 0.318 | 0.452 |
| Reduced Power Level 1 for simultaneous transmission (MIMO) | | | | | | | | | |
| | WLAN 5.3GHz / 802.11n40 | Right Cheek | 54 | 16.73 | 17.50 | 1.194 | 0.01 | 0.092 | 0.110 |
| | WLAN 5.3GHz / 802.11n40 | Right Tilt | 54 | 16.73 | 17.50 | 1.194 | -0.03 | 0.112 | 0.134 |
| | WLAN 5.3GHz / 802.11n40 | Left Cheek | 54 | 16.73 | 17.50 | 1.194 | -0.14 | 0.147 | 0.176 |
| | WLAN 5.3GHz / 802.11n40 | Left Tilt | 54 | 16.73 | 17.50 | 1.194 | -0.03 | 0.102 | 0.122 |
| | WLAN 5.3GHz / 802.11n40 | Left Cheek | 62 | 16.54 | 17.50 | 1.247 | 0.08 | 0.131 | 0.164 |
| Full Power (ANT 5) | | | | | | | | | |
| | WLAN 5.5GHz / 802.11a | Right Cheek | 100 | 19.30 | 20.50 | 1.318 | -0.04 | 0.030 | 0.040 |
| | WLAN 5.5GHz / 802.11a | Right Tilt | 100 | 19.30 | 20.50 | 1.318 | 0.06 | 0.022 | 0.029 |
| | WLAN 5.5GHz / 802.11a | Left Cheek | 100 | 19.30 | 20.50 | 1.318 | 0.03 | 0.043 | 0.057 |
| | WLAN 5.5GHz / 802.11a | Left Tilt | 100 | 19.30 | 20.50 | 1.318 | 0.03 | 0.029 | 0.038 |
| | WLAN 5.5GHz / 802.11a | Left Cheek | 116 | 18.76 | 20.50 | 1.493 | -0.15 | 0.035 | 0.053 |
| | WLAN 5.5GHz / 802.11a | Left Cheek | 144 | 18.71 | 20.50 | 1.510 | -0.14 | 0.032 | 0.049 |
| Full Power (ANT 2) | | | | | | | | | |
| | WLAN 5.5GHz / 802.11a | Right Cheek | 100 | 19.71 | 20.50 | 1.199 | 0.15 | 0.353 | 0.428 |
| | WLAN 5.5GHz / 802.11a | Right Tilt | 100 | 19.71 | 20.50 | 1.199 | -0.05 | 0.375 | 0.454 |
| 5# | WLAN 5.5GHz / 802.11a | Left Cheek | 100 | 19.71 | 20.50 | 1.199 | 0.03 | 0.574 | 0.695 |
| | WLAN 5.5GHz / 802.11a | Left Tilt | 100 | 19.71 | 20.50 | 1.199 | 0.08 | 0.456 | 0.552 |
| | WLAN 5.5GHz / 802.11a | Left Cheek | 116 | 19.05 | 20.50 | 1.396 | 0.01 | 0.461 | 0.650 |
| | WLAN 5.5GHz / 802.11a | Left Cheek | 144 | 19.33 | 20.50 | 1.309 | -0.09 | 0.413 | 0.546 |
| Full Power (MIMO) | | | | | | | | | |
| | WLAN 5.5GHz / 802.11n40 | Right Cheek | 102 | 19.02 | 20.00 | 1.253 | -0.06 | 0.160 | 0.201 |
| | WLAN 5.5GHz / 802.11n40 | Right Tilt | 102 | 19.02 | 20.00 | 1.253 | -0.03 | 0.161 | 0.203 |
| | WLAN 5.5GHz / 802.11n40 | Left Cheek | 102 | 19.02 | 20.00 | 1.253 | 0.14 | 0.222 | 0.279 |
| | WLAN 5.5GHz / 802.11n40 | Left Tilt | 102 | 19.02 | 20.00 | 1.253 | -0.02 | 0.116 | 0.146 |
| | WLAN 5.5GHz / 802.11n40 | Left Cheek | 110 | 18.95 | 20.00 | 1.274 | -0.01 | 0.209 | 0.267 |
| | WLAN 5.5GHz / 802.11n40 | Left Cheek | 142 | 18.71 | 20.00 | 1.346 | 0.01 | 0.194 | 0.262 |
| Reduced Power Level 1 for simultaneous transmission (ANT 5) | | | | | | | | | |
| | WLAN 5.5GHz / 802.11a | Right Cheek | 100 | 17.30 | 18.50 | 1.318 | 0.04 | 0.017 | 0.023 |
| | WLAN 5.5GHz / 802.11a | Right Tilt | 100 | 17.30 | 18.50 | 1.318 | -0.02 | 0.013 | 0.017 |
| | WLAN 5.5GHz / 802.11a | Left Cheek | 100 | 17.30 | 18.50 | 1.318 | -0.06 | 0.025 | 0.033 |
| | WLAN 5.5GHz / 802.11a | Left Tilt | 100 | 17.30 | 18.50 | 1.318 | 0.11 | 0.017 | 0.023 |
| | WLAN 5.5GHz / 802.11a | Left Cheek | 116 | 16.76 | 18.50 | 1.493 | 0.06 | 0.020 | 0.030 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | WLAN 5.5GHz / 802.11a | Left Cheek | 144 | 16.71 | 18.50 | 1.510 | 0.14 | 0.018 | 0.027 |
| Reduced Power Level 1 for simultaneous transmission (ANT 2) | | | | | | | | | |
| | WLAN 5.5GHz / 802.11a | Right Cheek | 100 | 17.71 | 18.50 | 1.199 | 0.05 | 0.202 | 0.245 |
| | WLAN 5.5GHz / 802.11a | Right Tilt | 100 | 17.71 | 18.50 | 1.199 | 0.04 | 0.214 | 0.259 |
| | WLAN 5.5GHz / 802.11a | Left Cheek | 100 | 17.71 | 18.50 | 1.199 | -0.08 | 0.326 | 0.395 |
| | WLAN 5.5GHz / 802.11a | Left Tilt | 100 | 17.71 | 18.50 | 1.199 | 0.03 | 0.261 | 0.316 |
| | WLAN 5.5GHz / 802.11a | Left Cheek | 116 | 17.05 | 18.50 | 1.396 | 0.09 | 0.265 | 0.374 |
| | WLAN 5.5GHz / 802.11a | Left Cheek | 144 | 17.33 | 18.50 | 1.309 | -0.09 | 0.238 | 0.315 |
| Reduced Power Level 1 for simultaneous transmission (MIMO) | | | | | | | | | |
| | WLAN 5.5GHz / 802.11n40 | Right Cheek | 102 | 17.02 | 18.00 | 1.253 | -0.03 | 0.091 | 0.114 |
| | WLAN 5.5GHz / 802.11n40 | Right Tilt | 102 | 17.02 | 18.00 | 1.253 | 0.03 | 0.092 | 0.116 |
| | WLAN 5.5GHz / 802.11n40 | Left Cheek | 102 | 17.02 | 18.00 | 1.253 | 0.06 | 0.127 | 0.160 |
| | WLAN 5.5GHz / 802.11n40 | Left Tilt | 102 | 17.02 | 18.00 | 1.253 | -0.15 | 0.066 | 0.083 |
| | WLAN 5.5GHz / 802.11n40 | Left Cheek | 110 | 16.95 | 18.00 | 1.274 | 0.04 | 0.119 | 0.152 |
| | WLAN 5.5GHz / 802.11n40 | Left Cheek | 142 | 16.71 | 18.00 | 1.346 | -0.15 | 0.111 | 0.150 |
| Full Power (ANT 5) | | | | | | | | | |
| | WLAN 5.8GHz / 802.11a | Right Cheek | 149 | 18.25 | 19.00 | 1.189 | 0.1 | 0.077 | 0.092 |
| | WLAN 5.8GHz / 802.11a | Right Tilt | 149 | 18.25 | 19.00 | 1.189 | 0.07 | 0.078 | 0.093 |
| | WLAN 5.8GHz / 802.11a | Left Cheek | 149 | 18.25 | 19.00 | 1.189 | 0.07 | 0.091 | 0.109 |
| | WLAN 5.8GHz / 802.11a | Left Tilt | 149 | 18.25 | 19.00 | 1.189 | 0.03 | 0.087 | 0.104 |
| | WLAN 5.8GHz / 802.11a | Left Cheek | 157 | 18.16 | 19.00 | 1.213 | -0.1 | 0.083 | 0.101 |
| | WLAN 5.8GHz / 802.11a | Left Cheek | 165 | 17.64 | 19.00 | 1.368 | 0.15 | 0.076 | 0.104 |
| Full Power (ANT 2) | | | | | | | | | |
| | WLAN 5.8GHz / 802.11a | Right Cheek | 149 | 19.59 | 20.50 | 1.233 | -0.06 | 0.228 | 0.283 |
| | WLAN 5.8GHz / 802.11a | Right Tilt | 149 | 19.59 | 20.50 | 1.233 | 0.1 | 0.096 | 0.119 |
| 6# | WLAN 5.8GHz / 802.11a | Left Cheek | 149 | 19.59 | 20.50 | 1.233 | 0.07 | 0.375 | 0.465 |
| | WLAN 5.8GHz / 802.11a | Left Tilt | 149 | 19.59 | 20.50 | 1.233 | 0.02 | 0.274 | 0.340 |
| | WLAN 5.8GHz / 802.11a | Left Cheek | 157 | 19.26 | 20.50 | 1.330 | -0.07 | 0.311 | 0.416 |
| | WLAN 5.8GHz / 802.11a | Left Cheek | 165 | 18.91 | 20.50 | 1.442 | -0.12 | 0.277 | 0.401 |
| Full Power (MIMO) | | | | | | | | | |
| | WLAN 5.8GHz / 802.11n40 | Right Cheek | 151 | 18.73 | 19.50 | 1.194 | -0.02 | 0.106 | 0.127 |
| | WLAN 5.8GHz / 802.11n40 | Right Tilt | 151 | 18.73 | 19.50 | 1.194 | -0.15 | 0.108 | 0.129 |
| | WLAN 5.8GHz / 802.11n40 | Left Cheek | 151 | 18.73 | 19.50 | 1.194 | -0.08 | 0.138 | 0.165 |
| | WLAN 5.8GHz / 802.11n40 | Left Tilt | 151 | 18.73 | 19.50 | 1.194 | 0.06 | 0.116 | 0.139 |
| | WLAN 5.8GHz / 802.11n40 | Left Cheek | 159 | 18.54 | 19.50 | 1.247 | -0.14 | 0.125 | 0.157 |
| Full Power (ANT 3) | | | | | | | | | |
| | Bluetooth/DH5 | Right Cheek | 39 | 8.12 | 9.00 | 1.225 | -0.1 | 0.036 | 0.048 |
| | Bluetooth/DH5 | Right Tilt | 39 | 8.12 | 9.00 | 1.225 | -0.04 | 0.017 | 0.023 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 7# | Bluetooth/DH5 | Left Cheek | 39 | 8.12 | 9.00 | 1.225 | 0.01 | 0.069 | 0.091 |
| | Bluetooth/DH5 | Left Tilt | 39 | 8.12 | 9.00 | 1.225 | 0.12 | 0.063 | 0.083 |
| | Bluetooth/DH5 | Left Cheek | 0 | 7.23 | 8.00 | 1.194 | -0.04 | 0.061 | 0.079 |
| | Bluetooth/DH5 | Left Cheek | 78 | 5.60 | 6.50 | 1.230 | 0.06 | 0.052 | 0.069 |

**Note:**

1. Per KDB 447498 D01v06, for each exposure position, if the highest output power channel Reported SAR ≤ 0.8W/kg, other channels SAR testing is not necessary.
2. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required when the measured SAR is ≥ 0.8W/kg.
3. Per KDB 941225 D05v02r05, 100% RB allocation SAR measurement is not required when the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg.
4. Per KDB 248227 D01v02r02, for 802.11b DSSS , when the reported SAR of the highest measured maximum output power channel for the exposure configuration is ≤ 0.8 W/kg, no further SAR testing is required in that exposure configuration.
5. Per KDB 248227 D01v02r02, OFDM SAR is not required when the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg.
6. According to KDB 865664 D02v01r02, SAR plot is required for the highest measured SAR in each exposure configuration, wireless mode and frequency band combination.
7. The 2.4G WLAN 802.11b reported 1g SAR (W/kg) should be scaled with the duty cycle scaling factor 1.007(ANT 3/ANT 4) & 1.003 (MIMO).
8. The 5G WLAN 802.11a reported 1g SAR (W/kg) should be scaled with the duty cycle scaling factor 1.005(ANT 5), 5.2/5.5G WLAN 802.11a with 1.010 (ANT 2), 5.3/5.8G WLAN 802.11a with 1.005 (ANT 2) and 5G WLAN 802.11n40 with 1.004 (MIMO).
9. According to 2016 Oct. TCB workshop for Bluetooth SAR consideration and the theoretical duty cycle is 83.3%, therefore the actual duty cycle will be scaled up to the theoretical value of Bluetooth reported SAR calculation. The duty cycle of Bluetooth is 76.96 %, Therefore the duty cycle scaling factor 1.082 should be used to calculating the reported SAR.

## WLAN 6GHz Head SAR

| Plot No. | Band | Mode | Test Position | CH. | Ave. Power (dBm) | Tune-up Limit (dBm) | Tune-up Scaling Factor | Power Drift (dB) | Meas. $SAR_{1g}$ (W/kg) | Reported $SAR_{1g}$ (W/kg) | Meas. $4cm^2$APD ($W/m^2$) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Full Power (ANT 2) | | | | | | | | | | | |
| | U-NII-5 | 802.11ax80 | Right Cheek | 87 | 13.05 | 13.50 | 1.109 | -0.12 | 0.234 | 0.260 | 1.98 |
| | U-NII-5 | 802.11ax80 | Right Tilt | 87 | 13.05 | 13.50 | 1.109 | -0.09 | 0.210 | 0.233 | 1.7 |
| 8# | U-NII-5 | 802.11ax80 | Left Cheek | 87 | 13.05 | 13.50 | 1.109 | 0.02 | 0.322 | 0.357 | 2.49 |
| | U-NII-5 | 802.11ax80 | Left Tilt | 87 | 13.05 | 13.50 | 1.109 | 0.11 | 0.270 | 0.299 | 2.02 |
| | U-NII-5 | 802.11ax80 | Left Cheek | 7 | 12.85 | 13.50 | 1.161 | -0.02 | 0.221 | 0.257 | 0.939 |
| | U-NII-5 | 802.11ax80 | Left Cheek | 55 | 12.03 | 12.50 | 1.114 | 0.12 | 0.217 | 0.242 | 1.68 |
| Full Power (ANT 5) | | | | | | | | | | | |
| | U-NII-5 | 802.11ax80 | Right Cheek | 87 | 14.57 | 16.00 | 1.390 | -0.17 | 0.011 | 0.015 | 0.1 |
| | U-NII-5 | 802.11ax80 | Right Tilt | 87 | 14.57 | 16.00 | 1.390 | -0.06 | 0.010 | 0.014 | 0.09 |
| | U-NII-5 | 802.11ax80 | Left Cheek | 87 | 14.57 | 16.00 | 1.390 | -0.01 | 0.013 | 0.018 | 0.11 |
| | U-NII-5 | 802.11ax80 | Left Tilt | 87 | 14.57 | 16.00 | 1.390 | 0.16 | 0.010 | 0.014 | 0.098 |
| | U-NII-5 | 802.11ax80 | Left Cheek | 7 | 14.37 | 16.00 | 1.455 | -0.13 | 0.012 | 0.018 | 0.101 |
| | U-NII-5 | 802.11ax80 | Left Cheek | 55 | 14.52 | 16.00 | 1.406 | 0.16 | 0.011 | 0.016 | 0.09 |
| Full Power (MIMO) | | | | | | | | | | | |
| | U-NII-5 | 802.11ax160 | Right Cheek | 79 | 13.78 | 14.00 | 1.052 | -0.1 | 0.042 | 0.044 | 0.31 |
| | U-NII-5 | 802.11ax160 | Right Tilt | 79 | 13.78 | 14.00 | 1.052 | -0.09 | 0.036 | 0.038 | 0.27 |
| | U-NII-5 | 802.11ax160 | Left Cheek | 79 | 13.78 | 14.00 | 1.052 | 0.11 | 0.051 | 0.054 | 0.39 |
| | U-NII-5 | 802.11ax160 | Left Tilt | 79 | 13.78 | 14.00 | 1.052 | -0.09 | 0.043 | 0.045 | 0.32 |
| | U-NII-5 | 802.11ax160 | Left Cheek | 15 | 13.45 | 14.00 | 1.135 | 0.04 | 0.044 | 0.050 | 0.15 |
| | U-NII-5 | 802.11ax160 | Left Cheek | 47 | 13.61 | 14.00 | 1.094 | 0.08 | 0.047 | 0.051 | 0.27 |
| Full Power (ANT 2) | | | | | | | | | | | |
| | U-NII-6 | 802.11ax80 | Right Cheek | 103 | 13.36 | 14.00 | 1.159 | 0.17 | 0.188 | 0.218 | 1.48 |
| | U-NII-6 | 802.11ax80 | Right Tilt | 103 | 13.36 | 14.00 | 1.159 | -0.05 | 0.175 | 0.203 | 1.41 |
| 9# | U-NII-6 | 802.11ax80 | Left Cheek | 103 | 13.36 | 14.00 | 1.159 | -0.11 | 0.208 | 0.241 | 1.64 |
| | U-NII-6 | 802.11ax80 | Left Tilt | 103 | 13.36 | 14.00 | 1.159 | 0.14 | 0.199 | 0.231 | 1.56 |
| Full Power (ANT 5) | | | | | | | | | | | |
| | U-NII-6 | 802.11ax80 | Right Cheek | 103 | 15.50 | 16.00 | 1.122 | -0.02 | 0.022 | 0.025 | 0.16 |
| | U-NII-6 | 802.11ax80 | Right Tilt | 103 | 15.50 | 16.00 | 1.122 | -0.14 | 0.019 | 0.021 | 0.15 |
| | U-NII-6 | 802.11ax80 | Left Cheek | 103 | 15.50 | 16.00 | 1.122 | -0.1 | 0.020 | 0.022 | 0.152 |
| | U-NII-6 | 802.11ax80 | Left Tilt | 103 | 15.50 | 16.00 | 1.122 | -0.11 | 0.019 | 0.021 | 0.145 |
| Full Power (MIMO) | | | | | | | | | | | |
| | U-NII-6 | 802.11ax80 | Right Cheek | 103 | 14.96 | 15.50 | 1.132 | 0.16 | 0.034 | 0.039 | 0.29 |
| | U-NII-6 | 802.11ax80 | Right Tilt | 103 | 14.96 | 15.50 | 1.132 | 0.01 | 0.029 | 0.033 | 0.277 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | U-NII-6 | 802.11ax80 | Left Cheek | 103 | 14.96 | 15.50 | 1.132 | -0.12 | 0.041 | 0.047 | 0.323 |
| | U-NII-6 | 802.11ax80 | Left Tilt | 103 | 14.96 | 15.50 | 1.132 | 0.07 | 0.032 | 0.036 | 0.307 |
| Full Power (ANT 2) | | | | | | | | | | | |
| | U-NII-7 | 802.11ax160 | Right Cheek | 143 | 13.59 | 14.00 | 1.099 | 0.08 | 0.259 | 0.285 | 1.87 |
| | U-NII-7 | 802.11ax160 | Right Tilt | 143 | 13.59 | 14.00 | 1.099 | 0.17 | 0.232 | 0.255 | 1.5 |
| 10# | U-NII-7 | 802.11ax160 | Left Cheek | 143 | 13.59 | 14.00 | 1.099 | 0.02 | 0.317 | 0.348 | 2.3 |
| | U-NII-7 | 802.11ax160 | Left Tilt | 143 | 13.59 | 14.00 | 1.099 | 0.17 | 0.254 | 0.279 | 1.84 |
| Full Power (ANT 5) | | | | | | | | | | | |
| | U-NII-7 | 802.11ax80 | Right Cheek | 167 | 14.15 | 14.50 | 1.084 | 0.1 | 0.030 | 0.033 | 0.21 |
| | U-NII-7 | 802.11ax80 | Right Tilt | 167 | 14.15 | 14.50 | 1.084 | -0.09 | 0.027 | 0.029 | 0.17 |
| | U-NII-7 | 802.11ax80 | Left Cheek | 167 | 14.15 | 14.50 | 1.084 | -0.17 | 0.028 | 0.030 | 0.2 |
| | U-NII-7 | 802.11ax80 | Left Tilt | 167 | 14.15 | 14.50 | 1.084 | 0.15 | 0.020 | 0.022 | 0.16 |
| | U-NII-7 | 802.11ax80 | Right Cheek | 135 | 13.95 | 14.50 | 1.135 | 0.14 | 0.020 | 0.023 | 0.16 |
| | U-NII-7 | 802.11ax80 | Right Cheek | 151 | 12.25 | 12.50 | 1.059 | -0.06 | 0.022 | 0.023 | 0.166 |
| Full Power (MIMO) | | | | | | | | | | | |
| | U-NII-7 | 802.11ax160 | Right Cheek | 143 | 14.15 | 14.50 | 1.084 | 0.04 | 0.086 | 0.093 | 0.62 |
| | U-NII-7 | 802.11ax160 | Right Tilt | 143 | 14.15 | 14.50 | 1.084 | -0.07 | 0.074 | 0.080 | 0.49 |
| | U-NII-7 | 802.11ax160 | Left Cheek | 143 | 14.15 | 14.50 | 1.084 | -0.03 | 0.105 | 0.114 | 0.76 |
| | U-NII-7 | 802.11ax160 | Left Tilt | 143 | 14.15 | 14.50 | 1.084 | -0.04 | 0.082 | 0.089 | 0.6 |
| Full Power (ANT 2) | | | | | | | | | | | |
| | U-NII-8 | 802.11ax80 | Right Cheek | 199 | 14.12 | 14.50 | 1.091 | 0.07 | 0.314 | 0.343 | 2.33 |
| | U-NII-8 | 802.11ax80 | Right Tilt | 199 | 14.12 | 14.50 | 1.091 | 0.06 | 0.259 | 0.283 | 1.92 |
| 11# | U-NII-8 | 802.11ax80 | Left Cheek | 199 | 14.12 | 14.50 | 1.091 | 0.14 | 0.350 | 0.382 | 2.35 |
| | U-NII-8 | 802.11ax80 | Left Tilt | 199 | 14.12 | 14.50 | 1.091 | -0.12 | 0.308 | 0.336 | 2.04 |
| | U-NII-8 | 802.11ax80 | Left Cheek | 215 | 13.54 | 14.00 | 1.112 | -0.03 | 0.282 | 0.314 | 1.9 |
| Full Power (ANT 5) | | | | | | | | | | | |
| | U-NII-8 | 802.11ax80 | Right Cheek | 199 | 14.41 | 15.00 | 1.146 | 0.1 | 0.027 | 0.031 | 0.181 |
| | U-NII-8 | 802.11ax80 | Right Tilt | 199 | 14.41 | 15.00 | 1.146 | -0.02 | 0.025 | 0.029 | 0.15 |
| | U-NII-8 | 802.11ax80 | Left Cheek | 199 | 14.41 | 15.00 | 1.146 | 0.19 | 0.025 | 0.029 | 0.15 |
| | U-NII-8 | 802.11ax80 | Left Tilt | 199 | 14.41 | 15.00 | 1.146 | -0.03 | 0.024 | 0.027 | 0.14 |
| | U-NII-8 | 802.11ax80 | Right Cheek | 215 | 14.00 | 14.50 | 1.122 | -0.19 | 0.023 | 0.026 | 0.136 |
| Full Power (MIMO) | | | | | | | | | | | |
| | U-NII-8 | 802.11ax160 | Right Cheek | 207 | 13.54 | 14.00 | 1.112 | 0.17 | 0.042 | 0.047 | 0.39 |
| | U-NII-8 | 802.11ax160 | Right Tilt | 207 | 13.54 | 14.00 | 1.112 | -0.04 | 0.022 | 0.025 | 0.32 |
| | U-NII-8 | 802.11ax160 | Left Cheek | 207 | 13.54 | 14.00 | 1.112 | 0.19 | 0.060 | 0.067 | 0.4 |
| | U-NII-8 | 802.11ax160 | Left Tilt | 207 | 13.54 | 14.00 | 1.112 | -0.11 | 0.027 | 0.030 | 0.34 |

**Note:** The WLAN 6GHz 802.11ax-HEW80 reported 1g SAR (W/kg) should be scaled with the duty cycle scaling factor 1.000(ANT 2 /ANT 5), WLAN 6GHz 802.11ax-HEW80 with 1.006 (MIMO) and

WLAN 6GHz 802.11ax-HEW160 with 1.000(U-NII-6/U-NII-7) & 1.009(U-NII-8).

## 17.3. Body SAR Data

➢ **DECT Body SAR**

| Plot No. | Band/Mode | Test Position | CH. | Ave. Power (dBm) | Tune-up Limit (dBm) | Tune-up Scaling Factor | Power Drift (dB) | Meas. $SAR_{1g}$ (W/kg) | Reported $SAR_{1g}$ (W/kg) |
|---|---|---|---|---|---|---|---|---|---|
| Full Power (ANT 0) | | | | | | | | | |
| | DECT / 00011 | Front Side | 3 | 20.01 | 20.20 | 1.045 | -0.12 | 0.007 | 0.007 |
| | DECT / 00011 | Back Side | 3 | 20.01 | 20.20 | 1.045 | -0.08 | 0.026 | 0.027 |
| | DECT / 00011 | Left Side | 3 | 20.01 | 20.20 | 1.045 | 0.07 | 0.011 | 0.011 |
| | DECT / 00011 | Top Side | 3 | 20.01 | 20.20 | 1.045 | -0.03 | 0.005 | 0.005 |
| | DECT / 00011 | Back Side | 1 | 19.99 | 20.20 | 1.050 | 0.02 | 0.022 | 0.023 |
| | DECT / 00011 | Back Side | 5 | 20.01 | 20.20 | 1.045 | -0.09 | 0.018 | 0.019 |
| Full Power (ANT 1) | | | | | | | | | |
| | DECT / 00011 | Front Side | 3 | 19.78 | 20.20 | 1.102 | -0.09 | 0.013 | 0.014 |
| 12# | DECT / 00011 | Back Side | 3 | 19.78 | 20.20 | 1.102 | 0.01 | 0.046 | 0.051 |
| | DECT / 00011 | Left Side | 3 | 19.78 | 20.20 | 1.102 | 0.09 | 0.038 | 0.042 |
| | DECT / 00011 | Top Side | 3 | 19.78 | 20.20 | 1.102 | -0.01 | 0.010 | 0.011 |
| | DECT / 00011 | Back Side | 1 | 19.77 | 20.20 | 1.104 | 0.13 | 0.041 | 0.045 |
| | DECT / 00011 | Back Side | 5 | 19.78 | 20.20 | 1.102 | 0.08 | 0.037 | 0.041 |

➢ **WLAN Body SAR**

| Plot No. | Band/Mode | Test Position | CH. | Ave. Power (dBm) | Tune-up Limit (dBm) | Tune-up Scaling Factor | Power Drift (dB) | Meas. $SAR_{1g}$ (W/kg) | Reported $SAR_{1g}$ (W/kg) |
|---|---|---|---|---|---|---|---|---|---|
| Full Power (ANT 3) | | | | | | | | | |
| | WLAN 2.4GHz / 802.11b | Front Side | 6 | 19.18 | 20.50 | 1.355 | -0.09 | 0.127 | 0.173 |
| | WLAN 2.4GHz / 802.11b | Back Side | 6 | 19.18 | 20.50 | 1.355 | -0.03 | 0.248 | 0.338 |
| | WLAN 2.4GHz / 802.11b | Right Side | 6 | 19.18 | 20.50 | 1.355 | 0.1 | 0.148 | 0.202 |
| | WLAN 2.4GHz / 802.11b | Top Side | 6 | 19.18 | 20.50 | 1.355 | 0.06 | 0.140 | 0.191 |
| | WLAN 2.4GHz / 802.11b | Back Side | 1 | 19.08 | 20.50 | 1.387 | 0.04 | 0.226 | 0.316 |
| | WLAN 2.4GHz / 802.11b | Back Side | 11 | 18.57 | 20.50 | 1.560 | 0.15 | 0.205 | 0.322 |
| Full Power (ANT 4) | | | | | | | | | |
| | WLAN 2.4GHz / 802.11b | Front Side | 11 | 19.16 | 20.50 | 1.361 | 0.13 | 0.109 | 0.149 |
| 13# | WLAN 2.4GHz / 802.11b | Back Side | 11 | 19.16 | 20.50 | 1.361 | -0.01 | 0.314 | 0.430 |
| | WLAN 2.4GHz / 802.11b | Right Side | 11 | 19.16 | 20.50 | 1.361 | -0.15 | 0.281 | 0.385 |
| | WLAN 2.4GHz / 802.11b | Top Side | 11 | 19.16 | 20.50 | 1.361 | -0.13 | 0.029 | 0.040 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | WLAN 2.4GHz / 802.11b | Back Side | 1 | 18.86 | 20.50 | 1.459 | -0.14 | 0.221 | 0.325 |
| | WLAN 2.4GHz / 802.11b | Back Side | 6 | 18.97 | 20.50 | 1.422 | -0.05 | 0.293 | 0.420 |
| Full Power (MIMO) | | | | | | | | | |
| | WLAN 2.4GHz / 802.11n20 | Front Side | 6 | 20.73 | 22.00 | 1.340 | 0.13 | 0.154 | 0.207 |
| | WLAN 2.4GHz / 802.11n20 | Back Side | 6 | 20.73 | 22.00 | 1.340 | 0.1 | 0.270 | 0.363 |
| | WLAN 2.4GHz / 802.11n20 | Right Side | 6 | 20.73 | 22.00 | 1.340 | -0.09 | 0.269 | 0.361 |
| | WLAN 2.4GHz / 802.11n20 | Top Side | 6 | 20.73 | 22.00 | 1.340 | -0.02 | 0.139 | 0.187 |
| | WLAN 2.4GHz / 802.11n20 | Back Side | 1 | 20.65 | 22.00 | 1.365 | 0.11 | 0.184 | 0.252 |
| | WLAN 2.4GHz / 802.11n20 | Back Side | 11 | 20.63 | 22.00 | 1.371 | 0.06 | 0.151 | 0.208 |
| Full Power (ANT 5) | | | | | | | | | |
| | WLAN 5.2GHz / 802.11a | Front Side | 44 | 18.99 | 20.00 | 1.262 | 0.06 | 0.182 | 0.231 |
| | WLAN 5.2GHz / 802.11a | Back Side | 44 | 18.99 | 20.00 | 1.262 | 0.12 | 0.266 | 0.337 |
| | WLAN 5.2GHz / 802.11a | Right Side | 44 | 18.99 | 20.00 | 1.262 | 0.12 | 0.080 | 0.101 |
| | WLAN 5.2GHz / 802.11a | Top Side | 44 | 18.99 | 20.00 | 1.262 | -0.08 | 0.073 | 0.093 |
| | WLAN 5.2GHz / 802.11a | Back Side | 36 | 18.93 | 20.00 | 1.279 | -0.12 | 0.267 | 0.343 |
| | WLAN 5.2GHz / 802.11a | Back Side | 48 | 18.92 | 20.00 | 1.282 | 0.09 | 0.283 | 0.365 |
| Full Power (ANT 2) | | | | | | | | | |
| | WLAN 5.2GHz / 802.11a | Front Side | 44 | 19.44 | 20.00 | 1.138 | -0.15 | 0.217 | 0.249 |
| 14# | WLAN 5.2GHz / 802.11a | Back Side | 44 | 19.44 | 20.00 | 1.138 | -0.09 | 0.459 | 0.527 |
| | WLAN 5.2GHz / 802.11a | Right Side | 44 | 19.44 | 20.00 | 1.138 | -0.06 | 0.254 | 0.292 |
| | WLAN 5.2GHz / 802.11a | Top Side | 44 | 19.44 | 20.00 | 1.138 | -0.15 | 0.283 | 0.325 |
| | WLAN 5.2GHz / 802.11a | Back Side | 36 | 19.25 | 20.00 | 1.189 | -0.1 | 0.426 | 0.511 |
| | WLAN 5.2GHz / 802.11a | Back Side | 48 | 19.25 | 20.00 | 1.189 | 0.13 | 0.434 | 0.521 |
| Full Power (MIMO) | | | | | | | | | |
| | WLAN 5.2GHz / 802.11n40 | Front Side | 38 | 18.53 | 19.50 | 1.250 | 0.15 | 0.086 | 0.108 |
| | WLAN 5.2GHz / 802.11n40 | Back Side | 38 | 18.53 | 19.50 | 1.250 | -0.13 | 0.259 | 0.325 |
| | WLAN 5.2GHz / 802.11n40 | Right Side | 38 | 18.53 | 19.50 | 1.250 | 0.02 | 0.098 | 0.123 |
| | WLAN 5.2GHz / 802.11n40 | Top Side | 38 | 18.53 | 19.50 | 1.250 | -0.09 | 0.119 | 0.149 |
| | WLAN 5.2GHz / 802.11n40 | Back Side | 46 | 18.50 | 19.50 | 1.259 | 0.06 | 0.272 | 0.344 |
| Full Power (ANT 5) | | | | | | | | | |
| | WLAN 5.3GHz / 802.11a | Front Side | 52 | 19.23 | 20.50 | 1.340 | 0.06 | 0.187 | 0.252 |
| | WLAN 5.3GHz / 802.11a | Back Side | 52 | 19.23 | 20.50 | 1.340 | -0.03 | 0.287 | 0.386 |
| | WLAN 5.3GHz / 802.11a | Back Side | 60 | 18.95 | 20.50 | 1.429 | -0.11 | 0.333 | 0.478 |
| | WLAN 5.3GHz / 802.11a | Back Side | 64 | 18.75 | 20.50 | 1.496 | -0.01 | 0.326 | 0.490 |
| Full Power (ANT 2) | | | | | | | | | |
| | WLAN 5.3GHz / 802.11a | Front Side | 52 | 19.22 | 20.50 | 1.343 | -0.01 | 0.171 | 0.231 |
| 15# | WLAN 5.3GHz / 802.11a | Back Side | 52 | 19.22 | 20.50 | 1.343 | 0.06 | 0.548 | 0.740 |
| | WLAN 5.3GHz / 802.11a | Back Side | 60 | 19.05 | 20.50 | 1.396 | 0.09 | 0.504 | 0.707 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | WLAN 5.3GHz / 802.11a | Back Side | 64 | 18.99 | 20.50 | 1.416 | 0.02 | 0.512 | 0.729 |
| Full Power (MIMO) | | | | | | | | | |
| | WLAN 5.3GHz / 802.11n40 | Front Side | 54 | 18.73 | 19.50 | 1.194 | 0.08 | 0.091 | 0.109 |
| | WLAN 5.3GHz / 802.11n40 | Back Side | 54 | 18.73 | 19.50 | 1.194 | 0.05 | 0.298 | 0.357 |
| | WLAN 5.3GHz / 802.11n40 | Back Side | 62 | 18.54 | 19.50 | 1.247 | -0.12 | 0.300 | 0.376 |
| Reduced Power Level 2 for simultaneous transmission (ANT 5) | | | | | | | | | |
| | WLAN 5.3GHz / 802.11a | Front Side | 52 | 17.23 | 18.50 | 1.340 | 0.04 | 0.107 | 0.144 |
| | WLAN 5.3GHz / 802.11a | Back Side | 52 | 17.23 | 18.50 | 1.340 | 0.06 | 0.164 | 0.221 |
| | WLAN 5.3GHz / 802.11a | Back Side | 60 | 16.95 | 18.50 | 1.429 | 0.02 | 0.190 | 0.273 |
| | WLAN 5.3GHz / 802.11a | Back Side | 64 | 16.75 | 18.50 | 1.496 | -0.04 | 0.178 | 0.268 |
| Reduced Power Level 2 for simultaneous transmission (ANT 2) | | | | | | | | | |
| | WLAN 5.3GHz / 802.11a | Front Side | 52 | 17.22 | 18.50 | 1.343 | -0.13 | 0.098 | 0.132 |
| | WLAN 5.3GHz / 802.11a | Back Side | 52 | 17.22 | 18.50 | 1.343 | -0.14 | 0.313 | 0.422 |
| | WLAN 5.3GHz / 802.11a | Back Side | 60 | 17.05 | 18.50 | 1.396 | 0.05 | 0.288 | 0.404 |
| | WLAN 5.3GHz / 802.11a | Back Side | 64 | 16.99 | 18.50 | 1.416 | -0.03 | 0.293 | 0.417 |
| Reduced Power Level 2 for simultaneous transmission (MIMO) | | | | | | | | | |
| | WLAN 5.3GHz / 802.11n40 | Front Side | 54 | 16.73 | 17.50 | 1.194 | 0.05 | 0.052 | 0.062 |
| | WLAN 5.3GHz / 802.11n40 | Back Side | 54 | 16.73 | 17.50 | 1.194 | -0.14 | 0.170 | 0.204 |
| | WLAN 5.3GHz / 802.11n40 | Back Side | 62 | 16.54 | 17.50 | 1.247 | 0.06 | 0.171 | 0.214 |
| Full Power (ANT 5) | | | | | | | | | |
| | WLAN 5.5GHz / 802.11a | Front Side | 100 | 19.30 | 20.50 | 1.318 | 0.01 | 0.193 | 0.256 |
| 16# | WLAN 5.5GHz / 802.11a | Back Side | 100 | 19.30 | 20.50 | 1.318 | 0.08 | 0.557 | 0.738 |
| | WLAN 5.5GHz / 802.11a | Back Side | 116 | 18.76 | 20.50 | 1.493 | -0.01 | 0.453 | 0.680 |
| | WLAN 5.5GHz / 802.11a | Back Side | 144 | 18.71 | 20.50 | 1.510 | 0.13 | 0.439 | 0.666 |
| Full Power (ANT 2) | | | | | | | | | |
| | WLAN 5.5GHz / 802.11a | Front Side | 100 | 19.71 | 20.50 | 1.199 | -0.06 | 0.236 | 0.286 |
| | WLAN 5.5GHz / 802.11a | Back Side | 100 | 19.71 | 20.50 | 1.199 | -0.14 | 0.524 | 0.635 |
| | WLAN 5.5GHz / 802.11a | Back Side | 116 | 19.05 | 20.50 | 1.396 | 0.01 | 0.466 | 0.657 |
| | WLAN 5.5GHz / 802.11a | Back Side | 144 | 19.33 | 20.50 | 1.309 | -0.04 | 0.378 | 0.500 |
| Full Power (MIMO) | | | | | | | | | |
| | WLAN 5.5GHz / 802.11n40 | Front Side | 102 | 19.02 | 20.00 | 1.253 | 0.12 | 0.198 | 0.249 |
| | WLAN 5.5GHz / 802.11n40 | Back Side | 102 | 19.02 | 20.00 | 1.253 | 0.14 | 0.286 | 0.360 |
| | WLAN 5.5GHz / 802.11n40 | Back Side | 110 | 18.95 | 20.00 | 1.274 | 0.07 | 0.215 | 0.275 |
| | WLAN 5.5GHz / 802.11n40 | Back Side | 142 | 18.71 | 20.00 | 1.346 | 0.05 | 0.198 | 0.268 |
| Reduced Power Level 2 for simultaneous transmission (ANT 5) | | | | | | | | | |
| | WLAN 5.5GHz / 802.11a | Front Side | 100 | 17.30 | 18.50 | 1.318 | 0.05 | 0.111 | 0.147 |
| | WLAN 5.5GHz / 802.11a | Back Side | 100 | 17.30 | 18.50 | 1.318 | 0.06 | 0.315 | 0.417 |
| | WLAN 5.5GHz / 802.11a | Back Side | 116 | 16.76 | 18.50 | 1.493 | 0.09 | 0.262 | 0.393 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | WLAN 5.5GHz / 802.11a | Back Side | 144 | 16.71 | 18.50 | 1.510 | -0.06 | 0.258 | 0.392 |
| Reduced Power Level 2 for simultaneous transmission (ANT 2) | | | | | | | | | |
| | WLAN 5.5GHz / 802.11a | Front Side | 100 | 17.71 | 18.50 | 1.199 | -0.15 | 0.135 | 0.164 |
| | WLAN 5.5GHz / 802.11a | Back Side | 100 | 17.71 | 18.50 | 1.199 | 0.09 | 0.299 | 0.362 |
| | WLAN 5.5GHz / 802.11a | Back Side | 116 | 17.05 | 18.50 | 1.396 | 0.12 | 0.266 | 0.375 |
| | WLAN 5.5GHz / 802.11a | Back Side | 144 | 17.33 | 18.50 | 1.309 | -0.08 | 0.216 | 0.286 |
| Reduced Power Level 2 for simultaneous transmission (MIMO) | | | | | | | | | |
| | WLAN 5.5GHz / 802.11n40 | Front Side | 102 | 17.02 | 18.00 | 1.253 | -0.05 | 0.113 | 0.142 |
| | WLAN 5.5GHz / 802.11n40 | Back Side | 102 | 17.02 | 18.00 | 1.253 | 0.02 | 0.163 | 0.205 |
| | WLAN 5.5GHz / 802.11n40 | Back Side | 110 | 16.95 | 18.00 | 1.274 | -0.06 | 0.123 | 0.157 |
| | WLAN 5.5GHz / 802.11n40 | Back Side | 142 | 16.71 | 18.00 | 1.346 | 0.12 | 0.113 | 0.153 |
| Full Power (ANT 5) | | | | | | | | | |
| | WLAN 5.8GHz / 802.11a | Front Side | 149 | 18.25 | 19.00 | 1.189 | 0.14 | 0.136 | 0.162 |
| 17# | WLAN 5.8GHz / 802.11a | Back Side | 149 | 18.25 | 19.00 | 1.189 | -0.09 | 0.445 | 0.532 |
| | WLAN 5.8GHz / 802.11a | Right Side | 149 | 18.25 | 19.00 | 1.189 | 0.03 | 0.103 | 0.123 |
| | WLAN 5.8GHz / 802.11a | Top Side | 149 | 18.25 | 19.00 | 1.189 | -0.1 | 0.072 | 0.086 |
| | WLAN 5.8GHz / 802.11a | Back Side | 157 | 18.16 | 19.00 | 1.213 | 0.01 | 0.411 | 0.501 |
| | WLAN 5.8GHz / 802.11a | Back Side | 165 | 17.64 | 19.00 | 1.368 | -0.05 | 0.372 | 0.511 |
| Full Power (ANT 2) | | | | | | | | | |
| | WLAN 5.8GHz / 802.11a | Front Side | 149 | 19.59 | 20.50 | 1.233 | -0.07 | 0.196 | 0.243 |
| | WLAN 5.8GHz / 802.11a | Back Side | 149 | 19.59 | 20.50 | 1.233 | -0.06 | 0.356 | 0.441 |
| | WLAN 5.8GHz / 802.11a | Right Side | 149 | 19.59 | 20.50 | 1.233 | 0.02 | 0.205 | 0.254 |
| | WLAN 5.8GHz / 802.11a | Top Side | 149 | 19.59 | 20.50 | 1.233 | 0.13 | 0.213 | 0.264 |
| | WLAN 5.8GHz / 802.11a | Back Side | 157 | 19.26 | 20.50 | 1.330 | -0.08 | 0.330 | 0.441 |
| | WLAN 5.8GHz / 802.11a | Back Side | 165 | 18.91 | 20.50 | 1.442 | 0.1 | 0.250 | 0.362 |
| Full Power (MIMO) | | | | | | | | | |
| | WLAN 5.8GHz / 802.11n40 | Front Side | 151 | 18.73 | 19.50 | 1.194 | -0.14 | 0.071 | 0.085 |
| | WLAN 5.8GHz / 802.11n40 | Back Side | 151 | 18.73 | 19.50 | 1.194 | 0.02 | 0.206 | 0.247 |
| | WLAN 5.8GHz / 802.11n40 | Right Side | 151 | 18.73 | 19.50 | 1.194 | 0.04 | 0.200 | 0.240 |
| | WLAN 5.8GHz / 802.11n40 | Top Side | 151 | 18.73 | 19.50 | 1.194 | -0.13 | 0.095 | 0.114 |
| | WLAN 5.8GHz / 802.11n40 | Back Side | 159 | 18.54 | 19.50 | 1.247 | -0.01 | 0.214 | 0.268 |
| Full Power (ANT 3) | | | | | | | | | |
| | Bluetooth/DH5 | Front Side | 39 | 8.12 | 9.00 | 1.225 | -0.14 | 0.033 | 0.044 |
| 18# | Bluetooth/DH5 | Back Side | 39 | 8.12 | 9.00 | 1.225 | 0.02 | 0.054 | 0.072 |
| | Bluetooth/DH5 | Right Side | 39 | 8.12 | 9.00 | 1.225 | -0.15 | 0.040 | 0.053 |
| | Bluetooth/DH5 | Top Side | 39 | 8.12 | 9.00 | 1.225 | -0.07 | 0.028 | 0.037 |
| | Bluetooth/DH5 | Back Side | 0 | 7.23 | 8.00 | 1.194 | 0.12 | 0.049 | 0.063 |
| | Bluetooth/DH5 | Back Side | 78 | 5.60 | 6.50 | 1.230 | -0.06 | 0.037 | 0.049 |

**Note:**

1. The 2.4G WLAN 802.11b reported 1g SAR (W/kg) should be scaled with the duty cycle scaling factor 1.007(ANT 3/ANT 4) & 1.003 (MIMO).
2. The 5G WLAN 802.11a reported 1g SAR (W/kg) should be scaled with the duty cycle scaling factor 1.005(ANT 5), 5.2/5.5G WLAN 802.11a with 1.010 (ANT 2), 5.3/5.8G WLAN 802.11a with 1.005 (ANT 2) and 5G WLAN 802.11n40 with 1.004 (MIMO).
3. According to 2016 Oct. TCB workshop for Bluetooth SAR consideration and the theoretical duty cycle is 83.3%, therefore the actual duty cycle will be scaled up to the theoretical value of Bluetooth reported SAR calculation. The duty cycle of Bluetooth is 76.96 %, Therefore the duty cycle scaling factor 1.082 should be used to calculating the reported SAR.

➢ **WLAN 6GHz Body SAR**

| Plot No. | Band | Mode | Test Position | CH. | Ave. Power (dBm) | Tune-up Limit (dBm) | Tune-up Scaling Factor | Power Drift (dB) | Meas. $SAR_{1g}$ (W/kg) | Reported $SAR_{1g}$ (W/kg) | Meas. $4cm^2$APD ($W/m^2$) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Full Power (ANT 2) | | | | | | | | | | | |
| | U-NII-5 | 802.11ax80 | Front Side | 87 | 13.05 | 13.50 | 1.109 | 0.07 | 0.094 | 0.104 | 0.76 |
| | U-NII-5 | 802.11ax80 | Back Side | 87 | 13.05 | 13.50 | 1.109 | 0.09 | 0.207 | 0.230 | 1.67 |
| | U-NII-5 | 802.11ax80 | Back Side | 7 | 12.85 | 13.50 | 1.161 | -0.02 | 0.201 | 0.233 | 1.52 |
| | U-NII-5 | 802.11ax80 | Back Side | 55 | 12.03 | 12.50 | 1.114 | 0.01 | 0.179 | 0.199 | 1.44 |
| Reduced Power Level 2 for simultaneous transmission (ANT 2) | | | | | | | | | | | |
| | U-NII-5 | 802.11ax80 | Front Side | 87 | 10.05 | 10.50 | 1.109 | -0.07 | 0.047 | 0.052 | 0.381 |
| | U-NII-5 | 802.11ax80 | Back Side | 87 | 10.05 | 10.50 | 1.109 | 0.19 | 0.104 | 0.115 | 0.839 |
| | U-NII-5 | 802.11ax80 | Back Side | 7 | 9.85 | 10.50 | 1.161 | 0.13 | 0.101 | 0.117 | 0.763 |
| | U-NII-5 | 802.11ax80 | Back Side | 55 | 9.03 | 9.50 | 1.114 | -0.14 | 0.090 | 0.100 | 0.723 |
| Full Power (ANT 5) | | | | | | | | | | | |
| | U-NII-5 | 802.11ax80 | Front Side | 87 | 14.57 | 15.00 | 1.104 | -0.01 | 0.117 | 0.129 | 0.94 |
| | U-NII-5 | 802.11ax80 | Back Side | 87 | 14.57 | 15.00 | 1.104 | -0.01 | 0.171 | 0.189 | 1.37 |
| | U-NII-5 | 802.11ax80 | Back Side | 7 | 14.37 | 15.00 | 1.156 | -0.15 | 0.081 | 0.094 | 0.65 |
| | U-NII-5 | 802.11ax80 | Back Side | 55 | 14.52 | 15.00 | 1.117 | -0.09 | 0.100 | 0.112 | 0.81 |
| Reduced Power Level 2 for simultaneous transmission (ANT 5) | | | | | | | | | | | |
| | U-NII-5 | 802.11ax80 | Front Side | 87 | 11.57 | 12.00 | 1.104 | -0.07 | 0.047 | 0.052 | 0.377 |
| | U-NII-5 | 802.11ax80 | Back Side | 87 | 11.57 | 12.00 | 1.104 | 0.04 | 0.068 | 0.075 | 0.551 |
| | U-NII-5 | 802.11ax80 | Back Side | 7 | 11.37 | 12.00 | 1.156 | -0.08 | 0.032 | 0.037 | 0.261 |
| | U-NII-5 | 802.11ax80 | Back Side | 55 | 11.52 | 12.00 | 1.117 | 0.09 | 0.040 | 0.045 | 0.325 |
| Full Power (MIMO) | | | | | | | | | | | |
| | U-NII-5 | 802.11ax160 | Front Side | 79 | 13.78 | 14.00 | 1.052 | 0.15 | 0.079 | 0.083 | 0.63 |
| | U-NII-5 | 802.11ax160 | Back Side | 79 | 13.78 | 14.00 | 1.052 | 0.06 | 0.126 | 0.133 | 1.01 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 19# | U-NII-5 | 802.11ax160 | Back Side | 15 | 13.45 | 14.00 | 1.135 | -0.01 | 0.231 | 0.262 | 1.85 |
| | U-NII-5 | 802.11ax160 | Back Side | 47 | 13.61 | 14.00 | 1.094 | -0.03 | 0.138 | 0.151 | 1.1 |
| Reduced Power Level 2 for simultaneous transmission (MIMO) | | | | | | | | | | | |
| | U-NII-5 | 802.11ax160 | Front Side | 79 | 10.78 | 11.00 | 1.052 | 0.15 | 0.026 | 0.027 | 0.432 |
| | U-NII-5 | 802.11ax160 | Back Side | 79 | 10.78 | 11.00 | 1.052 | 0.06 | 0.042 | 0.044 | 0.49 |
| | U-NII-5 | 802.11ax160 | Back Side | 15 | 10.45 | 11.00 | 1.135 | -0.01 | 0.083 | 0.094 | 0.628 |
| | U-NII-5 | 802.11ax160 | Back Side | 47 | 10.61 | 11.00 | 1.094 | -0.03 | 0.048 | 0.053 | 0.318 |
| Full Power (ANT 2) | | | | | | | | | | | |
| | U-NII-6 | 802.11ax80 | Front Side | 103 | 13.36 | 14.00 | 1.159 | -0.14 | 0.098 | 0.114 | 0.79 |
| | U-NII-6 | 802.11ax80 | Back Side | 103 | 13.36 | 14.00 | 1.159 | -0.02 | 0.140 | 0.162 | 1.11 |
| Reduced Power Level 2 for simultaneous transmission (ANT 2) | | | | | | | | | | | |
| | U-NII-6 | 802.11ax80 | Front Side | 103 | 9.36 | 10.00 | 1.159 | 0.18 | 0.040 | 0.046 | 0.316 |
| | U-NII-6 | 802.11ax80 | Back Side | 103 | 9.36 | 10.00 | 1.159 | 0.03 | 0.056 | 0.065 | 0.444 |
| Full Power (ANT 5) | | | | | | | | | | | |
| | U-NII-6 | 802.11ax80 | Front Side | 103 | 15.50 | 16.00 | 1.122 | -0.15 | 0.069 | 0.077 | 0.55 |
| 20# | U-NII-6 | 802.11ax80 | Back Side | 103 | 15.50 | 16.00 | 1.122 | -0.04 | 0.155 | 0.174 | 1.23 |
| Reduced Power Level 2 for simultaneous transmission (ANT 5) | | | | | | | | | | | |
| | U-NII-6 | 802.11ax80 | Front Side | 103 | 11.50 | 12.00 | 1.122 | -0.19 | 0.028 | 0.031 | 0.22 |
| | U-NII-6 | 802.11ax80 | Back Side | 103 | 11.50 | 12.00 | 1.122 | -0.02 | 0.062 | 0.070 | 0.492 |
| Full Power (MIMO) | | | | | | | | | | | |
| | U-NII-6 | 802.11ax80 | Front Side | 103 | 14.96 | 15.50 | 1.132 | 0.02 | 0.083 | 0.095 | 0.66 |
| | U-NII-6 | 802.11ax80 | Back Side | 103 | 14.96 | 15.50 | 1.132 | 0.1 | 0.122 | 0.139 | 0.97 |
| Reduced Power Level 2 for simultaneous transmission (MIMO) | | | | | | | | | | | |
| | U-NII-6 | 802.11ax80 | Front Side | 103 | 10.96 | 11.50 | 1.132 | 0.02 | 0.030 | 0.034 | 0.59 |
| | U-NII-6 | 802.11ax80 | Back Side | 103 | 10.96 | 11.50 | 1.132 | 0.1 | 0.044 | 0.050 | 0.385 |
| Full Power (ANT 2) | | | | | | | | | | | |
| | U-NII-7 | 802.11ax160 | Front Side | 143 | 13.59 | 14.00 | 1.099 | 0.15 | 0.110 | 0.121 | 0.86 |
| | U-NII-7 | 802.11ax160 | Back Side | 143 | 13.59 | 14.00 | 1.099 | 0.07 | 0.132 | 0.145 | 1.03 |
| Reduced Power Level 2 for simultaneous transmission (ANT 2) | | | | | | | | | | | |
| | U-NII-7 | 802.11ax160 | Front Side | 143 | 10.59 | 11.00 | 1.099 | -0.11 | 0.044 | 0.048 | 0.344 |
| | U-NII-7 | 802.11ax160 | Back Side | 143 | 10.59 | 11.00 | 1.099 | 0.08 | 0.053 | 0.058 | 0.412 |
| Full Power (ANT 5) | | | | | | | | | | | |
| | U-NII-7 | 802.11ax80 | Front Side | 167 | 14.15 | 14.50 | 1.084 | 0.13 | 0.100 | 0.108 | 0.78 |
| 21# | U-NII-7 | 802.11ax80 | Back Side | 167 | 14.15 | 14.50 | 1.084 | -0.05 | 0.152 | 0.165 | 1.19 |
| | U-NII-7 | 802.11ax80 | Back Side | 135 | 13.95 | 14.50 | 1.135 | 0.01 | 0.112 | 0.127 | 0.87 |
| | U-NII-7 | 802.11ax80 | Back Side | 151 | 12.25 | 12.50 | 1.059 | -0.18 | 0.110 | 0.117 | 0.86 |
| Reduced Power Level 2 for simultaneous transmission (ANT 5) | | | | | | | | | | | |
| | U-NII-7 | 802.11ax80 | Front Side | 167 | 10.15 | 10.50 | 1.084 | -0.12 | 0.039 | 0.042 | 0.312 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | U-NII-7 | 802.11ax80 | Back Side | 167 | 10.15 | 10.50 | 1.084 | 0.11 | 0.061 | 0.066 | 0.476 |
| | U-NII-7 | 802.11ax80 | Back Side | 135 | 9.95 | 10.50 | 1.135 | 0.15 | 0.045 | 0.051 | 0.348 |
| | U-NII-7 | 802.11ax80 | Back Side | 151 | 8.25 | 8.50 | 1.059 | -0.03 | 0.044 | 0.047 | 0.344 |
| Full Power (MIMO) | | | | | | | | | | | |
| | U-NII-7 | 802.11ax160 | Front Side | 143 | 14.15 | 14.50 | 1.084 | -0.11 | 0.073 | 0.079 | 0.56 |
| | U-NII-7 | 802.11ax160 | Back Side | 143 | 14.15 | 14.50 | 1.084 | -0.16 | 0.077 | 0.083 | 0.61 |
| Reduced Power Level 2 for simultaneous transmission (MIMO) | | | | | | | | | | | |
| | U-NII-7 | 802.11ax160 | Front Side | 143 | 11.15 | 11.50 | 1.084 | -0.11 | 0.025 | 0.027 | 0.465 |
| | U-NII-7 | 802.11ax160 | Back Side | 143 | 11.15 | 11.50 | 1.084 | -0.16 | 0.026 | 0.028 | 0.52 |
| Full Power (ANT 2) | | | | | | | | | | | |
| | U-NII-8 | 802.11ax80 | Front Side | 199 | 14.12 | 14.50 | 1.091 | 0.13 | 0.059 | 0.064 | 0.47 |
| | U-NII-8 | 802.11ax80 | Back Side | 199 | 14.12 | 14.50 | 1.091 | 0.17 | 0.077 | 0.084 | 0.618 |
| 22# | U-NII-8 | 802.11ax80 | Back Side | 215 | 13.54 | 14.00 | 1.112 | 0.18 | 0.091 | 0.101 | 0.731 |
| Full Power (ANT 5) | | | | | | | | | | | |
| | U-NII-8 | 802.11ax80 | Front Side | 199 | 14.41 | 15.00 | 1.146 | -0.11 | 0.036 | 0.041 | 0.286 |
| | U-NII-8 | 802.11ax80 | Back Side | 199 | 14.41 | 15.00 | 1.146 | 0.16 | 0.068 | 0.078 | 0.545 |
| | U-NII-8 | 802.11ax80 | Back Side | 215 | 14.00 | 14.50 | 1.122 | -0.05 | 0.065 | 0.073 | 0.522 |
| Full Power (MIMO) | | | | | | | | | | | |
| | U-NII-8 | 802.11ax160 | Front Side | 207 | 13.54 | 14.00 | 1.112 | -0.05 | 0.074 | 0.083 | 0.598 |
| | U-NII-8 | 802.11ax160 | Back Side | 207 | 13.54 | 14.00 | 1.112 | -0.17 | 0.053 | 0.059 | 0.425 |

**Note:** The WLAN 6GHz 802.11ax-HEW80 reported 1g SAR (W/kg) should be scaled with the duty cycle scaling factor 1.000(ANT 2 /ANT 5), WLAN 6GHz 802.11ax-HEW80 with 1.006 (MIMO) and WLAN 6GHz 802.11ax-HEW160 with 1.000(U-NII-6/U-NII-7) & 1.009(U-NII-8).

## 17.4. Extremity SAR Assessment

➢ **General Guidance**

1. According to KDB 648474 D04v01r03 The UMPC mini-tablet procedures must also be applied to test the SAR of all surfaces and edges with an antenna located at ≤ 25 mm from that surface or edge, in direct contact with a flat phantom, for 10-g extremity SAR according to the body-equivalent tissue dielectric parameters in KDB Publication 865664 D01 to address interactive hand use exposure conditions.
2. When hotspot mode applies, 10-g extremity SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg.
3. According to the user manual, the EUT diagonal size is greater than 16cm, therefore the 0mm extremity SAR of WLAN is required.

➢ **Test Results for WLAN 5GHz**

| Plot No. | Band/Mode | Test Position | CH. | Ave. Power (dBm) | Tune-up Limit (dBm) | Tune-up Scaling Factor | Power Drift (dB) | Meas. $SAR_{10g}$ (W/kg) | Reported $SAR_{10g}$ (W/kg) |
|---|---|---|---|---|---|---|---|---|---|
| Full Power (ANT 5) | | | | | | | | | |
| | WLAN 5.3GHz / 802.11a | Front Side | 52 | 19.23 | 20.50 | 1.340 | -0.13 | 0.151 | 0.203 |
| | WLAN 5.3GHz / 802.11a | Back Side | 52 | 19.23 | 20.50 | 1.340 | 0.11 | 0.422 | 0.568 |
| | WLAN 5.3GHz / 802.11a | Back Side | 60 | 18.95 | 20.50 | 1.429 | -0.05 | 0.451 | 0.648 |
| | WLAN 5.3GHz / 802.11a | Back Side | 64 | 18.75 | 20.50 | 1.496 | -0.01 | 0.486 | 0.731 |
| Full Power (ANT 2) | | | | | | | | | |
| | WLAN 5.3GHz / 802.11a | Front Side | 52 | 19.22 | 20.50 | 1.343 | -0.14 | 0.249 | 0.336 |
| 23# | WLAN 5.3GHz / 802.11a | Back Side | 52 | 19.22 | 20.50 | 1.343 | 0.14 | 0.604 | 0.815 |
| | WLAN 5.3GHz / 802.11a | Back Side | 60 | 19.05 | 20.50 | 1.396 | -0.15 | 0.575 | 0.807 |
| | WLAN 5.3GHz / 802.11a | Back Side | 64 | 18.99 | 20.50 | 1.416 | -0.11 | 0.558 | 0.794 |
| Full Power (MIMO) | | | | | | | | | |
| | WLAN 5.3GHz / 802.11n40 | Front Side | 54 | 18.73 | 19.50 | 1.194 | 0.01 | 0.112 | 0.134 |
| | WLAN 5.3GHz / 802.11n40 | Back Side | 54 | 18.73 | 19.50 | 1.194 | -0.07 | 0.398 | 0.477 |
| | WLAN 5.3GHz / 802.11n40 | Back Side | 62 | 18.54 | 19.50 | 1.247 | -0.03 | 0.401 | 0.502 |
| Reduced Power Level 2 for simultaneous transmission (ANT 5) | | | | | | | | | |
| | WLAN 5.3GHz / 802.11a | Front Side | 52 | 17.23 | 18.50 | 1.340 | -0.06 | 0.086 | 0.116 |
| | WLAN 5.3GHz / 802.11a | Back Side | 52 | 17.23 | 18.50 | 1.340 | -0.13 | 0.241 | 0.324 |
| | WLAN 5.3GHz / 802.11a | Back Side | 60 | 16.95 | 18.50 | 1.429 | 0.09 | 0.258 | 0.370 |
| | WLAN 5.3GHz / 802.11a | Back Side | 64 | 16.75 | 18.50 | 1.496 | 0.01 | 0.278 | 0.418 |
| Reduced Power Level 2 for simultaneous transmission (ANT 2) | | | | | | | | | |
| | WLAN 5.3GHz / 802.11a | Front Side | 52 | 17.22 | 18.50 | 1.343 | -0.12 | 0.142 | 0.192 |
| | WLAN 5.3GHz / 802.11a | Back Side | 52 | 17.22 | 18.50 | 1.343 | -0.11 | 0.345 | 0.466 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | WLAN 5.3GHz / 802.11a | Back Side | 60 | 17.05 | 18.50 | 1.396 | -0.11 | 0.329 | 0.462 |
| | WLAN 5.3GHz / 802.11a | Back Side | 64 | 16.99 | 18.50 | 1.416 | -0.15 | 0.319 | 0.454 |
| Reduced Power Level 2 for simultaneous transmission (MIMO) | | | | | | | | | |
| | WLAN 5.3GHz / 802.11n40 | Front Side | 54 | 16.73 | 17.50 | 1.194 | 0.11 | 0.064 | 0.077 |
| | WLAN 5.3GHz / 802.11n40 | Back Side | 54 | 16.73 | 17.50 | 1.194 | -0.04 | 0.227 | 0.272 |
| | WLAN 5.3GHz / 802.11n40 | Back Side | 62 | 16.54 | 17.50 | 1.247 | -0.11 | 0.229 | 0.287 |
| Full Power (ANT 5) | | | | | | | | | |
| | WLAN 5.5GHz / 802.11a | Front Side | 100 | 19.30 | 20.50 | 1.318 | -0.03 | 0.278 | 0.369 |
| 24# | WLAN 5.5GHz / 802.11a | Back Side | 100 | 19.30 | 20.50 | 1.318 | 0.11 | 0.567 | 0.751 |
| | WLAN 5.5GHz / 802.11a | Back Side | 116 | 18.76 | 20.50 | 1.493 | -0.05 | 0.483 | 0.725 |
| | WLAN 5.5GHz / 802.11a | Back Side | 144 | 18.71 | 20.50 | 1.510 | 0.04 | 0.491 | 0.745 |
| Full Power (ANT 2) | | | | | | | | | |
| | WLAN 5.5GHz / 802.11a | Front Side | 100 | 19.71 | 20.50 | 1.199 | 0.01 | 0.144 | 0.174 |
| | WLAN 5.5GHz / 802.11a | Back Side | 100 | 19.71 | 20.50 | 1.199 | -0.14 | 0.537 | 0.651 |
| | WLAN 5.5GHz / 802.11a | Back Side | 116 | 19.05 | 20.50 | 1.396 | 0.07 | 0.493 | 0.695 |
| | WLAN 5.5GHz / 802.11a | Back Side | 144 | 19.33 | 20.50 | 1.309 | -0.04 | 0.480 | 0.635 |
| Full Power (MIMO) | | | | | | | | | |
| | WLAN 5.5GHz / 802.11n40 | Front Side | 102 | 19.02 | 20.00 | 1.253 | -0.14 | 0.136 | 0.171 |
| | WLAN 5.5GHz / 802.11n40 | Back Side | 102 | 19.02 | 20.00 | 1.253 | -0.15 | 0.335 | 0.421 |
| | WLAN 5.5GHz / 802.11n40 | Back Side | 110 | 18.95 | 20.00 | 1.274 | 0.14 | 0.256 | 0.327 |
| | WLAN 5.5GHz / 802.11n40 | Back Side | 142 | 18.71 | 20.00 | 1.346 | 0.03 | 0.271 | 0.366 |
| Reduced Power Level 2 for simultaneous transmission (ANT 5) | | | | | | | | | |
| | WLAN 5.5GHz / 802.11a | Front Side | 100 | 17.30 | 18.50 | 1.318 | -0.09 | 0.082 | 0.109 |
| | WLAN 5.5GHz / 802.11a | Back Side | 100 | 17.30 | 18.50 | 1.318 | -0.09 | 0.364 | 0.482 |
| | WLAN 5.5GHz / 802.11a | Back Side | 116 | 16.76 | 18.50 | 1.493 | -0.02 | 0.316 | 0.474 |
| | WLAN 5.5GHz / 802.11a | Back Side | 144 | 16.71 | 18.50 | 1.510 | -0.13 | 0.309 | 0.469 |
| Reduced Power Level 2 for simultaneous transmission (ANT 2) | | | | | | | | | |
| | WLAN 5.5GHz / 802.11a | Front Side | 100 | 17.71 | 18.50 | 1.199 | 0.14 | 0.159 | 0.193 |
| | WLAN 5.5GHz / 802.11a | Back Side | 100 | 17.71 | 18.50 | 1.199 | -0.07 | 0.324 | 0.393 |
| | WLAN 5.5GHz / 802.11a | Back Side | 116 | 17.05 | 18.50 | 1.396 | -0.11 | 0.276 | 0.389 |
| | WLAN 5.5GHz / 802.11a | Back Side | 144 | 17.33 | 18.50 | 1.309 | 0.09 | 0.281 | 0.372 |
| Reduced Power Level 2 for simultaneous transmission (MIMO) | | | | | | | | | |
| | WLAN 5.5GHz / 802.11n40 | Front Side | 102 | 17.02 | 18.00 | 1.253 | -0.02 | 0.078 | 0.098 |
| | WLAN 5.5GHz / 802.11n40 | Back Side | 102 | 17.02 | 18.00 | 1.253 | 0.02 | 0.191 | 0.240 |
| | WLAN 5.5GHz / 802.11n40 | Back Side | 110 | 16.95 | 18.00 | 1.274 | 0.12 | 0.146 | 0.187 |
| | WLAN 5.5GHz / 802.11n40 | Back Side | 142 | 16.71 | 18.00 | 1.346 | 0.07 | 0.155 | 0.209 |

- **Test Results for WLAN 6GHz**

| Plot No. | Band | Mode | Test Position | CH. | Ave. Power (dBm) | Tune-up Limit (dBm) | Tune-up Scaling Factor | Power Drift (dB) | Meas. $SAR_{10g}$ (W/kg) | Reported $SAR_{10g}$ (W/kg) | Meas. $4cm^2$APD ($W/m^2$) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Full Power (ANT 2) | | | | | | | | | | | |
| | U-NII-5 | 802.11ax80 | Front Side | 87 | 13.05 | 13.50 | 1.109 | 0.07 | 0.097 | 0.108 | 3.34 |
| | U-NII-5 | 802.11ax80 | Back Side | 87 | 13.05 | 13.50 | 1.109 | -0.07 | 0.354 | 0.393 | 7.36 |
| | U-NII-5 | 802.11ax80 | Back Side | 7 | 12.85 | 13.50 | 1.161 | 0 | 0.331 | 0.384 | 7.15 |
| | U-NII-5 | 802.11ax80 | Back Side | 55 | 12.03 | 12.50 | 1.114 | -0.17 | 0.320 | 0.357 | 6.37 |
| Reduced Power Level 2 for simultaneous transmission (ANT 2) | | | | | | | | | | | |
| | U-NII-5 | 802.11ax80 | Front Side | 87 | 10.05 | 10.50 | 1.109 | 0.09 | 0.040 | 0.044 | 1.336 |
| | U-NII-5 | 802.11ax80 | Back Side | 87 | 10.05 | 10.50 | 1.109 | 0.14 | 0.141 | 0.156 | 2.94 |
| | U-NII-5 | 802.11ax80 | Back Side | 7 | 9.85 | 10.50 | 1.161 | -0.15 | 0.132 | 0.153 | 2.86 |
| | U-NII-5 | 802.11ax80 | Back Side | 55 | 9.03 | 9.50 | 1.114 | 0.13 | 0.127 | 0.142 | 2.54 |
| Full Power (ANT 5) | | | | | | | | | | | |
| | U-NII-5 | 802.11ax80 | Front Side | 87 | 14.57 | 15.00 | 1.104 | 0.12 | 0.102 | 0.113 | 4.22 |
| | U-NII-5 | 802.11ax80 | Back Side | 87 | 14.57 | 15.00 | 1.104 | 0.18 | 0.315 | 0.348 | 6.08 |
| | U-NII-5 | 802.11ax80 | Back Side | 7 | 14.37 | 15.00 | 1.156 | 0.06 | 0.155 | 0.179 | 2.88 |
| | U-NII-5 | 802.11ax80 | Back Side | 55 | 14.52 | 15.00 | 1.117 | -0.14 | 0.169 | 0.189 | 3.55 |
| Reduced Power Level 2 for simultaneous transmission (ANT 5) | | | | | | | | | | | |
| | U-NII-5 | 802.11ax80 | Front Side | 87 | 11.57 | 12.00 | 1.104 | 0.12 | 0.040 | 0.044 | 1.688 |
| | U-NII-5 | 802.11ax80 | Back Side | 87 | 11.57 | 12.00 | 1.104 | 0.18 | 0.125 | 0.138 | 2.432 |
| | U-NII-5 | 802.11ax80 | Back Side | 7 | 11.37 | 12.00 | 1.156 | 0.06 | 0.062 | 0.072 | 1.152 |
| | U-NII-5 | 802.11ax80 | Back Side | 55 | 11.52 | 12.00 | 1.117 | -0.08 | 0.067 | 0.075 | 1.42 |
| Full Power (MIMO) | | | | | | | | | | | |
| | U-NII-5 | 802.11ax160 | Front Side | 79 | 13.78 | 14.00 | 1.052 | -0.04 | 0.077 | 0.081 | 2.88 |
| | U-NII-5 | 802.11ax160 | Back Side | 79 | 13.78 | 14.00 | 1.052 | 0.14 | 0.242 | 0.255 | 4.48 |
| 25# | U-NII-5 | 802.11ax160 | Back Side | 15 | 13.45 | 14.00 | 1.135 | -0.02 | 0.358 | 0.406 | 8.22 |
| | U-NII-5 | 802.11ax160 | Back Side | 47 | 13.61 | 14.00 | 1.094 | -0.12 | 0.257 | 0.281 | 5.13 |
| Reduced Power Level 2 for simultaneous transmission (MIMO) | | | | | | | | | | | |
| | U-NII-5 | 802.11ax160 | Front Side | 79 | 10.78 | 11.00 | 1.052 | -0.04 | 0.031 | 0.033 | 1.16 |
| | U-NII-5 | 802.11ax160 | Back Side | 79 | 10.78 | 11.00 | 1.052 | 0.14 | 0.098 | 0.103 | 1.81 |
| | U-NII-5 | 802.11ax160 | Back Side | 15 | 10.45 | 11.00 | 1.135 | -0.02 | 0.144 | 0.163 | 3.31 |
| | U-NII-5 | 802.11ax160 | Back Side | 47 | 10.61 | 11.00 | 1.094 | -0.12 | 0.105 | 0.115 | 2.07 |
| Full Power (ANT 2) | | | | | | | | | | | |
| | U-NII-6 | 802.11ax80 | Front Side | 103 | 13.36 | 14.00 | 1.159 | -0.02 | 0.101 | 0.117 | 3.52 |
| | U-NII-6 | 802.11ax80 | Back Side | 103 | 13.36 | 14.00 | 1.159 | -0.12 | 0.235 | 0.272 | 5.04 |
| Reduced Power Level 2 for simultaneous transmission (ANT 2) | | | | | | | | | | | |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | U-NII-6 | 802.11ax80 | Front Side | 103 | 9.36 | 10.00 | 1.159 | -0.15 | 0.041 | 0.048 | 1.408 |
| | U-NII-6 | 802.11ax80 | Back Side | 103 | 9.36 | 10.00 | 1.159 | 0.12 | 0.096 | 0.111 | 2.016 |
| Full Power (ANT 5) | | | | | | | | | | | |
| | U-NII-6 | 802.11ax80 | Front Side | 103 | 15.50 | 16.00 | 1.122 | 0.13 | 0.072 | 0.081 | 2.48 |
| 26# | U-NII-6 | 802.11ax80 | Back Side | 103 | 15.50 | 16.00 | 1.122 | -0.08 | 0.246 | 0.276 | 5.58 |
| Reduced Power Level 2 for simultaneous transmission (ANT 5) | | | | | | | | | | | |
| | U-NII-6 | 802.11ax80 | Front Side | 103 | 11.50 | 12.00 | 1.122 | 0.14 | 0.030 | 0.034 | 0.992 |
| | U-NII-6 | 802.11ax80 | Back Side | 103 | 11.50 | 12.00 | 1.122 | 0.05 | 0.098 | 0.110 | 2.232 |
| Full Power (MIMO) | | | | | | | | | | | |
| | U-NII-6 | 802.11ax80 | Front Side | 103 | 14.96 | 15.50 | 1.132 | -0.02 | 0.094 | 0.107 | 3.09 |
| | U-NII-6 | 802.11ax80 | Back Side | 103 | 14.96 | 15.50 | 1.132 | -0.05 | 0.168 | 0.191 | 4.53 |
| Reduced Power Level 2 for simultaneous transmission (MIMO) | | | | | | | | | | | |
| | U-NII-6 | 802.11ax80 | Front Side | 103 | 10.96 | 11.50 | 1.132 | -0.02 | 0.039 | 0.044 | 1.25 |
| | U-NII-6 | 802.11ax80 | Back Side | 103 | 10.96 | 11.50 | 1.132 | -0.05 | 0.069 | 0.079 | 1.83 |
| Full Power (ANT 2) | | | | | | | | | | | |
| | U-NII-7 | 802.11ax160 | Front Side | 143 | 13.59 | 14.00 | 1.099 | 0.19 | 0.129 | 0.142 | 4.04 |
| | U-NII-7 | 802.11ax160 | Back Side | 143 | 13.59 | 14.00 | 1.099 | -0.09 | 0.274 | 0.301 | 4.84 |
| Reduced Power Level 2 for simultaneous transmission (ANT 2) | | | | | | | | | | | |
| | U-NII-7 | 802.11ax160 | Front Side | 143 | 10.59 | 11.00 | 1.099 | 0.03 | 0.051 | 0.056 | 1.616 |
| | U-NII-7 | 802.11ax160 | Back Side | 143 | 10.59 | 11.00 | 1.099 | -0.02 | 0.111 | 0.122 | 1.936 |
| Full Power (ANT 5) | | | | | | | | | | | |
| | U-NII-7 | 802.11ax80 | Front Side | 167 | 14.15 | 14.50 | 1.084 | 0.04 | 0.123 | 0.133 | 4.02 |
| 27# | U-NII-7 | 802.11ax80 | Back Side | 167 | 14.15 | 14.50 | 1.084 | -0.09 | 0.280 | 0.303 | 6.16 |
| | U-NII-7 | 802.11ax80 | Back Side | 135 | 13.95 | 14.50 | 1.135 | 0.11 | 0.188 | 0.213 | 4.53 |
| | U-NII-7 | 802.11ax80 | Back Side | 151 | 12.25 | 12.50 | 1.059 | 0.18 | 0.182 | 0.193 | 4.46 |
| Reduced Power Level 2 for simultaneous transmission (ANT 5) | | | | | | | | | | | |
| | U-NII-7 | 802.11ax80 | Front Side | 167 | 10.15 | 10.50 | 1.084 | -0.12 | 0.049 | 0.053 | 1.608 |
| | U-NII-7 | 802.11ax80 | Back Side | 167 | 10.15 | 10.50 | 1.084 | 0.14 | 0.112 | 0.121 | 2.464 |
| | U-NII-7 | 802.11ax80 | Back Side | 135 | 9.95 | 10.50 | 1.135 | -0.13 | 0.075 | 0.085 | 1.812 |
| | U-NII-7 | 802.11ax80 | Back Side | 151 | 8.25 | 8.50 | 1.059 | -0.17 | 0.072 | 0.076 | 1.784 |
| Full Power (MIMO) | | | | | | | | | | | |
| | U-NII-7 | 802.11ax160 | Front Side | 143 | 14.15 | 14.50 | 1.084 | 0.16 | 0.110 | 0.119 | 2.95 |
| | U-NII-7 | 802.11ax160 | Back Side | 143 | 14.15 | 14.50 | 1.084 | -0.17 | 0.128 | 0.139 | 3.12 |
| Reduced Power Level 2 for simultaneous transmission (MIMO) | | | | | | | | | | | |
| | U-NII-7 | 802.11ax160 | Front Side | 143 | 11.15 | 11.50 | 1.084 | 0.16 | 0.045 | 0.049 | 1.19 |
| | U-NII-7 | 802.11ax160 | Back Side | 143 | 11.15 | 11.50 | 1.084 | -0.17 | 0.053 | 0.057 | 1.26 |
| Full Power (ANT 2) | | | | | | | | | | | |
| | U-NII-8 | 802.11ax80 | Front Side | 199 | 14.12 | 14.50 | 1.091 | 0.18 | 0.084 | 0.092 | 1.96 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | U-NII-8 | 802.11ax80 | Back Side | 199 | 14.12 | 14.50 | 1.091 | 0.05 | 0.118 | 0.129 | 2.55 |
| 28# | U-NII-8 | 802.11ax80 | Back Side | 215 | 13.54 | 14.00 | 1.112 | 0.04 | 0.130 | 0.145 | 3.03 |
| Full Power (ANT 5) | | | | | | | | | | | |
| | U-NII-8 | 802.11ax80 | Front Side | 199 | 14.41 | 15.00 | 1.146 | 0.02 | 0.051 | 0.059 | 1.21 |
| | U-NII-8 | 802.11ax80 | Back Side | 199 | 14.41 | 15.00 | 1.146 | -0.17 | 0.108 | 0.124 | 2.26 |
| | U-NII-8 | 802.11ax80 | Back Side | 215 | 14.00 | 14.50 | 1.122 | -0.16 | 0.103 | 0.116 | 2.16 |
| Full Power (MIMO) | | | | | | | | | | | |
| | U-NII-8 | 802.11ax160 | Front Side | 207 | 13.54 | 14.00 | 1.112 | 0.15 | 0.117 | 0.131 | 2.46 |
| | U-NII-8 | 802.11ax160 | Back Side | 207 | 13.54 | 14.00 | 1.112 | -0.18 | 0.072 | 0.081 | 1.76 |

**Note:**

1. The 5G WLAN 802.11a reported 1g SAR (W/kg) should be scaled with the duty cycle scaling factor 1.005(ANT 5), 5.2/5.5G WLAN 802.11a with 1.010 (ANT 2), 5.3/5.8G WLAN 802.11a with 1.005 (ANT 2) and 5G WLAN 802.11n40 with 1.004 (MIMO).
2. The WLAN 6GHz 802.11ax-HEW80 reported 1g SAR (W/kg) should be scaled with the duty cycle scaling factor 1.000(ANT 2 /ANT 5), WLAN 6GHz 802.11ax-HEW80 with 1.006 (MIMO) and WLAN 6GHz 802.11ax-HEW160 with 1.000(U-NII-6/U-NII-7) & 1.009(U-NII-8).

## 17.5. PD Test Results

➢ **General Note**

1. The reported PD is the measured Total PD value adjusted for maximum tune-up tolerance.
   a. Tune-up scaling Factor = tune-up limit power (mW) / EUT RF power (mW), where tune-up limit is the maximum rated power among all production units.
   b. For PD testing of WLAN signal with non-100% duty cycle, the measured PD is scaled-up by the duty cycle scaling factor which is equal to "1 / (duty cycle)".
   c. For WLAN: Reported PD ($W/m^2$) = Measured Total PD ($W/m^2$) * Duty Cycle scaling factor * Tune-up scaling factor.
2. According to the equipment user manual that the most conservative test distance of 2mm was applied to PD measurement and the REC (field reconstruction) component of the uncertainty budget for a given E-field is valid only for d ≥λ /5mm.
3. According to TCBC workshop in April 2021 that in addition to tune-up tolerance scaling, adjust measured results per amount that measurement uncertainty exceeds 30% (e.g. per methods of IEC 62479:2010). Total expanded uncertainty of 2.68dB which was converted to 85% was used to determining the psPD measurement scaling factor.
4. The duty cycle scaling factor of 1.000 should be calculated the final power density.
5. According to TCBC workshop in October 2018 that $4cm^2$ averaging area may now be considered.
6. RF exposure compliance with PD is demonstrated for various radio configurations using below equation:

   *Final PD=Mea. $psPD_{tot+}$ * tune-up factor * duty cycle factor * Uncertainty Factor*

   Where Uncertainty factor=1 + (actual expanded uncertainty – 30%)
7. The final psPD should be scaled to the uncertainty factor of 1.55.
8. The measurement procedure consists of measuring the PDinc at two different distances: d=2mm (compliance distance) and d=λ /5. The same grid extents and grid steps should be used for both measurements. The grid extents should be large enough to fully capture the transmitted energy. The grid step should be fine enough to demonstrate that the integrated Power Density iPDn varies by less than 1 dB between the d = 2 mm and d =λ /5 measurements. We recommend using as first approximation a grid step Lgrid that is a function of the distance to the transmitting structure and not larger than:

$$l_{grid} = \begin{cases} 1.25d & for\, d < \lambda/5 \\ \lambda/4 & for\, d \geq \lambda/5 \end{cases}$$

9. According to the TCB WS publication in Oct. 2024, identify the boundary area where the protrusion begins with an added 5 mm margin, therefore 5 mm distance between the antenna and probe tip should be used to scan the power density.

## ➢ PD Test Results

| Band | Mode | Exposure Position | Gap (mm) | Ant. | Ch. | Grip Step (λ) | iPDn (W/m²) | iPDn Ratio (<1dB) | Total psPDtot+ (W/m²) |
|---|---|---|---|---|---|---|---|---|---|
| U-NII-5 | 802.11ax80 | Back Side | 5 | ANT 2 | 7 | 0.0625 | 4.96 | 0.602 | 3.860 |
| U-NII-5 | 802.11ax80 | Back Side | 9.21 | ANT 2 | 7 | 0.0625 | 4.32 | | 3.429 |
| U-NII-5 | 802.11ax80 | Back Side | 5 | ANT 5 | 87 | 0.0625 | 3.39 | 0.589 | 2.800 |
| U-NII-5 | 802.11ax80 | Back Side | 9.36 | ANT 5 | 87 | 0.0625 | 2.96 | | 2.567 |
| U-NII-5 | 802.11ax160 | Back Side | 5 | MIMO | 15 | 0.0625 | 2.66 | 0.650 | 1.580 |
| U-NII-5 | 802.11ax160 | Back Side | 9.28 | MIMO | 15 | 0.0625 | 2.29 | | 1.362 |
| | | | | | | | | | |
| U-NII-6 | 802.11ax80 | Back Side | 5 | ANT 2 | 103 | 0.0625 | 3.32 | 0.678 | 3.030 |
| U-NII-6 | 802.11ax80 | Back Side | 9.58 | ANT 2 | 103 | 0.0625 | 2.84 | | 2.841 |
| U-NII-6 | 802.11ax80 | Back Side | 5 | ANT 5 | 103 | 0.0625 | 2.79 | 0.636 | 1.620 |
| U-NII-6 | 802.11ax80 | Back Side | 9.31 | ANT 5 | 103 | 0.0625 | 2.41 | | 1.318 |
| U-NII-6 | 802.11ax80 | Back Side | 5 | MIMO | 103 | 0.0625 | 2.34 | 0.726 | 2.170 |
| U-NII-6 | 802.11ax80 | Back Side | 9.46 | MIMO | 103 | 0.0625 | 1.98 | | 1.986 |

| Plot No. | Band | Exposure Position | Exposure Position | Ch. | Ave. Power (dBm) | Tune-up Limit (dBm) | Tune-up Scaling Factor | psPDtot+ over 4cm² (W/m²) | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Mea. | Scaled |
| Full Power (ANT 2) | | | | | | | | | |
| | U-NII-5 | 802.11ax80 | Front Side | 87 | 13.05 | 13.50 | 1.109 | 0.064 | 0.110 |
| | U-NII-5 | 802.11ax80 | Back Side | 87 | 13.05 | 13.50 | 1.109 | 2.750 | 4.728 |
| | U-NII-5 | 802.11ax80 | Left Side | 87 | 13.05 | 13.50 | 1.109 | 0.661 | 1.136 |
| | U-NII-5 | 802.11ax80 | Right Side | 87 | 13.05 | 13.50 | 1.109 | 0.042 | 0.072 |
| | U-NII-5 | 802.11ax80 | Top Side | 87 | 13.05 | 13.50 | 1.109 | 0.323 | 0.555 |
| | U-NII-5 | 802.11ax80 | Bottom Side | 87 | 13.05 | 13.50 | 1.109 | 0.014 | 0.024 |
| 29# | U-NII-5 | 802.11ax80 | Back Side | 7 | 12.85 | 13.50 | 1.161 | 3.860 | 6.949 |
| | U-NII-5 | 802.11ax80 | Back Side | 55 | 12.03 | 12.50 | 1.114 | 3.525 | 6.088 |
| Reduced Power Level 2 for simultaneous transmission (ANT 2) | | | | | | | | | |
| | U-NII-5 | 802.11ax80 | Front Side | 87 | 10.05 | 10.50 | 1.109 | 0.040 | 0.069 |
| | U-NII-5 | 802.11ax80 | Back Side | 87 | 10.05 | 10.50 | 1.109 | 1.699 | 2.921 |
| | U-NII-5 | 802.11ax80 | Left Side | 87 | 10.05 | 10.50 | 1.109 | 0.410 | 0.705 |
| | U-NII-5 | 802.11ax80 | Right Side | 87 | 10.05 | 10.50 | 1.109 | 0.026 | 0.045 |
| | U-NII-5 | 802.11ax80 | Top Side | 87 | 10.05 | 10.50 | 1.109 | 0.201 | 0.346 |
| | U-NII-5 | 802.11ax80 | Bottom Side | 87 | 10.05 | 10.50 | 1.109 | 0.010 | 0.017 |
| | U-NII-5 | 802.11ax80 | Back Side | 7 | 9.85 | 10.50 | 1.161 | 1.740 | 3.132 |
| | U-NII-5 | 802.11ax80 | Back Side | 55 | 9.03 | 9.50 | 1.114 | 1.702 | 2.940 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Full Power (ANT 5) | | | | | | | | | |
| | U-NII-5 | 802.11ax80 | Front Side | 87 | 14.57 | 15.00 | 1.104 | 0.067 | 0.115 |
| | U-NII-5 | 802.11ax80 | Back Side | 87 | 14.57 | 15.00 | 1.104 | 2.800 | 4.792 |
| | U-NII-5 | 802.11ax80 | Left Side | 87 | 14.57 | 15.00 | 1.104 | 0.032 | 0.055 |
| | U-NII-5 | 802.11ax80 | Right Side | 87 | 14.57 | 15.00 | 1.104 | 0.504 | 0.863 |
| | U-NII-5 | 802.11ax80 | Top Side | 87 | 14.57 | 15.00 | 1.104 | 0.567 | 0.970 |
| | U-NII-5 | 802.11ax80 | Bottom Side | 87 | 14.57 | 15.00 | 1.104 | 0.012 | 0.021 |
| | U-NII-5 | 802.11ax80 | Back Side | 7 | 14.37 | 15.00 | 1.156 | 1.300 | 2.330 |
| | U-NII-5 | 802.11ax80 | Back Side | 55 | 14.52 | 15.00 | 1.117 | 1.130 | 1.956 |
| Reduced Power Level 2 for simultaneous transmission (ANT 5) | | | | | | | | | |
| | U-NII-5 | 802.11ax80 | Front Side | 87 | 11.57 | 12.00 | 1.104 | 0.042 | 0.072 |
| | U-NII-5 | 802.11ax80 | Back Side | 87 | 11.57 | 12.00 | 1.104 | 1.728 | 2.957 |
| | U-NII-5 | 802.11ax80 | Left Side | 87 | 11.57 | 12.00 | 1.104 | 0.020 | 0.034 |
| | U-NII-5 | 802.11ax80 | Right Side | 87 | 11.57 | 12.00 | 1.104 | 0.315 | 0.539 |
| | U-NII-5 | 802.11ax80 | Top Side | 87 | 11.57 | 12.00 | 1.104 | 0.350 | 0.599 |
| | U-NII-5 | 802.11ax80 | Bottom Side | 87 | 11.57 | 12.00 | 1.104 | 0.007 | 0.012 |
| | U-NII-5 | 802.11ax80 | Back Side | 7 | 11.37 | 12.00 | 1.156 | 0.802 | 1.437 |
| | U-NII-5 | 802.11ax80 | Back Side | 55 | 11.52 | 12.00 | 1.117 | 0.699 | 1.210 |
| Full Power (MIMO) | | | | | | | | | |
| | U-NII-5 | 802.11ax160 | Front Side | 79 | 13.78 | 14.00 | 1.052 | 0.041 | 0.067 |
| | U-NII-5 | 802.11ax160 | Back Side | 79 | 13.78 | 14.00 | 1.052 | 1.300 | 2.120 |
| | U-NII-5 | 802.11ax160 | Left Side | 79 | 13.78 | 14.00 | 1.052 | 0.021 | 0.034 |
| | U-NII-5 | 802.11ax160 | Right Side | 79 | 13.78 | 14.00 | 1.052 | 0.392 | 0.639 |
| | U-NII-5 | 802.11ax160 | Top Side | 79 | 13.78 | 14.00 | 1.052 | 0.337 | 0.549 |
| | U-NII-5 | 802.11ax160 | Bottom Side | 79 | 13.78 | 14.00 | 1.052 | 0.009 | 0.015 |
| | U-NII-5 | 802.11ax160 | Back Side | 15 | 13.45 | 14.00 | 1.135 | 1.580 | 2.780 |
| | U-NII-5 | 802.11ax160 | Back Side | 47 | 13.61 | 14.00 | 1.094 | 1.310 | 2.221 |
| Reduced Power Level 2 for simultaneous transmission (MIMO) | | | | | | | | | |
| | U-NII-5 | 802.11ax160 | Front Side | 79 | 10.78 | 11.00 | 1.052 | 0.034 | 0.055 |
| | U-NII-5 | 802.11ax160 | Back Side | 79 | 10.78 | 11.00 | 1.052 | 1.062 | 1.732 |
| | U-NII-5 | 802.11ax160 | Left Side | 79 | 10.78 | 11.00 | 1.052 | 0.017 | 0.028 |
| | U-NII-5 | 802.11ax160 | Right Side | 79 | 10.78 | 11.00 | 1.052 | 0.320 | 0.522 |
| | U-NII-5 | 802.11ax160 | Top Side | 79 | 10.78 | 11.00 | 1.052 | 0.275 | 0.448 |
| | U-NII-5 | 802.11ax160 | Bottom Side | 79 | 10.78 | 11.00 | 1.052 | 0.007 | 0.011 |
| | U-NII-5 | 802.11ax160 | Back Side | 15 | 10.45 | 11.00 | 1.135 | 1.030 | 1.812 |
| | U-NII-5 | 802.11ax160 | Back Side | 47 | 10.61 | 11.00 | 1.094 | 0.956 | 1.621 |
| Full Power (ANT 2) | | | | | | | | | |
| | U-NII-6 | 802.11ax80 | Front Side | 103 | 13.36 | 14.00 | 1.159 | 0.026 | 0.047 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 30# | U-NII-6 | 802.11ax80 | Back Side | 103 | 13.36 | 14.00 | 1.159 | 3.030 | 5.442 |
| | U-NII-6 | 802.11ax80 | Left Side | 103 | 13.36 | 14.00 | 1.159 | 0.605 | 1.087 |
| | U-NII-6 | 802.11ax80 | Right Side | 103 | 13.36 | 14.00 | 1.159 | 0.019 | 0.034 |
| | U-NII-6 | 802.11ax80 | Top Side | 103 | 13.36 | 14.00 | 1.159 | 0.288 | 0.517 |
| | U-NII-6 | 802.11ax80 | Bottom Side | 103 | 13.36 | 14.00 | 1.159 | 0.011 | 0.020 |
| Reduced Power Level 2 for simultaneous transmission (ANT 2) | | | | | | | | | |
| | U-NII-6 | 802.11ax80 | Front Side | 103 | 9.36 | 10.00 | 1.159 | 0.020 | 0.036 |
| | U-NII-6 | 802.11ax80 | Back Side | 103 | 9.36 | 10.00 | 1.159 | 1.704 | 3.061 |
| | U-NII-6 | 802.11ax80 | Left Side | 103 | 9.36 | 10.00 | 1.159 | 0.377 | 0.677 |
| | U-NII-6 | 802.11ax80 | Right Side | 103 | 9.36 | 10.00 | 1.159 | 0.012 | 0.022 |
| | U-NII-6 | 802.11ax80 | Top Side | 103 | 9.36 | 10.00 | 1.159 | 0.182 | 0.327 |
| | U-NII-6 | 802.11ax80 | Bottom Side | 103 | 9.36 | 10.00 | 1.159 | 0.007 | 0.013 |
| Full Power (ANT 5) | | | | | | | | | |
| | U-NII-6 | 802.11ax80 | Front Side | 103 | 15.50 | 16.00 | 1.122 | 0.030 | 0.052 |
| | U-NII-6 | 802.11ax80 | Back Side | 103 | 15.50 | 16.00 | 1.122 | 1.620 | 2.817 |
| | U-NII-6 | 802.11ax80 | Left Side | 103 | 15.50 | 16.00 | 1.122 | 0.019 | 0.033 |
| | U-NII-6 | 802.11ax80 | Right Side | 103 | 15.50 | 16.00 | 1.122 | 0.774 | 1.346 |
| | U-NII-6 | 802.11ax80 | Top Side | 103 | 15.50 | 16.00 | 1.122 | 0.981 | 1.706 |
| | U-NII-6 | 802.11ax80 | Bottom Side | 103 | 15.50 | 16.00 | 1.122 | 0.005 | 0.009 |
| Reduced Power Level 2 for simultaneous transmission (ANT 5) | | | | | | | | | |
| | U-NII-6 | 802.11ax80 | Front Side | 103 | 11.50 | 12.00 | 1.122 | 0.020 | 0.035 |
| | U-NII-6 | 802.11ax80 | Back Side | 103 | 11.50 | 12.00 | 1.122 | 1.005 | 1.748 |
| | U-NII-6 | 802.11ax80 | Left Side | 103 | 11.50 | 12.00 | 1.122 | 0.012 | 0.021 |
| | U-NII-6 | 802.11ax80 | Right Side | 103 | 11.50 | 12.00 | 1.122 | 0.482 | 0.838 |
| | U-NII-6 | 802.11ax80 | Top Side | 103 | 11.50 | 12.00 | 1.122 | 0.606 | 1.054 |
| | U-NII-6 | 802.11ax80 | Bottom Side | 103 | 11.50 | 12.00 | 1.122 | 0.003 | 0.005 |
| Full Power (MIMO) | | | | | | | | | |
| | U-NII-6 | 802.11ax160 | Front Side | 103 | 14.96 | 15.50 | 1.132 | 0.019 | 0.034 |
| | U-NII-6 | 802.11ax160 | Back Side | 103 | 14.96 | 15.50 | 1.132 | 2.170 | 3.832 |
| | U-NII-6 | 802.11ax160 | Left Side | 103 | 14.96 | 15.50 | 1.132 | 0.009 | 0.016 |
| | U-NII-6 | 802.11ax160 | Right Side | 103 | 14.96 | 15.50 | 1.132 | 0.607 | 1.072 |
| | U-NII-6 | 802.11ax160 | Top Side | 103 | 14.96 | 15.50 | 1.132 | 0.431 | 0.761 |
| | U-NII-6 | 802.11ax160 | Bottom Side | 103 | 14.96 | 15.50 | 1.132 | 0.003 | 0.005 |
| Reduced Power Level 2 for simultaneous transmission (MIMO) | | | | | | | | | |
| | U-NII-6 | 802.11ax160 | Front Side | 103 | 10.96 | 11.50 | 1.132 | 0.012 | 0.021 |
| | U-NII-6 | 802.11ax160 | Back Side | 103 | 10.96 | 11.50 | 1.132 | 1.350 | 2.384 |
| | U-NII-6 | 802.11ax160 | Left Side | 103 | 10.96 | 11.50 | 1.132 | 0.005 | 0.009 |
| | U-NII-6 | 802.11ax160 | Right Side | 103 | 10.96 | 11.50 | 1.132 | 0.378 | 0.667 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | U-NII-6 | 802.11ax160 | Top Side | 103 | 10.96 | 11.50 | 1.132 | 0.268 | 0.473 |
| | U-NII-6 | 802.11ax160 | Bottom Side | 103 | 10.96 | 11.50 | 1.132 | 0.002 | 0.004 |
| Full Power (ANT 2) | | | | | | | | | |
| | U-NII-7 | 802.11ax160 | Front Side | 143 | 13.59 | 14.00 | 1.099 | 0.044 | 0.075 |
| | U-NII-7 | 802.11ax160 | Back Side | 143 | 13.59 | 14.00 | 1.099 | 2.460 | 4.191 |
| | U-NII-7 | 802.11ax160 | Left Side | 143 | 13.59 | 14.00 | 1.099 | 0.502 | 0.855 |
| | U-NII-7 | 802.11ax160 | Right Side | 143 | 13.59 | 14.00 | 1.099 | 0.023 | 0.039 |
| | U-NII-7 | 802.11ax160 | Top Side | 143 | 13.59 | 14.00 | 1.099 | 0.381 | 0.649 |
| | U-NII-7 | 802.11ax160 | Bottom Side | 143 | 13.59 | 14.00 | 1.099 | 0.011 | 0.019 |
| Reduced Power Level 2 for simultaneous transmission (ANT 2) | | | | | | | | | |
| | U-NII-7 | 802.11ax160 | Front Side | 143 | 10.59 | 11.00 | 1.099 | 0.027 | 0.046 |
| | U-NII-7 | 802.11ax160 | Back Side | 143 | 10.59 | 11.00 | 1.099 | 1.520 | 2.589 |
| | U-NII-7 | 802.11ax160 | Left Side | 143 | 10.59 | 11.00 | 1.099 | 0.312 | 0.531 |
| | U-NII-7 | 802.11ax160 | Right Side | 143 | 10.59 | 11.00 | 1.099 | 0.015 | 0.026 |
| | U-NII-7 | 802.11ax160 | Top Side | 143 | 10.59 | 11.00 | 1.099 | 0.241 | 0.411 |
| | U-NII-7 | 802.11ax160 | Bottom Side | 143 | 10.59 | 11.00 | 1.099 | 0.006 | 0.010 |
| Full Power (ANT 5) | | | | | | | | | |
| | U-NII-7 | 802.11ax80 | Front Side | 167 | 14.15 | 14.50 | 1.084 | 0.019 | 0.032 |
| | U-NII-7 | 802.11ax80 | Back Side | 167 | 14.15 | 14.50 | 1.084 | 2.722 | 4.573 |
| | U-NII-7 | 802.11ax80 | Left Side | 167 | 14.15 | 14.50 | 1.084 | 0.010 | 0.017 |
| | U-NII-7 | 802.11ax80 | Right Side | 167 | 14.15 | 14.50 | 1.084 | 0.232 | 0.390 |
| | U-NII-7 | 802.11ax80 | Top Side | 167 | 14.15 | 14.50 | 1.084 | 0.270 | 0.454 |
| | U-NII-7 | 802.11ax80 | Bottom Side | 167 | 14.15 | 14.50 | 1.084 | 0.006 | 0.010 |
| 31# | U-NII-7 | 802.11ax80 | Back Side | 135 | 13.95 | 14.50 | 1.135 | 3.590 | 6.316 |
| | U-NII-7 | 802.11ax80 | Back Side | 151 | 12.25 | 12.50 | 1.059 | 1.399 | 2.297 |
| Reduced Power Level 2 for simultaneous transmission (ANT 5) | | | | | | | | | |
| | U-NII-7 | 802.11ax80 | Front Side | 167 | 11.15 | 11.50 | 1.084 | 0.012 | 0.020 |
| | U-NII-7 | 802.11ax80 | Back Side | 167 | 11.15 | 11.50 | 1.084 | 1.680 | 2.823 |
| | U-NII-7 | 802.11ax80 | Left Side | 167 | 11.15 | 11.50 | 1.084 | 0.006 | 0.010 |
| | U-NII-7 | 802.11ax80 | Right Side | 167 | 11.15 | 11.50 | 1.084 | 0.145 | 0.244 |
| | U-NII-7 | 802.11ax80 | Top Side | 167 | 11.15 | 11.50 | 1.084 | 0.169 | 0.284 |
| | U-NII-7 | 802.11ax80 | Bottom Side | 167 | 11.15 | 11.50 | 1.084 | 0.004 | 0.007 |
| | U-NII-7 | 802.11ax80 | Back Side | 135 | 9.95 | 10.50 | 1.135 | 1.805 | 3.175 |
| | U-NII-7 | 802.11ax80 | Back Side | 151 | 8.25 | 8.50 | 1.059 | 0.863 | 1.417 |
| Full Power (MIMO) | | | | | | | | | |
| | U-NII-7 | 802.11ax160 | Front Side | 143 | 14.15 | 14.50 | 1.084 | 0.020 | 0.034 |
| | U-NII-7 | 802.11ax160 | Back Side | 143 | 14.15 | 14.50 | 1.084 | 1.390 | 2.335 |
| | U-NII-7 | 802.11ax160 | Left Side | 143 | 14.15 | 14.50 | 1.084 | 0.011 | 0.018 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | U-NII-7 | 802.11ax160 | Right Side | 143 | 14.15 | 14.50 | 1.084 | 0.416 | 0.699 |
| | U-NII-7 | 802.11ax160 | Top Side | 143 | 14.15 | 14.50 | 1.084 | 0.918 | 1.542 |
| | U-NII-7 | 802.11ax160 | Bottom Side | 143 | 14.15 | 14.50 | 1.084 | 0.011 | 0.018 |
| Reduced Power Level 2 for simultaneous transmission (MIMO) | | | | | | | | | |
| | U-NII-7 | 802.11ax160 | Front Side | 143 | 11.15 | 11.50 | 1.084 | 0.011 | 0.018 |
| | U-NII-7 | 802.11ax160 | Back Side | 143 | 11.15 | 11.50 | 1.084 | 0.738 | 1.240 |
| | U-NII-7 | 802.11ax160 | Left Side | 143 | 11.15 | 11.50 | 1.084 | 0.006 | 0.010 |
| | U-NII-7 | 802.11ax160 | Right Side | 143 | 11.15 | 11.50 | 1.084 | 0.221 | 0.371 |
| | U-NII-7 | 802.11ax160 | Top Side | 143 | 11.15 | 11.50 | 1.084 | 0.488 | 0.820 |
| | U-NII-7 | 802.11ax160 | Bottom Side | 143 | 11.15 | 11.50 | 1.084 | 0.006 | 0.010 |
| Full Power (ANT 2) | | | | | | | | | |
| | U-NII-8 | 802.11ax80 | Front Side | 199 | 14.12 | 14.50 | 1.091 | 0.033 | 0.056 |
| | U-NII-8 | 802.11ax80 | Back Side | 199 | 14.12 | 14.50 | 1.091 | 1.750 | 2.961 |
| | U-NII-8 | 802.11ax80 | Left Side | 199 | 14.12 | 14.50 | 1.091 | 0.460 | 0.778 |
| | U-NII-8 | 802.11ax80 | Right Side | 199 | 14.12 | 14.50 | 1.091 | 0.027 | 0.046 |
| | U-NII-8 | 802.11ax80 | Top Side | 199 | 14.12 | 14.50 | 1.091 | 0.436 | 0.738 |
| | U-NII-8 | 802.11ax80 | Bottom Side | 199 | 14.12 | 14.50 | 1.091 | 0.006 | 0.010 |
| 32# | U-NII-8 | 802.11ax80 | Back Side | 215 | 13.54 | 14.00 | 1.112 | 1.852 | 3.191 |
| Full Power (ANT 5) | | | | | | | | | |
| | U-NII-8 | 802.11ax80 | Front Side | 199 | 14.41 | 15.00 | 1.146 | 0.045 | 0.080 |
| | U-NII-8 | 802.11ax80 | Back Side | 199 | 14.41 | 15.00 | 1.146 | 1.606 | 2.852 |
| | U-NII-8 | 802.11ax80 | Left Side | 199 | 14.41 | 15.00 | 1.146 | 0.026 | 0.046 |
| | U-NII-8 | 802.11ax80 | Right Side | 199 | 14.41 | 15.00 | 1.146 | 0.588 | 1.044 |
| | U-NII-8 | 802.11ax80 | Top Side | 199 | 14.41 | 15.00 | 1.146 | 0.579 | 1.028 |
| | U-NII-8 | 802.11ax80 | Bottom Side | 199 | 14.41 | 15.00 | 1.146 | 0.003 | 0.005 |
| | U-NII-8 | 802.11ax80 | Back Side | 215 | 14.00 | 14.50 | 1.122 | 1.380 | 2.400 |
| Full Power (MIMO) | | | | | | | | | |
| | U-NII-8 | 802.11ax160 | Front Side | 207 | 13.54 | 14.00 | 1.112 | 0.031 | 0.054 |
| | U-NII-8 | 802.11ax160 | Back Side | 207 | 13.54 | 14.00 | 1.112 | 1.080 | 1.878 |
| | U-NII-8 | 802.11ax160 | Left Side | 207 | 13.54 | 14.00 | 1.112 | 0.024 | 0.042 |
| | U-NII-8 | 802.11ax160 | Right Side | 207 | 13.54 | 14.00 | 1.112 | 0.657 | 1.142 |
| | U-NII-8 | 802.11ax160 | Top Side | 207 | 13.54 | 14.00 | 1.112 | 0.499 | 0.868 |
| | U-NII-8 | 802.11ax160 | Bottom Side | 207 | 13.54 | 14.00 | 1.112 | 0.011 | 0.019 |

**Note:** The WLAN 6GHz 802.11ax-HEW80 reported 1g SAR (W/kg) should be scaled with the duty cycle scaling factor 1.000(ANT 2 /ANT 5), WLAN 6GHz 802.11ax-HEW80 with 1.006 (MIMO) and WLAN 6GHz 802.11ax-HEW160 with 1.000(U-NII-6/U-NII-7) & 1.009(U-NII-8).

# 18. Simultaneous Transmission Evaluation

## 18.1. Simultaneous Transmission Consideration

| No. | Simultaneous Transmission Consideration | Head | Body-Worn | Hotspot | Extremity |
|---|---|---|---|---|---|
| 1 | DECT+Bluetooth | Yes | Yes | Yes | No |
| 2 | DECT+WLAN 2.4GHz SISO | Yes | Yes | Yes | No |
| 3 | DECT+WLAN 5.2GHz/5.8GHz SISO | Yes | Yes | Yes | No |
| 4 | DECT+WLAN 5.3GHz/5.5GHz SISO | Yes | Yes | No | No |
| 5 | DECT+WLAN 6GHz SISO | Yes | Yes | No | No |
| 6 | WLAN 2.4GHz(chain 1)+Bluetooth | Yes | Yes | Yes | No |
| 7 | WLAN 5.2GHz/5.8GHz (SISO/MIMO)+Bluetooth | Yes | Yes | Yes | No |
| 8 | WLAN 5.3GHz/5.5GHz (SISO/MIMO)+Bluetooth | Yes | Yes | No | No |
| 9 | WLAN 6GHz (SISO/MIMO)+Bluetooth | Yes | Yes | No | No |
| 10 | WLAN 2.4GHz (SISO/MIMO)+WLAN 5.2GHz/5.8GHz (SISO/MIMO) | Yes | Yes | Yes | No |
| 11 | WLAN 2.4GHz (SISO/MIMO)+WLAN 5.3GHz/5.5GHz (SISO/MIMO) | Yes | Yes | No | No |
| 12 | WLAN 2.4GHz (SISO/MIMO)+WLAN 6GHz (SISO/MIMO) | Yes | Yes | No | No |
| 13 | WLAN 2.4GHz (chain 1)+WLAN 5.2GHz/5.8GHz (SISO/MIMO)+Bluetooth | Yes | Yes | Yes | No |
| 14 | WLAN 2.4GHz (chain 1)+WLAN 5.3GHz/5.5GHz (SISO/MIMO)+Bluetooth | Yes | Yes | No | No |
| 15 | WLAN 2.4GHz (chain 1)+WLAN 6GHz (SISO/MIMO)+Bluetooth | Yes | Yes | No | No |
| 16 | WLAN 2.4GHz(chain 0)+WLAN 5.2GHz/5.8GHz(chain 0)+WLAN 6GHz(chain 1) | Yes | Yes | No | No |
| 17 | WLAN 2.4GHz(chain 0)+WLAN 5.3GHz/5.5GHz(chain 0)+WLAN 6GHz(chain 1) | Yes | Yes | No | No |
| 18 | WLAN 2.4GHz(chain 0)+WLAN 5.2GHz/5.8GHz(chain 1)+WLAN 6GHz(chain 0) | Yes | Yes | No | No |
| 19 | WLAN 2.4GHz(chain 0)+WLAN 5.3GHz/5.5GHz(chain 1)+WLAN 6GHz(chain 0) | Yes | Yes | No | No |
| 20 | WLAN 2.4GHz(chain 1)+WLAN 5.2GHz/5.8GHz(chain 0)+WLAN 6GHz(chain 1)+Bluetooth | Yes | Yes | No | No |
| 21 | WLAN 2.4GHz(chain 1)+WLAN 5.3GHz/5.5GHz(chain 0)+WLAN 6GHz(chain 1)+Bluetooth | Yes | Yes | No | No |
| 22 | WLAN 2.4GHz(chain 1)+WLAN 5.2GHz/5.8GHz(chain | Yes | Yes | No | No |

| | | | | | |
|---|---|---|---|---|---|
| | 1)+WLAN 6GHz(chain 0)+Bluetooth | | | | |
| 23 | WLAN 2.4GHz(chain 1)+WLAN 5.3GHz/5.5GHz(chain 1)+WLAN 6GHz(chain 0)+Bluetooth | Yes | Yes | No | No |
| 24 | DECT+WLAN 2.4GHz(chain 1)+Bluetooth | Yes | Yes | Yes | No |
| 25 | DECT+WLAN 5.2GHz/5.8GHz (SISO/MIMO)+Bluetooth | Yes | Yes | Yes | No |
| 26 | DECT+WLAN 5.3GHz/5.5GHz (SISO/MIMO)+Bluetooth | Yes | Yes | No | No |
| 27 | DECT+WLAN 6GHz (SISO/MIMO)+Bluetooth | Yes | Yes | No | No |
| 28 | DECT+WLAN 2.4GHz (SISO/MIMO)+WLAN 5.2GHz/5.8GHz (SISO/MIMO) | Yes | Yes | Yes | No |
| 29 | DECT+WLAN 2.4GHz (SISO/MIMO)+WLAN 5.3GHz/5.5GHz (SISO/MIMO) | Yes | Yes | No | No |
| 30 | DECT+WLAN 2.4GHz (SISO/MIMO)+WLAN 6GHz (SISO/MIMO) | Yes | Yes | No | No |
| 31 | DECT+WLAN 2.4GHz (chain 1)+WLAN 5.2GHz/5.8GHz (SISO/MIMO)+Bluetooth | Yes | Yes | Yes | No |
| 32 | DECT+WLAN 2.4GHz (chain 1)+WLAN 5.3GHz/5.5GHz (SISO/MIMO)+Bluetooth | Yes | Yes | No | No |
| 33 | DECT+WLAN 2.4GHz (chain 1)+WLAN 6GHz (SISO/MIMO)+Bluetooth | Yes | Yes | No | No |
| 34 | DECT+WLAN 5.3GHz/5.5GHz(chain 0)+WLAN 6GHz(chain 1) | Yes | Yes | No | No |
| 35 | DECT+WLAN 5.2GHz/5.8GHz(chain 0)+WLAN 6GHz(chain 1) | Yes | Yes | No | No |
| 36 | DECT+WLAN 5.3GHz/5.5GHz(chain 1)+WLAN 6GHz(chain 0) | Yes | Yes | No | No |
| 37 | DECT+WLAN 5.2GHz/5.8GHz(chain 1)+WLAN 6GHz(chain 0) | Yes | Yes | No | No |
| 38 | DECT+WLAN 2.4GHz(chain 0)+WLAN 5.3GHz/5.5GHz(chain 0)+WLAN 6GHz(chain 1) | Yes | Yes | No | No |
| 39 | DECT+WLAN 2.4GHz(chain 0)+WLAN 5.2GHz/5.8GHz(chain 0)+WLAN 6GHz(chain 1) | Yes | Yes | No | No |
| 40 | DECT+WLAN 2.4GHz(chain 0)+WLAN 5.3GHz/5.5GHz (chain 1)+WLAN 6GHz(chain 0) | Yes | Yes | No | No |
| 41 | DECT+WLAN 2.4GHz(chain 0)+ WLAN 5.2GHz/5.8GHz (chain 1)+WLAN 6GHz(chain 0) | Yes | Yes | No | No |
| 42 | DECT+WLAN 2.4GHz(chain 1)+WLAN 5.2GHz/5.8GHz (chain 0)+WLAN 6GHz(chain 1)+Bluetooth | Yes | Yes | No | No |
| 43 | DECT+WLAN 2.4GHz(chain 1)+WLAN 5.3GHz/5.5GHz | Yes | Yes | No | No |

| | | | | | |
|---|---|---|---|---|---|
| | (chain 0)+WLAN 6GHz(chain 1)+Bluetooth | | | | |
| 44 | DECT+WLAN 2.4GHz(chain 1)+WLAN 5.2GHz/5.8GHz(chain 1)+WLAN 6GHz(chain 0)+Bluetooth | Yes | Yes | No | No |
| 45 | DECT+WLAN 2.4GHz(chain 1)+WLAN 5.3GHz/5.5GHz(chain 1)+WLAN 6GHz(chain 0)+Bluetooth | Yes | Yes | No | No |
| 46 | DECT+WLAN 5.2GHz/5.8GHz(chain 0)+WLAN 6GHz(chain 1)+Bluetooth | Yes | Yes | No | No |
| 47 | DECT+WLAN 5.3GHz/5.5GHz(chain 0)+WLAN 6GHz(chain 1)+Bluetooth | Yes | Yes | No | No |
| 48 | DECT+WLAN 5.2GHz/5.8GHz (chain 1)+WLAN 6GHz(chain 0)+Bluetooth | Yes | Yes | No | No |
| 49 | DECT+WLAN 5.3GHz/5.5GHz(chain 1)+WLAN 6GHz(chain 0)+Bluetooth | Yes | Yes | No | No |

**Note:**

1. When the user enables the personal wireless router functions for the handset, actual operations include simultaneous transmission of the WLAN transmitters. The "Portable Hotspot" feature on the handset was NOT activated, to ensure the SAR measurements were evaluated for a single transmission frequency RF signal.
2. It does not support simultaneous transmission in different frequency bands of the same root antenna.
3. The hotspot SAR result may overlap with the body-worn accessory SAR requirements, per KDB 941225 D06, the more conservative configurations can be considered, thus excluding some unnecessary body-worn accessory SAR tests.
4. Simultaneous transmission SAR evaluation is not required for BT(ANT 3) and WLAN 2.4GHz (ANT 3), because the software mechanism have been incorporated to guarantee that the WLAN 2.4GHz (ANT 3) and Bluetooth (ANT 3) transmitters would not simultaneously operate.
5. Per KDB 447498D01v06, simultaneous transmission SAR evaluation procedures is as followed:
   Step 1: If sum of 1 g SAR < 1.6 W/kg, Simultaneous SAR measurement is not required.
   Step 2: If sum of 1 g SAR > 1.6 W/kg, ratio of SAR to peak separation distance for pair of transmitters calculated.
   Step 3: If the ratio of SAR to peak separation distance is ≤ 0.04, Simultaneous SAR measurement is not required.
   Step 4: If the ratio of SAR to peak separation distance is > 0.04, Simultaneous SAR measurement is required and simultaneous transmission SAR value is calculated.
   (The ratio is determined by: $(SAR_1 + SAR_2)$ ^ 1.5 / $R_i \le 0.04$,
   $R_i$ is the separation distance between the peak SAR locations for the antenna pair in mm.
6. The co-location of DECT+WLAN 2.4GHz/5GHz/6GHz SISO and WLAN 2.4GHz (SISO/MIMO)+WLAN 5GHz/6GHz (SISO/MIMO) would not be recorded since it is less than the combination of DECT+WLAN 2.4GHz (SISO/MIMO)+WLAN 5GHz/6GHz (SISO/MIMO).

7. The co-location of WLAN 2.4GHz(chain 0)+WLAN 5GHz(chain 0)/(chain 1)+WLAN 6GHz(chain 1)/(chain 0) and DECT+WLAN 5GHz(chain 0)/(chain 1)+WLAN 6GHz(chain 1)/(chain 0) would not be recorded since it is less than the combination of DECT +WLAN 2.4GHz(chain 0)+WLAN 5GHz(chain 1)/(chain 0)+WLAN 6GHz(chain 0)/(chain 1).
8. The co-location of DECT+Bluetooth, WLAN 2.4GHz(chain 1)+Bluetooth, WLAN 5GHz/6GHz (SISO/MIMO)+Bluetooth, WLAN 2.4GHz (chain 1)+WLAN 5GHz/6GHz (SISO/MIMO)+Bluetooth, WLAN 2.4GHz(chain 1)+WLAN 5GHz(chain 0)/(chain 1)+WLAN 6GHz(chain 1)/(chain 0)+Bluetooth, DECT+WLAN 2.4GHz(chain 1)+Bluetooth,DECT+WLAN 5GHz/6GHz (SISO/MIMO)+Bluetooth, DECT+WLAN 2.4GHz (chain 1)+WLAN 5GHz/6GHz (SISO/MIMO)+Bluetooth and DECT+WLAN 5GHz(chain 0)+WLAN 6GHz(chain 1)+Bluetooth would not be recorded since it is less than the combination of DECT+WLAN 2.4GHz(chain 1)+WLAN 5GHz(chain 1)/(chain 0)+WLAN 6GHz(chain 0)/(chain 1)+Bluetooth and DECT+ WLAN 2.4GHz (chain 1)+WLAN 5GHz/6GHz (SISO/MIMO)+Bluetooth.

## 18.2. Simultaneous Transmission Analysis

Remark: The simultaneous transmission data was recorded in annex F of this report.

## 18.3. Total Exposure Radio Analysis

The fields generated by the antennas can be correlated or uncorrelated. At different frequencies, fields are always uncorrelated, and the aggregate power density contributions can be summed according to spatially averaged values of corresponding sources at any point in space, r, to determine the total exposure ratio (TER). Assuming I sources, the TER at each point in space is equal to

$$\mathrm{TER}^{\mathrm{uncorr}}(\mathrm{r}) = \sum_{\mathrm{i}=1}^{\mathrm{I}} \mathrm{ER}_{\mathrm{i}} = \sum_{\mathrm{i}=1}^{\mathrm{I}} \frac{\mathrm{S}_{\mathrm{av,i}}(\mathrm{r}, \mathrm{f}_{\mathrm{i}})}{\mathrm{S}_{\mathrm{lim}}(\mathrm{f}_{\mathrm{i}})}$$

Where Sav,i is the power density for the source I operating at a frequency fi and Slim is the power density limit as specified by the relevant standard.

Exposure from transmitters operating above and below 6GHz, where 6GHz denotes the transmission frequency where the basic restrictions change from being defined in terms of SAR to being defined in terms of power density, therefore uncorrelated and the TER is determined as

$$TER^{uncorr}(r) = \sum_{i=1}^{I} ER_i = \sum_{i=1}^{I} \frac{S_{av,i}(r, f_i)}{S_{lim}(f_i)}$$

According to the FCC guidance in TCBC workshop and IEC TR 63170, the total exposure ratio calculated by taking ratio of maximum reported SAR divided by SAR limit and adding it to maximum measured power density by its limit. Numerical sum of the ratios should be less 1. Therefore the simultaneous transmission should be follows:

$$TER = \sum_{n=1}^{N} \frac{SAR_n}{SAR_{n,limit}} + \sum_{n=1}^{N} \frac{S_{m,avg}}{S_{m,limit}} < 1$$

For transmitters operating above 6000 MHz, it is necessary to perform an assessment against the PD (basic restriction up to 10 GHz and reference levels beyond). The exposure ratio for the □-th transmitter is given by:

$$max\left[\frac{SAR_m}{SAR_{limit}}, \frac{APD_m}{APD_{limit}}\right] \qquad 5925\ MHz < f_m \leq 10\ GHz$$

Where:

- $SAR_m$ is the SAR value for the $n$-th transmitter/test frequency.
- $SAR_{limit}$ is the basic restriction limit that is applicable to the $n$-th transmitter/test frequency.
- $APD_m$ is the APD value for the $m$-th transmitter/test frequency.
- $APDlimit$ is the basic restriction limit that is applicable for the $m$-th transmitter/test frequency.

**Note:**

The SAR/PD simultaneous transmission data was recorded in Annex F of this report.

The simultaneous transmission analysis of PD results is based on the final PD value.

# 19. Uncertainty Assessment

The component of uncertainly may generally be categorized according to the methods used to evaluate them. The evaluation of uncertainly by the statistical analysis of a series of observations is termed a Type A evaluation of uncertainty. The evaluation of uncertainty by means other than the statistical analysis of a series of observation is termed a Type B evaluation of uncertainty. Each component of uncertainty, however evaluated, is represented by an estimated standard deviation, termed standard uncertainty, which is determined by the positive square root of the estimated variance.

A Type A evaluation of standard uncertainty may be based on any valid statistical method for treating data. This includes calculating the standard deviation of the mean of a series of independent observations; using the method of least squares to fit a curve to the data in order to estimate the parameter of the curve and their standard deviations; or carrying out an analysis of variance in order to identify and quantify random effects in certain kinds of measurement.

A Type B evaluation of standard uncertainty is typically based on scientific judgment using all of the relevant information available. These may include previous measurement data, experience, and knowledge of the behavior and properties of relevant materials and instruments, manufacture's specification, data provided in calibration reports and uncertainties assigned to reference data taken from handbooks. Broadly speaking, the uncertainty is either obtained from an outdoor source or obtained from an assumed distribution, such as the normal distribution, rectangular or triangular distributions indicated in below Table.

| Uncertainty Distributions | Normal | Rectangular | Triangular | U-Shape |
|---|---|---|---|---|
| Multi-plying Factor | 1/k(b) | $1/\sqrt{3}$ | $1/\sqrt{6}$ | $1/\sqrt{2}$ |

**Standard Uncertainty for Assumed Distribution**

The combined standard uncertainty of the measurement result represents the estimated standard deviation of the result. It is obtained by combining the individual standard uncertainties of both Type A and Type B evaluation using the usual "root-sum-squares" (RSS) methods of combining standard deviations by taking the positive square root of the estimated variances.

Expanded uncertainty is a measure of uncertainty that defines an interval about the measurement result within which the measured value is confidently believed to lie. It is obtained by multiplying the combined standard uncertainty by a coverage factor. Typically, the coverage factor ranges from 2 to 3. Using a coverage factor allows the true value of a measured quantity to be specified with a defined probability within the specified uncertainty range. For purpose of this document, a coverage factor two is used, which corresponds to confidence interval of about 95 %. The DASY uncertainty Budget is shown in the following tables.

| DASY6/8 Uncertainty Budget (Frequency Range: 300MHz ~ 3GHz) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Symbol** | **Error Description** | **Uncert. Value (±%)** | **Prob. Dist.** | **Div.** | **Ci (1g)** | **Ci (10g)** | **Standard Uncertainty (1g) (±%)** | **Standard Uncertainty (10g) (±%)** |
| **Measurement System Erros** | | | | | | | | |
| CF | Probe calibration | 12.0 | N | 2 | 1 | 1 | 6.0 | 6.0 |
| $CF_{drift}$ | Probe calibration Drift | 1.7 | R | $\sqrt{3}$ | 1 | 1 | 1.0 | 1.0 |
| LIN | Probe Linearity | 4.7 | R | $\sqrt{3}$ | 1 | 1 | 2.7 | 2.7 |
| BBS | Broadband Signal | 3.0 | R | $\sqrt{3}$ | 1 | 1 | 1.7 | 1.7 |
| ISO | Probe Isotropy | 7.6 | R | $\sqrt{3}$ | 1 | 1 | 4.4 | 4.4 |
| DAE | Other Probe+Electronic | 0.7 | N | 1 | 1 | 1 | 0.7 | 0.7 |
| AMB | RF Ambient | 1.8 | N | 1 | 1 | 1 | 1.8 | 1.8 |
| $▲_{sys}$ | Probe positioning | 0.006mm | N | 1 | 0.14 | 0.14 | 0.1 | 0.1 |
| DAT | Data Processing | 1.2 | N | 1 | 1 | 1 | 1.2 | 1.2 |
| **Phantom and Device Errors** | | | | | | | | |
| LIQ(σ) | Conductivity (meas.) DAK | 2.5 | N | 1 | 0.78 | 0.71 | 2.0 | 1.8 |
| $LIQ(T_\sigma)$ | Conductivity (temp.) BB | 3.3 | R | $\sqrt{3}$ | 0.78 | 0.71 | 1.5 | 1.4 |
| EPS | Phantom Permittivity | 14.0 | R | $\sqrt{3}$ | 0 | 0 | 0 | 0 |
| DIS | Distance DUT - TSL | 2.0 | N | 1 | 2 | 2 | 4.0 | 4.0 |
| $D_{xyz}$ | Device Positioning | 1.0 | N | 1 | 1 | 1 | 1.0 | 1.0 |
| H | Device Holder | 3.6 | N | 1 | 1 | 1 | 3.6 | 3.6 |
| MOD | DUT Modulation m | 2.4 | R | $\sqrt{3}$ | 1 | 1 | 1.4 | 1.4 |
| TAS | Time-average SAR | 1.7 | R | $\sqrt{3}$ | 1 | 1 | 1.0 | 1.0 |
| $RF_{drift}$ | DUT Drift | 2.5 | N | 1 | 1 | 1 | 2.5 | 2.5 |
| VAL | Val Antenna Unc. val | 0.0 | N | 1 | 1 | 1 | 0.0 | 0.0 |
| $RF_{in}$ | Unc. Input Power val | 0.0 | N | 1 | 1 | 1 | 0.0 | 0.0 |
| **Correction to the SAR Results** | | | | | | | | |
| C(ε,σ) | Deviation to Target | 1.9 | N | 1 | 1 | 0.84 | 1.9 | 1.6 |
| C(R) | SAR Scaling p | 0.0 | R | $\sqrt{3}$ | 1 | 1 | 0.0 | 0.0 |
| u(▲SAR) | **Combined Standard Uncertainty** | | | | | | 10.9 | 10.9 |
| U | **Expanded Standard Uncertainty** | | | | | | 21.9 | 21.8 |

| DASY6/8 Uncertainty Budget (Frequency Range: 3GHz ~ 6GHz) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Symbol | Error Description | Uncert. Value (±%) | Prob. Dist. | Div. | Ci (1g) | Ci (10g) | Standard Uncertainty (1g) (±%) | Standard Uncertainty (10g) (±%) |
| **Measurement System Erros** | | | | | | | | |
| CF | Probe calibration | 13.1 | N | 2 | 1 | 1 | 6.55 | 6.55 |
| $CF_{drift}$ | Probe calibration Drift | 1.7 | R | $\sqrt{3}$ | 1 | 1 | 1.0 | 1.0 |
| LIN | Probe Linearity | 4.7 | R | $\sqrt{3}$ | 1 | 1 | 2.7 | 2.7 |
| BBS | Broadband Signal | 2.6 | R | $\sqrt{3}$ | 1 | 1 | 1.5 | 1.5 |
| ISO | Probe Isotropy | 7.6 | R | $\sqrt{3}$ | 1 | 1 | 4.4 | 4.4 |
| DAE | Other Probe+Electronic | 1.2 | N | 1 | 1 | 1 | 1.2 | 1.2 |
| AMB | RF Ambient | 1.8 | N | 1 | 1 | 1 | 1.8 | 1.8 |
| $▲_{sys}$ | Probe positioning | 0.005mm | N | 1 | 0.29 | 0.29 | 0.15 | 0.15 |
| DAT | Data Processing | 2.3 | N | 1 | 1 | 1 | 2.3 | 2.3 |
| **Phantom and Device Errors** | | | | | | | | |
| LIQ(σ) | Conductivity (meas.) DAK | 2.5 | N | 1 | 0.78 | 0.71 | 2.0 | 1.8 |
| $LIQ(T_{\sigma})$ | Conductivity (temp.) BB | 3.4 | R | $\sqrt{3}$ | 0.78 | 0.71 | 1.5 | 1.4 |
| EPS | Phantom Permittivity | 14.0 | R | $\sqrt{3}$ | 0.25 | 0.25 | 2.0 | 2.0 |
| DIS | Distance DUT - TSL | 2.0 | N | 1 | 2 | 2 | 4.0 | 4.0 |
| $D_{xyz}$ | Device Positioning | 1.0 | N | 1 | 1 | 1 | 1.0 | 1.0 |
| H | Device Holder | 3.6 | N | 1 | 1 | 1 | 3.6 | 3.6 |
| MOD | DUT Modulation[m] | 2.4 | R | $\sqrt{3}$ | 1 | 1 | 1.4 | 1.4 |
| TAS | Time-average SAR | 1.7 | R | $\sqrt{3}$ | 1 | 1 | 1.0 | 1.0 |
| $RF_{drift}$ | DUT Drift | 2.5 | N | 1 | 1 | 1 | 2.5 | 2.5 |
| VAL | Val Antenna Unc.[val] | 0.0 | N | 1 | 1 | 1 | 0.0 | 0.0 |
| $RF_{in}$ | Unc. Input Power [val] | 0.0 | N | 1 | 1 | 1 | 0.0 | 0.0 |
| **Correction to the SAR Results** | | | | | | | | |
| C(ε,σ) | Deviation to Target | 1.9 | N | 1 | 1 | 0.84 | 1.9 | 1.6 |
| C(R) | SAR Scaling[p] | 0.0 | R | $\sqrt{3}$ | 1 | 1 | 0.0 | 0.0 |
| u(▲SAR) | **Combined Standard Uncertainty** | | | | | | 11.6 | 11.5 |
| U | **Expanded Standard Uncertainty** | | | | | | 23.3 | 23.0 |

| DASY6/8 Uncertainty Budget (Frequency Range: 6GHz ~ 10GHz) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Symbol** | **Error Description** | **Uncert. Value (±%)** | **Prob. Dist.** | **Div.** | **Ci (1g)** | **Ci (10g)** | **Standard Uncertainty (1g) (±%)** | **Standard Uncertainty (10g) (±%)** |
| **Measurement System Erros** | | | | | | | | |
| CF | Probe calibration | 18.6 | N | 2 | 1 | 1 | 9.3 | 9.3 |
| $CF_{drift}$ | Probe calibration Drift | 1.7 | R | $\sqrt{3}$ | 1 | 1 | 1.0 | 1.0 |
| LIN | Probe Linearity | 4.7 | R | $\sqrt{3}$ | 1 | 1 | 2.7 | 2.7 |
| BBS | Broadband Signal | 2.8 | R | $\sqrt{3}$ | 1 | 1 | 1.6 | 1.6 |
| ISO | Probe Isotropy | 7.6 | R | $\sqrt{3}$ | 1 | 1 | 4.4 | 4.4 |
| DAE | Other Probe+Electronic | 1.2 | N | 1 | 1 | 1 | 2.4 | 2.4 |
| AMB | RF Ambient | 1.8 | N | 1 | 1 | 1 | 1.8 | 1.8 |
| $▲_{sys}$ | Probe positioning | 0.005mm | N | 1 | 0.50 | 0.50 | 0.25 | 0.25 |
| DAT | Data Processing | 3.5 | N | 1 | 1 | 1 | 3.5 | 3.5 |
| **Phantom and Device Errors** | | | | | | | | |
| LIQ(σ) | Conductivity (meas.) DAK | 2.5 | N | 1 | 0.78 | 0.71 | 2.0 | 1.8 |
| $LIQ(T_{\sigma})$ | Conductivity (temp.) BB | 2.4 | R | $\sqrt{3}$ | 0.78 | 0.71 | 1.1 | 1.0 |
| EPS | Phantom Permittivity | 14.0 | R | $\sqrt{3}$ | 0.5 | 0.5 | 4.0 | 4.0 |
| DIS | Distance DUT - TSL | 2.0 | N | 1 | 2 | 2 | 4.0 | 4.0 |
| $D_{xyz}$ | Device Positioning | 1.0 | N | 1 | 1 | 1 | 1.0 | 1.0 |
| H | Device Holder | 3.6 | N | 1 | 1 | 1 | 3.6 | 3.6 |
| MOD | DUT Modulation[m] | 2.4 | R | $\sqrt{3}$ | 1 | 1 | 1.4 | 1.4 |
| TAS | Time-average SAR | 1.7 | R | $\sqrt{3}$ | 1 | 1 | 1.0 | 1.0 |
| $RF_{drift}$ | DUT Drift | 2.5 | N | 1 | 1 | 1 | 2.5 | 2.5 |
| VAL | Val Antenna Unc.[val] | 0.0 | N | 1 | 1 | 1 | 0.0 | 0.0 |
| $RF_{in}$ | Unc. Input Power [val] | 0.0 | N | 1 | 1 | 1 | 0.0 | 0.0 |
| **Correction to the SAR Results** | | | | | | | | |
| C(ε,σ) | Deviation to Target | 1.9 | N | 1 | 1 | 0.84 | 1.9 | 1.6 |
| C(R) | SAR Scaling[p] | 0.0 | R | $\sqrt{3}$ | 1 | 1 | 0.0 | 0.0 |
| u(▲SAR) | **Combined Standard Uncertainty** | | | | | | 14.2 | 13.9 |
| U | **Expanded Standard Uncertainty** | | | | | | 28.4 | 27.9 |

| DASY6/8 Uncertainty Budget for psSAR / psAPD Assessment (Frequency Range: 6GHz ~ 10GHz) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Symbol** | **Error Description** | **Uncert. Value (±%)** | **Prob. Dist.** | **Div.** | **Ci (1g)** | **Ci (10g)** | **Standard Uncertainty (1g) (±%)** | **Standard Uncertainty (10g) (±%)** |
| psSAR | Module SAR V16.0 (Table 6.3.3) | 14.2/13.9 | N | 1 | 1 | 1 | 14.2 | 13.9 |
| PDC | Power Density Conversion | 13.5 | R | $\sqrt{3}$ | 1 | 1 | 7.8 | 7.8 |
| | | | | | | | | |
| u(▲SAR) | **Combined Standard Uncertainty** | | | | | | 16.2 | 15.9 |
| U | **Expanded Standard Uncertainty in dB** | | | | | | 32.4 ±1.2dB | 31.9 ±1.2dB |

| **Error Description** | **Uncertainty (±dB)** | **Probability Distribution** | **Divisor** | ***ci*** | **Standard Uncertainty (±dB)** | **$\nu_i$ or $\nu_{eff}$** |
|---|---|---|---|---|---|---|
| **Uncertainty terms dependent on the measurement system** | | | | | | |
| Probe calibration | 0.49 | N | 1 | 1 | 0.49 | ∞ |
| Probe correction | 0 | R | 1.732 | 1 | 0 | ∞ |
| Frequency response | 0.20 | R | 1.732 | 1 | 0.12 | ∞ |
| Sensor cross coupling | 0 | R | 1.732 | 1 | 0 | ∞ |
| Isotropy | 0.50 | R | 1.732 | 1 | 0.29 | ∞ |
| Linearity | 0.20 | R | 1.732 | 1 | 0.12 | ∞ |
| Probe scattering | 0 | R | 1.732 | 1 | 0 | ∞ |
| Probe positioning offset | 0.30 | R | 1.732 | 1 | 0.17 | ∞ |
| Probe positioning repeatability | 0.04 | R | 1.732 | 1 | 0.02 | ∞ |
| Sensor mechanical offset | 0 | R | 1.732 | 1 | 0 | ∞ |
| Probe spatial resolution | 0 | R | 1.732 | 1 | 0 | ∞ |
| Field impedance dependance | 0 | R | 1.732 | 1 | 0 | ∞ |
| Amplitude and phase drift | 0 | R | 1.732 | 1 | 0 | ∞ |
| Amplitude and phase noise | 0.04 | R | 1.732 | 1 | 0.02 | ∞ |
| Measurement area truncation | 0 | R | 1.732 | 1 | 0 | ∞ |
| Data acquisition | 0.03 | R | 1.732 | 1 | 0.03 | ∞ |
| Sampling | 0 | R | 1.732 | 1 | 0 | ∞ |
| Field reconstruction | 2.0 | R | 1.732 | 1 | 1.15 | ∞ |
| Forward transformation | 0 | R | 1.732 | 1 | 0 | ∞ |
| Power density scaling | - | R | 1.732 | 1 | - | ∞ |
| Spatial averaging | 0.10 | R | 1.732 | 1 | 0.06 | ∞ |
| System Detection Limits | 0.04 | R | 1.732 | 1 | 0.02 | ∞ |
| **Uncertainty terms dependent on the DUT and environmental factors** | | | | | | |
| Probe coupling with DUT | 0 | R | 1.732 | 1 | 0 | ∞ |
| Modulation response | 0.40 | R | 1.732 | 1 | 0.23 | ∞ |
| Integration time | 0 | R | 1.732 | 1 | 0 | ∞ |
| Response time | 0 | R | 1.732 | 1 | 0 | ∞ |

| | | | | | | |
|---|---|---|---|---|---|---|
| Device holder influence | 0.10 | R | 1.732 | 1 | 0.06 | ∞ |
| DUT alignment | 0 | R | 1.732 | 1 | 0 | ∞ |
| RF ambient | 0.04 | R | 1.732 | 1 | 0.02 | ∞ |
| Ambient reflections | 0.04 | R | 1.732 | 1 | 0.02 | ∞ |
| Immunity / secondary reception | 0 | R | 1.732 | 1 | 0 | ∞ |
| Drift of the DUT | - | R | 1.732 | 1 | - | ∞ |
| | | | | | | |
| Combined standard uncertainty | | | | | 1.34 dB | ∞ |
| Coverage Factor for 95% | | | | | K=2 | N/A |
| Expanded standard uncertainty | | | | | 2.68 dB | |

**PD Uncertainty Budget for Frequency Range 6 – 10GHz**

# Annex A General Information

### 1. Identification of the Responsible Testing Laboratory

| | |
|---|---|
| Laboratory Name: | Shenzhen Morlab Communications Technology Co., Ltd. |
| Laboratory Address: | FL.3, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, GuangDong Province, P. R. China |
| Telephone: | +86 755 36698555 |
| Facsimile: | +86 755 36698525 |

### 2. Identification of the Responsible Testing Location

| | |
|---|---|
| Name: | Shenzhen Morlab Communications Technology Co., Ltd. |
| Address: | FL.3, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, GuangDong Province, P. R. China |

### 3. Facilities and Accreditations

The FCC designation number is CN1192, the test firm registration number is 226174.

**Note:**

The main report is end here and the other Annex (B,C,D,E,F,G) will be submitted separately.

****** END OF MAIN REPORT ******