REPORT No.: SZ25050338S01

TEST REPORT

APPLICANT	:	Rhino Mobility LLC
PRODUCT NAME	:	Dongle
MODEL NAME	:	D2
BRAND NAME	:	RHINO
FCC ID	:	2AUOUD2
STANDARD(S)	:	FCC 47 CFR Part 2(2.1093) IEEE 1528-2013
RECEIPT DATE	:	2025-06-23
TEST DATE	:	2025-09-01 to 2025-09-30
ISSUE DATE	:	2025-10-24

Edited by : Pang Siyu

Pang Siyu (Rapporteur)

Approved by: Shen Junsheng

Shen Junsheng (Supervisor)

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MORLAB

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DIRECTORY

Changed History		
Version	**Date**	**Reason for Change**
1.0	2025-10-24	First edition

1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during test as bellows:
<Highest Reported SAR Summary>

Frequency Band		Highest SAR Summary
		Body (Gap 5mm)
		1g SAR (W/kg)
LTE	LTE Band 5	0.839
	LTE Band 7	1.154
	LTE Band 12	0.844
	LTE Band 13	0.900
	LTE Band 14	0.874
	LTE Band 25/2	0.890
	LTE Band 26	0.781
	LTE Band 30	0.869
	LTE Band 41	0.647
	LTE Band 48	0.485
	LTE Band 66/4	0.938
	LTE Band 71	0.949
5G NR (Redcap)	n2	1.176
	n5	0.964
	n7	1.134
	n12	0.634
	n14	0.642
	n25	1.176
	n26	0.846
	n30	1.124
	n41	1.152
	n48	1.119
	n66	1.179
	n71	0.436
	n77	1.093
	n78	1.004
WLAN	2.4GHz WLAN	0.369

Highest Simultaneous Transmission SAR_{1g} (W/Kg):	1.501 W/kg	Limit(W/kg): 1.6 W/kg

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) 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 IEEE 1528-2013, TCBC workshop notes and FCC KDB publications.
2. For FDD-LTE Band 2/4 is full covered by FDD-LTE Band 25/66, therefore only FDD-LTE Band 25/66 was tested.
3. The declarations of EUT presented in the report are provided by applicant and/or manufacturer, and the test laboratory is not responsible for the accuracy of the information.

2. Technical Information

Note: Provide by applicant.

2.1. Applicant and Manufacturer Information

Applicant:	Rhino Mobility LLC
Applicant Address:	8 The Green, Suite A, Dover, Delaware, 19901, USA
Manufacturer:	Rhino Mobility LLC
Manufacturer Address:	8 The Green, Suite A, Dover, Delaware, 19901, USA

2.2. Equipment under Test (EUT) Description

Product Name:	Dongle
EUT No.:	6#, 7#
Hardware Version:	SD2001H2.0
Software Version:	D2(001)_20251015
Frequency Bands:	LTE Band 2: 1850 MHz ~ 1910 MHz LTE Band 4: 1710 MHz ~ 1755 MHz LTE Band 5: 824 MHz ~ 849 MHz LTE Band 7: 2500 MHz ~ 2570 MHz LTE Band 12: 699 MHz ~ 716 MHz LTE Band 13: 777 MHz ~ 787 MHz LTE Band 14: 788 MHz ~ 798 MHz LTE Band 25: 1850 MHz ~ 1915 MHz LTE Band 26: 814 MHz ~ 849 MHz LTE Band 30: 2305 MHz ~ 2315 MHz LTE Band 41: 2496 MHz ~ 2690 MHz LTE Band 48: 3550 MHz ~ 3700 MHz LTE Band 66: 1710 MHz ~ 1780 MHz LTE Band 71: 663 MHz ~ 698 MHz 5G NR n2: 1850 MHz ~ 1910 MHz 5G NR n5: 824 MHz ~ 849 MHz 5G NR n7: 2500 MHz ~ 2570 MHz 5G NR n12: 699 MHz ~ 716 MHz 5G NR n14: 788 MHz ~ 798 MHz 5G NR n25: 1850 MHz ~ 1915 MHz 5G NR n26: 814 MHz ~ 824 MHz; 824 MHz ~ 849 MHz 5G NR n30: 2305 MHz ~ 2315 MHz 5G NR n41: 2496 MHz ~ 2690 MHz

	5G NR n48: 3550 MHz ~ 3700 MHz 5G NR n66: 1710 MHz ~ 1780 MHz 5G NR n71: 663 MHz ~ 698 MHz 5G NR n77: 3450 MHz ~ 3550 MHz; 3700 MHz ~ 3980 MHz 5G NR n78: 3450 MHz ~ 3550 MHz; 3700 MHz ~ 3800 MHz WLAN 2.4GHz: 2412 MHz ~ 2462 MHz
Modulation Mode:	LTE: QPSK, 16QAM, 64QAM, 256QAM 5G NR(Redcap): DFT-s-OFDM/CP-OFDM, PI/2 BPSK QPSK, 16QAM, 64QAM, 256QAM 802.11b: DSSS 802.11a/g: OFDM 802.11n-HT20/HT40: OFDM 802.11ac-VHT20/40: OFDM
Antenna Type:	WWAN: PIFA Antenna WLAN: PIFA Antenna
SIM Cards Description:	LTE+5G NR(Redcap)

Note: For more detailed description, please refer to specification or user manual supplied by the applicant and/or manufacturer.

2.3. Environment of Test Site/Conditions

Normal Temperature (NT):	18-25 °C
Relative Humidity:	30-75 %

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 (dW) absorbed by(dissipated in) an incremental mass (dm) contained in a volume element (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 C is the specific head capacity, δT is the temperature rise and δt 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 $|E|$ 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

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	Remark
FCC 47 CFR Part 2 (2.1093)	Radio Frequency Radiation Exposure Evaluation: Portable Devices	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	/
KDB 447498 D01v06	General RF Exposure Guidance	/
KDB 447498 D02v02r01	SAR Procedures for Dongle Xmtr	/
KDB 248227 D01v02r02	SAR Measurement Procedures for 802.11 Transmitters	/
KDB 865664 D01v01r04	SAR Measurement 100 MHz to 6 GHz	/
KDB 865664 D02v01r02	RF Exposure Reporting	/
KDB 941225 D05v02r05	SAR Evaluation Consideration for LTE Devices	/
KDB 941225 D06v02r01	SAR Evaluation Procedures For Portable Devices With Wireless Router Capabilities	/
Note: Any additions, deviation, or exclusions from the method shall be noted in the “Remark".		

6. SAR Measurement System

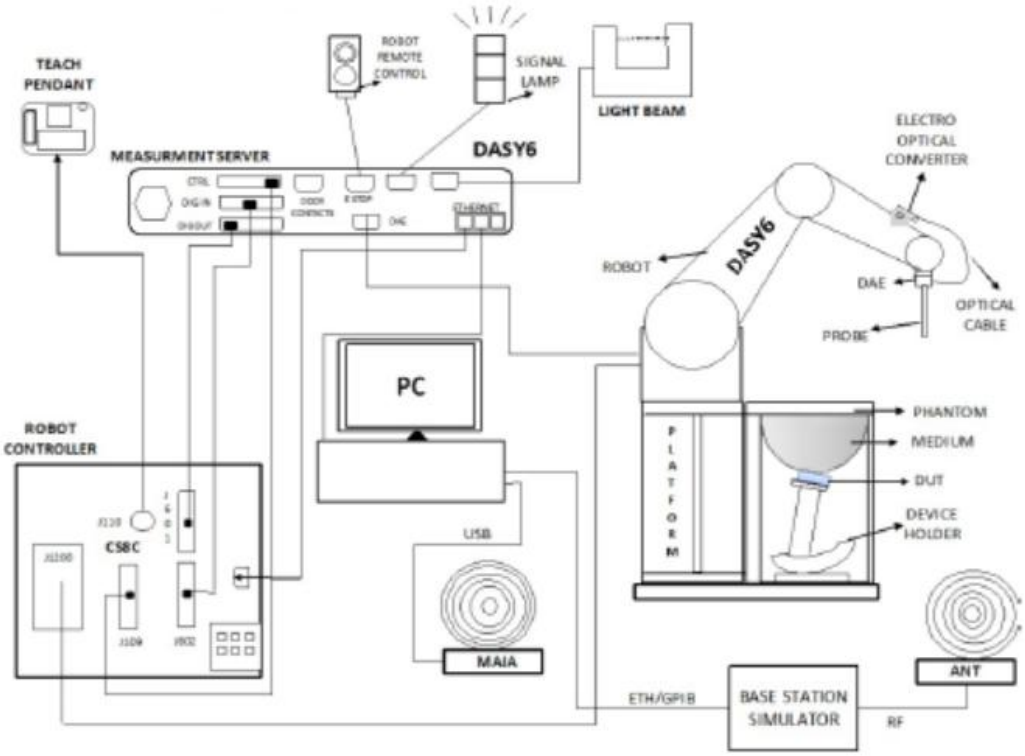


Fig 6.1 SPEAG DASY System Configurations

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 Built-in optical fiber for surface detection system. 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) ± 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) Tip diameter: 6.8 mm (Body: 12 mm) Distance from probe tip to dipole centers: 2.7 mm

Fig 6.2 Photo of ES3DV3

<EX3DV4 Probe>

Construction	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)
Frequency	10 MHz to 6 GHz; Linearity: ± 0.2 dB
Directivity	± 0.3 dB in HSL (rotation around probe axis) ± 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) Tip diameter: 2.5 mm (Body: 12 mm) 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 annex F 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 fast 16 bit 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.

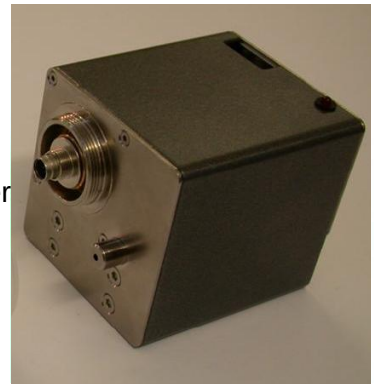


Fig 6.4 Photo of DAE

6.3. Robot

The SPEAG DASY system uses the high precision robots (DASY6: TX60XL) type from Stäubli SA (France). For the 6-axis controller system, the robot controller version (DASY6: CS8c) from Stäubliis used. The Stäublirobot series have many features that are important for our application:

- High precision (repeatability 0.02 mm)
- High reliability (industrial design)
- Low maintenance costs (virtually maintenance free due to direct drive gears; nobelt drives)
- Jerk-free straight movements
- Low ELF interference (motor control fields shielded via the closed metallic construction shields)

Fig. 6.5 Photo of Robot

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 bit AD converter system for optical detection and digital I/O interface are contained on the DASY I/O board, which is directly connected to the PC/104 bus of the CPU board. The measurement server performs all 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>

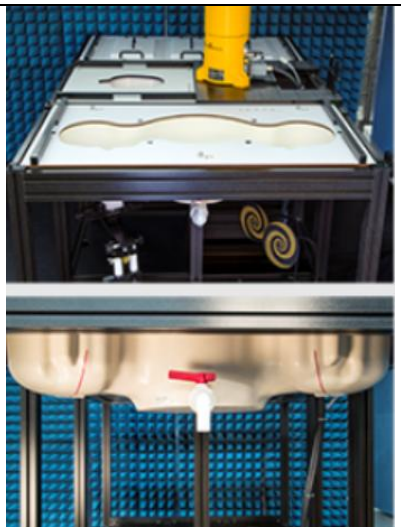
Shell Thickness	2 ± 0.2 mm (sagging: <1%) Center ear point: 6 ± 0.2 mm	
Filling Volume **Dimensions**	Approx. 25 liters Length: 1000 mm; Width: 500 mm; Height: adjustable feet	
Measurement Areas	Left Head, Right Head, Flat phantom	

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

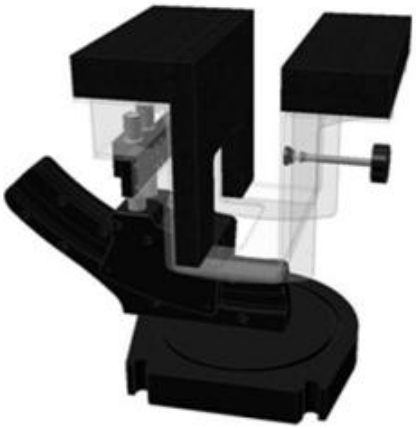


Fig 6.10 Laptop Extension Kit

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	750MHz System Validation Kit	D750V3	1223	2025.06.25	2028.06.24
SPEAG	900MHz System Validation Kit	D900V2	1d064	2024.10.21	2027.10.20
SPEAG	1800MHz System Validation Kit	D1800V2	2d158	2024.10.21	2027.10.20
SPEAG	2000MHz System Validation Kit	D2000V2	1050	2024.10.22	2027.10.21
SPEAG	2300MHz System Validation Kit	D2300V2	1107	2024.10.21	2027.10.20
SPEAG	2450MHz System Validation Kit	D2450V2	805	2024.10.22	2027.10.21
SPEAG	2600MHz System Validation Kit	D2600V2	1198	2024.10.23	2027.10.22
SPEAG	3500MHz System Validation Kit	D3500V2	1104	2024.10.21	2027.10.20
SPEAG	3700MHz System Validation Kit	D3700V2	1076	2024.10.23	2027.10.22
SPEAG	3900MHz System Validation Kit	D3900V2	1046	2024.10.21	2027.10.20
SPEAG	DOSIMETRIC ASSESSMENT SYSTEM Software	DASY52	52.10.4.1527	NCR	NCR
SPEAG	Dosimetric E-Field Probe	EX3DV4	3823	2024.11.11	2025.11.10
SPEAG	Data Acquisition Electronics	DAE4	480	2024.11.11	2025.11.10
SPEAG	SAM Twin Phantom 1	QD000P40CD	1811	NCR	NCR
SPEAG	Phone Positioner	N/A	N/A	NCR	NCR
R&S	Network Emulator	CMW500	165755	2025.01.06	2026.01.05
Anritsu	Network Emulator	MT8820C	6201274521	2025.01.06	2026.01.05
Anritsu	Network Emulator	MT8000A	6262148249	2025.05.16	2026.05.15
Agilent	Network Analyzer	E5071B	MY42404762	2025.01.06	2026.01.05
SPEAG	Dielectric Assessment KIT	DAK-3.5	1279	2025.03.18	2026.03.17
mini-circuits	Amplifier	ZHL-42W+	608501717	NCR	NCR
Agilent	Signal Generator	N5182B	MY53050509	2024.09.11	2025.09.10
Agilent	Signal Generator	N5182B	MY53050509	2025.09.02	2026.09.01
R&S	Power Senor	NRP8S	103215	2025.01.06	2026.01.05
Agilent	Power Meter	E4416A	MY45102093	2024.09.11	2025.09.10
Agilent	Power Meter	E4416A	MY45102093	2025.09.02	2026.09.01
R&S	Power Sensor	NRP8S	103240	2025.01.06	2026.01.05
Anritsu	Power Meter	E4418B	GB43318055	2025.05.15	2026.05.14
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
R&S	Spectrum Analyzer	N9030A	MY54170556	2025.09.02	2026.09.01
KTJ	Thermo meter	TA298	N/A	2024.11.20	2025.11.19
SPEAG	Tissue Simulating Liquids	HBBL600-10000V6		24H	

Note:

1. The calibration certificate of DASY can be referred to annex F 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 1 W input power according to the ratio of 1 W 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.Thenominaldielectricvaluesofthe tissue simulating liquids in the phantom and the tolerance of 5%are listed in below table.

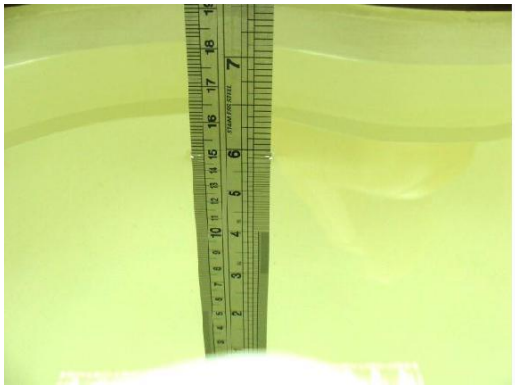


Fig 7.1 Photo of Liquid Height for Head SAR

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
750	HSL	22.1	0.925	0.89	3.93	±5	2025/9/1
750	HSL	22.3	0.922	0.89	3.60	±5	2025/9/3
900	HSL	22.1	0.991	0.97	2.16	±5	2025/9/4
900	HSL	22.1	0.983	0.97	1.34	±5	2025/9/5
1800	HSL	22.3	1.465	1.40	4.64	±5	2025/9/9
1800	HSL	22.4	1.434	1.40	2.43	±5	2025/9/10
2000	HSL	22.2	1.439	1.40	2.79	±5	2025/9/13
2300	HSL	22.4	1.660	1.67	-0.60	±5	2025/9/16
2450	HSL	22.1	1.877	1.80	4.28	±5	2025/9/14
2600	HSL	22.1	2.016	1.96	2.86	±5	2025/9/20
2600	HSL	22.1	2.029	1.96	3.52	±5	2025/9/25
3500	HSL	22.4	3.014	2.91	3.57	±5	2025/9/28
3700	HSL	22.1	2.983	3.05	-2.20	±5	2025/9/30
3900	HSL	22.1	3.160	3.15	0.32	±5	2025/9/22
Frequency (MHz)	**Tissue Type**	**Liquid Temp. (℃)**	**Permittivity (εr)**	**Permittivity Target (εr)**	**Delta (εr) (%)**	**Limit (%)**	**Date**
750	HSL	22.1	42.195	41.90	0.70	±5	2025/9/1
750	HSL	22.3	42.191	41.90	0.69	±5	2025/9/3
900	HSL	22.1	41.962	41.50	1.11	±5	2025/9/4
900	HSL	22.1	42.002	41.50	1.21	±5	2025/9/5
1800	HSL	22.3	41.777	40.00	4.44	±5	2025/9/9
1800	HSL	22.4	41.764	40.00	4.41	±5	2025/9/10
2000	HSL	22.2	41.231	40.00	3.08	±5	2025/9/13
2300	HSL	22.4	39.040	39.50	-1.16	±5	2025/9/16
2450	HSL	22.1	39.821	39.20	1.58	±5	2025/9/14
2600	HSL	22.1	38.256	39.00	-1.91	±5	2025/9/20
2600	HSL	22.1	38.268	39.00	-1.88	±5	2025/9/25
3500	HSL	22.4	38.162	37.90	0.69	±5	2025/9/28
3700	HSL	22.1	38.462	37.70	2.02	±5	2025/9/30
3900	HSL	22.1	38.320	37.50	2.19	±5	2025/9/22

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. SAR System Performance Check

➢ **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.

➢ **System Setup**

The output power on dipole port must be calibrated to 24 dBm (250 mW) or 20 dBm (100 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

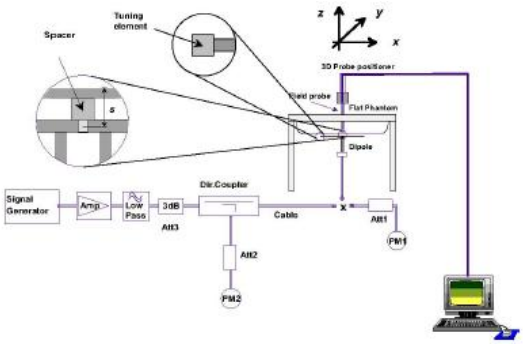


Fig 8.2 System Setup for System Evaluation

➢ Validation Results

After system check testing, the SAR result will be normalized to 1 W 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)	Input Power (mW)	Dipole S/N	Probe S/N	DAE S/N
750	250	D750V3-1223	3823	480
900	250	D900V2-1d064	3823	480
1800	250	D1800V2-2d158	3823	480
2000	250	D2000V2-1050	3823	480
2300	250	D2300V2-1107	3823	480
2450	250	D2450V2-805	3823	480
2600	250	D2600V2-1198	3823	480
3500	100	D3500V2-1104	3823	480
3700	100	D3700V2-1076	3823	480
3900	100	D3900V2-1046	3823	480

<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
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
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 (%)
2025/9/1	750	HSL	2.25	8.58	9.00	4.90
2025/9/3	750	HSL	2.24	8.58	8.96	4.43
2025/9/4	900	HSL	2.84	10.90	11.36	4.22
2025/9/5	900	HSL	2.81	10.90	11.24	3.12
2025/9/9	1800	HSL	9.53	39.20	38.12	-2.76
2025/9/10	1800	HSL	9.55	39.20	38.20	-2.55
2025/9/13	2000	HSL	10.69	41.40	42.76	3.29
2025/9/16	2300	HSL	11.91	48.80	47.64	-2.38
2025/9/14	2450	HSL	13.54	52.80	54.16	2.58
2025/9/20	2600	HSL	13.11	55.90	52.44	-6.19
2025/9/25	2600	HSL	13.20	55.90	52.80	-5.55
2025/9/28	3500	HSL	6.88	66.70	68.80	3.15
2025/9/30	3700	HSL	6.82	67.50	68.20	1.04
2025/9/22	3900	HSL	6.94	68.00	69.40	2.06

Date	Frequency (MHz)	Tissue Type	Measured 10g SAR (W/kg)	Targeted 10g SAR (W/kg)	Normalized 10g SAR (W/kg)	Deviation (%)
2025/9/1	750	HSL	1.43	5.65	5.72	1.24
2025/9/3	750	HSL	1.45	5.65	5.80	2.65
2025/9/4	900	HSL	1.81	7.00	7.24	3.43
2025/9/5	900	HSL	1.85	7.00	7.40	5.71
2025/9/9	1800	HSL	5.23	20.70	20.92	1.06
2025/9/10	1800	HSL	5.21	20.70	20.84	0.68
2025/9/13	2000	HSL	5.61	21.00	22.44	6.86
2025/9/16	2300	HSL	5.54	23.20	22.16	-4.48
2025/9/14	2450	HSL	5.55	24.50	22.20	-9.39
2025/9/20	2600	HSL	5.81	24.90	23.24	-6.67
2025/9/25	2600	HSL	5.87	24.90	23.48	-5.70
2025/9/28	3500	HSL	2.67	25.30	26.70	5.53
2025/9/30	3700	HSL	2.63	24.70	26.30	6.48
2025/9/22	3900	HSL	2.50	23.60	25.00	5.93

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

9. EUT Testing Position

This EUT was tested in six different positions. They are Front/Back/Left/Right/Top/Bottom of the EUT with phantom 5 mm gap, as illustrated below, please refer to annex B for the test setup photos.

9.1. 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.

9.2. 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.

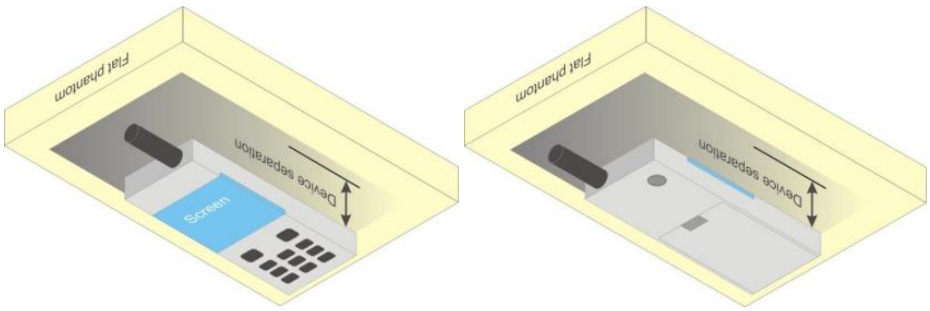


Fig 9.1 Illustration for Body Worn Position

9.3. 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).

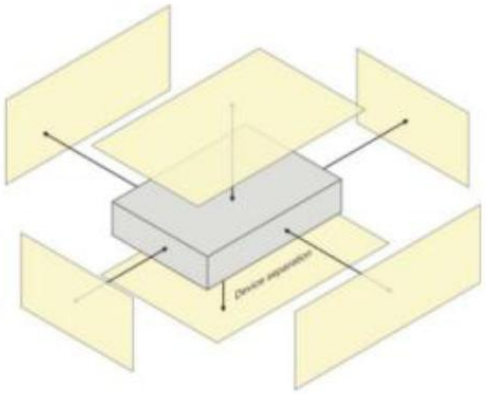


Fig 9.2 Illustration for Hotspot Position

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 annex B 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 form 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 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 a10mm² 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 IEEE1528-2003.

10.4. Zoom Scan Procedures

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/m³ 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 1 g cube is 10mm, with the side length of the 10 g cube 21.5 mm. 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 5 x 5 x 7 (8 mm x 8 mm x 5 mm) providing a volume of 32 mm in the X & Y axis, and 30 mm in the Z axis.

10.5. 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.

10.6. 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. SAR Test Procedure

11.1. General Scan Requirements

Probe boundary effect error compensation is required for measurements with the probe tip closer than half a probe tip diameter to the phantom surface. Both the probe tip diameter and sensor offset distance must satisfy measurement protocols; to ensure probe boundary effect errors are minimized and the higher fields closest to the phantom surface can be correctly measured and extrapolated to the phantom surface for computing 1-g SAR. Tolerances of the post-processing algorithms must be verified by the test laboratory for the scan resolutions used in the SAR measurements, according to the reference distribution functions specified in IEEE Std. 1528-2013.

<table>
<tr><td colspan="3"></td><td>≤ 3 GHz</td><td>> 3 GHz</td></tr>
<tr><td colspan="3">Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface</td><td>5 mm ± 1 mm</td><td>½·δ·ln(2) mm ± 0.5 mm</td></tr>
<tr><td colspan="3">Maximum probe angle from probe axis to phantom surface normal at the measurement location</td><td>30° ± 1°</td><td>20° ± 1°</td></tr>
<tr><td colspan="3" rowspan="2">Maximum area scan spatial resolution: Δx_{Area}, Δy_{Area}</td><td>≤ 2 GHz: ≤ 15 mm
2 – 3 GHz: ≤ 12 mm</td><td>3 – 4 GHz: ≤ 12 mm
4 – 6 GHz: ≤ 10 mm</td></tr>
<tr><td colspan="2">When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be ≤ the corresponding x or y dimension of the test device with at least one measurement point on the test device.</td></tr>
<tr><td colspan="3">Maximum zoom scan spatial resolution: Δx_{Zoom}, Δy_{Zoom}</td><td>≤ 2 GHz: ≤ 8 mm
2 – 3 GHz: ≤ 5 mm*</td><td>3 – 4 GHz: ≤ 5 mm*
4 – 6 GHz: ≤ 4 mm*</td></tr>
<tr><td rowspan="3">Maximum zoom scan spatial resolution, normal to phantom surface</td><td colspan="2">uniform grid: $\Delta z_{Zoom}(n)$</td><td>≤ 5 mm</td><td>3 – 4 GHz: ≤ 4 mm
4 – 5 GHz: ≤ 3 mm
5 – 6 GHz: ≤ 2 mm</td></tr>
<tr><td rowspan="2">graded grid</td><td>$\Delta z_{Zoom}(1)$: between 1st two points closest to phantom surface</td><td>≤ 4 mm</td><td>3 – 4 GHz: ≤ 3 mm
4 – 5 GHz: ≤ 2.5 mm
5 – 6 GHz: ≤ 2 mm</td></tr>
<tr><td>$\Delta z_{Zoom}(n>1)$: between subsequent points</td><td colspan="2">≤ 1.5·$\Delta z_{Zoom}(n-1)$ mm</td></tr>
<tr><td>Minimum zoom scan volume</td><td colspan="2">x, y, z</td><td>≥ 30 mm</td><td>3 – 4 GHz: ≥ 28 mm
4 – 5 GHz: ≥ 25 mm
5 – 6 GHz: ≥ 22 mm</td></tr>
<tr><td colspan="5">Note: δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see IEEE Std 1528-2013 for details.
* When zoom scan is required and the reported SAR from the area scan based 1-g SAR estimation procedures of KDB Publication 447498 is ≤ 1.4 W/kg, ≤ 8 mm, ≤ 7 mm and ≤ 5 mm zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.</td></tr>
</table>

11.2. Test Procedure

The Following steps are used for each test position

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.
3. Measurement of the SAR distribution with a grid of 8 to 16mm * 8 to16 mm and a constant distance to the inner surface of the phantom. Since the sensors cannot directly measure at the inner phantom surface, the values between the sensors and the inner phantom surface are extrapolated. With these values the area of the maximum SAR is calculated by an interpolation scheme.
4. Around this point, a cube of 30 * 30 * 30 mm or 32 * 32 * 32 mm is assessed by measuring 5 or 8 * 5 or 8*4 or 5 mm. With these data, the peak spatial-average SAR value can be calculated.

11.3. 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.

11.4. 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.

12. SAR Test Configuration

<LTE Mode>

LTE Target MPR level

The device implements maximum power reduction per 3GPP 36.101 requirements where the MPR target is as below table. The MPR settings are implemented configured into firmware and cannot be disabled by the end user or LTE carrier network.

Modulation	Channel bandwidth / Transmission bandwidth configuration [RB]						MPR	3GPP
	1.4 MHz	3.0 MHz	5 MHz	10 MHz	15 MHz	20 MHz	Target (dB)	MPR (dB)
QPSK	> 5	> 4	> 8	> 12	> 16	> 18	1	≤ 1
16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	1	≤ 1
64 QAM	> 5	> 4	> 8	> 12	> 16	> 18	2	≤ 2
256 QAM	≥ 1						1	≤ 5

Note: The measurement result showed some difference from the target MPR level, due to expected 0.5 dB measurement tolerance

LTE Bands

LTE Bands	Channel bandwidth / Transmission bandwidth configuration [RB]					
	1.4 MHz	3.0 MHz	5 MHz	10 MHz	15 MHz	20 MHz
2	√	√	√	√	√	√
4	√	√	√	√	√	√
5	√	√	√	√	N/A	N/A
7	N/A	N/A	√	√	√	√
12	√	√	√	√	N/A	N/A
13	N/A	N/A	√	√	N/A	N/A
14	N/A	N/A	√	√	N/A	N/A
25	√	√	√	√	√	√
26	√	√	√	√	√	N/A
30	N/A	N/A	√	√	N/A	N/A
41	N/A	N/A	√	√	√	√
48	N/A	N/A	√	√	√	√
66	√	√	√	√	√	√
71	N/A	N/A	√	√	√	√

Note:

1. Per KDB 941225 D05v02r05, when a properly configured base station simulator is used for the SAR and power measurements, spectrum plots for each RB allocation and offset configuration is

not required.

2. Per KDB 941225 D05v02r05, start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
3. Per KDB 941225 D05v02r05, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
4. Per KDB 941225 D05v02r05, for QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
5. Per KDB 941225 D05v02r05, 16QAM/64QAM output power for each RB allocation configuration is > not ½ dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is ≤ 1.45 W/kg; Per KDB941225 D05v02r05, 16QAM/64QAM SAR testing is not required.
6. Per KDB 941225 D05v02r05, smaller bandwidth output power for each RB allocation configuration is > not ½ Db higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported band width is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, smaller bandwidth SAR testing is not required.
7. For LTE B4 / B5 / B7 / B17 the maximum bandwidth does not support three non-overlapping channels, per KDB941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.
8. LTE band 2 / 12 SAR test was covered by Band 25 / 17; according to April 2015 TCB workshop, SAR test for overlapping LTE bands can be reduced if
   a. The maximum output power, including tolerance, for the smaller band is ≤ the larger band to qualify for the SAR test exclusion.
   b. The channel bandwidth and other operating parameters for the smaller band are fully supported by the larger band.
9. According to 2017 TCB workshop, for 64 QAM and 16 QAM should be verified by checking the signal constellation with a call box to avoid incorrect maximum power levels due to MPR and other requirements associated with signal modulation, and the following figure is taken from the "Fundamental Measurement >> Modulation Analysis >>constellation" mode of the device connect to the CMW500 base station, therefore, the device 64QAM and 16QAMsignal modulation are correct. Identify if Maximum Power Reduction (MPR) is optional or mandatory, i.e. built-in by design: only mandatory MPR may be considered during SAR testing, when the maximum output power is permanently limited by the MPR implemented within the UE; and only for the applicable RB (resource block) configurations specified in LTE standards: b) A-MPR (additional MPR) must

be disabled.

10. 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 WWAN: Reported SAR(W/kg)= Measured SAR(W/kg)*Tune-up Scaling Factor
    d. For WLAN/Bluetooth: Reported SAR(W/kg)= Measured SAR(W/kg)* Duty Cycle scaling factor * Tune-up scaling factor
    e. For TDD LTE SAR measurement, the duty cycle 1:1.59 (62.9 %) was used perform testing and considering the theoretical duty cycle of 63.3% for extended cyclic prefix in the uplink, and the theoretical duty cycle of 62.9% for normal cyclic prefix in uplink, a scaling factor of extended cyclic prefix 63.3%/62.9% = 1.006 is applied to scale-up the measured SAR result. The Reported TDD LTE SAR = measured SAR (W/kg)* Tune-up Scaling Factor* scaling factor for extended cyclic prefix.
11. 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:≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100 MHz≤ 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≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz
12. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required only when the measured SAR is ≥0.8W/kg.
13. 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.

<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.

13. Conducted Power List

Remark: The output power of LTE/5G NR/WLAN refers to the annex E of this report.

14. EUT Antenna Location

➢ **EUT Antenna Location**

The location of antenna was recorded in annex B	
ANT0	TRX:LTE Band 2/4/5/7/12/13/14/25/26/30/41/66/71; 5G NR n2/5/7/12/14/25/26/30/41/66/71
ANT1	DRX:LTE Band 2/4/5/7/12/13/14/25/26/30/41/66/71; 5G NR n2/5/7/12/14/25/26/30/41/66/71
ANT2	TRX/ DRX:LTE Band 48; 5G NR n48/77/78
WIFI	WLAN 2.4GHz

Note :

1. Body mode SAR assessments are required.
2. Referring to KDB 941225 D06, when the overall device length and width are ≤ 9 cm * 5 cm, the test distance is 5 mm. In this case, all sides and surfaces were measured.

15. Block Diagram of the Tests to be Performed

15.1. Body

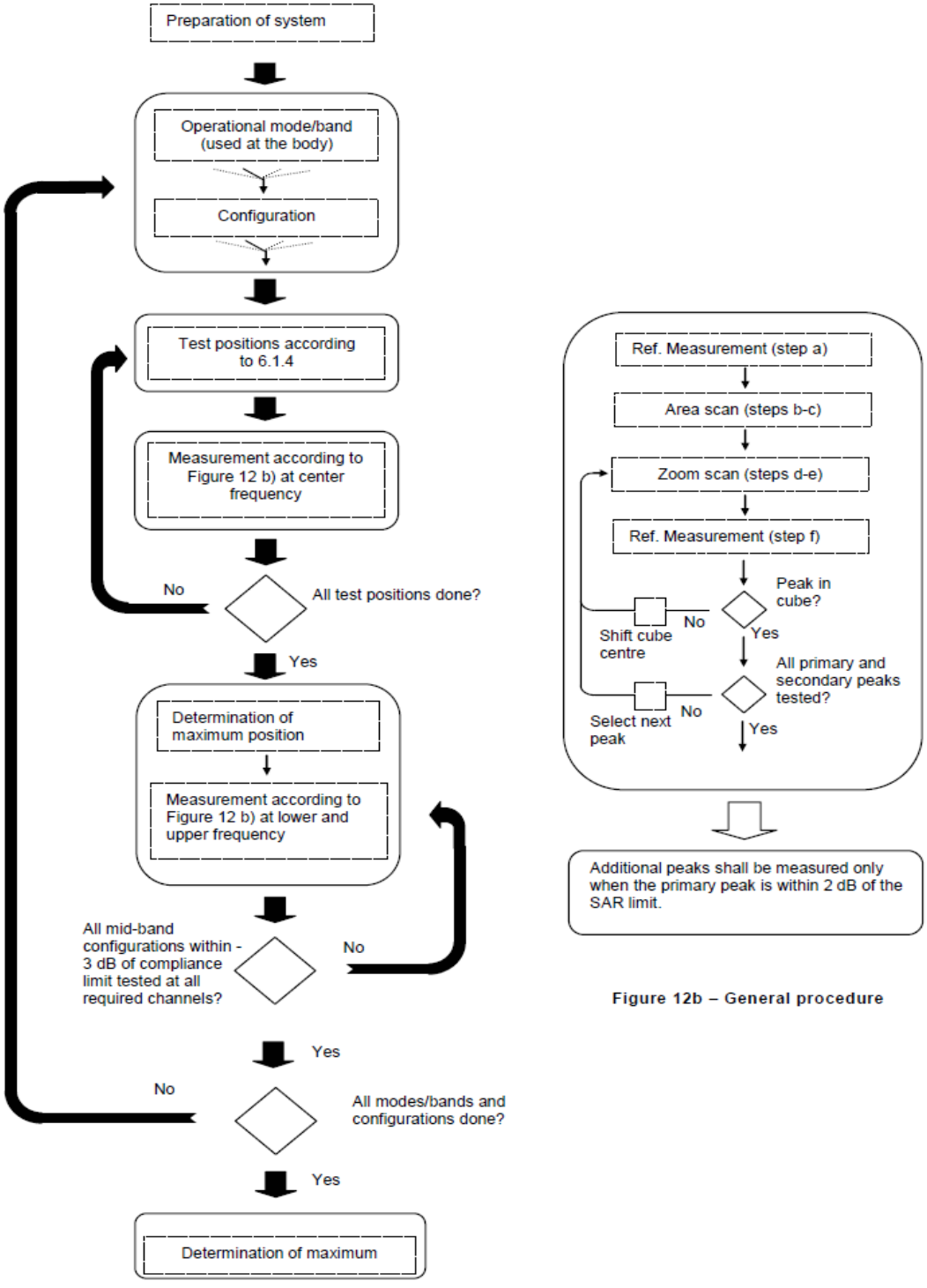


Figure 12b – General procedure

16. Proximity Sensor Considerations

16.1. Proximity Sensor Triggering Distances

➢ **P-sensor Triggering Distance Testing**

The EUT should be moved further away from and toward the flat phantom that fill with the tissue simulating liquid to determine the proximity sensor triggering distances. Conducted power is monitored qualitatively to identify the general triggering characteristics and recorded quantitatively, versus spacing, as required by the procedures.

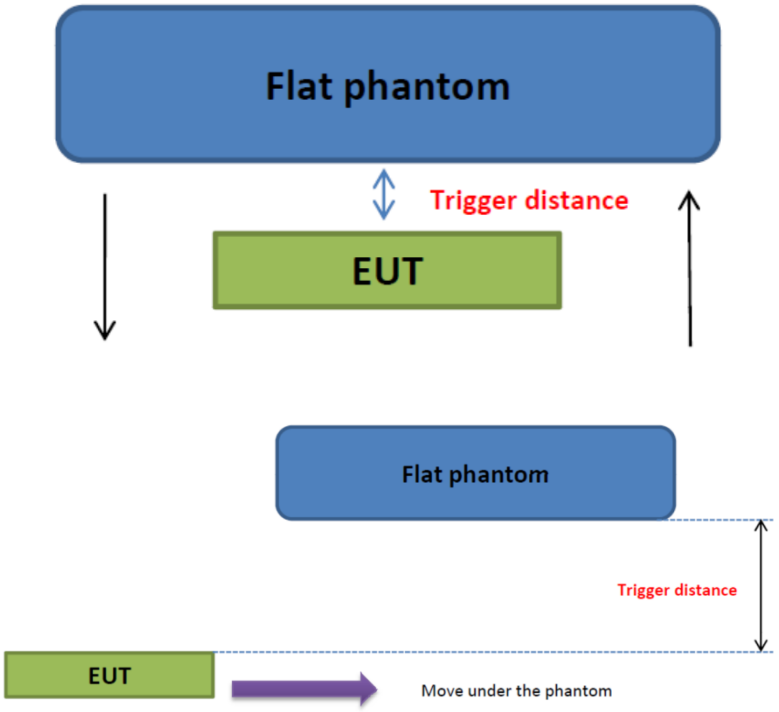


Fig.16.1 Illustration for proximity sensor trigger

➢ **P-sensor Triggering Distance**

Proximity Sensor Trigger Distance (mm)						
Exposure Position	Front Side	Back Side	Left Side	Right Side	Top Side	Bottom Side
Minimum	12	12	12	12	/	12

16.2. Proximity Sensor Coverage

Proximity sensors are not normally designed to cover the entire back surface or edges of a MIFI. The sensing regions are usually limited to areas near the sensor element. If a sensor is spatially offset from the antenna(s), it is necessary to verify sensor triggering for conditions where the antenna is next to the user but the sensor is laterally further away to ensure sensor coverage is sufficient for reducing the power to maintain compliance. For P-sensor coverage testing, the device is moved and “along the direction of maximum antenna and sensor offset”. Illustrating in the internal photo exhibit, although the sensor spatially offset, there is no trigger condition where the antenna is next to the user, the sensor is laterally further away, therefore proximity sensor coverage testing is not required. This procedure is not required since the antenna, sensor and peak SAR location is overlapped with the sensor.

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 WWAN: Reported SAR(W/kg)= Measured SAR(W/kg)*Tune-up Scaling Factor.
   d. 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. The power level condition applied should be follow:

Position	Sensor	Power Level	Scene
Body	N/A	Full Power	Standalone & Simultaneous
	Sensor on	Reduced Power	Standalone & Simultaneous

17.2. Body SAR Data

➢ **LTE QPSK Body SAR**

Plot No.	Band/Mode	Test Position	CH.	Ave. Power (dBm)	Tune-up Limit (dBm)	Tune-up Scaling Factor	Meas. SAR_{1g} (W/kg)	Reported SAR_{1g} (W/kg)
Full Power(ANT 0)								
	LTE Band 5/1RB#0 10M	Top Side	20525	23.28	24.00	1.180	0.392	0.463
	LTE Band 5/25RB#0 10M	Top Side	20525	22.35	23.00	1.161	0.352	0.409
Reduced Power(ANT 0)								
	LTE Band 5/1RB#0 10M	Front Side	20525	21.78	22.50	1.180	0.614	0.725
	LTE Band 5/1RB#0 10M	Back Side	20525	21.78	22.50	1.180	0.701	0.827
	LTE Band 5/1RB#0 10M	Left Side	20525	21.78	22.50	1.180	0.306	0.361
	LTE Band 5/1RB#0 10M	Right Side	20525	21.78	22.50	1.180	0.143	0.169
	LTE Band 5/1RB#0 10M	Bottom Side	20525	21.78	22.50	1.180	0.074	0.087
	LTE Band 5/1RB#0 10M	Back Side	20450	21.70	22.50	1.202	0.570	0.685
1#	LTE Band 5/1RB#0 10M	Back Side	20600	21.72	22.50	1.197	0.701	0.839
	LTE Band 5/25RB#0 10M	Front Side	20525	20.85	21.50	1.161	0.474	0.551
	LTE Band 5/25RB#0 10M	Back Side	20525	20.85	21.50	1.161	0.526	0.611
	LTE Band 5/25RB#0 10M	Left Side	20525	20.85	21.50	1.161	0.212	0.246
	LTE Band 5/25RB#0 10M	Right Side	20525	20.85	21.50	1.161	0.089	0.103
	LTE Band 5/25RB#0 10M	Bottom Side	20525	20.85	21.50	1.161	0.060	0.070
	LTE Band 5/50RB#0 10M	Back Side	20525	20.57	21.50	1.239	0.475	0.588
Full Power(ANT 0)								
	LTE Band 7/1RB#0 20M	Top Side	21100	22.96	24.00	1.271	0.526	0.668
	LTE Band 7/50RB#0 20M	Top Side	21100	21.90	23.00	1.288	0.430	0.554
Reduced Power(ANT 0)								
	LTE Band 7/1RB#0 20M	Front Side	21100	13.46	14.50	1.271	0.337	0.428
	LTE Band 7/1RB#0 20M	Back Side	21100	13.46	14.50	1.271	0.411	0.522
2#	LTE Band 7/1RB#0 20M	Left Side	21100	13.46	14.50	1.271	0.908	1.154
	LTE Band 7/1RB#0 20M	Right Side	21100	13.46	14.50	1.271	0.011	0.014
	LTE Band 7/1RB#0 20M	Bottom Side	21100	13.46	14.50	1.271	0.025	0.032
	LTE Band 7/1RB#0 20M	Left Side	20850	13.45	14.50	1.274	0.790	1.006
	LTE Band 7/1RB#0 20M	Left Side	21350	13.39	14.50	1.291	0.645	0.833
	LTE Band 7/50RB#0 20M	Front Side	21100	12.40	13.50	1.288	0.280	0.361
	LTE Band 7/50RB#0 20M	Back Side	21100	12.40	13.50	1.288	0.342	0.441
	LTE Band 7/50RB#0 20M	Left Side	21100	12.40	13.50	1.288	0.747	0.962
	LTE Band 7/50RB#0 20M	Right Side	21100	12.40	13.50	1.288	0.006	0.008
	LTE Band 7/50RB#0 20M	Bottom Side	21100	12.40	13.50	1.288	0.023	0.030

	LTE Band 7/50RB#0 20M	Left Side	20850	12.32	13.50	1.312	0.549	0.720
	LTE Band 7/50RB#0 20M	Left Side	21350	12.35	13.50	1.303	0.528	0.688
	LTE Band 7/100RB#0 20M	Left Side	21100	12.25	13.50	1.334	0.459	0.612
Full Power(ANT 0)								
	LTE Band 12/1RB#0 10M	Front Side	23095	23.28	24.00	1.180	0.594	0.701
3#	LTE Band 12/1RB#0 10M	Back Side	23095	23.28	24.00	1.180	0.715	0.844
	LTE Band 12/1RB#0 10M	Left Side	23095	23.28	24.00	1.180	0.543	0.641
	LTE Band 12/1RB#0 10M	Right Side	23095	23.28	24.00	1.180	0.063	0.074
	LTE Band 12/1RB#0 10M	Top Side	23095	23.28	24.00	1.180	0.154	0.182
	LTE Band 12/1RB#0 10M	Bottom Side	23095	23.28	24.00	1.180	0.062	0.073
	LTE Band 12/1RB#0 10M	Back Side	23060	23.24	24.00	1.191	0.613	0.730
	LTE Band 12/1RB#0 10M	Back Side	23130	23.20	24.00	1.202	0.700	0.842
	LTE Band 12/25RB#0 10M	Front Side	23095	22.21	23.00	1.199	0.535	0.642
	LTE Band 12/25RB#0 10M	Back Side	23095	22.21	23.00	1.199	0.563	0.675
	LTE Band 12/25RB#0 10M	Left Side	23095	22.21	23.00	1.199	0.350	0.420
	LTE Band 12/25RB#0 10M	Right Side	23095	22.21	23.00	1.199	0.010	0.012
	LTE Band 12/25RB#0 10M	Top Side	23095	22.21	23.00	1.199	0.121	0.145
	LTE Band 12/25RB#0 10M	Bottom Side	23095	22.21	23.00	1.199	0.050	0.060
	LTE Band 12/50RB#0 10M	Back Side	23130	22.03	23.00	1.250	0.526	0.658
Full Power(ANT 0)								
	LTE Band 13/1RB#0 10M	Top Side	23230	23.20	24.00	1.202	0.209	0.251
	LTE Band 13/25RB#0 10M	Top Side	23230	22.05	23.00	1.245	0.193	0.240
Reduced Power(ANT 0)								
	LTE Band 13/1RB#0 10M	Front Side	23230	22.20	23.00	1.202	0.514	0.618
4#	LTE Band 13/1RB#0 10M	Back Side	23230	22.20	23.00	1.202	0.749	0.900
	LTE Band 13/1RB#0 10M	Left Side	23230	22.20	23.00	1.202	0.355	0.427
	LTE Band 13/1RB#0 10M	Right Side	23230	22.20	23.00	1.202	0.047	0.057
	LTE Band 13/1RB#0 10M	Bottom Side	23230	22.20	23.00	1.202	0.042	0.050
	LTE Band 13/25RB#0 10M	Front Side	23230	21.05	22.00	1.245	0.480	0.597
	LTE Band 13/25RB#0 10M	Back Side	23230	21.05	22.00	1.245	0.518	0.645
	LTE Band 13/25RB#0 10M	Left Side	23230	21.05	22.00	1.245	0.261	0.325
	LTE Band 13/25RB#0 10M	Right Side	23230	21.05	22.00	1.245	0.030	0.037
	LTE Band 13/25RB#0 10M	Bottom Side	23230	21.05	22.00	1.245	0.042	0.052
	LTE Band 13/50RB#0 10M	Back Side	23230	20.99	22.00	1.262	0.478	0.603
Full Power(ANT 0)								
	LTE Band 14/1RB#0 10M	Top Side	23330	23.13	24.00	1.222	0.233	0.285
	LTE Band 14/25RB#0 10M	Top Side	23330	22.04	23.00	1.247	0.192	0.239
Reduced Power(ANT 0)								

	LTE Band 14/1RB#0 10M	Front Side	23330	22.13	23.00	1.222	0.540	0.660
5#	LTE Band 14/1RB#0 10M	Back Side	23330	22.13	23.00	1.222	0.715	0.874
	LTE Band 14/1RB#0 10M	Left Side	23330	22.13	23.00	1.222	0.333	0.407
	LTE Band 14/1RB#0 10M	Right Side	23330	22.13	23.00	1.222	0.067	0.082
	LTE Band 14/1RB#0 10M	Bottom Side	23330	22.13	23.00	1.222	0.057	0.070
	LTE Band 14/25RB#0 10M	Front Side	23330	21.04	22.00	1.247	0.442	0.551
	LTE Band 14/25RB#0 10M	Back Side	23330	21.04	22.00	1.247	0.488	0.609
	LTE Band 14/25RB#0 10M	Left Side	23330	21.04	22.00	1.247	0.223	0.278
	LTE Band 14/25RB#0 10M	Right Side	23330	21.04	22.00	1.247	0.040	0.050
	LTE Band 14/25RB#0 10M	Bottom Side	23330	21.04	22.00	1.247	0.042	0.052
	LTE Band 14/50RB#0 10M	Back Side	23330	21.03	22.00	1.250	0.395	0.494
Full Power(ANT 0)								
	LTE Band 25/1RB#0 20M	Top Side	26365	23.11	24.00	1.227	0.616	0.756
	LTE Band 25/50RB#0 20M	Top Side	26365	22.10	23.00	1.230	0.313	0.385
Reduced Power(ANT 0)								
	LTE Band 25/1RB#0 20M	Front Side	26365	19.11	20.00	1.227	0.670	0.822
	LTE Band 25/1RB#0 20M	Back Side	26365	19.11	20.00	1.227	0.438	0.538
	LTE Band 25/1RB#0 20M	Left Side	26365	19.11	20.00	1.227	0.562	0.690
	LTE Band 25/1RB#0 20M	Right Side	26365	19.11	20.00	1.227	0.114	0.140
	LTE Band 25/1RB#0 20M	Bottom Side	26365	19.11	20.00	1.227	0.050	0.061
6#	LTE Band 25/1RB#0 20M	Front Side	26140	19.08	20.00	1.236	0.720	0.890
	LTE Band 25/1RB#0 20M	Front Side	26590	19.03	20.00	1.250	0.558	0.698
	LTE Band 25/50RB#0 20M	Front Side	26365	18.10	19.00	1.230	0.490	0.603
	LTE Band 25/50RB#0 20M	Back Side	26365	18.10	19.00	1.230	0.323	0.397
	LTE Band 25/50RB#0 20M	Left Side	26365	18.10	19.00	1.230	0.380	0.468
	LTE Band 25/50RB#0 20M	Right Side	26365	18.10	19.00	1.230	0.065	0.080
	LTE Band 25/50RB#0 20M	Bottom Side	26365	18.10	19.00	1.230	0.032	0.039
	LTE Band 25/100RB#0 20M	Front Side	26365	17.89	19.00	1.291	0.670	0.865
Full Power(ANT 0)								
	LTE Band 26/1RB#0 15M	Top Side	26865	23.17	24.00	1.211	0.203	0.246
	LTE Band 26/36RB#0 15M	Top Side	26865	22.15	23.00	1.216	0.208	0.253
Reduced Power(ANT 0)								
	LTE Band 26/1RB#0 15M	Front Side	26865	21.17	22.00	1.211	0.363	0.439
7#	LTE Band 26/1RB#0 15M	Back Side	26865	21.17	22.00	1.211	0.645	0.781
	LTE Band 26/1RB#0 15M	Left Side	26865	21.17	22.00	1.211	0.195	0.236
	LTE Band 26/1RB#0 15M	Right Side	26865	21.17	22.00	1.211	0.123	0.149
	LTE Band 26/1RB#0 15M	Bottom Side	26865	21.17	22.00	1.211	0.041	0.050
	LTE Band 26/36RB#0 15M	Front Side	26865	20.15	21.00	1.216	0.357	0.434

	LTE Band 26/36RB#0 15M	Back Side	26865	20.15	21.00	1.216	0.428	0.521
	LTE Band 26/36RB#0 15M	Left Side	26865	20.15	21.00	1.216	0.169	0.206
	LTE Band 26/36RB#0 15M	Right Side	26865	20.15	21.00	1.216	0.056	0.068
	LTE Band 26/36RB#0 15M	Bottom Side	26865	20.15	21.00	1.216	0.036	0.044
Full Power(ANT 0)								
	LTE Band 30/1RB#0 10M	Top Side	27710	22.83	24.00	1.309	0.605	0.792
	LTE Band 30/25RB#0 10M	Top Side	27710	21.79	23.00	1.321	0.410	0.542
Reduced Power(ANT 0)								
	LTE Band 30/1RB#0 10M	Front Side	27710	16.83	18.00	1.309	0.518	0.678
	LTE Band 30/1RB#0 10M	Back Side	27710	16.83	18.00	1.309	0.360	0.471
8#	LTE Band 30/1RB#0 10M	Left Side	27710	16.83	18.00	1.309	0.664	0.869
	LTE Band 30/1RB#0 10M	Right Side	27710	16.83	18.00	1.309	0.331	0.433
	LTE Band 30/1RB#0 10M	Bottom Side	27710	16.83	18.00	1.309	0.054	0.071
	LTE Band 30/25RB#0 10M	Front Side	27710	15.79	17.00	1.321	0.319	0.421
	LTE Band 30/25RB#0 10M	Back Side	27710	15.79	17.00	1.321	0.282	0.373
	LTE Band 30/25RB#0 10M	Left Side	27710	15.79	17.00	1.321	0.540	0.713
	LTE Band 30/25RB#0 10M	Right Side	27710	15.79	17.00	1.321	0.059	0.078
	LTE Band 30/25RB#0 10M	Bottom Side	27710	15.79	17.00	1.321	0.036	0.048
	LTE Band 30/50RB#0 10M	Left Side	27710	15.74	17.00	1.337	0.345	0.461
Full Power(ANT 0)(PC2)								
	LTE Band 41/1RB#0 20M	Top Side	40620	25.57	27.00	1.390	0.433	0.605
	LTE Band 41/50RB#0 20M	Top Side	40620	24.52	26.00	1.406	0.417	0.590
Reduced Power(ANT 0) (PC2)								
	LTE Band 41/1RB#0 20M	Front Side	40620	16.57	18.00	1.390	0.137	0.192
	LTE Band 41/1RB#0 20M	Back Side	40620	16.57	18.00	1.390	0.166	0.232
9#	LTE Band 41/1RB#0 20M	Left Side	40620	16.57	18.00	1.390	0.463	0.647
	LTE Band 41/1RB#0 20M	Right Side	40620	16.57	18.00	1.390	0.008	0.011
	LTE Band 41/1RB#0 20M	Bottom Side	40620	16.57	18.00	1.390	0.011	0.015
	LTE Band 41/50RB#0 20M	Front Side	40620	15.52	17.00	1.406	0.126	0.178
	LTE Band 41/50RB#0 20M	Back Side	40620	15.52	17.00	1.406	0.141	0.199
	LTE Band 41/50RB#0 20M	Left Side	40620	15.52	17.00	1.406	0.429	0.607
	LTE Band 41/50RB#0 20M	Right Side	40620	15.52	17.00	1.406	0.004	0.006
	LTE Band 41/50RB#0 20M	Bottom Side	40620	15.52	17.00	1.406	0.010	0.014
Full Power(ANT 0) (PC3)								
	LTE Band 41/1RB#0 20M	Top Side	40620	22.98	24.00	1.265	0.350	0.445
	LTE Band 41/50RB#0 20M	Top Side	40620	21.92	23.00	1.282	0.353	0.455
Reduced Power(ANT 0) (PC3)								
	LTE Band 41/1RB#0 20M	Front Side	40620	13.98	15.00	1.265	0.110	0.140

	LTE Band 41/1RB#0 20M	Back Side	40620	13.98	15.00	1.265	0.132	0.168
	LTE Band 41/1RB#0 20M	Left Side	40620	13.98	15.00	1.265	0.392	0.499
	LTE Band 41/1RB#0 20M	Right Side	40620	13.98	15.00	1.265	0.007	0.009
	LTE Band 41/1RB#0 20M	Bottom Side	40620	13.98	15.00	1.265	0.009	0.011
	LTE Band 41/50RB#0 20M	Front Side	40620	12.92	14.00	1.282	0.101	0.130
	LTE Band 41/50RB#0 20M	Back Side	40620	12.92	14.00	1.282	0.112	0.144
	LTE Band 41/50RB#0 20M	Left Side	40620	12.92	14.00	1.282	0.383	0.494
	LTE Band 41/50RB#0 20M	Right Side	40620	12.92	14.00	1.282	0.003	0.004
	LTE Band 41/50RB#0 20M	Bottom Side	40620	12.92	14.00	1.282	0.008	0.010
Full Power(ANT 2)								
	LTE Band 48/1RB#0 20M	Top Side	55990	22.98	24.00	1.265	0.066	0.133
	LTE Band 48/50RB#0 20M	Top Side	55990	21.99	23.00	1.262	0.053	0.106
Reduced Power(ANT 2)								
10#	LTE Band 48/1RB#0 20M	Front Side	55990	18.48	19.50	1.265	0.241	0.485
	LTE Band 48/1RB#0 20M	Back Side	55990	18.48	19.50	1.265	0.151	0.304
	LTE Band 48/1RB#0 20M	Left Side	55990	18.48	19.50	1.265	0.091	0.183
	LTE Band 48/1RB#0 20M	Right Side	55990	18.48	19.50	1.265	0.022	0.044
	LTE Band 48/1RB#0 20M	Bottom Side	55990	18.48	19.50	1.265	0.056	0.113
	LTE Band 48/50RB#0 20M	Front Side	55990	17.49	18.50	1.262	0.197	0.395
	LTE Band 48/50RB#0 20M	Back Side	55990	17.49	18.50	1.262	0.116	0.233
	LTE Band 48/50RB#0 20M	Left Side	55990	17.49	18.50	1.262	0.069	0.138
	LTE Band 48/50RB#0 20M	Right Side	55990	17.49	18.50	1.262	0.027	0.054
	LTE Band 48/50RB#0 20M	Bottom Side	55990	17.49	18.50	1.262	0.046	0.092
Full Power(ANT 0)								
	LTE Band 66/1RB#0 20M	Top Side	132322	22.97	24.00	1.268	0.291	0.369
	LTE Band 66/50RB#0 20M	Top Side	132322	21.95	23.00	1.274	0.271	0.345
Reduced Power(ANT 0)								
	LTE Band 66/1RB#0 20M	Front Side	132322	14.47	15.50	1.268	0.363	0.460
	LTE Band 66/1RB#0 20M	Back Side	132322	14.47	15.50	1.268	0.225	0.285
11#	LTE Band 66/1RB#0 20M	Left Side	132322	14.47	15.50	1.268	0.740	0.938
	LTE Band 66/1RB#0 20M	Right Side	132322	14.47	15.50	1.268	0.012	0.015
	LTE Band 66/1RB#0 20M	Bottom Side	132322	14.47	15.50	1.268	0.022	0.028
	LTE Band 66/1RB#0 20M	Left Side	132072	14.40	15.50	1.288	0.663	0.854
	LTE Band 66/1RB#0 20M	Left Side	132572	14.39	15.50	1.291	0.457	0.590
	LTE Band 66/50RB#0 20M	Front Side	132322	13.45	14.50	1.274	0.284	0.362
	LTE Band 66/50RB#0 20M	Back Side	132322	13.45	14.50	1.274	0.178	0.227
	LTE Band 66/50RB#0 20M	Left Side	132322	13.45	14.50	1.274	0.559	0.712
	LTE Band 66/50RB#0 20M	Right Side	132322	13.45	14.50	1.274	0.014	0.018

	LTE Band 66/50RB#0 20M	Bottom Side	132322	13.45	14.50	1.274	0.020	0.025
	LTE Band 66/100RB#0 20M	Left Side	132322	13.21	14.50	1.346	0.434	0.584
Full Power(ANT 0)								
	LTE Band 71/1RB#0 20M	Front Side	133322	23.06	24.00	1.242	0.464	0.576
	LTE Band 71/1RB#0 20M	Back Side	133322	23.06	24.00	1.242	0.702	0.872
	LTE Band 71/1RB#0 20M	Left Side	133322	23.06	24.00	1.242	0.434	0.539
	LTE Band 71/1RB#0 20M	Right Side	133322	23.06	24.00	1.242	0.046	0.057
	LTE Band 71/1RB#0 20M	Top Side	133322	23.06	24.00	1.242	0.114	0.142
	LTE Band 71/1RB#0 20M	Bottom Side	133322	23.06	24.00	1.242	0.048	0.060
	LTE Band 71/1RB#0 20M	Back Side	133222	23.02	24.00	1.253	0.741	0.929
12#	LTE Band 71/1RB#0 20M	Back Side	133372	23.03	24.00	1.250	0.759	0.949
	LTE Band 71/50RB#0 20M	Front Side	133322	21.97	23.00	1.268	0.436	0.553
	LTE Band 71/50RB#0 20M	Back Side	133322	21.97	23.00	1.268	0.454	0.576
	LTE Band 71/50RB#0 20M	Left Side	133322	21.97	23.00	1.268	0.287	0.364
	LTE Band 71/50RB#0 20M	Right Side	133322	21.97	23.00	1.268	0.002	0.003
	LTE Band 71/50RB#0 20M	Top Side	133322	21.97	23.00	1.268	0.090	0.114
	LTE Band 71/50RB#0 20M	Bottom Side	133322	21.97	23.00	1.268	0.001	0.001
	LTE Band 71/100RB#0 20M	Back Side	133322	21.77	23.00	1.327	0.453	0.601

➢ 5G NR DFT-s-QPSK Body SAR

Plot No.	Band/Mode	Test Position	CH.	Ave. Power (dBm)	Tune-up Limit (dBm)	Tune-up Scaling Factor	Meas. SAR_{1g} (W/kg)	Reported SAR_{1g} (W/kg)
Full Power(ANT 0)								
	5G NR n2/1RB#1 20M	Top Side	376000	23.70	24.50	1.202	0.174	0.209
	5G NR n2/50RB#25 20M	Top Side	376000	23.17	24.00	1.211	0.231	0.280
Reduced Power(ANT 0)								
	5G NR n2/1RB#1 20M	Front Side	376000	20.40	21.00	1.148	0.815	0.936
	5G NR n2/1RB#1 20M	Back Side	376000	20.40	21.00	1.148	0.552	0.634
	5G NR n2/1RB#1 20M	Left Side	376000	20.40	21.00	1.148	0.781	0.897
	5G NR n2/1RB#1 20M	Right Side	376000	20.40	21.00	1.148	0.081	0.093
	5G NR n2/1RB#1 20M	Bottom Side	376000	20.40	21.00	1.148	0.026	0.030
	5G NR n2/1RB#1 20M	Front Side	372000	20.18	21.00	1.208	0.606	0.732
	5G NR n2/1RB#1 20M	Front Side	380000	20.25	21.00	1.189	0.878	1.044
	5G NR n2/1RB#1 20M	Left Side	372000	20.18	21.00	1.208	0.588	0.710
	5G NR n2/1RB#1 20M	Left Side	380000	20.25	21.00	1.189	0.672	0.799
	5G NR n2/50RB#25 20M	Front Side	376000	19.87	20.50	1.156	0.875	1.012
	5G NR n2/50RB#25 20M	Back Side	376000	19.87	20.50	1.156	0.493	0.570
	5G NR n2/50RB#25 20M	Left Side	376000	19.87	20.50	1.156	0.776	0.897

	5G NR n2/50RB#25 20M	Right Side	376000	19.87	20.50	1.156	0.052	0.060
	5G NR n2/50RB#25 20M	Bottom Side	376000	19.87	20.50	1.156	0.030	0.035
	5G NR n2/50RB#25 20M	Front Side	372000	19.62	20.50	1.225	0.601	0.736
13#	5G NR n2/50RB#25 20M	Front Side	380000	19.70	20.50	1.202	0.978	1.176
	5G NR n2/50RB#25 20M	Left Side	380000	19.70	20.50	1.202	0.631	0.759
	5G NR n2/50RB#25 20M	Left Side	380000	19.70	20.50	1.202	0.631	0.759
	5G NR n2/100RB#0 20M	Front Side	380000	19.24	20.50	1.337	0.612	0.818
Full Power(ANT 0)								
	5G NR n5/1RB#1 20M	Top Side	167300	23.36	24.00	1.159	0.120	0.139
	5G NR n5/50RB#1 20M	Top Side	167300	23.24	24.00	1.191	0.054	0.064
Reduced Power(ANT 0)								
	5G NR n5/1RB#1 20M	Front Side	167300	20.36	21.00	1.159	0.272	0.315
	5G NR n5/1RB#1 20M	Back Side	167300	20.36	21.00	1.159	0.798	0.925
	5G NR n5/1RB#1 20M	Left Side	167300	20.36	21.00	1.159	0.142	0.165
	5G NR n5/1RB#1 20M	Right Side	167300	20.36	21.00	1.159	0.067	0.078
	5G NR n5/1RB#1 20M	Top Side	167300	23.36	24.00	1.159	0.120	0.139
	5G NR n5/1RB#1 20M	Bottom Side	167300	20.36	21.00	1.159	0.038	0.044
	5G NR n5/1RB#1 20M	Back Side	166800	20.25	21.00	1.189	0.393	0.467
	5G NR n5/1RB#1 20M	Back Side	167800	20.28	21.00	1.180	0.407	0.480
	5G NR n5/50RB#1 20M	Front Side	167300	20.24	21.00	1.191	0.641	0.764
14#	5G NR n5/50RB#1 20M	Back Side	167300	20.24	21.00	1.191	0.809	0.964
	5G NR n5/50RB#1 20M	Left Side	167300	20.24	21.00	1.191	0.230	0.274
	5G NR n5/50RB#1 20M	Right Side	167300	20.24	21.00	1.191	0.063	0.075
	5G NR n5/50RB#1 20M	Top Side	167300	23.24	24.00	1.191	0.054	0.064
	5G NR n5/50RB#1 20M	Bottom Side	167300	20.24	21.00	1.191	0.068	0.081
	5G NR n5/50RB#1 20M	Back Side	166800	20.20	21.00	1.202	0.543	0.653
	5G NR n5/50RB#1 20M	Back Side	167800	20.23	21.00	1.194	0.672	0.802
	5G NR n5/100RB#0 20M	Back Side	167300	19.27	21.00	1.489	0.500	0.745
Full Power(ANT 0)								
	5G NR n7/1RB#1 20M	Top Side	507000	22.90	24.00	1.288	0.064	0.082
	5G NR n7/50RB#1 20M	Top Side	507000	22.83	24.00	1.309	0.111	0.145
Reduced Power(ANT 0)								
	5G NR n7/1RB#1 20M	Front Side	507000	13.10	14.00	1.230	0.516	0.635
	5G NR n7/1RB#1 20M	Back Side	507000	13.10	14.00	1.230	0.316	0.389
	5G NR n7/1RB#1 20M	Left Side	507000	13.10	14.00	1.230	0.649	0.798
	5G NR n7/1RB#1 20M	Right Side	507000	13.10	14.00	1.230	0.008	0.010
	5G NR n7/1RB#1 20M	Bottom Side	507000	13.10	14.00	1.230	0.024	0.030
	5G NR n7/1RB#1 20M	Left Side	502000	13.07	14.00	1.239	0.806	0.998

	5G NR n7/1RB#1 20M	Left Side	512000	13.06	14.00	1.242	0.891	1.106
	5G NR n7/50RB#25 20M	Front Side	507000	13.03	14.00	1.250	0.369	0.461
	5G NR n7/50RB#25 20M	Back Side	507000	13.03	14.00	1.250	0.260	0.325
	5G NR n7/50RB#25 20M	Left Side	507000	13.03	14.00	1.250	0.705	0.881
	5G NR n7/50RB#25 20M	Right Side	507000	13.03	14.00	1.250	0.019	0.024
	5G NR n7/50RB#25 20M	Bottom Side	507000	13.03	14.00	1.250	0.022	0.028
	5G NR n7/50RB#25 20M	Left Side	502000	12.79	14.00	1.321	0.836	1.105
15#	5G NR n7/50RB#25 20M	Left Side	512000	13.02	14.00	1.253	0.905	1.134
	5G NR n7/100RB#0 20M	Left Side	512000	11.85	13.00	1.303	0.675	0.880
Full Power(ANT 0)								
	5G NR n12/1RB#1 15M	Front Side	141500	23.20	24.00	1.202	0.483	0.581
16#	5G NR n12/1RB#1 15M	Back Side	141500	23.20	24.00	1.202	0.527	0.634
	5G NR n12/1RB#1 15M	Left Side	141500	23.20	24.00	1.202	0.329	0.396
	5G NR n12/1RB#1 15M	Right Side	141500	23.20	24.00	1.202	0.050	0.060
	5G NR n12/1RB#1 15M	Top Side	141500	23.20	24.00	1.202	0.054	0.065
	5G NR n12/1RB#1 15M	Bottom Side	141500	23.20	24.00	1.202	0.034	0.041
	5G NR n12/36RB#18 15M	Front Side	141500	23.15	24.00	1.216	0.429	0.522
	5G NR n12/36RB#18 15M	Back Side	141500	23.15	24.00	1.216	0.431	0.524
	5G NR n12/36RB#18 15M	Left Side	141500	23.15	24.00	1.216	0.312	0.379
	5G NR n12/36RB#18 15M	Right Side	141500	23.15	24.00	1.216	0.046	0.056
	5G NR n12/36RB#18 15M	Top Side	141500	23.15	24.00	1.216	0.048	0.058
	5G NR n12/36RB#18 15M	Bottom Side	141500	23.15	24.00	1.216	0.028	0.034
Full Power(ANT 0)								
	5G NR n14/1RB#1 10M	Front Side	158600	23.40	24.00	1.148	0.529	0.607
17#	5G NR n14/1RB#1 10M	Back Side	158600	23.40	24.00	1.148	0.559	0.642
	5G NR n14/1RB#1 10M	Left Side	158600	23.40	24.00	1.148	0.283	0.325
	5G NR n14/1RB#1 10M	Right Side	158600	23.40	24.00	1.148	0.043	0.049
	5G NR n14/1RB#1 10M	Top Side	158600	23.40	24.00	1.148	0.108	0.124
	5G NR n14/1RB#1 10M	Bottom Side	158600	23.40	24.00	1.148	0.025	0.029
	5G NR n14/25RB#12 10M	Front Side	158600	23.26	24.00	1.186	0.433	0.513
	5G NR n14/25RB#12 10M	Back Side	158600	23.26	24.00	1.186	0.480	0.569
	5G NR n14/25RB#12 10M	Left Side	158600	23.26	24.00	1.186	0.246	0.292
	5G NR n14/25RB#12 10M	Right Side	158600	23.26	24.00	1.186	0.036	0.043
	5G NR n14/25RB#12 10M	Top Side	158600	23.26	24.00	1.186	0.131	0.155
	5G NR n14/25RB#12 10M	Bottom Side	158600	23.26	24.00	1.186	0.023	0.027
Full Power(ANT 0)								
	5G NR n25/1RB#1 20M	Top Side	376500	23.66	24.50	1.213	0.109	0.132
	5G NR n25/50RB#25 20M	Top Side	376500	23.57	24.50	1.239	0.100	0.124

Reduced Power(ANT 0)								
	5G NR n25/1RB#1 20M	Front Side	376500	20.36	21.00	1.159	0.863	1.000
	5G NR n25/1RB#1 20M	Back Side	376500	20.36	21.00	1.159	0.265	0.307
	5G NR n25/1RB#1 20M	Left Side	376500	20.36	21.00	1.159	0.822	0.953
	5G NR n25/1RB#1 20M	Right Side	376500	20.36	21.00	1.159	0.100	0.116
	5G NR n25/1RB#1 20M	Bottom Side	376500	20.36	21.00	1.159	0.032	0.037
	5G NR n25/1RB#1 20M	Front Side	372000	20.28	21.00	1.180	0.563	0.665
	5G NR n25/1RB#1 20M	Front Side	381000	20.24	21.00	1.191	0.918	1.094
	5G NR n25/1RB#1 20M	Left Side	372000	20.28	21.00	1.180	0.513	0.606
	5G NR n25/1RB#1 20M	Left Side	381000	20.24	21.00	1.191	0.836	0.996
	5G NR n25/50RB#25 20M	Front Side	376500	20.27	21.00	1.183	0.718	0.849
	5G NR n25/50RB#25 20M	Back Side	376500	20.27	21.00	1.183	0.532	0.629
	5G NR n25/50RB#25 20M	Left Side	376500	20.27	21.00	1.183	0.731	0.865
	5G NR n25/50RB#25 20M	Right Side	376500	20.27	21.00	1.183	0.000	0.000
	5G NR n25/50RB#25 20M	Bottom Side	376500	20.27	21.00	1.183	0.045	0.053
	5G NR n25/50RB#25 20M	Front Side	372000	20.08	21.00	1.236	0.742	0.917
	5G NR n25/50RB#25 20M	Front Side	381000	20.09	21.00	1.233	0.904	1.115
	5G NR n25/50RB#25 20M	Left Side	372000	20.08	21.00	1.236	0.768	0.949
18#	5G NR n25/50RB#25 20M	Left Side	381000	20.09	21.00	1.233	0.954	1.176
	5G NR n25/100RB#0 20M	Left Side	376500	19.16	20.00	1.213	0.681	0.826
Full Power(ANT 0)								
	5G NR n26/1RB#1 10M	Front Side	163800	23.32	24.00	1.169	0.488	0.571
	5G NR n26/1RB#1 10M	Back Side	163800	23.32	24.00	1.169	0.577	0.675
	5G NR n26/1RB#1 10M	Left Side	163800	23.32	24.00	1.169	0.240	0.281
	5G NR n26/1RB#1 10M	Right Side	163800	23.32	24.00	1.169	0.123	0.144
	5G NR n26/1RB#1 10M	Top Side	163800	23.32	24.00	1.169	0.113	0.132
	5G NR n26/1RB#1 10M	Bottom Side	163800	23.32	24.00	1.169	0.045	0.053
	5G NR n26/25RB#12 10M	Front Side	163800	23.22	24.00	1.197	0.429	0.513
	5G NR n26/25RB#12 10M	Back Side	163800	23.22	24.00	1.197	0.475	0.568
	5G NR n26/25RB#12 10M	Left Side	163800	23.22	24.00	1.197	0.241	0.288
	5G NR n26/25RB#12 10M	Right Side	163800	23.22	24.00	1.197	0.047	0.056
	5G NR n26/25RB#12 10M	Top Side	163800	23.22	24.00	1.197	0.096	0.115
	5G NR n26/25RB#12 10M	Bottom Side	163800	23.22	24.00	1.197	0.030	0.036
Full Power(ANT 0)								
	5G NR n26/1RB#1 20M	Front Side	167300	23.41	24.00	1.146	0.486	0.557
	5G NR n26/1RB#1 20M	Back Side	167300	23.41	24.00	1.146	0.670	0.767
	5G NR n26/1RB#1 20M	Left Side	167300	23.41	24.00	1.146	0.287	0.329
	5G NR n26/1RB#1 20M	Right Side	167300	23.41	24.00	1.146	0.071	0.081

	5G NR n26/1RB#1 20M	Top Side	167300	23.41	24.00	1.146	0.074	0.085
	5G NR n26/1RB#1 20M	Bottom Side	167300	23.41	24.00	1.146	0.048	0.055
	5G NR n26/50RB#25 20M	Front Side	167300	23.32	24.00	1.169	0.628	0.734
19#	5G NR n26/50RB#25 20M	Back Side	167300	23.32	24.00	1.169	0.723	0.846
	5G NR n26/50RB#25 20M	Left Side	167300	23.32	24.00	1.169	0.344	0.402
	5G NR n26/50RB#25 20M	Right Side	167300	23.32	24.00	1.169	0.040	0.047
	5G NR n26/50RB#25 20M	Top Side	167300	23.32	24.00	1.169	0.041	0.048
	5G NR n26/50RB#25 20M	Bottom Side	167300	23.32	24.00	1.169	0.028	0.033
	5G NR n26/50RB#25 20M	Back Side	166800	23.06	24.00	1.242	0.661	0.821
	5G NR n26/50RB#25 20M	Back Side	167800	23.30	24.00	1.175	0.712	0.837
	5G NR n26/100RB#0 20M	Back Side	167800	22.33	24.00	1.469	0.542	0.796
Full Power(ANT 0)								
	5G NR n30/1RB#1 10M	Top Side	462000	22.98	24.00	1.265	0.026	0.033
	5G NR n30/25RB#12 10M	Top Side	462000	22.96	24.00	1.271	0.048	0.061
Reduced Power(ANT 0)								
	5G NR n30/1RB#1 10M	Front Side	462000	16.98	18.00	1.265	0.280	0.354
	5G NR n30/1RB#1 10M	Back Side	462000	16.98	18.00	1.265	0.287	0.363
	5G NR n30/1RB#1 10M	Left Side	462000	16.98	18.00	1.265	0.621	0.785
	5G NR n30/1RB#1 10M	Right Side	462000	16.98	18.00	1.265	0.012	0.015
	5G NR n30/1RB#1 10M	Bottom Side	462000	16.98	18.00	1.265	0.007	0.009
	5G NR n30/25RB#12 10M	Front Side	462000	16.96	18.00	1.271	0.326	0.414
	5G NR n30/25RB#12 10M	Back Side	462000	16.96	18.00	1.271	0.241	0.306
20#	5G NR n30/25RB#12 10M	Left Side	462000	16.96	18.00	1.271	0.885	1.124
	5G NR n30/25RB#12 10M	Right Side	462000	16.96	18.00	1.271	0.023	0.029
	5G NR n30/25RB#12 10M	Bottom Side	462000	16.96	18.00	1.271	0.011	0.014
	5G NR n30/50RB#0 10M	Bottom Side	462000	15.90	17.00	1.288	0.551	0.710
Full Power(ANT 0)(PC2)								
	5G NR n41/1RB#1 20M	Top Side	518598	22.71	23.50	1.199	0.140	0.168
	5G NR n41/25RB#12 20M	Top Side	518598	22.68	23.50	1.208	0.069	0.083
Reduced Power(ANT 0) (PC2)								
	5G NR n41/1RB#1 20M	Front Side	518598	18.71	19.50	1.199	0.355	0.426
	5G NR n41/1RB#1 20M	Back Side	518598	18.71	19.50	1.199	0.396	0.475
	5G NR n41/1RB#1 20M	Left Side	518598	18.71	19.50	1.199	0.715	0.858
	5G NR n41/1RB#1 20M	Right Side	518598	18.71	19.50	1.199	0.008	0.010
	5G NR n41/1RB#1 20M	Bottom Side	518598	18.71	19.50	1.199	0.016	0.019
	5G NR n41/1RB#1 20M	Left Side	501204	18.62	19.50	1.225	0.837	1.025
	5G NR n41/1RB#1 20M	Left Side	509904	18.68	19.50	1.208	0.818	0.988
	5G NR n41/1RB#1 20M	Left Side	527298	18.55	19.50	1.245	0.793	0.987

	5G NR n41/1RB#1 20M	Left Side	535998	18.64	19.50	1.219	0.754	0.919
	5G NR n41/25RB#12 20M	Front Side	518598	18.68	19.50	1.208	0.225	0.272
	5G NR n41/25RB#12 20M	Back Side	518598	18.68	19.50	1.208	0.374	0.452
21#	5G NR n41/25RB#12 20M	Left Side	518598	18.68	19.50	1.208	0.954	1.152
	5G NR n41/25RB#12 20M	Right Side	518598	18.68	19.50	1.208	0.011	0.013
	5G NR n41/25RB#12 20M	Bottom Side	518598	18.68	19.50	1.208	0.016	0.019
	5G NR n41/25RB#12 20M	Left Side	501204	18.67	19.50	1.211	0.738	0.893
	5G NR n41/25RB#12 20M	Left Side	509904	18.63	19.50	1.222	0.801	0.979
	5G NR n41/25RB#12 20M	Left Side	527298	18.15	19.50	1.365	0.740	1.010
	5G NR n41/25RB#12 20M	Left Side	535998	18.34	19.50	1.306	0.746	0.974
	5G NR n41/50RB#0 20M	Left Side	518598	17.74	19.50	1.500	0.621	0.931
Full Power(ANT 2) (PC3)								
	5G NR n48/1RB#1 20M	Top Side	641666	22.71	23.50	1.199	0.082	0.098
	5G NR n48/25RB#12 20M	Top Side	641666	22.69	23.50	1.205	0.046	0.055
Reduced Power(ANT 2) (PC3)								
	5G NR n48/1RB#1 20M	Front Side	641666	22.01	22.50	1.119	0.747	0.836
	5G NR n48/1RB#1 20M	Back Side	641666	22.01	22.50	1.119	0.608	0.680
	5G NR n48/1RB#1 20M	Left Side	641666	22.01	22.50	1.119	0.193	0.216
	5G NR n48/1RB#1 20M	Right Side	641666	22.01	22.50	1.119	0.085	0.095
	5G NR n48/1RB#1 20M	Top Side	641666	22.71	23.50	1.199	0.082	0.098
	5G NR n48/1RB#1 20M	Bottom Side	641666	22.01	22.50	1.119	0.169	0.190
	5G NR n48/1RB#1 20M	Front Side	637334	21.84	22.50	1.164	0.794	0.924
	5G NR n48/1RB#1 20M	Front Side	639500	21.99	22.50	1.125	0.784	0.882
	5G NR n48/1RB#1 20M	Front Side	643832	21.51	22.50	1.256	0.789	0.991
	5G NR n48/1RB#1 20M	Front Side	646000	21.54	22.50	1.247	0.791	0.987
	5G NR n48/25RB#12 20M	Front Side	641666	21.99	22.50	1.125	0.719	0.809
	5G NR n48/25RB#12 20M	Back Side	641666	21.99	22.50	1.125	0.521	0.586
	5G NR n48/25RB#12 20M	Left Side	641666	21.99	22.50	1.125	0.197	0.221
	5G NR n48/25RB#12 20M	Right Side	641666	21.99	22.50	1.125	0.094	0.105
	5G NR n48/25RB#12 20M	Top Side	641666	22.69	23.50	1.205	0.046	0.055
	5G NR n48/25RB#12 20M	Bottom Side	641666	21.99	22.50	1.125	0.128	0.144
	5G NR n48/25RB#12 20M	Front Side	637334	21.88	22.50	1.153	0.887	1.024
	5G NR n48/25RB#12 20M	Front Side	639500	21.98	22.50	1.127	0.761	0.858
22#	5G NR n48/25RB#12 20M	Front Side	643832	21.57	22.50	1.239	0.903	1.119
	5G NR n48/25RB#12 20M	Front Side	643832	21.57	22.50	1.239	0.882	1.093
	5G NR n48/25RB#12 20M	Front Side	646000	21.69	22.50	1.205	0.919	1.107
	5G NR n48/50RB#0 20M	Front Side	639500	20.92	22.50	1.439	0.602	0.866
Full Power(ANT 0)								

	5G NR n66/1RB#1 20M	Top Side	349000	23.03	24.00	1.250	0.040	0.050
	5G NR n66/50RB#25 20M	Top Side	349000	22.85	24.00	1.303	0.035	0.046
Reduced Power(ANT 0)								
	5G NR n66/1RB#1 20M	Front Side	349000	15.23	16.00	1.194	0.398	0.475
	5G NR n66/1RB#1 20M	Back Side	349000	15.23	16.00	1.194	0.252	0.301
	5G NR n66/1RB#1 20M	Left Side	349000	15.23	16.00	1.194	0.776	0.927
	5G NR n66/1RB#1 20M	Right Side	349000	15.23	16.00	1.194	0.019	0.023
	5G NR n66/1RB#1 20M	Bottom Side	349000	15.23	16.00	1.194	0.013	0.016
	5G NR n66/1RB#1 20M	Left Side	344000	15.15	16.00	1.216	0.785	0.955
	5G NR n66/1RB#1 20M	Left Side	354000	15.19	16.00	1.205	0.670	0.807
	5G NR n66/50RB#25 20M	Front Side	349000	15.05	16.00	1.245	0.309	0.385
	5G NR n66/50RB#25 20M	Back Side	349000	15.05	16.00	1.245	0.180	0.224
	5G NR n66/50RB#25 20M	Left Side	349000	15.05	16.00	1.245	0.652	0.811
	5G NR n66/50RB#25 20M	Right Side	349000	15.05	16.00	1.245	0.016	0.020
	5G NR n66/50RB#25 20M	Bottom Side	349000	15.05	16.00	1.245	0.017	0.021
23#	5G NR n66/50RB#25 20M	Left Side	344000	15.04	16.00	1.247	0.945	1.179
	5G NR n66/50RB#25 20M	Left Side	354000	15.00	16.00	1.259	0.748	0.942
	5G NR n66/100RB#0 20M	Left Side	349000	13.97	15.00	1.268	0.611	0.775
Full Power(ANT 0)								
	5G NR n71/1RB#1 20M	Front Side	136100	23.01	24.00	1.256	0.331	0.416
24#	5G NR n71/1RB#1 20M	Back Side	136100	23.01	24.00	1.256	0.347	0.436
	5G NR n71/1RB#1 20M	Left Side	136100	23.01	24.00	1.256	0.228	0.286
	5G NR n71/1RB#1 20M	Right Side	136100	23.01	24.00	1.256	0.003	0.004
	5G NR n71/1RB#1 20M	Top Side	136100	23.01	24.00	1.256	0.004	0.005
	5G NR n71/1RB#1 20M	Bottom Side	136100	23.01	24.00	1.256	0.001	0.001
	5G NR n71/50RB#25 20M	Front Side	136100	22.85	24.00	1.303	0.151	0.197
	5G NR n71/50RB#25 20M	Back Side	136100	22.85	24.00	1.303	0.178	0.232
	5G NR n71/50RB#25 20M	Left Side	136100	22.85	24.00	1.303	0.091	0.119
	5G NR n71/50RB#25 20M	Right Side	136100	22.85	24.00	1.303	0.002	0.003
	5G NR n71/50RB#25 20M	Top Side	136100	22.85	24.00	1.303	0.003	0.004
	5G NR n71/50RB#25 20M	Bottom Side	136100	22.85	24.00	1.303	0.001	0.001
Full Power(ANT 2)								
	5G NR n77/1RB#1 100M	Top Side	633334	23.15	24.00	1.216	0.104	0.126
	5G NR n77/25RB#12 20M	Top Side	633334	23.04	24.00	1.247	0.080	0.100
Reduced Power(ANT 2)								
	5G NR n77/1RB#1 20M	Front Side	633334	22.15	23.00	1.216	0.521	0.634
	5G NR n77/1RB#1 100M	Back Side	633334	22.15	23.00	1.216	0.450	0.547
	5G NR n77/1RB#1 100M	Left Side	633334	22.15	23.00	1.216	0.240	0.292

	5G NR n77/1RB#1 100M	Right Side	633334	22.15	23.00	1.216	0.140	0.170
	5G NR n77/1RB#1 100M	Bottom Side	633334	22.15	23.00	1.216	0.253	0.308
	5G NR n77/25RB#12 20M	Front Side	633334	22.04	23.00	1.247	0.644	0.803
	5G NR n77/25RB#12 20M	Back Side	633334	22.04	23.00	1.247	0.496	0.619
	5G NR n77/25RB#12 20M	Left Side	633334	22.04	23.00	1.247	0.192	0.239
	5G NR n77/25RB#12 20M	Right Side	633334	22.04	23.00	1.247	0.075	0.094
	5G NR n77/25RB#12 20M	Bottom Side	633334	22.04	23.00	1.247	0.292	0.364
	5G NR n77/25RB#12 20M	Front Side	630668	21.59	23.00	1.384	0.483	0.668
	5G NR n77/25RB#12 20M	Front Side	632000	21.98	23.00	1.265	0.679	0.859
	5G NR n77/25RB#12 20M	Front Side	634666	22.01	23.00	1.256	0.755	0.948
	5G NR n77/25RB#12 20M	Front Side	636000	21.73	23.00	1.340	0.774	1.037
	5G NR n77/50RB#0 20M	Front Side	633334	21.03	23.00	1.574	0.543	0.855
Full Power(ANT 2)								
	5G NR n77/1RB#1 20M	Front Side	656000	23.15	24.00	1.216	0.680	0.827
	5G NR n77/1RB#1 100M	Back Side	656000	23.15	24.00	1.216	0.596	0.725
	5G NR n77/1RB#1 100M	Left Side	656000	23.15	24.00	1.216	0.656	0.798
	5G NR n77/1RB#1 100M	Right Side	656000	23.15	24.00	1.216	0.099	0.120
	5G NR n77/1RB#1 100M	Top Side	656000	23.15	24.00	1.216	0.102	0.124
	5G NR n77/1RB#1 100M	Bottom Side	656000	23.15	24.00	1.216	0.139	0.169
25#	5G NR n77/1RB#1 20M	Front Side	647334	23.02	24.00	1.253	0.872	1.093
	5G NR n77/1RB#1 100M	Front Side	651668	23.01	24.00	1.256	0.730	0.917
	5G NR n77/1RB#1 100M	Front Side	660332	22.96	24.00	1.271	0.411	0.522
	5G NR n77/1RB#1 100M	Front Side	664666	22.95	24.00	1.274	0.385	0.490
	5G NR n77/25RB#12 20M	Front Side	656000	23.04	24.00	1.247	0.644	0.803
	5G NR n77/25RB#12 20M	Back Side	656000	23.04	24.00	1.247	0.457	0.570
	5G NR n77/25RB#12 20M	Left Side	656000	23.04	24.00	1.247	0.520	0.649
	5G NR n77/25RB#12 20M	Right Side	656000	23.04	24.00	1.247	0.068	0.085
	5G NR n77/25RB#12 20M	Top Side	656000	23.04	24.00	1.247	0.100	0.125
	5G NR n77/25RB#12 20M	Bottom Side	656000	23.04	24.00	1.247	0.161	0.201
	5G NR n77/25RB#12 20M	Front Side	647334	22.89	24.00	1.291	0.791	1.021
	5G NR n77/25RB#12 20M	Front Side	651668	23.03	24.00	1.250	0.634	0.793
	5G NR n77/25RB#12 20M	Front Side	660332	23.00	24.00	1.259	0.355	0.447
	5G NR n77/25RB#12 20M	Front Side	664666	22.94	24.00	1.276	0.328	0.419
	5G NR n77/50RB#0 20M	Front Side	651668	22.04	24.00	1.570	0.521	0.818
Full Power(ANT 2)								
	5G NR n78/1RB#1 20M	Front Side	633334	23.12	24.00	1.225	0.655	0.802
	5G NR n78/1RB#1 20M	Back Side	633334	23.12	24.00	1.225	0.577	0.707
	5G NR n78/1RB#1 20M	Left Side	633334	23.12	24.00	1.225	0.218	0.267

	5G NR n78/1RB#1 20M	Right Side	633334	23.12	24.00	1.225	0.146	0.179
	5G NR n78/1RB#1 20M	Top Side	633334	23.12	24.00	1.225	0.056	0.069
	5G NR n78/1RB#1 20M	Bottom Side	633334	23.12	24.00	1.225	0.109	0.133
	5G NR n78/1RB#1 20M	Front Side	630668	22.83	24.00	1.309	0.611	0.800
	5G NR n78/1RB#1 20M	Front Side	632000	22.82	24.00	1.312	0.653	0.857
	5G NR n78/1RB#1 20M	Front Side	634668	22.97	24.00	1.268	0.761	0.965
	5G NR n78/1RB#1 20M	Front Side	636000	22.87	24.00	1.297	0.725	0.940
	5G NR n78/25RB#12 20M	Front Side	633334	23.02	24.00	1.253	0.649	0.813
	5G NR n78/25RB#12 20M	Back Side	633334	23.02	24.00	1.253	0.539	0.675
	5G NR n78/25RB#12 20M	Left Side	633334	23.02	24.00	1.253	0.243	0.305
	5G NR n78/25RB#12 20M	Right Side	633334	23.02	24.00	1.253	0.183	0.229
	5G NR n78/25RB#12 20M	Top Side	633334	23.02	24.00	1.253	0.042	0.053
	5G NR n78/25RB#12 20M	Bottom Side	633334	23.02	24.00	1.253	0.181	0.227
	5G NR n78/25RB#12 20M	Front Side	630668	22.81	24.00	1.315	0.615	0.809
	5G NR n78/25RB#12 20M	Front Side	632000	22.94	24.00	1.276	0.664	0.848
26#	5G NR n78/25RB#12 20M	Front Side	634668	22.96	24.00	1.271	0.790	1.004
	5G NR n78/25RB#12 20M	Front Side	636000	22.82	24.00	1.312	0.751	0.985
	5G NR n78/50RB#0 20M	Front Side	633334	22.00	24.00	1.585	0.550	0.872
Full Power(ANT 2)								
	5G NR n78/1RB#1 20M	Front Side	650000	23.13	24.00	1.222	0.687	0.839
	5G NR n78/1RB#1 20M	Back Side	650000	23.13	24.00	1.222	0.650	0.794
	5G NR n78/1RB#1 20M	Left Side	650000	23.13	24.00	1.222	0.545	0.666
	5G NR n78/1RB#1 20M	Right Side	650000	23.13	24.00	1.222	0.102	0.125
	5G NR n78/1RB#1 20M	Top Side	650000	23.13	24.00	1.222	0.043	0.053
	5G NR n78/1RB#1 20M	Bottom Side	650000	23.13	24.00	1.222	0.113	0.138
	5G NR n78/1RB#1 20M	Front Side	647334	22.85	24.00	1.303	0.694	0.904
	5G NR n78/1RB#1 20M	Front Side	648666	22.95	24.00	1.274	0.690	0.879
	5G NR n78/1RB#1 20M	Front Side	651334	22.97	24.00	1.268	0.575	0.729
	5G NR n78/1RB#1 20M	Front Side	652666	22.85	24.00	1.303	0.529	0.689
	5G NR n78/25RB#12 20M	Front Side	650000	22.99	24.00	1.262	0.546	0.689
	5G NR n78/25RB#12 20M	Back Side	650000	22.99	24.00	1.262	0.463	0.584
	5G NR n78/25RB#12 20M	Left Side	650000	22.99	24.00	1.262	0.437	0.551
	5G NR n78/25RB#12 20M	Right Side	650000	22.99	24.00	1.262	0.080	0.101
	5G NR n78/25RB#12 20M	Top Side	650000	22.99	24.00	1.262	0.125	0.158
	5G NR n78/25RB#12 20M	Bottom Side	650000	22.99	24.00	1.262	0.068	0.086
	5G NR n78/50RB#0 20M	Front Side	650000	21.92	23.00	1.282	0.507	0.650

➢ **WLAN 2.4GHz Body SAR**

Plot No.	Band/Mode	Test Position	CH.	Ave. Power (dBm)	Tune-up Limit (dBm)	Tune-up Scaling Factor	Meas. SAR_{1g} (W/kg)	Reported SAR_{1g} (W/kg)
Full Power(WIFI)								
	WLAN2.4GHz/802.11b	Top Side	11	17.87	18.50	1.156	0.066	0.077
Reduced Power(WIFI)								
	WLAN2.4GHz/802.11b	Front Side	11	13.87	14.50	1.156	0.279	0.325
27#	WLAN2.4GHz/802.11b	Back Side	11	13.87	14.50	1.156	0.317	0.369
	WLAN2.4GHz/802.11b	Left Side	11	13.87	14.50	1.156	0.134	0.156
	WLAN2.4GHz/802.11b	Right Side	11	13.87	14.50	1.156	0.001	0.001
	WLAN2.4GHz/802.11b	Bottom Side	11	13.87	14.50	1.156	0.131	0.153

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. For TDD-LTE, the reported SAR should be scaled with the duty cycle scaling factor 1.006.
8. The WLAN 2.4GHz 802.11b reported 1g SAR (W/kg) should be scaled with the duty cycle scaling factor 1.008.

17.3. Repeated SAR Assessment

➢ **General Note**

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

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

➢ **Test Results**

Plot No.	Band/Mode	Test Position	CH.	Ave. Power (dBm)	Tune-up Limit (dBm)	Tune-up Scaling Factor	Meas. SAR_{1g} (W/kg)	Reported SAR_{1g} (W/kg)
Reduced Power(ANT 0)								
OR.	LTE Band 7/1RB#0 20M	Left Side	21100	13.46	14.50	1.271	0.908	1.154
1st	LTE Band 7/1RB#0 20M	Left Side	21100	13.46	14.50	1.271	0.896	1.138
Reduced Power(ANT 0)								
OR.	5G NR n2/50RB#25 20M	Front Side	380000	19.70	20.50	1.202	0.978	1.176
1st	5G NR n2/50RB#25 20M	Front Side	380000	19.70	20.50	1.202	0.957	1.151
Reduced Power(ANT 0)								
OR.	5G NR n5/50RB#1 20M	Back Side	167300	20.24	21.00	1.191	0.809	0.964
1st	5G NR n5/50RB#1 20M	Back Side	167300	20.24	21.00	1.191	0.792	0.943
Reduced Power(ANT 0)								
OR.	5G NR n7/50RB#25 20M	Left Side	512000	13.02	14.00	1.253	0.905	1.134
1st	5G NR n7/50RB#25 20M	Left Side	512000	13.02	14.00	1.253	0.889	1.114
Reduced Power(ANT 0)								
OR.	5G NR n25/50RB#25 20M	Left Side	381000	20.09	21.00	1.233	0.954	1.176
1st	5G NR n25/50RB#25 20M	Left Side	381000	20.09	21.00	1.233	0.926	1.142
Reduced Power(ANT 0)								
OR.	5G NR n30/25RB#12 10M	Left Side	462000	16.96	18.00	1.271	0.885	1.124

1st	5G NR n30/25RB#12 10M	Left Side	462000	16.96	18.00	1.271	0.874	1.110
Reduced Power(ANT 0)								
OR.	5G NR n41/25RB#12 20M	Left Side	518598	18.68	19.50	1.208	0.954	1.152
1st	5G NR n41/25RB#12 20M	Left Side	518598	18.68	19.50	1.208	0.931	1.124
Reduced Power(ANT 2)								
OR.	5G NR n48/25RB#12 20M	Front Side	643832	21.57	22.50	1.239	0.903	1.119
1st	5G NR n48/25RB#12 20M	Front Side	643832	21.57	22.50	1.239	0.882	1.093
Reduced Power(ANT 0)								
OR.	5G NR n66/50RB#25 20M	Left Side	344000	15.04	16.00	1.247	0.945	1.179
1st	5G NR n66/50RB#25 20M	Left Side	344000	15.04	16.00	1.247	0.922	1.150
Reduced Power(ANT 0)								
OR.	5G NR n77/1RB#1 20M	Front Side	647334	23.02	24.00	1.253	0.872	1.093
1st	5G NR n77/1RB#1 100M	Front Side	647334	23.02	24.00	1.253	0.851	1.066

18. Simultaneous Transmission Evaluation

18.1. Simultaneous Transmission Consideration

No.	Simultaneous Transmission Consideration	Body
1	WWAN+WLAN 2.4GHz	Yes

Note:

1. When the user enables the personal wireless router functions for the handset, actual operations include simultaneous transmission of the WWAN and 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. 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.
3. 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: (SAR1 + SAR2) ^ 1.5/Ri ≤ 0.04,
   Ri is the separation distance between the peak SAR locations for the antenna pair in mm.

18.2. Simultaneous Transmission Exposure Evaluation

➢ **Body Simultaneous Transmission for WWAN + WLAN 2.4GHz**

WWAN Band	Exposure Position	1	2	1+2 Summed 1g SAR (W/kg)
		WWAN	WLAN 2.4GHz	
		1g SAR (W/kg)	1g SAR (W/kg)	
LTE Band 5	Front Side	0.725	0.325	1.050
	Back Side	0.839	0.369	1.208
	Left Side	0.361	0.156	0.517
	Right Side	0.169	0.001	0.170
	Top Side	0.463	0.077	0.540
	Bottom Side	0.087	0.153	0.240
LTE Band 7	Front Side	0.428	0.325	0.753
	Back Side	0.522	0.369	0.891
	Left Side	1.154	0.156	1.310
	Right Side	0.014	0.001	0.015
	Top Side	0.668	0.077	0.745
	Bottom Side	0.032	0.153	0.185
LTE Band 12	Front Side	0.701	0.325	1.026
	Back Side	0.844	0.369	1.213
	Left Side	0.641	0.156	0.797
	Right Side	0.074	0.001	0.075
	Top Side	0.182	0.077	0.259
	Bottom Side	0.073	0.153	0.226
LTE Band 13	Front Side	0.618	0.325	0.943
	Back Side	0.900	0.369	1.269
	Left Side	0.427	0.156	0.583
	Right Side	0.057	0.001	0.058
	Top Side	0.251	0.077	0.328
	Bottom Side	0.052	0.153	0.205
LTE Band 14	Front Side	0.660	0.325	0.985
	Back Side	0.874	0.369	1.243
	Left Side	0.407	0.156	0.563
	Right Side	0.082	0.001	0.083
	Top Side	0.285	0.077	0.362
	Bottom Side	0.070	0.153	0.223
LTE Band 25/2	Front Side	0.890	0.325	1.215

	Back Side	0.538	0.369	0.907
	Left Side	0.690	0.156	0.846
	Right Side	0.140	0.001	0.141
	Top Side	0.756	0.077	0.833
	Bottom Side	0.061	0.153	0.214
LTE Band 26	Front Side	0.439	0.325	0.764
	Back Side	0.781	0.369	1.150
	Left Side	0.236	0.156	0.392
	Right Side	0.149	0.001	0.150
	Top Side	0.253	0.077	0.330
	Bottom Side	0.050	0.153	0.203
LTE Band 30	Front Side	0.678	0.325	1.003
	Back Side	0.471	0.369	0.840
	Left Side	0.869	0.156	1.025
	Right Side	0.433	0.001	0.434
	Top Side	0.792	0.077	0.869
	Bottom Side	0.071	0.153	0.224
LTE Band 41	Front Side	0.192	0.325	0.517
	Back Side	0.232	0.369	0.601
	Left Side	0.647	0.156	0.803
	Right Side	0.011	0.001	0.012
	Top Side	0.605	0.077	0.682
	Bottom Side	0.015	0.153	0.168
LTE Band 48	Front Side	0.485	0.325	0.810
	Back Side	0.304	0.369	0.673
	Left Side	0.183	0.156	0.339
	Right Side	0.054	0.001	0.055
	Top Side	0.133	0.077	0.210
	Bottom Side	0.113	0.153	0.266
LTE Band 66/4	Front Side	0.460	0.325	0.785
	Back Side	0.285	0.369	0.654
	Left Side	0.938	0.156	1.094
	Right Side	0.018	0.001	0.019
	Top Side	0.369	0.077	0.446
	Bottom Side	0.028	0.153	0.181
LTE Band 71	Front Side	0.576	0.325	0.901
	Back Side	0.949	0.369	1.318
	Left Side	0.539	0.156	0.695

	Right Side	0.057	0.001	0.058
	Top Side	0.142	0.077	0.219
	Bottom Side	0.060	0.153	0.213
5G NR n2	Front Side	1.176	0.325	1.501
	Back Side	0.634	0.369	1.003
	Left Side	0.897	0.156	1.053
	Right Side	0.093	0.001	0.094
	Top Side	0.280	0.077	0.357
	Bottom Side	0.035	0.153	0.188
5G NR n5	Front Side	0.764	0.325	1.089
	Back Side	0.964	0.369	1.333
	Left Side	0.274	0.156	0.430
	Right Side	0.078	0.001	0.079
	Top Side	0.139	0.077	0.216
	Bottom Side	0.081	0.153	0.234
5G NR n7	Front Side	0.635	0.325	0.960
	Back Side	0.389	0.369	0.758
	Left Side	1.134	0.156	1.290
	Right Side	0.024	0.001	0.025
	Top Side	0.145	0.077	0.222
	Bottom Side	0.030	0.153	0.183
5G NR n12	Front Side	0.581	0.325	0.906
	Back Side	0.634	0.369	1.003
	Left Side	0.396	0.156	0.552
	Right Side	0.060	0.001	0.061
	Top Side	0.065	0.077	0.142
	Bottom Side	0.041	0.153	0.194
5G NR n14	Front Side	0.607	0.325	0.932
	Back Side	0.642	0.369	1.011
	Left Side	0.325	0.156	0.481
	Right Side	0.049	0.001	0.050
	Top Side	0.155	0.077	0.232
	Bottom Side	0.029	0.153	0.182
5G NR n25	Front Side	1.115	0.325	1.440
	Back Side	0.629	0.369	0.998
	Left Side	1.176	0.156	1.332
	Right Side	0.116	0.001	0.117
	Top Side	0.132	0.077	0.209

	Bottom Side	0.053	0.153	0.206
5G NR n26	Front Side	0.734	0.325	1.059
	Back Side	0.846	0.369	1.215
	Left Side	0.402	0.156	0.558
	Right Side	0.144	0.001	0.145
	Top Side	0.132	0.077	0.209
	Bottom Side	0.055	0.153	0.208
5G NR n30	Front Side	0.414	0.325	0.739
	Back Side	0.363	0.369	0.732
	Left Side	1.124	0.156	1.280
	Right Side	0.029	0.001	0.030
	Top Side	0.061	0.077	0.138
	Bottom Side	0.710	0.153	0.863
5G NR n41	Front Side	0.426	0.325	0.751
	Back Side	0.475	0.369	0.844
	Left Side	1.152	0.156	1.308
	Right Side	0.013	0.001	0.014
	Top Side	0.168	0.077	0.245
	Bottom Side	0.019	0.153	0.172
5G NR n48	Front Side	1.119	0.325	1.444
	Back Side	0.680	0.369	1.049
	Left Side	0.221	0.156	0.377
	Right Side	0.105	0.001	0.106
	Top Side	0.098	0.077	0.175
	Bottom Side	0.190	0.153	0.343
5G NR n66	Front Side	0.475	0.325	0.800
	Back Side	0.301	0.369	0.670
	Left Side	1.179	0.156	1.335
	Right Side	0.023	0.001	0.024
	Top Side	0.050	0.077	0.127
	Bottom Side	0.021	0.153	0.174
5G NR n71	Front Side	0.416	0.325	0.741
	Back Side	0.436	0.369	0.805
	Left Side	0.286	0.156	0.442
	Right Side	0.004	0.001	0.005
	Top Side	0.005	0.077	0.082
	Bottom Side	0.001	0.153	0.154
5G NR n77	Front Side	1.093	0.325	1.418

	Back Side	0.725	0.369	1.094
	Left Side	0.798	0.156	0.954
	Right Side	0.170	0.001	0.171
	Top Side	0.126	0.077	0.203
	Bottom Side	0.364	0.153	0.517
5G NR n78	Front Side	1.004	0.325	1.329
	Back Side	0.794	0.369	1.163
	Left Side	0.666	0.156	0.822
	Right Side	0.229	0.001	0.230
	Top Side	0.158	0.077	0.235
	Bottom Side	0.227	0.153	0.380

19. Uncertainty Assessment

According to KDB 865664 D01 SAR measurement 100 MHz to 6GHz, when the highest measured 1-g SAR is less than 1.5 W/kg and 10-g extremity SAR less than 3.75 W/kg, the expanded SAR measurement uncertainty must be less than 30% with a confidence interval of k=2. When these conditions are met, extensive SAR measurement uncertainty analysis described in IEEE 1528-2013 is not required in the SAR report and submitted for equipment approval. For this device, both the 1-g SAR is less than 1.5 W/kg. Therefore the measurement uncertainty table is not required in this report.

20. Measurement Conclusion

The SAR evaluation indicates that the EUT complies with the RF radiation exposure limits of FCC, with respect to all parameters subject to this test. These measurements were taken to simulate the RF effects of RF exposure under worst-case conditions. Precise laboratory measures were taken to assure repeatability of the tests. The results and statements relate only to the item(s) tested. Please note that the absorption and distribution of electromagnetic energy in the body are very complex phenomena that depend on the mass, shape, and size of the body, the orientation of the body with respect to the field vectors, and the electrical properties of both the body and the environment. Other variables that may play a substantial role in possible biological effects are those that characterize the environment (e.g. ambient temperature, air velocity, relative humidity, and body insulation) and those that characterize the individual (e.g. age, gender, activity level, debilitation, or disease). Because various factors may interact with one another to vary the specific biological outcome of an exposure to electromagnetic fields, any protection guide should consider maximal amplification of biological effects as a result of field-body interactions, environmental conditions, and physiological variables.

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) will be submitted separately.

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