



TEST REPORT

APPLICANT : Reliance Communications LLC

PRODUCT NAME : Orbic Magic

MODEL NAME : R678EL

BRAND NAME : Orbic

FCC ID : 2ABGH-R678EL

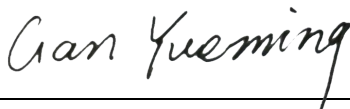
STANDARD(S) : 47 CFR Part 2(2.1093)
IEEE 1528-2013

RECEIPT DATE : 2020-10-22

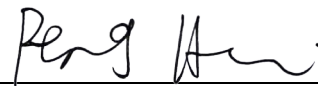
TEST DATE : 2020-11-12 to 2021-01-12

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Changed History		
Version	Date	Reason for Change
1.0	2021-02-07	First edition



1. SAR Results Summary

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

<Highest Reported SAR Summary>

Frequency Band		Highest SAR Summary			
		Head (Gap 0mm)	Body-worn (Gap 10mm)	Hotspot (Gap 10mm)	Extremity (Gap 0mm)
		1g SAR (W/kg)			10g SAR (W/kg)
GSM	GSM850	0.579	0.335	0.335	N/A
	GSM1900	0.392	0.379	0.620	N/A
WCDMA	WCDMA Band II	0.275	0.372	0.396	N/A
	WCDMA Band IV	0.549	0.383	0.578	N/A
	WCDMA Band V	0.499	0.265	0.417	N/A
LTE	LTE Band 2	0.282	0.485	0.491	N/A
	LTE Band 4	0.314	0.237	0.336	N/A
	LTE Band 5	0.669	0.356	0.356	N/A
	LTE Band 12/17	0.149	0.158	0.162	N/A
	LTE Band 13	0.274	0.183	0.316	N/A
	LTE Band 25	0.228	0.308	0.629	N/A
	LTE Band 26	0.509	0.431	0.431	N/A
	LTE Band 41	0.629	0.434	0.574	N/A
	LTE Band 66	0.195	0.146	0.332	N/A
	LTE Band 71	0.641	0.339	0.339	N/A
5G NR (EN-DC)	N2	0.581	0.459	0.564	N/A
	N5	0.337	0.176	0.176	N/A
	N25	0.466	0.303	0.678	N/A
	N41	0.526	0.533	0.533	N/A
	N66	0.392	0.444	0.444	N/A
	N71	0.293	0.409	0.409	N/A
WLAN	2.4GHz WLAN	0.481	0.161	0.206	0.917
	5GHz WLAN	0.483	0.467	0.467	N/A
2.4GHz Band	Bluetooth (Estimated)	N/A	0.453	0.453	N/A



Max Scaled SAR _{1g} (W/Kg):	Head:	0.669 W/kg	Limit(W/kg): 1.6 W/kg
	Body-worn:	0.533 W/kg	
	Hotspot:	0.678 W/kg	
Max Scaled SAR _{10g} (W/Kg):	Extremity	0.917 W/kg	Limit(W/kg): 4.0 W/kg

Highest Simultaneous Transmission SAR _{1g} (W/Kg):	1.589 W/kg	Limit(W/kg): 1.6 W/kg
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Note:

1. This device is in compliance with Specific Absorption Rate (SAR) for general population or uncontrolled exposure limits (1.6W/kg as averaged over any 1 gram of tissue; specified in FCC 47 CFR part 2 (2.1093) and ANSI/IEEE C95.1-1992), and had been tested in accordance with the measurement methods and procedures specified in IEEE 1528-2013 and FCC KDB publications.
2. When the test result is a critical value, we will use the measurement uncertainty give the judgment result based on the 95% risk level.



2. Technical Information

Note: Provide by applicant.

2.1. Applicant and Manufacturer Information

Applicant:	Reliance Communications LLC
Applicant Address:	91 Colin Drive, Unit 1, HOLBROOK, New York 11741, United States
Manufacturer:	ZJY RIGHT SOURCE INDIA PRIVATE LIMITED
Manufacturer Address:	MIDC industrial Area, Shiravane, Nerul, India

2.2. Equipment under Test (EUT) Description

Product Name:	Orbic Magic
Hardware Version:	V2.1
Software Version:	ORB678EL_V1.0.47_BTf
Frequency Bands:	GSM 850: 824 MHz ~ 849 MHz GSM 1900: 1850 MHz ~ 1910 MHz WCDMA Band II: 1850 MHz ~ 1910 MHz WCDMA Band IV: 1710 MHz ~ 1755 MHz WCDMA Band V: 824 MHz ~ 849 MHz LTE Band 2: 1850 MHz ~ 1910 MHz LTE Band 4: 1710 MHz ~ 1755 MHz LTE Band 5: 824 MHz ~ 849 MHz LTE Band 12: 699 MHz ~ 716 MHz LTE Band 13: 777 MHz ~ 787 MHz LTE Band 17: 704 MHz ~ 716 MHz LTE Band 25: 1850 MHz ~ 1915 MHz LTE Band 26: 814 MHz ~ 849 MHz LTE Band 41: 2496 MHz ~ 2690 MHz LTE Band 66: 1710 MHz ~ 1780 MHz LTE Band 71: 663 MHz ~ 698 MHz 5G NR(NSA) n2: 1850 MHz ~ 1910 MHz 5G NR(NSA) n5: 824 MHz ~ 849 MHz 5G NR(NSA) n25: 1850 MHz ~ 1915 MHz 5G NR(NSA) n41: 2496 MHz ~ 2690 MHz 5G NR(NSA) n66: 1710 MHz ~ 1780 MHz 5G NR(NSA) n71: 663 MHz ~ 698 MHz WLAN 2.4GHz: 2412 MHz ~ 2462 MHz



	WLAN 5.2GHz: 5180 MHz ~ 5240 MHz WLAN 5.3GHz: 5260 MHz ~ 5320 MHz WLAN 5.6GHz: 5500 MHz ~ 5720 MHz WLAN 5.8GHz: 5745 MHz ~ 5825 MHz Bluetooth: 2402 MHz ~ 2480 MHz	
Modulation Mode:	GSM/GPRS: GMSK EDGE: 8PSK WCDMA: QPSK, 16QAM, 64QAM LTE: QPSK, 16QAM, 64QAM 5G NR: CP-OFDM/DFT-s-OFDM, PI/2 BPSK QPSK, 16QAM, 64QAM, 256QAM 802.11b: DSSS 802.11a/g/n-HT20/HT40/ac-VHT20/40/80: OFDM BR+EDR: GFSK(1Mbps), $\pi/4$ -DQPSK(2Mbps), 8-DPSK(3Mbps) Bluetooth LE: GFSK(1Mbps)	
Multi-slot Class:	GPRS: Multi-slot Class 12 EDGE: Multi-slot Class 12	
Operation Class:	Class B	
Carrier Aggregation:	CA Uplink & Downlink	
VoIP Mode:	GPRS, EDGE, WCDMA, LTE	
VoLTE/VoWiFi Mode:	Supports	
Hotspot Mode:	Support (5G WLAN only for B1 & B4)	
WLAN MIMO:	Support	
Antenna Type:	WWAN: Fixed Internal Antenna WLAN: PIFA Antenna Bluetooth: PIFA Antenna	
Battery:	Manufacturer:	HUIZHOU DXDRAGON INC
	Model Name:	BLE-5001
	Capacity:	5000mAh
	Rated Voltage:	3.85V
SIM Cards Description:	SIM 1	GSM+ WCDMA+LTE+5G NR(EN-DC)

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):	20-25 °C
Relative Humidity:	30-75 %
Air Pressure:	980-1020 hPa

Test Frequency:	GSM 850MHz/1900MHz WCDMA Band II/IV/V FDD-LTE Band 2/4/5/12/13/17/25/26/66/71 TDD-LTE Band 41 5G NR(NSA) N2/5/25/41/66/71 WLAN 2.4GHz WLAN 5GHz
Operation Mode:	Call established
Power Level:	GSM 850 MHz Maximum output power(level 5) GSM 1900MHz Maximum output power(level 0) WCDMA Band II/IV/V (All Up Bits) FDD-LTE Band 2/4/5/12/13/17/25/26/66/71 (Maximum output power) TDD-LTE Band 41 (Maximum output power) 5G NR(NSA) (Maximum output power) WLAN 2.4GHz WLAN 5GHz

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:

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

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

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

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

Where C is the specific head capacity, δT is the temperature rise and δt the exposure duration, or related to the electrical field in the tissue by

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

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.

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.

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.



5. Applied Reference Documents

Leading reference documents for testing:

No.	Identity	Document Title	Method Determination /Remark
1	47 CFR Part 2(2.1093)	Radio Frequency Radiation Exposure Evaluation: Portable Devices	No deviation
2	IEEE 1528-2013	IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques	No deviation
3	KDB 447498 D01v06	General RF Exposure Guidance	No deviation
4	KDB 248227 D01v02r02	SAR Measurement Procedures for 802.11 Transmitters	No deviation
5	KDB 865664 D01v01r04	SAR Measurement 100 MHz to 6 GHz	No deviation
6	KDB 865664 D02v01r02	RF Exposure Reporting	No deviation
7	KDB 648474 D04v01r03	Handset SAR	No deviation
8	KDB 941225 D01v03r01	3G SAR MEAUREMENT PROCEDURES	No deviation
9	KDB 941225 D05v02r05	SAR Evaluation Consideration for LTE Devices	No deviation
10	KDB 941225 D06v02r01	SAR Evaluation Procedures For Portable Devices With Wireless Router Capabilities	No deviation

Note 1: The test item is not applicable.

Note 2: Additions to, deviation, or exclusions from the method shall be judged in the "method determination" column of add, deviate or exclude from the specific method shall be explained in the "Remark" of the above table.

6. SAR Measurement System

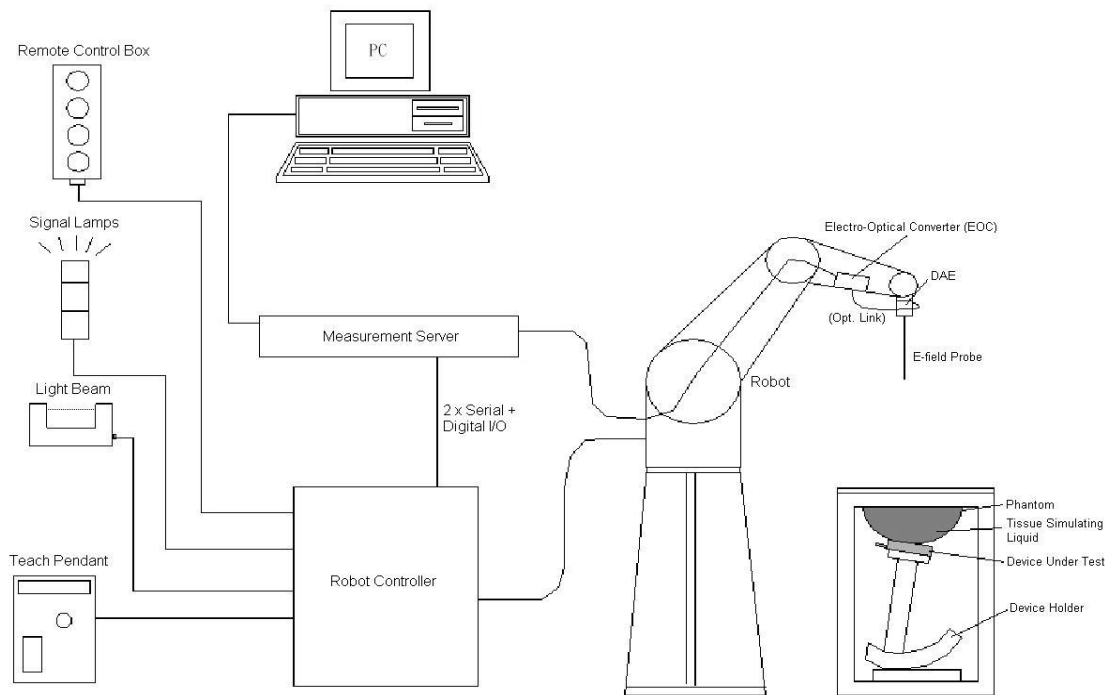


Fig 6.1 SPEAG DASY System Configurations

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

- A standard high precision 6-axis robot with controller, a teach pendant and software.
- A data acquisition electronic (DAE) attached to the robot arm extension.
- A dosimetric probe equipped with an optical surface detector system.
- The electro-optical converter (ECO) performs the conversion between optical and electrical signals
- A measurement server performs the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- A probe alignment unit which improves the accuracy of the probe positioning.
- A computer operating Windows XP.
- DASY software.
- Remote control with teach pendant and additional circuitry for robot safety such as warning 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 μ W/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

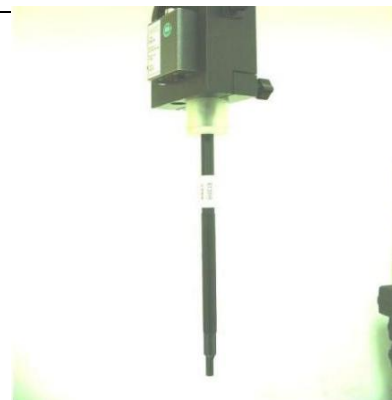


Fig 6.2 Photo of ES3DV3

<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 μ W/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 $\pm 10\%$. The spherical isotropy shall be evaluated and within ± 0.25 dB. The sensitivity parameters (NormX, NormY, and NormZ), the diode compression parameter (DCP) and the conversion factor (ConvF) of the probe are tested. The calibration data can be referred to appendix C of this report.

6.2. Data Acquisition Electronics (DAE)

The data acquisition electronics (DAE) consists of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16 bit AD-converter and a command decoder and control logic unit. AD-converter and a command decoder and control logic unit. Transmission to the measurement server is accomplished through an optical downlink for data and status information as well as an optical uplink for commands and the clock. The input impedance of the DAE is 200 MOhm; the inputs are symmetrical and floating. Common mode rejection is above 80 dB.



Fig 6.4 Photo of DAE

6.3. Robot

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

High precision (repeatability ± 0.035 mm)

High reliability (industrial design)

Jerk-free straight movements

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



Fig 6.5 Photo of DASY5

6.4. Measurement Server

The measurement server is based on a PC/104 CPU board with CPU (DASY4: 166 MHz, Intel Pentium; DASY5: 400 MHz, Intel Celeron), chip disk (DASY4: 32 MB; DASY5: 128 MB), RAM (DASY4: 64 MB, DASY5: 128 MB). The necessary circuits for communication with the DAE electronic box, as well as the 16 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	Approx. 25 liters
Dimensions	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 $\epsilon = 3$ and loss tangent $\delta = 0.02$. The amount of dielectric material has been reduced in the closest vicinity of the device, since measurements have suggested that the influence of the clamp on the test results could thus be lowered.

<Laptop Extension Kit>

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



Fig 6.9 Device Holder

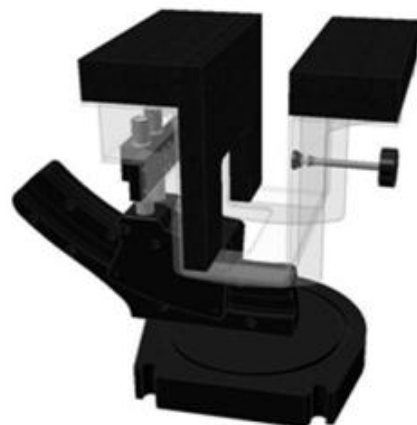


Fig 6.10 Laptop Extension Kit

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	$\text{Norm}_i, a_{i0}, a_{i1}, a_{i2}$
	- 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 V_i = compensated signal of channel i, (i = x, y, z)
 U_i = input signal of channel i, (i = x, y, z)
 cf = crest factor of exciting field (DASY parameter)
 dcp_i = diode compression point (DASY parameter)

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

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

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

With V_i = compensated signal of channel i, (i = x, y, z)
 Norm_i = sensor sensitivity of channel i, (i = x, y, z), $\mu\text{V}/(\text{V/m})^2$ for E-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):

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

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

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

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/cm³

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 Number	Calibration	
				Last Cal.	Due Date
SPEAG	750MHz System Validation Kit	D750V3	1173	2018.06.21	2021.06.20
SPEAG	835MHz System Validation Kit	D835V2	4d227	2018.06.22	2021.06.21
SPEAG	1750MHz System Validation Kit	D1750V2	1160	2018.06.25	2021.06.24
SPEAG	1900MHz System Validation Kit	D1900V2	5d221	2018.06.22	2021.06.21
SPEAG	2450MHz System Validation Kit	D2450V2	805	2018.10.26	2021.10.25
SPEAG	2600MHz System Validation Kit	D2600V2	1139	2018.06.25	2021.06.24
SPEAG	5000MHz System Validation Kit	D5GHzV2	1176	2018.11.06	2021.11.05
SPEAG	Dosimetric E-Field Probe	EX3DV4	3823	2020.01.03	2021.01.02
SPEAG	Dosimetric E-Field Probe	EX3DV4	7515	2020.11.30	2021.11.29
SPEAG	Data Acquisition Electronics	DAE4	480	2020.06.02	2021.06.01
SPEAG	Dielectric Assessment KIT	DAK-3.5	1279	2020.10.20	2021.10.19
SPEAG	SAM Twin Phantom 2	QD 000 P40 CB	TP-1464	NCR	NCR
SPEAG	Phone Positioner	N/A	N/A	NCR	NCR
R&S	Network Emulator	CMW500	124534	2020.03.31	2021.03.30
Agilent	Network Analyzer	E5071B	MY42404762	2020.04.01	2021.03.31
mini-circuits	Amplifier	ZHL-42W+	608501717	NCR	NCR
mini-circuits	Amplifier	ZVE-8G+	754401735	NCR	NCR
Agilent	Signal Generator	N5182B	MY53050509	2020.03.31	2021.03.30
Agilent	Power Sensor	N8482A	MY41090849	2020.10.20	2021.10.19
Agilent	Power Meter	E4416A	MY45102093	2020.10.20	2021.10.19
Anritsu	Power Sensor	MA2411B	N/A	2020.10.20	2021.10.19
Anritsu	Power Meter	NRVD	101066	2020.10.20	2021.10.19
Agilent	Dual Directional Coupler	778D	50422	NA	NA
MCL	Attenuation1	351-218-010	N/A	NA	NA
KTJ	Thermo meter	TA298	N/A	2020.08.22	2021.08.21
N/A	Tissue Simulating Liquids	600-6000MHz	N/A	24H	

Note:

1. The calibration certificate of DASY can be referred to appendix E of this report.
2. The Insertion Loss calibration of Dual Directional Coupler and Attenuator were characterized via the network analyzer and compensated during system check.
3. The dielectric probe kit was calibrated via the network analyzer, with the specified procedure (calibrated in pure water) and calibration kit (standard) short circuit, before the dielectric



measurement. The specific procedure and calibration kit are provided by Speag.

4. In system check we need to monitor the level on the power meter, and adjust the power amplifier level to have precise power level to the dipole; the measured SAR will be normalized to 1W input power according to the ratio of 1W to the input power to the dipole. For system check, the calibration of the power amplifier is deemed not critically required for correct measurement; the power meter is critical and we do have calibration for it.
5. Attenuator insertion loss is calibrated by the network Analyzer, which the calibration is valid, before system check.
6. N.C.R means No Calibration Requirement.

7. Tissue Simulating Liquids

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

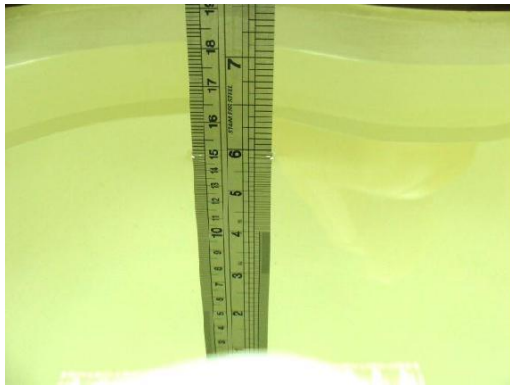


Fig 7.1 Photo of Liquid Height for Head SAR



Fig 7.2 Photo of Liquid Height for Body SAR

The following table gives the recipes for tissue simulating liquids

Frequency (MHz)	Water (%)	Sugar (%)	Cellulose (%)	Salt (%)	Preventol (%)	DGBE (%)	Conductivity (σ)	Permittivity (ϵ_r)
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.(°C)	Conductivity (σ)	Conductivity Target (σ)	Delta (σ) (%)	Limit (%)	Date
750	HSL	22.1	0.929	0.89	4.38	±5	2020.11.18
750	HSL	22.1	0.924	0.89	3.82	±5	2021.01.08
835	HSL	22.3	0.942	0.90	4.67	±5	2020.11.27
835	HSL	22.2	0.940	0.90	4.44	±5	2021.01.12
1750	HSL	22.6	1.418	1.37	3.50	±5	2020.11.12
1750	HSL	22.2	1.378	1.37	0.58	±5	2020.12.31
1900	HSL	22.2	1.359	1.40	-2.93	±5	2020.11.16
1900	HSL	22.1	1.335	1.40	-4.64	±5	2021.01.02
2450	HSL	22.5	1.819	1.80	1.06	±5	2020.12.16
2600	HSL	22.4	1.987	1.96	1.38	±5	2020.11.24
2600	HSL	22.3	1.986	1.96	1.33	±5	2021.01.01
5250	HSL	22.2	4.532	4.71	-3.78	±5	2020.12.12
5600	HSL	22.1	5.199	5.07	2.54	±5	2020.12.08
5750	HSL	22.1	5.374	5.22	2.95	±5	2020.12.15
Frequency (MHz)	Tissue Type	Liquid Temp.(°C)	Permittivity (ϵ_r)	Permittivity Target (ϵ_r)	Delta (ϵ_r) (%)	Limit (%)	Date
750	HSL	22.1	42.139	41.90	0.57	±5	2020.11.18
750	HSL	22.1	42.140	41.90	0.57	±5	2021.01.08
835	HSL	22.3	42.881	41.50	3.33	±5	2020.11.27
835	HSL	22.2	42.880	41.50	3.33	±5	2021.01.12
1750	HSL	22.6	39.531	40.10	-1.42	±5	2020.11.12
1750	HSL	22.2	39.551	40.10	-1.37	±5	2020.12.31
1900	HSL	22.2	39.745	40.00	-0.64	±5	2020.11.16
1900	HSL	22.1	39.742	40.00	-0.65	±5	2021.01.02
2450	HSL	22.5	38.811	39.20	-0.99	±5	2020.12.16
2600	HSL	22.4	38.294	39.00	-1.81	±5	2020.11.24
2600	HSL	22.3	38.295	39.00	-1.81	±5	2021.01.01
5250	HSL	22.2	34.968	35.95	-2.73	±5	2020.12.12
5600	HSL	22.1	36.179	35.50	1.91	±5	2020.12.08
5750	HSL	22.1	35.896	35.35	1.54	±5	2020.12.15

8. SAR System Verification

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

8.1. Purpose of System Performance check

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

8.2. System Setup

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



Fig 8.1 Photo of Dipole Setup

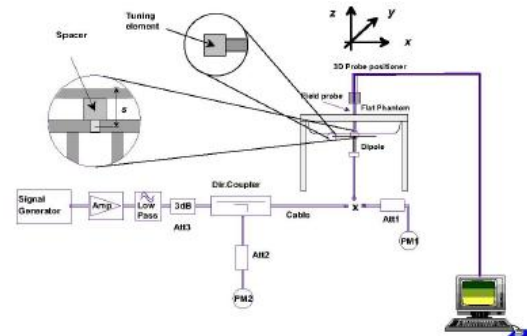


Fig 8.2 System Setup for System Evaluation



8.3. Validation Results

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

<Validation Setup>

Frequency (MHz)	Tissue Type	Input Power(mW)	Dipole S/N	Probe S/N	DAE S/N
750	HSL	250	D750V3-1173	7515	480
835	HSL	250	D835V2-4d227	3823	480
835	HSL	250	D835V2-4d227	7515	480
1750	HSL	250	D1750V2-1160	3823	480
1750	HSL	250	D1750V2-1160	7515	480
1900	HSL	250	D1900V2_5d221	3823	480
1900	HSL	250	D1900V2_5d221	7515	480
2450	HSL	250	D2450V2-805	3823	480
2600	HSL	250	D2600V2-1139	3823	480
2600	HSL	250	D2600V2-1139	7515	480
5250	HSL	100	D5GHzV2-1176-5750	3823	480
5600	HSL	100	D5GHzV2-1176-5600	3823	480
5750	HSL	100	D5GHzV2-1176-5750	3823	480

<Validation Results>

Date	Frequency (MHz)	Tissue Type	Input Power (mW)	Measured 1g SAR (W/kg)	Targeted 1g SAR (W/kg)	Normalized 1g SAR (W/kg)	Deviation (%)
2020.11.18	750	HSL	250	2.08	8.26	8.32	0.73
2021.01.08	750	HSL	250	2.04	8.26	8.16	-1.21
2020.11.27	835	HSL	250	2.42	9.34	9.68	3.64
2021.01.12	835	HSL	250	2.41	9.34	9.64	3.21
2020.11.12	1750	HSL	250	9.56	37.10	38.24	3.07
2020.12.31	1750	HSL	250	9.45	37.10	37.8	1.89
2020.11.16	1900	HSL	250	9.97	39.50	39.88	0.96
2021.01.02	1900	HSL	250	9.89	39.50	39.56	0.15
2020.12.16	2450	HSL	250	13.23	52.00	52.92	1.77
2020.11.24	2600	HSL	250	13.60	54.00	54.4	0.74
2021.01.01	2600	HSL	250	13.51	54.00	54.04	0.07
2020.12.12	5250	HSL	100	8.28	80.00	82.8	3.50



REPORT No.: SZ20100013S01

2020.12.08	5600	HSL	100	8.32	80.90	83.2	2.84
2020.12.15	5750	HSL	100	8.27	80.00	82.7	3.37

Date	Frequency (MHz)	Tissue Type	Input Power (mW)	Measured 10g SAR (W/kg)	Targeted 10g SAR (W/kg)	Normalized 10g SAR (W/kg)	Deviation (%)
2020.11.18	750	HSL	250	1.40	5.45	5.6	2.75
2021.01.08	750	HSL	250	1.37	5.45	5.48	0.55
2020.11.27	835	HSL	250	1.59	6.07	6.36	4.78
2021.01.12	835	HSL	250	1.56	6.07	6.24	2.80
2020.11.12	1750	HSL	250	5.15	20.00	20.6	3.00
2020.12.31	1750	HSL	250	4.98	20.00	19.92	-0.40
2020.11.16	1900	HSL	250	5.18	20.60	20.72	0.58
2021.01.02	1900	HSL	250	5.11	20.60	20.44	-0.78
2020.12.16	2450	HSL	250	6.07	24.10	24.28	0.75
2020.11.24	2600	HSL	250	6.24	24.50	24.96	1.88
2021.01.01	2600	HSL	250	6.13	24.50	24.52	0.08
2020.12.12	5250	HSL	100	2.28	22.60	22.8	0.88
2020.12.08	5600	HSL	100	2.35	23.10	23.5	1.73
2020.12.15	5750	HSL	100	2.28	22.60	22.8	0.88

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 right cheek/right tilted/left cheek/left tilted for head, Front/Back of the EUT with phantom 10 mm gap, as illustrated below, please refer to Appendix B for the test setup photos.

9.1. Handset Reference Points

The vertical centre line passes through two points on the front side of the handset – the midpoint of the width w_t of the handset at the level of the acoustic output, and the midpoint of the width w_b of the bottom of the handset.

The horizontal line is perpendicular to the vertical centre line and passes the center of the acoustic output. The horizontal line is also tangential to the handset at point A.

The two lines intersect at point A. Note that for many handsets, point A coincides with the center of the acoustic output; however, the acoustic output may be located elsewhere on the horizontal line.

Also note that the vertical centre line is not necessarily parallel to the front face of the handset, especially for clamshell handsets, handsets with flip covers, and other irregularly shaped handsets.



Fig. 9.1 Illustration for Cheek Position

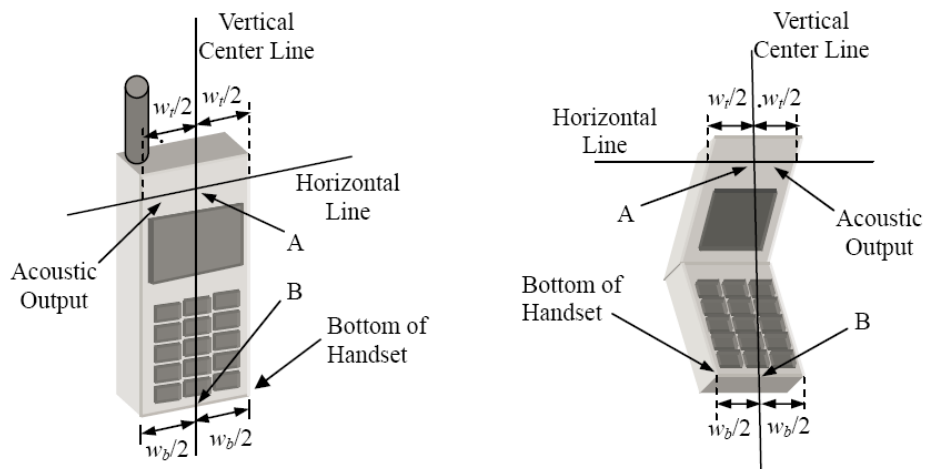


Fig. 9.2 Illustration for Handset Vertical and Horizontal Reference Lines

9.2. Positioning for Cheek / Touch

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

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

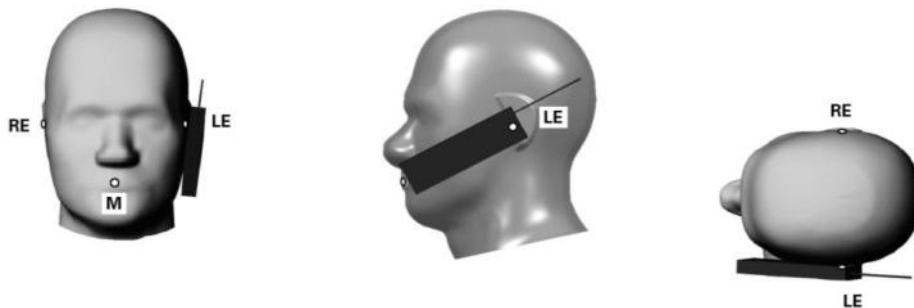


Fig 9.3 Illustration for Cheek Position

9.3. Positioning for Ear / 15° Tilt

To position the device in the “cheek” position described above.

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

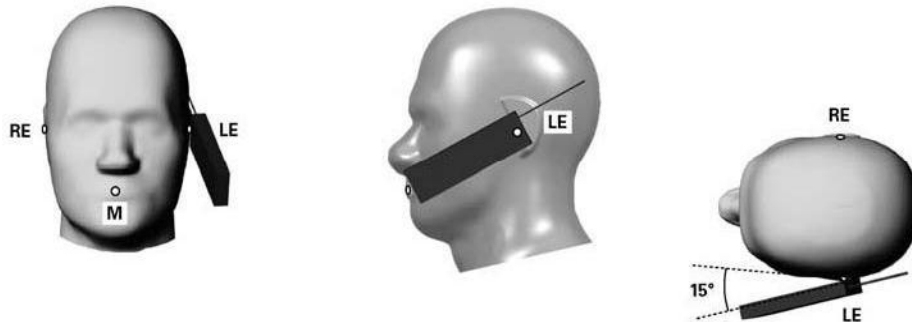


Fig 9.4 Illustration for Tilted Position

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

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

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

9.5. Body-worn Configurations

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

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

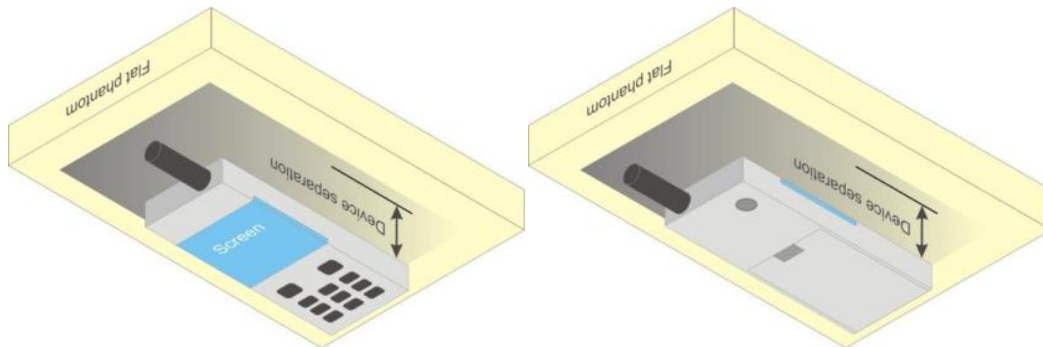


Fig 9.5 Illustration for Body Worn Position

9.6. Hotspot Mode Exposure Position Conditions

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

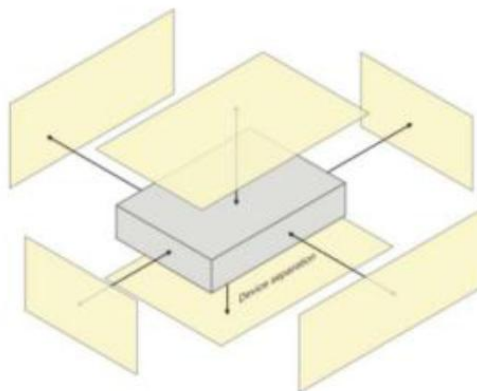


Fig 9.6 Illustration for Hotspot Position

10. Measurement Procedures

The measurement procedures are as follows:

<Conducted power measurement>

- (a) For WWAN power measurement, use base station simulator to configure EUT WWAN transmission in conducted connection with RF cable, at maximum power in each supported wireless interface and frequency band.
- (b) Read the WWAN RF power level from the base station simulator.
- (c) For WLAN/BT power measurement, use engineering software to configure EUT WLAN/BT continuously transmission, at maximum RF power in each supported wireless interface and frequency band.
- (d) Connect EUT RF port through RF cable to the power meter, and measure WLAN/BT output power.

<SAR measurement>

- (a) Use base station simulator to configure EUT WWAN transmission in radiated connection, and engineering software to configure EUT WLAN/BT continuously transmission, at maximum RF power, in the highest power channel.
- (b) Place the EUT in the positions as Appendix D demonstrates.
- (c) Set scan area, grid size and other setting on the DASY software.
- (d) Measure SAR results for the highest power channel on each testing position.
- (e) Find out the largest SAR result on these testing positions of each band.
- (f) Measure SAR results for other channels in worst SAR testing position if the reported SAR of highest power channel is larger than 0.8 W/kg.

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

- (a) Power reference measurement.
- (b) Area scan.
- (c) Zoom scan.
- (d) Power drift measurement.

10.1. Spatial Peak SAR Evaluation

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

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



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

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

10.2. Power Reference Measurement

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

10.3. Area Scan 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 a 10mm² 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 1g cube is 10mm, with the side



length of the 10 g cube 21,5mm. The zoom scan integer steps can be user defined so as to reduce uncertainty, but normal practice for typical test applications utilize a physical step of 5x5x7 (8mmx8mmx5mm) providing a volume of 32mm in the X & Y axis, and 30mm in the Z axis.

10.5. 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.

			≤ 3 GHz	> 3 GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface			5 mm $\pm$ 1 mm	$\frac{1}{2} \cdot \delta \cdot \ln(2)$ mm $\pm$ 0.5 mm
Maximum probe angle from probe axis to phantom surface normal at the measurement location			$30^{\circ} \pm 1^{\circ}$	$20^{\circ} \pm 1^{\circ}$
Maximum area scan spatial resolution: Δx_{Area} , Δy_{Area}			≤ 2 GHz: ≤ 15 mm 2 – 3 GHz: ≤ 12 mm	3 – 4 GHz: ≤ 12 mm 4 – 6 GHz: ≤ 10 mm
			When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be $\leq$ the corresponding x or y dimension of the test device with at least one measurement point on the test device.	
Maximum zoom scan spatial resolution: Δx_{Zoom} , Δy_{Zoom}			≤ 2 GHz: ≤ 8 mm 2 – 3 GHz: ≤ 5 mm*	3 – 4 GHz: ≤ 5 mm* 4 – 6 GHz: ≤ 4 mm*
Maximum zoom scan spatial resolution, normal to phantom surface	uniform grid: $\Delta z_{Zoom}(n)$		≤ 5 mm	3 – 4 GHz: ≤ 4 mm 4 – 5 GHz: ≤ 3 mm 5 – 6 GHz: ≤ 2 mm
	graded grid	$\Delta z_{Zoom}(1)$: between 1 st two points closest to phantom surface	≤ 4 mm	3 – 4 GHz: ≤ 3 mm 4 – 5 GHz: ≤ 2.5 mm 5 – 6 GHz: ≤ 2 mm
		$\Delta z_{Zoom}(n>1)$: between subsequent points	$\leq 1.5 \cdot \Delta z_{Zoom}(n-1)$ mm	
Minimum zoom scan volume	x, y, z		≥ 30 mm	3 – 4 GHz: ≥ 28 mm 4 – 5 GHz: ≥ 25 mm 5 – 6 GHz: ≥ 22 mm
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 <i>reported</i> SAR from the <i>area scan based 1-g SAR estimation</i> 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.				

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 to 16 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 ($L \times W \geq 9 \text{ cm} \times 5 \text{ cm}$) 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 from 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

<GSM Mode>

A summary of these settings are illustrated below:

For GSM850 frequency band, the power control is set to 5 for GSM/GPRS mode (GSMK-CS1) and set to 8 for EDGE mode (MCS5); For GSM1900 frequency band, the power control is set to 0 for GSM/GPRS mode (GSMK-CS1) and set to 2 for EDGE mode (MCS5).

1. Per KDB 447498 D01v06, the maximum output power channel is used for SAR testing and for further SAR test reduction.
2. Per KDB 941225 D01v03r01, SAR test reduction for GSM / GPRS / EDGE modes is determined by the source-based time-averaged output power including tune-up tolerance. The mode with highest specified time-averaged output power should be tested for SAR compliance in the applicable exposure conditions. For modes with the same specified maximum output power and tolerance, the higher number time-slot configuration should be tested. Therefore, the GPRS (4Tx slots) for GSM850/GSM1900 is considered as the primary mode.
3. Other configurations of GSM / GPRS / EDGE are considered as secondary modes.

Timeslot consignations:

Remark:

1. The frame-averaged power is linearly reported the maximum burst averaged power over 8 time slots. The calculated method are shown as below:
The duty cycle "x" of different time slots as below:
1 TX slot is 1/8, 2 TX slots is 2/8, 3 TX slots is 3/8 and 4 TX slots is 4/8
Based on the calculation formula:
Frame-averaged power = Burst averaged power + 10 log (x)
So,
Frame-averaged power (1 TX slot) = Burst averaged power (1 TX slot)– 9.03
Frame-averaged power (2 TX slots) = Burst averaged power (2 TX slots)– 6.02
Frame-averaged power (3 TX slots) = Burst averaged power (3 TX slots)– 4.26
Frame-averaged power (4 TX slots) = Burst averaged power (4 TX slots) – 3.01
2. CS1 coding scheme was used in GPRS conducted power measurements and SAR testing, MCS5 coding scheme was used in EGPRS conducted power measurements and SAR testing (if necessary).

No. of Slots:	Slot 1	Slot 2	Slot 3	Slot 4
Slot Consignation:	1Up4Down	2Up3Down	3Up2Down	4Up1Down
Duty Cycle:	1:8.3	1:4.15	1:2.77	1:2.08
Correct Factor:	-9.03dB	-6.02dB	-4.26dB	-3.01dB

<WCDMA Mode>

Summary of UMTS conducted power measurement:

1. The 3G SAR test reduction procedure is applied, when the maximum output power and tune-up tolerance specified for production units in a secondary mode is $\leq \frac{1}{4}$ dB higher than the primary mode, SAR measurement is not required for the secondary mode.
2. The following tests were conducted according to the test requirements outlines in 3GPP TS 34.121 specification.
3. The procedures in KDB 941225 D01v03r01 are applied for 3GPP Rel. 6 HSPA to configure the device in the required sub-test mode(s) to determine SAR test exclusion.
4. For HSPA+ devices supporting 16 QAM in the uplink, power measurements procedure is according to the configurations in Table C.11.1.4 of 3GPP TS 34.121-1.
5. Per KDB 941225 D01v03r01, RMC 12.2kbps setting is used to evaluate SAR. The maximum output power and tune-up tolerance specified for production units in HSDPA / HSUPA / DC-HSDPA / HSPA+ is $\leq \frac{1}{4}$ dB higher than RMC 12.2Kbps or when the highest reported SAR of the RMC12.2Kbps is scaled by the ratio of specified maximum output power and tune-up tolerance of HSDPA / HSUPA / DC-HSDPA / HSPA+ to RMC12.2Kbps and the adjusted SAR is ≤ 1.2 W/kg, SAR measurement is not required for HSDPA / HSUPA / DC-HSDPA / HSPA+, and according to the following RF output power, the output power results of the secondary modes (HSDPA / HSUPA / DC-HSDPA / HSPA+) are less than $\frac{1}{4}$ dB higher than the primary modes; therefore, SAR measurement is not required for HSDPA / HSUPA / DC-HSDPA / HSPA+.
6. A fixed level power reduction is applied for WCDMA Band II when handset open Hotspot mode, the power reduction triggered.

HSDPA Setup Configuration

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	$\beta_{hs}^{(1)}$	CM (dB) ⁽²⁾
1	2/15	15/15	64	2/15	4/15	0.0
2	12/15 ⁽³⁾	15/15 ⁽³⁾	64	12/15 ⁽³⁾	24/15	1.0
3	15/15	8/15	64	15/8	30/15	1.5
4	15/15	4/15	64	15/4	30/15	1.5
Note 1: $\Delta_{ACK}, \Delta_{NACK}$ and $\Delta_{CQI} = 8 \Leftrightarrow A_{hs} = \beta_{hs}/\beta_c = 30/15 \Leftrightarrow \beta_{hs} = 30/15 * \beta_c$ Note 2: CM = 1 for $\beta_c/\beta_d = 12/15, \beta_{hs}/\beta_c = 24/15$. Note 3: For subtest 2 the β_c/β_d ratio of 12/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signaled gain factors for the reference TFC (TF1, TF1) to $\beta_c = 11/15$ and $\beta_d = 15/15$.						

HSUPA Setup Configuration

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	$\beta_{hs}^{(1)}$	β_{ec}	β_{ed}	β_{ed} (SF)	β_{ed} (codes)	CM ⁽²⁾ (dB)	MPR (dB)	AG ⁽⁴⁾ Index	E-TFCI
1	11/15 ⁽³⁾	15/15 ⁽³⁾	64	11/15 ⁽³⁾	22/15	209/225	1039/225	4	1	1.0	0.0	20	75
2	6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67
3	15/15	9/15	64	15/9	30/15	30/15	β_{ed1} : 47/15 β_{ed2} : 47/15	4	2	2.0	1.0	15	92
4	2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71
5	15/15 ⁽⁴⁾	15/15 ⁽⁴⁾	64	15/15 ⁽⁴⁾	30/15	24/15	134/15	4	1	1.0	0.0	21	81

Note 1: Δ_{ACK} , Δ_{NACK} and $\Delta_{CQI} = 8 \Leftrightarrow A_{hs} = \beta_{hs}/\beta_c = 30/15 \Leftrightarrow \beta_{hs} = 30/15 * \beta_c$.

Note 2: CM = 1 for $\beta_c/\beta_d = 12/15$, $\beta_{hs}/\beta_c = 24/15$. For all other combinations of DPDCH, DPCCH, HS-DPCCH, E-DPDCH and E-DPCCH the MPR is based on the relative CM difference.

Note 3: For subtest 1 the β_c/β_d ratio of 11/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signaled gain factors for the reference TFC (TF1, TF1) to $\beta_c = 10/15$ and $\beta_d = 15/15$.

Note 4: For subtest 5 the β_c/β_d ratio of 15/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signaled gain factors for the reference TFC (TF1, TF1) to $\beta_c = 14/15$ and $\beta_d = 15/15$.

Note 5: Testing UE using E-DPDCH Physical Layer category 1 Sub-test 3 is not required according to TS 25.306 Table 5.1g.

Note 6: β_{ed} cannot be set directly; it is set by Absolute Grant Value.

HSPA+ 3GPP release 7 (uplink category 7) 16QAM, Setup Configuration:

Table C.11.1.4: β values for transmitter characteristics tests with HS-DPCCH and E-DCH with 16QAM

Sub-test	β_c (Note 3)	β_d	β_{hs} (Note 1)	β_{ec}	β_{ed} (2xSF2) (Note 4)	β_{ed} (2xSF4) (Note 4)	CM (dB) (Note 2)	MPR (dB) (Note 2)	AG Index (Note 4)	E-TFCI (Note 5)	E-TFCI (boost)
1	1	0	30/15	30/15	β_{ed1} : 30/15 β_{ed2} : 30/15	β_{ed3} : 24/15 β_{ed4} : 24/15	3.5	2.5	14	105	105

Note 1: Δ_{ACK} , Δ_{NACK} and $\Delta_{CQI} = 30/15$ with $\beta_{hs} = 30/15 * \beta_c$.

Note 2: CM = 3.5 and the MPR is based on the relative CM difference, MPR = MAX(CM-1,0).

Note 3: DPDCH is not configured, therefore the β_c is set to 1 and $\beta_d = 0$ by default.

Note 4: β_{ed} can not be set directly; it is set by Absolute Grant Value.

Note 5: All the sub-tests require the UE to transmit 2SF2+2SF4 16QAM EDCH and they apply for UE using E-DPDCH category 7. E-DCH TTI is set to 2ms TTI and E-DCH table index = 2. To support these E-DCH configurations DPDCH is not allocated. The UE is signaled to use the extrapolation algorithm.

DC-HSDPA Setup Configuration

The following tests were completed according to procedures in section 7.3.13 of 3GPP TS34.108 v9.5.0. A summary of these settings are illustrated below:

Downlink Physical Channels are set as per 3GPP TS34.121-1 v9.0.0 E.5.

Table E.5.0: Levels for HSDPA connection setup

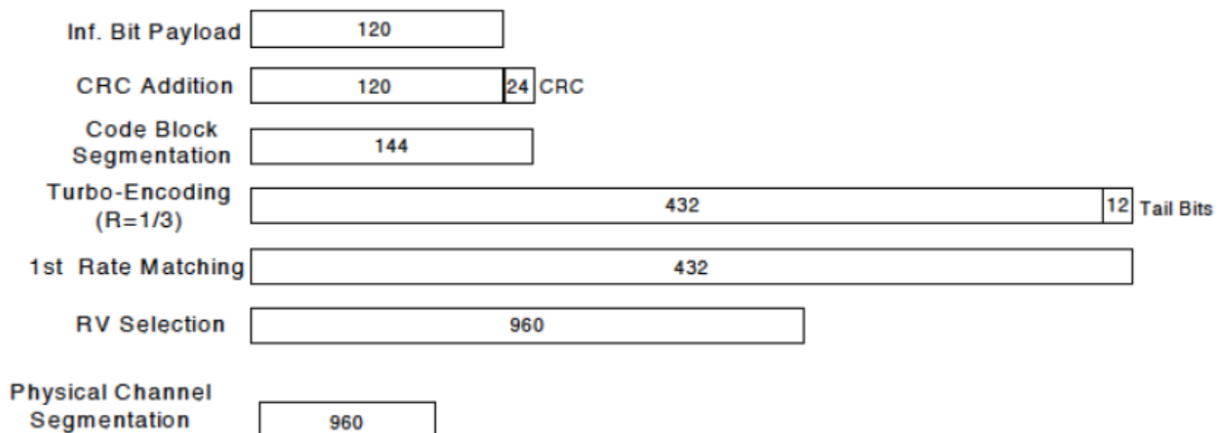
Parameter During Connection setup	Unit	Value
P-CPICH_Ec/Ior	dB	-10
P-CCPCH and SCH_Ec/Ior	dB	-12
PICH_Ec/Ior	dB	-15
HS-PDSCH	dB	off
HS-SCCH_1	dB	off
DPCH_Ec/Ior	dB	-5
OCNS_Ec/Ior	dB	-3.1

Call is set up as per 3GPP TS34.108 v9.5.0 sub clause 7.3.13

The configurations of the fixed reference channels for HSDPA RF tests are described in 3GPP TS 34.121, annex C for FDD and 3GPP TS 34.122.

Table C.8.1.12: Fixed Reference Channel H-Set 12

Parameter	Unit	Value
Nominal Avg. Inf. Bit Rate	kbps	60
Inter-TTI Distance	TTI's	1
Number of HARQ Processes	Processes	6
Information Bit Payload (N_{INF})	Bits	120
Number Code Blocks	Blocks	1
Binary Channel Bits Per TTI	Bits	960
Total Available SML's in UE	SML's	19200
Number of SML's per HARQ Proc.	SML's	3200
Coding Rate		0.15
Number of Physical Channel Codes	Codes	1
Modulation		QPSK
Note 1: The RMC is intended to be used for DC-HSDPA mode and both cells shall transmit with identical parameters as listed in the table. Note 2: Maximum number of transmission is limited to 1, i.e., retransmission is not allowed. The redundancy and constellation version 0 shall be used.		


Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)



<CDMA Mode>

1xEV-DO Rev. B

Call box setup procedure

1xEV-DO Release B

1> CMW 500 Signal Generator > 1xEV-DO Taskbar Enable

2> CMW 500 1xEV-DO Signaling Configuration Window >

3> 1xEV-DO Signaling On Window:

Under Access Network Control:

Band Class: BC0: US Cellular

RF Channel: 31

1xEV-DO Power: -70 dBm

4> 1xEV-DO Signaling Configuration Window

Under RF Frequency Band / Channel: Enter Ch. Frequency

- Under Carrier Configuration: RF Frequency
For Two Carriers: Low Channel (1013)

	<u>RF Channel</u>	<u>RF Channel Offset</u>
Carrier [0]	31	0
Carrier [1]	1013	982

- Under Carrier Configuration: RF Pilot
- | | <u>Carrier Sector</u> | <u>Active on AN</u> | <u>Assigned to AT</u> |
|-----------|-----------------------|---------------------|-----------------------|
| Pilot [0] | C0/S0 | ✓ | ✓ |
| | CA/S1 | ✓ | ✓ |

For Three Carriers: Low Channel (1013)

	<u>RF Channel</u>	<u>RF Channel Offset</u>
Carrier [0]	72	0
Carrier [1]	31	-41
Carrier [2]	1013	941

- Under Carrier Configuration: RF Pilot
- | | <u>Carrier Sector</u> | <u>Active on AN</u> | <u>Assigned to AT</u> |
|-----------|-----------------------|---------------------|-----------------------|
| Pilot [0] | C0/S0 | ✓ | ✓ |
| Pilot [1] | C1/S1 | ✓ | ✓ |
| Pilot [2] | C2/S2 | ✓ | ✓ |



<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	3.0	5	10	15	20	Target	MPR
	MHz	MHz	MHz	MHz	MHz	MHz	(dB)	(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

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

LTE Bands

LTE Bands	Channel bandwidth / Transmission bandwidth configuration [RB]					
	1.4	3.0	5	10	15	20
	MHz	MHz	MHz	MHz	MHz	MHz
2	√	√	√	√	√	√
4	√	√	√	√	√	√
5	√	√	√	√	N/A	N/A
12	N/A	N/A	√	√	N/A	N/A
13	N/A	N/A	√	√	N/A	N/A
17	N/A	N/A	√	√	N/A	N/A
25	√	√	√	√	√	√
26	√	√	√	√	√	N/A
41	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 $\frac{1}{2}$ 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 $\frac{1}{2}$ 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 $\leq$ 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 16QAM signal 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 ≥ 0.8 W/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 GHz 802.11g/n) was not required due to the maximum allowed powers and the highest reported DSSS SAR.
5. A fixed level power reduction is applied for WiFi when handset operates "held to the body" condition or "held to the ear" condition, the power reduction triggered by audio receiver detection and call establish status.
6. Per KDB 248227 D01v02r02, In the 2.4 GHz band, separate SAR procedures are applied to DSSS and OFDM configurations to simplify DSSS test requirements. SAR is not required for the following 2.4 GHz OFDM conditions:
 - a. When KDB Publication 447498 SAR test exclusion applies to the OFDM configuration.
 - b. When the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg.

<WLAN 5GHz>

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

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

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



required when the 160 MHz channel is operating at a reduced maximum power and also qualifies for SAR test exclusion.

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

The frequency range covered by these bands is 380 MHz (5.47 – 5.85 GHz), which requires a minimum of at least two SAR probe calibration frequency points to support SAR measurements. when Terminal Doppler Weather Radar (TDWR) restriction applies, all channels that operate at 5.60 – 5.65 GHz must be included to apply the SAR test reduction and measurement procedures. When the same transmitter and antenna(s) are used for U-NII-2C band and U-NII-3 band or 5.8 GHz band of §15.247, the bands may be aggregated to enable additional channels with 20, 40 or 80 MHz bandwidth to span across the band gap, as illustrated in Appendix B. The maximum output power for the additional band gap channels is limited to the lower of those certified for the bands. Unless band gap channels are permanently disabled, they must be considered for SAR testing. The frequency range covered by these bands is 380 MHz (5.47 – 5.85 GHz), which requires a minimum of at least two SAR probe calibration frequency points to support SAR measurements. To maintain SAR measurement accuracy and to facilitate test reduction, the channels in U-NII-2C band above 5.65 GHz may be grouped with the 5.8 GHz channels in U-NII-3 or §15.247 band to enable two SAR probe calibration frequency points to cover the bands, including the band gap channels. When band gap channels are supported and the bands are not aggregated for SAR testing, band gap channels must be considered independently in each band according to the normally required OFDM SAR measurement and probe calibration frequency points requirements.

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

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

1. The largest channel bandwidth configuration is selected among the multiple configurations with the same specified maximum output power.
2. If multiple configurations have the same specified maximum output power and largest channel bandwidth, the lowest order modulation among the largest channel bandwidth configurations is selected.
3. If multiple configurations have the same specified maximum output power, largest channel bandwidth and lowest order modulation, the lowest data rate configuration among these configurations is selected.

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

D) SAR Test Requirements for OFDM configurations

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

13. Conducted Power List

Remark: The output power GSM/WCDMA/LTE/5G NR(NSA) refers to the annex E of this report.

14. LTE Carrier Aggregation

14.1. LTE Uplink Carrier Aggregation

➤ Carrier Aggregation Configuration

<Intra-band>

2CC Uplink Carrier Aggregation for Intra-band				
No.	Combination	4X4 MIMO	Restriction	Completely Covered by Measurement Superset
1	CA_5B	5B	-	No
2	CA_41C	41C	-	No
3	CA_66B	66B	-	No
4	CA_66C	66C	-	No

Note:

1. According to the 3GPP 36.101 table 6.2.2A-1 specifics that the aggregation maximum allowed output power is equivalent to the signal carrier scenario for intra-band contiguous carrier aggregation scenarios. When the non-contiguous RB allocation is applied the MPR shell complies with the table 6.2.3A defined in 3GPP 36.101.
2. According to the TCB Workshop publication, the output power of uplink CA would be measured with the wideband signal integration over the component carriers. And SAR measurement would be performed at the worst exposure condition of each band.
3. Additional SAR measurement for LTE UL CA with other DL CA combinations are not required when the maximum output power of this configuration is not $>1/4$ dB higher than the maximum output power for UL CA active.



<Inter-band>

2CC Uplink Carrier Aggregation for Inter-band				
No.	Combination	4X4 MIMO	Restriction	Completely Covered by Measurement Superset
1	CA_2A-4A	2A	-	No
2	CA_2A-5A	2A	-	No
3	CA_2A-12A	2A	-	No
4	CA_2A-13A	2A	-	No
5	CA_2A-66A	2A	-	No
6	CA_4A-5A	4A	-	No
7	CA_4A-12A	4A	-	No
8	CA_4A-13A	4A	-	No
9	CA_5A-66A	66A	-	No
10	CA_12A-66A	66A	-	No
11	CA_13A-66A	66A	-	No

Note:

According to October 2018 TCB Workshop publication, LTE uplink CA SAR accesssment should follows:

- If the signal uplink 1-g SAR values for each band are both less than 0.8 W/kg and the algebraic summation of the 1-g SAR values are less than 1.45 W/kg no additional measurements need to be performed.
- If one or the signal uplink 1-g SAR values is greater than 0.8 W/kg, instead of algebraically summing the 1-g SAR values, sum up the SAR distributions, similar to the enlarged zoom scan (volume scan) procedures found in FCC KDB Publication 865664 D01. And PAG is required for this case.
- If the algebraic sum of the 1-g SAR values is > 1.45 W/kg additional measurements may have to be made. Submit a KDB inquiry for additional guidance. And PAG is required for this case.

14.2. LTE Downlink Carrier Aggregation

➤ Carrier Aggregation Configuration

For the device supports bands and bandwidths and configurations are provided as follow table was according to 3GPP.

2CC Downlink Carrier Aggregation				
No.	Combination	4X4 MIMO	Restriction	Completely Covered by Measurement Superset
1	CA_2A-2A	2A-2A	-	No
2	CA_2A-4A	2A, 4A, 2A-4A	-	3CC-9
3	CA_2A-5A	2A	-	3CC-12
4	CA_2A-12A	-	-	3CC-13
5	CA_2A-13A	2A	-	3CC-14
6	CA_2A-17A	-	-	No
7	CA_2A-66A	2A, 66A, 2A-66A	-	3CC-15
8	CA_2A-71A	2A	-	3CC-16
9	CA_4A-4A	4A-4A	-	No
10	CA_4A-5A	4A	-	3CC-26
11	CA_4A-12A	4A	-	3CC-23
12	CA_4A-13A	4A	-	3CC-24
13	CA_4A-17A	-	-	No
14	CA_4A-71A	4A	-	3CC-25
15	CA_5A-5A	-	-	No
16	CA_5A-12A	-	-	3CC-32
17	CA_5A-66A	66A	-	3CC-29
18	CA_12A-66A	66A	-	3CC-13
19	CA_13A-66A	66A	-	3CC-14
20	CA_25A-25A	25A-25A	-	3CC-42
21	CA_25A-26A	25A	-	3CC-43
22	CA_25A-41A	25A, 41A, 25A-41A	-	3CC-45
23	CA_26A-41A	41A	-	3CC-46
24	CA_26A-41A	41A	-	3CC-46
25	CA_41A-41A	41A-41A	-	3CC-48
26	CA_66A-66A	66A-66A	-	3CC-52
27	CA_66A-71A	66A	-	3CC-50



2CC Downlink Carrier Aggregation				
No.	Combination	4X4 MIMO	Restriction	Completely Covered by Measurement Superset
28	CA_2C	2C	-	3CC-21
29	CA_5B	-	-	3CC-35
30	CA_12B	-	-	3CC-38
31	CA_66B	66B	-	3CC-52
32	CA_66C	66C	-	3CC-53

3CC Downlink Carrier Aggregation				
No.	Combination	4X4 MIMO	Restriction	Completely Covered by Measurement Superset
1	CA_2A-2A-4A	2A-2A, 2A-4A	-	4CC-5
2	CA_2A-2A-5A	2A-2A	-	4CC-2
3	CA_2A-2A-12A	2A-2A	-	4CC-7
4	CA_2A-2A-13A	2A-2A	-	4CC-8
5	CA_2A-2A-66A	2A-2A, 2A-66A	-	4CC-9
6	CA_2A-2A-71A	2A-2A	-	4CC-10
7	CA_2A-4A-4A	2A-4A, 4A-4A	-	4CC-1
8	CA_2A-4A-5A	2A, 4A, 2A-4A	-	4CC-2
9	CA_2A-4A-12A	2A, 4A, 2A-4A	-	4CC-12
10	CA_2A-4A-13A	2A, 4A, 2A-4A	-	No
11	CA_2A-5A-12A	2A	-	4CC-6
12	CA_2A-5A-66A	2A, 66A, 2A-66A	-	4CC-13
13	CA_2A-12A-66A	2A, 66A, 2A-66A	-	4CC-14
14	CA_2A-13A-66A	2A, 66A, 2A-66A	-	4CC-15
15	CA_2A-66A-66A	2A-66A, 66A-66A	-	4CC-16
16	CA_2A-66A-71A	2A, 66A, 2A-66A	-	4CC-17
17	CA_2A-5B	2A	-	4CC-18
18	CA_2A-12B	2A	-	4CC-21
19	CA_2A-66B	2A, 66B, 2A-66B	-	4CC-23
20	CA_2A-66C	2A, 66C, 2A-66C	-	4CC-24
21	CA_2C-66A	2C, 66A, 2C-66A	-	4CC-31
22	CA_4A-4A-5A	4A-4A	-	4CC-33
23	CA_4A-4A-12A	4A-4A	-	4CC-32
24	CA_4A-4A-13A	4A-4A	-	No
25	CA_4A-4A-71A	4A-4A	-	No



3CC Downlink Carrier Aggregation				
No.	Combination	4X4 MIMO	Restriction	Completely Covered by Measurement Superset
26	CA_4A-5A-12A	4A	-	No
27	CA_4A-5B	4A	-	4CC-33
28	CA_4A-12B	4A	-	4CC-32
29	CA_5A-5A-66A	66A	-	4CC-36
30	CA_5A-12A-66A	66A	-	No
31	CA_5A-66A-66A	66A-66A	-	4CC-13
32	CA_5A-12B	-	-	No
33	CA_5A-66B	66B	-	4CC-35
34	CA_5A-66C	66C	-	4CC-36
35	CA_5B-66A	66A	-	4CC-38
36	CA_12A-66A-66A	66A-66A	-	4CC-14
37	CA_12A-66C	66C	-	4CC-26
38	CA_12B-66A	66A	-	4CC-41
39	CA_13A-66A-66A	66A-66A	-	4CC-15
40	CA_13A-66B	66B	-	4CC-43
41	CA_13A-66C	66C	-	4CC-44
42	CA_25A-25A-25A	25A-25A	-	No
43	CA_25A-25A-26A	25A-25A	-	No
44	CA_25A-25A-41A	25A-25A, 25A-41A	-	4CC-46
45	CA_25A-41C	25A, 41C, 25A-41C	-	4CC-47
46	CA_26A-41C	41C	-	No
47	CA_41A-41A-41A	-	-	No
48	CA_41A-41C	41A-41C	-	4CC-49
49	CA_66A-66A-66A	66A-66A	-	4CC-42
50	CA_66A-66A-71A	66A-66A	-	4CC-17
51	CA_66A-66B	66A-66B	-	4CC-43
52	CA_66A-66C	66A-66C	-	4CC-44
53	CA_66C-71A	66C	-	4CC-30
54	CA_66D	66D	-	4CC-45



4CC Downlink Carrier Aggregation				
No.	Combination	4X4 MIMO	Restriction	Completely Covered by Measurement Superset
1	CA_2A-2A-4A-4A	2A-2A	-	No
2	CA_2A-2A-4A-5A	2A-2A	-	No
3	CA_2A-2A-5A-66A	2A-2A	-	No
4	CA_2A-2A-4A-12A	2A-2A	-	No
5	CA_2A-2A-4A-71A	2A-2A	-	No
6	CA_2A-2A-5A-12A	2A-2A	-	No
7	CA_2A-2A-12A-66A	2A-2A	-	No
8	CA_2A-2A-13A-66A	2A-2A	-	No
9	CA_2A-2A-66A-66A	66A-66A	-	No
10	CA_2A-2A-66A-71A	2A-2A	-	No
11	CA_2A-4A-4A-5A	4A-4A	-	No
12	CA_2A-4A-4A-12A	4A-4A	-	No
13	CA_2A-5A-66A-66A	66A-66A	-	No
14	CA_2A-12A-66A-66A	66A-66A	-	No
15	CA_2A-13A-66A-66A	66A-66A	-	No
16	CA_2A-66A-66A-66A	66A-66A	-	No
17	CA_2A-66A-66A-71A	66A-66A	-	No
18	CA_2A-2A-5B	2A-2A	-	No
19	CA_2A-2A-66B	66B, 2A-2A	-	No
20	CA_2A-2A-66C	66C, 2A-2A	-	No
21	CA_2A-4A-12B	2A, 4A, 2A-4A	-	No
22	CA_2A-4A-5B	2A, 4A, 2A-4A	-	No
23	CA_2A-5A-66B	2A, 66B	-	No
24	CA_2A-5A-66C	2A, 66C	-	No
25	CA_2A-5B-66A	2A, 66A, 2A-66A	-	No
26	CA_2A-12A-66C	2A, 66C	-	No
27	CA_2A-13A-66B	2A, 66B	-	No
28	CA_2A-13A-66C	2A, 66C	-	No
29	CA_2A-66A-66B	2A, 66A, 66B, 2A-66A	-	No
30	CA_2A-66C-71A	2A, 66C	-	No
31	CA_2C-66A-66A	2C, 66A-66A	-	No
32	CA_4A-4A-12B	4A-4A	-	No
33	CA_4A-4A-5B	4A-4A	-	No

4CC Downlink Carrier Aggregation				
No.	Combination	4X4 MIMO	Restriction	Completely Covered by Measurement Superset
34	CA_5A-5A-66A-66A	66A-66A	-	No
35	CA_5A-5A-66B	66B	-	No
36	CA_5A-5A-66C	66C	-	No
37	CA_5A-66A-66B	66A, 66B	-	No
38	CA_5B-66C	66C	-	No
39	CA_12B-66A-66A	66A-66A	-	No
40	CA_13A-66A-66A-66A	66A-66A	-	No
41	CA_13A-66A-66B	66A, 66B	-	No
42	CA_13A-66A-66C	66A, 66C	-	No
43	CA_13A-66D	-	-	No
44	CA_25A-25A-41C	41C, 25A-25A	-	No
45	CA_25A-41D	25A	-	No
46	CA_41A-41A-41C	-	-	No
47	CA_41A-41D	41D	-	No
48	CA_41C-41C	41C	-	No
49	CA_41E	-	-	No

➤ LTE Downlink Carrier Aggregation Conducted Power

1. According to KDB941225 D05A v01r02, Uplink maximum output power measurement with downlink carrier aggregation active should be measured, using the highest output channel measured without downlink carrier aggregation, to confirm that uplink maximum output power with downlink carrier aggregation active remains within the specified tune-up tolerance limits and not more than ¼ dB higher than the maximum output measured without downlink carrier aggregation active.
2. Uplink maximum output power with downlink carrier aggregation active does not show more than ¼ dB higher than the maximum output power without downlink carrier aggregation active, therefore SAR evaluation with downlink carrier aggregation active can be excluded.
3. For power measurement were control and acknowledge data is sent on uplink channels that operate identical to specifications when downlink carrier aggregation is inactive.
4. Selected highest measured power when downlink carrier aggregation is inactive for conducted power comparison with downlink carrier aggregation is active, to confirm that when downlink carrier aggregation is active uplink maximum output power remains within the specified tune-up tolerance limits and not more than ¼ dB higher than the maximum output power measured when downlink carrier aggregation inactive.
5. For non-contiguous intra-band CA, the SCC selected to provide maximum separation from the PCC and must remain fully within the downlink transmission band.

6. For Intra-band, contiguous CA, the downlink channels selected to perform the uplink power measurement must satisfy
7. 3GPP channel spacing (5.4.1A of 3GPP TS 36.521 or equivalent) and channel bandwidth (5.4.2A) requirements.

$$\text{Nominal channel spacing} = \left\lceil \frac{BW_{\text{Channel}(1)} + BW_{\text{Channel}(2)} - 0.1|BW_{\text{Channel}(1)} - BW_{\text{Channel}(2)}|}{0.6} \right\rceil 0.3 \text{ [MHz]}$$

8. The output power of CA downlink refers to the annex E of this report.

15. 5G NR EN-DC Consideration

➤ General Guidance

1. It is only limited to operate at EN-DC (NSA) for 5G NR implementation According to the character of the device. SAR measurement should be performed separately for the limitations of the probe calculation factors.
2. When the EN-DC is active the output power of the LTE anchors is equal or less than the standalone carrier, therefore the LTE output power and SAR were estimated based on the standalone carrier to performed sim-TX analysis with 5G NR, WLAN and Bluetooth.
3. According to October 2020 TCB Workshop publication, EN-DC SAR assessment should follows:
 - a. If the signal uplink 1-g SAR values for each band are both less than 0.8 W/kg and the algebraic summation of the 1-g SAR values are less than 1.45 W/kg no additional measurements need to be performed.
 - b. If one or the signal uplink 1-g SAR values is greater than 0.8 W/kg, instead of algebraically summing the 1-g SAR values, sum up the SAR distributions, similar to the enlarged zoom scan (volume scan) procedures found in FCC KDB Publication 865664 D01. And PAG is required for this case.
 - c. If the algebraic sum of the 1-g SAR values is > 1.45 W/kg additional measurements may have to be made. Submit a KDB inquiry for additional guidance and PAG is required for this case.
 - d. When the algebraic sum of the 1-g SAR values is > 1.6 W/kg, SPLSR analysis procedure should be applied.

➤ 5G NR anchor combination

5G-NR	EN-DC Combination	LTE Uplink	5G-NR Uplink	SCS (kHz)	Maximum Bandwidth (MHz)
FDD	5A-N2	4A	N2	15	20
FDD	5B-N2	5B	N2	15	20
FDD	12A-N2	12A	N2	15	20
FDD	13A-N2	13A	N2	15	20
FDD	66A-N2	66A	N2	15	20
FDD	2A-N5	2A	N5	15	20
FDD	66A-N5	66A	N5	15	20
FDD	12A-N25	12A	N25	15	20
FDD	66A-N25	66A	N25	15	20
TDD	2A-N41	2A	N41	30	100
TDD	2C-N41	2C	N41	30	100
TDD	25A-N41	25A	N41	30	100
TDD	26A-N41	26A	N41	30	100

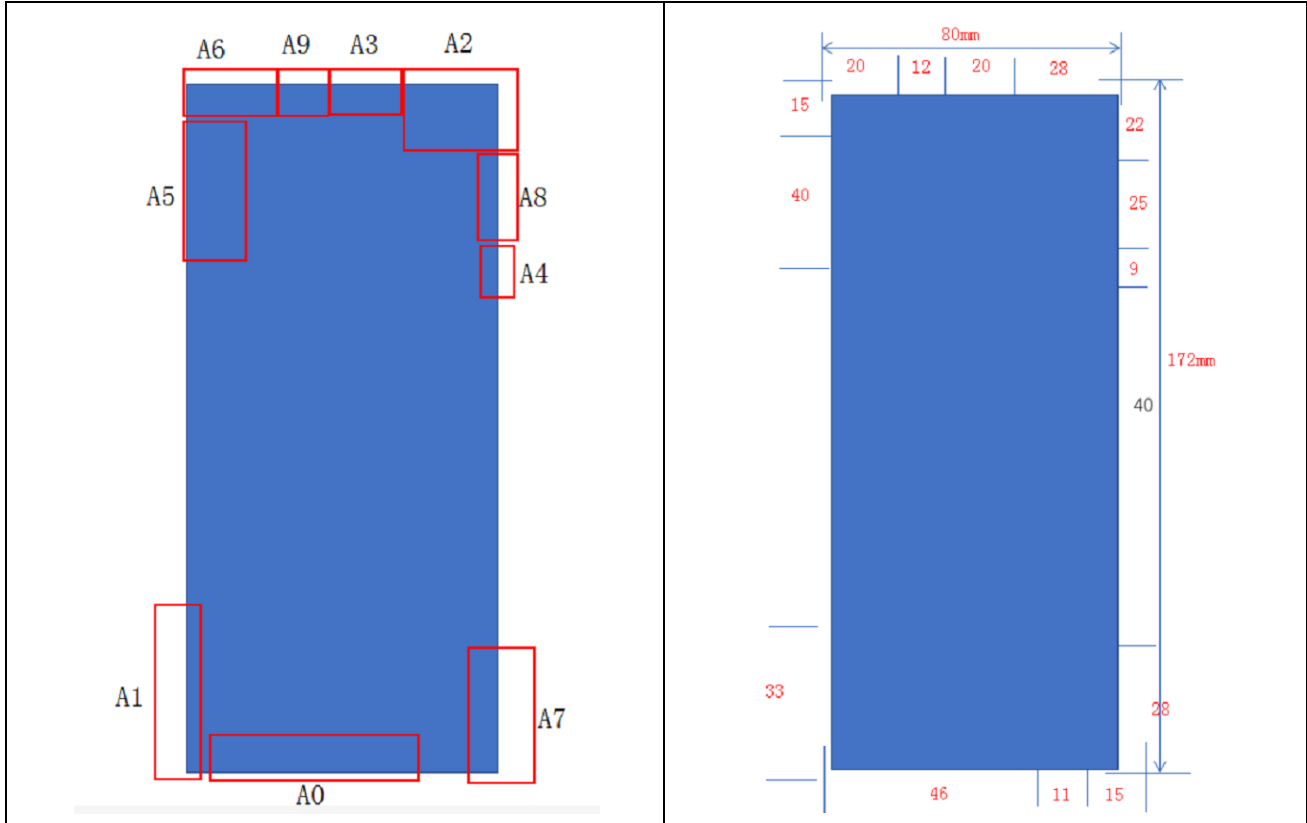


TDD	66A-N41	66A	N41	30	100
FDD	2A-N66	2A	N66	15	20
FDD	5A-N66	5A	N66	15	20
FDD	5B-N66	5B	N66	15	20
FDD	12A-N66	12A	N66	15	20
FDD	13A-N66	13A	N66	15	20
FDD	71A-N66	71A	N66	15	20
FDD	2A-N71	2A	N71	15	20
FDD	2C-N71	2C	N71	15	20
FDD	66A-N71	66A	N71	15	20
FDD	66C-N71	66C-	N71	15	20

EN-DC Configuration	LTE Signal Carrier				5G NR		
	Band	BW (MHz)	Maximum Power(dBm)		Band	BW (MHz)	Maximum Power(dBm)
			Standalone	EN-DC Active			EN-DC Active
EN-DC_5A-N2	5	20	23.5	22.5	N2	20	23.5
EN-DC_12A-N2	12	10	24.5	25.0	N2	20	26.0
EN-DC_13-N2	13	10	24.5	25.0	N2	20	26.0
EN-DC_66A-N2	66	20	21.0	25.0	N2	20	25.0
EN-DC_2A-N5	2	20	24.0	22.0	N5	20	21.5
EN-DC_66A-N5	66	20	21.0	22.0	N5	20	21.5
EN-DC_12A-N25	12	10	24.5	26.5	N25	20	27.0
EN-DC_66A-N25	66	20	21.0	26.0	N25	20	25.5
EN-DC_2A-N41	2	20	24.0	27.0	N41	100	27.5
EN-DC_25A-N41	25	20	24.5	27.0	N41	100	27.5
EN-DC_26A-N41	26	15	24.5	27.0	N41	100	27.5
EN-DC_66A-N41	66	20	21.0	27.0	N41	100	27.0
EN-DC_2A-N66	2	20	24.0	25.5	N66	20	26.0
EN-DC_5A-N66	5	20	23.5	26.0	N66	20	24.0
EN-DC_12A-N66	12	10	24.5	25.5	N66	20	24.0
EN-DC_13A-N66	13	10	24.5	25.5	N66	20	26.0
EN-DC_71A-N66	66	20	21.0	26.0	N66	20	26.5
EN-DC_2A-N71	2	20	24.0	24.5	N71	20	21.5
EN-DC_66A-N71	66	20	21.0	24.5	N71	20	21.5

16. Hotspot Mode Evaluation Procedure

➤ EUT Antenna Location



Antenna supports TX bands:

ANT 0: GSM 850, UMTS Band V, LTE Band 5/12/13/17/26/71, 5G N5/12/71;

ANT 2: GSM 850, UMTS Band V, LTE Band 5/12/13/17/26/71, 5G N5/12/71;

ANT 3: WLAN 2.4GHz CH1;

ANT 4: N/A

ANT 5: WLAN 2.4GHz CH0, WLAN 5GHz CH0, Bluetooth;

ANT 7: GSM1900,WCDMA Band 2/4, LTE Band 2/4/25/41(HPUE)/66, 5G N2/25/41/66;

ANT 8: GSM1900,WCDMA Band 2/4, LTE Band 2/4/25/41/66, 5G N2/25/41/66;

ANT 9: WLAN 5GHz CH1;

Antenna supports RX bands:

ANT 1: LTE Band 2/4/25/41/66, 5G N2/25/41/66;

ANT 3: LTE Band 2/4/25/41/66, 5G N2/25/41/66;

ANT 6: GPS L1/L5;

ANT 7: GSM1900,WCDMA Band 2/4, LTE Band 2/4/25/41(HPUE)/66, 5G N2/25/41/66;

ANT 8: GSM1900,WCDMA Band 2/4, LTE Band 2/4/25/30/41/66, 5G N2/25/41/66;

**➤ EUT Antenna Distance**

Antenna Location	Front	Back	Left	Right	Top	Bottom
ANT 0 Antenna	<5mm	<5mm	<25mm	<5mm	166mm	<5mm
ANT 1 Antenna	<5mm	<5mm	<25mm	<5mm	139mm	<5mm
ANT 2 Antenna	<5mm	<5mm	<5mm	>25mm	<5mm	150mm
ANT 3 Antenna	<5mm	<5mm	>25mm	>25mm	<5mm	157mm
ANT 4 Antenna	<5mm	<5mm	<5mm	<25mm	45mm	118mm
ANT 5 Antenna	<5mm	<5mm	>25mm	<5mm	<25mm	117mm
ANT 6 Antenna	<5mm	<5mm	<25mm	<5mm	<5mm	157mm
ANT 7 Antenna	<5mm	<5mm	<5mm	>25mm	144mm	<5mm
ANT 8 Antenna	<5mm	<5mm	<5mm	>25mm	<25mm	>25mm
ANT 9 Antenna	<5mm	<5mm	>25mm	<25mm	<5mm	167mm

➤ Hotspot Evaluation

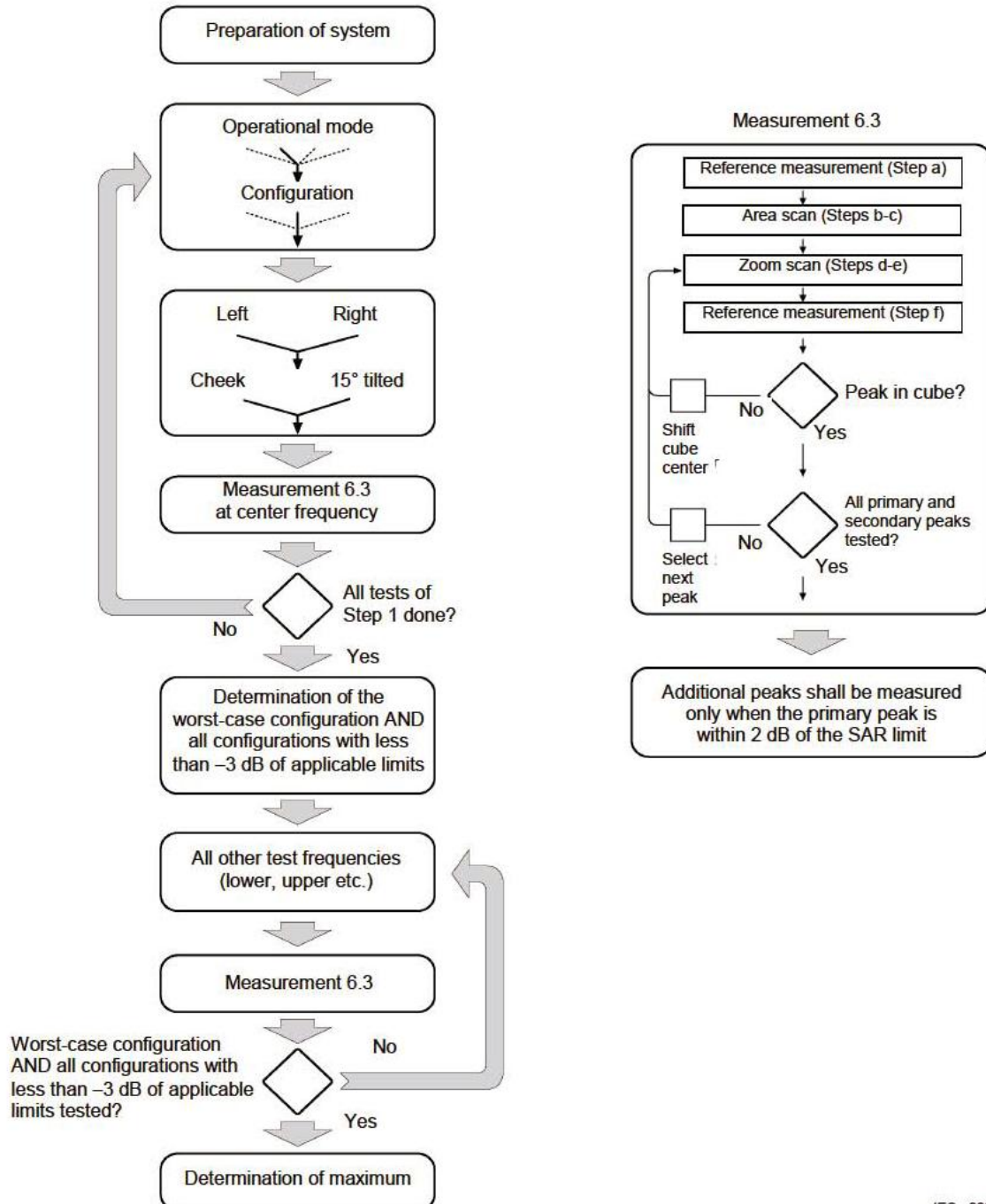
Assessment Hotspot side for SAR Test distance: 10mm						
Antennas	Front	Back	Left	Right	Top	Bottom
ANT 0	Yes	Yes	Yes	Yes	No	Yes
ANT 1	No	No	No	No	No	No
ANT 2	Yes	Yes	Yes	Yes	Yes	No
ANT 3	Yes	Yes	No	No	Yes	No
ANT 4	Yes	Yes	Yes	Yes	No	No
ANT 5	Yes	Yes	No	Yes	Yes	No
ANT 6	No	No	No	No	No	No
ANT 7	Yes	Yes	Yes	Yes	No	Yes
ANT 8	Yes	Yes	Yes	Yes	Yes	No
ANT 9	Yes	Yes	No	Yes	Yes	No

Note :

1. The SAR evaluation procedures for Portable Devices with Wireless Router function is according to KDB 941225 D06 Hotspot SAR v02r01.
2. Head/Body-worn/Hotspot mode SAR assessments are required.
3. Referring to KDB 941225 D06, when the overall device length and width are $\geq 9\text{cm} \times 5\text{cm}$, the test distance is 10 mm. SAR must be measured for all sides and surfaces with a transmitting antenna located within 25mm from that surface or edge.
4. For WWAN antennas, all of the surfaces or edges will be tested except the bottom side though it is greater than 25mm between the antenna and surface or edge in this report.

17. Block Diagram of the Tests to be Performed

17.1. Head



IEC 228/05

17.2. Body

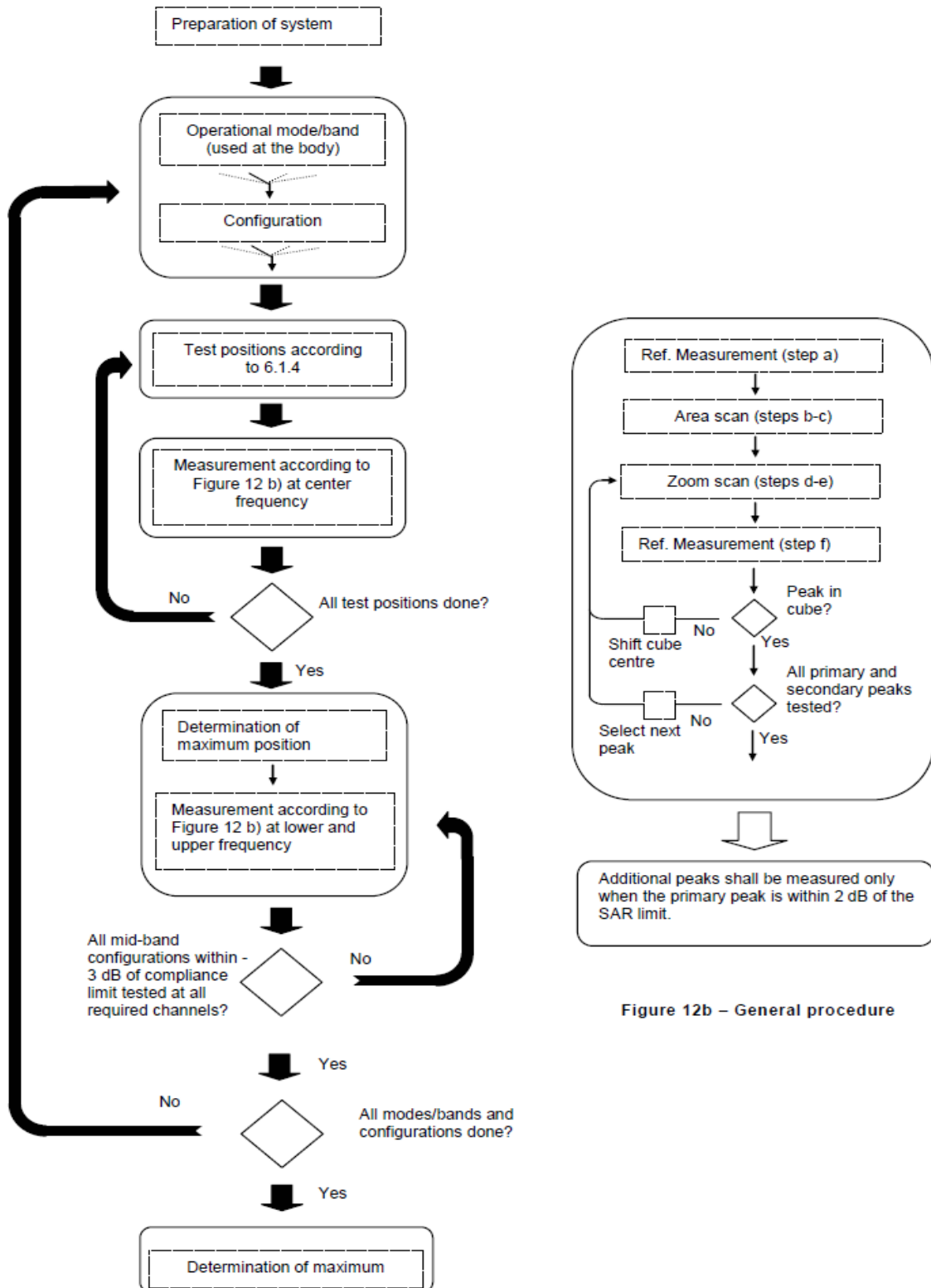


Figure 12b – General procedure

18. Test Results List

18.1. 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 ≥ 0.8 W/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 EUT respectively defined the top and bottom antenna maximum power in the software. The top and bottom antenna will switch automatically according to the receiver signal strength and maximum transmission power level.
8. For CA intra-band uplink, SAR measurement was performed at the worst condition of standalone carrier, and it was performed separately for CA inter-band uplink according to the TCB workshop publication in October 2018.
9. The 5G NR (NSA) SAR measurement procedure should be follow the TCB workshop publication in October 2020:
 - a. If the signal uplink 1-g SAR values for each band are both less than 0.8 W/kg and the algebraic summation of the 1-g SAR values are less than 1.45 W/kg no additional measurements need to be performed.
 - b. If one or the signal uplink 1-g SAR values is greater than 0.8 W/kg, instead of algebraically summing the 1-g SAR values, sum up the SAR distributions, similar to the enlarged zoom scan (volume scan) procedures found in FCC KDB Publication 865664 D01. And PAG is required for this case.
 - c. If the algebraic sum of the 1-g SAR values is > 1.45 W/kg additional measurements may have to be made. Submit a KDB inquiry for additional guidance and PAG is required for this case.
 - d. When the algebraic sum of the 1-g SAR values is > 1.6 W/kg, SPLSR analysis procedure should be applied.



18.2. Head SAR Data

➤ GSM Head 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)
Ant 2								
1#	GPRS 850(4 TX slots)	Right Cheek	251	26.56	27.00	1.107	0.489	0.541
	GPRS 850(4 TX slots)	Right Tilt	251	26.56	27.00	1.107	0.523	0.579
	GPRS 850(4 TX slots)	Left Cheek	251	26.56	27.00	1.107	0.287	0.318
	GPRS 850(4 TX slots)	Left Tilt	251	26.56	27.00	1.107	0.211	0.233
Ant 0								
	GPRS 850(4 TX slots)	Right Cheek	251	30.42	31.00	1.143	0.049	0.056
	GPRS 850(4 TX slots)	Right Tilt	251	30.42	31.00	1.143	0.020	0.023
	GPRS 850(4 TX slots)	Left Cheek	251	30.42	31.00	1.143	0.052	0.059
	GPRS 850(4 TX slots)	Left Tilt	251	30.42	31.00	1.143	0.028	0.032
Ant 8								
2#	GPRS 1900(4 TX slots)	Right Cheek	661	27.78	28.50	1.180	0.332	0.392
	GPRS 1900(4 TX slots)	Right Tilt	661	27.78	28.50	1.180	0.053	0.063
	GPRS 1900(4 TX slots)	Left Cheek	661	27.78	28.50	1.180	0.150	0.177
	GPRS 1900(4 TX slots)	Left Tilt	661	27.78	28.50	1.180	0.029	0.034
Ant 7								
	GPRS 1900(4 TX slots)	Right Cheek	661	25.80	26.50	1.175	0.084	0.099
	GPRS 1900(4 TX slots)	Right Tilt	661	25.80	26.50	1.175	0.086	0.101
	GPRS 1900(4 TX slots)	Left Cheek	661	25.80	26.50	1.175	0.199	0.234
	GPRS 1900(4 TX slots)	Left Tilt	661	25.80	26.50	1.175	0.119	0.140



➤ WCDMA Head 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)
Ant 8								
3#	Band II/RMC 12.2Kbps	Right Cheek	9400	24.78	25.50	1.180	0.233	0.275
	Band II/RMC 12.2Kbps	Right Tilt	9400	24.78	25.50	1.180	0.006	0.007
	Band II/RMC 12.2Kbps	Left Cheek	9400	24.78	25.50	1.180	0.100	0.118
	Band II/RMC 12.2Kbps	Left Tilt	9400	24.78	25.50	1.180	0.007	0.008
Ant 7								
	Band II/RMC 12.2Kbps	Right Cheek	9400	18.46	19.00	1.132	0.205	0.232
	Band II/RMC 12.2Kbps	Right Tilt	9400	18.46	19.00	1.132	0.024	0.027
	Band II/RMC 12.2Kbps	Left Cheek	9400	18.46	19.00	1.132	0.218	0.247
	Band II/RMC 12.2Kbps	Left Tilt	9400	18.46	19.00	1.132	0.030	0.034
Ant 8								
4#	Band IV/RMC 12.2Kbps	Right Cheek	1413	25.30	26.00	1.175	0.467	0.549
	Band IV/RMC 12.2Kbps	Right Tilt	1413	25.30	26.00	1.175	0.167	0.196
	Band IV/RMC 12.2Kbps	Left Cheek	1413	25.30	26.00	1.175	0.103	0.121
	Band IV/RMC 12.2Kbps	Left Tilt	1413	25.30	26.00	1.175	0.060	0.070
Ant 7								
	Band IV/RMC 12.2Kbps	Right Cheek	1413	18.61	19.00	1.094	0.068	0.074
	Band IV/RMC 12.2Kbps	Right Tilt	1413	18.61	19.00	1.094	0.048	0.053
	Band IV/RMC 12.2Kbps	Left Cheek	1413	18.61	19.00	1.094	0.168	0.184
	Band IV/RMC 12.2Kbps	Left Tilt	1413	18.61	19.00	1.094	0.076	0.083
Ant 2								
5#	Band V/RMC 12.2Kbps	Right Cheek	4233	21.15	22.00	1.216	0.410	0.499
	Band V/RMC 12.2Kbps	Right Tilt	4233	21.15	22.00	1.216	0.255	0.310
	Band V/RMC 12.2Kbps	Left Cheek	4233	21.15	22.00	1.216	0.106	0.129
	Band V/RMC 12.2Kbps	Left Tilt	4233	21.15	22.00	1.216	0.032	0.039
Ant 0								
	Band V/RMC 12.2Kbps	Right Cheek	4233	23.85	24.50	1.161	0.006	0.007
	Band V/RMC 12.2Kbps	Right Tilt	4233	23.85	24.50	1.161	0.007	0.008
	Band V/RMC 12.2Kbps	Left Cheek	4233	23.85	24.50	1.161	0.008	0.009
	Band V/RMC 12.2Kbps	Left Tilt	4233	23.85	24.50	1.161	0.003	0.003



➤ LTE QPSK Head 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)
Ant 8								
6#	LTE Band 2/1RB#0 20M	Right Cheek	18900	24.07	24.50	1.104	0.255	0.282
	LTE Band 2/1RB#0 20M	Right Tilt	18900	24.07	24.50	1.104	0.106	0.117
	LTE Band 2/1RB#0 20M	Left Cheek	18900	24.07	24.50	1.104	0.219	0.242
	LTE Band 2/1RB#0 20M	Left Tilt	18900	24.07	24.50	1.104	0.019	0.021
	LTE Band 2/50RB#0 20M	Right Cheek	18900	22.86	23.50	1.159	0.208	0.241
	LTE Band 2/50RB#0 20M	Right Tilt	18900	22.86	23.50	1.159	0.082	0.095
	LTE Band 2/50RB#0 20M	Left Cheek	18900	22.86	23.50	1.159	0.176	0.204
	LTE Band 2/50RB#0 20M	Left Tilt	18900	22.86	23.50	1.159	0.018	0.021
Ant 7								
	LTE Band 2/1RB#0 20M	Right Cheek	18900	23.56	24.00	1.107	0.022	0.024
	LTE Band 2/1RB#0 20M	Right Tilt	18900	23.56	24.00	1.107	0.050	0.055
	LTE Band 2/1RB#0 20M	Left Cheek	18900	23.56	24.00	1.107	0.060	0.066
	LTE Band 2/1RB#0 20M	Left Tilt	18900	23.56	24.00	1.107	0.027	0.030
	LTE Band 2/50RB#0 20M	Right Cheek	18900	22.58	23.00	1.102	0.019	0.020
	LTE Band 2/50RB#0 20M	Right Tilt	18900	22.58	23.00	1.102	0.037	0.041
	LTE Band 2/50RB#0 20M	Left Cheek	18900	22.58	23.00	1.102	0.048	0.053
	LTE Band 2/50RB#0 20M	Left Tilt	18900	22.58	23.00	1.102	0.022	0.025
Ant 8								
7#	LTE Band 4/1RB#0 20M	Right Cheek	20175	25.37	26.00	1.156	0.272	0.314
	LTE Band 4/1RB#0 20M	Right Tilt	20175	25.37	26.00	1.156	0.057	0.066
	LTE Band 4/1RB#0 20M	Left Cheek	20175	25.37	26.00	1.156	0.115	0.133
	LTE Band 4/1RB#0 20M	Left Tilt	20175	25.37	26.00	1.156	0.061	0.071
	LTE Band 4/50RB#0 20M	Right Cheek	20175	24.18	25.00	1.208	0.227	0.274
	LTE Band 4/50RB#0 20M	Right Tilt	20175	24.18	25.00	1.208	0.040	0.049
	LTE Band 4/50RB#0 20M	Left Cheek	20175	24.18	25.00	1.208	0.098	0.119
	LTE Band 4/50RB#0 20M	Left Tilt	20175	24.18	25.00	1.208	0.028	0.034



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)
Ant 7								
	LTE Band 4/1RB#0 20M	Right Cheek	20175	20.21	21.00	1.199	0.061	0.073
	LTE Band 4/1RB#0 20M	Right Tilt	20175	20.21	21.00	1.199	0.045	0.054
	LTE Band 4/1RB#0 20M	Left Cheek	20175	20.21	21.00	1.199	0.100	0.120
	LTE Band 4/1RB#0 20M	Left Tilt	20175	20.21	21.00	1.199	0.028	0.034
Ant 2								
	LTE Band 4/50RB#0 20M	Right Cheek	20175	19.16	20.00	1.213	0.079	0.096
	LTE Band 4/50RB#0 20M	Right Tilt	20175	19.16	20.00	1.213	0.037	0.045
	LTE Band 4/50RB#0 20M	Left Cheek	20175	19.16	20.00	1.213	0.078	0.095
	LTE Band 4/50RB#0 20M	Left Tilt	20175	19.16	20.00	1.213	0.026	0.032
Ant 2								
8#	LTE Band 5/1RB#0 10M	Right Cheek	20525	24.47	25.00	1.130	0.592	0.669
	LTE Band 5/1RB#0 10M	Right Tilt	20525	24.47	25.00	1.130	0.533	0.602
	LTE Band 5/1RB#0 10M	Left Cheek	20525	24.47	25.00	1.130	0.320	0.362
	LTE Band 5/1RB#0 10M	Left Tilt	20525	24.47	25.00	1.130	0.240	0.271
Ant 0								
	LTE Band 5/25RB#0 10M	Right Cheek	20525	23.32	24.00	1.169	0.486	0.568
	LTE Band 5/25RB#0 10M	Right Tilt	20525	23.32	24.00	1.169	0.435	0.509
	LTE Band 5/25RB#0 10M	Left Cheek	20525	23.32	24.00	1.169	0.264	0.309
	LTE Band 5/25RB#0 10M	Left Tilt	20525	23.32	24.00	1.169	0.194	0.227
Ant 0								
	LTE Band 5/1RB#0 10M	Right Cheek	20525	22.69	23.50	1.205	0.024	0.029
	LTE Band 5/1RB#0 10M	Right Tilt	20525	22.69	23.50	1.205	0.015	0.018
	LTE Band 5/1RB#0 10M	Left Cheek	20525	22.69	23.50	1.205	0.027	0.033
	LTE Band 5/1RB#0 10M	Left Tilt	20525	22.69	23.50	1.205	0.016	0.019
Ant 2								
	LTE Band 5/25RB#0 10M	Right Cheek	20525	21.54	22.50	1.247	0.019	0.024
	LTE Band 5/25RB#0 10M	Right Tilt	20525	21.54	22.50	1.247	0.014	0.017
	LTE Band 5/25RB#0 10M	Left Cheek	20525	21.54	22.50	1.247	0.022	0.027
	LTE Band 5/25RB#0 10M	Left Tilt	20525	21.54	22.50	1.247	0.014	0.017
Ant 2								
9#	LTE Band 5B/1RB#0 10M	Right Cheek	20525	24.47	25.00	1.130	0.446	0.504



REPORT No.: SZ20100013S01

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)
Ant 2								
10#	LTE Band 12/1RB#0 10M	Right Cheek	23060	24.42	25.00	1.143	0.130	0.149
	LTE Band 12/1RB#0 10M	Right Tilt	23060	24.42	25.00	1.143	0.115	0.131
	LTE Band 12/1RB#0 10M	Left Cheek	23060	24.42	25.00	1.143	0.086	0.098
	LTE Band 12/1RB#0 10M	Left Tilt	23060	24.42	25.00	1.143	0.069	0.079
	LTE Band 12/25RB#0 10M	Right Cheek	23060	23.47	24.00	1.130	0.111	0.125
	LTE Band 12/25RB#0 10M	Right Tilt	23060	23.47	24.00	1.130	0.102	0.115
	LTE Band 12/25RB#0 10M	Left Cheek	23060	23.47	24.00	1.130	0.062	0.070
	LTE Band 12/25RB#0 10M	Left Tilt	23060	23.47	24.00	1.130	0.051	0.058
Ant 0								
	LTE Band 12/1RB#0 10M	Right Cheek	23060	23.93	24.50	1.140	0.031	0.035
	LTE Band 12/1RB#0 10M	Right Tilt	23060	23.93	24.50	1.140	0.014	0.016
	LTE Band 12/1RB#0 10M	Left Cheek	23060	23.93	24.50	1.140	0.060	0.068
	LTE Band 12/1RB#0 10M	Left Tilt	23060	23.93	24.50	1.140	0.015	0.017
	LTE Band 12/25RB#0 10M	Right Cheek	23060	22.92	23.50	1.143	0.024	0.028
	LTE Band 12/25RB#0 10M	Right Tilt	23060	22.92	23.50	1.143	0.011	0.013
	LTE Band 12/25RB#0 10M	Left Cheek	23060	22.92	23.50	1.143	0.049	0.056
	LTE Band 12/25RB#0 10M	Left Tilt	23060	22.92	23.50	1.143	0.012	0.014
Ant 2								
	LTE Band 13/1RB#25 10M	Right Cheek	23230	24.20	25.00	1.202	0.128	0.154
11#	LTE Band 13/1RB#25 10M	Right Tilt	23230	24.20	25.00	1.202	0.228	0.274
	LTE Band 13/1RB#25 10M	Left Cheek	23230	24.20	25.00	1.202	0.077	0.093
	LTE Band 13/1RB#25 10M	Left Tilt	23230	24.20	25.00	1.202	0.013	0.016
	LTE Band 13/25RB#25 10M	Right Cheek	23230	23.17	24.00	1.211	0.110	0.133
	LTE Band 13/25RB#25 10M	Right Tilt	23230	23.17	24.00	1.211	0.143	0.173
	LTE Band 13/25RB#25 10M	Left Cheek	23230	23.17	24.00	1.211	0.064	0.078
	LTE Band 13/25RB#25 10M	Left Tilt	23230	23.17	24.00	1.211	0.086	0.104



REPORT No.: SZ20100013S01

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)
Ant 0								
	LTE Band 13/1RB#25 10M	Right Cheek	23230	23.99	24.50	1.125	0.051	0.057
	LTE Band 13/1RB#25 10M	Right Tilt	23230	23.99	24.50	1.125	0.032	0.036
	LTE Band 13/1RB#25 10M	Left Cheek	23230	23.99	24.50	1.125	0.048	0.054
	LTE Band 13/1RB#25 10M	Left Tilt	23230	23.99	24.50	1.125	0.049	0.056
	LTE Band 13/25RB#25 10M	Right Cheek	23230	22.75	23.50	1.189	0.050	0.060
	LTE Band 13/25RB#25 10M	Right Tilt	23230	22.75	23.50	1.189	0.028	0.033
	LTE Band 13/25RB#25 10M	Left Cheek	23230	22.75	23.50	1.189	0.040	0.048
	LTE Band 13/25RB#25 10M	Left Tilt	23230	22.75	23.50	1.189	0.045	0.053
Ant 8								
	LTE Band 25/1RB#0 20M	Right Cheek	26365	24.53	25.00	1.114	0.136	0.152
	LTE Band 25/1RB#0 20M	Right Tilt	26365	24.53	25.00	1.114	0.017	0.019
12#	LTE Band 25/1RB#0 20M	Left Cheek	26365	24.53	25.00	1.114	0.205	0.228
	LTE Band 25/1RB#0 20M	Left Tilt	26365	24.53	25.00	1.114	0.019	0.022
	LTE Band 25/50RB#0 10M	Right Cheek	26365	23.32	24.00	1.169	0.125	0.146
	LTE Band 25/50RB#0 10M	Right Tilt	26365	23.32	24.00	1.169	0.022	0.025
	LTE Band 25/50RB#0 10M	Left Cheek	26365	23.32	24.00	1.169	0.160	0.187
	LTE Band 25/50RB#0 10M	Left Tilt	26365	23.32	24.00	1.169	0.018	0.021
Ant 7								
	LTE Band 25/1RB#0 20M	Right Cheek	26365	23.80	24.50	1.175	0.050	0.058
	LTE Band 25/1RB#0 20M	Right Tilt	26365	23.80	24.50	1.175	0.030	0.035
	LTE Band 25/1RB#0 20M	Left Cheek	26365	23.80	24.50	1.175	0.053	0.062
	LTE Band 25/1RB#0 20M	Left Tilt	26365	23.80	24.50	1.175	0.059	0.070
	LTE Band 25/50RB#0 10M	Right Cheek	26365	22.61	23.50	1.227	0.038	0.047
	LTE Band 25/50RB#0 10M	Right Tilt	26365	22.61	23.50	1.227	0.027	0.033
	LTE Band 25/50RB#0 10M	Left Cheek	26365	22.61	23.50	1.227	0.044	0.054
	LTE Band 25/50RB#0 10M	Left Tilt	26365	22.61	23.50	1.227	0.045	0.055



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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)
Ant 2								
13#	LTE Band 26/1RB#0 15M	Right Cheek	26865	24.24	25.00	1.191	0.427	0.509
	LTE Band 26/1RB#0 15M	Right Tilt	26865	24.24	25.00	1.191	0.349	0.416
	LTE Band 26/1RB#0 15M	Left Cheek	26865	24.24	25.00	1.191	0.187	0.223
	LTE Band 26/1RB#0 15M	Left Tilt	26865	24.24	25.00	1.191	0.148	0.176
	LTE Band 26/36RB#0 15M	Right Cheek	26865	23.42	24.00	1.143	0.364	0.416
	LTE Band 26/36RB#0 15M	Right Tilt	26865	23.42	24.00	1.143	0.291	0.333
	LTE Band 26/36RB#0 15M	Left Cheek	26865	23.42	24.00	1.143	0.160	0.183
	LTE Band 26/36RB#0 15M	Left Tilt	26865	23.42	24.00	1.143	0.127	0.145
Ant 0								
	LTE Band 26/1RB#0 15M	Right Cheek	26865	23.85	24.50	1.161	0.165	0.192
	LTE Band 26/1RB#0 15M	Right Tilt	26865	23.85	24.50	1.161	0.044	0.051
	LTE Band 26/1RB#0 15M	Left Cheek	26865	23.85	24.50	1.161	0.053	0.061
	LTE Band 26/1RB#0 15M	Left Tilt	26865	23.85	24.50	1.161	0.087	0.101
	LTE Band 26/36RB#0 15M	Right Cheek	26865	22.72	23.50	1.197	0.087	0.105
	LTE Band 26/36RB#0 15M	Right Tilt	26865	22.72	23.50	1.197	0.038	0.046
	LTE Band 26/36RB#0 15M	Left Cheek	26865	22.72	23.50	1.197	0.044	0.053
	LTE Band 26/36RB#0 15M	Left Tilt	26865	22.72	23.50	1.197	0.074	0.089
Ant 8								
14#	LTE Band 41/1RB#0 20M	Right Cheek	40620	24.14	25.00	1.219	0.513	0.629
	LTE Band 41/1RB#0 20M	Right Tilt	40620	24.14	25.00	1.219	0.380	0.466
	LTE Band 41/1RB#0 20M	Left Cheek	40620	24.14	25.00	1.219	0.268	0.329
	LTE Band 41/1RB#0 20M	Left Tilt	40620	24.14	25.00	1.219	0.179	0.220
	LTE Band 41/50RB#0 20M	Right Cheek	40620	23.34	24.00	1.164	0.399	0.467
	LTE Band 41/50RB#0 20M	Right Tilt	40620	23.34	24.00	1.164	0.112	0.131
	LTE Band 41/50RB#0 20M	Left Cheek	40620	23.34	24.00	1.164	0.190	0.223
	LTE Band 41/50RB#0 20M	Left Tilt	40620	23.34	24.00	1.164	0.118	0.138
Ant 8								
15#	LTE Band 41C/1RB#0 20M	Right Cheek	39750	23.93	24.50	1.140	0.552	0.633



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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)
Ant 7 (HPUE)								
	LTE Band 41/1RB#0 20M	Right Cheek	40620	27.22	28.00	1.197	0.024	0.028
	LTE Band 41/1RB#0 20M	Right Tilt	40620	27.22	28.00	1.197	0.016	0.020
	LTE Band 41/1RB#0 20M	Left Cheek	40620	27.22	28.00	1.197	0.018	0.022
	LTE Band 41/1RB#0 20M	Left Tilt	40620	27.22	28.00	1.197	0.012	0.014
	LTE Band 41/50RB#0 20M	Right Cheek	40620	26.42	27.00	1.143	0.017	0.020
	LTE Band 41/50RB#0 20M	Right Tilt	40620	26.42	27.00	1.143	0.014	0.016
	LTE Band 41/50RB#0 20M	Left Cheek	40620	26.42	27.00	1.143	0.017	0.020
	LTE Band 41/50RB#0 20M	Left Tilt	40620	26.42	27.00	1.143	0.012	0.014
Ant 7 (HPUE)								
16#	LTE Band 41C/1RB#0 20M	Right Cheek	40620	26.98	27.50	1.127	0.010	0.011
Ant 8								
17#	LTE Band 66/1RB#0 20M	Right Cheek	132322	24.25	25.00	1.189	0.164	0.195
	LTE Band 66/1RB#0 20M	Right Tilt	132322	24.25	25.00	1.189	0.047	0.056
	LTE Band 66/1RB#0 20M	Left Cheek	132322	24.25	25.00	1.189	0.109	0.130
	LTE Band 66/1RB#0 20M	Left Tilt	132322	24.25	25.00	1.189	0.028	0.034
	LTE Band 66/50RB#0 20M	Right Cheek	132072	23.38	24.00	1.153	0.159	0.183
	LTE Band 66/50RB#0 20M	Right Tilt	132072	23.38	24.00	1.153	0.083	0.096
	LTE Band 66/50RB#0 20M	Left Cheek	132072	23.38	24.00	1.153	0.127	0.146
	LTE Band 66/50RB#0 20M	Left Tilt	132072	23.38	24.00	1.153	0.043	0.049
Ant 7								
	LTE Band 66/1RB#0 20M	Right Cheek	132322	20.12	21.00	1.225	0.065	0.080
	LTE Band 66/1RB#0 20M	Right Tilt	132322	20.12	21.00	1.225	0.069	0.085
	LTE Band 66/1RB#0 20M	Left Cheek	132322	20.12	21.00	1.225	0.149	0.182
	LTE Band 66/1RB#0 20M	Left Tilt	132322	20.12	21.00	1.225	0.030	0.037
	LTE Band 66/50RB#0 20M	Right Cheek	132072	19.15	20.00	1.216	0.043	0.052
	LTE Band 66/50RB#0 20M	Right Tilt	132072	19.15	20.00	1.216	0.045	0.055
	LTE Band 66/50RB#0 20M	Left Cheek	132072	19.15	20.00	1.216	0.056	0.068
	LTE Band 66/50RB#0 20M	Left Tilt	132072	19.15	20.00	1.216	0.021	0.025
Ant 8								
18#	LTE Band 66C/1RB#0 20M	Right Cheek	132072	22.78	23.00	1.052	0.159	0.167



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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)
Ant 2								
	LTE Band 71/1RB#0 20M	Right Cheek	133322	24.12	24.50	1.091	0.406	0.443
19#	LTE Band 71/1RB#0 20M	Right Tilt	133322	24.12	24.50	1.091	0.587	0.641
	LTE Band 71/1RB#0 20M	Left Cheek	133322	24.12	24.50	1.091	0.369	0.403
	LTE Band 71/1RB#0 20M	Left Tilt	133322	24.12	24.50	1.091	0.307	0.335
Ant 0								
	LTE Band 71/50RB#0 20M	Right Cheek	133322	23.67	24.00	1.079	0.317	0.342
	LTE Band 71/50RB#0 20M	Right Tilt	133322	23.67	24.00	1.079	0.433	0.467
	LTE Band 71/50RB#0 20M	Left Cheek	133322	23.67	24.00	1.079	0.241	0.260
	LTE Band 71/50RB#0 20M	Left Tilt	133322	23.67	24.00	1.079	0.199	0.215
Ant 0								
	LTE Band 71/1RB#0 20M	Right Cheek	133322	23.70	24.50	1.202	0.063	0.076
	LTE Band 71/1RB#0 20M	Right Tilt	133322	23.70	24.50	1.202	0.029	0.035
	LTE Band 71/1RB#0 20M	Left Cheek	133322	23.70	24.50	1.202	0.102	0.123
	LTE Band 71/1RB#0 20M	Left Tilt	133322	23.70	24.50	1.202	0.058	0.070
Ant 0								
	LTE Band 71/50RB#0 20M	Right Cheek	133322	22.74	23.50	1.191	0.053	0.063
	LTE Band 71/50RB#0 20M	Right Tilt	133322	22.74	23.50	1.191	0.025	0.030
	LTE Band 71/50RB#0 20M	Left Cheek	133322	22.74	23.50	1.191	0.084	0.100
	LTE Band 71/50RB#0 20M	Left Tilt	133322	22.74	23.50	1.191	0.053	0.063

➤ **5G NR DFT-s-QPSK Head 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)
Ant 8								
20#	NR N2/1RB#1 20M	Right Cheek	380000	22.85	23.50	1.161	0.500	0.581
	NR N2/1RB#1 20M	Right Tilt	380000	22.85	23.50	1.161	0.066	0.077
	NR N2/1RB#1 20M	Left Cheek	380000	22.85	23.50	1.161	0.205	0.238
	NR N2/1RB#1 20M	Left Tilt	380000	22.85	23.50	1.161	0.051	0.059
Ant 8								
	NR N2/50RB#25 20M	Right Cheek	380000	22.39	22.50	1.026	0.046	0.047
	NR N2/50RB#25 20M	Right Tilt	380000	22.39	22.50	1.026	0.060	0.062
	NR N2/50RB#25 20M	Left Cheek	380000	22.39	22.50	1.026	0.167	0.171
	NR N2/50RB#25 20M	Left Tilt	380000	22.39	22.50	1.026	0.042	0.043



REPORT No.: SZ20100013S01

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)
Ant 7								
	NR N2/1RB#1 20M	Right Cheek	380000	22.85	23.50	1.161	0.036	0.042
	NR N2/1RB#1 20M	Right Tilt	380000	22.85	23.50	1.161	0.032	0.037
	NR N2/1RB#1 20M	Left Cheek	380000	22.85	23.50	1.161	0.058	0.068
	NR N2/1RB#1 20M	Left Tilt	380000	22.85	23.50	1.161	0.026	0.030
	NR N2/50RB#25 20M	Right Cheek	380000	22.39	22.50	1.026	0.030	0.031
	NR N2/50RB#25 20M	Right Tilt	380000	22.39	22.50	1.026	0.026	0.026
	NR N2/50RB#25 20M	Left Cheek	380000	22.39	22.50	1.026	0.052	0.054
	NR N2/50RB#25 20M	Left Tilt	380000	22.39	22.50	1.026	0.020	0.021
Ant 2								
21#	NR N5/1RB#1 20M	Right Cheek	167800	20.77	21.50	1.183	0.285	0.337
	NR N5/1RB#1 20M	Right Tilt	167800	20.77	21.50	1.183	0.155	0.183
	NR N5/1RB#1 20M	Left Cheek	167800	20.77	21.50	1.183	0.111	0.131
	NR N5/1RB#1 20M	Left Tilt	167800	20.77	21.50	1.183	0.106	0.125
	NR N5/50RB#25 20M	Right Cheek	167800	20.13	20.50	1.089	0.249	0.271
	NR N5/50RB#25 20M	Right Tilt	167800	20.13	20.50	1.089	0.137	0.149
	NR N5/50RB#25 20M	Left Cheek	167800	20.13	20.50	1.089	0.100	0.109
	NR N5/50RB#25 20M	Left Tilt	167800	20.13	20.50	1.089	0.090	0.098
Ant 0								
	NR N5/1RB#1 20M	Right Cheek	167800	20.77	21.50	1.183	0.028	0.034
	NR N5/1RB#1 20M	Right Tilt	167800	20.77	21.50	1.183	0.014	0.017
	NR N5/1RB#1 20M	Left Cheek	167800	20.77	21.50	1.183	0.024	0.029
	NR N5/1RB#1 20M	Left Tilt	167800	20.77	21.50	1.183	0.015	0.018
	NR N5/50RB#25 20M	Right Cheek	167800	20.13	20.50	1.089	0.021	0.023
	NR N5/50RB#25 20M	Right Tilt	167800	20.13	20.50	1.089	0.007	0.008
	NR N5/50RB#25 20M	Left Cheek	167800	20.13	20.50	1.089	0.017	0.019
	NR N5/50RB#25 20M	Left Tilt	167800	20.13	20.50	1.089	0.008	0.009



REPORT No.: SZ20100013S01

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)
Ant 8								
22#	NR N25/1RB#1 20M	Right Cheek	372000	26.02	27.00	1.253	0.372	0.466
	NR N25/1RB#1 20M	Right Tilt	372000	26.02	27.00	1.253	0.051	0.064
	NR N25/1RB#1 20M	Left Cheek	372000	26.02	27.00	1.253	0.329	0.412
	NR N25/1RB#1 20M	Left Tilt	372000	26.02	27.00	1.253	0.039	0.048
	NR N25/50RB#25 20M	Right Cheek	372000	25.52	26.00	1.117	0.362	0.404
	NR N25/50RB#25 20M	Right Tilt	372000	25.52	26.00	1.117	0.044	0.049
	NR N25/50RB#25 20M	Left Cheek	372000	25.52	26.00	1.117	0.310	0.346
	NR N25/50RB#25 20M	Left Tilt	372000	25.52	26.00	1.117	0.026	0.029
Ant 7								
	NR N25/1RB#1 20M	Right Cheek	372000	26.02	27.00	1.253	0.032	0.040
	NR N25/1RB#1 20M	Right Tilt	372000	26.02	27.00	1.253	0.015	0.019
	NR N25/1RB#1 20M	Left Cheek	372000	26.02	27.00	1.253	0.022	0.027
	NR N25/1RB#1 20M	Left Tilt	372000	26.02	27.00	1.253	0.012	0.015
	NR N25/50RB#25 20M	Right Cheek	372000	25.52	26.00	1.117	0.025	0.028
	NR N25/50RB#25 20M	Right Tilt	372000	25.52	26.00	1.117	0.011	0.012
	NR N25/50RB#25 20M	Left Cheek	372000	25.52	26.00	1.117	0.020	0.022
	NR N25/50RB#25 20M	Left Tilt	372000	25.52	26.00	1.117	0.010	0.011
Ant 8								
	NR N41/1RB#1 100M	Right Cheek	518598	26.98	27.50	1.127	0.337	0.380
	NR N41/1RB#1 100M	Right Tilt	518598	26.98	27.50	1.127	0.281	0.317
23#	NR N41/1RB#1 100M	Left Cheek	518598	26.98	27.50	1.127	0.467	0.526
	NR N41/1RB#1 100M	Left Tilt	518598	26.98	27.50	1.127	0.446	0.503
	NR N41/137RB#67 100M	Right Cheek	518598	26.14	26.50	1.086	0.299	0.325
	NR N41/137RB#67 100M	Right Tilt	518598	26.14	26.50	1.086	0.243	0.264
	NR N41/137RB#67 100M	Left Cheek	518598	26.14	26.50	1.086	0.429	0.466
	NR N41/137RB#67 100M	Left Tilt	518598	26.14	26.50	1.086	0.408	0.443
Ant 7								
	NR N41/1RB#1 20M	Right Cheek	518598	26.98	27.50	1.127	0.022	0.025
	NR N41/1RB#1 20M	Right Tilt	518598	26.98	27.50	1.127	0.007	0.008
	NR N41/1RB#1 20M	Left Cheek	518598	26.98	27.50	1.127	0.018	0.020
	NR N41/1RB#1 20M	Left Tilt	518598	26.98	27.50	1.127	0.006	0.007



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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)
	NR N41/137RB#67 100M	Right Cheek	518598	26.14	26.50	1.086	0.017	0.018
	NR N41/137RB#67 100M	Right Tilt	518598	26.14	26.50	1.086	0.005	0.005
	NR N41/137RB#67 100M	Left Cheek	518598	26.14	26.50	1.086	0.014	0.015
	NR N41/137RB#67 100M	Left Tilt	518598	26.14	26.50	1.086	0.004	0.004
Ant 8								
24#	NR N66/1RB#1 20M	Right Cheek	349000	25.98	26.50	1.127	0.348	0.392
	NR N66/1RB#1 20M	Right Tilt	349000	25.98	26.50	1.127	0.039	0.043
	NR N66/1RB#1 20M	Left Cheek	349000	25.98	26.50	1.127	0.236	0.266
	NR N66/1RB#1 20M	Left Tilt	349000	25.98	26.50	1.127	0.030	0.033
Ant 7								
	NR N66/50RB#25 20M	Right Cheek	349000	25.46	26.00	1.132	0.311	0.352
	NR N66/50RB#25 20M	Right Tilt	349000	25.46	26.00	1.132	0.026	0.029
	NR N66/50RB#25 20M	Left Cheek	349000	25.46	26.00	1.132	0.205	0.232
	NR N66/50RB#25 20M	Left Tilt	349000	25.46	26.00	1.132	0.024	0.027
Ant 7								
	NR N66/1RB#1 20M	Right Cheek	349000	25.98	26.50	1.127	0.149	0.168
	NR N66/1RB#1 20M	Right Tilt	349000	25.98	26.50	1.127	0.027	0.030
	NR N66/1RB#1 20M	Left Cheek	349000	25.98	26.50	1.127	0.240	0.271
	NR N66/1RB#1 20M	Left Tilt	349000	25.98	26.50	1.127	0.088	0.099
Ant 8								
	NR N66/50RB#25 20M	Right Cheek	349000	25.46	26.00	1.132	0.143	0.162
	NR N66/50RB#25 20M	Right Tilt	349000	25.46	26.00	1.132	0.021	0.023
	NR N66/50RB#25 20M	Left Cheek	349000	25.46	26.00	1.132	0.234	0.265
	NR N66/50RB#25 20M	Left Tilt	349000	25.46	26.00	1.132	0.082	0.093
Ant 8								
25#	NR N71/1RB#1 20M	Right Cheek	136100	20.96	21.50	1.132	0.259	0.293
	NR N71/1RB#1 20M	Right Tilt	136100	20.96	21.50	1.132	0.208	0.236
	NR N71/1RB#1 20M	Left Cheek	136100	20.96	21.50	1.132	0.117	0.132
	NR N71/1RB#1 20M	Left Tilt	136100	20.96	21.50	1.132	0.080	0.090
Ant 8								
	NR N71/50RB#25 20M	Right Cheek	136100	19.94	20.50	1.138	0.211	0.240
	NR N71/50RB#25 20M	Right Tilt	136100	19.94	20.50	1.138	0.189	0.215
	NR N71/50RB#25 20M	Left Cheek	136100	19.94	20.50	1.138	0.099	0.113
	NR N71/50RB#25 20M	Left Tilt	136100	19.94	20.50	1.138	0.072	0.082
	NR N71/50RB#25 20M	Right Cheek	136100	20.96	21.50	1.132	0.259	0.293



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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)
Ant 7								
	NR N71/1RB#1 20M	Right Cheek	136100	20.96	21.50	1.132	0.160	0.181
	NR N71/1RB#1 20M	Right Tilt	136100	20.96	21.50	1.132	0.088	0.100
	NR N71/1RB#1 20M	Left Cheek	136100	20.96	21.50	1.132	0.077	0.087
	NR N71/1RB#1 20M	Left Tilt	136100	20.96	21.50	1.132	0.072	0.082
	NR N71/50RB#25 20M	Right Cheek	136100	19.94	20.50	1.138	0.153	0.174
	NR N71/50RB#25 20M	Right Tilt	136100	19.94	20.50	1.138	0.081	0.092
	NR N71/50RB#25 20M	Left Cheek	136100	19.94	20.50	1.138	0.070	0.080
	NR N71/50RB#25 20M	Left Tilt	136100	19.94	20.50	1.138	0.055	0.063
	NR N71/50RB#25 20M	Right Cheek	136100	20.96	21.50	1.132	0.160	0.181

➤ **WLAN Head 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)
Ant 5 (CH0)								
	WLAN2.4GHz/802.11b	Right Cheek	11	16.21	17.00	1.199	0.131	0.157
	WLAN2.4GHz/802.11b	Right Tilt	11	16.21	17.00	1.199	0.076	0.092
26#	WLAN2.4GHz/802.11b	Left Cheek	11	16.21	17.00	1.199	0.401	0.481
	WLAN2.4GHz/802.11b	Left Tilt	11	16.21	17.00	1.199	0.114	0.137
Ant 3 (CH1)								
	WLAN2.4GHz/802.11b	Right Cheek	1	17.47	18.00	1.130	0.106	0.120
	WLAN2.4GHz/802.11b	Right Tilt	1	17.47	18.00	1.130	0.087	0.098
	WLAN2.4GHz/802.11b	Left Cheek	1	17.47	18.00	1.130	0.115	0.130
	WLAN2.4GHz/802.11b	Left Tilt	1	17.47	18.00	1.130	0.114	0.129
Ant 9 (CH1)								
	WLAN5.2GHz/802.11n40	Right Cheek	1	17.47	18.00	1.130	0.106	0.120
	WLAN5.2GHz/802.11n40	Right Tilt	1	17.47	18.00	1.130	0.087	0.098
	WLAN5.2GHz/802.11n40	Left Cheek	1	17.47	18.00	1.130	0.115	0.130
	WLAN5.2GHz/802.11n40	Left Tilt	1	17.47	18.00	1.130	0.114	0.129
Ant 5 (CH0)								
	WLAN5.2GHz/802.11a	Right Cheek	48	8.27	9.00	1.183	0.124	0.150
	WLAN5.2GHz/802.11a	Right Tilt	48	8.27	9.00	1.183	0.146	0.176
	WLAN5.2GHz/802.11a	Left Cheek	48	8.27	9.00	1.183	0.220	0.265
	WLAN5.2GHz/802.11a	Left Tilt	48	8.27	9.00	1.183	0.149	0.180



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)
Ant 9 (CH1)								
	WLAN5.2GHz/802.11a	Right Cheek	44	13.43	14.00	1.140	0.234	0.272
	WLAN5.2GHz/802.11a	Right Tilt	44	13.43	14.00	1.140	0.149	0.173
27#	WLAN5.2GHz/802.11a	Left Cheek	44	13.43	14.00	1.140	0.344	0.400
	WLAN5.2GHz/802.11a	Left Tilt	44	13.43	14.00	1.140	0.277	0.322
Ant 5 (CH0)								
	WLAN5.3GHz/802.11a	Right Cheek	60	8.26	9.00	1.186	0.106	0.128
	WLAN5.3GHz/802.11a	Right Tilt	60	8.26	9.00	1.186	0.103	0.125
	WLAN5.3GHz/802.11a	Left Cheek	60	8.26	9.00	1.186	0.191	0.231
	WLAN5.3GHz/802.11a	Left Tilt	60	8.26	9.00	1.186	0.107	0.129
Ant 9 CH1								
	WLAN5.3GHz/802.11a	Right Cheek	52	14.62	15.00	1.091	0.276	0.307
	WLAN5.3GHz/802.11a	Right Tilt	52	14.62	15.00	1.091	0.287	0.320
28#	WLAN5.3GHz/802.11a	Left Cheek	52	14.62	15.00	1.091	0.382	0.425
	WLAN5.3GHz/802.11a	Left Tilt	52	14.62	15.00	1.091	0.218	0.243
Ant 5 (CH0)								
	WLAN5.5GHz/802.11a	Right Cheek	144	8.27	9.00	1.183	0.111	0.134
	WLAN5.5GHz/802.11a	Right Tilt	144	8.27	9.00	1.183	0.109	0.132
	WLAN5.5GHz/802.11a	Left Cheek	144	8.27	9.00	1.183	0.132	0.159
	WLAN5.5GHz/802.11a	Left Tilt	144	8.27	9.00	1.183	0.124	0.150
Ant 9 (CH1)								
	WLAN5.5GHz/802.11a	Right Cheek	100	13.91	14.50	1.146	0.332	0.388
29#	WLAN5.5GHz/802.11a	Right Tilt	100	13.91	14.50	1.146	0.413	0.483
	WLAN5.5GHz/802.11a	Left Cheek	100	13.91	14.50	1.146	0.202	0.236
	WLAN5.5GHz/802.11a	Left Tilt	100	13.91	14.50	1.146	0.348	0.407
Ant 5 (CH0)								
	WLAN5.8GHz/802.11a	Right Cheek	165	8.28	9.00	1.180	0.141	0.170
	WLAN5.8GHz/802.11a	Right Tilt	165	8.28	9.00	1.180	0.135	0.163
	WLAN5.8GHz/802.11a	Left Cheek	165	8.28	9.00	1.180	0.159	0.191
	WLAN5.8GHz/802.11a	Left Tilt	165	8.28	9.00	1.180	0.148	0.178
Ant 5 (CH0)								
	WLAN5.8GHz/802.11a	Right Cheek	165	8.28	9.00	1.180	0.141	0.170
	WLAN5.8GHz/802.11a	Right Tilt	165	8.28	9.00	1.180	0.135	0.163
	WLAN5.8GHz/802.11a	Left Cheek	165	8.28	9.00	1.180	0.159	0.191
	WLAN5.8GHz/802.11a	Left Tilt	165	8.28	9.00	1.180	0.148	0.178



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)
Ant 9 (CH1)								
	WLAN5.8GHz/802.11a	Right Cheek	149	13.47	14.00	1.130	0.251	0.289
	WLAN5.8GHz/802.11a	Right Tilt	149	13.47	14.00	1.130	0.264	0.304
	WLAN5.8GHz/802.11a	Left Cheek	149	13.47	14.00	1.130	0.257	0.296
30#	WLAN5.8GHz/802.11a	Left Tilt	149	13.47	14.00	1.130	0.266	0.307

Note:

1. Per KDB 447498 D01v06, for each exposure position, if the highest output power channel Reported SAR $\leq$ 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 $\geq$ 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 $\leq$ 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 $\leq$ 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 $\leq$ 1.2 W/kg.
6. According to KDB 865664 D02v01r02, SAR plot is required for the highest measured SAR in each exposure configuration, wireless mode and frequency band combination.
7. The WLAN Reported 1g SAR (W/kg) has been calculated together with the duty cycle scaling factor 1.0 for 2.4G WLAN and 1.02 for 5G WLAN.



18.3. Body SAR Data

➤ GSM 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)
Ant 2								
	GPRS 850(4 TX slots)	Front Side	251	26.56	27.00	1.107	0.170	0.188
31#	GPRS 850(4 TX slots)	Back Side	251	26.56	27.00	1.107	0.303	0.335
	GPRS 850(4 TX slots)	Left Side	251	26.56	27.00	1.107	0.142	0.157
	GPRS 850(4 TX slots)	Right Side	251	26.56	27.00	1.107	0.035	0.039
	GPRS 850(4 TX slots)	Top Side	251	26.56	27.00	1.107	0.195	0.216
Ant 0								
	GPRS 850(4 TX slots)	Front Side	251	30.42	31.00	1.143	0.196	0.224
	GPRS 850(4 TX slots)	Back Side	251	30.42	31.00	1.143	0.227	0.259
	GPRS 850(4 TX slots)	Left Side	251	30.42	31.00	1.143	0.022	0.026
	GPRS 850(4 TX slots)	Right Side	251	30.42	31.00	1.143	0.047	0.054
	GPRS 850(4 TX slots)	Bottom Side	251	30.42	31.00	1.143	0.069	0.079
Ant 8								
	GPRS 1900(4 TX slots)	Front Side	661	27.78	28.50	1.180	0.079	0.094
32#	GPRS 1900(4 TX slots)	Back Side	661	27.78	28.50	1.180	0.321	0.379
	GPRS 1900(4 TX slots)	Left Side	661	27.78	28.50	1.180	0.304	0.359
	GPRS 1900(4 TX slots)	Right Side	661	27.78	28.50	1.180	0.004	0.004
	GPRS 1900(4 TX slots)	Top Side	661	27.78	28.50	1.180	0.011	0.013
Ant 7								
	GPRS 1900(4 TX slots)	Front Side	661	25.8	26.50	1.175	0.162	0.190
	GPRS 1900(4 TX slots)	Back Side	661	25.8	26.50	1.175	0.281	0.330
	GPRS 1900(4 TX slots)	Left Side	661	25.8	26.50	1.175	0.132	0.155
	GPRS 1900(4 TX slots)	Right Side	661	25.8	26.50	1.175	0.027	0.031
33#	GPRS 1900(4 TX slots)	Bottom Side	661	25.8	26.50	1.175	0.528	0.620



➤ WCDMA 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)
Ant 8								
	Band II/RMC 12.2Kbps	Front Side	9400	24.78	25.50	1.180	0.105	0.124
34#	Band II/RMC 12.2Kbps	Back Side	9400	24.78	25.50	1.180	0.315	0.372
	Band II/RMC 12.2Kbps	Left Side	9400	24.78	25.50	1.180	0.283	0.334
	Band II/RMC 12.2Kbps	Right Side	9400	24.78	25.50	1.180	0.005	0.006
	Band II/RMC 12.2Kbps	Top Side	9400	24.78	25.50	1.180	0.013	0.015
Ant 7								
	Band II/RMC 12.2Kbps	Front Side	9400	18.46	19.00	1.132	0.107	0.121
	Band II/RMC 12.2Kbps	Back Side	9400	18.46	19.00	1.132	0.180	0.204
	Band II/RMC 12.2Kbps	Left Side	9400	18.46	19.00	1.132	0.110	0.125
	Band II/RMC 12.2Kbps	Right Side	9400	18.46	19.00	1.132	0.028	0.031
35#	Band II/RMC 12.2Kbps	Bottom Side	9400	18.46	19.00	1.132	0.350	0.396
Ant 8								
	Band IV/RMC 12.2Kbps	Front Side	1413	25.30	26.00	1.175	0.137	0.161
36#	Band IV/RMC 12.2Kbps	Back Side	1413	25.30	26.00	1.175	0.326	0.383
37#	Band IV/RMC 12.2Kbps	Left Side	1413	25.30	26.00	1.175	0.492	0.578
	Band IV/RMC 12.2Kbps	Right Side	1413	25.30	26.00	1.175	0.007	0.008
	Band IV/RMC 12.2Kbps	Top Side	1413	25.30	26.00	1.175	0.037	0.043
Ant 7								
	Band IV/RMC 12.2Kbps	Front Side	1413	18.61	19.00	1.094	0.075	0.082
	Band IV/RMC 12.2Kbps	Back Side	1413	18.61	19.00	1.094	0.109	0.119
	Band IV/RMC 12.2Kbps	Left Side	1413	18.61	19.00	1.094	0.070	0.076
	Band IV/RMC 12.2Kbps	Right Side	1413	18.61	19.00	1.094	0.024	0.026
	Band IV/RMC 12.2Kbps	Bottom Side	1413	18.61	19.00	1.094	0.191	0.209
Ant 2								
	Band V/RMC 12.2Kbps	Front Side	4233	21.15	22.00	1.216	0.024	0.029
38#	Band V/RMC 12.2Kbps	Back Side	4233	21.15	22.00	1.216	0.218	0.265
	Band V/RMC 12.2Kbps	Left Side	4233	21.15	22.00	1.216	0.108	0.131
	Band V/RMC 12.2Kbps	Right Side	4233	21.15	22.00	1.216	0.018	0.022
39#	Band V/RMC 12.2Kbps	Top Side	4233	21.15	22.00	1.216	0.343	0.417
Ant 0								
	Band V/RMC 12.2Kbps	Front Side	4233	23.85	24.50	1.161	0.104	0.121
	Band V/RMC 12.2Kbps	Back Side	4233	23.85	24.50	1.161	0.148	0.172
	Band V/RMC 12.2Kbps	Left Side	4233	23.85	24.50	1.161	0.005	0.006
	Band V/RMC 12.2Kbps	Right Side	4233	23.85	24.50	1.161	0.007	0.008



	Band V/RMC 12.2Kbps	Bottom Side	4233	23.85	24.50	1.161	0.011	0.012
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➤ 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)
Ant 8								
	LTE Band 2/1RB#0 20M	Front Side	18900	24.07	24.50	1.104	0.088	0.097
	LTE Band 2/1RB#0 20M	Back Side	18900	24.07	24.50	1.104	0.152	0.168
	LTE Band 2/1RB#0 20M	Left Side	18900	24.07	24.50	1.104	0.178	0.197
	LTE Band 2/1RB#0 20M	Right Side	18900	24.07	24.50	1.104	0.009	0.010
	LTE Band 2/1RB#0 20M	Top Side	18900	24.07	24.50	1.104	0.028	0.031
	LTE Band 2/50RB#0 20M	Front Side	18900	22.86	23.50	1.159	0.078	0.090
	LTE Band 2/50RB#0 20M	Back Side	18900	22.86	23.50	1.159	0.128	0.148
	LTE Band 2/50RB#0 20M	Left Side	18900	22.86	23.50	1.159	0.160	0.185
	LTE Band 2/50RB#0 20M	Right Side	18900	22.86	23.50	1.159	0.009	0.011
	LTE Band 2/50RB#0 20M	Top Side	18900	22.86	23.50	1.159	0.028	0.032
Ant 7								
	LTE Band 2/1RB#0 20M	Front Side	18900	23.56	24.00	1.107	0.426	0.471
40#	LTE Band 2/1RB#0 20M	Back Side	18900	23.56	24.00	1.107	0.438	0.485
	LTE Band 2/1RB#0 20M	Left Side	18900	23.56	24.00	1.107	0.097	0.107
	LTE Band 2/1RB#0 20M	Right Side	18900	23.56	24.00	1.107	0.049	0.054
41#	LTE Band 2/1RB#0 20M	Bottom Side	18900	23.56	24.00	1.107	0.444	0.491
	LTE Band 2/50RB#0 20M	Front Side	18900	22.58	23.00	1.102	0.282	0.311
	LTE Band 2/50RB#0 20M	Back Side	18900	22.58	23.00	1.102	0.363	0.400
	LTE Band 2/50RB#0 20M	Left Side	18900	22.58	23.00	1.102	0.055	0.060
	LTE Band 2/50RB#0 20M	Right Side	18900	22.58	23.00	1.102	0.039	0.043
	LTE Band 2/50RB#0 20M	Bottom Side	18900	22.58	23.00	1.102	0.378	0.416
Ant 8								
	LTE Band 4/1RB#0 20M	Front Side	20175	25.37	26.00	1.156	0.078	0.090
42#	LTE Band 4/1RB#0 20M	Back Side	20175	25.37	26.00	1.156	0.205	0.237
43#	LTE Band 4/1RB#0 20M	Left Side	20175	25.37	26.00	1.156	0.291	0.336
	LTE Band 4/1RB#0 20M	Right Side	20175	25.37	26.00	1.156	0.017	0.020
	LTE Band 4/1RB#0 20M	Top Side	20175	25.37	26.00	1.156	0.024	0.027



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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)
	LTE Band 4/50RB#0 20M	Front Side	20175	24.18	25.00	1.208	0.061	0.073
	LTE Band 4/50RB#0 20M	Back Side	20175	24.18	25.00	1.208	0.171	0.207
	LTE Band 4/50RB#0 20M	Left Side	20175	24.18	25.00	1.208	0.248	0.300
	LTE Band 4/50RB#0 20M	Right Side	20175	24.18	25.00	1.208	0.015	0.018
	LTE Band 4/50RB#0 20M	Top Side	20175	24.18	25.00	1.208	0.031	0.037
Ant 7								
	LTE Band 4/1RB#0 20M	Front Side	20175	20.21	21.00	1.199	0.075	0.090
	LTE Band 4/1RB#0 20M	Back Side	20175	20.21	21.00	1.199	0.106	0.127
	LTE Band 4/1RB#0 20M	Left Side	20175	20.21	21.00	1.199	0.071	0.085
	LTE Band 4/1RB#0 20M	Right Side	20175	20.21	21.00	1.199	0.032	0.039
	LTE Band 4/1RB#0 20M	Bottom Side	20175	20.21	21.00	1.199	0.157	0.188
	LTE Band 4/50RB#0 20M	Front Side	20175	19.16	20.00	1.213	0.062	0.075
	LTE Band 4/50RB#0 20M	Back Side	20175	19.16	20.00	1.213	0.087	0.105
	LTE Band 4/50RB#0 20M	Left Side	20175	19.16	20.00	1.213	0.057	0.069
	LTE Band 4/50RB#0 20M	Right Side	20175	19.16	20.00	1.213	0.028	0.034
	LTE Band 4/50RB#0 20M	Bottom Side	20175	19.16	20.00	1.213	0.126	0.153
Ant 2								
	LTE Band 5/1RB#0 10M	Front Side	20525	24.47	25.00	1.130	0.154	0.174
44#	LTE Band 5/1RB#0 10M	Back Side	20525	24.47	25.00	1.130	0.315	0.356
	LTE Band 5/1RB#0 10M	Left Side	20525	24.47	25.00	1.130	0.246	0.278
	LTE Band 5/1RB#0 10M	Right Side	20525	24.47	25.00	1.130	0.056	0.063
	LTE Band 5/1RB#0 10M	Top Side	20525	24.47	25.00	1.130	0.259	0.293
	LTE Band 5/25RB#0 10M	Front Side	20525	23.32	24.00	1.169	0.133	0.156
	LTE Band 5/25RB#0 10M	Back Side	20525	23.32	24.00	1.169	0.268	0.313
	LTE Band 5/25RB#0 10M	Left Side	20525	23.32	24.00	1.169	0.197	0.230
	LTE Band 5/25RB#0 10M	Right Side	20525	23.32	24.00	1.169	0.050	0.059
	LTE Band 5/25RB#0 10M	Top Side	20525	23.32	24.00	1.169	0.146	0.171



REPORT No.: SZ20100013S01

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)
Ant 0								
	LTE Band 5/1RB#0 10M	Front Side	20525	22.69	23.50	1.205	0.049	0.059
	LTE Band 5/1RB#0 10M	Back Side	20525	22.69	23.50	1.205	0.099	0.119
	LTE Band 5/1RB#0 10M	Left Side	20525	22.69	23.50	1.205	0.023	0.028
	LTE Band 5/1RB#0 10M	Right Side	20525	22.69	23.50	1.205	0.047	0.057
	LTE Band 5/1RB#0 10M	Bottom Side	20525	22.69	23.50	1.205	0.067	0.081
Ant 2								
	LTE Band 5/25RB#0 10M	Front Side	20525	21.54	22.50	1.247	0.041	0.051
	LTE Band 5/25RB#0 10M	Back Side	20525	21.54	22.50	1.247	0.064	0.080
	LTE Band 5/25RB#0 10M	Left Side	20525	21.54	22.50	1.247	0.019	0.024
	LTE Band 5/25RB#0 10M	Right Side	20525	21.54	22.50	1.247	0.037	0.046
	LTE Band 5/25RB#0 10M	Bottom Side	20525	21.54	22.50	1.247	0.056	0.070
Ant 2								
45#	LTE Band 5B/1RB#0 10M	Back Side	20525	24.27	25.00	1.183	0.228	0.270
Ant 2								
	LTE Band 12/1RB#0 10M	Front Side	23060	24.42	25.00	1.143	0.036	0.041
	LTE Band 12/1RB#0 10M	Back Side	23060	24.42	25.00	1.143	0.032	0.036
	LTE Band 12/1RB#0 10M	Left Side	23060	24.42	25.00	1.143	0.051	0.058
	LTE Band 12/1RB#0 10M	Right Side	23060	24.42	25.00	1.143	0.006	0.007
	LTE Band 12/1RB#0 10M	Top Side	23060	24.42	25.00	1.143	0.021	0.023
Ant 0								
	LTE Band 12/25RB#0 10M	Front Side	23060	23.47	24.00	1.130	0.019	0.022
	LTE Band 12/25RB#0 10M	Back Side	23060	23.47	24.00	1.130	0.029	0.033
	LTE Band 12/25RB#0 10M	Left Side	23060	23.47	24.00	1.130	0.039	0.045
	LTE Band 12/25RB#0 10M	Right Side	23060	23.47	24.00	1.130	0.005	0.006
	LTE Band 12/25RB#0 10M	Top Side	23060	23.47	24.00	1.130	0.036	0.041
Ant 0								
	LTE Band 12/1RB#0 10M	Front Side	23060	23.93	24.50	1.140	0.104	0.119
46#	LTE Band 12/1RB#0 10M	Back Side	23060	23.93	24.50	1.140	0.139	0.158
	LTE Band 12/1RB#0 10M	Left Side	23060	23.93	24.50	1.140	0.039	0.044
	LTE Band 12/1RB#0 10M	Right Side	23060	23.93	24.50	1.140	0.070	0.080
47#	LTE Band 12/1RB#0 10M	Bottom Side	23060	23.93	24.50	1.140	0.142	0.162



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)
	LTE Band 12/25RB#0 10M	Front Side	23060	22.92	23.50	1.143	0.086	0.099
	LTE Band 12/25RB#0 10M	Back Side	23060	22.92	23.50	1.143	0.088	0.101
	LTE Band 12/25RB#0 10M	Left Side	23060	22.92	23.50	1.143	0.032	0.037
	LTE Band 12/25RB#0 10M	Right Side	23060	22.92	23.50	1.143	0.061	0.069
	LTE Band 12/25RB#0 10M	Bottom Side	23060	22.92	23.50	1.143	0.116	0.133
Ant 2								
	LTE Band 13/1RB#25 10M	Front Side	23230	24.20	25.00	1.202	0.048	0.058
	LTE Band 13/1RB#25 10M	Back Side	23230	24.20	25.00	1.202	0.079	0.095
	LTE Band 13/1RB#25 10M	Left Side	23230	24.20	25.00	1.202	0.054	0.065
	LTE Band 13/1RB#25 10M	Right Side	23230	24.20	25.00	1.202	0.010	0.011
	LTE Band 13/1RB#25 10M	Top Side	23230	24.20	25.00	1.202	0.055	0.066
	LTE Band 13/25RB#25 10M	Front Side	23230	23.17	24.00	1.211	0.041	0.050
	LTE Band 13/25RB#25 10M	Back Side	23230	23.17	24.00	1.211	0.073	0.088
	LTE Band 13/25RB#25 10M	Left Side	23230	23.17	24.00	1.211	0.044	0.053
	LTE Band 13/25RB#25 10M	Right Side	23230	23.17	24.00	1.211	0.008	0.009
	LTE Band 13/25RB#25 10M	Top Side	23230	23.17	24.00	1.211	0.043	0.053
Ant 0								
	LTE Band 13/1RB#0 10M	Front Side	23230	23.99	24.50	1.125	0.120	0.135
48#	LTE Band 13/1RB#0 10M	Back Side	23230	23.99	24.50	1.125	0.163	0.183
	LTE Band 13/1RB#0 10M	Left Side	23230	23.99	24.50	1.125	0.087	0.098
	LTE Band 13/1RB#0 10M	Right Side	23230	23.99	24.50	1.125	0.024	0.027
49#	LTE Band 13/1RB#0 10M	Bottom Side	23230	23.99	24.50	1.125	0.281	0.316
	LTE Band 13/25RB#25 10M	Front Side	23230	22.75	23.50	1.189	0.105	0.125
	LTE Band 13/25RB#25 10M	Back Side	23230	22.75	23.50	1.189	0.134	0.159
	LTE Band 13/25RB#25 10M	Left Side	23230	22.75	23.50	1.189	0.076	0.090
	LTE Band 13/25RB#25 10M	Right Side	23230	22.75	23.50	1.189	0.022	0.026
	LTE Band 13/25RB#25 10M	Bottom Side	23230	22.75	23.50	1.189	0.223	0.265



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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)
Ant 8								
	LTE Band 25/1RB#0 20M	Front Side	26365	24.53	25.00	1.114	0.095	0.106
	LTE Band 25/1RB#0 20M	Back Side	26365	24.53	25.00	1.114	0.152	0.169
	LTE Band 25/1RB#0 20M	Left Side	26365	24.53	25.00	1.114	0.014	0.016
	LTE Band 25/1RB#0 20M	Right Side	26365	24.53	25.00	1.114	0.230	0.256
	LTE Band 25/1RB#0 20M	Top Side	26365	24.53	25.00	1.114	0.015	0.016
	LTE Band 25/50RB#0 20M	Front Side	26365	23.32	24.00	1.169	0.082	0.095
	LTE Band 25/50RB#0 20M	Back Side	26365	23.32	24.00	1.169	0.133	0.156
	LTE Band 25/50RB#0 20M	Left Side	26365	23.32	24.00	1.169	0.012	0.014
	LTE Band 25/50RB#0 20M	Right Side	26365	23.32	24.00	1.169	0.191	0.223
	LTE Band 25/50RB#0 20M	Top Side	26365	23.32	24.00	1.169	0.014	0.017
Ant 7								
	LTE Band 25/1RB#0 20M	Front Side	26365	23.80	24.50	1.175	0.146	0.172
50#	LTE Band 25/1RB#0 20M	Back Side	26365	23.80	24.50	1.175	0.262	0.308
	LTE Band 25/1RB#0 20M	Left Side	26365	23.80	24.50	1.175	0.042	0.049
	LTE Band 25/1RB#0 20M	Right Side	26365	23.80	24.50	1.175	0.083	0.098
51#	LTE Band 25/1RB#0 20M	Bottom Side	26365	23.80	24.50	1.175	0.535	0.629
	LTE Band 25/50RB#0 20M	Front Side	26365	22.61	23.50	1.227	0.120	0.147
	LTE Band 25/50RB#0 20M	Back Side	26365	22.61	23.50	1.227	0.183	0.225
	LTE Band 25/50RB#0 20M	Left Side	26365	22.61	23.50	1.227	0.033	0.041
	LTE Band 25/50RB#0 20M	Right Side	26365	22.61	23.50	1.227	0.077	0.095
	LTE Band 25/50RB#0 20M	Bottom Side	26365	22.61	23.50	1.227	0.440	0.540
Ant 2								
	LTE Band 26/1RB#0 15M	Front Side	26865	24.24	25.00	1.191	0.222	0.264
52#	LTE Band 26/1RB#0 15M	Back Side	26865	24.24	25.00	1.191	0.362	0.431
	LTE Band 26/1RB#0 15M	Left Side	26865	24.24	25.00	1.191	0.289	0.344
	LTE Band 26/1RB#0 15M	Right Side	26865	24.24	25.00	1.191	0.043	0.051
	LTE Band 26/1RB#0 15M	Top Side	26865	24.24	25.00	1.191	0.018	0.022
	LTE Band 26/36RB#0 15M	Front Side	26865	23.42	24.00	1.143	0.203	0.232
	LTE Band 26/36RB#0 15M	Back Side	26865	23.42	24.00	1.143	0.307	0.351
	LTE Band 26/36RB#0 15M	Left Side	26865	23.42	24.00	1.143	0.240	0.274
	LTE Band 26/36RB#0 15M	Right Side	26865	23.42	24.00	1.143	0.039	0.044
	LTE Band 26/36RB#0 15M	Top Side	26865	23.42	24.00	1.143	0.017	0.019



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)
Ant 0								
	LTE Band 26/1RB#0 15M	Front Side	26865	23.85	24.50	1.161	0.096	0.111
	LTE Band 26/1RB#0 15M	Back Side	26865	23.85	24.50	1.161	0.145	0.168
	LTE Band 26/1RB#0 15M	Left Side	26865	23.85	24.50	1.161	0.055	0.063
	LTE Band 26/1RB#0 15M	Right Side	26865	23.85	24.50	1.161	0.015	0.017
	LTE Band 26/1RB#0 15M	Bottom Side	26865	23.85	24.50	1.161	0.176	0.204
	LTE Band 26/36RB#0 15M	Front Side	26865	22.72	23.50	1.197	0.062	0.074
	LTE Band 26/36RB#0 15M	Back Side	26865	22.72	23.50	1.197	0.111	0.133
	LTE Band 26/36RB#0 15M	Left Side	26865	22.72	23.50	1.197	0.049	0.058
	LTE Band 26/36RB#0 15M	Right Side	26865	22.72	23.50	1.197	0.013	0.015
	LTE Band 26/36RB#0 15M	Bottom Side	26865	22.72	23.50	1.197	0.142	0.170
Ant 8								
	LTE Band 41/1RB#0 20M	Front Side	40620	24.14	25.00	1.219	0.118	0.145
53#	LTE Band 41/1RB#0 20M	Back Side	40620	24.14	25.00	1.219	0.354	0.434
	LTE Band 41/1RB#0 20M	Left Side	40620	24.14	25.00	1.219	0.030	0.036
54#	LTE Band 41/1RB#0 20M	Right Side	40620	24.14	25.00	1.219	0.468	0.574
	LTE Band 41/1RB#0 20M	Top Side	40620	24.14	25.00	1.219	0.071	0.088
	LTE Band 41/50RB#0 20M	Front Side	40620	23.34	25.00	1.466	0.077	0.114
	LTE Band 41/50RB#0 20M	Back Side	40620	23.34	25.00	1.466	0.289	0.426
	LTE Band 41/50RB#0 20M	Left Side	40620	23.34	25.00	1.466	0.026	0.038
	LTE Band 41/50RB#0 20M	Right Side	40620	23.34	25.00	1.466	0.256	0.377
	LTE Band 41/50RB#0 20M	Top Side	40620	23.34	25.00	1.466	0.065	0.096
55#	LTE Band 41C/1RB#0 20M	Right Side	39750	23.93	24.50	1.140	0.491	0.563
Ant 7 (HPUE)								
	LTE Band 41/1RB#0 20M	Front Side	40620	27.22	28.00	1.197	0.111	0.134
	LTE Band 41/1RB#0 20M	Back Side	40620	27.22	28.00	1.197	0.246	0.296
	LTE Band 41/1RB#0 20M	Left Side	40620	27.22	28.00	1.197	0.040	0.048
	LTE Band 41/1RB#0 20M	Right Side	40620	27.22	28.00	1.197	0.118	0.142
	LTE Band 41/1RB#0 20M	Bottom Side	40620	27.22	28.00	1.197	0.241	0.290



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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)
	LTE Band 41/50RB#0 20M	Front Side	40620	26.42	27.00	1.143	0.091	0.105
	LTE Band 41/50RB#0 20M	Back Side	40620	26.42	27.00	1.143	0.214	0.246
	LTE Band 41/50RB#0 20M	Left Side	40620	26.42	27.00	1.143	0.035	0.040
	LTE Band 41/50RB#0 20M	Right Side	40620	26.42	27.00	1.143	0.097	0.111
	LTE Band 41/50RB#0 20M	Bottom Side	40620	26.42	27.00	1.143	0.197	0.226
56#	LTE Band 41C/1RB#0 20M	Back Side	40620	26.98	27.50	1.127	0.328	0.372
Ant 8								
	LTE Band 66/1RB#0 20M	Front Side	132322	24.25	25.00	1.189	0.046	0.054
57#	LTE Band 66/1RB#0 20M	Back Side	132322	24.25	25.00	1.189	0.123	0.146
58#	LTE Band 66/1RB#0 20M	Left Side	132322	24.25	25.00	1.189	0.279	0.332
	LTE Band 66/1RB#0 20M	Right Side	132322	24.25	25.00	1.189	0.007	0.008
	LTE Band 66/1RB#0 20M	Top Side	132322	24.25	25.00	1.189	0.024	0.029
	LTE Band 66/1RB#0 20M	Front Side	132322	23.38	24.00	1.153	0.033	0.038
	LTE Band 66/1RB#0 20M	Back Side	132322	23.38	24.00	1.153	0.107	0.123
	LTE Band 66/1RB#0 20M	Left Side	132322	23.38	24.00	1.153	0.159	0.183
	LTE Band 66/1RB#0 20M	Right Side	132322	23.38	24.00	1.153	0.005	0.005
	LTE Band 66/1RB#0 20M	Top Side	132322	23.38	24.00	1.153	0.014	0.016
Ant 7								
	LTE Band 66/1RB#0 20M	Front Side	132322	20.12	21.00	1.225	0.085	0.104
	LTE Band 66/1RB#0 20M	Back Side	132322	20.12	21.00	1.225	0.107	0.131
	LTE Band 66/1RB#0 20M	Left Side	132322	20.12	21.00	1.225	0.073	0.089
	LTE Band 66/1RB#0 20M	Right Side	132322	20.12	21.00	1.225	0.036	0.044
	LTE Band 66/1RB#0 20M	Bottom Side	132322	20.12	21.00	1.225	0.180	0.220
	LTE Band 66/1RB#0 20M	Front Side	132322	19.15	20.00	1.216	0.072	0.087
	LTE Band 66/1RB#0 20M	Back Side	132322	19.15	20.00	1.216	0.089	0.108
	LTE Band 66/1RB#0 20M	Left Side	132322	19.15	20.00	1.216	0.061	0.074
	LTE Band 66/1RB#0 20M	Right Side	132322	19.15	20.00	1.216	0.030	0.036
	LTE Band 66/1RB#0 20M	Bottom Side	132322	19.15	20.00	1.216	0.147	0.179
59#	LTE Band 66C/1RB#0 20M	Left Side	132072	22.78	23.00	1.052	0.079	0.083



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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)
Ant 2								
60#	LTE Band 71/1RB#0 20M	Front Side	133322	24.12	24.50	1.091	0.210	0.229
	LTE Band 71/1RB#0 20M	Back Side	133322	24.12	24.50	1.091	0.311	0.339
	LTE Band 71/1RB#0 20M	Left Side	133322	24.12	24.50	1.091	0.061	0.066
	LTE Band 71/1RB#0 20M	Right Side	133322	24.12	24.50	1.091	0.270	0.295
	LTE Band 71/1RB#0 20M	Top Side	133322	24.12	24.50	1.091	0.232	0.253
Ant 0								
	LTE Band 71/50RB#0 20M	Front Side	133322	23.67	24.00	1.079	0.186	0.201
	LTE Band 71/50RB#0 20M	Back Side	133322	23.67	24.00	1.079	0.209	0.225
	LTE Band 71/50RB#0 20M	Left Side	133322	23.67	24.00	1.079	0.042	0.045
	LTE Band 71/50RB#0 20M	Right Side	133322	23.67	24.00	1.079	0.189	0.204
	LTE Band 71/50RB#0 20M	Top Side	133322	23.67	24.00	1.079	0.163	0.176
	LTE Band 71/1RB#0 20M	Front Side	133322	23.70	24.50	1.202	0.132	0.159
	LTE Band 71/1RB#0 20M	Back Side	133322	23.70	24.50	1.202	0.162	0.195
	LTE Band 71/1RB#0 20M	Left Side	133322	23.70	24.50	1.202	0.117	0.141
	LTE Band 71/1RB#0 20M	Right Side	133322	23.70	24.50	1.202	0.070	0.084
	LTE Band 71/1RB#0 20M	Bottom Side	133322	23.70	24.50	1.202	0.164	0.197
	LTE Band 71/50RB#0 20M	Front Side	133322	22.74	23.50	1.191	0.111	0.132
	LTE Band 71/50RB#0 20M	Back Side	133322	22.74	23.50	1.191	0.121	0.144
	LTE Band 71/50RB#0 20M	Left Side	133322	22.74	23.50	1.191	0.092	0.110
	LTE Band 71/50RB#0 20M	Right Side	133322	22.74	23.50	1.191	0.055	0.066
	LTE Band 71/50RB#0 20M	Bottom Side	133322	22.74	23.50	1.191	0.131	0.156



➤ 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)
Ant 8								
	NR N2/1RB#1 20M	Front Side	380000	22.85	23.50	1.161	0.141	0.164
61#	NR N2/1RB#1 20M	Back Side	380000	22.85	23.50	1.161	0.211	0.245
	NR N2/1RB#1 20M	Left Side	380000	22.85	23.50	1.161	0.147	0.171
	NR N2/1RB#1 20M	Right Side	380000	22.85	23.50	1.161	0.101	0.117
	NR N2/1RB#1 20M	Top Side	380000	22.85	23.50	1.161	0.027	0.031
Ant 7								
	NR N2/50RB#25 20M	Front Side	380000	22.39	22.50	1.026	0.134	0.137
	NR N2/50RB#25 20M	Back Side	380000	22.39	22.50	1.026	0.199	0.204
	NR N2/50RB#25 20M	Left Side	380000	22.39	22.50	1.026	0.131	0.134
	NR N2/50RB#25 20M	Right Side	380000	22.39	22.50	1.026	0.091	0.093
	NR N2/50RB#25 20M	Top Side	380000	22.39	22.50	1.026	0.020	0.021
Ant 7								
	NR N2/1RB#1 20M	Front Side	380000	22.85	23.50	1.161	0.253	0.294
	NR N2/1RB#1 20M	Back Side	380000	22.85	23.50	1.161	0.395	0.459
	NR N2/1RB#1 20M	Left Side	380000	22.85	23.50	1.161	0.174	0.202
	NR N2/1RB#1 20M	Right Side	380000	22.85	23.50	1.161	0.042	0.049
62#	NR N2/1RB#1 20M	Bottom Side	380000	22.85	23.50	1.161	0.486	0.564
Ant 2								
	NR N2/50RB#25 20M	Front Side	380000	22.39	22.50	1.026	0.123	0.126
	NR N2/50RB#25 20M	Back Side	380000	22.39	22.50	1.026	0.265	0.272
	NR N2/50RB#25 20M	Left Side	380000	22.39	22.50	1.026	0.044	0.045
	NR N2/50RB#25 20M	Right Side	380000	22.39	22.50	1.026	0.022	0.023
	NR N2/50RB#25 20M	Bottom Side	380000	22.39	22.50	1.026	0.356	0.365
Ant 2								
	NR N5/1RB#1 20M	Front Side	167800	20.77	21.50	1.183	0.098	0.116
63#	NR N5/1RB#1 20M	Back Side	167800	20.77	21.50	1.183	0.149	0.176
	NR N5/1RB#1 20M	Left Side	167800	20.77	21.50	1.183	0.058	0.068
	NR N5/1RB#1 20M	Right Side	167800	20.77	21.50	1.183	0.011	0.013
	NR N5/1RB#1 20M	Top Side	167800	20.77	21.50	1.183	0.110	0.130



REPORT No.: SZ20100013S01

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)
	NR N5/50RB#25 20M	Front Side	167800	20.13	20.50	1.089	0.083	0.090
	NR N5/50RB#25 20M	Back Side	167800	20.13	20.50	1.089	0.126	0.137
	NR N5/50RB#25 20M	Left Side	167800	20.13	20.50	1.089	0.044	0.048
	NR N5/50RB#25 20M	Right Side	167800	20.13	20.50	1.089	0.010	0.011
	NR N5/50RB#25 20M	Top Side	167800	20.13	20.50	1.089	0.103	0.112
Ant 0								
	NR N5/1RB#1 20M	Front Side	167800	20.77	21.50	1.183	0.069	0.082
	NR N5/1RB#1 20M	Back Side	167800	20.77	21.50	1.183	0.138	0.163
	NR N5/1RB#1 20M	Left Side	167800	20.77	21.50	1.183	0.010	0.012
	NR N5/1RB#1 20M	Right Side	167800	20.77	21.50	1.183	0.034	0.040
	NR N5/1RB#1 20M	Bottom Side	167800	20.77	21.50	1.183	0.078	0.092
	NR N5/50RB#25 20M	Front Side	167800	20.13	20.50	1.089	0.060	0.066
	NR N5/50RB#25 20M	Back Side	167800	20.13	20.50	1.089	0.129	0.140
	NR N5/50RB#25 20M	Left Side	167800	20.13	20.50	1.089	0.009	0.010
	NR N5/50RB#25 20M	Right Side	167800	20.13	20.50	1.089	0.025	0.027
	NR N5/50RB#25 20M	Bottom Side	167800	20.13	20.50	1.089	0.064	0.070
Ant 8								
	NR N25/1RB#1 20M	Front Side	372000	26.02	27.00	1.253	0.092	0.115
64#	NR N25/1RB#1 20M	Back Side	372000	26.02	27.00	1.253	0.242	0.303
	NR N25/1RB#1 20M	Left Side	372000	26.02	27.00	1.253	0.207	0.259
	NR N25/1RB#1 20M	Right Side	372000	26.02	27.00	1.253	0.016	0.019
	NR N25/1RB#1 20M	Top Side	372000	26.02	27.00	1.253	0.043	0.053
	NR N25/50RB#25 20M	Front Side	372000	25.52	26.00	1.117	0.084	0.094
	NR N25/50RB#25 20M	Back Side	372000	25.52	26.00	1.117	0.219	0.245
	NR N25/50RB#25 20M	Left Side	372000	25.52	26.00	1.117	0.177	0.198
	NR N25/50RB#25 20M	Right Side	372000	25.52	26.00	1.117	0.012	0.013
	NR N25/50RB#25 20M	Top Side	372000	25.52	26.00	1.117	0.040	0.045



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)
Ant 7								
	NR N25/1RB#1 20M	Front Side	372000	26.02	27.00	1.253	0.140	0.175
	NR N25/1RB#1 20M	Back Side	372000	26.02	27.00	1.253	0.225	0.282
	NR N25/1RB#1 20M	Left Side	372000	26.02	27.00	1.253	0.084	0.105
	NR N25/1RB#1 20M	Right Side	372000	26.02	27.00	1.253	0.034	0.042
65#	NR N25/1RB#1 20M	Bottom Side	372000	26.02	27.00	1.253	0.541	0.678
	NR N25/50RB#25 20M	Front Side	372000	25.52	26.00	1.117	0.112	0.125
	NR N25/50RB#25 20M	Back Side	372000	25.52	26.00	1.117	0.198	0.221
	NR N25/50RB#25 20M	Left Side	372000	25.52	26.00	1.117	0.075	0.084
	NR N25/50RB#25 20M	Right Side	372000	25.52	26.00	1.117	0.025	0.028
	NR N25/50RB#25 20M	Bottom Side	372000	25.52	26.00	1.117	0.422	0.471
Ant 8								
	NR N41/1RB#1 100M	Front Side	518598	26.98	27.50	1.127	0.219	0.247
65#	NR N41/1RB#1 100M	Back Side	518598	26.98	27.50	1.127	0.473	0.533
	NR N41/1RB#1 100M	Left Side	518598	26.98	27.50	1.127	0.290	0.327
	NR N41/1RB#1 100M	Right Side	518598	26.98	27.50	1.127	0.037	0.041
	NR N41/1RB#1 100M	Top Side	518598	26.98	27.50	1.127	0.048	0.054
	NR N41/50RB#25 100M	Front Side	518598	26.14	26.50	1.086	0.191	0.208
	NR N41/50RB#25 100M	Back Side	518598	26.14	26.50	1.086	0.416	0.452
	NR N41/50RB#25 100M	Left Side	518598	26.14	26.50	1.086	0.238	0.259
	NR N41/50RB#25 100M	Right Side	518598	26.14	26.50	1.086	0.026	0.028
	NR N41/50RB#25 100M	Top Side	518598	26.14	26.50	1.086	0.034	0.037
Ant 7								
	NR N41/1RB#1 100M	Front Side	518598	26.98	27.50	1.127	0.036	0.040
	NR N41/1RB#1 100M	Back Side	518598	26.98	27.50	1.127	0.261	0.294
	NR N41/1RB#1 100M	Left Side	518598	26.98	27.50	1.127	0.066	0.074
	NR N41/1RB#1 100M	Right Side	518598	26.98	27.50	1.127	0.025	0.028
	NR N41/1RB#1 100M	Bottom Side	518598	26.98	27.50	1.127	0.070	0.079
	NR N41/50RB#25 100M	Front Side	518598	26.14	26.50	1.086	0.022	0.024
	NR N41/50RB#25 100M	Back Side	518598	26.14	26.50	1.086	0.243	0.264
	NR N41/50RB#25 100M	Left Side	518598	26.14	26.50	1.086	0.055	0.060
	NR N41/50RB#25 100M	Right Side	518598	26.14	26.50	1.086	0.019	0.021
	NR N41/50RB#25 100M	Bottom Side	518598	26.14	26.50	1.086	0.064	0.070



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Plot No.	Band/Mode	Test Position	CH.	Ave. Power (dBm)	Tune-up Limit (dBm)	Tune-up Scaling Factor	Meas. SAR1g (W/kg)	Reported SAR1g (W/kg)
Ant 8								
	NR N66/1RB#1 20M	Front Side	349000	25.98	26.50	1.127	0.063	0.071
	NR N66/1RB#1 20M	Back Side	349000	25.98	26.50	1.127	0.183	0.206
	NR N66/1RB#1 20M	Left Side	349000	25.98	26.50	1.127	0.149	0.168
	NR N66/1RB#1 20M	Right Side	349000	25.98	26.50	1.127	0.024	0.027
	NR N66/1RB#1 20M	Top Side	349000	25.98	26.50	1.127	0.027	0.031
	NR N66/50RB#25 20M	Front Side	349000	25.46	26.00	1.132	0.052	0.059
	NR N66/50RB#25 20M	Back Side	349000	25.46	26.00	1.132	0.172	0.195
	NR N66/50RB#25 20M	Left Side	349000	25.46	26.00	1.132	0.126	0.143
	NR N66/50RB#25 20M	Right Side	349000	25.46	26.00	1.132	0.020	0.023
	NR N66/50RB#25 20M	Top Side	349000	25.46	26.00	1.132	0.021	0.024
Ant 7								
	NR N66/1RB#1 20M	Front Side	349000	25.98	26.50	1.127	0.024	0.026
66#	NR N66/1RB#1 20M	Back Side	349000	25.98	26.50	1.127	0.394	0.444
	NR N66/1RB#1 20M	Left Side	349000	25.98	26.50	1.127	0.261	0.294
	NR N66/1RB#1 20M	Right Side	349000	25.98	26.50	1.127	0.128	0.144
	NR N66/1RB#1 20M	Bottom Side	349000	25.98	26.50	1.127	0.024	0.027
	NR N66/50RB#25 20M	Front Side	349000	25.46	26.00	1.132	0.020	0.023
	NR N66/50RB#25 20M	Back Side	349000	25.46	26.00	1.132	0.311	0.352
	NR N66/50RB#25 20M	Left Side	349000	25.46	26.00	1.132	0.210	0.238
	NR N66/50RB#25 20M	Right Side	349000	25.46	26.00	1.132	0.110	0.125
	NR N66/50RB#25 20M	Bottom Side	349000	25.46	26.00	1.132	0.020	0.023
Ant 2								
	NR N71/1RB#1 20M	Front Side	136100	20.96	21.50	1.132	0.225	0.255
	NR N71/1RB#1 20M	Back Side	136100	20.96	21.50	1.132	0.310	0.351
	NR N71/1RB#1 20M	Left Side	136100	20.96	21.50	1.132	0.182	0.206
	NR N71/1RB#1 20M	Right Side	136100	20.96	21.50	1.132	0.043	0.048
	NR N71/1RB#1 20M	Top Side	136100	20.96	21.50	1.132	0.212	0.240



REPORT No.: SZ20100013S01

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)
	NR N71/50RB#25 20M	Front Side	136100	19.94	20.50	1.138	0.135	0.154
	NR N71/50RB#25 20M	Back Side	136100	19.94	20.50	1.138	0.220	0.250
	NR N71/50RB#25 20M	Left Side	136100	19.94	20.50	1.138	0.092	0.105
	NR N71/50RB#25 20M	Right Side	136100	19.94	20.50	1.138	0.026	0.030
	NR N71/50RB#25 20M	Top Side	136100	19.94	20.50	1.138	0.122	0.139
Ant 0								
	NR N71/1RB#1 20M	Front Side	136100	20.96	21.50	1.132	0.026	0.029
67#	NR N71/1RB#1 20M	Back Side	136100	20.96	21.50	1.132	0.361	0.409
	NR N71/1RB#1 20M	Left Side	136100	20.96	21.50	1.132	0.246	0.279
	NR N71/1RB#1 20M	Right Side	136100	20.96	21.50	1.132	0.069	0.078
	NR N71/1RB#1 20M	Bottom Side	136100	20.96	21.50	1.132	0.160	0.181
	NR N71/50RB#25 20M	Front Side	136100	19.94	20.50	1.138	0.022	0.025
	NR N71/50RB#25 20M	Back Side	136100	19.94	20.50	1.138	0.226	0.257
	NR N71/50RB#25 20M	Left Side	136100	19.94	20.50	1.138	0.144	0.164
	NR N71/50RB#25 20M	Right Side	136100	19.94	20.50	1.138	0.052	0.059
	NR N71/50RB#25 20M	Bottom Side	136100	19.94	20.50	1.138	0.144	0.164



➤ WLAN 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)
Ant 5(CH 0)								
	WLAN2.4GHz/802.11b	Front Side	11	16.21	17.00	1.199	0.061	0.073
68#	WLAN2.4GHz/802.11b	Back Side	11	16.21	17.00	1.199	0.134	0.161
	WLAN2.4GHz/802.11b	Left Side	11	16.21	17.00	1.199	0.009	0.011
69#	WLAN2.4GHz/802.11b	Right Side	11	16.21	17.00	1.199	0.172	0.206
	WLAN2.4GHz/802.11b	Top Side	11	16.21	17.00	1.199	0.022	0.026
Ant 3(CH 1)								
	WLAN2.4GHz/802.11b	Front Side	1	17.47	18.00	1.130	0.029	0.033
	WLAN2.4GHz/802.11b	Back Side	1	17.47	18.00	1.130	0.080	0.090
	WLAN2.4GHz/802.11b	Left Side	1	17.47	18.00	1.130	0.016	0.019
	WLAN2.4GHz/802.11b	Right Side	1	17.47	18.00	1.130	0.014	0.015
	WLAN2.4GHz/802.11b	Top Side	1	17.47	18.00	1.130	0.059	0.066
Ant 5(CH 0)								
	WLAN5.2GHz/802.11a	Front Side	48	8.27	9.00	1.183	0.119	0.144
70#	WLAN5.2GHz/802.11a	Back Side	48	8.27	9.00	1.183	0.344	0.415
	WLAN5.2GHz/802.11a	Right Side	48	8.27	9.00	1.183	0.261	0.315
	WLAN5.2GHz/802.11a	Top Side	48	8.27	9.00	1.183	0.117	0.141
Ant 9(CH 1)								
	WLAN5.2GHz/802.11a	Front Side	44	14.80	15.50	1.175	0.082	0.098
	WLAN5.2GHz/802.11a	Back Side	44	14.80	15.50	1.175	0.123	0.147
	WLAN5.2GHz/802.11a	Right Side	44	14.80	15.50	1.175	0.045	0.054
	WLAN5.2GHz/802.11a	Top Side	44	14.80	15.50	1.175	0.120	0.144
Ant 5(CH 0)								
	WLAN5.3GHz/802.11a	Front Side	60	8.26	9.00	1.186	0.113	0.137
71#	WLAN5.3GHz/802.11a	Back Side	60	8.26	9.00	1.186	0.304	0.368
Ant 9(CH 1)								
	WLAN5.3GHz/802.11a	Front Side	52	14.62	15.00	1.091	0.085	0.095
	WLAN5.3GHz/802.11a	Back Side	52	14.62	15.00	1.091	0.116	0.129
Ant 5(CH 0)								
	WLAN5.5GHz/802.11a	Front Side	144	8.27	9.00	1.183	0.093	0.113
72#	WLAN5.5GHz/802.11a	Back Side	144	8.27	9.00	1.183	0.387	0.467
Ant 9(CH 1)								
	WLAN5.5GHz/802.11a	Right Side	100	13.91	14.50	1.146	0.084	0.098
	WLAN5.5GHz/802.11a	Top Side	100	13.91	14.50	1.146	0.311	0.363



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)
Ant 5(CH 0)								
	WLAN5.8GHz/802.11a	Front Side	165	8.28	9.00	1.180	0.106	0.128
73#	WLAN5.8GHz/802.11a	Back Side	165	8.28	9.00	1.180	0.300	0.361
74#	WLAN5.8GHz/802.11a	Right Side	165	8.28	9.00	1.180	0.333	0.401
	WLAN5.8GHz/802.11a	Top Side	165	8.28	9.00	1.180	0.169	0.203
Ant 9(CH 1)								
	WLAN5.8GHz/802.11a	Front Side	149	13.47	14.00	1.130	0.062	0.071
	WLAN5.8GHz/802.11a	Back Side	149	13.47	14.00	1.130	0.205	0.236
	WLAN5.8GHz/802.11a	Right Side	149	13.47	14.00	1.130	0.047	0.054
	WLAN5.8GHz/802.11a	Top Side	149	13.47	14.00	1.130	0.135	0.156

Note:

The WLAN Reported 1g SAR (W/kg) has been calculated together with the duty cycle scaling factor 1.0 for 2.4G WLAN and 1.042 for 5GHz WLAN.

➤ **Bluetooth Body SAR**

When standalone SAR is not required to be measured, per FCC KDB 447498 D01v06 4.3.2), the following equation must be used to estimate the standalone 1g SAR.

$$\text{Estimated SAR} = \frac{\sqrt{f(\text{GHz})}}{7.5} \cdot \frac{\text{Max. power of channel, mW}}{\text{Min. Separation Distance, mm}}$$

Channel	Frequency (GHz)	Max. Tune-up Power (dBm)	Max. Power(mW)	Test Distance (mm)	Result	Exclusion Thresholds for 1-g SAR
CH 78	2.48	12.5	17.78	10	2.8	3.0

Mode	Max. Tune-up Power (dBm)	Exposure Position	Body
		Test Distance (mm)	10
Bluetooth	12.5	Estimated SAR (W/kg)	0.373

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)
	Bluetooth/1Mbps	Front Side	78	11.91	12.50	1.146	0.373	0.453
	Bluetooth/1Mbps	Back Side	78	11.91	12.50	1.146	0.373	0.453
	Bluetooth/1Mbps	Right Side	78	11.91	12.50	1.146	0.373	0.453
	Bluetooth/1Mbps	Top Side	78	11.91	12.50	1.146	0.373	0.453

Note: The duty cycle factor of 1.06 should be used to calculating the reported SAR.



18.4. Repeated SAR Assessment

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 ($\sim 10\%$ 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 .



18.5. Extremity SAR Assessment

Guidance:

1. According to KDB 648747 D04v01r03 The UMPC mini-tablet procedures must also be applied to test the SAR of all surfaces and edges with an antenna located at ≤ 25 mm from that surface or edge, in direct contact with a flat phantom, for 10-g extremity SAR according to the body-equivalent tissue dielectric parameters in KDB Publication 865664 D01 to address interactive hand use exposure conditions.
2. When hotspot mode applies, 10-g extremity SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg.
3. According to the user manual, the EUT diagonal size is greater than 16cm, therefore the 0mm extremity SAR of WLAN 5GHz is required. There are two types of antennas in this device, only the worst antenna was tested the extremity SAR in this report.
4. Test results as below:

Plot No.	Band/Mode	Test Position	CH.	Ave. Power (dBm)	Tune-up Limit (dBm)	Tune-up Scaling Factor	Meas. SAR _{10g} (W/kg)	Reported SAR _{10g} (W/kg)
Ant 9 (CH0)								
	WLAN5.3GHz/802.11a	Front Side	60	8.26	9.00	1.186	0.313	0.379
75#	WLAN5.3GHz/802.11a	Back Side	60	8.26	9.00	1.186	0.646	0.781
Ant 5 (CH1)								
	WLAN5.3GHz/802.11a	Front Side	52	14.62	15.00	1.091	0.165	0.184
	WLAN5.3GHz/802.11a	Back Side	52	14.62	15.00	1.091	0.558	0.621
Ant 9 (CH0)								
	WLAN5.5GHz/802.11a	Front Side	144	8.27	9.00	1.183	0.208	0.251
76#	WLAN5.5GHz/802.11a	Back Side	144	8.27	9.00	1.183	0.760	0.917
Ant 5 (CH1)								
	WLAN5.5GHz/802.11a	Front Side	100	13.91	14.50	1.146	0.168	0.196
	WLAN5.5GHz/802.11a	Back Side	100	13.91	14.50	1.146	0.522	0.610

19. Simultaneous Transmission Evaluation

19.1. Simultaneous Transmission Consideration

No.	Simultaneous Transmission Consideration	Head	Body-Worn	Hotspot
1	WWAN(2G/3G/4G)+WLAN 2.4GHz(Ant 3/Ant 5)	Yes	Yes	Yes
2	WWAN(2G/3G/4G)+WLAN 5.2GHz/5.8GHz(Ant 5/Ant 9)	Yes	Yes	Yes
3	WWAN(2G/3G/4G)+WLAN 5.3GHz/5.5GHz(Ant 5/Ant 9)	Yes	Yes	No
4	WWAN 5G NR(NSA)+WLAN 2.4GHz(Ant 3/Ant 5)	Yes	Yes	Yes
5	WWAN 5G NR(NSA)+WLAN 5.2GHz/5.8GHz(Ant 5/Ant 9)	Yes	Yes	Yes
6	WWAN 5G NR(NSA)+WLAN 5.3GHz/5.5GHz(Ant 5/Ant 9)	Yes	Yes	No
7	WWAN(2G/3G/4G)+Bluetooth(Ant 5)	Yes	Yes	Yes
8	WWAN 5G NR(NSA)+ Bluetooth(Ant 5)	Yes	Yes	Yes
9	WLAN 2.4GHz(Ant 3)+Bluetooth(Ant 5)	Yes	Yes	No
10	WLAN 5.2GHz/5.8GHz(Ant 9)+Bluetooth(Ant 5)	Yes	Yes	No
11	WLAN 5.3GHz/5.5GHz(Ant 9)+Bluetooth(Ant 5)	Yes	Yes	No
12	WWAN(2G/3G/4G)+WLAN 2.4GHz(MIMO)	Yes	Yes	Yes
13	WWAN(2G/3G/4G)+WLAN 5GHz(MIMO)	Yes	Yes	Yes
14	WWAN 5G NR(NSA)+WLAN 2.4GHz(MIMO)	Yes	Yes	Yes
15	WWAN 5G NR(NSA)+WLAN 5GHz(MIMO)	Yes	Yes	Yes
16	WLAN 2.4GHz(Ant 3)+WLAN 5GHz(Ant 5)	Yes	Yes	Yes
17	WLAN 2.4GHz(Ant 3)+WLAN 5GHz(Ant 9)	Yes	Yes	Yes
18	WLAN 2.4GHz(Ant 5)+WLAN 5GHz(Ant 9)	Yes	Yes	Yes

Note:

- 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.
- 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.
- Simultaneous Transmission SAR evaluation is not required for BT and WLAN, because the software mechanism have been incorporated to guarantee that the WLAN and Bluetooth transmitters would not simultaneously operate.
- 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: $(SAR1 + SAR2) \wedge 1.5/Ri \leq 0.04$,

Ri is the separation distance between the peak SAR locations for the antenna pair in mm.

5. 2.4G&5G MIMO SAR were combined standalone SAR of CH0 and CH1.
6. When it supports transmit simultaneously at WWAN+WLAN MIMO mode, the co-location SAR of WWAN+WLAN (standalone SAR) would not be recorded in this report.
7. For LTE inter-band CA uplink & EN-DC analysis, the maximum reported SAR of the antenna 0 or antenna 2 for low frequency bands and antenna 7 or antenna 8 for high frequency bands would be calculating separately.



19.2. Simultaneous Transmission Analysis

➤ Head Data for LTE Inter-band CA Uplink Combination

Carrier Component	Exposure Position	Standalone 1g SAR (W/kg)		Summed 1g SAR (W/kg)
		PCC	SCC	
CA_2A-4A	Right Cheek	0.282	0.314	0.596
	Right Tilt	0.117	0.066	0.183
	Left Cheek	0.242	0.133	0.375
	Left Tilt	0.030	0.071	0.101
CA_2A-5A	Right Cheek	0.282	0.669	0.951
	Right Tilt	0.117	0.602	0.719
	Left Cheek	0.242	0.362	0.604
	Left Tilt	0.030	0.271	0.302
CA_2A-12A	Right Cheek	0.282	0.149	0.431
	Right Tilt	0.117	0.131	0.248
	Left Cheek	0.242	0.098	0.340
	Left Tilt	0.030	0.079	0.109
CA_2A-13A	Right Cheek	0.282	0.154	0.436
	Right Tilt	0.117	0.274	0.391
	Left Cheek	0.242	0.093	0.335
	Left Tilt	0.030	0.056	0.086
CA_4A-5A	Right Cheek	0.314	0.669	0.983
	Right Tilt	0.066	0.602	0.668
	Left Cheek	0.133	0.362	0.495
	Left Tilt	0.071	0.271	0.342
CA_4A-12A	Right Cheek	0.314	0.149	0.463
	Right Tilt	0.066	0.131	0.197
	Left Cheek	0.133	0.098	0.231
	Left Tilt	0.071	0.079	0.150
CA_4A-13A	Right Cheek	0.314	0.154	0.468
	Right Tilt	0.066	0.274	0.340
	Left Cheek	0.133	0.093	0.226
	Left Tilt	0.071	0.016	0.087
CA_5A-66A	Right Cheek	0.669	0.195	0.864
	Right Tilt	0.602	0.096	0.698
	Left Cheek	0.362	0.182	0.544
	Left Tilt	0.271	0.049	0.320



Carrier Component	Exposure Position	Standalone 1g SAR (W/kg)		Summed 1g SAR (W/kg)
		PCC	SCC	
CA_12A-66A	Right Cheek	0.149	0.195	0.344
	Right Tilt	0.131	0.096	0.227
	Left Cheek	0.098	0.182	0.280
	Left Tilt	0.079	0.049	0.128
CA_13A-66A	Right Cheek	0.154	0.195	0.349
	Right Tilt	0.274	0.096	0.370
	Left Cheek	0.093	0.182	0.275
	Left Tilt	0.056	0.049	0.105

➤ Head Data for EN-DC Combination

EN-DC Combination	Exposure Position	Standalone 1g SAR (W/kg)		EN-DC Summed 1g SAR (W/kg)
		LTE Carrier	5G NR	
EN-DC_5A-N2	Right Cheek	0.669	0.337	1.006
	Right Tilt	0.602	0.183	0.785
	Left Cheek	0.362	0.131	0.493
	Left Tilt	0.271	0.125	0.396
EN-DC_12A-N2	Right Cheek	0.149	0.581	0.73
	Right Tilt	0.131	0.077	0.208
	Left Cheek	0.098	0.238	0.336
	Left Tilt	0.079	0.059	0.138
EN-DC_13-N2	Right Cheek	0.154	0.581	0.735
	Right Tilt	0.274	0.077	0.351
	Left Cheek	0.093	0.238	0.331
	Left Tilt	0.016	0.059	0.075
EN-DC_66A-N2	Right Cheek	0.195	0.581	0.776
	Right Tilt	0.096	0.077	0.173
	Left Cheek	0.182	0.238	0.42
	Left Tilt	0.049	0.059	0.108
EN-DC_2A-N5	Right Cheek	0.282	0.337	0.619
	Right Tilt	0.117	0.183	0.3
	Left Cheek	0.242	0.131	0.373
	Left Tilt	0.030	0.125	0.155
EN-DC_66A-N5	Right Cheek	0.195	0.337	0.532
	Right Tilt	0.096	0.183	0.279
	Left Cheek	0.182	0.131	0.313
	Left Tilt	0.049	0.125	0.174



EN-DC Combination	Exposure Position	Standalone 1g SAR (W/kg)		EN-DC Summed 1g SAR (W/kg)
		LTE Carrier	5G NR	
EN-DC_12A-N25	Right Cheek	0.149	0.466	0.615
	Right Tilt	0.131	0.064	0.195
	Left Cheek	0.098	0.412	0.510
	Left Tilt	0.079	0.048	0.127
EN-DC_66A-N25	Right Cheek	0.195	0.466	0.661
	Right Tilt	0.096	0.064	0.160
	Left Cheek	0.182	0.412	0.594
	Left Tilt	0.049	0.048	0.097
EN-DC_2A-N41	Right Cheek	0.282	0.380	0.662
	Right Tilt	0.117	0.317	0.434
	Left Cheek	0.242	0.526	0.768
	Left Tilt	0.030	0.503	0.533
EN-DC_25A-N41	Right Cheek	0.152	0.380	0.532
	Right Tilt	0.025	0.317	0.342
	Left Cheek	0.187	0.526	0.713
	Left Tilt	0.021	0.503	0.524
EN-DC_26A-N41	Right Cheek	0.509	0.380	0.889
	Right Tilt	0.416	0.317	0.733
	Left Cheek	0.223	0.526	0.749
	Left Tilt	0.176	0.503	0.679
EN-DC_66A-N41	Right Cheek	0.195	0.380	0.575
	Right Tilt	0.096	0.317	0.413
	Left Cheek	0.182	0.526	0.708
	Left Tilt	0.049	0.503	0.552
EN-DC_2A-N66	Right Cheek	0.282	0.392	0.674
	Right Tilt	0.117	0.043	0.160
	Left Cheek	0.242	0.271	0.513
	Left Tilt	0.030	0.099	0.129
EN-DC_5A-N66	Right Cheek	0.669	0.392	1.061
	Right Tilt	0.602	0.043	0.645
	Left Cheek	0.362	0.271	0.633
	Left Tilt	0.271	0.099	0.370
EN-DC_12A-N66	Right Cheek	0.149	0.392	0.541
	Right Tilt	0.131	0.043	0.174
	Left Cheek	0.098	0.271	0.369
	Left Tilt	0.079	0.099	0.178



EN-DC Combination	Exposure Position	Standalone 1g SAR (W/kg)		EN-DC Summed 1g SAR (W/kg)
		LTE Carrier	5G NR	
EN-DC_13A-N66	Right Cheek	0.154	0.392	0.546
	Right Tilt	0.274	0.043	0.317
	Left Cheek	0.093	0.271	0.364
	Left Tilt	0.016	0.099	0.115
EN-DC_71A-N66	Right Cheek	0.443	0.392	0.835
	Right Tilt	0.641	0.043	0.684
	Left Cheek	0.403	0.271	0.674
	Left Tilt	0.335	0.099	0.434
EN-DC_2A-N71	Right Cheek	0.282	0.293	0.575
	Right Tilt	0.117	0.236	0.353
	Left Cheek	0.242	0.132	0.374
	Left Tilt	0.030	0.090	0.120
EN-DC_66A-N71	Right Cheek	0.195	0.293	0.488
	Right Tilt	0.096	0.236	0.332
	Left Cheek	0.182	0.132	0.314
	Left Tilt	0.049	0.090	0.139

➤ **Head Data for WLAN MIMO for 2.4GHz & 5GHz**

Exposure Position	1	2	3	4	1+2 Summed 1g SAR (W/kg)	3+4 Summed 1g SAR (W/kg)
	2.4GHz WLAN CH 0	2.4GHz WLAN CH 1	5GHz WLAN CH 0	5GHz WLAN CH 1		
	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)		
Right Cheek	0.157	0.12	0.17	0.388	0.277	0.558
Right Tilt	0.092	0.098	0.176	0.483	0.19	0.659
Left Cheek	0.481	0.13	0.265	0.425	0.611	0.69
Left Tilt	0.137	0.129	0.18	0.407	0.266	0.587



➤ Head Simultaneous Transmission for WWAN(2/3/4G)+WLAN MIMO

WWAN Band	Exposure Position	1	2	3	1+2 Summed 1g SAR (W/kg)	1+3 Summed 1g SAR (W/kg)
		WWAN	2.4GHz WLAN	5GHz WLAN		
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)		
GSM 850	Right Cheek	0.541	0.277	0.558	0.818	1.099
	Right Tilt	0.579	0.19	0.659	0.769	1.238
	Left Cheek	0.318	0.611	0.69	0.929	1.008
	Left Tilt	0.233	0.266	0.587	0.499	0.82
GSM 1900	Right Cheek	0.392	0.277	0.558	0.669	0.95
	Right Tilt	0.101	0.19	0.659	0.291	0.76
	Left Cheek	0.177	0.611	0.69	0.788	0.867
	Left Tilt	0.106	0.266	0.587	0.372	0.693
WCDMA II	Right Cheek	0.275	0.277	0.558	0.552	0.833
	Right Tilt	0.027	0.19	0.659	0.217	0.686
	Left Cheek	0.247	0.611	0.69	0.858	0.937
	Left Tilt	0.034	0.266	0.587	0.3	0.621
WCDMA IV	Right Cheek	0.549	0.277	0.558	0.826	1.107
	Right Tilt	0.196	0.19	0.659	0.386	0.855
	Left Cheek	0.184	0.611	0.69	0.795	0.874
	Left Tilt	0.083	0.266	0.587	0.349	0.67
WCDMA V	Right Cheek	0.499	0.277	0.558	0.776	1.057
	Right Tilt	0.310	0.19	0.659	0.5	0.969
	Left Cheek	0.129	0.611	0.69	0.74	0.819
	Left Tilt	0.039	0.266	0.587	0.305	0.626
LTE Band 2	Right Cheek	0.282	0.277	0.558	0.559	0.84
	Right Tilt	0.117	0.19	0.659	0.307	0.776
	Left Cheek	0.242	0.611	0.69	0.853	0.932
	Left Tilt	0.030	0.266	0.587	0.296	0.617
LTE Band 4	Right Cheek	0.314	0.277	0.558	0.591	0.872
	Right Tilt	0.066	0.19	0.659	0.256	0.725
	Left Cheek	0.133	0.611	0.69	0.744	0.823
	Left Tilt	0.071	0.266	0.587	0.337	0.658
LTE Band 5	Right Cheek	0.669	0.277	0.558	0.946	1.227
	Right Tilt	0.602	0.19	0.659	0.792	1.261
	Left Cheek	0.362	0.611	0.69	0.973	1.052
	Left Tilt	0.271	0.266	0.587	0.537	0.858
LTE Band 12/17	Right Cheek	0.149	0.277	0.558	0.426	0.707
	Right Tilt	0.131	0.19	0.659	0.321	0.79
	Left Cheek	0.098	0.611	0.69	0.709	0.788
	Left Tilt	0.079	0.266	0.587	0.345	0.666



WWAN Band	Exposure Position	1	2	3	1+2 Summed 1g SAR (W/kg)	1+3 Summed 1g SAR (W/kg)
		WWAN	2.4GHz WLAN	5GHz WLAN		
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)		
LTE Band 13	Right Cheek	0.154	0.277	0.558	0.431	0.712
	Right Tilt	0.274	0.19	0.659	0.464	0.933
	Left Cheek	0.093	0.611	0.69	0.704	0.783
	Left Tilt	0.104	0.266	0.587	0.37	0.691
LTE Band 25	Right Cheek	0.152	0.277	0.558	0.429	0.71
	Right Tilt	0.035	0.19	0.659	0.225	0.694
	Left Cheek	0.228	0.611	0.69	0.839	0.918
	Left Tilt	0.070	0.266	0.587	0.336	0.657
LTE Band 26	Right Cheek	0.509	0.277	0.558	0.786	1.067
	Right Tilt	0.416	0.19	0.659	0.606	1.075
	Left Cheek	0.223	0.611	0.69	0.834	0.913
	Left Tilt	0.176	0.266	0.587	0.442	0.763
LTE Band 41	Right Cheek	0.629	0.277	0.558	0.906	1.187
	Right Tilt	0.466	0.19	0.659	0.656	1.125
	Left Cheek	0.329	0.611	0.69	0.94	1.019
	Left Tilt	0.220	0.266	0.587	0.486	0.807
LTE Band 66	Right Cheek	0.195	0.277	0.558	0.472	0.753
	Right Tilt	0.096	0.19	0.659	0.286	0.755
	Left Cheek	0.182	0.611	0.69	0.793	0.872
	Left Tilt	0.049	0.266	0.587	0.315	0.636
LTE Band 71	Right Cheek	0.443	0.277	0.558	0.72	1.001
	Right Tilt	0.641	0.19	0.659	0.831	1.3
	Left Cheek	0.403	0.611	0.69	1.014	1.093
	Left Tilt	0.335	0.266	0.587	0.601	0.922

➤ Head Simultaneous Transmission for WWAN(EN-DC)+WLAN MIMO



WWAN Band	Exposure Position	1	2	3	1+2 Summed 1g SAR (W/kg)	1+3 Summed 1g SAR (W/kg)
		WWAN	2.4GHz WLAN	5GHz WLAN		
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)		
5A-N2	Right Cheek	1.006	0.277	0.558	1.283	1.564
	Right Tilt	0.785	0.19	0.659	0.975	1.444
	Left Cheek	0.493	0.611	0.69	1.104	1.183
	Left Tilt	0.396	0.266	0.587	0.662	0.983
12A-N2	Right Cheek	0.73	0.277	0.558	1.007	1.288
	Right Tilt	0.208	0.19	0.659	0.398	0.867
	Left Cheek	0.336	0.611	0.69	0.947	1.026
	Left Tilt	0.138	0.266	0.587	0.404	0.725
13-N2	Right Cheek	0.735	0.277	0.558	1.012	1.293
	Right Tilt	0.351	0.19	0.659	0.541	1.01
	Left Cheek	0.331	0.611	0.69	0.942	1.021
	Left Tilt	0.075	0.266	0.587	0.341	0.662
66A-N2	Right Cheek	0.776	0.277	0.558	1.053	1.334
	Right Tilt	0.173	0.19	0.659	0.363	0.832
	Left Cheek	0.42	0.611	0.69	1.031	1.11
	Left Tilt	0.108	0.266	0.587	0.374	0.695
2A-N5	Right Cheek	0.619	0.277	0.558	0.896	1.177
	Right Tilt	0.3	0.19	0.659	0.49	0.959
	Left Cheek	0.373	0.611	0.69	0.984	1.063
	Left Tilt	0.155	0.266	0.587	0.421	0.742
66A-N5	Right Cheek	0.532	0.277	0.558	0.809	1.09
	Right Tilt	0.279	0.19	0.659	0.469	0.938
	Left Cheek	0.313	0.611	0.69	0.924	1.003
	Left Tilt	0.174	0.266	0.587	0.44	0.761
12A-N25	Right Cheek	0.615	0.277	0.558	0.892	1.173
	Right Tilt	0.195	0.19	0.659	0.385	0.854
	Left Cheek	0.51	0.611	0.69	1.121	1.2
	Left Tilt	0.127	0.266	0.587	0.393	0.714
66A-N25	Right Cheek	0.661	0.277	0.558	0.938	1.219
	Right Tilt	0.16	0.19	0.659	0.35	0.819
	Left Cheek	0.594	0.611	0.69	1.205	1.284
	Left Tilt	0.097	0.266	0.587	0.363	0.684
2A-N41	Right Cheek	0.662	0.277	0.558	0.939	1.22
	Right Tilt	0.434	0.19	0.659	0.624	1.093
	Left Cheek	0.768	0.611	0.69	1.379	1.458
	Left Tilt	0.533	0.266	0.587	0.799	1.12



WWAN Band	Exposure Position	1	2	3	1+2 Summed 1g SAR (W/kg)	1+3 Summed 1g SAR (W/kg)
		WWAN	2.4GHz WLAN	5GHz WLAN		
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)		
25A-N41	Right Cheek	0.532	0.277	0.558	0.809	1.09
	Right Tilt	0.342	0.19	0.659	0.532	1.001
	Left Cheek	0.713	0.611	0.69	1.324	1.403
	Left Tilt	0.524	0.266	0.587	0.79	1.111
26A-N41	Right Cheek	0.889	0.277	0.558	1.166	1.447
	Right Tilt	0.733	0.19	0.659	0.923	1.392
	Left Cheek	0.749	0.611	0.69	1.36	1.439
	Left Tilt	0.679	0.266	0.587	0.945	1.266
66A-N41	Right Cheek	0.575	0.277	0.558	0.852	1.133
	Right Tilt	0.413	0.19	0.659	0.603	1.072
	Left Cheek	0.708	0.611	0.69	1.319	1.398
	Left Tilt	0.552	0.266	0.587	0.818	1.139
2A-N66	Right Cheek	0.674	0.277	0.558	0.951	1.232
	Right Tilt	0.16	0.19	0.659	0.35	0.819
	Left Cheek	0.513	0.611	0.69	1.124	1.203
	Left Tilt	0.129	0.266	0.587	0.395	0.716
5A-N66	Right Cheek	1.031	0.277	0.558	1.308	1.589
	Right Tilt	0.645	0.19	0.659	0.835	1.304
	Left Cheek	0.633	0.611	0.69	1.244	1.323
	Left Tilt	0.37	0.266	0.587	0.636	0.957
12A-N66	Right Cheek	0.541	0.277	0.558	0.818	1.099
	Right Tilt	0.174	0.19	0.659	0.364	0.833
	Left Cheek	0.369	0.611	0.69	0.98	1.059
	Left Tilt	0.178	0.266	0.587	0.444	0.765
13A-N66	Right Cheek	0.546	0.277	0.558	0.823	1.104
	Right Tilt	0.317	0.19	0.659	0.507	0.976
	Left Cheek	0.364	0.611	0.69	0.975	1.054
	Left Tilt	0.115	0.266	0.587	0.381	0.702
71A-N66	Right Cheek	0.835	0.277	0.558	1.112	1.393
	Right Tilt	0.684	0.19	0.659	0.874	1.343
	Left Cheek	0.674	0.611	0.69	1.285	1.364
	Left Tilt	0.434	0.266	0.587	0.7	1.021
2A-N71	Right Cheek	0.575	0.277	0.558	0.852	1.133
	Right Tilt	0.353	0.19	0.659	0.543	1.012
	Left Cheek	0.374	0.611	0.69	0.985	1.064
	Left Tilt	0.12	0.266	0.587	0.386	0.707



WWAN Band	Exposure Position	1	2	3	1+2 Summed 1g SAR (W/kg)	1+3 Summed 1g SAR (W/kg)
		WWAN	2.4GHz WLAN	5GHz WLAN		
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)		
66A-N71	Right Cheek	0.488	0.277	0.558	0.765	1.046
	Right Tilt	0.332	0.19	0.659	0.522	0.991
	Left Cheek	0.314	0.611	0.69	0.925	1.004
	Left Tilt	0.139	0.266	0.587	0.405	0.726

➤ **Body Data for WLAN MIMO**

Exposure Position	1	2	3	4	1+2 Summed 1g SAR (W/kg)	3+4 Summed 1g SAR (W/kg)
	2.4GHz WLAN CH 0	2.4GHz WLAN CH 1	5GHz WLAN CH 0	5GHz WLAN CH 1		
	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)		
Front Side	0.073	0.033	0.144	0.098	0.106	0.242
Back Side	0.161	0.090	0.467	0.363	0.251	0.83
Left Side	0.011	0.019	0.000	0.000	0.03	0.000
Right Side	0.206	0.015	0.401	0.054	0.221	0.455
Top Side	0.026	0.066	0.203	0.156	0.092	0.359
Bottom Side	0.000	0.000	0.000	0.000	0.000	0.03

➤ **Body Data for LTE Inter-band CA Uplink**

Carrier Component	Exposure Position	Standalone 1g SAR (W/kg)		Summed 1g SAR (W/kg)
		PCC	SCC	
CA_2A-4A	Front Side	0.471	0.090	0.561
	Back Side	0.485	0.237	0.722
	Left Side	0.197	0.336	0.533
	Right Side	0.054	0.039	0.093
	Top Side	0.032	0.037	0.069
	Bottom Side	0.491	0.188	0.679
CA_2A-5A	Front Side	0.471	0.174	0.645
	Back Side	0.485	0.356	0.841
	Left Side	0.197	0.278	0.475
	Right Side	0.054	0.063	0.117
	Top Side	0.032	0.293	0.325
	Bottom Side	0.491	0.081	0.572
CA_2A-12A	Front Side	0.471	0.119	0.59
	Back Side	0.485	0.158	0.643
	Left Side	0.197	0.058	0.255
	Right Side	0.054	0.080	0.134
	Top Side	0.032	0.041	0.073
	Bottom Side	0.491	0.162	0.653



Carrier Component	Exposure Position	Standalone 1g SAR (W/kg)		Summed 1g SAR (W/kg)
		PCC	SCC	
CA_2A-13A	Front Side	0.471	0.135	0.606
	Back Side	0.485	0.183	0.668
	Left Side	0.197	0.098	0.295
	Right Side	0.054	0.027	0.081
	Top Side	0.032	0.066	0.098
	Bottom Side	0.491	0.316	0.807
CA_4A-5A	Front Side	0.090	0.174	0.264
	Back Side	0.237	0.356	0.593
	Left Side	0.336	0.278	0.614
	Right Side	0.039	0.063	0.102
	Top Side	0.037	0.293	0.33
	Bottom Side	0.188	0.081	0.269
CA_4A-12A	Front Side	0.090	0.119	0.209
	Back Side	0.237	0.158	0.395
	Left Side	0.336	0.058	0.394
	Right Side	0.039	0.080	0.119
	Top Side	0.037	0.041	0.078
	Bottom Side	0.188	0.162	0.35
CA_4A-13A	Front Side	0.090	0.135	0.225
	Back Side	0.237	0.183	0.42
	Left Side	0.336	0.098	0.434
	Right Side	0.039	0.027	0.066
	Top Side	0.037	0.066	0.103
	Bottom Side	0.188	0.316	0.504
CA_5A-66A	Front Side	0.174	0.104	0.278
	Back Side	0.356	0.146	0.502
	Left Side	0.278	0.332	0.61
	Right Side	0.063	0.044	0.107
	Top Side	0.293	0.029	0.322
	Bottom Side	0.081	0.220	0.301
CA_12A-66A	Front Side	0.119	0.104	0.223
	Back Side	0.158	0.146	0.304
	Left Side	0.058	0.332	0.39
	Right Side	0.080	0.044	0.124
	Top Side	0.041	0.029	0.07
	Bottom Side	0.162	0.220	0.382
CA_13A-66A	Front Side	0.135	0.104	0.239
	Back Side	0.183	0.146	0.329



	Left Side	0.098	0.332	0.43
	Right Side	0.027	0.044	0.071
	Top Side	0.066	0.029	0.095
	Bottom Side	0.316	0.220	0.536

➤ **Body Data for EN-DC Combination**

EN-DC Combination	Exposure Position	Standalone 1g SAR (W/kg)		Summed 1g SAR (W/kg)
		LTE Carrier	5G NR	
5A-N2	Front Side	0.471	0.294	0.765
	Back Side	0.485	0.459	0.944
	Left Side	0.197	0.202	0.399
	Right Side	0.054	0.117	0.171
	Top Side	0.032	0.031	0.063
	Bottom Side	0.491	0.564	1.055
12A-N2	Front Side	0.119	0.294	0.413
	Back Side	0.158	0.459	0.617
	Left Side	0.058	0.202	0.26
	Right Side	0.080	0.117	0.197
	Top Side	0.041	0.031	0.072
	Bottom Side	0.162	0.564	0.726
13A-N2	Front Side	0.135	0.294	0.429
	Back Side	0.183	0.459	0.642
	Left Side	0.098	0.202	0.3
	Right Side	0.027	0.117	0.144
	Top Side	0.066	0.031	0.097
	Bottom Side	0.316	0.564	0.88
66A-N2	Front Side	0.104	0.294	0.398
	Back Side	0.146	0.459	0.605
	Left Side	0.332	0.202	0.534
	Right Side	0.044	0.117	0.161
	Top Side	0.029	0.031	0.06
	Bottom Side	0.220	0.564	0.784
2A-N5	Front Side	0.471	0.116	0.587
	Back Side	0.485	0.176	0.661
	Left Side	0.197	0.068	0.265
	Right Side	0.054	0.040	0.094
	Top Side	0.032	0.130	0.162
	Bottom Side	0.491	0.092	0.583



EN-DC Combination	Exposure Position	Standalone 1g SAR (W/kg)		Summed 1g SAR (W/kg)
		LTE Carrier	5G NR	
66A-N5	Front Side	0.104	0.116	0.22
	Back Side	0.146	0.176	0.322
	Left Side	0.332	0.068	0.4
	Right Side	0.044	0.040	0.084
	Top Side	0.029	0.130	0.159
	Bottom Side	0.220	0.092	0.312
12A-N25	Front Side	0.119	0.175	0.294
	Back Side	0.158	0.303	0.461
	Left Side	0.058	0.259	0.317
	Right Side	0.080	0.042	0.122
	Top Side	0.041	0.053	0.094
	Bottom Side	0.162	0.678	0.84
66A-N25	Front Side	0.104	0.175	0.279
	Back Side	0.146	0.303	0.449
	Left Side	0.332	0.259	0.591
	Right Side	0.044	0.042	0.086
	Top Side	0.029	0.053	0.082
	Bottom Side	0.220	0.678	0.898
2A-N41	Front Side	0.471	0.247	0.718
	Back Side	0.485	0.533	1.018
	Left Side	0.197	0.327	0.524
	Right Side	0.054	0.041	0.095
	Top Side	0.032	0.054	0.086
	Bottom Side	0.491	0.079	0.57
25A-N41	Front Side	0.172	0.247	0.419
	Back Side	0.308	0.533	0.841
	Left Side	0.049	0.327	0.376
	Right Side	0.256	0.041	0.297
	Top Side	0.017	0.054	0.071
	Bottom Side	0.629	0.079	0.708
26A-N41	Front Side	0.264	0.247	0.511
	Back Side	0.431	0.533	0.964
	Left Side	0.344	0.327	0.671
	Right Side	0.051	0.041	0.092
	Top Side	0.022	0.054	0.076
	Bottom Side	0.204	0.079	0.283



EN-DC Combination	Exposure Position	Standalone 1g SAR (W/kg)		Summed 1g SAR (W/kg)
		LTE Carrier	5G NR	
66A-N41	Front Side	0.104	0.247	0.351
	Back Side	0.146	0.533	0.679
	Left Side	0.332	0.327	0.659
	Right Side	0.044	0.041	0.085
	Top Side	0.029	0.054	0.083
	Bottom Side	0.220	0.079	0.299
2A-N66	Front Side	0.471	0.071	0.542
	Back Side	0.485	0.444	0.929
	Left Side	0.197	0.294	0.491
	Right Side	0.054	0.144	0.198
	Top Side	0.032	0.031	0.063
	Bottom Side	0.491	0.027	0.518
5A-N66	Front Side	0.471	0.071	0.542
	Back Side	0.485	0.444	0.929
	Left Side	0.197	0.294	0.491
	Right Side	0.054	0.144	0.198
	Top Side	0.032	0.031	0.063
	Bottom Side	0.491	0.027	0.518
12A-N66	Front Side	0.119	0.071	0.19
	Back Side	0.158	0.444	0.602
	Left Side	0.058	0.294	0.352
	Right Side	0.080	0.144	0.224
	Top Side	0.041	0.031	0.072
	Bottom Side	0.162	0.027	0.189
13A-N66	Front Side	0.135	0.071	0.206
	Back Side	0.183	0.444	0.627
	Left Side	0.098	0.294	0.392
	Right Side	0.027	0.144	0.171
	Top Side	0.066	0.031	0.097
	Bottom Side	0.316	0.027	0.343
71A-N66	Front Side	0.229	0.071	0.3
	Back Side	0.339	0.444	0.783
	Left Side	0.141	0.294	0.435
	Right Side	0.295	0.144	0.439
	Top Side	0.253	0.031	0.284
	Bottom Side	0.197	0.027	0.224



EN-DC Combination	Exposure Position	Standalone 1g SAR (W/kg)		Summed 1g SAR (W/kg)
		LTE Carrier	5G NR	
2A-N71	Front Side	0.471	0.255	0.726
	Back Side	0.485	0.409	0.894
	Left Side	0.197	0.279	0.476
	Right Side	0.054	0.078	0.132
	Top Side	0.032	0.240	0.272
	Bottom Side	0.491	0.181	0.672
66A-N71	Front Side	0.104	0.255	0.359
	Back Side	0.146	0.409	0.555
	Left Side	0.332	0.279	0.611
	Right Side	0.044	0.078	0.122
	Top Side	0.029	0.240	0.269
	Bottom Side	0.220	0.181	0.401

➤ **Body Simultaneous Transmission for WWAN(2/3/4G)+WLAN MIMO**

WWAN Band	Exposure Position	1	2	3	1+2 Summed 1g SAR (W/kg)	1+3 Summed 1g SAR (W/kg)
		WWAN	2.4GHz WLAN	5GHz WLAN		
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)		
GSM 850	Front Side	0.224	0.106	0.242	0.330	0.466
	Back Side	0.335	0.251	0.83	0.586	1.165
	Left Side	0.157	0.03	0.000	0.187	0.157
	Right Side	0.054	0.221	0.455	0.275	0.509
	Top Side	0.216	0.092	0.359	0.308	0.575
	Bottom Side	0.079	0.000	0.03	0.079	0.079
GSM 1900	Front Side	0.190	0.106	0.242	0.296	0.432
	Back Side	0.379	0.251	0.83	0.630	1.209
	Left Side	0.359	0.03	0.000	0.389	0.359
	Right Side	0.031	0.221	0.455	0.252	0.486
	Top Side	0.013	0.092	0.359	0.105	0.372
	Bottom Side	0.620	0.000	0.03	0.620	0.620
WCDMA II	Front Side	0.124	0.106	0.242	0.230	0.366
	Back Side	0.372	0.251	0.83	0.623	1.202
	Left Side	0.334	0.03	0.000	0.364	0.334
	Right Side	0.031	0.221	0.455	0.252	0.486
	Top Side	0.015	0.092	0.359	0.107	0.374
	Bottom Side	0.396	0.000	0.03	0.396	0.396



WWAN Band	Exposure Position	1	2	3	1+2 Summed 1g SAR (W/kg)	1+3 Summed 1g SAR (W/kg)
		WWAN	2.4GHz WLAN	5GHz WLAN		
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)		
WCDMA IV	Front Side	0.161	0.106	0.242	0.267	0.403
	Back Side	0.383	0.251	0.83	0.634	1.213
	Left Side	0.578	0.03	0.000	0.608	0.578
	Right Side	0.026	0.221	0.455	0.247	0.481
	Top Side	0.043	0.092	0.359	0.135	0.402
	Bottom Side	0.209	0.000	0.03	0.209	0.209
WCDMA V	Front Side	0.121	0.106	0.242	0.227	0.363
	Back Side	0.265	0.251	0.83	0.516	1.095
	Left Side	0.131	0.03	0.000	0.161	0.131
	Right Side	0.022	0.221	0.455	0.243	0.477
	Top Side	0.417	0.092	0.359	0.509	0.776
	Bottom Side	0.012	0.000	0.03	0.012	0.012
LTE Band 2	Front Side	0.471	0.106	0.242	0.577	0.713
	Back Side	0.485	0.251	0.83	0.736	1.315
	Left Side	0.197	0.03	0.000	0.227	0.197
	Right Side	0.054	0.221	0.455	0.275	0.509
	Top Side	0.032	0.092	0.359	0.124	0.391
	Bottom Side	0.491	0.000	0.03	0.491	0.491
LTE Band 4	Front Side	0.090	0.106	0.242	0.196	0.332
	Back Side	0.237	0.251	0.83	0.488	1.067
	Left Side	0.336	0.03	0.000	0.366	0.336
	Right Side	0.039	0.221	0.455	0.260	0.494
	Top Side	0.037	0.092	0.359	0.129	0.396
	Bottom Side	0.188	0.000	0.03	0.188	0.188
LTE Band 5	Front Side	0.174	0.106	0.242	0.280	0.416
	Back Side	0.356	0.251	0.83	0.607	1.186
	Left Side	0.278	0.03	0.000	0.308	0.278
	Right Side	0.063	0.221	0.455	0.284	0.518
	Top Side	0.293	0.092	0.359	0.385	0.652
	Bottom Side	0.081	0.000	0.03	0.081	0.081
LTE Band 12/17	Front Side	0.119	0.106	0.242	0.225	0.361
	Back Side	0.158	0.251	0.83	0.409	0.988
	Left Side	0.058	0.03	0.000	0.088	0.058
	Right Side	0.080	0.221	0.455	0.301	0.535
	Top Side	0.041	0.092	0.359	0.133	0.400
	Bottom Side	0.162	0.000	0.03	0.162	0.162



WWAN Band	Exposure Position	1	2	3	1+2 Summed 1g SAR (W/kg)	1+3 Summed 1g SAR (W/kg)
		WWAN	2.4GHz WLAN	5GHz WLAN		
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)		
LTE Band 13	Front Side	0.135	0.106	0.242	0.241	0.377
	Back Side	0.183	0.251	0.83	0.434	1.013
	Left Side	0.098	0.03	0.000	0.128	0.098
	Right Side	0.027	0.221	0.455	0.248	0.482
	Top Side	0.066	0.092	0.359	0.158	0.425
	Bottom Side	0.316	0.000	0.03	0.316	0.316
LTE Band 25	Front Side	0.172	0.106	0.242	0.278	0.414
	Back Side	0.308	0.251	0.83	0.559	1.138
	Left Side	0.049	0.03	0.000	0.079	0.049
	Right Side	0.256	0.221	0.455	0.477	0.711
	Top Side	0.017	0.092	0.359	0.109	0.376
	Bottom Side	0.629	0.000	0.03	0.629	0.629
LTE Band 26	Front Side	0.264	0.106	0.242	0.370	0.506
	Back Side	0.431	0.251	0.83	0.682	1.261
	Left Side	0.344	0.03	0.000	0.374	0.344
	Right Side	0.051	0.221	0.455	0.272	0.506
	Top Side	0.022	0.092	0.359	0.114	0.381
	Bottom Side	0.204	0.000	0.03	0.204	0.204
LTE Band 41	Front Side	0.145	0.106	0.242	0.251	0.387
	Back Side	0.434	0.251	0.83	0.685	1.264
	Left Side	0.048	0.03	0.000	0.078	0.048
	Right Side	0.574	0.221	0.455	0.795	1.029
	Top Side	0.096	0.092	0.359	0.188	0.455
	Bottom Side	0.290	0.000	0.03	0.290	0.290
LTE Band 66	Front Side	0.104	0.106	0.242	0.210	0.346
	Back Side	0.146	0.251	0.83	0.397	0.976
	Left Side	0.332	0.03	0.000	0.362	0.332
	Right Side	0.044	0.221	0.455	0.265	0.499
	Top Side	0.029	0.092	0.359	0.121	0.388
	Bottom Side	0.220	0.000	0.03	0.220	0.220
LTE Band 71	Front Side	0.229	0.106	0.242	0.335	0.471
	Back Side	0.339	0.251	0.83	0.590	1.169
	Left Side	0.141	0.03	0.000	0.171	0.141
	Right Side	0.295	0.221	0.455	0.516	0.750
	Top Side	0.253	0.092	0.359	0.345	0.612
	Bottom Side	0.197	0.000	0.03	0.197	0.197

➤ **Body Simultaneous Transmission for WWAN(EN-DC)+WLAN MIMO**



WWAN Band	Exposure Position	1	2	3	1+2 Summed 1g SAR (W/kg)	1+3 Summed 1g SAR (W/kg)
		WWAN	2.4GHz WLAN	5GHz WLAN		
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)		
5A-N2	Front Side	0.765	0.106	0.242	0.871	1.113
	Back Side	0.944	0.251	0.83	1.195	2.025
	Left Side	0.399	0.03	0	0.429	0.429
	Right Side	0.171	0.221	0.455	0.392	0.847
	Top Side	0.063	0.092	0.359	0.155	0.514
	Bottom Side	1.055	0	0.03	1.055	1.085
12A-N2	Front Side	0.413	0.106	0.242	0.519	0.761
	Back Side	0.617	0.251	0.83	0.868	1.698
	Left Side	0.26	0.03	0	0.29	0.29
	Right Side	0.197	0.221	0.455	0.418	0.873
	Top Side	0.072	0.092	0.359	0.164	0.523
	Bottom Side	0.726	0	0.03	0.726	0.756
13A-N2	Front Side	0.429	0.106	0.242	0.535	0.777
	Back Side	0.642	0.251	0.83	0.893	1.723
	Left Side	0.3	0.03	0	0.33	0.33
	Right Side	0.144	0.221	0.455	0.365	0.82
	Top Side	0.097	0.092	0.359	0.189	0.548
	Bottom Side	0.88	0	0.03	0.88	0.91
66A-N2	Front Side	0.398	0.106	0.242	0.504	0.746
	Back Side	0.605	0.251	0.83	0.856	1.686
	Left Side	0.534	0.03	0	0.564	0.564
	Right Side	0.161	0.221	0.455	0.382	0.837
	Top Side	0.06	0.092	0.359	0.152	0.511
	Bottom Side	0.784	0	0.03	0.784	0.814
2A-N5	Front Side	0.587	0.106	0.242	0.693	0.935
	Back Side	0.661	0.251	0.83	0.912	1.742
	Left Side	0.265	0.03	0	0.295	0.295
	Right Side	0.094	0.221	0.455	0.315	0.77
	Top Side	0.162	0.092	0.359	0.254	0.613
	Bottom Side	0.583	0	0.03	0.583	0.613
66A-N5	Front Side	0.765	0.106	0.242	0.871	1.113
	Back Side	0.944	0.251	0.83	1.195	2.025
	Left Side	0.399	0.03	0	0.429	0.429
	Right Side	0.171	0.221	0.455	0.392	0.847
	Top Side	0.063	0.092	0.359	0.155	0.514
	Bottom Side	1.055	0	0.03	1.055	1.085



WWAN Band	Exposure Position	1	2	3	1+2 Summed 1g SAR (W/kg)	1+3 Summed 1g SAR (W/kg)
		WWAN	2.4GHz WLAN	5GHz WLAN		
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)		
12A-N25	Front Side	0.22	0.106	0.242	0.326	0.568
	Back Side	0.322	0.251	0.83	0.573	1.403
	Left Side	0.4	0.03	0	0.43	0.43
	Right Side	0.084	0.221	0.455	0.305	0.76
	Top Side	0.159	0.092	0.359	0.251	0.61
	Bottom Side	0.312	0	0.03	0.312	0.342
66A-N25	Front Side	0.294	0.106	0.242	0.4	0.642
	Back Side	0.461	0.251	0.83	0.712	1.542
	Left Side	0.317	0.03	0	0.347	0.347
	Right Side	0.122	0.221	0.455	0.343	0.798
	Top Side	0.094	0.092	0.359	0.186	0.545
	Bottom Side	0.84	0	0.03	0.84	0.87
2A-N41	Front Side	0.279	0.106	0.242	0.385	0.627
	Back Side	0.449	0.251	0.83	0.7	1.53
	Left Side	0.591	0.03	0	0.621	0.621
	Right Side	0.086	0.221	0.455	0.307	0.762
	Top Side	0.082	0.092	0.359	0.174	0.533
	Bottom Side	0.898	0	0.03	0.898	0.928
25A-N41	Front Side	0.718	0.106	0.242	0.824	1.066
	Back Side	1.018	0.251	0.83	1.269	2.099
	Left Side	0.524	0.03	0	0.554	0.554
	Right Side	0.095	0.221	0.455	0.316	0.771
	Top Side	0.086	0.092	0.359	0.178	0.537
	Bottom Side	0.57	0	0.03	0.57	0.6
26A-N41	Front Side	0.419	0.106	0.242	0.525	0.767
	Back Side	0.841	0.251	0.83	1.092	1.922
	Left Side	0.376	0.03	0	0.406	0.406
	Right Side	0.297	0.221	0.455	0.518	0.973
	Top Side	0.071	0.092	0.359	0.163	0.522
	Bottom Side	0.708	0	0.03	0.708	0.738
66A-N41	Front Side	0.511	0.106	0.242	0.617	0.859
	Back Side	0.964	0.251	0.83	1.215	2.045
	Left Side	0.671	0.03	0	0.701	0.701
	Right Side	0.092	0.221	0.455	0.313	0.768
	Top Side	0.076	0.092	0.359	0.168	0.527
	Bottom Side	0.283	0	0.03	0.283	0.313



WWAN Band	Exposure Position	1	2	3	1+2 Summed 1g SAR (W/kg)	1+3 Summed 1g SAR (W/kg)
		WWAN	2.4GHz WLAN	5GHz WLAN		
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)		
2A-N66	Front Side	0.351	0.106	0.242	0.457	0.699
	Back Side	0.679	0.251	0.83	0.93	1.76
	Left Side	0.659	0.03	0	0.689	0.689
	Right Side	0.085	0.221	0.455	0.306	0.761
	Top Side	0.083	0.092	0.359	0.175	0.534
	Bottom Side	0.299	0	0.03	0.299	0.329
5A-N66	Front Side	0.542	0.106	0.242	0.648	0.89
	Back Side	0.929	0.251	0.83	1.18	2.01
	Left Side	0.491	0.03	0	0.521	0.521
	Right Side	0.198	0.221	0.455	0.419	0.874
	Top Side	0.063	0.092	0.359	0.155	0.514
	Bottom Side	0.518	0	0.03	0.518	0.548
12A-N66	Front Side	0.542	0.106	0.242	0.648	0.89
	Back Side	0.929	0.251	0.83	1.18	2.01
	Left Side	0.491	0.03	0	0.521	0.521
	Right Side	0.198	0.221	0.455	0.419	0.874
	Top Side	0.063	0.092	0.359	0.155	0.514
	Bottom Side	0.518	0	0.03	0.518	0.548
13A-N66	Front Side	0.19	0.106	0.242	0.296	0.538
	Back Side	0.602	0.251	0.83	0.853	1.683
	Left Side	0.352	0.03	0	0.382	0.382
	Right Side	0.224	0.221	0.455	0.445	0.9
	Top Side	0.072	0.092	0.359	0.164	0.523
	Bottom Side	0.189	0	0.03	0.189	0.219
71A-N66	Front Side	0.206	0.106	0.242	0.312	0.554
	Back Side	0.627	0.251	0.83	0.878	1.708
	Left Side	0.392	0.03	0	0.422	0.422
	Right Side	0.171	0.221	0.455	0.392	0.847
	Top Side	0.097	0.092	0.359	0.189	0.548
	Bottom Side	0.343	0	0.03	0.343	0.373
2A-N71	Front Side	0.3	0.106	0.242	0.406	0.648
	Back Side	0.783	0.251	0.83	1.034	1.864
	Left Side	0.435	0.03	0	0.465	0.465
	Right Side	0.439	0.221	0.455	0.66	1.115
	Top Side	0.284	0.092	0.359	0.376	0.735
	Bottom Side	0.224	0	0.03	0.224	0.254



WWAN Band	Exposure Position	1	2	3	1+2 Summed 1g SAR (W/kg)	1+3 Summed 1g SAR (W/kg)
		WWAN	2.4GHz WLAN	5GHz WLAN		
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)		
66A-N71	Front Side	0.726	0.106	0.242	0.832	1.074
	Back Side	0.894	0.251	0.83	1.145	1.975
	Left Side	0.476	0.03	0	0.506	0.506
	Right Side	0.132	0.221	0.455	0.353	0.808
	Top Side	0.272	0.092	0.359	0.364	0.723
	Bottom Side	0.672	0	0.03	0.672	0.702

➤ **Body Simultaneous Transmission for WWAN(2/3/4G)+WLAN+Bluetooth**

WWAN Band	Exposure Position	1	2	3	4	1+2+4 Summed 1g SAR (W/kg)	1+3+4 Summed 1g SAR (W/kg)
		WWAN	2.4GHz (Ant 3)	5GHz (Ant 9)	Bluetooth Estimated		
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)		
GSM 850	Front Side	0.224	0.033	0.098	0.453	0.71	0.775
	Back Side	0.335	0.090	0.363	0.453	0.878	1.151
	Left Side	0.157	0.019	0.000	0.000	0.176	0.157
	Right Side	0.054	0.015	0.054	0.453	0.522	0.561
	Top Side	0.216	0.066	0.156	0.453	0.735	0.825
	Bottom Side	0.079	0.000	0.000	0.000	0.079	0.079
GSM 1900	Front Side	0.190	0.033	0.098	0.453	0.676	0.741
	Back Side	0.379	0.090	0.363	0.453	0.922	1.195
	Left Side	0.359	0.019	0.000	0.000	0.378	0.359
	Right Side	0.031	0.015	0.054	0.453	0.499	0.538
	Top Side	0.013	0.066	0.156	0.453	0.532	0.622
	Bottom Side	0.620	0.000	0.000	0.000	0.62	0.62
WCDMA II	Front Side	0.124	0.033	0.098	0.453	0.61	0.675
	Back Side	0.372	0.090	0.363	0.453	0.915	1.188
	Left Side	0.334	0.019	0.000	0.000	0.353	0.334
	Right Side	0.031	0.015	0.054	0.453	0.499	0.538
	Top Side	0.015	0.066	0.156	0.453	0.534	0.624
	Bottom Side	0.396	0.000	0.000	0.000	0.396	0.396
WCDMA IV	Front Side	0.161	0.033	0.098	0.453	0.647	0.712
	Back Side	0.383	0.090	0.363	0.453	0.926	1.199
	Left Side	0.578	0.019	0.000	0.000	0.597	0.578
	Right Side	0.026	0.015	0.054	0.453	0.494	0.533
	Top Side	0.043	0.066	0.156	0.453	0.562	0.652
	Bottom Side	0.209	0.000	0.000	0.000	0.209	0.209



WWAN Band	Exposure Position	1	2	3	4	1+2+4 Summed 1g SAR (W/kg)	1+3+4 Summed 1g SAR (W/kg)
		WWAN	2.4GHz (Ant 3)	5GHz (Ant 9)	Bluetooth Estimated		
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)		
WCDMA V	Front Side	0.121	0.033	0.098	0.453	0.607	0.672
	Back Side	0.265	0.090	0.363	0.453	0.808	1.081
	Left Side	0.131	0.019	0.000	0.000	0.15	0.131
	Right Side	0.022	0.015	0.054	0.453	0.49	0.529
	Top Side	0.417	0.066	0.156	0.453	0.936	1.026
	Bottom Side	0.012	0.000	0.000	0.000	0.012	0.012
LTE Band 2	Front Side	0.471	0.033	0.098	0.453	0.957	1.022
	Back Side	0.485	0.090	0.363	0.453	1.028	1.301
	Left Side	0.197	0.019	0.000	0.000	0.216	0.197
	Right Side	0.054	0.015	0.054	0.453	0.522	0.561
	Top Side	0.032	0.066	0.156	0.453	0.551	0.641
	Bottom Side	0.491	0.000	0.000	0.000	0.491	0.491
LTE Band 4	Front Side	0.090	0.033	0.098	0.453	0.576	0.641
	Back Side	0.237	0.090	0.363	0.453	0.78	1.053
	Left Side	0.336	0.019	0.000	0.000	0.355	0.336
	Right Side	0.039	0.015	0.054	0.453	0.507	0.546
	Top Side	0.037	0.066	0.156	0.453	0.556	0.646
	Bottom Side	0.188	0.000	0.000	0.000	0.188	0.188
LTE Band 5	Front Side	0.174	0.033	0.098	0.453	0.66	0.725
	Back Side	0.356	0.090	0.363	0.453	0.899	1.172
	Left Side	0.278	0.019	0.000	0.000	0.297	0.278
	Right Side	0.063	0.015	0.054	0.453	0.531	0.57
	Top Side	0.293	0.066	0.156	0.453	0.812	0.902
	Bottom Side	0.081	0.000	0.000	0.000	0.081	0.081
LTE Band 12/17	Front Side	0.119	0.033	0.098	0.453	0.605	0.67
	Back Side	0.158	0.090	0.363	0.453	0.701	0.974
	Left Side	0.058	0.019	0.000	0.000	0.077	0.058
	Right Side	0.080	0.015	0.054	0.453	0.548	0.587
	Top Side	0.041	0.066	0.156	0.453	0.56	0.65
	Bottom Side	0.162	0.000	0.000	0.000	0.162	0.162
LTE Band 13	Front Side	0.135	0.033	0.098	0.453	0.621	0.686
	Back Side	0.183	0.090	0.363	0.453	0.726	0.999
	Left Side	0.098	0.019	0.000	0.000	0.117	0.098
	Right Side	0.027	0.015	0.054	0.453	0.495	0.534
	Top Side	0.066	0.066	0.156	0.453	0.585	0.675
	Bottom Side	0.316	0.000	0.000	0.000	0.316	0.316



WWAN Band	Exposure Position	1	2	3	4	1+2+4 Summed 1g SAR (W/kg)	1+3+4 Summed 1g SAR (W/kg)
		WWAN	2.4GHz (Ant 3)	5GHz (Ant 9)	Bluetooth Estimated		
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)		
LTE Band 25	Front Side	0.172	0.033	0.098	0.453	0.658	0.723
	Back Side	0.308	0.090	0.363	0.453	0.851	1.124
	Left Side	0.049	0.019	0.000	0.000	0.068	0.049
	Right Side	0.256	0.015	0.054	0.453	0.724	0.763
	Top Side	0.017	0.066	0.156	0.453	0.536	0.626
	Bottom Side	0.629	0.000	0.000	0.000	0.629	0.629
LTE Band 26	Front Side	0.264	0.033	0.098	0.453	0.75	0.815
	Back Side	0.431	0.090	0.363	0.453	0.974	1.247
	Left Side	0.344	0.019	0.000	0.000	0.363	0.344
	Right Side	0.051	0.015	0.054	0.453	0.519	0.558
	Top Side	0.022	0.066	0.156	0.453	0.541	0.631
	Bottom Side	0.204	0.000	0.000	0.000	0.204	0.204
LTE Band 41	Front Side	0.145	0.033	0.098	0.453	0.631	0.696
	Back Side	0.434	0.090	0.363	0.453	0.977	1.25
	Left Side	0.048	0.019	0.000	0.000	0.067	0.048
	Right Side	0.574	0.015	0.054	0.453	1.042	1.081
	Top Side	0.096	0.066	0.156	0.453	0.615	0.705
	Bottom Side	0.290	0.000	0.000	0.000	0.29	0.29
LTE Band 66	Front Side	0.104	0.033	0.098	0.453	0.59	0.655
	Back Side	0.146	0.090	0.363	0.453	0.689	0.962
	Left Side	0.332	0.019	0.000	0.000	0.351	0.332
	Right Side	0.044	0.015	0.054	0.453	0.512	0.551
	Top Side	0.029	0.066	0.156	0.453	0.548	0.638
	Bottom Side	0.220	0.000	0.000	0.000	0.22	0.22
LTE Band 71	Front Side	0.229	0.033	0.098	0.453	0.715	0.78
	Back Side	0.339	0.090	0.363	0.453	0.882	1.155
	Left Side	0.141	0.019	0.000	0.000	0.16	0.141
	Right Side	0.295	0.015	0.054	0.453	0.763	0.802
	Top Side	0.253	0.066	0.156	0.453	0.772	0.862
	Bottom Side	0.197	0.000	0.000	0.000	0.197	0.197

➤ **Body Simultaneous Transmission for WWAN(EN-DC)+WLAN+Bluetooth**

WWAN Band	Exposure Position	1	2	3	4	1+2+4 Summed 1g SAR (W/kg)	1+3+4 Summed 1g SAR (W/kg)
		WWAN	2.4GHz (Ant 3)	5GHz (Ant 9)	Bluetooth Estimated		
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)		
5A-N2	Front Side	0.765	0.033	0.098	0.453	1.251	1.316
	Back Side	0.944	0.090	0.363	0.453	1.487	1.76
	Left Side	0.399	0.019	0.000	0.000	0.418	0.399
	Right Side	0.171	0.015	0.054	0.453	0.639	0.678
	Top Side	0.063	0.066	0.156	0.453	0.582	0.672
	Bottom Side	1.055	0.000	0.000	0.000	1.055	1.055
12A-N2	Front Side	0.413	0.033	0.098	0.453	0.899	0.964
	Back Side	0.617	0.090	0.363	0.453	1.16	1.433
	Left Side	0.26	0.019	0.000	0.000	0.279	0.26
	Right Side	0.197	0.015	0.054	0.453	0.665	0.704
	Top Side	0.072	0.066	0.156	0.453	0.591	0.681
	Bottom Side	0.726	0.000	0.000	0.000	0.726	0.726
13A-N2	Front Side	0.429	0.033	0.098	0.453	0.915	0.98
	Back Side	0.642	0.090	0.363	0.453	1.185	1.458
	Left Side	0.3	0.019	0.000	0.000	0.319	0.3
	Right Side	0.144	0.015	0.054	0.453	0.612	0.651
	Top Side	0.097	0.066	0.156	0.453	0.616	0.706
	Bottom Side	0.88	0.000	0.000	0.000	0.88	0.88
66A-N2	Front Side	0.398	0.033	0.098	0.453	0.884	0.949
	Back Side	0.605	0.090	0.363	0.453	1.148	1.421
	Left Side	0.534	0.019	0.000	0.000	0.553	0.534
	Right Side	0.161	0.015	0.054	0.453	0.629	0.668
	Top Side	0.06	0.066	0.156	0.453	0.579	0.669
	Bottom Side	0.784	0.000	0.000	0.000	0.784	0.784
2A-N5	Front Side	0.587	0.033	0.098	0.453	1.073	1.138
	Back Side	0.661	0.090	0.363	0.453	1.204	1.477
	Left Side	0.265	0.019	0.000	0.000	0.284	0.265
	Right Side	0.094	0.015	0.054	0.453	0.562	0.601
	Top Side	0.162	0.066	0.156	0.453	0.681	0.771
	Bottom Side	0.583	0.000	0.000	0.000	0.583	0.583
66A-N5	Front Side	0.765	0.033	0.098	0.453	1.251	1.316
	Back Side	0.944	0.090	0.363	0.453	1.487	1.76
	Left Side	0.399	0.019	0.000	0.000	0.418	0.399
	Right Side	0.171	0.015	0.054	0.453	0.639	0.678
	Top Side	0.063	0.066	0.156	0.453	0.582	0.672
	Bottom Side	1.055	0.000	0.000	0.000	1.055	1.055



WWAN Band	Exposure Position	1	2	3	4	1+2+4 Summed 1g SAR (W/kg)	1+3+4 Summed 1g SAR (W/kg)
		WWAN	2.4GHz (Ant 3)	5GHz (Ant 9)	Bluetooth Estimated		
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)		
12A-N25	Front Side	0.22	0.033	0.098	0.453	0.706	0.771
	Back Side	0.322	0.090	0.363	0.453	0.865	1.138
	Left Side	0.4	0.019	0.000	0.000	0.419	0.4
	Right Side	0.084	0.015	0.054	0.453	0.552	0.591
	Top Side	0.159	0.066	0.156	0.453	0.678	0.768
	Bottom Side	0.312	0.000	0.000	0.000	0.312	0.312
66A-N25	Front Side	0.294	0.033	0.098	0.453	0.78	0.845
	Back Side	0.461	0.090	0.363	0.453	1.004	1.277
	Left Side	0.317	0.019	0.000	0.000	0.336	0.317
	Right Side	0.122	0.015	0.054	0.453	0.59	0.629
	Top Side	0.094	0.066	0.156	0.453	0.613	0.703
	Bottom Side	0.84	0.000	0.000	0.000	0.84	0.84
2A-N41	Front Side	0.279	0.033	0.098	0.453	0.765	0.83
	Back Side	0.449	0.090	0.363	0.453	0.992	1.265
	Left Side	0.591	0.019	0.000	0.000	0.61	0.591
	Right Side	0.086	0.015	0.054	0.453	0.554	0.593
	Top Side	0.082	0.066	0.156	0.453	0.601	0.691
	Bottom Side	0.898	0.000	0.000	0.000	0.898	0.898
25A-N41	Front Side	0.718	0.033	0.098	0.453	1.204	1.269
	Back Side	1.018	0.090	0.363	0.453	1.561	1.834
	Left Side	0.524	0.019	0.000	0.000	0.543	0.524
	Right Side	0.095	0.015	0.054	0.453	0.563	0.602
	Top Side	0.086	0.066	0.156	0.453	0.605	0.695
	Bottom Side	0.57	0.000	0.000	0.000	0.57	0.57
26A-N41	Front Side	0.419	0.033	0.098	0.453	0.905	0.97
	Back Side	0.841	0.090	0.363	0.453	1.384	1.657
	Left Side	0.376	0.019	0.000	0.000	0.395	0.376
	Right Side	0.297	0.015	0.054	0.453	0.765	0.804
	Top Side	0.071	0.066	0.156	0.453	0.59	0.68
	Bottom Side	0.708	0.000	0.000	0.000	0.708	0.708
66A-N41	Front Side	0.511	0.033	0.098	0.453	0.997	1.062
	Back Side	0.964	0.090	0.363	0.453	1.507	1.78
	Left Side	0.671	0.019	0.000	0.000	0.69	0.671
	Right Side	0.092	0.015	0.054	0.453	0.56	0.599
	Top Side	0.076	0.066	0.156	0.453	0.595	0.685
	Bottom Side	0.283	0.000	0.000	0.000	0.283	0.283



WWAN Band	Exposure Position	1	2	3	4	1+2+4 Summed 1g SAR (W/kg)	1+3+4 Summed 1g SAR (W/kg)
		WWAN	2.4GHz (Ant 3)	5GHz (Ant 9)	Bluetooth Estimated		
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)		
2A-N66	Front Side	0.351	0.033	0.098	0.453	0.837	0.902
	Back Side	0.679	0.090	0.363	0.453	1.222	1.495
	Left Side	0.659	0.019	0.000	0.000	0.678	0.659
	Right Side	0.085	0.015	0.054	0.453	0.553	0.592
	Top Side	0.083	0.066	0.156	0.453	0.602	0.692
	Bottom Side	0.299	0.000	0.000	0.000	0.299	0.299
5A-N66	Front Side	0.542	0.033	0.098	0.453	1.028	1.093
	Back Side	0.929	0.090	0.363	0.453	1.472	1.745
	Left Side	0.491	0.019	0.000	0.000	0.51	0.491
	Right Side	0.198	0.015	0.054	0.453	0.666	0.705
	Top Side	0.063	0.066	0.156	0.453	0.582	0.672
	Bottom Side	0.518	0.000	0.000	0.000	0.518	0.518
12A-N66	Front Side	0.542	0.033	0.098	0.453	1.028	1.093
	Back Side	0.929	0.090	0.363	0.453	1.472	1.745
	Left Side	0.491	0.019	0.000	0.000	0.51	0.491
	Right Side	0.198	0.015	0.054	0.453	0.666	0.705
	Top Side	0.063	0.066	0.156	0.453	0.582	0.672
	Bottom Side	0.518	0.000	0.000	0.000	0.518	0.518
13A-N66	Front Side	0.19	0.033	0.098	0.453	0.676	0.741
	Back Side	0.602	0.090	0.363	0.453	1.145	1.418
	Left Side	0.352	0.019	0.000	0.000	0.371	0.352
	Right Side	0.224	0.015	0.054	0.453	0.692	0.731
	Top Side	0.072	0.066	0.156	0.453	0.591	0.681
	Bottom Side	0.189	0.000	0.000	0.000	0.189	0.189
71A-N66	Front Side	0.206	0.033	0.098	0.453	0.692	0.757
	Back Side	0.627	0.090	0.363	0.453	1.17	1.443
	Left Side	0.392	0.019	0.000	0.000	0.411	0.392
	Right Side	0.171	0.015	0.054	0.453	0.639	0.678
	Top Side	0.097	0.066	0.156	0.453	0.616	0.706
	Bottom Side	0.343	0.000	0.000	0.000	0.343	0.343
2A-N71	Front Side	0.3	0.033	0.098	0.453	0.786	0.851
	Back Side	0.783	0.090	0.363	0.453	1.326	1.589
	Left Side	0.435	0.019	0.000	0.000	0.454	0.435
	Right Side	0.439	0.015	0.054	0.453	0.907	0.946
	Top Side	0.284	0.066	0.156	0.453	0.803	0.893
	Bottom Side	0.224	0.000	0.000	0.000	0.224	0.224

WWAN Band	Exposure Position	1	2	3	4	1+2+4 Summed 1g SAR (W/kg)	1+3+4 Summed 1g SAR (W/kg)
		WWAN	2.4GHz (Ant 3)	5GHz (Ant 9)	Bluetooth Estimated		
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)		
66A-N71	Front Side	0.726	0.033	0.098	0.453	1.212	1.277
	Back Side	0.894	0.090	0.363	0.453	1.437	1.71
	Left Side	0.476	0.019	0.000	0.000	0.495	0.476
	Right Side	0.132	0.015	0.054	0.453	0.6	0.639
	Top Side	0.272	0.066	0.156	0.453	0.791	0.881
	Bottom Side	0.672	0.000	0.000	0.000	0.672	0.672

19.3. SPLSR Assessment and Analysis

➤ General Guidance

1. Per KDB 447498, When standalone SAR is measured, the peak location is determined by the x, y, z coordinates of the extrapolated and interpolated results reported by the zoom scan measurement, or area scan measurement when area scan based 1-g SAR estimation is applicable.
2. When standalone SAR is measured for both antennas in the pair, the peak location separation distance is computed by the square root of $[(x_1-x_2)^2 + (y_1-y_2)^2 + (z_1-z_2)^2]$, where (x_1, y_1, z_1) and (x_2, y_2, z_2) are the coordinates in the area scans or extrapolated peak SAR locations in the zoom scans, as appropriate.
3. The ratio is determined by $(SAR_1 + SAR_2)^{1.5}/R_i$, rounded to two decimal digits, and must be ≤ 0.04 for all antenna pairs in the configuration to qualify for 1-g SAR test exclusion.
4. SPLSR analysis for EN-DC+Bluetooth mode may not be required for the SAR measurement of Bluetooth has been exempted.

➤ **SPLSR Analysis results**

Band	Position	SAR (W/kg)	SAR peak location (cm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
			X	Y	Z				
LTE Band 5	Back	0.315	0.002	0.0665	-0.203	135.5	1.41	0.01	Not required
5G NR N2		0.395	0.004	-0.069	-0.202				
5.5GHz CH0		0.387	-0.045	0.072	-0.205				
5.5GHz CH1		0.311	-0.028	0.072	-0.205				

Band	Position	SAR (W/kg)	SAR peak location (cm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
			X	Y	Z				
LTE Band 12	Back	0.139	-0.008	-0.023	-0.203	47.5	1.23	0.03	Not required
5G NR N2		0.395	0.004	-0.069	-0.202				
5.5GHz CH0		0.387	-0.045	0.072	-0.205				
5.5GHz CH1		0.311	-0.028	0.072	-0.205				

Band	Position	SAR (W/kg)	SAR peak location (cm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
			X	Y	Z				
LTE Band 13	Back	0.163	-0.0125	-0.0325	-0.203	40.1	1.26	0.04	Not required
5G NR N2		0.395	0.004	-0.069	-0.202				
5.5GHz CH0		0.387	-0.045	0.072	-0.205				
5.5GHz CH1		0.311	-0.028	0.072	-0.205				

Band	Position	SAR (W/kg)	SAR peak location (cm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
			X	Y	Z				
LTE Band 66	Back	0.123	0.025	0.0435	-0.203	114.4	1.22	0.01	Not required
5G NR N2		0.395	0.004	-0.069	-0.202				
5.5GHz CH0		0.387	-0.045	0.072	-0.205				
5.5GHz CH1		0.311	-0.028	0.072	-0.205				

Band	Position	SAR (W/kg)	SAR peak location (cm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
			X	Y	Z				
LTE Band 2	Back	0.438	-0.0195	-0.028	-0.205	114.3	1.29	0.01	Not required
5G NR N5		0.149	0.003	0.084	-0.202				
5.5GHz CH0		0.387	-0.045	0.072	-0.205				
5.5GHz CH1		0.311	-0.028	0.072	-0.205				



Band	Position	SAR (W/kg)	SAR peak location (cm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
			X	Y	Z				
LTE Band 66	Back	0.123	0.025	0.0435	-0.203	46.1	1.22	0.03	Not required
5G NR N5		0.149	0.003	0.084	-0.202				
5.5GHz CH0		0.387	-0.045	0.072	-0.205				
5.5GHz CH1		0.311	-0.028	0.072	-0.205				

Band	Position	SAR (W/kg)	SAR peak location (cm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
			X	Y	Z				
LTE Band 25	Back	0.262	-0.032	-0.0795	-0.203	182.2	1.43	0.01	Not required
5G NR N41		0.473	0.0045	0.099	-0.202				
5.5GHz CH0		0.387	-0.045	0.072	-0.205				
5.5GHz CH1		0.311	-0.028	0.072	-0.205				

Band	Position	SAR (W/kg)	SAR peak location (cm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
			X	Y	Z				
LTE Band 26	Back	0.362	0.0045	0.0565	-0.203	42.5	1.53	0.04	Not required
5G NR N41		0.473	0.0045	0.099	-0.202				
5.5GHz CH0		0.387	-0.045	0.072	-0.205				
5.5GHz CH1		0.311	-0.028	0.072	-0.205				

Band	Position	SAR (W/kg)	SAR peak location (cm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
			X	Y	Z				
LTE Band 66	Back	0.123	0.025	0.0135	-0.203	87.9	1.29	0.02	Not required
5G NR N41		0.473	0.0045	0.099	-0.202				
5.5GHz CH0		0.387	-0.045	0.072	-0.205				
5.5GHz CH1		0.311	-0.028	0.072	-0.205				

Band	Position	SAR (W/kg)	SAR peak location (cm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
			X	Y	Z				
LTE Band 2	Back	0.438	-0.0195	-0.028	-0.205	51.6	1.53	0.04	Not required
5G NR N66		0.394	0.0135	-0.0675	-0.202				
5.5GHz CH0		0.387	-0.045	0.072	-0.205				
5.5GHz CH1		0.311	-0.028	0.072	-0.205				



Band	Position	SAR (W/kg)	SAR peak location (cm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
			X	Y	Z				
LTE Band 5	Back	0.315	0.002	0.0665	-0.203	134.5	1.41	0.01	Not required
5G NR N66		0.394	0.0135	-0.0675	-0.202				
5.5GHz CH0		0.387	-0.045	0.072	-0.205				
5.5GHz CH1		0.311	-0.028	0.072	-0.205				

Band	Position	SAR (W/kg)	SAR peak location (cm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
			X	Y	Z				
LTE Band 12	Back	0.139	-0.008	-0.023	-0.203	49.4	1.23	0.03	Not required
5G NR N66		0.394	0.0135	-0.0675	-0.202				
5.5GHz CH0		0.387	-0.045	0.072	-0.205				
5.5GHz CH1		0.311	-0.028	0.072	-0.205				

Band	Position	SAR (W/kg)	SAR peak location (cm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
			X	Y	Z				
LTE Band 13	Back	0.163	-0.0125	-0.0325	-0.203	43.6	1.26	0.03	Not required
5G NR N66		0.394	0.0135	-0.0675	-0.202				
5.5GHz CH0		0.387	-0.045	0.072	-0.205				
5.5GHz CH1		0.311	-0.028	0.072	-0.205				

Band	Position	SAR (W/kg)	SAR peak location (cm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
			X	Y	Z				
LTE Band 71	Back	0.311	0.0045	-0.0155	-0.202	52.8	1.40	0.03	Not required
5G NR N66		0.394	0.0135	-0.0675	-0.202				
5.5GHz CH0		0.387	-0.045	0.072	-0.205				
5.5GHz CH1		0.311	-0.028	0.072	-0.205				

Band	Position	SAR (W/kg)	SAR peak location (cm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
			X	Y	Z				
LTE Band 2	Back	0.438	-0.0195	-0.028	-0.205	62.4	1.50	0.03	Not required
5G NR N71		0.361	0.0045	-0.0855	-0.202				
5.5GHz CH0		0.387	-0.045	0.072	-0.205				
5.5GHz CH1		0.311	-0.028	0.072	-0.205				



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Band	Position	SAR (W/kg)	SAR peak location (cm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
			X	Y	Z				
LTE Band 66	Back	0.123	0.025	0.0135	-0.203	101.1	1.18	0.01	Not required
5G NR N71		0.361	0.0045	-0.0855	-0.202				
5.5GHz CH0		0.387	-0.045	0.072	-0.205				
5.5GHz CH1		0.311	-0.028	0.072	-0.205				

Remark:

The plots of SPLSR please refer to the annex D.

20. Uncertainty Assessment

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

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

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

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

Standard Uncertainty for Assumed Distribution

(a) standard uncertainty is determined as the product of the multiplying factor and the estimated range of variations in the measured quantity

(b) k is the coverage factor

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

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



Error Description	Uncertainty Value (±%)	Probability	Divisor	(Ci) 1g	(Ci) 10g	Standard Uncertainty (1g) (±%)	Standard Uncertainty (10g) (±%)
Measurement System							
Probe Calibration	6.0	N	1	1	1	6.0	6.0
Axial Isotropy	4.7	R	1.732	0.7	0.7	1.9	1.9
Hemispherical Isotropy	9.6	R	1.732	0.7	0.7	3.9	3.9
Boundary Effects	1.0	R	1.732	1	1	0.6	0.6
Linearity	4.7	R	1.732	1	1	2.7	2.7
System Detection Limits	1.0	R	1.732	1	1	0.6	0.6
Modulation Response	3.2	R	1.732	1	1	1.8	1.8
Readout Electronics	0.3	N	1	1	1	0.3	0.3
Response Time	0.0	R	1.732	1	1	0.0	0.0
Integration Time	2.6	R	1.732	1	1	1.5	1.5
RF Ambient Noise	3.0	R	1.732	1	1	1.7	1.7
RF Ambient Reflections	3.0	R	1.732	1	1	1.7	1.7
Probe Positioner	0.4	R	1.732	1	1	0.2	0.2
Probe Positioning	2.9	R	1.732	1	1	1.7	1.7
Max. SAR Eval.	2.0	R	1.732	1	1	1.2	1.2
Test Sample Related							
Device Positioning	3.0	N	1	1	1	3.0	3.0
Device Holder	3.6	N	1	1	1	0.089	0.089
Power Drift	5.0	R	1.732	1	1	2.9	2.9
Power Scaling	0.0	R	1.732	1	1	0.0	0.0
Phantom and Setup							
Phantom Uncertainty	6.1	R	1.732	1	1	3.5	3.5
SAR correction	0.0	R	1.732	1	0.84	0.0	0.0
Liquid Conductivity Repeatability	0.2	N	1	0.78	0.71	0.1	0.1
Liquid Conductivity (target)	5.0	R	1.732	0.78	0.71	2.3	2.0
Liquid Conductivity (mea.)	2.5	R	1.732	0.78	0.71	1.1	1.0
Temp. unc. - Conductivity	3.4	R	1.732	0.78	0.71	1.5	1.4
Liquid Permittivity Repeatability	0.15	N	1	0.23	0.26	0.0	0.0
Liquid Permittivity (target)	5.0	R	1.732	0.23	0.26	0.7	0.8
Liquid Permittivity (mea.)	2.5	R	1.732	0.23	0.26	0.3	0.4
Temp. unc. - Permittivity	0.83	R	1.732	0.23	0.26	0.1	0.1
Combined Std. Uncertainty						11.4%	11.4%
Coverage Factor for 95 %						K=2	K=2
Expanded STD Uncertainty						22.9%	22.7%



Error Description	Uncertainty Value (±%)	Probability	Divisor	(Ci) 1g	(Ci) 10g	Standard Uncertainty (1g) (±%)	Standard Uncertainty (10g) (±%)
Measurement System							
Probe Calibration	6.55	N	1	1	1	6.0	6.0
Axial Isotropy	4.7	R	1.732	0.7	0.7	1.9	1.9
Hemispherical Isotropy	9.6	R	1.732	0.7	0.7	3.9	3.9
Boundary Effects	2.0	R	1.732	1	1	1.2	1.2
Linearity	4.7	R	1.732	1	1	2.7	2.7
System Detection Limits	1.0	R	1.732	1	1	0.6	0.6
Modulation Response	3.2	R	1.732	1	1	1.8	1.8
Readout Electronics	0.3	N	1	1	1	0.3	0.3
Response Time	0.0	R	1.732	1	1	0.0	0.0
Integration Time	2.6	R	1.732	1	1	1.5	1.5
RF Ambient Noise	3.0	R	1.732	1	1	1.7	1.7
RF Ambient Reflections	3.0	R	1.732	1	1	1.7	1.7
Probe Positioner	0.4	R	1.732	1	1	0.2	0.2
Probe Positioning	6.7	R	1.732	1	1	3.9	3.9
Max. SAR Eval.	4.0	R	1.732	1	1	2.3	2.3
Test Sample Related							
Device Positioning	3.0	N	1	1	1	3.0	3.0
Device Holder	3.6	N	1	1	1	0.089	0.089
Power Drift	5.0	R	1.732	1	1	2.9	2.9
Power Scaling	0.0	R	1.732	1	1	0.0	0.0
Phantom and Setup							
Phantom Uncertainty	6.1	R	1.732	1	1	3.8	3.8
SAR correction	0.0	R	1.732	1	0.84	0.0	0.0
Liquid Conductivity Repeatability	0.2	N	1	0.78	0.71	0.1	0.1
Liquid Conductivity (target)	5.0	R	1.732	0.78	0.71	2.3	2.0
Liquid Conductivity (mea.)	2.5	R	1.732	0.78	0.71	1.1	1.0
Temp. unc. - Conductivity	3.4	R	1.732	0.78	0.71	1.5	1.4
Liquid Permittivity Repeatability	0.15	N	1	0.23	0.26	0.0	0.0
Liquid Permittivity (target)	5.0	R	1.732	0.23	0.26	0.7	0.8
Liquid Permittivity (mea.)	2.5	R	1.732	0.23	0.26	0.3	0.4
Temp. unc. - Permittivity	0.83	R	1.732	0.23	0.26	0.1	0.1
Combined Std. Uncertainty						12.5%	12.5%
Coverage Factor for 95 %						K=2	K=2
Expanded STD Uncertainty						25.1 %	25.1%



Annex A General Information

1. Identification of the Responsible Testing Laboratory

Laboratory Name:	Shenzhen Morlab Communications Technology Co., Ltd. Morlab Laboratory
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. Morlab Laboratory
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 *****