

TEST REPORT

Applicant: FUJIAN LANDI COMMERCIAL EQUIPMENT CO., LTD.
Address: Building 17, Area A, Software Park, No. 89, Software Avenue, Gulou District, Fuzhou, Fujian, China. 350003
Equipment Type: Portable Data Terminal
Model Name: P30
Brand Name: LANDI
FCC ID: 2AG6N-P30A
Test Standard: FCC 47 CFR Part 2.1093 (refer section 3.1)
Maximum SAR: Body-worn (1 g@10mm): 0.91W/kg
Hotspot (1 g@10mm): 1.07 W/kg
Specific (10 g@0mm): 2.25 W/kg
Sample Arrival Date: Apr. 20, 2026
Test Date: Apr. 20, 2026
Date of Issue: Apr. 23, 2026

ISSUED BY:

Shenzhen BALUN Technology Co., Ltd.

**Tested by:** Xiong Lining**Checked by:** Xu Rui**Approved by:** Tolan Tu

(Testing Director)

Revision History

Version	Issue Date	Revisions Content
<u>Rev. 01</u>	<u>Apr. 23, 2026</u>	<u>Initial Issue</u>

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1 GENERAL INFORMATION

1.1 Test Laboratory

Name	Shenzhen BALUN Technology Co., Ltd.
Address	Block B, 1/F, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China
Phone Number	+86 755 6685 0100

1.2 Test Location

Name	Shenzhen BALUN Technology Co., Ltd.
Location	☐ Block B, 1/F, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China
	☒ 1/F, Building B, Ganghongji High-tech Intelligent Industrial Park, No. 1008, Songbai Road, Yangguang Community, Xili Sub-district, Nanshan District, Shenzhen, Guangdong Province, P. R. China
Accreditation Certificate	The laboratory is a testing organization accredited by FCC as a accredited testing laboratory. The designation number is CN1196.

1.3 Test Environment Condition

Ambient Temperature	18°C to 25°C
Ambient Relative Humidity	30% to 70%

2 PRODUCT INFORMATION

2.1 Applicant Information

Applicant	FUJIAN LANDI COMMERCIAL EQUIPMENT CO., LTD.
Address	Building 17, Area A, Software Park, No. 89, Software Avenue, Gulou District, Fuzhou, Fujian, China. 350003

2.2 Manufacturer Information

Manufacturer	FUJIAN LANDI COMMERCIAL EQUIPMENT CO., LTD.
Address	Building 17, Area A, Software Park, No. 89, Software Avenue, Gulou District, Fuzhou, Fujian, China. 350003

2.3 General Description for Equipment under Test (EUT)

EUT Name	Portable Data Terminal
Model Name Under Test	P30
Series Model Name	N/A
Description of Model name differentiation	N/A
Hardware Version	FCC_V1.0.0
Software Version	FCC_V1.0.0
Dimensions (Approx.)	N/A
Weight (Approx.)	N/A

2.4 Ancillary Equipment

Ancillary Equipment 1	Battery1	
	Model No.	LD18650M
	Capacity	2600 mAh
	Rated Voltage	7.2V
	Limit Charge Voltage	8.4V

Ancillary Equipment 2	Battery2	
	Model No.	LD18650M
	Capacity	3350 mAh
	Rated Voltage	7.2V
	Limit Charge Voltage	8.4V

Note: The EUT has two batteries, they are same with electrical parameters, but the two batteries have different capacities. By comparing the test data of two batteries, battery1 can produce a more conservative SAR values as the main for test in this report. Battery 2 verified the worst-case scenario.

2.5 Technical Information

Network and Wireless connectivity	2G Network GPRS/EDGE 850/1900 3G Network WCDMA Band 2/4/5 4G Network LTE FDD Band 2/4/5/7 LTE TDD Band 38 BT(BR/EDR+BLE) 2.4G WIFI, 5G WIFI NFC, GNSS
Note: The EUT is a mobile phone, which supports dual SIM card under the same transceiver. Each SIM supports GSM, WCDMA and LTE, and both SIM share the same transmitting electro circuit, NV parameters, so only SIM1 was tested in this report.	

The requirement for the following technical information of the EUT was tested in this report:

Operating Mode	GSM, WCDMA, LTE, 2.4G WIFI, 5G WIFI, Bluetooth		
Frequency Range	GSM 850	TX: 824 ~ 849 MHz	RX: 869 ~ 894 MHz
	GSM 1900	TX: 1850 ~ 1910 MHz	RX: 1930 ~ 1990 MHz
	WCDMA Band 2	TX: 1850 ~ 1910 MHz	RX: 1930 ~ 1990 MHz
	WCDMA Band 4	TX: 1710 ~ 1755 MHz	RX: 2110 ~ 2155 MHz
	WCDMA Band 5	TX: 824 ~ 849 MHz	RX: 869 ~ 894 MHz
	LTE Band 2	TX: 1850 ~ 1910 MHz	RX: 1930 ~ 1990 MHz
	LTE Band 4	TX: 1710 ~ 1755 MHz	RX: 2110 ~ 2155 MHz
	LTE Band 5	TX: 824 ~ 849 MHz	RX: 869 ~ 894 MHz
	LTE Band 7	TX: 2500 ~ 2570 MHz	RX: 2620 ~ 2690 MHz
	LTE Band 38	TX: 2570 ~ 2620 MHz	RX: 2570 ~ 2620 MHz
	2.4G WIFI	2412 ~ 2462 MHz	
	5G WIFI	5150 ~ 5250 MHz	
		5250 ~ 5350 MHz	
		5470 ~ 5725 MHz	
5725 ~ 5850 MHz			
Bluetooth	2402 ~ 2480 MHz		
Antenna Type	WWAN: PIFA Antenna WIFI: PIFA Antenna Bluetooth: PIFA Antenna NFC: Coil Antenna		
DTM	N/A		
Hotspot Function	Support		
Power Reduction	Support		
Exposure Category	General Population/Uncontrolled exposure		
Product Type	Portable Device		
EUT Type	☒ Production unit	☐ Identical prototype	

3 SUMMARY OF TEST RESULT

3.1 Test Standards

No.	Identity	Document Title
1	47 CFR Part 2.1093	Radiofrequency radiation exposure evaluation: portable devices
2	ANSI/IEEE Std. C95.1-1992	IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz
3	KDB 447498 D04 v01	447498 D04 Interim General RF Exposure Guidance v01
4	KDB 941225 D01 v03r01	3G SAR MEAUREMENT PROCEDURES
5	KDB 941225 D05 v02r05	SAR Evaluation Considerations for LTE Devices
6	KDB 941225 D06 v02r01	SAR EVALUATION PROCEDURES FOR PORTABLE DEVICES WITH WIRELESS ROUTER CAPABILITIES
7	KDB 865664 D01 v01r04	SAR Measurement 100 MHz to 6 GHz
8	KDB 865664 D02 v01r02	RF Exposure Reporting
9	KDB 648474 D04 v01r03	SAR EVALUATION CONSIDERATIONS FOR WIRELESS HANDSETS
10	KDB 248227 D01 v02r02	SAR GUIDANCE FOR IEEE 802.11 (Wi-Fi) TRANSMITTERS

Note:

Compared with the EUT of test report BL-SZ25A0385-701, the changes of the EUT of this report as below:

1. have an additional secondary screen;
2. Deleted EEE Std. 1528-2013.

Other hardware circuit and software are the same as EUT referred in test report BL-SZ25A0385-701.

Therefore, just the worst case was verified and showed in this report, others test data please refer to report BL-SZ25A0385-701, which was issued by Shenzhen BALUN Technology Co., Ltd. on Feb. 10, 2026.

3.2 Device Category and SAR Limit

This device belongs to portable device category because its radiating structure is allowed to be used within 20 centimeters of the body of the user.

Limit for General Population/Uncontrolled exposure should be applied for this device, it is 1.6 W/kg as averaged over any 1 gram of tissue.

Table of Exposure Limits:

Body Position	SAR Value (W/Kg)	
	General Population/ Uncontrolled Exposure	Occupational/ Controlled Exposure
Whole-Body SAR (averaged over the entire body)	0.08	0.4
Partial-Body SAR (averaged over any 1 gram of tissue)	1.60	8.0
SAR for hands, wrists, feet and ankles (averaged over any 10 grams of tissue)	4.0	20.0

NOTE:

General Population/Uncontrolled Exposure: Locations where there is the exposure of individuals who have no knowledge or control of their exposure. 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.

Occupational/Controlled Exposure: Locations where there is exposure that may be incurred by persons who are aware of the potential for exposure. 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. This 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.

3.3 Test Result Summary

3.3.1 Highest SAR Values

Equipment Class	Band	Maximum Scaled SAR (W/kg)			Maximum Report SAR (W/kg)		
		Body-worn (10mm)	Hotsopt (10mm)	Specific (0mm)	Body-worn (10mm)	Hotsopt (10mm)	Specific (0mm)
		1g SAR	1g SAR	10g SAR	1g SAR	1g SAR	10g SAR
PCE	GSM 850	0.30	0.79	1.13	0.91	1.07	2.25
	GSM 1900	0.36	0.71	1.03			
	WCDMA Band 2	0.91	0.91	1.44			
	WCDMA Band 4	0.35	0.54	1.41			
	WCDMA Band 5	0.15	0.67	0.75			
	LTE Band 2	0.66	0.67	1.32			
	LTE Band 4	0.42	0.42	1.60			
	LTE Band 5	0.18	0.48	0.87			
	LTE Band 7	0.84	1.07	2.12			
	LTE Band 38	0.48	0.71	1.11			
DTS	2.4G WIFI	0.07	0.66	2.25	0.91	1.07	2.25
NII	5.2G WIFI	0.34	0.69	1.59			
	5.3G WIFI	0.34	0.72	1.59			
	5.6G WIFI	0.41	0.77	1.60			
	5.8G WIFI	0.37	0.74	1.34			
DSS	Bluetooth	0.27	0.55	1.76			
Limit (W/kg)		1.6	1.6	4	1.6	1.6	4
Verdict		Pass					

3.3.2 Highest Simultaneous Transmission SAR Values

Equipment Class	Maximum Scaled SAR (W/kg)		
	Body-worn 1g (10mm)	Hotspot 1g (10mm)	Specific 10g (0mm)
PCE	1.46	1.56	3.82
Limit (W/kg)	1.6	1.6	4
Verdict	Pass		
Note: The highest simultaneous SAR please refer section 12			

3.4 Test Uncertainty

According to KDB 865664 D01, When the highest measured 1 g SAR within a frequency band is < 1.5 W/kg, the extensive SAR measurement uncertainty analysis is not required in SAR reports submitted for equipment approval.

The maximum 1 g SAR for the EUT in this report is 1.07 W/kg, which is lower than 1.5 W/kg, so the extensive SAR measurement uncertainty analysis is not required in this report.

The maximum 10 g SAR for the EUT in this report is 2.25 W/kg, which is lower than 3.75 W/kg, so the extensive SAR measurement uncertainty analysis is not required in this report.

4 MEASUREMENT SYSTEM

4.1 Specific Absorption Rate (SAR) Definition

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/controlled and general population/uncontrolled, based on a person's awareness and ability to exercise control over his or her exposure. In general, occupational/controlled exposure limits are higher than the limits for general population/uncontrolled.

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 related to the electrical field in the tissue by

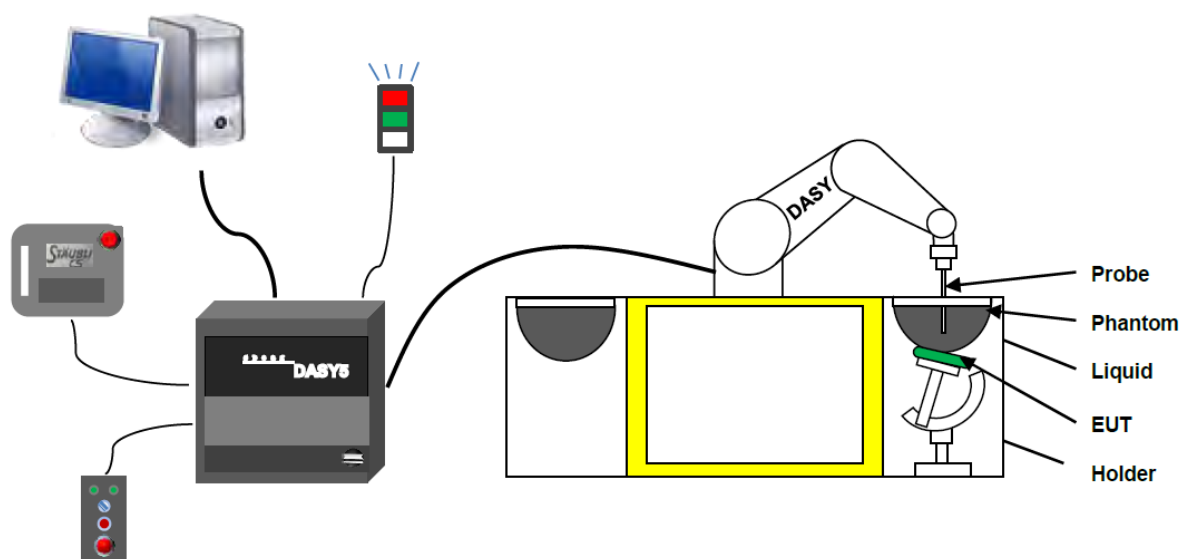
$$SAR = \frac{\sigma E^2}{\rho}$$

Where: σ is the conductivity of the tissue,

ρ is the mass density of the tissue and E is the RMS electrical field strength.

4.2 DASY SAR System

4.2.1 DASY SAR System Diagram



The DASY5 system for performing compliance tests consists of the following items:

1. A standard high precision 6-axis robot (Stäubli RX family) with controller and software. An arm extension for accommodating the data acquisition electronics (DAE).
2. A dosimetric probe, i.e. an isotropic E-field probe optimized and calibrated for usage in tissue simulating liquid. The probe is equipped with an optical surface detector system.
3. A data acquisition electronic (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
4. A unit to operate the optical surface detector which is connected to the EOC.
5. The Electro-Optical Coupler (EOC) performs the conversion from the optical into a digital electric signal of the DAE. The EOC is connected to the DASY5 measurement server.
6. The DASY5 measurement server, which performs all real-time data evaluation for field measurements and surface detection, controls robot movements and handles safety operation.
7. DASY5 software and SEMCAD data evaluation software.
8. Remote control with teach panel and additional circuitry for robot safety such as warning lamps, etc.
9. The generic twin phantom enabling the testing of left-hand and right-hand usage.
10. The device holder for handheld mobile phones.
11. Tissue simulating liquid mixed according to the given recipes.
12. System validation dipoles allowing to validate the proper functioning of the system.

4.2.2 Robot

The Dasy SAR system uses the high precision robots. Symmetrical design with triangular core Built-in optical fiber for surface detection system For the 6-axis controller system, Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents). The robot series have many features that are important for our application:



- High precision
(repeatability ± 0.02 mm)
- High reliability
(industrial design)
- Low maintenance costs
(virtually maintenance free due to direct drive gears; no belt drives)
- Jerk-free straight movements
(brush less synchron motors; no stepper motors)
- Low ELF interference
(motor control _elds shielded via the closed metallic construction shields)

4.2.3 E-Field Probe

The probe is specially designed and calibrated for use in liquids with high permittivities for the measurements the Specific Dosimetric E-Field Probe EX3DV4 with following specifications is used.

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., glycolether)
Calibration	ISO/IEC 17025 calibration service available
Frequency	10 MHz to 6 GHz; Linearity: ± 0.2 dB (30 MHz to 6 GHz)
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: 337 mm (Tip: 9 mm) Tip diameter: 2.5 mm (Body: 10 mm) Distance from probe tip to dipole centers: 1.0 mm
Application	General dosimetry up to 3 GHz Compliance tests of mobile phones Fast automatic scanning in arbitrary phantoms (EX3DV4)



E-Field Probe Calibration Process

Probe calibration is realized, in compliance with CENELEC EN 62209-1/-2 and IEEE 1528 std, with CALISAR, Antennessa proprietary calibration system. The calibration is performed with the EN 62209-1/2 annexe technique using reference guide at the five frequencies.

4.2.4 Data Acquisition Electronics

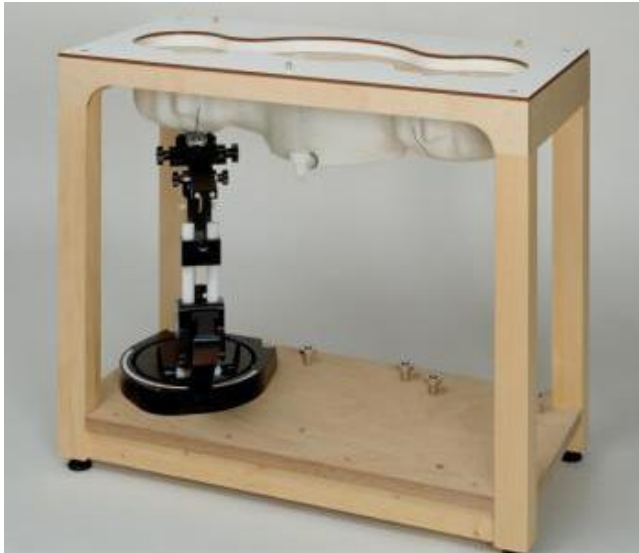
The data acquisition electronics (DAE) consist of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16 bit AD-converter and a command decoder with a control logic unit. Transmission to the measurement server is accomplished through an optical downlink for data and status information, as well as an optical uplink for commands and the clock.



- Input Impedance: 200M Ω
- The Inputs: Symmetrical and Floating
- Common Mode Rejection: Above 80dB

4.2.5 Phantoms

For the measurements the Specific Anthropomorphic Mannequin (SAM) defined by the IEEE SCC-34/SC2 group is used. The phantom is a polyurethane shell integrated in a wooden table. The thickness of the phantom amounts to 2mm +/- 0.2mm. It enables the dosimetric evaluation of left and right phone usage and includes an additional flat phantom part for the simplified performance check. The phantom set-up includes a cover, which prevents the evaporation of the liquid.



- Left head
- Right head
- Flat phantom



4.2.6 Device Holder

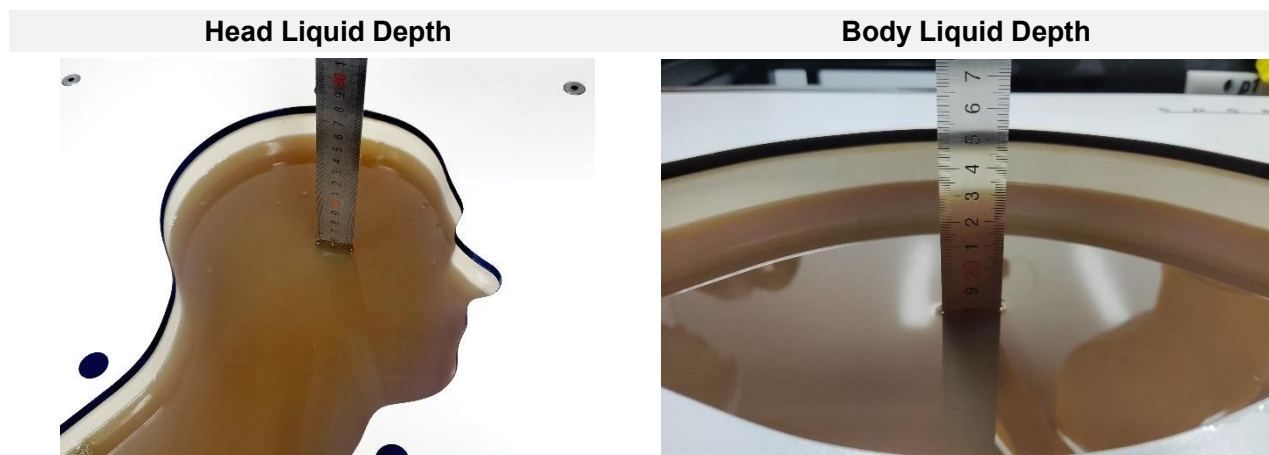
The DASY5 device holder has two scales for device rotation (with respect to the body axis) and the device inclination (with respect to the line between the ear openings). The plane between the ear openings and the mouth tip has a rotation angle of 65° . The bottom plate contains three pair of bolts for locking the device holder. The device holder positions are adjusted to the standard measurement positions in the three sections. This device holder is used for standard mobile phones or PDA's only. If necessary an additional support of polystyrene material is used. Larger DUT's (e.g. notebooks) cannot be tested using this device holder. Instead a support of bigger polystyrene cubes and thin polystyrene plates is used to position the DUT in all relevant positions to find and measure spots with maximum SAR values. Therefore those devices are normally only tested at the flat part of the SAM.



The positioning system allows obtaining cheek and tilting position with a very good accuracy. Incompliance with CENELEC, the tilt angle uncertainty is lower than 1° .

4.2.7 Simulating Liquid

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 15 cm. For head SAR testing, the liquid height from the ear reference point (ERP) of the phantom to the liquid top surface is larger than 15 cm. For body SAR testing, the liquid height from the center of the flat phantom to the liquid top surface is larger than 15 cm. The nominal dielectric values of the tissue simulating liquids in the phantom and the tolerance of 5%.



The following table gives the recipes for tissue simulating liquid.

TSL	Manufacturer / Model	Freq Range (MHz)	Main Ingredients
Head WideBand	SPEAG HBBL600-10000V6	600-10000	Ethenediol, Sodium petroleum sulfonate, Hexylene Glycol / 2-Methyl-pentane-2.4-diol, Alkoxylated alcohol

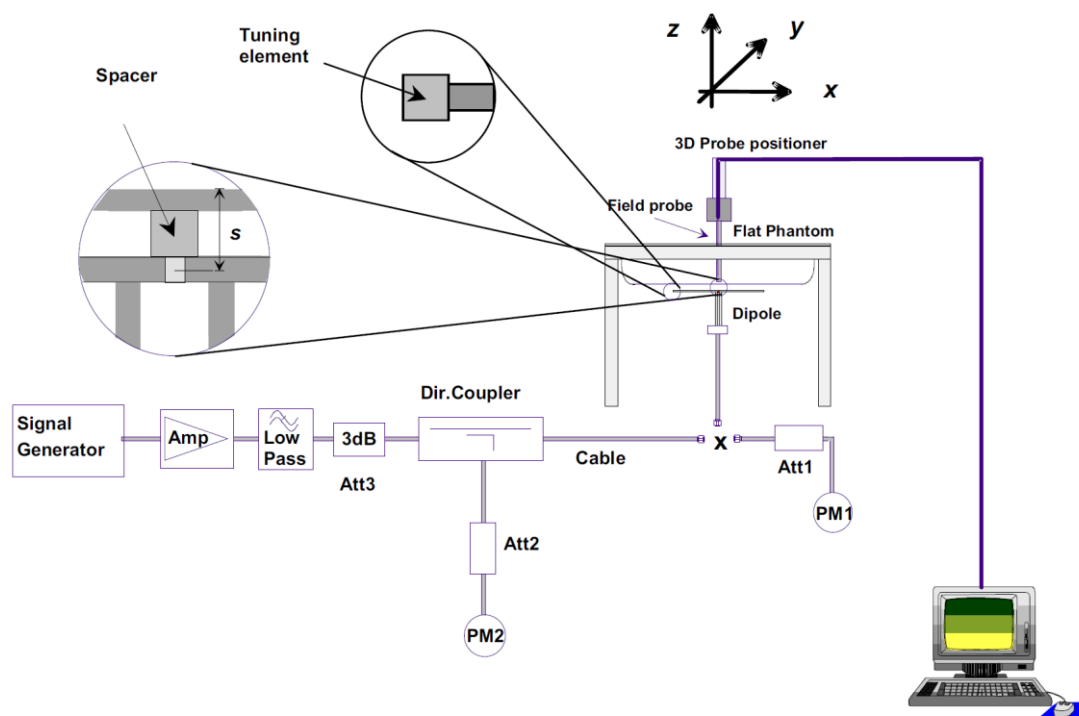
5 SYSTEM VERIFICATION

5.1 Purpose of System 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.

5.2 System Check Setup

In the simplified setup for system evaluation, the EUT is replaced by a calibrated dipole and the power source is replaced by a continuous wave that 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 equipment setup is shown below:



6 TEST POSITION CONFIGURATIONS

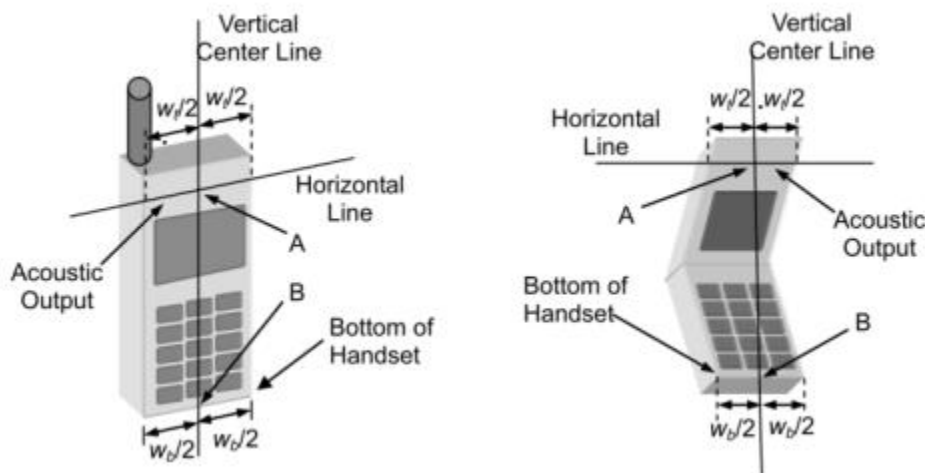
According to KDB 648474 D04 Handset, handsets are tested for SAR compliance in head, body-worn accessory and other use configurations described in the following subsections.

6.1 Head Exposure Conditions

Head exposure is limited to next to the ear voice mode operations. Head SAR compliance is tested according to the test positions defined in IEEE Std 1528-2013 using the SAM phantom illustrated as below.

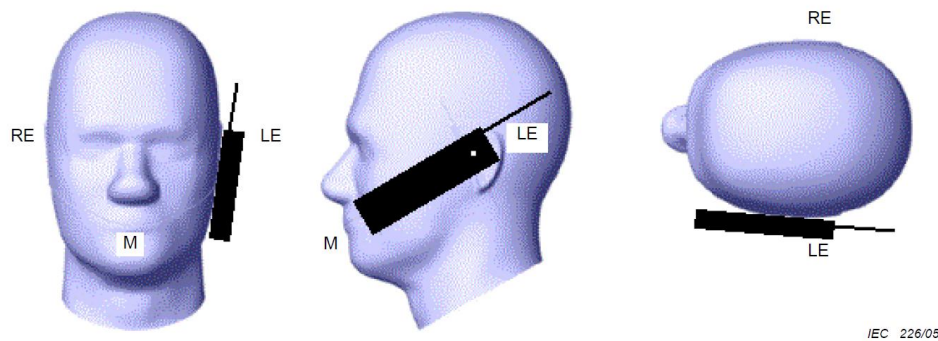
6.1.1 Two Imaginary Lines on the Handset

- The vertical center 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 centerline and passes through the center of the acoustic output. The horizontal line is also tangential to the face of 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 center 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.



6.1.2 Cheek Position

- 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.



6.1.3 Tilted Position

- (a) To position the device in the “cheek” position described above.
- (b) 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.

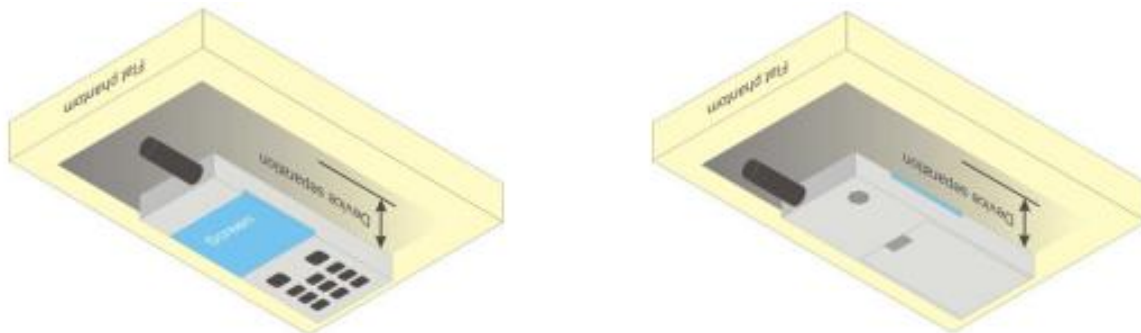


6.2 Body-worn Position Conditions

Body-worn accessory exposure is typically related to voice mode operations when handsets are carried in body-worn accessories. The body-worn accessory procedures in KDB 447498 are used to test for body-worn accessory SAR compliance, without a headset connected to it. This enables the test results for such configuration to be compatible with that required for hotspot mode when the body-worn accessory test separation distance is greater than or equal to that required for hotspot mode. When the reported SAR for a body-worn accessory.

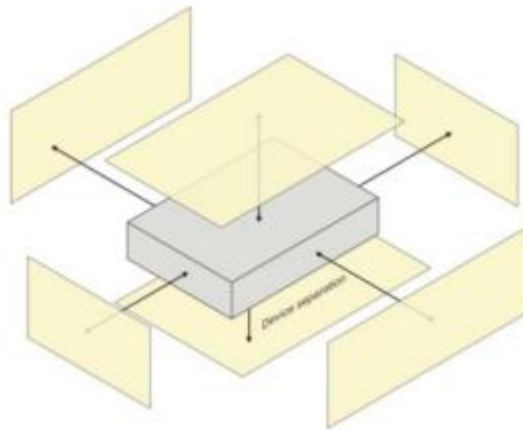
Body-worn accessories that do not contain metallic or conductive components may be tested according to worst-case exposure configurations, typically according to the smallest test separation distance required for the group of body-worn accessories with similar operating and exposure characteristics. All body-worn accessories containing metallic components are tested in conjunction with the host device.

Body-worn accessory SAR compliance is based on a single minimum test separation distance for all wireless and operating modes applicable to each body-worn accessory used by the host, and according to the relevant voice and/or data mode transmissions and operations. If a body-worn accessory supports voice only operations in its normal and expected use conditions, testing of data mode for body-worn compliance is not required. A conservative minimum test separation distance for supporting off-the-shelf body-worn accessories that may be acquired by users of consumer handsets is used to test for body-worn accessory SAR compliance. This distance is determined by the handset manufacturer, according to the requirements of Supplement C 01-01. Devices that are designed to operate on the body of users using lanyards and straps, or without requiring additional body-worn accessories, will be tested using a conservative minimum test separation distance ≤ 5 mm to support compliance.



6.3 Hotspot Mode Exposure Position Conditions

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



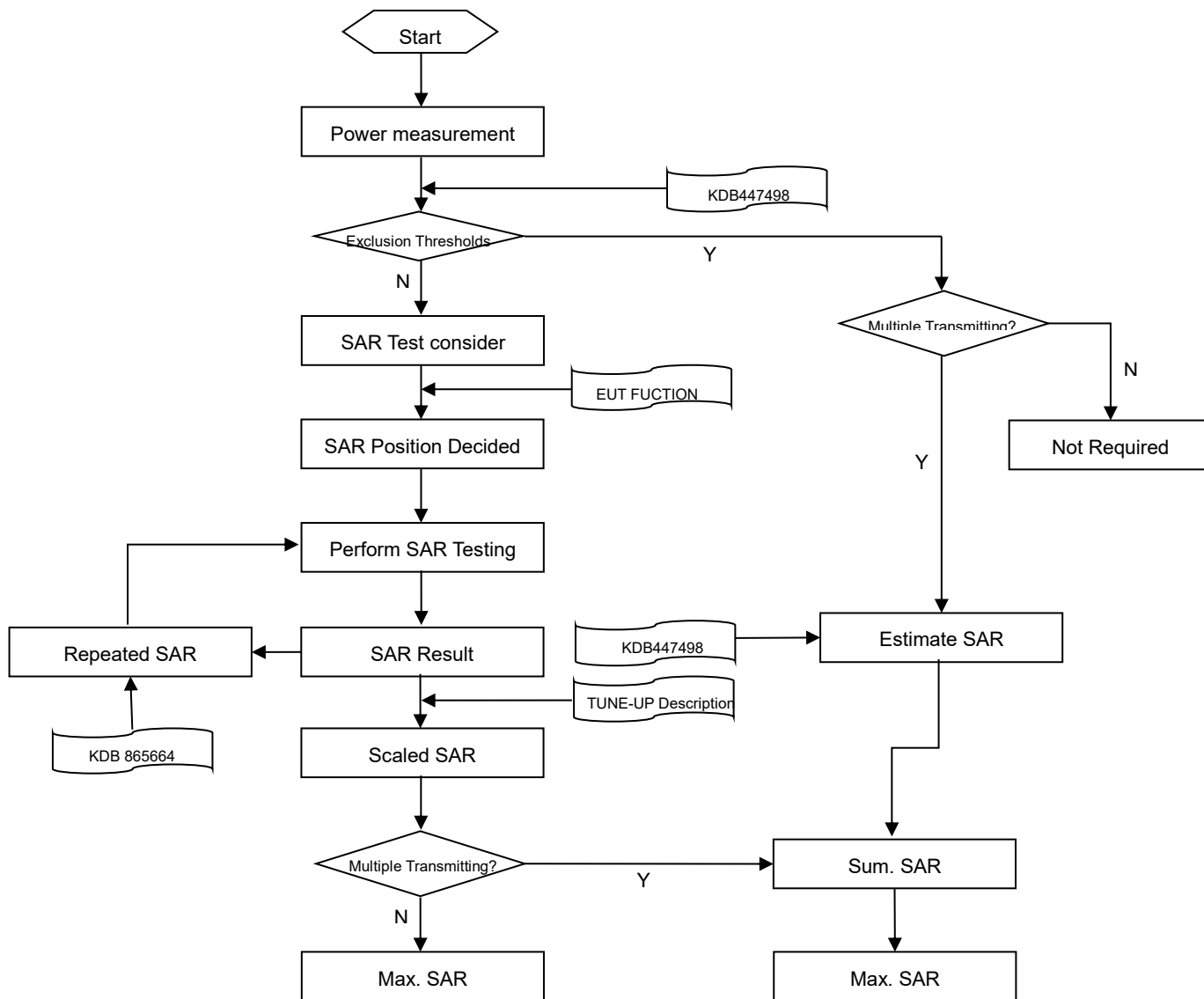
6.4 Product Specific 10g Exposure Consideration

According with FCC KDB 648474 D04, for smart phones with a display diagonal dimension > 15.0 cm or an overall diagonal dimension > 16.0 cm that provide similar mobile web access and multimedia support found in mini-tablets or UMPC mini-tablets that support voice calls next to the ear, unless it is confirmed otherwise through KDB inquiries, the following phablet procedures should be applied to evaluate SAR compliance for each applicable wireless modes and frequency band. Devices marketed as phablets, regardless of form factors and operating characteristics must be tested as a phablet to determine SAR compliance;

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 865664 to address interactive hand use exposure conditions. The UMPC mini-tablet 1-g SAR at 5 mm is not required. 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.

7 MEASUREMENT PROCEDURE

7.1 Measurement Process Diagram



7.2 SAR Scan General Requirement

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.

			≤3GHz	>3GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface			5±1 mm	½·δ·ln(2)±0.5 mm
Maximum probe angle from probe axis to phantom surface normal at the measurement location			30°±1°	20°±1°
Maximum area scan spatial resolution: 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 ≤ 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: Δz Zoom (n)		≤ 5 mm	3–4 GHz: ≤ 4 mm
				4–5 GHz: ≤ 3 mm
				5–6 GHz: ≤ 2 mm
	graded grid	Δz Zoom (1): between 1st two points closest to phantom surface	≤ 4 mm	3–4 GHz: ≤ 3 mm
				4–5 GHz: ≤ 2.5 mm
		Δz Zoom (n>1): between subsequent points	≤ 1.5·Δz Zoom (n-1)	
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:

1. δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see draft standard IEEE P1528-2011 for details.
2. * When zoom scan is required and the reported SAR from the area scan based 1 g SAR estimation procedures of KDB 447498 is ≤ 1.4 W/kg, ≤ 8 mm, ≤ 7 mm and ≤ 5 mm zoom scan resolution may be applied, respectively, for 2 GHz to 3GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.

7.3 Measurement Procedure

The following steps are used for each test position

- a. 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
- b. Measurement of the local E-field value at a fixed location. This value serves as a reference value for calculating a possible power drift.
- c. 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.
- d. 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.

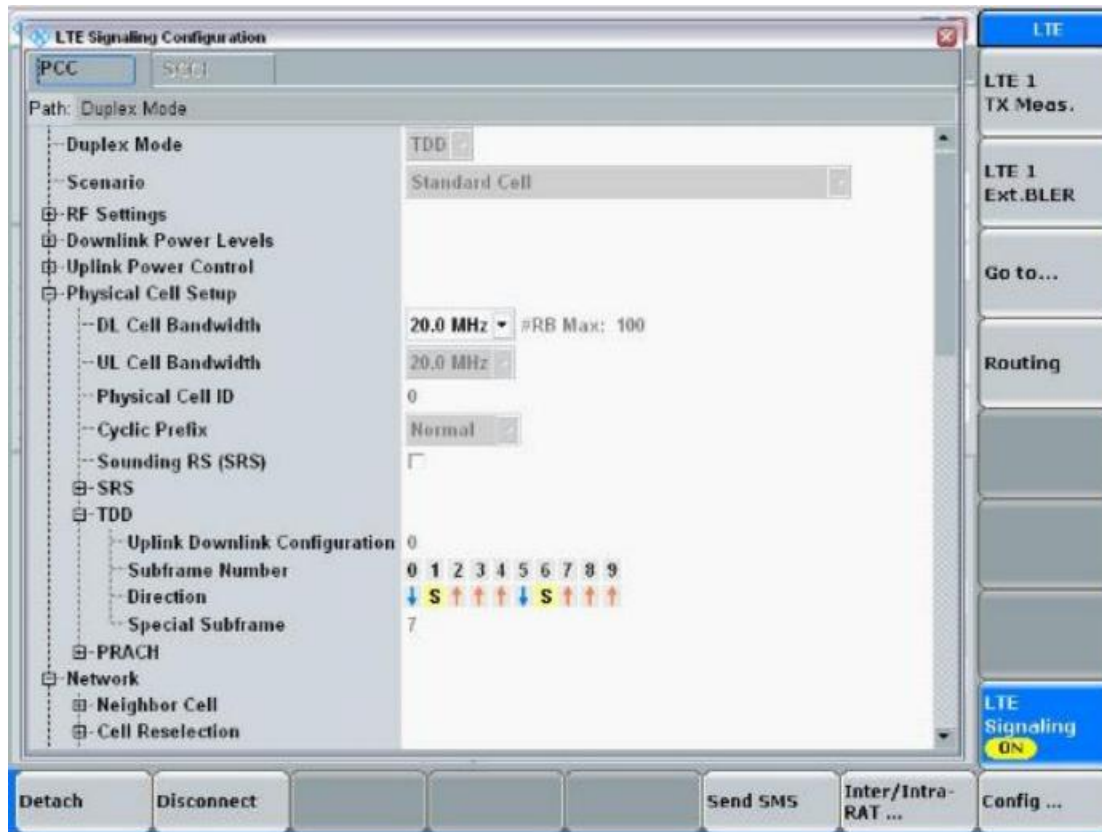
7.4 Area & Zoom Scan Procedure

First Area Scan is used to locate the approximate location(s) of the local peak SAR value(s). The measurement grid within an Area Scan is defined by the grid extent, grid step size and grid offset. Next, in order to determine the EM field distribution in a three-dimensional spatial extension, Zoom Scan is required. The Zoom Scan is performed around the highest E-field value to determine the averaged SAR-distribution over 10 g. Area scan and zoom scan resolution setting follows KDB 865664 D01v01r04 quoted below.

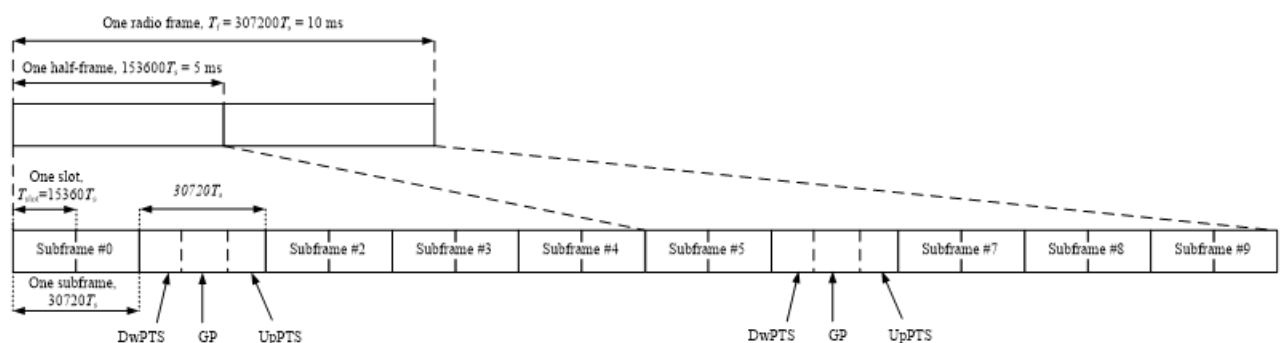
When the 1 g SAR of the highest peak is within 2 dB of the SAR limit, additional zoom scans are required for other peaks within 2 dB of the highest peak that have not been included in any zoom scan to ensure there is no increase in SAR.

7.5 Area & Zoom Scan Procedure

During TDD-LTE SAR testing, the EUT was commanded to transmit on maximum output power and maximum transmitting bandwidth. The uplink and downlink slot configuration as below in one radio frame.



According to 3GPP Per 3GPP TS 36.211. Each radio frame of length ($T_f = 307200 \cdot T_s = 10\text{ms}$) of two half-frames of length ($153600 \cdot T_s = 5\text{ms}$). Each half-frame consists of five sub-frames of length ($30720 \cdot T_s = 1\text{ms}$)



And the special sub-frame with the three fields DwPTS, GP and UpPTS.

The length of DwPTS and UpPTS is given by below table subject to the total length of DwPTS, GP and UpPTS being equal to $30720 \cdot T_s = 1\text{ms}$.

Configuration of special sub-frame (lengths of DwPTS/GP/UpPTS)

Special sub-frame configuration	Normal cyclic prefix in downlink			Extended cyclic prefix in downlink		
	DwPTS	UpPTS		DwPTS	UpPTS	
		Normal cyclic prefix in uplink	Extended cyclic prefix in uplink		Normal cyclic prefix in uplink	Extended cyclic prefix in uplink
0	$6592 \cdot T_s$	$2192 \cdot T_s$	$2560 \cdot T_s$	$7680 \cdot T_s$	$2192 \cdot T_s$	$2560 \cdot T_s$
1	$19760 \cdot T_s$			$20480 \cdot T_s$		
2	$21592 \cdot T_s$			$23040 \cdot T_s$		
3	$24144 \cdot T_s$			$25600 \cdot T_s$		
4	$26336 \cdot T_s$	$4384 \cdot T_s$	$5120 \cdot T_s$	$7680 \cdot T_s$	$2560 \cdot T_s$	$5120 \cdot T_s$
5	$6592 \cdot T_s$			$20480 \cdot T_s$		
6	$19760 \cdot T_s$			$23040 \cdot T_s$		
7	$21592 \cdot T_s$			$12800 \cdot T_s$	-	-
8	$24144 \cdot T_s$			-		
9	$13168 \cdot T_s$			-	-	-

For special sub-frame uplink time we used the largest cyclic prefix for duty cycle calculate;

Maximum uplink time of one special sub-frame=(largest cyclic prefix)/(one sub-frame of length)* time of one sub-frame= $5120 \cdot T_s / 30720 \cdot T_s \cdot 1\text{ms} = 0.167\text{ms}$

One radio frame with 6 uplink sub-frames and two special sub-frame,

there for the maximum Uplink time in one radio frame is: $6 \cdot 1\text{ ms} + 2 \cdot 0.167\text{ ms} = 6.334\text{ms}$

So, the duty cycle for TDD-LTE is: $6.334\text{ms} / 10\text{ms} = 1: 1.58$

8 CONDUCTED RF OUTPUT POWER

8.1 GSM

Please refer to report BL-SZ25A0385-701.

8.2 WCDMA

Please refer to report BL-SZ25A0385-701.

8.3 LTE

Please refer to report BL-SZ25A0385-701.

8.4 WIFI

8.4.1 2.4G WIFI

Band (GHz)	Mode	Channel	Freq. (MHz)	Conducted Power (dBm)	Tune-up Limit (dBm)	SAR Test Require.
2.4 (2.4~2.4835)	802.11b	1	2412	16.66	17.50	No
		6	2437	16.56	17.50	No
		11	2462	17.20	18.00	Yes
	802.11g	1	2412	16.20	17.00	No
		6	2437	16.33	17.50	No
		11	2462	16.71	17.50	No
	802.11n(HT20)	1	2412	15.24	16.00	No
		6	2437	15.40	16.50	No
		11	2462	15.83	17.00	No
	802.11n(HT40)	3	2422	15.62	16.50	No
		6	2437	16.15	17.00	No
		9	2452	15.50	16.50	No

Note: When multiple channel bandwidth configurations in a frequency band have the same maximum tune-up output power, the test configuration is determined by applying the following steps sequentially.

- 1) The largest channel bandwidth configuration is selected between the multiple configurations in a frequency band with the same maximum tune-up output power.
- 2) When multiple transmission modes (802.11b/g/n) have the same maximum tune-up output power, largest channel bandwidth, lowest order modulation and lowest data rate, the lowest order 802.11 mode is selected; i.e., 802.11b is chosen over 802.11g, and 802.11g chosen over 802.11n.

8.4.2 5G WIFI

Band (GHz)	Mode	Channel	Freq. (MHz)	Conducted Power (dBm)	Tune-up Limit (dBm)	SAR Test Require.
5.2 (5.15~5.25)	802.11a	36	5180	16.00	17.00	No
		44	5220	15.40	16.50	No
		48	5240	17.31	18.00	Yes
	802.11n(HT20)	36	5180	15.06	16.00	No
		44	5220	14.70	15.50	No
		48	5240	16.64	17.50	No
	802.11n(HT40)	38	5190	15.08	16.00	No
		46	5230	16.06	17.00	No
	802.11ac(VHT20)	36	5180	15.31	16.50	No
		44	5220	15.01	16.00	No
		48	5240	16.88	17.50	No
	802.11ac(VHT40)	38	5190	14.88	16.00	No
		46	5230	15.83	17.00	No
5.3 (5.25~5.35)	802.11a	52	5260	17.22	18.00	No
		60	5300	17.82	18.50	Yes
		64	5320	17.67	18.50	No
	802.11n(HT20)	52	5260	16.49	17.50	No
		60	5300	17.15	18.00	No
		64	5320	16.91	18.00	No
	802.11n(HT40)	54	5270	16.53	17.50	No
		62	5310	17.10	18.00	No
	802.11ac(VHT20)	52	5260	16.70	17.50	No
		60	5300	17.29	18.00	No
		64	5320	17.14	18.00	No
	802.11ac(VHT40)	54	5270	16.27	17.50	No
		62	5310	16.88	17.50	No
5.6 (5.47~5.725)	802.11a	100	5500	15.47	16.50	No
		116	5580	15.08	16.00	No
		140	5700	16.80	17.50	Yes
	802.11n(HT20)	100	5500	14.75	16.00	No
		116	5580	14.42	15.50	No
		140	5700	16.08	17.00	No
	802.11n(HT40)	102	5510	14.60	15.50	No
		118	5590	14.71	15.50	No

	802.11ac(VHT20)	134	5670	15.69	16.50	No
		100	5500	14.91	16.00	No
		116	5580	14.67	15.50	No
		140	5700	16.38	17.00	No
	802.11ac(VHT40)	102	5510	14.43	15.50	No
		118	5590	14.48	15.50	No
		134	5670	15.50	16.50	No
	802.11ac(VHT80)	106	5530	13.88	15.00	No
		122	5610	14.56	15.50	No
5.8 (5.725~5.850)	802.11a	149	5745	17.69	18.50	Yes
		157	5785	17.53	18.50	No
		165	5825	16.66	17.50	No
	802.11n(HT20)	149	5745	17.08	18.00	No
		157	5785	16.77	18.00	No
		165	5825	15.81	17.00	No
	802.11n(HT40)	151	5755	16.94	18.00	No
		159	5795	16.60	17.50	No
	802.11ac(VHT20)	149	5745	17.08	18.00	No
		157	5785	16.98	18.00	No
		165	5825	16.05	17.00	No
	802.11ac(VHT40)	151	5755	16.70	17.50	No
		159	5795	16.42	17.50	No
	802.11ac(VHT80)	155	5775	16.55	17.50	No

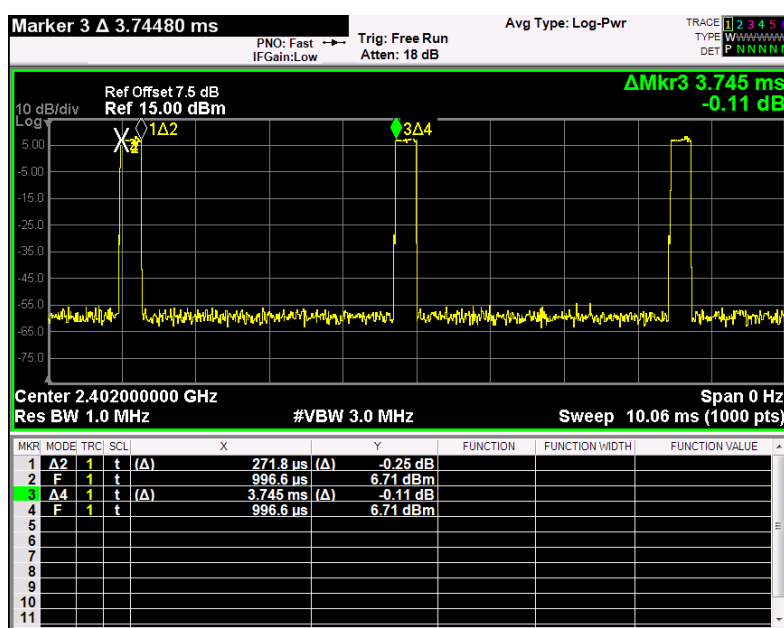
Note: When the same maximum output power is specified for both bands, begin SAR measurement in U-NII-2A band by applying the OFDM SAR requirements. If the highest reported SAR for a test configuration is ≤ 1.2 W/kg, SAR is not required for U-NII-1 band for that configuration (802.11 mode and exposure condition); otherwise, each band is tested independently for SAR.

8.5 Bluetooth

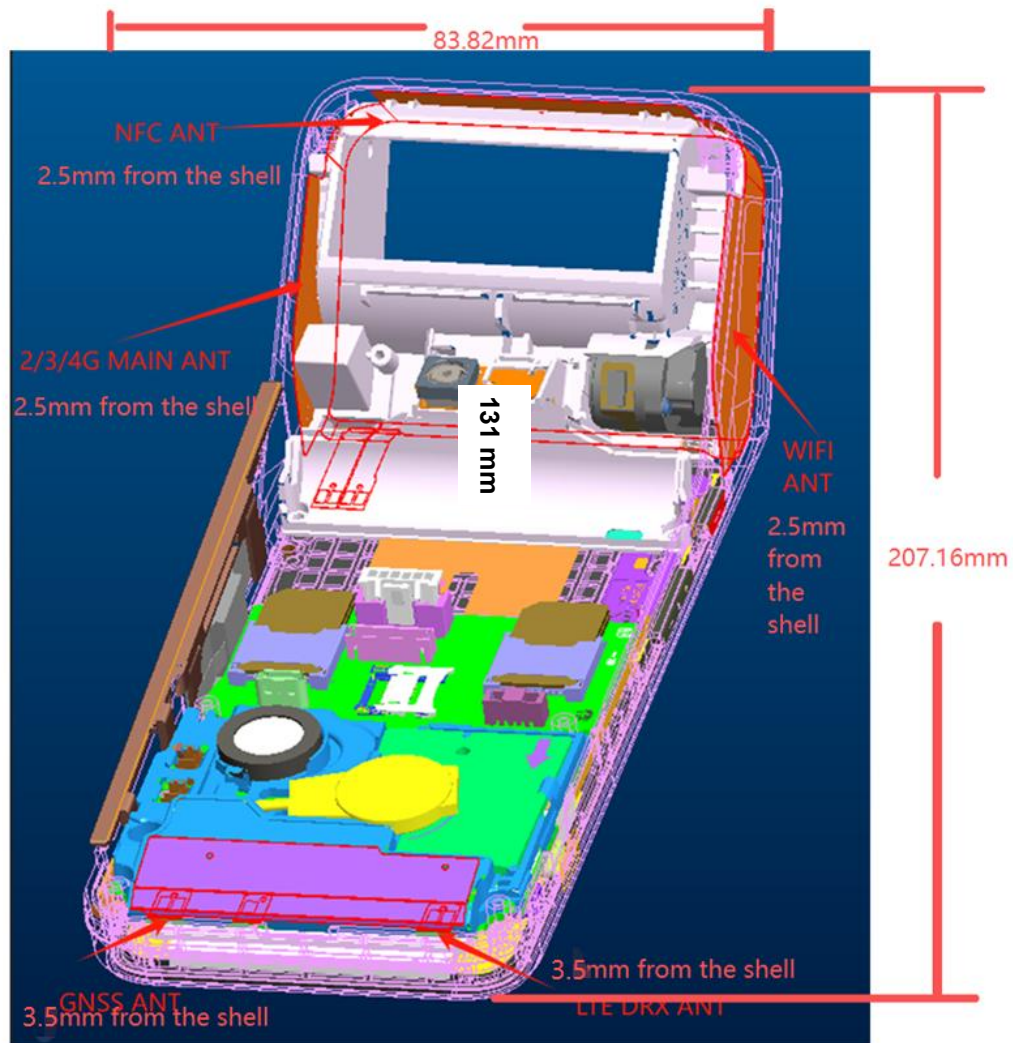
Mode	GFSK			$\pi/4$ -DQPSK		
Channel	0	39	78	0	39	78
Frequency (MHz)	2402	2441	2480	2402	2441	2480
Conducted Power (dBm)	7.65	7.80	6.98	8.13	7.78	6.99
Tune-Up Limit (dBm)	8.50	9.00	8.00	9.00	9.00	8.00
SAR Test Require	No	No	No	No	No	No
Mode	8-DPSK			/		
Channel	0	39	78	/	/	/
Frequency (MHz)	2402	2441	2480	/	/	/
Conducted Power (dBm)	8.43	8.11	7.30	/	/	/
Tune-Up Limit (dBm)	9.50	9.00	8.50	/	/	/
SAR Test Require	Yes	No	No	/	/	/
Mode	BLE-1Mbps			BLE-2Mbps		
Channel	0	19	39	0	19	39
Frequency (MHz)	2402	2440	2480	2402	2440	2480
Conducted Power (dBm)	-0.81	-0.46	-1.52	-0.41	-0.44	-1.22
Tune-Up Limit (dBm)	0.00	1.00	-1.00	1.00	1.00	0.00
SAR Test Require	No	No	No	No	No	No

Note 1: Since bluetooth BR mode is the maximum output power mode, SAR measurements were performed with test software using DH5 modulation, and SAR measurement is not required for the EDR and LE. When the secondary mode is $\leq \frac{1}{4}$ dB higher than the primary mode.

The Bluetooth duty cycle is 7.26% as following figure, according to 2016 Oct. TCB workshop for Bluetooth SAR scaling need further consideration and the maximum duty cycle is 100%, therefore the actual duty cycle will be scaled up to 100% for Bluetooth reported SAR calculation Duty Cycle.



9 Antenna Location



10 TEST RESULT

Note: Refer to ANNEX C for the detailed test data for each test configuration.

10.1 GSM 850

Test Band	Antenna	Test Position	Dist.	Test Mode	Channel	Freq. (MHz)	Power Drift(dB)	Measured 1g SAR (W/kg)	Measured 10g SAR (W/kg)	Average Power (dBm)	Tune-up Limit (dBm)	Tune-up Scaling Factor	Reported 1g SAR (W/kg)	Reported 10g SAR (W/kg)	Meas. No.
GSM 850	Body-worn& Hotspot														
	Ant.0	Front side	10mm	GPRS 4TX	190	836.6	-0.11	0.109	0.074	28.00	29.00	1.259	0.137	0.094	
		Back side			190	836.6	0.12	0.240	0.166	28.00	29.00	1.259	0.302	0.209	
		Left side			190	836.6	-0.02	0.111	0.076	28.00	29.00	1.259	0.140	0.096	
		Right side			190	836.6	-0.17	0.630	0.389	28.00	29.00	1.259	0.793	0.490	1
		Top side			190	836.6	-0.01	0.149	0.097	28.00	29.00	1.259	0.188	0.122	
		Bottom side			190	836.6	0.05	0.058	0.033	28.00	29.00	1.259	0.073	0.042	
	Limb														
	Ant.0	Front side	0mm	GPRS 4TX	190	836.6	0.08	0.189	0.115	28.00	29.00	1.259	0.238	0.145	
		Back side			190	836.6	-0.17	0.352	0.227	28.00	29.00	1.259	0.443	0.286	
		Left side			190	836.6	-0.14	0.166	0.104	28.00	29.00	1.259	0.209	0.131	
		Right side			190	836.6	0.07	1.670	0.901	28.00	29.00	1.259	2.102	1.134	2
		Top side			190	836.6	0.13	0.207	0.124	28.00	29.00	1.259	0.261	0.156	
		Bottom side			190	836.6	0.04	0.054	0.031	28.00	29.00	1.259	0.068	0.039	

10.2 GSM 1900

Test Band	Antenna	Test Position	Dist.	Test Mode	Channel	Freq. (MHz)	Power Drift(dB)	Measured 1g SAR (W/kg)	Measured 10g SAR (W/kg)	Average Power (dBm)	Tune-up Limit (dBm)	Tune-up Scaling Factor	Reported 1g SAR (W/kg)	Reported 10g SAR (W/kg)	Meas. No.
GSM 1900	Body-worn& Hotspot														
	Ant.0	Front side	10mm	GPRS 4TX	661	1880	-0.14	0.175	0.090	24.10	25.00	1.230	0.216	0.111	
		Back side			661	1880	0.12	0.295	0.155	24.10	25.00	1.230	0.363	0.191	
		Left side			661	1880	-0.15	0.149	0.083	24.10	25.00	1.230	0.183	0.102	
		Right side			661	1880	0.04	0.577	0.288	24.10	25.00	1.230	0.710	0.354	3
		Top side			661	1880	-0.04	0.442	0.233	24.10	25.00	1.230	0.543	0.286	
		Bottom side			661	1880	-0.02	0.047	0.021	24.10	25.00	1.230	0.058	0.026	
	Limb														
	Ant.0	Front side	0mm	GPRS 4TX	661	1880	-0.05	0.513	0.239	24.10	25.00	1.230	0.631	0.295	
		Back side			661	1880	0.01	0.379	0.197	24.10	25.00	1.230	0.467	0.242	
		Left side			661	1880	-0.14	0.433	0.182	24.10	25.00	1.230	0.533	0.224	
		Right side			661	1880	0.09	1.840	0.837	24.10	25.00	1.230	2.264	1.030	4
		Top side			661	1880	-0.08	0.588	0.302	24.10	25.00	1.230	0.724	0.372	
		Bottom side			661	1880	-0.12	0.031	0.015	24.10	25.00	1.230	0.038	0.019	

10.3 WCDMA Band 2

Band	Antenna	Position	Dist.	Test Mode	Channel	Freq. (MHz)	Power Drift(dB)	Measured 1g SAR (W/kg)	Measured 10g SAR (W/kg)	Average Power (dBm)	Tune-up Limit (dBm)	Tune-up Scaling Factor	Reported 1g SAR (W/kg)	Reported 10g SAR (W/kg)	Meas. no.
WCDMA B2	Body-worn& Hotspot														
	Ant0	Front side	10mm	RMC 12.2Kbps	9400	1880	0.06	0.035	0.014	19.46	20.00	1.132	0.040	0.016	
		Back side			9400	1880	0.05	0.801	0.521	19.46	20.00	1.132	0.907	0.590	5
		Back side			9400	1880	0.12	0.788	0.512	19.46	20.00	1.132	0.892	0.580	Repeat battery2
		Back side			9400	1880	0.1	0.765	0.501	19.46	20.00	1.132	0.866	0.567	
		Left side			9400	1880	-0.12	0.054	0.030	19.46	20.00	1.132	0.061	0.034	
		Right side			9400	1880	0.14	0.175	0.088	19.46	20.00	1.132	0.198	0.100	
		Top side			9400	1880	-0.18	0.570	0.326	19.46	20.00	1.132	0.645	0.369	
		Bottom side			9400	1880	0.16	0.025	0.009	19.46	20.00	1.132	0.028	0.010	
		Back side			9262	1852.4	0.09	0.515	0.299	19.16	20.00	1.213	0.625	0.363	
		Back side			9538	1907.6	-0.19	0.660	0.383	19.38	20.00	1.153	0.761	0.442	
	Ant0	Front side	0mm	RMC 12.2Kbps	9400	1880	-0.18	0.115	0.047	19.46	20.00	1.132	0.130	0.053	
		Back side			9400	1880	-0.15	2.180	1.270	19.46	20.00	1.132	2.469	1.438	6
		Left side			9400	1880	-0.17	0.121	0.061	19.46	20.00	1.132	0.137	0.069	
		Right side			9400	1880	0.09	0.615	0.263	19.46	20.00	1.132	0.696	0.298	
		Top side			9400	1880	-0.03	1.390	0.704	19.46	20.00	1.132	1.574	0.797	
		Bottom side			9400	1880	0.07	0.033	0.012	19.46	20.00	1.132	0.037	0.014	

10.4 WCDMA Band 4

Band	Antenna	Position	Dist.	Test Mode	Channel	Freq. (MHz)	Power Drift(dB)	Measured 1g SAR (W/kg)	Measured 10g SAR (W/kg)	Average Power (dBm)	Tune-up Limit (dBm)	Tune-up Scaling Factor	Reported 1g SAR (W/kg)	Reported 10g SAR (W/kg)	Meas. no.
WCDMA B4	Body-worn& Hotspot														
	Ant0	Front side	10mm	RMC 12.2Kbps	1412	1732.4	0.09	0.132	0.076	22.25	23.00	1.189	0.157	0.090	
		Back side			1412	1732.4	-0.13	0.297	0.171	22.25	23.00	1.189	0.353	0.203	
		Left side			1412	1732.4	-0.16	0.113	0.068	22.25	23.00	1.189	0.134	0.081	
		Right side			1412	1732.4	0.13	0.450	0.267	22.25	23.00	1.189	0.535	0.317	7
		Top side			1412	1732.4	0.08	0.393	0.234	22.25	23.00	1.189	0.467	0.278	
		Bottom side			1412	1732.4	-0.01	0.018	0.005	22.25	23.00	1.189	0.021	0.006	
	Limb														
	Ant0	Front side	0mm	RMC 12.2Kbps	1412	1732.4	0.18	0.598	0.309	22.25	23.00	1.189	0.711	0.367	
		Back side			1412	1732.4	0.18	0.807	0.421	22.25	23.00	1.189	0.959	0.500	
		Left side			1412	1732.4	-0.05	0.811	0.390	22.25	23.00	1.189	0.964	0.464	
		Right side			1412	1732.4	0.17	2.320	1.190	22.25	23.00	1.189	2.757	1.414	8
		Top side			1412	1732.4	0.18	1.130	0.563	22.25	23.00	1.189	1.343	0.669	
		Bottom side			1412	1732.4	0.05	0.025	0.014	22.25	23.00	1.189	0.030	0.017	

10.5 WCDMA Band 5

Band	Antenna	Position	Dist.	Test Mode	Channel	Freq. (MHz)	Power Drift(dB)	Measured 1g SAR (W/kg)	Measured 10g SAR (W/kg)	Average Power (dBm)	Tune-up Limit (dBm)	Tune-up Scaling Factor	Reported 1g SAR (W/kg)	Reported 10g SAR (W/kg)	Meas. no.
WCDMA B5	Body-worn& Hotspot														
	Ant0	Front side	10mm	RMC 12.2Kbps	4182	836.4	-0.08	0.052	0.036	23.07	24.00	1.239	0.064	0.045	
		Back side			4182	836.4	-0.16	0.120	0.080	23.07	24.00	1.239	0.149	0.099	
		Left side			4182	836.4	-0.07	0.061	0.042	23.07	24.00	1.239	0.076	0.052	
		Right side			4182	836.4	0.01	0.543	0.348	23.07	24.00	1.239	0.673	0.431	9
		Top side			4182	836.4	0.13	0.055	0.032	23.07	24.00	1.239	0.068	0.040	
		Bottom side			4182	836.4	-0.03	0.019	0.009	23.07	24.00	1.239	0.024	0.011	
	Limb														
	Ant0	Front side	0mm	RMC 12.2Kbps	4182	836.4	0.07	0.125	0.072	23.07	24.00	1.239	0.155	0.089	
		Back side			4182	836.4	0.02	0.298	0.179	23.07	24.00	1.239	0.369	0.222	
		Left side			4182	836.4	0.19	0.201	0.113	23.07	24.00	1.239	0.249	0.140	
		Right side			4182	836.4	0.04	1.040	0.607	23.07	24.00	1.239	1.288	0.752	10
		Top side			4182	836.4	-0.11	0.142	0.083	23.07	24.00	1.239	0.176	0.103	
		Bottom side			4182	836.4	0.12	0.018	0.009	23.07	24.00	1.239	0.022	0.011	

10.6 LTE Band 2

Band	Antenna	Position	Dist.	Test Mode	Channel	Freq. (MHz)	RB num.	RB Start	Power Drift(dB)	Measured 1g SAR (W/kg)	Measured 10g SAR (W/kg)	Average Power (dBm)	Tune-up Limit (dBm)	Tune-up Scaling Factor	Reported 1g SAR (W/kg)	Reported 10g SAR (W/kg)	Meas. no.
LTE B2	Body-worn& Hotspot																
	Ant.0	Front side	10mm	QPSK-20MHz	18900	1880	1	0	0.06	0.033	0.012	19.46	20.50	1.271	0.042	0.015	
		Back side			18900	1880	1	0	-0.12	0.516	0.295	19.46	20.50	1.271	0.656	0.375	
		Left side			18900	1880	1	0	-0.12	0.055	0.033	19.46	20.50	1.271	0.070	0.042	
		Right side			18900	1880	1	0	0.12	0.448	0.234	19.46	20.50	1.271	0.569	0.297	
		Top side			18900	1880	1	0	-0.11	0.526	0.338	19.46	20.50	1.271	0.668	0.429	11
		Bottom side			18900	1880	1	0	0.02	0.022	0.011	19.46	20.50	1.271	0.028	0.014	
		Front side			18900	1880	50	0	-0.15	0.029	0.011	18.51	19.50	1.256	0.036	0.014	
		Back side			18900	1880	50	0	-0.18	0.403	0.230	18.51	19.50	1.256	0.506	0.289	
		Left side			18900	1880	50	0	-0.05	0.042	0.024	18.51	19.50	1.256	0.053	0.030	
		Right side			18900	1880	50	0	0.06	0.325	0.171	18.51	19.50	1.256	0.408	0.215	
		Top side			18900	1880	50	0	-0.19	0.438	0.248	18.51	19.50	1.256	0.550	0.311	
		Bottom side			18900	1880	50	0	0.05	0.021	0.010	18.51	19.50	1.256	0.026	0.013	
	Limb																
	Ant.0	Front side	0mm	QPSK-20MHz	18900	1880	1	0	-0.12	0.128	0.051	19.46	20.50	1.271	0.163	0.065	
		Back side			18900	1880	1	0	0.03	1.530	0.796	19.46	20.50	1.271	1.944	1.011	
		Left side			18900	1880	1	0	-0.03	0.110	0.057	19.46	20.50	1.271	0.140	0.072	
		Right side			18900	1880	1	0	0.12	1.760	0.774	19.46	20.50	1.271	2.236	0.983	
		Top side			18900	1880	1	0	0.02	1.790	1.040	19.46	20.50	1.271	2.274	1.321	12
		Bottom side			18900	1880	1	0	0.02	0.051	0.027	19.46	20.50	1.271	0.065	0.034	
		Front side			18900	1880	50	0	-0.02	0.076	0.034	18.51	19.50	1.256	0.095	0.043	
		Back side			18900	1880	50	0	-0.04	1.190	0.618	18.51	19.50	1.256	1.495	0.776	
		Left side			18900	1880	50	0	0.16	0.073	0.036	18.51	19.50	1.256	0.092	0.045	
		Right side			18900	1880	50	0	0.12	1.110	0.507	18.51	19.50	1.256	1.394	0.637	
		Top side			18900	1880	50	0	0.10	1.501	0.722	18.51	19.50	1.256	1.885	0.907	
		Bottom side			18900	1880	50	0	-0.14	0.045	0.022	18.51	19.50	1.256	0.057	0.028	

10.7LTE Band 4

Band	Antenna	Position	Dist.	Test Mode	Channel	Freq. (MHz)	RB num.	RB Start	Power Drift(dB)	Measured 1g SAR (W/kg)	Measured 10g SAR (W/kg)	Average Power (dBm)	Tune-up Limit (dBm)	Tune-up Scaling Factor	Reported 1g SAR (W/kg)	Reported 10g SAR (W/kg)	Meas. no.
LTE B4	Body-worn& Hotspot																
	Ant.0	Front side	10mm	QPSK-20MHz	20175	1732.5	1	0	-0.16	0.161	0.091	23.56	24.50	1.242	0.200	0.113	
		Back side			20175	1732.5	1	0	-0.02	0.321	0.194	23.56	24.50	1.242	0.399	0.241	
		Left side			20175	1732.5	1	0	0.17	0.144	0.088	23.56	24.50	1.242	0.179	0.109	
		Right side			20175	1732.5	1	0	0.18	0.337	0.203	23.56	24.50	1.242	0.418	0.252	13
		Top side			20175	1732.5	1	0	-0.06	0.305	0.195	23.56	24.50	1.242	0.379	0.242	
		Bottom side			20175	1732.5	1	0	0.12	0.028	0.016	23.56	24.50	1.242	0.035	0.020	
		Front side			20175	1732.5	50	0	-0.01	0.138	0.078	22.39	23.50	1.291	0.178	0.101	
		Back side			20175	1732.5	50	0	0.09	0.322	0.187	22.39	23.50	1.291	0.416	0.241	
		Left side			20175	1732.5	50	0	0.09	0.128	0.077	22.39	23.50	1.291	0.165	0.099	
		Right side			20175	1732.5	50	0	0.17	0.315	0.184	22.39	23.50	1.291	0.407	0.238	
		Top side			20175	1732.5	50	0	-0.02	0.315	0.192	22.39	23.50	1.291	0.407	0.248	
		Bottom side			20175	1732.5	50	0	-0.19	0.018	0.009	22.39	23.50	1.291	0.023	0.012	
	Limb																
	Ant.0	Front side	0mm	QPSK-20MHz	20175	1732.5	1	0	-0.05	0.634	0.341	23.56	24.50	1.242	0.787	0.423	
		Back side			20175	1732.5	1	0	-0.18	0.996	0.522	23.56	24.50	1.242	1.237	0.648	
		Left side			20175	1732.5	1	0	0.02	0.729	0.366	23.56	24.50	1.242	0.905	0.454	
		Right side			20175	1732.5	1	0	0.01	2.500	1.290	23.56	24.50	1.242	3.104	1.602	14
		Top side			20175	1732.5	1	0	-0.09	1.190	0.632	23.56	24.50	1.242	1.478	0.785	
		Bottom side			20175	1732.5	1	0	0.04	0.012	0.006	23.56	24.50	1.242	0.015	0.007	
		Front side			20175	1732.5	50	0	0.02	0.595	0.302	22.39	23.50	1.291	0.768	0.390	
		Back side			20175	1732.5	50	0	0.15	0.804	0.419	22.39	23.50	1.291	1.038	0.541	
		Left side			20175	1732.5	50	0	-0.1	0.688	0.338	22.39	23.50	1.291	0.888	0.436	
		Right side			20175	1732.5	50	0	0.06	2.410	1.140	22.39	23.50	1.291	3.112	1.472	
		Top side			20175	1732.5	50	0	0.07	1.020	0.560	22.39	23.50	1.291	1.317	0.723	
		Bottom side			20175	1732.5	50	0	0.13	0.025	0.011	22.39	23.50	1.291	0.032	0.014	

10.8LTE Band 5

Band	Antenna	Position	Dist.	Test Mode	Channel	Freq. (MHz)	RB num.	RB Start	Power Drift(dB)	Measured 1g SAR (W/kg)	Measured 10g SAR (W/kg)	Average Power (dBm)	Tune-up Limit (dBm)	Tune-up Scaling Factor	Reported 1g SAR (W/kg)	Reported 10g SAR (W/kg)	Meas. no.
LTE B5	Body-worn& Hotspot																
	Ant.0	Front side	10mm	QPSK-10MHz	20525	836.5	1	0	-0.05	0.057	0.039	23.57	24.50	1.239	0.071	0.048	
		Back side			20525	836.5	1	0	0.12	0.147	0.098	23.57	24.50	1.239	0.182	0.121	
		Left side			20525	836.5	1	0	-0.04	0.069	0.046	23.57	24.50	1.239	0.085	0.057	
		Right side			20525	836.5	1	0	-0.05	0.386	0.244	23.57	24.50	1.239	0.478	0.302	15
		Top side			20525	836.5	1	0	0.11	0.100	0.050	23.57	24.50	1.239	0.124	0.062	
		Bottom side			20525	836.5	1	0	-0.04	0.018	0.009	23.57	24.50	1.239	0.022	0.011	
		Front side			20525	836.5	25	0	0.09	0.045	0.032	22.43	23.50	1.279	0.058	0.041	
		Back side			20525	836.5	25	0	0.1	0.116	0.076	22.43	23.50	1.279	0.148	0.097	
		Left side			20525	836.5	25	0	0.09	0.058	0.039	22.43	23.50	1.279	0.074	0.050	
		Right side			20525	836.5	25	0	-0.08	0.291	0.182	22.43	23.50	1.279	0.373	0.232	
		Top side			20525	836.5	25	0	0.01	0.088	0.044	22.43	23.50	1.279	0.113	0.056	
		Bottom side			20525	836.5	25	0	0.09	0.018	0.006	22.43	23.50	1.279	0.023	0.008	
	Limb																
	Ant.0	Front side	0mm	QPSK-10MHz	20525	836.5	1	0	0.08	0.142	0.084	23.57	24.50	1.239	0.176	0.104	
		Back side			20525	836.5	1	0	0.12	0.312	0.189	23.57	24.50	1.239	0.387	0.234	
		Left side			20525	836.5	1	0	-0.19	0.219	0.128	23.57	24.50	1.239	0.271	0.159	
		Right side			20525	836.5	1	0	0.04	1.190	0.699	23.57	24.50	1.239	1.474	0.866	16
		Top side			20525	836.5	1	0	0.14	0.055	0.036	23.57	24.50	1.239	0.068	0.045	
		Bottom side			20525	836.5	1	0	0.03	0.061	0.025	23.57	24.50	1.239	0.076	0.031	
		Front side			20525	836.5	25	0	-0.14	0.107	0.066	22.43	23.50	1.279	0.137	0.084	
		Back side			20525	836.5	25	0	0.18	0.256	0.154	22.43	23.50	1.279	0.328	0.197	
		Left side			20525	836.5	25	0	-0.04	0.177	0.102	22.43	23.50	1.279	0.226	0.130	
		Right side			20525	836.5	25	0	-0.15	0.984	0.672	22.43	23.50	1.279	1.259	0.860	
		Top side			20525	836.5	25	0	0.06	0.148	0.055	22.43	23.50	1.279	0.189	0.070	
		Bottom side			20525	836.5	25	0	-0.14	0.055	0.020	22.43	23.50	1.279	0.070	0.026	

10.9 LTE Band 7

Band	Antenna	Position	Dist.	Test Mode	Channel	Freq. (MHz)	RB num.	RB Start	Power Drift(dB)	Measured 1g SAR (W/kg)	Measured 10g SAR (W/kg)	Average Power (dBm)	Tune-up Limit (dBm)	Tune-up Scaling Factor	Reported 1g SAR (W/kg)	Reported 10g SAR (W/kg)	Meas. no.
LTE B7	Body-worn& Hotspot																
	Ant.0	Front side	10mm	QPSK-20MHz	21100	2535	1	0	-0.14	0.101	0.059	23.52	24.50	1.253	0.127	0.074	
		Back side			21100	2535	1	0	-0.05	0.670	0.348	23.52	24.50	1.253	0.840	0.436	
		Left side			21100	2535	1	0	0.06	0.092	0.052	23.52	24.50	1.253	0.115	0.065	
		Right side			21100	2535	1	0	0.05	0.831	0.426	23.52	24.50	1.253	1.041	0.534	
		Top side			21100	2535	1	0	0.17	0.476	0.253	23.52	24.50	1.253	0.596	0.317	
		Bottom side			21100	2535	1	0	-0.05	0.025	0.013	23.52	24.50	1.253	0.031	0.016	
		Right side			20850	2510	1	0	-0.01	0.845	0.434	23.46	24.50	1.271	1.074	0.551	17
		Right side			20850	2510	1	0	0.02	0.827	0.416	23.46	24.50	1.271	1.051	0.529	Repeat battery2
		Right side			20850	2510	1	0	0.10	0.830	0.420	23.46	24.50	1.271	1.055	0.534	
		Right side			21350	2560	1	0	-0.11	0.759	0.384	23.40	24.50	1.288	0.978	0.495	
		Front side			21100	2535	50	0	0.15	0.083	0.040	22.40	23.50	1.288	0.107	0.052	
		Back side			21100	2535	50	0	0.16	0.500	0.265	22.40	23.50	1.288	0.644	0.341	
		Left side			21100	2535	50	0	0.12	0.076	0.043	22.40	23.50	1.288	0.098	0.055	
		Right side			21100	2535	50	0	0.11	0.714	0.336	22.40	23.50	1.288	0.920	0.433	
		Top side			21100	2535	50	0	-0.03	0.442	0.235	22.40	23.50	1.288	0.569	0.303	
		Bottom side			21100	2535	50	0	-0.02	0.028	0.014	22.40	23.50	1.288	0.036	0.018	
		Right side			20850	2510	50	0	-0.08	0.803	0.379	22.35	23.50	1.303	1.046	0.494	
		Right side			21350	2560	50	0	0.07	0.773	0.348	22.28	23.50	1.324	1.024	0.461	
		Right side			21100	2535	100	0	-0.16	0.696	0.329	22.39	23.50	1.291	0.899	0.425	
		Limb															
	Ant.0	Front side	0mm	QPSK-20MHz	21100	2535	1	0	-0.09	0.343	0.153	23.52	24.50	1.253	0.430	0.192	
		Back side			21100	2535	1	0	0.18	2.220	1.010	23.52	24.50	1.253	2.782	1.266	
		Left side			21100	2535	1	0	0.07	0.303	0.139	23.52	24.50	1.253	0.380	0.174	
		Right side			21100	2535	1	0	-0.07	3.820	1.690	23.52	24.50	1.253	4.787	2.118	18
		Top side			21100	2535	1	0	0.08	1.670	0.752	23.52	24.50	1.253	2.093	0.942	
		Bottom side			21100	2535	1	0	0.17	0.041	0.022	23.52	24.50	1.253	0.051	0.028	
		Right side			20850	2510	1	0	0.08	3.650	1.520	23.52	24.50	1.253	4.574	1.905	
		Right side			21350	2560	1	0	0.17	3.700	1.560	23.52	24.50	1.253	4.637	1.955	
		Front side			21100	2535	50	0	-0.11	0.282	0.125	22.40	23.50	1.288	0.363	0.161	
		Back side			21100	2535	50	0	-0.05	1.800	0.825	22.40	23.50	1.288	2.319	1.063	
		Left side			21100	2535	50	0	-0.14	0.242	0.109	22.40	23.50	1.288	0.312	0.140	
		Right side			21100	2535	50	0	0.14	3.470	1.280	22.40	23.50	1.288	4.470	1.649	
		Top side			21100	2535	50	0	-0.13	1.560	0.658	22.40	23.50	1.288	2.010	0.848	
		Bottom side			21100	2535	50	0	0.19	0.034	0.010	22.40	23.50	1.288	0.044	0.013	
		Right side			20850	2510	50	0	-0.13	3.200	1.120	22.40	23.50	1.288	4.122	1.443	
		Right side			21350	2560	50	0	0.19	3.300	1.180	22.40	23.50	1.288	4.251	1.520	

10.10 LTE Band 38

Band	Antenna	Position	Dist.	Test Mode	Channel	Freq. (MHz)	RB num.	RB Start	Power Drift(dB)	Measured 1g SAR (W/kg)	Measured 10g SAR (W/kg)	Average Power (dBm)	Tune-up Limit (dBm)	Tune-up Scaling Factor	Reported 1g SAR (W/kg)	Reported 10g SAR (W/kg)	Meas. no.
LTE B38	Body-worn& Hotspot																
	Ant. 0	Front side	10mm	QPSK-20MHz	38000	2595	1	0	0.13	0.056	0.032	23.78	24.50	1.180	0.066	0.038	
		Back side			38000	2595	1	0	-0.18	0.407	0.214	23.78	24.50	1.180	0.480	0.253	
		Left side			38000	2595	1	0	0.19	0.090	0.045	23.78	24.50	1.180	0.106	0.053	
		Right side			38000	2595	1	0	-0.08	0.605	0.256	23.78	24.50	1.180	0.714	0.302	19
		Top side			38000	2595	1	0	0.17	0.246	0.128	23.78	24.50	1.180	0.290	0.151	
		Bottom side			38000	2595	1	0	-0.13	0.015	0.008	23.78	24.50	1.180	0.018	0.009	
		Front side			38000	2595	50	0	-0.01	0.061	0.033	22.61	23.50	1.227	0.075	0.041	
		Back side			38000	2595	50	0	0.13	0.340	0.177	22.61	23.50	1.227	0.417	0.217	
		Left side			38000	2595	50	0	0.11	0.079	0.039	22.61	23.50	1.227	0.097	0.048	
		Right side			38000	2595	50	0	-0.18	0.376	0.175	22.61	23.50	1.227	0.462	0.215	
		Top side			38000	2595	50	0	-0.11	0.200	0.100	22.61	23.50	1.227	0.245	0.123	
		Bottom side			38000	2595	50	0	-0.15	0.030	0.008	22.61	23.50	1.227	0.037	0.010	
	Limb																
	Ant. 0	Front side	0mm	QPSK-20MHz	38000	2595	1	0	-0.11	0.213	0.102	23.78	24.50	1.180	0.251	0.120	
		Back side			38000	2595	1	0	-0.12	1.430	0.638	23.78	24.50	1.180	1.688	0.753	
		Left side			38000	2595	1	0	-0.12	0.245	0.108	23.78	24.50	1.180	0.289	0.127	
		Right side			38000	2595	1	0	0.12	2.220	0.936	23.78	24.50	1.180	2.620	1.105	20
		Top side			38000	2595	1	0	-0.13	1.050	0.476	23.78	24.50	1.180	1.239	0.562	
		Bottom side			38000	2595	1	0	-0.02	0.035	0.011	23.78	24.50	1.180	0.041	0.013	
		Front side			38000	2595	50	0	0.01	0.184	0.084	22.61	23.50	1.227	0.226	0.103	
		Back side			38000	2595	50	0	-0.18	1.100	0.495	22.61	23.50	1.227	1.350	0.608	
		Left side			38000	2595	50	0	0.15	0.194	0.085	22.61	23.50	1.227	0.238	0.104	
		Right side			38000	2595	50	0	0.11	2.130	0.809	22.61	23.50	1.227	2.614	0.993	
		Top side			38000	2595	50	0	-0.01	0.956	0.487	22.61	23.50	1.227	1.173	0.598	
		Bottom side			38000	2595	50	0	-0.08	0.056	0.016	22.61	23.50	1.227	0.069	0.020	

10.11 Bluetooth

Band	Antenna	Position	Dist.	Test Mode	Channel	Freq. (MHz)	Power Drift(dB)	Power Drift(dB)	Measured 1g SAR (W/kg)	Measured 10g SAR (W/kg)	Average Power (dBm)	Tune-up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle (%)	Duty Cycle Scaled Factor	Reported 1g SAR (W/kg)	Reported 10g SAR (W/kg)	Meas. no.
Bluetooth	Body-worn& Hotspot																	
	Ant.1	Front side	10mm	3DH5	0	2402	-0.12	0.09	0.015	0.007	8.43	9.50	1.280	7.26	13.774	0.265	0.123	
		Back side			0	2402	0.09	-0.05	0.008	0.004	8.43	9.50	1.280	7.26	13.774	0.141	0.071	
		Right side			0	2402	0.04	-0.05	0.014	0.006	8.43	9.50	1.280	7.26	13.774	0.247	0.106	
		Left side			0	2402	0.01	-0.04	0.031	0.015	8.43	9.50	1.280	7.26	13.774	0.552	0.256	21
		Top side			0	2402	-0.10	-0.11	0.010	0.005	8.43	9.50	1.280	7.26	13.774	0.176	0.088	
		Bottom side			0	2402	0.01	0.15	0.013	0.005	8.43	9.50	1.280	7.26	13.774	0.229	0.088	
	Limb																	
	Ant.1	Front side	0mm	3DH5	0	2402	0.07	-0.06	0.100	0.050	8.43	9.50	1.280	7.26	13.774	1.763	0.882	
		Back side			0	2402	0.10	0.19	0.050	0.024	8.43	9.50	1.280	7.26	13.774	0.882	0.423	
		Right side			0	2402	-0.08	-0.14	0.036	0.018	8.43	9.50	1.280	7.26	13.774	0.635	0.317	
		Left side			0	2402	0.01	0.04	0.200	0.100	8.43	9.50	1.280	7.26	13.774	3.527	1.763	22
		Top side			0	2402	-0.15	0.03	0.080	0.042	8.43	9.50	1.280	7.26	13.774	1.411	0.741	
		Bottom side			0	2402	0.01	-0.15	0.020	0.010	8.43	9.50	1.280	7.26	13.774	0.353	0.176	

10.12 WIFI 2.4GHz

Test Band	Test Band	Antenna	Test Position	Dist.	Test Mode	Test Channe	Freq.(MHz)	Power Drift(dB)	Measured 1g SAR (W/kg)	Measured 10g SAR (W/kg)	Average Power (dBm)	Tune-up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle (%)	Duty Cycle Scaled Factor	Reported 1g SAR (W/kg)	Reported 10g SAR (W/kg)	Meas. No.
WLAN 2.4G	WLAN 2.4G	Body-worn& Hotspot																
		Ant. 1	Front side	10mm	802.11b 1Mbps	11	2462	0.09	0.059	0.034	17.20	18.00	1.202	97.09	1.030	0.073	0.042	/
			Back side			11	2462	0.19	0.036	0.011	17.20	18.00	1.202	97.09	1.030	0.045	0.014	/
			Left side			11	2462	0.03	0.529	0.244	17.20	18.00	1.202	97.09	1.030	0.655	0.302	23
			Right side			11	2462	-0.13	0.027	0.014	17.20	18.00	1.202	97.09	1.030	0.033	0.017	/
			Top side			11	2462	-0.12	0.030	0.015	17.20	18.00	1.202	97.09	1.030	0.037	0.019	/
			Bottom side			11	2462	-0.12	0.020	0.010	17.20	18.00	1.202	97.09	1.030	0.025	0.012	/
		Limb																
		Ant. 1	Front side	0mm	802.11b 1Mbps	11	2462	0.15	0.162	0.081	17.20	18.00	1.202	97.09	1.030	0.201	0.100	/
			Back side			11	2462	0.19	0.044	0.012	17.20	18.00	1.202	97.09	1.030	0.054	0.015	/
			Left side			11	2462	0.14	4.650	1.630	17.20	18.00	1.202	97.09	1.030	5.758	2.018	/
			Right side			11	2462	0.17	0.114	0.054	17.20	18.00	1.202	97.09	1.030	0.141	0.067	/
			Top side			11	2462	-0.17	0.123	0.054	17.20	18.00	1.202	97.09	1.030	0.152	0.067	/
			Bottom side			11	2462	-0.15	0.056	0.026	17.20	18.00	1.202	97.09	1.030	0.069	0.032	/
			Left side			1	2412	-0.15	4.510	1.600	16.66	17.50	1.213	97.09	1.030	5.637	2.000	/
			Left side			6	2437	-0.12	5.010	1.760	16.56	17.50	1.242	97.09	1.030	6.407	2.251	24
			Left side			6	2437	0.11	4.880	1.650	16.56	17.50	1.242	97.09	1.030	6.241	2.110	battery2

10.13 WIFI 5GHz

Test Band	Test Band	Antenna	Test Position	Dist.	Test Mode	Test Channel	Freq.(MHz)	Power Drift(dB)	Measured 1g SAR (W/kg)	Measured 10g SAR (W/kg)	Average Power (dBm)	Tune-up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle (%)	Duty Cycle Scaled Factor	Reported 1g SAR (W/kg)	Reported 10g SAR (W/kg)	Meas. No.
WALN 5G	WALN 5.2G	Body-worn& Hotspot																
		Ant.1	Front side	10mm	802.11a 6Mbps	48	5240	-0.02	0.172	0.072	17.31	18.50	1.316	89.13	1.122	0.254	0.106	/
			Back side			48	5240	0.16	0.230	0.099	17.31	18.50	1.316	89.13	1.122	0.339	0.146	/
			Left side			48	5240	0.03	0.469	0.162	17.31	18.50	1.316	89.13	1.122	0.692	0.239	25
			Right side			48	5240	-0.15	0.142	0.034	17.31	18.50	1.316	89.13	1.122	0.210	0.050	/
			Top side			48	5240	-0.01	0.140	0.050	17.31	18.50	1.316	89.13	1.122	0.207	0.074	/
			Bottom side			48	5240	0.05	0.082	0.020	17.31	18.50	1.316	89.13	1.122	0.121	0.030	/
		Ant.1	Front side	10mm	802.11a 6Mbps	60	5300	0.14	0.181	0.068	17.82	19.00	1.313	89.13	1.122	0.267	0.100	/
			Back side			60	5300	0.12	0.229	0.096	17.82	19.00	1.313	89.13	1.122	0.337	0.141	/
			Left side			60	5300	0.18	0.488	0.178	17.82	19.00	1.313	89.13	1.122	0.719	0.262	26
			Right side			60	5300	-0.03	0.105	0.042	17.82	19.00	1.313	89.13	1.122	0.155	0.062	/
			Top side			60	5300	-0.01	0.177	0.079	17.82	19.00	1.313	89.13	1.122	0.261	0.116	/
			Bottom side			60	5300	0.06	0.057	0.017	17.31	18.50	1.316	89.13	1.122	0.084	0.025	/
	WALN 5.3G	Ant.1	Front side	10mm	802.11a 6Mbps	140	5700	-0.15	0.188	0.076	16.80	18.00	1.319	89.13	1.122	0.278	0.112	/
			Back side			140	5700	0.17	0.280	0.120	16.80	18.00	1.319	89.13	1.122	0.414	0.178	/
			Left side			140	5700	0.12	0.519	0.183	16.80	18.00	1.319	89.13	1.122	0.768	0.271	27
			Right side			140	5700	-0.05	0.125	0.047	16.80	18.00	1.319	89.13	1.122	0.185	0.070	/
			Top side			140	5700	0.03	0.159	0.066	16.80	18.00	1.319	89.13	1.122	0.235	0.098	/
			Bottom side			140	5700	0.1	0.098	0.025	16.80	18.00	1.319	89.13	1.122	0.145	0.037	/
	WALN 5.6G	Ant.1	Front side	10mm	802.11a 6Mbps	149	5745	-0.09	0.261	0.102	17.69	18.50	1.205	89.13	1.122	0.353	0.138	/
			Back side			149	5745	-0.16	0.270	0.140	17.69	18.50	1.205	89.13	1.122	0.365	0.189	/
			Left side			149	5745	-0.15	0.548	0.199	17.69	18.50	1.205	89.13	1.122	0.741	0.269	28
			Right side			149	5745	-0.01	0.178	0.041	17.69	18.50	1.205	89.13	1.122	0.241	0.055	/
			Top side			149	5745	0.05	0.200	0.078	17.69	18.50	1.205	89.13	1.122	0.270	0.105	/
			Bottom side			149	5745	-0.03	0.171	0.039	17.69	18.50	1.205	89.13	1.122	0.231	0.053	/

Test Band	Test Band	Antenna	Test Position	Dist.	Test Mode	Test Channe	Freq.(MHz)	Power Drift(dB)	Measured 1g SAR (W/kg)	Measured 10g SAR (W/kg)	Average Power (dBm)	Tune-up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle (%)	Duty Cycle Scaled Factor	Reported 1g SAR (W/kg)	Reported 10g SAR (W/kg)	Meas. No.	
WALN 5G	WALN 5.2G	Ant.1	Extremity		802.11a 6Mbps	0mm	48	5240	0.15	0.563	0.167	17.31	18.00	1.172	89.13	1.122	0.741	0.220	/
			48	5240			0.18	0.267	0.106	17.31	18.00	1.172	89.13	1.122	0.351	0.139	/		
			48	5240			0.15	4.100	1.210	17.31	18.00	1.172	89.13	1.122	5.394	1.592	29		
			48	5240			-0.12	0.274	0.084	17.31	18.00	1.172	89.13	1.122	0.360	0.111	/		
			48	5240			0.02	0.407	0.148	17.31	18.00	1.172	89.13	1.122	0.535	0.195	/		
			48	5240			0.14	0.059	0.013	17.31	18.00	1.172	89.13	1.122	0.078	0.017	/		
	WALN 5.3G	Ant.1	0mm	802.11a 6Mbps	60	5300	-0.12	0.699	0.205	17.82	18.50	1.170	89.13	1.122	0.917	0.269	/		
					60	5300	-0.03	0.480	0.190	17.82	18.50	1.170	89.13	1.122	0.630	0.249	/		
					60	5300	0.09	4.530	1.210	17.82	18.50	1.170	89.13	1.122	5.946	1.588	30		
					60	5300	-0.04	0.417	0.128	17.82	18.50	1.170	89.13	1.122	0.547	0.168	/		
					60	5300	0.15	0.320	0.120	17.82	18.50	1.170	89.13	1.122	0.420	0.157	/		
					60	5300	-0.19	0.045	0.012	17.82	18.50	1.170	89.13	1.122	0.059	0.016	/		
	WALN 5.6G	Ant.1	0mm	802.11a 6Mbps	140	5700	-0.11	0.466	0.157	16.80	17.50	1.175	89.13	1.122	0.614	0.207	/		
					140	5700	-0.04	0.849	0.325	16.80	17.50	1.175	89.13	1.122	1.119	0.429	/		
					140	5700	0.16	5.420	1.210	16.80	17.50	1.175	89.13	1.122	7.146	1.595	31		
					140	5700	0.19	0.426	0.128	16.80	17.50	1.175	89.13	1.122	0.562	0.169	/		
					140	5700	-0.12	0.300	0.150	16.80	17.50	1.175	89.13	1.122	0.396	0.198	/		
					140	5700	0.19	0.084	0.020	16.80	17.50	1.175	89.13	1.122	0.111	0.026	/		
	WALN 5.8G	Ant.1	0mm	802.11a 6Mbps	149	5745	-0.06	0.377	0.139	17.69	18.50	1.205	89.13	1.122	0.510	0.188	/		
					149	5745	0.17	0.774	0.296	17.69	18.50	1.205	89.13	1.122	1.047	0.400	/		
					149	5745	0.02	3.820	0.994	17.69	18.50	1.205	89.13	1.122	5.166	1.344	32		
					149	5745	-0.16	0.268	0.097	17.69	18.50	1.205	89.13	1.122	0.362	0.131	/		
					149	5745	-0.11	0.568	0.192	17.69	18.50	1.205	89.13	1.122	0.768	0.260	/		
					149	5745	0.15	0.069	0.017	17.69	18.50	1.205	89.13	1.122	0.093	0.023	/		

10.14 NFC SAR

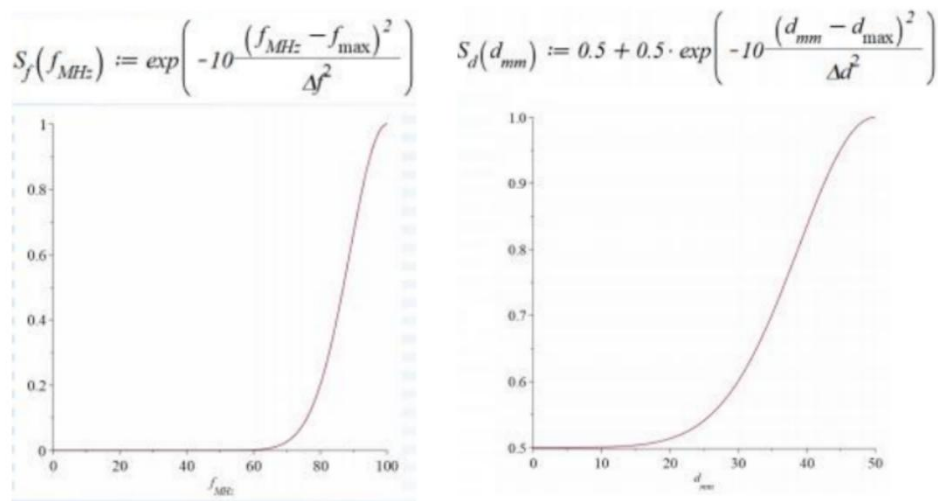
1. According to the 2022.04 TCBC Workshop meeting, the power threshold is $\leq 100\text{MHz}$, refer to P6s.

$$P_{7X}(d_{mm}, f_{MHz}) := \begin{cases} P_{6S}(d_{mm}, f_{MHz}) & f_{MHz} \leq 100 \\ P_{6to7}(d_{mm}, f_{MHz}) & 100 < f_{MHz} \leq 300 \\ P_7(d_{mm}, f_{MHz}) & 300 < f_{MHz} \end{cases}$$

2. For portable products, when using a distance of $\leq 50\text{mm}$, such as mobile phone NFC, P6s is calculated with the following formula calculate.

$$S_f(f_{MHz}) \cdot P_{431a}(d_{mm}, f_{MHz}) + (1 - S_f(f_{MHz})) \cdot S_d(d_{mm}) \cdot P_{431b1}(50., 100.) \cdot \left(1 + \log_{10}\left(\frac{100.}{f_{MHz}}\right)\right) \quad d_{mm} \leq 50 \text{ and } f_{MHz} \leq 100$$

3. The smoothing functions S_f and S_d in P6s calculate the limits based on KDB 447498 V06 and are calculated as follows.



d≤50mm			
f Max(MHz)	100	d Max(mm)	50
f MHz	13.56	d(mm)	5
△f(MHz)	100	△d	50
S _f (f _{MHz})	0.000568861	S _d (d _{mm})	0.50015177
P6s(mW)	443.1257378		
Note: SAR testing is required when the distance is 5mm and the power is greater than 443.13mW.			

4. According to the ANSI C63.10 clause 11.12.2.2:

The value of maximum peak output power is according to the method described in ANSI C63.10 clause 11.12.2.2 General procedure for conducted measurements in restricted bands:

a) Measure the conducted output power (in dBm) using the detector specified (see guidance regarding measurement procedures for determining quasi-peak, peak, and average conducted output power, respectively).

b) Add the maximum transmit antenna gain (in dBi) to the measured output power level to determine the ERP level (see guidance on determining the applicable antenna gain)

c) Add the appropriate maximum ground reflection factor to the ERP level (6 dB for frequencies ≤ 30 MHz, 4.7 dB for frequencies between 30 MHz and 1000 MHz, inclusive and 0 dB for frequencies > 1000 MHz).

d) For devices with multiple antenna-ports, measure the power of each individual chain and sum the ERP of all chains in linear terms (e.g., Watts, mW).

e) Convert the resultant ERP level to an equivalent electric field strength using the following relationship:
 $E = ERP - 20 \log D + 104.8$

where:

E = electric field strength in dBμV/m,

ERP = equivalent isotropic radiated power in dBm

D = specified measurement distance in meters.

Mode	f (MHz)	Max. E-Field strength (dBuV/m)	D (m)	Ground reflection factor (dB)	ERP (dBm)
NFC (13.56MHz)	13.56	82.86	3	6	4.06

Note:

1. Add the appropriate maximum ground reflection factor to the ERP level (6 dB for frequencies ≤ 30 MHz).

2. $ERP = 82.86 + 20 \cdot \log(10) - 104.8 + 6 = 4.06$ (dBm)

According to the FCC KDB 447498 D04

Estimated SAR: $SAR_{test} = 1.6 \cdot P_{ant} / P_{th}$ [W/kg]

Estimated SAR	1.6·Pant / Pth [W/kg]		
Pmeas.(dBm)	4.06	Pmeas.(mW)	2.547
Pth.(mW)	443.13		
NFC Estimated 1g SAR [W/kg]	0.009		

10.15 Worst case

Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	Power Drift(dB)	1 g Meas SAR(W/kg)	Meas. Power (dBm)	Max. tune-up power(dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Body-worn											
RMC	Back side	10mm	9400	1880	0.14	0.675	19.46	20.00	1.132	0.764	33#
Hotspot											
QPSK	Right Side	10mm	20850	2510	0.09	0.706	23.46	24.50	1.271	0.897	34#

Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	Power Drift(dB)	10 g Meas SAR(W/kg)	Meas. Power (dBm)	Max. tune- up power(dBm)	Scaling Factor	Duty Cycle (%)	Duty Cycle Scaled Factor	10g Scaled SAR (W/kg)	Meas. No.
Limb													
802.11b	Left Side	0	6	2437	0.13	1.600	16.56	17.50	1.242	97.09	1.030	2.047	35#

11 SAR Measurement Variability

According to KDB 865664 D01, SAR measurement variability was assessed for each frequency band, which is determined by the SAR probe calibration point and tissue-equivalent medium used for the device measurements. When both head and body tissue-equivalent media are required for SAR measurements in a frequency band, the variability measurement procedures should be applied to the tissue medium with the highest measured SAR, using the highest measured SAR configuration for that tissue-equivalent medium. Alternatively, if the highest measured SAR for both head and body tissue-equivalent media are ≤ 1.45 W/kg and the ratio of these highest SAR values, i.e., largest divided by smallest value, is ≤ 1.10 , the highest SAR configuration for either head or body tissue-equivalent medium may be used to perform the repeated measurement. 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.

SAR repeated measurement procedure:

1. When the highest measured SAR is < 0.80 W/kg, repeated measurement is not required.
2. When the highest measured SAR is ≥ 0.80 W/kg, repeat that measurement once.
3. 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, perform a second repeated measurement.
4. If the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20 , and the original, first or second repeated measurement is ≥ 1.5 W/kg, perform a third repeated measurement.

Frequency Band (MHz)	Wireless Band	RF Exposure Conditions	Test Position	Highest Measured SAR (W/kg)	Repeated SAR (Yes/No)	Repeated ^{1st} Measured SAR (W/kg)	Largest to Smallest SAR Ratio
1900	WCDMA B2	Body-worn&Hotspot	Back side	0.801	Yes	0.788	1.02
2600	LTE B7	Hotspot	Right side	0.845	Yes	0.824	1.03
Note: The ratio of largest to smallest SAR for the original and first repeated measurements is < 1.20 , the second repeated measurement. is not required.							

Note: For product specific 10g SAR, the highest measured 10g SAR is $1.76 < 2.0$ W/kg, repeated measurement is not required.

12 SIMULTANEOUS TRANSMISSION

Simultaneous transmission SAR test exclusion is determined for each operating configuration and exposure condition according to the reported standalone SAR of each applicable simultaneous transmitting antenna. When the sum of SAR 1g of all simultaneously transmitting antennas in an operating mode and exposure condition combination is within the SAR limit (SAR 1g 1.6 W/kg), the simultaneous transmission SAR is not required. When the sum of SAR 1g is greater than the SAR limit (SAR 1g 1.6 W/kg), SAR test exclusion is determined by the SAR to Peak Location Ratio (SPLSR).

12.1 Simultaneous Transmission Mode Consider

No.	Simultaneous Tx Combination	Head	Body-worn	Hotspot
1	WWAN + 2.4G WIFI	Yes	Yes	Yes
2	WWAN +5G WIFI	Yes	Yes	Yes
3	5G WIFI +BT	Yes	Yes	Yes
4	WWAN +5G WIFI +BT	Yes	Yes	Yes
5	WWAN +BT	Yes	Yes	Yes

Note:

1. 2G&3G&4G share the same antenna and can't transmit simultaneously.
2. 2.4G WLAN can't transmit simultaneously with Bluetooth or 5G WLAN.
3. The maximum SAR summation is calculated based on the same configuration and test position.

12.2 Sum SAR of Simultaneous Transmission

12.2.1 Sum Body-worn SAR of Simultaneous Transmission

Band	Antenna	Position	Stand alone SAR				SUM SAR				
			1	2	3	4					
			WWAN	2.4GWIFI	5G WIFI	Bluetooth	1+2	1+3	3+4	1+3+4	1+4
GSM 850	Ant.0	Front Side	0.137	0.073	0.353	0.265	0.210	0.490	0.618	0.755	0.402
		Back Side	0.302	0.045	0.414	0.141	0.347	0.716	0.555	0.857	0.443
GSM 1900	Ant.0	Front Side	0.216	0.073	0.353	0.265	0.289	0.569	0.618	0.834	0.481
		Back Side	0.363	0.045	0.414	0.141	0.408	0.777	0.555	0.918	0.504
WCDMA B2	Ant.0	Front Side	0.040	0.073	0.353	0.265	0.113	0.393	0.618	0.658	0.305
		Back Side	0.907	0.045	0.414	0.141	0.952	1.321	0.555	1.462	1.048
WCDMA B4	Ant.0	Front Side	0.157	0.073	0.353	0.265	0.230	0.510	0.618	0.775	0.422
		Back Side	0.353	0.045	0.414	0.141	0.398	0.767	0.555	0.908	0.494
WCDMA B5	Ant.0	Front Side	0.064	0.073	0.353	0.265	0.137	0.417	0.618	0.682	0.329
		Back Side	0.149	0.045	0.414	0.141	0.194	0.563	0.555	0.704	0.290
LTE B2	Ant.0	Front Side	0.042	0.073	0.353	0.265	0.115	0.395	0.618	0.660	0.307
		Back Side	0.656	0.045	0.414	0.141	0.701	1.070	0.555	1.211	0.797
LTE B4	Ant.0	Front Side	0.200	0.073	0.353	0.265	0.273	0.553	0.618	0.818	0.465
		Back Side	0.416	0.045	0.414	0.141	0.461	0.830	0.555	0.971	0.557
LTE B5	Ant.0	Front Side	0.071	0.073	0.353	0.265	0.144	0.424	0.618	0.689	0.336
		Back Side	0.182	0.045	0.414	0.141	0.227	0.596	0.555	0.737	0.323
LTE B7	Ant.0	Front Side	0.127	0.073	0.353	0.265	0.200	0.480	0.618	0.745	0.392
		Back Side	0.840	0.045	0.414	0.141	0.885	1.254	0.555	1.395	0.981
LTE B38	Ant.0	Front Side	0.075	0.073	0.353	0.265	0.148	0.428	0.618	0.693	0.340
		Back Side	0.480	0.045	0.414	0.141	0.525	0.894	0.555	1.035	0.621

Note:

1: The simultaneous transmission combinations of the antennas contain combinations of two antennas, so only the worst simultaneous transmission combinations was shown in this table.

2: The highest Summed 1g SAR is 1.462 W/Kg < 1.6 W/kg, so Simultaneous Transmission SAR test is not required.

12.2.2 Sum Hotspot mode SAR of Simultaneous Transmission

Band	Antenna	Position	Stand alone SAR				SUM SAR				
			1	2	3	4					
			WWAN	2.4GWIFI	5G WIFI	Bluetooth	1+2	1+3	3+4	1+3+4	1+4
GSM 850	Ant.0	Front Side	0.137	0.073	0.353	0.265	0.210	0.490	0.618	0.755	0.402
		Back Side	0.302	0.045	0.414	0.141	0.347	0.716	0.555	0.857	0.443
		Left Side	0.140	0.655	0.768	0.552	0.795	0.908	1.320	1.460	0.692
		Right Side	0.793	0.033	0.241	0.247	0.826	1.034	0.488	1.281	1.040
		Top Side	0.188	0.037	0.270	0.176	0.225	0.458	0.446	0.634	0.364
		Bottom Side	0.073	0.025	0.231	0.229	0.098	0.304	0.460	0.533	0.302
GSM 1900	Ant.0	Front Side	0.216	0.073	0.353	0.265	0.289	0.569	0.618	0.834	0.481
		Back Side	0.363	0.045	0.414	0.141	0.408	0.777	0.555	0.918	0.504
		Left Side	0.183	0.655	0.768	0.552	0.838	0.951	1.320	1.503	0.735
		Right Side	0.710	0.033	0.241	0.247	0.743	0.951	0.488	1.198	0.957
		Top Side	0.543	0.037	0.270	0.176	0.580	0.813	0.446	0.989	0.719
		Bottom Side	0.058	0.025	0.231	0.229	0.083	0.289	0.460	0.518	0.287
WCDMA B2	Ant.0	Front Side	0.040	0.073	0.353	0.265	0.113	0.393	0.618	0.658	0.305
		Back Side	0.907	0.045	0.414	0.141	0.952	1.321	0.555	1.462	1.048
		Left Side	0.061	0.655	0.768	0.552	0.716	0.829	1.320	1.381	0.613
		Right Side	0.198	0.033	0.241	0.247	0.231	0.439	0.488	0.686	0.445
		Top Side	0.645	0.037	0.270	0.176	0.682	0.915	0.446	1.091	0.821
		Bottom Side	0.028	0.025	0.231	0.229	0.053	0.259	0.460	0.488	0.257
WCDMA B4	Ant.0	Front Side	0.157	0.073	0.353	0.265	0.230	0.510	0.618	0.775	0.422
		Back Side	0.353	0.045	0.414	0.141	0.398	0.767	0.555	0.908	0.494
		Left Side	0.134	0.655	0.768	0.552	0.789	0.902	1.320	1.454	0.686
		Right Side	0.535	0.033	0.241	0.247	0.568	0.776	0.488	1.023	0.782
		Top Side	0.467	0.037	0.270	0.176	0.504	0.737	0.446	0.913	0.643
		Bottom Side	0.021	0.025	0.231	0.229	0.046	0.252	0.460	0.481	0.250
WCDMA B5	Ant.0	Front Side	0.064	0.073	0.353	0.265	0.137	0.417	0.618	0.682	0.329
		Back Side	0.149	0.045	0.414	0.141	0.194	0.563	0.555	0.704	0.290
		Left Side	0.076	0.655	0.768	0.552	0.731	0.844	1.320	1.396	0.628
		Right Side	0.673	0.033	0.241	0.247	0.706	0.914	0.488	1.161	0.920
		Top Side	0.068	0.037	0.270	0.176	0.105	0.338	0.446	0.514	0.244
		Bottom Side	0.024	0.025	0.231	0.229	0.049	0.255	0.460	0.484	0.253
LTE B2	Ant.0	Front Side	0.042	0.073	0.353	0.265	0.115	0.395	0.618	0.660	0.307
		Back Side	0.656	0.045	0.414	0.141	0.701	1.070	0.555	1.211	0.797
		Left Side	0.070	0.655	0.768	0.552	0.725	0.838	1.320	1.390	0.622
		Right Side	0.569	0.033	0.241	0.247	0.602	0.810	0.488	1.057	0.816
		Top Side	0.668	0.037	0.270	0.176	0.705	0.938	0.446	1.114	0.844
		Bottom Side	0.028	0.025	0.231	0.229	0.053	0.259	0.460	0.488	0.257
LTE B4	Ant.0	Front Side	0.200	0.073	0.353	0.265	0.273	0.553	0.618	0.818	0.465
		Back Side	0.416	0.045	0.414	0.141	0.461	0.830	0.555	0.971	0.557

Band	Antenna	Position	Stand alone SAR				SUM SAR				
			1	2	3	4					
			WWAN	2.4GWIFI	5G WIFI	Bluetooth	1+2	1+3	3+4	1+3+4	1+4
		Left Side	0.179	0.655	0.768	0.552	0.834	0.947	1.320	1.499	0.731
		Right Side	0.418	0.033	0.241	0.247	0.451	0.659	0.488	0.906	0.665
		Top Side	0.407	0.037	0.270	0.176	0.444	0.677	0.446	0.853	0.583
		Bottom Side	0.035	0.025	0.231	0.229	0.060	0.266	0.460	0.495	0.264
LTE B5	Ant.0	Front Side	0.071	0.073	0.353	0.265	0.144	0.424	0.618	0.689	0.336
		Back Side	0.182	0.045	0.414	0.141	0.227	0.596	0.555	0.737	0.323
		Left Side	0.085	0.655	0.768	0.552	0.740	0.853	1.320	1.405	0.637
		Right Side	0.478	0.033	0.241	0.247	0.511	0.719	0.488	0.966	0.725
		Top Side	0.124	0.037	0.270	0.176	0.161	0.394	0.446	0.570	0.300
		Bottom Side	0.023	0.025	0.231	0.229	0.048	0.254	0.460	0.483	0.252
LTE B7	Ant.0	Front Side	0.127	0.073	0.353	0.265	0.200	0.480	0.618	0.745	0.392
		Back Side	0.840	0.045	0.414	0.141	0.885	1.254	0.555	1.395	0.981
		Left Side	0.115	0.655	0.768	0.552	0.770	0.883	1.320	1.435	0.667
		Right Side	1.074	0.033	0.241	0.247	1.107	1.315	0.488	1.562	1.321
		Top Side	0.596	0.037	0.270	0.176	0.633	0.866	0.446	1.042	0.772
		Bottom Side	0.036	0.025	0.231	0.229	0.061	0.267	0.460	0.496	0.265
LTE B38	Ant.0	Front Side	0.075	0.073	0.353	0.265	0.148	0.428	0.618	0.693	0.340
		Back Side	0.480	0.045	0.414	0.141	0.525	0.894	0.555	1.035	0.621
		Left Side	0.106	0.655	0.768	0.552	0.761	0.874	1.320	1.426	0.658
		Right Side	0.714	0.033	0.241	0.247	0.747	0.955	0.488	1.202	0.961
		Top Side	0.290	0.037	0.270	0.176	0.327	0.560	0.446	0.736	0.466
		Bottom Side	0.037	0.025	0.231	0.229	0.062	0.268	0.460	0.497	0.266

Note:

1: The simultaneous transmission combinations of the antennas contain combinations of two antennas, so only the worst simultaneous transmission combinations was shown in this table.

2: The highest Summed 1g SAR is 1.562 W/Kg < 1.6 W/kg, so Simultaneous Transmission SAR test is not required.

12.2.3 Sum Extremity mode SAR of Simultaneous Transmission

Band	Antenna	Position	Stand alone SAR				SUM SAR				
			1	2	3	4					
			WWAN	2.4G WIFI	5G WIFI	Bluetooth	1+2	1+3	3+4	1+3+4	1+4
GSM 850	Ant.0	Front Side	0.145	0.100	0.269	0.882	0.245	0.414	1.151	1.296	1.027
		Back Side	0.286	0.015	0.429	0.423	0.301	0.715	0.852	1.138	0.709
		Left Side	0.131	2.251	1.595	1.763	2.382	1.726	3.358	3.489	1.894
		Right Side	1.134	0.067	0.169	0.317	1.201	1.303	0.486	1.620	1.451
		Top Side	0.156	0.067	0.260	0.741	0.223	0.416	1.001	1.157	0.897
		Bottom Side	0.039	0.032	0.026	0.176	0.071	0.065	0.202	0.241	0.215
GSM 1900	Ant.0	Front Side	0.295	0.100	0.269	0.882	0.395	0.564	1.151	1.446	1.177
		Back Side	0.242	0.015	0.429	0.423	0.257	0.671	0.852	1.094	0.665
		Left Side	0.224	2.251	1.595	1.763	2.475	1.819	3.358	3.582	1.987
		Right Side	1.030	0.067	0.169	0.317	1.097	1.199	0.486	1.516	1.347
		Top Side	0.372	0.067	0.260	0.741	0.439	0.632	1.001	1.373	1.113
		Bottom Side	0.019	0.032	0.026	0.176	0.051	0.045	0.202	0.221	0.195
WCDMA B2	Ant.0	Front Side	0.053	0.100	0.269	0.882	0.153	0.322	1.151	1.204	0.935
		Back Side	1.438	0.015	0.429	0.423	1.453	1.867	0.852	2.290	1.861
		Left Side	0.069	2.251	1.595	1.763	2.320	1.664	3.358	3.427	1.832
		Right Side	0.298	0.067	0.169	0.317	0.365	0.467	0.486	0.784	0.615
		Top Side	0.797	0.067	0.260	0.741	0.864	1.057	1.001	1.798	1.538
		Bottom Side	0.014	0.032	0.026	0.176	0.046	0.040	0.202	0.216	0.190
WCDMA B4	Ant.0	Front Side	0.367	0.100	0.269	0.882	0.467	0.636	1.151	1.518	1.249
		Back Side	0.500	0.015	0.429	0.423	0.515	0.929	0.852	1.352	0.923
		Left Side	0.464	2.251	1.595	1.763	2.715	2.059	3.358	3.822	2.227
		Right Side	1.414	0.067	0.169	0.317	1.481	1.583	0.486	1.900	1.731
		Top Side	0.669	0.067	0.260	0.741	0.736	0.929	1.001	1.670	1.410
		Bottom Side	0.017	0.032	0.026	0.176	0.049	0.043	0.202	0.219	0.193
WCDMA B5	Ant.0	Front Side	0.089	0.100	0.269	0.882	0.189	0.358	1.151	1.240	0.971
		Back Side	0.222	0.015	0.429	0.423	0.237	0.651	0.852	1.074	0.645
		Left Side	0.140	2.251	1.595	1.763	2.391	1.735	3.358	3.498	1.903
		Right Side	0.752	0.067	0.169	0.317	0.819	0.921	0.486	1.238	1.069
		Top Side	0.103	0.067	0.260	0.741	0.170	0.363	1.001	1.104	0.844
		Bottom Side	0.011	0.032	0.026	0.176	0.043	0.037	0.202	0.213	0.187
LTE B2	Ant.0	Front Side	0.065	0.100	0.269	0.882	0.165	0.334	1.151	1.216	0.947
		Back Side	1.011	0.015	0.429	0.423	1.026	1.440	0.852	1.863	1.434
		Left Side	0.072	2.251	1.595	1.763	2.323	1.667	3.358	3.430	1.835
		Right Side	0.983	0.067	0.169	0.317	1.050	1.152	0.486	1.469	1.300
		Top Side	1.321	0.067	0.260	0.741	1.388	1.581	1.001	2.322	2.062
		Bottom Side	0.034	0.032	0.026	0.176	0.066	0.060	0.202	0.236	0.210
LTE B4	Ant.0	Front Side	0.423	0.100	0.269	0.882	0.523	0.692	1.151	1.574	1.305
		Back Side	0.648	0.015	0.429	0.423	0.663	1.077	0.852	1.500	1.071

Band	Antenna	Position	Stand alone SAR				SUM SAR				
			1	2	3	4					
			WWAN	2.4G WIFI	5G WIFI	Bluetooth	1+2	1+3	3+4	1+3+4	1+4
		Left Side	0.454	2.251	1.595	1.763	2.705	2.049	3.358	3.812	2.217
		Right Side	1.602	0.067	0.169	0.317	1.669	1.771	0.486	2.088	1.919
		Top Side	0.785	0.067	0.260	0.741	0.852	1.045	1.001	1.786	1.526
		Bottom Side	0.014	0.032	0.026	0.176	0.046	0.040	0.202	0.216	0.190
LTE B5	Ant.0	Front Side	0.104	0.100	0.269	0.882	0.204	0.373	1.151	1.255	0.986
		Back Side	0.234	0.015	0.429	0.423	0.249	0.663	0.852	1.086	0.657
		Left Side	0.159	2.251	1.595	1.763	2.410	1.754	3.358	3.517	1.922
		Right Side	0.866	0.067	0.169	0.317	0.933	1.035	0.486	1.352	1.183
		Top Side	0.070	0.067	0.260	0.741	0.137	0.330	1.001	1.071	0.811
		Bottom Side	0.031	0.032	0.026	0.176	0.063	0.057	0.202	0.233	0.207
LTE B7	Ant.0	Front Side	0.192	0.100	0.269	0.882	0.292	0.461	1.151	1.343	1.074
		Back Side	1.266	0.015	0.429	0.423	1.281	1.695	0.852	2.118	1.689
		Left Side	0.174	2.251	1.595	1.763	2.425	1.769	3.358	3.532	1.937
		Right Side	2.118	0.067	0.169	0.317	2.185	2.287	0.486	2.604	2.435
		Top Side	0.942	0.067	0.260	0.741	1.009	1.202	1.001	1.943	1.683
		Bottom Side	0.028	0.032	0.026	0.176	0.060	0.054	0.202	0.230	0.204
LTE B38	Ant.0	Front Side	0.120	0.100	0.269	0.882	0.220	0.389	1.151	1.271	1.002
		Back Side	0.753	0.015	0.429	0.423	0.768	1.182	0.852	1.605	1.176
		Left Side	0.127	2.251	1.595	1.763	2.378	1.722	3.358	3.485	1.890
		Right Side	1.105	0.067	0.169	0.317	1.172	1.274	0.486	1.591	1.422
		Top Side	0.598	0.067	0.260	0.741	0.665	0.858	1.001	1.599	1.339
		Bottom Side	0.020	0.032	0.026	0.176	0.052	0.046	0.202	0.222	0.196

Note:

1: The simultaneous transmission combinations of the antennas contain combinations of two antennas, so only the worst simultaneous transmission combinations was shown in this table.

2: The highest Summed 10g SAR is 3.822 W/Kg < 4.0 W/kg, so Simultaneous Transmission SAR test is not required.

12.2.4 Highest Total Exposure Ratio of Simultaneous Transmission

NFC multi-transmit requires the use of the TER formula:

$$TER = \sum_{k=1}^{N_s} \left(\frac{SAR_k}{SAR_{lim}} \right) + \sum_{k=1}^{N_f} \left(\frac{MPE_{field, k}}{MPE_{field, lim}} \right)^2 + \sum_{k=1}^{N_{PD}} \left(\frac{MPE_{PD, k}}{MPE_{PD, lim}} \right) \quad \text{The}$$

maximum SAR value for Simultaneous Transmission is 1.562 [W/kg]. Therefore, the worst TER = (1.562+0.009)/1.6 = 0.982 < 1, the NFC SAR transmit simultaneously Pass.

13 TEST EQUIPMENTS LIST

Description	Manufacturer	Model	Serial No./Version	Cal. Date	Cal. Due
PC	Dell	N/A	N/A	N/A	N/A
Test Software	Speag	DASY5	52.10.4.1535	N/A	N/A
750MHz Validation Dipole	Speag	D750V3	1201	2024/09/03	2027/09/03
1750MHz Validation Dipole	Speag	D1750V2	1183	2024/09/03	2027/09/03
1900MHz Validation Dipole	Speag	D1900V2	5d155	2024/09/02	2027/09/02
2450MHz Validation Dipole	Speag	D2450V2	1065	2024/09/05	2027/09/05
2600MHz Validation Dipole	Speag	D2600V2	1184	2024/08/30	2027/08/30
5GHz Validation Dipole	Speag	D5GHzV2	1333	2024/09/04	2027/09/04
Data Acquisition Electronics	Speag	DAE4	SN: 1423	2025/06/05	2026/06/04
E-Field Probe	Speag	EX3DV4	SN: 3974	2025/06/05	2026/06/04
Signal Generator	R&S	SMB100A	182635	2025/02/12	2026/02/12
Power Meter	Agilent	E4419B	MY45104512	2025/02/11	2026/02/11
Power Sensor	Agilent	E9304A	MY41499059	2025/02/11	2026/02/11
Power Sensor	Agilent	E9304A	MY41499060	2025/02/11	2026/02/11
Wireless Communication Test Set	R&S	CMW500	168792	2025/02/11	2026/02/11
Wireless Communication Test Set	Anritsu	MT8820C	6201061029	2025/02/12	2026/02/12
Network Analyzer	Agilent	E5071C	MY56301409	2025/02/12	2026/02/12
Thermometer	CEM	DT-322	210402350	2025/01/22	2026/01/22
Thermometer	Elitech	RC-4HC	EF7247001275	2025/01/22	2026/01/22
Power Amplifier	COM-MW	PAO.4	201704001	N/A	N/A
Dielectric Probe Kit	Speag	85070E	MY44300524	N/A	N/A
Phantom	Speag	SAM	1473	N/A	N/A
Attenuator	COM-MW	/	/	N/A	N/A
PC	Dell	N/A	N/A	N/A	N/A
Test Software	Speag	DASY5	52.8.8.1222	N/A	N/A
1950MHz Validation Dipole	Speag	D1950V3	SN: 1240	2024/08/22	2027/08/21
2450MHz Validation Dipole	Speag	D2450V2	SN: 952	2024/05/07	2027/05/06
2600MHz Validation Dipole	Speag	D2600V2	SN: 1095	2024/05/08	2027/05/07
Data Acquisition Electronics	Speag	DAE4	SN: 1711	2025/11/11	2026/11/10
E-Field Probe	Speag	EX3DV4	SN: 7510	2025/11/11	2026/11/10
Signal Generator	Keysight	N5173B	MY62150163	2025/07/15	2026/07/14
Power Meter	R&S	NRVD-B2	835843/014	2025/07/15	2026/07/14
Power Sensor	R&S	NRV-Z4	100381	2025/07/15	2026/07/14
Power Sensor	R&S	NRV-Z2	100211	2025/07/15	2026/07/14
Wireless Communication Test Set	R&S	CMW500	126646	2025/09/15	2026/09/14
Network Analyzer	Agilent	E5071C	MY46103472	2025/08/13	2026/08/12

Description	Manufacturer	Model	Serial No./Version	Cal. Date	Cal. Due
Thermometer	Elitech	RC-4HC	EF7239002652	2025/09/04	2026/09/03
Thermometer	Elitech	RC-4	EF5238001629	2025/09/16	2026/09/15
Power Amplifier	Mini-Circuits	ZVA-183W-S+	932502132	N/A	N/A
Dielectric Probe Kit	Speag	DAK3.5	SN: 1312	N/A	N/A
Phantom	Speag	SAM	SN: 1858	N/A	N/A
Attenuator	COM-MW	ZA-S1-31	1305003187	N/A	N/A
Directional coupler	AA-MCS	AAMCS-UDC	000272	N/A	N/A

Note: For dipole antennas, BALUN has adopted 3 years as calibration intervals, and on annual basis, every measurement dipole has been evaluated and is in compliance with the following criteria:

1. There is no physical damage on the dipole;
2. System validation with specific dipole is within 10% of calibrated value;
3. Return-loss in within 20% of calibrated measurement.
4. Impedance (real or imaginary parts) in within 5 Ohms of calibrated measurement.

ANNEX A SIMULATING LIQUID VERIFICATION RESULT

The dielectric parameters of the liquids were verified prior to the SAR evaluation using a DAK3.5 Dielectric Probe Kit.

Head Liquid

Date	Liquid Type	Fre. (MHz)	Temp. (°C)	Meas. Conductivity (σ) (S/m)	Meas. Permittivity (ϵ)	Target Conductivity (σ) (S/m)	Target Permittivity (ϵ)	Conductivity Tolerance (%)	Permittivity Tolerance (%)
2025.10.27	Head	750	21.2	0.87	42.78	0.89	41.94	-2.25	2.00
2025.10.28	Head	1750	21.3	1.38	39.21	1.37	40.08	0.73	-2.17
2025.10.29	Head	1900	21.0	1.45	38.97	1.40	40.00	3.57	-2.58
2025.10.31	Head	2450	21.4	1.83	38.40	1.80	39.20	1.67	-2.04
2025.11.01	Head	2600	20.9	1.97	38.07	1.96	39.01	0.51	-2.41
2025.11.02	Head	2600	20.6	1.97	38.07	1.96	39.01	0.51	-2.41
2025.11.03	Head	5200	20.5	4.54	35.20	4.66	35.99	-2.58	-2.20
2025.11.03	Head	5300	21.3	4.65	35.20	4.76	35.87	-2.31	-1.87
2025.11.04	Head	5600	21.0	4.96	34.58	5.07	35.53	-2.17	-2.67
2025.11.04	Head	5800	21.1	5.16	34.18	5.27	35.30	-2.09	-3.17
2026.04.20	Head	1950	21.5	1.42	39.34	1.40	40.00	1.43	-1.65
2026.04.20	Head	2450	21.5	1.83	38.64	1.80	39.20	1.67	-1.43
2026.04.20	Head	2600	21.5	1.98	39.12	1.96	39.01	1.02	0.28
Note: The tolerance limit of Conductivity and Permittivity is $\pm 5\%$.									

ANNEX B SYSTEM CHECK RESULT

Comparing to the original SAR value provided by SPEAG, the validation data should be within its specification of 10 %.

Date	Freq. (MHz)	Power (mW)	1g Meas. SAR (W/kg)	10g Meas. SAR (W/kg)	1g Normalized SAR (W/kg)	10g Normalized SAR (W/kg)	1g Dipole SAR (W/kg)	10g Dipole SAR (W/kg)	1g Dipole. SAR Div. (%)	10g Dipole. SAR Div. (%)
2025.10.27	750	100	0.855	0.587	8.55	5.87	8.46	5.76	1.06	1.91
2025.10.28	1750	100	3.620	2.040	36.20	20.40	36.50	19.80	-0.82	3.03
2025.10.29	1900	100	4.000	2.190	40.00	21.90	39.90	21.00	0.25	4.29
2025.10.31	2450	100	5.320	2.690	53.20	26.90	52.60	24.60	1.14	9.35
2025.11.01	2600	100	5.770	2.740	57.70	27.40	55.30	25.10	4.34	9.16
2025.11.02	2600	100	5.270	2.520	52.70	25.20	55.30	25.10	-4.70	0.40
2025.11.03	5200	100	7.980	2.340	79.80	23.40	77.80	22.50	2.57	4.00
2025.11.03	5300	100	7.160	2.150	71.60	21.50	79.00	23.00	-9.37	-6.52
2025.11.04	5600	100	8.580	2.560	85.80	25.60	82.80	24.00	3.62	6.67
2025.11.04	5800	100	8.110	2.320	81.10	23.20	78.50	22.60	3.31	2.65
2026.04.20	1950	100	4.160	2.160	41.60	21.60	41.70	21.70	-0.24	-0.46
2026.04.20	2450	100	5.240	2.430	52.40	24.30	52.60	24.70	-0.38	-1.62
2026.04.20	2600	100	5.520	2.540	55.20	25.40	55.90	25.40	-1.25	0.00

Note: The tolerance limit of System validation $\pm 10\%$.

Please refer the document "Ti-EE26040385-ASC.pdf".

ANNEX C TEST DATA

Please refer the document “Ti-EE26040385-ATD.pdf”.

ANNEX D EUT EXTERNAL PHOTOS

Please refer the document “Ti-EE26040385-AW.pdf”.

ANNEX E SAR TEST SETUP PHOTOS

Please refer the document “Ti-EE26040385-AS.pdf”.

ANNEX F CALIBRATION REPORT

Please refer the document “Ti-EE26040385-AS.pdf”.

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--END OF REPORT--