

TEST REPORT

Applicant: Shenzhen Tinno Mobile Technology Corp.
Address: 27-001, South Side of Tianlong Mobile HQ Building,
Tongfa South Road, Xili Street, Nanshan District,
Shenzhen ,PRC
Equipment Type: onn 11" Core Tablet
Model Name: TBBLU36018341(refer to section 2.3)
Brand Name: onn
FCC ID: XD6WM2511T
Test Standard: FCC 47 CFR Part 2.1093
(refer section 3.1)
Maximum SAR: Body (1 g@ 0mm): 1.11 W/kg
Sample Arrival Date: Oct. 28, 2025
Test Date: Nov. 25, 2025 – Nov. 28, 2025
Date of Issue: Dec. 16, 2025

ISSUED BY:

Shanghai Tejet Communications Technology Co., Ltd. Testing Center



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Revision History

Version	Issue Date	Revisions Content
<u>Rev. 01</u>	<u>Dec. 16, 2025</u>	<u>Initial Issue</u>

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1 GENERAL INFORMATION

1.1 Test Laboratory

Name	Shanghai Tejet Communications Technology Co., Ltd. Testing Center
Address	1-2/F., Building 1, No.222, Xuanlan Road, Xuanqiao, Pudong New District, Shanghai, China

1.2 Test Location

Name	Shanghai Tejet Communications Technology Co., Ltd. Testing Center
Location	1-2/F., Building 1, No.222, Xuanlan Road, Xuanqiao, Pudong New District, Shanghai, China
Accreditation Certificate	The laboratory is a testing organization accredited by FCC as a accredited testing laboratory. The designation number is CN1352. The laboratory has been listed by Industry Canada to perform electromagnetic emission measurements. The recognition numbers of test site are 29671.

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	Shenzhen Tinno Mobile Technology Corp.
Address	27-001, South Side of Tianlong Mobile HQ Building, Tongfa South Road, Xili Street, Nanshan District, Shenzhen ,PRC

2.2 Manufacturer Information

Manufacturer	Shenzhen Tinno Mobile Technology Corp.
Address	27-001, South Side of Tianlong Mobile HQ Building, Tongfa South Road, Xili Street, Nanshan District, Shenzhen ,PRC

2.3 General Description for Equipment under Test (EUT)

EUT Name	onn 11" Core Tablet
Model Name Under Test	TBBLU36018341
Series Model Name	TBBRN36018341,TBPNK36018341,TBSIL36018341
Description of Model name differentiation	Only with different model name and color
Sample number	SC-SZ2580422-S18, SC-SZ2580422-S16, SC-SZ2580422-S17, SC-SZ2580422-S19
Hardware Version	V1.0
Software Version	T405A_16.0_M30_ES_16
Dimensions (Approx.)	L: 246.1 mm* W: 176.3 mm* H: 7.0 mm
Weight (Approx.)	N/A

2.4 Ancillary Equipment

Ancillary Equipment 1	Battery1	
	Brand Name	UTL
	Model No.	TT750K1
	Serial No.	N/A
	Capacity	7500mAh
	Rated Voltage	3.85V
	Limit Charge Voltage	4.4V

Ancillary Equipment 2	Battery2	
	Brand Name	fenghua
	Model No.	TT750K1
	Serial No.	N/A
	Capacity	7500mAh
	Rated Voltage	3.85V
	Limit Charge Voltage	4.4V

Note: The EUT has two type batterys, they are same with electrical parameters, but only differ in Manufacturer and battery cell. By comparing the test data of two Batteries, battery1 can produce a more conservative SAR values. The battery1 of the Brand Name is UTL as the main for test in this report.

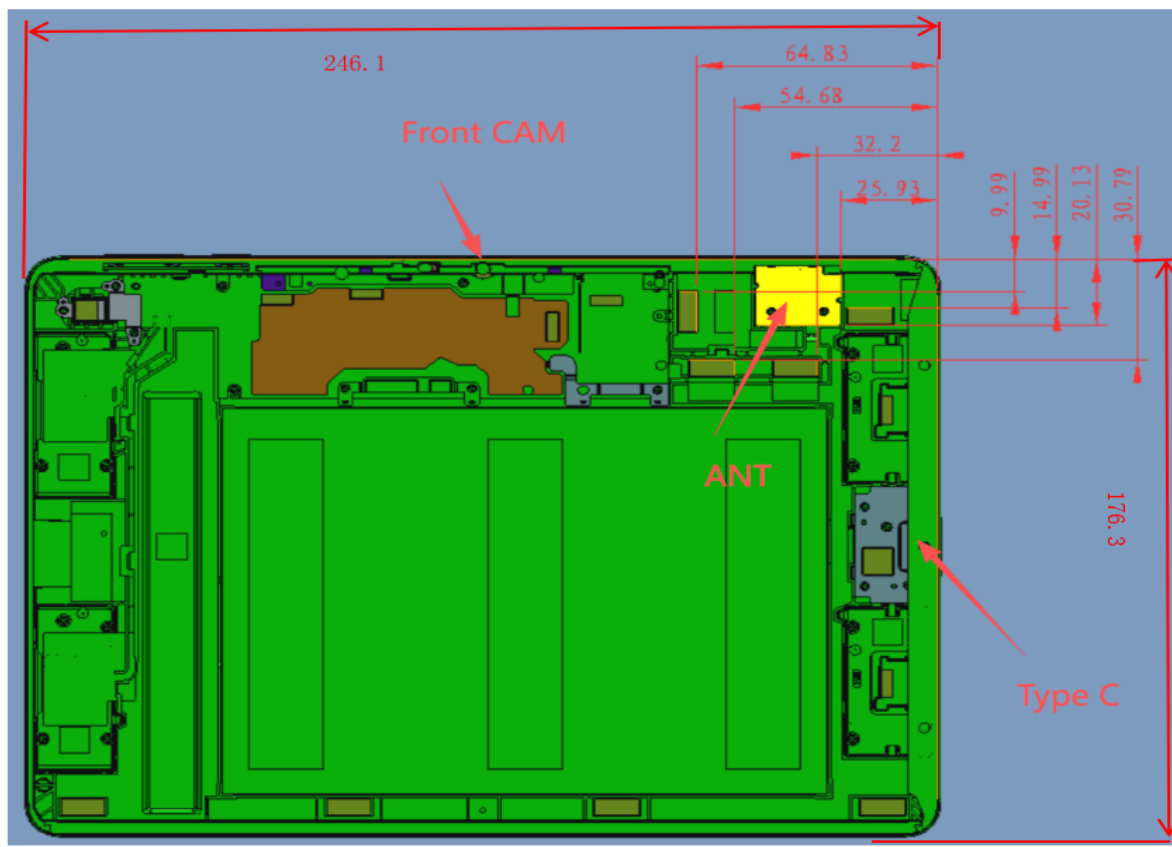
2.5 Technical Information

Network and Wireless connectivity	Bluetooth (BR+EDR+BLE) 2.4G WIFI 802.11b, 802.11g, 802.11n(HT20) 5G WIFI 802.11a, 802.11n(HT20/40), 802.11ac(VHT20/40/80)
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The requirement for the following technical information of the EUT was tested in this report:

Operating Mode	WLAN, Bluetooth	
Frequency Range	2.4G WLAN	2412 ~ 2462 MHz
	5G WLAN	5150 ~ 5250 MHz
		5250 ~ 5350 MHz
		5470 ~ 5725 MHz
		5725 ~ 5850 MHz
	Bluetooth	2402 ~ 2480 MHz
Antenna Type	WLAN: PCB Antenna Bluetooth: PCB Antenna	
DTM	N/A	
Hotspot Function	N/A	
Exposure Category	General Population/Uncontrolled exposure	
Product Type	Portable Device	
EUT Type	☒ Production unit	☐ Identical prototype

2.6 Antenna Location



ANT 2.4G+5GWIFI unit: mm

Antenna	Support Band
Ant	2.4G WIFI/5G WIFI/BT

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 C95.1-1992	IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz
3	IEEE Std. 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
4	KDB 447498 D04 v01	447498 D04 Interim General RF Exposure Guidance v01
5	KDB 941225 D06 v02r01	SAR EVALUATION PROCEDURES FOR PORTABLE DEVICES WITH WIRELESS ROUTER CAPABILITIES
6	KDB 865664 D01 v01r04	SAR Measurement 100 MHz to 6 GHz
7	KDB 865664 D02 v01r02	RF Exposure Reporting
8	KDB 648474 D04 v01r03	SAR EVALUATION CONSIDERATIONS FOR WIRELESS HANDSETS
9	KDB 248227 D01 v02r02	SAR GUIDANCE FOR IEEE 802.11 (Wi-Fi) TRANSMITTERS

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

Frequency Band		Maximum Scaled SAR	Maximum Report SAR
		1 g(W/kg)	1 g(W/kg)
		Body	Body
		(Separation 0mm)	(Separation 0mm)
WIFI	2.4G	0.68	1.11
	5G	1.11	
Bluetooth	DH5	0.05	
Limits (W/kg)		1.6	1.6
Test Verdict		PASS	PASS

3.3.2 Highest Simultaneous Transmission SAR Values

Simultaneous Transmission	Maximum Scaled SAR (W/kg)
	Body-worn 1g (0mm)
5G WIFI+ Bluetooth	1.16
Limit (W/Kg)	1.60
Verdict	Pass

Note: The highest simultaneous SAR please refer section 11.2

3.4 Test Uncertainty

3.4.1 Measurement uncertainty evaluation for SAR test

The following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in IEC/IEEE 62209-1528. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$.

1) System Measurement Uncertainty (Frequency range from 300 MHz to 3 GHz)

DASY5 Uncertainty Budget (Frequency band: 300 MHz - 3 GHz range)								
Symbol	Error Description	Uncert. value	Prob Dist.	Div	(c_1) 1g	(c_1) 10g	Std. Unc. (1g)	Std. Unc. (10g)
Measurement System Errors								
CF	Probe Calibration	$\pm 12.0\%$	N	2	1	1	$\pm 6.0\%$	$\pm 6.0\%$
CF _{drift}	Probe Calibration Drift	$\pm 1.0\%$	N	1	1	1	$\pm 1.0\%$	$\pm 1.0\%$
LIN	Probe Linearity	$\pm 4.7\%$	R	$\sqrt{3}$	1	1	$\pm 2.7\%$	$\pm 2.7\%$
BBS	Broadband Signal	$\pm 3.0\%$	N	2	1	1	$\pm 1.5\%$	$\pm 1.5\%$
ISO	Probe Isotropy	$\pm 7.6\%$	R	$\sqrt{3}$	1	1	$\pm 4.4\%$	$\pm 4.4\%$
DAE	Data Acquisition	$\pm 0.3\%$	N	1	1	1	$\pm 0.3\%$	$\pm 0.3\%$
AMB	RF Ambient	$\pm 1.8\%$	N	1	1	1	$\pm 1.8\%$	$\pm 1.8\%$
Δ_{sys}	Probe Positioning	$\pm 0.2\%$	N	1	0.1 4	0.14	$\pm 0\%$	$\pm 0\%$
DAT	Data Processing	$\pm 1.2\%$	N	1	1	1	$\pm 1.2\%$	$\pm 1.2\%$
Phantom and Device Errors								
LIQ(σ)	Conductivity (meas.) ^{DAK}	$\pm 2.5\%$	N	1	0.7 8	0.71	$\pm 2.0\%$	$\pm 1.8\%$
LIQ(T_σ)	Conductivity (temp.) ^{BB}	$\pm 3.3\%$	R	$\sqrt{3}$	0.7 8	0.71	$\pm 1.5\%$	$\pm 1.4\%$
EPS	Phantom Permittivity	$\pm 14.0\%$	R	$\sqrt{3}$	0	0	$\pm 0\%$	$\pm 0\%$
DAS	Distance DUT - TSL	$\pm 2.1\%$	N	1	2	2	$\pm 4.2\%$	$\pm 4.2\%$
H	Device Holder	$\pm 3.8\%$	N	1	1	1	$\pm 3.8\%$	$\pm 3.8\%$
MOD	DUT Modulation ^m	$\pm 2.4\%$	R	$\sqrt{3}$	1	1	$\pm 1.4\%$	$\pm 1.4\%$
TAS	Time-average SAR	$\pm 2.6\%$	R	$\sqrt{3}$	1	1	$\pm 1.5\%$	$\pm 1.5\%$
RF _{drift}	DUT drift	$\pm 5.0\%$	R	$\sqrt{3}$	1	1	$\pm 2.9\%$	$\pm 2.9\%$
Correction to the SAR results								
C(ϵ , σ)	Deviation to Target	$\pm 1.9\%$	N	1	1	0.84	$\pm 1.9\%$	$\pm 1.6\%$
C(R)	SAR scaling ^p	$\pm 0\%$	R	$\sqrt{3}$	1	1	$\pm 0\%$	$\pm 0\%$
u(Δ SAR))	Combined Uncertainty	/	/	/	/	/	$\pm 11.2\%$	$\pm 11.0\%$

U	Expanded Uncertainty	/	/	/	/	/	±22.3%	±22.2%
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2) System Measurement Uncertainty (Frequency range from 3 GHz to 6 GHz)

DASY5 Uncertainty Budget								
(Frequency band: 3 GHz - 6 GHz range)								
Symbol	Error Description	Uncert. value	Prob Dist.	Div	(ci) 1g	(ci) 10g	Std. Unc. (1g)	Std. Unc. (10g)
Measurement System Errors								
CF	Probe Calibration	±14.0%	N	2	1	1	±7.0%	±7.0%
CF _{drift}	Probe Calibration Drift	±1.0%	N	1	1	1	±1.0%	±1.0%
LIN	Probe Linearity	±4.7%	R	√3	1	1	±2.7%	±2.7%
BBS	Broadband Signal	±3.0%	N	2	1	1	±1.5%	±1.5%
ISO	Probe Isotropy	±7.6%	R	√3	1	1	±4.4%	±4.4%
DAE	Data Acquisition	±0.3%	N	1	1	1	±0.3%	±0.3%
AMB	RF Ambient	±1.8%	N	1	1	1	±1.8%	±1.8%
Δ _{sys}	Probe Positioning	±0.2%	N	1	0.3 3	0.33	±0.1%	±0.1%
DAT	Data Processing	±2.3%	N	1	1	1	±2.3%	±2.3%
Phantom and Device Errors								
LIQ(σ)	Conductivity (meas.) ^{DAK}	±2.5%	N	1	0.7 8	0.71	±2.0%	±1.8%
LIQ(T _σ)	Conductivity (temp.) ^{BB}	±3.4%	R	√3	0.7 8	0.71	±1.5%	±1.4%
EPS	Phantom Permittivity	±14.0%	R	√3	0.2 5	0.25	±2.0%	±2.0%
DAS	Distance DUT - TSL	±2.1%	N	1	2	2	±4.2%	±4.2%
H	Device Holder	±3.8%	N	1	1	1	±3.8%	±3.8%
MOD	DUT Modulation ^m	±2.4%	R	√3	1	1	±1.4%	±1.4%
TAS	Time-average SAR	±2.6%	R	√3	1	1	±1.5%	±1.5%
RF _{drift}	DUT drift	±5.0%	R	√3	1	1	±2.9%	±2.9%
Correction to the SAR results								
C(ε, σ)	Deviation to Target	±1.9%	N	1	1	0.84	±1.9%	±1.6%
C(R)	SAR scaling ^p	±0%	R	√3	1	1	±0%	±0%
u(ΔSAR)	Combined Uncertainty	/	/	/	/	/	±12.1%	±12.0%
U	Expanded Uncertainty	/	/	/	/	/	±24.2%	±24.0%

3.4.2 Measurement uncertainty evaluation for system check

This measurement uncertainty budget is suggested by IEC/IEEE 62209-1528. The breakdown of the individual uncertainties is as follows:

DASY5 Uncertainty Budget (Frequency band: 300 MHz - 6 GHz range)								
Symbol	Error Description	Uncert. value	Prob. Dist.	Div.	(c _i) 1g	(c _i) 10g	Std. Unc. (1g)	Std. Unc. (10g)
Measurement System Errors								
CF	Probe Calibration	±14.0%	N	2	1	1	±7.0%	±7.0%
CF _{drift}	Probe Calibration Drift	±1.0%	N	1	1	1	±1.0%	±1.0%
LIN	Probe Linearity	±4.7%	R	√3	1	1	±2.7%	±2.7%
BBS	Broadband Signal	±0.0%	N	2	1	1	±0.0%	±0.0%
ISO	Probe Isotropy	±7.6%	R	√3	1	1	±4.4%	±4.4%
DAE	Data Acquisition	±0.3%	N	1	1	1	±0.3%	±0.3%
AMB	RF Ambient	±1.8%	N	1	1	1	±1.8%	±1.8%
Δ _{sys}	Probe Positioning	±0.2%	N	1	0.33	0.33	±0%	±0%
Phantom and Device Errors								
LIQ(σ)	Conductivity (meas.) ^{DAK}	±2.5%	N	1	0.78	0.71	±2.0%	±1.8%
LIQ(T _σ)	Conductivity (temp.) ^{BB}	±3.4%	R	√3	0.78	0.71	±1.5%	±1.4%
EPS	Phantom Permittivity	±14.0%	R	√3	0.25	0.25	±2.0%	±2.0%
DAS	Distance DUT - TSL	±1.0%	N	1	2	2	±2.0%	±2.0%
VAL	Validation antenna	±0.0%	R	√3	1	1	±0.0%	±0.0%
P _{in}	Accepted power	±1.2%	N	1	1	1	±1.2%	±1.2%
RF _{drift}	DUT drift	±5.0%	R	√3	1	1	±2.9%	±2.9%
Correction to the SAR results								
C(ε, σ)	Deviation to Target	±1.9%	N	1	1	0.84	±1.9%	±1.6%
u(ΔSAR)	Combined Uncertainty	/	/	/	/	/	±10.4%	±10.3%
U	Expanded Uncertainty	/	/	/	/	/	±20.7%	±20.5%

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:

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

SAR is expressed in units of Watts per kilogram (W/kg) SAR measurement can be related to the electrical field in the tissue by

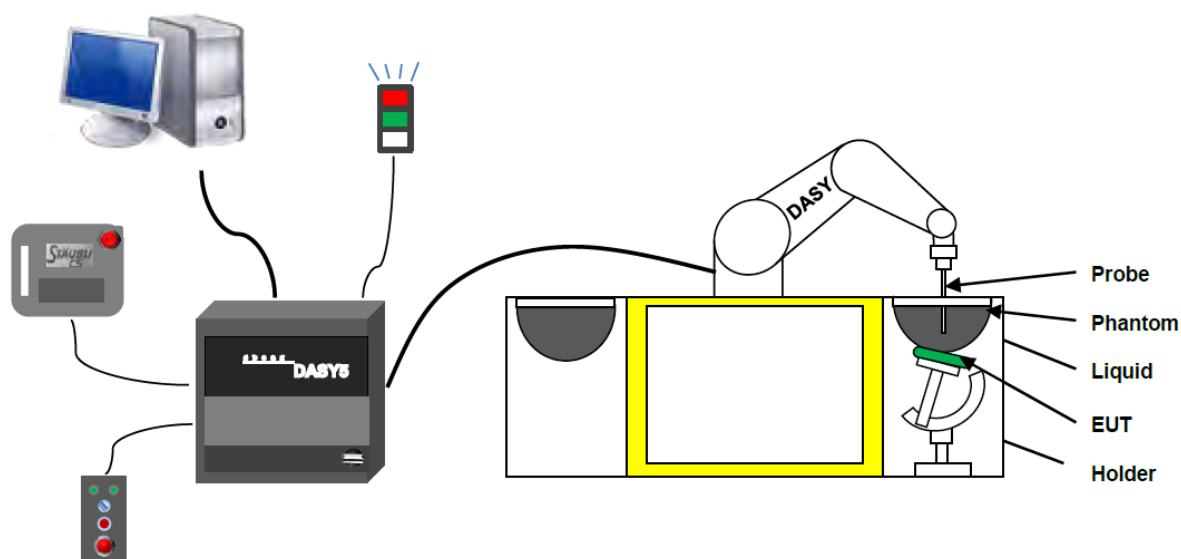
$$\text{SAR} = \frac{\sigma E^2}{\rho}$$

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

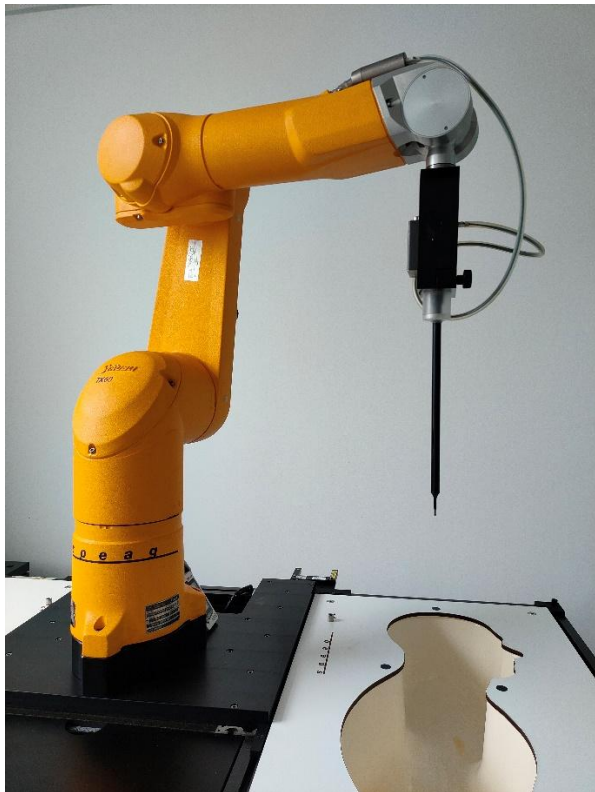


The DASY5 system for performing compliance tests consists of the following items:

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	4 MHz to 10 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: 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 IEC/IEEE 62209-1528 and IEEE 1528 std, with CALISAR, Antennessa proprietary calibration system. The calibration is performed with the IEC/IEEE 62209-1528 annexe technique using reference guide at the five frequencies.

4.2.4 Data Acquisition Electronics

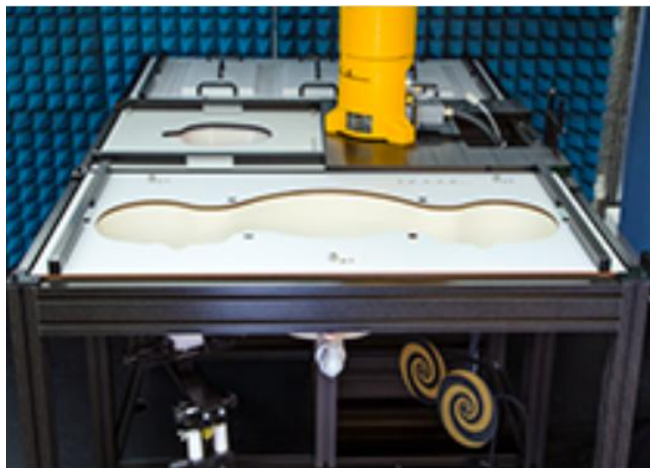
The data acquisition electronics (DAE) consist of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16 bit AD-converte and a command decoder with a control logic unit. Transmission to the measurement server is accomplished through an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



- Input Impedance: 200M Ω m
- The Inputs: Symmetrical and Floating
- Commom 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

Photo of Phantom SN1086



Serial Number	Material	Length	Height
SN 1086 SAM1	Vinylester, glass fiber reinforced	1000	500

4.2.6 Device Holder

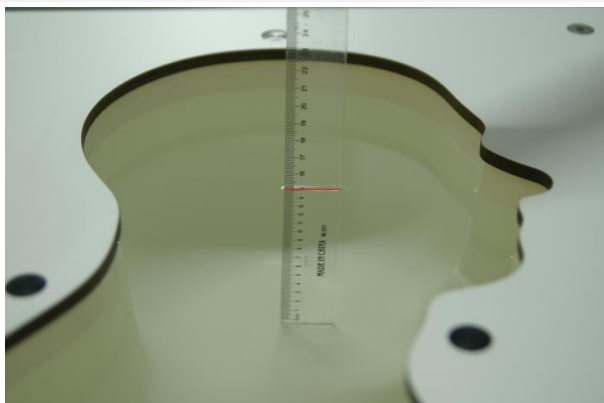
The DASY5 device holder has two scales for device rotation (with respect to the body axis) and the device inclination (with respect to the line between the ear openings). The plane between the ear openings and the mouth tip has a rotation angle of 65° . The bottom plate contains three pair of bolts for 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%.

Head Liquid Depth**Body Liquid Depth**

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	Ethanediol, Sodium petroleum sulfonate, Hexylene Glycol / 2-Methyl-pentane-2.4-diol, Alkoxylated alcohol

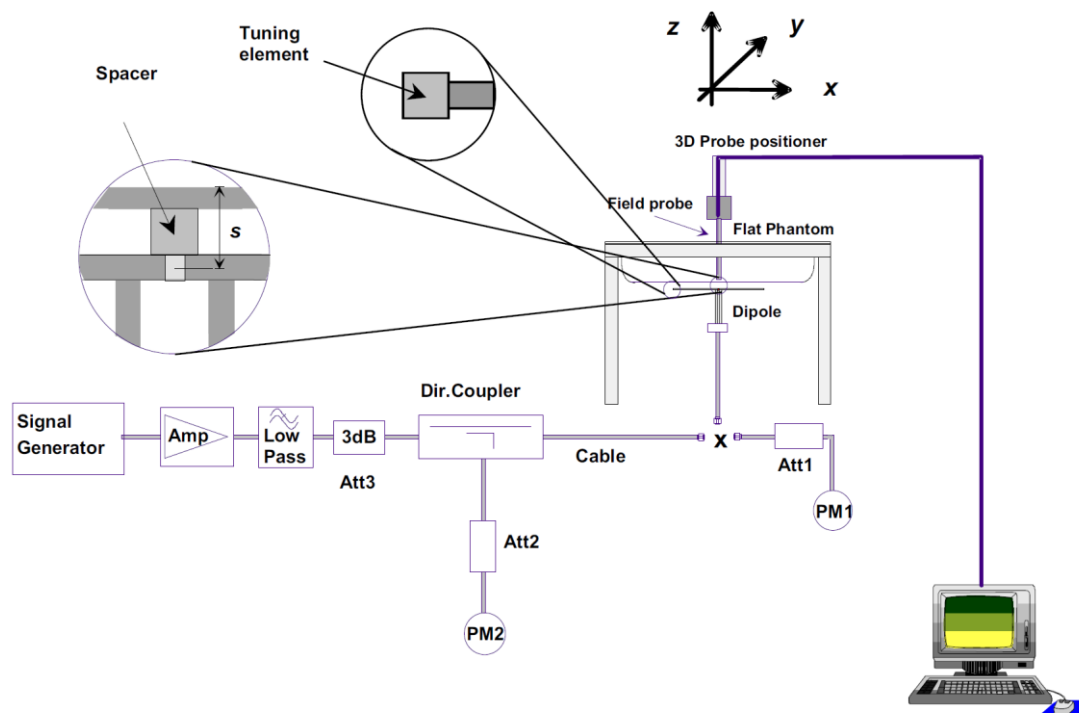
5 SYSTEM VERIFICATION

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

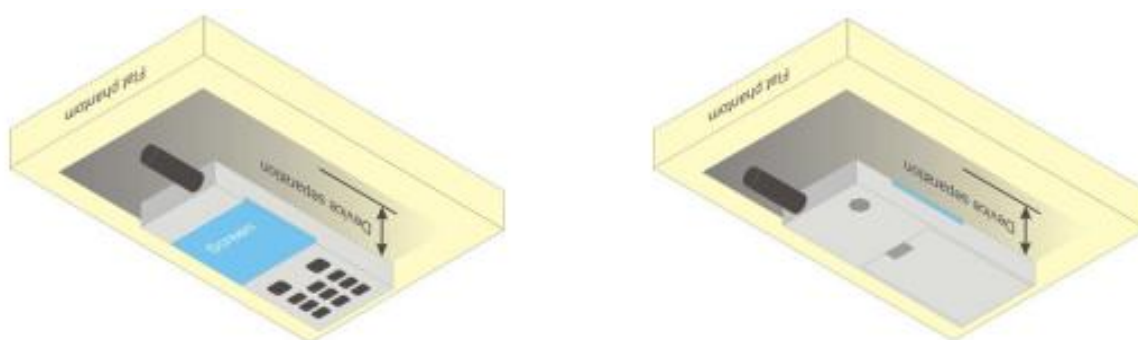
According to KDB 648474 D04 Handset, handsets are tested for SAR compliance in head, body-worn accessory and other use configurations described in the following subsections.

6.1 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.

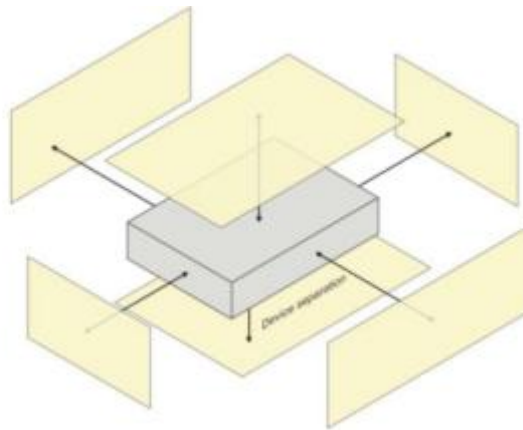
Body-worn accessories that do not contain metallic or conductive components may be tested according to worst-case exposure configurations, typically according to the smallest test separation distance required for the group of body-worn accessories with similar operating and exposure characteristics.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



6.2 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).



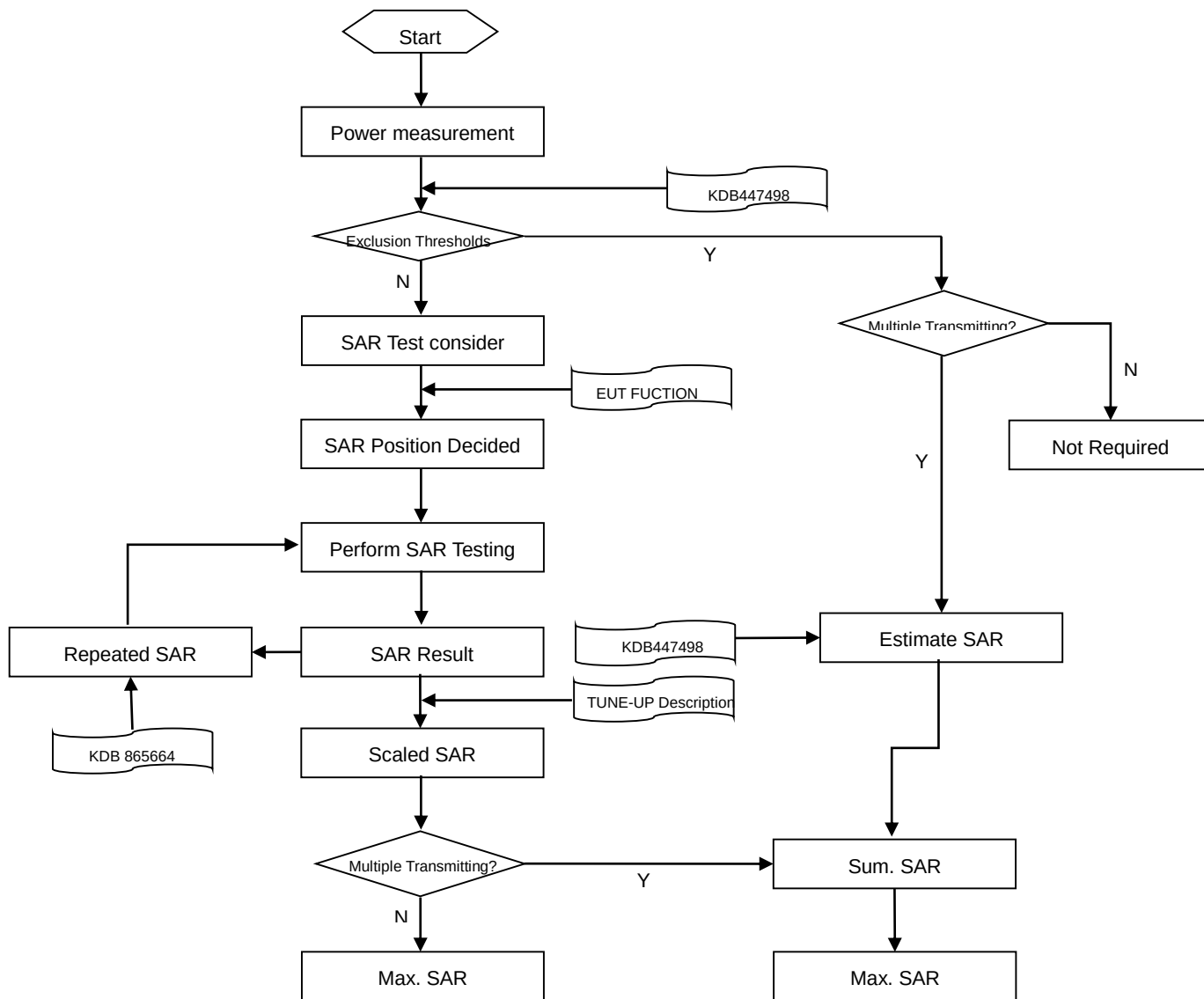
6.3 Product Specific 10g Exposure Consideration

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.

8 CONDUCTED RF OUTPUT POWER

8.1 WIFI

8.1.1 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	17.33	18.50	Yes
		6	2437	17.47	18.50	Yes
		11	2462	16.96	18.00	Yes
	802.11g	1	2412	19.22	20.00	No
		6	2437	19.28	20.50	No
		11	2462	17.27	18.50	No
	802.11n(HT20)	1	2412	17.66	18.50	No
		6	2437	19.16	20.00	No
		11	2462	17.15	18.00	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.
- 3) According KDB 247228, 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, OFDM SAR test is not required.
Adjusted SAR = $0.365 * (112.20\text{mW}/70.79\text{mW}) = 0.578\text{W/kg}$, so 2.4G OFDM SAR test is not required. But considering that this evaluation value is large for 802.11b, in order to obtain the maximum value for 2.4G WiFi, we still test this 802.11g.

8.1.2 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	15.94	17.00	Yes
		44	5220	15.10	16.00	Yes
		48	5240	15.08	16.00	Yes
	802.11n(HT20)	36	5180	15.77	16.50	NO
		44	5220	14.93	16.00	NO
		48	5240	14.94	16.00	NO
	802.11n(HT40)	38	5190	15.88	16.50	NO
		46	5230	15.04	16.00	NO
	802.11ac(VHT20)	36	5180	15.02	16.00	NO

		44	5220	15.00	16.00	NO
		48	5240	14.93	16.00	NO
	802.11ac(VHT40)	38	5190	15.15	16.00	NO
		46	5230	15.00	16.00	NO
	802.11ac(VHT80)	42	5210	13.63	14.50	NO
5.3 (5.25~5.35)	802.11a	52	5260	15.60	16.50	NO
		60	5300	15.54	16.50	NO
		64	5320	15.65	16.50	NO
	802.11n(HT20)	52	5260	15.50	16.50	Yes
		60	5300	16.20	17.00	Yes
		64	5320	16.05	17.00	Yes
	802.11n(HT40)	54	5270	15.53	16.50	NO
		62	5310	14.66	15.50	NO
	802.11ac(VHT20)	52	5260	15.47	16.50	NO
		60	5300	15.51	16.50	NO
		64	5320	15.42	16.50	NO
	802.11ac(VHT40)	54	5270	15.58	16.50	NO
		62	5310	15.44	16.50	NO
	802.11ac(VHT80)	58	5290	16.11	16.50	NO
5.6 (5.47~5.725)	802.11a	100	5500	14.87	16.00	Yes
		116	5580	15.89	17.00	Yes
		140	5700	15.24	16.00	Yes
	802.11n(HT20)	100	5500	12.69	13.50	NO
		116	5580	15.20	16.00	NO
		140	5700	12.74	13.50	NO
	802.11n(HT40)	102	5510	12.79	14.00	NO
		118	5590	15.62	16.50	NO
		134	5670	14.96	16.00	NO
	802.11ac(VHT20)	100	5500	15.11	16.00	NO
		116	5580	15.31	16.50	NO
		140	5700	15.12	16.00	NO
	802.11ac(VHT40)	102	5510	15.67	16.50	NO
		118	5590	15.81	16.50	NO
		134	5670	15.68	16.50	NO
	802.11ac(VHT80)	106	5530	13.76	15.00	NO
		122	5690	14.91	16.00	NO
5.8 (5.725~5.850)	802.11a	149	5745	14.49	15.50	Yes
		157	5785	14.76	16.00	Yes
		165	5825	14.32	15.00	Yes

	802.11n(HT20)	149	5745	14.09	15.00	NO
		157	5785	14.18	15.00	NO
		165	5825	14.22	15.00	NO
	802.11n(HT40)	151	5755	14.65	15.50	NO
		159	5795	14.70	15.50	NO
	802.11ac(VHT20)	149	5745	13.97	15.00	NO
		157	5785	14.13	15.00	NO
		165	5825	14.19	15.00	NO
	802.11ac(VHT40)	151	5755	14.66	15.50	NO
		159	5795	14.71	15.50	NO
	802.11ac(VHT80)	155	5775	14.71	15.50	NO

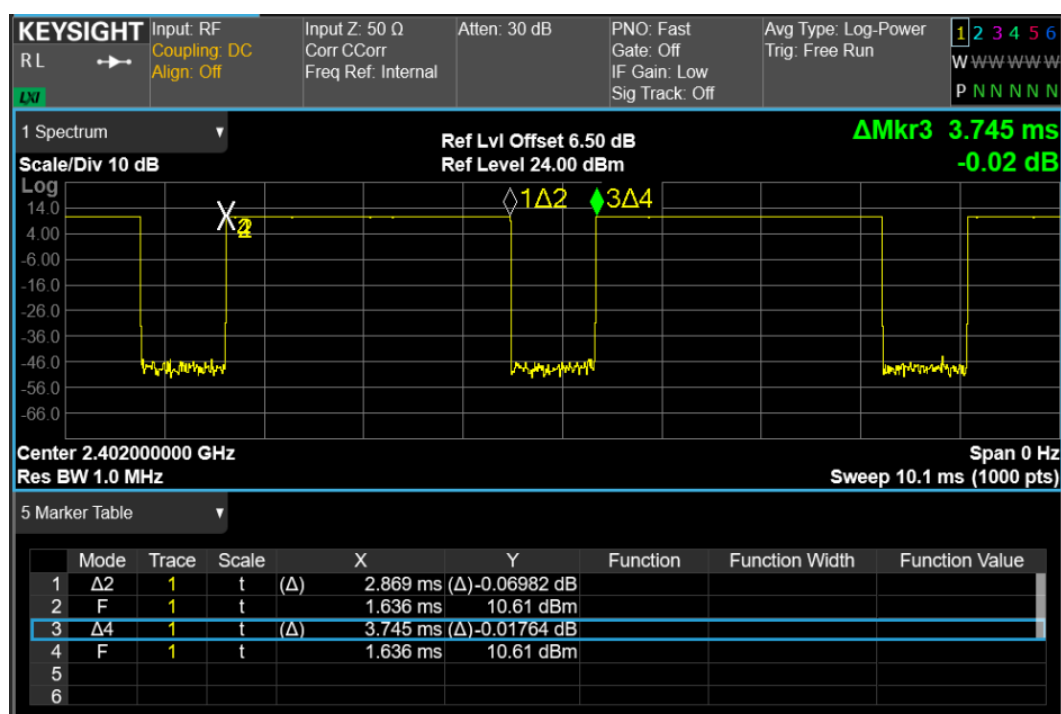
Note: When the same maximum output power is specified for both bands, begin SAR measurement in U-NII-2A band by applying the OFDM SAR requirements. If the highest reported SAR for a test configuration is ≤ 1.2 W/kg, SAR is not required for U-NII-1 band for that configuration (802.11 mode and exposure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

8.2 Bluetooth

Mode	GFSK			$\pi/4$ -DQPSK		
Channel	0	39	78	0	39	78
Frequency (MHz)	2402	2441	2480	2402	2441	2480
EIRP (dBm)	9.46	9.05	9.61	8.69	8.23	8.70
Tune-Up Limit (dBm)	10.50	10.00	10.50	9.50	9.00	9.50
SAR Test Require	YES	YES	YES	NO	NO	NO
Mode	8-DPSK			/		
Channel	0	39	78	/	/	/
Frequency (MHz)	2402	2441	2480	/	/	/
EIRP (dBm)	8.84	8.35	8.81	/	/	/
Tune-Up Limit (dBm)	10.00	9.50	10.00	/		
SAR Test Require	NO	NO	NO	/	/	/
Mode	BLE-1Mbps			BLE-2Mbps		
Channel	0	19	39	0	19	39
Frequency (MHz)	2402	2440	2480	2402	2440	2480
EIRP (dBm)	2.94	2.52	3.19	3.09	2.59	3.38
Tune-Up Limit (dBm)	3.00	4.00	5.50	4.00	3.50	4.50
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.

Note: The Bluetooth duty cycle is 76.61% 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.



9 TEST RESULT

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

9.1 Bluetooth

Number	Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	Power Drift (dB)	1 g Meas SAR(W/kg)	Meas. Power (dBm)	Max. tune-up power(dB m)	Scaling Factor	Duty cycle (%)	Duty Factor	1g Scaled SAR (W/kg)	Meas. No.
SC-SZ2580422-S18 SN:AS2542209124	DH5	Back side	0	78	2480	0.18	0.017	9.61	10.50	1.227	76.61	1.305	0.027	
		Left Edge		78	2480	0.17	0.024	9.61	10.50	1.227	76.61	1.305	0.038	
		Right Edge		78	2480	-0.01	0.014	9.61	10.50	1.227	76.61	1.305	0.022	
		Top Edge		78	2480	0.09	0.030	9.61	10.50	1.227	76.61	1.305	0.048	
		Bottom Edge		78	2480	-0.06	0.025	9.61	10.50	1.227	76.61	1.305	0.040	
		Top Edge		0	2402	0.01	0.032	9.46	10.50	1.271	76.61	1.305	0.053	1
		Top Edge		39	2441	-0.17	0.028	9.05	10.00	1.245	76.61	1.305	0.045	

9.2 WIFI 2.4G

Number	Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	Power Drift (dB)	1 g Meas SAR(W/kg)	Meas. Power (dBm)	Max. tune-up power(dB m)	Scaling Factor	Duty cycle (%)	Duty Factor	1g Scaled SAR (W/kg)	Meas. No.
SC-SZ2580422-S18 SN:AS2542209124	802.11b	Back side	0	6	2437	0.09	0.052	17.47	18.50	1.268	98.00	1.020	0.067	
		Left Edge		6	2437	0.18	0.023	17.47	18.50	1.268	98.00	1.020	0.030	
		Right Edge		6	2437	0.15	0.120	17.47	18.50	1.268	98.00	1.020	0.155	
		Top Edge		6	2437	0.02	0.282	17.47	18.50	1.268	98.00	1.020	0.365	
		Bottom Edge		6	2437	0.19	0.034	17.47	18.50	1.268	98.00	1.020	0.044	
		Top Edge		1	2412	0.04	0.245	17.33	18.50	1.309	98.00	1.020	0.327	
		Top Edge		11	2462	0.08	0.228	16.96	18.00	1.271	98.00	1.020	0.295	
	802.11g	Back side	0	6	2437	0.15	0.075	19.28	20.50	1.324	98.00	1.020	0.101	
		Left Edge		6	2437	-0.02	0.040	19.28	20.50	1.324	98.00	1.020	0.054	
		Right Edge		6	2437	-0.12	0.173	19.28	20.50	1.324	98.00	1.020	0.234	
		Top Edge		6	2437	-0.03	0.500	19.28	20.50	1.324	98.00	1.020	0.675	2
		Bottom Edge		6	2437	-0.19	0.037	19.28	20.50	1.324	98.00	1.020	0.050	
		Top Edge		1	2412	0.13	0.367	19.22	20.00	1.197	98.00	1.020	0.448	
		Top Edge		11	2462	-0.12	0.268	17.27	18.50	1.327	98.00	1.020	0.363	

9.3 WIFI 5G

WIFI 5.2G

Number	Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	Power Drift (dB)	1 g Meas SAR(W/k g)	Meas. Power (dBm)	Max. tune-up power(dB m)	Scaling Factor	Duty cycle (%)	Duty Factor	1g Scaled SAR (W/kg)	Meas. No.
SC-SZ2580422-S18 SN:AS2542209124	802.11a	Back side	0	36	5180	0.03	0.065	15.94	17.00	1.276	92.02	1.087	0.090	
		Left Edge		36	5180	0.16	0.035	15.94	17.00	1.276	92.02	1.087	0.049	
		Right Edge		36	5180	0.17	0.496	15.94	17.00	1.276	92.02	1.087	0.688	
		Top Edge		36	5180	0.19	0.710	15.94	17.00	1.276	92.02	1.087	0.985	3
		Bottom Edge		36	5180	0.06	0.052	15.94	17.00	1.276	92.02	1.087	0.072	
		Top Edge		44	5220	0.19	0.410	15.10	16.00	1.230	92.02	1.087	0.548	
		Top Edge		48	5240	0.06	0.568	15.08	16.00	1.236	92.02	1.087	0.763	

WIFI 5.3G

Number	Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	Power Drift (dB)	1 g Meas SAR(W/k g)	Meas. Power (dBm)	Max. tune-up power(dB m)	Scaling Factor	Duty cycle (%)	Duty Factor	1g Scaled SAR (W/kg)	Meas. No.
SC-SZ2580422-S18 SN:AS2542209124	802.11 n20	Back side	0	60	5300	0.18	0.077	16.20	17.00	1.202	91.16	1.097	0.102	
		Left Edge		60	5300	0.05	0.046	16.20	17.00	1.202	91.16	1.097	0.061	
		Right Edge		60	5300	0.02	0.535	16.20	17.00	1.202	91.16	1.097	0.706	
		Top Edge		60	5300	0.02	0.577	16.20	17.00	1.202	91.16	1.097	0.761	
		Bottom Edge		60	5300	0.03	0.045	16.20	17.00	1.202	91.16	1.097	0.059	
		Top Edge		52	5260	0.14	0.719	15.50	16.50	1.259	91.16	1.097	0.993	4
		Top Edge		64	5320	-0.11	0.418	16.05	17.00	1.245	91.16	1.097	0.571	

WIFI 5.6G

Number	Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	Power Drift (dB)	1 g Meas SAR(W/k g)	Meas. Power (dBm)	Max. tune-up power(dB m)	Scaling Factor	Duty cycle (%)	Duty Factor	1g Scaled SAR (W/kg)	Meas. No.
SC-SZ2580422-S18 SN:AS2542209124	802.11 a	Back side	0	116	5610	-0.04	0.083	15.89	17.00	1.291	92.02	1.087	0.116	
		Left Edge		116	5610	-0.09	0.062	15.89	17.00	1.291	92.02	1.087	0.087	
		Right Edge		116	5580	0.09	0.530	15.89	17.00	1.291	92.02	1.087	0.744	
		Top Edge		116	5610	0.13	0.666	15.89	17.00	1.291	92.02	1.087	0.935	
		Bottom Edge		116	5610	0.08	0.050	15.89	17.00	1.291	92.02	1.087	0.070	
		Top Edge		100	5500	0.06	0.323	14.87	16.00	1.297	92.02	1.087	0.455	
		Top Edge		140	5700	0.16	0.860	15.24	16.00	1.191	92.02	1.087	1.114	5
		Top Edge		140	5700	0.07	0.856	15.24	16.00	1.191	92.02	1.087	1.108	repeat
SC-SZ2580422-S16 SN:AS2542209402	802.11 a	Top Edge	0	140	5700	0.02	0.853	15.24	16.00	1.191	92.02	1.087	1.105	
SC-SZ2580422-S17		Top Edge		140	5700	-0.12	0.813	15.24	16.00	1.191	92.02	1.087	1.053	

SN:AS2542209131														
SC-SZ2580422-S19		Top Edge		140	5700	-0.09	0.835	15.24	16.00	1.191	92.02	1.087	1.081	
SN:AS2542209397														

WIFI 5.8G

Number	Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	Power Drift (dB)	1 g Meas SAR(W/kg)	Meas. Power (dBm)	Max. tune-up power(dB m)	Scaling Factor	Duty cycle (%)	Duty Factor	1g Scaled SAR (W/kg)	Meas. No.
SC-SZ2580422-S18 SN:AS2542209124	802.11 a	Back side	0	157	5785	-0.11	0.073	14.76	16.00	1.330	92.02	1.087	0.106	
		Left Edge		157	5785	0.17	0.064	14.76	16.00	1.330	92.02	1.087	0.093	
		Right Edge		157	5785	0.11	0.045	14.76	16.00	1.330	92.02	1.087	0.065	
		Top Edge		157	5785	0.14	0.520	14.76	16.00	1.330	92.02	1.087	0.752	
		Bottom Edge		149	5745	0.09	0.035	14.76	16.00	1.330	92.02	1.087	0.051	
		Top Edge		149	5745	0.14	0.526	14.49	15.50	1.262	92.02	1.087	0.721	
		Top Edge		165	5825	0.09	0.812	14.32	15.00	1.169	92.02	1.087	1.032	6
		Top Edge		165	5825	0.12	0.801	14.32	15.00	1.169	92.02	1.087	1.018	repeat

Note: There are 4 test prototypes. The main prototype for testing is numbered SC-SZ2580422-S18 SN: AS2542209124, and the other prototypes are numbered SC-SZ2580422-S16 SN: AS2542209402, SC-SZ2580422-S17 SN: AS2542209131, and SC-SZ2580422-S19 SN: AS2542209397. The prototypes are supplied by different manufacturers for materials compared to SC-SZ2580422-S18, but because the device specifications and materials are the same, and the battery differs, the worst-case SAR scenario was tested.

10 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
5700	WLAN 5.6G	Body	Top Edge	0.860	Yes	0.856	1.00
5825	WLAN 5.8G	Body	Top Edge	0.812	Yes	0.801	1.01

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.

11 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).

11.1 Simultaneous Transmission Mode Consider

No.	Simultaneous Tx Combination	Body
1	WIFI 5G+BT	Yes
Note: The maximum SAR summation is calculated based on the same configuration and test position.		

11.2 Sum SAR of Simultaneous Transmission

11.2.1 Body-worn Simultaneous Transmission SAR Evaluation for WIFI and Bluetooth

Band	Antenna	Position	1	2	SUM SAR
			5G WIFI	Bluetooth	1+2
WIFI5G&BT	Ant	Back Side	0.11	0.03	0.14
		Left Edge	0.09	0.04	0.13
		Right Edge	0.74	0.02	0.77
		Top Edge	1.11	0.05	1.16
		Bottom Edge	0.07	0.04	0.11
Note:					
1: The highest Summed 10g SAR is 1.16 W/Kg < 1.6 W/kg, so Simultaneous Transmission SAR test is not required.					

12 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
2450MHz Validation Dipole	Speag	D2450V2	1065	2024/09/05	2027/09/05
5GHz Validation Dipole	Speag	D5GHzV2	1333	2024/09/04	2027/09/04
Data Acquisition Electronicsr	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	R&S	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
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	Keysight	85070E	MY44300524	N/A	N/A
Phantom	Speag	SAM	1086	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, Tejet 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 an 85070E 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 (%)
2025.11.25	Head	2450	21.3	1.83	38.40	1.80	39.20	1.67	-2.04
2025.11.26	Head	5200	21.0	4.54	35.20	4.66	35.99	-2.58	-2.20
2025.11.27	Head	5600	21.2	4.96	34.58	5.07	35.53	-2.17	-2.67
2025.11.28	Head	5800	21.4	5.16	34.18	5.27	35.30	-2.09	-3.17
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 %.

Head liquid 1g

Date	Freq. (MHz)	Power (mW)	Measured SAR (W/kg)	Normalized SAR (W/kg)	Dipole SAR (W/kg)	Tolerance (%)
2025.11.25	2450	100	5.01	50.10	52.60	-4.75
2025.11.26	5200	100	8.18	81.80	77.80	5.14
2025.11.27	5600	100	9.05	90.05	82.80	9.30
2025.11.28	5800	100	8.31	83.10	78.50	5.86

System Performance Check Data(2450MHz)

Date: 2025/11/25

Communication System Band: D2450 (2450.0 MHz); Frequency: 2450 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.83$ S/m; $\epsilon_r = 38.395$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Ambient Temperature: 22.5°C Liquid Temperature: 21.3°C

DASY5 Configuration:

- Probe: EX3DV4 - SN3974; ConvF(8, 8, 8); Calibrated: 2025/6/5
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1423; Calibrated: 2025/6/5
- Phantom: ELI V4.0 (20deg probe tilt); Type: QD OVA 001 BB; Serial: 1086
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

Ch2450/Area Scan (81x151x1): Interpolated grid: $dx=1.200$ mm, $dy=1.200$ mm

Maximum value of SAR (interpolated) = 8.71 W/kg

Ch2450/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 55.71 V/m; Power Drift = -0.08 dB

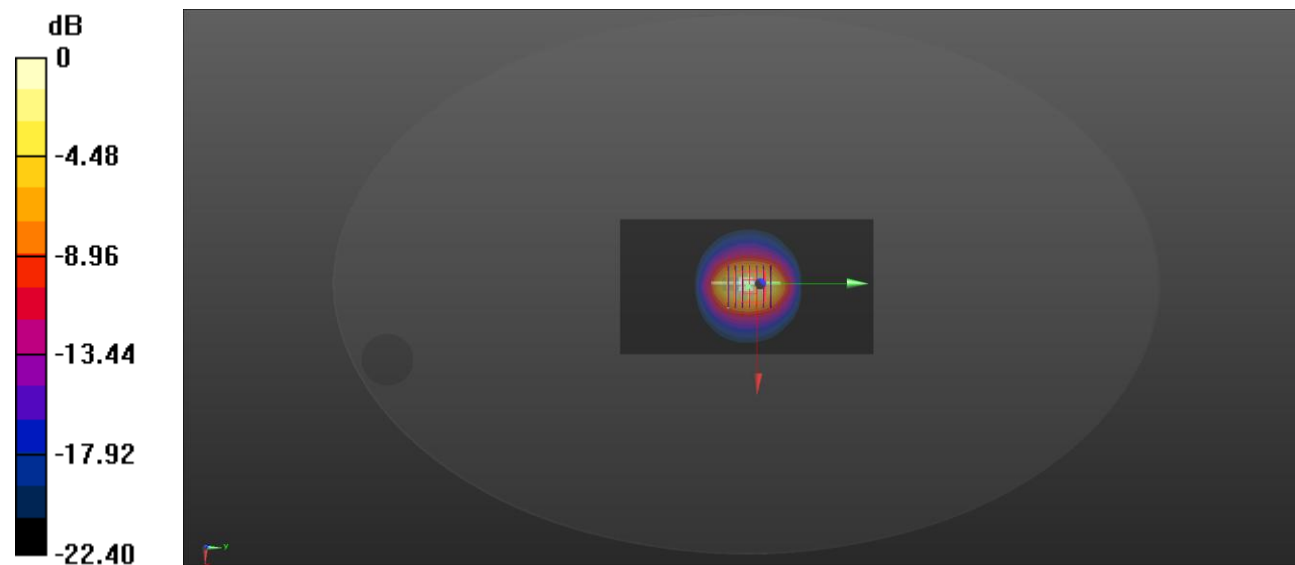
Peak SAR (extrapolated) = 10.3 W/kg

SAR(1 g) = 5.01 W/kg; SAR(10 g) = 2.32 W/kg

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

Ratio of SAR at M2 to SAR at M1 = 48.8%

Maximum value of SAR (measured) = 8.37 W/kg



0 dB = 8.37 W/kg

System Performance Check Data(5200MHz)

Date: 2025/11/26

Communication System Band: D5GHz (5000.0 - 6000.0 MHz); Frequency: 5200 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 5200$ MHz; $\sigma = 4.542$ S/m; $\epsilon_r = 35.204$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Ambient Temperature: 22.2°C Liquid Temperature: 21°C

DASY5 Configuration:

- Probe: EX3DV4 - SN3974; ConvF(5.76, 5.76, 5.76); Calibrated: 2025/6/5
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1423; Calibrated: 2025/6/5
- Phantom: ELI V4.0 (20deg probe tilt); Type: QD OVA 001 BB; Serial: 1086
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

CW 5200/Area Scan (61x81x1): Interpolated grid: $dx=1.000$ mm, $dy=1.000$ mm

Maximum value of SAR (interpolated) = 17.3 W/kg

CW 5200/Zoom Scan (7x7x12)/Cube 0: Measurement grid: $dx=4$ mm, $dy=4$ mm, $dz=2$ mm

Reference Value = 31.22 V/m; Power Drift = -0.16 dB

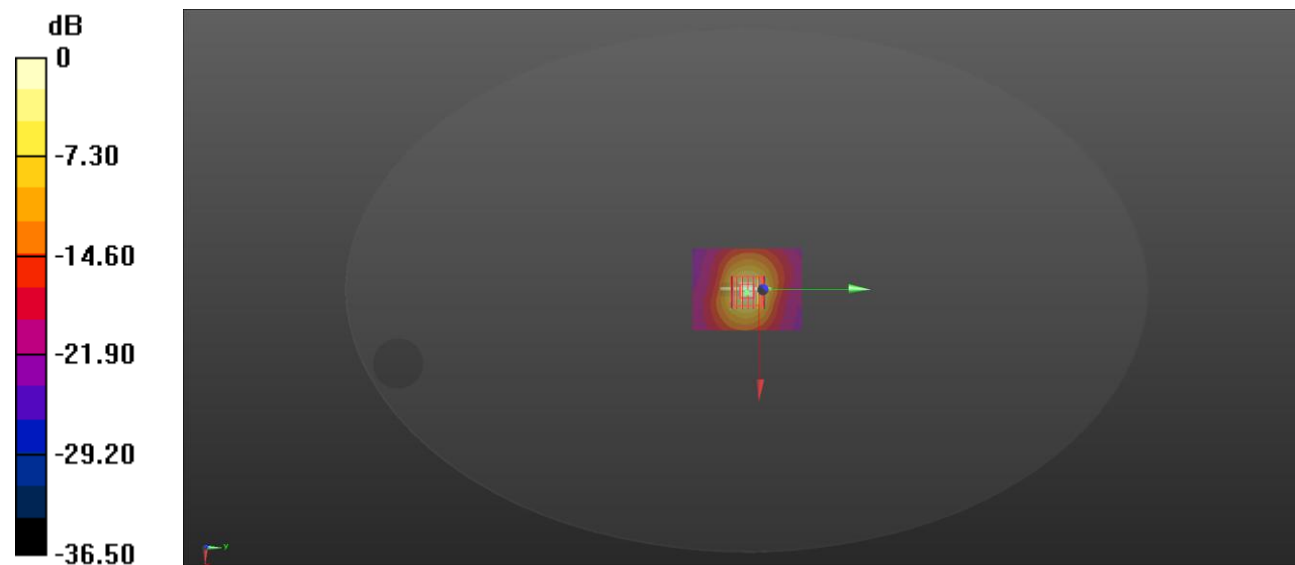
Peak SAR (extrapolated) = 33.7 W/kg

SAR(1 g) = 8.18 W/kg; SAR(10 g) = 2.34 W/kg

Smallest distance from peaks to all points 3 dB below = 9.5 mm

Ratio of SAR at M2 to SAR at M1 = 55.8%

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



0 dB = 16.9 W/kg

System Performance Check Data(5600MHz)

Date: 2025/11/27

Communication System Band: D5GHz (5000.0 - 6000.0 MHz); Frequency: 5600 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 5600$ MHz; $\sigma = 4.956$ S/m; $\epsilon_r = 34.579$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Ambient Temperature: 22.4°C Liquid Temperature: 21.2°C

DASY5 Configuration:

- Probe: EX3DV4 - SN3974; ConvF(5.05, 5.05, 5.05); Calibrated: 2025/6/5
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1423; Calibrated: 2025/6/5
- Phantom: ELI V4.0 (20deg probe tilt); Type: QD OVA 001 BB; Serial: 1086
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

/Ch5600/Area Scan (61x81x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 23.8 W/kg

Ch5600/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 44.24 V/m; Power Drift = -0.04 dB

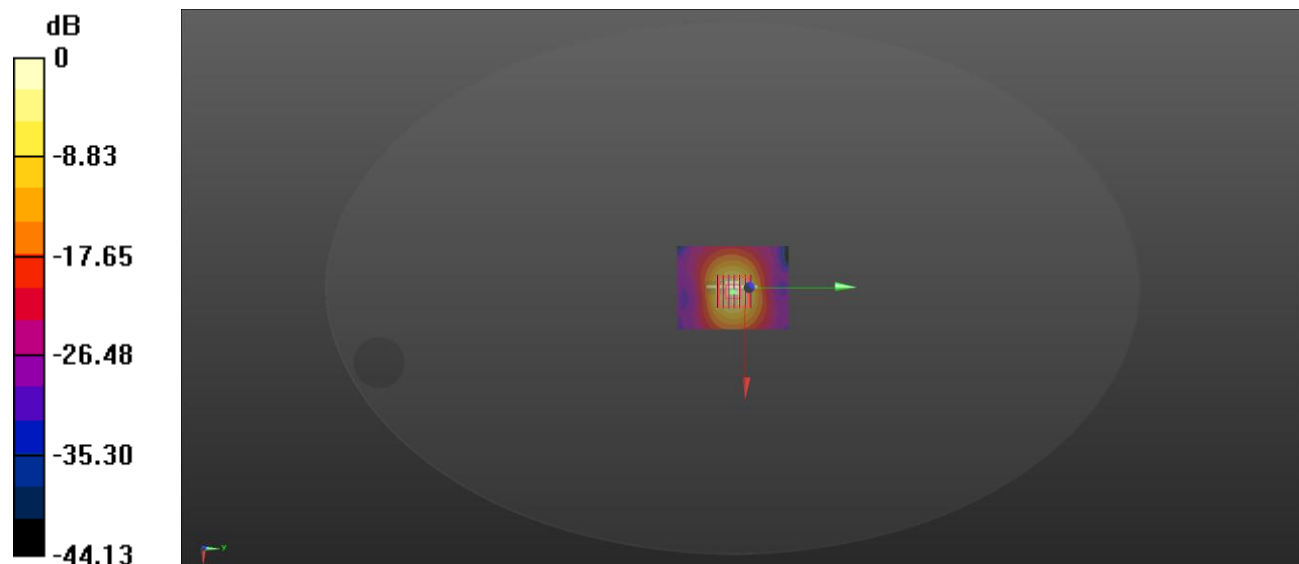
Peak SAR (extrapolated) = 40.1 W/kg

SAR(1 g) = 9.05 W/kg; SAR(10 g) = 2.56 W/kg

Smallest distance from peaks to all points 3 dB below = 7.5 mm

Ratio of SAR at M2 to SAR at M1 = 51.1%

Maximum value of SAR (measured) = 23.6 W/kg



0 dB = 23.6 W/kg

System Performance Check Data(5800MHz)

Date: 2025/11/28

Communication System Band: D5GHz (5000.0 - 6000.0 MHz); Frequency: 5800 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 5800$ MHz; $\sigma = 5.159$ S/m; $\epsilon_r = 34.177$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Ambient Temperature: 22.6°C Liquid Temperature: 21.4°C

DASY5 Configuration:

- Probe: EX3DV4 - SN3974; ConvF(5.14, 5.14, 5.14); Calibrated: 2025/6/5
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1423; Calibrated: 2025/6/5
- Phantom: ELI V4.0 (20deg probe tilt); Type: QD OVA 001 BB; Serial: 1086
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

Ch5800/Area Scan (61x81x1): Interpolated grid: $dx=1.000$ mm, $dy=1.000$ mm

Maximum value of SAR (interpolated) = 22.1 W/kg

Ch5800/Zoom Scan (7x7x12)/Cube 0: Measurement grid: $dx=4$ mm, $dy=4$ mm, $dz=2$ mm

Reference Value = 40.44 V/m; Power Drift = -0.12 dB

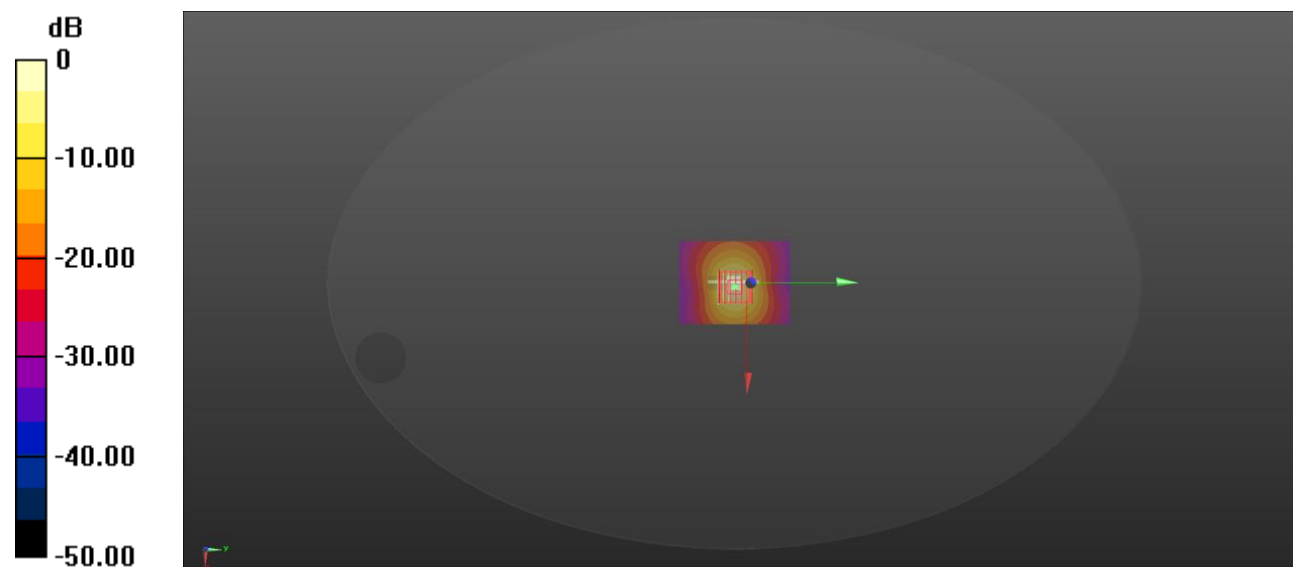
Peak SAR (extrapolated) = 38.9 W/kg

SAR(1 g) = 8.31 W/kg; SAR(10 g) = 2.34 W/kg

Smallest distance from peaks to all points 3 dB below = 7.5 mm

Ratio of SAR at M2 to SAR at M1 = 49.4%

Maximum value of SAR (measured) = 22.1 W/kg



ANNEX C TEST DATA

Please refer the document “BL-SZ25A1022-ATD.pdf”.

ANNEX D EUT EXTERNAL PHOTOS

Please refer the document “BL-SZ25A1022-AW.pdf”.

ANNEX E SAR TEST SETUP PHOTOS

Please refer the document “BL-SZ25A1022-AS.pdf”.

ANNEX F CALIBRATION REPORT

Please refer the document “BL-SZ25A1022-AC.pdf”.

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--END OF REPORT--