TEST REPORT

Applicant Name:	Shenzhen Zero Zero Infinity Technology Co., Ltd.
Address:	4F Qianhai Yidu Tower Building, Shenzhen, China
Report Number:	2504V67820E-SAA
FCC ID:	2AIDW-ZZ-F-2-002

Test Standard (s)

FCC 47 CFR part 2.1093

Sample Description

Product Type:	BLASTOFF CONTROLLER
Model No.:	ZZ-F-2-001
Multiple Model(s) No.:	N/A
Trade Mark:	ZERO ZERO ROBOTICS
Serial Number:	370D-1
Date Received:	2025-07-24
Date of Test:	2025-07-25
Issue Date:	2025-07-28

Test Result:	The EUT complied with the standards above.

Prepared and Checked By:

Jack Yang

Jack Yang

SAR Engineer

Approved By:

Lance Li

Lance Li

SAR Engineer

<table>
<tr><th colspan="2">Mode</th><th>Max. Reported SAR Level(s) (W/kg)</th><th>Limit (W/kg)</th></tr>
<tr><td rowspan="2">5.8G</td><td>1g Body SAR</td><td>0.73</td><td>1.6</td></tr>
<tr><td>10g Limbs SAR</td><td>0.65</td><td>4.0</td></tr>
<tr><td rowspan="4">Applicable Standards</td><td colspan="3">FCC 47 CFR part 2.1093
Radiation exposure evaluation: portable devices</td></tr>
<tr><td colspan="3">RF Exposure Procedures: TCB Workshop April 2019</td></tr>
<tr><td colspan="3">IEEE 1528:2013
IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques</td></tr>
<tr><td colspan="3">KDB procedures
KDB 447498 D01 General RF Exposure Guidance v06
KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz v01r04
KDB 865664 D02 RF Exposure Reporting v01r02</td></tr>
<tr><td colspan="4">Note: This wireless device has been shown to be capable of compliance for localized specific absorption rate (SAR) for General Population/Uncontrolled Exposure limits specified in FCC 47 CFR part 2.1093 and has been tested in accordance with the measurement procedures specified in IEEE 1528-2013 and RF exposure KDB procedures.
The results and statements contained in this report pertain only to the device(s) evaluated.
Unless otherwise stated there are no any additions to, deviations, or exclusions from the method.</td></tr>
</table>

TABLE OF CONTENTS

DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
0	2504V67820E-SAA	Original Report	2025-07-28

EUT DESCRIPTION

This report has been prepared on behalf of **Shenzhen Zero Zero Infinity Technology Co., Ltd.** and their product **BLASTOFF CONTROLLER**, Model: **ZZ-F-2-001,**FCC ID: **2AIDW-ZZ-F-2-002** or the EUT (Equipment under Test) as referred to in the rest of this report.

Technical Specification

Device Type:	Portable
Exposure Category:	Population / Uncontrolled
Antenna Type(s):	External antenna
Operation Modes:	WLAN
Operation Frequency:	5.8G:5725-5850MHz(TX/RX)
Rated Input Voltage:	DC3.6V from Rechargeable Battery
Dimensions (L*W*H):	137mm (L) *100mm (W) *48mm (H)(Antenna length: 72mm)
Serial Number:	370D-1
Normal Operation:	Body and Limbs Supported

REFERENCE, STANDARDS, AND GUILDELINES

FCC:

The Report and Order requires routine SAR evaluation prior to equipment authorization of portable transmitter devices, including portable telephones. For consumer products, the applicable limit is 1.6 mW/g as recommended by the ANSI/IEEE standard C95.1-1992 [6] for an uncontrolled environment (Paragraph 65). According to the Supplement C of OET Bulletin 65 “Evaluating Compliance with FCC Guide-lines for Human Exposure to Radio frequency Electromagnetic Fields", released on Jun 29, 2001 by the FCC, the device should be evaluated at maximum output power (radiated from the antenna) under “worst-case” conditions for normal or intended use, incorporating normal antenna operating positions, device peak performance frequencies and positions for maximum RF energy coupling.

This report describes the methodology and results of experiments performed on wireless data terminal. The objective was to determine if there is RF radiation and if radiation is found, what is the extent of radiation with respect to safety limits. SAR (Specific Absorption Rate) is the measure of RF exposure determined by the amount of RF energy absorbed by human body (or its parts) – to determine how the RF energy couples to the body or head which is a primary health concern for body worn devices. The limit below which the exposure to RF is considered safe by regulatory bodies in North America is 1.6 mW/g average over 1 gram of tissue mass.

SAR Limits

FCC Limit

EXPOSURE LIMITS	SAR (W/kg)	
	(General Population / Uncontrolled Exposure Environment)	(Occupational / Controlled Exposure Environment)
Spatial Average (averaged over the whole body)	0.08	0.4
Spatial Peak (averaged over any 1 g of tissue)	**1.6**	8.0
Spatial Peak (hands/wrists/feet/ankles averaged over 10 g)	**4.0**	20.0

Population/Uncontrolled Environments are defined as locations where there is the exposure of individual who have no knowledge or control of their exposure.

Occupational/Controlled Environments are defined as locations where there is exposure that maybe incurred by people who are aware of the potential for exposure (i.e. as a result of employment or occupation).

General Population/Uncontrolled environments Spatial Peak(averaged over any 1 g of tissue) limit 1.6 W/kg and Spatial Peak(hands/wrists/feet/ankles averaged over 10 g) limit 4 W/kg applied to the EUT.

FACILITIES

The test site used by Shenzhen Accurate Technology Co., Ltd. to collect test data is located on the Floor 1, KuMaKe Building, Dongzhou Community, Guangming Street, Guangming District, Shenzhen, Guangdong, China.

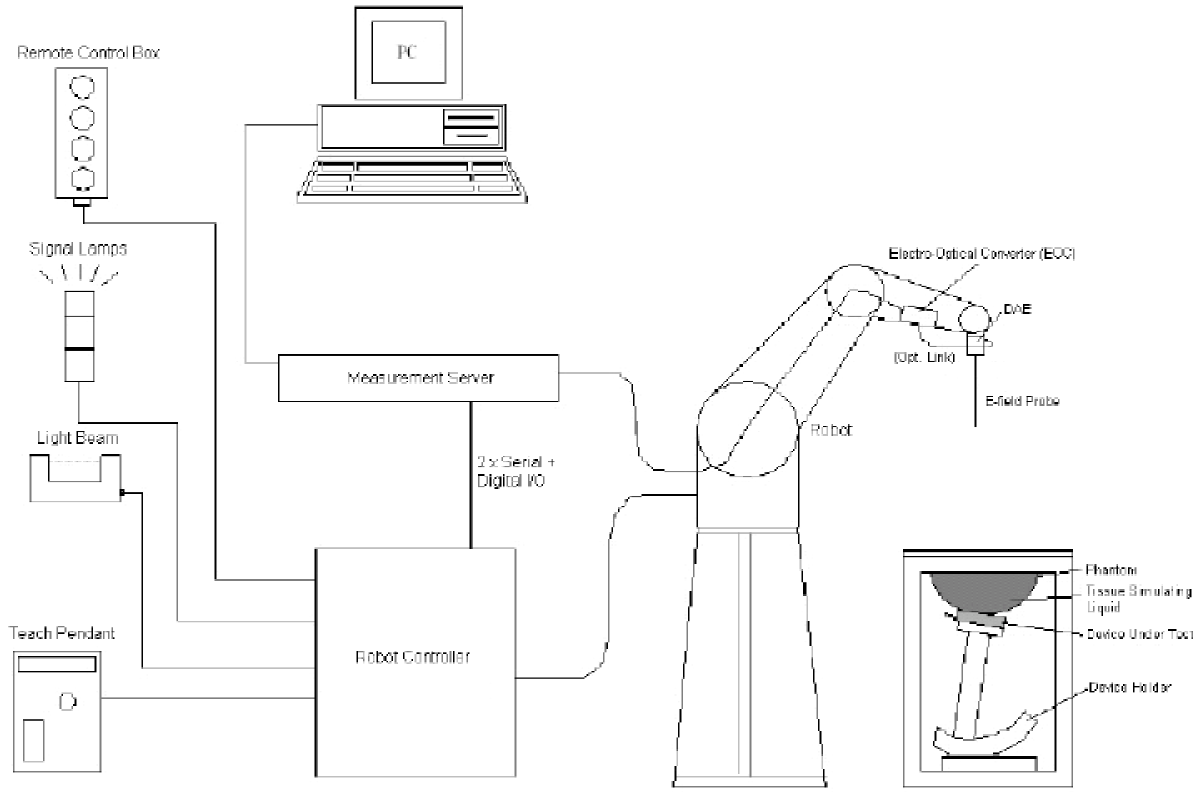
Accredited by American Association for Laboratory Accreditation (A2LA).The Certificate Number is 4297.01.

DESCRIPTION OF TEST SYSTEM

These measurements were performed with the automated near-field scanning system DASY5 from Schmid & Partner Engineering AG (SPEAG) which is the Fifth generation of the system shown in the figure hereinafter:

DASY5 System Description

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



- A standard high precision 6-axis robot (Staubli TX=RX family) with controller, teach pendant and software. An arm extension for accommodating the data acquisition electronics (DAE).
- An isotropic field probe optimized and calibrated for the targeted measurement.
- A data acquisition electronics (DAE) which performs the signal application, 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.
- The Electro-optical converter (EOC) performs the conversion from optical to electrical signals for the digital communication to the DAE. To use optical surface detection, a special version of the EOC is required. The EOC signal is transmitted to the measurement server.
- The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- The Light Beam used is for probe alignment. This improves the (absolute) accuracy of the probe positioning.
- A computer running Win7 professional operating system and the DASY52 software.
- Remote control and teach pendant as well as additional circuitry for robot safety such as warning lamps, etc.
- The phantom, the device holder and other accessories according to the targeted measurement.

DASY5 Measurement Server

The DASY5 measurement server is based on a PC/104 CPU board with a 400 MHz Intel ULV Celeron, 128 MB chip-disk and 128 MB RAM. The necessary circuits for communication with the DAE4 (or DAE3) electronics box, as well as the 16-bit AD converter system for optical detection and digital I/O interface are contained on the DASY5 I/O board, which is directly connected to the PC/104 bus of the CPU board.

The measurement server performs all real-time data evaluations of field measurements and surface detection, controls robot movements, and handles safety operations. The PC operating system cannot interfere with these time-critical processes. All connections are supervised by a watchdog, and disconnection of any of the cables to the measurement server will automatically disarm the robot and disable all program- controlled robot movements. Furthermore, the measurement server is equipped with an expansion port, which is reserved for future applications. Please note that this expansion port does not have a standardized pinout, and therefore only devices provided by SPEAG can be connected. Connection of devices from any other supplier could seriously damage the measurement server.

Data Acquisition Electronics

The data acquisition electronics (DAE4) 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.

The mechanical probe mounting device includes two different sensor systems for frontal and sideways probe contacts. They are used for mechanical surface detection and probe collision detection.

The input impedance of both the DAE4 as well as of the DAE3 box is 200MOhm; the inputs are symmetrical and floating. Common mode rejection is above 80 dB.

EX3DV4 E-Field Probes

Frequency	10 MHz to > 6 GHz Linearity: ± 0.2 dB (30 MHz to 6 GHz)
Directivity	± 0.3 dB in TSL (rotation around probe axis) ± 0.5 dB in TSL (rotation normal to probe axis)
Dynamic Range	10 μW/g to > 100 mW/g Linearity: ± 0.2 dB (noise: typically < 1 μW/g)
Dimensions	Overall length: 337 mm (Tip: 20 mm) Tip diameter: 2.5 mm (Body: 12 mm) Typical distance from probe tip to dipole centers: 1 mm
Application	High precision dosimetric measurements in any exposure scenario (e.g., very strong gradient fields); the only probe that enables compliance testing for frequencies up to 6 GHz with precision of better 30%.
Compatibility	DASY3, DASY4, DASY52 SAR and higher, EASY4/MRI

SAM Twin Phantom

The SAM Twin Phantom (shown in front of DASY5) is a fiberglass shell phantom with shell thickness 2 mm, except in the ear region where the thickness is increased to 6 mm.

When the phantom is mounted inside allocated slot of the DASY5 platform, phantom reference points can be taught directly in the DASY5 V5.2 software. When the DASY5 platform is used to mount the

Phantom, some of the phantom teaching points cannot be reached by the robot in DASY5 V5.2. A special tool called P1a-P2aX-Former is provided to transform two of the three points, P1 and P2, to reachable locations. To use these new teaching points, a revised phantom configuration file is required.
In addition to our standard broadband liquids, the phantom can be used with the following tissue simulating liquids:

Sugar-water-based liquids can be left permanently in the phantom. Always cover the liquid when the system is not in use to prevent changes in liquid parameters due to water evaporation.
DGBE-based liquids should be used with care. As DGBE is a softener for most plastics, the liquid should be taken out of the phantom, and the phantom should be dried when the system is not in use (desirable at least once a week).

Do not use other organic solvents without previously testing the solvent resistivity of the phantom.
Approximately 25 liters of liquid is required to fill the SAM Twin phantom.

Calibration Frequency Points for EX3DV4 E-Field Probes SN: 3701 Calibrated: 2024/10/17

Calibration Frequency Point (MHz)	Frequency Range (MHz)		Conversion Factor		
	From	To	X	Y	Z
750 Head	650	850	9.47	9.47	9.47
900 Head	850	1000	9.06	9.06	9.06
1750 Head	1650	1850	8	8	8
1900 Head	1850	2000	7.65	7.65	7.65
2300 Head	2200	2400	7.45	7.45	7.45
2450 Head	2400	2550	7.2	7.2	7.2
2600 Head	2550	2700	7.06	7.06	7.06
5250 Head	5140	5360	5.36	5.36	5.36
5600 Head	5490	5700	4.75	4.75	4.75
5750 Head	5700	5860	4.87	4.87	4.87

SAR Scan Procedures

Step 1: Power Reference Measurement

The Power Reference Measurement and Power Drift Measurements are for monitoring the power drift of the device under test in the batch process. The minimum distance of probe sensors to surface determines the closest measurement point to phantom surface. The minimum distance of probe sensors to surface is 1.4 mm. This distance cannot be smaller than the distance of sensor calibration points to probe tip as defined in the probe properties.

Step 2: Area Scans

Area scans are defined prior to the measurement process being executed with a user defined variable spacing between each measurement point (integral) allowing low uncertainty measurements to be conducted. Scans defined for IC applications utilize a 15mm^2 step integral, with 1.5mm interpolation used to locate the peak SAR area used for zoom scan assessments.

Where the system identifies multiple SAR peaks (which are within 25% of peak value) the system will provide the user with the option of assessing each peak location individually for zoom scan averaging.

Area Scan Parameters extracted from KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz

	≤ 3 GHz	> 3 GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface	5 mm ± 1 mm	½·δ·ln(2) mm ± 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.	

Step 3: Zoom Scan (Cube Scan Averaging)

The averaging zoom scan volume utilized in the DASY5 software is in the shape of a cube and the side dimension of a 1 g or 10 g mass is dependent on the density of the liquid representing the simulated tissue. A density of 1000 kg/m^3 is used to represent the head and body tissue density and not the phantom liquid density, in order to be consistent with the definition of the liquid dielectric properties, i.e. the side length of the 1g cube is 5mm,with the side length of the 10g cube is 21.5mm.

Zoom Scan Parameters extracted from KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz

<table>
<tr><td colspan="3">Maximum zoom scan spatial resolution: Δx_{Zoom}, Δy_{Zoom}</td><td>≤ 2 GHz: ≤ 8 mm
2 – 3 GHz: ≤ 5 mm*</td><td>3 – 4 GHz: ≤ 5 mm*
4 – 6 GHz: ≤ 4 mm*</td></tr>
<tr><td rowspan="3">Maximum zoom scan spatial resolution, normal to phantom surface</td><td colspan="2">uniform grid: $\Delta z_{Zoom}(n)$</td><td>≤ 5 mm</td><td>3 – 4 GHz: ≤ 4 mm
4 – 5 GHz: ≤ 3 mm
5 – 6 GHz: ≤ 2 mm</td></tr>
<tr><td rowspan="2">graded grid</td><td>$\Delta z_{Zoom}(1)$: between 1st two points closest to phantom surface</td><td>≤ 4 mm</td><td>3 – 4 GHz: ≤ 3 mm
4 – 5 GHz: ≤ 2.5 mm
5 – 6 GHz: ≤ 2 mm</td></tr>
<tr><td>$\Delta z_{Zoom}(n>1)$: between subsequent points</td><td colspan="2">≤ 1.5·$\Delta z_{Zoom}(n-1)$ mm</td></tr>
<tr><td>Minimum zoom scan volume</td><td colspan="2">x, y, z</td><td>≥ 30 mm</td><td>3 – 4 GHz: ≥ 28 mm
4 – 5 GHz: ≥ 25 mm
5 – 6 GHz: ≥ 22 mm</td></tr>
<tr><td colspan="5">Note: δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see IEEE Std 1528-2013 for details.
* When zoom scan is required and the <u>reported</u> SAR from the area scan based 1-g SAR estimation procedures of KDB Publication 447498 is ≤ 1.4 W/kg, ≤ 8 mm, ≤ 7 mm and ≤ 5 mm zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.</td></tr>
</table>

Step 4: Power Drift Measurement

The Power Drift Measurement measures the field at the same location as the most recent power reference measurement within the same procedure, and with the same settings. The Power Drift Measurement gives the field difference in dB from the reading conducted within the last Power Reference Measurement. This allows a user to monitor the power drift of the device under test within a batch process. The measurement procedure is the same as Step 1.

When the cube intersects with the surface of the phantom, it is oriented so that 3 vertices touch the surface of the shell or the center of a face is tangent to the surface. The face of the cube closest to the surface is modified in order to conform to the tangent surface.

The zoom scan integer steps can be user defined so as to reduce uncertainty, but normal practice for typical test applications (including IC) utilize a physical step of 7 x7 x 7 (5mmx5mmx5mm) providing a volume of 30 mm in the X & Y & Z axis.

Tissue Dielectric Parameters for Head and Body Phantoms

The head tissue dielectric parameters recommended by the IEEE1528:2013

Recommended Tissue Dielectric Parameters for Head liquid

Table A.3 – Dielectric properties of the head tissue-equivalent liquid

Frequency MHz	Relative permittivity ε_r	Conductivity (σ) S/m
300	45,3	0,87
450	43,5	0,87
750	*41,9*	*0,89*
835	41,5	0,90
900	41,5	0,97
1 450	40,5	1,20
1 500	*40,4*	*1,23*
1 640	*40,2*	*1,31*
1 750	*40,1*	*1,37*
1 800	40,0	1,40
1 900	40,0	1,40
2 000	40,0	1,40
2 100	*39,8*	*1,49*
2 300	*39,5*	*1,67*
2 450	39,2	1,80
2 600	*39,0*	*1,96*
3 000	38,5	2,40
3 500	*37,9*	*2,91*
4 000	*37,4*	*3,43*
4 500	*36,8*	*3,94*
5 000	*36,2*	*4,45*
5 200	*36,0*	*4,66*
5 400	*35,8*	*4,86*
5 600	*35,5*	*5,07*
5 800	*35,3*	*5,27*
6 000	*35,1*	*5,48*

NOTE For convenience, permittivity and conductivity values at those frequencies which are not part of the original data provided by Drossos et al. [33] or the extension to 5 800 MHz are provided (i.e. the values shown *in italics*). These values were linearly interpolated between the values in this table that are immediately above and below these values, except the values at 6 000 MHz that were linearly extrapolated from the values at 3 000 MHz and 5 800 MHz.

EQUIPMENT LIST AND CALIBRATION

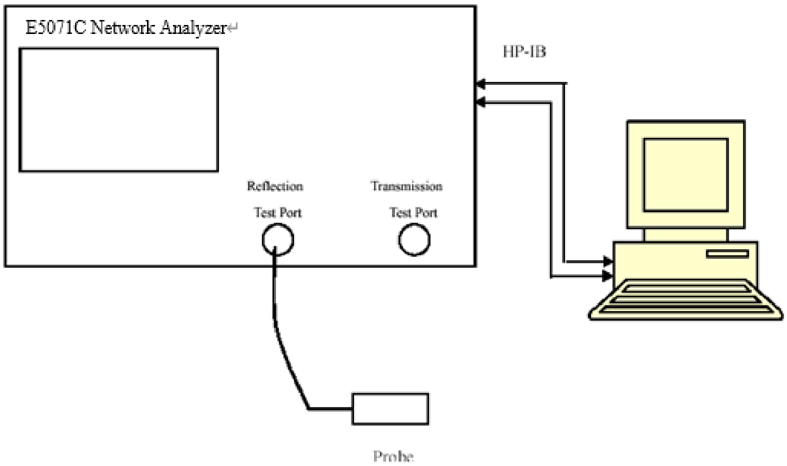
Equipment's List & Calibration Information

Equipment	Model	S/N	Calibration Date	Calibration Due Date
DASY5 Test Software	DASY52 52.10.4	N/A	NCR	NCR
DASY5 Measurement Server	DASY5 6.0.31	N/A	NCR	NCR
Data Acquisition Electronics	DAE4	1562	2024/12/31	2025/12/30
E-Field Probe	EX3DV4	3701	2024/10/17	2025/10/16
Mounting Device	MD4HHTV5	SD 000 H01 KA	NCR	NCR
SAM Twin Phantom	SAM-Twin V5.0	1744	NCR	NCR
Dipole,5GHz	D5GHzV2	1301	2023/02/16	2026/02/15
Simulated Tissue Liquid Head(500-9500MHz)	HBBL600-10000V6	220406-1	Each Time	/
Network Analyzer	E5071B	MY42403851	2024/10/08	2025/10/07
Dielectric Assessment Kit	DAK-3.5	1320	NCR	NCR
Signal Generator	N5183A	MY47420360	2024/09/02	2025/09/01
Power Sensor	E9301A	MY55270006	2024/10/08	2025/10/07
Power Amplifier(80 – 1000MHz)	CBA 1G-070	T44328	2024/10/08	2025/10/07
Linear Power Amplifier (1 – 6GHz)	AS0860-40/45	1060913	2024/10/08	2025/10/07
Directional Coupler	4226-20	3315	2024/10/08	2025/10/07
6dB Attenuator	WA59-6-33	A329	NCR	NCR
Spectrum Analyzer	FSV40	101949	2024/10/08	2025/10/07
Thermometer	DTM3000	N/A	2024/10/10	2025/10/09
Temperature & Humidity Meter	10316377	N/A	2024/10/10	2025/10/09

NCR: No Calibration Required.

SAR MEASUREMENT SYSTEM VERIFICATION

Liquid Verification



Liquid Verification Setup Block Diagram

Liquid Verification Results

Frequency (MHz)	Liquid Type	Liquid Parameter		Target Value		Delta (%)		Tolerance (%)
		ε_r	Ơ (S/m)	ε_r	Ơ (S/m)	$\Delta\varepsilon_r$	ΔƠ (S/m)	
5745	Simulated Tissue Liquid Head	36.436	5.115	35.36	5.22	3.04	-2.01	±5
5750	Simulated Tissue Liquid Head	36.713	5.129	35.35	5.22	3.86	-1.74	±5
5785	Simulated Tissue Liquid Head	36.355	5.317	35.32	5.26	2.93	1.08	±5
5825	Simulated Tissue Liquid Head	36.274	5.357	35.28	5.30	2.82	1.08	±5

Liquid Verification above was performed on 2025/07/25

System Accuracy Verification

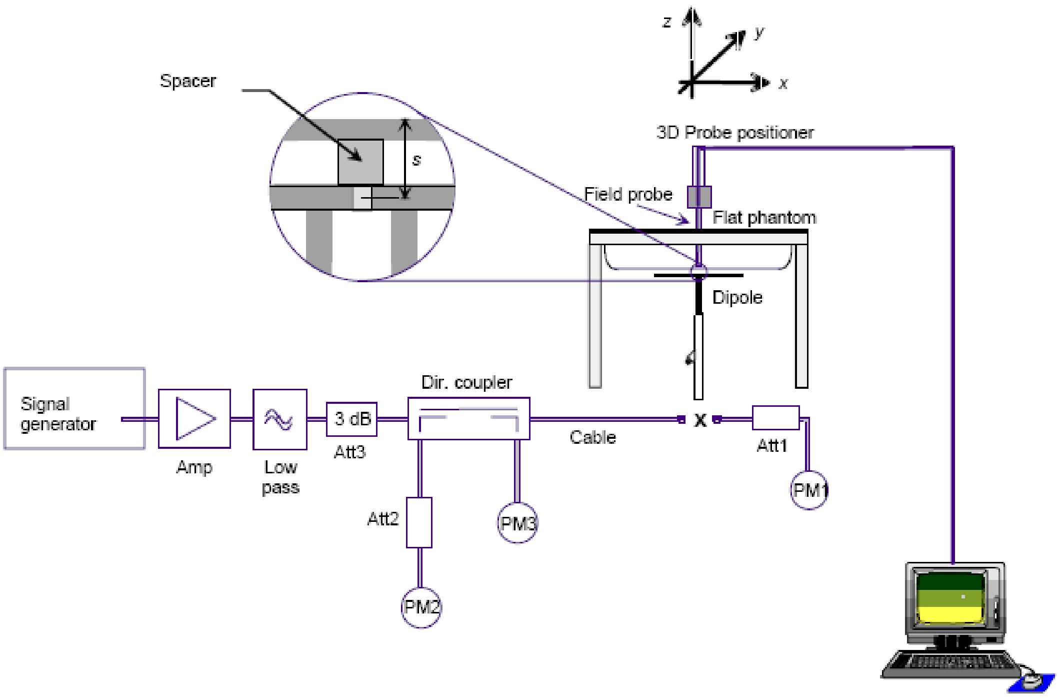
Prior to the assessment, the system validation kit was used to test whether the system was operating within its specifications of ±10%. The validation results are tabulated below. And also the corresponding SAR plot is attached as well in the SAR plots files.

The spacing distances in the **System Verification Setup Block Diagram** is given by the following:

a) s = 15 mm ± 0,2 mm for 300 MHz ≤ f ≤ 1 000 MHz;

b) s = 10 mm ± 0,2 mm for 1 000 MHz < f ≤ 6 000 MHz;

System Verification Setup Block Diagram



System Accuracy Check Results

Date	Frequency Band (MHz)	Liquid Type	Input Power (mW)	Measured SAR (W/kg)		Normalized to 1W (W/kg)	Target Value (W/Kg)	Delta (%)	Tolerance (%)
2025/07/25	5750	Head	100	1g	7.92	79.2	78.0	1.538	±10
2025/07/25	5750	Head	100	10g	2.31	23.1	21.9	5.479	±10

Note:
All the SAR values are normalized to 1Watt forward power.

SAR SYSTEM VALIDATION DATA

System Performance 5750 MHz Head

DUT: Dipole 5GHz; Type: D5GHzV2; Serial: 1301

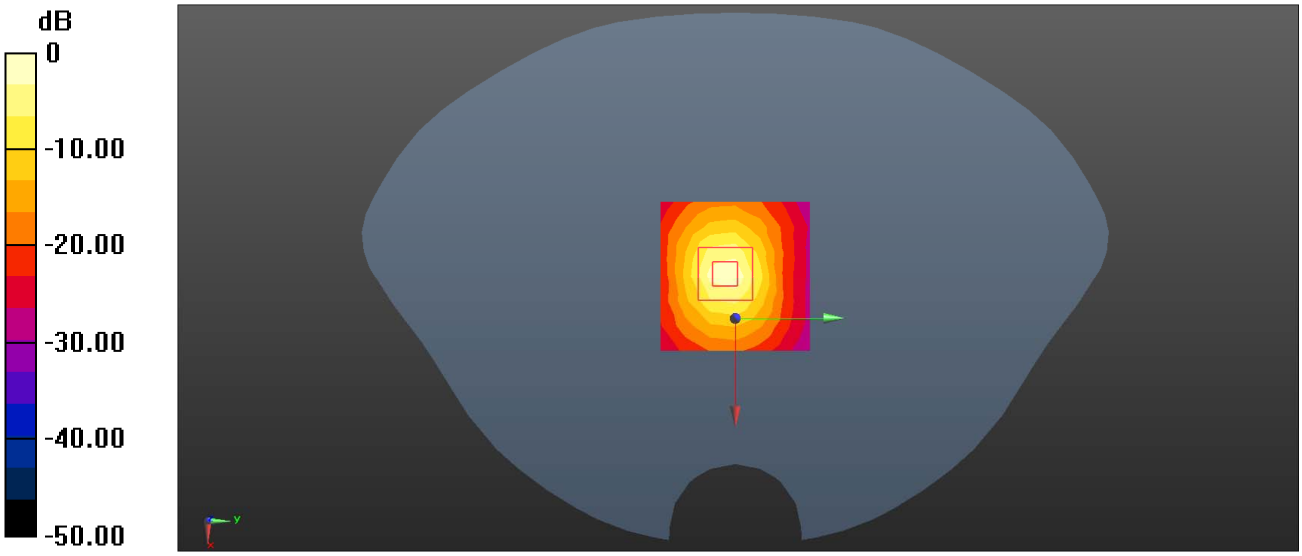
Communication System: UID 0, CW (0); Frequency: 5750 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5750 MHz; σ = 5.129 S/m; ε_r = 36.713; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3701; ConvF(4.87, 4.87, 4.87) @ 5750 MHz; Calibrated: 2024/10/17
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1562; Calibrated: 2024/12/31
- Phantom: Twin SAM; Type: QD000P40CD; Serial: 1744
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 13.8 W/kg

Zoom Scan (8x8x15)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 56.41 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 31.0 W/kg
SAR(1 g) = 7.92 W/kg; SAR(10 g) = 2.31 W/kg
Smallest distance from peaks to all points 3 dB below = 7.6 mm
Ratio of SAR at M2 to SAR at M1 = 56%
Maximum value of SAR (measured) = 15.7 W/kg



0 dB = 15.7 W/kg = 11.96 dBW/kg

EUT TEST STRATEGY AND METHODOLOGY

Test positions for body-worn and other configurations

Body-worn operating configurations should be tested with the belt-clips and holsters attached to the device and positioned against a flat phantom in normal use configurations. Devices with a headset output should be tested with a headset connected to the device. When multiple accessories that do not contain metallic components are supplied with the device, the device may be tested with only the accessory that dictates the closest spacing to the body. When multiple accessories that contain metallic components are supplied with the device, the device must be tested with each accessory that contains a unique metallic component. If multiple accessories share an identical metallic component (e.g., the same metallic belt-clip used with different holsters with no other metallic components), only the accessory that dictates the closest spacing to the body must be tested.

Body-worn accessories may not always be supplied or available as options for some devices that are intended to be authorized for body-worn use. A separation distance of 1.5 cm between the back of the device and a flat phantom is recommended for testing body-worn SAR compliance under such circumstances. Other separation distances may be used, but they should not exceed 2.5 cm. In these cases, the device may use body-worn accessories that provide a separation distance greater than that tested for the device provided however that the accessory contains no metallic components.

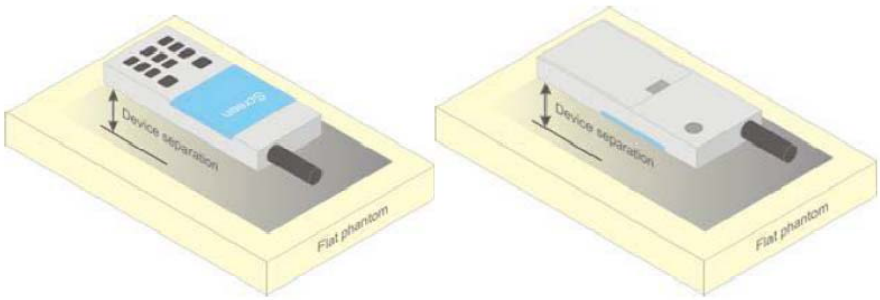


Figure 5 – Test positions for body-worn devices

Test Distance for SAR Evaluation

In this case the EUT (Equipment Under Test) is set 0mm away from the phantom, the test distance is 0mm for body and Limbs.

SAR Evaluation Procedure

The evaluation was performed with the following procedure:

Step 1: Measurement of the SAR value at a fixed location above the ear point or central position was used as a reference value for assessing the power drop. The SAR at this point is measured at the start of the test and then again at the end of the testing.

Step 2: The SAR distribution at the exposed side of the head was measured at a distance of 4 mm from the inner surface of the shell. The area covered the entire dimension of the head or radiating structures of the EUT, the horizontal grid spacing was 15 mm x 15 mm, and the SAR distribution was determined by integrated grid of 1.5mm x 1.5mm. Based on these data, the area of the maximum absorption was determined by spline interpolation. The first Area Scan covers the entire dimension of the EUT to ensure that the hotspot was correctly identified.

Step 3: Around this point, a volume of 30 mm x 30 mm x 30 mm was assessed by measuring 7x 7 x 7 points. On the basis of this data set, the spatial peak SAR value was evaluated under the following procedure:

1) The data at the surface were extrapolated, since the center of the dipoles is 1.2 mm away from the tip of the probe and the distance between the surface and the lowest measuring point is 1.3 mm. The extrapolation was based on a least square algorithm. A polynomial of the fourth order was calculated through the points in z-axes. This polynomial was then used to evaluate the points between the surface and the probe tip.

2) The maximum interpolated value was searched with a straightforward algorithm. Around this maximum the SAR values averaged over the spatial volumes (1 g or 10 g) were computed by the 3D-Spline interpolation algorithm. The 3D-Spline is composed of three one dimensional splines with the “Not a knot"-condition (in x, y and z-directions). The volume was integrated with the trapezoidal-algorithm. One thousand points (10 x 10 x 10) were interpolated to calculate the averages.

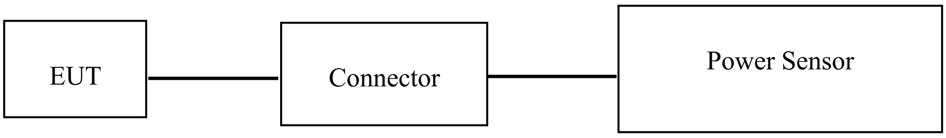
All neighboring volumes were evaluated until no neighboring volume with a higher average value was found.

Step 4: Re-measurement of the SAR value at the same location as in Step 1. If the value changed by more than 5%, the evaluation was repeated.

CONDUCTED OUTPUT POWER MEASUREMENT

Test Procedure

The RF output of the transmitter was connected to the input port of the Power Sensor through Connector.



WLAN

Test Configuration

Operating channels:					
Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)
149	5745	157	5785	165	5825
153	5765	161	5805	/	/
Select lowest channel, middle channel, and highest channel in the frequency range in which device operates for testing. The detailed frequency points are as follows:					
Lowest channel		Middle channel		Highest channel	
Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)
149	5745	157	5785	165	5825

Test Mode:				
Transmitting mode:	Keep the EUT in continuous transmitting with modulation			
Exercise software#:	MobaXterm_Portable_v23.6			
Mode	Data rate	Power Level Setting#		
		Low Channel	Middle Channel	High Channel
OFDM 10M	3Mbps	105	105	105
The exercise software and the maximum power setting that provided by manufacturer.				

Maximum Target Output Power

Max Target Power(dBm)			
Mode/Band	Channel		
	Low	Middle	High
5.8G	22.0	22.0	22.0

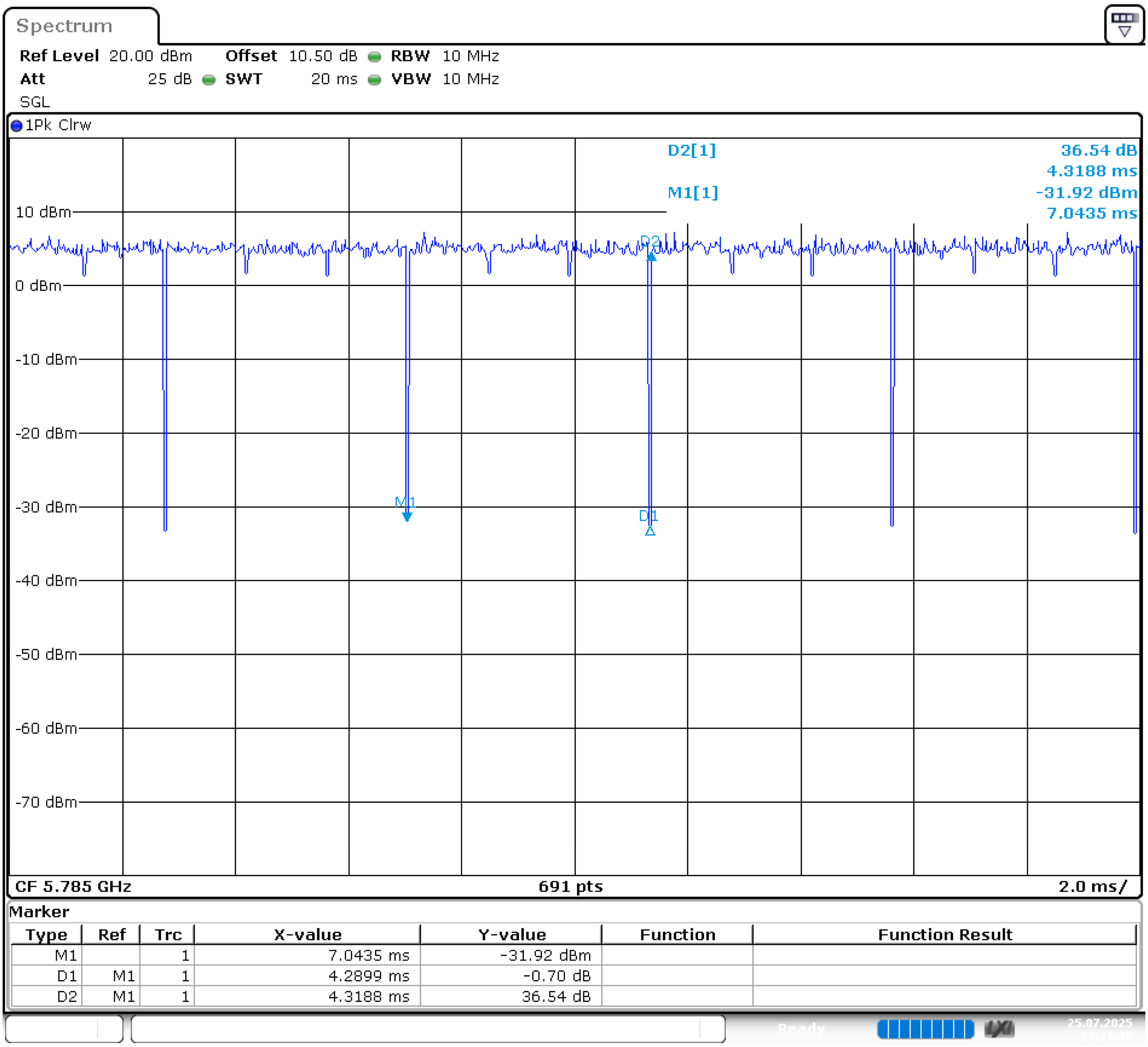
WLAN: 5.8G

Mode	Channel frequency (MHz)	Data Rate	Average Output Power (dBm)
OFDM 10M	5745	3M	21.54
	5785		21.60
	5825		21.47

. **Duty cycle:**

Mode	Test Frequency (MHz)	Ton (ms)	Ton+Toff (ms)	Duty Cycle (%)
OFDM 10M	5785	4.29	4.32	99.3

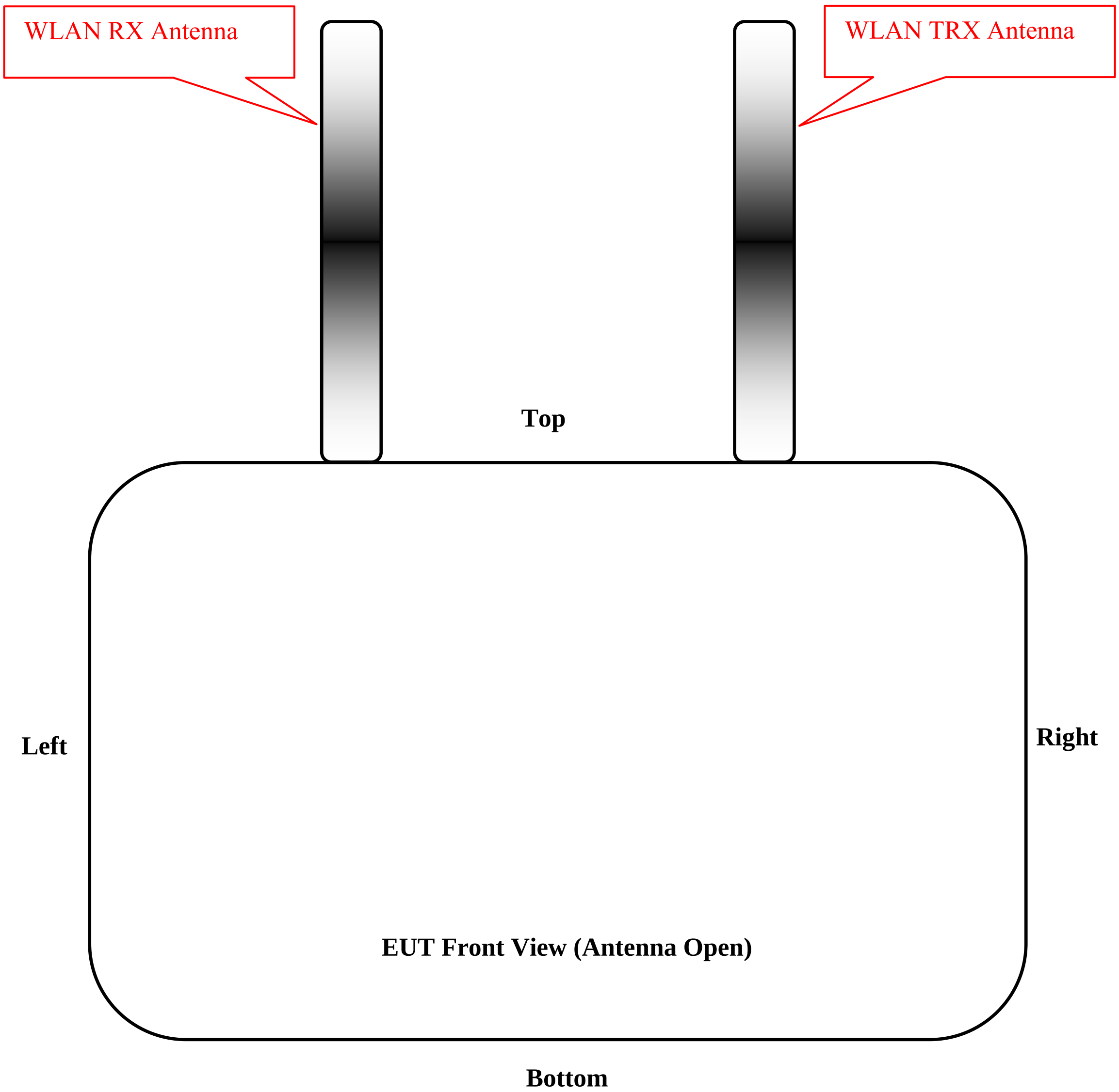
Duty Cycle = Ton/(Ton+Toff)*100%

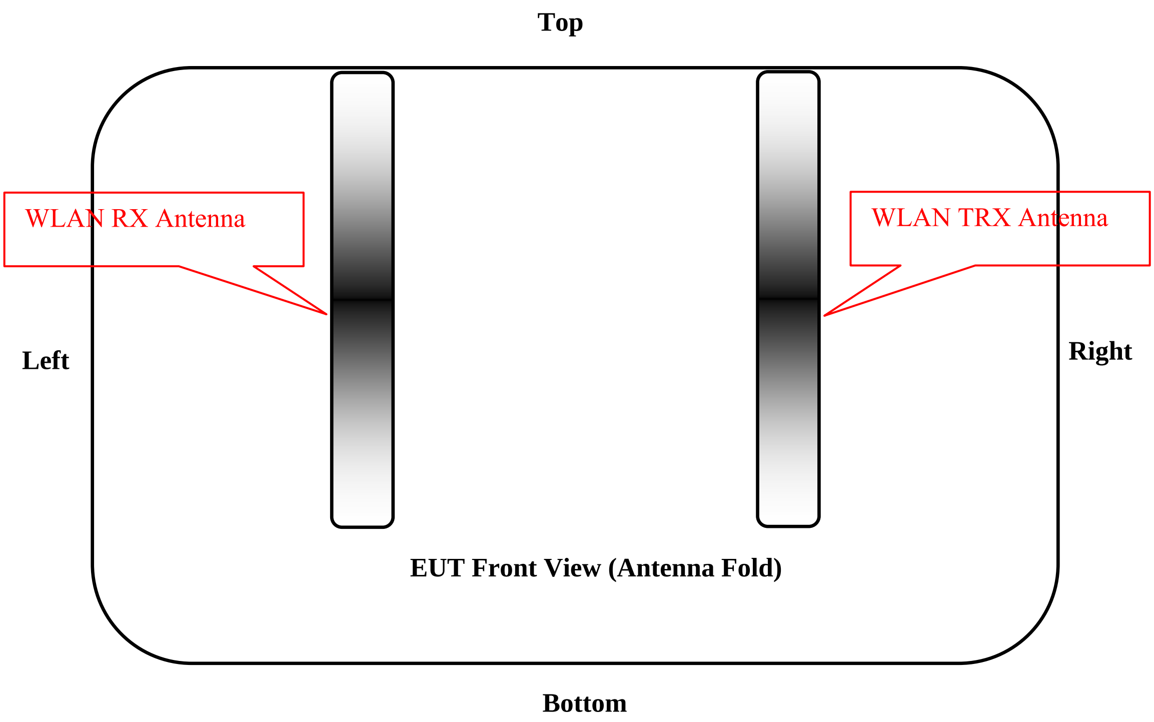


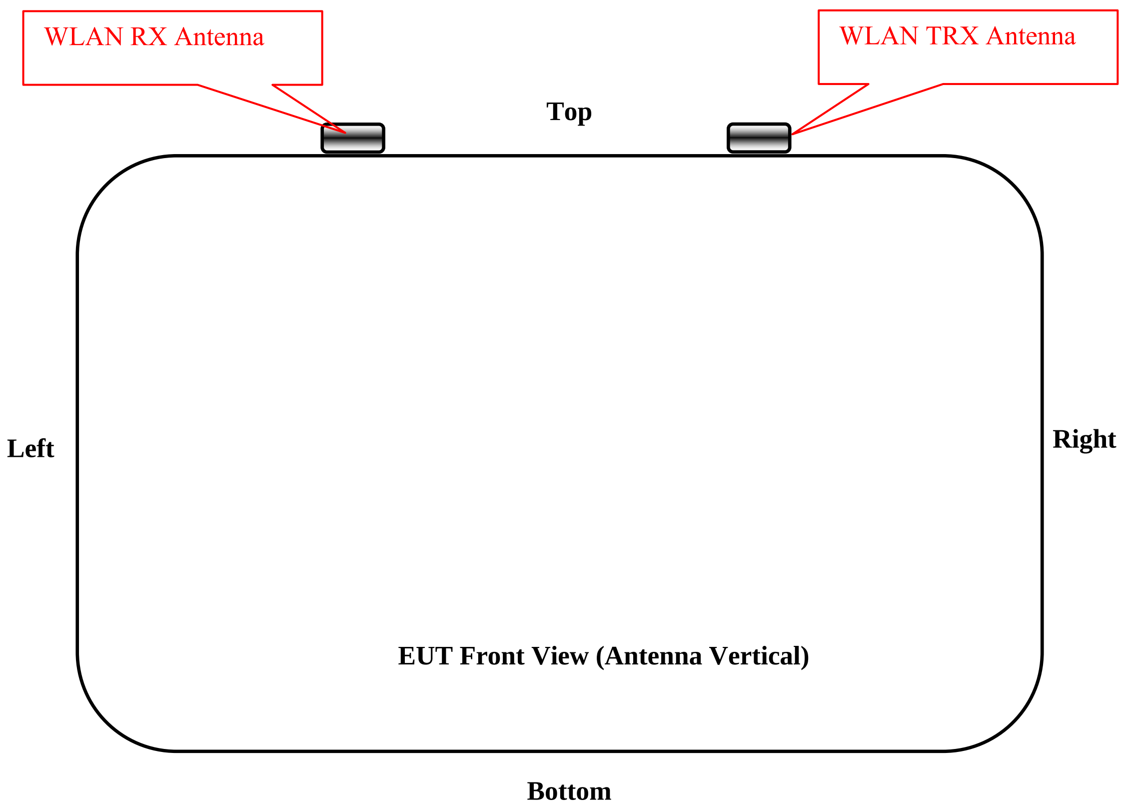
ProjectNo.:2504V67820-SA Tester:Jack Yang
Date: 25.JUL.2025 13:31:36

STANDALONE SAR TEST EXCLUSION CONSIDERATIONS

Antennas Location:




Top
WLAN RX Antenna
WLAN TRX Antenna
Left
Right
EUT Front View (Antenna Fold)
Bottom


WLAN RX Antenna
WLAN TRX Antenna
Top
Left
Right
EUT Front View (Antenna Vertical)
Bottom

Antenna Distance To Edge (TRX)

Antenna Distance To Edge(mm)						
Antenna	**Front**	**Back**	**Left**	**Right**	**Top**	**Bottom**
WLAN Antenna(Open)	30	< 5	85	37	/	100
WLAN Antenna(Fold)	30	< 5	85	37	< 5	35
WLAN Antenna(Vertical)	30	/	85	37	< 5	100

Note: / Indicates that this Edge is not considered.

Standalone SAR test exclusion considerations

Mode	Frequency (MHz)	P_{Target} (dBm)	P_{Target} (mW)	10g-Limbs SAR Exclusion Distance (mm)
5.8G	5825	22.0	158.49	50.3

NOTE:
The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:
[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] · [√f(GHz)] ≤ 3.0 for 1-g SAR and ≤7.5 for 10-g extremity SAR, where
1. f(GHz) is the RF channel transmit frequency in GHz.
2. Power and distance are rounded to the nearest mW and mm before calculation.
3. The result is rounded to one decimal place for comparison.
4. When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test Exclusion.
For 100 MHz to 6 GHz and test separation distances > 50 mm, the 1-g and 10-g SAR test exclusion thresholds are determined by:
1. {[Power allowed at numeric threshold for 50 mm in step a)] + [(test separation distance – 50 mm)·(f(MHz)/150)]} mW, for 100 MHz to 1500 MHz
2. {[Power allowed at numeric threshold for 50 mm in step a)] + [(test separation distance – 50 mm)·10]} mW, for > 1500 MHz and ≤ 6 GHz.

SAR test exclusion for the EUT edge considerations Result

Mode	Front	Back	Left	Right	Top	Bottom
WLAN Antenna(Open)	**Required**	**Required**	Exclusion	**Required**	**/**	Exclusion
WLAN Antenna(Fold)	**Required**	**Required**	Exclusion	**Required**	**Required**	**Required**
WLAN Antenna(Vertical)	**Required**	**/**	Exclusion	**Required**	**Required**	Exclusion

Note:

Required：The distance to Edge is less than **Test Exclusion Distance**, testing is required.
Exclusion：The distance to Edge is more than **Test Exclusion Distance**, testing is not required.
/：There is no need to consider.

SAR MEASUREMENT RESULTS

This page summarizes the results of the performed dosimetry evaluation.

Test Results:

Temperature:	23.5-24.0 ℃
Relative Humidity:	46-58 %
ATM Pressure:	101.5 kPa
Test Date:	2025/07/25

5.8G:

Antenna status	EUT Position	Frequency (MHz)	Test Mode	Max. Meas. Power (dBm)	Max. Rated Power (dBm)	1g SAR (W/kg)				
						Scaled Factor	Duty Factor	Meas. SAR	Scaled SAR	Plot
Antenna Open	Back (0mm)	5745	OFDM	/	/	/	/	/	/	/
		5785	OFDM	21.60	22.0	1.096	1.007	0.535	0.59	/
		5825	OFDM	/	/	/	/	/	/	/
Antenna Fold	Back (0mm)	5745	OFDM	/	/	/	/	/	/	/
		5785	OFDM	21.60	22.0	1.096	1.007	0.663	**0.73**	1#
		5825	OFDM	/	/	/	/	/	/	/

Antenna status	EUT Position	Frequency (MHz)	Test Mode	Max. Meas. Power (dBm)	Max. Rated Power (dBm)	10g SAR (W/kg)				
						Scaled Factor	Duty Factor	Meas. SAR	Scaled SAR	Plot
Antenna Open	Front (0mm)	5745	OFDM	/	/	/	/	/	/	/
		5785	OFDM	21.60	22.0	1.096	1.007	< 0.01	0.01	/
		5825	OFDM	/	/	/	/	/	/	/
	Back (0mm)	5745	OFDM	/	/	/	/	/	/	/
		5785	OFDM	21.60	22.0	1.096	1.007	0.226	0.25	/
		5825	OFDM	/	/	/	/	/	/	/
	Right (0mm)	5745	OFDM	/	/	/	/	/	/	/
		5785	OFDM	21.60	22.0	1.096	1.007	< 0.01	0.01	/
		5825	OFDM	/	/	/	/	/	/	/
Antenna Fold	Front (0mm)	5745	OFDM	/	/	/	/	/	/	/
		5785	OFDM	21.60	22.0	1.096	1.007	< 0.01	0.01	/
		5825	OFDM	/	/	/	/	/	/	/
	Back (0mm)	5745	OFDM	/	/	/	/	/	/	/
		5785	OFDM	21.60	22.0	1.096	1.007	0.264	0.29	/
		5825	OFDM	/	/	/	/	/	/	/
	Right (0mm)	5745	OFDM	/	/	/	/	/	/	/
		5785	OFDM	21.60	22.0	1.096	1.007	< 0.01	0.01	/
		5825	OFDM	/	/	/	/	/	/	/
	Top (0mm)	5745	OFDM	/	/	/	/	/	/	/
		5785	OFDM	21.60	22.0	1.096	1.007	< 0.01	0.01	/
		5825	OFDM	/	/	/	/	/	/	/
	Bottom (0mm)	5745	OFDM	/	/	/	/	/	/	/
		5785	OFDM	21.60	22.0	1.096	1.007	< 0.01	0.01	/
		5825	OFDM	/	/	/	/	/	/	/
Antenna Vertical	Front (0mm)	5745	OFDM	/	/	/	/	/	/	/
		5785	OFDM	21.60	22.0	1.096	1.007	< 0.01	0.01	/
		5825	OFDM	/	/	/	/	/	/	/
	Right (0mm)	5745	OFDM	/	/	/	/	/	/	/
		5785	OFDM	21.60	22.0	1.096	1.007	< 0.01	0.01	/
		5825	OFDM	/	/	/	/	/	/	/
	Top (0mm)	5745	OFDM	/	/	/	/	/	/	/
		5785	OFDM	21.60	22.0	1.096	1.007	0.588	**0.65**	2#
		5825	OFDM	/	/	/	/	/	/	/

Note:
1. When the SAR value is less than half of the limit, testing for low and high channel is optional.
2. When SAR or MPE is not measured at the maximum power level allowed for production units, the results

must be scaled to the maximum tune-up tolerance limit according to the power applied to the individual channels tested to determine compliance.
3. For SAR testing of 5G OFDM signal with non-100% duty cycle, the measured SAR is scaled-up by the duty cycle scaling factor which is equal to “1/(duty cycle)”

SAR DUT HOLDER PERTURBATIONS

In accordance with TCB workshop October 2016:

1) SAR perturbation due to test device holders, depending on antenna locations, buttons locations on phones or device, form factor (e.g. dongles etc.), the measured SAR could be influenced by the relative positions of the test device and its holder

2) SAR measurement standards have included protocols to evaluate this with a flat phantom, with and without the device holder

3) When the highest reported SAR of an antenna is > 1.2 W/kg, holder perturbation verification is required for each antenna, using the highest SAR configuration among all applicable frequency bands in the same exact device and holder positions used for head and body SAR measurements; i.e. same device/button locations in the holder

Per IEEE 1528: 2013/Annex E/E.4.1.1: Device holder perturbation tolerance for a specific test device: Type B When it is unknown if a device holder perturbs the fields of a test device, the SAR uncertainty shall be assessed with a flat phantom (see Clause 5) by comparing the SAR with and without the device holder according to the following tests:

The SAR tolerance for device holder disturbance is computed using Equation (E.21) and entered in the corresponding row of the appropriate uncertainty table with an assumed rectangular probability distribution and *vi* = ∞ degrees of freedom:

$$SAR_{\text{tolerance}}[\%] = 100 \times \left(\frac{SAR_{\text{w/ holder}} - SAR_{\text{w/o holder}}}{SAR_{\text{w/o holder}}} \right) \qquad \text{(E.21)}$$

The Highest Measured SAR Configuration among all applicable Frequency Band

Body

Frequency Band	Freq.(MHz)	EUT Position	Meas. SAR (W/kg)		The Device holder perturbation uncertainty
			With holder	Without holder	
/	/	/	/	/	/

Limbs

Frequency Band	Freq.(MHz)	EUT Position	Meas. SAR (W/kg)		The Device holder perturbation uncertainty
			With holder	Without holder	
/	/	/	/	/	/

SAR SIMULTANEOUS TRANSMISSION DESCRIPTION

Simultaneous Transmission:

None

SAR Plots

Test Plot 1#:

DUT: BLASTOFF CONTROLLER; Type: ZZ-F-2-001; Serial: 370D-1

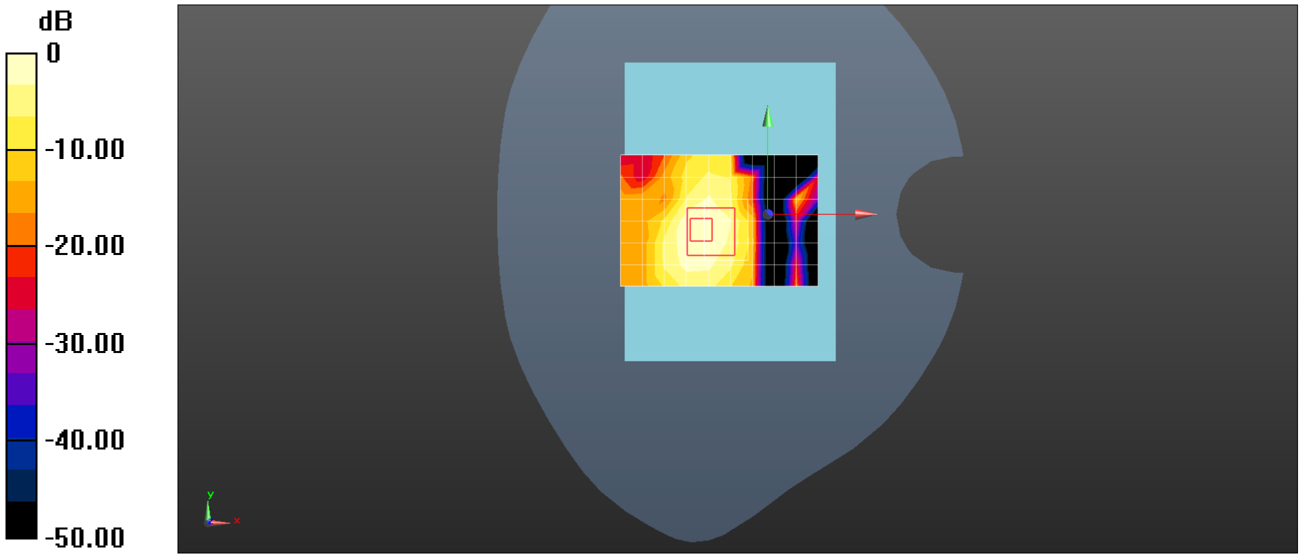
Communication System: UID 0, 5.8G (0); Frequency: 5785 MHz;Duty Cycle: 1:1.007
Medium parameters used (interpolated): f = 5785 MHz; σ = 5.317 S/m; ε_r = 36.355; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3701; ConvF(4.87, 4.87, 4.87) @ 5785 MHz; Calibrated: 2024/10/17
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1562; Calibrated: 2024/12/31
- Phantom: Twin SAM; Type: QD000P40CD; Serial: 1744
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

Fold Back/WLAN 5.8G OFDM Mid/Area Scan (10x7x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.832 W/kg

Fold Back/WLAN 5.8G OFDM Mid/Zoom Scan (8x8x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 9.62 V/m; Power Drift = -0.15 dB
Peak SAR (extrapolated) = 1.08 W/kg
SAR(1 g) = 0.663 W/kg; SAR(10 g) = 0.264 W/kg
Smallest distance from peaks to all points 3 dB below = 10.2 mm
Ratio of SAR at M2 to SAR at M1 = 69.1%
Maximum value of SAR (measured) = 0.899 W/kg



0 dB = 0.899 W/kg = -0.46 dBW/kg

Test Plot 2#:

DUT: BLASTOFF CONTROLLER; Type: ZZ-F-2-001; Serial: 370D-1

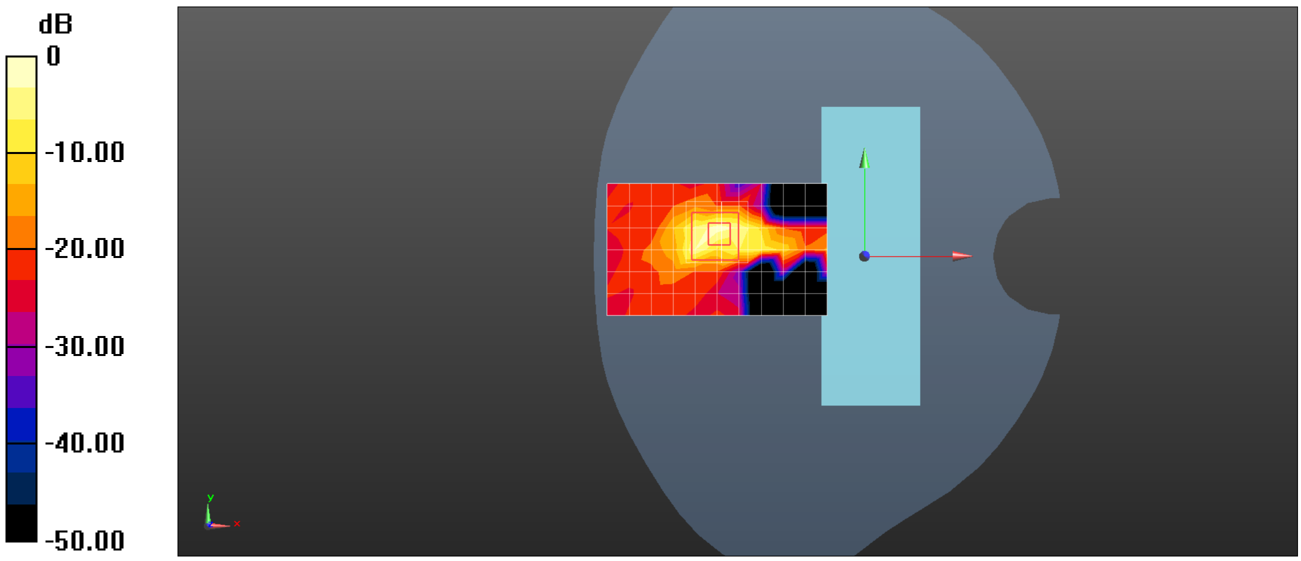
Communication System: UID 0, 5.8G (0); Frequency: 5785 MHz;Duty Cycle: 1:1.007
Medium parameters used (interpolated): f = 5785 MHz; σ = 5.317 S/m; ε_r = 36.355; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3701; ConvF(4.87, 4.87, 4.87) @ 5785 MHz; Calibrated: 2024/10/17
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1562; Calibrated: 2024/12/31
- Phantom: Twin SAM; Type: QD000P40CD; Serial: 1744
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

Vertical Top/WLAN 5.8G OFDM Mid/Area Scan (11x7x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 2.79 W/kg

Vertical Top/WLAN 5.8G OFDM Mid/Zoom Scan (8x8x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 5.479 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 3.28 W/kg
SAR(1 g) = 1.41 W/kg; SAR(10 g) = 0.588 W/kg
Smallest distance from peaks to all points 3 dB below = 4.2 mm
Ratio of SAR at M2 to SAR at M1 = 67.3%
Maximum value of SAR (measured) = 2.98 W/kg



0 dB = 2.98 W/kg = 4.74 dBW/kg

APPENDIX A MEASUREMENT UNCERTAINTY

The uncertainty budget has been determined for the measurement system and is given in the following Table.

Measurement uncertainty evaluation for IEEE 1528-2013 SAR test

Source of uncertainty	Tolerance/ Uncertainty ± %	Probability distribution	Divisor	ci (1 g)	ci (10 g)	Standard Uncertainty ± %, (1 g)	Standard Uncertainty ± %, (10 g)
Measurement system							
Probe calibration	7.5	N	1	1	1	7.5	7.5
Axial Isotropy	4.7	R	√3	1	1	2.7	2.7
Hemispherical Isotropy	9.6	R	√3	0	0	0.0	0.0
Boundary effect	1.0	R	√3	1	1	0.6	0.6
Linearity	4.7	R	√3	1	1	2.7	2.7
Detection limits	1.0	R	√3	1	1	0.6	0.6
Modulation response	4.0	R	√3	1	1	2.3	2.3
Readout electronics	0.3	N	1	1	1	0.3	0.3
Response time	0.0	R	√3	1	1	0.0	0.0
Integration time	0.0	R	√3	1	1	0.0	0.0
RF ambientconditions – noise	1.0	R	√3	1	1	0.6	0.6
RF ambient conditions–reflections	1.0	R	√3	1	1	0.6	0.6
Probe positioner mech. Restrictions	0.8	R	√3	1	1	0.5	0.5
Probe positioning with respect to phantom shell	6.7	R	√3	1	1	3.9	3.9
Extrapolation, interpolation, and integrations algorithms for max. SAR evaluation	3.9	R	√3	1	1	2.3	2.3
Test sample related							
Test sample positioning	2.8	N	1	1	1	2.8	2.8
Device holder uncertainty	6.3	N	1	1	1	6.3	6.3
Drift of output power	5.0	R	√3	1	1	2.9	2.9
SAR scaling	2.0	R	√3	1	1	1.2	1.2
Phantom and tissue parameters							
Phantom uncertainty (shape and thickness tolerances)	4.0	R	√3	1	1	2.3	2.3
Uncertainty in SAR correction for deviations in permittivity and conductivity	1.9	N	1	1	0.84	1.9	1.6
Liquid conductivity measurement	5.5	N	1	0.78	0.71	4.3	3.9
Liquid permittivity measurement	2.9	N	1	0.23	0.26	0.7	0.8
Liquid conductivity—temperature uncertainty	1.7	R	√3	0.78	0.71	0.8	0.7
Liquid permittivity—temperature uncertainty	2.7	R	√3	0.23	0.26	0.4	0.4
Combined standard uncertainty		RSS				12.2	12.0
Expanded uncertainty 95 % confidence interval)						24.3	23.9

APPENDIX B EUT TEST POSITION PHOTOS

Please Refer to the Attachment.

APPENDIX C CALIBRATION CERTIFICATES

Please Refer to the Attachment.

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