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TEST REPORT

SCOPE OF WORK

SAR TESTING – UTi260B+, UTi165B+

REPORT NUMBER

250212037SZN-002

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SAR TEST REPORT

For

Professional Thermal Imager

Model Number: UTi260B+, UTi165B+

Report Number: 250212037SZN-002

Test Engineer:	Allen Qin Engineer	Allen
Report Approved By:	Damon Wang Team Leader	Damon
Date:	25 March 2025	

Test Report Declaration

Applicant	UNI-TREND TECHNOLOGY (CHINA) CO., LTD.
Address	No 6, Gong Ye Bei 1 st Road, Songshan Lake National High-Tech Industrial Development Zone, Dongguan， Guangdong Province, China
EUT Description	Professional Thermal Imager
Model No.	UTi260B+, UTi165B+
Trademark	UNI-T
Test Date(s)	14 February 2025 to 14 February 2025

Test Standards & Test Methods:

The Specific Absorption Rate (SAR) testing specification, method, and procedure for this device is in accordance with the following standards:

☒ EN 50566:2017/A1:2023: Product standard to demonstrate the compliance of wireless communication devices with the basic restrictions and exposure limit values related to human exposure to electromagnetic fields in the frequency range from 30 MHz to 6 GHz: hand-held and body mounted devices in close proximity to the human body

☒ EN 50663:2017: Generic standard for assessment of low power electronic and electrical equipment related to human exposure restrictions for electromagnetic fields (10 MHz - 300 GHz)

☒ EN IEC/IEEE 62209-1528:2021: Measurement procedure for the assessment of specific absorption rate of human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices - Part 1528: Human models, instrumentation, and procedures (Frequency range of 4 MHz to 10 GHz)

Intertek Testing Services Shenzhen Ltd. has tested the product which name is Professional Thermal Imager, model name is UTi260B+, UTi165B+. The sample was tested to the relevant performance specification published by the European Telecommunications Standards Institute. This report contains the results of these tests and is submitted UNI-TREND TECHNOLOGY (CHINA) CO., LTD. as the final test results.

The results documented in this report only apply to the tested sample, under the conditions and modes of operation as described herein.

The test report shall not be reproduced in part without written approval of the laboratory.

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1. Summary of SAR test Report

1.1 Maximum Results (Standalone SAR)

Band	Mode	Test Position	Channel/ Frequency (MHz)	Limit SAR10g 4.0 W/kg	
				Measured SAR_{10g} (W/kg)	Reported SAR_{10g} (W/kg)
2.4G Wi-Fi	802.11N20	Rear Side	1/2412	0.791	0.969

1.2 Measurement Uncertainty

Expanded Uncertainty (k=2) 95%	± 23.2%

2. General information

2.1 Report information

This report is not a certificate of quality; it only applies to the sample of the specific product/equipment given at the time of its testing. The results are not used to indicate or imply that they are application to the similar items. In addition, such results must not be used to indicate or imply that Intertek Legal Entity: Intertek Testing Services Shenzhen Ltd. approves recommends or endorses the manufacture, supplier or use of such product/equipment, or that Intertek Legal Entity: Intertek Testing Services Shenzhen Ltd. in any way guarantees the later performance of the product/equipment.

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2.2 Laboratory Accreditation and Relationship to Customer

The testing items were performed by the Intertek Testing Services Shenzhen Ltd., in their facilities located at No.101&201, Building B, No. 308, Wuhe Avenue, Zhangkengjing, Guanhu Street, Longhua District, Shenzhen, Guangdong, China.

3. Description of the device under test (DUT)

3.1 DUT Description

EUT Description	Professional Thermal Imager	
Model No.	UTi260B+, UTi165B+	
Frequency Bands	Wi-Fi 2.4GHz Band	2412 - 2472 MHz
Wireless Technologies	Wi-Fi2.4G	802.11b/g/n
Device class	B	
Antenna type	Fixed Internal Antenna	
Antenna gain	4.97dBi (Max.) for 2.4GHz	
Hardware Version	V1.0	
Software Version	V1.0.6.2	

3.2 List of Accessory

Battery	Model Name	Lithium Battery
	Power Rating	3.6 Vdc, 5000mAh, 18Wh
	Type	Lithium Battery

4. Test Conditions

4.1 Temperature and Humidity

Ambient temperature (°C)	21-22
Ambient humidity (RH %)	59-60

4.2 Introduction of SAR

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 modelling. The standard recommends limits for general public group.

SAR Definition:

$$SAR = \frac{d}{dt}\left(\frac{dW}{dm}\right) = \frac{d}{dt}\left(\frac{dW}{\rho dv}\right) \qquad SAR = C\frac{\delta T}{\delta t} \qquad SAR = \frac{\sigma |E|^2}{\rho}$$

In the first equation, 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).

In the second equation, C is the specific head capacity, δT is the temperature rise and δt is the exposure duration.

The last equation relates to the electrical field, where σ is the conductivity of the tissue, ρ is the mass density of the tissue and E is the rms electrical field strength.
However, for evaluating SAR of low power transmitter, electrical field measurement is typically applied SAR is expressed in units of Watts per kilogram (W/kg)

4.3 Test Configuration

The tests shall be performed, which is illustrated in figure as below.

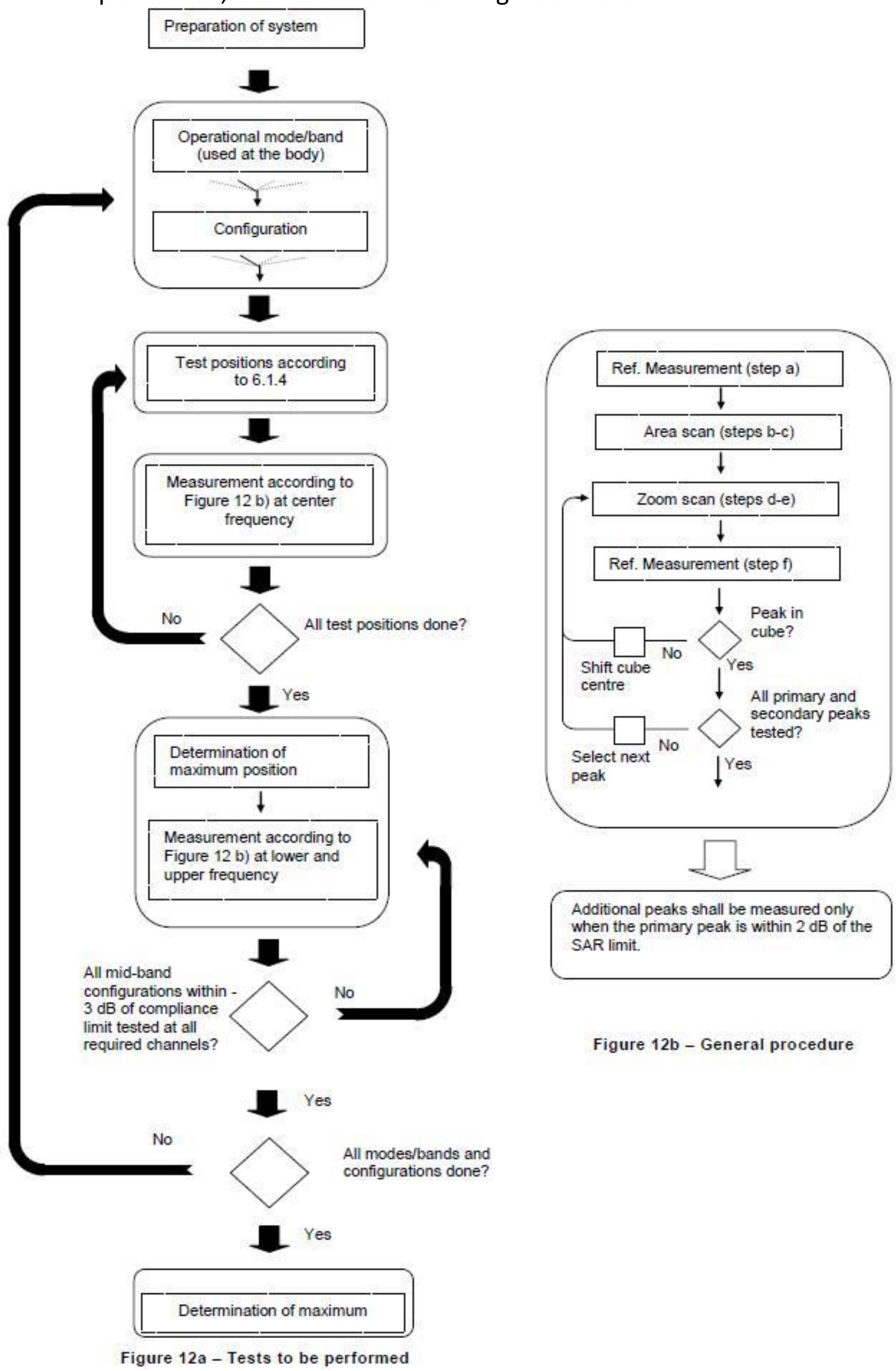


Figure Block diagram of the tests to be performed

4.4 SAR Limits

(A) Limits for Occupational Exposure (W/kg)

Whole Body average SAR	Localised SAR (head and trunk)	Localised SAR (limbs)
0.4	10	20

(B) Limits for General public Exposure (W/kg)

Whole Body average SAR	Localised SAR (head and trunk)	Localised SAR (limbs)
0.08	2	4

Note:

The SAR10g limit for general public/occupational exposure is specified in Council Recommendation 1999/519/EC Annex II.

5. Description of The Test Equipments

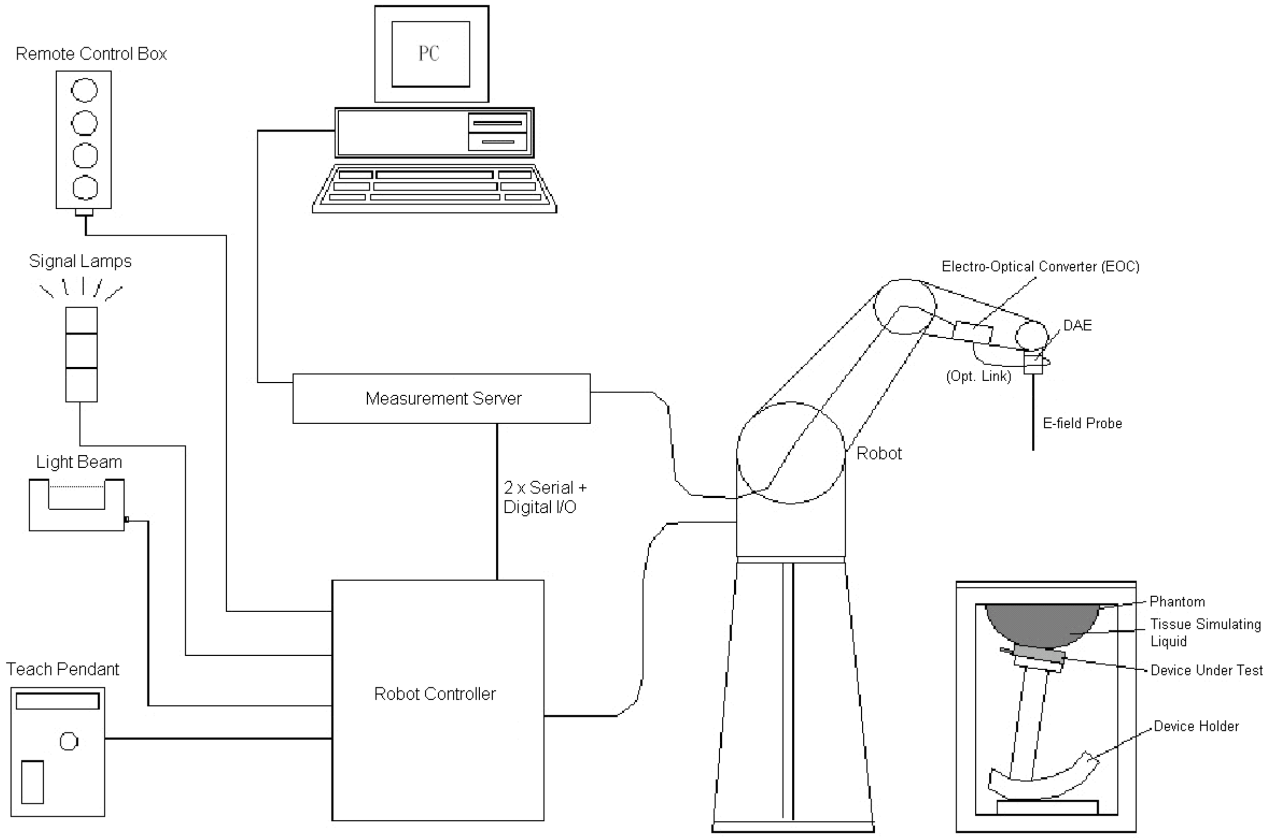
5.1 Measurement System and Components

Equipment No.	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
SZ060-01	SAR Test System	SPEAG	DASY52 SAR TX90XL	F14/5YJ0B1/A/01	2024-03-18	1 year
SZ060-01-01	E-Field Probe	SPEAG	EX3DV4	7322	2024-03-26	1 year
SZ060-01-10	System Validation Dipole	SPEAG	D2450V2	966	2024-11-06	3 year
SZ060-01-13	Data Acquisition Unit	SPEAG	DAE4	1473	2024-03-18	1 year
SZ060-01-14	Dielectric Assessment Kit	SPEAG	DAKS 3.5	1056	N/A	N/A
SZ060-01-15	Vector Reflectometer	Copper Mountain Technologies	Planar R140	0090614	N/A	N/A
SZ060-01-16	Thermometer	LKM electronics GmbH	DTM3000	3477	2024-12-26	1 year
SZ060-01-17	Power Amplifier	Mini Circuits	ZHL-42W+	QA1449003	2024-04-01	1 year
SZ060-01-18	Power Amplifier	Mini Circuits	ZVE-8G+	111701437	2024-04-01	1 year
SZ060-01-21	ELI Phantom	SPEAG	ELI Phantom V6.0	2033	N/A	N/A
SZ180-13	MXG Vector Signal Generator	Keysight	N5182B	MY53051328	2024-09-29	1 year
SZ070-04	Directional Bridge	Agilent	86205A	MY31402141	2024-12-05	1 year
SZ182-02	RF Power Meter	Anritsu	ML2496A	1302005	2024-04-22	1 year
SZ182-03	Average power sensor	R&S	NRP-Z22	101689	2024-04-22	1 year
N/A	Device Holder	SPEAG	N/A	N/A	N/A	N/A

The measurements were performed using an automated near-field scanning system, DASY5, manufactured by Schmid & Partner Engineering AG (SPEAG) in Switzerland. The SAR algorithm used in all measurements was the “advanced extrapolation” and linear interpolation.

5.2 SPEAG DASY System

DASY system consists of high precision robot, probe alignment sensor, phantom, robot controller, controlled measurement server and near-field probe. The robot includes six axes that can move to the precision position of the DASY5 software defined. The DASY software can define the area that is detected by the probe. The robot is connected to controlled box. Controlled measurement server is connected to the controlled robot box. The DAE includes amplifier, signal multiplexing, AD converter, offset measurement and surface detection. It is connected to the Electro-optical coupler (ECO). The ECO performs the conversion form the optical into digital electric signal of the DAE and transfers data to the PC.



DASY Measurement System

5.3 Robot

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

· High precision (repeatability ±0.035 mm)

· High reliability (industrial design)

· Jerk-free straight movements

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

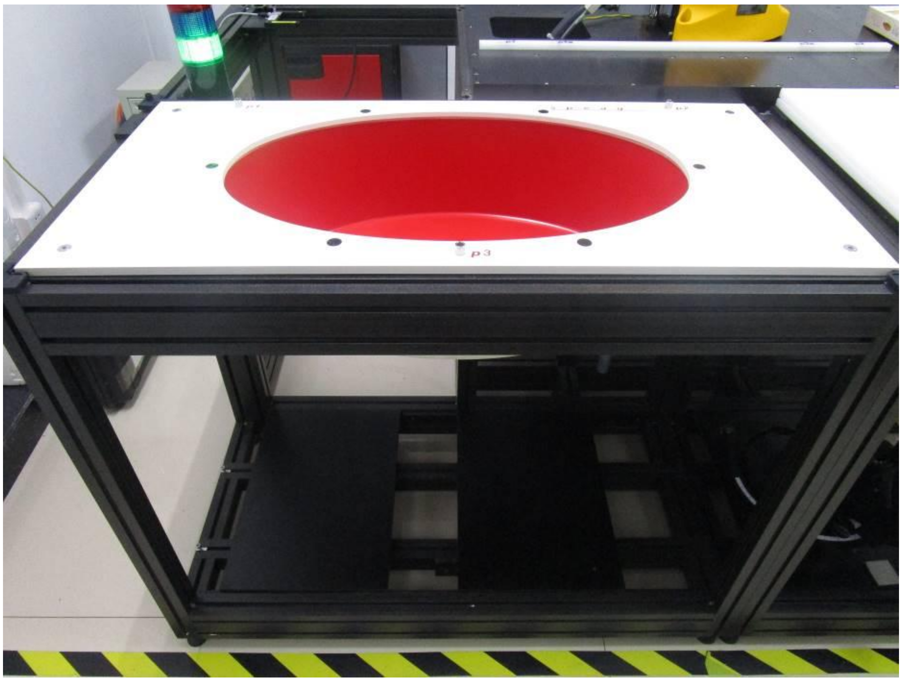
5.4 Isotropic E-field Probe Type EX3DV4

Construction	Symmetrical design with triangular core Interleaved sensors Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., butyl diglycol)
Calibration	Calibration certificate in Appendix C
Frequency	10MHz to 6GHz (dosimetry); Linearity: ±0.2dB (30MHz to 4GHz)
Directivity	± 0.2 dB in HSL (rotation around probe axis) ± 0.3 dB in HSL (rotation normal to probe axis)
Dynamic Range	5 µW/g to > 100 mW/g; Linearity: ± 0.2 dB
Dimensions	Overall length: 337 mm Tip length: 9 mm Body diameter: 10 mm Tip diameter: 2.5 mm Distance from probe tip to dipole centers: 1.4 mm
Application	General dosimetry up to 6 GHz Compliance tests of Mobile Phone Fast automatic scanning in arbitrary phantoms

5.5 Phantoms

5.5.1 ELI Phantom

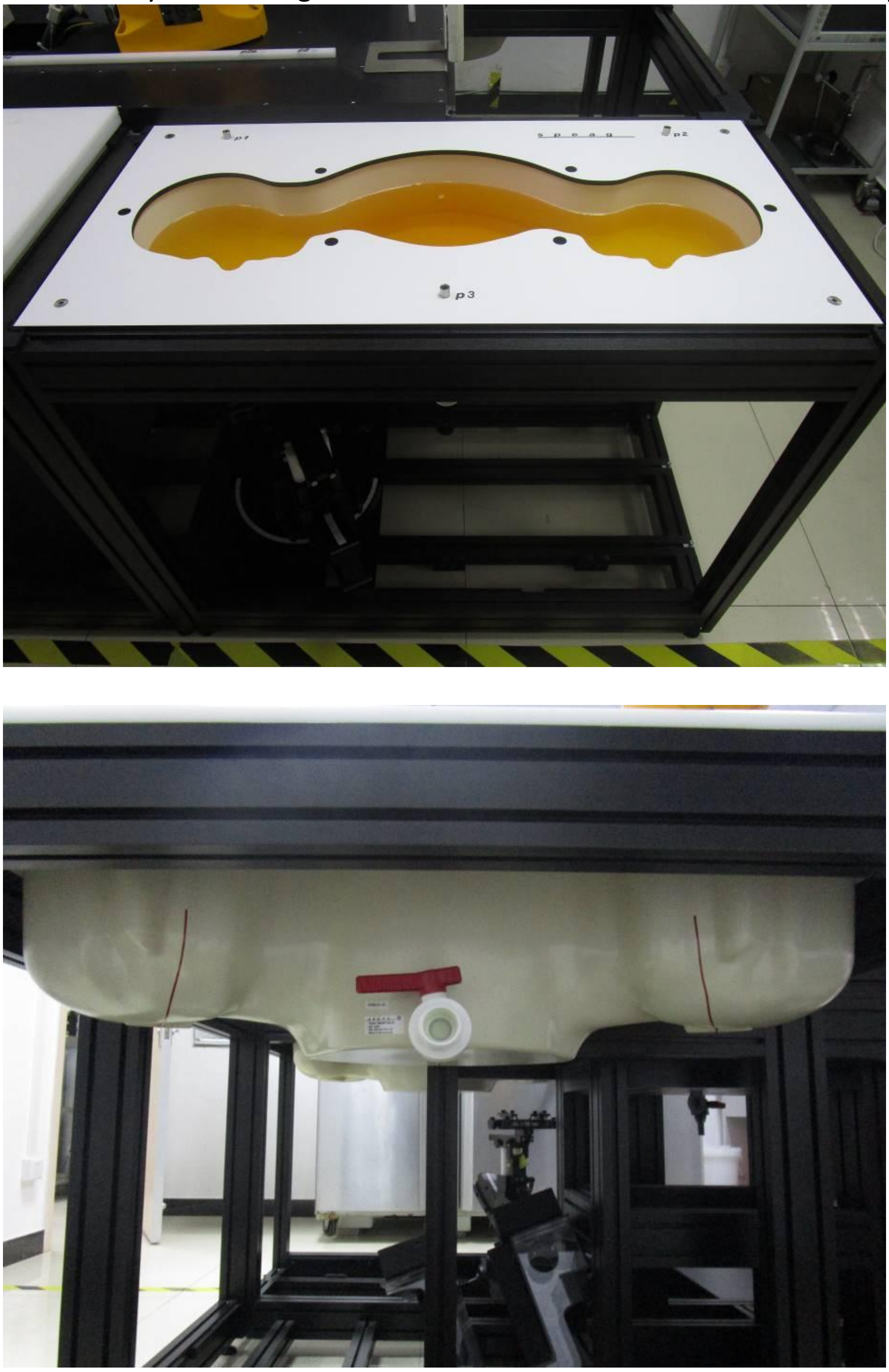
The phantom used for both system checks and device testing, was the "ELI Phantom", manufactured by SPEAG. The ELI phantom is a Vinyl ester and fiberglass reinforced (VE-GF) shell phantom with 2mm shell thickness.



ELI Phantom

5.5.2 SAM Twin Phantom

The phantom used for both system checks and device testing, was the twin-headed "SAM Phantom", manufactured by SPEAG. The SAM twin phantom is a fiberglass shell phantom with 2mm shell thickness (except the ear region, where shell thickness increases to 6mm).
System checking was performed using the flat section, whilst Head SAR tests used the left and right head profile sections. Body SAR testing also used the flat section between the head profiles.

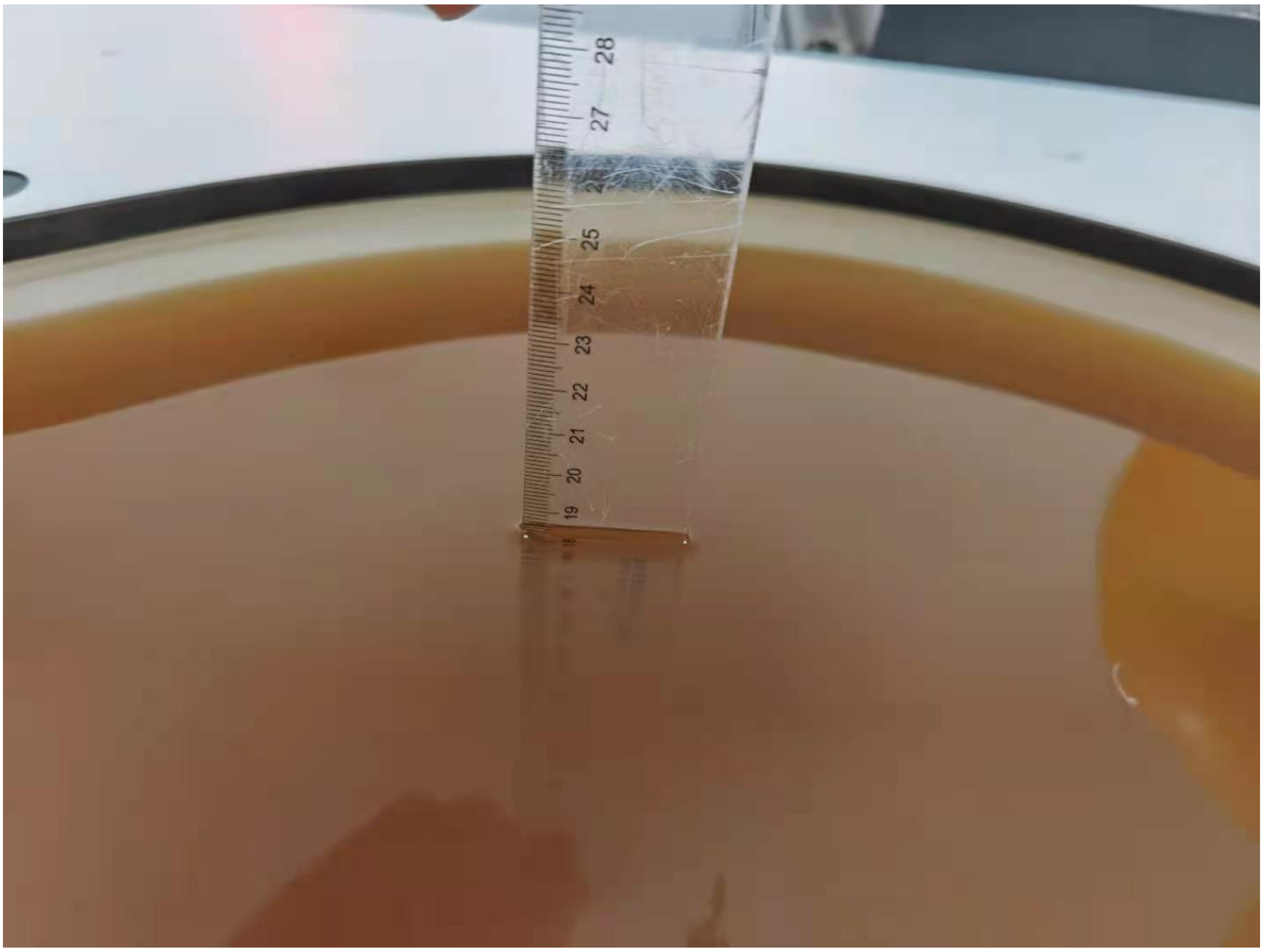


SAM Twin Phantom

5.6 Tissue-equivalent Liquids

5.6.1 Tissue-equivalent liquid recipe(s)

All tests were carried out using simulants whose dielectric parameters were within ± 5% of the recommended values. All tests were carried out within 24 hours of measuring the dielectric parameters.
The depth of the tissue simulant was 18.8 cm measured from the ear reference point (ERP) during system checking and device measurements.



5.6.2 The following recipe(s) were used for Head (H) Tissue-equivalent liquid(s)

Tissue Type	Bactericide	DGBE	HEC	NaCl	Sucrose	Triton X-100	Water	Diethylene Glycol Mono- hexylether
H750	0.2	-	0.2	1.4	57.0	-	41.1	-
H835	0.1	-	1.0	1.4	57.0	-	40.5	-
H900	0.1	-	1.0	1.5	56.5	-	40.9	-
H1450	-	45.5	-	0.7	-	-	53.8	-
H1640	-	45.8	-	0.5	-	-	53.7	-
H1750	-	44.5	-	0.3	-	-	55.2	-
H1800	-	44.9	-	0.2	-	-	54.9	-
H1900	-	44.9	-	0.2	-	-	54.9	-
H2000	-	50	-	-	-	-	50	-
H2300	-	44.9	-	0.1	-	-	55.0	-
H2450	-	45.0	-	0.1	-	-	54.9	-
H2600	-	45.1	-	0.1	-	-	54.8	-
H3500	-	8.0	-	0.2	-	20.0	71.8	-
H5GHz	-	-	-	-	-	17.2	65.52	17.3

Table 1: Head tissue dielectric properties

5.6.3 Targets of Tissue Simulating Liquid

Frequency (MHz)	Relative permittivity ε_r	Conductivity (σ) S/m
750	41.9	0.89
835	41.5	0.90
900	41.5	0.97
1450	40.5	1.20
1640	40.3	1.29
1750	40.1	1.37
1800	40.0	1.40
1900	40.0	1.40
2000	40.0	1.40
2300	39.5	1.67
2450	39.2	1.80
2600	39.0	1.96
3500	37.9	2.91
5200	36.0	4.66
5300	35.9	4.76
5500	35.6	4.96
5600	35.5	5.07
5800	35.3	5.27

Table 2: Targets of the head tissue simulating liquid

5.6.4 Tissue-equivalent liquids used in the Measurements

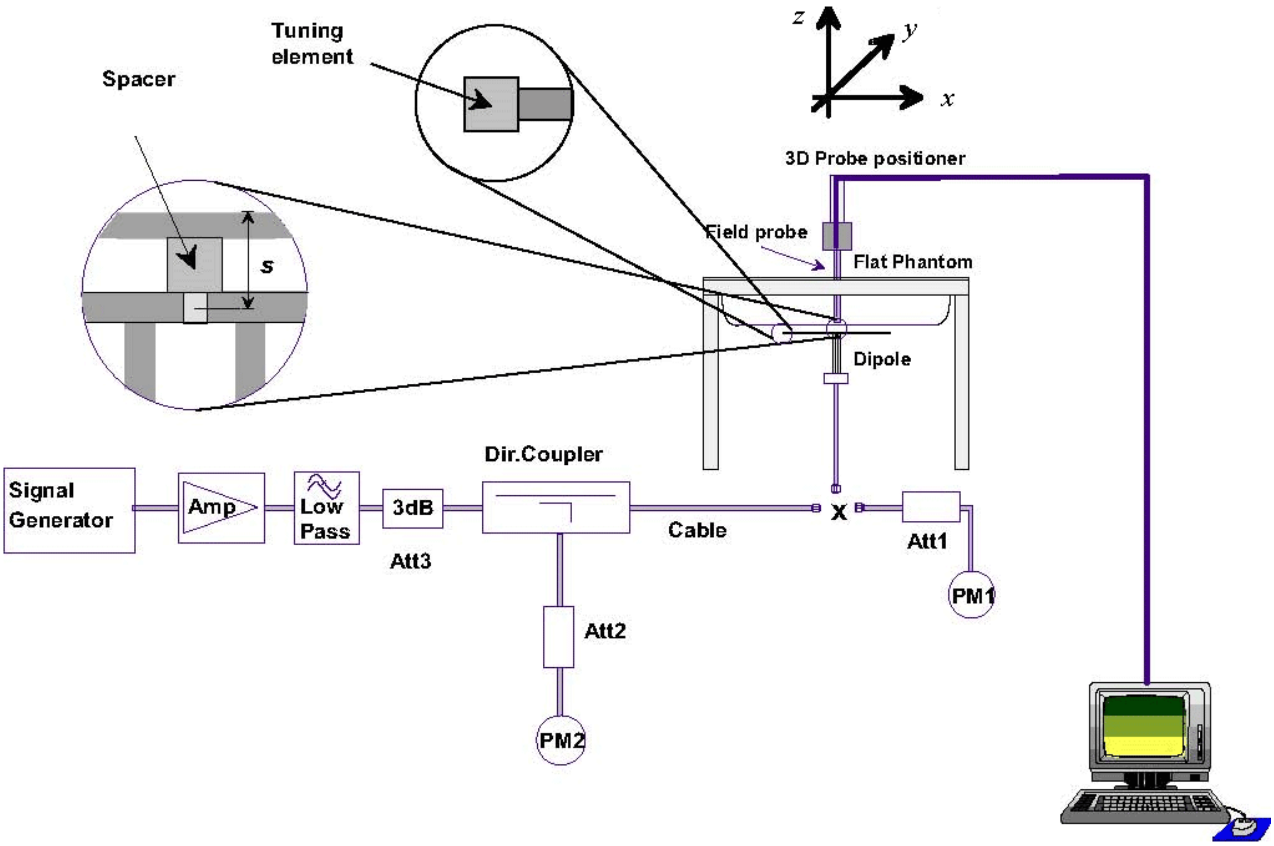
Head Tissue-equivalent liquid measurements:

Tissue Verification								
Tissue Type	Frequency (MHz)	Conductivity (σ)	Permittivity (εr)	Targeted Conductivity (σ)	Targeted Permittivity (εr)	Deviation Conductivity (σ)	Deviation Permittivity (εr)	Date
Head	2450	1.882	38.250	1.80	39.20	4.56	-2.42	2025-02-14

Table 3: Parameter of the head tissue simulating liquid
Note: The dielectric properties have been measured using the contact probe method at 22±2°C.

5.7 System Verification Description

The system check verifies that the system operates within its specifications. It is performed daily or before every SAR measurement. The system check uses normal SAR measurements in the flat section of the phantom with a matched dipole at a specified distance. The system verification setup is shown as below.



5.8 System Checking

The manufacturer calibrates the probes annually. Dielectric parameters of the Tissue-equivalent liquids were measured every day using the dielectric probe kit and the Network Analyser. A system check measurement was made following the determination of the dielectric parameters of the tissue-equivalent liquid, using the dipole validation kit. The output power on dipole port should be calibrated to 30 dBm (1000 mW) before dipole is connected. The system checking results (dielectric parameters and SAR values) are given in the table below.

System checking, head Tissue-equivalent liquid:
Table 4: Results system check

System Validation					
Frequency (MHz)	Targeted SAR 10g (W/kg)	Measured SAR 10g (W/kg)	Normalized SAR 10g (W/kg)	Deviation SAR 10g (%)	Date
2450	23.90	6.11	24.44	2.26	2025-02-14

Note:
1. For 2450MHz system check input power: 250mW
2. Plots of the system checking scans are given in Appendix A.

5.9 Device Holder

The device was placed in the device holder (illustrated below) that is supplied by SPEAG as an integral part of the DASY system.
The DASY device holder is designed to cope with the different positions given in the standard. It has two scales for device rotation (with respect to the body axis) and device inclination (with respect to the line between the ear reference points). The rotation centers for both scales is the ear reference point (ERP). Thus, the device needs no repositioning when changing the angles.

Device holder supplied by SPEAG

5.10 Test Position

Against Phantom Head, The Mobile Phone shall be tested in the “cheek” and “tilted” position on left and right sides of the phantom.

5.10.1 Define of the “cheek” position:

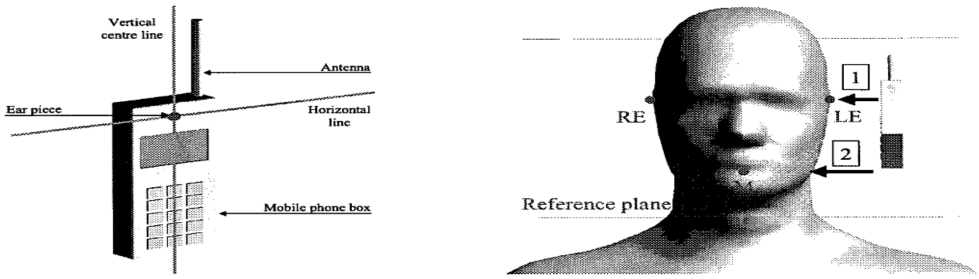
a) Position the device with the vertical center line of the body of the device and the horizontal line crossing the center piece in a plane parallel to the sagittal plane of the phantom. While maintaining the device in this plane, align the vertical center line with the reference plane containing the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

b) Translate the Mobile Phone box towards the phantom with the ear piece aligned with the line LE-RE until the phone touched the ear. While maintaining the device in the reference plane and maintaining the phone contact with the ear, move the bottom of the phone until any point on the front side is in contact with the cheek of the phantom or until contact with the ear is lost.

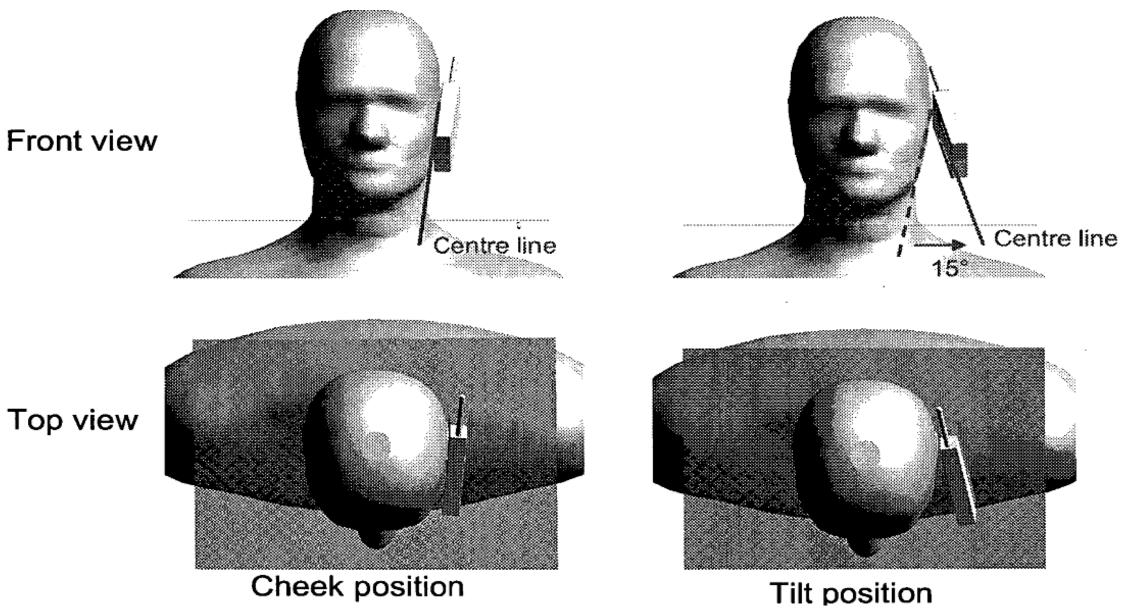
5.10.2 Define of the “tilted” position:

a) Position the device in the “cheek” position described above.

b) While maintaining the device the reference planes described above and pivoting against the ear, move it outward away from the mouth by an angle of 15 degrees or until contact with the ear is lost.



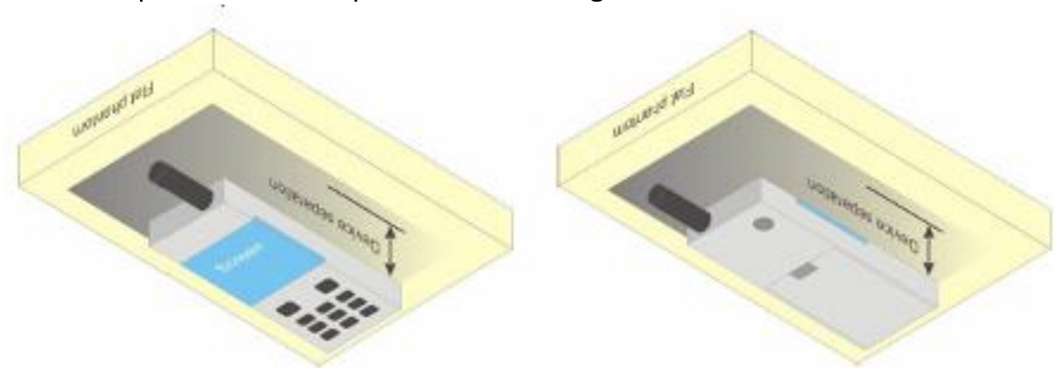
Define of the reference lines and points,on the phone and on the phantom and initial



“Cheek” and “tilted” position of the Mobile Phone on the left side

5.10.3 Body Worm Configuration

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. The distance between of the device and the phantom was kept 15mm according to the manufacturer instructions.



Test Positions for Body Worn

5.11 Scan Procedures

First, area scans were used for determination of the field distribution. Next, a zoom scan, a minimum of 5x5x7 points covering a volume of at least 30x30x30mm, was performed around the highest E-field value to determine the averaged SAR value. Drift was determined by measuring the same point at the start of the area scan and again at the end of the zoom scan.

5.12 SAR Averaging Methods

The DASY5 software includes all numerical procedures necessary to evaluate the spatial peak SAR values. The base for the evaluation is a “cube” measurement in a volume of (30mm)3 (7x7x7 points). The maximum SAR value was averaged over the cube of tissue using interpolation and extrapolation.

The interpolation, extrapolation and maximum search routines within Dasy5 are all based on the modified Quadratic Shepard’s method.

The interpolation scheme combines a least-square fitted function method with a weighted average method. A trivariate 3-D / bivariate 2-D quadratic function is computed for each measurement point and fitted to neighbouring points by a least-square method. For the zoom scan, inverse distance weighting is incorporated to fit distant points more accurately. The interpolating function is finally calculated as a weighted average of the quadratics.

In the zoom scan, the interpolation function is used to extrapolate the Peak SAR from the deepest measurement points to the inner surface of the phantom.

6. Measurement uncertainty

6.1 Uncertainty for SAR Test

Uncertainty Component	Tol. (%)	Prob Dist.	Div	ci (10g)	ci.ui(%) (10g)	vi
Probe Calibration	±6.7	N	1	1	±6.7	∞
Axial Isotropy	±0.5	R	$\sqrt{3}$	1	±0.3	∞
Hemispherical Isotropy	±2.6	R	$\sqrt{3}$	1	±1.5	∞
Linearity	±0.6	R	$\sqrt{3}$	1	±0.3	∞
Probe modulation response	±2.4	R	$\sqrt{3}$	1	±1.4	∞
Detection Limits	±1.0	R	$\sqrt{3}$	1	±0.6	∞
Boundary Effect	±2.0	R	$\sqrt{3}$	1	±1.2	∞
Readout Electronics	±0.3	N	1	1	±0.3	∞
Response Time	±0.8	R	$\sqrt{3}$	1	±0.5	∞
Integration Time	±2.6	R	$\sqrt{3}$	1	±1.5	∞
RF Ambient Conditions - Noise	±3.0	R	$\sqrt{3}$	1	±1.7	∞
RF Ambient Conditions - Reflections	±3.0	R	$\sqrt{3}$	1	±1.7	∞
Probe Positioner Mech. Restrictions	±0.8	R	$\sqrt{3}$	1	±0.5	∞
Probe Positioning with respect to Phantom Shell	±6.7	R	$\sqrt{3}$	1	±3.9	∞
Post-processing	±4.0	R	$\sqrt{3}$	1	±2.3	∞
Test Sample Related						
Device Holder Uncertainty	±3.6	N	1	1	±3.6	M-1
Test Sample Positioning	±2.9	N	1	1	±2.9	M-1
Power scaling	±0.0	R	$\sqrt{3}$	1	±0.0	∞
Drift of output power (measured SAR drift)	±5.0	R	$\sqrt{3}$	1	±2.9	∞
Phantom and Tissue Parameters						
Phantom Uncertainty (shape and thickness tolerances)	±7.6	R	$\sqrt{3}$	1	±4.4	∞
Algorithm for correcting SAR for deviations in permittivity and conductivity	±1.9	N	1	0.84	±1.3	∞
Liquid conductivity(meas.)	±2.5	N	1	0.71	±1.3	M-1
Liquid permittivity(meas.)	±2.5	N	1	0.26	±0.2	M
Liquid permittivity - temperature uncertainty	±3.4	R	$\sqrt{3}$	0.71	±1.0	∞
Liquid conductivity - temperature uncertainty	±0.4	R	$\sqrt{3}$	0.26	±0.0	∞
Combined Standard Uncertainty	±11.6					
Expanded STD Uncertainty	±23.2					

6.2 Uncertainty for System Validation

Uncertainty Component	Tol. (%)	Prob Dist.	Div	Ci (10g)	ci.ui(%) (10g)	vi
Probe Calibration	±6.7	N	1	1	±6.7	∞
Axial Isotropy	±0.5	R	$\sqrt{3}$	1	±0.3	∞
Hemispherical Isotropy	±2.6	R	$\sqrt{3}$	1	±1.5	∞
Linearity	±0.6	R	$\sqrt{3}$	1	±0.3	∞
Modulation response	±0.0	R	$\sqrt{3}$	1	±0.0	∞
Detection Limits	±1.0	R	$\sqrt{3}$	1	±0.6	∞
Boundary Effect	±1.0	R	$\sqrt{3}$	1	±0.6	∞
Readout Electronics	±0.3	N	1	1	±0.3	∞
Response Time	±0.0	R	$\sqrt{3}$	1	±0.0	∞
Integration Time	±0.0	R	$\sqrt{3}$	1	±0.0	∞
RF Ambient Conditions - Noise	±1.0	R	$\sqrt{3}$	1	±0.6	∞
RF Ambient Conditions - Reflections	±1.0	R	$\sqrt{3}$	1	±0.6	∞
Probe Positioner Mech. Restrictions	±0.8	R	$\sqrt{3}$	1	±0.5	∞
Probe Positioning with respect to Phantom Shell	±6.7	R	$\sqrt{3}$	1	±3.9	∞
Post-processing	±4.0	R	$\sqrt{3}$	1	±2.3	∞
Field source						
Deviation of the experimental source from numerical source	±5.5	N	1	1	±5.5	∞
Source to liquid distance	±2.0	R	$\sqrt{3}$	1	±1.2	∞
Drift of output power (measured SAR drift)	±3.4	R	$\sqrt{3}$	1	±2.0	∞
Phantom and Setup						
Phantom Uncertainty (shape and thickness tolerances)	±4.0	R	$\sqrt{3}$	1	±2.3	∞
Algorithm for correcting SAR for deviations in permittivity and conductivity	±1.9	N	1	0.84	±1.3	∞
Liquid conductivity(meas.)	±2.5	N	1	0.21	±0.1	M
Liquid permittivity(meas.)	±2.5	N	1	0.26	±0.2	M
Liquid permittivity - temperature uncertainty	±1.7	R	$\sqrt{3}$	0.71	±0.5	1
Liquid conductivity - temperature uncertainty	±0.3	R	$\sqrt{3}$	0.26	±0.0	∞
Combined Std. Uncertainty	±10.2					
Expanded STD Uncertainty	±20.4					

7. SAR Measurement Evaluation

7.1 Conducted Power Results

7.1.1 Conducted Power of Wi-Fi 2.4G

Mode	Channel	Frequency (MHz)	Data Rate (Mbps)	Max. Tune-up	Average Power (dBm)
802.11b	1	2412	1	14.0	12.98
	7	2442			13.05
	13	2472			13.03
802.11g	1	2412	6	14.0	13.02
	7	2442			12.95
	13	2472			12.96
802.11n HT20	1	2412	MCS0	14.0	13.12
	7	2442			13.18
	13	2472			13.23
802.11n HT40	3	2422	MCS0	14.0	13.18
	7	2442			13.16
	11	2462			13.14

Table 5: Measurement of conducted power in Wi-Fi 2.4G

7.2 SAR Testing results

General Notes:

1) The maximum SAR Value of each test Band marked bold.
2) The SAR test shall be performed at the high, middle and low frequency channels of each operating mode. If the SAR measured at mid-band channel for each test configuration is at least 3.0 dB lower than the SAR limit (<1.0 W/kg), testing at the high and low channels is optional apart for the worst case configuration.
3) SAR plot is provided only for the highest measured SAR in each exposure configuration, wireless mode and frequency band combination. Additional SAR plots are also required to support volume scan post-processing results for assessing the multi-band SAR. (Refer to appendix B for details)
4) All SAR measurement results are scaled to the maximum tune-up tolerance limit to demonstrate SAR compliance.
5) According to EN IEC/IEEE 62209-1528, for DUT with a bottom-mounted internal antenna (i.e. an internal antenna mounted in the bottom half of the DUT) that is fully embedded within 2, 5 cm from the bottom of the device, when the highest cheek position peak spatial-average SAR for a frequency band and operating mode is at least 3 dB from the SAR limit, testing in the tilt position is not required.
6) Body-worn accessories that do not contain metallic or conductive components is 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.
7) Holder perturbation verification (without holder) SAR test is required using the highest SAR configuration among all applicable frequency bands.
8) Plots of the Measurement scans are given in Appendix B.

Wi-Fi Notes:

1) Wi-Fi was configured to transimit manximum averaged power level and max duty cycle for each antenna and operation mode to be tested. If the actual duty cycle is <100%, the SAR test results should be scaled to 100% duty cycle to ensure SAR compliance.
2) For Wi-Fi 2.4GHz, the 802.11 mode with the highest average RF output power and the lowest data rate was selected for SAR evaluation. SAR tests at higher data rates and other 802.11 mode and other Bandwidth were not required since the maximum average output power for each of these configurations is not higher than the selected 802.11 mode.

7.2.1 SAR Results for Wi-Fi 2.4G

Table 6: Body SAR test results of Wi-Fi 2.4G

Mode	Test Position	Separation Distance (cm)	Channel	Rate	Maximum Tune-up (dBm)	Conducted Power (dBm)	Power Drift	SAR 10g (W/kg)	Scaling Factor	Reported 10g SAR (W/kg)
802.11n HT20	Front Face	0	7	1	14.0	13.18	0.06	0.00596	1.21	0.007
802.11n HT20	Rear Face	0	7	1	14.0	13.18	0.14	0.587	1.21	0.709
802.11n HT20	Left Side	0	7	1	14.0	13.18	0.12	0.0763	1.21	0.092
802.11n HT20	Right Side	0	7	1	14.0	13.18	-0.02	0.0946	1.21	0.114
802.11n HT20	Top Face	0	7	1	14.0	13.18	0.18	0.0199	1.21	0.024
802.11n HT20	Rear Face	0	1	1	14.0	13.12	0.08	0.791	1.22	0.969
802.11n HT20	Rear Face	0	13	1	14.0	13.23	0.08	0.478	1.19	0.571

APPENDIX A: SYSTEM CHECKING SCANS

Date: 2/14/2025

Test Laboratory: Intertek Service

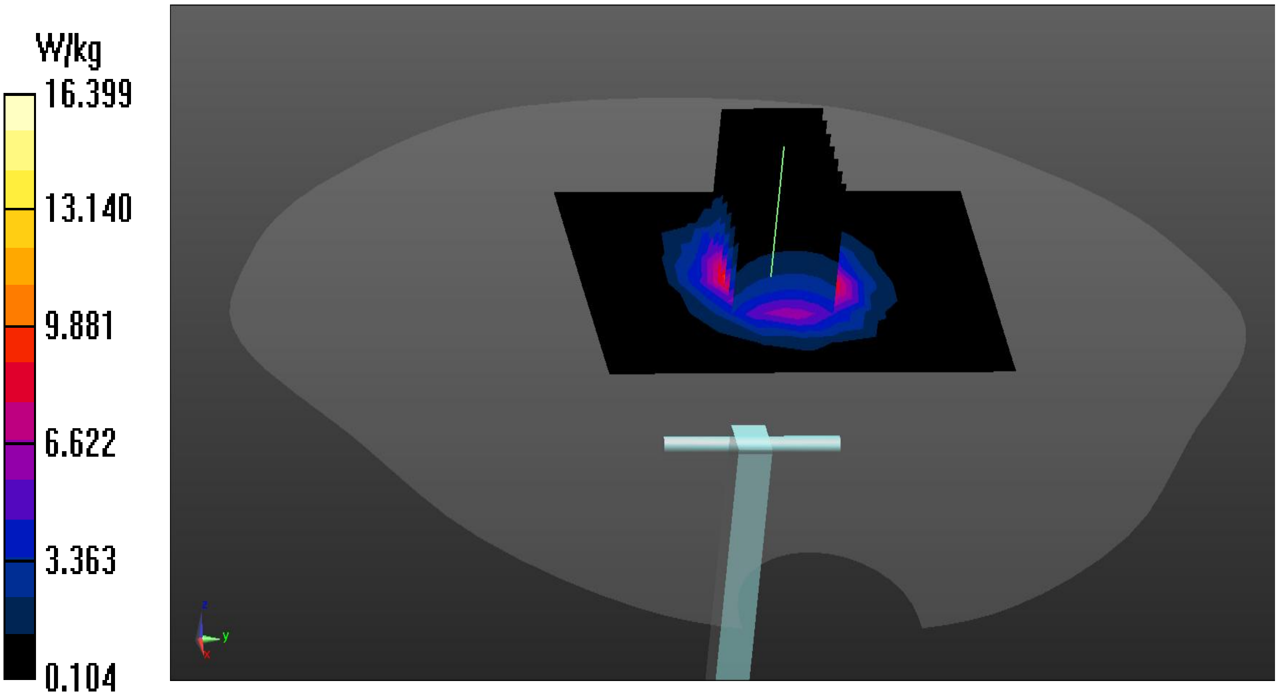
System Check H2450

Communication System: UID 0, CW (0); Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: Head Medium parameters used: f = 2450 MHz; σ = 1.882 S/m; ε_r = 38.25; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient Temperature: 22.0 ℃; Liquid Temperature: 21.5 ℃
DASY Configuration:

- Probe: EX3DV4 - SN7322; ConvF(7.36, 7.36, 7.36) @ 2450 MHz; Calibrated: 3/26/2024
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1473; Calibrated: 3/18/2024
- Phantom: ELI V6.0 (20deg probe tilt); Type: QD OVA 003 AA; Serial: 2033
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

Configuration/Pin=250 mW/Area Scan (7x11x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 16.3 W/kg

Configuration/Pin=250 mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 93.25 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 25.8 W/kg
SAR(1 g) = 12.9 W/kg; SAR(10 g) = 6.11 W/kg
Maximum value of SAR (measured) = 16.4 W/kg



APPENDIX B: MEASUREMENT SCANS

Date: 2/14/2025

Test Laboratory: Intertek Service

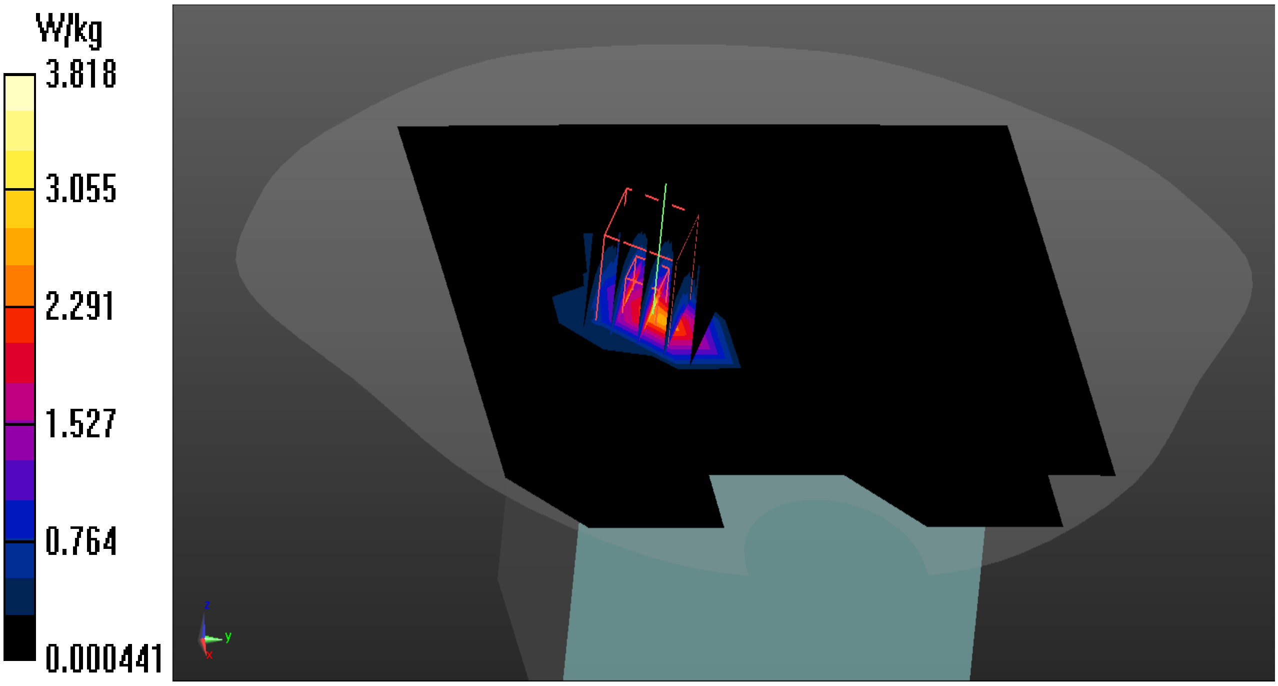
2.4GWIFI 802.11n HT20_Rear Side_CH1

Communication System: UID 0, WIFI 802.11n HT20 (0); Frequency: 2412 MHz; Duty Cycle: 1:1
Medium: Head Medium parameters used: f = 2412 MHz; σ = 1.837 S/m; ε_r = 38.408; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient Temperature: 22.0 ℃; Liquid Temperature: 21.5 ℃
DASY Configuration:

- Probe: EX3DV4 - SN7322; ConvF(7.36, 7.36, 7.36) @ 2412 MHz; Calibrated: 3/26/2024
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1473; Calibrated: 3/18/2024
- Phantom: ELI V6.0 (20deg probe tilt); Type: QD OVA 003 AA; Serial: 2033
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

Area Scan (10x10x1): Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (measured) = 2.82 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.704 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 5.53 W/kg
SAR(1 g) = 2.09 W/kg; SAR(10 g) = 0.791 W/kg
Maximum value of SAR (measured) = 3.82 W/kg



APPENDIX C: RELEVANT PAGES FROM PROBE CALIBRATION REPORT(S)

In Collaboration with
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中国认可 国际互认 校准 CALIBRATION CNAS L0570

Client Intertek Certificate No: 24J02Z000079

CALIBRATION CERTIFICATE

Object	EX3DV4 - SN : 7322
Calibration Procedure(s)	FF-Z11-004-02 Calibration Procedures for Dosimetric E-field Probes
Calibration date:	March 26, 2024

This calibration Certificate documents the traceability to national standards, which realize the physical units of measurements(SI). The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature(22±3)℃ and humidity<70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date(Calibrated by, Certificate No.)	Scheduled Calibration
Power Meter NRP2	101919	12-Jun-23(CTTL, No.J23X05435)	Jun-24
Power sensor NRP-Z91	101547	12-Jun-23(CTTL, No.J23X05435)	Jun-24
Power sensor NRP-Z91	101548	12-Jun-23(CTTL, No.J23X05435)	Jun-24
Reference 10dBAttenuator	18N50W-10dB	19-Jan-23(CTTL, No.J23X00212)	Jan-25
Reference 20dBAttenuator	18N50W-20dB	19-Jan-23(CTTL, No.J23X00211)	Jan-25
Reference Probe EX3DV4	SN 3846	31-May-23(SPEAG, No.EX-3846_May23)	May-24
DAE4	SN 1555	24-Aug-23(SPEAG, No.DAE4-1555_Aug23)	Aug-24
Secondary Standards	**ID #**	**Cal Date(Calibrated by, Certificate No.)**	**Scheduled Calibration**
SignalGenerator MG3700A	6201052605	12-Jun-23(CTTL, No.J23X05434)	Jun-24
Network Analyzer E5071C	MY46110673	25-Dec-23(CTTL, No.J23X13425)	Dec-24
Reference 10dBAttenuator	BT0520	11-May-23(CTTL, No.J23X04061)	May-25
Reference 20dBAttenuator	BT0267	11-May-23(CTTL, No.J23X04062)	May-25
OCP DAK-12	SN 1174	25-Oct-23(SPEAG, No.OCP-DAK12-1174_Oct23)	Oct-24

	Name	Function	Signature
Calibrated by:	Yu Zongying	SAR Test Engineer	
Reviewed by:	Lin Jun	SAR Test Engineer	
Approved by:	Qi Dianyuan	SAR Project Leader	

Issued: March 29, 2024

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Glossary:

TSL	tissue simulating liquid
NORMx,y,z	sensitivity in free space
ConvF	sensitivity in TSL / NORMx,y,z
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A,B,C,D	modulation dependent linearization parameters
Polarization Φ	Φ rotation around probe axis
Polarization θ	θ rotation around an axis that is in the plane normal to probe axis (at measurement center), i θ=0 is normal to probe axis
Connector Angle	information used in DASY system to align probe sensor X to the robot coordinate system

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013

b) IEC 62209-1, "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016

c) IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010

d) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Methods Applied and Interpretation of Parameters:

- *NORMx,y,z:* Assessed for E-field polarization θ=0 (f≤900MHz in TEM-cell; f>1800MHz: waveguide). NORMx,y,z are only intermediate values, i.e., the uncertainties of NORMx,y,z does not effect the E^2 -field uncertainty inside TSL (see below ConvF).
- *NORM(f)x,y,z = NORMx,y,z* frequency_response* (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of ConvF.
- *DCPx,y,z:* DCP are numerical linearization parameters assessed based on the data of power sweep (no uncertainty required). DCP does not depend on frequency nor media.
- PAR: PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics.
- *Ax,y,z; Bx,y,z; Cx,y,z;VRx,y,z:*A,B,C are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. VR is the maximum calibration range expressed in RMS voltage across the diode.
- *ConvF and Boundary Effect Parameters:* Assessed in flat phantom using E-field (or Temperature Transfer Standard for f≤800MHz) and inside waveguide using analytical field distributions based on power measurements for f >800MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty valued are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to NORMx,y,z* ConvF whereby the uncertainty corresponds to that given for ConvF. A frequency dependent ConvF is used in DASY version 4.4 and higher which allows extending the validity from±50MHz to±100MHz.
- *Spherical isotropy (3D deviation from isotropy):* in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- *Sensor Offset:* The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.
- *Connector Angle:* The angle is assessed using the information gained by determining the *NORMx* (no uncertainty required).

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DASY/EASY – Parameters of Probe: EX3DV4 – SN:7322

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (*k*=2)
Norm(μV/(V/m)^2)[A]	0.46	0.57	0.54	±10.0%
DCP(mV)[B]	98.7	97.4	100.9	

Modulation Calibration Parameters

UID	Communication System Name		A dB	B dB√μV	C	D dB	VR mV	Unc[E] (*k*=2)
0	CW	X	0.0	0.0	1.0	0.00	159.1	±2.2%
		Y	0.0	0.0	1.0		177.9	
		Z	0.0	0.0	1.0		176.2	

The reported uncertainty of measurement is stated as the standard uncertainty of Measurement multiplied by the coverage factor *k*=2, which for a normal distribution Corresponds to a coverage probability of approximately 95%.

[A] The uncertainties of Norm X, Y, Z do not affect the E^2-field uncertainty inside TSL (see Page 4).
[B] Numerical linearization parameter: uncertainty not required.
[E] Uncertainly is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

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DASY/EASY – Parameters of Probe: EX3DV4 – SN:7322

Calibration Parameter Determined in Head Tissue Simulating Media

f [MHz][C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha[G]	Depth[G] (mm)	Unct. (k=2)
750	41.9	0.89	10.03	10.03	10.03	0.14	1.31	±12.7%
835	41.5	0.90	9.65	9.65	9.65	0.11	1.59	±12.7%
1750	40.1	1.37	8.30	8.30	8.30	0.23	1.06	±12.7%
1900	40.0	1.40	7.96	7.96	7.96	0.27	0.99	±12.7%
2300	39.5	1.67	7.64	7.64	7.64	0.65	0.65	±12.7%
2450	39.2	1.80	7.36	7.36	7.36	0.60	0.69	±12.7%
2600	39.0	1.96	7.10	7.10	7.10	0.41	0.90	±12.7%
5250	35.9	4.71	5.25	5.25	5.25	0.45	1.40	±13.9%
5600	35.5	5.07	4.65	4.65	4.65	0.55	1.20	±13.9%
5750	35.4	5.22	4.80	4.80	4.80	0.50	1.30	±13.9%

[C] Frequency validity above 300 MHz of ±100MHz only applies for DASY v4.4 and higher (Page 2), else it is restricted to ±50MHz. The uncertainty is the RSS of ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ± 10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Above 5 GHz frequency validity can be extended to ± 110 MHz.

[F] At frequency up to 6 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ±10% if liquid compensation formula is applied to measured SAR values. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

[G] Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ± 1% for frequencies below 3 GHz and below ± 2% for the frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

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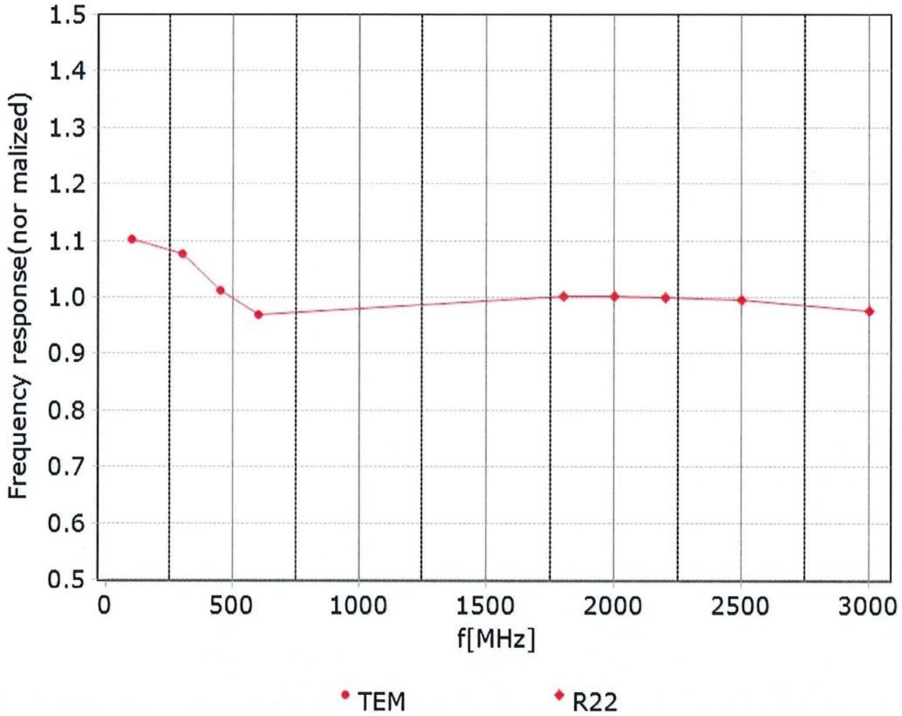
Frequency Response of E-Field
(TEM-Cell: ifi110 EXX, Waveguide: R22)



Uncertainty of Frequency Response of E-field: ±7.4% (*k*=2)

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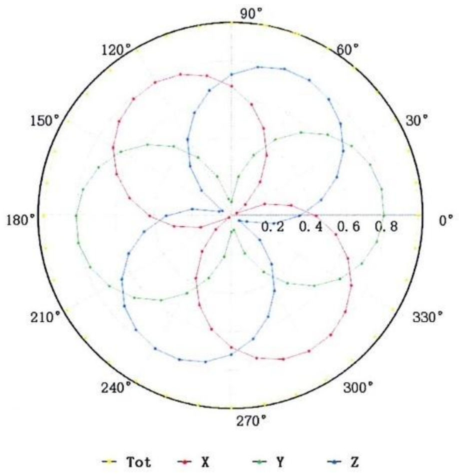
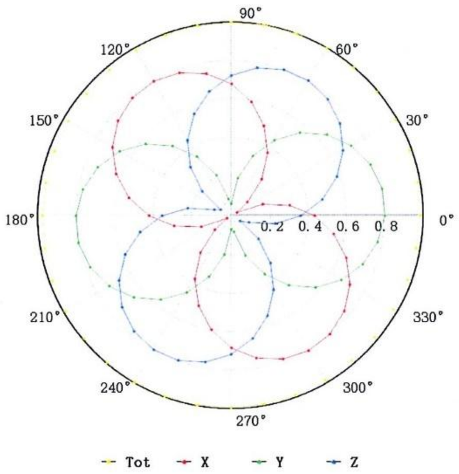
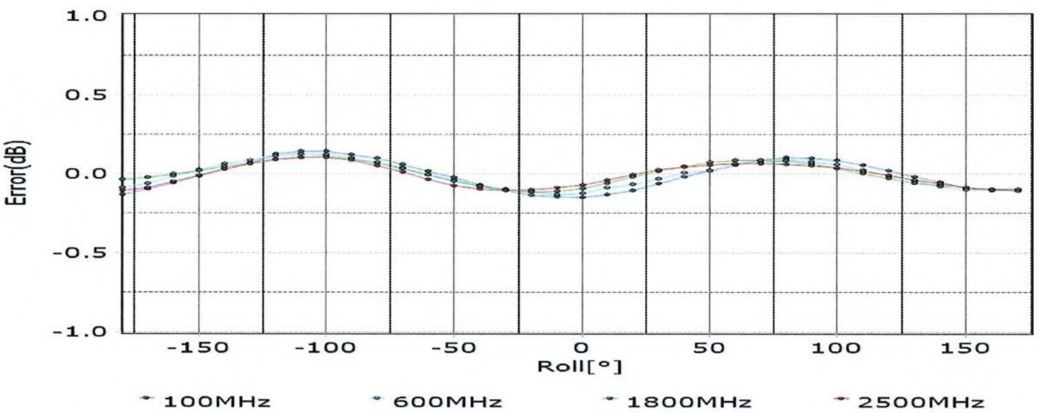
Receiving Pattern (Φ), θ=0°

f=600 MHz, TEM



f=1800 MHz, R22





Uncertainty of Axial Isotropy Assessment: ±1.2% (k=2)

Certificate No:24J02Z000079 Page 6 of 9

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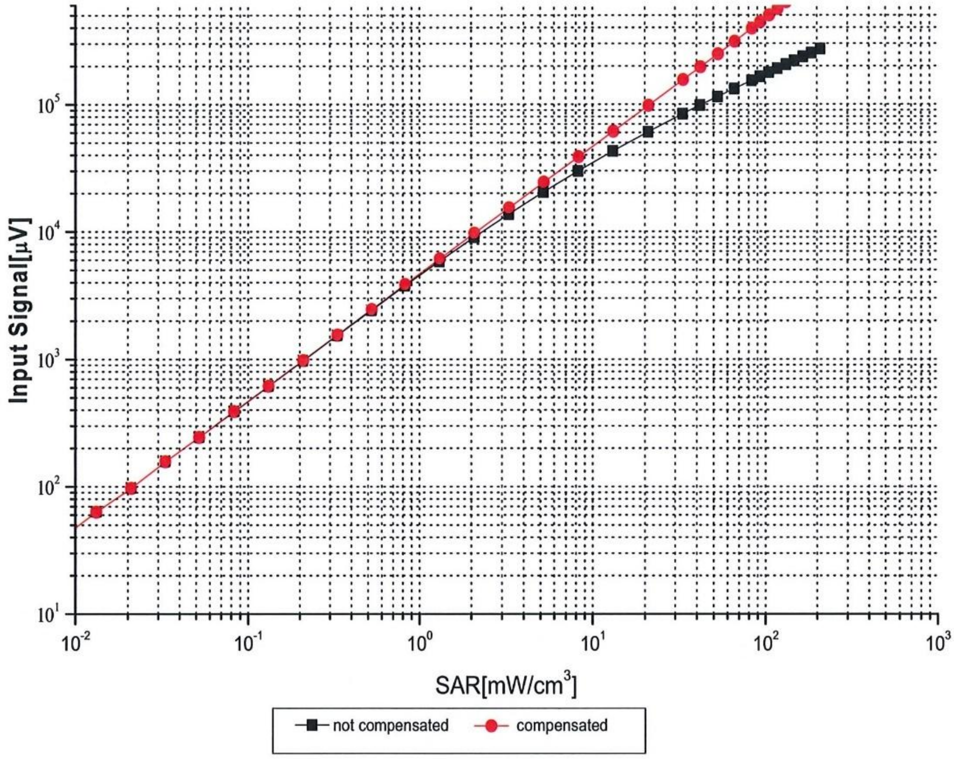
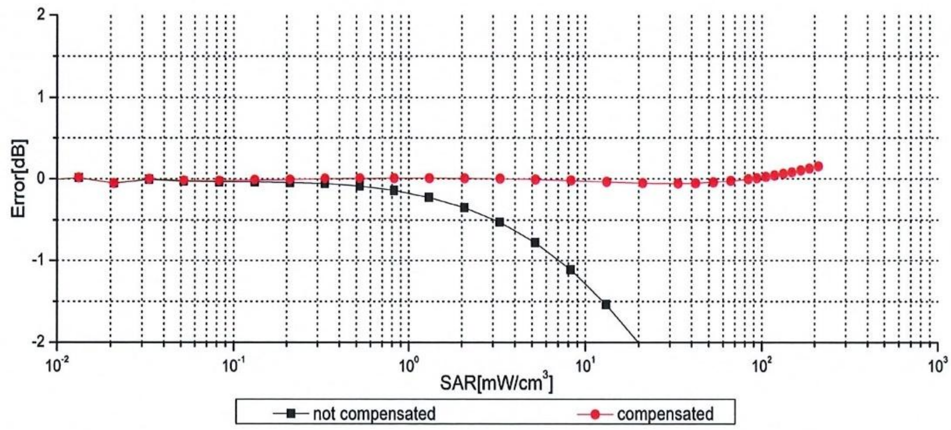
Dynamic Range f(SAR_{head})
(TEM cell, f = 900 MHz)





Uncertainty of Linearity Assessment: ±0.9% (*k*=2)

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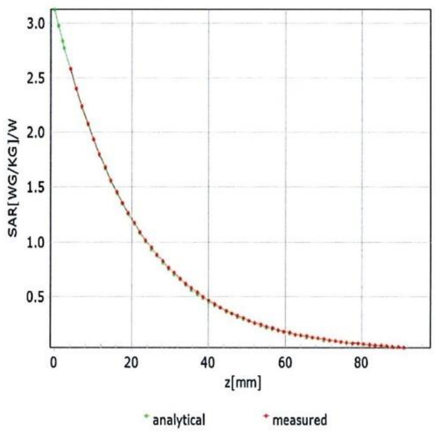
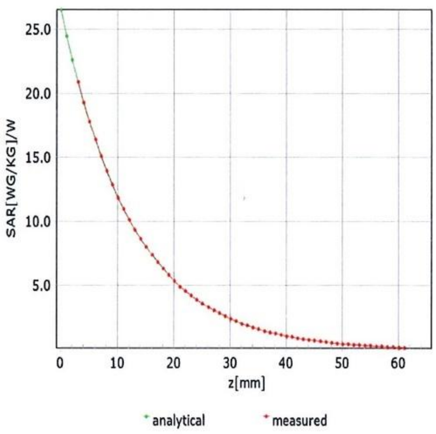
Conversion Factor Assessment

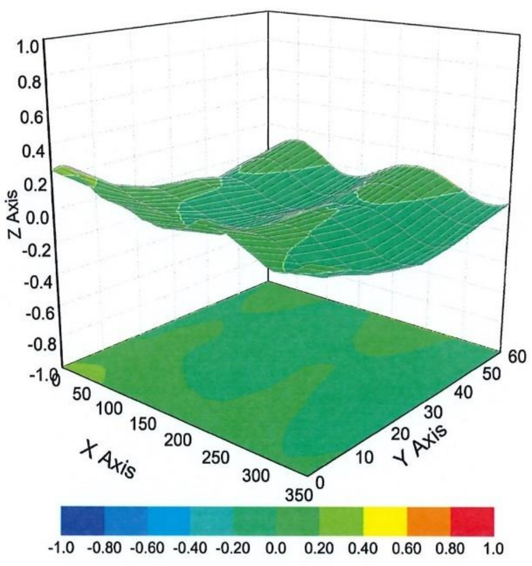
f=750 MHz,WGLS R9(H_convF)



f=1750 MHz,WGLS R22(H_convF)



Deviation from Isotropy in Liquid



Uncertainty of Spherical Isotropy Assessment: ±3.2% (*k*=2)

Certificate No:24J02Z000079 Page 8 of 9

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DASY/EASY – Parameters of Probe: EX3DV4 – SN:7322

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	41.2
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disable
Probe Overall Length	337mm
Probe Body Diameter	10mm
Tip Length	9mm
Tip Diameter	2.5mm
Probe Tip to Sensor X Calibration Point	1mm
Probe Tip to Sensor Y Calibration Point	1mm
Probe Tip to Sensor Z Calibration Point	1mm
Recommended Measurement Distance from Surface	1.4mm

APPENDIX D: RELEVANT PAGES FROM DIPOLE VALIDATION KIT REPORT(S)

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Client **Intertek** **Certificate No: 24J02Z000850**

CALIBRATION CERTIFICATE

Object	D2450V2 - SN: 966
Calibration Procedure(s)	FF-Z11-003-01 Calibration Procedures for dipole validation kits
Calibration date:	November 6, 2024

This calibration Certificate documents the traceability to national standards, which realize the physical units of measurements (SI). The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22±3)°C and humidity<70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Power Meter NRP2	106276	17-May-24 (CTTL, No. J24X04107)	May-25
Power sensor NRP6A	101369	17-May-24 (CTTL, No. J24X04107)	May-25
Reference Probe EX3DV4	SN 7517	21-Feb-24(CTTL-SPEAG, No. 24J02Z80008)	Feb-25
DAE4	SN 1588	13-Sep-24(CTTL-SPEAG, No. 24J02Z000713)	Sep-25
Secondary Standards	**ID #**	**Cal Date (Calibrated by, Certificate No.)**	**Scheduled Calibration**
Signal Generator E4438C	MY49071430	25-Dec-23 (CTTL, No. J23X13426)	Dec-24
NetworkAnalyzer E5071C	MY46110673	25-Dec-23 (CTTL, No. J23X13425)	Dec-24
OCP DAK-3.5(weighted)	1040	22-Jan-24(SPEAG, No.OCP-DAK3.5-1040_Jan24)	Jan-25

	Name	Function	Signature
Calibrated by:	Zhao Jing	SAR Test Engineer	
Reviewed by:	Lin Jun	SAR Test Engineer	
Approved by:	Qi Dianyuan	SAR Project Leader	

Issued: November 15, 2024

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Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORMx,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

a) IEC/IEEE 62209-1528, "Measurement Procedure for The Assessment of Specific Absorption Rate of Human Exposure to Radio Frequency Fields from Hand-held and Body-mounted Wireless Communication Devices- Part 1528: Human Models, Instrumentation and Procedures (Frequency range of 4 MHz to 10 GHz)", October 2020

b) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

c) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of Measurement multiplied by the coverage factor k=2, which for a normal distribution Corresponds to a coverage probability of approximately 95%.

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Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY52	52.10.4
Extrapolation	Advanced Extrapolation	
Phantom	Triple Flat Phantom 5.1C	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	2450 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	39.2	1.80 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	40.1 ± 6 %	1.81 mho/m ± 6 %
Head TSL temperature change during test	<1.0 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	13.1 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**52.5 W/kg ± 18.8 % (*k*=2)**
SAR averaged over 10 cm^3 (10 g) of Head TSL	Condition	
SAR measured	250 mW input power	6.07 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**24.3 W/kg ± 18.7 % (*k*=2)**

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Appendix (Additional assessments outside the scope of CNAS L0570)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	51.5Ω+ 4.27jΩ
Return Loss	- 27.0dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.062 ns

After long term use with 100W radiated power, only a slight warming of the dipole near the feed-point can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feed-point may be damaged.

Additional EUT Data

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DASY5 Validation Report for Head TSL Date: 2024-11-06

Test Laboratory: CTTL, Beijing, China

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN: 966

Communication System: UID 0, CW; Frequency: 2450 MHz

Medium parameters used: f = 2450 MHz; σ = 1.809 S/m; ε_r = 40.08; ρ = 1000 kg/m^3

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN7517; ConvF(7.37, 7.37, 7.37) @ 2450 MHz; Calibrated: 2024-02-21
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1588; Calibrated: 2024-09-13
- Phantom: MFP_V5.1C (20deg probe tilt); Type: QD 000 P51 Cx; Serial: 1062
- DASY52 52.10.4(1535); SEMCAD X 14.6.14(7501)

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

Reference Value = 105.0 V/m; Power Drift = 0.00 dB

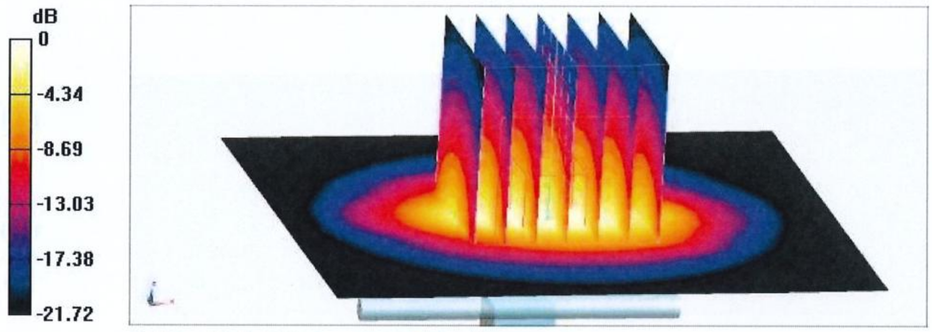
Peak SAR (extrapolated) = 26.7 W/kg

SAR(1 g) = 13.1 W/kg; SAR(10 g) = 6.07 W/kg

Smallest distance from peaks to all points 3 dB below = 8.2 mm

Ratio of SAR at M2 to SAR at M1 = 49.5%

Maximum value of SAR (measured) = 21.8 W/kg



0 dB = 21.8 W/kg = 13.38 dBW/kg

Certificate No: 24J02Z000850 Page 5 of 6

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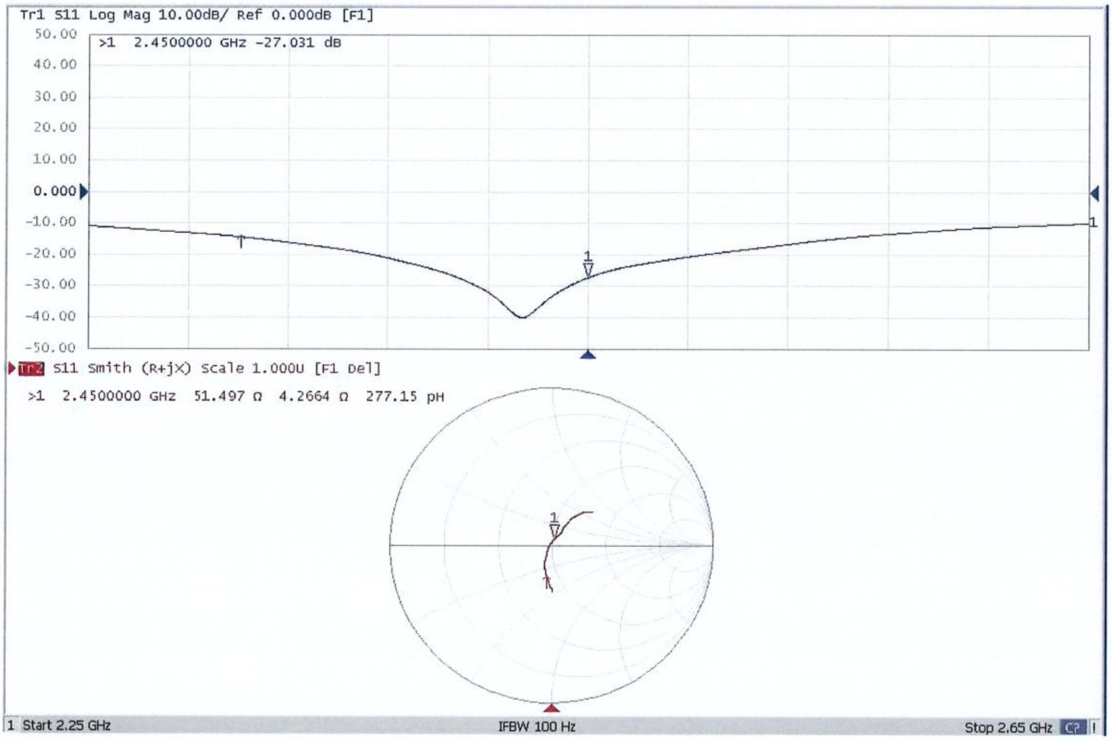
Impedance Measurement Plot for Head TSL



APPENDIX E: RELEVANT PAGES FROM DAE CALIBRATION REPORT(S)

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Client : Intertek

Certificate No: 24J02Z000078

CALIBRATION CERTIFICATE

Object	DAE4 - SN: 1473
Calibration Procedure(s)	FF-Z11-002-01 Calibration Procedure for the Data Acquisition Electronics (DAEx)
Calibration date:	March 18, 2024

This calibration Certificate documents the traceability to national standards, which realize the physical units of measurements(SI). The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature(22±3)℃ and humidity<70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date(Calibrated by, Certificate No.)	Scheduled Calibration
Process Calibrator 753	1971018	12-Jun-23 (CTTL, No.J23X05436)	Jun-24

	Name	Function	Signature
Calibrated by:	Yu Zongying	SAR Test Engineer	
Reviewed by:	Lin Jun	SAR Test Engineer	
Approved by:	Qi Dianyuan	SAR Project Leader	

Issued: March 20, 2024

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Glossary:

DAE	data acquisition electronics
Connector angle	information used in DASY system to align probe sensor X to the robot coordinate system.

Methods Applied and Interpretation of Parameters:

- *DC Voltage Measurement*: Calibration Factor assessed for use in DASY system by comparison with a calibrated instrument traceable to national standards. The figure given corresponds to the full scale range of the voltmeter in the respective range.

- *Connector angle*: The angle of the connector is assessed measuring the angle mechanically by a tool inserted. Uncertainty is not required.

- The report provide only calibration results for DAE, it does not contain other performance test results.

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DC Voltage Measurement

A/D - Converter Resolution nominal

High Range: 1LSB = 6.1μV , full range = -100…+300 mV
Low Range: 1LSB = 61nV , full range = -1…….+3mV

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

Calibration Factors	X	Y	Z
High Range	404.013 ± 0.15% (k=2)	404.606 ± 0.15% (k=2)	404.459 ± 0.15% (k=2)
Low Range	3.96391 ± 0.7% (k=2)	3.99545 ± 0.7% (k=2)	3.98870 ± 0.7% (k=2)

Connector Angle

Connector Angle to be used in DASY system	346° ± 1 °

APPENDIX F: Test Position Photos

Front Face

Left Side

Rear Face

Right Side

Top Side

APPENDIX G: DUT Photos

Please refer to the test report of 241213060GZU-001

********************************** End of Report **********************************

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