

Prüfbericht-Nr.: Test report no.:	CN24MUZ8 003	Auftrags-Nr.: Order no.:	168509606	Seite 1 von 30 Page 1 of 30
Kunden-Referenz-Nr.: Client reference no.:		Auftragsdatum: Order date:	2024-10-22	
Auftraggeber: Client:	AISolution Co., Ltd. 28-4, Samyang-ro 29-gil, Gangbuk-gu, Seoul, Republic of Korea 01194			
Prüfgegenstand: Test item:	WBM-XC6P-SC			
Bezeichnung / Typ-Nr.: Identification / Type no.:	WBM-XC6P-SC			
Auftrags-Inhalt: Order content:	Test Report			
Prüfgrundlage: Test specification:	FCC 47 CFR § 2.1093 IEEE Std 1528-2013 IC RSS-102 Issue 6: December 2023 IEC/62209-1528: 2020 Published RF exposure KDB procedures			
Wareneingangsdatum: Date of sample receipt:	2024-11-05	Please refer to Photo Document		
Prüfmuster-Nr.: Test sample no:	A003844428-002			
Prüfzeitraum: Testing period:	2024-11-23 - 2024-11-30			
Ort der Prüfung: Place of testing:	TÜV Rheinland (Shenzhen) Co., Ltd.			
Prüflaboratorium: Testing laboratory:	TÜV Rheinland (Shenzhen) Co., Ltd.			
Prüfergebnis*: Test result*:	Pass			
geprüft von: tested by:			genehmigt von: authorized by:	
Datum: Date:	2025-04-24	Signed by: Jonathan Li	Ausstellungsdatum: Issue date:	2025-04-24
Stellung / Position: Sachverständige(r)/Expert		Stellung / Position: Sachverständige(r)/Expert		
Sonstiges / Other:				
Zustand des Prüfgegenstandes bei Anlieferung: Condition of the test item at delivery:		Prüfmuster vollständig und unbeschädigt Test item complete and undamaged		
* Legende: P(ass) = entspricht o.g. Prüfgrundlage(n) F(ail) = entspricht nicht o.g. Prüfgrundlage(n) N/A = nicht anwendbar N/T = nicht getestet * Legend: P(ass) = passed a.m. test specification(s) F(ail) = failed a.m. test specification(s) N/A = not applicable N/T = not tested				
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Anmerkungen
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4	Die Entscheidungsregel für Konformitätserklärungen basierend auf numerischen Messergebnissen in diesem Prüfbericht basiert auf der "Null-Grenzwert-Regel" und der "Einfachen Akzeptanz" gemäß ILAC G8:2019 und IEC Guide 115:2021, es sei denn, in der auf Seite 1 dieses Berichts genannten angewandten Norm ist etwas anderes festgelegt oder vom Kunden gewünscht. Dies bedeutet, dass die Messunsicherheit nicht berücksichtigt wird und daher auch nicht im Prüfbericht angegeben wird. Zu weiteren Informationen bezüglich des Risikos durch diese Entscheidungsregel siehe ILAC G8:2019. <i>The decision rule for statements of conformity, based on numerical measurement results, in this test report is based on the "Zero Guard Band Rule" and "Simple Acceptance" in accordance with ILAC G8:2019 and IEC Guide 115:2021, unless otherwise specified in the applied standard mentioned on Page 1 of this report or requested by the customer. This means that measurement uncertainty is not taken in account and hence also not declared in the test report. For additional information to the resulting risk based of this decision rule please refer to ILAC G8:2019.</i>

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1. General Information

1.1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for the EUT are as follows:

Mode	Highest Reported Body-worn SAR _{1g} (0 cm Gap) (W/kg)
Bluetooth	0.87
Lora	0.07
Bluetooth+Lora	0.94

Note:

This device is in compliance with Specific Absorption Rate (SAR) for general population/uncontrolled exposure limits (1.6W/kg as averaged over any 1 gram of tissue; 10-gram SAR for Product Specific 10g SAR, limit: 4.0W/kg) specified in FCC 47 CFR part 2 (2.1093) and ANSI/IEEE C95.1-1992/ IC RSS-102 Issue 6:2023, and had been tested in accordance with the measurement methods and procedures specified in IEEE 1528-2013 and FCC KDB publications.

The BT and Lora can simultaneously transmitting.

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Test Report No.Seite 6 von 30
Page 6 of 30**1.2. Equipment Under Test (EUT) Information****1.2.1. General Information**

Equipment Name	WBM-XC6P-SC
FCC ID	VH9-WBM-XC6P-SC
Brand Name	n/a
Model Name	WBM-XC6P-SC
Antenna Type	Fixed Internal Antenna
EUT Stage	Production Unit

1.2.2. Wireless Technologies

Wireless Technology and Frequency Range	Bluetooth: 2402 MHz ~ 2480 MHz Lora: 902 MHz ~ 920 MHz
Uplink Modulations	Bluetooth® LE 1M Other Lora

Note:

1. The above EUT information is declared by manufacturer and for more detailed features description please refers to the manufacturer's specifications or User's Manual.

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2. Test Sites

2.1. Test Facilities

TÜV Rheinland (Shenzhen) Co., Ltd.

2-3F, 101 & 102, No.2, Nuclear Power Industrial Park, Fuming Community, Fucheng Street, Longhua District, Shenzhen 518000, China

FCC Registration No.: CN1260

2.2. Ambient Condition

Ambient Temperature	20.1°C – 21.5°C
Relative Humidity	40% - 58%

2.3. List of Test and Measurement Instruments

Equipment	Manufacturer	Model	SN	Cal. Date	Cal. Interval
System Validation Dipole	SPEAG	D900V2	1d200	Jun. 07, 2024	3 years
System Validation Dipole	SPEAG	D2450V2	1014	Jun. 06, 2024	3 years
Dosimetric E-Field Probe	SPEAG	EX3DV4	7738	Dec. 13, 2023	1 year
Data Acquisition Electronics	SPEAG	DAE4	1557	Oct. 08, 2024	1 year
Signal Analyzer	R&S	FSV 7	103665	Sep. 29, 2024	1 year
Vector Network Analyzer	R&S	ZNB 8	107040	Sep. 29, 2024	1 year
Dielectric assessment Kit	SPEAG	DAK-3.5	1269	Oct. 09, 2024	1 year
Signal Generator	R&S	SMB 100A	180840	Sep. 29, 2024	1 year
EPM Series Power Meter	Keysight	N1914A	MY58240005	Oct. 29, 2024	1 year
Power Sensor	Keysight	N8481H	MY58250002	Oct. 29, 2024	1 year
Power Sensor	Keysight	N8481H	MY58250006	Oct. 29, 2024	1 year
DC Power Supply	Topward	3303D	809332	Oct. 29, 2024	1 year
Coaxial Directional Coupler	Keysight	773D	MY52180552	Oct. 29, 2024	1 year
Coaxial Directional Coupler	shhuaxiang	DTO-0.4/3.9-10	18052101	Oct. 29, 2024	1 year
Coaxial attenuator	Keysight	8491A	MY52463219	Oct. 29, 2024	1 year
Coaxial attenuator	Keysight	8491A	MY52463210	Oct. 29, 2024	1 year
Coaxial attenuator	Keysight	8491A	MY52463222	Oct. 29, 2024	1 year
Digital Thermometer	LKM	DTM3000	3116	Nov. 04, 2024	1 year
Power Amplifier Mini circuit	mini-circuits	ZHL-42W	SN002101809	N/A	N/A
Power Amplifier Mini circuit	mini-circuits	ZVE-8G	SN070501814	N/A	N/A
PHANTOM	SPEAG	ELI V8.0	2094	N/A	N/A
PHANTOM	SPEAG	SAM-Twin V8.0	1961	N/A	N/A

3. Measurement Uncertainty

Source of Uncertainty	Tolerance (± %)	Probability Distribution	Divisor	Ci (1g)	Ci (10g)	Standard Uncertainty (1g)	Standard Uncertainty (10g)	Vi Veff
Measurement System Errors								
Probe Calibration	±12.7%	Normal (k=2)	2	1	1	± 6.35 %	± 6.35 %	∞
Probe Calibration Drift	±1.7%	Rectangular	√3	1	1	±1.0%	±1.0%	∞
Probe Linearity	±4.7%	Rectangular	√3	1	1	±2.7%	±2.7%	∞
Broadband Signal	±3.0%	Rectangular	√3	1	1	±1.7%	±1.7%	∞
Probe Isotropy	±7.6%	Rectangular	√3	1	1	±4.4%	±4.4%	∞
Other Probe + Electronic	±0.7%	Normal	1	1	1	±0.7%	±0.7%	∞
RF Ambient	±1.8%	Normal	1	1	1	±1.8%	±1.8%	∞
Probe Positioning	±0.006mm	Normal	1	0.14	0.14	±0.10%	±0.10%	∞
Data Processing	±1.2%	Normal	1	1	1	±1.2%	±1.2%	∞
Phantom and Device Errors								
Conductivity (meas.) ^{DAK}	±2.5%	Normal	1	0.78	0.71	±2.0%	±1.8%	100
Conductivity (temp.) ^{BB}	±3.3%	Rectangular	√3	0.78	0.71	±1.5%	±1.4%	∞
Phantom Permittivity	±14.0%	Rectangular	√3	0	0	±0%	±0%	∞
Distance DUT – TSL	±2.0%	Normal	1	2	2	±4.0%	±4.0%	∞
Device Positioning	±2.4%/±2.8%	Normal	1	1	1	±2.8%	±2.8%	30
Device Holder	±3.4%/±3.5%	Normal	1	1	1	±3.5%	±3.5%	30
DUT Modulation ^m	±2.4%	Rectangular	√3	1	1	±1.4%	±1.4%	∞
Time-average SAR	±1.7%	Rectangular	√3	1	1	±1.0%	±1.0%	∞
DUT drift	±2.5%	Normal	1	1	1	±2.5%	±2.5%	30
Val Antenna Unc. ^{val}	±0.0%	Normal	1	1	1	±0%	±0%	
Unc. Input Power ^{val}	±0.0%	Normal	1	1	1	±0%	±0%	
Correction to the SAR results								
C(ε,σ)	±1.9%	Normal	1	1	0.84	±1.9%	±1.6%	
SAR scaling ^p	±0.0%	Rectangular	√3	1	1	±0%	±0%	
Combined Standard Uncertainty (K = 1)						±12.54%	±12.44%	
Expanded Uncertainty (K = 2)						±25.1%	±24.9%	

Uncertainty budget for frequency range 300 MHz to 3 GHz

4. Test Specification, Methods and Procedures

The tests documented in this report were performed in accordance with FCC 47 CFR § 2.1093, IEEE STD 1528- 2013, the following FCC Published RF exposure KDB procedures & manufacturer KDB inquiries:

- KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz v01r04
- KDB 865664 D02 RF Exposure Reporting v01r02
- KDB 447498 D01 General RF Exposure Guidance v06
- KDB 447498 D04 Interim General RF Exposure Guidance v01
- IC RSS-102 Issue 6: December 2023 Radio Frequency (RF) Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands)
- IEC/IEEE 62209-1528:2020 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)

In addition to the above, the following information was used:

- [TCB workshop](#) April, 2019; Page 19, Tissue Simulating Liquids(TSL)

5. SAR Measurement System

5.1. Definition of Specific Absorption Rate (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 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)

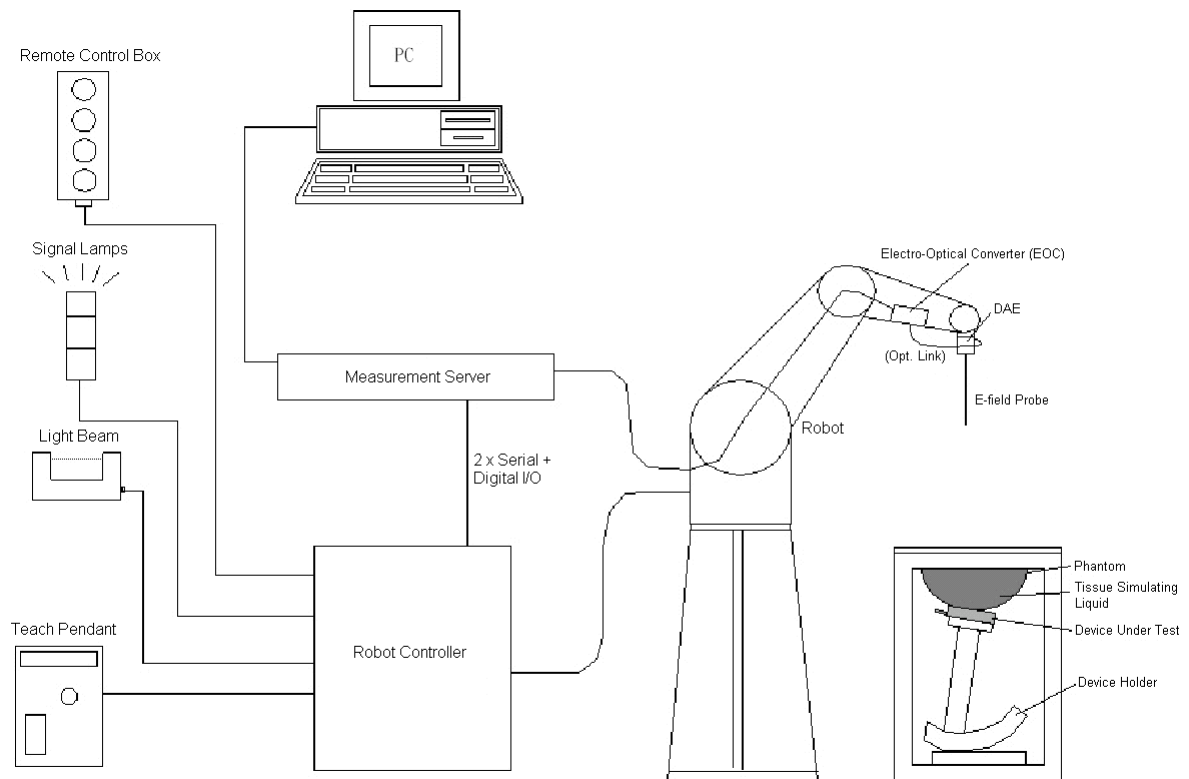
SAR measurement can be related to the electrical field in the tissue by

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

Where: σ is the conductivity of the tissue, ρ is the mass density of the tissue and E is the RMS electrical field strength.

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 from the optical into digital electric signal of the DAE and transfers data to the PC.

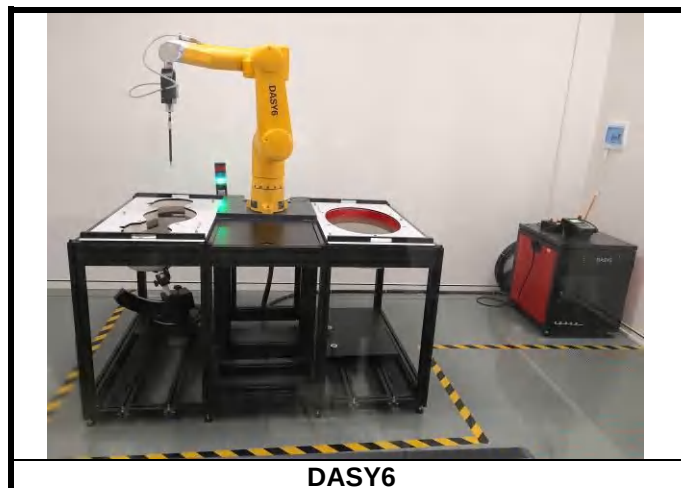


DASY System Setup

5.2.1. 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)



DASY6

5.2.2. Probes

The SAR measurement is conducted with the dosimetric probe. The probe is specially designed and calibrated for use in liquid with high permittivity. The dosimetric probe has special calibration in liquid at different frequency.

Model	EX3DV4	
Construction	Symmetrical design with triangular core. Built-in shielding against static charges. PEEK enclosure material (resistant to organic solvents, e.g., DGBE).	
Frequency	4 MHz – 10 GHz Linearity: ± 0.2 dB (30 MHz – 10 GHz)	
Directivity	± 0.1 dB in TSL (rotation around probe axis) ± 0.3 dB in TSL (rotation normal to probe axis)	
Dynamic Range	10 μ W/g – >100 mW/g Linearity: ± 0.2 dB (noise: typically <1 μ W/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	

5.2.3. Data Acquisition Electronics (DAE)

Model	DAE4	
Construction	Signal amplifier, multiplexer, A/D converter and control logic. Serial optical link for communication with DASY embedded system (fully remote controlled). Two step probe touch detector for mechanical surface detection and emergency robot stop.	
Measurement Range	-100 to +300 mV (16 bit resolution and two range settings: 4mV, 400mV)	
Input Offset Voltage	$< 5\mu$ V (with auto zero)	
Input Bias Current	< 50 fA	
Dimensions	60 x 60 x 68 mm	

5.2.4. Phantoms

Model	Twin SAM	
Construction	The shell corresponds to the specifications of the Specific Anthropomorphic Mannequin (SAM) phantom defined in IEC/IEEE 62209-1528. It enables the dosimetric evaluation of left and right hand phone usage as well as body-mounted usage at the flat phantom region. A cover prevents evaporation of the liquid. Reference markings on the phantom allow the complete setup of all predefined phantom positions and measurement grids by teaching three points with the robot.	
Material	Vinylester, glass fiber reinforced (VE-GF)	
Shell Thickness	2 ± 0.2 mm (6 ± 0.2 mm at ear point)	
Dimensions	Length: 1000 mm Width: 500 mm Height: adjustable feet	
Filling Volume	approx. 25 liters	

Model	ELI	
Construction	The ELI phantom is used for compliance testing of handheld and body-mounted wireless devices in the frequency range of 4 MHz to 10 GHz. ELI is fully compatible with the IEC/IEEE 62209-1528 standard and all known tissue simulating liquids. ELI has been optimized regarding its performance and can be integrated into our standard phantom tables. A cover prevents evaporation of the liquid. Reference markings on the phantom allow installation of the complete setup, including all predefined phantom positions and measurement grids, by teaching three points. The phantom is compatible with all of SPEAG's dosimetric probes and dipoles.	
Material	Vinylester, glass fiber reinforced (VE-GF)	
Shell Thickness	2.0 ± 0.2 mm (bottom plate)	
Dimensions	Major axis: 600 mm Minor axis: 400 mm	
Filling Volume	approx. 30 liters	

5.2.5. Device Holder

Model	Mounting Device	
Construction	In combination with the Twin SAM Phantom or ELI4, the Mounting Device enables the rotation of the mounted transmitter device in spherical coordinates. Rotation point is the ear opening point. Transmitter devices can be easily and accurately positioned according to IEC, IEEE, FCC or other specifications. The device holder can be locked for positioning at different phantom sections (left head, right head, flat).	
Material	POM	

Model	Laptop Extensions Kit	
Construction	Simple but effective and easy-to-use extension for Mounting Device that facilitates the testing of larger devices according to IEC 62209-1528 (e.g., laptops, cameras, etc.). It is lightweight and fits easily on the upper part of the Mounting Device in place of the phone positioner.	
Material	POM, Acrylic glass, Foam	

5.2.6. System Validation Dipoles

Model	D-Serial	
Construction	Symmetrical dipole with 1/4 balun. Enables measurement of feed point impedance with NWA. Matched for use near flat phantoms filled with tissue simulating solutions.	
Frequency	750 MHz to 5800 MHz	
Return Loss	> 20 dB	
Power Capability	> 100 W ($f < 1\text{GHz}$), > 40 W ($f > 1\text{GHz}$)	

5.2.7. Tissue Simulating Liquids

For SAR measurement of the field distribution inside the phantom, the phantom must be filled with homogeneous tissue simulating liquid to a depth of at least 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% are listed.

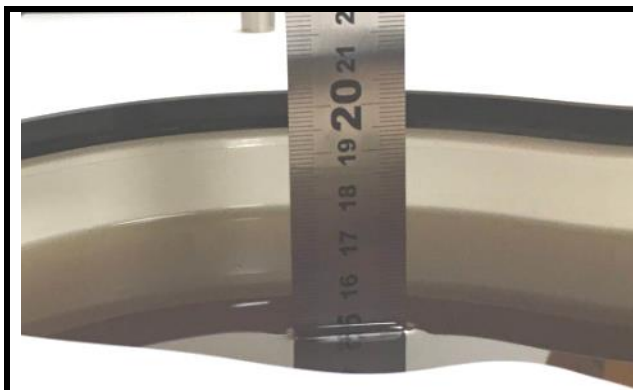


Photo of Liquid Height for Head Position

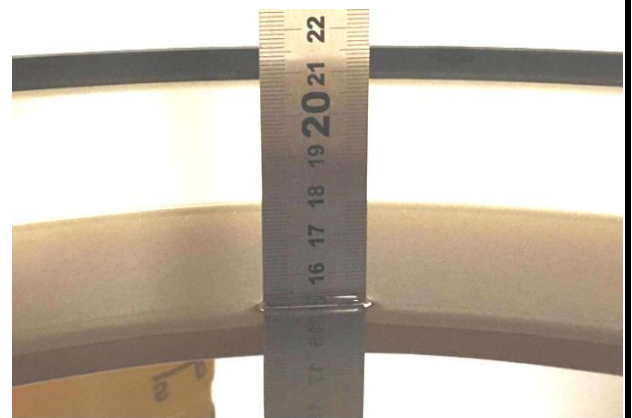


Photo of Liquid Height for Body Position

The dielectric properties of the head tissue simulating liquids are defined in IEEE 1528, and KDB 865664 D01 Appendix A. For the body tissue simulating liquids, the dielectric properties are defined in KDB 865664 D01 Appendix A. The dielectric properties of the tissue simulating liquids were verified prior to the SAR evaluation using a dielectric assessment kit and a network analyzer.

Targets of Tissue Simulating Liquid

Frequency (MHz)	Target Permittivity	Range of $\pm 5\%$	Target Conductivity	Range of $\pm 5\%$
For Head				
750	41.9	39.8 ~ 44.0	0.89	0.85 ~ 0.93
835	41.5	39.4 ~ 43.6	0.90	0.86 ~ 0.95
900	41.5	39.4 ~ 43.6	0.97	0.92 ~ 1.02
1450	40.5	38.5 ~ 42.5	1.20	1.14 ~ 1.26
1640	40.3	38.3 ~ 42.3	1.29	1.23 ~ 1.35
1750	40.1	38.1 ~ 42.1	1.37	1.30 ~ 1.44
1800	40.0	38.0 ~ 42.0	1.40	1.33 ~ 1.47
1900	40.0	38.0 ~ 42.0	1.40	1.33 ~ 1.47
2000	40.0	38.0 ~ 42.0	1.40	1.33 ~ 1.47
2300	39.5	37.5 ~ 41.5	1.67	1.59 ~ 1.75
2450	39.2	37.2 ~ 41.2	1.80	1.71 ~ 1.89
2600	39.0	37.1 ~ 41.0	1.96	1.86 ~ 2.06
3500	37.9	36.0 ~ 39.8	2.91	2.76 ~ 3.06
5200	36.0	34.2 ~ 37.8	4.66	4.43 ~ 4.89
5300	35.9	34.1 ~ 37.7	4.76	4.52 ~ 5.00
5500	35.6	33.8 ~ 37.4	4.96	4.71 ~ 5.21
5600	35.5	33.7 ~ 37.3	5.07	4.82 ~ 5.32
5800	35.3	33.5 ~ 37.1	5.27	5.01 ~ 5.53

The following table gives the recipes for tissue simulating liquids.

Recipes of Tissue Simulating Liquid

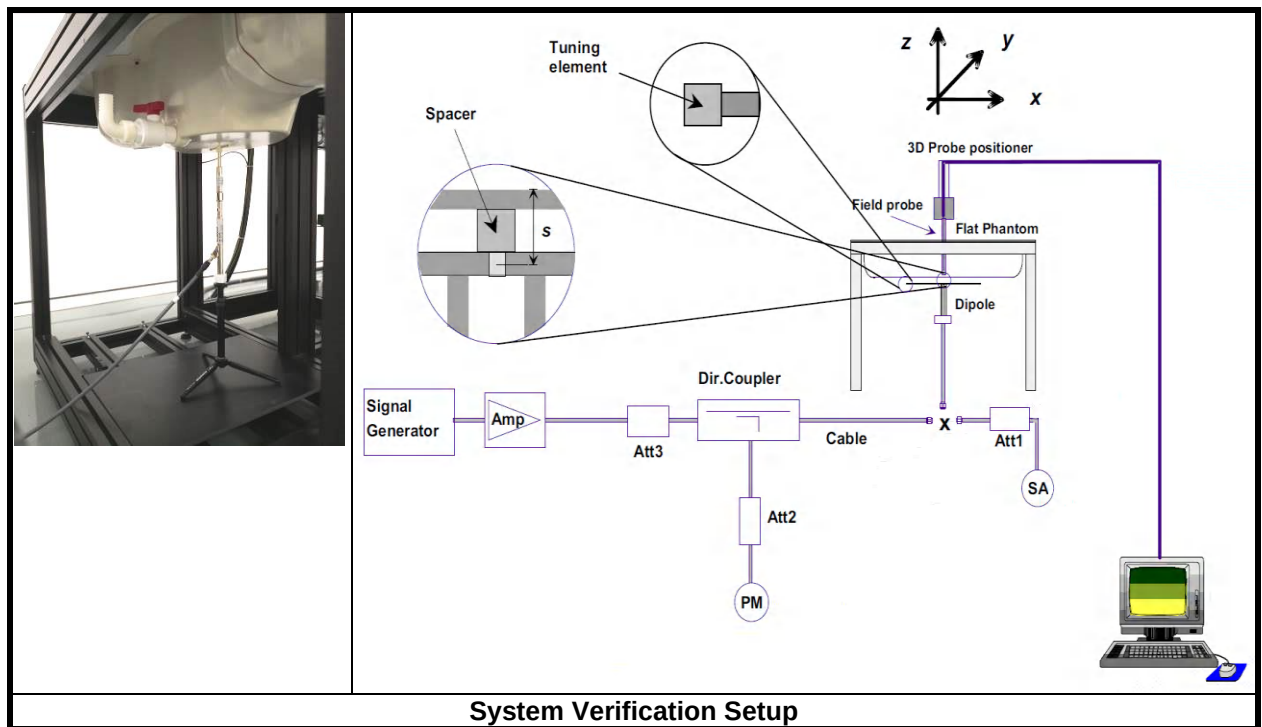
Tissue Type	Bactericide	DGBE	HEC	NaCl	Sucrose	Triton X-100	Water	Diethylene Glycol Mono-hexylether
H750	0.2	-	0.2	1.5	56.0	-	42.1	-
H835	0.2	-	0.2	1.5	57.0	-	41.1	-
H900	0.2	-	0.2	1.4	58.0	-	40.2	-
H1450	-	43.3	-	0.6	-	-	56.1	-
H1640	-	45.8	-	0.5	-	-	53.7	-
H1750	-	47.0	-	0.4	-	-	52.6	-
H1800	-	44.5	-	0.3	-	-	55.2	-
H1900	-	44.5	-	0.2	-	-	55.3	-
H2000	-	44.5	-	0.1	-	-	55.4	-
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	-
H5G	-	-	-	-	-	17.2	65.5	17.3

Simulating Head Liquid (HBBL600-6000MHz), Manufactured by SPEAG:

Water (% by weight)	Esters, Emulsifiers, Inhibitors (% by weight)	Sodium salt (% by weight)
50 - 65%	10 - 30%	8 - 25%

5.2.8.SAR System Verification

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.



The validation dipole is placed beneath the flat phantom with the specific spacer in place. The distance spacer is touch the phantom surface with a light pressure at the reference marking and be oriented parallel to the long side of the phantom. The spectrum analyzer measures the forward power at the location of the system check dipole connector. The signal generator is adjusted for the desired forward power (250 mW is used for 700 MHz to 3 GHz, 100 mW is used for 3.5 GHz to 6 GHz) at the dipole connector and the power meter is read at that level. After connecting the cable to the dipole, the signal generator is readjusted for the same reading at power meter.

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

6. SAR Measurement Procedure

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

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

The SAR measurement procedures for each of test conditions are as follows:

- (a) Make EUT to transmit maximum output power
- (b) Measure conducted output power through RF cable
- (c) Place the EUT in the specific position of phantom
- (d) Perform SAR testing steps on the DASY system
- (e) Record the SAR value

6.1. 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. According to KDB 865664 D01, the resolution for Area and Zoom scan is specified in the table below.

Items	<= 2 GHz	2-3 GHz	3-4 GHz	4-5 GHz	5-6 GHz
Area Scan ($\Delta x, \Delta y$)	<= 15 mm	<= 12 mm	<= 12 mm	<= 10 mm	<= 10 mm
Zoom Scan ($\Delta x, \Delta y$)	<= 8 mm	<= 5 mm	<= 5 mm	<= 4 mm	<= 4 mm
Zoom Scan (Δz)	<= 5 mm	<= 5 mm	<= 4 mm	<= 3 mm	<= 2 mm
Zoom Scan Volume	>= 30 mm	>= 30 mm	>= 28 mm	>= 25 mm	>= 22 mm

Note:

When zoom scan is required and report SAR is <= 1.4 W/kg, the zoom scan resolution of $\Delta x / \Delta y$ (2-3GHz: <= 8 mm, 3-4GHz: <= 7 mm, 4-6GHz: <= 5 mm) may be applied.

6.2. Volume Scan Procedure

The volume scan is used for assess overlapping SAR distributions for antennas transmitting in different frequency bands. It is equivalent to an oversized zoom scan used in standalone measurements. The measurement volume will be used to enclose all the simultaneous transmitting antennas. For antennas transmitting simultaneously in different frequency bands, the volume scan is measured separately in each frequency band. In order to sum correctly to compute the 1g aggregate SAR, the EUT remain in the same test position for all measurements and all volume scan use the same spatial resolution and grid spacing. When all volume scan were completed, the software, SEMCAD postprocessor can combine and subsequently superpose these measurement data to calculating the multiband SAR.

6.3. Power Drift Monitoring

All SAR testing is under the EUT install full charged battery and transmit maximum output power. In DASY measurement software, the power reference measurement and power drift measurement procedures are used for monitoring the power drift of EUT during SAR test. Both these procedures measure the field at a specified reference position before and after the SAR testing. The software will calculate the field difference in dB. If the power drift more than 5%, the SAR will be retested.

6.4. Spatial Peak SAR Evaluation

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

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

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

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

6.5. SAR Averaged Methods

In DASY, the interpolation and extrapolation are both based on the modified Quadratic Shepard's method. The interpolation scheme combines a least-square fitted function method and a weighted average method which are the two basic types of computational interpolation and approximation.

Extrapolation routines are used to obtain SAR values between the lowest measurement points and the inner phantom surface. The extrapolation distance is determined by the surface detection distance and the probe sensor offset. The uncertainty increases with the extrapolation distance. To keep the uncertainty within 1% for the 1 g and 10 g cubes, the extrapolation distance should not be larger than 5 mm.

7. SAR Measurement Evaluation

7.1. EUT Configuration and Setting

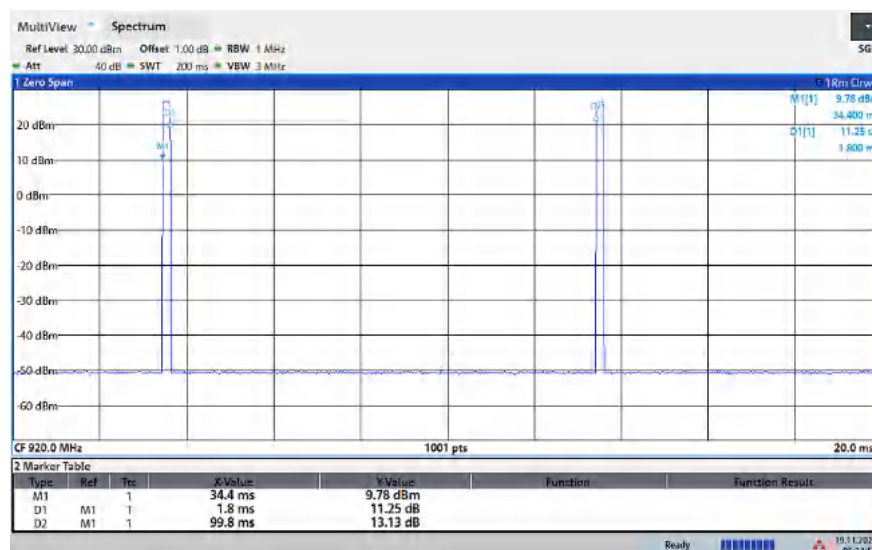
<Considerations Related to Bluetooth for Setup and Testing>

This device has installed Bluetooth engineering testing software which can provide continuous transmitting RF signal. During Bluetooth SAR testing, this device was operated to transmit continuously at the maximum transmission duty with specified transmission mode, operating frequency, lowest data rate, and maximum output power.

<Considerations Related to Lora for Setup and Testing>

This device has installed Lora engineering testing software which can provide continuous transmitting RF signal. During Lora SAR testing, this device was operated to transmit continuously at the maximum transmission duty with specified transmission mode, operating frequency, lowest data rate, and maximum output power.

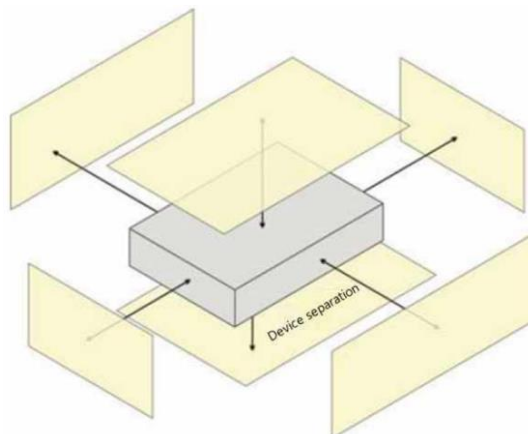
The software can achieve a 100% duty cycle, but the actual duty cycle used is 2%, so the SAR results scale to normal us



7.2.EUT Testing Position

7.2.1.Body Exposure Conditions

For this Devices, SAR evaluation is required on all sides and edges with a transmitting antenna within 25 mm from that surface or edge, at 0 mm separation from a flat phantom, for the data modes, wireless technologies and frequency bands supported by the device to determine SAR compliance.



7.3. Simultaneous Transmission Possibilities

The simultaneous transmission possibilities for this device are listed as below.

Simultaneous TX Combination	Capable Transmit Configurations	Body Exposure Condition
1	BT + Lora	Yes

7.4. Tissue Verification

The measuring results for tissue simulating liquid are shown as below.

Test Date	Tissue Type	Frequency (MHz)	Measured Conductivity (σ)	Measured Permittivity (ϵ_r)	Target Conductivity (σ)	Target Permittivity (ϵ_r)	Conductivity Deviation (%)	Permittivity Deviation (%)
Nov. 23, 2024	H900	900	0.948	41.088	0.97	41.50	-2.27	-0.99
		905	0.950	41.084	0.98	41.50	-2.56	-1.00
		912	0.953	41.079	0.98	41.50	-2.95	-1.01
		920	0.956	41.073	0.99	41.50	-3.53	-1.03
Nov. 30, 2024	H2450	2450	1.789	39.951	1.80	39.20	-0.61	1.92
		2402	1.746	39.934	1.76	39.29	-0.68	1.64
		2440	1.781	39.939	1.79	39.22	-0.56	1.83
		2480	1.811	39.926	1.83	39.16	-1.15	1.96

Note:

The dielectric properties of the tissue simulating liquid must be measured within 24 hours before the SAR testing and within $\pm 5\%$ of the target values. Liquid temperature during the SAR testing must be within ± 2 °C.

7.5. System Validation

The SAR measurement system was validated according to procedures in KDB 865664 D01. The validation status in tabulated summary is as below.

Test Date	Probe S/N	Calibration Point		Measured Conductivity (σ)	Measured Permittivity (ϵ_r)	Validation for CW			Validation for Modulation		
						Sensitivity Range	Probe Linearity	Probe Isotropy	Modulation Type	Duty Factor	PAR
Nov. 23, 2024	7738	Head	900	0.948	41.088	Pass	Pass	Pass	N/A	N/A	N/A
Nov. 30, 2024	7738	Head	2450	1.789	39.951	Pass	Pass	Pass	GFSK	N/A	Pass

7.6. System Verification

The measuring result for system verification is tabulated as below.

Test Date	Frequency (MHz)	1W Target SAR-1g (W/kg)	Measured SAR-1g (W/kg)	Normalized to 1W SAR-1g (W/kg)	Deviation (%)	Dipole S/N	Probe S/N	DAE S/N
Nov. 23, 2024	900	11.30	2.71	10.84	-4.07	1d200	7738	1557
Nov. 30, 2024	2450	53.40	12.70	50.80	-4.87	1014	7738	1557

Note:

Comparing to the reference SAR value provided by SPEAG, the validation data should be within its specification of 10 %. The result indicates the system check can meet the variation criterion and the plots can be referred to Appendix A of this report.

8. SAR Measurement Evaluation

8.1. Maximum Conducted Power

<Bluetooth>

Mode	Bluetooth LE 1M		
Channel / Frequency (MHz)	0 (2402)	19 (2440)	39 (2480)
Average Power	17.44	16.18	16.38

<Lora>

Mode	Lora		
Channel / Frequency (MHz)	1 (902.3)	2 (911.3)	3 (920)
Average Power	26.43	26.45	26.72

8.2. SAR Testing Results

8.2.1. SAR Test Reduction Considerations

<KDB 447498 D01, General RF Exposure Guidance>

Testing of other required channels within the operating mode of a frequency band is not required when the reported SAR for the mid-band or highest output power channel is:

- (1) ≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100 MHz
- (2) ≤ 0.6 W/kg or 1.5 W/kg, for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz
- (3) ≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz

8.2.2.SAR Results for Body Exposure Condition (Separation Distance is 0 cm Gap)

Plot No.	Band	Mode	Test Position	Separation Distance (cm)	Ch.	Fre.	Normal Duty Cycle	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR-1g (W/kg)	Scaled SAR-1g (W/kg)
1	BLE	1M	Front Face	0	0	2402	-	18.0	17.44	1.14	0.09	0.027	0.03
	BLE	1M	Rear Face	0	0	2402	-	18.0	17.44	1.14	0.08	0.769	0.87
	BLE	1M	Left Side	0	0	2402	-	18.0	17.44	1.14	0.03	0.034	0.04
	BLE	1M	Right Side	0	0	2402	-	18.0	17.44	1.14	0.04	0.071	0.08
	BLE	1M	Top Side	0	0	2402	-	18.0	17.44	1.14	0.05	0.026	0.03
	BLE	1M	Bottom Side	0	0	2402	-	18.0	17.44	1.14	0.12	0.028	0.03
	BLE	1M	Rear Face	0	19	2440	-	18.0	16.18	1.52	0.06	0.568	0.86
	BLE	1M	Rear Face	0	39	2480	-	18.0	16.38	1.45	0.08	0.542	0.79
2	Lora	-	Front Face	0	3	920	2%	27.0	26.72	1.07	-0.13	0.106	0.00
	Lora	-	Rear Face	0	3	920	2%	27.0	26.72	1.07	-0.18	3.47	0.07
	Lora	-	Left Side	0	3	920	2%	27.0	26.72	1.07	0.03	0.399	0.01
	Lora	-	Right Side	0	3	920	2%	27.0	26.72	1.07	0.06	0.28	0.01
	Lora	-	Top Side	0	3	920	2%	27.0	26.72	1.07	0.13	0.089	0.00
	Lora	-	Bottom Side	0	3	920	2%	27.0	26.72	1.07	0.06	0.476	0.01
	Lora	-	Rear Face	0	1	902.3	2%	27.0	26.43	1.14	0.08	3.18	0.07
	Lora	-	Rear Face	0	2	911.3	2%	27.0	26.45	1.14	0.06	3.22	0.07
	Lora	-	Rear Face	0	3	920	2%	27.0	26.72	1.07	0.02	3.38	0.07

8.2.3.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.

Band	Mode	Test Position	Ch.	Fre.	Original Measured SAR-1g (W/kg)	1st Repeated SAR-1g (W/kg)	L/S Ratio	2nd Repeated SAR-1g (W/kg)	L/S Ratio	3rd Repeated SAR-1g (W/kg)	L/S Ratio
Lora	-	Rear Face	3	920	3.47	3.38	1.03	N/A	N/A	N/A	N/A

8.2.4. Simultaneous Multi-band Transmission Evaluation**<Estimated SAR Calculation>**

According to KDB 447498 D01, when standalone SAR test exclusion applies to an antenna that transmits simultaneously with other antennas, the standalone SAR was estimated according to following formula to result in substantially conservative SAR values of ≤ 0.4 W/kg to determine simultaneous transmission SAR test exclusion.

$$\text{Estimated SAR} = \frac{\text{Max. Tune up Power}_{(\text{mW})}}{\text{Min. Test Separation Distance}_{(\text{mm})}} \times \frac{\sqrt{f_{(\text{GHz})}}}{7.5}$$

If the minimum test separation distance is < 5 mm, a distance of 5 mm is used for estimated SAR calculation. When the test separation distance is > 50 mm, the 0.4 W/kg is used for SAR-1g.

<SAR Summation Analysis>

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 SPLSR.

No.	Conditions (SAR1 + SAR2)	Exposure Condition	Test Position	Max. SAR1	Max. SAR2	SAR Summation	SPLSR Analysis
1	BT + Lora	Body	Front Face	0.03	0.00	0.03	Σ SAR < 1.6, Not required
			Rear Face	0.87	0.07	0.94	Σ SAR < 1.6, Not required
			Left Side	0.04	0.01	0.05	Σ SAR < 1.6, Not required
			Right Side	0.08	0.01	0.09	Σ SAR < 1.6, Not required
			Top Side	0.03	0.00	0.03	Σ SAR < 1.6, Not required
			Bottom Side	0.03	0.01	0.04	Σ SAR < 1.6, Not required

Test Engineer: Warren Xiong,

Appendixes

All attachments are integral parts of this test report. This applies especially to the following appendix:

Appendix A: SAR Plots of System Verification

The plots for system verification with largest deviation for each SAR system combination are shown as follows.

Appendix B: SAR Plots of SAR Measurement

The SAR plots for highest measured SAR in each exposure configuration, wireless mode and frequency band combination, and measured SAR > 1.5 W/kg are shown as follows.

Appendix C: Calibration Certificate for probe and Dipole

Appendix D: Photographs of EUT and setup

Test Laboratory: TÜV Rheinland (Shenzhen) Co., Ltd.

Date: 2024/11/23

System Check-D900V2_H900

DUT: Dipole 900 MHz D900V2 SN:1d200

Communication System: UID 0, CW; Frequency: 900 MHz; Duty Cycle: 1:1

Medium: H900 Medium parameters used: $f = 900 \text{ MHz}$; $\sigma = 0.948 \text{ S/m}$; $\epsilon_r = 41.088$; $\rho = 1000 \text{ kg/m}^3$

DASY5 Configuration:

- Probe: EX3DV4 - SN7738; ConvF(9.62, 9.62, 9.62) @ 900 MHz; Calibrated: 2023/12/13
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1557; Calibrated: 2024/10/8
- Phantom: SAM 1; Type: QD 000 P40 CB; Serial: 1961
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=250 mW/Area Scan (71x121x1): Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) = 3.58 W/kg

Pin=250 mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 65.08 V/m; Power Drift = -0.03 dB

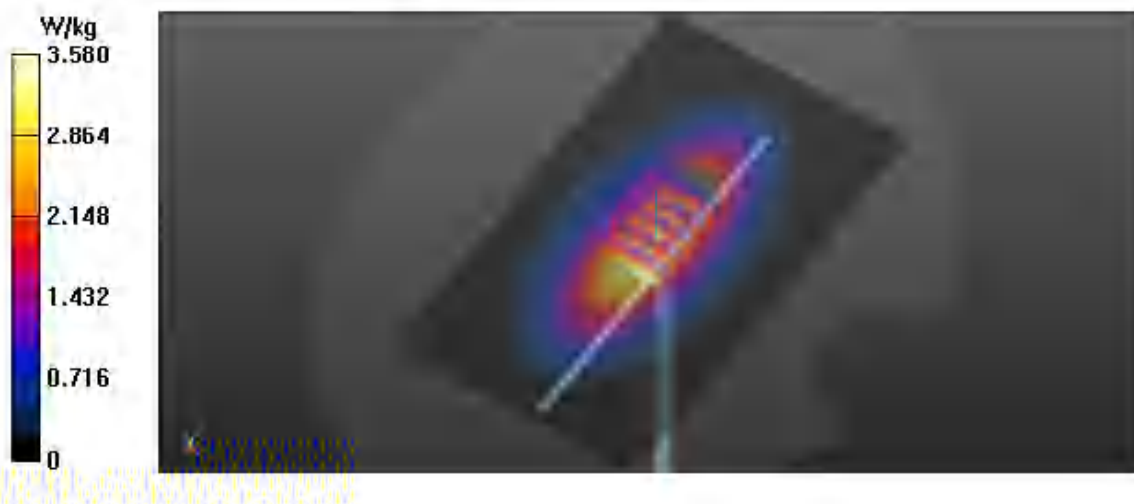
Peak SAR (extrapolated) = 4.12 W/kg

SAR(1 g) = 2.71 W/kg; SAR(10 g) = 1.76 W/kg

Smallest distance from peaks to all points 3 dB below = 16 mm

Ratio of SAR at M2 to SAR at M1 = 65.7%

Maximum value of SAR (measured) = 3.64 W/kg



Test Laboratory: TÜV Rheinland (Shenzhen) Co., Ltd.

Date: 2024/11/30

System Check-D2450V2_H2450

DUT: Dipole 2450 MHz D2450V2 SN:1014

Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1

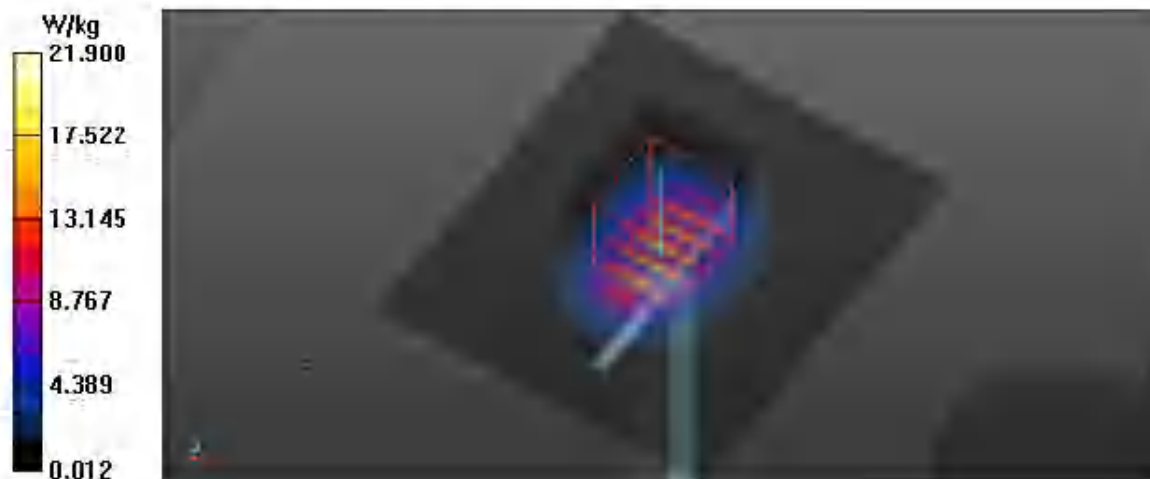
Medium: H2450 Medium parameters used: $f = 2450$ MHz; $\sigma = 1.789$ S/m; $\epsilon_r = 39.951$; $\rho = 1000$ kg/m³

DASY5 Configuration:

- Probe: EX3DV4 - SN7738; ConvF(7.6, 7.6, 7.6) @ 2450 MHz; Calibrated: 2023/12/13
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1557; Calibrated: 2024/10/8
- Phantom: SAM 1; Type: QD 000 P40 CB; Serial: 1961
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=250 mW/Area Scan (71x81x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 21.9 W/kg

Pin=250 mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 115.3 V/m; Power Drift = -0.17 dB
Peak SAR (extrapolated) = 26.4 W/kg
SAR(1 g) = 12.7 W/kg; SAR(10 g) = 5.88 W/kg
Smallest distance from peaks to all points 3 dB below = 9 mm
Ratio of SAR at M2 to SAR at M1 = 48%
Maximum value of SAR (measured) = 21.2 W/kg



Test Laboratory: TÜV Rheinland (Shenzhen) Co., Ltd.

Date: 2024/11/30

P01 BLE_1M_Rear Face_0cm_Ch0

DUT: EUI

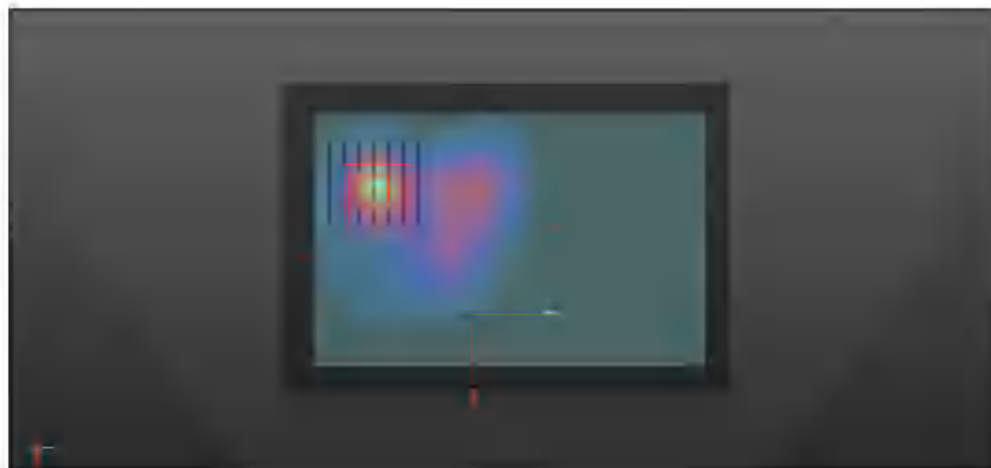
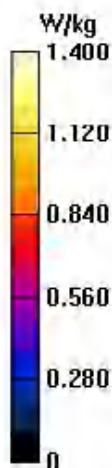
Communication System: UID 0, BT; Frequency: 2402 MHz; Duty Cycle: 1:1
Medium: H2450 Medium parameters used: $f = 2402 \text{ MHz}$; $\sigma = 1.746 \text{ S/m}$; $\epsilon_r = 39.934$; $\rho = 1000 \text{ kg/m}^3$

DASY5 Configuration:

- Probe: EX3DV4 - SN7738; ConvF(7.6, 7.6, 7.6) @ 2402 MHz; Calibrated: 2023/12/13
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1557; Calibrated: 2024/10/8
- Phantom: SAM 1; Type: QD 000 P40 CB; Serial: 1961
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

- **Area Scan (101x131x1):** Interpolated grid: $dx=1.200 \text{ mm}$, $dy=1.200 \text{ mm}$
Maximum value of SAR (interpolated) = 1.40 W/kg

- **Zoom Scan (7x7x7)/Cube 0:** Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$
Reference Value = 12.63 V/m ; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 2.09 W/kg
SAR(1 g) = 0.769 W/kg ; SAR(10 g) = 0.312 W/kg
Smallest distance from peaks to all points 3 dB below = 7 mm
Ratio of SAR at M2 to SAR at M1 = 36.8%
Maximum value of SAR (measured) = 1.54 W/kg



Test Laboratory: TÜV Rheinland (Shenzhen) Co., Ltd.

Date: 2024/11/23

P02_Lora_Rear Face_0cm_Ch3

DUT: EUT

Communication System: UID 0, Lora; Frequency: 920 MHz; Duty Cycle: 1:1

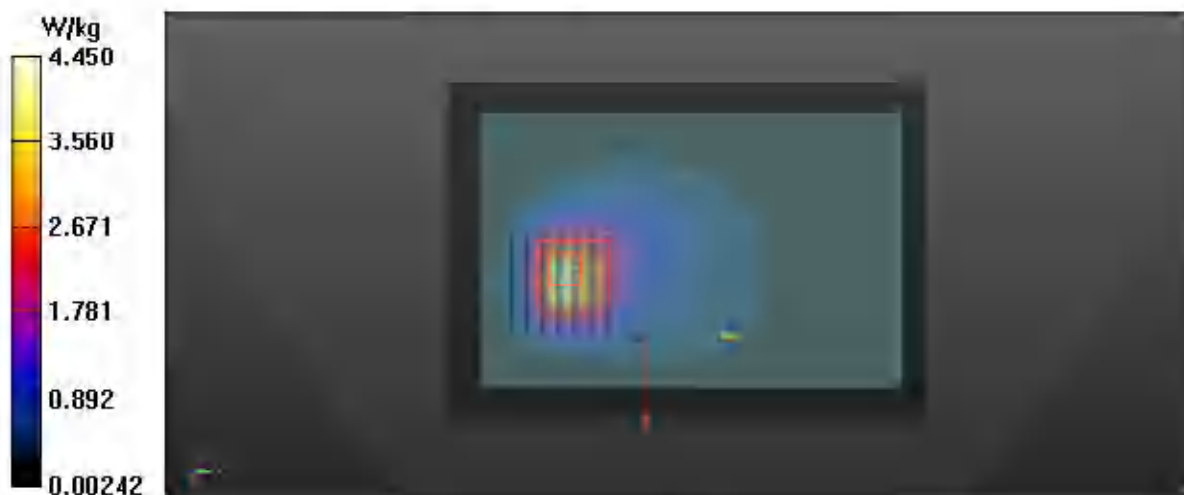
Medium: H900 Medium parameters used: $f = 920 \text{ MHz}$; $\sigma = 0.956 \text{ S/m}$; $\epsilon_r = 41.073$; $\rho = 1000 \text{ kg/m}^3$

DASY5 Configuration:

- Probe: ES3DV3 - SN7738; ConvF(9.62, 9.62, 9.62) @ 920 MHz; Calibrated: 2023/12/13
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1557; Calibrated: 2024/10/8
- Phantom: SAM 1; Type: QD 000 P40 CB; Serial: 1961
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

- **Area Scan (71x101x1)**: Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$
Maximum value of SAR (interpolated) = 4.45 W/kg

- **Zoom Scan (7x7x7)/Cube 0**: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$
Reference Value = 30.01 V/m; Power Drift = -0.18 dB
Peak SAR (extrapolated) = 13.7 W/kg
SAR(1 g) = 3.47 W/kg; SAR(10 g) = 1.51 W/kg
Smallest distance from peaks to all points 3 dB below = 10 mm
Ratio of SAR at M2 to SAR at M1 = 36.4%
Maximum value of SAR (measured) = 4.24 W/kg



**Calibration Laboratory of
Schmid & Partner
Engineering AG**
Zeughausstrasse 43, 8004 Zurich, Switzerland



S Schweizerischer Kalibrierdienst
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S Swiss Calibration Service

Accreditation No.: **SCS 0108**

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Multilateral Agreement for the recognition of calibration certificates

Client: **TUV**
Shenzhen

Certificate No. **D900V2-1d200_Jun24**

CALIBRATION CERTIFICATE

Object: **D900V2 - SN:1d200**

Calibration procedure(s): **QA CAL-05.v12**
Calibration Procedure for SAR Validation Sources between 0.7-3 GHz

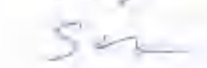
Calibration date: **June 07, 2024**

This calibration certificate documents the traceability to national standards, which realises 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 $(22 \pm 3)^{\circ}\text{C}$ and humidity $< 70\%$.

Calibration Equipment used (MATE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP2	SN: 104778	26-Mar-24 (No. 217-04036/04037)	Mar-25
Power sensor NRP-Z91	SN: 103244	26-Mar-24 (No. 217-04036)	Mar-25
Power sensor NRP-Z91	SN: 103245	26-Mar-24 (No. 217-04037)	Mar-25
Reference 20 dB Attenuator	SN: BH6394 (20K)	26-Mar-24 (No. 217-04046)	Mar-25
Type-N mismatch combination	SN: 310982 / 06327	26-Mar-24 (No. 217-04047)	Mar-25
Reference Probe EX3DV4	SN: 7349	03-Nov-23 (No. EX3-7349_Nov23)	Nov-24
DAE4	SN: 601	22-May-24 (No. DAE4-601_May24)	May-25
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: GB9512475	30-Oct-14 (in house check Oct-22)	In house check: Oct-24
Power sensor HP 8481A	SN: US37292783	07-Oct-15 (in house check Oct-22)	In house check: Oct-24
Power sensor HP 8481A	SN: MY41093316	07-Oct-15 (in house check Oct-22)	In house check: Oct-24
RF generator R&S SMT-06	SN: 100972	15-Jun-15 (in house check Oct-22)	In house check: Oct-24
Network Analyzer Agilent E8358A	SN: US41080477	31-Mar-14 (in house check Oct-22)	In house check: Oct-24

Calibrated by:	Name Leif Klyssner	Function Laboratory Technician	Signature 
Approved by:	Sven Kühn	Technical Manager	

Issued: June 7, 2024

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Glossary:

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

Calibration is Performed According to the Following Standards:

- 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-Worn Wireless Communication Devices - Part 1528: Human Models, Instrumentation And Procedures (Frequency Range of 4 MHz to 10 GHz)", October 2020.
- KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

- DASY 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%.

Measurement Conditions

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

DASY Version	DASY52	V52.10.4
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	15 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	900 MHz $\pm$ 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	41.5	0.97 mho/m
Measured Head TSL parameters	(22.0 $\pm$ 0.2) °C	42.0 $\pm$ 6 %	0.95 mho/m $\pm$ 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.77 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	11.3 W/kg $\pm$ 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.78 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	7.22 W/kg $\pm$ 16.5 % (k=2)

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	49.8 Ω - 1.1 j Ω
Return Loss	- 39.0 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.410 ns
----------------------------------	----------

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint 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 feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
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DASY5 Validation Report for Head TSL

Date: 07.06.2024

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 900 MHz; Type: D900V2; Serial: D900V2 - SN:1d200

Communication System: UID 0 - CW; Frequency: 900 MHz

Medium parameters used: $f = 900 \text{ MHz}$; $\sigma = 0.95 \text{ S/m}$; $\epsilon_r = 42$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(9.62, 9.62, 9.62) @ 900 MHz; Calibrated: 03.11.2023
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 22.05.2024
- Phantom: Flat Phantom 4.9 (front); Type: QD 00L P49 AA; Serial: 1001
- DASY52 52.10.4(1535); SEMCAD X 14.6.14(7501)

Dipole Calibration for Head Tissue/Pin=250 mW, d=15mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 66.26 V/m; Power Drift = 0.01 dB

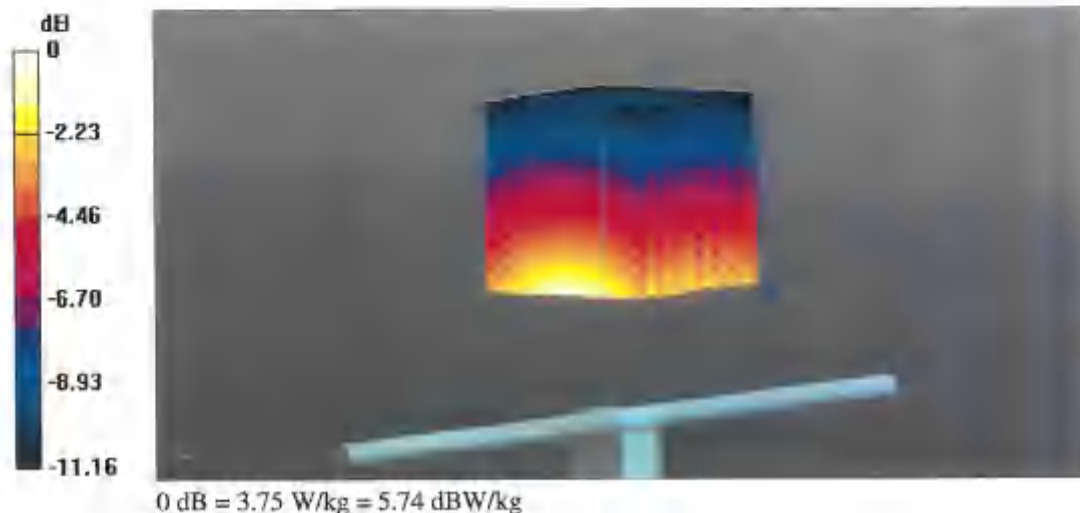
Peak SAR (extrapolated) = 4.26 W/kg

SAR(1 g) = 2.77 W/kg; SAR(10 g) = 1.78 W/kg

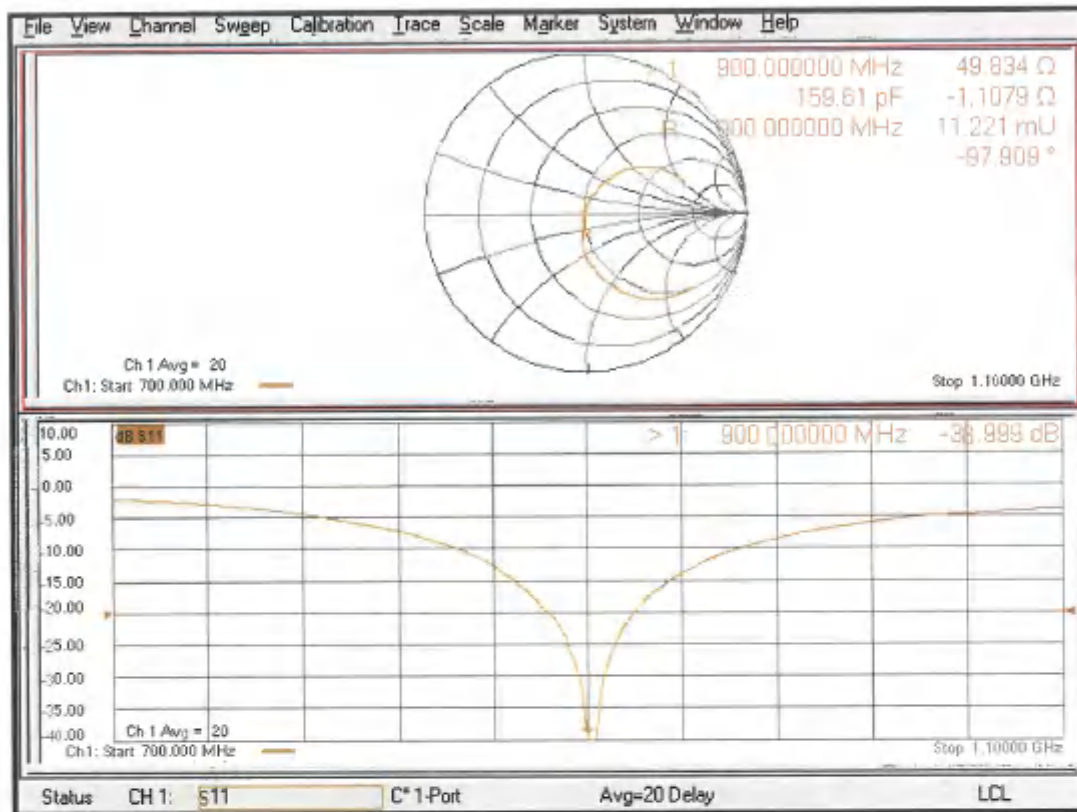
Smallest distance from peaks to all points 3 dB below = 16.3 mm

Ratio of SAR at M2 to SAR at M1 = 64.8%

Maximum value of SAR (measured) = 3.75 W/kg



Impedance Measurement Plot for Head TSL



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Accreditation No.: SCS 0108

Client TUV
Shenzhen

Certificate No. D2450V2-1014_Jun24

CALIBRATION CERTIFICATE

Object D2450V2 - SN:1014

Calibration procedure(s) QA CAL-05.v12
Calibration Procedure for SAR Validation Sources between 0.7-3 GHz

Calibration date: June 06, 2024

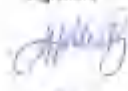
This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature $(22 \pm 3)^{\circ}\text{C}$ and humidity $< 70\%$.

Calibration Equipment used (M&E critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP2	SN: 104778	26-Mar-24 (No. 217-04036/04037)	Mar-25
Power sensor NRP-Z91	SN: 103244	26-Mar-24 (No. 217-04036)	Mar-25
Power sensor NRP-Z91	SN: 103245	26-Mar-24 (No. 217-04037)	Mar-25
Reference 20 dB Attenuator	SN: BH8394 (20k)	26-Mar-24 (No. 217-04046)	Mar-25
Type-N mismatch combination	SN: 310882 / 08327	26-Mar-24 (No. 217-04047)	Mar-25
Reference Probe EX30VA	SN: 7348	03-Nov-23 (No. EX3-7348_Nov23)	Nov-24
DAE4	SN: 601	22-May-24 (No. DAE4-601_May24)	May-25

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: GB39512475	30-Oct-14 (in house check Oct-22)	in house check: Oct-24
Power sensor HP 8481A	SN: US37292783	07-Oct-15 (in house check Oct-22)	in house check: Oct-24
Power sensor HP 8481A	SN: MV41093315	07-Oct-15 (in house check Oct-22)	in house check: Oct-24
RF generator R&S SMT-08	SN: 100872	15-Jun-15 (in house check Oct-22)	in house check: Oct-24
Network Analyzer Agilent E8358A	SN: USA1089477	31-Mar-14 (in house check Oct-22)	in house check: Oct-24

Calibrated by:	Name Jamina Uesthaj	Function Laboratory Technician	Signature 
Approved by:	Name Sven Kühn	Function Technical Manager	Signature 

Issued: June 7, 2024

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Accreditation No.: SCS 0108

Glossary:

TSL	issue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

- 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-Worn Wireless Communication Devices - Part 1528: Human Models, Instrumentation And Procedures (Frequency Range of 4 MHz to 10 GHz)", October 2020.
- KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

- DASY 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%.

Measurement Conditions

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

DASY Version	DASY52	V52.10.4
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	2450 MHz $\pm$ 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 $\pm$ 0.2) °C	38.0 $\pm$ 6 %	1.88 mho/m $\pm$ 6 %
Head TSL temperature change during test	< 0.5 °C	---	---

SAR result with Head TSL

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	13.7 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	53.4 W/kg $\pm$ 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	6.35 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	25.0 W/kg $\pm$ 16.5 % (k=2)

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	$54.1 \, \Omega + 0.5 \, j\Omega$
Return Loss	- 28.0 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.147 ns
----------------------------------	----------

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint 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 feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
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DASY5 Validation Report for Head TSL

Date: 06.06.2024

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:1014

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

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.88$ S/m; $\epsilon_r = 38.0$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(7.96, 7.96, 7.96) @ 2450 MHz; Calibrated: 03.11.2023
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 22.05.2024
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.10.4(1535); SEMCAD X 14.6.14(7501)

Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0;

Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 117.3 V/m; Power Drift = 0.09 dB

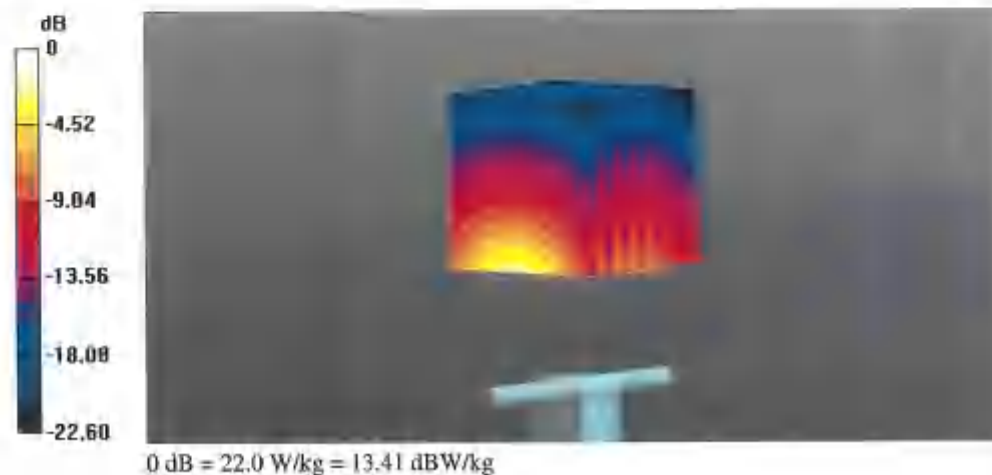
Peak SAR (extrapolated) = 27.4 W/kg

SAR(1 g) = 13.7 W/kg; SAR(10 g) = 6.35 W/kg

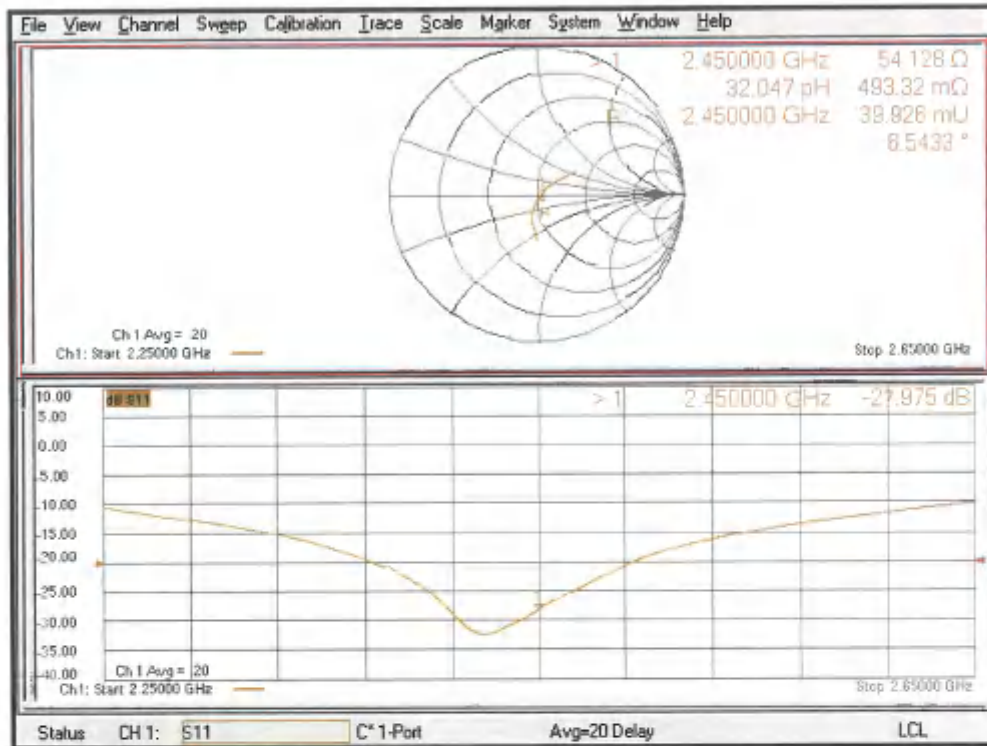
Smallest distance from peaks to all points 3 dB below = 9 mm

Ratio of SAR at M2 to SAR at M1 = 50.4%

Maximum value of SAR (measured) = 22.0 W/kg



Impedance Measurement Plot for Head TSL





in Collaboration with
TTLSPEAG
CALIBRATION LABORATORY

Add: No.52 Bin Yuan Bin Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62044613-2111
E-mail: emil@ttlspeag.cn <http://www.ttlspeag.cn>




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Client: CVC Testing Technology (Shenzhen) Co., Ltd. **Certificate No:** 23J02280159

CALIBRATION CERTIFICATE

Object: EX3DV4 - SM 17738

Calibration Procedure(s): FF-211-004-02
Calibration Procedures for Dosimetric E-field Probes

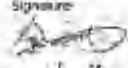
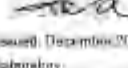
Calibration date: December 13, 2023

This calibration certificate documents the accuracy in national standards which realizes 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 an opened laboratory facility, environment temperature(23±3)°C and humidity<70%.

Calibration Equipment used (MSTE Global for Laboratory)

Primary Standards	ID #	Cal Date/Calibrated by/ Certificate No.	Scheduled Calibration
Power Meter: NRP-2	101616	12-Jun-23/CTTL No.J23X05435	Jun-24
Power sensor: NRP-Z91	101647	12-Jun-23/CTTL No.J23X05435	Jun-24
Power sensor: NRP-Z91	101648	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.EK-3846_May23	May-24
DAF4	SN 1595	24-Aug-23/SPEAG No.DAF4-1595_Aug23	Aug-24
Secondary Standards	ID #	Cal Date/Calibrated by/ Certificate No.	Scheduled Calibration
Signal Generator: MGJ100A	8201032805	12-Jun-23/CTTL No.J23X05434	Jun-24
Network Analyzer: E50/10	MY48110573	10-Jun-23/CTTL No.J23X00104	Jun-24
Reference: 10dBAttenuator	BT0520	11-May-23/CTTL No.J23X04061	May-25
Reference: 20dBAttenuator	BT1287	11-May-23/CTTL No.J23X04062	May-25
DCP: DAK3.5	SN 1040	15-Jan-23/SPEAG No.DCP-DAK3.5-1040_Jan23	Jan-24

	Name	Function	Signature
Calibrated by:	Yu Zongying	SAR Test Engineer	
Reviewed by:	Li Hui	SAR Test Engineer	
Approved by:	Qi Dianyu	SAR Project Manager	

Issued: December 20, 2023

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Add: 246-52 Nanjunbei Road, Nanhai District, Nanning, 530091, China
Tel: +86-771-6715405-0177
E-mail: info@ttical.com.cn <http://www.ttical.com.cn>



Glossary:

TSL	tissue simulating liquid
NORM _{x,y,z}	sensitivity in free space
ConvF	sensitivity in TSL / NORM _{x,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) $\theta=0$ is normal to probe axis

Connector Angle: Information used in DASYS system to align probe sensor X to the robot coordinate system

Calibration is Performed According to the Following Standards:

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

Methods Applied and Interpretation of Parameters:

- NORM_{x,y,z}**: Assessed for E-field polarization $\theta=0$ (fs800MHz in TEM-cell; >1600 MHz: waveguide). NORM_{x,y,z} are only intermediate values, i.e., the uncertainties of NORM_{x,y,z} does not effect the E^2 -field uncertainty inside TSL (see below ConvF).
- NORM(f)_{x,y,z} = NORM_{x,y,z} * frequency_response** (see Frequency Response Chart). This linearization is implemented in DASYS4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of ConvF.
- DCP_{x,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.
- A_{x,y,z}, B_{x,y,z}, C_{x,y,z}, VR_{x,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 fs800MHz) and inside waveguide using analytical field distributions based on power measurements for >800 MHz. 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 DASYS4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to NORM_{x,y,z} * ConvF whereby the uncertainty corresponds to that given for ConvF. A frequency dependent ConvF is used in DASYS version 4.4 and higher which allows extending the validity from 350MHz to ± 100 MHz.
- 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 NORM_x (no uncertainty required).



Add: No. 52 HuiYuanBei Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62944634-2111
Email: eml@gsa-lab.com <http://www.gsa-lab.com>



DASY/EASY – Parameters of Probe: EX3DV4 – SN: 7738

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm($\mu V/(V/m)^2$) ^a	0.48	0.60	0.54	$\pm 10.0\%$
GCP(mV) ^b	104.4	104.6	102.5	

Calibration Results for Modulation Response

UID	Communication System Name		A dB	B dB/ μV	C	D dB	VR mV	Max Dev.	Max Unc ^c (k=2)
0	CW	X	0.0	0.0	1.0	0.00	173.1	$\pm 2.1\%$	$\pm 4.7\%$
		Y	0.0	0.0	1.0		202.0		
		Z	0.0	0.0	1.0		185.8		
10352-AAA	Pulse Waveform (200Hz, 10%)	X	1.35	60.00	5.86		60	$\pm 2.7\%$	$\pm 9.8\%$
		Y	1.38	60.00	5.79	10.00	60		
		Z	1.36	60.00	6.79		60		
10353-AAA	Pulse Waveform (200Hz, 20%)	X	0.79	60.00	4.49		80	$\pm 2.6\%$	$\pm 9.8\%$
		Y	6.00	68.00	7.00	6.99	80		
		Z	16.00	74.00	9.00		80		
10354-AAA	Pulse Waveform (200Hz, 40%)	X	0.04	131.65	0.65		95	$\pm 2.4\%$	$\pm 9.6\%$
		Y	0.19	147.10	0.01	3.98	95		
		Z	0.45	126.11	2.21		95		
10355-AAA	Pulse Waveform (200Hz, 60%)	X	14.46	159.72	0.44		120	$\pm 1.8\%$	$\pm 9.6\%$
		Y	17.67	60.00	1.31	2.22	120		
		Z	3.37	159.80	5.70		120		
10387-AAA	QPSK Waveform, 1 MHz	X	0.50	63.43	11.72		150	$\pm 3.8\%$	$\pm 9.6\%$
		Y	0.83	70.16	15.72	1.00	150		
		Z	0.51	63.68	11.79		150		
10388-AAA	QPSK Waveform, 10 MHz	X	1.30	65.83	13.59		150	$\pm 1.9\%$	$\pm 9.6\%$
		Y	1.63	69.02	15.77	0.00	150		
		Z	1.32	65.90	13.71		150		
10396-AAA	64-QAM Waveform, 100 kHz	X	1.09	64.87	17.04		150	$\pm 2.6\%$	$\pm 9.6\%$
		Y	2.10	69.48	21.42	3.01	150		
		Z	1.91	67.33	19.53		150		
10414-AAA	WLAN CDDF, 64-QAM, 40MHz	X	3.88	66.54	15.52		150	$\pm 3.8\%$	$\pm 9.8\%$
		Y	4.10	67.14	16.10	0.00	150		
		Z	3.92	66.59	15.62		150		

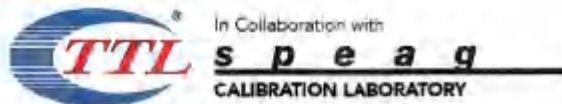
Note: For details on UID parameters see Appendix.

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-field uncertainty inside TSL (see Page 5).

^b Numerical linearization parameter; uncertainty not required.

^c Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.



Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2117
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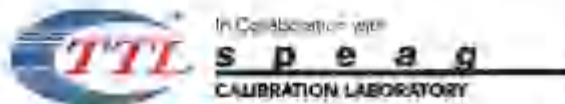
DASY/EASY – Parameters of Probe: EX3DV4 – SN: 7738

Sensor Model Parameters

	C1 fF	C2 fF	α V^{-1}	T1 ms. V^{-2}	T2 ms. V^{-1}	T3 ms	T4 V^{-2}	T5 V^{-1}	T6
X	9.34	68.72	34.45	2.71	0.00	4.90	0.00	0.02	1.01
Y	10.42	77.35	35.13	2.52	0.00	4.90	0.00	0.00	1.03
Z	9.62	71.94	35.46	1.37	0.00	4.90	0.00	0.00	1.03

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	123.2
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



Agg. No. 22 HefuyuanBei Road, Haidian District, Beijing, 100081, China
Tel: +86-10-62504633-2111
Email: info@speag.com <http://www.speag.com>



DASY/EASY – Parameters of Probe: EX3DV4 – SN:7738

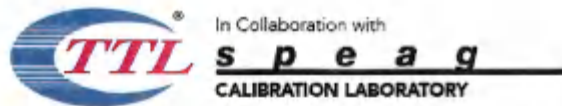
Calibration Parameter Determined in Head Tissue Simulating Media

f [MHz] ^c	Relative Permittivity ^f	Conductivity (S/m) ^f	ConvF X	ConvF Y	ConvF Z	Alpha ^d	Depth ^g (mm)	Unc. (k=2)
750	41.9	0.89	10.01	10.01	10.01	0.14	1.28	±12.7%
875	41.6	0.90	9.62	9.62	9.62	0.15	1.34	±12.7%
1750	40.1	1.37	8.35	8.35	8.35	0.21	1.07	±12.7%
1900	40.0	1.40	8.00	8.00	8.00	0.24	1.06	±12.7%
2300	39.5	1.67	7.85	7.85	7.85	0.56	0.72	±12.7%
2450	39.2	1.80	7.60	7.60	7.60	0.62	0.69	±12.7%
2600	39.0	1.96	7.42	7.42	7.42	0.65	0.67	±12.7%
3300	38.2	2.71	7.03	7.03	7.03	0.40	0.96	±13.9%
3500	37.9	2.91	6.87	6.87	6.87	0.41	1.00	±13.9%
3700	37.7	3.12	6.70	6.70	6.70	0.40	1.03	±13.9%
3900	37.5	3.32	6.58	6.58	6.58	0.35	1.35	±13.9%
4100	37.2	3.53	6.52	6.52	6.52	0.40	1.15	±13.9%
4400	36.9	3.84	6.34	6.34	6.34	0.35	1.35	±13.9%
4600	36.7	4.04	6.28	6.28	6.28	0.45	1.20	±13.9%
4800	36.4	4.25	6.21	6.21	6.21	0.40	1.40	±13.9%
4950	36.3	4.40	6.00	6.00	6.00	0.40	1.38	±13.9%
5250	35.9	4.71	5.38	5.38	5.38	0.50	1.30	±13.9%
5500	35.8	4.96	4.75	4.75	4.75	0.45	1.35	±13.9%
5600	35.5	5.07	4.65	4.65	4.65	0.55	1.15	±13.9%
5800	35.3	5.27	4.74	4.74	4.74	0.55	1.15	±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, 160 and 220 MHz respectively. Above 5 GHz frequency validity can be extended to ±110 MHz.

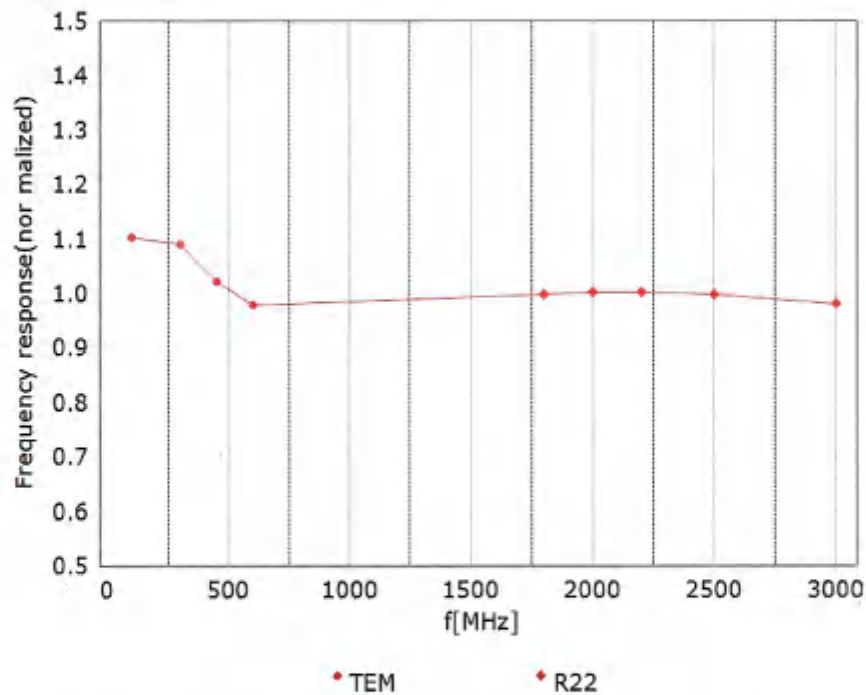
^f At frequency up to 6 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ±10% if liquid compensation formula is applied to measured S₁₁ values. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

^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.

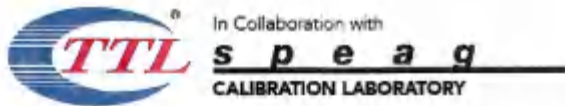


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Frequency Response of E-Field (TEM-Cell: ifi110 EXX, Waveguide: R22)



Uncertainty of Frequency Response of E-field: $\pm 7.4\%$ ($k=2$)

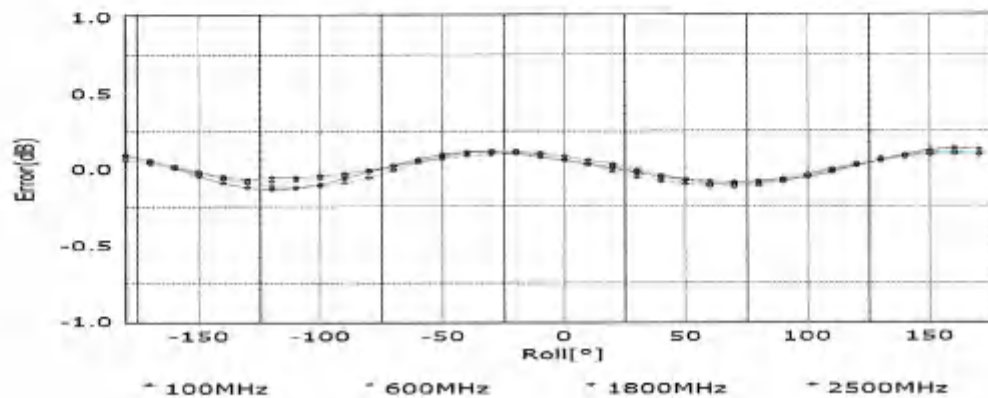
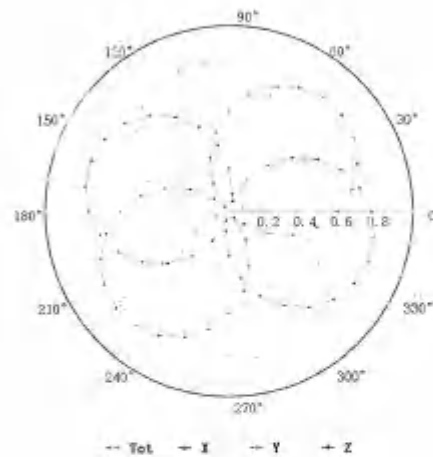
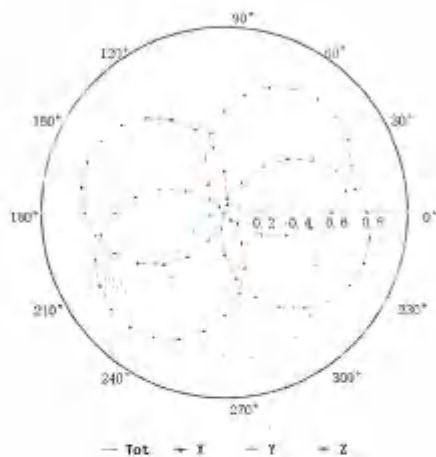


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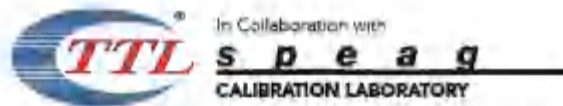
Receiving Pattern (Φ), $\theta=0^\circ$

f=600 MHz, TEM

f=1800 MHz, R22



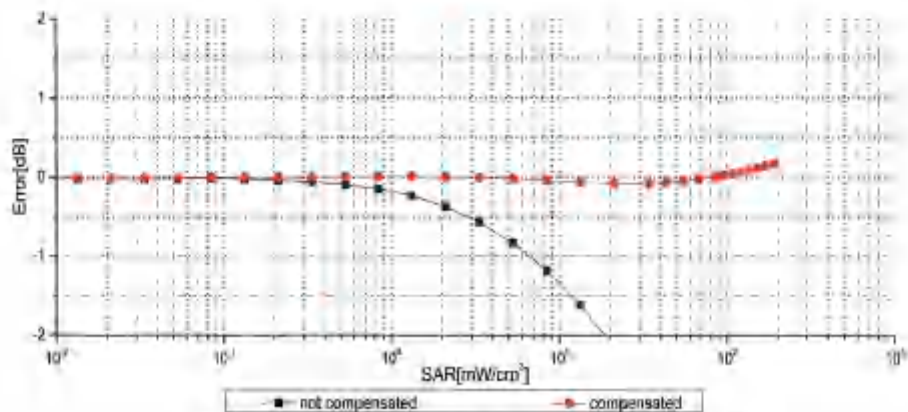
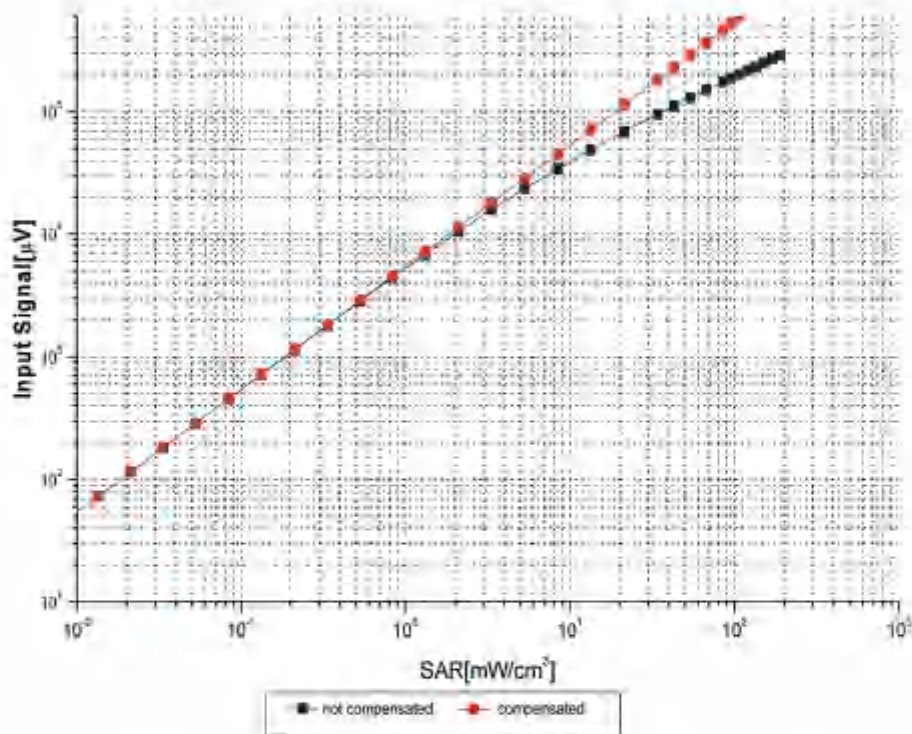
Uncertainty of Axial Isotropy Assessment: $\pm 1.2\%$ ($k=2$)



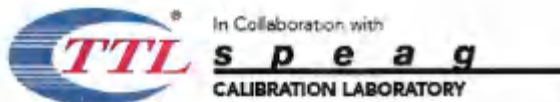
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Dynamic Range $f(\text{SAR}_{\text{head}})$ (TEM cell, $f = 900 \text{ MHz}$)



Uncertainty of Linearity Assessment: $\pm 0.9\%$ ($k=2$)



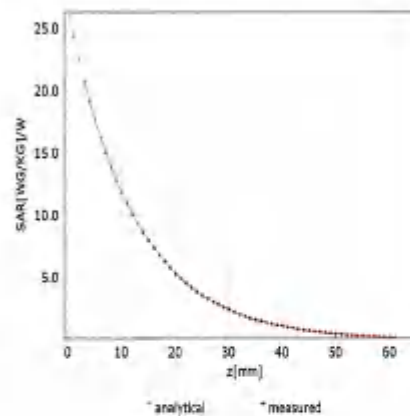
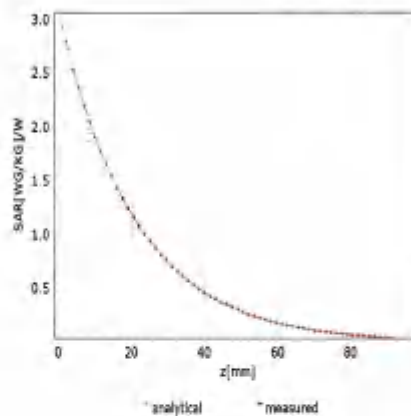
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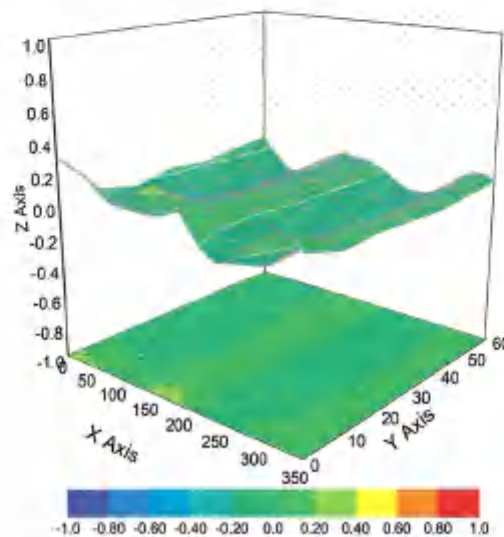
Conversion Factor Assessment

$f=750\text{ MHz}$, WGLS R9(H_convF)

$f=1750\text{ MHz}$, WGLS R22(H_convF)



Deviation from Isotropy in Liquid



Uncertainty of Spherical Isotropy Assessment: $\pm 3.2\%$ ($k=2$)

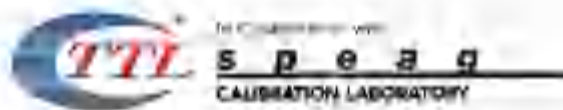


Add: 160,52 Rue Principale, Reims, Marne la Vallée, France
Tel: +33 (0)32154433-2117
E-mail: info@ttml.fr
http://www.ttml.fr



Appendix: Modulation Calibration Parameters

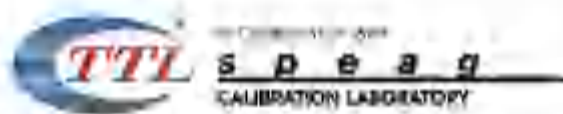
UID	Rev	Communication System Name	Group	PAR (dB)	Unc. (k=2)
0		CW	CW	0.00	±4.7 %
10010	CAB	SAR Validation (Square, 10ms, 1ms)	Test	10.00	±0.0 %
10011	CAB	UMTS-FDD (WCDMA)	WCDMA	2.91	±0.6 %
10012	CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps)	WLAN	1.67	±0.6 %
10013	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 5 Mbps)	WLAN	2.46	±0.6 %
10021	DAC	GSM-FDD (TDMA, GMSK, TN 0-1)	GSM	8.08	±0.6 %
10022	DAC	GPRS-FDD (TDMA, GMSK, TN 0-1)	GSM	8.97	±0.6 %
10024	DAC	GPRS-FDD (TDMA, GMSK, TN 0-1)	GSM	6.98	±0.6 %
10025	DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1)	GSM	12.62	±0.6 %
10026	DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1)	GSM	9.56	±0.6 %
10027	DAC	GPRS-FDD (TDMA, GMSK, TN 0-1-2)	GSM	6.80	±0.6 %
10028	DAC	GPRS-FDD (TDMA, GMSK, TN 0-1-2-3)	GSM	3.58	±0.6 %
10029	DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1-2)	GSM	7.76	±0.6 %
10030	CAB	IEEE 802.15.1 Bluetooth (2FSK, DH1)	Bluetooth	5.08	±0.6 %
10031	CAB	IEEE 802.15.1 Bluetooth (GFSK, DH3)	Bluetooth	1.57	±0.6 %
10032	CAB	IEEE 802.15.1 Bluetooth (GFSK, DH5)	Bluetooth	1.16	±0.6 %
10033	CAB	IEEE 802.15.1 Bluetooth (Pi/4-QPSK, DH1)	Bluetooth	7.74	±0.6 %
10034	CAB	IEEE 802.15.1 Bluetooth (Pi/4-QPSK, DH3)	Bluetooth	4.53	±0.6 %
10035	CAB	IEEE 802.15.1 Bluetooth (Pi/4-QPSK, DH5)	Bluetooth	9.83	±0.6 %
10036	CAB	IEEE 802.15.1 Bluetooth (8-PSK, DH1)	Bluetooth	5.01	±0.6 %
10037	CAB	IEEE 802.15.1 Bluetooth (8-PSK, DH3)	Bluetooth	4.77	±0.6 %
10038	CAB	IEEE 802.15.1 Bluetooth (8-PSK, DH5)	Bluetooth	4.10	±0.6 %
10039	CAB	CDMA2000 (1XRTT, RC1)	CDMA2000	4.97	±0.6 %
10042	CAB	IS-54 / IS-136 FDD (TDMA/FDM, Pi/4-QPSK, Fullrate)	AMPS	7.78	±0.6 %
10044	CAB	IS-81/ETIA-551 FDD (FDMA, FM)	AMPS	0.00	±0.6 %
10046	CAB	DECT (TDD, TDMA/FDM, GFSK, Full Slot, 24)	DECT	13.80	±0.6 %
10049	CAB	DECT (TDD, TDMA/FDM, GFSK, Double Slot, 12)	DECT	10.79	±0.6 %
10056	CAB	UMTS-FDD (TD-SCDMA, 1.26 Mbps)	TD-SCDMA	11.01	±0.6 %
10060	DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1-2-3)	GSM	3.52	±0.6 %
10064	CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps)	WLAN	2.12	±0.6 %
10066	CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps)	WLAN	2.83	±0.6 %
10067	CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps)	WLAN	3.60	±0.6 %
10068	CAB	IEEE 802.11a/n WiFi 5 GHz (OFDM, 6 Mbps)	WLAN	6.66	±0.6 %
10069	CAB	IEEE 802.11a/n WiFi 5 GHz (OFDM, 9 Mbps)	WLAN	9.88	±0.6 %
10070	CAB	IEEE 802.11a/n WiFi 5 GHz (OFDM, 12 Mbps)	WLAN	9.69	±0.6 %
10071	CAB	IEEE 802.11a/n WiFi 5 GHz (OFDM, 18 Mbps)	WLAN	9.00	±0.6 %
10072	CAB	IEEE 802.11a/n WiFi 5 GHz (OFDM, 24 Mbps)	WLAN	8.88	±0.6 %
10073	CAB	IEEE 802.11a/n WiFi 5 GHz (OFDM, 36 Mbps)	WLAN	10.12	±0.6 %
10074	CAB	IEEE 802.11a/n WiFi 5 GHz (OFDM, 48 Mbps)	WLAN	10.31	±0.6 %
10075	CAB	IEEE 802.11a/n WiFi 5 GHz (OFDM, 54 Mbps)	WLAN	10.56	±0.6 %
10076	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 9 Mbps)	WLAN	9.63	±0.6 %
10077	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 12 Mbps)	WLAN	9.82	±0.6 %
10078	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 18 Mbps)	WLAN	9.94	±0.6 %
10079	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 24 Mbps)	WLAN	10.40	±0.6 %
10080	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 36 Mbps)	WLAN	10.77	±0.6 %
10081	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 48 Mbps)	WLAN	10.94	±0.6 %
10082	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 54 Mbps)	WLAN	11.00	±0.6 %
10083	CAB	CDMA2000 (1XRTT, RC3)	CDMA2000	3.97	±0.6 %
10084	CAB	IS-54 / IS-136 FDD (TDMA/FDM, Pi/4-QPSK, Fullrate)	AMPS	4.77	±0.6 %
10085	DAC	GPRS-FDD (TDMA, GMSK, TN 0-4)	GSM	8.56	±0.6 %
10086	CAC	UMTS-FDD (HSPA)	WCDMA	3.98	±0.6 %
10087	DAC	UMTS-FDD (HSPA, Subtest 2)	WCDMA	8.98	±0.6 %
10088	DAC	EDGE-FDD (TDMA, 8PSK, TN 0-4)	GSM	9.55	±0.6 %
10100	CAC	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 2FSK)	LTE-FDD	5.97	±0.6 %
10101	CAB	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	LTE-FDD	9.42	±0.6 %



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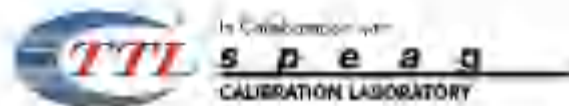
10100	CAG	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	LTE-FDD	8.14	+0.6%
10101	CAG	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	LTE-FDD	8.29	+0.6%
10104	CAE	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	LTE-TDD	8.81	+0.6%
10105	CAE	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	LTE-TDD	10.91	+0.6%
10108	CAE	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	LTE-FDD	7.40	+0.6%
10109	CAG	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)	LTE-FDD	6.43	+0.6%
10110	CAG	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, QPSK)	LTE-FDD	5.76	+0.6%
10111	CAG	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)	LTE-FDD	6.34	+0.6%
10112	CAG	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	LTE-FDD	7.79	+0.6%
10113	CAG	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	LTE-FDD	6.02	+0.6%
10114	CAG	IEEE 802.11n (HT Greenfield, 15 Mbps, QPSK)	WLAN	8.70	+0.6%
10115	CAG	IEEE 802.11n (HT Greenfield, 81 Mbps, 16-QAM)	WLAN	8.46	+0.6%
10116	CAG	IEEE 802.11n (HT Greenfield, 155 Mbps, 64-QAM)	WLAN	8.75	+0.6%
10117	CAG	IEEE 802.11n (HT MIMO, 15.5 Mbps, BPSK)	WLAN	8.07	+0.6%
10118	CAG	IEEE 802.11n (HT MIMO, 81 Mbps, 16-QAM)	WLAN	8.79	+0.6%
10119	CAG	IEEE 802.11n (HT MIMO, 155 Mbps, 64-QAM)	WLAN	8.75	+0.6%
10140	CAG	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)	LTE-FDD	6.49	+0.6%
10141	CAG	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)	LTE-FDD	8.53	+0.6%
10142	CAG	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, QPSK)	LTE-FDD	5.77	+0.6%
10143	CAG	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)	LTE-FDD	6.35	+0.6%
10144	CAG	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	LTE-FDD	6.85	+0.6%
10145	CAG	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	LTE-FDD	5.78	+0.6%
10146	CAG	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)	LTE-FDD	6.41	+0.6%
10147	CAG	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)	LTE-FDD	6.72	+0.6%
10149	CAE	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)	LTE-FDD	6.42	+0.6%
10150	CAE	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)	LTE-FDD	8.60	+0.6%
10151	CAE	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	LTE-FDD	6.26	+0.6%
10152	CAE	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)	LTE-TDD	8.92	+0.6%
10153	CAE	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)	LTE-TDD	10.05	+0.6%
10154	CAE	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	LTE-FDD	5.75	+0.6%
10155	CAE	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)	LTE-FDD	6.47	+0.6%
10156	CAE	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)	LTE-FDD	6.75	+0.6%
10157	CAG	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)	LTE-FDD	6.49	+0.6%
10158	CAE	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)	LTE-FDD	6.62	+0.6%
10159	CAG	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)	LTE-FDD	6.36	+0.6%
10160	CAG	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, QPSK)	LTE-FDD	5.62	+0.6%
10161	CAG	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)	LTE-FDD	6.13	+0.6%
10162	CAG	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)	LTE-FDD	6.56	+0.6%
10163	CAG	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)	LTE-FDD	5.45	+0.6%
10164	CAG	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)	LTE-FDD	6.21	+0.6%
10165	CAG	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)	LTE-FDD	6.78	+0.6%
10166	CAG	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	LTE-FDD	5.75	+0.6%
10170	CAG	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	LTE-FDD	6.52	+0.6%
10171	CAE	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	LTE-FDD	8.46	+0.6%
10172	CAE	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	LTE-FDD	8.21	+0.6%
10173	CAE	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	LTE-TDD	9.48	+0.6%
10174	CAE	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	LTE-TDD	10.24	+0.6%
10175	CAE	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	LTE-FDD	6.79	+0.6%
10176	CAE	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	LTE-FDD	6.52	+0.6%
10177	CAE	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, QPSK)	LTE-FDD	6.73	+0.6%
10178	CAE	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)	LTE-FDD	6.92	+0.6%
10179	CAE	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)	LTE-FDD	6.50	+0.6%
10180	CAG	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)	LTE-FDD	6.70	+0.6%
10181	CAG	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	LTE-FDD	5.77	+0.6%
10182	CAG	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)	LTE-FDD	6.50	+0.6%
10183	CAG	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)	LTE-FDD	6.50	+0.6%
10184	CAG	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, QPSK)	LTE-FDD	6.77	+0.6%
10185	CAE	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)	LTE-FDD	6.87	+0.6%
10186	CAG	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)	LTE-FDD	6.77	+0.6%



Address: 42, Chuangxin Road, Hengshui District, Hebei, 050151, China
Tel: +86-310-2304613-2115
E-mail: yuhua@ttnlab.com 100.1000000000000000



10187	CAG	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)	LTE-FDD	5.73	±0.6%
10188	CAG	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)	LTE-FDD	6.50	±0.6%
10189	CAG	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)	LTE-FDD	6.50	±0.6%
10190	CAG	IEEE 802.11n HT Greenfield, 6.5 Mbps, BPSK	WLAN	8.00	±0.6%
10191	CAG	IEEE 802.11n HT Greenfield, 15 Mbps, 16-QAM	WLAN	8.12	±0.6%
10192	CAG	IEEE 802.11n HT Greenfield, 30 Mbps, 64-QAM	WLAN	8.20	±0.6%
10193	CAG	IEEE 802.11n HT Mixed, 6.5 Mbps, BPSK	WLAN	8.10	±0.6%
10194	CAG	IEEE 802.11n HT Mixed, 15 Mbps, 16-QAM	WLAN	8.14	±0.6%
10195	CAG	IEEE 802.11n HT Mixed, 30 Mbps, 64-QAM	WLAN	8.27	±0.6%
10196	CAG	IEEE 802.11n HT Mixed, 60 Mbps, 256-QAM	WLAN	8.85	±0.6%
10210	CAG	IEEE 802.11n HT Mixed, 43.3 Mbps, 16-QAM	WLAN	8.10	±0.6%
10221	CAG	IEEE 802.11n HT Mixed, 72.2 Mbps, 64-QAM	WLAN	8.37	±0.6%
10222	CAG	IEEE 802.11n HT Mixed, 15 Mbps, BPSK	WLAN	8.00	±0.6%
10223	CAG	IEEE 802.11n HT Mixed, 30 Mbps, 16-QAM	WLAN	8.40	±0.6%
10224	CAG	IEEE 802.11n HT Mixed, 60 Mbps, 64-QAM	WLAN	8.85	±0.6%
10225	CAG	UMTS-FDD (HS-PA)	WCDMA	5.67	±0.6%
10226	CAG	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)	LTE-TDD	9.40	±0.6%
10227	CAG	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)	LTE-TDD	10.36	±0.6%
10228	CAG	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)	LTE-TDD	9.22	±0.6%
10229	CAG	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)	LTE-TDD	9.45	±0.6%
10230	CAG	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)	LTE-TDD	10.25	±0.6%
10231	CAG	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK)	LTE-TDD	9.10	±0.6%
10232	CAG	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)	LTE-TDD	9.45	±0.6%
10233	CAG	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)	LTE-TDD	10.25	±0.6%
10234	CAG	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK)	LTE-TDD	9.21	±0.6%
10235	CAG	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	LTE-TDD	9.45	±0.6%
10236	CAG	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)	LTE-TDD	10.25	±0.6%
10237	CAG	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	LTE-TDD	9.21	±0.6%
10238	CAG	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)	LTE-TDD	9.45	±0.6%
10239	CAG	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)	LTE-TDD	10.25	±0.6%
10240	CAG	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	LTE-TDD	9.21	±0.6%
10241	CAG	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)	LTE-TDD	9.42	±0.6%
10242	CAG	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)	LTE-TDD	9.65	±0.6%
10243	CAG	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)	LTE-TDD	9.45	±0.6%
10244	CAG	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)	LTE-TDD	10.05	±0.6%
10245	CAG	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)	LTE-TDD	10.06	±0.6%
10246	CAG	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK)	LTE-TDD	9.30	±0.6%
10247	CAG	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)	LTE-TDD	9.41	±0.6%
10248	CAG	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)	LTE-TDD	10.09	±0.6%
10249	CAG	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK)	LTE-TDD	9.20	±0.6%
10250	CAG	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)	LTE-TDD	9.51	±0.6%
10251	CAG	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)	LTE-TDD	10.11	±0.6%
10252	CAG	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	LTE-TDD	9.24	±0.6%
10253	CAG	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)	LTE-TDD	9.90	±0.6%
10254	CAG	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)	LTE-TDD	10.14	±0.6%
10255	CAG	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	LTE-TDD	9.20	±0.6%
10256	CAG	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)	LTE-TDD	9.95	±0.6%
10257	CAG	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)	LTE-TDD	10.05	±0.6%
10258	CAG	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	LTE-TDD	9.34	±0.6%
10259	CAG	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)	LTE-TDD	9.98	±0.6%
10260	CAG	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	LTE-TDD	9.97	±0.6%
10261	CAG	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK)	LTE-TDD	9.24	±0.6%
10262	CAG	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)	LTE-TDD	9.83	±0.6%
10263	CAG	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)	LTE-TDD	10.16	±0.6%
10264	CAG	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK)	LTE-TDD	9.23	±0.6%
10265	CAG	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)	LTE-TDD	9.80	±0.6%
10266	CAG	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)	LTE-TDD	10.07	±0.6%
10267	CAG	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	LTE-TDD	9.10	±0.6%
10268	CAG	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)	LTE-TDD	10.08	±0.6%



ADD No.23 HuaYuanfei Road, Huzhou Economic Building, 313001 China
Tel: +86-(0)572-86334117
E-Mail: cn24mu@ttnet.cn http://www.ttnet.cn



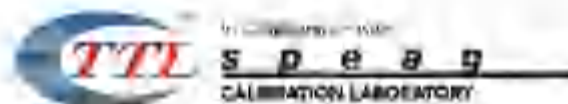
10268	CAB	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)	LTE-TDD	10.12	±0.5%
10270	CAB	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK)	LTE-TDD	9.58	±0.5%
10274	CAB	UMTS-FDD (HSUPA, Subtest 3, 3GPP Rel. 4)	WCDMA	4.57	±0.5%
10275	CAD	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel. 4)	WCDMA	3.98	±0.5%
10277	CAD	PHS (QPSK)	PHS	11.61	±0.5%
10278	CAD	PHS (QPSK, BW 884MHz, Radio E 6)	PHS	11.81	±0.5%
10279	CAG	PHS (QPSK, BW 884MHz, Radio E 38)	PHS	12.18	±0.5%
10280	CAG	CDMA2000, RC1, SQ55, Full Rate	CDMA2000	3.91	±0.5%
10291	CAG	CDMA2000, RC2, SQ55, Full Rate	CDMA2000	3.48	±0.5%
10292	CAG	CDMA2000, RC2, SQ32, Full Rate	CDMA2000	3.59	±0.5%
10293	CAG	CDMA2000, RC3, SQ3, Full Rate	CDMA2000	3.50	±0.5%
10295	CAG	CDMA2000, RC1, SQ2, 1/8th Rate (25.6)	CDMA2000	12.44	±0.5%
10297	CAG	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, QPSK)	LTE-FDD	5.51	±0.5%
10298	CAG	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, QPSK)	LTE-FDD	5.72	±0.5%
10299	CAG	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)	LTE-FDD	5.79	±0.5%
10300	CAG	LTE-FDD (SC-FDMA, 80% RB, 3 MHz, 64-QAM)	LTE-FDD	8.60	±0.5%
10301	CAG	IEEE 802.16e WIMAX (25.18, 5ms, 10MHz, QPSK, PUSC)	WIMAX	12.03	±0.5%
10302	CAB	IEEE 802.16e WIMAX (25.18, 5ms, 10MHz, QPSK, PUSC, 30CTRL)	WIMAX	11.57	±0.5%
10303	CAB	IEEE 802.16e WIMAX (25.18, 5ms, 10MHz, 64QAM, PUSC)	WIMAX	12.62	±0.5%
10304	CAB	IEEE 802.16e WIMAX (25.18, 5ms, 10MHz, 64QAM, PUSC)	WIMAX	11.86	±0.5%
10305	CAB	IEEE 802.16e WIMAX (25.18, 10ms, 10MHz, 64QAM, PUSC)	WIMAX	15.74	±0.5%
10306	CAB	IEEE 802.16e WIMAX (25.18, 10ms, 10MHz, 64QAM, PUSC)	WIMAX	18.57	±0.5%
10307	AAB	IEEE 802.16e WIMAX (25.18, 10ms, 10MHz, QPSK, PUSC)	WIMAX	14.48	±0.5%
10308	AAB	IEEE 802.16e WIMAX (25.18, 10ms, 10MHz, 16QAM, PUSC)	WIMAX	14.45	±0.5%
10309	AAB	IEEE 802.16e WIMAX (25.18, 10ms, 10MHz, 16QAM, AMC 2x3)	WIMAX	14.58	±0.5%
10310	AAB	IEEE 802.16e WIMAX (25.18, 10ms, 10MHz, QPSK, AMC 2x3)	WIMAX	14.57	±0.5%
10311	AAB	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, QPSK)	LTE-FDD	6.08	±0.5%
10312	AAD	IDEN 1.3	IDEN	10.51	±0.5%
10314	AAD	IDEN 1.5	IDEN	13.45	±0.5%
10315	AAD	IEEE 802.11b WiFi (2.4 GHz, DSSS, 1 Mbps, 99pc dc)	WLAN	1.11	±0.5%
10316	AAD	IEEE 802.11g WiFi (2.4 GHz, ERP-OFDM, 6 Mbps, 99pc dc)	WLAN	8.38	±0.5%
10317	AAA	IEEE 802.11a WiFi (5 GHz, OFDM, 6 Mbps, 99pc dc)	WLAN	8.28	±0.5%
10352	AAA	Pulse Waveform (200Hz, 10%)	Generic	10.00	±0.5%
10352	AAA	Pulse Waveform (200Hz, 20%)	Generic	5.99	±0.5%
10354	AAA	Pulse Waveform (200Hz, 40%)	Generic	3.98	±0.5%
10355	AAA	Pulse Waveform (200Hz, 60%)	Generic	2.99	±0.5%
10356	AAA	Pulse Waveform (200Hz, 80%)	Generic	0.97	±0.5%
10357	AAA	QPSK Waveform, 1 MHz	Generic	5.10	±0.5%
10358	AAA	QPSK Waveform, 10 MHz	Generic	5.22	±0.5%
10359	AAA	64-QAM Waveform, 100 kHz	Generic	6.27	±0.5%
10359	AAA	64-QAM Waveform, 40 MHz	Generic	6.27	±0.5%
10400	AAD	IEEE 802.11ac WiFi (5GHz, 64-QAM, 99pc dc)	WLAN	8.37	±0.5%
10401	AAA	IEEE 802.11ac WiFi (40MHz, 64-QAM, 99pc dc)	WLAN	8.60	±0.5%
10402	AAA	IEEE 802.11ac WiFi (80MHz, 64-QAM, 99pc dc)	WLAN	8.62	±0.5%
10403	AAB	CDMA2000, 1xEV-DO, Rev. 0	CDMA2000	3.76	±0.5%
10404	AAB	CDMA2000, 1xEV-DO, Rev. A	CDMA2000	3.77	±0.5%
10405	9AD	CDMA2000, RC3, SQ32, SCH0, Full Rate	CDMA2000	5.22	±0.5%
10410	AAA	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL SubCH 2, 4, 7, 8, 9)	LTE-TDD	7.82	±0.5%
10414	AAA	WLAN DCFE, 64-QAM, 40MHz	Generic	6.54	±0.5%
10415	AAA	IEEE 802.11b WiFi (2.4 GHz, DSSS, 1 Mbps, 99pc dc)	WLAN	1.14	±0.5%
10416	AAA	IEEE 802.11g WiFi (2.4 GHz, ERP-OFDM, 6 Mbps, 99pc dc)	WLAN	8.23	±0.5%
10417	AAA	IEEE 802.11a WiFi (5 GHz, OFDM, 6 Mbps, 99pc dc)	WLAN	8.23	±0.5%
10418	AAA	IEEE 802.11g WiFi (2.4 GHz, DSSS-OFDM, 6 Mbps, 99pc, Long)	WLAN	8.14	±0.5%
10419	AAA	IEEE 802.11g WiFi (2.4 GHz, DSSS-OFDM, 6 Mbps, 99pc, Short)	WLAN	6.18	±0.5%
10422	AAA	IEEE 802.11n HT Greenfield, 7.2 Mbps, BPSK	WLAN	8.32	±0.5%
10425	AAA	IEEE 802.11n HT Greenfield, 40.3 Mbps, 16-QAM	WLAN	8.47	±0.5%
10429	9AF	IEEE 802.11n HT Greenfield, 20.2 Mbps, 64-QAM	WLAN	8.40	±0.5%
10429	9AF	IEEE 802.11n HT Greenfield, 20.2 Mbps, 64-QAM	WLAN	8.41	±0.5%
10435	9AF	IEEE 802.11n HT Greenfield, 15 Mbps, BPSK	WLAN	8.41	±0.5%
10435	9AF	IEEE 802.11n HT Greenfield, 15 Mbps, BPSK	WLAN	8.45	±0.5%



Alt. No. 55 Huch/Vandier Road, Huch/Vandier, Houston, TX 77058, China
Tel: +86-65-6204632-2117
E-mail: info@ttnlab.com.cn http://www.ttnlab.com.cn



10427	AAE	IEEE 802.11n (HT Greenfield, 100 Mbps, 64-QAM)	WLAN	8.41	+0.8 %
10430	AAB	LTE-FDD (OFDMA, 5 MHz, E-TM 3.1)	LTE-FDD	8.28	+0.8 %
10431	AAC	LTE-FDD (OFDMA, 10 MHz, E-TM 3.1)	LTE-FDD	8.38	+0.8 %
10432	AAE	LTE-FDD (OFDMA, 15 MHz, E-TM 3.1)	LTE-FDD	8.34	+0.8 %
10433	AAC	LTE-FDD (OFDMA, 20 MHz, E-TM 3.1)	LTE-FDD	8.34	+0.8 %
10434	AAE	WCDMA (BS Test Model 1, 34 DPCS)	WCDMA	8.50	+0.8 %
10435	AAA	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Sub)	LTE-TDD	7.62	+0.8 %
10447	AAA	LTE-FDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%)	LTE-FDD	7.96	+0.8 %
10448	AAA	LTE-FDD (OFDMA, 10 MHz, E-TM 3.1, Clipping 44%)	LTE-FDD	7.63	+0.8 %
10449	AAC	LTE-FDD (OFDMA, 15 MHz, E-TM 3.1, Clipping 44%)	LTE-FDD	7.57	+0.8 %
10450	AAA	LTE-FDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%)	LTE-FDD	7.48	+0.8 %
10451	AAA	WCDMA (BS Test Model 1, 34 DPCS, Clipping 44%)	WCDMA	7.58	+0.8 %
10453	AAC	Validation (Square, 10ms, 1ms)	Test	17.08	+0.8 %
10459	AAC	IEEE 802.11ac VHT (160 MHz, 64-QAM, 896 dc)	WLAN	8.63	+0.8 %
10452	AAE	UMTS-FDD (FDD-SSB)	WCDMA	6.62	+0.8 %
10459	AAC	CDMA2000 (1xEV-DO, Rev. B, 2 carriers)	CDMA2000	6.45	+0.8 %
10459	AAC	CDMA2000 (1xEV-DO, Rev. B, 3 carriers)	CDMA2000	6.25	+0.8 %
10460	AAC	UMTS-FDD (WCDMA, AMR)	WCDMA	7.29	+0.8 %
10461	AAC	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK, UL Sub)	LTE-TDD	7.82	+0.8 %
10462	AAC	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM, UL Sub)	LTE-TDD	8.20	+0.8 %
10463	AAD	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM, UL Sub)	LTE-TDD	8.50	+0.8 %
10464	AAD	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK, UL Sub)	LTE-TDD	7.82	+0.8 %
10465	AAC	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM, UL Sub)	LTE-TDD	8.32	+0.8 %
10466	AAC	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM, UL Sub)	LTE-TDD	8.57	+0.8 %
10467	AAA	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Sub)	LTE-TDD	7.82	+0.8 %
10468	AAE	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM, UL Sub)	LTE-TDD	8.28	+0.8 %
10469	AAE	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM, UL Sub)	LTE-TDD	8.56	+0.8 %
10470	AAE	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Sub)	LTE-TDD	7.82	+0.8 %
10471	AAC	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM, UL Sub)	LTE-TDD	8.32	+0.8 %
10472	AAC	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM, UL Sub)	LTE-TDD	8.57	+0.8 %
10473	AAA	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK, UL Sub)	LTE-TDD	7.82	+0.8 %
10474	AAC	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM, UL Sub)	LTE-TDD	8.32	+0.8 %
10475	AAE	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM, UL Sub)	LTE-TDD	8.57	+0.8 %
10477	AAC	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM, UL Sub)	LTE-TDD	8.32	+0.8 %
10478	AAC	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM, UL Sub)	LTE-TDD	8.57	+0.8 %
10479	AAE	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK, UL Sub)	LTE-TDD	7.74	+0.8 %
10480	AAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM, UL Sub)	LTE-TDD	8.18	+0.8 %
10481	AAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM, UL Sub)	LTE-TDD	8.45	+0.8 %
10482	AAA	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK, UL Sub)	LTE-TDD	7.71	+0.8 %
10483	AAA	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM, UL Sub)	LTE-TDD	8.48	+0.8 %
10484	AAE	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM, UL Sub)	LTE-TDD	8.47	+0.8 %
10485	AAE	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK, UL Sub)	LTE-TDD	7.82	+0.8 %
10486	AAE	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM, UL Sub)	LTE-TDD	8.38	+0.8 %
10487	AAE	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM, UL Sub)	LTE-TDD	8.56	+0.8 %
10488	AAE	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK, UL Sub)	LTE-TDD	7.75	+0.8 %
10489	AAE	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM, UL Sub)	LTE-TDD	8.31	+0.8 %
10490	AAE	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM, UL Sub)	LTE-TDD	8.54	+0.8 %
10491	AAE	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK, UL Sub)	LTE-TDD	7.74	+0.8 %
10492	AAE	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM, UL Sub)	LTE-TDD	8.41	+0.8 %
10493	AAE	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM, UL Sub)	LTE-TDD	8.66	+0.8 %
10494	AAE	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK, UL Sub)	LTE-TDD	7.74	+0.8 %
10495	AAE	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM, UL Sub)	LTE-TDD	8.31	+0.8 %
10496	AAE	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM, UL Sub)	LTE-TDD	8.54	+0.8 %
10497	AAE	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK, UL Sub)	LTE-TDD	7.71	+0.8 %
10498	AAE	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM, UL Sub)	LTE-TDD	8.41	+0.8 %
10499	AAE	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM, UL Sub)	LTE-TDD	8.68	+0.8 %
10500	AAE	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK, UL Sub)	LTE-TDD	7.81	+0.8 %
10501	AAE	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM, UL Sub)	LTE-TDD	8.48	+0.8 %
10502	AAE	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM, UL Sub)	LTE-TDD	8.52	+0.8 %



Add: No. 57 Jia-Yuan Rd. East, Foshan City, Guangdong, 528000, China
Tel: +86 (0)75786353117
E-mail: ttt@ttical.com.cn info@ttical.com.cn



10503	AAB	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK, UL Sub)	LTE-TDD	7.72	±0.6%
10504	AAB	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM, UL Sub)	LTE-TDD	8.31	±0.6%
10505	AAC	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM, UL Sub)	LTE-TDD	8.14	±0.6%
10506	AAC	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK, UL Sub)	LTE-TDD	7.74	±0.6%
10507	AAC	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM, UL Sub)	LTE-TDD	8.36	±0.6%
10508	AAC	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM, UL Sub)	LTE-TDD	8.15	±0.6%
10509	AAF	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK, UL Sub)	LTE-TDD	7.89	±0.6%
10510	AAF	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM, UL Sub)	LTE-TDD	8.49	±0.6%
10511	AAF	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM, UL Sub)	LTE-TDD	8.51	±0.6%
10512	AAF	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK, UL Sub)	LTE-TDD	7.79	±0.6%
10513	AAF	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM, UL Sub)	LTE-TDD	8.42	±0.6%
10514	AAE	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM, UL Sub)	LTE-TDD	8.45	±0.6%
10515	AAE	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps, 99pc dc)	WLAN	1.56	±0.6%
10516	AAE	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps, 99pc dc)	WLAN	1.57	±0.6%
10517	AAF	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps, 99pc dc)	WLAN	1.59	±0.6%
10518	AAF	IEEE 802.11a/n WiFi 5 GHz (OFDM, 9 Mbps, 99pc dc)	WLAN	8.15	±0.6%
10519	AAF	IEEE 802.11a/n WiFi 5 GHz (OFDM, 12 Mbps, 99pc dc)	WLAN	8.30	±0.6%
10520	AAB	IEEE 802.11a/n WiFi 5 GHz (OFDM, 18 Mbps, 99pc dc)	WLAN	8.12	±0.6%
10521	AAB	IEEE 802.11a/n WiFi 5 GHz (OFDM, 24 Mbps, 99pc dc)	WLAN	7.77	±0.6%
10522	AAB	IEEE 802.11a/n WiFi 5 GHz (OFDM, 36 Mbps, 99pc dc)	WLAN	8.45	±0.6%
10523	AAC	IEEE 802.11a/n WiFi 5 GHz (OFDM, 48 Mbps, 99pc dc)	WLAN	8.06	±0.6%
10524	AAC	IEEE 802.11a/n WiFi 5 GHz (OFDM, 54 Mbps, 99pc dc)	WLAN	8.77	±0.6%
10526	AAC	IEEE 802.11ac WiFi (20MHz, MCS8, 99pc dc)	WLAN	8.38	±0.6%
10528	AAF	IEEE 802.11ac WiFi (20MHz, MCS9, 99pc dc)	WLAN	8.42	±0.6%
10527	AAF	IEEE 802.11ac WiFi (20MHz, MCS10, 99pc dc)	WLAN	8.21	±0.6%
10528	AAF	IEEE 802.11ac WiFi (20MHz, MCS11, 99pc dc)	WLAN	8.35	±0.6%
10529	AAF	IEEE 802.11ac WiFi (20MHz, MCS12, 99pc dc)	WLAN	8.36	±0.6%
10531	AAF	IEEE 802.11ac WiFi (20MHz, MCS13, 99pc dc)	WLAN	8.43	±0.6%
10532	AAF	IEEE 802.11ac WiFi (20MHz, MCS14, 99pc dc)	WLAN	8.10	±0.6%
10533	AAE	IEEE 802.11ac WiFi (20MHz, MCS15, 99pc dc)	WLAN	8.39	±0.6%
10534	AAE	IEEE 802.11ac WiFi (40MHz, MCS16, 99pc dc)	WLAN	8.45	±0.6%
10535	AAE	IEEE 802.11ac WiFi (40MHz, MCS17, 99pc dc)	WLAN	8.45	±0.6%
10536	AAF	IEEE 802.11ac WiFi (40MHz, MCS18, 99pc dc)	WLAN	8.32	±0.6%
10537	AAF	IEEE 802.11ac WiFi (40MHz, MCS19, 99pc dc)	WLAN	8.44	±0.6%
10538	AAF	IEEE 802.11ac WiFi (40MHz, MCS20, 99pc dc)	WLAN	8.54	±0.6%
10540	AAF	IEEE 802.11ac WiFi (40MHz, MCS21, 99pc dc)	WLAN	8.38	±0.6%
10541	AAA	IEEE 802.11ac WiFi (40MHz, MCS22, 99pc dc)	WLAN	8.45	±0.6%
10542	AAA	IEEE 802.11ac WiFi (40MHz, MCS23, 99pc dc)	WLAN	9.05	±0.6%
10543	AAC	IEEE 802.11ac WiFi (80MHz, MCS24, 99pc dc)	WLAN	8.05	±0.6%
10544	AAC	IEEE 802.11ac WiFi (80MHz, MCS25, 99pc dc)	WLAN	8.47	±0.6%
10545	AAC	IEEE 802.11ac WiFi (80MHz, MCS26, 99pc dc)	WLAN	8.56	±0.6%
10546	AAL	IEEE 802.11ac WiFi (80MHz, MCS27, 99pc dc)	WLAN	8.35	±0.6%
10547	AAC	IEEE 802.11ac WiFi (80MHz, MCS28, 99pc dc)	WLAN	8.48	±0.6%
10548	AAC	IEEE 802.11ac WiFi (80MHz, MCS29, 99pc dc)	WLAN	8.17	±0.6%
10550	AAC	IEEE 802.11ac WiFi (80MHz, MCS30, 99pc dc)	WLAN	8.36	±0.6%
10551	AAC	IEEE 802.11ac WiFi (80MHz, MCS31, 99pc dc)	WLAN	8.50	±0.6%
10552	AAC	IEEE 802.11ac WiFi (80MHz, MCS32, 99pc dc)	WLAN	8.42	±0.6%
10553	AAC	IEEE 802.11ac WiFi (80MHz, MCS33, 99pc dc)	WLAN	8.45	±0.6%
10554	AAC	IEEE 802.11ac WiFi (160MHz, MCS34, 99pc dc)	WLAN	8.48	±0.6%
10555	AAC	IEEE 802.11ac WiFi (160MHz, MCS35, 99pc dc)	WLAN	8.47	±0.6%
10556	AAC	IEEE 802.11ac WiFi (160MHz, MCS36, 99pc dc)	WLAN	8.50	±0.6%
10557	AAC	IEEE 802.11ac WiFi (160MHz, MCS37, 99pc dc)	WLAN	8.42	±0.6%
10558	AAC	IEEE 802.11ac WiFi (160MHz, MCS38, 99pc dc)	WLAN	8.45	±0.6%
10559	AAC	IEEE 802.11ac WiFi (160MHz, MCS39, 99pc dc)	WLAN	8.48	±0.6%
10560	AAC	IEEE 802.11ac WiFi (160MHz, MCS40, 99pc dc)	WLAN	8.72	±0.6%
10561	AAC	IEEE 802.11ac WiFi (160MHz, MCS41, 99pc dc)	WLAN	8.16	±0.6%
10562	AAC	IEEE 802.11ac WiFi (160MHz, MCS42, 99pc dc)	WLAN	8.85	±0.6%
10563	AAC	IEEE 802.11ac WiFi (160MHz, MCS43, 99pc dc)	WLAN	8.17	±0.6%
10564	AAC	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 9 Mbps, 99pc dc)	WLAN	8.25	±0.6%
10565	AAC	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12 Mbps, 99pc dc)	WLAN	8.48	±0.6%



Abd. No. 57 (1st) Phase Road, (Kumar District, Bangalore - 560192, India)
Tel: +91-81-42794623-2117
E-mail: info@ttlspeed.com | <http://www.ttlspeed.com>



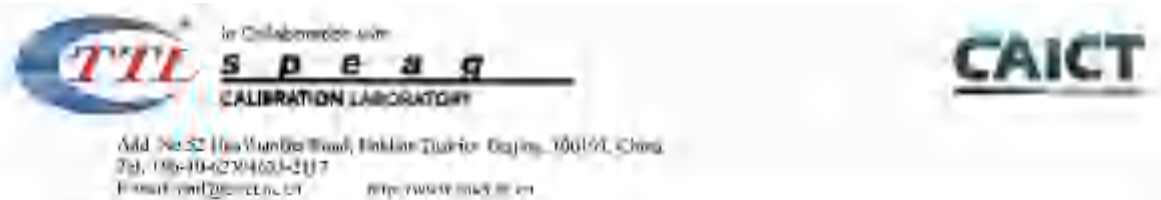
10560	AAC	IEEE 802.11g W/F 2.4 GHz (DSSS-OFDM), 18 Mbps, 80pc dc)	WLAN	8.17	+0.6 %
10561	AAC	IEEE 802.11g W/F 2.4 GHz (DSSS-OFDM), 18 Mbps, 80pc dc)	WLAN	8.00	+0.0 %
10565	AAC	IEEE 802.11g W/F 2.4 GHz (DSSS-OFDM), 18 Mbps, 80pc dc)	WLAN	8.23	+0.6 %
10566	AAC	IEEE 802.11g W/F 2.4 GHz (DSSS-OFDM), 18 Mbps, 80pc dc)	WLAN	8.10	+0.6 %
10570	AAC	IEEE 802.11g W/F 2.4 GHz (DSSS-OFDM), 18 Mbps, 80pc dc)	WLAN	8.30	+0.6 %
10571	AAC	IEEE 802.11g W/F 2.4 GHz (DSSS-OFDM), 18 Mbps, 80pc dc)	WLAN	8.50	+0.6 %
10572	AAC	IEEE 802.11g W/F 2.4 GHz (DSSS-OFDM), 18 Mbps, 80pc dc)	WLAN	8.60	+0.6 %
10573	AAC	IEEE 802.11g W/F 2.4 GHz (DSSS-OFDM), 18 Mbps, 80pc dc)	WLAN	8.68	+0.6 %
10574	AAC	IEEE 802.11g W/F 2.4 GHz (DSSS-OFDM), 18 Mbps, 80pc dc)	WLAN	8.69	+0.6 %
10575	AAC	IEEE 802.11g W/F 2.4 GHz (DSSS-OFDM), 18 Mbps, 80pc dc)	WLAN	8.60	+0.6 %
10576	AAC	IEEE 802.11g W/F 2.4 GHz (DSSS-OFDM), 18 Mbps, 80pc dc)	WLAN	8.60	+0.6 %
10577	AAC	IEEE 802.11g W/F 2.4 GHz (DSSS-OFDM), 18 Mbps, 80pc dc)	WLAN	8.70	+0.6 %
10578	AAC	IEEE 802.11g W/F 2.4 GHz (DSSS-OFDM), 18 Mbps, 80pc dc)	WLAN	8.40	+0.6 %
10579	AAC	IEEE 802.11g W/F 2.4 GHz (DSSS-OFDM), 18 Mbps, 80pc dc)	WLAN	8.26	+0.6 %
10580	AAC	IEEE 802.11g W/F 2.4 GHz (DSSS-OFDM), 18 Mbps, 80pc dc)	WLAN	8.70	+0.6 %
10581	AAC	IEEE 802.11g W/F 2.4 GHz (DSSS-OFDM), 18 Mbps, 80pc dc)	WLAN	8.35	+0.6 %
10582	AAC	IEEE 802.11g W/F 2.4 GHz (DSSS-OFDM), 18 Mbps, 80pc dc)	WLAN	8.67	+0.6 %
10583	AAC	IEEE 802.11a W/F 5 GHz (OFDM), 6 Mbps, 80pc dc)	WLAN	8.70	+0.6 %
10584	AAC	IEEE 802.11a W/F 5 GHz (OFDM), 6 Mbps, 80pc dc)	WLAN	8.60	+0.6 %
10585	AAC	IEEE 802.11a W/F 5 GHz (OFDM), 6 Mbps, 80pc dc)	WLAN	8.70	+0.6 %
10586	AAC	IEEE 802.11a W/F 5 GHz (OFDM), 6 Mbps, 80pc dc)	WLAN	8.40	+0.6 %
10587	AAC	IEEE 802.11a W/F 5 GHz (OFDM), 6 Mbps, 80pc dc)	WLAN	8.26	+0.6 %
10588	AAC	IEEE 802.11a W/F 5 GHz (OFDM), 6 Mbps, 80pc dc)	WLAN	8.10	+0.6 %
10589	AAC	IEEE 802.11a W/F 5 GHz (OFDM), 6 Mbps, 80pc dc)	WLAN	8.25	+0.6 %
10590	AAC	IEEE 802.11a W/F 5 GHz (OFDM), 6 Mbps, 80pc dc)	WLAN	8.67	+0.6 %
10591	AAC	IEEE 802.11n HT Mixed, 20MHz, MCS0, 80pc dc)	WLAN	8.65	+0.6 %
10592	AAC	IEEE 802.11n HT Mixed, 20MHz, MCS1, 80pc dc)	WLAN	8.70	+0.6 %
10593	AAC	IEEE 802.11n HT Mixed, 20MHz, MCS2, 80pc dc)	WLAN	8.64	+0.6 %
10594	AAC	IEEE 802.11n HT Mixed, 20MHz, MCS3, 80pc dc)	WLAN	8.74	+0.6 %
10595	AAC	IEEE 802.11n HT Mixed, 20MHz, MCS4, 80pc dc)	WLAN	8.71	+0.6 %
10596	AAC	IEEE 802.11n HT Mixed, 20MHz, MCS5, 80pc dc)	WLAN	8.72	+0.6 %
10597	AAC	IEEE 802.11n HT Mixed, 20MHz, MCS6, 80pc dc)	WLAN	8.61	+0.6 %
10598	AAC	IEEE 802.11n HT Mixed, 20MHz, MCS7, 80pc dc)	WLAN	8.70	+0.6 %
10599	AAC	IEEE 802.11n HT Mixed, 20MHz, MCS8, 80pc dc)	WLAN	8.65	+0.6 %
10600	AAC	IEEE 802.11n HT Mixed, 20MHz, MCS9, 80pc dc)	WLAN	8.65	+0.6 %
10601	AAC	IEEE 802.11n HT Mixed, 20MHz, MCS10, 80pc dc)	WLAN	8.67	+0.6 %
10602	AAC	IEEE 802.11n HT Mixed, 20MHz, MCS11, 80pc dc)	WLAN	8.74	+0.6 %
10603	AAC	IEEE 802.11n HT Mixed, 20MHz, MCS12, 80pc dc)	WLAN	8.71	+0.6 %
10604	AAC	IEEE 802.11n HT Mixed, 20MHz, MCS13, 80pc dc)	WLAN	8.71	+0.6 %
10605	AAC	IEEE 802.11n HT Mixed, 20MHz, MCS14, 80pc dc)	WLAN	8.71	+0.6 %
10606	AAC	IEEE 802.11n HT Mixed, 20MHz, MCS15, 80pc dc)	WLAN	8.71	+0.6 %
10607	AAC	IEEE 802.11n HT Mixed, 20MHz, MCS16, 80pc dc)	WLAN	8.71	+0.6 %
10608	AAC	IEEE 802.11n HT Mixed, 20MHz, MCS17, 80pc dc)	WLAN	8.71	+0.6 %
10609	AAC	IEEE 802.11n HT Mixed, 20MHz, MCS18, 80pc dc)	WLAN	8.71	+0.6 %
10610	AAC	IEEE 802.11n HT Mixed, 20MHz, MCS19, 80pc dc)	WLAN	8.71	+0.6 %
10611	AAC	IEEE 802.11n HT Mixed, 20MHz, MCS20, 80pc dc)	WLAN	8.71	+0.6 %
10612	AAC	IEEE 802.11n HT Mixed, 20MHz, MCS21, 80pc dc)	WLAN	8.71	+0.6 %
10613	AAC	IEEE 802.11n HT Mixed, 20MHz, MCS22, 80pc dc)	WLAN	8.71	+0.6 %
10614	AAC	IEEE 802.11n HT Mixed, 20MHz, MCS23, 80pc dc)	WLAN	8.71	+0.6 %
10615	AAC	IEEE 802.11n HT Mixed, 20MHz, MCS24, 80pc dc)	WLAN	8.71	+0.6 %
10616	AAC	IEEE 802.11n HT Mixed, 20MHz, MCS25, 80pc dc)	WLAN	8.71	+0.6 %
10617	AAC	IEEE 802.11n HT Mixed, 20MHz, MCS26, 80pc dc)	WLAN	8.71	+0.6 %
10618	AAC	IEEE 802.11n HT Mixed, 20MHz, MCS27, 80pc dc)	WLAN	8.71	+0.6 %
10619	AAC	IEEE 802.11n HT Mixed, 20MHz, MCS28, 80pc dc)	WLAN	8.71	+0.6 %
10620	AAC	IEEE 802.11n HT Mixed, 20MHz, MCS29, 80pc dc)	WLAN	8.71	+0.6 %
10621	AAC	IEEE 802.11n HT Mixed, 20MHz, MCS30, 80pc dc)	WLAN	8.71	+0.6 %
10622	AAC	IEEE 802.11n HT Mixed, 20MHz, MCS31, 80pc dc)	WLAN	8.71	+0.6 %
10623	AAC	IEEE 802.11n HT Mixed, 20MHz, MCS32, 80pc dc)	WLAN	8.71	+0.6 %
10624	AAC	IEEE 802.11n HT Mixed, 20MHz, MCS33, 80pc dc)	WLAN	8.71	+0.6 %



Add: No. 57 Huayuanba Road, Lianhua District, Ningbo, Zhejiang, China.
Tel: +86-15126415211
E-mail: cnlab@ttnet.com.cn Web: www.ttnet.com.cn



10625	AAC	IEEE 802.11ac WiFi (40MHz, MCS9, 20pc dci)	WLAN	8.48	+0.4%
10626	AAC	IEEE 802.11ac WiFi (80MHz, MCS9, 30pc dci)	WLAN	8.43	+0.4%
10627	AAC	IEEE 802.11ac WiFi (80MHz, MCS1, 90pc dci)	WLAN	8.58	+0.6%
10628	AAC	IEEE 802.11ac WiFi (80MHz, MCS2, 90pc dci)	WLAN	8.71	+0.8%
10629	AAC	IEEE 802.11ac WiFi (80MHz, MCS8, 90pc dci)	WLAN	8.65	+0.6%
10630	AAC	IEEE 802.11ac WiFi (80MHz, MCS4, 90pc dci)	WLAN	5.72	+0.6%
10631	AAC	IEEE 802.11ac WiFi (80MHz, MCS5, 30pc dci)	WLAN	8.61	+0.6%
10632	AAC	IEEE 802.11ac WiFi (80MHz, MCS8, 90pc dci)	WLAN	8.74	+0.6%
10633	AAC	IEEE 802.11ac WiFi (80MHz, MCS7, 90pc dci)	WLAN	8.63	+0.6%
10634	AAC	IEEE 802.11ac WiFi (80MHz, MCS8, 90pc dci)	WLAN	8.60	+0.6%
10635	AAC	IEEE 802.11ac WiFi (80MHz, MCS9, 90pc dci)	WLAN	5.61	+0.6%
10636	AAC	IEEE 802.11ac WiFi (160MHz, MCS9, 90pc dci)	WLAN	9.63	+0.6%
10637	AAC	IEEE 802.11ac WiFi (160MHz, MCS1, 90pc dci)	WLAN	8.75	+0.6%
10638	AAC	IEEE 802.11ac WiFi (160MHz, MCS2, 90pc dci)	WLAN	8.68	+0.6%
10639	AAC	IEEE 802.11ac WiFi (160MHz, MCS3, 90pc dci)	WLAN	8.95	+0.6%
10640	AAC	IEEE 802.11ac WiFi (160MHz, MCS4, 90pc dci)	WLAN	5.98	+0.6%
10641	AAC	IEEE 802.11ac WiFi (160MHz, MCS5, 90pc dci)	WLAN	9.06	+0.6%
10642	AAC	IEEE 802.11ac WiFi (160MHz, MCS6, 90pc dci)	WLAN	8.06	+0.6%
10643	AAC	IEEE 802.11ac WiFi (160MHz, MCS7, 90pc dci)	WLAN	8.69	+0.6%
10644	AAC	IEEE 802.11ac WiFi (160MHz, MCS8, 90pc dci)	WLAN	5.08	+0.6%
10645	AAC	IEEE 802.11ac WiFi (160MHz, MCS9, 90pc dci)	WLAN	9.11	+0.6%
10646	AAC	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Sub=2.7)	LTE-TDD	11.95	+0.6%
10647	AAC	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Sub=2.7)	LTE-TDD	11.96	+0.6%
10648	AAC	CDMA2000 (1X Advanced)	CDMA2000	3.45	+0.6%
10649	AAC	LTE-TDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%)	LTE-TDD	6.94	+0.6%
10650	AAC	LTE-TDD (OFDMA, 10 MHz, E-TM 3.1, Clipping 44%)	LTE-TDD	7.12	+0.6%
10651	AAC	LTE-TDD (OFDMA, 15 MHz, E-TM 3.1, Clipping 44%)	LTE-TDD	6.99	+0.6%
10652	AAC	LTE-TDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%)	LTE-TDD	7.21	+0.6%
10653	AAC	Pulse Waveform (200Hz, 10%)	Test	10.10	+0.6%
10654	AAC	Pulse Waveform (200Hz, 20%)	Test	6.50	+0.6%
10655	AAC	Pulse Waveform (280Hz, 48%)	Test	3.49	+0.6%
10656	AAC	Pulse Waveform (200Hz, 60%)	Test	2.23	+0.6%
10657	AAC	Pulse Waveform (200Hz, 80%)	Test	0.37	+0.6%
10658	AAC	Bluetooth Low Energy	Bluetooth	2.19	+0.6%
10659	AAC	IEEE 802.11ax (20MHz, MCS0, 90pc dci)	WLAN	9.06	+0.6%
10660	AAC	IEEE 802.11ax (20MHz, MCS1, 90pc dci)	WLAN	8.57	+0.6%
10661	AAC	IEEE 802.11ax (20MHz, MCS2, 90pc dci)	WLAN	6.18	+0.6%
10662	AAC	IEEE 802.11ax (20MHz, MCS3, 90pc dci)	WLAN	6.74	+0.6%
10663	AAC	IEEE 802.11ax (20MHz, MCS4, 90pc dci)	WLAN	6.90	+0.6%
10664	AAC	IEEE 802.11ax (20MHz, MCS5, 90pc dci)	WLAN	5.77	+0.6%
10665	AAC	IEEE 802.11ax (20MHz, MCS6, 90pc dci)	WLAN	8.75	+0.6%
10666	AAC	IEEE 802.11ax (20MHz, MCS7, 90pc dci)	WLAN	8.16	+0.6%
10667	AAC	IEEE 802.11ax (20MHz, MCS8, 90pc dci)	WLAN	9.98	+0.6%
10668	AAC	IEEE 802.11ax (20MHz, MCS9, 90pc dci)	WLAN	8.60	+0.6%
10669	AAC	IEEE 802.11ax (20MHz, MCS10, 90pc dci)	WLAN	9.52	+0.6%
10670	AAC	IEEE 802.11ax (20MHz, MCS11, 90pc dci)	WLAN	8.63	+0.6%
10671	AAC	IEEE 802.11ax (20MHz, MCS12, 90pc dci)	WLAN	8.42	+0.6%
10672	AAC	IEEE 802.11ax (20MHz, MCS13, 90pc dci)	WLAN	8.25	+0.6%
10673	AAC	IEEE 802.11ax (20MHz, MCS14, 90pc dci)	WLAN	8.32	+0.6%
10674	AAC	IEEE 802.11ax (20MHz, MCS15, 90pc dci)	WLAN	8.28	+0.6%
10675	AAC	IEEE 802.11ax (20MHz, MCS16, 90pc dci)	WLAN	8.45	+0.6%
10676	AAC	IEEE 802.11ax (20MHz, MCS17, 90pc dci)	WLAN	8.29	+0.6%
10677	AAC	IEEE 802.11ax (20MHz, MCS18, 90pc dci)	WLAN	8.06	+0.6%
10678	AAC	IEEE 802.11ax (20MHz, MCS19, 90pc dci)	WLAN	8.26	+0.6%
10679	AAC	IEEE 802.11ax (20MHz, MCS20, 90pc dci)	WLAN	8.25	+0.6%
10680	AAC	IEEE 802.11ax (20MHz, MCS21, 90pc dci)	WLAN	8.37	+0.6%
10681	AAC	IEEE 802.11ax (20MHz, MCS22, 90pc dci)	WLAN	8.75	+0.6%



1069L	AAA	IEEE 802.11ax (40MHz, MCS1, 90pc dc)	WLAN	8.91	±0.6%
1069T	AAA	IEEE 802.11ax (40MHz, MCS2, 90pc dc)	WLAN	8.91	±0.6%
1069V	AAA	IEEE 802.11ax (40MHz, MCS3, 90pc dc)	WLAN	8.92	±0.6%
1069W	AAA	IEEE 802.11ax (40MHz, MCS4, 90pc dc)	WLAN	8.92	±0.6%
10700	AAA	IEEE 802.11ax (40MHz, MCS5, 90pc dc)	WLAN	8.73	±0.6%
10701	AAA	IEEE 802.11ax (40MHz, MCS6, 90pc dc)	WLAN	8.86	±0.6%
10702	AAA	IEEE 802.11ax (40MHz, MCS7, 90pc dc)	WLAN	8.73	±0.6%
10703	AAA	IEEE 802.11ax (40MHz, MCS8, 90pc dc)	WLAN	8.92	±0.6%
10704	AAA	IEEE 802.11ax (40MHz, MCS9, 90pc dc)	WLAN	8.50	±0.6%
10705	AAA	IEEE 802.11ax (40MHz, MCS10, 90pc dc)	WLAN	8.80	±0.6%
10706	AAC	IEEE 802.11ax (40MHz, MCS11, 90pc dc)	WLAN	8.96	±0.6%
10707	AAC	IEEE 802.11ax (40MHz, MCS0, 90pc dc)	WLAN	8.31	±0.6%
10708	AAC	IEEE 802.11ax (40MHz, MCS1, 90pc dc)	WLAN	8.55	±0.6%
10709	AAC	IEEE 802.11ax (40MHz, MCS2, 90pc dc)	WLAN	8.93	±0.6%
10710	AAC	IEEE 802.11ax (40MHz, MCS3, 90pc dc)	WLAN	8.92	±0.6%
10711	AAC	IEEE 802.11ax (40MHz, MCS4, 90pc dc)	WLAN	8.39	±0.6%
10712	AAC	IEEE 802.11ax (40MHz, MCS5, 90pc dc)	WLAN	8.87	±0.6%
10713	AAC	IEEE 802.11ax (40MHz, MCS6, 90pc dc)	WLAN	8.33	±0.6%
10714	AAC	IEEE 802.11ax (40MHz, MCS7, 90pc dc)	WLAN	8.26	±0.6%
10715	AAC	IEEE 802.11ax (40MHz, MCS8, 90pc dc)	WLAN	8.46	±0.6%
10716	AAC	IEEE 802.11ax (40MHz, MCS9, 90pc dc)	WLAN	8.30	±0.6%
10717	AAC	IEEE 802.11ax (40MHz, MCS10, 90pc dc)	WLAN	8.46	±0.6%
10718	AAC	IEEE 802.11ax (40MHz, MCS11, 90pc dc)	WLAN	8.24	±0.6%
10719	AAC	IEEE 802.11ax (40MHz, MCS0, 90pc dc)	WLAN	8.01	±0.6%
10720	AAC	IEEE 802.11ax (40MHz, MCS1, 90pc dc)	WLAN	8.87	±0.6%
10721	AAC	IEEE 802.11ax (40MHz, MCS2, 90pc dc)	WLAN	8.76	±0.6%
10722	AAC	IEEE 802.11ax (40MHz, MCS3, 90pc dc)	WLAN	8.52	±0.6%
10723	AAC	IEEE 802.11ax (40MHz, MCS4, 90pc dc)	WLAN	8.70	±0.6%
10724	AAC	IEEE 802.11ax (40MHz, MCS5, 90pc dc)	WLAN	8.90	±0.6%
10725	AAC	IEEE 802.11ax (40MHz, MCS6, 90pc dc)	WLAN	8.74	±0.6%
10726	AAC	IEEE 802.11ax (40MHz, MCS7, 90pc dc)	WLAN	8.72	±0.6%
10727	AAC	IEEE 802.11ax (40MHz, MCS8, 90pc dc)	WLAN	8.06	±0.6%
10728	AAC	IEEE 802.11ax (40MHz, MCS9, 90pc dc)	WLAN	8.95	±0.6%
10729	AAC	IEEE 802.11ax (40MHz, MCS10, 90pc dc)	WLAN	8.94	±0.6%
10730	AAC	IEEE 802.11ax (40MHz, MCS11, 90pc dc)	WLAN	8.67	±0.6%
10731	AAC	IEEE 802.11ax (40MHz, MCS0, 90pc dc)	WLAN	8.42	±0.6%
10732	AAC	IEEE 802.11ax (40MHz, MCS1, 90pc dc)	WLAN	8.45	±0.6%
10733	AAC	IEEE 802.11ax (40MHz, MCS2, 90pc dc)	WLAN	8.40	±0.6%
10734	AAC	IEEE 802.11ax (40MHz, MCS3, 90pc dc)	WLAN	8.76	±0.6%
10735	AAC	IEEE 802.11ax (40MHz, MCS4, 90pc dc)	WLAN	8.03	±0.6%
10736	AAC	IEEE 802.11ax (40MHz, MCS5, 90pc dc)	WLAN	8.27	±0.6%
10737	AAC	IEEE 802.11ax (40MHz, MCS6, 90pc dc)	WLAN	8.38	±0.6%
10738	AAC	IEEE 802.11ax (40MHz, MCS7, 90pc dc)	WLAN	8.42	±0.6%
10739	AAC	IEEE 802.11ax (40MHz, MCS8, 90pc dc)	WLAN	8.70	±0.6%
10740	AAC	IEEE 802.11ax (40MHz, MCS9, 90pc dc)	WLAN	8.48	±0.6%
10741	AAC	IEEE 802.11ax (40MHz, MCS10, 90pc dc)	WLAN	8.40	±0.6%
10742	AAC	IEEE 802.11ax (40MHz, MCS11, 90pc dc)	WLAN	8.43	±0.6%
10743	AAC	IEEE 802.11ax (160MHz, MCS0, 90pc dc)	WLAN	8.94	±0.6%
10744	AAC	IEEE 802.11ax (160MHz, MCS1, 90pc dc)	WLAN	8.16	±0.6%
10745	AAC	IEEE 802.11ax (160MHz, MCS2, 90pc dc)	WLAN	8.02	±0.6%
10746	AAC	IEEE 802.11ax (160MHz, MCS3, 90pc dc)	WLAN	8.11	±0.6%
10747	AAC	IEEE 802.11ax (160MHz, MCS4, 90pc dc)	WLAN	8.04	±0.6%
10748	AAC	IEEE 802.11ax (160MHz, MCS5, 90pc dc)	WLAN	8.82	±0.6%
10749	AAC	IEEE 802.11ax (160MHz, MCS6, 90pc dc)	WLAN	8.90	±0.6%
10750	AAC	IEEE 802.11ax (160MHz, MCS7, 90pc dc)	WLAN	8.70	±0.6%
10751	AAC	IEEE 802.11ax (160MHz, MCS8, 90pc dc)	WLAN	8.82	±0.6%
10752	AAC	IEEE 802.11ax (160MHz, MCS9, 90pc dc)	WLAN	8.81	±0.6%
10753	AAC	IEEE 802.11ax (160MHz, MCS10, 90pc dc)	WLAN	8.00	±0.6%
10754	AAC	IEEE 802.11ax (160MHz, MCS11, 90pc dc)	WLAN	8.94	±0.6%



IT Collaboration with
s p e a k
CALIBRATION LABORATORY



Add: 5632 Hertenberg Road, Hertenberg, Beijing 100017 China
Tel: 86-10-62104711-2117
E-mail: info@speack.cn <http://www.speack.cn>

10765	AAC	IEEE 802.11ax (160MHz, MCS30, 80psdof)	WLAN	8.84	±0.5%
10766	AAC	IEEE 802.11ax (160MHz, MCS1, 80psdof)	WLAN	8.77	±0.5%
10767	AAC	IEEE 802.11ax (160MHz, MCS2, 80psdof)	WLAN	8.77	±0.6%
10768	AAC	IEEE 802.11ax (160MHz, MCS3, 80psdof)	WLAN	8.69	±0.6%
10769	AAC	IEEE 802.11ax (160MHz, MCS4, 80psdof)	WLAN	8.58	±0.6%
10770	AAC	IEEE 802.11ax (160MHz, MCS5, 80psdof)	WLAN	8.50	±0.6%
10771	AAC	IEEE 802.11ax (160MHz, MCS6, 80psdof)	WLAN	8.40	±0.6%
10772	AAC	IEEE 802.11ax (160MHz, MCS7, 80psdof)	WLAN	8.36	±0.6%
10773	AAC	IEEE 802.11ax (160MHz, MCS8, 80psdof)	WLAN	8.29	±0.6%
10774	AAC	IEEE 802.11ax (160MHz, MCS9, 80psdof)	WLAN	8.22	±0.6%
10775	AAC	IEEE 802.11ax (160MHz, MCS10, 80psdof)	WLAN	8.14	±0.6%
10776	AAC	IEEE 802.11ax (160MHz, MCS11, 80psdof)	WLAN	8.04	±0.6%
10777	AAC	IEEE 802.11ax (160MHz, MCS12, 80psdof)	WLAN	7.94	±0.6%
10778	AAC	IEEE 802.11ax (160MHz, MCS13, 80psdof)	WLAN	7.84	±0.6%
10779	AAC	IEEE 802.11ax (160MHz, MCS14, 80psdof)	WLAN	7.74	±0.6%
10780	AAC	IEEE 802.11ax (160MHz, MCS15, 80psdof)	WLAN	7.64	±0.6%
10781	AAC	IEEE 802.11ax (160MHz, MCS16, 80psdof)	WLAN	7.54	±0.6%
10782	AAC	IEEE 802.11ax (160MHz, MCS17, 80psdof)	WLAN	7.44	±0.6%
10783	AAC	IEEE 802.11ax (160MHz, MCS18, 80psdof)	WLAN	7.34	±0.6%
10784	AAC	IEEE 802.11ax (160MHz, MCS19, 80psdof)	WLAN	7.24	±0.6%
10785	AAC	IEEE 802.11ax (160MHz, MCS20, 80psdof)	WLAN	7.14	±0.6%
10786	AAC	IEEE 802.11ax (160MHz, MCS21, 80psdof)	WLAN	7.04	±0.6%
10787	AAC	IEEE 802.11ax (160MHz, MCS22, 80psdof)	WLAN	6.94	±0.6%
10788	AAC	IEEE 802.11ax (160MHz, MCS23, 80psdof)	WLAN	6.84	±0.6%
10789	AAC	IEEE 802.11ax (160MHz, MCS24, 80psdof)	WLAN	6.74	±0.6%
10790	AAC	IEEE 802.11ax (160MHz, MCS25, 80psdof)	WLAN	6.64	±0.6%
10791	AAC	IEEE 802.11ax (160MHz, MCS26, 80psdof)	WLAN	6.54	±0.6%
10792	AAC	IEEE 802.11ax (160MHz, MCS27, 80psdof)	WLAN	6.44	±0.6%
10793	AAC	IEEE 802.11ax (160MHz, MCS28, 80psdof)	WLAN	6.34	±0.6%
10794	AAC	IEEE 802.11ax (160MHz, MCS29, 80psdof)	WLAN	6.24	±0.6%
10795	AAC	IEEE 802.11ax (160MHz, MCS30, 80psdof)	WLAN	6.14	±0.6%
10796	AAC	IEEE 802.11ax (160MHz, MCS31, 80psdof)	WLAN	6.04	±0.6%
10797	AAC	IEEE 802.11ax (160MHz, MCS32, 80psdof)	WLAN	5.94	±0.6%
10798	AAC	IEEE 802.11ax (160MHz, MCS33, 80psdof)	WLAN	5.84	±0.6%
10799	AAC	IEEE 802.11ax (160MHz, MCS34, 80psdof)	WLAN	5.74	±0.6%
10800	AAC	IEEE 802.11ax (160MHz, MCS35, 80psdof)	WLAN	5.64	±0.6%
10801	AAC	IEEE 802.11ax (160MHz, MCS36, 80psdof)	WLAN	5.54	±0.6%
10802	AAC	IEEE 802.11ax (160MHz, MCS37, 80psdof)	WLAN	5.44	±0.6%
10803	AAC	IEEE 802.11ax (160MHz, MCS38, 80psdof)	WLAN	5.34	±0.6%
10804	AAC	IEEE 802.11ax (160MHz, MCS39, 80psdof)	WLAN	5.24	±0.6%
10805	AAC	IEEE 802.11ax (160MHz, MCS40, 80psdof)	WLAN	5.14	±0.6%
10806	AAC	IEEE 802.11ax (160MHz, MCS41, 80psdof)	WLAN	5.04	±0.6%
10807	AAC	IEEE 802.11ax (160MHz, MCS42, 80psdof)	WLAN	4.94	±0.6%
10808	AAC	IEEE 802.11ax (160MHz, MCS43, 80psdof)	WLAN	4.84	±0.6%
10809	AAC	IEEE 802.11ax (160MHz, MCS44, 80psdof)	WLAN	4.74	±0.6%
10810	AAC	IEEE 802.11ax (160MHz, MCS45, 80psdof)	WLAN	4.64	±0.6%
10811	AAC	IEEE 802.11ax (160MHz, MCS46, 80psdof)	WLAN	4.54	±0.6%
10812	AAC	IEEE 802.11ax (160MHz, MCS47, 80psdof)	WLAN	4.44	±0.6%
10813	AAC	IEEE 802.11ax (160MHz, MCS48, 80psdof)	WLAN	4.34	±0.6%
10814	AAC	IEEE 802.11ax (160MHz, MCS49, 80psdof)	WLAN	4.24	±0.6%
10815	AAC	IEEE 802.11ax (160MHz, MCS50, 80psdof)	WLAN	4.14	±0.6%
10816	AAC	IEEE 802.11ax (160MHz, MCS51, 80psdof)	WLAN	4.04	±0.6%
10817	AAC	IEEE 802.11ax (160MHz, MCS52, 80psdof)	WLAN	3.94	±0.6%
10818	AAC	IEEE 802.11ax (160MHz, MCS53, 80psdof)	WLAN	3.84	±0.6%
10819	AAC	IEEE 802.11ax (160MHz, MCS54, 80psdof)	WLAN	3.74	±0.6%
10820	AAC	IEEE 802.11ax (160MHz, MCS55, 80psdof)	WLAN	3.64	±0.6%
10821	AAC	IEEE 802.11ax (160MHz, MCS56, 80psdof)	WLAN	3.54	±0.6%
10822	AAC	IEEE 802.11ax (160MHz, MCS57, 80psdof)	WLAN	3.44	±0.6%
10823	AAC	IEEE 802.11ax (160MHz, MCS58, 80psdof)	WLAN	3.34	±0.6%
10824	AAC	IEEE 802.11ax (160MHz, MCS59, 80psdof)	WLAN	3.24	±0.6%
10825	AAC	IEEE 802.11ax (160MHz, MCS60, 80psdof)	WLAN	3.14	±0.6%
10826	AAC	IEEE 802.11ax (160MHz, MCS61, 80psdof)	WLAN	3.04	±0.6%
10827	AAC	IEEE 802.11ax (160MHz, MCS62, 80psdof)	WLAN	2.94	±0.6%
10828	AAC	IEEE 802.11ax (160MHz, MCS63, 80psdof)	WLAN	2.84	±0.6%
10829	AAC	IEEE 802.11ax (160MHz, MCS64, 80psdof)	WLAN	2.74	±0.6%
10830	AAC	IEEE 802.11ax (160MHz, MCS65, 80psdof)	WLAN	2.64	±0.6%
10831	AAC	IEEE 802.11ax (160MHz, MCS66, 80psdof)	WLAN	2.54	±0.6%
10832	AAC	IEEE 802.11ax (160MHz, MCS67, 80psdof)	WLAN	2.44	±0.6%
10833	AAC	IEEE 802.11ax (160MHz, MCS68, 80psdof)	WLAN	2.34	±0.6%
10834	AAC	IEEE 802.11ax (160MHz, MCS69, 80psdof)	WLAN	2.24	±0.6%
10835	AAC	IEEE 802.11ax (160MHz, MCS70, 80psdof)	WLAN	2.14	±0.6%
10836	AAC	IEEE 802.11ax (160MHz, MCS71, 80psdof)	WLAN	2.04	±0.6%
10837	AAC	IEEE 802.11ax (160MHz, MCS72, 80psdof)	WLAN	1.94	±0.6%
10838	AAC	IEEE 802.11ax (160MHz, MCS73, 80psdof)	WLAN	1.84	±0.6%
10839	AAC	IEEE 802.11ax (160MHz, MCS74, 80psdof)	WLAN	1.74	±0.6%
10840	AAC	IEEE 802.11ax (160MHz, MCS75, 80psdof)	WLAN	1.64	±0.6%
10841	AAC	IEEE 802.11ax (160MHz, MCS76, 80psdof)	WLAN	1.54	±0.6%
10842	AAC	IEEE 802.11ax (160MHz, MCS77, 80psdof)	WLAN	1.44	±0.6%
10843	AAC	IEEE 802.11ax (160MHz, MCS78, 80psdof)	WLAN	1.34	±0.6%
10844	AAC	IEEE 802.11ax (160MHz, MCS79, 80psdof)	WLAN	1.24	±0.6%
10845	AAC	IEEE 802.11ax (160MHz, MCS80, 80psdof)	WLAN	1.14	±0.6%
10846	AAC	IEEE 802.11ax (160MHz, MCS81, 80psdof)	WLAN	1.04	±0.6%
10847	AAC	IEEE 802.11ax (160MHz, MCS82, 80psdof)	WLAN	0.94	±0.6%
10848	AAC	IEEE 802.11ax (160MHz, MCS83, 80psdof)	WLAN	0.84	±0.6%
10849	AAC	IEEE 802.11ax (160MHz, MCS84, 80psdof)	WLAN	0.74	±0.6%
10850	AAC	IEEE 802.11ax (160MHz, MCS85, 80psdof)	WLAN	0.64	±0.6%
10851	AAC	IEEE 802.11ax (160MHz, MCS86, 80psdof)	WLAN	0.54	±0.6%
10852	AAC	IEEE 802.11ax (160MHz, MCS87, 80psdof)	WLAN	0.44	±0.6%
10853	AAC	IEEE 802.11ax (160MHz, MCS88, 80psdof)	WLAN	0.34	±0.6%
10854	AAC	IEEE 802.11ax (160MHz, MCS89, 80psdof)	WLAN	0.24	±0.6%
10855	AAC	IEEE 802.11ax (160MHz, MCS90, 80psdof)	WLAN	0.14	±0.6%
10856	AAC	IEEE 802.11ax (160MHz, MCS91, 80psdof)	WLAN	0.04	±0.6%
10857	AAC	IEEE 802.11ax (160MHz, MCS92, 80psdof)	WLAN	0.04	±0.6%
10858	AAC	IEEE 802.11ax (160MHz, MCS93, 80psdof)	WLAN	0.04	±0.6%
10859	AAC	IEEE 802.11ax (160MHz, MCS94, 80psdof)	WLAN	0.04	±0.6%
10860	AAC	IEEE 802.11ax (160MHz, MCS95, 80psdof)	WLAN	0.04	±0.6%
10861	AAC	IEEE 802.11ax (160MHz, MCS96, 80psdof)	WLAN	0.04	±0.6%
10862	AAC	IEEE 802.11ax (160MHz, MCS97, 80psdof)	WLAN	0.04	±0.6%
10863	AAC	IEEE 802.11ax (160MHz, MCS98, 80psdof)	WLAN	0.04	±0.6%
10864	AAC	IEEE 802.11ax (160MHz, MCS99, 80psdof)	WLAN	0.04	±0.6%
10865	AAC	IEEE 802.11ax (160MHz, MCS100, 80psdof)	WLAN	0.04	±0.6%



Aut. No. 24 HuaYuanMingCao, Harbin District, Heilongjiang, 150091, China
Tel: +86-15613040121
E-mail: qinghui@ttnet.cn

10023	AAC	5G NR (CP-OFDM, 100% RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.50	±0.5%
10024	AAD	5G NR (CP-OFDM, 100% RB, 50 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.89	±0.5%
10025	AAD	5G NR (CP-OFDM, 100% RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.81	±0.5%
10027	AAD	5G NR (CP-OFDM, 100% RB, 80 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.82	±0.5%
10028	AAD	5G NR (CP-OFDM, 100% RB, 90 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.82	±0.5%
10029	AAD	5G NR (CP-OFDM, 100% RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.80	±0.5%
10030	AAD	5G NR (CP-OFDM, 1 RB, 10 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.03	±0.5%
10031	AAD	5G NR (CP-OFDM, 1 RB, 15 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.73	±0.5%
10032	AAD	5G NR (CP-OFDM, 1 RB, 20 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.73	±0.5%
10033	AAD	5G NR (CP-OFDM, 1 RB, 25 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.70	±0.5%
10034	AAD	5G NR (CP-OFDM, 1 RB, 30 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.75	±0.5%
10035	AAD	5G NR (CP-OFDM, 1 RB, 40 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.70	±0.5%
10036	AAD	5G NR (CP-OFDM, 1 RB, 60 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.68	±0.5%
10037	AAD	5G NR (CP-OFDM, 1 RB, 80 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.64	±0.5%
10038	AAD	5G NR (CP-OFDM, 1 RB, 80 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.70	±0.5%
10040	AAD	5G NR (CP-OFDM, 1 RB, 90 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.67	±0.5%
10041	AAD	5G NR (CP-OFDM, 1 RB, 100 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.71	±0.5%
10042	AAD	5G NR (CP-OFDM, 50% RB, 15 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.49	±0.5%
10044	AAD	5G NR (CP-OFDM, 50% RB, 20 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.34	±0.5%
10046	AAD	5G NR (CP-OFDM, 50% RB, 30 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.41	±0.5%
10054	AAD	5G NR (CP-OFDM, 100% RB, 10 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.38	±0.5%
10055	AAD	5G NR (CP-OFDM, 100% RB, 15 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.30	±0.5%
10056	AAD	5G NR (CP-OFDM, 100% RB, 20 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.37	±0.5%
10057	AAD	5G NR (CP-OFDM, 100% RB, 25 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.25	±0.5%
10058	AAD	5G NR (CP-OFDM, 100% RB, 30 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.26	±0.5%
10059	AAD	5G NR (CP-OFDM, 100% RB, 40 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.29	±0.5%
10060	AAD	5G NR (CP-OFDM, 100% RB, 50 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.40	±0.5%
10061	AAD	5G NR (CP-OFDM, 100% RB, 60 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.40	±0.5%
10063	AAD	5G NR (CP-OFDM, 100% RB, 80 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.41	±0.5%
10064	AAD	5G NR (CP-OFDM, 100% RB, 90 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.37	±0.5%
10065	AAD	5G NR (CP-OFDM, 100% RB, 100 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.41	±0.5%
10068	AAD	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	±0.5%
10069	AAD	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	5.75	±0.5%
10070	AAD	5G NR (DFT-s-OFDM, 100% RB, 100 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	5.66	±0.5%
10071	AAD	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	8.15	±0.5%
10072	AAD	5G NR (DFT-s-OFDM, 100% RB, 100 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	8.25	±0.5%
10073	AAD	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	8.61	±0.5%
10074	AAD	5G NR (DFT-s-OFDM, 100% RB, 100 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	8.66	±0.5%
10075	AAD	5G NR (CP-OFDM, 1 RB, 100 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	7.70	±0.5%
10076	AAD	5G NR (CP-OFDM, 100% RB, 100 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	8.39	±0.5%
10077	AAD	5G NR (CP-OFDM, 1 RB, 100 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	7.80	±0.5%
10078	AAD	5G NR (CP-OFDM, 100% RB, 100 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	8.41	±0.5%
10079	AAD	5G NR (CP-OFDM, 1 RB, 100 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	8.72	±0.5%
10080	AAD	5G NR (CP-OFDM, 100% RB, 100 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	8.38	±0.5%
10081	AAD	5G NR (DFT-s-OFDM, 1 RB, 50 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	5.74	±0.5%
10082	AAD	5G NR (DFT-s-OFDM, 100% RB, 50 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	5.69	±0.5%
10083	AAD	5G NR (DFT-s-OFDM, 1 RB, 50 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	8.59	±0.5%
10084	AAD	5G NR (DFT-s-OFDM, 100% RB, 50 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	8.50	±0.5%
10085	AAD	5G NR (DFT-s-OFDM, 1 RB, 50 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	8.61	±0.5%
10086	AAD	5G NR (DFT-s-OFDM, 100% RB, 50 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	8.65	±0.5%
10087	AAD	5G NR (CP-OFDM, 1 RB, 50 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	7.70	±0.5%
10088	AAD	5G NR (CP-OFDM, 100% RB, 50 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	8.35	±0.5%
10089	AAD	5G NR (CP-OFDM, 1 RB, 50 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	8.72	±0.5%
10090	AAD	5G NR (CP-OFDM, 100% RB, 50 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	8.40	±0.5%
10091	AAD	5G NR (CP-OFDM, 1 RB, 50 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	8.17	±0.5%
10092	AAD	5G NR (CP-OFDM, 100% RB, 50 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	8.41	±0.5%
10093	AAD	5G NR (DFT-s-OFDM, 1 RB, 5 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.60	±0.5%
10094	AAD	5G NR (DFT-s-OFDM, 1 RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	±0.5%

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Anal. Mo St. Hainhofen Rd. Rens. Hainhofen, D-42699 Solingen, NRW, Germany
Tel.: +49 (0)2124 4411211
E-mail: cca@caict.de; info@caict.de

10899	AAD	5G NR (DFT-s-OFDM, 1 RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.01	+0.0%
10900	AAD	5G NR (DFT-s-OFDM, 1 RB, 20 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.02	+0.0%
10901	AAD	5G NR (DFT-s-OFDM, 1 RB, 25 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.03	+0.0%
10902	AAD	5G NR (DFT-s-OFDM, 1 RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.04	+0.0%
10903	AAD	5G NR (DFT-s-OFDM, 1 RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.05	+0.0%
10904	AAD	5G NR (DFT-s-OFDM, 1 RB, 50 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.06	+0.0%
10905	AAD	5G NR (DFT-s-OFDM, 1 RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.08	+0.0%
10906	AAD	5G NR (DFT-s-OFDM, 1 RB, 80 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.16	+0.0%
10907	AAD	5G NR (DFT-s-OFDM, 50% RB, 5 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.02	+0.0%
10908	AAD	5G NR (DFT-s-OFDM, 50% RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.03	+0.0%
10909	AAD	5G NR (DFT-s-OFDM, 50% RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.04	+0.0%
10910	AAD	5G NR (DFT-s-OFDM, 50% RB, 20 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.05	+0.0%
10911	AAD	5G NR (DFT-s-OFDM, 50% RB, 25 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.06	+0.0%
10912	AAD	5G NR (DFT-s-OFDM, 50% RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.07	+0.0%
10913	AAD	5G NR (DFT-s-OFDM, 50% RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.08	+0.0%
10914	AAD	5G NR (DFT-s-OFDM, 50% RB, 50 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.09	+0.0%
10915	AAD	5G NR (DFT-s-OFDM, 50% RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.10	+0.0%
10916	AAD	5G NR (DFT-s-OFDM, 50% RB, 80 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.17	+0.0%
10917	AAD	5G NR (DFT-s-OFDM, 50% RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.24	+0.0%
10918	AAD	5G NR (DFT-s-OFDM, 100% RB, 5 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.03	+0.0%
10919	AAD	5G NR (DFT-s-OFDM, 100% RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.05	+0.0%
10920	AAD	5G NR (DFT-s-OFDM, 100% RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.07	+0.0%
10921	AAD	5G NR (DFT-s-OFDM, 100% RB, 20 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.08	+0.0%
10922	AAD	5G NR (DFT-s-OFDM, 100% RB, 25 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.09	+0.0%
10923	AAD	5G NR (DFT-s-OFDM, 100% RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.10	+0.0%
10924	AAD	5G NR (DFT-s-OFDM, 100% RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.11	+0.0%
10925	AAD	5G NR (DFT-s-OFDM, 100% RB, 50 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.15	+0.0%
10926	AAD	5G NR (DFT-s-OFDM, 100% RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.24	+0.0%
10927	AAD	5G NR (DFT-s-OFDM, 100% RB, 80 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.34	+0.0%
10928	AAD	5G NR (DFT-s-OFDM, 1 RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.00	+0.0%
10929	AAD	5G NR (DFT-s-OFDM, 1 RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.02	+0.0%
10930	AAD	5G NR (DFT-s-OFDM, 1 RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.03	+0.0%
10931	AAD	5G NR (DFT-s-OFDM, 1 RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.04	+0.0%
10932	AAB	5G NR (DFT-s-OFDM, 1 RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.05	+0.0%
10933	AAB	5G NR (DFT-s-OFDM, 1 RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.06	+0.0%
10934	AAB	5G NR (DFT-s-OFDM, 1 RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.07	+0.0%
10935	AAB	5G NR (DFT-s-OFDM, 1 RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.08	+0.0%
10936	AAC	5G NR (DFT-s-OFDM, 50% RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.00	+0.0%
10937	AAB	5G NR (DFT-s-OFDM, 50% RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.02	+0.0%
10938	AAB	5G NR (DFT-s-OFDM, 50% RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.03	+0.0%
10939	AAB	5G NR (DFT-s-OFDM, 50% RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.04	+0.0%
10940	AAB	5G NR (DFT-s-OFDM, 50% RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.05	+0.0%
10941	AAB	5G NR (DFT-s-OFDM, 50% RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.06	+0.0%
10942	AAB	5G NR (DFT-s-OFDM, 50% RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.07	+0.0%
10943	AAB	5G NR (DFT-s-OFDM, 50% RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.08	+0.0%
10944	AAB	5G NR (DFT-s-OFDM, 100% RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.01	+0.0%
10945	AAB	5G NR (DFT-s-OFDM, 100% RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.02	+0.0%
10946	AAC	5G NR (DFT-s-OFDM, 100% RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.03	+0.0%
10947	AAB	5G NR (DFT-s-OFDM, 100% RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.04	+0.0%
10948	AAB	5G NR (DFT-s-OFDM, 100% RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.05	+0.0%
10949	AAB	5G NR (DFT-s-OFDM, 100% RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.06	+0.0%
10950	AAB	5G NR (DFT-s-OFDM, 100% RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.07	+0.0%
10951	AAB	5G NR (DFT-s-OFDM, 100% RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.08	+0.0%
10952	AAB	5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.25	+0.0%
10953	AAB	5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.15	+0.0%
10954	AAB	5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.25	+0.0%
10955	AAB	5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.42	+0.0%
10956	AAB	5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8.14	+0.0%
10957	AAC	5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8.17	+0.0%



10958	AA0	5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.41	±0.6 %
10959	AA0	5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	9.33	±0.6 %
10960	AA0	5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	9.36	±0.6 %
10961	AA0	5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	9.36	±0.6 %
10962	AA0	5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	9.40	±0.6 %
10963	AA0	5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	9.35	±0.6 %
10964	AA0	5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.36	±0.6 %
10965	AA0	5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.37	±0.6 %
10966	AA0	5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.55	±0.6 %
10967	AA0	5G NR DL (CP-OFDM, TM 3.1, 30 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.42	±0.6 %
10968	AA0	5G NR DL (CP-OFDM, TM 3.1, 100 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.45	±0.6 %
10972	AA0	5G NR (CP-OFDM, 1 RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	11.59	±0.6 %
10973	AA0	5G NR (OFDM, 1 RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	9.06	±0.6 %
10974	AA0	5G NR (CP-OFDM, 100% RS, 100 MHz, 256-QAM, 30 kHz)	5G NR FR1 TDD	10.78	±0.6 %
10978	AAA	ULLA BCR	ULLA	1.16	±0.6 %
10979	AAA	ULLA HDR2	ULLA	8.08	±0.6 %
10980	AA0	ULLA HDR3	ULLA	10.32	±0.6 %
10981	AA0	ULLA HDR4	ULLA	1.19	±0.6 %
10982	AAA	ULLA HDR5	ULLA	3.43	±0.6 %
10983	AA0	5G NR DL (CP-OFDM, TM 3.1, 40 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	9.31	±0.6 %
10984	AA0	5G NR DL (CP-OFDM, TM 3.1, 50 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	9.42	±0.6 %
10985	AA0	5G NR DL (CP-OFDM, TM 3.1, 40 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.54	±0.6 %
10986	AA0	5G NR DL (CP-OFDM, TM 3.1, 50 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.50	±0.6 %
10987	AA0	5G NR DL (CP-OFDM, TM 3.1, 60 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.53	±0.6 %
10988	AA0	5G NR DL (CP-OFDM, TM 3.1, 70 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.38	±0.6 %
10989	AA0	5G NR DL (CP-OFDM, TM 3.1, 80 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.13	±0.6 %
10990	AA0	5G NR DL (CP-OFDM, TM 3.1, 90 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.52	±0.6 %
11002	AAA	5G NR DL (CP-OFDM, TM 3.1, 30 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	10.24	±0.6 %
11004	AAA	5G NR DL (CP-OFDM, TM 3.1, 40 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	10.73	±0.6 %
11005	AAA	5G NR DL (CP-OFDM, TM 3.1, 25 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.70	±0.6 %
11006	AAA	5G NR DL (CP-OFDM, TM 3.1, 40 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	9.05	±0.6 %
11007	AAA	5G NR DL (CP-OFDM, TM 3.1, 40 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	5.46	±0.6 %
11008	AAA	5G NR DL (CP-OFDM, TM 3.1, 50 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	6.51	±0.6 %
11009	AAA	5G NR DL (CP-OFDM, TM 3.1, 35 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	9.78	±0.6 %
11010	AAA	5G NR DL (CP-OFDM, TM 3.1, 30 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8.95	±0.6 %
11011	AAA	5G NR DL (CP-OFDM, TM 3.1, 40 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	9.98	±0.6 %
11012	AAA	5G NR DL (CP-OFDM, TM 3.1, 50 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	9.98	±0.6 %
11013	AAA	IEEE 802.11be (320MHz, MCS1, 99pc duty cycle)	WLAN	8.47	±0.6 %
11014	AAA	IEEE 802.11be (320MHz, MCS2, 99pc duty cycle)	WLAN	8.45	±0.6 %
11015	AAA	IEEE 802.11be (320MHz, MCS3, 99pc duty cycle)	WLAN	8.44	±0.6 %
11016	AAA	IEEE 802.11be (320MHz, MCS4, 99pc duty cycle)	WLAN	8.44	±0.6 %
11017	AAA	IEEE 802.11be (320MHz, MCS5, 99pc duty cycle)	WLAN	8.41	±0.6 %
11018	AAA	IEEE 802.11be (320MHz, MCS6, 99pc duty cycle)	WLAN	8.41	±0.6 %
11019	AAA	IEEE 802.11be (320MHz, MCS7, 99pc duty cycle)	WLAN	8.39	±0.6 %
11020	AAA	IEEE 802.11be (320MHz, MCS8, 99pc duty cycle)	WLAN	8.37	±0.6 %
11021	AAA	IEEE 802.11be (320MHz, MCS9, 99pc duty cycle)	WLAN	8.48	±0.6 %
11022	AAA	IEEE 802.11be (320MHz, MCS10, 99pc duty cycle)	WLAN	8.36	±0.6 %
11023	AAA	IEEE 802.11be (320MHz, MCS11, 99pc duty cycle)	WLAN	8.08	±0.6 %
11024	AAA	IEEE 802.11be (320MHz, MCS12, 99pc duty cycle)	WLAN	8.42	±0.6 %
11025	AAA	IEEE 802.11be (320MHz, MCS13, 99pc duty cycle)	WLAN	8.37	±0.6 %
11026	AAA	IEEE 802.11be (320MHz, MCS14, 99pc duty cycle)	WLAN	8.38	±0.6 %

* Intensity is determined using the max. deviation from linear response, excluding rectangular distortion and is expressed for the square of the field value.

Schmid & Partner Engineering AG
Zeughausstrasse 43, 8054 Zurich, Switzerland
Phone +41 44 245 8700, Fax +41 44 245 9778
www.speag.ch, info@speag.ch

s p e a g

IMPORTANT NOTICE

USAGE OF THE DAE4

The DAE unit is a delicate, high precision instrument and requires careful treatment by the user. There are no serviceable parts inside the DAE. Special attention shall be given to the following points:

Battery Exchange: The battery cover of the DAE4 unit is closed using a screw, over tightening the screw may cause the threads inside the DAE to wear out.

Shipping of the DAE: Before shipping the DAE to SPEAG for calibration, remove the batteries and pack the DAE in an antistatic bag. This antistatic bag shall then be packed into a larger box or container which protects the DAE from impacts during transportation. The package shall be marked to indicate that a fragile instrument is inside.

E-Stop Failures: Touch detection may be malfunctioning due to broken magnets in the E-stop. Rough handling of the E-stop may lead to damage of these magnets. Touch and collision errors are often caused by dust and dirt accumulated in the E-stop. To prevent E-stop failure, the customer shall always mount the probe to the DAE carefully and keep the DAE unit in a non-dusty environment if not used for measurements.

Repair: Minor repairs are performed at no extra cost during the calibration. However, SPEAG reserves the right to charge for any repair especially if rough/unprofessional handling caused the defect.

DASY Configuration Files: Since the exact values of the DAE input resistances, as measured during the calibration procedure of a DAE unit, are not used by the DASY software, a nominal value of 200 MOhm is given in the corresponding configuration file.

Important Note:

Warranty and calibration is void if the DAE unit is disassembled partly or fully by the Customer.

Important Note:

Never attempt to grease or oil the E-stop assembly. Cleaning and readjusting of the E-stop assembly is allowed by certified SPEAG personnel only and is part of the calibration procedure.

Important Note:

To prevent damage of the DAE probe connector pins, use great care when installing the probe to the DAE. Carefully connect the probe with the connector notch oriented in the mating position. Avoid any rotational movement of the probe body versus the DAE while turning the locking nut of the connector. The same care shall be used when disconnecting the probe from the DAE.

**Calibration Laboratory of
Schmid & Partner
Engineering AG**
Zeughausstrasse 43, 8004 Zurich, Switzerland



S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
S Servizio svizzero di taratura
S Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 0108

Client: **TUV**
Shenzhen

Certificate No.: DAE4-1557_Oct24

CALIBRATION CERTIFICATE

Object: DAE4 - SD 000 D04 BN - SN: 1557

Calibration procedure(s): QA CAL-06.v30
Calibration procedure for the data acquisition electronics (DAE)

Calibration date: October 08, 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 $(22 \pm 3)^\circ\text{C}$ and humidity $< 70\%$.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Data (Certificate No.)	Scheduled Calibration
Kelthley Multimeter Type 2001	SN: 0810278	27-Aug-24 (No.40547)	Aug-25
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Auto DAE Calibration Unit	SF UWS 053 AA 1001	23-Jan-24 (in house check)	In house check: Jan-25
Calibrator Box V2.1	SE UMS 006 AA 1002	23-Jan-24 (in house check)	In house check: Jan-25

Calibrated by:	Name Adrian Gehring	Function Laboratory Technician	Signature 
Approved by:	Sven Kühn	Technical Manager	

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**Calibration Laboratory of
Schmid & Partner
Engineering AG**
Zughausstrasse 4b, 8004 Zurich, Switzerland

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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 following parameters as documented in the Appendix contain technical information as a result from the performance test and require no uncertainty.
 - **DC Voltage Measurement Linearity:** Verification of the Linearity at +10% and -10% of the nominal calibration voltage. Influence of offset voltage is included in this measurement.
 - **Common mode sensitivity:** Influence of a positive or negative common mode voltage on the differential measurement.
 - **Channel separation:** Influence of a voltage on the neighbor channels not subject to an input voltage.
 - **AD Converter Values with inputs shorted:** Values on the internal AD converter corresponding to zero input voltage
 - **Input Offset Measurement:** Output voltage and statistical results over a large number of zero voltage measurements.
 - **Input Offset Current:** Typical value for information; Maximum channel input offset current, not considering the input resistance.
 - **Input resistance:** Typical value for information; DAE input resistance at the connector, during internal auto-zeroing and during measurement
 - **Low Battery Alarm Voltage:** Typical value for information. Below this voltage, a battery alarm signal is generated.
 - **Power consumption:** Typical value for information. Supply currents in various operating modes.

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	405.027 ± 0.02% (k=2)	404.694 ± 0.02% (k=2)	404.784 ± 0.02% (k=2)
Low Range	3.97303 ± 1.50% (k=2)	4.00504 ± 1.50% (k=2)	3.99067 ± 1.50% (k=2)

Connector Angle

Connector Angle to be used in DASY system	52.5 ° ± 1 °
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Appendix (Additional assessments outside the scope of SCS0108)

1. DC Voltage Linearity

High Range		Reading (μV)	Difference (μV)	Error (%)
Channel X	+ Input	199998.64	2.42	0.00
Channel X	+ Input	20004.22	1.33	0.01
Channel X	- Input	-19998.68	3.45	-0.02
Channel Y	+ Input	199997.78	1.71	0.00
Channel Y	+ Input	20002.60	-0.05	-0.00
Channel Y	- Input	-20002.53	-0.09	0.00
Channel Z	+ Input	199997.83	1.48	0.00
Channel Z	+ Input	20000.83	-1.79	-0.01
Channel Z	- Input	-20002.41	0.05	-0.00

Low Range		Reading (μV)	Difference (μV)	Error (%)
Channel X	+ Input	2001.16	-0.00	-0.00
Channel X	+ Input	202.26	0.97	0.46
Channel X	- Input	-197.33	1.15	-0.58
Channel Y	+ Input	2001.07	-0.02	-0.00
Channel Y	+ Input	200.67	-0.49	-0.24
Channel Y	- Input	-199.11	-0.64	0.32
Channel Z	+ Input	2001.03	-0.01	-0.00
Channel Z	+ Input	200.51	-0.64	-0.32
Channel Z	- Input	-199.71	-1.07	0.54

2. Common mode sensitivity

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

	Common mode Input Voltage (mV)	High Range Average Reading (μV)	Low Range Average Reading (μV)
Channel X	200	0.08	-2.12
	-200	4.52	2.85
Channel Y	200	4.23	4.10
	-200	-5.11	-5.78
Channel Z	200	2.94	2.93
	-200	-5.29	-5.31

3. Channel separation

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

	Input Voltage (mV)	Channel X (μV)	Channel Y (μV)	Channel Z (μV)
Channel X	200	-	-1.30	-1.62
Channel Y	200	5.72	-	0.28
Channel Z	200	10.64	2.33	-

4. AD-Converter Values with inputs shorted

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

	High Range (LSB)	Low Range (LSB)
Channel X	15803	16236
Channel Y	15752	14466
Channel Z	16034	16152

5. Input Offset Measurement

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec
Input 10MΩ

	Average (μV)	min. Offset (μV)	max. Offset (μV)	Std. Deviation (μV)
Channel X	0.84	0.22	1.36	0.23
Channel Y	-1.95	-3.47	-1.17	0.33
Channel Z	-2.19	-3.07	-1.00	0.41

6. Input Offset Current

Nominal input circuitry offset current on all channels: <25fA

7. Input Resistance (Typical values for information)

	Zeroing (kΩm)	Measuring (MΩm)
Channel X	200	200
Channel Y	200	200
Channel Z	200	200

8. Low Battery Alarm Voltage (Typical values for information)

Typical values	Alarm Level (VDC)
Supply (+ Vcc)	+7.9
Supply (- Vcc)	-7.6

9. Power Consumption (Typical values for information)

Typical values	Switched off (mA)	Stand by (mA)	Transmitting (mA)
Supply (+ Vcc)	+0.01	+6	+14
Supply (- Vcc)	-0.01	-8	-9