

Client

Emtek(Shenzhen)

Certificate No: **Z22-60036**

CALIBRATION CERTIFICATE

Object **D2450V2 - SN: 927**

Calibration Procedure(s) **FF-Z11-003-01**
Calibration Procedures for dipole validation kits

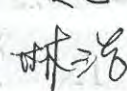
Calibration date: **February 16, 2022**

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Power Meter NRP2	106277	24-Sep-21 (CTTL, No.J21X08326)	Sep-22
Power sensor NRP8S	104291	24-Sep-21 (CTTL, No.J21X08326)	Sep-22
Reference Probe EX3DV4	SN 7307	26-May-21(SPEAG,No.EX3-7307_May21)	May-22
DAE4	SN 1556	12-Jan-22(CTTL-SPEAG,No.Z22-60007)	Jan-23
Secondary Standards	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Signal Generator E4438C	MY49071430	13-Jan-22 (CTTL, No. J22X00409)	Jan-23
Network Analyzer E5071C	MY46110673	14-Jan-22 (CTTL, No.J22X00406)	Jan-23

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

Issued: February 21, 2022

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.

Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2079 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com http://www.chinattl.cn

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:

- a) IEC/IEEE 62209-1528, "Measurement Procedure for The Assessment of Specific Absorption Rate of Human Exposure to Radio Frequency Fields from Hand-held and Body-mounted Wireless Communication Devices- Part 1528: Human Models, Instrumentation and Procedures (Frequency range of 4 MHz to 10 GHz)", October 2020
- b) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

- c) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

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

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

Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2079 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com http://www.chinattl.cn

Measurement Conditions

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

DASY Version	DASY52	52.10.4
Extrapolation	Advanced Extrapolation	
Phantom	Triple Flat Phantom 5.1C	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	2450 MHz $\pm$ 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	40.1 $\pm$ 6 %	1.81 mho/m $\pm$ 6 %
Head TSL temperature change during test	<1.0 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	13.0 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	52.1 W/kg $\pm$ 18.8 % (k=2)
SAR averaged over 10 cm ³ (10 g) of Head TSL	Condition	
SAR measured	250 mW input power	6.05 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	24.2 W/kg $\pm$ 18.7 % (k=2)

Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2079 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com http://www.chinattl.cn

Appendix (Additional assessments outside the scope of CNAS L0570)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	$51.4\Omega + 4.47j\Omega$
Return Loss	- 26.7dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.067 ns
----------------------------------	----------

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

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feed-point may be damaged.

Additional EUT Data

Manufactured by	SPEAG
-----------------	-------

Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2079 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com http://www.chinattl.cn

DASY5 Validation Report for Head TSL

Date: 2022-02-16

Test Laboratory: CTTL, Beijing, China

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN: 927

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

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.812$ S/m; $\epsilon_r = 40.05$; $\rho = 1000$ kg/m³

Phantom section: Right Section

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

DASY5 Configuration:

- Probe: EX3DV4 - SN7307; ConvF(7.75, 7.75, 7.75) @ 2450 MHz; Calibrated: 2021-05-26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1556; Calibrated: 2022-01-12
- Phantom: MFP_V5.1C (20deg probe tilt); Type: QD 000 P51 Cx; Serial: 1062
- DASY52 52.10.4(1535); SEMCAD X 14.6.14(7501)

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

Reference Value = 106.2 V/m; Power Drift = 0.01 dB

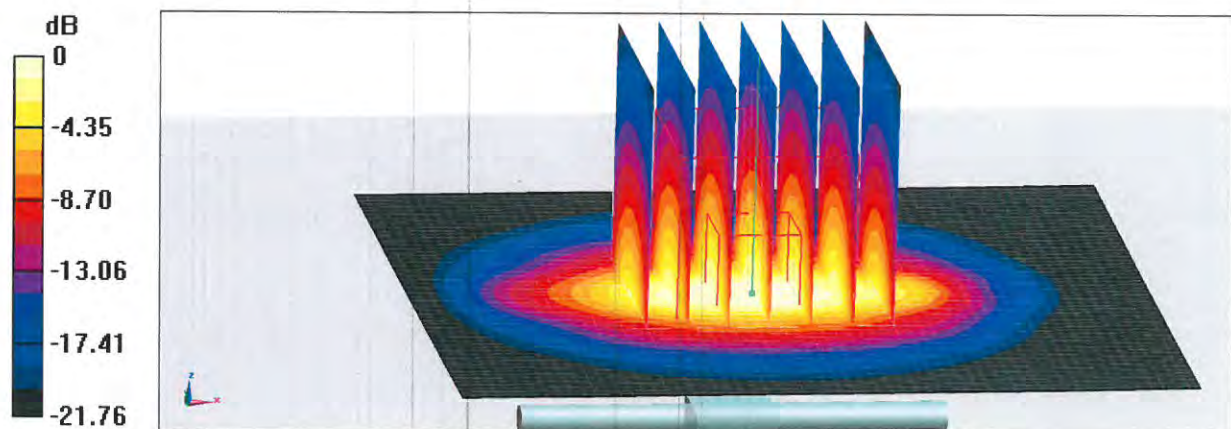
Peak SAR (extrapolated) = 26.3 W/kg

SAR(1 g) = 13 W/kg; SAR(10 g) = 6.05 W/kg

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

Ratio of SAR at M2 to SAR at M1 = 50.1%

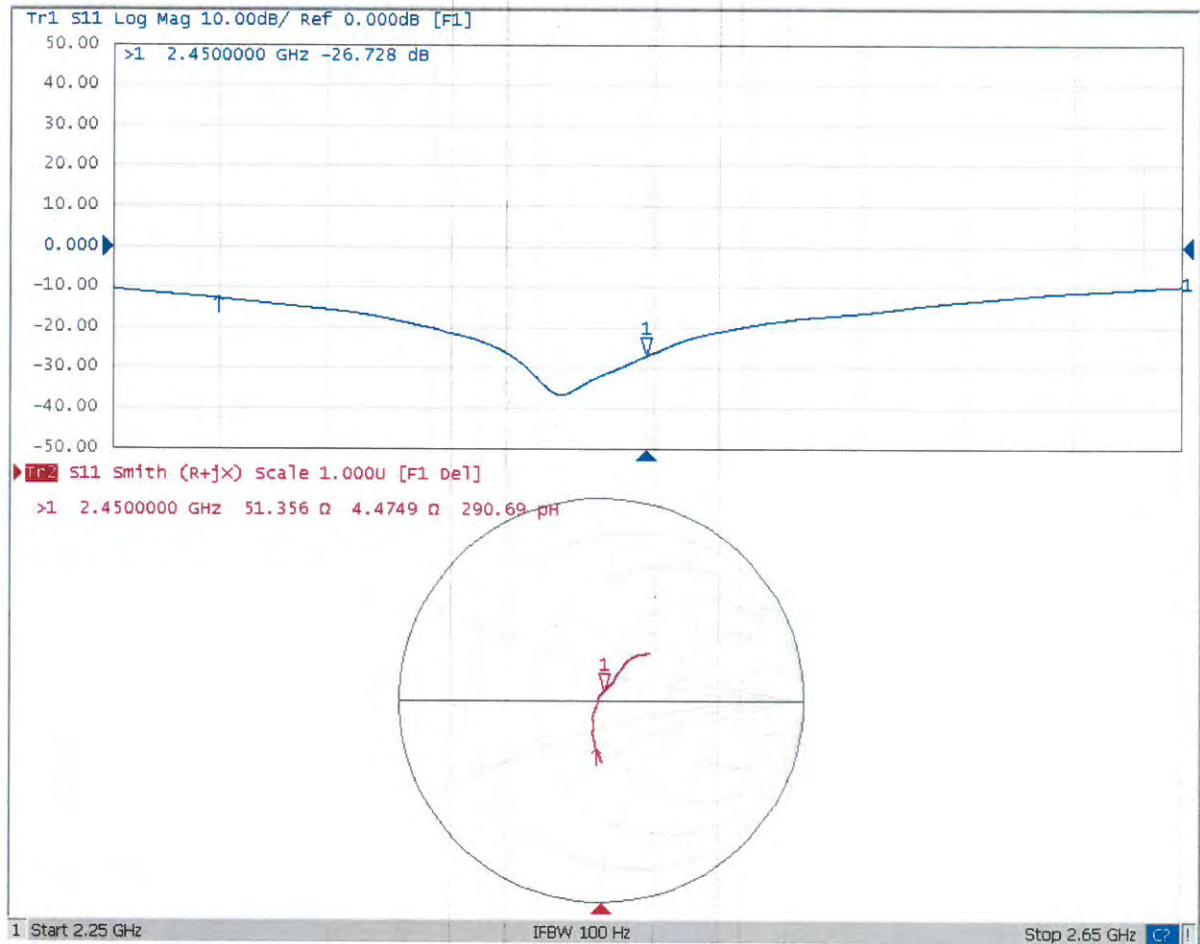
Maximum value of SAR (measured) = 21.6 W/kg



0 dB = 21.6 W/kg = 13.34 dBW/kg

Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China
 Tel: +86-10-62304633-2079 Fax: +86-10-62304633-2504
 E-mail: cttl@chinattl.com http://www.chinattl.cn

Impedance Measurement Plot for Head TSL



Client

Emtek(Shenzhen)

Certificate No: Z22-60037

CALIBRATION CERTIFICATE

Object D5GHzV2 - SN: 1169

Calibration Procedure(s) FF-Z11-003-01
Calibration Procedures for dipole validation kits

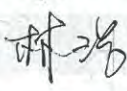
Calibration date: February 15, 2022

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Power Meter NRP2	106277	24-Sep-21 (CTTL, No.J21X08326)	Sep-22
Power sensor NRP8S	104291	24-Sep-21 (CTTL, No.J21X08326)	Sep-22
Reference Probe EX3DV4	SN 7307	26-May-21(SPEAG,No.EX3-7307_May21)	May-22
DAE4	SN 1556	12-Jan-22(CTTL-SPEAG,No.Z22-60007)	Jan-23
Secondary Standards	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Signal Generator E4438C	MY49071430	13-Jan-22 (CTTL, No. J22X00409)	Jan-23
Network Analyzer E5071C	MY46110673	14-Jan-22 (CTTL, No.J22X00406)	Jan-23

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

Issued: February 21, 2022

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.

Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2079 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com http://www.chinattl.cn

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:

- a) IEC/IEEE 62209-1528, "Measurement Procedure for The Assessment of Specific Absorption Rate of Human Exposure to Radio Frequency Fields from Hand-held and Body-mounted Wireless Communication Devices- Part 1528: Human Models, Instrumentation and Procedures (Frequency range of 4 MHz to 10 GHz)", October 2020
- b) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

- c) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

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

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



Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2079 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com http://www.chinattl.cn

Measurement Conditions

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

DASY Version	DASY52	52.10.4
Extrapolation	Advanced Extrapolation	
Phantom	Triple Flat Phantom 5.1C	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy = 4 mm, dz = 1.4 mm	Graded Ratio = 1.4 (Z direction)
Frequency	5250 MHz $\pm$ 1 MHz 5600 MHz $\pm$ 1 MHz 5750 MHz $\pm$ 1 MHz	

Head TSL parameters at 5250MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.9	4.71 mho/m
Measured Head TSL parameters	(22.0 $\pm$ 0.2) °C	35.3 $\pm$ 6 %	4.65 mho/m $\pm$ 6 %
Head TSL temperature change during test	<1.0 °C	----	----

SAR result with Head TSL at 5250MHz

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	7.68 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	76.5 W/kg $\pm$ 24.4 % (k=2)
SAR averaged over 10 cm³ (10 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.15 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	21.4 W/kg $\pm$ 24.2 % (k=2)

Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2079 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com http://www.chinattl.cn

Head TSL parameters at 5600MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.5	5.07 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	34.7 ± 6 %	5.02 mho/m ± 6 %
Head TSL temperature change during test	<1.0 °C	----	----

SAR result with Head TSL at 5600MHz

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	7.91 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	78.7 W/kg ± 24.4 % (k=2)
SAR averaged over 10 cm³ (10 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.21 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	22.0 W/kg ± 24.2 % (k=2)

Head TSL parameters at 5750MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.4	5.22 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	34.5 ± 6 %	5.18 mho/m ± 6 %
Head TSL temperature change during test	<1.0 °C	----	----

SAR result with Head TSL at 5750MHz

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	7.56 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	75.2 W/kg ± 24.4 % (k=2)
SAR averaged over 10 cm³ (10 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.11 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	21.0 W/kg ± 24.2 % (k=2)



Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2079 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com http://www.chinattl.cn

Appendix (Additional assessments outside the scope of CNAS L0570)

Antenna Parameters with Head TSL at 5250MHz

Impedance, transformed to feed point	48.8Ω- 5.12jΩ
Return Loss	- 25.5dB

Antenna Parameters with Head TSL at 5600MHz

Impedance, transformed to feed point	55.4Ω- 0.92jΩ
Return Loss	- 25.7dB

Antenna Parameters with Head TSL at 5750MHz

Impedance, transformed to feed point	54.6Ω- 3.79jΩ
Return Loss	- 24.8dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.112 ns
----------------------------------	----------

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

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feed-point may be damaged.

Additional EUT Data

Manufactured by	SPEAG
-----------------	-------



Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2079 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com http://www.chinattl.cn

DASY5 Validation Report for Head TSL

Date: 2022-02-15

Test Laboratory: CTTL, Beijing, China

DUT: Dipole 5GHz; Type: D5GHzV2; Serial: D5GHzV2 - SN: 1169

Communication System: CW; Frequency: 5250 MHz, Frequency: 5600 MHz,
Frequency: 5750 MHz Duty Cycle: 1:1

Medium parameters used: $f = 5250 \text{ MHz}$; $\sigma = 4.645 \text{ S/m}$; $\epsilon_r = 35.33$; $\rho = 1000 \text{ kg/m}^3$

Medium parameters used: $f = 5600 \text{ MHz}$; $\sigma = 5.02 \text{ S/m}$; $\epsilon_r = 34.74$; $\rho = 1000 \text{ kg/m}^3$

Medium parameters used: $f = 5750 \text{ MHz}$; $\sigma = 5.182 \text{ S/m}$; $\epsilon_r = 34.52$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

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

DASY5 Configuration:

- Probe: EX3DV4 - SN7307; ConvF(5.69, 5.69, 5.69) @ 5250 MHz;
ConvF(5.1, 5.1, 5.1) @ 5600 MHz; ConvF(5.05, 5.05, 5.05) @ 5750 MHz;
Calibrated: 2021-05-26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1556; Calibrated: 2022-01-12
- Phantom: MFP_V5.1C (20deg probe tilt); Type: QD 000 P51 Cx; Serial:
1062
- DASY52 52.10.4(1535); SEMCAD X 14.6.14(7501)

Dipole Calibration /Pin=100mW, d=10mm, f=5250 MHz/Zoom Scan,
dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 67.00 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 32.3 W/kg

SAR(1 g) = 7.68 W/kg; SAR(10 g) = 2.15 W/kg

Smallest distance from peaks to all points 3 dB below = 7.2 mm

Ratio of SAR at M2 to SAR at M1 = 64.1%

Maximum value of SAR (measured) = 18.3 W/kg

Dipole Calibration /Pin=100mW, d=10mm, f=5600 MHz/Zoom Scan,
dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 66.60 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 36.8 W/kg

SAR(1 g) = 7.91 W/kg; SAR(10 g) = 2.21 W/kg

Smallest distance from peaks to all points 3 dB below = 7.2 mm

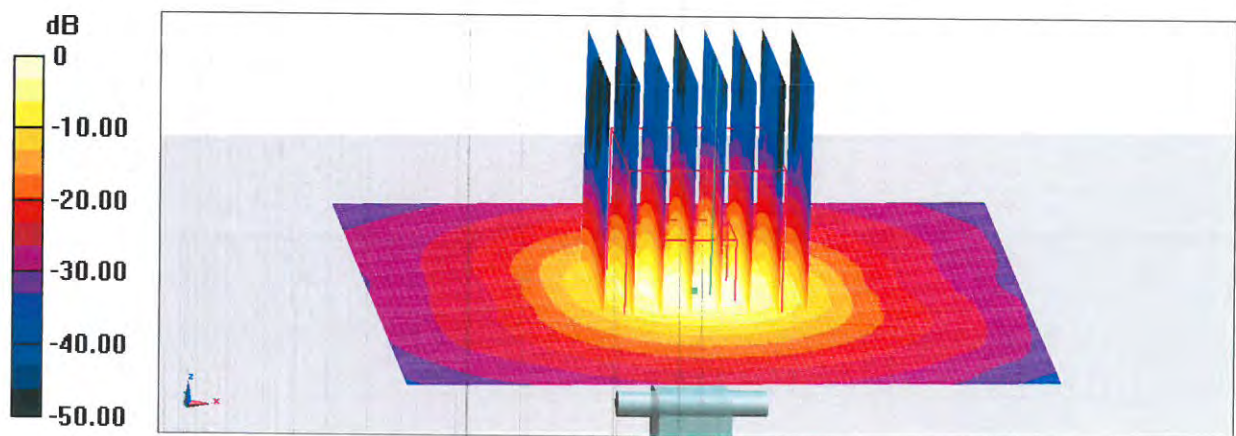
Ratio of SAR at M2 to SAR at M1 = 60.8%

Maximum value of SAR (measured) = 19.5 W/kg



Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2079 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com http://www.chinattl.cn

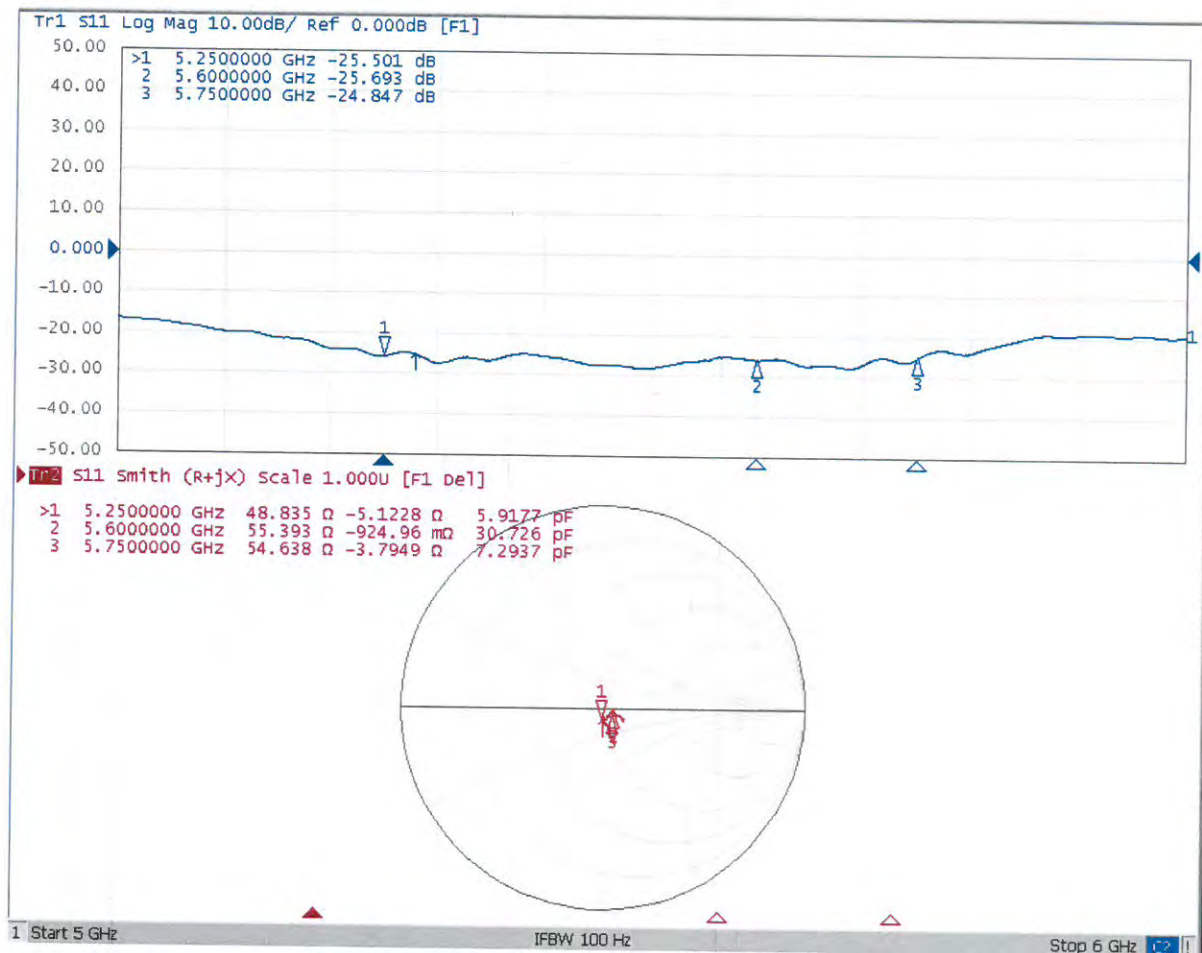
Dipole Calibration /Pin=100mW, d=10mm, f=5750 MHz/Zoom Scan,
dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 68.28 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 37.1 W/kg
SAR(1 g) = 7.56 W/kg; SAR(10 g) = 2.11 W/kg
Smallest distance from peaks to all points 3 dB below = 7.4 mm
Ratio of SAR at M2 to SAR at M1 = 59%
Maximum value of SAR (measured) = 19.0 W/kg





Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2079 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com http://www.chinattl.cn

Impedance Measurement Plot for Head TSL



Client : **Emtek(Shenzhen)**

Certificate No: **Z22-60068**

CALIBRATION CERTIFICATE

Object **DAE4 - SN: 1418**

Calibration Procedure(s) **FF-Z11-002-01**
Calibration Procedure for the Data Acquisition Electronics (DAEx)

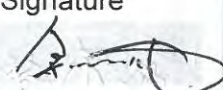
Calibration date: **March 24, 2022**

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date(Calibrated by, Certificate No.)	Scheduled Calibration
Process Calibrator 753	1971018	15-Jun-21 (CTTL, No.J21X04465)	Jun-22

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

Issued: March 28, 2022

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.



Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2512 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com Http://www.chinattl.cn

Glossary:

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

Methods Applied and Interpretation of Parameters:

- *DC Voltage Measurement:* Calibration Factor assessed for use in DASY system by comparison with a calibrated instrument traceable to national standards. The figure given corresponds to the full scale range of the voltmeter in the respective range.
- *Connector angle:* The angle of the connector is assessed measuring the angle mechanically by a tool inserted. Uncertainty is not required.
- The report provide only calibration results for DAE, it does not contain other performance test results.



Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2512 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com Http://www.chinattl.cn

DC Voltage Measurement

A/D - Converter Resolution nominal

High Range: 1LSB = 6.1 μ V, full range = -100...+300 mV

Low Range: 1LSB = 61nV, full range = -1.....+3mV

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

Calibration Factors	X	Y	Z
High Range	404.118 $\pm$ 0.15% (k=2)	404.652 $\pm$ 0.15% (k=2)	404.337 $\pm$ 0.15% (k=2)
Low Range	3.98752 $\pm$ 0.7% (k=2)	3.99972 $\pm$ 0.7% (k=2)	3.97544 $\pm$ 0.7% (k=2)

Connector Angle

Connector Angle to be used in DASY system	153° $\pm$ 1 °
---	----------------

Client **Emtek(Shenzhen)**

Certificate No: **221-60046**

CALIBRATION CERTIFICATE

Object EX3DV4 - SN : 3970

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

Calibration date: March 24, 2022

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date(Calibrated by, Certificate No.)	Scheduled Calibration
Power Meter NRP2	101919	16-Jun-20(CTIL, No.J20X04344)	Jun-21
Power sensor NRP-291	101547	16-Jun-20(CTIL, No.J20X04344)	Jun-21
Power sensor NRP-291	101548	16-Jun-20(CTIL, No.J20X04344)	Jun-21
Reference 10dBAttenuator	18N50W-10dB	10-Feb-20(CTIL, No.J20X00525)	Feb-22
Reference 20dBAttenuator	18N50W-20dB	10-Feb-20(CTIL, No.J20X00526)	Feb-22
Reference Probe EX3DV4	SN 7307	29-May-20(SPEAG, No.EX3-7307_May20)	May-21
DAE4	SN 1555	25-Aug-20(SPEAG, No.DAE4-1555_Aug20)	Aug-21

Secondary Standards	ID #	Cal Date(Calibrated by, Certificate No.)	Scheduled Calibration
SignalGenerator MG3700A	6201052605	23-Jun-20(CTIL, No.J20X04343)	Jun-21
Network Analyzer E5071C	MY46110673	21-Jan-21(CTIL, No.J20X00515)	Jan-22

	Name	Function	Signature
Calibrated by:	Yu Zongying	SAR TestEngineer	<i>j</i>
Reviewed by:	Lin Hao	SAR TestEngineer	/ -11'
Approved by:	Qi Dianyuan	SAR Project Leader	

Issued: April 01, 2022

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.

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 < >	< > rotation around probe axis
Polarization 8	8 rotation around an axis that is in the plane normal to probe axis (at measurement center), i 8=0 is normal to probe axis

Connector Angle information used in DASY system to align probe sensor X to the robot coordinate system

Calibration is Performed According to the Following Standards:

- 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 8=0 (fs900MHz in TEM-cell; f>1800MHz: 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 DASY4 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 f > 800MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 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 DASY version 4.4 and higher which allows extending the validity from ±50MHz to ±100MHz.
- Spherical isotropy (30 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).



In Collaboration with

s p e a g

CALIBRATION LABORATORY

Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China

Tel: +86-10-62304633-2512

Fax: +86-10-62304633-2504

E-mail: ctl@chinattl.com

<http://www.chinattl.cn>

DASY/EASY - Parameters of Probe: EX3DV4 - SN: 3970

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm($\mu\text{V}/(\text{V}/\text{m})^2$) ^A	0.49	0.64	0.26	±10.0%
DCP(mV) ^B	101.3	104.8	95.8	

Calibration Results for Modulation Response

UID	Communication System Name		A dB	B dB ¹ μV	C	D dB	VR mV	Max Dev.	Max Unc E
0	CW	X	0.0	0.0	1.0	0.00	165.6	±2.0%	±4.7%
		Y	0.0	0.0	1.0		194.6		
		Z	0.0	0.0	1.0		108.2		
10352-AAA	Pulse Waveform (200Hz, 10%)	X	15.00	84.63	18.50	10.00	60	±3.1%	±9.6%
		Y	15.00	83.89	17.56		60		
		Z	15.00	85.34	18.81		60		
10353-AAA	Pulse Waveform (200Hz, 20%)	X	15.00	84.44	17.47	6.99	80	±1.6%	±9.6%
		Y	15.00	84.10	16.74		80		
		Z	15.00	84.74	17.54		80		
10354-AAA	Pulse Waveform (200Hz, 40%)	X	15.00	84.90	16.45	3.98	95	±1.1%	±9.6%
		Y	15.00	84.69	15.81		95		
		Z	15.00	84.42	16.09		95		
10355-AAA	Pulse Waveform (200Hz, 60%)	X	15.00	85.26	15.39	2.22	120	±1.1%	±9.6%
		Y	15.00	84.46	14.50		120		
		Z	15.00	84.25	14.78		120		
10387-AAA	QPSK Waveform, 1 MHz	X	1.64	65.51	14.54	1.00	150	±2.7%	±9.6%
		Y	1.45	66.07	14.02		150		
		Z	1.75	65.09	14.53		150		
10388-AAA	QPSK Waveform, 10 MHz	X	2.25	68.04	15.42	0.00	150	±1.3%	±9.6%
		Y	2.02	67.55	15.23		150		
		Z	2.32	67.63	15.17		150		
10396-AAA	64-QAM Waveform, 100 kHz	X	2.95	70.51	19.20	3.01	150	±2.0%	±9.6%
		Y	2.47	69.07	18.88		150		
		Z	3.35	72.31	20.32		150		
10414-AAA	WLAN CCDF, 64-QAM, 40MHz	X	4.89	65.61	15.45	0.00	150	±3.7%	±9.6%
		Y	4.73	65.97	15.62		150		
		Z	4.95	65.13	15.32		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^2 -field uncertainty inside TSL (see Page 5).

^B Numerical linearization parameter: uncertainty not required.

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



DASY/EASY – Parameters of Probe: EX3DV4 – SN: 3970

Sensor Model Parameters

	C1 fF	C2 fF	a v-1	T1 ms.v ⁻²	T2 ms.v ⁻¹	T3 ms	T4 v-2	T5 v-1	TS
X	52.44	394.03	35.85	30.48	0.02	5.10	0.00	0.47	1.02
Y	34.22	255.34	35.39	23.24	0.00	5.10	0.00	0.30	1.02
Z	64.75	509.63	38.82	30.48	0.02	5.10	0.16	0.50	1.02

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	162.2
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	1mm

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3970

Calibration Parameter Determined in Head Tissue Simulating Media

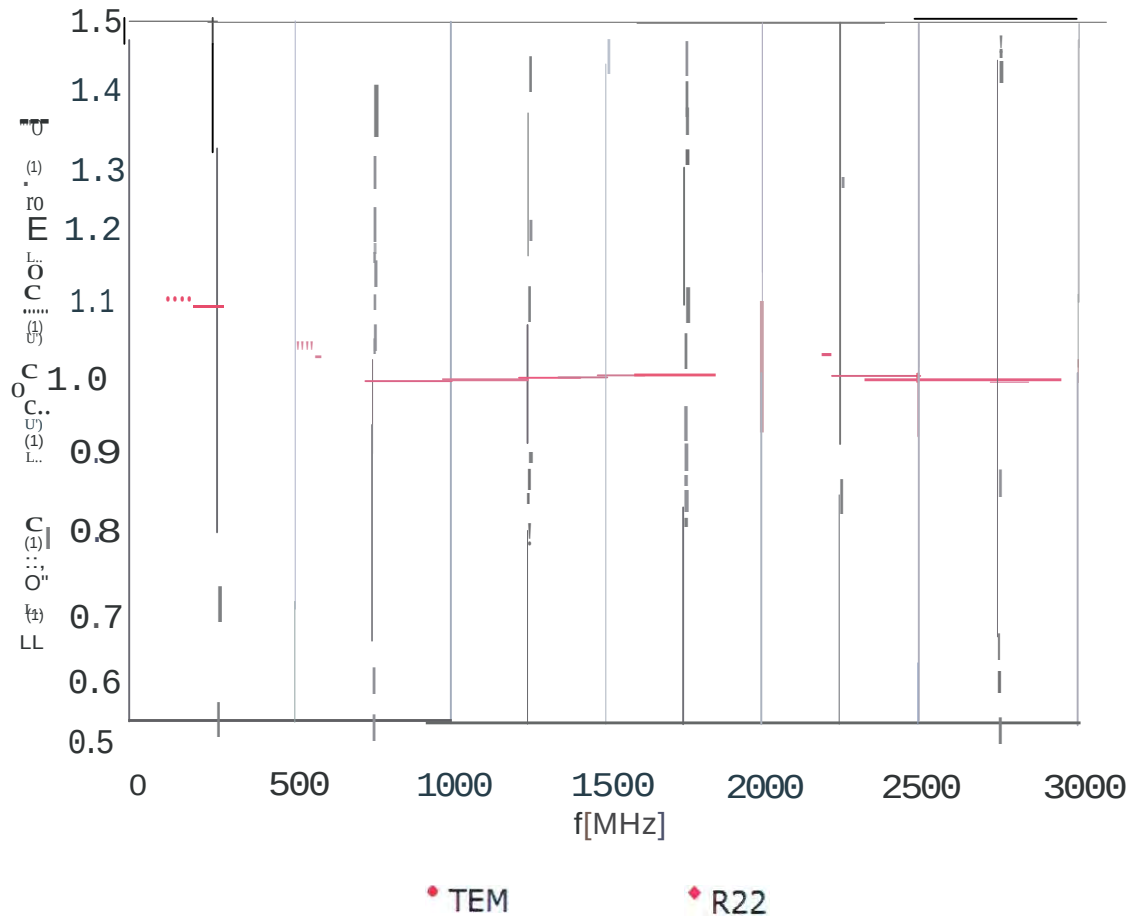
f [MHz] _C	Relative Permittivity _F	Conductivity (S/m) _F	ConvF X	ConvF Y	ConvF Z	AlphaG	DepthG (mm)	Unct. (Jr-2)
750	41.9	0.89	10.50	10.50	10.50	0.40	0.80	±12.1%
835	41.5	0.90	10.30	10.30	10.30	0.17	1.18	±12.1%
900	41.5	0.97	10.16	10.16	10.16	0.14	1.49	±12.1%
1750	40.1	1.37	8.80	8.80	8.80	0.27	1.04	±12.1%
1900	40.0	1.40	8.50	8.50	8.50	0.25	1.09	±12.1%
2300	39.5	1.67	8.27	8.27	8.27	0.65	0.68	±12.1%
2450	39.2	1.80	8.06	8.06	8.06	0.53	0.78	±12.1%
2600	39.0	1.96	7.80	7.80	7.80	0.52	0.77	±12.1%
3500	37.9	2.91	7.15	7.15	7.15	0.45	0.94	±13.3%
3700	37.7	3.12	6.85	6.85	6.85	0.44	1.01	±13.3%
3900	37.5	3.32	6.90	6.90	6.90	0.35	1.30	±13.3%
4100	37.2	3.53	6.84	6.84	6.84	0.40	1.17	±13.3%
4200	37.1	3.63	6.78	6.78	6.78	0.35	1.33	±13.3%
4400	36.9	3.84	6.66	6.66	6.66	0.35	1.33	±13.3%
4600	36.7	4.04	6.48	6.48	6.48	0.40	1.33	±13.3%
4800	36.4	4.25	6.40	6.40	6.40	0.45	1.30	±13.3%
4950	36.3	4.40	6.11	6.11	6.11	0.40	1.40	±13.3%
5250	35.9	4.71	5.85	5.85	5.85	0.45	1.25	±13.3%
5600	35.5	5.07	5.17	5.17	5.17	0.55	1.20	±13.3%
5750	35.4	5.22	5.20	5.20	5.20	0.55	1.30	±13.3%

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

F At frequency below 3 GHz, the validity of tissue parameters (ϵ and σ) can be relaxed to ±10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ϵ and σ) is restricted to ±5%. 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.

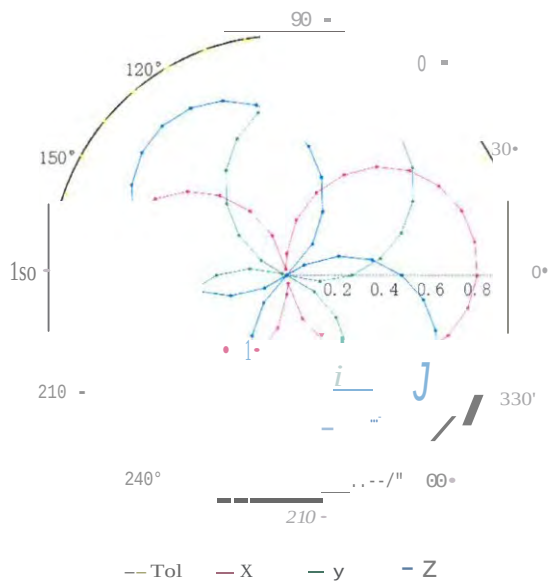
Frequency Response of E-Field (TEM-Cell: ifi110 EXX, Waveguide: R22)



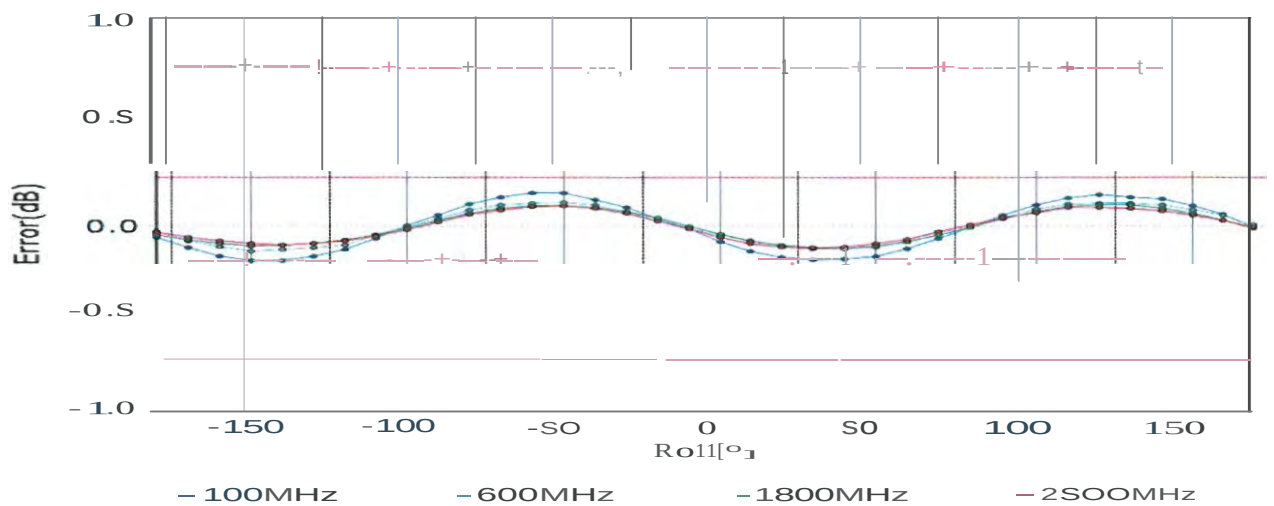
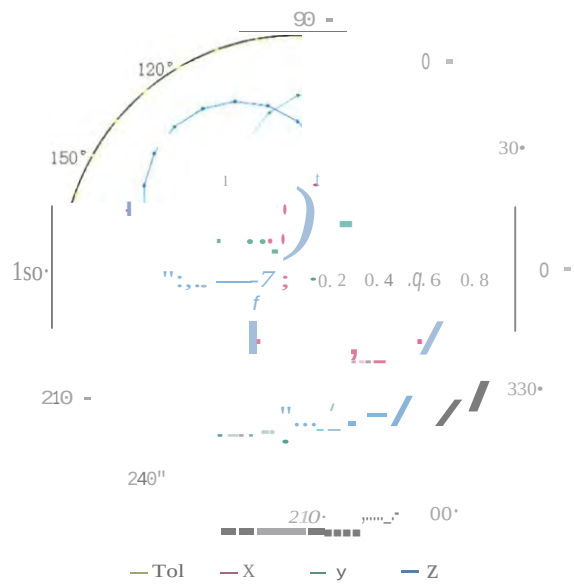
Uncertainty of Frequency Response of E-field: $\pm 7.4\%$ ($k=2$)

Receiving Pattern ($\langle I \rangle$), $\theta = 0^\circ$

f=600 MHz, TEM



f=1800 MHz, R22



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



In Collaboration with

s p e a g
CALIBRATION LABORATORY

Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191. China

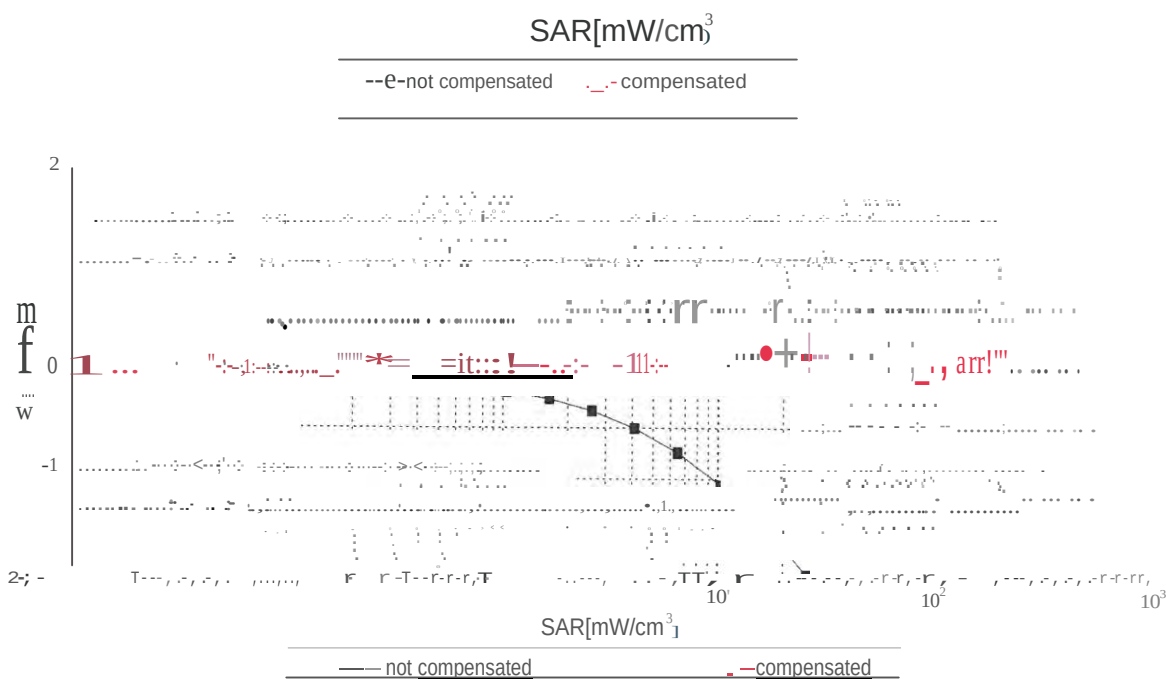
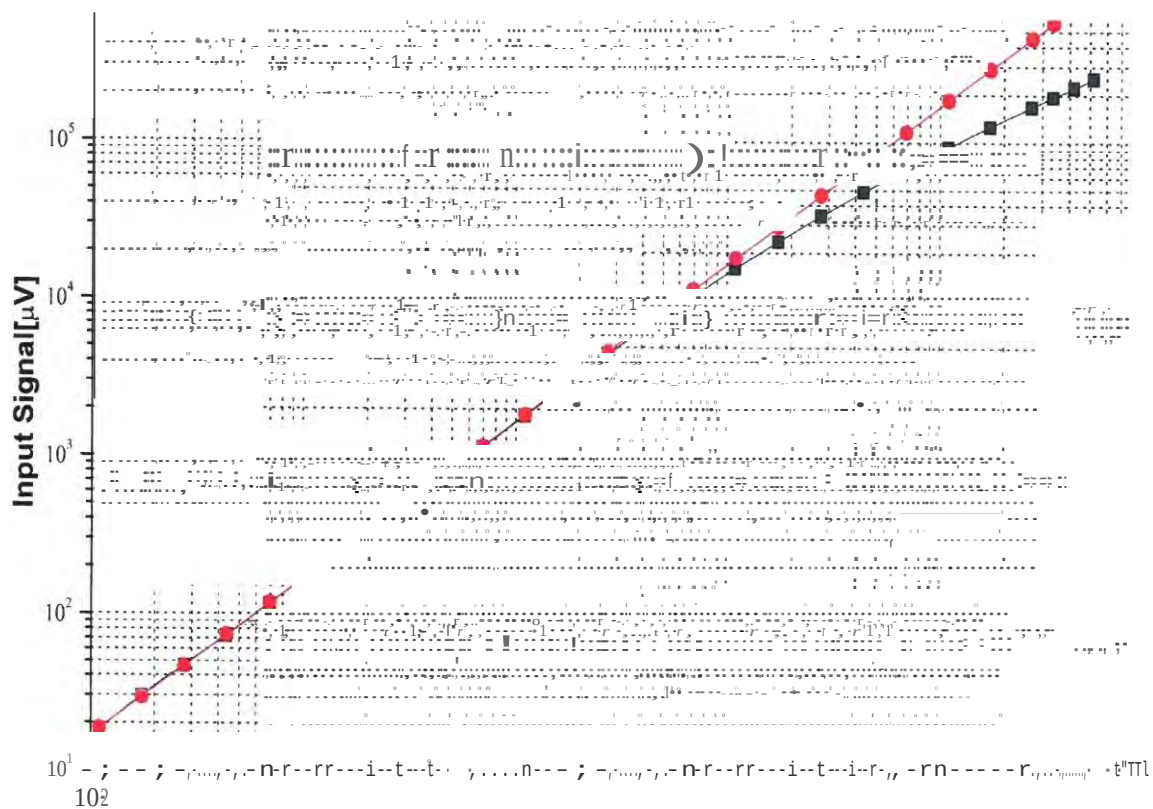
Tel :+86-10-62304633-25 12

Fax: +86-10-62304633-2504

E-mail: cttl@chinattl.com

[Http://www.chinattl.cn](http://www.chinattl.cn)

Dynamic Range f(SARhead) (TEM cell, f = 900 MHz)

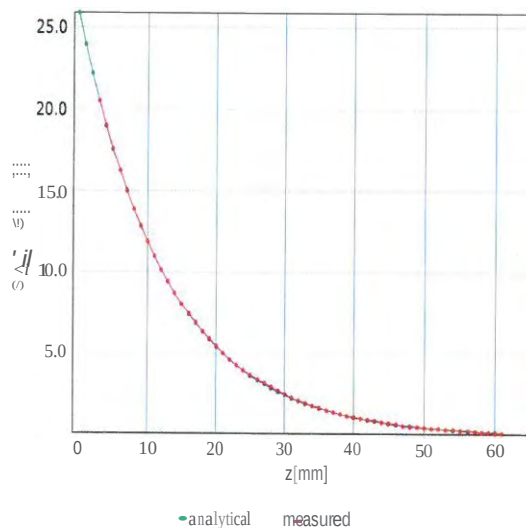
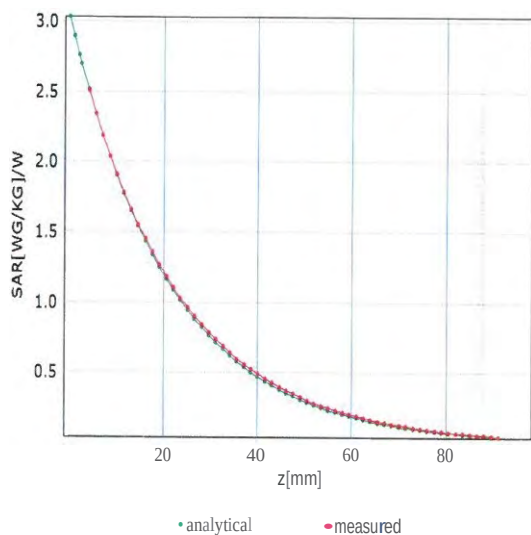


Uncertainty of Linearity Assessment: $\pm 0.9\%$ ($1 \leq 2$)

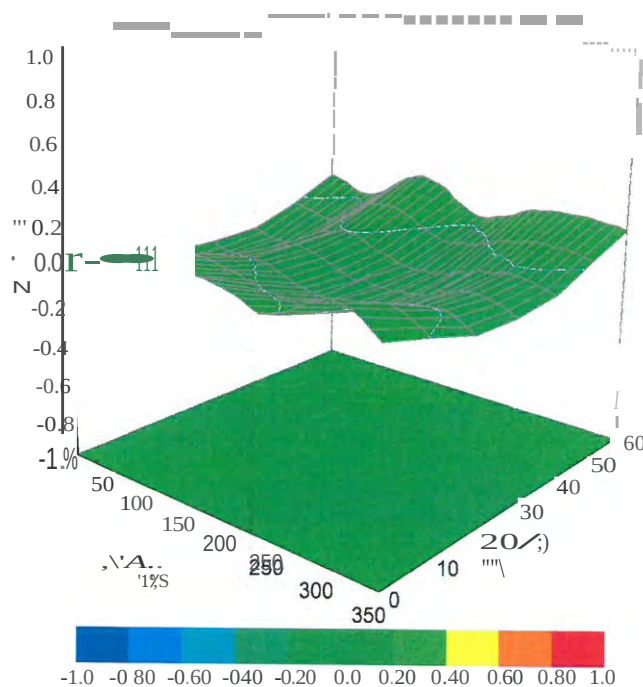
Conversion Factor Assessment

f=750 MHz, WGLS R9(H_convF)

f=1750 MHz, WGLS R22(H_convF)



Deviation from Isotropy in Liquid



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

Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China

Tel: +86-10-62304633-2512

Fax: +86-10-62304633-2504

E-mail: cttl@chinattl.com

[Http://www.chinattl.cn](http://www.chinattl.cn)

Appendix: Modulation Calibration Parameters

UID	Rev	Communication System Name	Group	PAR (dB)	UncE (1 σ -2)
0		CW	CW	0.00	+ 4.7 %
10010	CAA	SAR Validation (Square, 100ms, 10ms)	Test	10.00	$\pm$ 9.6 %
10011	CAB	UMTS-FDD (WCDMA)	WCDMA	2.91	$\pm$ 9.6 %
10012	CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1Mbps)	WLAN	1.87	$\pm$ 9.6 %
10013	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps)	WLAN	9.46	$\pm$ 9.6 %
10021	DAC	GSM-FDD (TOMA, GMSK)	GSM	9.39	$\pm$ 9.6 %
10023	DAC	GPRS-FDD (TOMA, GMSK, TN 0)	GSM	9.57	$\pm$ 9.6 %
10024	DAC	GPRS-FDD (TOMA, GMSK, TN 0-1)	GSM	6.56	$\pm$ 9.6 %
10025	DAC	EDGE-FDD (TOMA, 8PSK, TN 0)	GSM	12.62	$\pm$ 9.6 %
10026	DAC	EDGE-FDD (TOMA, 8PSK, TN 0-1)	GSM	9.55	$\pm$ 9.6 %
10027	DAC	GPRS-FDD (TOMA, GMSK, TN 0-1-2)	GSM	4.80	$\pm$ 9.6 %
10028	DAC	GPRS-FDD (TOMA, GMSK, TN 0-1-2-3)	GSM	3.55	$\pm$ 9.6 %
10029	DAC	EDGE-FDD (TOMA, 8PSK, TN 0-1-2)	GSM	7.78	$\pm$ 9.6 %
10030	CAA	IEEE 802.15.1 Bluetooth (GFSK, DH1)	Bluetooth	5.30	$\pm$ 9.6 %
10031	CAA	IEEE 802.15.1 Bluetooth (GFSK, DH3)	Bluetooth	1.87	$\pm$ 9.6 %
10032	CAA	IEEE 802.15.1 Bluetooth (GFSK, DH5)	Bluetooth	1.16	$\pm$ 9.6 %
10033	CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH1)	Bluetooth	7.74	$\pm$ 9.6 %
10034	CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH3)	Bluetooth	4.53	$\pm$ 9.6 %
10035	CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH5)	Bluetooth	3.83	$\pm$ 9.6 %
10036	CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH1)	Bluetooth	8.01	$\pm$ 9.6 %
10037	CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH3)	Bluetooth	4.77	$\pm$ 9.6 %
10038	CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH5)	Bluetooth	4.10	$\pm$ 9.6 %
10039	CAB	CDMA2000 (1xRTT, RC1)	CDMA2000	4.57	$\pm$ 9.6 %
10042	CAB	IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, Halfrate)	AMPS	7.78	$\pm$ 9.6 %
10044	CAA	IS-91/EIA/TIA-553 FDD (FDMA, FM)	AMPS	0.00	$\pm$ 9.6 %
10048	CAA	DECT (TDD, TDMA/FDM, GFSK, Full Slot, 24)	DECT	13.80	$\pm$ 9.6 %
10049	CAA	DECT (TDD, TDMA/FDM, GFSK, Double Slot, 12)	DECT	10.79	$\pm$ 9.6 %
10056	CAA	UMTS-TDD (TD-SCOMA, 1.28 Mcps)	TD-SCOMA	11.01	$\pm$ 9.6 %
10058	DAC	EDGE-FDD (TOMA, 8PSK, TN 0-1-2-3)	GSM	6.52	$\pm$ 9.6 %
10059	CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps)	WLAN	2.12	$\pm$ 9.6 %
10060	CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps)	WLAN	2.83	$\pm$ 9.6 %
10061	CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11Mbps)	WLAN	3.60	$\pm$ 9.6 %
10062	CAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps)	WLAN	8.68	$\pm$ 9.6 %
10063	CAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps)	WLAN	8.63	$\pm$ 9.6 %
10064	CAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps)	WLAN	9.09	$\pm$ 9.6 %
10065	CAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps)	WLAN	9.00	$\pm$ 9.6 %
10066	CAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps)	WLAN	9.38	$\pm$ 9.6 %
10067	CAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps)	WLAN	10.12	$\pm$ 9.6 %
10068	CAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps)	WLAN	10.24	$\pm$ 9.6 %
10069	CAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps)	WLAN	10.56	$\pm$ 9.6 %
10071	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 9 Mbps)	WLAN	9.83	$\pm$ 9.6 %
10072	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 12 Mbps)	WLAN	9.62	$\pm$ 9.6 %
10073	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 18 Mbps)	WLAN	9.94	$\pm$ 9.6 %
10074	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 24 Mbps)	WLAN	10.30	$\pm$ 9.6 %
10075	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 36 Mbps)	WLAN	10.77	$\pm$ 9.6 %
10076	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 48 Mbps)	WLAN	10.94	$\pm$ 9.6 %
10077	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 54 Mbps)	WLAN	11.00	$\pm$ 9.6 %
10081	CAB	CDMA2000 (1xRTT, RC3)	CDMA2000	3.97	$\pm$ 9.6 %
10082	CAB	IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, Fullrate)	AMPS	4.77	$\pm$ 9.6 %
10090	DAC	GPRS-FDD (TOMA, GMSK, TN 0-4)	GSM	6.56	$\pm$ 9.6 %
10097	CAC	UMTS-FDD (HSDPA)	WCDMA	3.98	$\pm$ 9.6 %
10098	DAC	UMTS-FDD (HSUPA, Subtest 2)	WCDMA	3.98	$\pm$ 9.6 %
10099	CAC	EDGE-FDD (TOMA, 8PSK, TN 0-4)	GSM	9.55	$\pm$ 9.6 %
10100	CAC	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	LTE-FDD	5.67	$\pm$ 9.6 %
10101	CAB	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	LTE-FDD	6.42	$\pm$ 9.6 %



In Collaboration with

s p e c i a l i z e d
CALIBRATION LABORATORY

Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China

Tel: +86-10-62304633-2512

Fax: +86-10-62304633-2504

E-mail: cnl@chinattl.com

[Http://www.chinattl.cn](http://www.chinattl.cn)

10102	CAB	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	LTE-FDD	6.60	+ 9.6%
10103	DA	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	LTE-TDD	9.29	+ 9.6%
10104	G	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	LTE-TDD	9.97	+ 9.6%
10105	CAE	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	LTE-TDD	10.01	+ 9.6%
10108	CAE	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	LTE-FDD	5.80	+ 9.6%
10109	GAG	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)	LTE-FDD	6.43	+ 9.6%
10110	GAG	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, QPSK)	LTE-FDD	5.75	+ 9.6%
10111	GAG	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)	LTE-FDD	6.44	+ 9.6%
10112	GAG	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)	LTE-FDD	6.59	+ 9.6%
10113	GAG	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)	LTE-FDD	6.62	+ 9.6%
10114	GAG	IEEE 802.11n (HT Greenfield, 13.5 Mbps, BPSK)	WLAN	8.10	+ 9.6%
10115	GAG	IEEE 802.11n (HT Greenfield, 81 Mbps, 16-QAM)	WLAN	8.46	+ 9.6%
10116	GAG	IEEE 802.11n (HT Greenfield, 135 Mbps, 64-QAM)	WLAN	8.15	+ 9.6%
10117	GAG	IEEE 802.11n (HT Mixed, 13.5 Mbps, BPSK)	WLAN	8.07	+ 9.6%
10118	CAD	IEEE 802.11n (HT Mixed, 81 Mbps, 16-QAM)	WLAN	8.59	+ 9.6%
10119	CAD	IEEE 802.11n (HT Mixed, 135 Mbps, 64-QAM)	WLAN	8.13	+ 9.6%
10140	CAD	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)	LTE-FDD	6.49	+ 9.6%
10141	CAD	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)	LTE-FDD	6.53	+ 9.6%
10142	CAD	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, QPSK)	LTE-FDD	5.73	+ 9.6%
10143	CAD	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)	LTE-FDD	6.35	+ 9.6%
10144	CAC	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	LTE-FDD	6.65	+ 9.6%
10145	CAC	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	LTE-FDD	5.76	+ 9.6%
10146	CAC	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)	LTE-FDD	6.41	+ 9.6%
10147	CAC	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)	LTE-FDD	6.72	+ 9.6%
10149	GAE	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)	LTE-FDD	6.42	+ 9.6%
10150	GAE	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)	LTE-FDD	6.60	+ 9.6%
10151	GAE	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	LTE-TDD	9.28	+ 9.6%
10152	GAE	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)	LTE-TDD	9.92	+ 9.6%
10153	GAE	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)	LTE-TDD	10.05	+ 9.6%
10154	GAF	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	LTE-FDD	5.75	+ 9.6%
10155	GAF	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)	LTE-FDD	6.43	+ 9.6%
10156	GAF	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, QPSK)	LTE-FDD	5.79	+ 9.6%
10157	GAE	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)	LTE-FDD	6.49	+ 9.6%
10158	GAE	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)	LTE-FDD	6.62	+ 9.6%
10159	GAG	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)	LTE-FDD	6.56	+ 9.6%
10160	GAG	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	LTE-FDD	5.82	+ 9.6%
10161	GAG	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)	LTE-FDD	6.43	+ 9.6%
10162	GAG	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)	LTE-FDD	6.58	+ 9.6%
10166	GAG	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)	LTE-FDD	5.46	+ 9.6%
10167	GAG	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)	LTE-FDD	6.21	+ 9.6%
10168	CAG	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)	LTE-FDD	6.79	+ 9.6%
10169	CAG	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	LTE-FDD	5.73	+ 9.6%
10170	GAG	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	LTE-FDD	6.52	+ 9.6%
10171	GAE	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	LTE-FDD	6.49	+ 9.6%
10172	GAE	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	LTE-TDD	9.21	+ 9.6%
10173	GAE	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	LTE-TDD	9.48	+ 9.6%
10174	GAF	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	LTE-TDD	10.25	+ 9.6%
10175	GAF	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	LTE-FDD	5.72	+ 9.6%
10176	GAF	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	LTE-FDD	6.52	+ 9.6%
10177	GAE	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, QPSK)	LTE-FDD	5.73	+ 9.6%
10178	GAE	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)	LTE-FDD	6.52	+ 9.6%
10179	AAE	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)	LTE-FDD	6.50	+ 9.6%
10180	GAG	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)	LTE-FDD	6.50	+ 9.6%
10181	CAG	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	LTE-FDD	5.72	+ 9.6%
10182	GAG	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)	LTE-FDD	6.52	+ 9.6%
10183	CAG	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)	LTE-FDD	6.50	+ 9.6%
10184	GAG	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, QPSK)	LTE-FDD	5.73	+ 9.6%
10185	CAI	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)	LTE-FDD	6.51	+ 9.6%
10186	GAG	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)	LTE-FDD	6.50	+ 9.6%

Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China
 Tel: +86-10-62304633-2512 Fax: +86-10-62304633-2504
 E-mail: cnl@chinattl.com [Http://v.wv.chinattl.cn](http://v.wv.chinattl.cn)

10187	CAG	LTE-FDD (SC-FDMA, 1RB, 1.4 MHz, QPSK)	LTE-FDD	5.73	±9.6%
10188	CAG	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)	LTE-FDD	6.52	±9.6%
10189	CAE	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)	LTE-FDD	6.50	±9.6%
10193	CAE	IEEE 802.11n (HT Greenfield, 6.5 Mbps, BPSK)	WLAN	8.09	±9.6%
10194	AAD	IEEE 802.11n (HT Greenfield, 39 Mbps, 16-QAM)	WLAN	8.12	±9.6%
10195	CAE	IEEE 802.11n (HT Greenfield, 65 Mbps, 64-QAM)	WLAN	8.21	±9.6%
10196	CAE	IEEE 802.11n (HT Mixed, 6.5 Mbps, BPSK)	WLAN	8.10	±9.6%
10197	AAE	IEEE 802.11n (HT Mixed, 39 Mbps, 16-QAM)	WLAN	8.13	±9.6%
10198	CAF	IEEE 802.11n (HT Mixed, 65 Mbps, 64-QAM)	WLAN	8.27	±9.6%
10219	CAF	IEEE 802.11n (HT Mixed, 7.2 Mbps, BPSK)	WLAN	8.03	±9.6%
10220	AAF	IEEE 802.11n (HT Mixed, 43.3 Mbps, 16-QAM)	WLAN	8.13	±9.6%
10221	CAC	IEEE 802.11n (HT Mixed, 72.2 Mbps, 64-QAM)	WLAN	8.27	±9.6%
10222	CAC	IEEE 802.11n (HT Mixed, 15 Mbps, BPSK)	WLAN	8.06	±9.6%
10223	CAD	IEEE 802.11n (HT Mixed, 90 Mbps, 16-QAM)	WLAN	8.48	±9.6%
10224	CAD	IEEE 802.11n (HT Mixed, 150 Mbps, 64-QAM)	WLAN	8.08	±9.6%
10225	CAD	UMTS-FDD (HSPA+)	WCDMA	5.97	±9.6%
10226	CAD	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)	LTE-TDD	9.49	±9.6%
10227	CAD	LTE-TDD (SC-FDMA, 1RB, 1.4 MHz, 64-QAM)	LTE-TDD	10.26	±9.6%
10228	CAD	LTE-TDD (SC-FDMA, 1RB, 1.4 MHz, QPSK)	LTE-TDD	9.22	±9.6%
10229	DAC	LTE-TDD (SC-FDMA, 1RB, 3 MHz, 16-QAM)	LTE-TDD	9.48	±9.6%
10230	CAC	LTE-TDD (SC-FDMA, 1RB, 3 MHz, 64-QAM)	LTE-TDD	10.25	±9.6%
10231	CAC	LTE-TDD (SC-FDMA, 1RB, 3 MHz, QPSK)	LTE-TDD	9.19	±9.6%
10232	CAD	LTE-TDD (SC-FDMA, 1RB, 5 MHz, 16-QAM)	LTE-TDD	9.48	±9.6%
10233	CAD	LTE-TDD (SC-FDMA, 1RB, 5 MHz, 64-QAM)	LTE-TDD	10.25	±9.6%
10234	CAD	LTE-TDD (SC-FDMA, 1RB, 5 MHz, QPSK)	LTE-TDD	9.21	±9.6%
10235	CAD	LTE-TDD (SC-FDMA, 1RB, 10 MHz, 16-QAM)	LTE-TDD	9.48	±9.6%
10236	CAD	LTE-TDD (SC-FDMA, 1RB, 10 MHz, 64-QAM)	LTE-TDD	10.25	±9.6%
10237	CAD	LTE-TDD (SC-FDMA, 1RB, 10 MHz, QPSK)	LTE-TDD	9.21	±9.6%
10238	CAB	LTE-TDD (SC-FDMA, 1RB, 15 MHz, 16-QAM)	LTE-TDD	9.48	±9.6%
10239	CAB	LTE-TDD (SC-FDMA, 1RB, 15 MHz, 64-QAM)	LTE-TDD	10.25	±9.6%
10240	CAB	LTE-TDD (SC-FDMA, 1RB, 15 MHz, QPSK)	LTE-TDD	9.21	±9.6%
10241	CAB	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)	LTE-TDD	9.82	±9.6%
10242	CAD	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)	LTE-TDD	9.86	±9.6%
10243	CAD	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)	LTE-TDD	9.46	±9.6%
10244	CAD	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)	LTE-TDD	10.06	±9.6%
10245	CAG	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)	LTE-TDD	10.06	±9.6%
10246	CAG	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK)	LTE-TDD	9.30	±9.6%
10247	CAG	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)	LTE-TDD	9.91	±9.6%
10248	CAG	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)	LTE-TDD	10.09	±9.6%
10249	CAG	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK)	LTE-TDD	9.29	±9.6%
10250	CAG	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)	LTE-TDD	9.81	±9.6%
10251	CAF	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)	LTE-TDD	10.17	±9.6%
10252	CAF	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	LTE-TDD	9.24	±9.6%
10253	CAF	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)	LTE-TDD	9.90	±9.6%
10254	CAB	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)	LTE-TDD	10.14	±9.6%
10255	CAB	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	LTE-TDD	9.20	±9.6%
10256	CAB	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)	LTE-TDD	9.96	±9.6%
10257	CAD	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)	LTE-TDD	10.08	±9.6%
10258	CAD	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	LTE-TDD	9.34	±9.6%
10259	CAD	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)	LTE-TDD	9.98	±9.6%
10260	CAG	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	LTE-TDD	9.97	±9.6%
10261	CAG	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK)	LTE-TDD	9.24	±9.6%
10262	CAG	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)	LTE-TDD	9.83	±9.6%
10263	CAG	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)	LTE-TDD	10.16	±9.6%
10264	CAG	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK)	LTE-TDD	9.23	±9.6%
10265	CAG	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)	LTE-TDD	9.92	±9.6%
10266	CAF	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)	LTE-TDD	10.07	±9.6%
10267	CAF	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	LTE-TDD	9.30	±9.6%
10268	CAF	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)	LTE-TDD	10.06	±9.6%



In Collaboration with

s p e a g
CALIBRATION LABORATORY

Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China

Tel :+86-10-62304633-2512

Fax: +86-10-62304633-2504

E-mail: cttl@chinattl.com

<http://www.chinattl.cn>

10269	CAB	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)	LTE-TDD	10.13	+ 9.6 %
10270	CAB	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK)	LTE-TDD	9.58	± 9.6 %
10274	CAB	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.10)	WCDMA	4.87	+ 9.6 %
10275	CAD	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.4)	WCDMA	3.96	+ 9.6 %
10277	CAD	PHS (QPSK)	PHS	11.81	+ 9.6 %
10278	CAD	PHS (QPSK, BW 884MHz, Rolloff 0.5)	PHS	11.81	+ 9.6 %
10279	CAG	PHS (QPSK, BW 884MHz, Rolloff 0.38)	PHS	12.18	+ 9.6 %
10290	CAG	CDMA2000, RC1, S055, Full Rate	CDMA2000	3.91	+ 9.6 %
10291	CAG	CDMA2000, RC3, S055, Full Rate	CDMA2000	3.46	+ 9.6 %
10292	CAG	CDMA2000, RC3, S032, Full Rate	CDMA2000	3.39	+ 9.6 %
10293	CAG	CDMA2000, RC3, S03, Full Rate	CDMA2000	3.50	+ 9.6 %
10295	CAG	CDMA2000, RC1, S03, 1/8th Rate 25 fr.	CDMA2000	12.49	+ 9.6 %
10297	CAF	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	LTE-FDD	5.81	+ 9.6 %
10298	CAF	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, QPSK)	LTE-FDD	5.72	+ 9.6 %
10299	CAF	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)	LTE-FDD	6.39	+ 9.6 %
10300	CAC	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)	LTE-FDD	6.60	+ 9.6 %
10301	CAC	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, QPSK, PUSC)	WiMAX	12.03	+ 9.6 %
10302	CAB	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, QPSK, PUSC, 3CTRU)	WiMAX	12.57	+ 9.6 %
10303	CAB	IEEE 802.16e WiMAX (31:15, 5ms, 10MHz, 64QAM, PUSC)	WiMAX	12.52	+ 9.6 %
10304	CAA	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, 64QAM, PUSC)	WiMAX	11.86	+ 9.6 %
10305	CAA	IEEE 802.16e WiMAX (31:15, 10ms, 10MHz, 64QAM, PUSC)	WiMAX	15.24	+ 9.6 %
10306	CAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 64QAM, PUSC)	WiMAX	14.67	+ 9.6 %
10307	AAB	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, QPSK, PUSC)	WiMAX	14.49	+ 9.6 %
10308	AAB	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 16QAM, PUSC)	WiMAX	14.46	+ 9.6 %
10309	AAB	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 16QAM, AMC 2x3)	WiMAX	14.58	+ 9.6 %
10310	AAB	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, QPSK, AMC 2x3)	WiMAX	14.57	+ 9.6 %
10311	AAB	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, QPSK)	LTE-FDD	6.06	+ 9.6 %
10313	AAD	iDEN 1:3	iDEN	10.51	+ 9.6 %
10314	AAD	iDEN 1:6	iDEN	13.48	+ 9.6 %
10315	AAD	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1Mbps, 96oc de)	WLAN	1.71	+ 9.6 %
10316	AAD	IEEE 802.11a WiFi 2.4 GHz (ERP-OFDM, 6 Mbps, 96oc de)	WLAN	8.36	+ 9.6 %
10317	AAA	IEEE 802.11a WiFi 5 GHz (OFDM, 6 Mbps, 96oc de)	WLAN	8.36	+ 9.6 %
10352	AAA	Pulse Waveform (200Hz, 10%)	Generic	10.00	+ 9.6 %
10353	AAA	Pulse Waveform (200Hz, 20%)	Generic	6.99	+ 9.6 %
10354	AAA	Pulse Waveform (200Hz, 40%)	Generic	3.98	+ 9.6 %
10355	AAA	Pulse Waveform (200Hz, 60%)	Generic	2.22	+ 9.6 %
10356	AAA	Pulse Waveform (200Hz, 80%)	Generic	0.97	+ 9.6 %
10387	AAA	QPSK Waveform, 1MHz	Generic	5.10	+ 9.6 %
10388	AAA	QPSK Waveform, 10MHz	Generic	5.22	+ 9.6 %
10396	AAA	64-QAM Waveform, 100kHz	Generic	6.27	+ 9.6 %
10399	AAA	64-QAM Waveform, 40 MHz	Generic	6.27	+ 9.6 %
10400	AAD	IEEE 802.11ac WiFi (20MHz, 64-QAM, 99oc de)	WLAN	8.37	+ 9.6 %
10401	AAA	IEEE 802.11ac WiFi (40MHz, 64-QAM, 99pc de)	WLAN	8.60	+ 9.6 %
10402	AAA	IEEE 802.11ac WiFi (80MHz, 64-QAM, 99pc de)	WLAN	8.53	+ 9.6 %
10403	AAB	CDMA2000 (1xEV-DO, Rev. O)	CDMA2000	3.76	+ 9.6 %
10404	AAB	CDMA2000 (1xEV-DO, Rev. A)	CDMA2000	3.77	+ 9.6 %
10406	AAD	CDMA2000, RC3, 8032, SCHO, Full Rate	CDMA2000	5.22	+ 9.6 %
10410	AAA	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Sub=2,3,4,7,8,9)	LTE-TDD	7.82	+ 9.6 %
10414	AAA	WLAN CCDF, 64-QAM, 40MHz	Generic	8.54	+ 9.6 %
10415	AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1Mbps, 99oc de)	WLAN	1.54	+ 9.6 %
10416	AAA	IEEE 802.11Q WiFi 2.4 GHz (ERP-OFDM, 6 Mbps, 99pc de)	WLAN	8.23	+ 9.6 %
10417	AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 99pc de)	WLAN	8.23	+ 9.6 %
10418	AAA	IEEE 802.11q WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 99oc, Lona)	WLAN	8.14	+ 9.6 %
10419	AAA	IEEE 802.11a WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 99oc, Short)	WLAN	8.19	+ 9.6 %
10422	AAA	IEEE 802.11n (HT Greenfield, 7.2 Mbps, PSK)	WLAN	8.32	+ 9.6 %
10423	AAA	IEEE 802.11n (HT Greenfield, 43.3 Mbps, 16-QAM)	WLAN	8.47	+ 9.6 %
10424	AAE	IEEE 802.11n (HT Greenfield, 72.2 Mbps, 64-QAM)	WLAN	8.40	+ 9.6 %
10425	AAE	IEEE 802.11n (HT Greenfield, 15 Mbps, BPSK)	WLAN	8.41	+ 9.6 %
10426	AAE	IEEE 802.11n (HT Greenfield, 90 Mbps, 16-QAM)	WLAN	8.45	+ 9.6 %



In Collaboration with

S...e...g
CALIBRATION LABORATORY

Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China

Tel: +86-10-62304633-2512

Fax: +86-10-62304633-2504

E-mail: cttl@chinattl.com

[Http://www.chinattl.cn](http://www.chinattl.cn)

10427	AAB	IEEE 802.11n (HT Greenfield, 150 Mbps, 64-QAM)	WLAN	8.41	+9.6 %
10430	AAB	LTE-FDD (OFDMA, 5 MHz, E-TM 3.1)	LTE-FDD	8.28	±9.6 %
10431	AAC	LTE-FDD (OFDMA, 10 MHz, E-TM 3.1)	LTE-FDD	8.38	+9.6 %
10432	AAB	LTE-FDD (OFDMA, 15 MHz, E-TM 3.1)	LTE-FDD	8.34	±9.6 %
10433	AAC	LTE-FDD (OFDMA, 20 MHz, E-TM 3.1)	LTE-FDD	8.34	+9.6 %
10434	AAG	W-CDMA (BS Test Model 1, 64 DPCH)	WCDMA	8.60	±9.6 %
10435	AAA	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Sub)	LTE-TDD	7.82	±9.6 %
10447	AAA	LTE-FDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%)	LTE-FDD	7.56	+9.6 %
10448	AAA	LTE-FDD (OFDMA, 10 MHz, E-TM 3.1, Clipping 44%)	LTE-FDD	7.53	±9.6 %
10449	AAC	LTE-FDD (OFDMA, 15 MHz, E-TM 3.1, Clipping 44%)	LTE-FDD	7.51	±9.6 %
10450	AAA	LTE-FDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%)	LTE-FDD	7.48	±9.6 %
10451	AAA	W-CDMA (BS Test Model 1, 64 DPCH, Clipping 44%)	WCDMA	7.59	+9.6 %
10453	AAC	Validation (Square, 10ms, 1ms)	Test	10.00	±9.6 %
10456	AAC	IEEE 802.11ac WiFi (160MHz, 64-QAM, 99% de)	WLAN	8.63	+9.6 %
10457	AAC	UMTS-FDD (DC-HSDPA)	WCDMA	6.62	±9.6 %
10458	AAC	CDMA2000 (1xEV-DO, Rev. B, 2 carriers)	CDMA2000	6.55	+9.6 %
10459	AAC	CDMA2000 (1xEV-DO, Rev. B, 3 carriers)	CDMA2000	8.25	+9.6 %
10460	AAC	UMTS-FDD (WCDMA, AMR)	WCDMA	2.39	+9.6 %
10461	AAC	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK, UL Sub)	LTE-TDD	7.82	+9.6 %
10462	AAC	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM, UL Sub)	LTE-TDD	8.30	+9.6 %
10463	AAD	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM, UL Sub)	LTE-TDD	8.56	±9.6 %
10464	AAD	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK, UL Sub)	LTE-TDD	7.82	+9.6 %
10465	AAC	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM, UL Sub)	LTE-TDD	8.32	+9.6 %
10466	AAC	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM, UL Sub)	LTE-TDD	8.57	±9.6 %
10467	AAA	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Sub)	LTE-TDD	7.82	+9.6 %
10468	AAF	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM, UL Sub)	LTE-TDD	8.32	±9.6 %
10469	AAD	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM, UL Sub)	LTE-TDD	8.56	±9.6 %
10470	AAD	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Sub)	LTE-TDD	7.82	+9.6 %
10471	AAC	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM, UL Sub)	LTE-TDD	8.32	+9.6 %
10472	AAC	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM, UL Sub)	LTE-TDD	8.57	+9.6 %
10473	AAA	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK, UL Sub)	LTE-TDD	7.82	±9.6 %
10474	AAC	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM, UL Sub)	LTE-TDD	8.32	±9.6 %
10475	AAD	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM, UL Sub)	LTE-TDD	8.57	+9.6 %
10477	AAC	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM, UL Sub)	LTE-TDD	8.32	±9.6 %
10478	AAC	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM, UL Sub)	LTE-TDD	8.57	+9.6 %
10479	AAC	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK, UL Sub)	LTE-TDD	7.74	+9.6 %
10480	AAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM, UL Sub)	LTE-TDD	8.18	+9.6 %
10481	AAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM, UL Sub)	LTE-TDD	8.45	±9.6 %
10482	AAA	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK, UL Sub)	LTE-TDD	7.71	±9.6 %
10483	AAA	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM, Sub)	LTE-TDD	8.39	+9.6 %
10484	AAB	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM, UL Sub)	LTE-TDD	8.47	+9.6 %
10485	AAB	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK, UL Sub)	LTE-TDD	7.59	+9.6 %
10486	AAB	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM, UL Sub)	LTE-TDD	8.38	+9.6 %
10487	AAC	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM, UL Sub)	LTE-TDD	8.60	+9.6 %
10488	AAC	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK, UL Sub)	LTE-TDD	7.70	+9.6 %
10489	AAC	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM, UL Sub)	LTE-TDD	8.31	+9.6 %
10490	AAF	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM, UL Sub)	LTE-TDD	8.54	+9.6 %
10491	AAF	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK, UL Sub)	LTE-TDD	7.74	+9.6 %
10492	AAF	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM, UL Sub)	LTE-TDD	8.41	+9.6 %
10493	AAF	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM, UL Sub)	LTE-TDD	8.55	+9.6 %
10494	AAF	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK, UL Sub)	LTE-TDD	7.74	+9.6 %
10495	AAF	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM, UL Sub)	LTE-TDD	8.37	+9.6 %
10496	AAE	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM, UL Sub)	LTE-TDD	8.54	+9.6 %
10497	AAE	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK, UL Sub)	LTE-TDD	7.67	±9.6 %
10498	AAE	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM, UL Sub)	LTE-TDD	8.40	+9.6 %
10499	AAC	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM, UL Sub)	LTE-TDD	8.68	+9.6 %
10500	AAF	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK, UL Sub)	LTE-TDD	7.67	+9.6 %
10501	AAF	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM, UL Sub)	LTE-TDD	8.44	+9.6 %
10502	AAB	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM, UL Sub)	LTE-TDD	8.52	+9.6 %

Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China

Tel: +86-10-62304633-2512

Fax: +86-10-62304633-2504

E-mail: cttl@chinattl.com

[Http://www.chinattl.cn](http://www.chinattl.cn)

10503	AAB	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK, UL Sub)	LTE-TDD	7.72	± 9.6 %
10504	AAB	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM, UL Sub)	LTE-TDD	8.31	± 9.6 %
10505	AAC	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM, UL Sub)	LTE-TDD	8.54	± 9.6 %
10506	AAC	LTE-TDD (SC-FDMA, 100% RB, 10MHz, QPSK, UL Sub)	LTE-TDD	7.74	± 9.6 %
10507	AAC	LTE-TDD (SC-FDMA, 100% RB, 10MHz, 16-QAM, UL Sub)	LTE-TDD	8.36	± 9.6 %
10508	AAF	LTE-TDD (SC-FDMA, 100% RB, 10MHz, 64-QAM, UL Sub)	LTE-TDD	8.55	± 9.6 %
10509	AAF	LTE-TDD (SC-FDMA, 100% RB, 15MHz, QPSK, UL Sub)	LTE-TDD	7.99	± 9.6 %
10510	AAF	LTE-TDD (SC-FDMA, 100% RB, 15MHz, 16-QAM, UL Sub)	LTE-TDD	8.49	± 9.6 %
10511	AAF	LTE-TDD (SC-FDMA, 100% RB, 15MHz, 64-QAM, UL Sub)	LTE-TDD	8.51	± 9.6 %
10512	AAF	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK, UL Sub)	LTE-TDD	7.74	± 9.6 %
10513	AAF	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM, UL Sub)	LTE-TDD	8.42	± 9.6 %
10514	AAE	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM, UL Sub)	LTE-TDD	8.45	± 9.6 %
10515	AAE	IEEE 802.11b WiFi 2.4 GHz M-SSS, 2 Mbps, 99pe de)	WLAN	1.58	± 9.6 %
10516	AAE	IEEE 802.11b WiFi 2.4 GHz M-SSS, 5.5 Mbps, 99pe de)	WLAN	1.57	± 9.6 %
10517	AAF	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11Mbps, 99pe de)	WLAN	1.58	± 9.6 %
10518	AAF	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 99oe de)	WLAN	8.23	± 9.6 %
10519	AAF	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps, 99pe de)	WLAN	8.39	± 9.6 %
10520	AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps, 99pe de)	WLAN	8.12	± 9.6 %
10521	AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps, 99pe de)	WLAN	7.97	± 9.6 %
10522	AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps, 99pe de)	WLAN	8.45	± 9.6 %
10523	AAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 99pe de)	WLAN	8.08	± 9.6 %
10524	AAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps, 99pe de)	WLAN	8.27	± 9.6 %
10525	AAC	IEEE 802.11ae WiFi (20MHz, MCS0, 99oe de)	WLAN	8.36	± 9.6 %
10526	AAF	IEEE 802.11ae WiFi (20MHz, MCS1, 99pe de)	WLAN	8.42	± 9.6 %
10527	AAF	IEEE 802.11ae WiFi (20MHz, MCS2, 99pe de)	WLAN	8.21	± 9.6 %
10528	AAF	IEEE 802.11ae WiFi (20MHz, MCS3, 99oe de)	WLAN	8.36	± 9.6 %
10529	AAF	IEEE 802.11ae WiFi (20MHz, MCS4, 99pe de)	WLAN	8.36	± 9.6 %
10531	AAF	IEEE 802.11ac WiFi (20MHz, MCS6, 99oe de)	WLAN	8.43	± 9.6 %
10532	AAF	IEEE 802.11ae WiFi (20MHz, MCS7, 99pe de)	WLAN	8.29	± 9.6 %
10533	AAE	IEEE 802.11ae WiFi (20MHz, MCS8, 99pe de)	WLAN	8.38	± 9.6 %
10534	AAE	IEEE 802.11ae WiFi (40MHz, MCS0, 99oe de)	WLAN	8.45	± 9.6 %
10535	AAE	IEEE 802.11ae WiFi (40MHz, MCS1, 99oe de)	WLAN	8.45	± 9.6 %
10536	AAF	IEEE 802.11ae WiFi (40MHz, MCS2, 99pe de)	WLAN	8.32	± 9.6 %
10537	AAF	IEEE 802.11ae WiFi (40MHz, MCS3, 99pe de)	WLAN	8.44	± 9.6 %
10538	AAF	IEEE 802.11ae WiFi (40MHz, MCS4, 99oe de)	WLAN	8.54	± 9.6 %
10540	AAA	IEEE 802.11ae WiFi (40MHz, MCS6, 99oe de)	WLAN	8.39	± 9.6 %
10541	AAA	IEEE 802.11ae WiFi (40MHz, MCS7, 99pe de)	WLAN	8.46	± 9.6 %
10542	AAA	IEEE 802.11ae WiFi (40MHz, MCS8, 99pe de)	WLAN	8.65	± 9.6 %
10543	AAC	IEEE 802.11ae WiFi (40MHz, MCS9, 99oe de)	WLAN	8.65	± 9.6 %
10544	AAC	IEEE 802.11ae WiFi (80MHz, MCS0, 99oe de)	WLAN	8.47	± 9.6 %
10545	AAC	IEEE 802.11ae WiFi (80MHz, MCS1, 99pe de)	WLAN	8.55	± 9.6 %
10546	AAC	IEEE 802.11ae WiFi (80MHz, MCS2, 99pe de)	WLAN	8.35	± 9.6 %
10547	AAC	IEEE 802.11ae WiFi (80MHz, MCS3, 99oe de)	WLAN	8.49	± 9.6 %
10548	AAC	IEEE 802.11ae WiFi (80MHz, MCS4, 99pe de)	WLAN	8.37	± 9.6 %
10550	AAC	IEEE 802.11ae WiFi (80MHz, MCS6, 99pe de)	WLAN	8.38	± 9.6 %
10551	AAC	IEEE 802.11ae WiFi (80MHz, MCS7, 99oe de)	WLAN	8.50	± 9.6 %
10552	AAC	IEEE 802.11ae WiFi (80MHz, MCS8, 99pe de)	WLAN	8.42	± 9.6 %
10553	AAC	IEEE 802.11ae WiFi (80MHz, MCS9, 99pe de)	WLAN	8.45	± 9.6 %
10554	AAC	IEEE 802.11ae WiFi (160MHz, MCS0, 99pe de)	WLAN	8.48	± 9.6 %
10555	AAC	IEEE 802.11ae WiFi (160MHz, MCS1, 99oe de)	WLAN	8.47	± 9.6 %
10556	AAC	IEEE 802.11ae WiFi (160MHz, MCS2, 99pe de)	WLAN	8.50	± 9.6 %
10557	AAC	IEEE 802.11ae WiFi (160MHz, MCS3, 99pe de)	WLAN	8.52	± 9.6 %
10558	AAC	IEEE 802.11ae WiFi (160MHz, MCS4, 99pe de)	WLAN	8.61	± 9.6 %
10560	AAC	IEEE 802.11ae WiFi (160MHz, MCS6, 99oe de)	WLAN	8.73	± 9.6 %
10561	AAC	IEEE 802.11ae WiFi (160MHz, MCS7, 99pe de)	WLAN	8.56	± 9.6 %
10562	AAC	IEEE 802.11ae WiFi (160MHz, MCS8, 99pe de)	WLAN	8.69	± 9.6 %
10563	AAC	IEEE 802.11ae WiFi (160MHz, MCS9, 99pe de)	WLAN	8.77	± 9.6 %
10564	AAC	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 9 Mbps, 99pc de)	WLAN	8.25	± 9.6 %
10565	AAC	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12 Mbps, 99oc de)	WLAN	8.45	± 9.6 %



In Collaboration with

s p e a g**CALIBRATION LABORATORY**

Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China

Tel: +86-10-62304633-251 2

Fax: +86-10-62304633-2504

E-mail: cttl@chinattl.com

[Http://www.chinattl.cn](http://www.chinattl.cn)

10566	AAC	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 18 Mbps, 99pc de)	WLAN	8.13	± 9.6 %
10567	AAC	IEEE 802.11q WiFi 2.4 GHz (DSSS-OFDM, 24 Mbps, 99pc de)	WLAN	8.00	± 9.6 %
10568	AAC	IEEE 802.11q WiFi 2.4 GHz (DSSS-OFDM, 36 Mbps, 99pc de)	WLAN	8.37	± 9.6 %
10569	AAC	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 48 Mbps, 99pc de)	WLAN	8.10	± 9.6 %
10570	AAC	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 54 Mbps, 99pc de)	WLAN	8.30	± 9.6 %
10571	AAC	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 90pc de)	WLAN	1.99	± 9.6 %
10572	AAC	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps, 90pc de)	WLAN	1.99	± 9.6 %
10573	AAC	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps, 90pc de)	WLAN	1.98	± 9.6 %
10574	AAC	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps, 90pc de)	WLAN	1.98	± 9.6 %
10575	AAC	IEEE 802.11a WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 90pc de)	WLAN	8.59	± 9.6 %
10576	AAC	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 9 Mbps, 90pc de)	WLAN	8.60	± 9.6 %
10577	AAC	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12 Mbps, 90pc de)	WLAN	8.70	± 9.6 %
10578	AAD	IEEE 802.11q WiFi 2.4 GHz (DSSS-OFDM, 18 Mbps, 90pc de)	WLAN	8.49	± 9.6 %
10579	AAD	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 24 Mbps, 90pc de)	WLAN	8.36	± 9.6 %
10580	AAD	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 36 Mbps, 90pc de)	WLAN	8.76	± 9.6 %
10581	AAD	IEEE 802.11q WiFi 2.4 GHz (DSSS-OFDM, 48 Mbps, 90pc de)	WLAN	8.35	± 9.6 %
10582	AAD	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 54 Mbps, 90pc de)	WLAN	8.67	± 9.6 %
10583	AAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 90pc de)	WLAN	8.59	± 9.6 %
10584	AAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 90pc de)	WLAN	8.60	± 9.6 %
10585	AAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps, 90pc de)	WLAN	8.70	± 9.6 %
10586	AAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps, 90pc de)	WLAN	8.49	± 9.6 %
10587	AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps, 90pc de)	WLAN	8.36	± 9.6 %
10588	AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps, 90pc de)	WLAN	8.76	± 9.6 %
10589	AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 90pc de)	WLAN	8.35	± 9.6 %
10590	AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps, 90pc de)	WLAN	8.67	± 9.6 %
10591	AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS0, 90pc de)	WLAN	8.63	± 9.6 %
10592	AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS1, 90pc de)	WLAN	8.79	± 9.6 %
10593	AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS2, 90pc de)	WLAN	8.64	± 9.6 %
10594	AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS3, 90pc de)	WLAN	8.74	± 9.6 %
10595	AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS4, 90pc de)	WLAN	8.74	± 9.6 %
10596	AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS5, 90pc de)	WLAN	8.71	± 9.6 %
10597	AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS6, 90pc de)	WLAN	8.72	± 9.6 %
10598	AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS7, 90pc de)	WLAN	8.50	± 9.6 %
10599	AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS0, 90pc de)	WLAN	8.79	± 9.6 %
10600	AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS1, 90pc de)	WLAN	8.88	± 9.6 %
10601	AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS2, 90pc de)	WLAN	8.82	± 9.6 %
10602	AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS3, 90pc de)	WLAN	8.94	± 9.6 %
10603	AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS4, 90pc de)	WLAN	9.03	± 9.6 %
10604	AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS5, 90pc de)	WLAN	8.76	± 9.6 %
10605	AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS6, 90pc de)	WLAN	8.97	± 9.6 %
10606	AAC	IEEE 802.11n (HT Mixed, 40MHz, MCS7, 90pc de)	WLAN	8.82	± 9.6 %
10607	AAC	IEEE 802.11ac WiFi (20MHz, MCS0, 90pc de)	WLAN	8.64	± 9.6 %
10608	AAC	IEEE 802.11ac WiFi (20MHz, MCS1, 90pc de)	WLAN	8.77	± 9.6 %
10609	AAC	IEEE 802.11ac WiFi (20MHz, MCS2, 90pc de)	WLAN	8.57	± 9.6 %
10610	AAC	IEEE 802.11ac WiFi (20MHz, MCS3, 90pc de)	WLAN	8.78	± 9.6 %
10611	AAC	IEEE 802.11ac WiFi (20MHz, MCS4, 90pc de)	WLAN	8.70	± 9.6 %
10612	AAC	IEEE 802.11ac WiFi (20MHz, MCS5, 90pc de)	WLAN	8.77	± 9.6 %
10613	AAC	IEEE 802.11ac WiFi (20MHz, MCS6, 90pc de)	WLAN	8.94	± 9.6 %
10614	AAC	IEEE 802.11ac WiFi (20MHz, MCS7, 90pc de)	WLAN	8.59	± 9.6 %
10615	AAC	IEEE 802.11ac WiFi (20MHz, MCS8, 90pc de)	WLAN	8.82	± 9.6 %
10616	AAC	IEEE 802.11ac WiFi (40MHz, MCS0, 90pc de)	WLAN	8.82	± 9.6 %
10617	AAC	IEEE 802.11ac WiFi (40MHz, MCS1, 90pc de)	WLAN	8.81	± 9.6 %
10618	AAC	IEEE 802.11ac WiFi (40MHz, MCS2, 90pc de)	WLAN	8.58	± 9.6 %
10619	AAC	IEEE 802.11ac WiFi (40MHz, MCS3, 90pc de)	WLAN	8.86	± 9.6 %
10620	AAC	IEEE 802.11ac WiFi (40MHz, MCS4, 90pc de)	WLAN	8.87	± 9.6 %
10621	AAC	IEEE 802.11ac WiFi (40MHz, MCS5, 90pc de)	WLAN	8.77	± 9.6 %
10622	AAC	IEEE 802.11ac WiFi (40MHz, MCS6, 90pc de)	WLAN	8.68	± 9.6 %
10623	AAC	IEEE 802.11ac WiFi (40MHz, MCS7, 90pc de)	WLAN	8.82	± 9.6 %
10624	AAC	IEEE 802.11ac WiFi (40MHz, MCS8, 90pc de)	WLAN	8.96	± 9.6 %



In Collaboration with

s p e a g
CALIBRATION LABORATORY

Add: No.52 HuaYuanBei Road, Haidian District. Beijing, 100191, China

Tel: +86-10-62304633-25 12

Fax: +86-10-62304633-2504

E-mail: ctl@chinatl.cn<http://www.chinatl.cn>

10625	AAC	IEEE 802.11a Wi-Fi (40MHz, MCS9, 90% de)	WLAN	8.96	± 9.6%
10626	AAC	IEEE 802.11a Wi-Fi (80MHz, MCS0, 90% de)	WLAN	8.83	± 9.6%
10627	AAC	IEEE 802.11a Wi-Fi (80MHz, MCS1, 90% de)	WLAN	8.88	± 9.6%
10628	AAC	IEEE 802.11a Wi-Fi (80MHz, MCS2, 90% de)	WLAN	8.71	± 9.6%
10629	AAC	IEEE 802.11a Wi-Fi (80MHz, MCS3, 90% de)	WLAN	8.85	± 9.6%
10630	AAC	IEEE 802.11a Wi-Fi (80MHz, MCS4, 90% de)	WLAN	8.72	± 9.6%
10631	AAC	IEEE 802.11a Wi-Fi (80MHz, MCS5, 90% de)	WLAN	8.81	± 9.6%
10632	AAC	IEEE 802.11a Wi-Fi (80MHz, MCS6, 90% de)	WLAN	8.74	± 9.6%
10633	AAC	IEEE 802.11a Wi-Fi (80MHz, MCS7, 90% de)	WLAN	8.83	± 9.6%
10634	AAC	IEEE 802.11a Wi-Fi (80MHz, MCS8, 90% de)	WLAN	8.80	± 9.6%
10635	AAC	IEEE 802.11a Wi-Fi (80MHz, MCS9, 90% de)	WLAN	8.81	± 9.6%
10636	AAC	IEEE 802.11a Wi-Fi (160MHz, MCS0, 90% de)	WLAN	8.83	± 9.6%
10637	AAC	IEEE 802.11a Wi-Fi (160MHz, MCS1, 90% de)	WLAN	8.79	± 9.6%
10638	AAC	IEEE 802.11a Wi-Fi (160MHz, MCS2, 90% de)	WLAN	8.86	± 9.6%
10639	AAC	IEEE 802.11a Wi-Fi (160MHz, MCS3, 90% de)	WLAN	8.85	± 9.6%
10640	AAC	IEEE 802.11a Wi-Fi (160MHz, MCS4, 90% de)	WLAN	8.98	± 9.6%
10641	AAC	IEEE 802.11a Wi-Fi (160MHz, MCS5, 90% de)	WLAN	9.06	± 9.6%
10642	AAC	IEEE 802.11a Wi-Fi (160MHz, MCS6, 90% de)	WLAN	9.06	± 9.6%
10643	AAC	IEEE 802.11a Wi-Fi (160MHz, MCS7, 90% de)	WLAN	8.89	± 9.6%
10644	AAC	IEEE 802.11a Wi-Fi (160MHz, MCS8, 90% de)	WLAN	9.05	± 9.6%
10645	AAC	IEEE 802.11a Wi-Fi (160MHz, MCS9, 90% de)	WLAN	9.11	± 9.6%
10646	AAC	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Sub=2,7)	LTE-TDD	11.96	± 9.6%
10647	AAC	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Sub=2,7)	LTE-TDD	11.96	± 9.6%
10648	AAC	CDMA2000 (1x Advanced)	CDMA2000	3.45	± 9.6%
10652	AAC	LTE-TDD (OFDMA, 5 MHz, E-TM 3.1, Clioing 44%)	LTE-TDD	6.91	± 9.6%
10653	AAC	LTE-TDD (OFDMA, 10MHz, E-TM 3.1, Clioing 44%)	LTE-TDD	7.42	± 9.6%
10654	AAC	LTE-TDD (OFDMA, 15MHz, E-TM 3.1, Clioing 44%)	LTE-TDD	6.96	± 9.6%
10655	AAC	LTE-TDD (OFDMA, 20 MHz, E-TM 3.1, Clioing 44%)	LTE-TDD	7.21	± 9.6%
10658	AAC	Pulse Waveform (200Hz, 10%)	Test	10.00	± 9.6%
10659	AAC	Pulse Waveform (200Hz, 20%)	Test	6.99	± 9.6%
10660	AAC	Pulse Waveform (200Hz, 40%)	Test	3.98	± 9.6%
10661	AAC	Pulse Waveform (200Hz, 60%)	Test	2.22	± 9.6%
10662	AAC	Pulse Waveform (200Hz, 80%)	Test	0.97	± 9.6%
10670	AAC	Bluetooth Low Energy	Bluetooth	2.19	± 9.6%
10671	AAD	IEEE 802.11ax (20MHz, MCS0, 90% de)	WLAN	9.09	± 9.6%
10672	AAD	IEEE 802.11ax (20MHz, MCS1, 90% de)	WLAN	8.57	± 9.6%
10673	AAD	IEEE 802.11ax (20MHz, MCS2, 90% de)	WLAN	8.78	± 9.6%
10674	AAD	IEEE 802.11ax (20MHz, MCS3, 90% de)	WLAN	8.74	± 9.6%
10675	AAD	IEEE 802.11ax (20MHz, MCS4, 90% de)	WLAN	8.90	± 9.6%
10676	AAD	IEEE 802.11ax (20MHz, MCS5, 90% de)	WLAN	8.77	± 9.6%
10677	AAD	IEEE 802.11ax (20MHz, MCS6, 90% de)	WLAN	8.73	± 9.6%
10678	AAD	IEEE 802.11ax (20MHz, MCS7, 90% de)	WLAN	8.78	± 9.6%
10679	AAD	IEEE 802.11ax (20MHz, MCS8, 90% de)	WLAN	8.89	± 9.6%
10680	AAD	IEEE 802.11ax (20MHz, MCS9, 90% de)	WLAN	8.80	± 9.6%
10681	AAG	IEEE 802.11ax (20MHz, MCS10, 90% de)	WLAN	8.62	± 9.6%
10682	AAF	IEEE 802.11ax (20MHz, MCS11, 90% de)	WLAN	8.83	± 9.6%
10683	AAA	IEEE 802.11ax (20MHz, MCS0, 99% de)	WLAN	8.42	± 9.6%
10684	AAC	IEEE 802.11ax (20MHz, MCS1, 99% de)	WLAN	8.26	± 9.6%
10685	AAC	IEEE 802.11ax (20MHz, MCS2, 99% de)	WLAN	8.33	± 9.6%
10686	AAC	IEEE 802.11ax (20MHz, MCS3, 99% de)	WLAN	8.28	± 9.6%
10687	AAE	IEEE 802.11ax (20MHz, MCS4, 99% de)	WLAN	8.45	± 9.6%
10688	AAE	IEEE 802.11ax (20MHz, MCS5, 99% de)	WLAN	8.29	± 9.6%
10689	AAD	IEEE 802.11ax (20MHz, MCS6, 99% de)	WLAN	8.55	± 9.6%
10690	AAE	IEEE 802.11ax (20MHz, MCS7, 99% de)	WLAN	8.29	± 9.6%
10691	AAB	IEEE 802.11ax (20MHz, MCS8, 99% de)	WLAN	8.25	± 9.6%
10692	AAA	IEEE 802.11ax (20MHz, MCS9, 99% de)	WLAN	8.29	± 9.6%
10693	AAA	IEEE 802.11ax (20MHz, MCS10, 99% de)	WLAN	8.25	± 9.6%
10694	AAA	IEEE 802.11ax (20MHz, MCS11, 99% de)	WLAN	8.57	± 9.6%
10695	AAA	IEEE 802.11ax (40MHz, MCS0, 90% de)	WLAN	8.78	± 9.6%

Add: No.52 HuaYuan Bei Road, 1-laidian District, Beijing, 100191, China

Tel: +86-10-62304633-2512

Fax: +86-10-62304633-2504

E-mail: cnl@chinatl.com

<http://www.chinatl.cn>

10696	AAA	IEEE 802.11ax (40MHz, MCS1, 90pe de)	WLAN	8.91	± 9.6%
10697	AAA	IEEE 802.11ax (40MHz, MCS2, 90pe de}	WLAN	8.61	± 9.6 %
10698	AAA	IEEE 802.11ax (40MHz, MCS3, 90pe de}	WLAN	8.89	± 9.6 %
10699	AAA	IEEE 802.11ax (40MHz, MCS4, 90oe de)	WLAN	8.82	± 9.6 %
10700	AAA	IEEE 802.11ax (40MHz, MCS5, 90pe de}	WLAN	8.73	± 9.6 %
10701	AAA	IEEE 802.11ax (40MHz, MCS6, 90pe de}	WLAN	8.86	± 9.6 %
10702	AAA	IEEE 802.11ax (40MHz, MCS7, 90pe de}	WLAN	8.70	± 9.6%
10703	AAA	IEEE 802.11ax (40MHz, MCS8, 90pe de)	WLAN	8.82	± 9.6%
10704	AAA	IEEE 802.11ax (40MHz, MCS9, 90pe de}	WLAN	8.56	± 9.6 %
10705	AAA	IEEE 802.11ax (40MHz, MCS10, 90pe de}	WLAN	8.69	± 9.6 %
10706	AAC	IEEE 802.11ax (40MHz, MCS11, 90pe de)	WLAN	8.66	± 9.6 %
10707	AAC	IEEE 802.11ax (40MHz, MCS0, 99pe de)	WLAN	8.32	± 9.6 %
10708	AAC	IEEE 802.11ax (40MHz, MCS1, 99oe de)	WLAN	8.55	± 9.6 %
10709	AAC	IEEE 802.11ax (40MHz, MCS2, 99oe de}	WLAN	8.33	± 9.6 %
10710	AAC	IEEE 802.11ax (40MHz, MCS3, 99pe de)	WLAN	8.29	± 9.6 %
10711	AAC	IEEE 802.11ax (40MHz, MCS4, 99pe de}	WLAN	8.39	± 9.6 %
10712	AAC	IEEE 802.11ax (40MHz, MCS5, 99pe de}	WLAN	8.67	± 9.6 %
10713	AAC	IEEE 802.11ax (40MHz, MCS6, 99pe de)	WLAN	8.33	± 9.6 %
10714	AAC	IEEE 802.11ax (40MHz, MCS7, 99pe de)	WLAN	8.26	± 9.6 %
10715	AAC	IEEE 802.11ax (40MHz, MCS8, 99pe de}	WLAN	8.45	± 9.6 %
10716	AAC	IEEE 802.11ax (40MHz, MCS9, 99oe de)	WLAN	8.30	± 9.6 %
10717	AAC	IEEE 802.11ax (40MHz, MCS10, 99pe de)	WLAN	8.48	± 9.6 %
10718	AAC	IEEE 802.11ax (40MHz, MCS11, 99pe de}	WLAN	8.24	± 9.6 %
10719	AAC	IEEE 802.11ax (80MHz, MCS0, 90pe de}	WLAN	8.81	± 9.6 %
10720	AAC	IEEE 802.11ax (80MHz, MCS1, 90oe de)	WLAN	8.87	± 9.6 %
10721	AAC	IEEE 802.11ax (80MHz, MCS2, 90pe de)	WLAN	8.76	± 9.6%
10722	AAC	IEEE 802.11ax (80MHz, MCS3, 90pe de}	WLAN	8.55	± 9.6%
10723	AAC	IEEE 802.11ax (80MHz, MCS4, 90pe de}	WLAN	8.70	± 9.6%
10724	AAC	IEEE 802.11ax (80MHz, MCS5, 90pe de}	WLAN	8.90	± 9.6 %
10725	AAC	IEEE 802.11ax (80MHz, MCS6, 90oe de)	WLAN	8.74	± 9.6 %
10726	AAC	IEEE 802.11ax (80MHz, MCS7, 90pe de)	WLAN	8.72	± 9.6%
10727	AAC	IEEE 802.11ax (80MHz, MCS8, 90pe de)	WLAN	8.66	± 9.6%
10728	AAC	IEEE 802.11ax (80MHz, MCS9, 90pe de)	WLAN	8.65	± 9.6%
10729	AAC	IEEE 802.11ax (80MHz, MCS10, 90pe de)	WLAN	8.64	± 9.6%
10730	AAC	IEEE 802.11ax (80MHz, MCS11, 90pe de)	WLAN	8.67	± 9.6%
10731	AAC	IEEE 802.11ax (80MHz, MCS0, 99oe de)	WLAN	8.42	± 9.6%
10732	AAC	IEEE 802.11ax (80MHz, MCS1, 99oe de)	WLAN	8.46	± 9.6%
10733	AAC	IEEE 802.11ax (80MHz, MCS2, 99pe de)	WLAN	8.40	± 9.6%
10734	AAC	IEEE 802.11ax (80MHz, MCS3, 99pe de)	WLAN	8.25	± 9.6%
10735	AAC	IEEE 802.11ax (80MHz, MCS4, 99pe de}	WLAN	8.33	± 9.6 %
10736	AAC	IEEE 802.11ax (80MHz, MCS5, 99oe de)	WLAN	8.27	± 9.6%
10737	AAC	IEEE 802.11ax (80MHz, MCS6, 99pe de)	WLAN	8.36	± 9.6 %
10738	AAC	IEEE 802.11ax (80MHz, MCS7, 99pe de)	WLAN	8.42	± 9.6%
10739	AAC	IEEE 802.11ax (80MHz, MCS8, 99pe de}	WLAN	8.29	± 9.6%
10740	AAC	IEEE 802.11ax (80MHz, MCS9, 99oe de)	WLAN	8.48	± 9.6%
10741	AAC	IEEE 802.11ax (80MHz, MCS10, 99pe de)	WLAN	8.40	± 9.6%
10742	AAC	IEEE 802.11ax (80MHz, MCS11, 99pe de)	WLAN	8.43	± 9.6%
10743	AAC	IEEE 802.11ax (160MHz, MCS0, 90pe de)	WLAN	8.94	± 9.6%
10744	AAC	IEEE 802.11ax (160MHz, MCS1, 90pe de)	WLAN	9.16	± 9.6%
10745	AAC	IEEE 802.11ax (160MHz, MCS2, 90pe de)	WLAN	8.93	± 9.6 %
10746	AAC	IEEE 802.11ax (160MHz, MCS3, 90pe de}	WLAN	9.11	± 9.6%
10747	AAC	IEEE 802.11ax (160MHz, MCS4, 90pe de)	WLAN	9.04	± 9.6%
10748	AAC	IEEE 802.11ax (160MHz, MCS5, 90pe de)	WLAN	8.93	± 9.6 %
10749	AAC	IEEE 802.11ax (160MHz, MCS6, 90pe de)	WLAN	8.90	± 9.6%
10750	AAC	IEEE 802.11ax (160MHz, MCS7, 90pe de}	WLAN	8.79	± 9.6%
10751	AAC	IEEE 802.11ax (160MHz, MCS8, 90pe de)	WLAN	8.82	± 9.6 %
10752	AAC	IEEE 802.11ax (160MHz, MCS9, 90pe de)	WLAN	8.81	± 9.6%
10753	AAC	IEEE 802.11ax (160MHz, MCS10, 90oe de}	WLAN	9.00	± 9.6 %
10754	AAC	IEEE 802.11ax (160MHz, MCS11, 90pe de)	WLAN	8.94	± 9.6 %



In Collaboration with

s...p...e...a...g...
CALIBRATION LABORATORY

Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China

Tel: +86-10-62304633-2512

Fax: +86-10-62304633-2504

E-

mail: cttl@chinattl.com

[Http://www.chinattl.cn](http://www.chinattl.cn)

10755	AAC	IEEE802.11ax(160MHz, MCS0, 99pe de)	WLAN	8.64	± 9.6 %
10756	AAC	IEEE 802.11ax (160MHz, MCS1, 99pe de)	WLAN	8.77	± 9.6 %
10757	AAC	IEEE 802.11ax (160MHz, MCS2, 99pe de)	WLAN	8.77	± 9.6 %
10758	AAC	IEEE 802.11ax (160MHz, MCS3, 99pe de)	WLAN	8.69	± 9.6 %
10759	AAC	IEEE 802.11ax (160MHz, MCS4, 99pe de)	WLAN	8.58	± 9.6 %
10760	AAC	IEEE 802.11ax (160MHz, MCS5, 99pe de)	WLAN	8.49	± 9.6 %
10761	AAC	IEEE 802.11ax (160MHz, MCS6, 99pe de)	WLAN	8.58	± 9.6 %
10762	AAC	IEEE802.11ax (160MHz, MCS7, 99pe de)	WLAN	8.49	± 9.6 %
10763	AAC	IEEE 802.11ax (160MHz, MCS8, 99pe de)	WLAN	8.53	± 9.6 %
10764	AAC	IEEE 802.11ax (160MHz, MCS9, 99pe de)	WLAN	8.54	± 9.6 %
10765	AAC	IEEE 802.11ax (160MHz, MCS10, 99pe de)	WLAN	8.54	± 9.6 %
10766	AAC	IEEE802.11ax (160MHz, MCS11, 99pe de)	WLAN	8.51	± 9.6 %
10767	AAC	5G NR (CP-OFDM, 1 RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	7.99	± 9.6 %
10768	AAC	5G NR (CP-OFDM, 1 RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.01	± 9.6 %
10769	AAC	5G NR (CP-OFDM, 1 RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.01	± 9.6 %
10770	AAC	5G NR (CP-OFDM, 1 RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.02	± 9.6 %
10771	AAC	5G NR (CP-OFDM, 1 RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.02	± 9.6 %
10772	AAC	5G NR (CP-OFDM, 1 RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.23	± 9.6 %
10773	AAC	5G NR (CP-OFDM, 1 RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.03	± 9.6 %
10774	AAC	5G NR (CP-OFDM, 1 RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.02	± 9.6 %
10775	AAC	5G NR (CP-OFDM, 50% RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.31	± 9.6 %
10776	AAC	5G NR (CP-OFDM, 50% RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.30	± 9.6 %
10777	MC	5G NR (CP-OFDM, 50% RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.30	± 9.6 %
10778	AAC	5G NR (CP-OFDM, 50% RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.34	± 9.6 %
10779	MC	5G NR (CP-OFDM, 50% RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.42	± 9.6 %
10780	MC	5G NR (CP-OFDM, 50% RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.38	± 9.6 %
10781	AAC	5G NR (CP-OFDM, 50% RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.38	± 9.6 %
10782	AAC	5G NR (CP-OFDM, 50% RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.43	± 9.6 %
10783	AAC	5G NR (CP-OFDM, 100% RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.31	± 9.6 %
10784	AAC	5G NR (CP-OFDM, 100% RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.29	± 9.6 %
10785	AAC	5G NR (CP-OFDM, 100% RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.40	± 9.6 %
10786	AAC	5G NR (CP-OFDM, 100% RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.35	± 9.6 %
10787	AAC	5G NR (CP-OFDM, 100% RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.44	± 9.6 %
10788	AAC	5G NR (CP-OFDM, 100% RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.39	± 9.6 %
10789	MC	5G NR (CP-OFDM, 100% RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.37	± 9.6 %
10790	MC	5G NR (CP-OFDM, 100% RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.39	± 9.6 %
10791	AAC	5G NR (CP-OFDM, 1 RB, 5 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.83	± 9.6 %
10792	AAC	5G NR (CP-OFDM, 1 RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.92	± 9.6 %
10793	AAC	5G NR (CP-OFDM, 1 RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.95	± 9.6 %
10794	AAC	5G NR (CP-OFDM, 1 RB, 20 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.82	± 9.6 %
10795	AAC	5G NR (CP-OFDM, 1 RB, 25 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.84	± 9.6 %
10796	AAC	5G NR (CP-OFDM, 1 RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.82	± 9.6 %
10797	MC	5G NR (CP-OFDM, 1 RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.01	± 9.6 %
10798	MC	5G NR (CP-OFDM, 1 RB, 50 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.89	± 9.6 %
10799	AAC	5G NR (CP-OFDM, 1 RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.93	± 9.6 %
10801	MC	5G NR (CP-OFDM, 1 RB, 80 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.89	± 9.6 %
10802	MC	5G NR (CP-OFDM, 1 RB, 90 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.87	± 9.6 %
10803	ME	5G NR (CP-OFDM, 1 RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.93	± 9.6 %
10805	AAD	5G NR (CP-OFDM, 50% RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.34	± 9.6 %
10806	MD	5G NR (CP-OFDM, 50% RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.37	± 9.6 %
10809	AAD	5G NR (CP-OFDM, 50% RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.34	± 9.6 %
10810	AAD	5G NR (CP-OFDM, 50% RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.34	± 9.6 %
10812	AAD	5G NR (CP-OFDM, 50% RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.35	± 9.6 %
10817	MD	5G NR (CP-OFDM, 100% RB, 5 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.35	± 9.6 %
10818	AAD	5G NR (CP-OFDM, 100% RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.34	± 9.6 %
10819	MD	5G NR (CP-OFDM, 100% RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.33	± 9.6 %
10820	MD	5G NR (CP-OFDM, 100% RB, 20 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.30	± 9.6 %
10821	MC	5G NR (CP-OFDM, 100% RB, 25 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.41	± 9.6 %
10822	AAD	5G NR (CP-OFDM, 100% RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.41	± 9.6 %



In Collaboration with

s p e a g
CALIBRATION LABORATORY'

Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China

Tel: +86-10-62304633-2512

Fax: +86-10-62304633-2504

E-mail : cttl@chinattl.com

[Http://www.chinattl.cn](http://www.chinattl.cn)

10823	AAC	5G NR (CP-OFDM, 100% RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.36	± 9.6 %
10824	AAD	5G NR (CP-OFDM, 100% RB, 50 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.39	± 9.6 %
10825	AAD	5G NR (CP-OFDM, 100% RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.41	± 9.6 %
10827	AAD	5G NR (CP-OFDM, 100% RB, 80 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.42	± 9.6 %
10828	AAE	5G NR (CP-OFDM, 100% RB, 90 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.43	± 9.6 %
10829	AAD	5G NR (CP-OFDM, 100% RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.40	± 9.6 %
10830	AAD	5G NR (CP-OFDM, 1 RB, 10 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.63	± 9.6 %
10831	AAD	5G NR (CP-OFDM, 1 RB, 15 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.73	± 9.6 %
10832	AAD	5G NR (CP-OFDM, 1 RB, 20 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.74	± 9.6 %
10833	AAD	5G NR (CP-OFDM, 1 RB, 25 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.70	± 9.6 %
10834	AAD	5G NR (CP-OFDM, 1 RB, 30 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.75	± 9.6 %
10835	AAD	5G NR (CP-OFDM, 1 RB, 40 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.70	± 9.6 %
10836	AAE	5G NR (CP-OFDM, 1 RB, 50 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.66	± 9.6 %
10837	AAD	5G NR (CP-OFDM, 1 RB, 60 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.68	± 9.6 %
10839	AAD	5G NR (CP-OFDM, 1 RB, 80 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.70	± 9.6 %
10840	AAD	5G NR (CP-OFDM, 1 RB, 90 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.67	± 9.6 %
10841	AAD	5G NR (CP-OFDM, 1 RB, 100 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.71	± 9.6 %
10843	AAD	5G NR (CP-OFDM, 50% RB, 15 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.49	± 9.6 %
10844	AAD	5G NR (CP-OFDM, 50% RB, 20 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.34	± 9.6 %
10846	AAD	5G NR (CP-OFDM, 50% RB, 30 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.41	± 9.6 %
10854	AAD	5G NR (CP-OFDM, 100% RB, 10 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.34	± 9.6 %
10855	AAD	5G NR (CP-OFDM, 100% RB, 15 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.36	± 9.6 %
10856	AAD	5G NR (CP-OFDM, 100% RB, 20 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.37	± 9.6 %
10857	AAD	5G NR (CP-OFDM, 100% RB, 25 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.35	± 9.6 %
10858	AAD	5G NR (CP-OFDM, 100% RB, 30 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.36	± 9.6 %
10859	AAD	5G NR (CP-OFDM, 100% RB, 40 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.34	± 9.6 %
10860	AAD	5G NR (CP-OFDM, 100% RB, 50 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.41	± 9.6 %
10861	AAD	5G NR (CP-OFDM, 100% RB, 60 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.40	± 9.6 %
10863	AAD	5G NR (CP-OFDM, 100% RB, 80 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.41	± 9.6 %
10864	AAE	5G NR (CP-OFDM, 100% RB, 90 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.37	± 9.6 %
10865	AAD	5G NR (CP-OFDM, 100% RB, 100 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.41	± 9.6 %
10866	AAD	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	± 9.6 %
10868	AAD	5G NR (DFT-s-OFDM, 100% RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.89	± 9.6 %
10869	AAD	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	5.75	± 9.6 %
10870	AAD	5G NR (DFT-s-OFDM, 100% RB, 100 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	5.86	± 9.6 %
10871	AAD	5G NR (OFT-s-OFDM, 1 RB, 100 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	5.75	± 9.6 %
10872	AAD	5G NR (DFT-s-OFDM, 100% RB, 100 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	6.52	± 9.6 %
10873	AAD	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	6.61	± 9.6 %
10874	AAD	5G NR (DFT-s-OFDM, 100% RB, 100 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	6.65	± 9.6 %
10875	AAD	5G NR (CP-OFDM, 1 RB, 100 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	7.78	± 9.6 %
10876	AAD	5G NR (CP-OFDM, 100% RB, 100 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	8.39	± 9.6 %
10877	AAD	5G NR (CP-OFDM, 1 RB, 100 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	7.95	± 9.6 %
10878	AAD	5G NR (CP-OFDM, 100% RB, 100 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	8.41	± 9.6 %
10879	AAD	5G NR (CP-OFDM, 1 RB, 100 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	8.12	± 9.6 %
10880	AAD	5G NR (CP-OFDM, 100% RB, 100 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	8.38	± 9.6 %
10881	AAD	5G NR (DFT-s-OFDM, 1 RB, 50 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	5.75	± 9.6 %
10882	AAD	5G NR (DFT-s-OFDM, 100% RB, 50 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	5.96	± 9.6 %
10883	AAD	5G NR (OFT-s-OFDM, 1 RB, 50 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	6.57	± 9.6 %
10884	AAD	5G NR (OFT-s-OFDM, 100% RB, 50 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	6.53	± 9.6 %
10885	AAD	5G NR (DFT-s-OFDM, 1 RB, 50 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	6.61	± 9.6 %
10886	AAD	5G NR (DFT-s-OFDM, 100% RB, 50 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	6.65	± 9.6 %
10887	AAD	5G NR (CP-OFDM, 1 RB, 50 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	7.78	± 9.6 %
10888	AAD	5G NR (CP-OFDM, 100% RB, 50 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	8.35	± 9.6 %
10889	AAD	5G NR (CP-OFDM, 1 RB, 50 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	8.02	± 9.6 %
10890	AAD	5G NR (CP-OFDM, 100% RB, 50 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	8.40	± 9.6 %
10891	AAD	5G NR (CP-OFDM, 1 RB, 50 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	8.13	± 9.6 %
10892	AAD	5G NR (CP-OFDM, 100% RB, 50 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	8.41	± 9.6 %
10897	AAD	5G NR (DFT-s-OFDM, 1 RB, 5 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.66	± 9.6 %
10898	AAD	5G NR (DFT-s-OFDM, 1 RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.67	± 9.6 %

10899	AAD	5G NR (DFT-s-OFDM, 1RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.67	± 9.6 %
10900	AAD	5G NR (DFT-s-OFDM, 1RB, 20 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	± 9.6 %
10901	AAD	5G NR <DFT-s-OFDM, 1RB, 25 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	± 9.6 %
10902	AAD	5G NR (DFT-s-OFDM, 1RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	± 9.6 %
10903	AAD	5G NR (DFT-s-OFDM, 1RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	± 9.6 %
10904	AAD	5G NR (DFT-s-OFDM, 1RB, 50 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	± 9.6 %
10905	AAD	5G NR (DFT-s-OFDM, 1RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	± 9.6 %
10906	AAD	5G NR (DFT-s-OFDM, 1RB, 80 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	± 9.6 %
10907	AAD	5G NR (DFT-s-OFDM, 50% RB, 5 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.78	± 9.6 %
10908	AAD	5G NR (DFT-s-OFDM, 50% RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.93	± 9.6 %
10909	AAD	5G NR (DFT-s-OFDM, 50% RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.96	± 9.6 %
10910	AAD	5G NR (DFT-s-OFDM, 50% RB, 20 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.83	± 9.6 %
10911	AAD	5G NR (DFT-s-OFDM, 50% RB, 25 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.93	± 9.6 %
10912	AAD	5G NR (DFT-s-OFDM, 50% RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	± 9.6 %
10913	AAD	5G NR (DFT-s-OFDM, 50% RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	± 9.6 %
10914	AAD	5G NR (DFT-s-OFDM, 50% RB, 50 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.85	± 9.6 %
10915	AAD	5G NR (DFT-s-OFDM, 50% RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.83	± 9.6 %
10916	AAD	5G NR (DFT-s-OFDM, 50% RB, 80 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.87	± 9.6 %
10917	AAD	5G NR (DFT-s-OFDM, 50% RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.94	± 9.6 %
10918	AAD	5G NR (DFT-s-OFDM, 100% RB, 5 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.86	± 9.6 %
10919	AAD	5G NR (DFT-s-OFDM, 100% RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.86	± 9.6 %
10920	AAD	5G NR (DFT-s-OFDM, 100% RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.87	± 9.6 %
10921	AAD	5G NR (DFT-s-OFDM, 100% RB, 20 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	± 9.6 %
10922	AAD	5G NR (DFT-s-OFDM, 100% RB, 25 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.82	± 9.6 %
10923	AAD	5G NR (DFT-s-OFDM, 100% RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	± 9.6 %
10924	AAD	5G NR (DFT-s-OFDM, 100% RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	± 9.6 %
10925	AAD	5G NR (DFT-s-OFDM, 100% RB, 50 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.95	± 9.6 %
10926	AAD	5G NR (DFT-s-OFDM, 100% RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	± 9.6 %
10927	AAD	5G NR (DFT-s-OFDM, 100% RB, 80 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.94	± 9.6 %
10928	AAD	5G NR (DFT-s-OFDM, 1RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 FOO	5.52	± 9.6 %
10929	AAD	5G NR (DFT-s-OFDM, 1RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 FOO	5.52	± 9.6 %
10930	AAD	5G NR (DFT-s-OFDM, 1RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 FOO	5.52	± 9.6 %
10931	AAD	5G NR (DFT-s-OFDM, 1RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.51	± 9.6 %
10932	AAB	5G NR (DFT-s-OFDM, 1RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 FOO	5.51	± 9.6 %
10933	AAA	5G NR (DFT-s-OFDM, 1RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 FOO	5.51	± 9.6 %
10934	AAA	5G NR (DFT-s-OFDM, 1RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 FOO	5.51	± 9.6 %
10935	AAA	5G NR (DFT-s-OFDM, 1RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 FOO	5.51	± 9.6 %
10936	AAC	5G NR (DFT-s-OFDM, 50% RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 FOO	5.90	± 9.6 %
10937	AAB	5G NR (DFT-s-OFDM, 50% RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 FOO	5.77	± 9.6 %
10938	AAB	5G NR (DFT-s-OFDM, 50% RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 FOO	5.90	± 9.6 %
10939	AAB	5G NR (DFT-s-OFDM, 50% RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 FOO	5.82	± 9.6 %
10940	AAB	5G NR (DFT-s-OFDM, 50% RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 FOO	5.89	± 9.6 %
10941	AAB	5G NR (DFT-s-OFDM, 50% RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 FOO	5.83	± 9.6 %
10942	AAB	5G NR (DFT-s-OFDM, 50% RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 FOO	5.85	± 9.6 %
10943	AAB	5G NR (DFT-s-OFDM, 50% RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 FOO	5.95	± 9.6 %
10944	AAB	5G NR (DFT-s-OFDM, 100% RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 FOO	5.81	± 9.6 %
10945	AAB	5G NR (DFT-s-OFDM, 100% RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 FOO	5.85	± 9.6 %
10946	AAC	5G NR (DFT-s-OFDM, 100% RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 FOO	5.83	± 9.6 %
10947	AAB	5G NR (DFT-s-OFDM, 100% RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 FOO	5.87	± 9.6 %
10948	AAB	5G NR (DFT-s-OFDM, 100% RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 FOO	5.94	± 9.6 %
10949	AAB	5G NR (DFT-s-OFDM, 100% RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 FOO	5.87	± 9.6 %
10950	AAB	5G NR (DFT-s-OFDM, 100% RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 FOO	5.94	± 9.6 %
10951	AAB	5G NR (DFT-s-OFDM, 100% RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 FOO	5.92	± 9.6 %
10952	AAB	5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 15 kHz)	5G NR FR1 FOO	8.25	± 9.6 %
10953	AAB	5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 15 kHz)	5G NR FR1 FOO	8.15	± 9.6 %
10954	AAB	5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 15 kHz)	5G NR FR1 FOO	8.23	± 9.6 %
10955	AAB	5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 15 kHz)	5G NR FR1 FOO	8.42	± 9.6 %
10956	AAB	5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 30 kHz)	5G NR FR1 FOO	8.14	± 9.6 %
10957	AAC	5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 30 kHz)	5G NR FR1 FOO	8.31	± 9.6 %

Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China

Tel: +86-10-62304633-2512

Fax: +86-10-62304633-2504

E-mail: ctl@chinattl.com

[Http://www.chinattl.cn](http://www.chinattl.cn)

10958	AAS	5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 30 kHz)	5G NR FR1 FOO	8.61	± 9.6 %
10959	AAS	5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 30 kHz)	5G NR FR1 FOO	8.33	± 9.6 %
10960	AAS	5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	9.32	± 9.6 %
10961	AAS	5G NR DUCP-OFDM, TM 3.1, 10 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	9.36	± 9.6 %
10962	AAS	5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	9.40	± 9.6 %
10963	AAS	5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	9.55	± 9.6 %
10964	AAS	5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.29	± 9.6 %
10965	AAS	5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.37	± 9.6 %
10966	AAS	5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.55	± 9.6 %
10967	AAS	5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.42	± 9.6 %
10968	AAS	5G NR DUCP-OFDM, TM 3.1, 100 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.49	± 9.6 %
10972	AAS	5G NR (CP-OFDM, 1 RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	11.59	± 9.6 %
10973	AAS	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	9.06	± 9.6 %
10974	AAS	5G NR (CP-OFDM, 100% RB, 100 MHz, 256-QAM, 30 kHz)	5G NR FR1 TDD	10.28	± 9.6 %

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