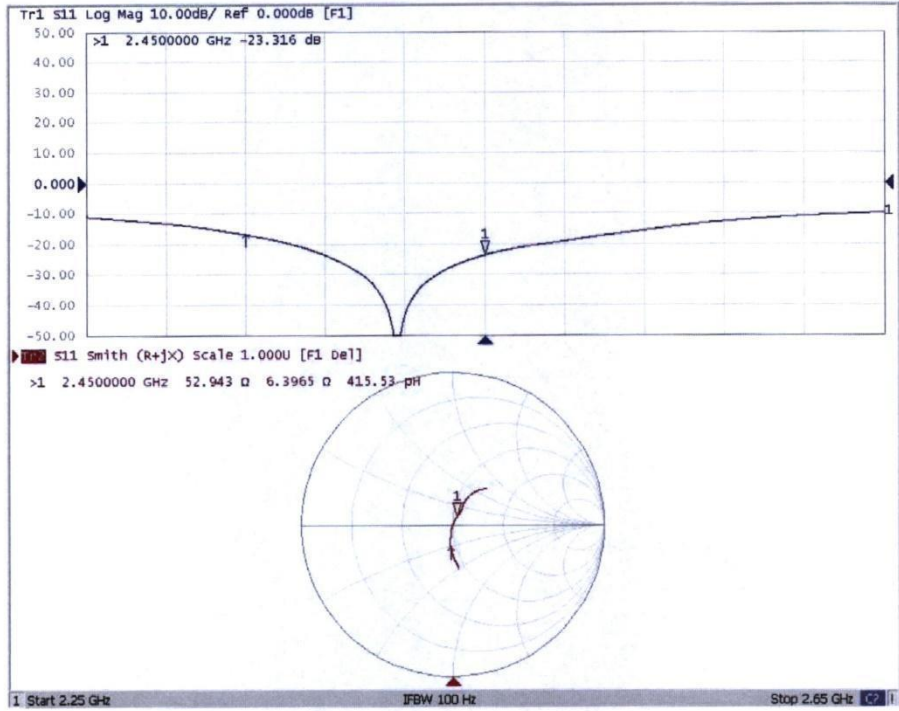


Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2117
E-mail: cttl@chinattl.com http://www.caict.ac.cn

Impedance Measurement Plot for Head TSL





In Collaboration with
TTL Speag
 CALIBRATION LABORATORY
 Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191
 Tel: +86-10-62304633-2117
 E-mail: emf@caict.ac.cn http://www.caict.ac.cn



中国认可
 国际互认
 校准
 CALIBRATION
 CNAS L0570


 Client **3in**

 Certificate No: **Z22-60405**
CALIBRATION CERTIFICATE

 Object **D2600V2 - SN: 1031**

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

 Calibration date: **September 21, 2022**


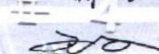
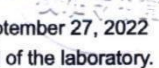
This calibration Certificate documents the traceability to national standards, which realize the physical units of measurements (SI). The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

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)

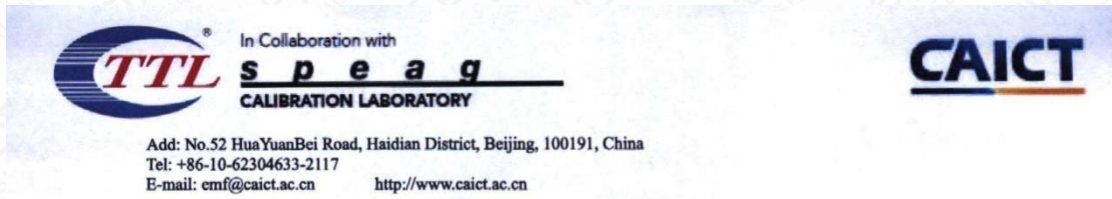
Primary Standards	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Power Meter NRP2	106277	24-Sep-21 (CTTL, No.J21X08326)	Sep-22
Power sensor NRP8S	104291	24-Sep-21 (CTTL, No.J21X08326)	Sep-22
Reference Probe EX3DV4	SN 7464	26-Jan-22(SPEAG,No.EX3-7464_Jan22)	Jan-23
DAE4	SN 1556	12-Jan-22(CTTL-SPEAG,No.Z22-60007)	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: September 27, 2022

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

**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-mounted 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:

- 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%.


 In Collaboration with
s p e a g
 CALIBRATION LABORATORY

 Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China
 Tel: +86-10-62304633-2117
 E-mail: emf@caict.ac.cn http://www.caict.ac.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	2600 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	39.0	1.96 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	40.1 ± 6 %	1.93 mho/m ± 6 %
Head TSL temperature change during test	<1.0 °C	—	—

SAR result with Head TSL

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	13.6 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	55.1 W/kg ± 18.8 % (k=2)
SAR averaged over 10 cm³ (10 g) of Head TSL	Condition	
SAR measured	250 mW input power	6.16 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	24.8 W/kg ± 18.7 % (k=2)



In Collaboration with
s p e a g
 CALIBRATION LABORATORY



Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China
 Tel: +86-10-62304633-2117
 E-mail: emf@caict.ac.cn http://www.caict.ac.cn

Appendix (Additional assessments outside the scope of CNAS L0570)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	47.2Ω- 3.06jΩ
Return Loss	- 27.5dB

General Antenna Parameters and Design


Electrical Delay (one direction)	1.055 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
-----------------	-------


 In Collaboration with
s p e a g
CALIBRATION LABORATORY

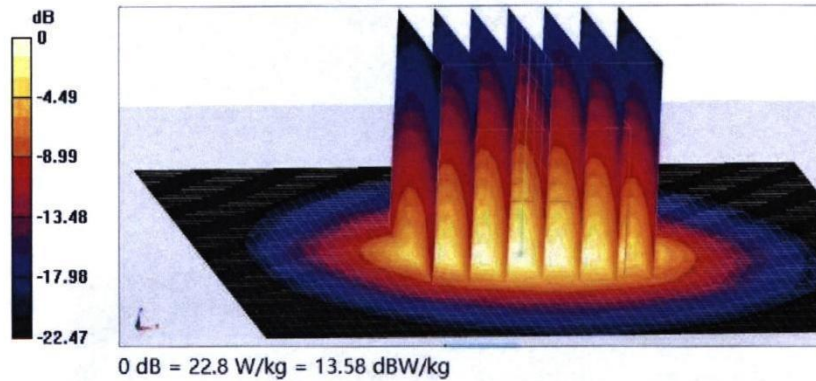


Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China
 Tel: +86-10-62304633-2117
 E-mail: emf@caict.ac.cn <http://www.caict.ac.cn>

DASY5 Validation Report for Head TSL Date: 2022-09-21
 Test Laboratory: CTTL, Beijing, China
DUT: Dipole 2600 MHz; Type: D2600V2; Serial: D2600V2 - SN: 1031
 Communication System: UID 0, CW; Frequency: 2600 MHz; Duty Cycle: 1:1
 Medium parameters used: $f = 2600$ MHz; $\sigma = 1.933$ S/m; $\epsilon_r = 40.06$; $\rho = 1000$ kg/m³
 Phantom section: Right Section
 Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN7464; ConvF(7.64, 7.64, 7.64) @ 2600 MHz; Calibrated: 2022-01-26
- 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)

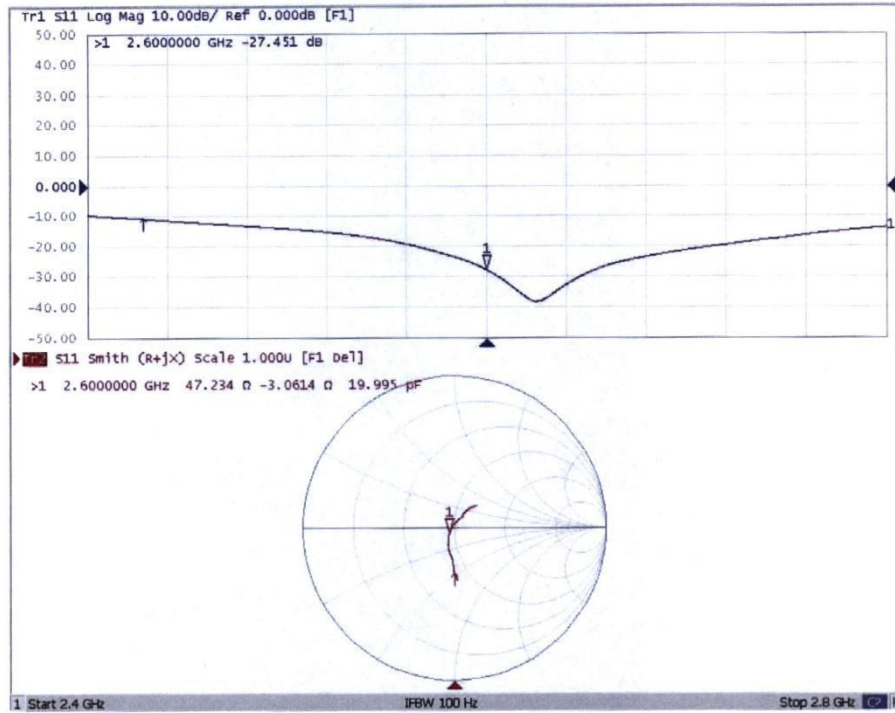
Dipole Calibration/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
 Reference Value = 102.7 V/m; Power Drift = -0.05 dB
 Peak SAR (extrapolated) = 28.4 W/kg
SAR(1 g) = 13.6 W/kg; SAR(10 g) = 6.16 W/kg
 Smallest distance from peaks to all points 3 dB below = 9 mm
 Ratio of SAR at M2 to SAR at M1 = 48.7%
 Maximum value of SAR (measured) = 22.8 W/kg





Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2117
E-mail: emf@caict.ac.cn http://www.caict.ac.cn

Impedance Measurement Plot for Head TSL




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

 中国认可
 国际互认
 校准
 CALIBRATION
 CNAS L0570

 Client **3in**

 Certificate No: **Z22-60065**
CALIBRATION CERTIFICATE

 Object **D5GHzV2 - SN: 1172**

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



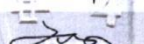
 Calibration date: **March 15, 2022**

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: March 19, 2022

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



In Collaboration with
s p e a g
CALIBRATION LABORATORY



Addr: 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 / NORMx,y,z
N/A not applicable or not measured

Calibration is Performed According to the Following Standards:

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

Additional Documentation:

- c) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

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

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



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	5200 MHz ± 1 MHz 5300 MHz ± 1 MHz 5500 MHz ± 1 MHz 5600 MHz ± 1 MHz 5800 MHz ± 1 MHz	

Head TSL parameters at 5200MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	36.0	4.66 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	35.9 ± 6 %	4.64 mho/m ± 6 %
Head TSL temperature change during test	<1.0 °C	----	----

SAR result with Head TSL at 5200MHz

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	7.58 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	75.7 W/kg ± 24.4 % (k=2)
SAR averaged over 10 cm ³ (10 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.18 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	21.8 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


Head TSL parameters at 5300MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.9	4.76 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	35.7 ± 6 %	4.75 mho/m ± 6 %
Head TSL temperature change during test	<1.0 °C	----	----

SAR result with Head TSL at 5300MHz

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	7.88 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	78.7 W/kg ± 24.4 % (k=2)
SAR averaged over 10 cm ³ (10 g) of Head TSL	Condition	
SAR measured	100 mW input power	2.26 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	22.6 W/kg ± 24.2 % (k=2)

Head TSL parameters at 5500MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.6	4.96 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	35.3 ± 6 %	4.96 mho/m ± 6 %
Head TSL temperature change during test	<1.0 °C	----	----

SAR result with Head TSL at 5500MHz

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	8.23 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	82.2 W/kg ± 24.4 % (k=2)
SAR averaged over 10 cm ³ (10 g) of Head TSL	Condition	
SAR measured	100 mW input power	2.33 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	23.3 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

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	35.2 ± 6 %	5.07 mho/m ± 6 %
Head TSL temperature change during test	<1.0 °C	----	----

SAR result with Head TSL at 5600MHz

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	8.02 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	80.0 W/kg ± 24.4 % (k=2)
SAR averaged over 10 cm ³ (10 g) of Head TSL	Condition	
SAR measured	100 mW input power	2.29 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	22.8 W/kg ± 24.2 % (k=2)

Head TSL parameters at 5800MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.3	5.27 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	34.9 ± 6 %	5.26 mho/m ± 6 %
Head TSL temperature change during test	<1.0 °C	----	----

SAR result with Head TSL at 5800MHz

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	7.69 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	76.7 W/kg ± 24.4 % (k=2)
SAR averaged over 10 cm ³ (10 g) of Head TSL	Condition	
SAR measured	100 mW input power	2.16 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	21.5 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 5200MHz

Impedance, transformed to feed point	49.3Ω- 8.81jΩ
Return Loss	- 21.0dB

Antenna Parameters with Head TSL at 5300MHz

Impedance, transformed to feed point	49.7Ω- 6.44jΩ
Return Loss	- 23.8dB

Antenna Parameters with Head TSL at 5500MHz

Impedance, transformed to feed point	52.9Ω- 5.05jΩ
Return Loss	- 24.9dB

Antenna Parameters with Head TSL at 5600MHz

Impedance, transformed to feed point	56.2Ω- 3.42jΩ
Return Loss	- 23.5dB

Antenna Parameters with Head TSL at 5800MHz

Impedance, transformed to feed point	56.3Ω- 5.84jΩ
Return Loss	- 21.8dB



In Collaboration with
s p e a g
 CALIBRATION 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

General Antenna Parameters and Design

Electrical Delay (one direction)	1.111 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: ctll@chinattl.com http://www.chinattl.cn

DASY5 Validation Report for Head TSL

Date: 2022-03-15

Test Laboratory: CTTL, Beijing, China

DUT: Dipole 5GHz; Type: D5GHzV2; Serial: D5GHzV2 - SN: 1172

Communication System: CW; Frequency: 5200 MHz, Frequency: 5300 MHz,
Frequency: 5500 MHz, Frequency: 5600 MHz, Frequency: 5800 MHz, Duty Cycle: 1:1
Medium parameters used: f = 5200 MHz; $\sigma = 4.64$ S/m; $\epsilon_r = 35.88$; $\rho = 1000$ kg/m³
Medium parameters used: f = 5300 MHz; $\sigma = 4.745$ S/m; $\epsilon_r = 35.68$; $\rho = 1000$ kg/m³
Medium parameters used: f = 5500 MHz; $\sigma = 4.955$ S/m; $\epsilon_r = 35.32$; $\rho = 1000$ kg/m³
Medium parameters used: f = 5600 MHz; $\sigma = 5.067$ S/m; $\epsilon_r = 35.17$; $\rho = 1000$ kg/m³
Medium parameters used: f = 5800 MHz; $\sigma = 5.264$ S/m; $\epsilon_r = 34.9$; $\rho = 1000$ kg/m³
Phantom section: Right Section

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

DASY5 Configuration:

- Probe: EX3DV4 - SN7307; ConvF(5.77, 5.77, 5.77) @ 5200 MHz;
ConvF(5.6, 5.6, 5.6) @ 5300 MHz; ConvF(5.25, 5.25, 5.25) @ 5500 MHz;
ConvF(5.1, 5.1, 5.1) @ 5600 MHz; ConvF(5, 5, 5) @ 5800 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=5200 MHz/Zoom Scan,**dist=1.4mm (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 62.58 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 29.1 W/kg

SAR(1 g) = 7.58 W/kg; SAR(10 g) = 2.18 W/kg

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

Ratio of SAR at M2 to SAR at M1 = 66.7%

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

Dipole Calibration /Pin=100mW, d=10mm, f=5300 MHz/Zoom Scan,**dist=1.4mm (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 63.71 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 31.3 W/kg

SAR(1 g) = 7.88 W/kg; SAR(10 g) = 2.26 W/kg

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

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

Maximum value of SAR (measured) = 18.4 W/kg

Certificate No: Z22-60065

Page 8 of 10

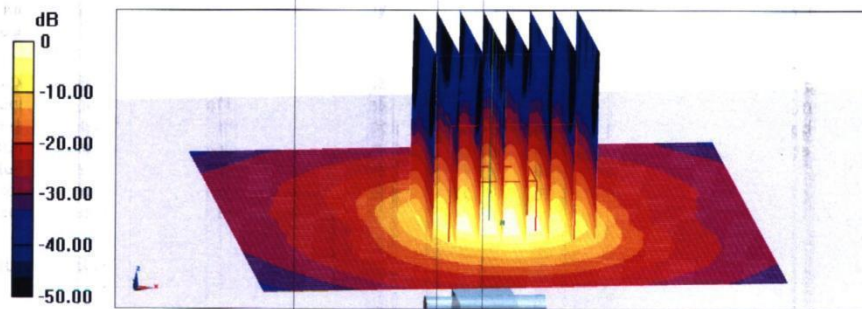


Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China
 Tel: +86-10-62304633-2079 Fax: +86-10-62304633-2504
 E-mail: cttl@chinattl.com http://www.chinattl.cn

Dipole Calibration /Pin=100mW, d=10mm, f=5500 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
 Reference Value = 64.62 V/m; Power Drift = 0.01 dB
 Peak SAR (extrapolated) = 34.7 W/kg
SAR(1 g) = 8.23 W/kg; SAR(10 g) = 2.33 W/kg
 Smallest distance from peaks to all points 3 dB below = 7.2 mm
 Ratio of SAR at M2 to SAR at M1 = 63.9%
 Maximum value of SAR (measured) = 19.6 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 = 68.14 V/m; Power Drift = -0.05 dB
 Peak SAR (extrapolated) = 33.8 W/kg
SAR(1 g) = 8.02 W/kg; SAR(10 g) = 2.29 W/kg
 Smallest distance from peaks to all points 3 dB below = 7.2 mm
 Ratio of SAR at M2 to SAR at M1 = 63.4%
 Maximum value of SAR (measured) = 19.4 W/kg

Dipole Calibration /Pin=100mW, d=10mm, f=5800 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
 Reference Value = 61.10 V/m; Power Drift = 0.04 dB
 Peak SAR (extrapolated) = 35.1 W/kg
SAR(1 g) = 7.69 W/kg; SAR(10 g) = 2.16 W/kg
 Smallest distance from peaks to all points 3 dB below = 7.2 mm
 Ratio of SAR at M2 to SAR at M1 = 61.4%
 Maximum value of SAR (measured) = 18.8 W/kg

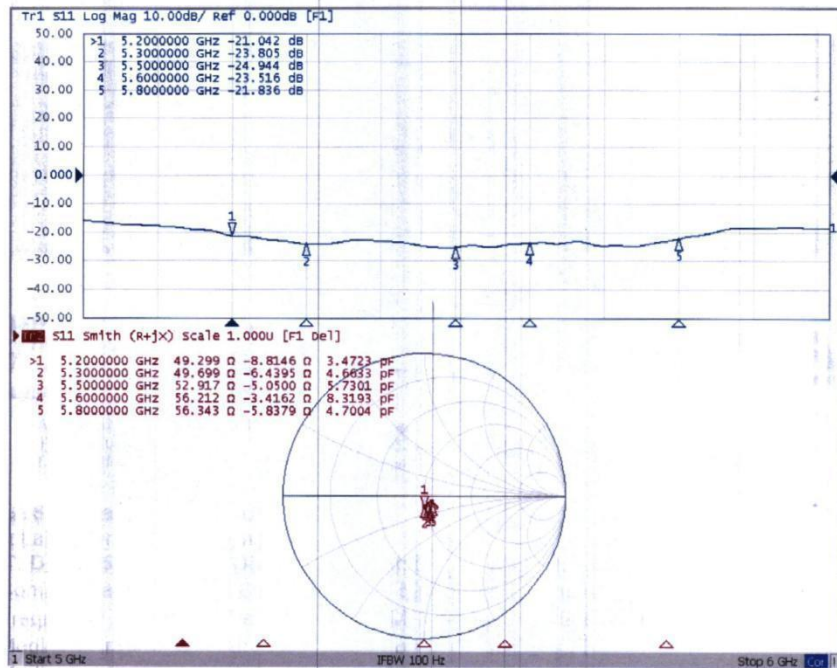


0 dB = 18.8 W/kg = 12.74 dBW/kg



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



Annex C: Revised History

Version	Revised Content
V00	Initial
V01	Add HVIN

Annex D: Accreditation Certificate

Accredited Laboratory

A2LA has accredited

**INDUSTRIAL INTERNET INNOVATION CENTER
(SHANGHAI) CO., LTD.**

Shanghai, People's Republic of China

for technical competence in the field of

Electrical Testing

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 *General requirements for the competence of testing and calibration laboratories*. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated April 2017).

Presented this 12th day of April 2021.

[Signature]
Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 3682.01
Valid to February 28, 2023

For the tests to which this accreditation applies, please refer to the laboratory's Electrical Scope of Accreditation.

END OF REPORT