

Appendix C for KSCR221000208001

Calibration Certificate

Object	Apply	No	Model	SN	Calibration Date
Dipole	<input type="checkbox"/>	1	CLA150	4025	2021/04/26
	<input type="checkbox"/>	2	D450V3	1103	2021/04/21
	<input type="checkbox"/>	3	D750V3	1188	2022/03/29
	<input type="checkbox"/>	4	D835V2	4d114	2022/03/31
	<input type="checkbox"/>	5	D900V2	1d079	2022/06/07
	<input type="checkbox"/>	6	D1800V2	2d170	2022/03/31
	<input type="checkbox"/>	7	D1900V2	5d136	2022/06/07
	<input type="checkbox"/>	8	D2000V2	1041	2022/06/06
	<input type="checkbox"/>	9	D2300V2	1096	2022/03/31
	<input checked="" type="checkbox"/>	10	D2450V2	817	2022/04/01
	<input type="checkbox"/>	11	D2600V2	1158	2022/03/31
	<input type="checkbox"/>	12	D5GHzV2	1095	2022/06/01
DAE	<input checked="" type="checkbox"/>	13	DAE4	1245	2022/05/30
Probe	<input checked="" type="checkbox"/>	14	EX3DV4	7346	2022/03/30



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1 Dipole

1.1 CLA150 - SN 4025

<p>Calibration Laboratory of Schmid & Partner Engineering AG Zeughausstrasse 43, 8004 Zurich, Switzerland</p> <p style="text-align: right;">Schweizerischer Kalibrierdienst Service suisse d'étalonnage Servizio svizzero di taratura Swiss Calibration Service</p> <p style="text-align: right;">Accreditation No.: SCS 0108</p> <p>Accredited by the Swiss Accreditation Service (SAS) The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates</p> <p>Client: SGS-CN (Auden) Certificate No.: CLA150-4025_Apr21</p> <hr/> <p style="text-align: center;">CALIBRATION CERTIFICATE</p> <p>Object: CLA150 - SN: 4025</p> <p>Calibration procedure(s): QA CAL-15-V9 Calibration Procedure for SAR Validation Sources below 700 MHz</p> <p>Calibration date: April 26, 2021</p> <p>The calibration certificate documents the traceability to national standards, which involve 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.</p> <p>All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 0.5°C and humidity < 70%).</p> <p>Calibration Equipment Used (MPE critical for calibration)</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Primary Standards</th> <th>ID #</th> <th>Cal Date (Certificate No.)</th> <th>Scheduled Calibration</th> </tr> </thead> <tbody> <tr> <td>Power meter NRP</td> <td>SN: 104776</td> <td>09-Apr-21 (No. 217-0320103290)</td> <td>Apr-22</td> </tr> <tr> <td>Power sensor NRP-Z91</td> <td>SN: 103844</td> <td>09-Apr-21 (No. 217-03201)</td> <td>Apr-22</td> </tr> <tr> <td>Power sensor NRP-Z91</td> <td>SN: 103245</td> <td>09-Apr-21 (No. 217-03202)</td> <td>Apr-22</td> </tr> <tr> <td>Reference 20 dB Attenuator</td> <td>SN: C273861 (2030)</td> <td>09-Apr-21 (No. 217-03343)</td> <td>Apr-22</td> </tr> <tr> <td>Type-N mismatch combination</td> <td>SN: 310882 / 06387</td> <td>09-Apr-21 (No. 217-03344)</td> <td>Apr-22</td> </tr> <tr> <td>Reference Probe EX3074 (D&E)</td> <td>SN: 3877</td> <td>30-Dec-20 (No. E3X3877_Dec20)</td> <td>Dec-21</td> </tr> <tr> <td></td> <td>SN: 464</td> <td>29-Jan-20 (No. D4E4-455L_Jan20)</td> <td>Jan-21</td> </tr> </tbody> </table> <table border="1" style="width: 100%; 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All figures stated in this certificate are valid at the frequency indicated. Antenna Parameters with TSL: The source is mounted in a touch configuration below the center marking of the flat phantom. Return Loss: This parameter is measured with the source positioned under the liquid filled phantom (as described in the measurement condition clause). The Return Loss ensures low reflected power. 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. <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>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%.</p> </div> <p>Certificate No: CLA150-4025_Apr21 Page 2 of 6</p>						
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 中国·江苏·昆山市留学生创业园伟业路10号 邮编 215300 t(86-512)57355888 f(86-512)57370818 sgs.china@sgs.com

DASY5 Validation Report for Head TSL

Date: 26.04.2021

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: CLA150; Type: CLA150; Serial: CLA150 - SN: 4025

Communication System: UID 0 - CW; Frequency: 150 MHz
Medium parameters used: $f = 150 \text{ MHz}$; $\sigma = 0.76 \text{ S/m}$; $\epsilon_r = 51.1$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN3877; ConvF(12.51, 12.51, 12.51) @ 150 MHz; Calibrated: 30.12.2020
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DA64 S654; Calibrated: 26.06.2020
- Phantom: ELI v4.0; Type: QDOVA001BB; Serial: TP.1003
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

CLA Calibration for HSL-LF Tissue/CLA150, touch configuration, Pin=1W/Zoom Scan, dist=1.4mm (8x10x8)/Cube 0; Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 85.93 W/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 7.36 W/kg
SAR(1 g) = 3.90 W/kg; SAR(10 g) = 2.60 W/kg
Smallest distance from peaks to all points 3 dB below: Larger than measurement grid (> 30mm)
Ratio of SAR at M2 to SAR at M1 = 80.4%
Maximum value of SAR (measured) = 5.48 W/kg

0 dB = 5.48 W/kg = 7.39 dBW/kg

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1.2 D450V3 - SN 1103

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

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

Client: **SGS-CN (Auden)** Certificate No: **D450V3-1103_Apr21**

CALIBRATION CERTIFICATE

Object: **D450V3 - SN: 1103**

Calibration procedure(s): **QA CAL-15_v9**
Calibration Procedure for SAR Validation Sources below 700 MHz

Calibration date: **April 21, 2021**

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 ± 2)°C and humidity = 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP#	SN: 104778	09-Apr-21 (No. 217-03021/03030)	Apr-22
Power sensor NRP#-291	SN: 103244	09-Apr-21 (No. 217-03021)	Apr-22
Power sensor NRP#-291	SN: 103245	09-Apr-21 (No. 217-03025)	Apr-22
Reference 20 dB Attenuator	SN: C2552 (200)	09-Apr-21 (No. 217-03343)	Apr-22
Type-N mismatch combination	SN: 310982 / 06327	09-Apr-21 (No. 217-03344)	Apr-22
Reference Probe E303V4	SN: 3077	30-Dec-20 (No. E30-3077_Dec20)	Dec-21
DA64	SN: 654	26-Jan-20 (No. D454-654_Jan20)	Jan-21

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter E4418B	SN: GB41203074	06-Apr-16 (in house check: Jun-20)	In house check: Jun-22
Power sensor E4412A	SN: EY41498027	06-Apr-16 (in house check: Jun-20)	In house check: Jun-22
Power sensor E4412A	SN: 00010210	06-Apr-16 (in house check: Jun-20)	In house check: Jun-22
RF generator HP 8648C	SN: L83460010700	06-Aug-09 (in house check: Jun-22)	In house check: Jun-22
Network Analyzer Agilent E8308A	SN: L841080477	31-Mar-14 (in house check: Oct-20)	In house check: Oct-21

Calibrated by: **Christof Leuber** (Function: Laboratory Technician)

Approved by: **Katja Polovic** (Function: Technical Manager)

Issued: April 23, 2021

Certificate No: D450V3-1103_Apr21 Page 1 of 6

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

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Client: **SGS-CN (Auden)** Certificate No: **D450V3-1103_Apr21**

Glossary:

TSL: Issue simulating liquid sensitivity in TSL / NORM x,y,z

ConvF: not applicable or not measured

N/A: not applicable or not measured

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 665664, "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%.

Certificate No: D450V3-1103_Apr21 Page 2 of 6



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

DASY Version	DASY5	V62.10.4
Extrapolation	Advanced Extrapolation	
Phantom	ELI4 Flat Phantom	Shell (thickness: 2 ± 0.2 mm)
Distance Dipole Center - TSL	15 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	450 MHz ± 1 MHz	

Head TSL parameters
The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	43.5	0.57 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	43.1 ± 0.9 %	0.57 mho/m ± 0 %
Head TSL temperature change during test	< 0.5 °C	---	---

SAR result with Head TSL

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	1.14 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	4.56 W/kg ± 18.1 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	Condition	
SAR measured	250 mW input power	0.757 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	3.06 W/kg ± 17.6 % (k=2)

Certificate No: D450V3-1103_Apr21 Page 3 of 6

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	57.1 Ω - 2.6 jΩ
Return Loss	-23.0 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.346 ns
----------------------------------	----------

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured. The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard. No excessive forces must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
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Certificate No: D450V3-1103_Apr21 Page 4 of 6

DASY5 Validation Report for Head TSL

Test Laboratory: SPEAG, Zurich, Switzerland Date: 21.04.2021

DUT: Dipole 450 MHz; Type: D450V3; Serial: D450V3 - SN:1103

Communication System: UID 0 - CW; Frequency: 450 MHz
Medium parameters used: f = 450 MHz; α = 0.87 S/m; α_r = 43.1; ρ = 1000 kg/m³
Phantom section: Flat Section
Measurement Standard: DASY5 (IEE/IEC/ANSI C63.19-2011)

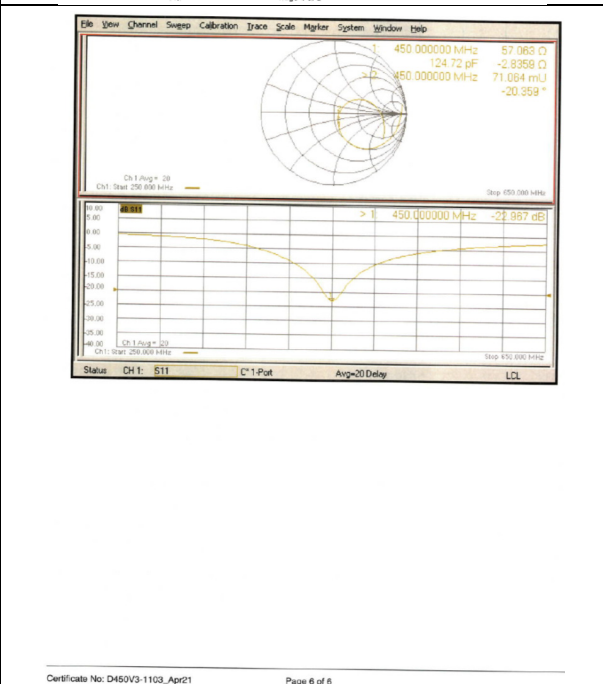
DASY52 Configuration:

- Probe: EX3DV4 - SN3877; ConvF(10.64, 10.64, 10.64) @ 450 MHz; Calibrated: 30.12.2020
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn654; Calibrated: 26.06.2020
- Phantom: ELI v4.0; Type: QDOVA001BB; Serial: TP.1003
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Dipole Calibration for Head Tissue(d=15mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 39.18 W/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 1.76 W/kg
SAR(1 g) = 1.14 W/kg; SAR(10 g) = 0.767 W/kg
Smallest distance from peaks to all points 3 dB below: Larger than measurement grid
Ratio of SAR at M2 to SAR at M1 = 64.9%
Maximum value of SAR (measured) = 1.53 W/kg

0 dB = 1.53 W/kg = 1.85 dBW/kg

Certificate No: D450V3-1103_Apr21 Page 5 of 6



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1.3 D750V3 - SN 1188

<div style="text-align: center;"> </div> <p style="font-size: small;"> Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China Tel: +86-10-62304633-2512 Fax: +86-10-62304633-2504 E-mail: cti@chinaast.com http://www.chinaast.cn </p> <p>Client: SGS-CN Certificate No: Z22-60103</p> <p>CALIBRATION CERTIFICATE</p> <p>Object: D750V3 - SN: 1188</p> <p>Calibration Procedure(s): FF-Z11-003-01 Calibration Procedures for dipole validation kits</p> <p>Calibration date: March 29, 2022</p> <p>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.</p> <p>All calibrations have been conducted in the closed laboratory facility: environment temperature (22±3)°C and humidity <70%.</p> <p>Calibration Equipment used (M&TE critical for calibration)</p> <table border="1" style="width:100%; font-size: x-small;"> <thead> <tr> <th>Primary Standards</th> <th>ID #</th> <th>Cal Date (Calibrated by, Certificate No.)</th> <th>Scheduled Calibration</th> </tr> </thead> <tbody> <tr> <td>Power Meter NRP2</td> <td>106277</td> <td>24-Sep-21 (CTTL No.J21X08326)</td> <td>Sep-22</td> </tr> <tr> <td>Power sensor NRP8S</td> <td>104291</td> <td>24-Sep-21 (CTTL No.J21X08326)</td> <td>Sep-22</td> </tr> <tr> <td>Reference Probe EX30V4 DAE4</td> <td>SN 7307 SN 1556</td> <td>26-May-21(SPEAG.No.EK3-7307_May21) 12-Jan-22(CTTL-SPEAG.No.Z22-60007)</td> <td>May-22 Jan-23</td> </tr> </tbody> </table> <table border="1" style="width:100%; font-size: x-small;"> <thead> <tr> <th>Secondary Standards</th> <th>ID #</th> <th>Cal Date (Calibrated by, Certificate No.)</th> <th>Scheduled Calibration</th> </tr> </thead> <tbody> <tr> <td>Signal Generator E4438C</td> <td>MY49071430</td> <td>13-Jan-22 (CTTL No.J22X00409)</td> <td>Jan-23</td> </tr> <tr> <td>Network Analyzer E5071C</td> <td>MY46110673</td> <td>14-Jan-22 (CTTL No.J22X00406)</td> <td>Jan-23</td> </tr> </tbody> </table> <p>Calibrated by: Zhao Jing SAR Test Engineer</p> <p>Reviewed by: Lin Hao SAR Test Engineer</p> <p>Approved by: Qi Dianyuan SAR Project Leader</p> <p style="text-align: right;">Issued: April 3, 2022</p> <p style="font-size: x-small;">This calibration certificate shall not be reproduced except in full without written approval of the laboratory.</p> <p style="font-size: x-small;">Certificate No: Z22-60103 Page 1 of 6</p>	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 EX30V4 DAE4	SN 7307 SN 1556	26-May-21(SPEAG.No.EK3-7307_May21) 12-Jan-22(CTTL-SPEAG.No.Z22-60007)	May-22 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	<div style="text-align: center;"> </div> <p style="font-size: small;"> Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China Tel: +86-10-62304633-2079 Fax: +86-10-62304633-2504 E-mail: cti@chinaast.com http://www.chinaast.cn </p> <p>Glossary:</p> <p>TSL: tissue simulating liquid</p> <p>ConVF: sensitivity in TSL / NORMx.yz</p> <p>N/A: not applicable or not measured</p> <p>Calibration is Performed According to the Following Standards:</p> <p>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</p> <p>b) DKB 865684, "SAR Measurement Requirements for 100 MHz to 6 GHz"</p> <p>Additional Documentation:</p> <p>c) DASY4/5 System Handbook</p> <p>Methods Applied and Interpretation of Parameters:</p> <ul style="list-style-type: none"> • 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. 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E-mail: cti@china.ttl.com http://www.chinatit.com

Date: 2022-03-29

DASY5 Validation Report for Head TSL
 Test Laboratory: CTITL, Beijing, China
DUT: Dipole 750 MHz; Type: D750V3; Serial: D750V3 - SN: 1188
 Communication System: UID 0, CW; Frequency: 750 MHz; Duty Cycle: 1:1
 Medium parameters used: $f = 750 \text{ MHz}$; $\sigma = 0.888 \text{ S/m}$; $\epsilon_r = 41.36$; $\rho = 1000 \text{ kg/m}^3$
 Phantom section: Right Section
 Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
 DASY5 Configuration:

- Probe: EX3DV4 - SN7307; ConvF(10.31, 10.31, 10.31) @ 750 MHz; Calibrated: 2021-05-26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1556; Calibrated: 2022-01-12
- Phantom: MEP 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 = 55.06 V/m; Power Drift = 0.00 dB
 Peak SAR (extrapolated) = 3.07 W/kg
 SAR(1 g) = 2.07 W/kg; SAR(10 g) = 1.37 W/kg
 Smallest distance from peaks to all points 3 dB below = 18.9 mm
 Ratio of SAR at M2 to SAR at M1 = 67.1%
 Maximum value of SAR (measured) = 2.74 W/kg

0 dB = 2.74 W/kg = 4.38 dBW/kg

Certificate No: Z22-60103 Page 5 of 6

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Impedance Measurement Plot for Head TSL

Certificate No: Z22-60103 Page 6 of 6

1.4 D835V2 - SN 4d114

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CNAS 15070

Certificate No: Z22-60104

Client: **SGS-CN**

CALIBRATION CERTIFICATE

Object: D835V2 - SN: 4d114

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

Calibration date: March 31, 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 NRPBS	104281	24-Sep-21 (CTTL, No.J21X08326)	Sep-22
Reference Probe EX3DV4	SN 7307	28-Jan-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	MY48110873	14-Jan-22 (CTTL, No.J22X00406)	Jan-23

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

Issued: April 6, 2022

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

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Address: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2079 Fax: +86-10-62304633-2504
E-mail: cti@china.ttl.com http://www.chinatit.com

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:

- 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 685864, "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%.

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Attention: To check the authenticity of testing / inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

No.10, Weiye Road, Innovation Park, Kunshan, Jiangsu, China 215300
 中国·江苏·昆山市留学生创业园伟业路10号 邮编 215300

(86-512)57355888 f(86-512)57370818 www.sgsgroup.com.cn
 (86-512)57355888 f(86-512)57370818 sgs.china@sgs.com