

Appendix C

Phantom Description

Schmid & Partner Engineering AG

е a g s р

Zeughausstrasse 43, 8004 Zurich, Switzerland Phone +41 44 245 9700, Fax +41 44 245 9779 info@speag.com, http://www.speag.com

Certificate of Conformity / First Article Inspection

Item	Oval Flat Phantom ELI 5.0
Type No	QD OVA 002 A
Series No	1108 and higher
Manufacturer	Untersee Composites
	Knebelstrasse 8, CH-8268 Mannenbach, Switzerland

Tests

Complete tests were made on the prototype units QD OVA 001 A, pre-series units QD OVA 001 B as well as on some series units QD OVA 001 B. Some tests are made on all series units QD OVA 002 A.

Test	Requirement	Details	Units tested
Shape	Internal dimensions, depth and sagging are compatible with standards	Bottom elliptical 600 x 400 mm, Depth 190 mm, dimension compliant with [1] for f > 375 MHz	Prototypes
Material thickness	Bottom: 2.0mm +/- 0.2mm	dimension compliant with [3] for f > 800 MHz	all
Material parameters	rel. permittivity 2 – 5, loss tangent ≤ 0.05, at f ≤ 6 GHz	rel. permittivity 3.5 +/- 0.5 loss tangent ≤ 0.05	Material samples
Material resistivity	Compatibility with tissue simulating liquids .	Compatible with SPEAG liquids. **	Phantoms, Material sample
Sagging	Sagging of the flat section in tolerance when filled with tissue simulating liquid.	within tolerance for filling height up to 155 mm	Prototypes, samples

Note: Compatibility restrictions apply certain liquid components mentioned in the standard.

containing e.g. DGBE, DGMHE or Triton X-100. Observe technical note on material compatibility

Standards

OET Bulletin 65, Supplement C, "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields", Edition 01-01
 IEEE 1528-2003, "Recommended Practice for Determining the Peak Spatial-Average Specific

- Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques, December 2003
- [3] IEC 62209-1 ed1.0, "Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices - Human models, instrumentation, and procedures - Part 1: Procedure to determine the specific absorption rate (SAR) for hand-held devices used in close
- proximity to the ear (frequency range of 300 MHz to 3 GHz)", 2005-02-18 [4] IEC 62209-2 ed1.0, "Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices - Human models, instrumentation, and procedures - Part 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)", 2010-03-30

Conformity

Based on the sample tests above, we certify that this item is in compliance with the uncertainty requirements of body-worn SAR measurements and system performance checks as specified in [1 - 4] and further standards.

Date 25.7.2011

Signature / Stamp

speag Schmid & Partner-Engineering/AG Zeugbarestrasse 43, 8004 Zeich, Smithiand Phone/441 44/255 9708, Few-444 64 44 59779

Doc No 881 - QD OVA 002 A - A

1 (1) Page

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

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f (886-2) 2298-0488



System Validation from Original Equipment Supplier

Engineering AG eughausstrasse 43, 8004 Zuric	h, Switzerland		Servizio svizzero di taratura
Accredited by the Swiss Accredita The Swiss Accreditation Service Multilateral Agreement for the re	e is one of the signatori	es to the EA n certificates	Accreditation No.: SCS 0108
Client SGS		Certificate No	D2450V2-727_Apr23
Taoyuan City, Taiwa	n	Serundate No.	D2450V2-727_Apr23
CALIBRATION O	ERTIFICAT	E	
Object	D2450V2 - SN:7	27	
Calibration procedure(s)	QA CAL-05.v12		
	Calibration Proce	edure for SAR Validation Sources	between 0.7-3 GHz
Calibration date:	April 25, 2023		
The measurements and the uncer	taintles with confidence p	robability are given on the following pages and	d are part of the certificate.
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Report No. : TESA2403000118E5 Page: 3 of 36

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



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

Accreditation No.: SCS 0108

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

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-Worn 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) DASY System Handbook

Methods Applied and Interpretation of Parameters:

- Measurement Conditions: Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL: The 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.

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: D2450V2-727 Apr23

Page 2 of 6

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Report No. : TESA2403000118E5 Page: 4 of 36

Measurement Conditions

DASY system configuration, as far as not given on page	DASY	system	configuration,	as far	as not	aiven or	page
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DASY Version	DASY52	V52.10.4
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	2450 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	39.2	1.80 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	37.7 ± 6 %	1.86 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C		

SAR result with Head TSL

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	13.6 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	53.1 W/kg ± 17.0 % (k=2)
SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR averaged over 10 cm ³ (10 g) of Head TSL SAR measured	condition 250 mW input power	6.28 W/kg

Certificate No: D2450V2-727_Apr23

Page 3 of 6

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Report No. : TESA2403000118E5 Page: 5 of 36

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	55.0 Ω + 2.1 jΩ
Return Loss	- 25.8 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.148 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 ocaxial 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 recentline the Stendard. according to the Standard.

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

Additional EUT Data

Manufactured by	SPEAG

Certificate No: D2450V2-727_Apr23

Page 4 of 6

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Report No. : TESA2403000118E5 Page: 6 of 36

DASY5 Validation Report for Head TSL

Date: 25.04.2023

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:727

Communication System: UID 0 - CW; Frequency: 2450 MHz Medium parameters used: f = 2450 MHz; $\sigma = 1.86 \text{ S/m}$; $\epsilon_r = 37.7$; $\rho = 1000 \text{ kg/m}^3$ Phantom section: Flat Section Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 SN7349; ConvF(7.88, 7.88, 7.88) @ 2450 MHz; Calibrated: 10.01.2023
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 19.12.2022
- Phantom: Flat Phantom 5.0 (front); Type: QD 000 P50 AA; Serial: 1001
- DASY52 52.10.4(1535); SEMCAD X 14.6.14(7501)

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

Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 118.5 V/m; Power Drift = -0.07 dB Peak SAR (extrapolated) = 27.1 W/kgSAR(1 g) = 13.6 W/kg; SAR(10 g) = 6.28 W/kg Smallest distance from peaks to all points 3 dB below = 9 mm Ratio of SAR at M2 to SAR at M1 = 50.2%Maximum value of SAR (measured) = 22.5 W/kg





0 dB = 22.5 W/kg = 13.52 dBW/kg

Certificate No: D2450V2-727_Apr23

Page 5 of 6

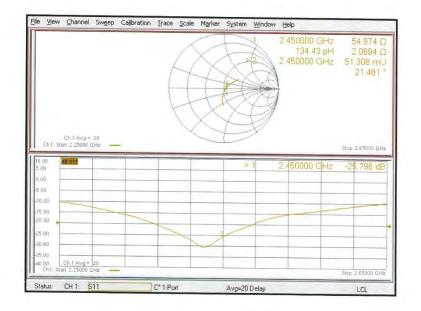
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Impedance Measurement Plot for Head TSL



Certificate No: D2450V2-727_Apr23

Page 6 of 6

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Report No. : TESA2403000118E5 Page: 8 of 36

Engineering AG aughausstrasse 43, 8004 Zurich, 1	of Switzerland		Service suisse d'étalonnage Servizio svizzero di taratura
ccredited by the Swiss Accreditation ne Swiss Accreditation Service is ultilateral Agreement for the rec	s one of the signatories		Accreditation No.: SCS 0108
lient SGS Taoyuan City		Certificate No	D5GHzV2-1023_Jan24
CALIBRATION CI	ERTIFICATE		
Dbject	D5GHzV2 - SN:1	023	
Calibration procedure(s)	QA CAL-22.v7 Calibration Proce	dure for SAR Validation Source	es between 3-10 GHz
Calibration date:	January 24, 2024	4	
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Calibration Equipment used (M&TE	critical for calibration)	y facility: environment temperature (22 ± 3)	
Calibration Equipment used (M&TE Primary Standards	critical for calibration)	Cal Date (Certificate No.)	Scheduled Calibration
Calibration Equipment used (M&TE Primary Standards Power meter NRP2	critical for calibration)		
Calibration Equipment used (M&TE Primary Standards Power meter NRP2 Power sensor NRP-Z91	critical for calibration)	Cal Date (Certificate No.) 30-Mar-23 (No. 217-03804/03805)	Scheduled Calibration Mar-24
Calibration Equipment used (M&TE Primary Standards Power meter NRP2 Power sensor NRP-Z91 Power sensor NRP-Z91	critical for calibration) ID # SN: 104778 SN: 103244	Cal Date (Certificate No.) 30-Mar-23 (No. 217-03804/03805) 30-Mar-23 (No. 217-03804)	Scheduled Calibration Mar-24 Mar-24
Calibration Equipment used (M&TE Primary Standards Power meter NRP2 Power sensor NRP-291 Power sensor NRP-291 Reference 20 (B Attenuator Type-N mismatch combination	critical for calibration) ID # SN: 104778 SN: 103244 SN: 103245	Cal Date (Certificate No.) 30-Mar-23 (No. 217-03804/03805) 30-Mar-23 (No. 217-03804) 30-Mar-23 (No. 217-03805)	Scheduled Calibration Mar-24 Mar-24 Mar-24
Calibration Equipment used (M&TE Primary Standards Power metter NRP2 Power sensor NRP-291 Power sensor NRP-291 Patierence 20 dB Attenuator Type-N mismatch combination Patierence Probe EX30V4	critical for calibration) D # SN: 104778 SN: 103244 SN: 103245 SN: 103245 SN: 103245 SN: 3092 / 06327 SN: 3503	Cal Date (Certificate No.) 30-Mar-23 (No. 217-03804/03805) 30-Mar-23 (No. 217-03804) 30-Mar-23 (No. 217-03805) 30-Mar-23 (No. 217-03809) 30-Mar-23 (No. 217-03810) 07-Mar-23 (No. EX3-3503_Mar23)	Scheduled Calibration Mar-24 Mar-24 Mar-24 Mar-24 Mar-24 Mar-24 Mar-24
Calibration Equipment used (M&TE Primary Standards Power metter NRP2 Power sensor NRP-291 Power sensor NRP-291 Patierence 20 dB Attenuator Type-N mismatch combination Patierence Probe EX30V4	critical for calibration) ID # SN: 104778 SN: 103244 SN: 103245 SN: BH394 (20k) SN: 310982 / 06327	Cal Date (Certificate No.) 30-Mar-23 (No. 217-03804/03805) 30-Mar-23 (No. 217-03804) 30-Mar-23 (No. 217-03805) 30-Mar-23 (No. 217-03809) 30-Mar-23 (No. 217-03810)	Scheduled Calibration Mar-24 Mar-24 Mar-24 Mar-24 Mar-24 Mar-24
Calibration Equipment used (M&TE Primary Standards Power meter NRP2 Power sensor NRP-Z91 Power sensor NRP-Z91 Reference 20 dB Attenuator Type-N mismatch combination Reference Probe EX3DV4 DAE4	critical for calibration) D # SN: 104778 SN: 103244 SN: 103245 SN: 103245 SN: 103245 SN: 3092 / 06327 SN: 3503	Cal Date (Certificate No.) 30-Mar-23 (No. 217-03804/03805) 30-Mar-23 (No. 217-03804) 30-Mar-23 (No. 217-03805) 30-Mar-23 (No. 217-03809) 30-Mar-23 (No. 217-03810) 07-Mar-23 (No. EX3-3503_Mar23)	Scheduled Calibration Mar-24 Mar-24 Mar-24 Mar-24 Mar-24 Mar-24 Mar-24
Calibration Equipment used (M&TE Primary Standards Power metter NRP2 Power sensor NRP-291 Power sensor NRP	critical for calibration) ID # SN: 103244 SN: 103244 SN: 103245 SN: 310982 / 06327 SN: 3503 SN: 5603	Cal Date (Certificate No.) 30-Mar-23 (No. 217-03804/03805) 30-Mar-23 (No. 217-03804) 30-Mar-23 (No. 217-03805) 30-Mar-23 (No. 217-03810) 07-Mar-23 (No. EX3-3503_Mar23) 03-Oct-23 (No. DAE4-601_Oct23)	Scheduled Calibration Mar-24 Mar-24 Mar-24 Mar-24 Mar-24 Mar-24 Oct-24
Calibration Equipment used (M&TE Primary Standards Power meter NRP2 Power sensor NRP-Z91 Power sensor NRP-Z91 Reference 20 dB Attenuator Type-N mismatch combination Reference Probe EX3DV4 DAE4 Secondary Standards Power meter E4419B Power sensor HP 8481A	critical for calibration) ID # SN: 104778 SN: 103244 SN: 03245 SN: 910982 / 06327 SN: 3503 SN: 601 ID # SN: GB39512475 SN: US37292783	Cal Date (Certificate No.) 30-Mar-23 (No. 217-03804/03805) 30-Mar-23 (No. 217-03804) 30-Mar-23 (No. 217-03805) 30-Mar-23 (No. 217-03809) 30-Mar-23 (No. 217-03810) 07-Mar-23 (No. 217-03810) 07-Mar-23 (No. DAE4-601_Oct23) 03-Oct-23 (No. DAE4-601_Oct23) Check Date (in house) 30-Oct-15 (in house check Oct-22) 07-Oct-15 (in house check Oct-22)	Scheduled Calibration Mar-24 Mar-24 Mar-24 Mar-24 Mar-24 Mar-24 Oct 24 Scheduled Check In house check: Oct-24 in house check: Oct-24
Calibration Equipment used (M&TE Primary Standards Power meter NRP2 Power sensor NRP-291 Power sensor NRP-291 Reference 20 dB Attenuator Type-N mismatch combination Reference Probe EX3DV4 DAE4 Secondary Standards Power sensor HP 8481A Power sensor HP 8481A	critical for calibration) ID # SN: 104778 SN: 103244 SN: 103245 SN: 8H394 (20k) SN: 3503 SN: 601 ID # SN: 0839512475 SN: US37292783 SN: W141093315	Cal Date (Certificate No.) 30-Mar-23 (No. 217-03804/03805) 30-Mar-23 (No. 217-03804) 30-Mar-23 (No. 217-03805) 30-Mar-23 (No. 217-03810) 30-Mar-23 (No. 217-03810) 07-Mar-23 (No. 217-03810) 03-Oct-23 (No. 247-03810) 03-Oct-23 (No. DAE4-601_Oct23) Check Date (in house) 30-Oct-14 (in house check Oct-22) 07-Oct-15 (in house check Oct-22)	Scheduled Calibration Mar-24 Mar-24 Mar-24 Mar-24 Mar-24 Oct-24 Scheduled Check In house check: Oct-24 In house check: Oct-24 In house check: Oct-24 In house check: Oct-24
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Calibration Equipment used (M&TE Primary Standards Power meter NRP2 Power sensor NRP-Z91 Power sensor NRP-Z91 Paterence 20 dB Attenuator Fype-N mismatch combination Reference Probe EX3DV4 DAE4 Secondary Standards Power meter E4419B Power sensor HP 8481A Power sensor HP 8481A Power sensor HP 8481A RF generator R&S SMT-06	critical for calibration) ID # SN: 104778 SN: 103244 SN: 103245 SN: 8H394 (20k) SN: 310982 / 06327 SN: 5503 SN: 601 ID # SN: 0839512475 SN: U\$37292783 SN: W141093315	Cal Date (Certificate No.) 30-Mar-23 (No. 217-03804/03805) 30-Mar-23 (No. 217-03804) 30-Mar-23 (No. 217-03805) 30-Mar-23 (No. 217-03810) 30-Mar-23 (No. 217-03810) 07-Mar-23 (No. 217-03810) 03-Oct-23 (No. 247-03810) 03-Oct-23 (No. DAE4-601_Oct23) Check Date (in house) 30-Oct-14 (in house check Oct-22) 07-Oct-15 (in house check Oct-22)	Scheduled Calibration Mar-24 Mar-24 Mar-24 Mar-24 Mar-24 Oct-24 Scheduled Check In house check: Oct-24 In house check: Oct-24 In house check: Oct-24 In house check: Oct-24
Calibration Equipment used (M&TE Primary Standards Power metier NRP2 Power sensor NRP-291 Power sensor NRP-291 Reference 20 dB Attenuator Type-N milsmatch combination Reference Probe EX3DV4 DAE4 Secondary Standards Power meter E44198 Power sensor HP 8481A Power sensor HP 8481A RF generator R&S SMT-06 Network Analyzer Agilent E8358A	critical for calibration) ID # SN: 104778 SN: 103244 SN: 303245 SN: 8H394 (20k) SN: 310982 (06327 SN: 5503 SN: 601 ID # SN: GB39512475 SN: US37292783 SN: W741093315 SN: US41080477 Name	Cal Date (Certificate No.) 30-Mar-23 (No. 217-03804/03805) 30-Mar-23 (No. 217-03804) 30-Mar-23 (No. 217-03805) 30-Mar-23 (No. 217-03809) 30-Mar-23 (No. 217-03810) 07-Mar-23 (No. 217-03810) 07-Mar-23 (No. 217-03810) 03-Oct-23 (No. 217-03810) 03-Oct-23 (No. 247-03810) 03-Oct-23 (No. DAE4-601_Oct23) Check Date (in house) 30-Oct-14 (in house check Oct-22) 07-Oct-15 (in house check Oct-22) 07-Oct-15 (in house check Oct-22) 05-Un-15 (in house check Oct-22)	Scheduled Calibration Mar-24 Mar-24 Mar-24 Mar-24 Mar-24 Oct-24 Scheduled Check In house check: Oct-24 In house check: Oct-24 In house check: Oct-24 In house check: Oct-24 In house check: Oct-24
Calibration Equipment used (M&TE Primary Standards Power meter NRP2 Power sensor NRP-291 Power sensor NRP-291 Reference 20 dB Attenuator Type-N mismatch combination Reference Probe EX3DV4 DAE4 Secondary Standards Power mesor E44198 Power sensor HP 8481A Power sensor HP 8481A RF generator R&S SMT-06 Network Analyzer Agilent E8358A	critical for calibration) ID # SN: 104778 SN: 103244 SN: 103245 SN: 8H394 (20k) SN: 3503 SN: 601 ID # SN: 0839512475 SN: US37292783 SN: 100972 SN: US41080477	Cal Date (Certificate No.) 30-Mar-23 (No. 217-03804/03805) 30-Mar-23 (No. 217-03804) 30-Mar-23 (No. 217-03804) 30-Mar-23 (No. 217-03809) 30-Mar-23 (No. 217-03810) 07-Mar-23 (No. 217-03810) 07-Mar-23 (No. 217-03810) 07-Mar-23 (No. 217-03810) 08-Oct-23 (No. DAE4-601_Oct23) Check Date (in house) 30-Oct-14 (in house check Oct-22) 07-Oct-15 (in house check Oct-22) 07-Oct-15 (in house check Oct-22) 15-Jun-15 (in house check Oct-22) 31-Mar-14 (in house check Oct-22)	Scheduled Calibration Mar-24 Mar-24 Mar-24 Mar-24 Mar-24 Mar-24 Oct 24 Scheduled Check In house check: Oct-24 In house check: Oct-24
Calibration Equipment used (M&TE Primary Standards Power meter NRP2 Power sensor NRP-291 Power sensor NRP-291 Reference 20 dB Attenuator Type-N mismatch combination Reference Probe EX3DV4 DAE4 Secondary Standards Power meter E4419B Power sensor HP 8481A Power sensor HP 8481A RF generator R&S SMT-06 Network Analyzer Agilent E8358A Calibrated by:	critical for calibration) ID # SN: 104778 SN: 103244 SN: 03245 SN: BH394 (20k) SN: 310982 (06327 SN: 5503 SN: 601 ID # SN: GB39512475 SN: US37292783 SN: W141083315 SN: US3729783 SN: US41080477 Name Paulo Pina	Cal Date (Certificate No.) 30-Mar-23 (No. 217-03804/03805) 30-Mar-23 (No. 217-03804) 30-Mar-23 (No. 217-03805) 30-Mar-23 (No. 217-03809) 30-Mar-23 (No. 217-03810) 07-Mar-23 (No. 217-03801) 03-Oct-23 (No. 217-03810) 03-Oct-23 (No. EX3-3503_Mar23) 03-Oct-23 (No. DAE4-601_Oct23) Check Date (in house 30-Oct-14 (in house check Oct-22) 07-Oct-15 (in house check Oct-22) 07-Oct-15 (in house check Oct-22) 15-Jun-15 (in house check Oct-22) 31-Mar-14 (in house check Oct-22) Sub-47-14 (in house check Oct-22) Sub-47-40 (in house check Oct-22)	Scheduled Calibration Mar-24 Mar-24 Mar-24 Mar-24 Mar-24 Mar-24 Oct 24 Scheduled Check In house check: Oct-24 In house check: Oct-24
Calibration Equipment used (M&TE Primary Standards Power meter NRP2 Power sensor NRP-291 Power sensor NRP-291 Reference 20 dB Attenuator Type-N mismatch combination Reference Probe EX3DV4 DAE4 Secondary Standards Power meter E4419B Power sensor HP 8481A Power sensor HP 8481A RF generator R&S SMT-06 Network Analyzer Agilent E8358A Calibrated by:	critical for calibration) ID # SN: 104778 SN: 103244 SN: 303245 SN: 8H394 (20k) SN: 310982 (06327 SN: 5503 SN: 601 ID # SN: GB39512475 SN: US37292783 SN: W741093315 SN: US41080477 Name	Cal Date (Certificate No.) 30-Mar-23 (No. 217-03804/03805) 30-Mar-23 (No. 217-03805) 30-Mar-23 (No. 217-03805) 30-Mar-23 (No. 217-03805) 30-Mar-23 (No. 217-03810) 07-Mar-23 (No. 217-03810) 03-Oct-23 (No. 217-03810) 03-Oct-23 (No. EX3-3503_Mar23) 03-Oct-23 (No. DAE4-601_Oct23) Check Date (in house) 30-Oct-14 (in house check Oct-22) 07-Oct-15 (in house check Oct-22) 15-Jun-15 (in house check Oct-22) 31-Mar-14 (in house check Oct-22) SI-Mar-14 (in house check Oct-22)	Scheduled Calibration Mar-24 Mar-24 Mar-24 Mar-24 Mar-24 Mar-24 Oct 24 Scheduled Check In house check: Oct-24 In house check: Oct-24
All calibrations have been conducte Calibration Equipment used (M&TE Primary Standards Power meter NRP2 Power sensor NRP-291 Power sensor NRP-291 Power sensor NRP-291 Reference 20 dB Attenuator Type-N mismatch combination Reference Probe EX3DV4 DAE4 Secondary Standards Power sensor HP 8481A Power sensor HP 8481A Power sensor HP 8481A RF generator R&S SMT-06 Network Analyzer Agilent E8358A Calibrated by: Approved by:	critical for calibration) ID # SN: 104778 SN: 103244 SN: 03245 SN: BH394 (20k) SN: 310982 (06327 SN: 5503 SN: 601 ID # SN: GB39512475 SN: US37292783 SN: W141083315 SN: US3729783 SN: US41080477 Name Paulo Pina	Cal Date (Certificate No.) 30-Mar-23 (No. 217-03804/03805) 30-Mar-23 (No. 217-03804) 30-Mar-23 (No. 217-03805) 30-Mar-23 (No. 217-03809) 30-Mar-23 (No. 217-03810) 07-Mar-23 (No. 217-03801) 03-Oct-23 (No. 217-03810) 03-Oct-23 (No. EX3-3503_Mar23) 03-Oct-23 (No. DAE4-601_Oct23) Check Date (in house 30-Oct-14 (in house check Oct-22) 07-Oct-15 (in house check Oct-22) 07-Oct-15 (in house check Oct-22) 15-Jun-15 (in house check Oct-22) 31-Mar-14 (in house check Oct-22) Sub-Ar-14 (in house check Oct-22) Sub-Ar-14 (in house check Oct-22)	Scheduled Calibration Mar-24 Mar-24 Mar-24 Mar-24 Mar-24 Oct-24 Scheduled Check In house check: Oct-24 In house check: Oct-24

Certificate No: D5GHzV2-1023 Jan24

Page 1 of 9

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Report No. : TESA2403000118E5 Page: 9 of 36

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



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Accreditation No.: SCS 0108

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Glossary: TSL ConvF

N/A

tissue simulating liquid sensitivity in TSL / NORM x,y,z 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-Worn 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) DASY System Handbook

Methods Applied and Interpretation of Parameters:

- Measurement Conditions: Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL: The 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.

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: D5GHzV2-1023 Jan24

Page 2 of 9

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Report No. : TESA2403000118E5 Page: 10 of 36

Conductivity

Measurement Conditions

DASY system configuration, as far as no	ot given on page 1.	
DASY Version	DASY52	V52.10.4
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom V5.0	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy = 4.0 mm, dz = 1.4 mm	Graded Ratio = 1.4 (Z direction)
	5250 MHz ± 1 MHz	
Frequency	5600 MHz ± 1 MHz	
requency	5750 MHz ± 1 MHz	
	5850 MHz ± 1 MHz	

Head TSL parameters at 5250 MHz

The following parameters and calculations were applied. Permittivity Temperature

Nominal Head TSL parameters	22.0 °C	35.9	4.71 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	35.8 ± 6 %	4.57 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C		

SAR result with Head TSL at 5250 MHz

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	7.90 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	78.8 W/kg ± 19.9 % (k=2)
CAR supported support 40 stars (40 st) of light TCI	a second to be set	
	condition	
SAR averaged over 10 cm ³ (10 g) of Head TSL SAR measured	condition 100 mW input power	2.28 W/kg
		2.28 W/kg 22.7 W/kg ± 19.5 % (k=2)

Certificate No: D5GHzV2-1023 Jan24

Page 3 of 9

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Report No. : TESA2403000118E5 Page: 11 of 36

Head TSL parameters at 5600 MHz

	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	35.5 ± 6 %	4.97 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	-	

SAR result with Head TSL at 5600 MHz

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	8.13 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	81.3 W/kg ± 19.9 % (k=2)
	Nie -	
SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR averaged over 10 cm ³ (10 g) of Head TSL SAR measured	condition 100 mW input power	2.33 W/kg

Head TSL parameters at 5750 MHz

	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	35.4 ± 6 %	5.11 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C		

1.1.1

SAR result with Head TSL at 5750 MHz

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	7.81 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	78.0 W/kg ± 19.9 % (k=2)
SAB averaged over 10 cm ³ (10 d) of Head TSI	condition	
SAR averaged over 10 cm ³ (10 g) of Head TSL SAR measured	condition	2.22 W/kg

Certificate No: D5GHzV2-1023 Jan24

Page 4 of 9

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Report No. : TESA2403000118E5 Page: 12 of 36

Head TSL parameters at 5850 MHz The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.2	5.32 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	35.2 ± 6 %	5.19 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C		

SAR result with Head TSL at 5850 MHz

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	7.87 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	78.6 W/kg ± 19.9 % (k=2)
		Sector Development
SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	h h h
SAR averaged over 10 cm ³ (10 g) of Head TSL SAR measured	condition 100 mW input power	2.23 W/kg

Certificate No: D5GHzV2-1023_Jan24

Page 5 of 9

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Report No. : TESA2403000118E5 Page: 13 of 36

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL at 5250 MHz

Impedance, transformed to feed point	50.9 Ω - 4.9 jΩ
Return Loss	- 26.2 dB

Antenna Parameters with Head TSL at 5600 MHz

Impedance, transformed to feed point	54.5 Ω - 0.4 jΩ	
Return Loss	-27.3 dB	

Antenna Parameters with Head TSL at 5750 MHz

Impedance, transformed to feed point	56.6 Ω + 4,7 jΩ
Return Loss	- 22.4 dB

Antenna Parameters with Head TSL at 5850 MHz

Impedance, transformed to feed point	54.6 Ω - 3.3 jΩ
Return Loss	- 25.3 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.200 ns

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

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

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

Additional EUT Data

Manufactured by	SPEAG

Certificate No: D5GHzV2-1023_Jan24

Page 6 of 9

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DASY5 Validation Report for Head TSL

Date: 24.01.2024

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN:1023

Communication System: UID 0 - CW; Frequency: 5250 MHz, Frequency: 5600 MHz, Frequency: 5750 MHz, Frequency: 5850 MHz Medium parameters used: f = 5250 MHz; $\sigma = 4.57 \text{ S/m}$; $\varepsilon_r = 35.8$; $\rho = 1000 \text{ kg/m}^3$ Medium parameters used: f = 5600 MHz; $\sigma = 4.97 \text{ S/m}$; $\varepsilon_r = 35.5$; $\rho = 1000 \text{ kg/m}^3$ Medium parameters used: f = 5750 MHz; σ = 5.11 S/m; ϵ_r = 35.4; ρ = 1000 kg/m Medium parameters used: f = 5850 MHz; $\sigma = 5.19$ S/m; $\epsilon_r = 35.2$; $\rho = 1000$ kg/m³ Phantom section: Flat Section Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 SN3503; ConvF(5.5, 5.5, 5.5) @ 5250 MHz, ConvF(5.1, 5.1, 5.1) @ 5600 MHz, ConvF(5.08, 5.08, 5.08) @ 5750 MHz, ConvF(4.99, 4.99, 4.99) @ 5850 MHz; Calibrated: 07 03 2023
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 03.10.2023
- · Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.10.4(1535); SEMCAD X 14.6.14(7501)

Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5250 MHz/Zoom Scan,

dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm Reference Value = 72.22 V/m; Power Drift = 0.05 dB Peak SAR (extrapolated) = 26.5 W/kg SAR(1 g) = 7.90 W/kg; SAR(10 g) = 2.28 W/kg Smallest distance from peaks to all points 3 dB below = 7.2 mmRatio of SAR at M2 to SAR at M1 = 71%Maximum value of SAR (measured) = 18.1 W/kg

Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5600 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm Reference Value = 72.82 V/m; Power Drift = 0.07 dB Peak SAR (extrapolated) = 29.4 W/kg SAR(1 g) = 8.13 W/kg; SAR(10 g) = 2.33 W/kg Smallest distance from peaks to all points 3 dB below = 7.4 mm Ratio of SAR at M2 to SAR at M1 = 68.5%

Maximum value of SAR (measured) = 18.7 W/kg

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Page 7 of 9

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Report No. : TESA2403000118E5 Page: 15 of 36

Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5750 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm Reference Value = 70.20 V/m; Power Drift = 0.01 dB Peak SAR (extrapolated) = 29.6 W/kg SAR(1 g) = 7.81 W/kg; SAR(10 g) = 2.22 W/kg Smallest distance from peaks to all points 3 dB below = 7.4 mm Ratio of SAR at M2 to SAR at M1 = 66.9%Maximum value of SAR (measured) = 18.3 W/kg

Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5850 MHz/Zoom Scan,

dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm Reference Value = 69.49 V/m; Power Drift = 0.03 dBPeak SAR (extrapolated) = 30.9 W/kg SAR(1 g) = 7.87 W/kg; SAR(10 g) = 2.23 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%Maximum value of SAR (measured) = 19.3 W/kg



0 dB = 19.3 W/kg = 12.87 dBW/kg

Certificate No: D5GHzV2-1023_Jan24

Page 8 of 9

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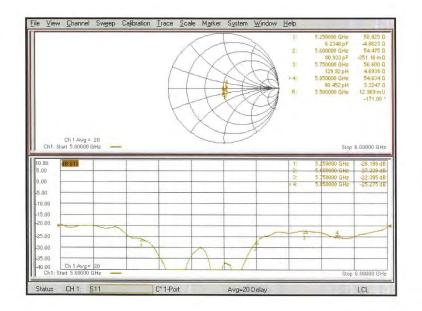
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Impedance Measurement Plot for Head TSL



Certificate No: D5GHzV2-1023_Jan24

Page 9 of 9

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lient SGS Taoyuan City		Certificate No.	D6.5GHzV2-1006_Aug2
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Dbject	D6.5GHzV2 - SN	:1006	
and the second second second second second second	QA CAL-22.v7 Calibration Proce	dure for SAR Validation Sources	s between 3-10 GHz
Calibration date:	August 16, 2023		
		onal standards, which realize the physical un robability are given on the following pages an	d are part of the certificate
All calibrations have been conducted	I in the closed laborato	robability are given on the following pages an ry facility: environment temperature $(22 \pm 3)^{\circ}$	nd ara part of the certificate. C and humidity < 70%.
All calibrations have been conducted Calibration Equipment used (M&TE o Primary Standards	l in the closed laborato	robability are given on the following pages an	d are part of the certificate
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All calibrations have been conducted Calibration Equipment used (M&TE (Primary Standards Power sensor R&S NRP33T Reference 20 dB Attenuator Mismatch combination Reference Probe EX3DV4 DAE4 Secondary Standards RF generator Anapico APSIN20G Power sensor NRP-78T	In the closed laboration critical for calibration) ID # SN: 100967 SN: 8H3994 (20k) SN: 84224 / 360D SN: 7405 SN: 908 ID # SN: 827 SN: 100169 SN: 100169 SN: 100169 SN: 100500 SN: MY54504221	robability are given on the following pages an ry facility: environment temperature (22 ± 3)*0 03-Apr-23 (No. 217-03806) 30-Mar-23 (No. 217-03809) 03-Apr-23 (No. 217-03812) 12-Jun-23 (No. EX3-7405 Jun23) 03-Jul-23 (No. DAE4-908 Jul23) Check Date (in house) 18-Dec-18 (in house check Dec-21) 10-Jan-19 (in house check Nov-22) 28-Sep-22 (in house check Not-22) 31-Oct-19 (in house check Oct-22)	d are part of the certificate C and humidity < 70%. Scheduled Calibration Apr:24 Apr:24 Jun:24 Jun:24 Scheduled Check In house check: Dec:23 In house check: Nov:23 In house check: Oct-25
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Report No. : TESA2403000118E5 Page: 18 of 36

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

TSL

N/A



Schweizerischer Kalibrierdiens Service suisse d'étalonnage Servizio svizzero di taratura Swiss Calibration Service

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Accreditation No.: SCS 0108

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

Glossary: tissue simulating liquid ConvF sensitivity in TSL / NORM x,y,z 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-Worn Wireless Communication Devices - Part 1528; Human Models, Instrumentation And Procedures (Frequency Range Of 4 MHz To 10 GHz)", October 2020,

Additional Documentation:

b) DASY System Handbook

Methods Applied and Interpretation of Parameters:

- Measurement Conditions: Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated. Antenna Parameters with TSL: The dipole is mounted with the spacer to position its feed point
- exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- Feed Point Impedance and Return Loss: These parameters are measured with the dipole positioned under the liquid filled phantom. The 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.
- The absorbed power density (APD): The absorbed power density is evaluated according to Samaras T, Christ A, Kuster N, "Compliance assessment of the epithelial or absorbed power density above 6 GHz using SAR measurement systems", Bioelectromagnetics, 2021 (submitted). The additional evaluation uncertainty of 0.55 dB (rectangular distribution) is considered.

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: D6.5GHzV2-1006_Aug23

Page 2 of 6

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Report No. : TESA2403000118E5 Page: 19 of 36

Measurement Conditions

DASY system configuration, a	s far as no	t given on page 1	
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DASY Version	DASY6	V16.2
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	5 mm	with Spacer
Zoom Scan Resolution	dx, dy = 3.4 mm, dz = 1.4 mm	Graded Ratio = 1.4 (Z direction)
Frequency	6500 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	34.5	6.07 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	33.9 ± 6 %	6.03 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C		

SAR result with Head TSL

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	29.7 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	296 W/kg ± 24.7 % (k=2)
SAR averaged over 8 cm ³ (8 g) of Head TSL	Condition	
SAR measured	100 mW input power	6.66 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	66.3 W/kg ± 24.4 % (k=2)
SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	100 mW input power	5.46 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	54.4 W/kg ± 24.4 % (k=2)

Certificate No: D6.5GHzV2-1006_Aug23

Page 3 of 6

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Report No. : TESA2403000118E5 Page: 20 of 36

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	45.6 Ω - 7.5 jΩ	
Return Loss	- 20.8 dB	

APD (Absorbed Power Density)

APD averaged over 1 cm ²	Condition	
APD measured	100 mW input power	295 W/m ²
APD measured	normalized to 1W	2950 W/m ² ± 29.2 % (k=2)
APD averaged over 4 cm ²	condition	
APD averaged over 4 cm ² APD measured	condition 100 mW input power	133 W/m ²

*The reported APD values have been derived using the psSAR1g and psSAR8g.

General Antenna Parameters and Design

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

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

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

Additional EUT Data

Manufactured by	SPEAG

Certificate No: D6.5GHzV2-1006_Aug23

Page 4 of 6

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Report No. : TESA2403000118E5 Page: 21 of 36

DASY6 Validation Report for Head TSL

Measurement Report for D6.5GHz-1006, UID 0 -, Channel 6500 (6500.0MHz)

Name, Manufa	acturer D	imensions	[mm] IIV	IEI	DUT Type	e	
D6.5GHz		10.0 x 10.0 :	(10.0 SN	: 1006			
Exposure Cond	litions						
Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz]	Conversion Factor	TSL Cond. [S/m]	TSL Permittivity
Flat, HSL	5.00	Band	CW,	6500	5.50	6.03	33.9
Hardware Setu	qu						
Phantom	· · · · · ·	TSL		Probe, Cali	bration Date	DAE, Calib	oration Date
MFP V8.0 Cent	er - 1182	HBBL600-10	000V6	EX3DV4 - SI	N7405, 2023-06-12	DAE4 Sn9	08, 2023-07-03
Scan Setup				Measureme	ent Results		
			Zoom Scan				Zoom Scan
Grid Extents			22.0 x 22.0 x 22.0	E.C.3.		2	023-08-16, 11:16
Grid Steps [m			3.4 x 3.4 x 1.4				29.7
Sensor Surfac	ce [mm]		1.4				6.66
Graded Grid			Yes	P0			5.46
Grading Ratio	0		1.4				-0.02
MAIA			N/A				Disablec
Surface Dete			VMS + 6p				
Scan Method			Measured				No correction
				M2/M1 [9			51.2
				Dist 3dB P	eak [mm]		4.8

Certificate No: D6.5GHzV2-1006_Aug23

Page 5 of 6

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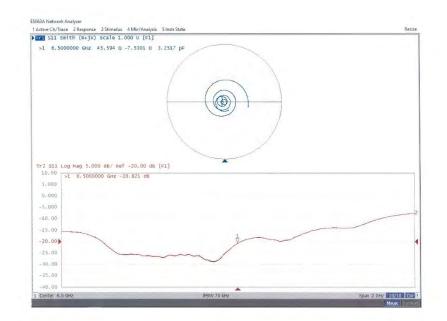
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Impedance Measurement Plot for Head TSL



Certificate No: D6.5GHzV2-1006 Aug23

Page 6 of 6

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Engineering AG Zeughausstrasse 43, 8004 Zurich,	Of Switzerland		Service suisse d'étalonnage
Accredited by the Swiss Accreditatio The Swiss Accreditation Service in Multilateral Agreement for the reco	s one of the signatori	es to the EA	creditation No.: SCS 0108
Client SGS Taoyuan City		Certificate No	D7GHzV2-1007_Aug23
CALIBRATION CI	ERTIFICAT	E	
Object	D7GHzV2 - SN:	1007	-
	QA CAL-22.v7 Calibration Proc	edure for SAR Validation Source	s between 3-10 GHz
Calibration date:	August 16, 2023		
All calibrations have been conducted Calibration Equipment used (M&TE		ry facility: environment temperature (22 ± 3)°	C and humidity < 70%.
	1		
Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Primary Standards Power sensor R&S NRP33T	ID # SN: 100967	03-Apr-23 (No. 217-03806)	Apr-24
Primary Standards Power sensor R&S NRP33T Reference 20 dB Attenuator Mismatch combination	ID #		Apr-24 Mar-24
Primary Standards Power sensor R&S NRP33T Reference 20 dB Attenuator Mismatch combination Reference Probe EX3DV4	ID # SN: 100967 SN: BH9394 (20k) SN: B4224 / 360D SN: 7405	03-Apr-23 (No. 217-03806) 30-Mar-23 (No. 217-03809)	Apr-24
Primary Standards Power sensor R&S NRP33T Reference 20 dB Attenuator Mismatch combination Reference Probe EX3DV4	ID # SN: 100967 SN: BH9394 (20k) SN: 84224 / 360D	03-Apr-23 (No. 217-03806) 30-Mar-23 (No. 217-03809) 03-Apr-23 (No. 217-03812)	Apr-24 Mar-24 Apr-24
Primary Standards Power sensor R&S NRP33T Reference 20 dB Attenuator Mismatch combination Reference Probe EX3DV4 DAE4 Secondary Standards	ID # SN: 100967 SN: BH9394 (20k) SN: 7405 SN: 908	03-Apr-23 (No. 217-03806) 30-Mar-23 (No. 217-03809) 03-Apr-23 (No. 217-03812) 12-Jur-23 (No. 217-03812) 12-Jur-23 (No. EX3-7405_Jur23) 03-Jul-23 (No. DAE4-908_Jul23) Check Date (in house)	Apr-24 Mar-24 Apr-24 Jun-24
Primary Standards Power sensor R&S NRP33T Reference 20 dB Attenuator Mismatch combination Reference Probe EX3DV4 DAE4 Secondary Standards RF generator Anapico APSIN20G	ID # SN: 100967 SN: BH9394 (20k) SN: B4224 / 360D SN: 7405 SN: 908	03-Apr-23 (No. 217-03806) 30-Mar-23 (No. 217-03809) 03-Apr-23 (No. 217-03812) 12-Jun-23 (No. 217-03812) 12-Jun-23 (No. EX3-7405, Jun23) 03-Jul-23 (No. DAE4-906_Jul23) Check Date (in house) 18-Dec-18 (in house check Dec-21)	Apr-24 Mar-24 Jun-24 Jun-24 Jul-24 Scheduled Check In house check: Dec-23
Primary Standards Power sensor R&S NRP33T Reference 20 dB Attenuator Mismatch combination Reference Probe EX3DV4 DAE4 Secondary Standards RF generator Anapico APSIN20G Power sensor NRP-Z23	ID # SN: 100967 SN: BH9394 (20k) SN: 84224 / 360D SN: 7405 SN: 908 ID # SN: 827 SN: 100169	03-Apr-23 (No. 217-03806) 30-Mar-23 (No. 217-03809) 03-Apr-23 (No. 217-03812) 12-Jun-23 (No. 217-03812) 03-Jul-23 (No. DAE4-908_Jul23) Check Date (in house) 18-Dec-18 (in house check Dec-21) 10-Jan-19 (in house check Nov-22)	Apr-24 Mar-24 Jun-24 Jul-24 Scheduled Check In house check: Dec-23 In house check: Nov-23
Primary Standards Power sensor R&S NRP33T Reference 20 dB Attenuator Mismatch combination Reference Probe EX3DV4 DAE4 Secondary Standards RF generator Anapico APSIN20G Power sensor NRP-223 Power sensor NRP-18T	ID # SN: 100967 SN: BH9394 (20k) SN: 84224 (360D SN: 7405 SN: 908 ID # SN: 827 SN: 100169 SN: 100169 SN: 100950	03-Apr-23 (No. 217-03806) 30-Mar-23 (No. 217-03809) 03-Apr-23 (No. 217-03812) 12-Jun-23 (No. 217-03812) 12-Jun-23 (No. EX3-7405, Jun23) 03-Jul-23 (No. DAE4-906_Jul23) Check Date (in house) 18-Dec-18 (in house check Dec-21)	Apr-24 Mar-24 Jun-24 Jun-24 Jul-24 Scheduled Check In house check: Dec-23
Primary Standards Power sensor R&S NRP33T Reference 20 dB Attenuator Mismatch combination Reference Probe EX3DV4 DAE4 Secondary Standards RF generator Anapico APSIN20G Power sensor NRP-223 Power sensor NRP-78T	ID # SN: 100967 SN: BH9394 (20k) SN: 84224 (360D SN: 7405 SN: 908 ID # SN: 827 SN: 100169 SN: 100169 SN: 100950	03-Apr-23 (No. 217-03806) 30-Mar-23 (No. 217-03809) 03-Apr-23 (No. 217-03812) 12-Jun-23 (No. EX3-7405_Jun23) 03-Jul-23 (No. DAE4-908_Jul23) Check Date (in house) 18-Dec-18 (in house check Dec-21) 10-Jan-19 (in house check Nov-22) 28-Sep-22 (in house check Nov-22) 31-Oct-19 (in house check Oct-22)	Apr-24 Mar-24 Apr-24 Juli-24 Juli-24 Scheduled Check In house check: Doc-23 In house check: Nov-23 In house check: Nov-23 In house check: Oct-25
Primary Standards Power sensor R&S NRP33T Reference 20 dB Attenuator Mismatch combination Reference Probe EX3DV4 DAE4 Secondary Standards RF generator Anapico APSIN20G Power sensor NRP-223 Power sensor NRP-18T Network Analyzer Keysight E5063A	ID # SN: 100967 SN: BH9394 (20k) SN: 84224 / 360D SN: 7405 SN: 908 ID # SN: 827 SN: 100169 SN: 100169 SN: 100950 SN:MY54504221	03-Apr-23 (No. 217-03806) 30-Mar-23 (No. 217-03809) 03-Apr-23 (No. 217-03812) 12-Jun-23 (No. 2X3-7405_Jun23) 03-Jul-23 (No. DAE4-908_Jul23) Check Date (in house) 18-Dec-18 (in house check Dec-21) 10-Jan-19 (in house check Nov-22) 28-Sep-22 (in house check Nov-22)	Apr-24 Mar-24 Apr-24 Jur-24 Jul-24 Scheduled Check In house check: Nov-23 In house check: Nov-23 In house check: Nov-23
Primary Standards Power sensor R&S NRP33T Reference 20 dB Attenuator Mismatch combination Reference Probe EX3DV4 DAE4 Secondary Slandards RF generator Anapico APSIN20G Power sensor NRP-223 Power sensor NRP-78T Network Analyzer Keysight E5063A Calibrated by:	ID # SN: 100967 SN: BH9394 (20k) SN: 84224 / 360D SN: 7405 SN: 7405 SN: 908 ID # SN: 827 SN: 100169 SN: 100950 SN: 100950 SN: 100950 SN: MY54504221 Name	03-Apr-23 (No. 217-03806) 30-Mar-23 (No. 217-03809) 03-Apr-23 (No. 217-03812) 12-Jun-23 (No. 217-03812) 03-Jul-23 (No. DAE4-908_Jul23) Check Date (In house) 18-Dec-18 (In house check Dec-21) 10-Jan-19 (In house check Nov-22) 28-Sep-22 (In house check Nov-22) 31-Oct-19 (In house check Oct-22) Function	Apr-24 Mar-24 Apr-24 Juli-24 Juli-24 Scheduled Check In house check: Doc-23 In house check: Nov-23 In house check: Nov-23 In house check: Oct-25
Primary Standards Power sensor R&S NRP33T Reference 20 dB Attenuator Mismatch combination Reforence Probe EX3DV4 DAE4 Secondary Standards RF generator Anapico APSIN20G Power sensor NRP-223 Power sensor NRP-23 Network Analyzer Keysight E5063A Calibrated by: Approved by:	ID # SN: 100967 SN: BH9394 (20k) SN: 84224 / 360D SN: 7405 SN: 908 ID # SN: 827 SN: 100169 SN: 100169 SN: 100169 SN: 100950 SN: 100950 SN: MY54504221 Name Jeton Kastrati	03-Apr-23 (No. 217-03806) 30-Mar-23 (No. 217-03809) 03-Apr-23 (No. 217-03812) 12-Jun-23 (No. 217-03812) 03-Jul-23 (No. DAE4-908_Jul23) Check Date (In house) 18-Dec-18 (In house check Dec-21) 10-Jan-19 (In house check Nov-22) 28-Sep-22 (In house check Nov-22) 31-Oct-19 (In house check Oct-22) Function Laboratory Technician	Apr-24 Mar-24 Apr-24 Jun-24 Jul-24 Scheduled Check In house check: Dec-23 In house check: Nov-23 In house check: Nov-23 In house check: Nov-23 In house check: Oct-25 Signature

Certificate No: D7GHzV2-1007 Aug23

Page 1 of 6

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Report No. : TESA2403000118E5 Page: 24 of 36

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Glossary:

TSL ConvF N/A

not applicable or not measured Calibration is Performed According to the Following Standards:

tissue simulating liquid sensitivity in TSL / NORM x,y,z

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-Worn Wireless Communication Devices - Part 1528: Human Models, Instrumentation And Procedures (Frequency Range Of 4 MHz To 10 GHz)", October 2020.

Additional Documentation: b) DASY System Handbook

Methods Applied and Interpretation of Parameters:

- Measurement Conditions: Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL: The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- Feed Point Impedance and Return Loss: These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- 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 absorbed power density (APD): The absorbed power density is evaluated according to Samaras T, Christ A, Kuster N, "Compliance assessment of the epithelial or absorbed power density above 6 GHz using SAR measurement systems", Bioelectromagnetics, 2021 (submitted). The additional evaluation uncertainty of 0.55 dB (rectangular distribution) is considered.

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: D7GHzV2-1007_Aug23

Page 2 of 6

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Report No. : TESA2403000118E5 Page: 25 of 36

Measurement Conditions

DASY system configuration, as far	as not	given	on page	1.
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DASY Version	DASY6	V16.2
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	5 mm	with Spacer
Zoom Scan Resolution	dx, dy = 3.0 mm, dz = 1.2 mm	Graded Ratio = 1.2 (Z direction)
Frequency	7000 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	33.9	6.65 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	32.7 ± 6 %	6.66 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C		

SAR result with Head TSL

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition		
SAR measured	100 mW input power	28.3 W/kg	
SAR for nominal Head TSL parameters	normalized to 1W	281 W/kg ± 24.7 % (k=2)	
SAR averaged over 8 cm ³ (8 g) of Head TSL	condition		
SAR measured	100 mW input power	6.12 W/kg	
SAR for nominal Head TSL parameters	normalized to 1W	60.7 W/kg ± 24.4 % (k=2)	
SAR averaged over 10 cm ³ (10 g) of Head TSL	condition		
SAR measured	100 mW input power	5.01 W/kg	
SAR for nominal Head TSL parameters	normalized to 1W	49.6 W/kg ± 24.4 % (k=2)	

Certificate No: D7GHzV2-1007_Aug23

Page 3 of 6

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Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	53.3 Ω - 5.7 jΩ	
Return Loss	- 23.9 dB	

APD (Absorbed Power Density)

APD averaged over 1 cm ²	Condition		
APD measured	100 mW input power	281 W/m ²	
APD measured	normalized to 1W	2810 W/m2 ± 29.2 % (k=2	
APD averaged over 4 am ²			
APD averaged over 4 cm ²	condition		
APD averaged over 4 cm ² APD measured	condition 100 mW input power	122 W/m ²	

* The reported APD values have been derived using the psSAR1g and psSAR8g.

General Antenna Parameters and Design

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 The depicts a marked seminated seminated casts, the center conductor or the dening me is surrectly connected to an 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. Neasurement conditions paragraph. The one data are not one on our of an one on any of the one of a second s

feedpoint may be damaged.

Additional EUT Data

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Certificate No: D7GHzV2-1007 Aug23

Page 4 of 6

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Report No. : TESA2403000118E5 Page: 27 of 36

DASY6 Validation Report for Head TSL

Measurement Report for D7GHz-1007, UID 0 -, Channel 7000 (7000.0MHz)

Name, Manufa D7GHz		Dimensions 10.0 x 10.0	R	N: 1007	DUT Typ	e	
Exposure Cond	ditions						
Phantom	Position, Test	Band	Group,	Frequency	Conversion	TSL Cond.	
Section, TSL	Distance [mm]		UID	[MHz]	Factor	[S/m]	TSL Permittivity
Flat, HSL	5.00	Band	CW,	7000	5.80	6.66	32.7
Hardware Setu	ıp						
Phantom	TS	5L		Probe, Calib	oration Date	DAE Callb	antion Data
AFP V8.0 Cent	er - 1182 H	HBBL600-10000V6		EX3DV4 - SN7405, 2023-06-12		DAE, Calibration Date DAE4 Sn908, 2023-07-03	
Scan Setup				Measureme	nt Results		
			Zoom Scan				Zoom Scan
Grid Extents [22.0 x 22.0 x 22.0	Date		20	023-08-16, 13:18
Grid Steps [m			3.0 x 3.0 x 1.2	psSAR1g [\			28.3
Sensor Surfac Graded Grid	e [mm]		1.4	psSAR8g [V			6.12
			Yes	psSAR10g			5.01
Grading Ratio MAIA			1.2	Power Drift [dB]		0.0	
Surface Detec	tion		N/A	Power Scaling		Disable	
Scan Method	uon		VMS + 6p	Scaling Fac			
scan wethou			Measured	TSL Correct			No correction
				M2/M1 [%			46.5
				Dist 3dB Pe	eak [mm]		4.6



Certificate No: D7GHzV2-1007_Aug23

Page 5 of 6

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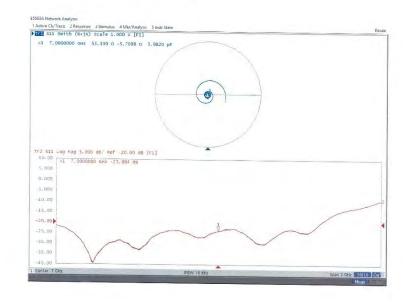
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Impedance Measurement Plot for Head TSL



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Page 6 of 6

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Report No. : TESA2403000118E5 Page: 29 of 36

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ccredited by the Swiss Accreditation he Swiss Accreditation Service is ultilateral Agreement for the reco	one of the signatorie	s to the EA	creditation No.: SCS 0108
lient SGS Taoyuan City			5G-Veri10-1070_Aug23
CALIBRATION CE	ERTIFICAT	E	
Object	5G Verification S	Source 10 GHz - SN: 1070	
	QA CAL-45.v4 Calibration proce	edure for sources in air above 6 Gł	Hz
Calibration date:	August 08, 2023		
The measurements and the uncertai	inties with confidence p d in the closed laborate	ional standards, which realize the physical units robability are given on the following pages and ny facility: environment temperature $(22 \pm 3)^{\circ}$ C	are part of the certificate.
Primary Standards	critical for calibration) ID # SN: 9374	Cal Date (Certificate No.) 22-May-23 (No, EUmm-9374 May23)	Scheduled Calibration
Primary Standards Reference Probe EUmmWV3	ID #	Cal Date (Certificate No.) 22-May-23 (No. EUmm-9374_May23) 05-Jul-23 (No. DAE4ip-1602_Jul23)	Scheduled Calibration May-24 Juli-24
Calibration Equipment used (M&TE Primary Standards Reference Probe EUmmWV3 DAE4ip Secondary Standards	ID # SN: 9374	22-May-23 (No. EUmm-9374_May23)	May-24
Primary Standards Reference Probe EUmmWV3 DAE4ip Secondary Standards RF generator R&S SMF100A Power sensor R&S NRP18S-10	ID # SN: 9374 SN: 1602	22-May-23 (No. EUmn-9374_May23) 05-Jul-23 (No. DAE4ip-1602_Jul23)	May-24 Jul-24
Primary Standards Reference Probe EUmmWV3 DAE4ip Secondary Standards RF generator R&S SMF100A Power sensor R&S NRP18S-10 Network Analyzer Keysight E5063A	ID # SN: 9374 SN: 1602 ID # SN: 100184 SN: 101258 SN: 101258 SN: MY54504221	22-May-23 (No. EUmm-9374_May23) 05-Jul-23 (No. DAE4ip-1602_Jul23) Check Date (in house) 19-May-22 (in house check Nov-22) 31-May-22 (in house check Nov-22) 31-Oct-19 (in house check Oct-22) Function	May-24 Jul-24 Scheduled Check In house check: Nov-23 In house check: Nov-23
Primary Standards Reference Probe EUmmWV3 DAEAip Secondary Standards RF generator R&S SMF100A Power sensor R&S NRP1&S-10 Network Analyzer Keysight E5063A	ID # SN: 9374 SN: 1602 ID # SN: 100184 SN: 101258 SN: 101258 SN: MY54504221	22-May-23 (No. EUmm-9374_May23) 05-Jul-23 (No. DAE4ip-1602_Jul23) Check Date (in house) 19-May-22 (in house check Nov-22) 31-May-22 (in house check Nov-22) 31-Oct-19 (in house check Oct-22)	May-24 Jul-24 Scheduled Check In house check: Nov-23 In house check: Nov-23 In house check: Oct-25
Primary Standards Reference Probe EUmmWV3 DAE4ip	ID # SN: 9374 SN: 1602 ID # SN: 100184 SN: 101258 SN: 101258 SN: MY54504221	22-May-23 (No. EUmm-9374_May23) 05-Jul-23 (No. DAE4ip-1602_Jul23) Check Date (in house) 19-May-22 (in house check Nov-22) 31-May-22 (in house check Nov-22) 31-Oct-19 (in house check Oct-22) Function	May-24 Jul-24 Scheduled Check In house check: Nov-23 In house check: Nov-23 In house check: Oct-25

Certificate No: 5G-Veri10-1070_Aug23 Page 1 of 8

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Accreditation No.: SCS 0108

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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

Glossarv

CW

Continuous wave

Calibration is Performed According to the Following Standards

- Internal procedure QA CAL-45, Calibration procedure for sources in air above 6 GHz.
- IEC/IEEE 63195-1, "Assessment of power density of human exposure to radio frequency fields from wireless devices in close proximity to the head and body (frequency range of 6 GHz to 300 GHz)", May 2022

Methods Applied and Interpretation of Parameters

- Coordinate System: z-axis in the waveguide horn boresight, x-axis is in the direction of the E-field, y-axis normal to the others in the field scanning plane parallel to the horn flare and horn flange.
- Measurement Conditions: (1) 10 GHz: The radiated power is the forward power to the horn antenna minus ohmic and mismatch loss. The forward power is measured prior and after the measurement with a power sensor. During the measurements, the horn is directly connected to the cable and the antenna ohmic and mismatch losses are determined by far-field measurements. (2) 30, 45, 60 and 90 GHz: The verification sources are switched on for at least 30 minutes. Absorbers are used around the probe cub and at the ceiling to minimize reflections
- Horn Positioning: The waveguide horn is mounted vertically on the flange of the waveguide source to allow vertical positioning of the EUmmW probe during the scan. The plane is parallel to the phantom surface. Probe distance is verified using mechanical gauges positioned on the flare of the horn.
- E- field distribution: E field is measured in two x-y-plane (10mm, 10mm + N/4) with a vectorial E-field probe. The E-field value stated as calibration value represents the E-fieldmaxima and the averaged (1cm² and 4cm²) power density values at 10mm in front of the
- Field polarization: Above the open horn, linear polarization of the field is expected. This is verified graphically in the field representation.

Calibrated Quantity

Local peak E-field (V/m) and average of peak spatial components of the poynting vector (W/m^2) averaged over the surface area of 1 cm² and 4cm² at the nominal operational frequency of the verification source. Both square and circular averaging results are listed.

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: 5G-Veri10-1070_Aug23 Page 2 of 8

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Report No. : TESA2403000118E5 Page: 31 of 36

Measurement Conditions

DASY Version	DASY8 Module mmWave	V3.2
Phantom	5G Phantom	
Distance Horn Aperture - plane	10 mm	
Number of measured planes	2 (10mm, 10mm + N/4)	
Frequency	10 GHz ± 10 MHz	

Calibration Parameters, 10 GHz

Circular Averaging

Distance Horn Aperture to Measured Plane	Prad' (mW)	Max E-field (V/m)	Uncertainty (k = 2)	Avg Power Density Avg (psPDn+, psPDtot+, psPDtot+) (W/m ²)		Uncertainty (k = 2)
		1		1 cm ²	4 cm ²	1.000
10 mm	93.3	151	1.27 dB	60.3	56.1	1.28 dB
Distance Horn Aperture to Measured Plane	Prad¹ (mW)	Max E-field (V/m)	Uncertainty (k = 2)	Power Density psPDn+, psPDtot+, psPDmod+ (W/m²)		Uncertainty (k = 2)
				1 cm ²	4 cm ²	
10 mm	93.3	151	1.27 dB	59.5, 60.4, 60.9	55.2, 56.4, 56.8	1.28 dB

Square Averaging

Distance Horn Aperture to Measured Plane	Prad ¹ (mW)	Max E-field (V/m)	Uncertainty (k = 2)	Avg Power Density Avg (psPDn+, psPDtot+, psPDmod+) (W/m ²)		Uncertainty (k = 2)
	1			1 cm ²	4 cm ²	
10 mm	93.3	151	1.27 dB	60.3	56.1	1.28 dB
Distance Horn Aperture to Measured Plane	Prad ¹ (mW)	Max E-field (V/m)	Uncertainty (k = 2)	Power Density psPDn+, psPDtot+, psPDmod+ (W/m ²)		Uncertainty (k = 2)
				1 cm ²	4 cm ²	
10 mm	93.3	151	1.27 dB	59.6, 60.4, 61.0	55.1, 56.3, 56.8	1.28 dB

Max Power Density

Distance Horn Aperture to Measured Plane	Prad ¹ (mW)	Max E-field (V/m)	Uncertainty (k = 2)	Max Power Density Sn, Stot, Stot (W/m ²)	Uncertainty (k = 2)
10 mm	93.3	151	1.27 dB	61.3, 62.0, 62.5	1.28 dB

¹ Assessed ohmic and mismatch loss plus numerical offset: 0.30 dB

Certificate No: 5G-Veri10-1070_Aug23 Page 3 of 8

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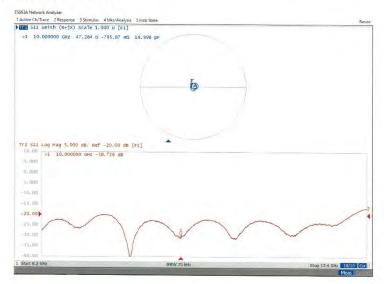
Report No. : TESA2403000118E5 Page: 32 of 36

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters

Impedance, transformed to feed point	47.3 Ω - 0.8 jΩ	
Return Loss	- 30.7 dB	

Impedance Measurement Plot



Certificate No: 5G-Veri10-1070_Aug23 Page 4 of 8

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Report No. : TESA2403000118E5 Page: 33 of 36

DASY Report

Measurement Report for 5G Verification Source 10 GHz, UID 0 -, Channel 10000 (10000.0MHz)

Name, Manufacturer G Verification Source 10 GF	Dimensions [mm iz 100.0 x 100.0 x 1		IMEI SN: 1070	DUT Type	
xposure Conditions					
hantom Section	Position, Test Distance [mm]	Band	Group,	Frequency [MHz], Channel Number	Conversion Factor
5G -	10.0 mm	Validation band	CW	10000.0, 10000	1.0
Hardware Setup					
Phantom nmWave Phantom - 1002	Medium Air			bration Date - SN9374_F1-55GHz,	DAE, Calibration Date DAE4ip Sn1602, 2023-07-05
Scan Setup				ment Results	
Sensor Surface [mm] MAIA		5G S MAIA not u	10.0 Date Ised Avg. Area Avg. Type psPDn+ (V	N/m²]	5G Scan 2023-08-08, 12:20 1.00 Circular Averaging 59.5
			psPDtot+ psPDmod Max(Sn) [Max(Stot) Max(Stot)	+ [W/m ²] W/m ²]	60.4 60.9 61.3 62.0 62.5
			E _{max} [V/m] Power Dri	1	52.5 151 0.08
	sPDret+ (1)	km2: circj (W/m2)	0		

Certificate No: 5G-Veri10-1070_Aug23 Page 5 of 8

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Report No. : TESA2403000118E5 Page: 34 of 36

DASY Report

Measurement Report for 56 Verification Source 10 GHz LUD 0 - Chappel 10000 (10000 0MHz)

Name, Manufacturer 5G Verification Source 10 G	Dimensions [mm Hz 100.0 x 100.0 x 1		IMEI SN: 107	0	DUT Type	
			511. 107			
Exposure Conditions Phantom Section	Position, Test Distance [mm]	Band	Grou	ıp,	Frequency [MHz], Channel Number	Conversion Factor
5G -	10.0 mm	Validation band	CW		10000.0, 10000	1.0
Hardware Setup						
Phantom mmWave Phantom - 1002	Medium Air			Probe, Calibration Da EUmmWV3 - SN9374 2023-05-22		DAE, Calibration Date DAE4ip Sn1602, 2023-07-05
Scan Setup				Measurement Re	sults	
		5G	Scan			5G Scar
Sensor Surface [mm]			10.0	Date		2023-08-08, 12:20
MAIA		MAIA not	used	Avg. Area [cm ²]		4.00
				Avg. Type		Circular Averaging
				psPDn+ [W/m ²]		55.2
				psPDtot+ [W/m ²]		56.4
				psPDmod+ [W/m ²]		56.8
				Max(Sn) [W/m ²]		61.3
				Max(Stot) [W/m ²]		62.0
				Max(Stot) [W/m ²		62.5
				Emax [V/m]		151
				Power Drift [dB]		30.0
	sPDtot+ (4.0 56.4	0cm2, circ) (W/m^2]				
		-		-		
			1 h			
			11			
			11	*		
			100			

Certificate No: 5G-Veri10-1070 Aug23

Page 6 of 8

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Report No. : TESA2403000118E5 Page: 35 of 36

DASY Report

Measurement Report for 5G Verification Source 10 GHz, UID 0 -, Channel 10000 (10000.0MHz)

ame, Manufacturer	Dimensions [mm	1	IMEI		DUT Type	
Verification Source 10 GHz	100.0 x 100.0 x 1		SN: 107	0		
posure Conditions						
	osition, Test Distance nm]	Band	Grou	ıp,	Frequency [MHz], Channel Number	Conversion Factor
i- 10).0 mm	Validation band	CW		10000.0, 10000	1.0
ardware Setup						
antom	Medium			Probe, Calibration D	ate	DAE, Calibration Date
mWave Phantom - 1002	Air			EUmmWV3 - SN9374 2023-05-22	_F1-55GHz,	DAE4ip Sn1602, 2023-07-05
an Setup				Measurement R	esults	
		5G S				5G Scan
Sensor Surface [mm] MAIA		1 MAIA not u	LO.O	Date Avg. Area [cm ²]		2023-08-08, 12:20
in art		MAIA NOL U	iseu	Avg. Type		1.00 Square Averaging
				psPDn+ [W/m ²]		59.6
				psPDtot+ [W/m2]		60.4
				psPDmod+ [W/m ²]		61.0
				Max(Sn) [W/m ²]		61.3
				Max(Stot) [W/m ²] Max(Stot) [W/m ²	1	62.0
				Emax [V/m]	,	62.5 151
				Power Drift [dB]		0.08
	sPbtote (j.C.	cm2; sq) [W/m*2]				

Certificate No: 5G-Veri10-1070 Aug23

Page 7 of 8

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Report No. : TESA2403000118E5 Page: 36 of 36

DASY Report

Measurement Report for 5G Verification Source 10 GHz, UID 0 -, Channel 10000 (10000.0MHz)

Device under Test Pro		1	IMEI	DUT T.	
Name, Manufacturer	Dimensions [mm			DUT Type	
5G Verification Source 10 G	Hz 100.0 x 100.0 x 1	172.0	SN: 1070	1 1	
Exposure Conditions					
Phantom Section	Position, Test Distance [mm]	Band	Group,	Frequency [MH Channel Numb	
5G -	10.0 mm	Validation band	CW	10000.0, 10000	1.0
Hardware Setup					
Phantom	Medium		Pr	obe, Calibration Date	DAE, Calibration Date
mmWave Phantom - 1002	Air			mmWV3 - SN9374_F1-55GHz,)23-05-22	DAE4ip Sn1602, 2023-07-05
Scan Setup				easurement Results	
		5G 5			5G Scan
Sensor Surface [mm]				Date	2023-08-08, 12:20
MAIA		MAIA not u		Avg. Area [cm ²]	4.00
				Avg. Type	Square Averaging
				osPDn+ [W/m²]	55.1
				sPDtot+ [W/m ²]	56.3
				osPDmod+ [W/m ²]	56.8
				Max(Sn) [W/m²] Max(Stot) [W/m²]	61.3
				vlax((Stot) (W/m²)	62.0
				viax(Stot)[w/m']	62.5
				Power Drift [dB]	0.08



Certificate No: 5G-Veri10-1070 Aug23 Page 8 of 8

- End of report -

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