

Appendix C

Phantom Description

Schmid & Partner Engineering AG

е а s g p

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

- [1] 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
- [2] 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 ed 10, "Human exposure to radio frequency fields from hard-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

реад

Signature / Stamp

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

25.7.2011

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.

除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。 This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at http://www.sgs.com.tw/Terms-and-Conditions and for electronic format documents, subject to Terms and Conditions for Electronic Documents at http://www.sgs.com.tw/Terms-and-Conditions. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law

No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號 SGS Taiwan Ltd.

f (886-2) 2298-0488

www.sqs.com.tw



System Validation from Original Equipment Supplier

Accredited by the Swiss Accreditation Service The Swiss Accreditation Service Multilateral Agreement for the re	is one of the signatorie	s to the EA	Accreditation No.: SCS 0108
Client SGS-TW (Aude	n)	Certificate N	No: D2450V2-727_Apr22
CALIBRATION C	ERTIFICATE		
Object	D2450V2 - SN:7	27	
Calibration procedure(s)	QA CAL-05.v11 Calibration Proce	edure for SAR Validation Source	es between 0.7-3 GHz
Calibration date:	April 25, 2022		
The measurements and the uncer	tainties with confidence p ted in the closed laborato	ional standards, which realize the physical u robability are given on the following pages a ry facility: environment temperature (22 ± 3)	and are part of the certificate.
The measurements and the uncer All calibrations have been conduct Calibration Equipment used (M&T	tainties with confidence p ted in the closed laborato	robability are given on the following pages a	and are part of the certificate.
The measurements and the uncer All calibrations have been conduc Calibration Equipment used (M&T Primary Standards Power meter NRP	tainties with confidence p ted in the closed laborato E critical for calibration)	robability are given on the following pages \pm ny facility: environment temperature (22 \pm 3)	and are part of the certificate. °C and humidity < 70%.
The measurements and the uncer All calibrations have been conduct Calibration Equipment used (M&T Primary Standards Power meter NBP Power sensor NBP-291	tainties with confidence p ted in the closed laborato E critical for calibration) ID # SN: 104778 SN: 103244	robability are given on the following pages a ry facility: environment temperature (22 ± 3) Cal Date (Centificaria No.) 04-Apr-22 (No. 217-03525/03524) 04-Apr-22 (No. 217-03524)	and are part of the certificate. °C and humidity < 70%. Scheduled Calibration
The measurements and the uncer All calibrations have been conduc Calibration Equipment used (M&T Primary Standards Power sensor NRP-Z91 Power sensor NRP-Z91 Power sensor NRP-Z91	tainties with confidence p ted in the closed laborato E critical for calibration) ID # SN: 104778 SN: 103244 SN: 103245	robability are given on the following pages s ry facility: environment temperature (22 ± 3) Cal Date (Cartificate No.) 04-Apr-22 (No. 217-03525/03524) 04-Apr-22 (No. 217-03525)	and are part of the certificate. *C and humidity < 70%. Scheduled Calibration Apr-23
The measurements and the uncer All calibrations have been conduct Calibration Equipment used (M&T Primary Standards Power sensor NRP-291 Power sensor NRP-291 Power sensor NRP-291 Reference 20 dB Attenuator	tainties with confidence p ted in the closed laborato E critical for calibration) ID # SN: 104778 SN: 103244 SN: 103245 SN: 103244 (SN: BH3934 (20k)	robability are given on the following pages a ry facility: environment temperature (22 ± 3) Cal Date (Certificatis No.) 04-Apr-22 (No. 217-03525/03524) 04-Apr-22 (No. 217-03525) 04-Apr-22 (No. 217-03525) 04-Apr-22 (No. 217-03527)	and are part of the certificate. "C and humidity < 70%. Scheduled Calibration Apr-23 Apr-23
The measurements and the uncer All calibrations have been conduct Calibration Equipment used (M&T Primary Standards Power meter NRP Power ansor NRP-Z91 Power sansor NRP-Z91 Reference 20 dB Attenuator Type-N mismatch combination	tainlies with confidence p ted in the closed laborato E critical for calibration) ID # SN: 104778 SN: 103245 SN: 103244 SN: 103244 SN: 103245 SN: 814394 (20k) SN: 31082 / 06327	robability are given on the following pages s Cal Date (Certificate No.) 04-Apr-82 (No. 217-03625/03524) 04-Apr-22 (No. 217-03625/0 04-Apr-22 (No. 217-03525) 04-Apr-22 (No. 217-03525) 04-Apr-22 (No. 217-03527) 04-Apr-22 (No. 217-03528)	and are part of the certificate. "C and humidity < 70%. Scheduled Celibration Apr/23 Apr/23 Apr/23 Apr/23 Apr/23
The measurements and the uncer All calibrations have been conduct Calibration Equipment used (M&T Primury Standards Power mater NRP Power sensor NRP-291 Power sensor NRP-291 Reference Power 20 dB Attenuator Type-N mismatch combination Reference Probe EXSDV4	tainties with confidence p ted in the closed laborato E critical for calibration) ID # SN: 104778 SN: 103244 SN: 103245 SN: 103244 (SN: BH3934 (20k)	robability are given on the following pages a ry facility: environment temperature (22 ± 3) Cal Date (Certificatis No.) 04-Apr-22 (No. 217-03525/03524) 04-Apr-22 (No. 217-03525) 04-Apr-22 (No. 217-03525) 04-Apr-22 (No. 217-03527)	and are part of the certificate. "C and humidity < 70% Scheduled Calibration Apr-23 Apr-23 Apr-23 Apr-23
The measurements and the uncer All calibrations have been conduct Calibration Equipment used (M&T Primary Standards Power meter NRP Power sensor NRP-291 Power sensor NRP-291 Reference 20 dB Attenuator Type-N mismark comtineation Reference Probe EX3DV4 DAE4	tainties with confidence p ted in the closed laborato E critical for calibration) ID # SN: 103778 SN: 103244 SN: 103244 SN: 3N: 303244 SN: 3N: 303244 SN: 3N: 30324 SN: 310982 / 06327 SN: 7349	Cal Date (Certificate No.) 04-Apr-22 (No. 217-03525/03524) 04-Apr-22 (No. 217-03525/03524) 04-Apr-22 (No. 217-03525) 04-Apr-22 (No. 217-03525) 04-Apr-22 (No. 217-03525) 04-Apr-22 (No. 217-03525) 04-Apr-22 (No. 217-03525) 04-Apr-22 (No. 217-03527) 04-Apr-22 (No. 217-03528) 31-Dec-21 (No. 217-03528) 31-Dec-21 (No. 217-03528) 31-Dec-21 (No. EX3-7349_Dec21)	and are part of the certificate. "C and humidity < 70% Scheduled Calibration Apr/23 Apr/23 Apr/23 Apr/23 Apr/23 Apr/23 Dec-22 Nov-22
The measurements and the uncer All calibrations have been conduct Calibration Equipment used (M&T Primary Standards Power sensor NRP-291 Reference 20 dB Attenuator Type-N mismatch combination Reference Probe EX3DV4 DAE4 Secondary Standards	tainlies with confidence p ted in the closed laborato E critical for calibration) ID # SN: 103244 SN: 103245 SN: 303245 SN: 8H:9394 (20k) SN: 3103245 SN: 3103245 SN: 310324 SN: 310324 SN: 310324 SN: 510324 SN: 510324 SN: 5013	robability are given on the following pages a ry facility: environment temperature (22 ± 3) O4-Apr-22 (No. 217-03525/03524) O4-Apr-22 (No. 217-03525) O4-Apr-22 (No. 217-03525) O4-Apr-22 (No. 217-03528) 31-Dec-21 (No. EX3-7240_Dec21) 01-Nov-21 (No. EX3-740_Dec21) O1-Nov-21 (No. DAE4-601_Nov21) Check Date (in house)	and are part of the certificate. "C and humidity < 70% Scheduled Calibration Apr-23 Apr-24 Apr-24 Apr-25 Apr-25 Apr-25 Apr-26 Apr-
The measurements and the uncer All calibrations have been conduct Calibration Equipment used (M&T Primary Standards Power meter NRP 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	tainlies with confidence p ted in the closed laborato E critical for calibration) ID # SN: 104778 SN: 103244 SN: 103245 SN: 310924 (20k) SN: 310924 (20k)	robability are given on the following pages s ry facility: environment temperature (22 ± 3) 04-Apr-22 (No. 217-03525/03524) 04-Apr-22 (No. 217-03525) 04-Apr-22 (No. 217-03525) 04-Apr-22 (No. 217-03525) 04-Apr-22 (No. 217-03525) 04-Apr-22 (No. 217-03526) 31-Dec-21 (No. 217-03528) 31-Dec-21 (No. 217-03528) 31-Dec-21 (No. DA2-601_Nov21) 01-Nov-21 (No. DA2-601_Nov21) Check Date (in house)	and are part of the certificate. "C and humidity < 70%. Scheduled Calibration Apr/23 Apr/23 Apr/23 Apr/23 Apr/23 Dec-22 Nov-22 Scheduled Check In house check: Oct/22
The measurements and the uncer All calibrations have been conduct	tainlies with confidence p ted in the closed laborato E critical for calibration) ID # SN: 103244 SN: 103245 SN: 3103245 SN: 310324 SN: 7349 SN: 501 ID #	robability are given on the following pages a ry facility: environment temperature (22 ± 3) O4-Apr-22 (No. 217-03525/03524) O4-Apr-22 (No. 217-03525) O4-Apr-22 (No. 217-03525) O4-Apr-22 (No. 217-03528) 31-Dec-21 (No. EX3-7240_Dec21) O1-Nov-21 (No. EX3-740_Dec21) O1-Nov-21 (No. DAE4-601_Nov21) Check Date (in house)	and are part of the certificate. "C and humidity < 70% Scheduled Calibration Apr-23 Apr-24 Apr-24 Apr-25 Apr-25 Apr-25 Apr-26 Apr-
The measurements and the uncer All calibrations have been conduct Calibration Equipment used (M&T Primary Standards Power sensor NRP-Z91 Power sensor NRP-Z91 Power sensor NRP-Z91 Reference 20 dB Attenuator Type-N mismatch combination Reference Probe EXSDV4 DAE4 Secondary Standards Power metter E44198 Power sensor HP 8481A Power sensor HP 8481A	tainlies with confidence p ted in the closed laborato E critical for calibration) ID # SN: 104778 SN: 103244 SN: 103245 SN: 8H:3994 (20k) SN: 31082 / 06327 SN: 601 ID # SN: 0537292783	Cal Date (Certificate No.) O4-Apr-22 (No. 217-03525/03524) 04-Apr-22 (No. 217-03525/03524) 04-Apr-22 (No. 217-03525/03524) 04-Apr-22 (No. 217-03525) 04-Apr-22 (No. 217-03526) 04-Apr-22 (No. 217-03527) 04-Apr-22 (No. 217-03528) 31-0e-21 (No. 217-03528) 30-0e-14 (n house check Oct-20) 30-0e-14 (n house check Oct-20)	and are part of the conflicate. *C and humidity < 70%. Scheduled Calibration Apr-23 Apr-24 Apr-25 Apr-25 Apr-25 Apr-26 Apr-26 Apr-26 Apr-26 Apr-26 Apr-27 Apr-27 Apr-26 Apr-27 Apr-26 Apr-27 Apr-26 Apr-27
The measurements and the uncer All calibrations have been conduct Calibration Equipment used (M&T Primary Standards Power meter NRP Power sensor NRP-Z91 Power sensor NRP-Z91 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	tainlies with confidence p ted in the closed laborato E critical for calibration) ID # SN: 104778 SN: 103244 SN: 103245 SN: 103245 SN: 103245 SN: 103246 SN: 310882 (06327 SN: 7349 SN: 601 ID # SN: 603512475 SN: US37252783 SN: WY4093315	Cal Date (Certificate No.) Cal Date (Certificate No.) 04-Apr-62 (No. 217-03625/03524) 04-Apr-62 (No. 217-03625) 04-Apr-62 (No. 217-03525) 04-Apr-22 (No. 217-03525) 04-Apr-22 (No. 217-03525) 04-Apr-22 (No. 217-03527) 04-Apr-22 (No. 217-03528) 31-Dac-21 (No. 217-03528) 31-Dac-21 (No. 217-03528) 30-Oct-14 (in house) Check Date (In house) 04-Apr-22 (No. 217-03528) 33-Dac-14 (no house) 0-4-Apr-21 (No. 247-349_Dac-21) Check Date (In house) 0-7-Cd-15 (in house check Cd-20) 07-Cd-15 (on house check Cd-20) 07-Cd-15 (on house check Cd-20)	and are part of the certificate. "C and humidity < 70%. Scheduled Calibration Apr-23 Apr-23 Apr-23 Apr-23 Apr-23 Dec-22 Nov-22 Scheduled Check In house check: Oct-22 In house check: Oct-22
The measurements and the uncer All calibrations have been conduct Calibration Equipment used (M&T Primary Standards Power mere NRP Power sensor NRP-291 Power sensor NRP-291 Reference Probe EX3DV4 DAE4 Secondary Standards Power meter E4198 Power sensor HP 8481A Power Sensor HP 8481A Pow	tainlies with confidence p ted in the closed laborato E critical for calibration) ID # SN: 104778 SN: 103244 SN: 103245 SN: 8H3394 (20k) SN: 31082 (20k) SN: 31082 (30k) SN: 601 ID # SN: 6839512475 SN: V33315 SN: 10372 SN: 041080477 Name	Cal Date (Certificate No.) 04-Apr-22 (No. 217-03525/03524) 04-Apr-22 (No. 217-03525/03524) 04-Apr-22 (No. 217-03525/03524) 04-Apr-22 (No. 217-03525) 04-Apr-22 (No. 217-03526) 04-Apr-22 (No. 217-03526) 04-Apr-22 (No. 217-03528) 31-0c-21 (No. 217-03528) 31-0c-21 (No. 247-03528) 30-Oct-14 (in house) 30-Oct-15 (in house check Oct-20) 07-Oct-15 (in house check Oct-20) 31-Mar-14 (in house check Oct-20) 31-Mar-14 (in house check Oct-20)	Ind are part of the certificate. In C and humidity < 70% Scheduled Calibration Apr-23 Apr-24 Apr-25 Apr-25 Apr-26 Apr-26 Apr-27 Apr-26 Apr-27 Apr-27 Apr-27 Apr-27 Apr-27 Apr-28 Ap
The measurements and the uncer All calibrations have been conduct Calibration Equipment used (M&T Primary Standards Power sensor NRP-291 Power sensor NRP-291 Reference 20 dB Attenuator Type-N mismatch combination Reference Probe EX3DV4 DAE4 Secondary Standards Power meter E4198 Power sensor 1H2 8481A	tainlies with confidence p ted in the closed laborato E critical for calibration) ID # SN: 104778 SN: 103244 SN: 103245 SN: 103245 SN: 103245 SN: 103245 SN: 601 ID # SN: 601 SN: SN: SS: SN: SS: SN: SN: VS37292783 SN: WY-1003315 SN: 100972 SN: US41080477	Cal Date (Certificate No.) 04-Apr-22 (No. 217-03525/03524) 04-Apr-22 (No. 217-03525/03524) 04-Apr-22 (No. 217-03525/03524) 04-Apr-22 (No. 217-03525) 04-Apr-22 (No. 217-03525) 04-Apr-22 (No. 217-03525) 04-Apr-22 (No. 217-03525) 04-Apr-22 (No. 217-03526) 31-Dec-21 (No. 217-03528) 30-Oct-14 (in house rheck Cot-20) 07-Oct-15 (in house check Cot-20) 07-Oct-15 (in house check Cot-20) 07-Oct-15 (in house check Cot-20) 15-Jun-15 (in house check Cot-20) 31-Mar-14 (in house check Cot-20)	and are part of the certificate. *C and humidity < 70%. Scheduled Calibration Apr-23 Apr-23 Apr-33 Apr-33 Apr-33 Dec-22 Nov-22 Scheduled Check In house check: Cot-22 In house check: Cot-22

Certificate No: D2450V2-727_Apr22

Page 1 of 6

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.

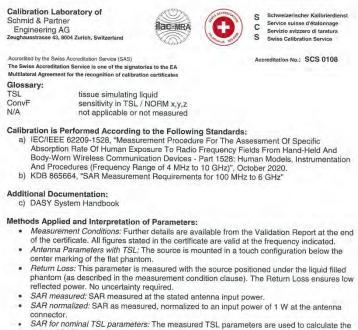
t (886-2) 2299-3279

除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。 This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at http://www.sgs.com.tw/Terms-and-Conditions and for electronic format documents issued by the Company subject to its General Conductors and http://www.sgs.com.tw/Terms-and-Conditions. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號 SGS Taiwan Ltd.

f (886-2) 2298-0488





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_Apr22

Page 2 of 6

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.

t (886-2) 2299-3279

除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。 This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at http://www.sgs.com.tw/Terms-and-Conditions and for electronic format documents, subject to Terms and Conditions for Electronic Documents at http://www.sgs.com.tw/Terms-and-Conditions. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law

f (886-2) 2298-0488



Measurement Conditions

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	37.8 ± 6 %	1.87 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	52.8 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	6.34 W/kg

Certificate No: D2450V2-727 Apr22

Page 3 of 6

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.

除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。 This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at http://www.sgs.com.tw/Terms-and-Conditions and for electronic format documents issued by the Company subject to its General Conductors and http://www.sgs.com.tw/Terms-and-Conditions. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號 SGS Taiwan Ltd.

www.sgs.com.tw



Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	55.7 Ω + 3.0 jΩ
Return Loss	- 24.4 dB

General Antenna Parameters and Design

Electrical Delay (one direction) 1.149 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. according to the Standard. No excessive force must b sive 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 Apr22

Page 4 of 6

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.

除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。 This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at http://www.sgs.com.tw/Terms-and-Conditions and for electronic format documents, subject to Terms and Conditions for Electronic Documents at http://www.sgs.com.tw/Terms-and-Conditions. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號 SGS Taiwan Ltd.

www.sqs.com.tw



DASY5 Validation Report for Head TSL

Test Laboratory: SPEAG, Zurich, Switzerland

Date: 25.04.2022

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN: 727 Communication System: UID 0 - CW; Frequency: 2450 MHz Medium parameters used: f = 2450 MHz; σ = 1.87 S/m; ϵ_r = 37.8; ρ = 1000 kg/m³ Phantom section: Flat Section

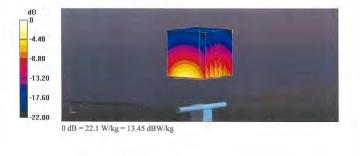
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 SN7349; ConvF(7.96, 7.96, 7.96) @ 2450 MHz; Calibrated: 31.12.2021
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 01.11.2021
- 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 = 115.6 V/m; Power Drift = 0.09 dB

Reference value = 11.5.0 v/m, rower D/m = 0.09 uB Peak SAR (extrapolated) = 26.5 W/kg SAR(1 g) = 13.6 W/kg; SAR(10 g) = 6.34 W/kg Smallest distance from peaks to all points 3 dB below = 9 mm Ratio of SAR at M2 to SAR at M1 = 51% Maximum value of SAR (measured) = 22.1 W/kg



Certificate No: D2450V2-727 Apr22

Page 5 of 6

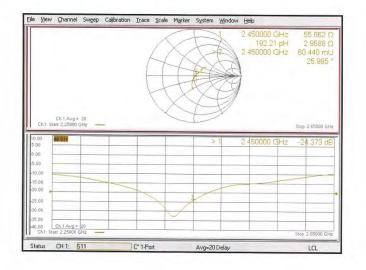
Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。 This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at http://www.sgs.com.tw/Terms-and-Conditions and for electronic format documents, subject to Terms and Conditions for Electronic Documents at http://www.sgs.com.tw/Terms-and-Conditions. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號 SGS Taiwan Ltd.



Impedance Measurement Plot for Head TSI



Certificate No: D2450V2-727_Apr22 Page 6 of 6

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.

除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。 This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at http://www.sgs.com.tw/Terms-and-Conditions and for electronic format documents, subject to Terms and Conditions for Electronic Documents at http://www.sgs.com.tw/Terms-and-Conditions. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號 SGS Taiwan Ltd.

f (886-2) 2298-0488

www.sqs.com.tw



Accredited by the Swiss Accreditati The Swiss Accreditation Service Multilateral Agreement for the rec	is one of the signatorie	es to the EA	ccreditation No.: SCS 0108
Client SGS (Auden)		Certificate N	o: D5GHzV2-1023_Jan22
CALIBRATION C	ERTIFICATI	E	
Object	D5GHzV2 - SN:1	1023	
Calibration procedure(s)	QA CAL-22.v6		
		edure for SAR Validation Sources	s between 3-10 GHz
Calibration date:	January 27, 2022	2	
		ry facility: environment temperature $(22 \pm 3)^{\circ}$ C	C and humidity < 70%.
Calibration Equipment used (M&TE Primary Standards		ry facility: environment temperature (22 ± 3)°C Cal Date (Certificate No.)	C and humidity < 70%. Scheduled Calibration
Calibration Equipment used (M&TE Primary Standards Power meter NRP	E critical for calibration)		
Calibration Equipment used (M&TE Primary Standards Power meter NRP Power sensor NRP-Z91	E critical for calibration) ID # SN: 104778 SN: 103244	Cal Date (Certificate No.)	Scheduled Calibration
Calibration Equipment used (M&TE Primary Standards Power meter NRP Power sensor NRP-Z91 Power sensor NRP-Z91	E critical for calibration) ID # SN: 104778 SN: 103244 SN: 103245	Cal Date (Certificate No.) 09-Apr-21 (No. 217-03291/03292)	Scheduled Calibration Apr-22
Calibration Equipment used (M&TE Primary Standards Power meter NRP Power sensor NRP-291 Power sensor NRP-291 Reference 20 dB Attenuator	E critical for calibration) ID # SN: 104778 SN: 103244 SN: 103245 SN: 103245 SN: BH9394 (20k)	Cal Date (Certificate No.) 09-Apr-21 (No. 217-03291/03292) 09-Apr-21 (No. 217-03291) 09-Apr-21 (No. 217-03292) 09-Apr-21 (No. 217-03343)	Scheduled Calibration Apr-22 Apr-22 Apr-22 Apr-22
Calibration Equipment used (M&TE Primary Standards Power meter NRP Power sensor NRP-291 Power sensor NRP-291 Reference 20 dB Attenuator Type-N mismatch combination	E critical for calibration) ID # SN: 104778 SN: 103244 SN: 103245 SN: BH3394 (20k) SN: 310982 / 06327	Cal Date (Certificate No.) 09-Apr-21 (No. 217-03291/03292) 09-Apr-21 (No. 217-03291) 09-Apr-21 (No. 217-03292) 09-Apr-21 (No. 217-03343) 09-Apr-21 (No. 217-03344)	Scheduled Calibration Apr-22 Apr-22 Apr-22 Apr-22 Apr-22 Apr-22
Calibration Equipment used (M&TE Primary Standards Power meter NRP Power sensor NRP-291 Power sensor NRP-291 Reference 20 dB Attenuator Type-N mismatch combination Reference Probe EX3DV4	E critical for calibration) ID # SN: 104778 SN: 103244 SN: 103245 SN: BH9394 (20k) SN: 310982 / 06327 SN: 3503	Cal Date (Certificate No.) 09-Apr-21 (No. 217-03291/03292) 09-Apr-21 (No. 217-03291) 09-Apr-21 (No. 217-03292) 09-Apr-21 (No. 217-03343) 09-Apr-21 (No. 217-03344) 31-Dec-21 (No. EX3-3503_Dec21)	Scheduled Calibration Apr-22 Apr-22 Apr-22 Apr-22 Apr-22 Dec-22
Calibration Equipment used (M&TE Primary Standards Power meter NRP Power sensor NRP-291 Power sensor NRP-291 Reference 20 dB Attenuator Type-N mismatch combination Reference Probe EX3DV4 DAE4	E critical for calibration) ID # SN: 104778 SN: 103244 SN: 103245 SN: BH9394 (20k) SN: 310982 / 06327 SN: 3503 SN: 601	Cal Date (Certificate No.) 09-Apr-21 (No. 217-03291/03292) 09-Apr-21 (No. 217-03291) 09-Apr-21 (No. 217-03292) 09-Apr-21 (No. 217-03343) 09-Apr-21 (No. 217-03344)	Scheduled Calibration Apr-22 Apr-22 Apr-22 Apr-22 Apr-22 Apr-22
Calibration Equipment used (M&TE Primary Standards Power meter NRP Power sensor NRP-291 Power sensor NRP-291 Reference 20 dB Attenuator Type-N mismatch combination Reference Probe EX3DV4 DAE4 Secondary Standards	E critical for calibration) ID # SN: 104778 SN: 103244 SN: 103245 SN: BH3394 (20k) SN: 310982 / 06327 SN: 3503 SN: 601 ID #	Cal Date (Certificate No.) 09-Apr-21 (No. 217-03291/03292) 09-Apr-21 (No. 217-03291) 09-Apr-21 (No. 217-03292) 09-Apr-21 (No. 217-03343) 09-Apr-21 (No. 217-03344) 31-Dec-21 (No. EX3-3503_Dec21) 01-Nov-21 (No. DAE4-601_Nov21) Check Date (in house)	Scheduled Calibration Apr-22 Apr-22 Apr-22 Apr-22 Apr-22 Dec-22 Nov-22 Scheduled Check
Calibration Equipment used (M&TE Primary Standards Power meter NRP 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	E critical for calibration) ID # SN: 104778 SN: 103244 SN: 103245 SN: BH9394 (20k) SN: 310982 / 06327 SN: 3503 SN: 601 ID # SN: GB39512475	Cal Date (Certificate No.) 09-Apr-21 (No. 217-03291/03292) 09-Apr-21 (No. 217-03291) 09-Apr-21 (No. 217-03292) 09-Apr-21 (No. 217-03343) 09-Apr-21 (No. 217-03344) 31-Dec-21 (No. EX3-3503_Dec21) 01-Nov-21 (No. DAE4-601_Nov21) Check Date (in house) 30-Oct-14 (in house check Oct-20)	Scheduled Calibration Apr-22 Apr-22 Apr-22 Apr-22 Dec-22 Nov-22 Scheduled Check In house check: Oct-22
Calibration Equipment used (M&TE Primary Standards Power meter NRP 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	Critical for calibration) ID # SN: 104778 SN: 103244 SN: 103245 SN: 8H9394 (20k) SN: 310982 / 06327 SN: 3503 SN: 601 ID # SN: 6B39512475 SN: US37292783	Cal Date (Certificate No.) 09-Apr-21 (No. 217-03291/03292) 09-Apr-21 (No. 217-03291) 09-Apr-21 (No. 217-03343) 09-Apr-21 (No. 217-03343) 09-Apr-21 (No. 217-03344) 31-Dec-21 (No. DE4-601_Nov21) Check Date (in house) 30-Oct-14 (in house check Oct-20) 07-Oct-15 (in house check Oct-20)	Scheduled Calibration Apr-22 Apr-22 Apr-22 Apr-22 Apr-22 Dec-22 Nov-22 Scheduled Check In house check: Oct-22 In house check: Oct-22
Calibration Equipment used (M&TE Primary Standards Power meter NRP 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	E critical for calibration) ID # SN: 104778 SN: 103244 SN: 103245 SN: BH9394 (20k) SN: 310982 / 06327 SN: 3503 SN: 601 ID # SN: GB39512475 SN: U37292783 SN: MY41093315	Cal Date (Certificate No.) 09-Apr-21 (No. 217-03291/03292) 09-Apr-21 (No. 217-03291) 09-Apr-21 (No. 217-03292) 09-Apr-21 (No. 217-03343) 09-Apr-21 (No. 217-03343) 09-Apr-21 (No. 217-03343) 09-Apr-21 (No. 217-03344) 31-Dec-21 (No. EX3-3503_Dec21) 01-Nov-21 (No. DAE4-601_Nov21) Check Date (in house) 30-Oct-14 (in house check Oct-20) 07-Oct-15 (in house check Oct-20) 07-Oct-15 (in house check Oct-20)	Scheduled Calibration Apr-22 Apr-22 Apr-22 Apr-22 Dec-22 Nov-22 Scheduled Check In house check: Oct-22 In house check: Oct-22 In house check: Oct-22 In house check: Oct-22
Calibration Equipment used (M&TE Primary Standards Power meter NRP 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	Critical for calibration) ID # SN: 104778 SN: 103244 SN: 103245 SN: 8H9394 (20k) SN: 310982 / 06327 SN: 3503 SN: 601 ID # SN: 6B39512475 SN: US37292783	Cal Date (Certificate No.) 09-Apr-21 (No. 217-03291/03292) 09-Apr-21 (No. 217-03291) 09-Apr-21 (No. 217-03343) 09-Apr-21 (No. 217-03343) 09-Apr-21 (No. 217-03344) 31-Dec-21 (No. DE4-601_Nov21) Check Date (in house) 30-Oct-14 (in house check Oct-20) 07-Oct-15 (in house check Oct-20)	Scheduled Calibration Apr-22 Apr-22 Apr-22 Apr-22 Apr-22 Dec-22 Nov-22 Scheduled Check In house check: Oct-22 In house check: Oct-22
Calibration Equipment used (M&TE Primary Standards Power meter NRP Power sensor NRP-291 Power sensor NRP-291 Reference 20 dB Attenuator Type-N mismatch combination Reference 20 dB Attenuator Type-N mismatch combination Reference 20 dB Attenuator DAE4 Secondary Standards Power meter E4419B Power sensor HP 8481A Power sensor HP 8481A RF generator R&S SMT-06	E critical for calibration) ID # SN: 104778 SN: 103244 SN: 103245 SN: 8H9394 (20k) SN: 310982 / 06327 SN: 3503 SN: 601 ID # SN: G839512475 SN: US37292783 SN: WY41093315 SN: 100972 SN: US41080477	Cal Date (Certificate No.) 09-Apr-21 (No. 217-03291/03292) 09-Apr-21 (No. 217-03291) 09-Apr-21 (No. 217-03292) 09-Apr-21 (No. 217-03343) 09-Apr-21 (No. 217-03343) 09-Apr-21 (No. 217-03343) 09-Apr-21 (No. 217-03344) 31-Dec-21 (No. DAE4-601_Nov21) Check Date (in house) 30-Oct-14 (in house check Oct-20) 07-Oct-15 (in house check Oct-20) 07-Oct-15 (in house check Oct-20) 07-Oct-15 (in house check Oct-20) 15-Jun-15 (in house check Oct-20) 31-Mar-14 (in house check Oct-20)	Scheduled Calibration Apr-22 Apr-22 Apr-22 Apr-22 Dec-22 Nov-22 Scheduled Check In house check: Oct-22 In house check: Oct-22
Calibration Equipment used (M&TE Primary Standards Power meter NRP 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	E critical for calibration) ID # SN: 104778 SN: 103244 SN: 103245 SN: BH9394 (20k) SN: 310982 / 06327 SN: 3503 SN: 601 ID # SN: GB39512475 SN: US37292783 SN: MY41093315 SN: 100972 SN: US41080477 Name	Cal Date (Certificate No.) 09-Apr-21 (No. 217-03291/03292) 09-Apr-21 (No. 217-03291) 09-Apr-21 (No. 217-03292) 09-Apr-21 (No. 217-03343) 09-Apr-21 (No. 217-03343) 09-Apr-21 (No. 217-03343) 09-Apr-21 (No. 217-03344) 31-Dec-21 (No. DAE4-601_Nov21) O1-Nov-21 (No. DAE4-601_Nov21) Check Date (in house) 30-Oct-14 (in house check Oct-20) 07-Oct-15 (in house check Oct-20) 07-Oct-15 (in house check Oct-20) 15-Jun-15 (in house check Oct-20) 31-Mar-14 (in house check Oct-20)	Scheduled Calibration Apr-22 Apr-22 Apr-22 Apr-22 Dec-22 Nov-22 Scheduled Check In house check: Oct-22 In house check: Oct-22 In house check: Oct-22 In house check: Oct-22 In house check: Oct-22
Calibration Equipment used (M&TE Primary Standards Power meter NRP 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	E critical for calibration) ID # SN: 104778 SN: 103244 SN: 103245 SN: 8H9394 (20k) SN: 310982 / 06327 SN: 3503 SN: 601 ID # SN: G839512475 SN: US37292783 SN: WY41093315 SN: 100972 SN: US41080477	Cal Date (Certificate No.) 09-Apr-21 (No. 217-03291/03292) 09-Apr-21 (No. 217-03291) 09-Apr-21 (No. 217-03292) 09-Apr-21 (No. 217-03343) 09-Apr-21 (No. 217-03343) 09-Apr-21 (No. 217-03343) 09-Apr-21 (No. 217-03344) 31-Dec-21 (No. DAE4-601_Nov21) Check Date (in house) 30-Oct-14 (in house check Oct-20) 07-Oct-15 (in house check Oct-20) 07-Oct-15 (in house check Oct-20) 07-Oct-15 (in house check Oct-20) 15-Jun-15 (in house check Oct-20) 31-Mar-14 (in house check Oct-20)	Scheduled Calibration Apr-22 Apr-22 Apr-22 Apr-22 Dec-22 Nov-22 Scheduled Check In house check: Oct-22 In house check: Oct-22
All calibrations have been conducts Calibration Equipment used (M&TE Primary Standards Power meter NRP 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 RF generator R&S SMT-06 Network Analyzer Agilent E8358A Calibrated by:	E critical for calibration) ID # SN: 104778 SN: 103244 SN: 103245 SN: BH9394 (20k) SN: 310982 / 06327 SN: 3503 SN: 601 ID # SN: GB39512475 SN: US37292783 SN: MY41093315 SN: 100972 SN: US41080477 Name	Cal Date (Certificate No.) 09-Apr-21 (No. 217-03291/03292) 09-Apr-21 (No. 217-03291) 09-Apr-21 (No. 217-03292) 09-Apr-21 (No. 217-03343) 09-Apr-21 (No. 217-03343) 09-Apr-21 (No. 217-03343) 09-Apr-21 (No. 217-03344) 31-Dec-21 (No. DAE4-601_Nov21) O1-Nov-21 (No. DAE4-601_Nov21) Check Date (in house) 30-Oct-14 (in house check Oct-20) 07-Oct-15 (in house check Oct-20) 07-Oct-15 (in house check Oct-20) 15-Jun-15 (in house check Oct-20) 31-Mar-14 (in house check Oct-20)	Scheduled Calibration Apr-22 Apr-22 Apr-22 Apr-22 Dec-22 Nov-22 Scheduled Check In house check: Oct-22 In house check: Oct-22

Certificate No: D5GHzV2-1023_Jan22

Page 1 of 8

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.

Unless otherwise stated the results shown in this test report reter only to the sample(s) tested and such sample(s) are retained for 90 days only. Mir#JSfabign , Lt&Batement and the state report reter only to the sample(s) tested and such sample(s) are retained for 90 days only. This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at http://www.sgs.com.tw/Terms-and-Conditions and for electronic format documents, subject to Terms and Conditions for Electronic Documents at http://www.sgs.com.tw/Terms-and-Conditions and for electronic format defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fulleest extent of the law. prosecuted to the fullest extent of the law.

No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號 SGS Taiwan Ltd.

f (886-2) 2298-0488



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



Schweizerischer Kalibrierdienst S Service suisse d'étalonnag С 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 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 Jan22

Page 2 of 8

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.

t (886-2) 2299-3279

除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。 This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at http://www.sgs.com.tw/Terms-and-Conditions and for electronic format documents, subject to Terms and Conditions for Electronic Documents at http://www.sgs.com.tw/Terms-and-Conditions. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law

f (886-2) 2298-0488



Measurement Conditions

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

DASY Version	DASY52	V52.10.4
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom 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
Frequency	5250 MHz ± 1 MHz 5600 MHz ± 1 MHz 5750 MHz ± 1 MHz	

Head TSL parameters at 5250 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.9	4.71 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	34.9 ± 6 %	4.52 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	8.16 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	81.0 W/kg ± 19.9 % (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 100 mW input power	2.34 W/kg

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	34.4 ± 6 %	4.87 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	8.51 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	84.4 W/kg ± 19.9 % (k=2)
CAD supported support 40 served (40 st) of Hand TOI	and attended	
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	2.40 W/kg

Certificate No: D5GHzV2-1023_Jan22

Page 3 of 8

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.

除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。 This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at http://www.sgs.com.tw/Terms-and-Conditions and for electronic format documents, subject to Terms and Conditions for Electronic Documents at http://www.sqs.com.tw/Terms-and-Conditions. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction document does not exonerate parties to a transaction for exercising all their rights and obligations under the transaction document does not exonerate parties to a transaction forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號 SGS Taiwan Ltd.

t (886-2) 2299-3279 台灣檢驗科技股份有限公司

f (886-2) 2298-0488



Head TSL parameters at 5750 MHz The follo

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.4	5.22 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	34.2 ± 6 %	5.02 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C		

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	8.17 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	81.0 W/kg ± 19.9 % (k=2)
SAR averaged over 10 cm ³ (10 g) of Head TSI	condition	
SAR averaged over 10 cm ³ (10 g) of Head TSL SAR measured	condition 100 mW input power	2.31 W/kg

Certificate No: D5GHzV2-1023_Jan22

Page 4 of 8

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.

除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。 This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at http://www.sgs.com.tw/Terms-and-Conditions and for electronic format documents, subject to Terms and Conditions for Electronic Documents at http://www.sgs.com.tw/Terms-and-Conditions. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號 SGS Taiwan Ltd.

t (886-2) 2299-3279 台灣檢驗科技股份有限公司

f (886-2) 2298-0488

www.sgs.com.tw



Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL at 5250 MHz

Impedance, transformed to feed point	52.0 Ω - 5.2 jΩ	
Return Loss	- 25.3 dB	

Antenna Parameters with Head TSL at 5600 MHz

Impedance, transformed to feed point	54.7 Ω + 0.2 jΩ	
Return Loss	- 27.0 dB	

Antenna Parameters with Head TSL at 5750 MHz

Impedance, transformed to feed point	57.2 Ω + 2.1 jΩ	
Return Loss	- 23.1 dB	

General Antenna Parameters and Design

Electrical Delay (one direction)	1.197 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 Jan22

Page 5 of 8

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.

除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。 This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at http://www.sgs.com.tw/Terms-and-Conditions and for electronic format documents, subject to Terms and Conditions for Electronic Documents at http://www.sgs.com.tw/Terms-and-Conditions. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號 SGS Taiwan Ltd.

f (886-2) 2298-0488



Date: 27.01.2022

DASY5 Validation Report for Head TSL

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 Medium parameters used: f = 5250 MHz; $\sigma = 4.52 \text{ S/m}$; $\epsilon_r = 34.9$; $\rho = 1000 \text{ kg/m}^3$, Medium parameters used: f = 5600 MHz; $\sigma = 4.87 \text{ S/m}$; $\varepsilon_r = 34.4$; $\rho = 1000 \text{ kg/m}^3$ Medium parameters used: f = 5750 MHz; $\sigma = 5.02 \text{ S/m}$; $\varepsilon_r = 34.2$; $\rho = 1000 \text{ kg/m}^3$ 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; Calibrated: 31.12.2021
- Sensor-Surface: 1.4mm (Mechanical Surface Detection) ÷.
- Electronics: DAE4 Sn601; Calibrated: 01.11.2021
- 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=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 = 76.83 V/m; Power Drift = 0.05 dB Peak SAR (extrapolated) = 28.0 W/kg SAR(1 g) = 8.16 W/kg; SAR(10 g) = 2.34 W/kg Smallest distance from peaks to all points 3 dB below = 7.2 mmRatio of SAR at M2 to SAR at M1 = 70.7%Maximum value of SAR (measured) = 18.6 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 = 77.04 V/m; Power Drift = 0.06 dB Peak SAR (extrapolated) = 31.5 W/kg SAR(1 g) = 8.51 W/kg; SAR(10 g) = 2.40 W/kg Smallest distance from peaks to all points 3 dB below = 7.2 mm Ratio of SAR at M2 to SAR at M1 = 68% Maximum value of SAR (measured) = 20.1 W/kg

Certificate No: D5GHzV2-1023_Jan22

Page 6 of 8

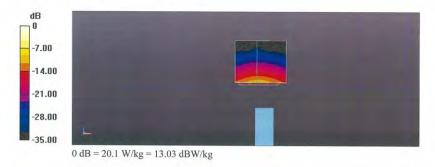
Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。 This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at http://www.sgs.com.tw/Terms-and-Conditions and for electronic format documents, subject to Terms and Conditions for Electronic Documents at http://www.sgs.com.tw/Terms-and-Conditions. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號 SGS Taiwan Ltd.



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 = 74.27 V/m; Power Drift = 0.09 dB Peak SAR (extrapolated) = 31.8 W/kg SAR(1 g) = 8.17 W/kg; SAR(10 g) = 2.31 W/kg Smallest distance from peaks to all points 3 dB below = 7.2 mm Ratio of SAR at M2 to SAR at M1 = 66.3% Maximum value of SAR (measured) = 19.8 W/kg



Certificate No: D5GHzV2-1023_Jan22

Page 7 of 8

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.

除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。 This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at http://www.sgs.com.tw/Terms-and-Conditions and for electronic format documents, subject to Terms and Conditions for Electronic Documents at http://www.sgs.com.tw/Terms-and-Conditions. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號 SGS Taiwan Ltd.

f (886-2) 2298-0488

www.sqs.com.tw



Report No. : TESA2209000372E5 Rev: 01 Page: 15 of 34

File $\underline{V} iew \underline{C} hannel Sweep Calibration \underline{T} race$ Scale Marker System Window Help -5.1596 (54.661 (183 95 m0 57 155 0 2.1431 0 5 750000 GHz 59 320 pH R 15 962 mU -84 789 Ch 1 Avg = 20 Ch1: Start 5.00000 GHz Stop 6.00000 GH: 0.00 5.00 -10.00 -15.00 20.00 25 00 30.00 35.00 40.00 Ch1 Ch 1 Avg = 20 tart 5.00000 GHz Stop Status CH 1: 511 C* 1-Port Avg=20 Delay LCL

Impedance Measurement Plot for Head TSL

Certificate No: D5GHzV2-1023_Jan22

Page 8 of 8

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.

除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。 This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at http://www.sgs.com.tw/Terms-and-Conditions and for electronic format documents, subject to Terms and Conditions for Electronic Documents at http://www.sgs.com.tw/Terms-and-Conditions. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號 SGS Taiwan Ltd.

t (886-2) 2299-3279 台灣檢驗科技股份有限公司

f (886-2) 2298-0488

www.sqs.com.tw



S Schweizerischer Kalibrierdienst

Service suisse d'étalonnage

С

	n Service (SAS)	A	ccreditation No.: SCS 0108
he Swiss Accreditation Service is Iultilateral Agreement for the reco	one of the signatorie		
lient SGS (Auden)		Certificate N	o: D6.5GHzV2-1006_Aug
CALIBRATION CE	RTIFICAT	E	
Dbject	D6.5GHzV2 - SN	J:1006	
Concernance of the process of the second	QA CAL-22.v6 Calibration Proce	edure for SAR Validation Sources	s between 3-10 GHz
Calibration date:	August 23, 2022		
	and the second	onal standards, which realize the physical un robability are given on the following pages ar	
All calibrations have been conducted	t in the closed laborato	ry facility: environment temperature (22 \pm 3)°	C and humidity < 70%.
		ry facility: environment temperature (22 \pm 3)°(C and humidity < 70%.
alibration Equipment used (M&TE		ry facility: environment temperature (22 ± 3)°(Cat Date (Certificate No.)	C and humidity < 70%. Scheduled Calibration
alibration Equipment used (M&TE) rimary Standards ower sensor R&S NRP33T	critical for calibration)	Cal Date (Certificate No.) 01-Apr-22 (No. 217-03526)	Scheduled Calibration Apr-23
alibration Equipment used (M&TE rimary Standards ower sensor R&S NRP33T eference 20 dB Attenuator	critical for calibration) ID # SN: 100967 SN: BH9394 (20k)	Cal Date (Certificate No.) 01-Apr-22 (No. 217-03526) 04-Apr-22 (No. 217-03527)	Scheduled Calibration Apr-23 Apr-23
alibration Equipment used (M&TE rimary Standards ower sensor R&S NRP33T eference 20 dB Attenuator lismatch combination	critical for calibration) ID # SN: 100967 SN: BH9394 (20k) SN: 84224 / 360D	Cal Date (Certificate No.) 01-Apr-22 (No. 217-03526) 04-Apr-22 (No. 217-03527) 26-Apr-21 (No. 217-0353)	Scheduled Calibration Apr-23 Apr-23 Apr-24
calibration Equipment used (M&TE) rimary Standards ower sensor R&S NRP33T leference 20 dB Attenuator tismatch combination leference Probe EX3DV4	critical for calibration) ID # SN: 100967 SN: BH9394 (20k) SN: 84224 / 360D SN: 7405	Cal Date (Certificate No.) 01-Apr-22 (No. 217-03526) 04-Apr-22 (No. 217-03527) 26-Apr-21 (No. 217-0353) 02-Jun-22 (No. EX3-7405_Jun22)	Scheduled Calibration Apr-23 Apr-23 Apr-24 Jun-23
Calibration Equipment used (M&TE Primary Standards Power sensor R&S NRP33T Telference 20 dB Attenuator Ilismatch combination Reference Probe EX3DV4	critical for calibration) ID # SN: 100967 SN: BH9394 (20k) SN: 84224 / 360D	Cal Date (Certificate No.) 01-Apr-22 (No. 217-03526) 04-Apr-22 (No. 217-03527) 26-Apr-21 (No. 217-03353)	Scheduled Calibration Apr-23 Apr-23 Apr-24
alibration Equipment used (M&TE rimary Standards ower sensor R&S NRP33T leference 20 dB Attenuator fismatch combination leference Probe EX3DV4 (AE4	ID # SN: 100967 SN: BH9394 (20k) SN: 64224 / 360D SN: 7405 SN: 908	Cal Date (Certificate No.) 01-Apr-22 (No. 217-03526) 04-Apr-22 (No. 217-03527) 26-Apr-21 (No. 217-03527) 26-Apr-21 (No. EX3-7405_Jun22) 27-Jun-22 (No. DAE4-908_Jun22) 27-Jun-22 (No. DAE4-908_Jun22) Check Date (in house)	Scheduled Calibration Apr-23 Apr-23 Apr-24 Jun-23 Jun-23 Scheduled Check
All calibrations have been conducted Calibration Equipment used (M&TE of Primary Standards Power sensor R&S NRP33T Teference 20 dB Attenuator Mismatch combination Reference Probe EX3DV4 DAE4 Secondary Standards RF generator Anapico APSIN20G Network Analyzer Keysight E5063A	ID # SN: 100967 SN: BH9394 (20k) SN: 64224 / 360D SN: 7405 SN: 908	Cal Date (Certificate No.) 01-Apr-22 (No. 217-03526) 04-Apr-22 (No. 217-03527) 26-Apr-21 (No. 217-03353) 02-Jun-22 (No. EX3-7405_Jun22) 27-Jun-22 (No. DAE4-908_Jun22)	Scheduled Calibration Apr-23 Apr-23 Apr-24 Jun-23 Jun-23
Calibration Equipment used (M&TE Primary Standards Power sensor R&S NRP33T Telerence 20 dB Attenuator Mismatch combination Telerence Probe EX3DV4 2AE4 Secondary Standards RF generator Anapico APSIN20G	ID # SN: 100967 SN: 100967 SN: 8H9394 (20k) SN: 84224 / 360D SN: 7405 SN: 908	Cal Date (Certificate No.) 01-Apr-22 (No. 217-03526) 04-Apr-22 (No. 217-03527) 26-Apr-21 (No. 217-0353) 02-Jun-22 (No. EX3-7405_Jun22) 27-Jun-22 (No. DAE4-908_Jun22) Check Date (in house) 18-Dec-18 (in house check Dec-21)	Scheduled Calibration Apr-23 Apr-23 Apr-24 Jun-23 Jun-23 Scheduled Check In house check: Dec-23
calibration Equipment used (M&TE rimary Standards ower sensor R&S NRP33T leference 20 dB Attenuator fismatch combination leference Probe EX3DV4 (AE4 econdary Standards IF generator Anapico APSIN20G	ID # SN: 100967 SN: 100967 SN: 8H9394 (20k) SN: 84224 / 360D SN: 7405 SN: 908	Cal Date (Certificate No.) 01-Apr-22 (No. 217-03526) 04-Apr-22 (No. 217-03527) 26-Apr-21 (No. 217-0353) 02-Jun-22 (No. EX3-7405_Jun22) 27-Jun-22 (No. DAE4-908_Jun22) Check Date (in house) 18-Dec-18 (in house check Dec-21)	Scheduled Calibration Apr-23 Apr-23 Apr-24 Jun-23 Jun-23 Scheduled Check In house check: Dec-23
Calibration Equipment used (M&TE - trimary Standards Power sensor R&S NRP33T Teleference 20 dB Attenuator dismatch combination teleference Probe EX3DV4 DAE4 Recondary Standards Fe generator Anapico APSIN20G Retwork Analyzer Keysight E5063A	Critical for calibration)	Cal Date (Certificate No.) 01-Apr-22 (No. 217-03526) 04-Apr-22 (No. 217-03527) 26-Apr-21 (No. 217-0353) 02-Jun-22 (No. EX3-7405_Jun22) 27-Jun-22 (No. DAE4-908_Jun22) Check Date (in house) 18-Dec-18 (in house check Dec-21) 31-Oct-19 (in house check Oct-19)	Scheduled Calibration Apr-23 Apr-23 Apr-24 Jun-23 Jun-23 Scheduled Check In house check: Dec-23 In house check: Oct-22 Signature
Calibration Equipment used (M&TE Primary Standards Power sensor R&S NRP33T Telerence 20 dB Attenuator Mismatch combination Telerence Probe EX3DV4 2AE4 Secondary Standards RF generator Anapico APSIN20G	ID # SN: 100967 SN: BH9394 (20k) SN: 8H9394 (20k) SN: 84224 / 366D SN: 7405 SN: 908 ID # SN: 827 SN:MY54504221 Name	Cal Date (Certificate No.) 01-Apr-22 (No. 217-03526) 04-Apr-22 (No. 217-03527) 26-Apr-21 (No. 217-0353) 02-Jun-22 (No. EX3-7405_Jun22) 27-Jun-22 (No. DAE4-908_Jun22) Check Date (in house) 18-Dec-18 (in house check Dec-21) 31-Oct-19 (in house check Oct-19)	Scheduled Calibration Apr-23 Apr-23 Apr-24 Jun-23 Jun-23 Scheduled Check In house check: Dec-23 In house check: Oct-22

ilac-MR/

Certificate No: D6.5GHzV2-1006_Aug22

Calibration Laboratory of

Schmid & Partner

Page 1 of 6

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.

除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。 This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at http://www.sgs.com.tw/Terms-and-Conditions and for electronic format documents, subject to Terms and Conditions for Electronic Documents at http://www.sgs.com.tw/Terms-and-Conditions. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號 SGS Taiwan Ltd.

f (886-2) 2298-0488



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



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

Accreditation No.: SCS 0108

S

С

S

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 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:

IEC/IEEE 62209-1528, "Measurement Procedure For The Assessment Of Specific Absorption Rate a) 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: D6.5GHzV2-1006_Aug22

Page 2 of 6

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.

除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。 This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at http://www.sgs.com.tw/Terms-and-Conditions and for electronic format documents, subject to Terms and Conditions for Electronic Documents at http://www.sgs.com.tw/Terms-and-Conditions. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law

No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號 SGS Taiwan Ltd.



Measurement Conditions

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

DASY Version	DASY6	V16.0
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

	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	34.5 ± 6 %	6.19 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	29.2 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	292 W/kg ± 24.7 % (k=2)
SAR averaged over 8 cm ³ (8 g) of Head TSL	Condition	
SAR measured	100 mW input power	6.58 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	65.8 W/kg ± 24.4 % (k=2)
SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	100 mW input power	5.38 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	53.8 W/kg ± 24.4 % (k=2)

Certificate No: D6.5GHzV2-1006_Aug22

Page 3 of 6

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.

除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。 This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at http://www.sgs.com.tw/Terms-and-Conditions and for electronic format documents, subject to Terms and Conditions for Electronic Documents at http://www.sgs.com.tw/Terms-and-Conditions. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號 SGS Taiwan Ltd.



Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	45.7 Ω - 6.7 jΩ
Return Loss	- 21.6 dB

APD (Absorbed Power Density)

APD averaged over 1 cm ²	Condition	
APD measured	100 mW input power	291 W/m ²
APD measured	normalized to 1W	2910 W/m ² ± 29.2 % (k=2)
APD averaged over 4 cm ²	condition	
1 mm	100 mW input power	132 W/m ²
APD measured	the true indext he true	

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_Aug22

Page 4 of 6

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.

除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。 This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at http://www.sgs.com.tw/Terms-and-Conditions and for electronic format documents, subject to Terms and Conditions for Electronic Documents at http://www.sgs.com.tw/Terms-and-Conditions. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號 SGS Taiwan Ltd.

www.sqs.com.tw



4.8

DASY6 Validation Report for Head TSL

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

Device under	Test Properties							
Name, Manuf	acturer I	Dimensions	[mm] IN	/IEI	DUT Typ	e		
D6.5GHz		16.0 x 6.0 x	300.0 SI	N: 1006				
Exposure Con	ditions							
Phantom	Position, Test	t Band	Group,	Frequency	Conversion	TSL Cond.	TSL	
Section, TSL	Distance [mm]		UID	[MHz]	Factor	[S/m]	Permittivity	
Flat, HSL	5.00	Band	CW,	6500	5.50	6.19	34.5	
Hardware Set	αu							
Phantom		TSL		Probe, Cali	bration Date	DAE, Calik	pration Date	
MFP V8.0 Cen	ter - 1182	HBBL600-10	0000V6	EX3DV4 - SI	N7405, 2022-06-02	DAE4 Sn9	08, 2022-06-27	
Scan Setup				Measureme	ent Results			
			Zoom Scar	1			Zoom Scan	
Grid Extents	[mm]		22.0 x 22.0 x 22.0) Date		2	022-08-23, 10:39	
Grid Steps [n	nm]		3.4 x 3.4 x 1.4	psSAR1g [W/Kg]		29.2	
Sensor Surfa	ce [mm]		1.4	psSAR8g [W/Kg]		6.58	
Graded Grid			Yes	psSAR10g	[W/Kg]		5.38	
Grading Ratio	D		1.4	Power Dri	ft [dB]		0.01	
MAIA			N/A	Power Sca	aling		Disabled	
Surface Dete	ction		VMS + 6p	Scaling Fa	ctor [dB]			
Scan Method	ł		Measured	TSL Correc	ction		No correction	
				M2/M1 [9	6]		50.6	

Dist 3dB Peak [mm]



Certificate No: D6.5GHzV2-1006_Aug22

Page 5 of 6

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.

除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。 This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at http://www.sgs.com.tw/Terms-and-Conditions and for electronic format documents, subject to Terms and Conditions for Electronic Documents at http://www.sgs.com.tw/Terms-and-Conditions. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號 SGS Taiwan Ltd.



Report No. : TESA2209000372E5 Rev: 01 Page: 21 of 34



Impedance Measurement Plot for Head TSL



Page 6 of 6

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.

除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。 This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at http://www.sgs.com.tw/Terms-and-Conditions and for electronic format documents, subject to Terms and Conditions for Electronic Documents at http://www.sgs.com.tw/Terms-and-Conditions. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號 SGS Taiwan Ltd.

f (886-2) 2298-0488

www.sqs.com.tw



Engineering AG eughausstrasse 43, 8004 Zurich, S	O f Switzerland		Service suisse d'étalonnage Servizio svizzero di taratura
Accredited by the Swiss Accreditation The Swiss Accreditation Service is Aultilateral Agreement for the reco	one of the signatorie	es to the EA	Accreditation No.: SCS 0108
Client SGS (Auden)		apartmet a co	No: D7GHzV2-1007_Aug22
CALIBRATION CE	RIFICATI	E	
Object I	D7GHzV2 - SN:1	1007	
	QA CAL-22.v6 Calibration Proce	edure for SAR Validation Source	es between 3-10 GHz
Calibration date:	August 24, 2022		
Calibration Equipment used (M&TE of	critical for calibration)		
Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power sensor R&S NRP33T	ID # SN: 100967 SN: BH9394 (20k)	Cal Date (Certificate No.) 01-Apr-22 (No. 217-03526) 04-Apr-22 (No. 217-03527)	Scheduled Calibration Apr-23 Apr-23
Power sensor R&S NRP33T Reference 20 dB Attenuator Mismatch combination	SN: 100967 SN: BH9394 (20k) SN: 84224 / 360D	01-Apr-22 (No. 217-03526) 04-Apr-22 (No. 217-03527) 26-Apr-21 (No. 217-03353)	Apr-23 Apr-23 Apr-24
Power sensor R&S NRP33T Reference 20 dB Attenuator Mismatch combination Reference Probe EX3DV4	SN: 100967 SN: BH9394 (20k)	01-Apr-22 (No. 217-03526) 04-Apr-22 (No. 217-03527)	Apr-23 Apr-23
Power sensor R&S NRP33T Reference 20 dB Attenuator Mismatch combination Reference Probe EX3DV4 DAE4	SN: 100967 SN: BH9394 (20k) SN: 84224 / 360D SN: 7405 SN: 908	01-Apr-22 (No. 217-03526) 04-Apr-22 (No. 217-03527) 26-Apr-21 (No. 217-03353) 02-Jun-22 (No. EX3-7405_Jun22) 27-Jun-22 (No. DAE4-908_Jun22)	Apr-23 Apr-23 Apr-24 Jun-23 Jun-23
Power sensor R&S NRP33T Reference 20 dB Attenuator Mismatch combination Reference Probe EX3DV4 DAE4 Secondary Standards	SN: 100967 SN: BH9394 (20k) SN: 84224 / 360D SN: 7405	01-Apr-22 (No. 217-03526) 04-Apr-22 (No. 217-03527) 26-Apr-21 (No. 217-03353) 02-Jun-22 (No. EX3-7405_Jun22)	Apr-23 Apr-23 Apr-24 Jun-23
Power sensor R&S NRP33T Reference 20 dB Attenuator Mismatch combination Reference Probe EX3DV4 DAE4 Secondary Standards RF generator Anapico APSIN20G	SN: 100967 SN: BH9394 (20k) SN: 84224 / 360D SN: 7405 SN: 908	01-Apr-22 (No. 217-03526) 04-Apr-22 (No. 217-03527) 26-Apr-21 (No. 217-03353) 02-Jun-22 (No. EX3-7405_Jun22) 27-Jun-22 (No. DAE4-908_Jun22) Check Date (in house)	Apr-23 Apr-23 Apr-24 Jun-23 Jun-23 Scheduled Check
Power sensor R&S NRP33T Reference 20 dB Attenuator Mismatch combination Reference Probe EX3DV4 DAE4 Secondary Standards RF generator Anapico APSIN20G Network Analyzer Keysight E5063A	SN: 100967 SN: BH9394 (20k) SN: 84924 / 360D SN: 7405 SN: 908 ID # SN: 827 SN:MY54504221 Name	01-Apr-22 (No. 217-03526) 04-Apr-22 (No. 217-03527) 26-Apr-21 (No. 217-0353) 02-Jun-22 (No. EX3-7405_Jun22) 27-Jun-22 (No. DAE4-908_Jun22) Check Date (in house) 18-Dec-18 (in house check Dec-21) 31-Oct-19 (in house check Oct-19) Function	Apr-23 Apr-23 Apr-24 Jun-23 Jun-23 Scheduled Check In house check: Dec-23
Power sensor R&S NRP33T Reference 20 dB Attenuator Mismatch combination Reference Probe EX3DV4 DAE4 Secondary Standards RF generator Anapico APSIN20G Network Analyzer Keysight E5063A	SN: 100967 SN: BH9394 (20k) SN: 84224 / 360D SN: 7405 SN: 908	01-Apr-22 (No. 217-03526) 04-Apr-22 (No. 217-03527) 26-Apr-21 (No. 217-0353) 02-Jun-22 (No. EX3-7405_Jun22) 27-Jun-22 (No. DAE4-908_Jun22) Check Date (in house) 18-Dec-18 (in house check Dec-21) 31-Oct-19 (in house check Oct-19)	Apr-23 Apr-23 Apr-24 Jun-23 Jun-23 Scheduled Check In house check: Dec-23 In house check: Oct-22
Primary Standards Prower sensor R&S NRP33T Reference 20 dB Attenuator Mismatch combination Reference Probe EX3DV4 DAE4 Sacondary Standards RF generator Anapico APSIN20G Network Analyzer Keysight E5063A Calibrated by: Approved by:	SN: 100967 SN: BH9394 (20k) SN: 84924 / 360D SN: 7405 SN: 908 ID # SN: 827 SN:MY54504221 Name	01-Apr-22 (No. 217-03526) 04-Apr-22 (No. 217-03527) 26-Apr-21 (No. 217-0353) 02-Jun-22 (No. EX3-7405_Jun22) 27-Jun-22 (No. DAE4-908_Jun22) Check Date (in house) 18-Dec-18 (in house check Dec-21) 31-Oct-19 (in house check Oct-19) Function	Apr-23 Apr-23 Apr-24 Jun-23 Jun-23 Scheduled Check In house check: Dec-23 In house check: Oct-22
Power sensor R&S NRP33T Reference 20 dB Attenuator Mismatch combination Reference Probe EX3DV4 DAE4 Secondary Standards RF generator Anapico APSIN20G Network Analyzer Keysight E5063A Calibrated by:	SN: 100967 SN: BH9394 (20k) SN: 84224 / 360D SN: 7405 SN: 908 ID # SN: 827 SN:MY54504221 Name Leif Klysner	01-Apr-22 (No. 217-03526) 04-Apr-22 (No. 217-03527) 26-Apr-21 (No. 217-0353) 02-Jun-22 (No. EX3-7405_Jun22) 27-Jun-22 (No. DAE4-908_Jun22) 27-Jun-22 (No. DAE4-908_Jun22) Check Date (in house) 18-Dec-18 (in house check Dec-21) 31-Oct-19 (in house check Dec-21) 31-Oct-19 (in house check Oct-19) Function Laboratory Technician	Apr-23 Apr-23 Apr-24 Jun-23 Jun-23 Scheduled Check In house check: Dec-23 In house check: Oct-22

Certificate No: D7GHzV2-1007_Aug22 Page 1 of 6

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.

Unless otherwise stated the results shown in this test report reter only to the sample(s) tested and such sample(s) are retained for 90 days only. Mir#JSfabign , Lt&Batement and the state report reter only to the sample(s) tested and such sample(s) are retained for 90 days only. This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at http://www.sgs.com.tw/Terms-and-Conditions and for electronic format documents, subject to Terms and Conditions for Electronic Documents at http://www.sgs.com.tw/Terms-and-Conditions and for electronic format defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fulleest extent of the law. prosecuted to the fullest extent of the law.

No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號 SGS Taiwan Ltd.

f (886-2) 2298-0488



Report No. : TESA2209000372E5 Rev: 01 Page: 23 of 34

Calibration Laboratory of Schmid & Partner Engineering AG aughausstrasse 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



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

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_Aug22

Page 2 of 6

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.

除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。 This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at http://www.sgs.com.tw/Terms-and-Conditions and for electronic format documents, subject to Terms and Conditions for Electronic Documents at http://www.sgs.com.tw/Terms-and-Conditions. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號 SGS Taiwan Ltd.



Measurement Conditions

onfiguration, as far as not given on page 1 DASY system

DASY Version	DASY6	V16.0	
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	33.6 ± 6 %	6.81 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	27.8 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	278 W/kg ± 24.7 % (k=2)
SAR averaged over 8 cm ³ (8 g) of Head TSL	condition	
SAR measured	100 mW input power	6.03 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	60.2 W/kg ± 24.4 % (k=2)
SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	100 mW input power	4.94 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	49.3 W/kg ± 24.4 % (k=2)

Certificate No: D7GHzV2-1007 Aug22

Page 3 of 6

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.

除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。 This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at http://www.sgs.com.tw/Terms-and-Conditions and for electronic format documents, subject to Terms and Conditions for Electronic Documents at http://www.sgs.com.tw/Terms-and-Conditions. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號 SGS Taiwan Ltd.

f (886-2) 2298-0488



Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	52.1 Ω - 6.1 jΩ	_
Return Loss	- 24.0 dB	

APD (Absorbed Power Density)

APD averaged over 1 cm ²	Condition	
APD measured	100 mW input power	277 W/m ²
APD measured	normalized to 1W	2770 W/m2 ± 29.2 % (k=2)
APD averaged over 4 cm ²	condition	
APD averaged over 4 cm ² APD measured	condition 100 mW input power	121 W/m ²

*The reported APD values have been derived using 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.

SPEAG

Additional EUT Data

Manufactured by			
Manufactured by			

Certificate No: D7GHzV2-1007_Aug22

Page 4 of 6

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.

除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。 This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at http://www.sgs.com.tw/Terms-and-Conditions and for electronic format documents, subject to Terms and Conditions for Electronic Documents at http://www.sgs.com.tw/Terms-and-Conditions. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號 SGS Taiwan Ltd.

www.sqs.com.tw



DASY6 Validation Report for Head TSL

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

Device under	Test Propertie	es					
Name, Manufa	acturer	Dimension	s [mm] If	VIEI	DUT Typ	e	
D7GHz		14.0 x 6.0 :	x 297.0 S	N: 1007	-		
Exposure Cond	ditions						
Phantom	Position, 1	Test Band	Group,	Frequency	Conversion	TSL Cond.	TSL
Section, TSL	Distance [mm]		UID	[MHz]	Factor	[S/m]	Permittivity
Flat, HSL	5.00	Band	CW,	7000	5.80	6.81	33.6
Hardware Setu	an						
Phantom		TSL		Probe, Calil	bration Date	DAE. Calib	oration Date
MFP V8.0 Cent	ter - 1182	HBBL600-10	0000V6		N7405, 2022-06-02		08, 2022-06-27
Scan Setup				Measureme	ent Results		
			Zoom Scar	1			Zoom Scan
Grid Extents	[mm]		22.0 x 22.0 x 22.0) Date		2	022-08-24, 09:46
Grid Steps [m	nm]		3.0 x 3.0 x 1.2	psSAR1g [W/Kg]		27.8
Sensor Surfac	ce [mm]		1.4	psSAR8g [W/Kg]		6.03
Graded Grid			Ye	s psSAR10g	[W/Kg]		4.94
Grading Ratio	0		1.3	Power Drif	ft [dB]		0.05
MAIA			N/4	Power Sca	ling		Disabled
Surface Deter	ction		VMS + 6	Scaling Fac	ctor [dB]		
Scan Method			Measured	TSL Correc	tion		No correction
				M2/M1 [%	6]		52.1
				Dist 3dB P			4.2



Certificate No: D7GHzV2-1007_Aug22

Page 5 of 6

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.

除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。 This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at http://www.sgs.com.tw/Terms-and-Conditions and for electronic format documents, subject to Terms and Conditions for Electronic Documents at http://www.sgs.com.tw/Terms-and-Conditions. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號 SGS Taiwan Ltd.

t (886-2) 2299-3279 台灣檢驗科技股份有限公司

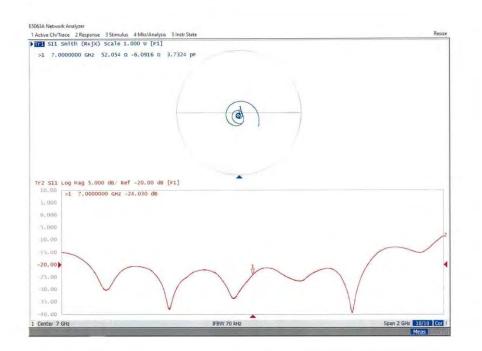
f (886-2) 2298-0488

```
www.sgs.com.tw
```



Report No. : TESA2209000372E5 Rev: 01 Page: 27 of 34

Impedance Measurement Plot for Head TSL



Certificate No: D7GHzV2-1007_Aug22

Page 6 of 6

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.

除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。 This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at http://www.sgs.com.tw/Terms-and-Conditions and for electronic format documents, subject to Terms and Conditions for Electronic Documents at http://www.sgs.com.tw/Terms-and-Conditions. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號 SGS Taiwan Ltd.

t (886-2) 2299-3279 台灣檢驗科技股份有限公司

f (886-2) 2298-0488

www.sqs.com.tw



Accredited by the Swiss Accredita The Swiss Accreditation Servic	e is one of the signat	tories to the EA	reditation No.: SCS 0108
Aultilateral Agreement for the r	ecognition of calibrat		5G-Veri10-1021_Jan22
CALIBRATION	CERTIFICA	TE	
Object	5G Verificatio	on Source 10 GHz - SN: 1021	
Calibration procedure(s)	QA CAL-45.v Calibration pr	3 ocedure for sources in air above 6 GH	z
Calibration date:	January 24, 2	2022	
		ice probability are given on the following pages and a pratory facility: environment temperature $(22 \pm 3)^\circ$ C and	
All calibrations have been condu Calibration Equipment used (M& Primary Standards Reference Probe EUmmWV3	cted in the closed labo	pratory facility: environment temperature (22 \pm 3)°C at	
All calibrations have been condu Calibration Equipment used (M& Primary Standards Reference Probe EUmmWV3 DAE4ip	cted in the closed labo TE critical for calibratic ID # SN: 9374	oratory facility: environment temperature (22 ± 3)°C a on) Cal Date (Certificate No.) 2021-12-21(No. EUmmWV3-9374_Dec21)	nd humidity < 70%. Scheduled Calibration Dec-22
All calibrations have been condu Calibration Equipment used (M& Primary Standards Reference Probe EUmmWV3 DAE4ip	cted in the closed labo TE critical for calibratic ID # SN: 9374 SN: 1602	vratory facility: environment temperature (22 ± 3)°C ar on) Cal Date (Certificate No.) 2021-12-21(No. EUmmWV3-9374_Dec21) 2021-06-25 (No. DAE4ip-1602_Jun21)	nd humidity < 70%. Scheduled Calibration Dec-22 Jun-22
All calibrations have been condu Calibration Equipment used (M& Primary Standards Reference Probe EUmmWV3 DAE4ip Secondary Standards	cted in the closed labo TE critical for calibratic ID # SN: 9374 SN: 1602	vratory facility: environment temperature (22 ± 3)°C ar on) Cal Date (Certificate No.) 2021-12-21(No. EUmmWV3-9374_Dec21) 2021-06-25 (No. DAE4ip-1602_Jun21)	nd humidity < 70%. Scheduled Calibration Dec-22 Jun-22
	Cted in the closed labo TE critical for calibratic ID # SN: 9374 SN: 1602	vratory facility: environment temperature (22 ± 3)°C at 2n) Cal Date (Certificate No.) 2021-12-21(No. EUmmWV3-9374_Dec21) 2021-06-25 (No. DAE4ip-1602_Jun21) Check Date (in house) Function	nd humidity < 70%. Scheduled Calibration Dec-22 Jun-22 Scheduled Check

Certificate No: 5G-Veri10-1021_Jan22 Page 1 of 7

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.

除非另有說明,此報告結果僅對測試之樣品負責。同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。 This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at http://www.sgs.com.tw/Terms-and-Conditions and for electronic format documents, subject to Terms and Conditions for Electronic Documents at http://www.sgs.com.tw/Terms-and-Conditions. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號 SGS Taiwan Ltd.



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



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

S

S

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

CW Continuous wave

Calibration is Performed According to the Following Standards

- Internal procedure QA CAL-45-5Gsources
- IEC TR 63170 ED1, "Measurement procedure for the evaluation of power density related to human exposure to radio frequency fields from wireless communication devices operating between 6 GHz and 100 GHz", January 2018

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 farfield 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 + λ /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/m²) 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-Veri10-1021 Jan22 Page 2 of 7

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.

除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。 This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at http://www.sgs.com.tw/Terms-and-Conditions and for electronic format documents, subject to Terms and Conditions for Electronic Documents at http://www.sgs.com.tw/Terms-and-Conditions. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law

No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號 SGS Taiwan Ltd.

f (886-2) 2298-0488



Measurement Conditions

DASY Version	cDASY6 Module mmWave	V2.4
Phantom	5G Phantom	
Distance Horn Aperture - plane	10 mm	
XY Scan Resolution	dx, dy = 7.5 mm	
Number of measured planes	2 (10mm, 10mm + λ/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+, psPDmod+) (W/m ²)		Uncertainty (k = 2)
		A	6	1 cm ²	4 cm ²	
10 mm	86.1	148	1.27 dB	55.2	51.7	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 cm ²	4 cm ²	
10 mm	86.1	148	1.27 dB	55.2	51.5	1.28 dB

¹ Assessed ohmic and mismatch loss plus numerical offset: 0.55 dB

Certificate No: 5G-Veri10-1021 Jan22 Page 3 of 7

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.

除非另有說明,此報告結果僅對測試之樣品負責、同時此樣品僅保留的天。本報告未經本公司書面許可,不可部份複製。 This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at http://www.sgs.com.tw/Terms-and-Conditions and for electronic format documents issued by the Company subject to its General Conductors and http://www.sgs.com.tw/Terms-and-Conditions. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號 SGS Taiwan Ltd.

f (886-2) 2298-0488



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

Device under Test			1000		
Name, Manufacturer	Dimensions (mm	1	IMEI	DUT Type	
5G Verification Source	10 GHz 100.0 x 100.0 x 1	172.0	SN: 1021	-	
Exposure Conditio	ins				
Phantom Section	Position, Test Distance [mm]	Band	Group,	Frequency [MHz], Channel Number	Conversion Factor
	10.0 mm	Validation band	CW	10000.0.	1.0

Hardware Setup

Medium Air mmWave Phantom - 1002

Scan Setup

Grid Extents [mm] Grid Steps [lambda] Sensor Surface [mm] MAIA

5G Scar
120.0 x 120.0
0.25 x 0.25
10.0
MAIA not used

Εl	Jmm\	NV3 -	SN9374	F1-5	5GH
20	21-1	2-21			

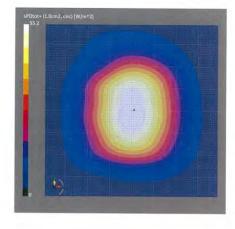
Measurement Results

Date Avg. Area [cm²] psPDn+ [W/m²] psPDtot+ [W/m²] psPDmod+ [W/m²] E_{max} [V/m] Power Drift [dB]

5G Scan 2022-01-24, 11:01 1.00 55.0 55.2 55.4 148 0.01

DAE, Calibration Date

DAE4ip Sn1602, 2021-06-25



Certificate No: 5G-Veri10-1021 Jan22

Page 4 of 7

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.

除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。 This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at http://www.sgs.com.tw/Terms-and-Conditions and for electronic format documents, subject to Terms and Conditions for Electronic Documents at http://www.sgs.com.tw/Terms-and-Conditions. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號 SGS Taiwan Ltd.

f (886-2) 2298-0488

```
www.sqs.com.tw
```



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

Name, Manufacturer	Dimensions [mn	1]	IMEI	DUT Type	
G Verification Source	10 GHz 100.0 x 100.0 x 1	172.0	SN: 1021	-	
xposure Conditio	ns				
Phantom Section	Position, Test Distance [mm]	Band	Group,	Frequency [MHz], Channel Number	Conversion Factor
- G -	10.0 mm	Validation band	cw	10000.0, 10000	1.0

Hardware Setup Phan Medium Probe, Calibration Date DAE, Calibration Date mmWave Phantom - 1002 Air EUmmWV3 - SN9374_F1-55GHz, 2021-12-21 DAE4ip Sn1602, 2021-06-25

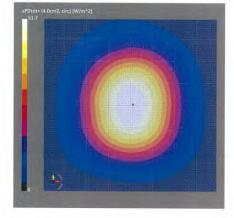
Scan Setup

Grid Extents [mm] Grid Steps [lambda] Sensor Surface [mm] MAIA

5G Scar
120.0 x 120.0
0.25 x 0.25
10.0
MAIA not used

Measurement Results
Date
Avg. Area [cm ²]
psPDn+ [W/m ²]
psPDtot+ [W/m ²]
psPDmod+ [W/m ²]
Emax [V/m]
Power Drift [dB]





Certificate No: 5G-Veri10-1021_Jan22

Page 5 of 7

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.

除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。 This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at http://www.sgs.com.tw/Terms-and-Conditions and for electronic format documents, subject to Terms and Conditions for Electronic Documents at http://www.sgs.com.tw/Terms-and-Conditions. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號 SGS Taiwan Ltd.

f (886-2) 2298-0488

www.sgs.com.tw



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

Device under Test	Properties				
Name, Manufacturer	Dimensions [mm	1]	IMEI	DUT Type	
5G Verification Source	10 GHz 100.0 x 100.0 x 1	172.0	SN: 1021		
Exposure Conditio	ns				
Phantom Section	Position, Test Distance [mm]	Band	Group,	Frequency [MHz], Channel Number	Conversion Facto
5G -	10.0 mm	Validation band	CW	10000.0, 10000	1.0

Hardware Setup

Medium Phantom mmWave Phantom - 1002 Air

Scan Setup

Grid Extents [mm] Grid Steps [lambda] Sensor Surface [mm] MAIA

5G Scan
120.0 x 120.0
0.25 x 0.25
10.0
MAIA not used

EUmmWV3 - SN9374_F1-55GHz, 2021-12-21 Measurement Results

Probe, Calibration Date

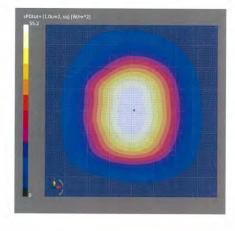
Date Avg. Area [cm²] Avg. Area [cm⁻] psPDn+ [W/m²] psPDtot+ [W/m²] psPDmod+ [W/m²] E_{max} [V/m] Power Drift [dB]

5G Scan 2022-01-24, 11:01 1.00 55.0 55.2 55.4 148

0.01

DAE, Calibration Date

DAE4ip Sn1602, 2021-06-25



Certificate No: 5G-Veri10-1021_Jan22

Page 6 of 7

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.

除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。 This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at http://www.sgs.com.tw/Terms-and-Conditions and for electronic format documents, subject to Terms and Conditions for Electronic Documents at http://www.sgs.com.tw/Terms-and-Conditions. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號 SGS Taiwan Ltd.

f (886-2) 2298-0488



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

Name, Manufacturer 5G Verification Source 10 G	Dimensions [mm Hz 100.0 x 100.0 x 1	·	IMEI	DUT Type	
oo vermeadon source 10 G	Hz 100.0 X 100.0 X 1	172.0	SN: 1021		
Exposure Conditions					
Phantom Section	Position, Test Distance	Band	Group,	Frequency [MHz],	Conversion Factor
	[mm]			Channel Number	
5G -	10.0 mm	Validation band	CW	10000.0.	1.0
				10000	
Hardware Setup					
Phantom	Medium		Proba Calib		C. D. H

mmWave Phantom - 1002	Air	EUmmWV3 - SN9374_F1-55GHz, 2021-12-21	DAE, calibration Date DAE4ip Sn1602, 2021-06-25	

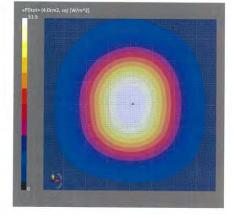
Scan Setup

Grid Extents [mm] Grid Steps [lambda] Sensor Surface [mm] MAIA

	5G Scan
	120.0 x 120.0
	0.25 x 0.25
	10.0
1	MAIA not used

Measurement Results
Date
Avg. Area [cm ²]
psPDn+ [W/m ²]
psPDtot+ [W/m ²]
psPDmod+ [W/m ²]
Emax [V/m]
Power Drift [dB]





Certificate No: 5G-Veri10-1021_Jan22 Page 7 of 7

- End of report -

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.

除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。 This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at http://www.sgs.com.tw/Terms-and-Conditions and for electronic format documents, subject to Terms and Conditions for Electronic Documents at http://www.sqs.com.tw/Terms-and-Conditions. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.