Appendix G. Dipole Calibration Data

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

S Schweizerischer Kalibrierdienst
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S Swiss Calibration Service

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The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 0108

Client	HCT Gyeonggi-do, Republic of Korea	Certificate No.	D2450V2-1049_Mar25

CALIBRATION CERTIFICATE

Object	D2450V2 - SN: 1049
Calibration procedure(s)	QA CAL-05.v12 Calibration Procedure for SAR Validation Sources between 0.7 - 3 GHz
Calibration date	March 13, 2025

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID	Cal Date (Certificate No.)	Scheduled Cal
Power Sensor R&S NRP-33T	SN: 100967	28-Mar-24 (No. 217-04038)	Mar-25
Power Sensor R&S NRP18A	SN: 101859	06-Feb-25 (No. 4030A315009541)	Feb-26
Spectrum Analyzer R&S FSV40	SN: 101832	29-Jan-25 (No. 4030A315009658)	Jan-26
Mismatch; Short [S4188] Attenuator [S4423]	SN: 1152	28-Mar-24 (No. 217-04050)	Mar-25
OCP DAK-12	SN: 1016	24-Sept-24 (No. OCP-DAK12-1016_Sep24)	Sep-25
OCP DAK-3.5	SN: 1249	23-Sept-24 (No. OCP-DAK3.5-1249_Sep24)	Sep-25
Reference Probe EX3DV4	SN: 7349	10-Jan-25 (No. EX3-7349_Jan25)	Jan-26
DAE4ip	SN: 1836	28-Oct-24 (No. DAE4ip-1836_Oct24)	Oct-25

Secondary Standards	ID	Check Date (in house)	Scheduled Check
ACAD Source Box	SN: 1000	28-May-24 (No. 675-ACAD_Source_Box-240528)	May-25
Signal Generator R&S SMB100A	SN: 182081	28-May-24 (No. 675-CAL16-S4588-240528)	May-25
Mismatch; SMA	SN: 1102	22-May-24 (No. 675-Mismatch_SMA-240522)	May-25

	Name	Function	Signature
Calibrated by	Krešimir Franjić	Laboratory Technician	
Approved by	Sven Kühn	Technical Manager	

Issued: March 14, 2025

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

결재	담당자	확인자
직위/성명	DC 김경환	부장 서정호
일자	2025.04.01	2025.04.01

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Accreditation No.: SCS 0108

Glossary

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards

- IEC/IEEE 62209-1528,"Measurement Procedure For The Assessment Of Specific Absorption Rate Of Human Exposure To Radio Frequency Fields From Hand-Held And Body-Worn Wireless Communication Devices - Part 1528: Human Models, Instrumentation And Procedures (Frequency Range of 4 MHz to 10 GHz)", October 2020.
- KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation

- 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.
- *Electrical Delay*: One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured*: SAR measured at the stated antenna input power.
- *SAR normalized*: SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters*: The measured TSL parameters are used to calculate the nominal SAR result.

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

Measurement Conditions

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

DASY Version	DASY8 Module SAR	16.4.0
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with spacer
Zoom Scan Resolution	dx, dy = 5mm, dz = 1.5mm	Graded Ratio = 1.5 mm (Z direction)
Frequency	2450MHz ±1MHz	

HSL parameters at 2450 MHz

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal HSL parameters	22.0 °C	39.2	1.80 mho/m
Measured HSL parameters	(22.0 ±0.2)°C	37.9 ±6%	1.86 mho/m ±6%
HSL temperature change during test	< 0.5 °C		

SAR result with HSL at 2450 MHz

SAR averaged over 1 cm³ (1 g) of HSL	Condition	
SAR for nominal HSL parameters	24 dBm input power	13.2 W/kg
SAR for nominal HSL parameters	normalized to 1W	52.6 W/kg ±17.0% (k = 2)

SAR averaged over 10 cm³ (10 g) of HSL	Condition	
SAR for nominal HSL parameters	24 dBm input power	6.18 W/kg
SAR for nominal HSL parameters	normalized to 1W	24.6 W/kg ±16.5% (k = 2)

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with HSL at 2450 MHz

Impedance	49.5 Ω + 8.6 jΩ
Return Loss	-21.2 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.16 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

D2450V2 - SN: 1049 March 13, 2025

System Performance Check Report

Summary

Dipole	Frequency [MHz]	TSL	Power [dBm]
D2450V2 – SN1049	2450	HSL	24

Exposure Conditions

Phantom Section, TSL	Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat	10		CW, 0--	2450, 0	7.06	1.86	37.9

Hardware Setup

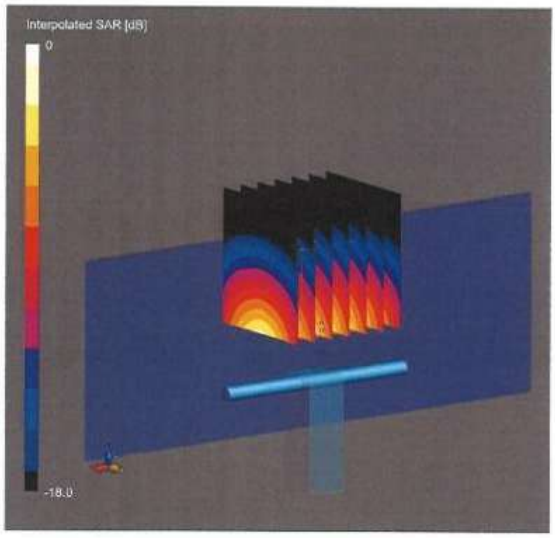
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
MFP V8.0 Center	HSL, 2025-03-13	EX3DV4 – SN7349, 2025-01-10	DAE4ip Sn1836, 2024-10-28

Scans Setup

	Zoom Scan
Grid Extents [mm]	30 x 30 x 30
Grid Steps [mm]	5.0 x 5.0 x 1.5
Sensor Surface [mm]	1.4
Graded Grid	Yes
Grading Ratio	1.5
MAIA	N/A
Surface Detection	VMS + 6p
Scan Method	Measured

Measurement Results

	Zoom Scan
Date	2025-03-13
psSAR1g [W/Kg]	13.2
psSAR10g [W/Kg]	6.18
Power Drift [dB]	0.02
Power Scaling	Disabled
Scaling Factor [dB]	
TSL Correction	Positive / Negative



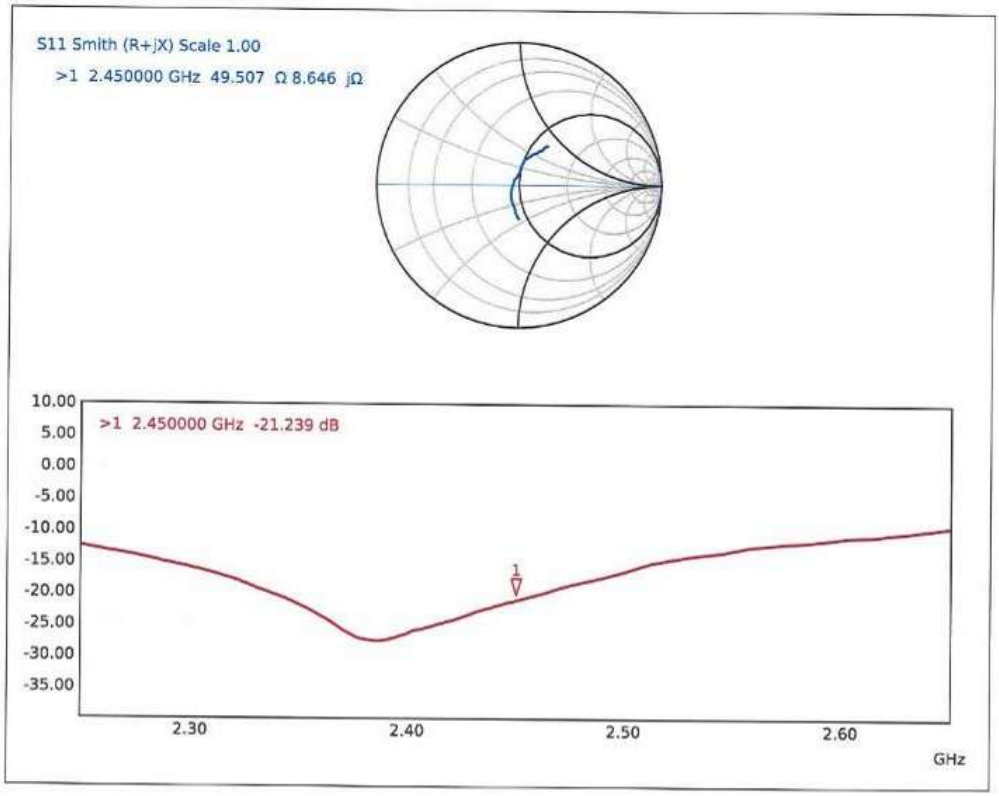
0 dB = 27.4 W/Kg

Certificate No: D2450V2-1049_Mar25 Page 5 of 6

D2450V2 - SN: 1049

March 13, 2025

Impedance Measurement Plot for HSL



Appendix: Transfer Calibration at Four Validation Locations on SAM Head[1]

Evaluation Condition

Phantom	SAM Head Phantom	For usage with cSAR3DV2-R/L

SAR result with SAM Head (Top ≅ C0)

SAR averaged over 1 cm³ (1 g) of HSL	Condition	
SAR for nominal HSL parameters	normalized to 1W	**56.1 W/kg ± 17.5 % (k=2)**

SAR averaged over 10 cm³ (10 g) of HSL	condition	
SAR for nominal HSL parameters	normalized to 1W	**26.1 W/kg ± 16.9 % (k=2)**

SAR result with SAM Head (Mouth ≅ F90)

SAR averaged over 1 cm³ (1 g) of HSL	Condition	
SAR for nominal HSL parameters	normalized to 1W	**57.2 W/kg ± 17.5 % (k=2)**

SAR averaged over 10 cm³ (10 g) of HSL	condition	
SAR for nominal HSL parameters	normalized to 1W	**27.4 W/kg ± 16.9 % (k=2)**

SAR result with SAM Head (Neck ≅ H0)

SAR averaged over 1 cm³ (1 g) of HSL	Condition	
SAR for nominal HSL parameters	normalized to 1W	**53.9 W/kg ± 17.5 % (k=2)**

SAR averaged over 10 cm³ (10 g) of HSL	condition	
SAR for nominal HSL parameters	normalized to 1W	**25.0 W/kg ± 16.9 % (k=2)**

SAR result with SAM Head (Ear ≅ D90)

SAR averaged over 1 cm³ (1 g) of HSL	Condition	
SAR for nominal HSL parameters	normalized to 1W	**34.5 W/kg ± 17.5 % (k=2)**

SAR averaged over 10 cm³ (10 g) of HSL	condition	
SAR for nominal HSL parameters	normalized to 1W	**17.4 W/kg ± 16.9 % (k=2)**

[1] Additional assessments outside the current scope of SCS 0108

Certificate No: D2450V2-1049_Mar25

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Accreditation No.: SCS 0108

Client	HCT Gyeonggi-do, Republic of Korea	Certificate No.	D5GHzV2-1253_Sep25

CALIBRATION CERTIFICATE

Object	D5GHzV2 - SN: 1253
Calibration procedure(s)	QA CAL-22.v8 Calibration Procedure for SAR Validation Sources between 3 - 10 GHz
Calibration date	September 26, 2025

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID	Cal Date (Certificate No.)	Scheduled Cal
Power Sensor R&S NRP-33T	SN: 100967	30-Apr-25 (No. 1020-300791789)	Apr-26
Power Sensor R&S NRP18A	SN: 101859	06-Feb-25 (No. 4030A315009541)	Feb-26
Spectrum Analyzer R&S FSV40	SN: 101832	29-Jan-25 (No. 4030A315009658)	Jan-26
3.5mm mismatch combination	SN: 1152	24-Mar-25 (No. 217-04293)	Mar-26
OCP DAK-12	SN: 1016	16-Sept-25 (No. OCP-DAK12-1016_Sep25)	Sep-26
OCP DAK-3.5	SN: 1249	16-Sept-25 (No. OCP-DAK3.5-1249_Sep25)	Sep-26
Reference Probe EX3DV4	SN: 7349	10-Jan-25 (No. EX3-7349_Jan25)	Jan-26
DAE4ip	SN: 1836	04-Sep-25 (No. DAE4ip-1836_Sep25)	Sep-26

Secondary Standards	ID	Check Date (in house)	Scheduled Check
ACAD Setup 1	SN: 1000	27-May-25 (No. 675-ACAD_Source_Box-250527)	May-26
Signal Generator R&S SMB100A	SN: 182081	27-May-25 (No. 675-CAL16-S4588-250527)	May-26
Mismatch; SMA	SN: 1102	24-Apr-25 (No. 675-Mismatch_SMA-250424)	Apr-26
OCP DAK-12	SN: 1029	27-Feb-25 (No. OCP-DAK12-1029_Feb25)	Feb-26
OCP DAK-3.5	SN: 1336	09-Dec-24 (No. OCP-DAK3.5-1336_Dec24)	Dec-25

	Name	Function	Signature
Calibrated by	Krešimir Franjić	Laboratory Technician	
Approved by	Sven Kühn	Technical Manager	

Issued: September 29, 2025

결재	담당자	확인자
	김지훈	
직위/성명	DL / 김지훈	팀장 / 권정
일자	2025/10/17	2025.10.17

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Accreditation No.: SCS 0108

Glossary

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards

- IEC/IEEE 62209-1528,"Measurement Procedure For The Assessment Of Specific Absorption Rate Of Human Exposure To Radio Frequency Fields From Hand-Held And Body-Worn Wireless Communication Devices - Part 1528: Human Models, Instrumentation And Procedures (Frequency Range of 4 MHz to 10 GHz)", October 2020.
- KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation

- 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.
- *Electrical Delay*: One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured*: SAR measured at the stated antenna input power.
- *SAR normalized*: SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters*: The measured TSL parameters are used to calculate the nominal SAR result.

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

Measurement Conditions

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

DASY Version	DASY8 Module SAR	17.0.2
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with spacer
Zoom Scan Resolution	dx, dy = 4mm, dz = 1.4mm	Graded Ratio = 1.4 mm (Z direction)
Frequency	5250MHz ±1MHz 5600MHz ±1MHz 5750MHz ±1MHz 5800MHz ±1MHz	

HSL parameters at 5250 MHz

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal HSL parameters	22.0 °C	35.9	4.71 mho/m
Measured HSL parameters	(22.0 ±0.2)°C	36.4 ±6%	4.62 mho/m ±6%
HSL temperature change during test	< 0.5 °C		

SAR result with HSL at 5250 MHz

SAR averaged over 1 cm³ (1 g) of HSL	Condition	
SAR for nominal HSL parameters	20 dBm input power	7.92 W/kg
SAR for nominal HSL parameters	normalized to 1W	79.2 W/kg ±19.9% (k = 2)

SAR averaged over 10 cm³ (10 g) of HSL	Condition	
SAR for nominal HSL parameters	20 dBm input power	2.26 W/kg
SAR for nominal HSL parameters	normalized to 1W	22.6 W/kg ±19.5% (k = 2)

HSL parameters at 5600 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal HSL parameters	22.0 °C	35.5	5.07 mho/m
Measured HSL parameters	(22.0 ±0.2)°C	35.8 ±6%	5.02 mho/m ±6%
HSL temperature change during test	< 0.5 °C		

SAR result with HSL at 5600 MHz

SAR averaged over 1 cm³ (1 g) of HSL	Condition	
SAR for nominal HSL parameters	20 dBm input power	8.15 W/kg
SAR for nominal HSL parameters	normalized to 1W	81.5 W/kg ±19.9% (k = 2)

SAR averaged over 10 cm³ (10 g) of HSL	Condition	
SAR for nominal HSL parameters	20 dBm input power	2.34 W/kg
SAR for nominal HSL parameters	normalized to 1W	23.4 W/kg ±19.5% (k = 2)

HSL parameters at 5750 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal HSL parameters	22.0 °C	35.4	5.22 mho/m
Measured HSL parameters	(22.0 ±0.2)°C	35.6 ±6%	5.18 mho/m ±6%
HSL temperature change during test	< 0.5 °C		

SAR result with HSL at 5750 MHz

SAR averaged over 1 cm³ (1 g) of HSL	Condition	
SAR for nominal HSL parameters	20 dBm input power	8.06 W/kg
SAR for nominal HSL parameters	normalized to 1W	80.6 W/kg ±19.9% (k = 2)

SAR averaged over 10 cm³ (10 g) of HSL	Condition	
SAR for nominal HSL parameters	20 dBm input power	2.29 W/kg
SAR for nominal HSL parameters	normalized to 1W	22.9 W/kg ±19.5% (k = 2)

HSL parameters at 5800 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal HSL parameters	22.0 °C	35.3	5.27 mho/m
Measured HSL parameters	(22.0 ±0.2)°C	35.5 ±6%	5.23 mho/m ±6%
HSL temperature change during test	< 0.5 °C		

SAR result with HSL at 5800 MHz

SAR averaged over 1 cm^3 (1 g) of HSL	Condition	
SAR for nominal HSL parameters	20 dBm input power	8.06 W/kg
SAR for nominal HSL parameters	normalized to 1W	80.6 W/kg ±19.9% (k = 2)

SAR averaged over 10 cm^3 (10 g) of HSL	Condition	
SAR for nominal HSL parameters	20 dBm input power	2.29 W/kg
SAR for nominal HSL parameters	normalized to 1W	22.9 W/kg ±19.5% (k = 2)

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with HSL at 5250 MHz

Impedance	50.4 Ω + 4.2 jΩ
Return Loss	-27.5 dB

Antenna Parameters with HSL at 5600 MHz

Impedance	56.3 Ω – 2.1 jΩ
Return Loss	-24.1 dB

Antenna Parameters with HSL at 5750 MHz

Impedance	56.7 Ω + 0.8 jΩ
Return Loss	-24.0 dB

Antenna Parameters with HSL at 5800 MHz

Impedance	54.3 Ω – 0.6 jΩ
Return Loss	-27.6 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.196 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

System Performance Check Report

Summary

Dipole	Frequency [MHz]	TSL	Power [dBm]
D5GHzV2 – SN1253	5250	HSL	20

Exposure Conditions

Phantom Section, TSL	Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat	10		CW, 0—	5250, 0	5.68	4.62	36.4

Hardware Setup

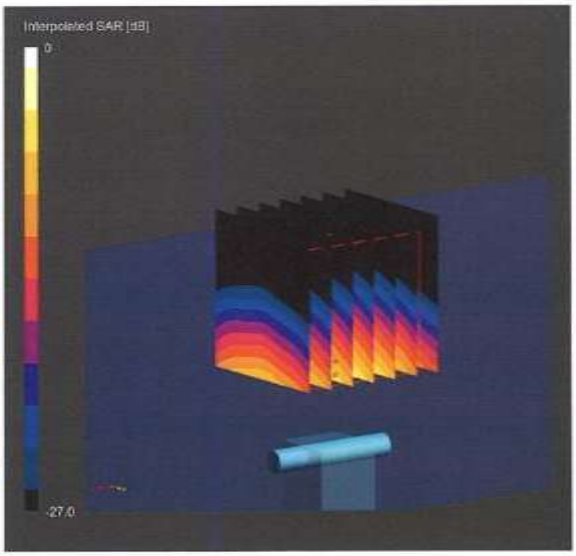
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
MFP V8.0 Center	HSL, 2025-09-26	EX3DV4 – SN7349, 2025-01-10	DAE4ip Sn1836, 2025-09-04

Scans Setup

	Zoom Scan
Grid Extents [mm]	22 x 22 x 22
Grid Steps [mm]	4.0 x 4.0 x 1.4
Sensor Surface [mm]	1.4
Graded Grid	Yes
Grading Ratio	1.4
MAIA	N/A
Surface Detection	VMS + 6p
Scan Method	Measured

Measurement Results

	Zoom Scan
Date	2025-09-26
psSAR1g [W/Kg]	7.92
psSAR10g [W/Kg]	2.26
Power Drift [dB]	0.00
Power Scaling	Disabled
Scaling Factor [dB]	
TSL Correction	Positive / Negative



0 dB = 32.2 W/Kg

System Performance Check Report

Summary

Dipole	Frequency [MHz]	TSL	Power [dBm]
D5GHzV2 – SN1253	5600	HSL	20

Exposure Conditions

Phantom Section, TSL	Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat	10		CW, 0—	5600, 0	5.21	5.02	35.8

Hardware Setup

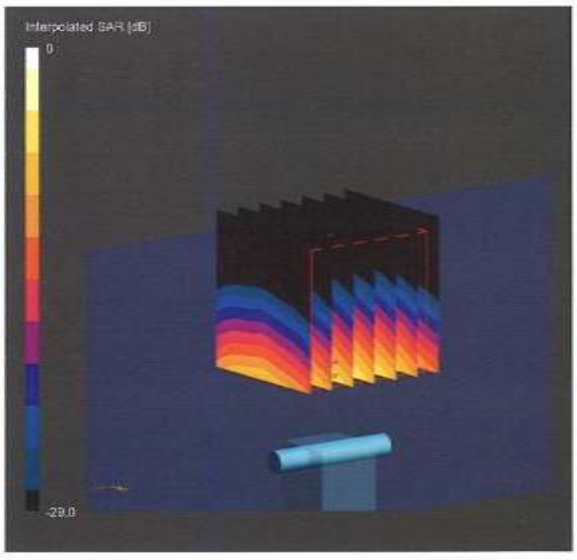
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
MFP V8.0 Center	HSL, 2025-09-26	EX3DV4 - SN7349, 2025-01-10	DAE4ip Sn1836, 2025-09-04

Scans Setup

	Zoom Scan
Grid Extents [mm]	22 x 22 x 22
Grid Steps [mm]	4.0 x 4.0 x 1.4
Sensor Surface [mm]	1.4
Graded Grid	Yes
Grading Ratio	1.4
MAIA	N/A
Surface Detection	VMS + 6p
Scan Method	Measured

Measurement Results

	Zoom Scan
Date	2025-09-26
psSAR1g [W/Kg]	8.15
psSAR10g [W/Kg]	2.34
Power Drift [dB]	-0.01
Power Scaling	Disabled
Scaling Factor [dB]	
TSL Correction	Positive / Negative



0 dB = 35.8 W/Kg

System Performance Check Report

Summary

Dipole	Frequency [MHz]	TSL	Power [dBm]
D5GHzV2 – SN1253	5750	HSL	20

Exposure Conditions

Phantom Section, TSL	Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat	10		CW, 0—	5750, 0	5.38	5.18	35.6

Hardware Setup

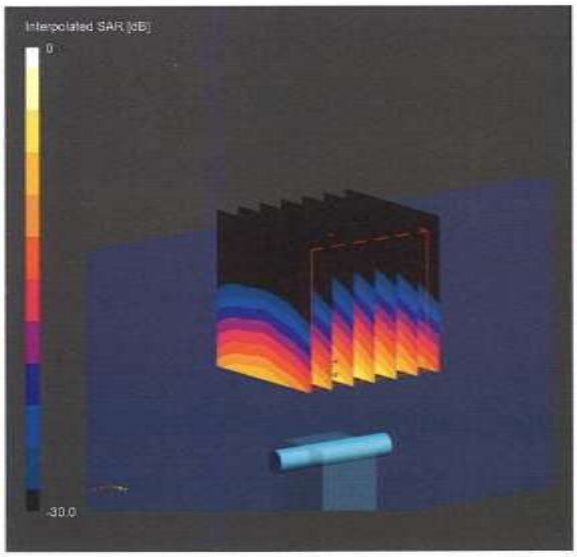
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
MFP V8.0 Center	HSL, 2025-09-26	EX3DV4 - SN7349, 2025-01-10	DAE4ip Sn1836, 2025-09-04

Scans Setup

	Zoom Scan
Grid Extents [mm]	22 x 22 x 22
Grid Steps [mm]	4.0 x 4.0 x 1.4
Sensor Surface [mm]	1.4
Graded Grid	Yes
Grading Ratio	1.4
MAIA	N/A
Surface Detection	VMS + 6p
Scan Method	Measured

Measurement Results

	Zoom Scan
Date	2025-09-26
psSAR1g [W/Kg]	8.06
psSAR10g [W/Kg]	2.29
Power Drift [dB]	-0.07
Power Scaling	Disabled
Scaling Factor [dB]	
TSL Correction	Positive / Negative



0 dB = 36.8 W/Kg

System Performance Check Report

Summary

Dipole	Frequency [MHz]	TSL	Power [dBm]
D5GHzV2 – SN1253	5800	HSL	20

Exposure Conditions

Phantom Section, TSL	Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat	10		CW, 0---	5800, 0	5.17	5.23	35.5

Hardware Setup

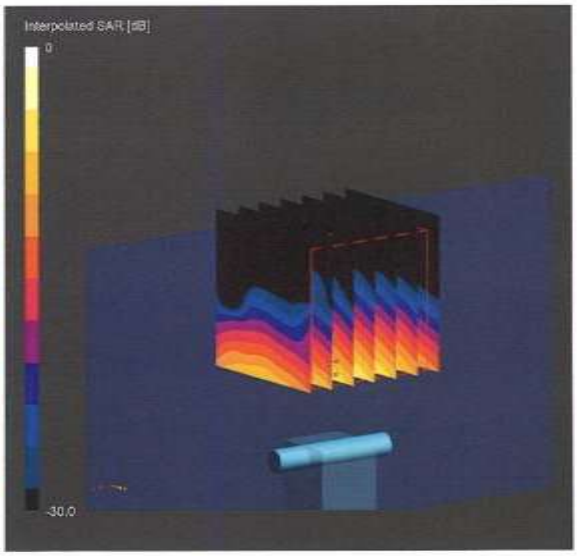
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
MFP V8.0 Center	HSL, 2025-09-26	EX3DV4 – SN7349, 2025-01-10	DAE4ip Sn1836, 2025-09-04

Scans Setup

	Zoom Scan
Grid Extents [mm]	22 x 22 x 22
Grid Steps [mm]	4.0 x 4.0 x 1.4
Sensor Surface [mm]	1.4
Graded Grid	Yes
Grading Ratio	1.4
MAIA	N/A
Surface Detection	VMS + 6p
Scan Method	Measured

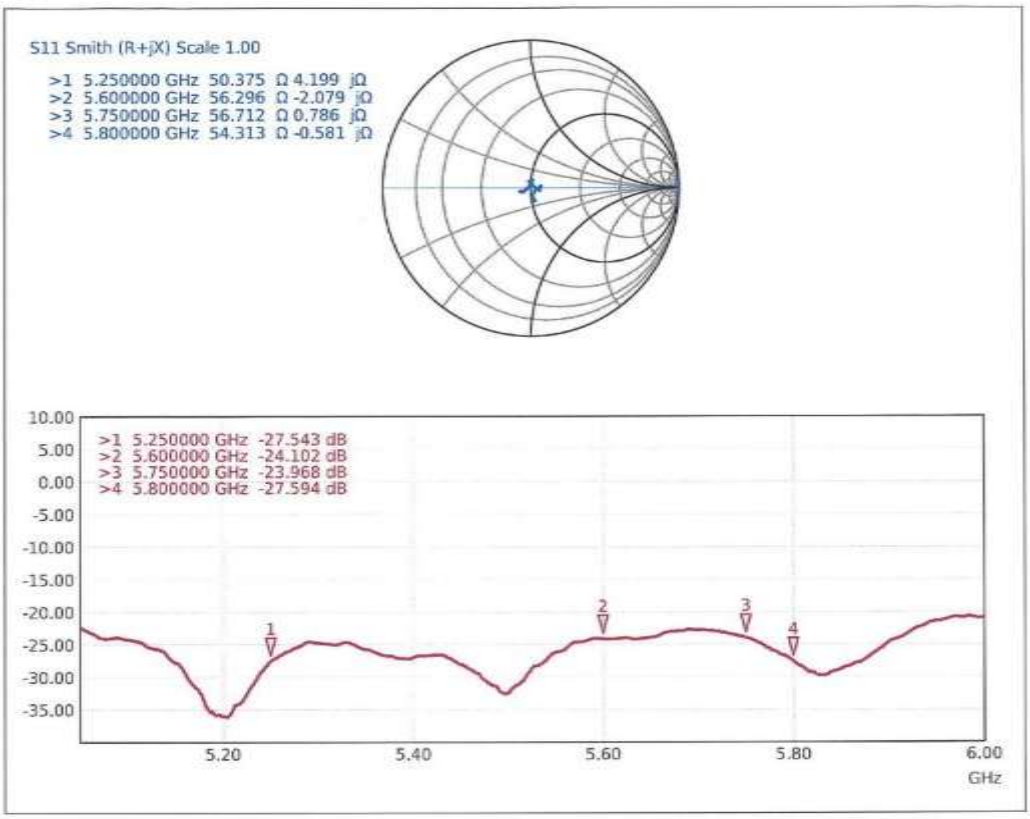
Measurement Results

	Zoom Scan
Date	2025-09-26
psSAR1g [W/Kg]	8.06
psSAR10g [W/Kg]	2.29
Power Drift [dB]	0.00
Power Scaling	Disabled
Scaling Factor [dB]	
TSL Correction	Positive / Negative



0 dB = 37.0 W/Kg

Impedance Measurement Plot for HSL



Appendix: Transfer Calibration at Four Validation Locations on SAM Head[1]

Evaluation Conditions (f=5250 MHz)

Phantom	SAM Head Phantom	For usage with cSAR3DV2-R/L

SAR result with SAM Head (Top)

SAR averaged over 1 cm³ (1 g) of HSL	Condition	
SAR for nominal HSL parameters	normalized to 1W	**84.8 W/kg ± 20.3 % (k=2)**

SAR averaged over 10 cm³ (10 g) of HSL	condition	
SAR for nominal HSL parameters	normalized to 1W	**24.3 W/kg ± 19.9 % (k=2)**

SAR result with SAM Head (Mouth)

SAR averaged over 1 cm³ (1 g) of HSL	Condition	
SAR for nominal HSL parameters	normalized to 1W	**84.0 W/kg ± 20.3 % (k=2)**

SAR averaged over 10 cm³ (10 g) of HSL	condition	
SAR for nominal HSL parameters	normalized to 1W	**23.4 W/kg ± 19.9 % (k=2)**

SAR result with SAM Head (Neck)

SAR averaged over 1 cm³ (1 g) of HSL	Condition	
SAR for nominal HSL parameters	normalized to 1W	**82.1 W/kg ± 20.3 % (k=2)**

SAR averaged over 10 cm³ (10 g) of HSL	condition	
SAR for nominal HSL parameters	normalized to 1W	**23.4 W/kg ± 19.9 % (k=2)**

SAR result with SAM Head (Ear)

SAR averaged over 1 cm³ (1 g) of HSL	Condition	
SAR for nominal HSL parameters	normalized to 1W	**53.1 W/kg ± 20.3 % (k=2)**

SAR averaged over 10 cm³ (10 g) of HSL	condition	
SAR for nominal HSL parameters	normalized to 1W	**17.9 W/kg ± 19.9 % (k=2)**

[1] Additional assessments outside the current scope of SCS 0108

Certificate No: D5GHzV2-1253_Sep25

Appendix: Transfer Calibration at Four Validation Locations on SAM Head[2]

Evaluation Conditions (f=5800 MHz)

Phantom	SAM Head Phantom	For usage with cSAR3DV2-R/L

SAR result with SAM Head (Top)

SAR averaged over 1 cm³ (1 g) of HSL	Condition	
SAR for nominal HSL parameters	normalized to 1W	**83.8 W/kg ± 20.3 % (k=2)**

SAR averaged over 10 cm³ (10 g) of HSL	condition	
SAR for nominal HSL parameters	normalized to 1W	**23.8 W/kg ± 19.9 % (k=2)**

SAR result with SAM Head (Mouth)

SAR averaged over 1 cm³ (1 g) of HSL	Condition	
SAR for nominal HSL parameters	normalized to 1W	**90.6 W/kg ± 20.3 % (k=2)**

SAR averaged over 10 cm³ (10 g) of HSL	condition	
SAR for nominal HSL parameters	normalized to 1W	**25.8 W/kg ± 19.9 % (k=2)**

SAR result with SAM Head (Neck)

SAR averaged over 1 cm³ (1 g) of HSL	Condition	
SAR for nominal HSL parameters	normalized to 1W	**80.8 W/kg ± 20.3 % (k=2)**

SAR averaged over 10 cm³ (10 g) of HSL	condition	
SAR for nominal HSL parameters	normalized to 1W	**22.8 W/kg ± 19.9 % (k=2)**

SAR result with SAM Head (Ear)

SAR averaged over 1 cm³ (1 g) of HSL	Condition	
SAR for nominal HSL parameters	normalized to 1W	**57.6 W/kg ± 20.3 % (k=2)**

SAR averaged over 10 cm³ (10 g) of HSL	condition	
SAR for nominal HSL parameters	normalized to 1W	**19.4 W/kg ± 19.9 % (k=2)**

[2] Additional assessments outside the current scope of SCS 0108

Certificate No: D5GHzV2-1253_Sep25