

C.3. System Validation Dipole D5GHzV2 (Serial No. 1039 / Control No. WA0042)

Please see the following pages.

**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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Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 0108

Client

MWF

Yokohama, Japan

Certificate No.

D5GHzV2-1039_Apr25**CALIBRATION CERTIFICATE**

Object

D5GHzV2 - SN: 1039

Calibration procedure(s)

QA CAL-22.v7

Calibration Procedure for SAR Validation Sources between 3 - 10 GHz

Calibration date

April 11, 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	26-Mar-25 (No. 217-04290)	Mar-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	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	Paulo Pina	Laboratory Technician	
Approved by	Sven Kühn	Technical Manager	
Issued: April 11, 2025			
This calibration certificate shall not be reproduced except in full without written approval of the laboratory.			

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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%.

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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 = 4mm, dz = 1.4mm	Graded Ratio = 1.4 mm (Z direction)
Frequency	5200MHz $\pm$ 1MHz 5250MHz $\pm$ 1MHz 5300MHz $\pm$ 1MHz 5500MHz $\pm$ 1MHz 5600MHz $\pm$ 1MHz 5800MHz $\pm$ 1MHz	

HSL parameters at 5200 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal HSL parameters	22.0 °C	36.0	4.66 mho/m
Measured HSL parameters	(22.0 $\pm$ 0.2)°C	36.7 $\pm$ 6%	4.56 mho/m $\pm$ 6%
HSL temperature change during test	< 0.5 °C		

SAR result with HSL at 5200 MHz

SAR averaged over 1 cm³ (1 g) of HSL	Condition	
SAR for nominal HSL parameters	20 dBm input power	7.56 W/kg
SAR for nominal HSL parameters	normalized to 1W	75.6 W/kg $\pm$ 19.9% (k = 2)

SAR averaged over 10 cm³ (10 g) of HSL	Condition	
SAR for nominal HSL parameters	20 dBm input power	2.16 W/kg
SAR for nominal HSL parameters	normalized to 1W	21.6 W/kg $\pm$ 19.5% (k = 2)

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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	36.6 ±6%	4.61 mho/m ±6%
HSL temperature change during test	< 0.5 °C		

SAR result with HSL at 5250 MHz

SAR averaged over 1 cm ³ (1 g) of HSL	Condition	
SAR for nominal HSL parameters	20 dBm input power	7.66 W/kg
SAR for nominal HSL parameters	normalized to 1W	76.6 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	2.18 W/kg
SAR for nominal HSL parameters	normalized to 1W	21.8 W/kg ±19.5% (k = 2)

HSL parameters at 5300 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal HSL parameters	22.0 °C	35.9	4.76 mho/m
Measured HSL parameters	(22.0 ±0.2)°C	36.5 ±6%	4.66 mho/m ±6%
HSL temperature change during test	< 0.5 °C		

SAR result with HSL at 5300 MHz

SAR averaged over 1 cm ³ (1 g) of HSL	Condition	
SAR for nominal HSL parameters	20 dBm input power	7.78 W/kg
SAR for nominal HSL parameters	normalized to 1W	77.8 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	2.22 W/kg
SAR for nominal HSL parameters	normalized to 1W	22.2 W/kg ±19.5% (k = 2)

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HSL parameters at 5500 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal HSL parameters	22.0 °C	35.6	4.96 mho/m
Measured HSL parameters	(22.0 ±0.2)°C	36.1 ±6%	4.87 mho/m ±6%
HSL temperature change during test	< 0.5 °C		

SAR result with HSL at 5500 MHz

SAR averaged over 1 cm ³ (1 g) of HSL	Condition	
SAR for nominal HSL parameters	20 dBm input power	8.14 W/kg
SAR for nominal HSL parameters	normalized to 1W	81.4 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	2.30 W/kg
SAR for nominal HSL parameters	normalized to 1W	23.0 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	36.0 ±6%	4.99 mho/m ±6%
HSL temperature change during test	< 0.5 °C		

SAR result with HSL at 5600 MHz

SAR averaged over 1 cm ³ (1 g) of HSL	Condition	
SAR for nominal HSL parameters	20 dBm input power	7.97 W/kg
SAR for nominal HSL parameters	normalized to 1W	79.7 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	2.28 W/kg
SAR for nominal HSL parameters	normalized to 1W	22.8 W/kg ±19.5% (k = 2)

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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	35.7 ±6%	5.20 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	7.87 W/kg
SAR for nominal HSL parameters	normalized to 1W	78.7 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	2.24 W/kg
SAR for nominal HSL parameters	normalized to 1W	22.4 W/kg ±19.5% (k = 2)

MSL parameters at 5200 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal MSL parameters	22.0 °C	49.0	5.30 mho/m
Measured MSL parameters	(22.0 ±0.2)°C	49.0 ±6%	5.42 mho/m ±6%
MSL temperature change during test	< 0.5 °C		

SAR result with MSL at 5200 MHz

SAR averaged over 1 cm ³ (1 g) of MSL	Condition	
SAR for nominal MSL parameters	20 dBm input power	7.42 W/kg
SAR for nominal MSL parameters	normalized to 1W	74.2 W/kg ±19.9% (k = 2)

SAR averaged over 10 cm ³ (10 g) of MSL	Condition	
SAR for nominal MSL parameters	20 dBm input power	2.06 W/kg
SAR for nominal MSL parameters	normalized to 1W	20.6 W/kg ±19.5% (k = 2)

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MSL parameters at 5300 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal MSL parameters	22.0 °C	48.9	5.42 mho/m
Measured MSL parameters	(22.0 ±0.2)°C	48.7 ±6%	5.55 mho/m ±6%
MSL temperature change during test	< 0.5 °C		

SAR result with MSL at 5300 MHz

SAR averaged over 1 cm ³ (1 g) of MSL	Condition	
SAR for nominal MSL parameters	20 dBm input power	7.51 W/kg
SAR for nominal MSL parameters	normalized to 1W	75.1 W/kg ±19.9% (k = 2)

SAR averaged over 10 cm ³ (10 g) of MSL	Condition	
SAR for nominal MSL parameters	20 dBm input power	2.08 W/kg
SAR for nominal MSL parameters	normalized to 1W	20.8 W/kg ±19.5% (k = 2)

MSL parameters at 5500 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal MSL parameters	22.0 °C	48.6	5.65 mho/m
Measured MSL parameters	(22.0 ±0.2)°C	48.3 ±6%	5.83 mho/m ±6%
MSL temperature change during test	< 0.5 °C		

SAR result with MSL at 5500 MHz

SAR averaged over 1 cm ³ (1 g) of MSL	Condition	
SAR for nominal MSL parameters	20 dBm input power	8.21 W/kg
SAR for nominal MSL parameters	normalized to 1W	82.1 W/kg ±19.9% (k = 2)

SAR averaged over 10 cm ³ (10 g) of MSL	Condition	
SAR for nominal MSL parameters	20 dBm input power	2.24 W/kg
SAR for nominal MSL parameters	normalized to 1W	22.4 W/kg ±19.5% (k = 2)

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MSL parameters at 5600 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal MSL parameters	22.0 °C	48.5	5.77 mho/m
Measured MSL parameters	(22.0 ±0.2)°C	48.1 ±6%	5.98 mho/m ±6%
MSL temperature change during test	< 0.5 °C		

SAR result with MSL at 5600 MHz

SAR averaged over 1 cm ³ (1 g) of MSL	Condition	
SAR for nominal MSL parameters	20 dBm input power	7.79 W/kg
SAR for nominal MSL parameters	normalized to 1W	77.9 W/kg ±19.9% (k = 2)

SAR averaged over 10 cm ³ (10 g) of MSL	Condition	
SAR for nominal MSL parameters	20 dBm input power	2.19 W/kg
SAR for nominal MSL parameters	normalized to 1W	21.9 W/kg ±19.5% (k = 2)

MSL parameters at 5800 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal MSL parameters	22.0 °C	48.2	6.00 mho/m
Measured MSL parameters	(22.0 ±0.2)°C	47.8 ±6%	6.27 mho/m ±6%
MSL temperature change during test	< 0.5 °C		

SAR result with MSL at 5800 MHz

SAR averaged over 1 cm ³ (1 g) of MSL	Condition	
SAR for nominal MSL parameters	20 dBm input power	7.65 W/kg
SAR for nominal MSL parameters	normalized to 1W	76.5 W/kg ±19.9% (k = 2)

SAR averaged over 10 cm ³ (10 g) of MSL	Condition	
SAR for nominal MSL parameters	20 dBm input power	2.11 W/kg
SAR for nominal MSL parameters	normalized to 1W	21.1 W/kg ±19.5% (k = 2)

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Appendix (Additional assessments outside the scope of SCS 0108)**Antenna Parameters with HSL at 5200 MHz**

Impedance	49.7 Ω – 7.6 j Ω
Return Loss	-22.4 dB

Antenna Parameters with HSL at 5250 MHz

Impedance	50.9 Ω – 4.7 j Ω
Return Loss	-26.4 dB

Antenna Parameters with HSL at 5300 MHz

Impedance	51.2 Ω – 1.4 j Ω
Return Loss	-34.7 dB

Antenna Parameters with HSL at 5500 MHz

Impedance	48.6 Ω + 0.2 j Ω
Return Loss	-36.6 dB

Antenna Parameters with HSL at 5600 MHz

Impedance	55.5 Ω – 2.8 j Ω
Return Loss	-24.7 dB

Antenna Parameters with HSL at 5800 MHz

Impedance	57.4 Ω + 1.8 j Ω
Return Loss	-23.0 dB

Antenna Parameters with MSL at 5200 MHz

Impedance	49.4 Ω – 6.5 j Ω
Return Loss	-23.7 dB

Antenna Parameters with MSL at 5300 MHz

Impedance	50.9 Ω + 0.9 j Ω
Return Loss	-38.1 dB

Antenna Parameters with MSL at 5500 MHz

Impedance	49.5 Ω + 0.6 j Ω
Return Loss	-41.6 dB

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Antenna Parameters with MSL at 5600 MHz

Impedance	56.5 Ω – 1.5 j Ω
Return Loss	-24.1 dB

Antenna Parameters with MSL at 5800 MHz

Impedance	58.4 Ω + 2.6 j Ω
Return Loss	-21.8 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.198 ns
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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

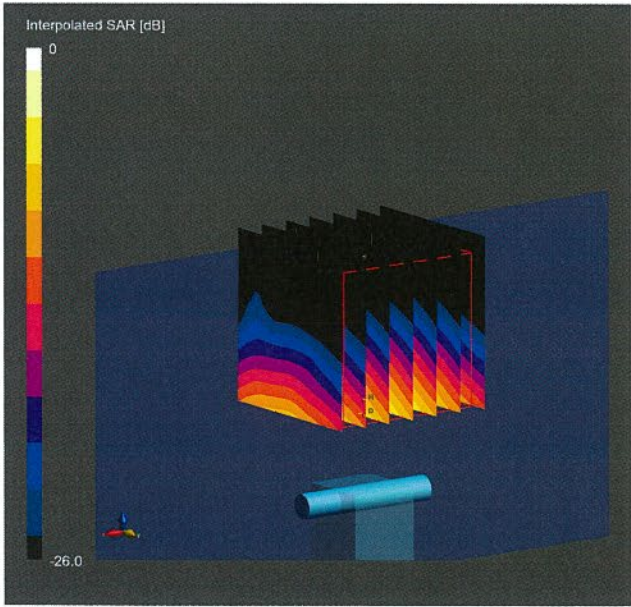
Manufactured by	SPEAG
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System Performance Check Report

Summary								
Dipole		Frequency [MHz]			TSL	Power [dBm]		
D5GHzV2 – SN1039		5200			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---	5200, 0		5.73	4.56	36.7
Hardware Setup								
Phantom		TSL, Measured Date		Probe, Calibration Date			DAE, Calibration Date	
MFP V8.0 Center		HSL, 2025-04-09		EX3DV4 – SN7349, 2025-01-10			DAE4ip Sn1836, 2024-10-28	
Scans Setup				Measurement Results				
				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				
				Zoom Scan				
				Date				
				2025-04-09				
				psSAR1g [W/Kg]				
				7.56				
				psSAR10g [W/Kg]				
				2.16				
				Power Drift [dB]				
				-0.04				
				Power Scaling				
				Disabled				
				Scaling Factor [dB]				
				TSL Correction				
				Positive / Negative				



0 dB = 30.4 W/Kg

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System Performance Check Report

Summary								
Dipole		Frequency [MHz]			TSL	Power [dBm]		
D5GHzV2 – SN1039		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	4.61	36.6
Hardware Setup								
Phantom	TSL, Measured Date		Probe, Calibration Date			DAE, Calibration Date		
MFP V8.0 Center	HSL, 2025-04-09		EX3DV4 – SN7349, 2025-01-10			DAE4lp Sn1836, 2024-10-28		
Scans Setup				Measurement Results				
				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				
				Zoom Scan				
				Date				
				2025-04-09				
				psSAR1g [W/Kg]				
				7.66				
				psSAR10g [W/Kg]				
				2.18				
				Power Drift [dB]				
				-0.01				
				Power Scaling				
				Disabled				
				Scaling Factor [dB]				
				TSL Correction				
				Positive / Negative				

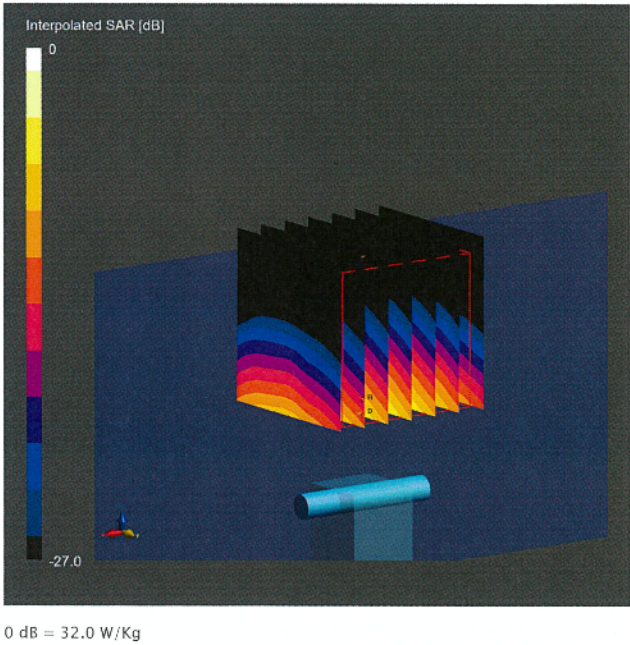


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System Performance Check Report

Summary								
Dipole		Frequency [MHz]			TSL	Power [dBm]		
D5GHzV2 – SN1039		5300			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---	5300, 0		5.63	4.66	36.5
Hardware Setup								
Phantom		TSL, Measured Date		Probe, Calibration Date			DAE, Calibration Date	
MFP V8.0 Center		HSL, 2025-04-09		EX3DV4 – SN7349, 2025-01-10			DAE4ip Sn1836, 2024-10-28	
Scans Setup				Measurement Results				
				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				
				Zoom Scan				
				Date				
				2025-04-09				
				psSAR1g [W/Kg]				
				7.78				
				psSAR10g [W/Kg]				
				2.22				
				Power Drift [dB]				
				-0.01				
				Power Scaling				
				Disabled				
				Scaling Factor [dB]				
				TSL Correction				
				Positive / Negative				



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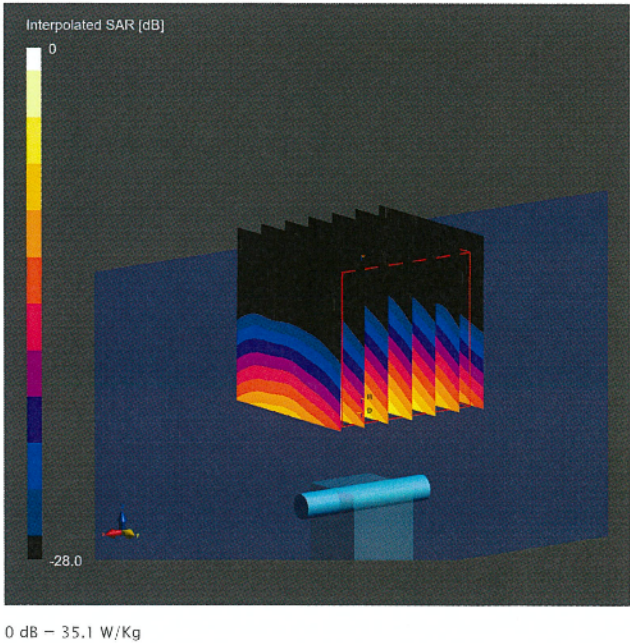
Summary			
Dipole	Frequency [MHz]	TSL	Power [dBm]
D5GHzV2 - SN1039	5500	HSL	20

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---	5500, 0	5.27	4.87	36.1

Hardware Setup			
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
MFP V8.0 Center	HSL, 2025-04-09	EX3DV4 - SN7349, 2025-01-10	DAE4lp Sn1836, 2024-10-28

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	2025-04-09
psSAR1g [W/Kg]	8.14
psSAR10g [W/Kg]	2.30
Power Drift [dB]	0.01
Power Scaling	Disabled
Scaling Factor [dB]	
TSL Correction	Positive / Negative



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System Performance Check Report

Summary								
Dipole		Frequency [MHz]			TSL	Power [dBm]		
D5GHzV2 – SN1039		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	4.99	36.0
Hardware Setup								
Phantom	TSL, Measured Date		Probe, Calibration Date			DAE, Calibration Date		
MFP V8.0 Center	HSL, 2025-04-09		EX3DV4 – SN7349, 2025-01-10			DAE4ip Sn1836, 2024-10-28		
Scans Setup				Measurement Results				
				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				
				Zoom Scan				
				Date				
				2025-04-09				
				psSAR1g [W/Kg]				
				7.97				
				psSAR10g [W/Kg]				
				2.28				
				Power Drift [dB]				
				0.00				
				Power Scaling				
				Disabled				
				Scaling Factor [dB]				
				TSL Correction				
				Positive / Negative				



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System Performance Check Report

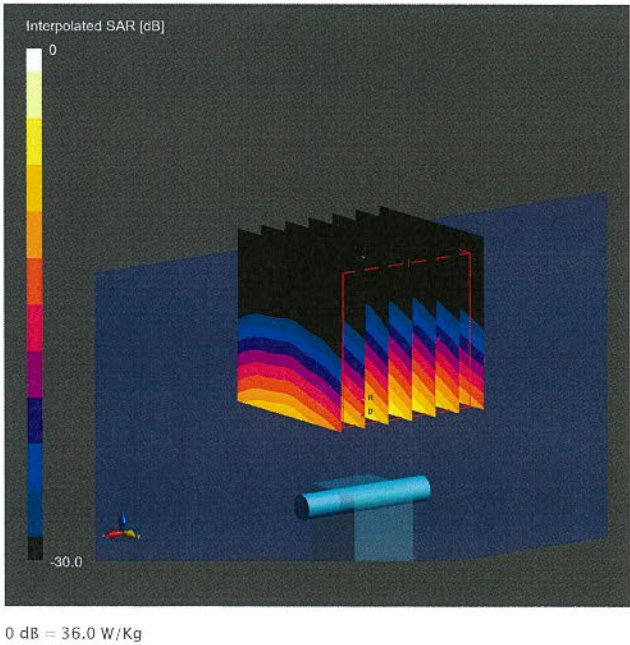
Summary			
Dipole	Frequency [MHz]	TSL	Power [dBm]
D5GHzV2 - SN1039	5800	HSL	20

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	5.20	35.7

Hardware Setup			
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
MFP V8.0 Center	HSL, 2025-04-09	EX3DV4 - SN7349, 2025-01-10	DAE4ip Sn1836, 2024-10-28

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

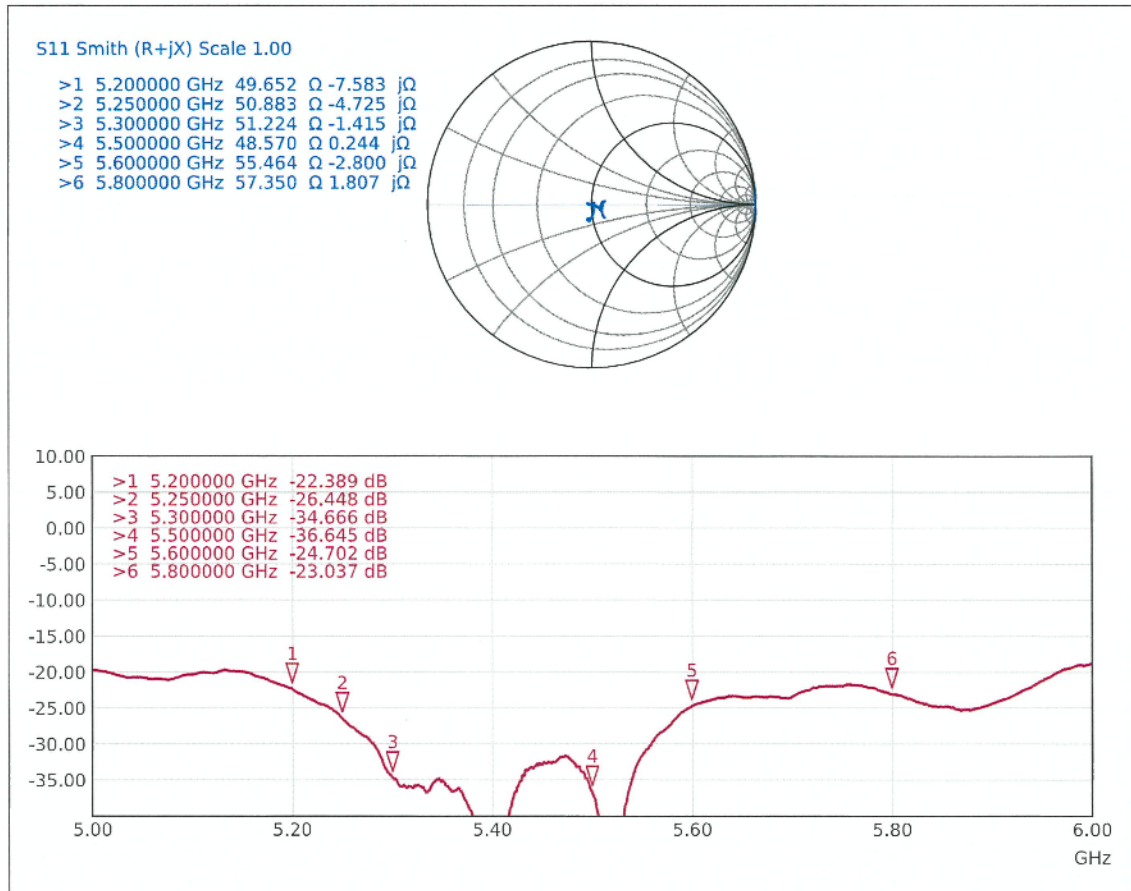
Measurement Results	
	Zoom Scan
Date	2025-04-09
psSAR1g [W/Kg]	7.87
psSAR10g [W/Kg]	2.24
Power Drift [dB]	-0.01
Power Scaling	Disabled
Scaling Factor [dB]	
TSL Correction	Positive / Negative



D5GHzV2 - SN: 1039

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Impedance Measurement Plot for HSL

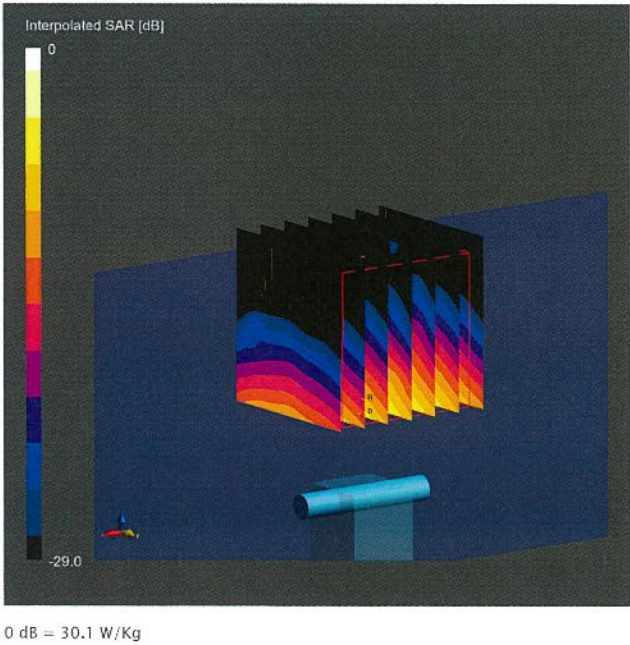


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System Performance Check Report

Summary								
Dipole	Frequency [MHz]			TSL	Power [dBm]			
D5GHzV2 - SN1039	5200			MSL	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---	5200, 0		5.12	5.42	49.0
Hardware Setup								
Phantom	TSL, Measured Date			Probe, Calibration Date			DAE, Calibration Date	
MFP V8.0 Center	MSL, 2025-04-11			EX3DV4 - SN7349, 2025-01-10			DAE4ip Sn1836, 2024-10-28	
Scans Setup				Measurement Results				
Zoom Scan				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				

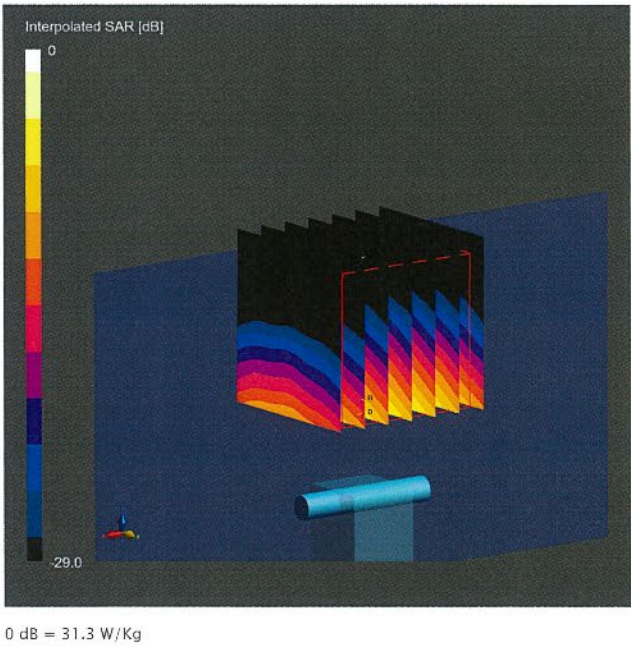


D5GHzV2 - SN: 1039

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System Performance Check Report

Summary								
Dipole		Frequency [MHz]			TSL	Power [dBm]		
D5GHzV2 – SN1039		5300			MSL	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---	5300, 0		5.06	5.55	48.7
Hardware Setup								
Phantom	TSL, Measured Date		Probe, Calibration Date			DAE, Calibration Date		
MFP V8.0 Center	MSL, 2025-04-11		EX3DV4 – SN7349, 2025-01-10			DAE4ip Sn1836, 2024-10-28		
Scans Setup				Measurement Results				
Zoom Scan				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				
				2025-04-11				
				psSAR1g [W/Kg]			7.51	
				psSAR10g [W/Kg]			2.08	
				Power Drift [dB]			-0.01	
				Power Scaling			Disabled	
				Scaling Factor [dB]				
				TSL Correction			Positive / Negative	



D5GHzV2 - SN: 1039 April 11, 2025

System Performance Check Report

Summary

Dipole	Frequency [MHz]	TSL	Power [dBm]
D5GHzV2 - SN1039	5500	MSL	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--		5500, 0	4.61	5.83	48.3

Hardware Setup

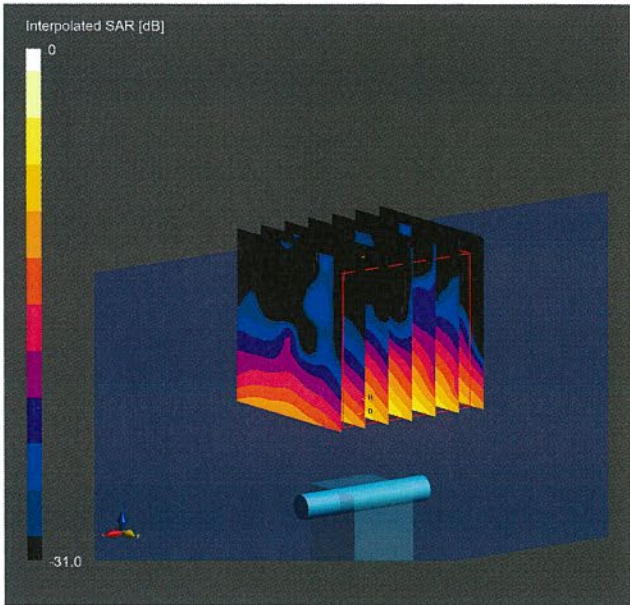
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
MFP V8.0 Center	MSL, 2025-04-11	EX3DV4 - SN7349, 2025-01-10	DAE4ip Sn1836, 2024-10-28

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	2025-04-11
psSAR1g [W/Kg]	8.21
psSAR10g [W/Kg]	2.24
Power Drift [dB]	0.08
Power Scaling	Disabled
Scaling Factor [dB]	
TSL Correction	Positive / Negative



0 dB = 36.4 W/Kg

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System Performance Check Report

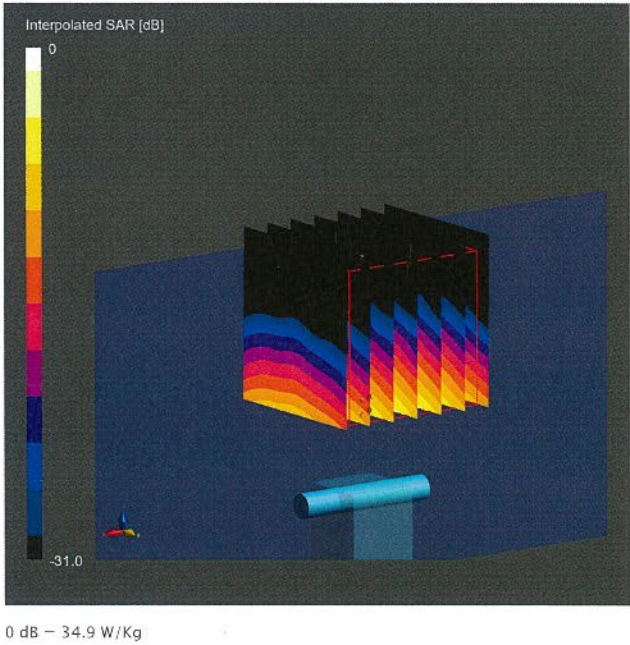
Summary			
Dipole	Frequency [MHz]	TSL	Power [dBm]
D5GHzV2 – SN1039	5600	MSL	20

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	4.65	5.98	48.1

Hardware Setup			
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
MFP V8.0 Center	MSL, 2025-04-11	EX3DV4 – SN7349, 2025-01-10	DAE4ip Sn1836, 2024-10-28

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	2025-04-11
psSAR1g [W/Kg]	7.79
psSAR10g [W/Kg]	2.19
Power Drift [dB]	-0.01
Power Scaling	Disabled
Scaling Factor [dB]	
TSL Correction	Positive / Negative

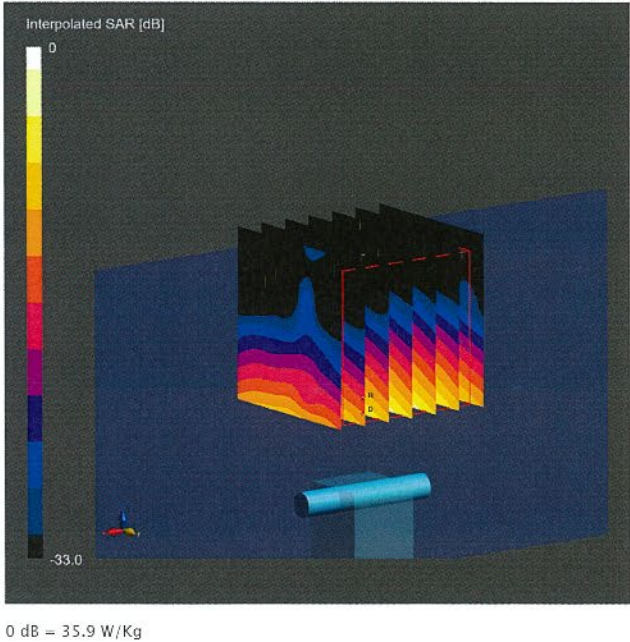


D5GHzV2 - SN: 1039

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System Performance Check Report

Summary								
Dipole		Frequency [MHz]			TSL	Power [dBm]		
D5GHzV2 – SN1039		5800			MSL	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		4.59	6.27	47.8
Hardware Setup								
Phantom	TSL, Measured Date			Probe, Calibration Date			DAE, Calibration Date	
MFP V8.0 Center	MSL, 2025-04-11			EX3DV4 – SN7349, 2025-01-10			DAE4lp Sn1836, 2024-10-28	
Scans Setup				Measurement Results				
Zoom Scan				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				
MAJA				N/A				
Surface Detection				VMS + 6p				
Scan Method				Measured				



D5GHzV2 - SN: 1039

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Impedance Measurement Plot for MSL

