Schmid & Partner **Engineering AG** Zeughausstrasse 43, 8004 Zurich, Switzerland





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S Swiss Calibration Service

Accreditation No.: SCS 0108

Accredited by the Swiss Accreditation Service (SAS)

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Client

Sporton

Certificate No: D2450V2-736\_Aug21

# CALIBRATION CERTIFICATE

Object

D2450V2 - SN:736

Calibration procedure(s)

QA CAL-05.v11

Calibration Procedure for SAR Validation Sources between 0.7-3 GHz

Calibration date:

August 17, 2021

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

All calibrations have been conducted in the closed laboratory facility: environment temperature  $(22 \pm 3)^{\circ}$ C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID#	Cal Date (Cortificate No.)	
Power meter NRP	SN: 104778	Cal Date (Certificate No.)	Scheduled Calibration
Power sensor NRP-Z91	SN: 103244	09-Apr-21 (No. 217-03291/03292)	Apr-22
Power sensor NRP-Z91	SN: 103245	09-Apr-21 (No. 217-03291)	Apr-22
Reference 20 dB Attenuator	SN: BH9394 (20k)	09-Apr-21 (No. 217-03292)	Apr-22
Type-N mismatch combination	SN: 310982 / 06327	09-Apr-21 (No. 217-03343)	Apr-22
Reference Probe EX3DV4	SN: 7349	09-Apr-21 (No. 217-03344)	Apr-22
DAE4	SN: 601	28-Dec-20 (No. EX3-7349_Dec20)	Dec-21
	314. 001	02-Nov-20 (No. DAE4-601_Nov20)	Nov-21
Secondary Standards	ID#	Check Date (in house)	
Power meter E4419B	SN: GB39512475		Scheduled Check
Power sensor HP 8481A	SN: US37292783	30-Oct-14 (in house check Oct-20)	In house check: Oct-22
Power sensor HP 8481A	SN: MY41092317	07-Oct-15 (in house check Oct-20)	In house check: Oct-22
RF generator R&S SMT-06	SN: 100972	07-Oct-15 (in house check Oct-20)	In house check: Oct-22
Network Analyzer Agilent E8358A	SN: US41080477	15-Jun-15 (in house check Oct-20)	In house check: Oct-22
	1	31-Mar-14 (in house check Oct-20)	In house check: Oct-21
	Name	Function	0
Calibrated by:	Leif Klysner	Laboratory Technician	Signature
		Education reclinical	Selle -
Approved by:	V-ti- D. I.		x Ma
FF	Katja Pokovic	Technical Manager	1/83
			VIV

Issued: August 25, 2021

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#### Glossary:

TSL

N/A

tissue simulating liquid

ConvF

sensitivity in TSL / NORM x,y,z not applicable or not measured

# Calibration is Performed According to the Following Standards:

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

### Additional Documentation:

c) DASY System Handbook

# Methods Applied and Interpretation of Parameters:

- Measurement Conditions: Further details are available from the Validation Report at the end
  of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL: The source is mounted in a touch configuration below the center marking of the flat phantom.
- Return Loss: This parameter is measured with the source positioned under the liquid filled phantom (as described in the measurement condition clause). The Return Loss ensures low reflected power. No uncertainty required.
- SAR measured: SAR measured at the stated antenna input power.
- SAR normalized: SAR as measured, normalized to an input power of 1 W at the antenna connector.
- SAR for nominal TSL parameters: The measured TSL parameters are used to calculate the nominal SAR result.

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

Certificate No: D2450V2-736\_Aug21

### **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	
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	37.9 ± 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 <sup>3</sup> (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	13.9 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	54.2 W/kg ± 17.0 % (k=2)

SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL	condition	
SAR measured	250 mW input power	6.43 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	25.3 W/kg ± 16.5 % (k=2)

Certificate No: D2450V2-736\_Aug21 Page 3 of 6

# Appendix (Additional assessments outside the scope of SCS 0108)

### **Antenna Parameters with Head TSL**

Impedance, transformed to feed point	55.3 Ω + 3.6 jΩ	
Return Loss	- 24.3 dB	

# **General Antenna Parameters and Design**

Electrical Delay (one direction)	1.158 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
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Certificate No: D2450V2-736\_Aug21

## **DASY5 Validation Report for Head TSL**

Date: 17.08.2021

Test Laboratory: SPEAG, Zurich, Switzerland

# DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:736

Communication System: UID 0 - CW; Frequency: 2450 MHz

Medium parameters used: f = 2450 MHz;  $\sigma = 1.87$  S/m;  $\epsilon_r = 37.9$ ;  $\rho = 1000$  kg/m<sup>3</sup>

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: 28.12.2020

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn601; Calibrated: 02.11.2020

Phantom: Flat Phantom 5.0 (front); Type: QD 000 P50 AA; Serial: 1001

DASY52 52.10.4(1535); SEMCAD X 14.6.14(7501)

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

Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 118.4 V/m; Power Drift = 0.05 dB

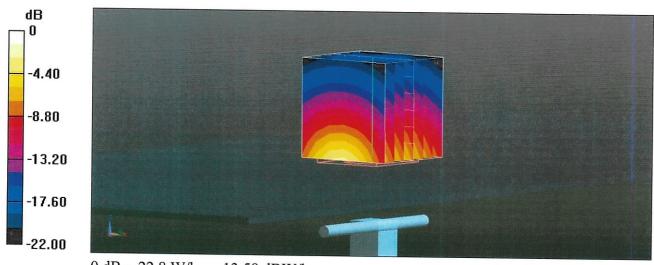
Peak SAR (extrapolated) = 27.7 W/kg

## SAR(1 g) = 13.9 W/kg; SAR(10 g) = 6.43 W/kg

Smallest distance from peaks to all points 3 dB below = 9 mm

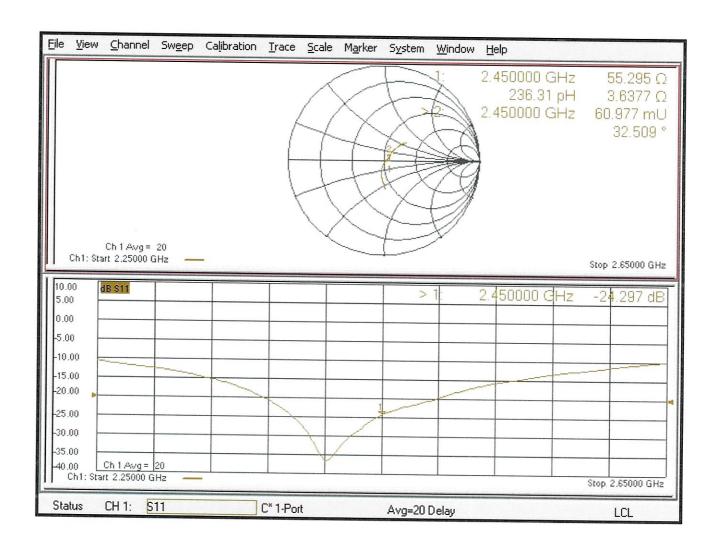
Ratio of SAR at M2 to SAR at M1 = 50.3%

Maximum value of SAR (measured) = 22.8 W/kg



0 dB = 22.8 W/kg = 13.58 dBW/kg

# Impedance Measurement Plot for Head TSL



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Client

Sporton

Accreditation No.: SCS 0108

C

Certificate No: DAE4-853\_Jul21

ALIDDATION OFFICIALE							
CALIBRATION CERTIFICATE							
Object	DAE4 - SD 000 D	04 BM - SN: 853					
Calibration procedure(s)	QA CAL-06.v30 Calibration procedure for the data acquisition electronics (DAE)						
Calibration date:	July 14, 2021						
This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI). The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.  All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.							
Calibration Equipment used (M&T	E critical for calibration)						
Primary Standards	ID#	ID # Cal Date (Certificate No.)					
Keithley Multimeter Type 2001	SN: 0810278	07-Sep-20 (No:28647)	Sep-21				
Secondary Standards	ID#	Check Date (in house)	Scheduled Check				
Auto DAE Calibration Unit	SE UWS 053 AA 1001	07-Jan-21 (in house check)	In house check: Jan-22				
Calibrator Box V2.1	SE UMS 006 AA 1002	07-Jan-21 (in house check)	In house check: Jan-22				
	Name Function Signature						
Calibrated by:	Dominique Steffen	Laboratory Technician	Ma				
Approved by:	Sven Kühn	Deputy Manager	in Bleen				
This calibration certificate shall so	t he reproduced except in t	full without written approval of the laboratory	Issued: July 14, 2021				

Certificate No: DAE4-853\_Jul21

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Glossary

DAE data acquisition electronics

Connector angle information used in DASY system to align probe sensor X to the robot

coordinate system.

#### Methods Applied and Interpretation of Parameters

- DC Voltage Measurement: Calibration Factor assessed for use in DASY system by comparison with a calibrated instrument traceable to national standards. The figure given corresponds to the full scale range of the voltmeter in the respective range.
- Connector angle: The angle of the connector is assessed measuring the angle mechanically by a tool inserted. Uncertainty is not required.
- The following parameters as documented in the Appendix contain technical information as a result from the performance test and require no uncertainty.
  - DC Voltage Measurement Linearity: Verification of the Linearity at +10% and -10% of the nominal calibration voltage. Influence of offset voltage is included in this measurement.
  - Common mode sensitivity: Influence of a positive or negative common mode voltage on the differential measurement.
  - Channel separation: Influence of a voltage on the neighbor channels not subject to an input voltage.
  - AD Converter Values with inputs shorted: Values on the internal AD converter corresponding to zero input voltage
  - Input Offset Measurement: Output voltage and statistical results over a large number of zero voltage measurements.
  - Input Offset Current: Typical value for information; Maximum channel input offset current, not considering the input resistance.
  - Input resistance: Typical value for information: DAE input resistance at the connector, during internal auto-zeroing and during measurement.
  - Low Battery Alarm Voltage: Typical value for information. Below this voltage, a battery alarm signal is generated.
  - Power consumption: Typical value for information. Supply currents in various operating modes.

Certificate No: DAE4-853\_Jul21 Page 2 of 5

## **DC Voltage Measurement**

A/D - Converter Resolution nominal

High Range:

1LSB =

 $6.1\mu V$ ,

full range = -100...+300 mV

Low Range:

1LSB =

61nV,

full range = -1.....+3mV

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

Calibration Factors X		Υ	Z	
High Range	402.636 ± 0.02% (k=2)	403.305 ± 0.02% (k=2)	403.467 ± 0.02% (k=2)	
Low Range	3.95792 ± 1.50% (k=2)	3.96764 ± 1.50% (k=2)	3.96884 ± 1.50% (k=2)	

## **Connector Angle**

Connector Angle to be used in DASY system	133.5 ° ± 1 °
-------------------------------------------	---------------

Certificate No: DAE4-853\_Jul21

## Appendix (Additional assessments outside the scope of SCS0108)

1. DC Voltage Linearity

High Range		Reading (μV)	Difference (μV)	Error (%)
Channel X	+ Input	199994.78	-0.38	-0.00
Channel X	+ Input	20003.58	1.28	0.01
Channel X	- Input	-19998.94	2.24	-0.01
Channel Y	+ Input	199997.74	2.93	0.00
Channel Y	+ Input	20003.47	1.07	0.01
Channel Y	- Input	-20003.18	-1.92	0.01
Channel Z	+ Input	199994.73	-0.07	-0.00
Channel Z	+ Input	20001.92	-0.26	-0.00
Channel Z	- Input	-20002.31	-0.86	0.00

Low Range		Reading (μV)	Difference (μV)	Error (%)
Channel X	+ Input	2003.19	1.62	0.08
Channel X	+ Input	202.80	0.79	0.39
Channel X	- Input	-197.03	0.78	-0.39
Channel Y	+ Input	2002.03	0.56	0.03
Channel Y	+ Input	201.58	-0.24	-0.12
Channel Y	- Input	-198.48	-0.51	0.26
Channel Z	+ Input	2002.49	1.09	0.05
Channel Z	+ Input	200.94	-0.77	-0.38
Channel Z	- Input	-198.75	-0.67	0.34

### 2. Common mode sensitivity

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	Common mode Input Voltage (mV)	High Range Average Reading (μV)	Low Range Average Reading (μV)
Channel X	200	-6.26	-7.94
	- 200	10.98	8.57
Channel Y	200	4.67	4.59
	- 200	-5.84	-5.86
Channel Z	200	0.86	0.78
	- 200	-2.72	-2.94

## 3. Channel separation

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	Input Voltage (mV)	Channel X (μV)	Channel Y (μV)	Channel Z (μV)
Channel X	200	-	4.05	-0.60
Channel Y	200	10.28	-	4.87
Channel Z	200	13.24	7.03	

### 4. AD-Converter Values with inputs shorted

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	High Range (LSB)	Low Range (LSB)
Channel X	16244	16840
Channel Y	16088	16711
Channel Z	16229	15413

### 5. Input Offset Measurement

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

Input 10MΩ

	Average (μV)	min. Offset (μV)	max. Offset (μV)	Std. Deviation (μV)
Channel X	0.48	-0.38	1.60	0.34
Channel Y	0.32	-0.56	1.67	0.44
Channel Z	-0.01	-1.21	2.70	0.79

#### 6. Input Offset Current

Nominal Input circuitry offset current on all channels: <25fA

7. Input Resistance (Typical values for information)

	Zeroing (kOhm)	Measuring (MOhm)
Channel X	200	200
Channel Y	200	200
Channel Z	200	200

8. Low Battery Alarm Voltage (Typical values for information)

Typical values	Alarm Level (VDC)
Supply (+ Vcc)	+7.9
Supply (- Vcc)	-7.6

**9. Power Consumption** (Typical values for information)

Typical values	Switched off (mA)	Stand by (mA)	Transmitting (mA)
Supply (+ Vcc)	+0.01	+6	+14
Supply (- Vcc)	-0.01	-8	-9

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### IMPORTANT NOTICE

#### **USAGE OF THE DAE4**

The DAE unit is a delicate, high precision instrument and requires careful treatment by the user. There are no serviceable parts inside the DAE. Special attention shall be given to the following points:

**Battery Exchange**: The battery cover of the DAE4 unit is fixed using a screw, over tightening the screw may cause the threads inside the DAE to wear out.

**Shipping of the DAE**: Before shipping the DAE to SPEAG for calibration, remove the batteries and pack the DAE in an antistatic bag. This antistatic bag shall then be packed into a larger box or container which protects the DAE from impacts during transportation. The package shall be marked to indicate that a fragile instrument is inside.

**E-Stop Failures**: Touch detection may be malfunctioning due to broken magnets in the E-stop. Rough handling of the E-stop may lead to damage of these magnets. Touch and collision errors are often caused by dust and dirt accumulated in the E-stop. To prevent E-stop failure, the customer shall always mount the probe to the DAE carefully and keep the DAE unit in a non-dusty environment if not used for measurements.

**Repair**: Minor repairs are performed at no extra cost during the annual calibration. However, SPEAG reserves the right to charge for any repair especially if rough unprofessional handling caused the defect.

**DASY Configuration Files:** Since the exact values of the DAE input resistances, as measured during the calibration procedure of a DAE unit, are not used by the DASY software, a nominal value of 200 MOhm is given in the corresponding configuration file.

#### Important Note:

Warranty and calibration is void if the DAE unit is disassembled partly or fully by the Customer.

#### Important Note:

Never attempt to grease or oil the E-stop assembly. Cleaning and readjusting of the E-stop assembly is allowed by certified SPEAG personnel only and is part of the annual calibration procedure.

#### Important Note:

To prevent damage of the DAE probe connector pins, use great care when installing the probe to the DAE. Carefully connect the probe with the connector notch oriented in the mating position. Avoid any rotational movement of the probe body versus the DAE while turning the locking nut of the connector. The same care shall be used when disconnecting the probe from the DAE.

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





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Client

Sporton

Certificate No: EX3-3642 Apr21

### CALIBRATION CERTIFICATE

Object

EX3DV4 - SN:3642

Calibration procedure(s)

QA CAL-01.v9, QA CAL-14.v6, QA CAL-23.v5, QA CAL-25.v7

Calibration procedure for dosimetric E-field probes

Calibration date:

April 26, 2021

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	09-Apr-21 (No. 217-03291/03292)	Apr-22
Power sensor NRP-Z91	SN: 103244	09-Apr-21 (No. 217-03291)	Apr-22
Power sensor NRP-Z91	SN: 103245	09-Apr-21 (No. 217-03292)	Apr-22
Reference 20 dB Attenuator	SN: CC2552 (20x)	09-Apr-21 (No. 217-03343)	Apr-22
DAE4	SN: 660	23-Dec-20 (No. DAE4-660_Dec20)	Dec-21
Reference Probe ES3DV2	SN: 3013	30-Dec-20 (No. ES3-3013_Dec20)	Dec-21
Secondary Standards	ID	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: GB41293874	06-Apr-16 (in house check Jun-20)	In house check: Jun-22
Power sensor E4412A	SN: MY41498087	06-Apr-16 (in house check Jun-20)	In house check: Jun-22
Power sensor E4412A	SN: 000110210	06-Apr-16 (in house check Jun-20)	In house check: Jun-22
RF generator HP 8648C	SN: US3642U01700	04-Aug-99 (in house check Jun-20)	In house check: Jun-22
Network Analyzer E8358A	SN: US41080477	31-Mar-14 (in house check Oct-20)	In house check: Oct-21

Name Function Signature Calibrated by: Jeton Kastrati Laboratory Technician Katja Pokovic Technical Manager Approved by:

Issued: May 4, 2021

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Certificate No: EX3-3642\_Apr21

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#### Glossary:

TSL tissue simulating liquid NORMx,y,z sensitivity in free space Sensitivity in TSL / NOR

ConvF sensitivity in TSL / NORMx,y,z DCP diode compression point

CF crest factor (1/duty\_cycle) of the RF signal A, B, C, D modulation dependent linearization parameters

Polarization  $\varphi$   $\varphi$  rotation around probe axis

Polarization 9 9 rotation around an axis that is in the plane normal to probe axis (at measurement center),

i.e., 9 = 0 is normal to probe axis

Connector Angle information used in DASY system to align probe sensor X to the robot coordinate system

#### Calibration is Performed According to the Following Standards:

 a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013

- b) IEC 62209-1, ", "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from handheld and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
- c) IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
- d) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

#### Methods Applied and Interpretation of Parameters:

- NORMx,y,z: Assessed for E-field polarization 9 = 0 (f ≤ 900 MHz in TEM-cell; f > 1800 MHz: R22 waveguide). NORMx,y,z are only intermediate values, i.e., the uncertainties of NORMx,y,z does not affect the E²-field uncertainty inside TSL (see below ConvF).
- NORM(f)x,y,z = NORMx,y,z \* frequency\_response (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of ConvF.
- DCPx,y,z: DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal (no uncertainty required). DCP does not depend on frequency nor media.
- PAR: PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics
- Ax,y,z; Bx,y,z; Cx,y,z; Dx,y,z; VRx,y,z: A, B, C, D are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. VR is the maximum calibration range expressed in RMS voltage across the diode.
- ConvF and Boundary Effect Parameters: Assessed in flat phantom using E-field (or Temperature Transfer Standard for f ≤ 800 MHz) and inside waveguide using analytical field distributions based on power measurements for f > 800 MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to NORMx,y,z \* ConvF whereby the uncertainty corresponds to that given for ConvF. A frequency dependent ConvF is used in DASY version 4.4 and higher which allows extending the validity from ± 50 MHz to ± 100 MHz.
- Spherical isotropy (3D deviation from isotropy): in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- Sensor Offset: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.
- Connector Angle: The angle is assessed using the information gained by determining the NORMx (no uncertainty required).

Certificate No: EX3-3642 Apr21 Page 2 of 23

EX3DV4 – SN:3642 April 26, 2021

## DASY/EASY - Parameters of Probe: EX3DV4 - SN:3642

#### **Basic Calibration Parameters**

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm $(\mu V/(V/m)^2)^A$	0.31	0.31	0.37	± 10.1 %
DCP (mV) <sup>B</sup>	97.4	104.8	101.7	

Calibration Results for Modulation Response

UID	Communication System Name		A dB	B dB√μV	С	D dB	VR mV	Max dev.	Max Unc <sup>E</sup> (k=2)
0 CW	CW	X	0.00	0.00	1.00	0.00	150.4	± 3.3 %	± 4.7 %
		Y	0.00	0.00	1.00		158.3		
		Z	0.00	0.00	1.00		144.2		
10352-	Pulse Waveform (200Hz, 10%)	X	2.45	65.10	10.98	10.00	60.0	± 3.3 %	± 9.6 %
AAA		Y	20.00	89.91	19.54		60.0		
		Z	7.48	77.90	16.05		60.0		
10353-	Pulse Waveform (200Hz, 20%)	X	2.14	67.08	10.63	6.99	80.0	± 2.2 %	± 9.6 %
AAA		Y	20.00	92.77	19.76		80.0		
		Z	20.00	89.67	18.40		80.0		
10354- Pulse Waveform (200F AAA	Pulse Waveform (200Hz, 40%)	X	1.59	68.33	9.93	3.98	95.0	± 1.0 %	± 9.6 %
		Y	20.00	100.66	22.20		95.0		
		Z	20.00	92.33	18.18		95.0		
10355- Pulse Waveform (200Hz, 60%)	Pulse Waveform (200Hz, 60%)	X	4.24	76.81	11.53	2.22	120.0	± 1.2 %	± 9.6 %
AAA		Y	20.00	111.57	26.00		120.0		
		Z	20.00	96.83	19.11		120.0		
10387-	QPSK Waveform, 1 MHz	X	1.66	68.45	15.68	1.00	150.0	± 2.2 %	± 9.6 %
AAA		Y	1.64	65.69	14.79		150.0		
		Z	1.56	65.04	14.16		150.0		
10388-	QPSK Waveform, 10 MHz	X	2.14	68.46	16.16	0.00	150.0	± 1.0 %	± 9.6 %
AAA	**	Y	2.15	67.22	15.43	]	150.0		
		Z	2.05	66.49	14.87		150.0		
10396-	64-QAM Waveform, 100 kHz	X	2.31	67.84	17.66	3.01	150.0	± 0.8 %	± 9.6 %
AAA		Y	2.59	69.10	18.09		150.0		
		Z	2.63	69.10	17.97		150.0	1	
10399-	64-QAM Waveform, 40 MHz	X	3.48	67.39	16.05	0.00	150.0	± 0.7 %	± 9.6 %
AAA		Y	3.48	66.83	15.64		150.0		
		Z	3.43	66.62	15.40		150.0		
10414-	WLAN CCDF, 64-QAM, 40MHz	X	4.74	65.93	15.80	0.00	150.0	± 1.9 %	± 9.6 %
AAA		Y	4.84	65.55	15.47	1	150.0		
		Z	4.81	65.55	15.37	1	150.0	1	

Note: For details on UID parameters see Appendix

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%.

<sup>B</sup> Numerical linearization parameter: uncertainty not required.

<sup>&</sup>lt;sup>A</sup> The uncertainties of Norm X,Y,Z do not affect the E<sup>2</sup>-field uncertainty inside TSL (see Pages 5 and 6).

Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.