

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



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Accreditation No.: **SCS 0108**

Client **Sporton**
Kunshan City

Certificate No. **D2450V2-1095_Feb24**

CALIBRATION CERTIFICATE

Object **D2450V2 - SN:1095**

Calibration procedure(s) **QA CAL-05.v12**
Calibration Procedure for SAR Validation Sources between 0.7-3 GHz

Calibration date: **February 08, 2024**

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 NRP2	SN: 104778	30-Mar-23 (No. 217-03804/03805)	Mar-24
Power sensor NRP-Z91	SN: 103244	30-Mar-23 (No. 217-03804)	Mar-24
Power sensor NRP-Z91	SN: 103245	30-Mar-23 (No. 217-03805)	Mar-24
Reference 20 dB Attenuator	SN: BH9394 (20k)	30-Mar-23 (No. 217-03809)	Mar-24
Type-N mismatch combination	SN: 310982 / 06327	30-Mar-23 (No. 217-03810)	Mar-24
Reference Probe EX3DV4	SN: 7349	03-Nov-23 (No. EX3-7349_Nov23)	Nov-24
DAE4	SN: 601	30-Jan-24 (No. DAE4-601_Jan24)	Jan-25

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: GB39512475	30-Oct-14 (in house check Oct-22)	In house check: Oct-24
Power sensor HP 8481A	SN: US37292783	07-Oct-15 (in house check Oct-22)	In house check: Oct-24
Power sensor HP 8481A	SN: MY41093315	07-Oct-15 (in house check Oct-22)	In house check: Oct-24
RF generator R&S SMT-06	SN: 100972	15-Jun-15 (in house check Oct-22)	In house check: Oct-24
Network Analyzer Agilent E8358A	SN: US41080477	31-Mar-14 (in house check Oct-22)	In house check: Oct-24

Calibrated by: **Paulo Pina** Name: **Paulo Pina** Function: **Laboratory Technician**

Approved by: **Sven Kühn** Technical Manager

Signature

Issued: February 9, 2024

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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 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%.

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 $\pm$ 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 $\pm$ 0.2) °C	38.2 $\pm$ 6 %	1.88 mho/m $\pm$ 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	13.5 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	52.6 W/kg $\pm$ 17.0 % (k=2)

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	6.27 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	24.7 W/kg $\pm$ 16.5 % (k=2)

Appendix (Additional assessments outside the scope of SCS 0108)**Antenna Parameters with Head TSL**

Impedance, transformed to feed point	$51.3 \Omega + 6.1 j\Omega$
Return Loss	- 24.3 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.147 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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DASY5 Validation Report for Head TSL

Date: 08.02.2024

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:1095

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

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.88$ S/m; $\epsilon_r = 38.2$; $\rho = 1000$ 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: 03.11.2023
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 30.01.2024
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.10.4(1535); SEMCAD X 14.6.14(7501)

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

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

Reference Value = 116.2 V/m; Power Drift = 0.08 dB

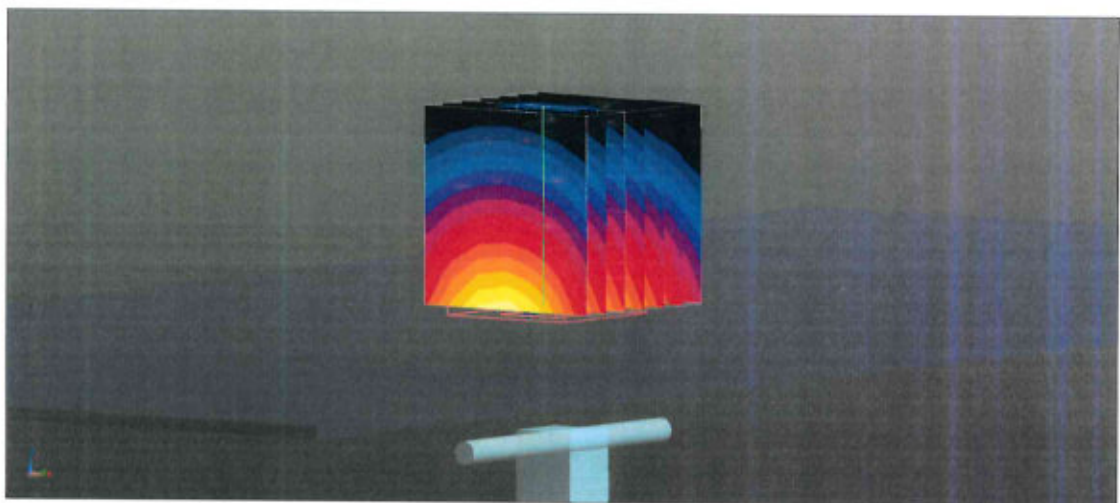
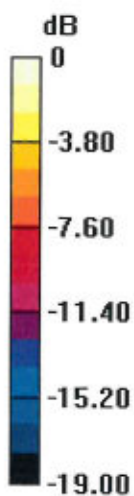
Peak SAR (extrapolated) = 26.7 W/kg

SAR(1 g) = 13.5 W/kg; SAR(10 g) = 6.27 W/kg

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

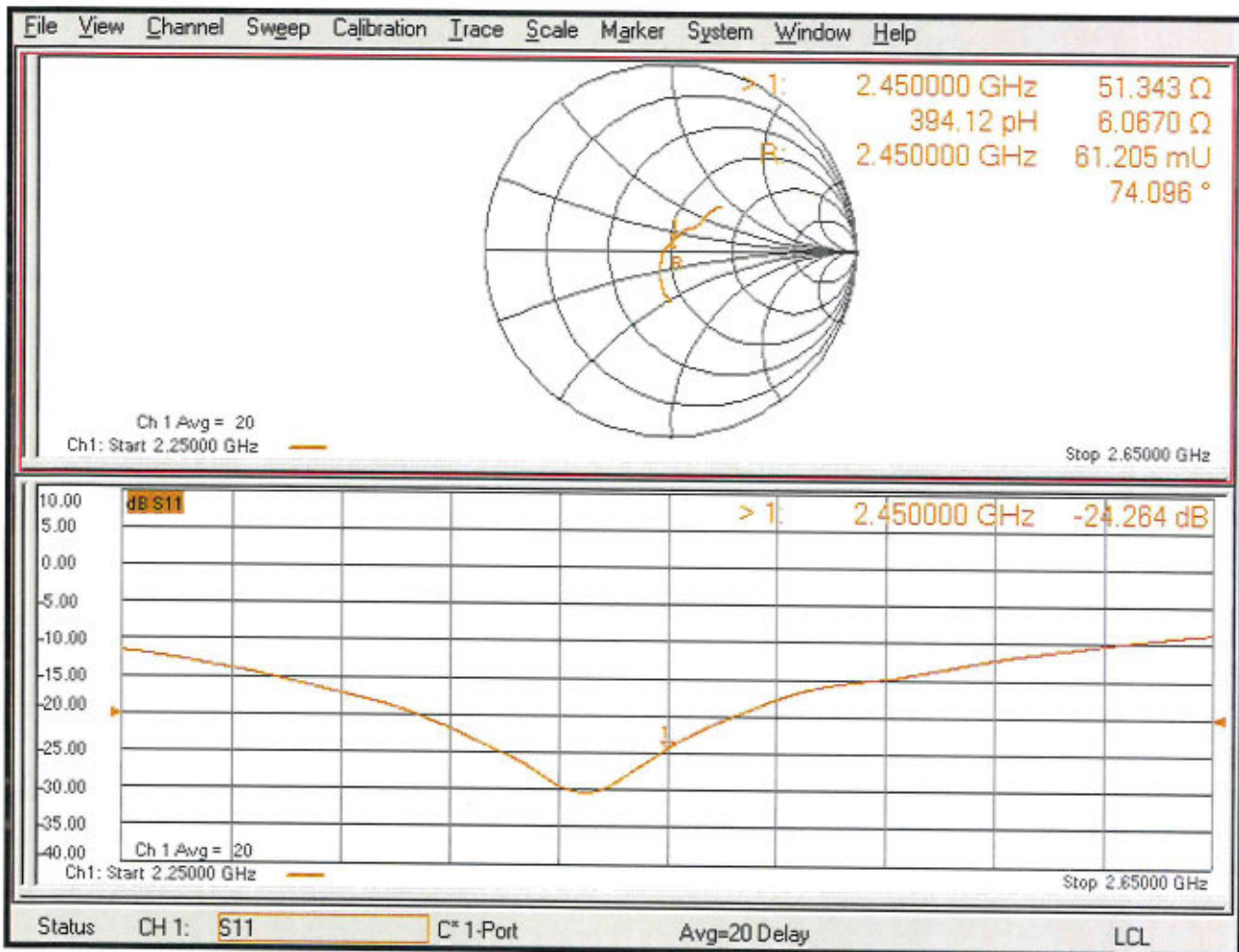
Ratio of SAR at M2 to SAR at M1 = 50.6%

Maximum value of SAR (measured) = 21.8 W/kg



0 dB = 21.8 W/kg = 13.38 dBW/kg

Impedance Measurement Plot for Head TSL



Appendix: Transfer Calibration at Four Validation Locations on SAM Head¹

Evaluation Condition

Phantom	SAM Head Phantom	For usage with cSAR3DV2-R/L
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SAR result with SAM Head (Top $\cong$ C0)

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR for nominal Head TSL parameters	normalized to 1W	56.1 W/kg $\pm$ 17.5 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR for nominal Head TSL parameters	normalized to 1W	26.2 W/kg $\pm$ 16.9 % (k=2)

SAR result with SAM Head (Mouth $\cong$ F90)

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR for nominal Head TSL parameters	normalized to 1W	57.2 W/kg $\pm$ 17.5 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR for nominal Head TSL parameters	normalized to 1W	27.5 W/kg $\pm$ 16.9 % (k=2)

SAR result with SAM Head (Neck $\cong$ H0)

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR for nominal Head TSL parameters	normalized to 1W	53.9 W/kg $\pm$ 17.5 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR for nominal Head TSL parameters	normalized to 1W	25.1 W/kg $\pm$ 16.9 % (k=2)

SAR result with SAM Head (Ear $\cong$ D90)

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR for nominal Head TSL parameters	normalized to 1W	34.5 W/kg $\pm$ 17.5 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR for nominal Head TSL parameters	normalized to 1W	17.5 W/kg $\pm$ 16.9 % (k=2)

¹ Additional assessments outside the current scope of SCS 0108

D2450V2, Serial No. 1095 Extended Dipole Calibrations

If dipoles are verified in return loss ($< -20\text{dB}$, within 20% of prior calibration), and in impedance (within 5 ohm of prior calibration), the annual calibration is not necessary and the calibration interval can be extended.

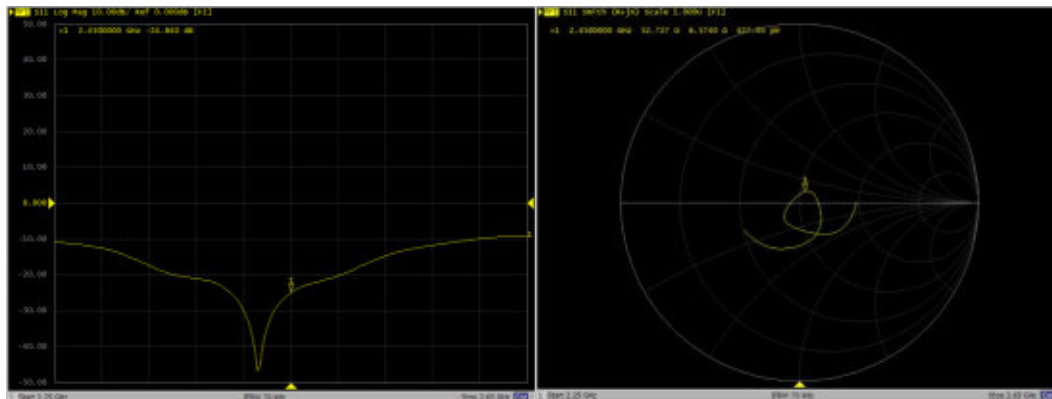
D2450V2 – serial no. 1095						
2450 Head						
Date of Measurement	Return-Loss (dB)	Delta (%)	Real Impedance (ohm)	Delta (ohm)	Imaginary Impedance (ohm)	Delta (ohm)
2024.2.8	-24.264		51.343		6.0670	
2025.2.7	-24.840	2%	52.727	1.384	6.5740	0.507
2026.2.6	-23.389	-4%	51.314	-0.029	6.0825	0.015

<Justification of the extended calibration>

The return loss is $< -20\text{dB}$, within 20% of prior calibration; the impedance is within 5 ohm of prior calibration. Therefore the verification result should support extended calibration.

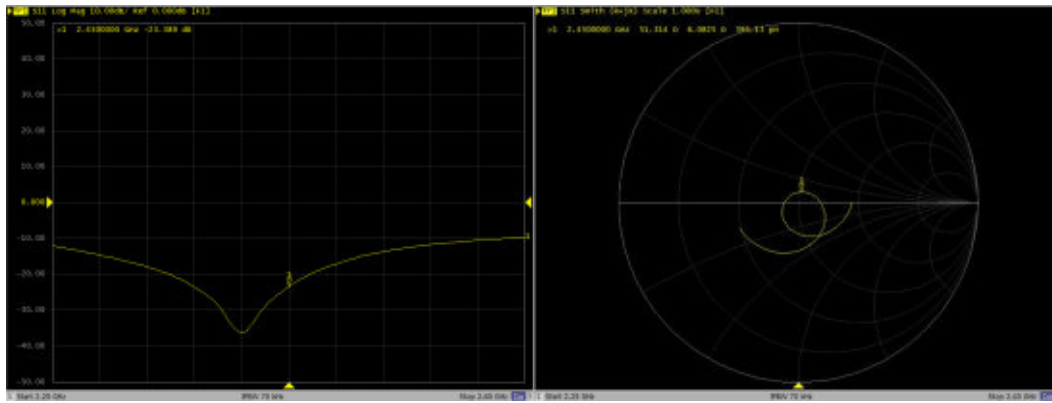
Dipole Verification Data> D2450V2, serial no. 1095

2450MHz – Head-2025.2.7



Dipole Verification Data> D2450V2, serial no. 1095

2450MHz – Head-2026.2.6



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IMPORTANT NOTICE

USAGE OF THE DAE4 SN: 1649

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 must be given to the following points:

Battery Exchange: The battery cover of the DAE4 unit is closed 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 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 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.

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Accreditation No.: **SCS 0108**

Client **Sporton**
Kunshan City

Certificate No: **DAE4-1649_Aug25**

CALIBRATION CERTIFICATE

Object **DAE4 - SD 000 D04 BO - SN: 1649**

Calibration procedure(s) **QA CAL-06.v30**
Calibration procedure for the data acquisition electronics (DAE)

Calibration date: **August 27, 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 $(22 \pm 3)^{\circ}\text{C}$ and humidity $< 70\%$.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Keithley Multimeter Type 2001	SN: 0810278	15-Aug-25 (No:43873)	Aug-26
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Auto DAE Calibration Unit	SE UWS 053 AA 1001	23-Jan-25 (in house check)	In house check: Jan-26
Calibrator Box V2.1	SE UMS 006 AA 1002	23-Jan-25 (in house check)	In house check: Jan-26

Calibrated by: **Name** **Adrian Gehring** **Function** **Laboratory Technician**

Approved by: **Sven Kühn** **Technical Manager**

Signature

Issued: August 27, 2025

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Accreditation No.: **SCS 0108**

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.

DC Voltage Measurement

A/D - Converter Resolution nominal

High Range: 1LSB = 6.1 μ 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	Y	Z
High Range	404.686 $\pm$ 0.02% (k=2)	404.667 $\pm$ 0.02% (k=2)	404.476 $\pm$ 0.02% (k=2)
Low Range	3.95016 $\pm$ 1.50% (k=2)	3.98665 $\pm$ 1.50% (k=2)	3.97675 $\pm$ 1.50% (k=2)

Connector Angle

Connector Angle to be used in DASY system	99.0 ° $\pm$ 1 °
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Appendix (Additional assessments outside the scope of SCS0108)

1. DC Voltage Linearity

High Range		Reading (μV)	Difference (μV)	Error (%)
Channel X	+ Input	199997.63	-0.47	-0.00
Channel X	+ Input	20002.33	-1.10	-0.01
Channel X	- Input	-20000.09	1.59	-0.01
Channel Y	+ Input	199997.38	-0.79	-0.00
Channel Y	+ Input	20000.28	-3.06	-0.02
Channel Y	- Input	-20003.30	-1.47	0.01
Channel Z	+ Input	199998.86	0.22	0.00
Channel Z	+ Input	20000.51	-2.78	-0.01
Channel Z	- Input	-20003.73	-1.86	0.01

Low Range		Reading (μV)	Difference (μV)	Error (%)
Channel X	+ Input	2001.95	0.19	0.01
Channel X	+ Input	202.70	0.76	0.38
Channel X	- Input	-197.21	0.54	-0.27
Channel Y	+ Input	2001.65	-0.08	-0.00
Channel Y	+ Input	200.95	-0.82	-0.40
Channel Y	- Input	-198.63	-0.77	0.39
Channel Z	+ Input	2001.77	0.16	0.01
Channel Z	+ Input	201.25	-0.57	-0.28
Channel Z	- Input	-198.50	-0.60	0.30

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	3.59	2.19
	- 200	-0.67	-2.40
Channel Y	200	-7.24	-6.97
	- 200	4.99	4.61
Channel Z	200	0.34	0.26
	- 200	-1.95	-1.67

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	-	0.30	-3.48
Channel Y	200	6.92	-	2.52
Channel Z	200	10.37	3.75	-

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	15986	15781
Channel Y	16054	16165
Channel Z	16191	16667

5. Input Offset Measurement

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

Input 10M Ω

	Average (μ V)	min. Offset (μ V)	max. Offset (μ V)	Std. Deviation (μ V)
Channel X	0.97	-0.33	1.69	0.35
Channel Y	-0.46	-1.58	1.10	0.43
Channel Z	-0.43	-1.47	0.81	0.41

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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Accreditation No.: **SCS 0108**

Client

Sporton
 Kunshan City

Certificate No.

EX-7764_Oct25

CALIBRATION CERTIFICATE

Object **EX3DV4 - SN:7764**

Calibration procedure(s) **QA CAL-01.v10, QA CAL-12.v10, QA CAL-14.v7, QA CAL-23.v6,
 QA CAL-25.v8, QA CAL-48.v2**
Calibration procedure for dosimetric E-field probes

Calibration date **October 22, 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 $(22 \pm 3)^\circ\text{C}$ and humidity $< 70\%$.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID	Calibration Date (Certificate No.)	Sched. Cal.
Power Sensor R&S NRP-33T	SN: 100967	30-Apr-25 (No. 1020-300791789)	Apr-26
N-type mismatch combination	SN: L1119	26-Mar-25 (No. 217-04292)	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
DAE4	SN: 1301	07-Nov-24 (No. DAE4-1301_Nov24)	Nov-25

Secondary Standards	ID	Check Date (in house)	Sched. Check
ACAP 2020 Setup 1	SN: L1404	01-Oct-25 (No. IHCK_ACAP2020-1_Oct25)	Oct-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	Joanna Lleshaj	Laboratory Technician	
Approved by	Sven Kühn	Technical Manager	
Issued: October 22, 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
NORM _{x,y,z}	sensitivity in free space
ConvF	sensitivity in TSL / NORM _{x,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 φ	φ rotation around probe axis
Polarization ϑ	ϑ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., $\vartheta = 0$ 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:

- 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"

Methods Applied and Interpretation of Parameters:

- NORM_{x,y,z}**: Assessed for E-field polarization $\vartheta = 0$ ($f \leq 900$ MHz in TEM-cell; $f > 1800$ MHz: R22 waveguide). NORM_{x,y,z} are only intermediate values, i.e., the uncertainties of NORM_{x,y,z} does not affect the E²-field uncertainty inside TSL (see below ConvF).
- NORM(f)_{x,y,z}** = NORM_{x,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.
- DCP_{x,y,z}**: DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal. 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
- A_{x,y,z}; B_{x,y,z}; C_{x,y,z}; D_{x,y,z}; VR_{x,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 $f \leq 800$ 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 NORM_{x,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 NORM_x (no uncertainty required).

Parameters of Probe: EX3DV4 - SN:7764

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k = 2)
Norm ($\mu\text{V}/(\text{V}/\text{m})^2$) ^A	0.54	0.60	0.62	±10.1%
DCP (mV) ^B	106.6	102.8	103.9	±4.7%

Calibration Results for Modulation Response

UID	Communication System Name		A dB	B dB $\sqrt{\mu\text{V}}$	C	D dB	VR mV	Max dev.	Max Unc ^E k = 2
0	Continuous Wave	X	0.00	0.00	1.00	0.00	141.1	±1.0%	±4.7%
		Y	0.00	0.00	1.00		139.2		
		Z	0.00	0.00	1.00		123.9		
10352	Pulse (D=10%, T=5 ms)	X	0.17	59.99	14.93	10.00	23.0	±1.9%	±9.6%
		Y	0.60	69.98	18.43		24.0		
		Z	0.43	70.00	18.76		24.0		
10353	Pulse (D=20%, T=5 ms)	X	0.16	63.00	14.96	6.99	46.0	±1.6%	±9.6%
		Y	0.56	72.99	18.48		48.0		
		Z	0.39	73.01	18.81		48.0		
10354	Pulse (D=40%, T=5 ms)	X	0.15	66.01	14.99	3.98	92.0	±1.5%	±9.6%
		Y	0.53	76.00	18.53		95.0		
		Z	0.36	76.02	18.87		96.0		
10355	Pulse (D=60%, T=5 ms)	X	0.14	67.77	15.00	2.22	138.0	±1.4%	±9.6%
		Y	0.51	77.76	18.56		142.0		
		Z	0.34	77.78	18.90		144.0		
10387	Random (BW=1 MHz, MOD=QPSK)	X	0.01	64.89	16.00	0.33	106.0	±1.4%	±9.6%
		Y	0.00	74.88	19.78		110.0		
		Z	0.01	74.90	19.73		112.0		
10388	Random (BW=10 MHz, MOD=QPSK)	X	0.64	64.78	14.01	0.00	113.0	±2.6%	±9.6%
		Y	1.79	74.76	17.61		117.0		
		Z	1.72	74.78	17.81		119.0		
10396	Random (BW=100 kHz, MOD=64QAM)	X	0.00	81.46	17.34	1.68	80.0	±3.5%	±9.6%
		Y	0.02	73.71	21.45		83.0		
		Z	0.01	48.44	21.22		85.0		
10399	Random (BW=40 MHz, MOD=64QAM)	X	1.68	63.72	13.14	0.00	104.0	±4.2%	±9.6%
		Y	3.94	73.71	17.50		108.0		
		Z	3.76	73.73	17.70		110.0		
10414	Random (BW=40 MHz, HIGH PAR)	X	2.10	61.46	13.05	0.00	76.0	±2.1%	±9.6%
		Y	4.82	71.44	17.50		79.0		
		Z	4.74	71.46	17.70		80.0		

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%.

^A The uncertainties of Norm X,Y,Z do not affect the E²-field uncertainty inside TSL (see Pages 5 and 6).

^B Linearization parameter uncertainty for maximum specified field strength.

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

Parameters of Probe: EX3DV4 - SN:7764

Sensor Model Parameters

	C1 fF	C2 fF	α V ⁻¹	T1 msV ⁻²	T2 msV ⁻¹	T3 ms	T4 V ⁻²	T5 V ⁻¹	T6
x	9.5	69.85	34.23	2.76	0.00	4.92	0.33	0.00	1.00
y	10.9	80.58	34.94	1.79	0.00	4.90	0.00	0.00	1.00
z	11.5	85.42	35.09	2.17	0.00	4.90	0.30	0.00	1.00

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle	-27.8°
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	12 mm
Tip Length	9 mm
Tip Diameter	2.5 mm
Probe Tip to Sensor X Calibration Point	1 mm
Probe Tip to Sensor Y Calibration Point	1 mm
Probe Tip to Sensor Z Calibration Point	1 mm
Recommended Measurement Distance from Surface	1.4 mm

Note: Measurement distance from surface can be increased to 3–4 mm for an *Area Scan* job.

Parameters of Probe: EX3DV4 - SN:7764

Calibration Parameter Determined in HSL

f (MHz) ^C	Relative Permittivity ^F	Conductivity ^F (S/m)	ConvF X	ConvF Y	ConvF Z	Alpha ^G	Depth ^G (mm)	Unc ^H (k = 2)
750	41.9	0.89	10.37	10.09	10.28	0.34	1.27	±11.0%
835	41.5	0.90	10.17	9.90	10.08	0.34	1.27	±11.0%
900	41.5	0.97	9.87	9.60	9.78	0.34	1.27	±11.0%
1450	40.5	1.20	8.70	8.46	8.62	0.35	1.27	±11.0%
1750	40.1	1.37	8.40	8.17	8.33	0.35	1.27	±11.0%
1900	40.0	1.40	8.21	7.99	8.14	0.35	1.27	±11.0%
2000	40.0	1.40	8.07	7.85	8.00	0.35	1.27	±11.0%
2300	39.5	1.67	7.80	7.59	7.74	0.35	1.27	±11.0%
2450	39.2	1.80	7.65	7.44	7.58	0.35	1.27	±11.0%
2600	39.0	1.96	7.49	7.28	7.42	0.35	1.27	±11.0%
3300	38.2	2.71	7.00	6.81	6.94	0.35	1.27	±13.1%
3500	37.9	2.91	6.94	6.76	6.88	0.35	1.27	±13.1%
3700	37.7	3.12	6.89	6.70	6.83	0.35	1.27	±13.1%
3900	37.5	3.32	6.81	6.63	6.75	0.35	1.27	±13.1%
4100	37.2	3.53	6.76	6.58	6.70	0.35	1.27	±13.1%
4200	37.1	3.63	6.71	6.53	6.65	0.35	1.27	±13.1%
4400	36.9	3.84	6.66	6.48	6.61	0.35	1.27	±13.1%
4600	36.7	4.04	6.57	6.39	6.51	0.35	1.27	±13.1%
4800	36.4	4.25	6.52	6.34	6.46	0.35	1.27	±13.1%
4950	36.3	4.40	6.44	6.26	6.38	0.34	1.27	±13.1%
5250	35.9	4.71	5.90	5.74	5.85	0.31	1.27	±13.1%
5600	35.5	5.07	5.45	5.30	5.40	0.28	1.27	±13.1%
5800	35.3	5.27	5.31	5.17	5.27	0.26	1.27	±13.1%

^C Frequency validity above 300 MHz of ±100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ±50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ±10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Validity of ConvF assessed at 6 MHz is 4–9 MHz, and ConvF assessed at 13 MHz is 9–19 MHz. Above 5 GHz frequency validity can be extended to ±110 MHz.

^F The probes are calibrated using tissue simulating liquids (TSL) that deviate for ϵ and σ by less than ±5% from the target values (typically better than ±3%) and are valid for TSL with deviations of up to ±10% if SAR correction is applied.

^G Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ±1% for frequencies below 3 GHz and below ±2% for frequencies between 3–6 GHz at any distance larger than half the probe tip diameter from the boundary.

^H The stated uncertainty is the total calibration uncertainty (k = 2) of Norm-ConvF. This is equivalent to the uncertainty component with the symbol CF in Table 9 of IEC/IEEE 62209-1528:2020.

Parameters of Probe: EX3DV4 - SN:7764

Calibration Parameter Determined in HSL

f (MHz) ^C	Relative Permittivity ^F	Conductivity ^F (S/m)	ConvF X	ConvF Y	ConvF Z	Alpha ^G	Depth ^G (mm)	Unc ^H (k = 2)
6500	34.5	6.07	5.67	5.52	5.62	0.20	1.27	±18.6%

^C Frequency validity is -600/+700 MHz at 6.5 GHz, ±700 MHz at or above 7 GHz, and ±150 MHz at 9.85 GHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

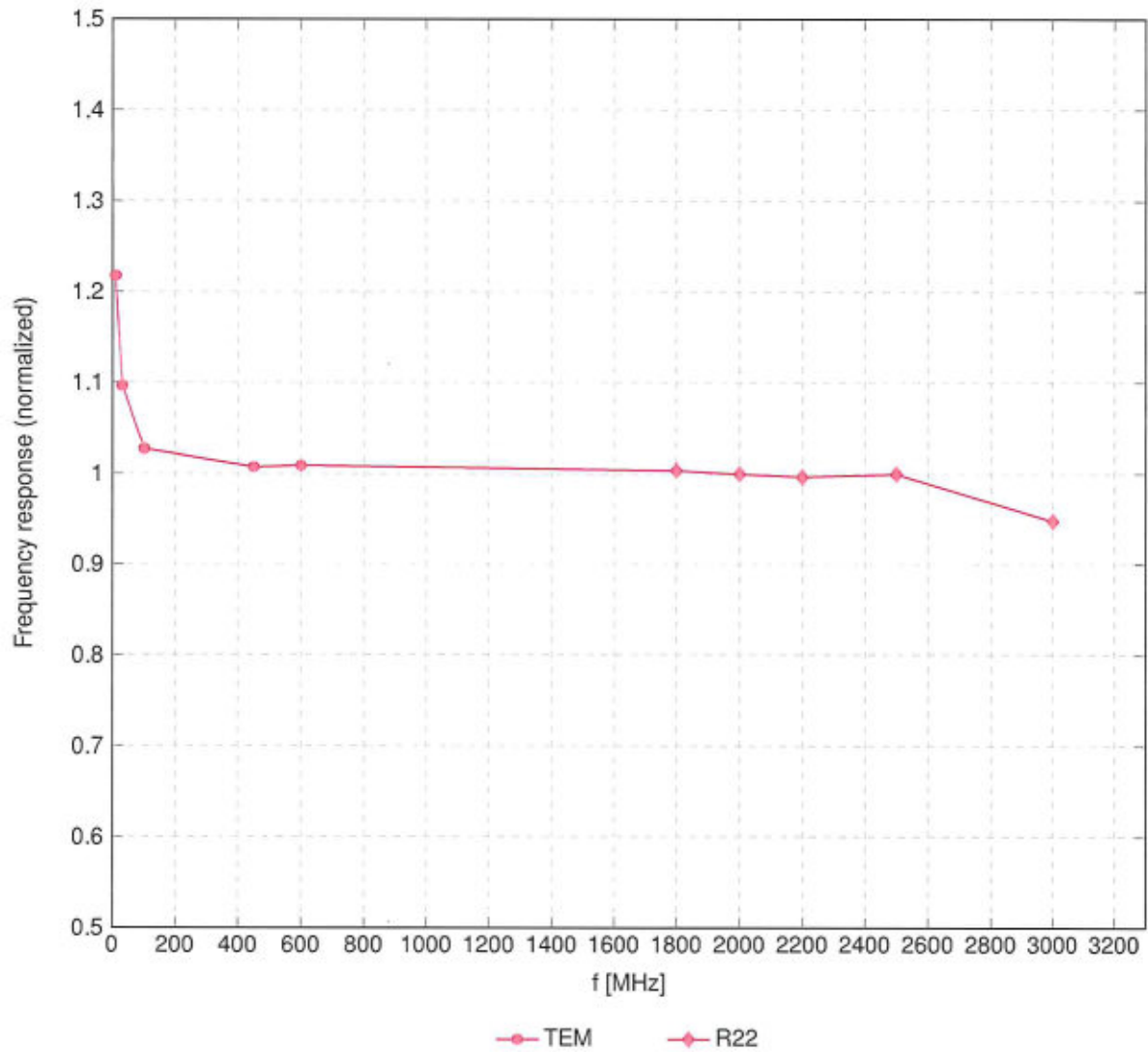
^F The probes are calibrated using tissue simulating liquids (TSL) that deviate for ϵ and σ by less than ±10% from the target values (typically better than ±6%) and are valid for TSL with deviations of up to ±10%.

^G Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ±1% for frequencies below 3 GHz; below ±2% for frequencies between 3–6 GHz; and below ±4% for frequencies between 6–10 GHz at any distance larger than half the probe tip diameter from the boundary.

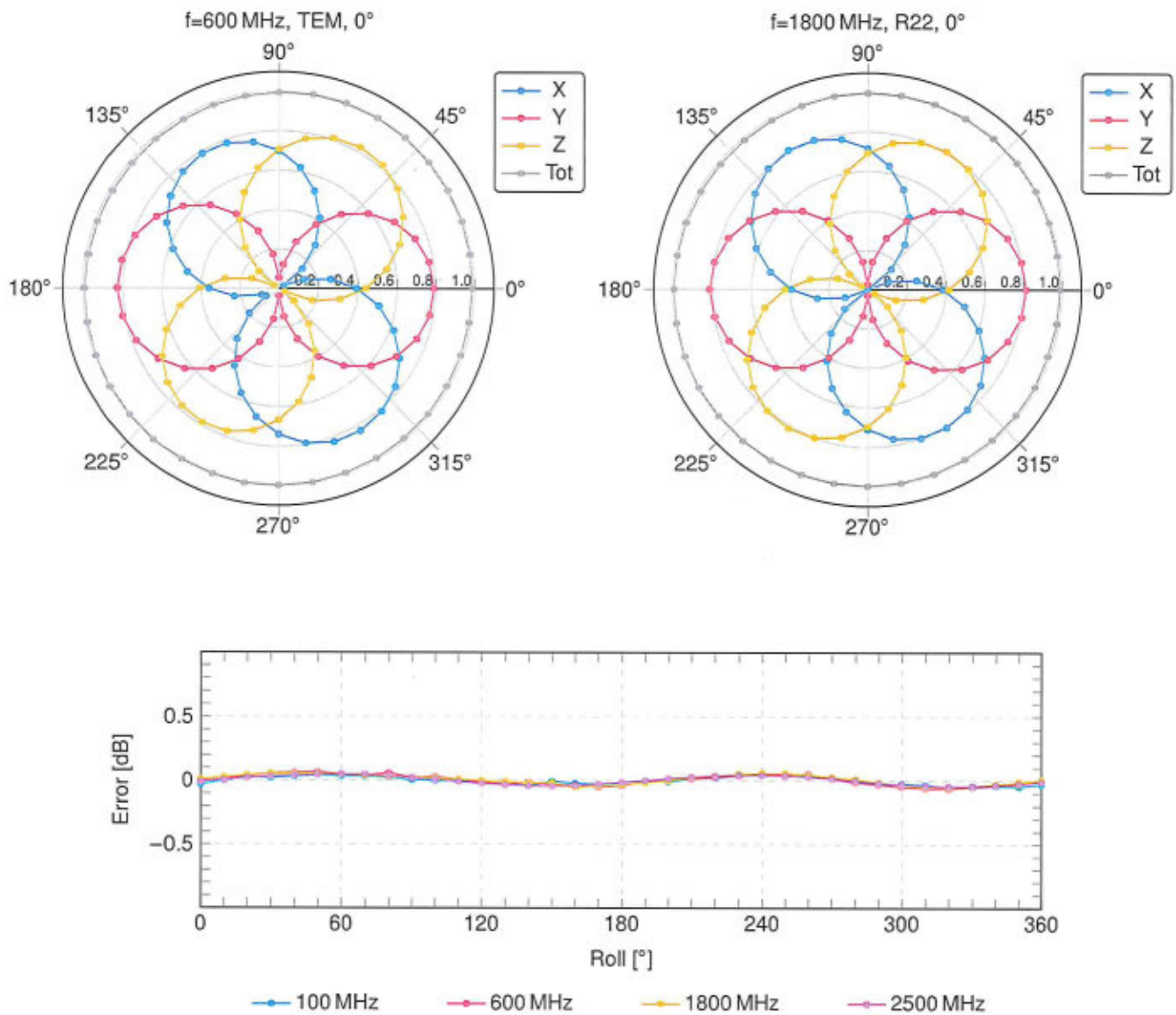
^H The stated uncertainty is the total calibration uncertainty (k = 2) of Norm-ConvF. This is equivalent to the uncertainty component with the symbol CF in Table 9 of IEC/IEEE 62209-1528:2020.

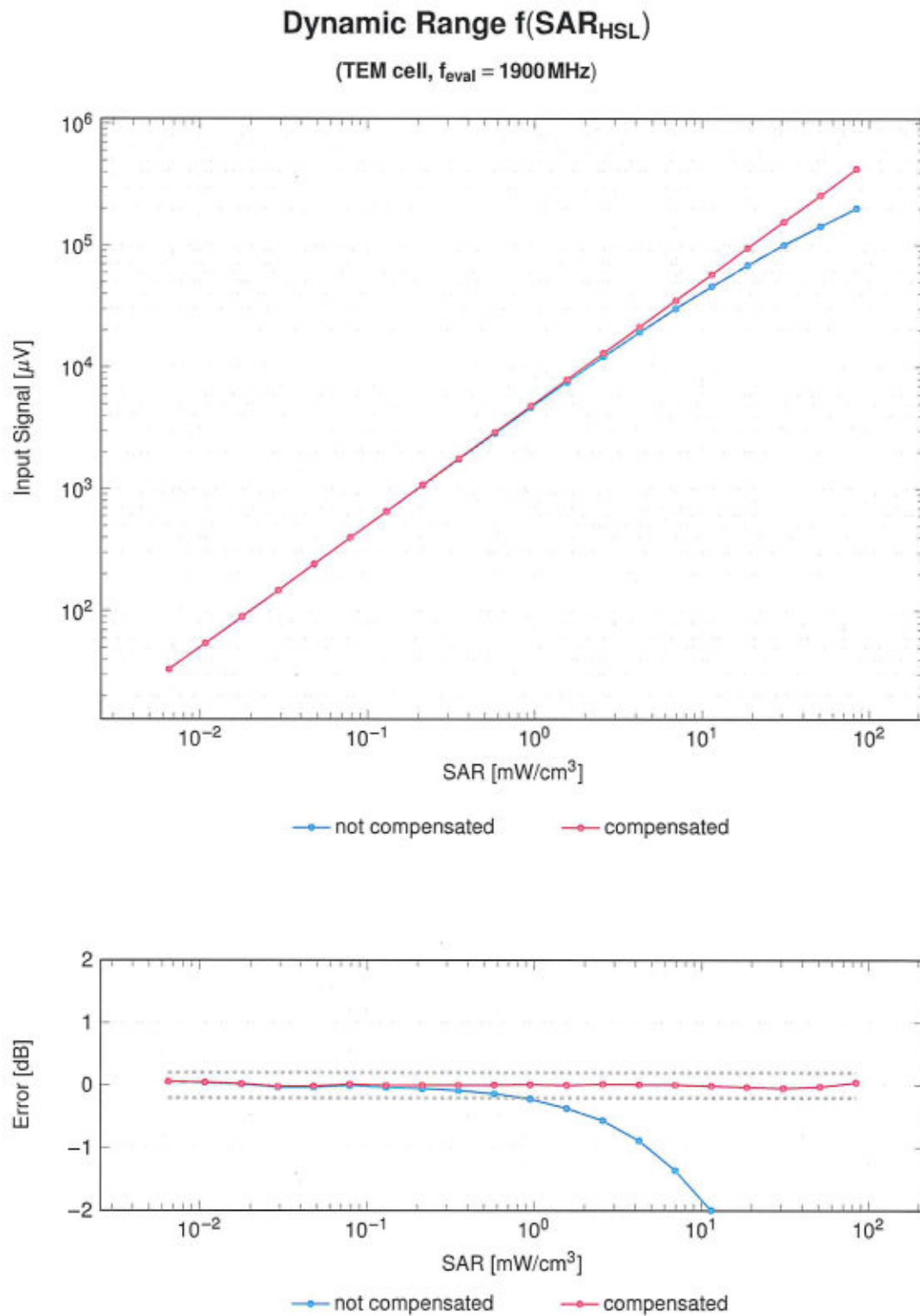
Frequency Response of E-Field

(TEM-Cell:ifi110 EXX, Waveguide:R22)

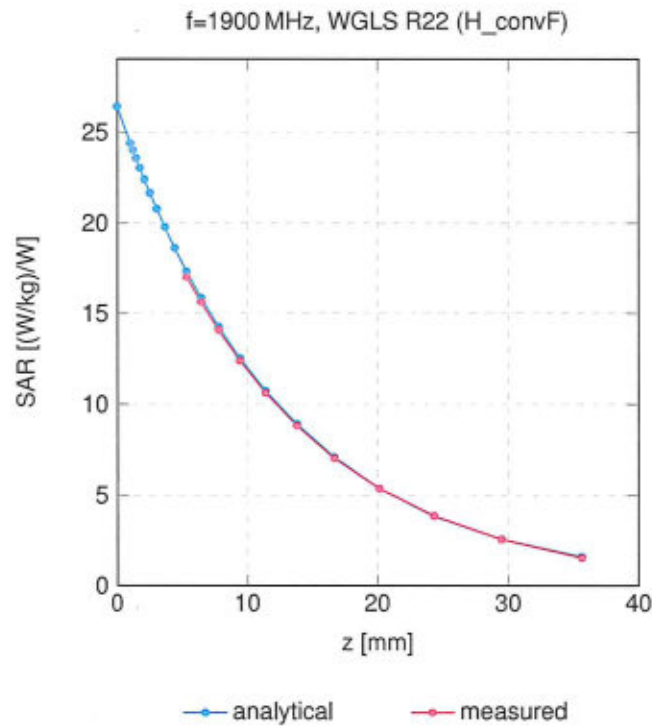


Uncertainty of Frequency Response of E-field: $\pm 6.3\%$ ($k=2$)

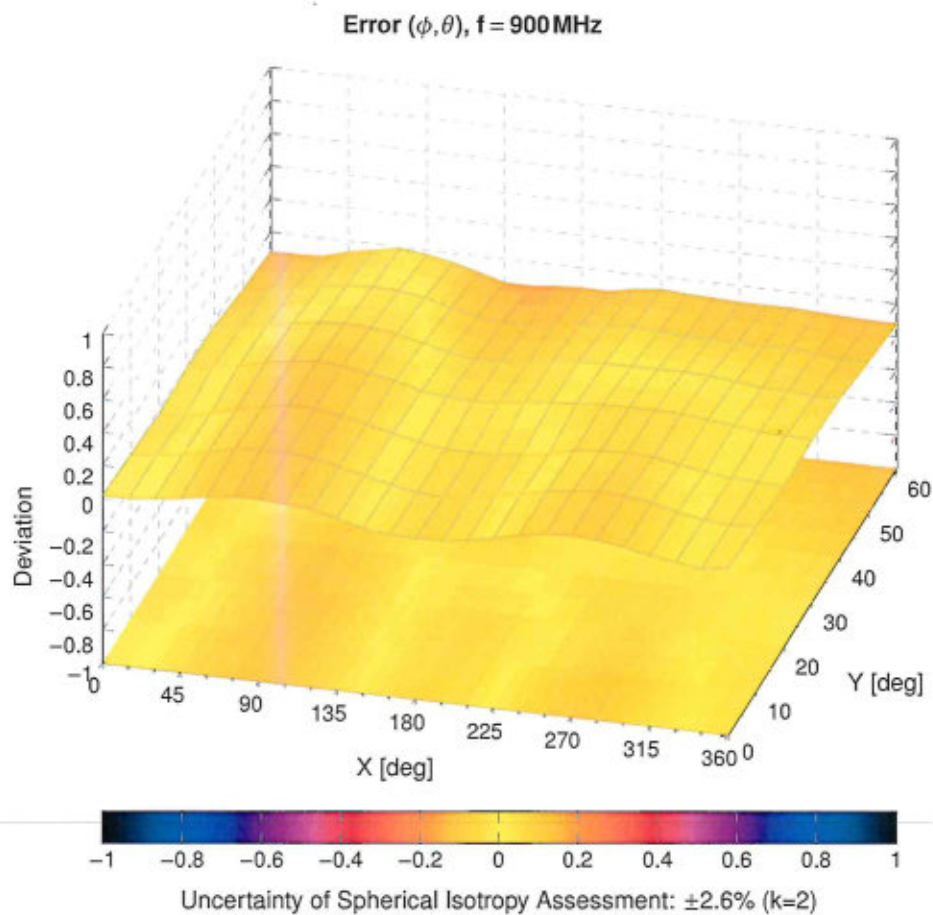
Receiving Pattern (ϕ), $\theta = 0^\circ$ 



Conversion Factor Assessment



Deviation from Isotropy in Liquid



Appendix: Modulation Calibration Parameters

UID	Rev	Communication System Name	Group	PAR (dB)	Unc ^E k = 2
0		Continuous Wave	CW	0.00	±4.7
10010	CAB	Pulse (D=10%, T=100 ms)	Test	10.00	±9.6
10011	CAC	Rel. 99, RMC, QPSK, 5.0 MHz	WCDMA	2.91	±9.6
10012	CAB	DSSS, DBPSK, 1.0 Mbps, 92.5% DC	WLAN	1.87	±9.6
10013	CAB	OFDM, BPSK, 6.0 Mbps, 72.1% DC	WLAN	9.46	±9.6
10021	DAC	Voice, GMSK, 1 slot(s)	GSM	9.39	±9.6
10023	DAC	Data, GMSK, 1 slot(s)	GSM	9.57	±9.6
10024	DAC	Data, GMSK, 2 slot(s)	GSM	6.56	±9.6
10025	DAC	Data, 8PSK, 1 slot(s)	GSM	12.62	±9.6
10026	DAC	Data, 8PSK, 2 slot(s)	GSM	9.55	±9.6
10027	DAC	Data, GMSK, 3 slot(s)	GSM	4.80	±9.6
10028	DAC	Data, GMSK, 4 slot(s)	GSM	3.55	±9.6
10029	DAC	Data, 8PSK, 3 slot(s)	GSM	7.78	±9.6
10030	CAA	BR, DH1, GFSK	Bluetooth	5.30	±9.6
10031	CAA	BR, DH3, GFSK	Bluetooth	1.87	±9.6
10032	CAA	BR, DH5, GFSK	Bluetooth	1.16	±9.6
10033	CAA	EDR, DH1, pi/4-DQPSK	Bluetooth	7.74	±9.6
10034	CAA	EDR, DH3, pi/4-DQPSK	Bluetooth	4.53	±9.6
10035	CAA	EDR, DH5, pi/4-DQPSK	Bluetooth	3.83	±9.6
10036	CAA	EDR, DH1, 8-DPSK	Bluetooth	8.01	±9.6
10037	CAA	EDR, DH3, 8-DPSK	Bluetooth	4.77	±9.6
10038	CAA	EDR, DH5, 8-DPSK	Bluetooth	4.10	±9.6
10039	CAB	RC1, 1xRTT	CDMA2000	4.57	±9.6
10048	CAA	Full Slot, GFSK, 1 slot(s)	DECT	13.80	±9.6
10049	CAA	Double Slot, GFSK, 2 slot(s)	DECT	10.79	±9.6
10056	CAA	TD-SCDMA, QPSK, 1.6 MHz	TD-SCDMA	11.01	±9.6
10058	DAC	Data, 8PSK, 4 slot(s)	GSM	6.52	±9.6
10059	CAB	DSSS, DQPSK, 2.0 Mbps, 87.4% DC	WLAN	2.12	±9.6
10060	CAB	HR-DSSS, DQPSK, 5.5 Mbps, 72.7% DC	WLAN	2.83	±9.6
10061	CAB	HR-DSSS, DQPSK, 11.0 Mbps, 57.5% DC	WLAN	3.60	±9.6
10062	CAE	OFDM, BPSK, 6.0 Mbps, 89.1% DC	WLAN	8.68	±9.6
10063	CAE	OFDM, BPSK, 9.0 Mbps, 85.3% DC	WLAN	8.63	±9.6
10064	CAE	OFDM, QPSK, 12.0 Mbps, 82.0% DC	WLAN	9.09	±9.6
10065	CAE	OFDM, QPSK, 18.0 Mbps, 76.0% DC	WLAN	9.00	±9.6
10066	CAE	OFDM, 16QAM, 24.0 Mbps, 70.6% DC	WLAN	9.38	±9.6
10067	CAE	OFDM, 16QAM, 36.0 Mbps, 62.9% DC	WLAN	10.12	±9.6
10068	CAE	OFDM, 64QAM, 48.0 Mbps, 56.6% DC	WLAN	10.24	±9.6
10069	CAE	OFDM, 64QAM, 54.0 Mbps, 54.4% DC	WLAN	10.56	±9.6
10071	CAB	OFDM, BPSK, 9.0 Mbps, 65.1% DC	WLAN	9.83	±9.6
10072	CAB	OFDM, QPSK, 12.0 Mbps, 60.1% DC	WLAN	9.62	±9.6
10073	CAB	OFDM, QPSK, 18.0 Mbps, 53.1% DC	WLAN	9.94	±9.6
10074	CAB	OFDM, 16QAM, 24.0 Mbps, 48.5% DC	WLAN	10.30	±9.6
10075	CAB	OFDM, 16QAM, 36.0 Mbps, 42.9% DC	WLAN	10.77	±9.6
10076	CAB	OFDM, 64QAM, 48.0 Mbps, 39.5% DC	WLAN	10.94	±9.6
10077	CAB	OFDM, 64QAM, 54.0 Mbps, 38.5% DC	WLAN	11.00	±9.6
10081	CAB	RC3, 1xRTT	CDMA2000	3.97	±9.6
10097	CAC	Rel. 5 HSDPA, QPSK, 5.0 MHz	WCDMA	3.98	±9.6
10098	CAC	Rel. 6 HSUPA, Subset 2, QPSK, 5.0 MHz	WCDMA	3.98	±9.6
10100	CAF	20.0 MHz, QPSK, 100% RB	LTE-FDD	5.67	±9.6
10101	CAF	20.0 MHz, 16QAM, 100% RB	LTE-FDD	6.42	±9.6
10102	CAF	20.0 MHz, 64QAM, 100% RB	LTE-FDD	6.60	±9.6
10103	CAH	20.0 MHz, QPSK, UL/DL CFG: 1, SSC: 4, 100% RB	LTE-TDD	9.29	±9.6
10104	CAH	20.0 MHz, 16QAM, UL/DL CFG: 1, SSC: 4, 100% RB	LTE-TDD	9.97	±9.6
10105	CAH	20.0 MHz, 64QAM, UL/DL CFG: 1, SSC: 4, 100% RB	LTE-TDD	10.01	±9.6
10108	CAH	10.0 MHz, QPSK, 100% RB	LTE-FDD	5.80	±9.6
10109	CAH	10.0 MHz, 16QAM, 100% RB	LTE-FDD	6.43	±9.6
10110	CAH	5.0 MHz, QPSK, 100% RB	LTE-FDD	5.75	±9.6
10111	CAH	5.0 MHz, 16QAM, 100% RB	LTE-FDD	6.44	±9.6
10112	CAH	10.0 MHz, 64QAM, 100% RB	LTE-FDD	6.59	±9.6
10113	CAH	5.0 MHz, 64QAM, 100% RB	LTE-FDD	6.62	±9.6
10114	CAE	HT40 Greenfield, MCS0 (13.5 Mbps), 99.7% DC	WLAN	8.10	±9.6
10115	CAE	HT40 Greenfield, MCS4 (81.0 Mbps), 99.7% DC	WLAN	8.46	±9.6
10116	CAE	HT40 Greenfield, MCS7 (135.0 Mbps), 99.7% DC	WLAN	8.15	±9.6

UID	Rev	Communication System Name	Group	PAR (dB)	Unc ^E k = 2
10117	CAE	HT40 Mixed, MCS0 (13.5 Mbps), 99.7% DC	WLAN	8.07	±9.6
10118	CAE	HT40 Mixed, MCS4 (81.0 Mbps), 99.7% DC	WLAN	8.59	±9.6
10119	CAE	HT40 Mixed, MCS7 (135.0 Mbps), 99.7% DC	WLAN	8.13	±9.6
10140	CAF	15.0 MHz, 16QAM, 100% RB	LTE-FDD	6.49	±9.6
10141	CAF	15.0 MHz, 64QAM, 100% RB	LTE-FDD	6.53	±9.6
10142	CAF	3.0 MHz, QPSK, 100% RB	LTE-FDD	5.73	±9.6
10143	CAF	3.0 MHz, 16QAM, 100% RB	LTE-FDD	6.35	±9.6
10144	CAF	3.0 MHz, 64QAM, 100% RB	LTE-FDD	6.65	±9.6
10145	CAG	1.4 MHz, QPSK, 100% RB	LTE-FDD	5.76	±9.6
10146	CAG	1.4 MHz, 16QAM, 100% RB	LTE-FDD	6.41	±9.6
10147	CAG	1.4 MHz, 64QAM, 100% RB	LTE-FDD	6.72	±9.6
10149	CAF	20.0 MHz, 16QAM, 50% RB	LTE-FDD	6.42	±9.6
10150	CAF	20.0 MHz, 64QAM, 50% RB	LTE-FDD	6.60	±9.6
10151	CAH	20.0 MHz, QPSK, UL/DL CFG: 1, SSC: 4, 50% RB	LTE-TDD	9.28	±9.6
10152	CAH	20.0 MHz, 16QAM, UL/DL CFG: 1, SSC: 4, 50% RB	LTE-TDD	9.92	±9.6
10153	CAH	20.0 MHz, 64QAM, UL/DL CFG: 1, SSC: 4, 50% RB	LTE-TDD	10.05	±9.6
10154	CAH	10.0 MHz, QPSK, 50% RB	LTE-FDD	5.75	±9.6
10155	CAH	10.0 MHz, 16QAM, 50% RB	LTE-FDD	6.43	±9.6
10156	CAH	5.0 MHz, QPSK, 50% RB	LTE-FDD	5.79	±9.6
10157	CAH	5.0 MHz, 16QAM, 50% RB	LTE-FDD	6.49	±9.6
10158	CAH	10.0 MHz, 64QAM, 50% RB	LTE-FDD	6.62	±9.6
10159	CAH	5.0 MHz, 64QAM, 50% RB	LTE-FDD	6.56	±9.6
10160	CAF	15.0 MHz, QPSK, 50% RB	LTE-FDD	5.82	±9.6
10161	CAF	15.0 MHz, 16QAM, 50% RB	LTE-FDD	6.43	±9.6
10162	CAF	15.0 MHz, 64QAM, 50% RB	LTE-FDD	6.58	±9.6
10166	CAG	1.4 MHz, QPSK, 50% RB	LTE-FDD	5.46	±9.6
10167	CAG	1.4 MHz, 16QAM, 50% RB	LTE-FDD	6.21	±9.6
10168	CAG	1.4 MHz, 64QAM, 50% RB	LTE-FDD	6.79	±9.6
10169	CAF	20.0 MHz, QPSK, 1 RB	LTE-FDD	5.73	±9.6
10170	CAF	20.0 MHz, 16QAM, 1 RB	LTE-FDD	6.52	±9.6
10171	AAF	20.0 MHz, 64QAM, 1 RB	LTE-FDD	6.49	±9.6
10172	CAH	20.0 MHz, QPSK, UL/DL CFG: 1, SSC: 4, 1 RB	LTE-TDD	9.21	±9.6
10173	CAH	20.0 MHz, 16QAM, UL/DL CFG: 1, SSC: 4, 1 RB	LTE-TDD	9.48	±9.6
10174	CAH	20.0 MHz, 64QAM, UL/DL CFG: 1, SSC: 4, 1 RB	LTE-TDD	10.25	±9.6
10175	CAH	10.0 MHz, QPSK, 1 RB	LTE-FDD	5.72	±9.6
10176	CAH	10.0 MHz, 16QAM, 1 RB	LTE-FDD	6.52	±9.6
10177	CAJ	5.0 MHz, QPSK, 1 RB	LTE-FDD	5.73	±9.6
10178	CAH	5.0 MHz, 16QAM, 1 RB	LTE-FDD	6.52	±9.6
10179	CAH	10.0 MHz, 64QAM, 1 RB	LTE-FDD	6.50	±9.6
10180	CAH	5.0 MHz, 64QAM, 1 RB	LTE-FDD	6.50	±9.6
10181	CAF	15.0 MHz, QPSK, 1 RB	LTE-FDD	5.72	±9.6
10182	CAF	15.0 MHz, 16QAM, 1 RB	LTE-FDD	6.52	±9.6
10183	AAE	15.0 MHz, 64QAM, 1 RB	LTE-FDD	6.50	±9.6
10184	CAF	3.0 MHz, QPSK, 1 RB	LTE-FDD	5.73	±9.6
10185	CAF	3.0 MHz, 16QAM, 1 RB	LTE-FDD	6.51	±9.6
10186	AAF	3.0 MHz, 64QAM, 1 RB	LTE-FDD	6.50	±9.6
10187	CAG	1.4 MHz, QPSK, 1 RB	LTE-FDD	5.73	±9.6
10188	CAG	1.4 MHz, 16QAM, 1 RB	LTE-FDD	6.52	±9.6
10189	AAG	1.4 MHz, 64QAM, 1 RB	LTE-FDD	6.50	±9.6
10193	CAE	HT20 Greenfield, MCS0 (6.5 Mbps), 99.4% DC	WLAN	8.09	±9.6
10194	CAE	HT20 Greenfield, MCS4 (39.0 Mbps), 99.5% DC	WLAN	8.12	±9.6
10195	CAE	HT20 Greenfield, MCS7 (65.0 Mbps), 99.5% DC	WLAN	8.21	±9.6
10196	CAE	HT20 Mixed, MCS0 (6.5 Mbps), 99.4% DC	WLAN	8.10	±9.6
10197	CAE	HT20 Mixed, MCS4 (39.0 Mbps), 99.5% DC	WLAN	8.13	±9.6
10198	CAE	HT20 Mixed, MCS7 (65.0 Mbps), 99.5% DC	WLAN	8.27	±9.6
10219	CAE	HT20 Mixed, MCS0 (7.2 Mbps), 99.3% DC	WLAN	8.03	±9.6
10220	CAE	HT20 Mixed, MCS4 (43.3 Mbps), 99.4% DC	WLAN	8.13	±9.6
10221	CAE	HT20 Mixed, MCS7 (72.2 Mbps), 99.4% DC	WLAN	8.27	±9.6
10222	CAE	HT40 Mixed, MCS0 (15.0 Mbps), 99.7% DC	WLAN	8.06	±9.6
10223	CAE	HT40 Mixed, MCS4 (90.0 Mbps), 99.7% DC	WLAN	8.48	±9.6
10224	CAE	HT40 Mixed, MCS7 (150.0 Mbps), 99.7% DC	WLAN	8.08	±9.6
10225	CAC	Rel. 7 HSPA+, 16QAM, 5.0 MHz	WCDMA	5.97	±9.6
10226	CAC	1.4 MHz, 16QAM, UL/DL CFG: 1, SSC: 4, 1 RB	LTE-TDD	9.49	±9.6
10227	CAC	1.4 MHz, 64QAM, UL/DL CFG: 1, SSC: 4, 1 RB	LTE-TDD	10.26	±9.6
10228	CAC	1.4 MHz, QPSK, UL/DL CFG: 1, SSC: 4, 1 RB	LTE-TDD	9.22	±9.6
10229	CAE	3.0 MHz, 16QAM, UL/DL CFG: 1, SSC: 4, 1 RB	LTE-TDD	9.48	±9.6

UID	Rev	Communication System Name	Group	PAR (dB)	Unc ^E k = 2
10230	CAE	3.0 MHz, 64QAM, UL/DL CFG: 1, SSC: 4, 1 RB	LTE-TDD	10.25	±9.6
10231	CAE	3.0 MHz, QPSK, UL/DL CFG: 1, SSC: 4, 1 RB	LTE-TDD	9.19	±9.6
10232	CAH	5.0 MHz, 16QAM, UL/DL CFG: 1, SSC: 4, 1 RB	LTE-TDD	9.48	±9.6
10233	CAH	5.0 MHz, 64QAM, UL/DL CFG: 1, SSC: 4, 1 RB	LTE-TDD	10.25	±9.6
10234	CAH	5.0 MHz, QPSK, UL/DL CFG: 1, SSC: 4, 1 RB	LTE-TDD	9.21	±9.6
10235	CAH	10.0 MHz, 16QAM, UL/DL CFG: 1, SSC: 4, 1 RB	LTE-TDD	9.48	±9.6
10236	CAH	10.0 MHz, 64QAM, UL/DL CFG: 1, SSC: 4, 1 RB	LTE-TDD	10.25	±9.6
10237	CAH	10.0 MHz, QPSK, UL/DL CFG: 1, SSC: 4, 1 RB	LTE-TDD	9.21	±9.6
10238	CAG	15.0 MHz, 16QAM, UL/DL CFG: 1, SSC: 4, 1 RB	LTE-TDD	9.48	±9.6
10239	CAG	15.0 MHz, 64QAM, UL/DL CFG: 1, SSC: 4, 1 RB	LTE-TDD	10.25	±9.6
10240	CAG	15.0 MHz, QPSK, UL/DL CFG: 1, SSC: 4, 1 RB	LTE-TDD	9.21	±9.6
10241	CAC	1.4 MHz, 16QAM, UL/DL CFG: 1, SSC: 4, 50% RB	LTE-TDD	9.82	±9.6
10242	CAC	1.4 MHz, 64QAM, UL/DL CFG: 1, SSC: 4, 50% RB	LTE-TDD	9.86	±9.6
10243	CAC	1.4 MHz, QPSK, UL/DL CFG: 1, SSC: 4, 50% RB	LTE-TDD	9.46	±9.6
10244	CAE	3.0 MHz, 16QAM, UL/DL CFG: 1, SSC: 4, 50% RB	LTE-TDD	10.06	±9.6
10245	CAE	3.0 MHz, 64QAM, UL/DL CFG: 1, SSC: 4, 50% RB	LTE-TDD	10.06	±9.6
10246	CAE	3.0 MHz, QPSK, UL/DL CFG: 1, SSC: 4, 50% RB	LTE-TDD	9.30	±9.6
10247	CAH	5.0 MHz, 16QAM, UL/DL CFG: 1, SSC: 4, 50% RB	LTE-TDD	9.91	±9.6
10248	CAH	5.0 MHz, 64QAM, UL/DL CFG: 1, SSC: 4, 50% RB	LTE-TDD	10.09	±9.6
10249	CAH	5.0 MHz, QPSK, UL/DL CFG: 1, SSC: 4, 50% RB	LTE-TDD	9.29	±9.6
10250	CAH	10.0 MHz, 16QAM, UL/DL CFG: 1, SSC: 4, 50% RB	LTE-TDD	9.81	±9.6
10251	CAH	10.0 MHz, 64QAM, UL/DL CFG: 1, SSC: 4, 50% RB	LTE-TDD	10.17	±9.6
10252	CAH	10.0 MHz, QPSK, UL/DL CFG: 1, SSC: 4, 50% RB	LTE-TDD	9.24	±9.6
10253	CAG	15.0 MHz, 16QAM, UL/DL CFG: 1, SSC: 4, 50% RB	LTE-TDD	9.90	±9.6
10254	CAG	15.0 MHz, 64QAM, UL/DL CFG: 1, SSC: 4, 50% RB	LTE-TDD	10.14	±9.6
10255	CAG	15.0 MHz, QPSK, UL/DL CFG: 1, SSC: 4, 50% RB	LTE-TDD	9.20	±9.6
10256	CAC	1.4 MHz, 16QAM, UL/DL CFG: 1, SSC: 4, 100% RB	LTE-TDD	9.96	±9.6
10257	CAC	1.4 MHz, 64QAM, UL/DL CFG: 1, SSC: 4, 100% RB	LTE-TDD	10.08	±9.6
10258	CAC	1.4 MHz, QPSK, UL/DL CFG: 1, SSC: 4, 100% RB	LTE-TDD	9.34	±9.6
10259	CAE	3.0 MHz, 16QAM, UL/DL CFG: 1, SSC: 4, 100% RB	LTE-TDD	9.98	±9.6
10260	CAE	3.0 MHz, 64QAM, UL/DL CFG: 1, SSC: 4, 100% RB	LTE-TDD	9.97	±9.6
10261	CAE	3.0 MHz, QPSK, UL/DL CFG: 1, SSC: 4, 100% RB	LTE-TDD	9.24	±9.6
10262	CAH	5.0 MHz, 16QAM, UL/DL CFG: 1, SSC: 4, 100% RB	LTE-TDD	9.83	±9.6
10263	CAH	5.0 MHz, 64QAM, UL/DL CFG: 1, SSC: 4, 100% RB	LTE-TDD	10.16	±9.6
10264	CAH	5.0 MHz, QPSK, UL/DL CFG: 1, SSC: 4, 100% RB	LTE-TDD	9.23	±9.6
10265	CAH	10.0 MHz, 16QAM, UL/DL CFG: 1, SSC: 4, 100% RB	LTE-TDD	9.92	±9.6
10266	CAH	10.0 MHz, 64QAM, UL/DL CFG: 1, SSC: 4, 100% RB	LTE-TDD	10.07	±9.6
10267	CAH	10.0 MHz, QPSK, UL/DL CFG: 1, SSC: 4, 100% RB	LTE-TDD	9.30	±9.6
10268	CAG	15.0 MHz, 16QAM, UL/DL CFG: 1, SSC: 4, 100% RB	LTE-TDD	10.06	±9.6
10269	CAG	15.0 MHz, 64QAM, UL/DL CFG: 1, SSC: 4, 100% RB	LTE-TDD	10.13	±9.6
10270	CAG	15.0 MHz, QPSK, UL/DL CFG: 1, SSC: 4, 100% RB	LTE-TDD	9.58	±9.6
10274	CAC	Rel. 6 HSUPA Subset 2, beta_d 0, QPSK, 5.0 MHz	WCDMA	4.87	±9.6
10275	CAC	Rel. 6 HSUPA Subset 2, beta_d 15, QPSK, 5.0 MHz	WCDMA	3.96	±9.6
10290	AAB	RC1, SO55, Full frame rate, 1xRTT	CDMA2000	3.91	±9.6
10291	AAB	RC3, SO55, Full frame rate, 1xRTT	CDMA2000	3.46	±9.6
10292	AAB	RC3, SO32, Full frame rate, SCH0 disabled, 1xRTT	CDMA2000	3.39	±9.6
10293	AAB	RC3, SO3, Full frame rate, 1xRTT	CDMA2000	3.50	±9.6
10295	AAB	RC3, SO3, 1/8 frame rate, 1xRTT	CDMA2000	12.49	±9.6
10297	AAE	20.0 MHz, QPSK, 50% RB	LTE-FDD	5.81	±9.6
10298	AAE	3.0 MHz, QPSK, 50% RB	LTE-FDD	5.72	±9.6
10299	AAE	3.0 MHz, 16QAM, 50% RB	LTE-FDD	6.39	±9.6
10300	AAE	3.0 MHz, 64QAM, 50% RB	LTE-FDD	6.60	±9.6
10301	AAA	PUSC, 29:18, QPSK, 5.0 ms, 18 TRAF SYM	WiMAX	12.03	±9.6
10302	AAA	PUSC, 29:18, QPSK, 5.0 ms, 15 TRAF SYM	WiMAX	12.57	±9.6
10303	AAA	PUSC, 31:15, 64QAM, 5.0 ms, 15 TRAF SYM	WiMAX	12.52	±9.6
10304	AAA	PUSC, 29:18, 64QAM, 5.0 ms, 18 TRAF SYM	WiMAX	11.86	±9.6
10305	AAA	PUSC, 31:15, 64QAM, 10.0 ms, 15 TRAF SYM	WiMAX	15.24	±9.6
10306	AAA	PUSC, 29:18, 64QAM, 10.0 ms, 18 TRAF SYM	WiMAX	14.67	±9.6
10307	AAA	PUSC, 29:18, QPSK, 10.0 ms, 18 TRAF SYM	WiMAX	14.49	±9.6
10308	AAA	PUSC, 29:18, 16QAM, 10.0 ms, 18 TRAF SYM	WiMAX	14.46	±9.6
10309	AAA	AMC 2x3, 29:18, 16QAM, 10.0 ms, 18 TRAF SYM	WiMAX	14.58	±9.6
10310	AAA	AMC 2x3, 29:18, QPSK, 10.0 ms, 18 TRAF SYM	WiMAX	14.57	±9.6
10311	AAE	15.0 MHz, QPSK, 100% RB	LTE-FDD	6.06	±9.6
10315	AAB	DSSS, DBPSK, 1.0 Mbps, 96.0% DC	WLAN	1.71	±9.6
10316	AAB	OFDM, BPSK, 6.0 Mbps, 95.9% DC	WLAN	8.36	±9.6
10317	AAE	OFDM, BPSK, 6.0 Mbps, 95.9% DC	WLAN	8.36	±9.6

UID	Rev	Communication System Name	Group	PAR (dB)	Unc ^E k = 2
10352	AAA	Pulse (D=10%, T=5 ms)	Generic	10.00	±9.6
10353	AAA	Pulse (D=20%, T=5 ms)	Generic	6.99	±9.6
10354	AAA	Pulse (D=40%, T=5 ms)	Generic	3.98	±9.6
10355	AAA	Pulse (D=60%, T=5 ms)	Generic	2.22	±9.6
10356	AAA	Pulse (D=80%, T=5 ms)	Generic	0.97	±9.6
10387	AAA	Random (BW=1 MHz, MOD=QPSK)	Generic	5.10	±9.6
10388	AAA	Random (BW=10 MHz, MOD=QPSK)	Generic	5.22	±9.6
10396	AAA	Random (BW=100 kHz, MOD=64QAM)	Generic	6.27	±9.6
10399	AAA	Random (BW=40 MHz, MOD=64QAM)	Generic	6.27	±9.6
10400	AAF	VHT20, MCS5 (52.0 Mbps), 99.0% DC	WLAN	8.37	±9.6
10401	AAF	VHT40, MCS5 (108.0 Mbps), 96.7% DC	WLAN	8.60	±9.6
10402	AAF	VHT80, MCS5 (234.0 Mbps), 99.0% DC	WLAN	8.53	±9.6
10403	AAB	Rev. 0, 1xEV-DO	CDMA2000	3.76	±9.6
10404	AAB	Rev. A, 1xEV-DO	CDMA2000	3.77	±9.6
10406	AAB	RC3, SO32, Full frame rate, SCH0 enabled, 1xRTT	CDMA2000	5.22	±9.6
10410	AAH	10.0 MHz, QPSK, UL/DL CFG: 0, SSC: 4, 1 RB	LTE-TDD	7.82	±9.6
10414	AAA	Random (BW=40 MHz, HIGH PAR)	Generic	8.54	±9.6
10415	AAA	DSSS, DBPSK, 1.0 Mbps, 99.9% DC	WLAN	1.54	±9.6
10416	AAA	OFDM, BPSK, 6.0 Mbps, 99.9% DC	WLAN	8.23	±9.6
10417	AAD	OFDM, BPSK, 6.0 Mbps, 99.9% DC	WLAN	8.23	±9.6
10418	AAA	OFDM (LTF), BPSK, 6.0 Mbps, 99.8% DC	WLAN	8.14	±9.6
10419	AAA	OFDM (STF), BPSK, 6.0 Mbps, 99.8% DC	WLAN	8.19	±9.6
10422	AAD	HT20 Greenfield, MCS0 (7.2 Mbps), 99.3% DC	WLAN	8.32	±9.6
10423	AAD	HT20 Greenfield, MCS4 (43.3 Mbps), 99.3% DC	WLAN	8.47	±9.6
10424	AAD	HT20 Greenfield, MCS7 (72.2 Mbps), 99.3% DC	WLAN	8.40	±9.6
10425	AAD	HT40 Greenfield, MCS0 (15.0 Mbps), 99.2% DC	WLAN	8.41	±9.6
10426	AAD	HT40 Greenfield, MCS4 (90.0 Mbps), 99.2% DC	WLAN	8.45	±9.6
10427	AAD	HT40 Greenfield, MCS7 (150.0 Mbps), 99.2% DC	WLAN	8.41	±9.6
10430	AAE	5.0 MHz, 64-QAM, 100% RB	LTE-FDD	8.28	±9.6
10431	AAE	10.0 MHz, 64-QAM, 100% RB	LTE-FDD	8.38	±9.6
10432	AAD	15.0 MHz, 64-QAM, 100% RB	LTE-FDD	8.34	±9.6
10433	AAD	20.0 MHz, 64-QAM, 100% RB	LTE-FDD	8.34	±9.6
10434	AAB	BS Test Model 1, 64 DPCH, 64QAM, 5.0 MHz (DL)	WCDMA	8.60	±9.6
10435	AAG	20.0 MHz, QPSK, UL/DL CFG: 0, SSC: 7, 1 RB	LTE-TDD	7.82	±9.6
10447	AAE	5.0 MHz, 64-QAM, 100% RB	LTE-FDD	7.56	±9.6
10448	AAE	10.0 MHz, 64-QAM, 100% RB	LTE-FDD	7.53	±9.6
10449	AAD	15.0 MHz, 64-QAM, 100% RB	LTE-FDD	7.51	±9.6
10450	AAD	20.0 MHz, 64-QAM, 100% RB	LTE-FDD	7.48	±9.6
10451	AAB	BS Test Model 1, 64 DPCH, Clipping 44%, 64QAM, 5.0 MHz (DL)	WCDMA	7.59	±9.6
10456	AAD	VHT160, MCS5 (58.5 Mbps), 99.0% DC	WLAN	8.63	±9.6
10457	AAB	Rel. 5 DC-HSDPA, QPSK, 10.0 MHz	WCDMA	6.62	±9.6
10458	AAA	Rev. B, 2 carriers, 1xEV-DO	CDMA2000	6.55	±9.6
10459	AAA	Rev. B, 3 carriers, 1xEV-DO	CDMA2000	8.25	±9.6
10460	AAB	Rel. 99, AMR, QPSK, 5.0 MHz	WCDMA	2.39	±9.6
10461	AAC	1.4 MHz, QPSK, UL/DL CFG: 0, SSC: 7, 1 RB	LTE-TDD	7.82	±9.6
10462	AAC	1.4 MHz, 16QAM, UL/DL CFG: 0, SSC: 7, 1 RB	LTE-TDD	8.30	±9.6
10463	AAC	1.4 MHz, 64QAM, UL/DL CFG: 0, SSC: 7, 1 RB	LTE-TDD	8.56	±9.6
10464	AAD	3.0 MHz, QPSK, UL/DL CFG: 0, SSC: 7, 1 RB	LTE-TDD	7.82	±9.6
10465	AAD	3.0 MHz, 16QAM, UL/DL CFG: 0, SSC: 7, 1 RB	LTE-TDD	8.32	±9.6
10466	AAD	3.0 MHz, 64QAM, UL/DL CFG: 0, SSC: 7, 1 RB	LTE-TDD	8.57	±9.6
10467	AAG	5.0 MHz, QPSK, UL/DL CFG: 0, SSC: 7, 1 RB	LTE-TDD	7.82	±9.6
10468	AAG	5.0 MHz, 16QAM, UL/DL CFG: 0, SSC: 7, 1 RB	LTE-TDD	8.32	±9.6
10469	AAG	5.0 MHz, 64QAM, UL/DL CFG: 0, SSC: 7, 1 RB	LTE-TDD	8.56	±9.6
10470	AAG	10.0 MHz, QPSK, UL/DL CFG: 0, SSC: 7, 1 RB	LTE-TDD	7.82	±9.6
10471	AAG	10.0 MHz, 16QAM, UL/DL CFG: 0, SSC: 7, 1 RB	LTE-TDD	8.32	±9.6
10472	AAG	10.0 MHz, 64QAM, UL/DL CFG: 0, SSC: 7, 1 RB	LTE-TDD	8.57	±9.6
10473	AAF	15.0 MHz, QPSK, UL/DL CFG: 0, SSC: 7, 1 RB	LTE-TDD	7.82	±9.6
10474	AAF	15.0 MHz, 16QAM, UL/DL CFG: 0, SSC: 7, 1 RB	LTE-TDD	8.32	±9.6
10475	AAF	15.0 MHz, 64QAM, UL/DL CFG: 0, SSC: 7, 1 RB	LTE-TDD	8.57	±9.6
10477	AAG	20.0 MHz, 16QAM, UL/DL CFG: 0, SSC: 7, 1 RB	LTE-TDD	8.32	±9.6
10478	AAG	20.0 MHz, 64QAM, UL/DL CFG: 0, SSC: 7, 1 RB	LTE-TDD	8.57	±9.6
10479	AAC	1.4 MHz, QPSK, UL/DL CFG: 0, SSC: 7, 50% RB	LTE-TDD	7.74	±9.6
10480	AAC	1.4 MHz, 16QAM, UL/DL CFG: 0, SSC: 7, 50% RB	LTE-TDD	8.18	±9.6
10481	AAC	1.4 MHz, 64QAM, UL/DL CFG: 0, SSC: 7, 50% RB	LTE-TDD	8.45	±9.6
10482	AAD	3.0 MHz, QPSK, UL/DL CFG: 0, SSC: 7, 50% RB	LTE-TDD	7.71	±9.6
10483	AAD	3.0 MHz, 16QAM, UL/DL CFG: 0, SSC: 7, 50% RB	LTE-TDD	8.39	±9.6