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

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Accreditation No.: SCS 0108

Client **Sporton**
Taoyuan

Certificate No. **MAGPy-8H3D-3059**

CALIBRATION CERTIFICATE

Object	MAGPy-8H3D+E3DV2 SN:3059 MAGPy-DASV2 SN:3064
Calibration procedure(s)	QA CAL-46.v1 Calibration Procedure for MAGPy–8H3D+E3D Near-field Electric and Magnetic Field Sensor System
Calibration date	May 15, 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
Oscilloscope	SN: 112135	25-Sep-23 (No. 17A1162175)	Sep-24
Reference 20 dB Attenuator	SN: CC2552 (20x)	26-Mar-24 (No. 217-04046)	Mar-25
Type-N mismatch	SN: 310982 / 06327	26-Mar-24 (No. 217-04047)	Mar-25

Secondary Standards	ID	Check Date (in house)	Scheduled Check
Network Analyzer E5061B	SN: MY49810822	In house check: Nov-23	In house check: Nov-24
TEM Cell	SN: S6029i	In house check: Nov-23	In house check: Nov-24
Plate Capacitor	SN: 6028i	In house check: Nov-23	In house check: Nov-24
Resonator (160kHz)	SN: 6030i	In house check: Nov-23	In house check: Nov-24

	Name	Function	Signature
Calibrated by	Aidonia Georgiadou	Laboratory Engineer	
Approved by	Sven Kühn	Technical Manager	

Issued: May 15, 2024

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

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Glossary

MAGPy-8H3D-E3D	Magnetic Amplitude and Gradient Probe – Eight H-field Sensors, Single E-field sensor
MAGPy-DAS	Magnetic Amplitude and Gradient Data Acquisition System

Calibration is Performed According to the Following Standards:

a) IEEE Std 1309-2013, "IEEE Standard for calibration of electromagnetic field sensors and probes, excluding antennas, from 9 kHz to 40 GHz", November 2013

Methods Applied and Interpretation of Parameters

- Calibration has been performed after the adjustment of the device.
- *Linearity*: Calibration of the linearity of the field reading over the specified dynamic range at 161.75 kHz. Influence of offset voltage is included in this measurement.
- *Frequency response*: Calibration of the field reading over the specified frequency range from 3.0 kHz to 10.0 MHz.
- Receiving Pattern: Assessed for H-field polarizations ϑ, and $\phi = 0° ... 360°$; $\vartheta = 90°$, and $\phi = 0° ... 360°$; for the XYZ sensors (in TEM-Cell at 4 kHz, 40 kHz, 400 kHz and 4 MHz).
- Receiving Pattern: Assessed for E-field polarizations ϑ, and $\phi = 0° ... 360°$; $\vartheta = 90°$, and $\phi = 0° ... 360°$; for the XYZ sensor (in parallel plate capacitor at 4 kHz, 40 kHz, 400 kHz and 4 MHz).

Calibration Uncertainty

The calibration uncertainty is 0.7 dB for the H-field readings and 1.06 dB for the E-field readings. The calibration uncertainty is specified over the frequency range from 3.0 kHz to 10.0 MHz and a dynamic range from 0.1 A/m to 3200 A/m and from 0.08 V/m to 2000 V/m respectively.

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

Unit Type	MAGPy–8H3D+E3DV2 (SP MGY 303 AA)	3059
	MAGPy–DASV2 (SE UMS 303 AC)	3064
	MAGPy FPGA Board	WP000211
Adjustment Date	Last MAGPy Adjustment	May 15, 2024
Firmware SW Version	MAGPy Firmware	Ver. 1.00
Backend SW Version	MAGPy Backend	Ver. 1.0.2
Calibration SW Version	MAGACAP	Ver. 1.0

Dynamic Range

Dynamic Range, H-field, Channel 0

H-field/(A/m) Applied			H-field/(A/m) Reading			Difference/(dB)			
x	y	z	x	y	z	x	y	z	Tolerance/(dB)
0.370	0.360	0.350	0.390	0.380	0.350	0.46	0.47	0.00	±1.00
0.510	0.490	0.470	0.500	0.510	0.480	−0.17	0.35	0.18	±1.00
0.700	0.670	0.650	0.690	0.680	0.650	−0.12	0.13	0.00	±1.00
0.910	0.880	0.850	0.910	0.870	0.850	0.00	−0.10	0.00	±1.00
1.23	1.19	1.15	1.25	1.18	1.16	0.14	−0.07	0.08	±1.00
1.69	1.63	1.57	1.69	1.64	1.59	0.00	0.05	0.11	±1.00
2.25	2.17	2.09	2.25	2.19	2.12	0.00	0.08	0.12	±0.20
3.01	2.91	2.80	3.01	2.92	2.82	0.00	0.03	0.06	±0.20
4.08	3.95	3.81	4.08	3.95	3.82	0.00	0.00	0.02	±0.20
5.53	5.34	5.15	5.53	5.35	5.16	0.00	0.02	0.02	±0.20
7.44	7.19	6.93	7.46	7.20	6.95	0.02	0.01	0.03	±0.20
9.94	9.60	9.26	9.95	9.61	9.26	0.01	0.01	0.00	±0.20
13.4	13.0	12.5	13.4	13.0	12.5	0.00	0.00	0.00	±0.20
18.1	17.5	16.9	18.1	17.5	16.9	0.00	0.00	0.00	±0.20
24.4	23.6	22.8	24.5	23.6	22.8	0.04	0.00	0.00	±0.20
32.6	31.5	30.4	32.8	31.7	30.6	0.05	0.05	0.06	±0.20
44.1	42.6	41.1	44.3	42.8	41.2	0.04	0.04	0.02	±0.20
59.6	57.6	55.6	60.0	58.1	56.0	0.06	0.08	0.06	±0.20
82.2	79.4	76.6	81.8	79.1	76.2	−0.04	−0.03	−0.05	±0.20
108	104	100	107	104	99.9	−0.08	0.00	−0.01	±0.20
148	143	138	147	142	137	−0.06	−0.06	−0.06	±0.20
206	199	192	205	198	191	−0.04	−0.04	−0.05	±0.20
286	276	266	287	271	267	0.03	−0.16	0.03	±0.20
424	410	395	416	404	388	−0.17	−0.13	−0.16	±0.20
588	568	548	582	565	542	−0.09	−0.05	−0.10	±0.20
884	854	823	885	858	823	0.01	0.04	0.00	±0.20
1350	1300	1250	1370	1330	1270	0.13	0.20	0.14	±0.30
1850	1790	1720	1890	1840	1760	0.19	0.24	0.20	±0.30
3030	2930	2820	3140	3050	2920	0.31	0.35	0.30	±0.50
3630	3500	3370	3780	3660	3510	0.35	0.39	0.35	±0.50

SPEAG H-field linearity tolerance criteria[1]:
- ±1.0dB for applied H-fields < 2.0A/m
- ±0.2dB for applied H-fields ≥ 2.0A/m and < 1000A/m
- ±0.3dB for applied H-fields ≥ 1000A/m and < 2000A/m
- ±0.4dB for applied H-fields ≥ 2000A/m and < 3000A/m
- ±0.5dB for applied H-fields ≥ 3000A/m

[1] Calibration uncertainty not taken into account (shared risk 50%).

MAGPy-8H3D+E3DV2 SN:3059
MAGPy-DASV2 SN:3064

May 15, 2024

Dynamic Range, H-field, Channel 1

H-field/(A/m) Applied			H-field/(A/m) Reading			Difference/(dB)			
x	y	z	x	y	z	x	y	z	Tolerance/(dB)
0.370	0.360	0.360	0.400	0.380	0.380	0.68	0.47	0.47	±1.00
0.510	0.490	0.490	0.540	0.520	0.490	0.50	0.52	0.00	±1.00
0.700	0.680	0.670	0.710	0.710	0.660	0.12	0.37	−0.13	±1.00
0.910	0.880	0.870	0.920	0.900	0.870	0.09	0.20	0.00	±1.00
1.23	1.20	1.18	1.26	1.20	1.18	0.21	0.00	0.00	±1.00
1.69	1.65	1.63	1.70	1.65	1.64	0.05	0.00	0.05	±1.00
2.25	2.19	2.17	2.28	2.21	2.19	0.12	0.08	0.08	±0.20
3.01	2.93	2.90	3.03	2.94	2.91	0.06	0.03	0.03	±0.20
4.09	3.98	3.94	4.10	4.01	3.96	0.02	0.07	0.04	±0.20
5.53	5.39	5.33	5.54	5.42	5.36	0.02	0.05	0.05	±0.20
7.44	7.25	7.17	7.46	7.27	7.20	0.02	0.02	0.04	±0.20
9.94	9.68	9.58	9.95	9.69	9.62	0.01	0.01	0.04	±0.20
13.4	13.1	12.9	13.4	13.1	13.0	0.00	0.00	0.07	±0.20
18.1	17.6	17.4	18.1	17.6	17.5	0.00	0.00	0.05	±0.20
24.4	23.8	23.6	24.5	23.8	23.6	0.04	0.00	0.00	±0.20
32.6	31.8	31.4	32.8	31.9	31.6	0.05	0.03	0.06	±0.20
44.1	42.9	42.5	44.3	43.1	42.7	0.04	0.04	0.04	±0.20
59.6	58.1	57.5	60.0	58.5	57.9	0.06	0.06	0.06	±0.20
82.2	80.0	79.2	81.9	79.7	78.8	−0.03	−0.03	−0.04	±0.20
108	105	104	107	104	103	−0.08	−0.08	−0.08	±0.20
148	144	143	148	144	142	0.00	0.00	−0.06	±0.20
206	200	198	205	200	198	−0.04	0.00	0.00	±0.20
286	278	275	287	273	276	0.03	−0.16	0.03	±0.20
424	413	409	417	407	401	−0.14	−0.13	−0.17	±0.20
588	573	567	582	569	560	−0.09	−0.06	−0.11	±0.20
884	861	851	885	865	852	0.01	0.04	0.01	±0.20
1350	1310	1300	1370	1340	1320	0.13	0.20	0.13	±0.30
1850	1800	1780	1890	1850	1820	0.19	0.24	0.19	±0.30
3030	2950	2920	3140	3070	3020	0.31	0.35	0.29	±0.50
3630	3530	3490	3780	3690	3640	0.35	0.39	0.37	±0.50

SPEAG H-field linearity tolerance criteria[1]:
- ±1.0 dB for applied H-fields < 2.0 A/m
- ±0.2 dB for applied H-fields ≥ 2.0 A/m and < 1000 A/m
- ±0.3 dB for applied H-fields ≥ 1000 A/m and < 2000 A/m
- ±0.4 dB for applied H-fields ≥ 2000 A/m and < 3000 A/m
- ±0.5 dB for applied H-fields ≥ 3000 A/m

[1] Calibration uncertainty not taken into account (shared risk 50%).

Dynamic Range, H-field, Channel 2

H-field/(A/m) Applied			H-field/(A/m) Reading			Difference/(dB)			
x	y	z	x	y	z	x	y	z	Tolerance/(dB)
0.370	0.370	0.360	0.400	0.380	0.380	0.68	0.23	0.47	±1.00
0.510	0.500	0.490	0.510	0.520	0.510	0.00	0.34	0.35	±1.00
0.700	0.680	0.680	0.690	0.700	0.690	−0.12	0.25	0.13	±1.00
0.910	0.890	0.880	0.900	0.910	0.880	−0.10	0.19	0.00	±1.00
1.23	1.20	1.20	1.25	1.21	1.18	0.14	0.07	−0.15	±1.00
1.68	1.65	1.64	1.68	1.64	1.63	0.00	−0.05	−0.05	±1.00
2.24	2.20	2.19	2.25	2.21	2.20	0.04	0.04	0.04	±0.20
3.00	2.94	2.93	3.00	2.95	2.92	0.00	0.03	−0.03	±0.20
4.07	4.00	3.97	4.08	3.99	3.97	0.02	−0.02	0.00	±0.20
5.52	5.41	5.38	5.53	5.42	5.39	0.02	0.02	0.02	±0.20
7.42	7.28	7.23	7.44	7.28	7.23	0.02	0.00	0.00	±0.20
9.91	9.72	9.67	9.91	9.71	9.66	0.00	−0.01	−0.01	±0.20
13.4	13.1	13.1	13.4	13.1	13.1	0.00	0.00	0.00	±0.20
18.1	17.7	17.6	18.1	17.7	17.6	0.00	0.00	0.00	±0.20
24.4	23.9	23.8	24.4	23.9	23.9	0.00	0.00	0.04	±0.20
32.5	31.9	31.8	32.7	32.0	31.9	0.05	0.03	0.03	±0.20
43.9	43.1	42.9	44.1	43.3	43.0	0.04	0.04	0.02	±0.20
59.5	58.3	58.0	59.9	58.8	58.4	0.06	0.07	0.06	±0.20
81.9	80.3	79.9	81.6	80.0	79.6	−0.03	−0.03	−0.03	±0.20
107	105	105	107	105	104	0.00	0.00	−0.08	±0.20
148	145	144	147	144	143	−0.06	−0.06	−0.06	±0.20
205	201	200	205	201	200	0.00	0.00	0.00	±0.20
285	279	278	286	274	279	0.03	−0.16	0.03	±0.20
423	415	413	415	409	405	−0.17	−0.13	−0.17	±0.20
587	575	572	580	572	566	−0.10	−0.05	−0.09	±0.20
882	864	859	882	869	860	0.00	0.05	0.01	±0.20
1340	1320	1310	1360	1340	1330	0.13	0.13	0.13	±0.30
1840	1810	1800	1890	1860	1840	0.23	0.24	0.19	±0.30
3020	2960	2940	3140	3090	3050	0.34	0.37	0.32	±0.50
3620	3540	3520	3770	3710	3670	0.35	0.41	0.36	±0.50

SPEAG H-field linearity tolerance criteria[1]:
- ±1.0 dB for applied H-fields < 2.0 A/m
- ±0.2 dB for applied H-fields ≥ 2.0 A/m and < 1000 A/m
- ±0.3 dB for applied H-fields ≥ 1000 A/m and < 2000 A/m
- ±0.4 dB for applied H-fields ≥ 2000 A/m and < 3000 A/m
- ±0.5 dB for applied H-fields ≥ 3000 A/m

[1] Calibration uncertainty not taken into account (shared risk 50%).

Dynamic Range, H-field, Channel 3

H-field/(A/m) Applied			H-field/(A/m) Reading			Difference/(dB)			
x	y	z	x	y	z	x	y	z	Tolerance/(dB)
0.370	0.360	0.350	0.370	0.380	0.370	0.00	0.47	0.48	±1.00
0.500	0.490	0.480	0.490	0.520	0.490	−0.18	0.52	0.18	±1.00
0.680	0.680	0.660	0.680	0.680	0.670	0.00	0.00	0.13	±1.00
0.890	0.890	0.860	0.900	0.880	0.870	0.10	−0.10	0.10	±1.00
1.21	1.20	1.17	1.24	1.21	1.18	0.21	0.07	0.07	±1.00
1.66	1.65	1.60	1.68	1.67	1.62	0.10	0.10	0.11	±1.00
2.21	2.19	2.13	2.24	2.20	2.17	0.12	0.04	0.16	±0.20
2.95	2.93	2.85	2.98	2.93	2.89	0.09	0.00	0.12	±0.20
4.01	3.98	3.88	4.02	3.99	3.89	0.02	0.02	0.02	±0.20
5.43	5.39	5.24	5.43	5.37	5.27	0.00	−0.03	0.05	±0.20
7.31	7.25	7.05	7.31	7.27	7.11	0.00	0.02	0.07	±0.20
9.77	9.68	9.43	9.75	9.72	9.49	−0.02	0.04	0.06	±0.20
13.2	13.1	12.7	13.2	13.1	12.8	0.00	0.00	0.07	±0.20
17.8	17.6	17.2	17.8	17.6	17.2	0.00	0.00	0.00	±0.20
24.0	23.8	23.2	24.0	23.8	23.2	0.00	0.00	0.00	±0.20
32.0	31.8	31.0	32.2	31.9	31.1	0.05	0.03	0.03	±0.20
43.3	43.0	41.8	43.4	43.2	42.0	0.02	0.04	0.04	±0.20
58.6	58.1	56.6	59.0	58.6	57.0	0.06	0.07	0.06	±0.20
80.7	80.1	78.0	80.4	79.8	77.7	−0.03	−0.03	−0.03	±0.20
106	105	102	105	104	102	−0.08	−0.08	0.00	±0.20
145	144	141	145	144	140	0.00	0.00	−0.06	±0.20
202	201	195	202	200	195	0.00	−0.04	0.00	±0.20
281	278	271	282	273	272	0.03	−0.16	0.03	±0.20
416	413	402	409	408	395	−0.15	−0.11	−0.15	±0.20
578	573	558	571	570	552	−0.11	−0.05	−0.09	±0.20
868	861	838	869	865	839	0.01	0.04	0.01	±0.20
1320	1310	1280	1340	1340	1300	0.13	0.20	0.13	±0.30
1820	1800	1750	1860	1850	1800	0.19	0.24	0.24	±0.30
2980	2950	2870	3090	3050	2980	0.31	0.29	0.33	±0.40
3560	3530	3440	3710	3640	3580	0.36	0.27	0.35	±0.50

SPEAG H-field linearity tolerance criteria[1]:

±1.0 dB for applied H-fields < 2.0 A/m
±0.2 dB for applied H-fields ≥ 2.0 A/m and < 1000 A/m
±0.3 dB for applied H-fields ≥ 1000 A/m and < 2000 A/m
±0.4 dB for applied H-fields ≥ 2000 A/m and < 3000 A/m
±0.5 dB for applied H-fields ≥ 3000 A/m

[1] Calibration uncertainty not taken into account (shared risk 50%).

Dynamic Range, H-field, Channel 4

H-field/(A/m) Applied			H-field/(A/m) Reading			Difference/(dB)			
x	y	z	x	y	z	x	y	z	Tolerance/(dB)
0.370	0.370	0.360	0.390	0.390	0.370	0.46	0.46	0.24	±1.00
0.500	0.500	0.490	0.520	0.520	0.500	0.34	0.34	0.18	±1.00
0.690	0.690	0.680	0.700	0.710	0.680	0.12	0.25	0.00	±1.00
0.890	0.900	0.880	0.890	0.910	0.880	0.00	0.10	0.00	±1.00
1.21	1.22	1.19	1.21	1.22	1.20	0.00	0.00	0.07	±1.00
1.66	1.68	1.64	1.67	1.68	1.66	0.05	0.00	0.11	±1.00
2.22	2.23	2.18	2.22	2.24	2.20	0.00	0.04	0.08	±0.20
2.96	2.99	2.91	2.97	2.98	2.93	0.03	−0.03	0.06	±0.20
4.02	4.05	3.96	4.02	4.06	3.99	0.00	0.02	0.07	±0.20
5.44	5.49	5.36	5.44	5.49	5.39	0.00	0.00	0.05	±0.20
7.32	7.38	7.21	7.32	7.38	7.24	0.00	0.00	0.04	±0.20
9.79	9.85	9.63	9.77	9.86	9.66	−0.02	0.01	0.03	±0.20
13.2	13.3	13.0	13.2	13.3	13.0	0.00	0.00	0.00	±0.20
17.8	17.9	17.6	17.8	18.0	17.5	0.00	0.05	−0.05	±0.20
24.1	24.2	23.7	24.1	24.2	23.7	0.00	0.00	0.00	±0.20
32.1	32.4	31.6	32.3	32.5	31.8	0.05	0.03	0.05	±0.20
43.4	43.7	42.7	43.6	43.9	42.9	0.04	0.04	0.04	±0.20
58.7	59.2	57.8	59.1	59.6	58.2	0.06	0.06	0.06	±0.20
80.9	81.5	79.6	80.6	81.2	79.3	−0.03	−0.03	−0.03	±0.20
106	107	104	105	106	104	−0.08	−0.08	0.00	±0.20
146	147	144	145	146	143	−0.06	−0.06	−0.06	±0.20
203	204	199	202	204	199	−0.04	0.00	0.00	±0.20
281	283	277	282	278	278	0.03	−0.15	0.03	±0.20
417	421	411	410	415	404	−0.15	−0.12	−0.15	±0.20
579	584	570	572	581	564	−0.11	−0.04	−0.09	±0.20
870	877	856	870	882	856	0.00	0.05	0.00	±0.20
1330	1340	1310	1350	1360	1320	0.13	0.13	0.07	±0.30
1820	1830	1790	1860	1890	1830	0.19	0.28	0.19	±0.30
2980	3010	2930	3100	3140	3040	0.34	0.37	0.32	±0.50
3570	3590	3510	3720	3760	3660	0.36	0.40	0.36	±0.50

SPEAG H-field linearity tolerance criteria[1]:
±1.0 dB for applied H-fields < 2.0 A/m
±0.2 dB for applied H-fields ≥ 2.0 A/m and < 1000 A/m
±0.3 dB for applied H-fields ≥ 1000 A/m and < 2000 A/m
±0.4 dB for applied H-fields ≥ 2000 A/m and < 3000 A/m
±0.5 dB for applied H-fields ≥ 3000 A/m

[1] Calibration uncertainty not taken into account (shared risk 50%).

Dynamic Range, H-field, Channel 5

H-field/(A/m) Applied			H-field/(A/m) Reading			Difference/(dB)			
x	y	z	x	y	z	x	y	z	Tolerance/(dB)
0.370	0.370	0.370	0.380	0.380	0.380	0.23	0.23	0.23	±1.00
0.500	0.500	0.510	0.510	0.520	0.520	0.17	0.34	0.17	±1.00
0.690	0.690	0.690	0.690	0.710	0.700	0.00	0.25	0.12	±1.00
0.890	0.900	0.900	0.890	0.920	0.920	0.00	0.19	0.19	±1.00
1.21	1.22	1.22	1.23	1.24	1.25	0.14	0.14	0.21	±1.00
1.66	1.68	1.68	1.68	1.70	1.71	0.10	0.10	0.15	±1.00
2.21	2.24	2.24	2.24	2.27	2.28	0.12	0.12	0.15	±0.20
2.96	2.99	3.00	2.98	3.04	3.03	0.06	0.14	0.09	±0.20
4.02	4.06	4.07	4.04	4.10	4.09	0.04	0.09	0.04	±0.20
5.44	5.50	5.51	5.47	5.53	5.53	0.05	0.05	0.03	±0.20
7.32	7.40	7.41	7.35	7.44	7.43	0.04	0.05	0.02	±0.20
9.78	9.88	9.90	9.79	9.93	9.92	0.01	0.04	0.02	±0.20
13.2	13.3	13.4	13.2	13.4	13.4	0.00	0.07	0.00	±0.20
17.8	18.0	18.0	17.8	18.1	18.1	0.00	0.05	0.05	±0.20
24.0	24.3	24.3	24.1	24.4	24.4	0.04	0.04	0.04	±0.20
32.1	32.4	32.5	32.2	32.6	32.7	0.03	0.05	0.05	±0.20
43.3	43.8	43.9	43.5	44.1	44.1	0.04	0.06	0.04	±0.20
58.6	59.3	59.5	59.0	59.8	59.9	0.06	0.07	0.06	±0.20
80.8	81.7	81.9	80.5	81.4	81.5	−0.03	−0.03	−0.04	±0.20
106	107	107	105	107	107	−0.08	0.00	0.00	±0.20
146	147	148	145	147	147	−0.06	0.00	−0.06	±0.20
202	205	205	202	204	204	0.00	−0.04	−0.04	±0.20
281	284	284	282	279	286	0.03	−0.15	0.06	±0.20
417	422	423	410	416	415	−0.15	−0.12	−0.17	±0.20
578	585	586	572	581	579	−0.09	−0.06	−0.10	±0.20
869	879	880	870	883	880	0.01	0.04	0.00	±0.20
1330	1340	1340	1350	1360	1360	0.13	0.13	0.13	±0.30
1820	1840	1840	1860	1890	1880	0.19	0.23	0.19	±0.30
2980	3010	3010	3090	3140	3130	0.31	0.37	0.34	±0.50
3570	3600	3610	3720	3760	3760	0.36	0.38	0.35	±0.50

SPEAG H-field linearity tolerance criteria[1]:
- ±1.0dB for applied H-fields < 2.0A/m
- ±0.2dB for applied H-fields ≥ 2.0A/m and < 1000A/m
- ±0.3dB for applied H-fields ≥ 1000A/m and < 2000A/m
- ±0.4dB for applied H-fields ≥ 2000A/m and < 3000A/m
- ±0.5dB for applied H-fields ≥ 3000A/m

[1] Calibration uncertainty not taken into account (shared risk 50%).

MAGPy-8H3D+E3DV2 SN:3059
MAGPy-DASV2 SN:3064

May 15, 2024

Dynamic Range, H-field, Channel 6

H-field/(A/m) Applied			H-field/(A/m) Reading			Difference/(dB)			Tolerance/(dB)
x	y	z	x	y	z	x	y	z	
0.370	0.370	0.370	0.380	0.390	0.380	0.23	0.46	0.23	±1.00
0.510	0.510	0.500	0.520	0.530	0.500	0.17	0.33	0.00	±1.00
0.690	0.690	0.680	0.710	0.720	0.680	0.25	0.37	0.00	±1.00
0.910	0.900	0.890	0.920	0.930	0.880	0.09	0.28	−0.10	±1.00
1.22	1.22	1.20	1.25	1.22	1.19	0.21	0.00	−0.07	±1.00
1.68	1.68	1.65	1.68	1.68	1.63	0.00	0.00	−0.11	±1.00
2.24	2.24	2.20	2.23	2.27	2.19	−0.04	0.12	−0.04	±0.20
2.99	3.00	2.94	2.99	3.00	2.92	0.00	0.00	−0.06	±0.20
4.07	4.07	4.00	4.08	4.09	3.97	0.02	0.04	−0.07	±0.20
5.51	5.51	5.41	5.51	5.52	5.39	0.00	0.02	−0.03	±0.20
7.41	7.41	7.27	7.43	7.42	7.26	0.02	0.01	−0.01	±0.20
9.90	9.89	9.72	9.91	9.91	9.72	0.01	0.02	0.00	±0.20
13.4	13.4	13.1	13.4	13.4	13.1	0.00	0.00	0.00	±0.20
18.0	18.0	17.7	18.0	18.0	17.7	0.00	0.00	0.00	±0.20
24.3	24.3	23.9	24.4	24.3	23.9	0.04	0.00	0.00	±0.20
32.5	32.5	31.9	32.6	32.6	32.1	0.03	0.03	0.05	±0.20
43.9	43.9	43.1	44.0	44.1	43.3	0.02	0.04	0.04	±0.20
59.4	59.4	58.4	59.8	59.8	58.8	0.06	0.06	0.06	±0.20
81.8	81.8	80.4	81.5	81.5	80.1	−0.03	−0.03	−0.03	±0.20
107	107	105	107	107	105	0.00	0.00	0.00	±0.20
147	147	145	147	147	144	0.00	0.00	−0.06	±0.20
205	205	201	204	204	201	−0.04	−0.04	0.00	±0.20
284	284	279	286	279	281	0.06	−0.15	0.06	±0.20
422	422	415	414	417	407	−0.17	−0.10	−0.17	±0.20
586	586	575	579	582	569	−0.10	−0.06	−0.09	±0.20
880	880	864	881	885	865	0.01	0.05	0.01	±0.20
1340	1340	1320	1360	1370	1340	0.13	0.19	0.13	±0.30
1840	1840	1810	1890	1890	1850	0.23	0.23	0.19	±0.30
3020	3020	2960	3130	3140	3070	0.31	0.34	0.32	±0.50
3610	3610	3540	3760	3770	3700	0.35	0.38	0.38	±0.50

SPEAG H-field linearity tolerance criteria[1]:
- ±1.0dB for applied H-fields < 2.0A/m
- ±0.2dB for applied H-fields ≥ 2.0A/m and < 1000A/m
- ±0.3dB for applied H-fields ≥ 1000A/m and < 2000A/m
- ±0.4dB for applied H-fields ≥ 2000A/m and < 3000A/m
- ±0.5dB for applied H-fields ≥ 3000A/m

[1] Calibration uncertainty not taken into account (shared risk 50%).

MAGPy-8H3D+E3DV2 SN:3059
MAGPy-DASV2 SN:3064

May 15, 2024

Dynamic Range, H-field, Channel 7

H-field/(A/m) Applied			H-field/(A/m) Reading			Difference/(dB)			Tolerance/(dB)
x	y	z	x	y	z	x	y	z	
0.370	0.370	0.350	0.400	0.390	0.360	0.68	0.46	0.24	±1.00
0.510	0.500	0.480	0.540	0.520	0.490	0.50	0.34	0.18	±1.00
0.700	0.680	0.660	0.710	0.690	0.640	0.12	0.13	−0.27	±1.00
0.910	0.890	0.860	0.910	0.900	0.850	0.00	0.10	−0.10	±1.00
1.23	1.20	1.16	1.22	1.22	1.16	−0.07	0.14	0.00	±1.00
1.69	1.65	1.60	1.69	1.67	1.62	0.00	0.10	0.11	±1.00
2.26	2.20	2.13	2.27	2.25	2.14	0.04	0.20	0.04	±0.20
3.02	2.95	2.85	3.01	2.97	2.85	−0.03	0.06	0.00	±0.20
4.10	4.00	3.87	4.09	4.03	3.89	−0.02	0.06	0.04	±0.20
5.55	5.41	5.23	5.55	5.45	5.25	0.00	0.06	0.03	±0.20
7.46	7.28	7.04	7.46	7.32	7.07	0.00	0.05	0.04	±0.20
9.97	9.72	9.41	9.97	9.76	9.46	0.00	0.04	0.05	±0.20
13.5	13.1	12.7	13.5	13.2	12.8	0.00	0.07	0.07	±0.20
18.2	17.7	17.1	18.2	17.7	17.2	0.00	0.00	0.05	±0.20
24.5	23.9	23.1	24.6	24.0	23.2	0.04	0.04	0.04	±0.20
32.7	31.9	30.9	32.9	32.1	31.1	0.05	0.05	0.06	±0.20
44.2	43.1	41.8	44.4	43.4	41.9	0.04	0.06	0.02	±0.20
59.8	58.4	56.5	60.2	58.8	56.9	0.06	0.06	0.06	±0.20
82.4	80.4	77.8	82.1	80.1	77.5	−0.03	−0.03	−0.03	±0.20
108	105	102	107	105	101	−0.08	0.00	−0.09	±0.20
148	145	140	148	144	140	0.00	−0.06	0.00	±0.20
206	201	195	206	201	194	0.00	0.00	−0.04	±0.20
286	280	270	288	275	272	0.06	−0.16	0.06	±0.20
425	415	402	418	409	394	−0.14	−0.13	−0.17	±0.20
590	576	557	583	572	551	−0.10	−0.06	−0.09	±0.20
886	865	837	887	869	837	0.01	0.04	0.00	±0.20
1350	1320	1280	1370	1340	1290	0.13	0.13	0.07	±0.30
1850	1810	1750	1900	1860	1790	0.23	0.24	0.20	±0.30
3040	2970	2870	3150	3090	2970	0.31	0.34	0.30	±0.50
3640	3540	3430	3790	3710	3580	0.35	0.41	0.37	±0.50

SPEAG H-field linearity tolerance criteria[1]:
- ±1.0 dB for applied H-fields < 2.0 A/m
- ±0.2 dB for applied H-fields ≥ 2.0 A/m and < 1000 A/m
- ±0.3 dB for applied H-fields ≥ 1000 A/m and < 2000 A/m
- ±0.4 dB for applied H-fields ≥ 2000 A/m and < 3000 A/m
- ±0.5 dB for applied H-fields ≥ 3000 A/m

[1] Calibration uncertainty not taken into account (shared risk 50%).

MAGPy-8H3D+E3DV2 SN:3059
MAGPy-DASV2 SN:3064

May 15, 2024

Dynamic Range, E-field, Channel 0

E-field/(V/m) Applied			E-field/(V/m) Reading			Difference/(dB)			Tolerance/(dB)		
x	y	z	x	y	z	x	y	z	x	y	z
0.340	0.220	0.090	0.360	0.220	0.100	0.50	0.00	0.92	±5.00	±5.00	±5.00
0.460	0.300	0.130	0.480	0.290	0.150	0.37	−0.29	1.24	±5.00	±5.00	±5.00
0.630	0.410	0.170	0.670	0.400	0.170	0.53	−0.21	0.00	±5.00	±5.00	±5.00
0.830	0.530	0.230	0.860	0.540	0.230	0.31	0.16	0.00	±5.00	±5.00	±5.00
1.12	0.720	0.300	1.16	0.760	0.320	0.30	0.47	0.56	±5.00	±5.00	±5.00
1.54	0.980	0.420	1.58	0.990	0.450	0.22	0.09	0.60	±5.00	±5.00	±5.00
2.05	1.31	0.560	2.11	1.30	0.550	0.25	−0.07	−0.16	±1.00	±5.00	±5.00
2.74	1.75	0.740	2.80	1.76	0.730	0.19	0.05	−0.12	±1.00	±5.00	±5.00
3.72	2.38	1.01	3.77	2.41	1.01	0.12	0.11	0.00	±1.00	±1.00	±5.00
5.04	3.22	1.37	5.14	3.24	1.36	0.17	0.05	−0.06	±1.00	±1.00	±5.00
6.78	4.33	1.84	6.87	4.36	1.81	0.11	0.06	−0.14	±1.00	±1.00	±5.00
9.05	5.78	2.46	9.18	5.78	2.41	0.12	0.00	−0.18	±1.00	±1.00	±1.00
12.2	7.81	3.32	12.4	7.81	3.27	0.14	0.00	−0.13	±1.00	±1.00	±1.00
16.5	10.5	4.48	16.7	10.5	4.40	0.10	0.00	−0.16	±1.00	±1.00	±1.00
22.3	14.2	6.05	22.6	14.2	5.95	0.12	0.00	−0.14	±1.00	±1.00	±1.00
29.7	19.0	8.07	30.1	19.0	7.97	0.12	0.00	−0.11	±1.00	±1.00	±1.00
40.2	25.6	10.9	40.6	25.7	10.8	0.09	0.03	−0.08	±1.00	±1.00	±1.00
54.4	34.7	14.8	55.0	34.9	14.6	0.10	0.05	−0.12	±1.00	±1.00	±1.00
74.9	47.8	20.3	75.0	47.5	19.9	0.01	−0.05	−0.17	±1.00	±1.00	±1.00
98.1	62.7	26.6	98.1	62.2	26.1	0.00	−0.07	−0.16	±1.00	±1.00	±1.00
135	86.1	36.6	135	85.4	36.0	0.00	−0.07	−0.14	±1.00	±1.00	±1.00
187	120	51.0	187	119	50.0	0.00	−0.07	−0.17	±1.00	±1.00	±1.00
260	166	70.7	261	166	70.0	0.03	0.00	−0.09	±1.00	±1.00	±1.00
386	247	105	364	234	104	−0.51	−0.47	−0.08	±1.00	±1.00	±1.00
536	342	146	508	327	146	−0.47	−0.39	0.00	±1.00	±1.00	±1.00
806	514	219	772	498	222	−0.37	−0.27	0.12	±1.00	±1.00	±1.00
1230	785	334	1190	769	343	−0.29	−0.18	0.23	±1.00	±1.00	±1.00
1680	1080	458	1650	1070	475	−0.16	−0.08	0.32	±1.00	±1.00	±1.00
2760	1760	751	2750	1770	752	−0.03	0.05	0.01	±1.00	±1.00	±1.00
3300	2110	898	3300	2130	905	0.00	0.08	0.07	±1.00	±1.00	±1.00

SPEAG E-field linearity tolerance criteria[1]:
±5.0dB for applied E-field < 2V/m
±1.0dB for applied E-field ≥ 2V/m

[1] Calibration uncertainty not taken into account (shared risk 50%).

Frequency Response

Frequency Response, H-field, Channel 0

	H-field/(A/m) Applied			H-field/(A/m) Reading			Difference/(dB)			
f/(Hz)	x	y	z	x	y	z	x	y	z	Tolerance/(dB)
3000	1.48	1.48	1.48	1.46	1.47	1.47	−0.12	−0.06	−0.06	±0.3
3200	1.47	1.47	1.47	1.47	1.49	1.49	0.00	0.12	0.12	±0.3
4000	1.46	1.46	1.46	1.46	1.46	1.46	0.00	0.00	0.00	±0.3
5200	1.45	1.45	1.45	1.44	1.43	1.46	−0.06	−0.12	0.06	±0.3
6600	1.44	1.44	1.44	1.44	1.44	1.44	0.00	0.00	0.00	±0.3
8200	1.43	1.43	1.43	1.42	1.42	1.42	−0.06	−0.06	−0.06	±0.3
9000	1.43	1.42	1.43	1.42	1.42	1.42	−0.06	0.00	−0.06	±0.3
10600	4.28	4.23	4.22	4.29	4.23	4.21	0.02	0.00	−0.02	±0.3
13400	4.27	4.24	4.24	4.26	4.22	4.23	−0.02	−0.04	−0.02	±0.3
17000	4.28	4.24	4.24	4.25	4.23	4.22	−0.06	−0.02	−0.04	±0.3
21400	4.30	4.26	4.26	4.29	4.26	4.26	−0.02	0.00	0.00	±0.3
27200	4.30	4.26	4.26	4.29	4.26	4.25	−0.02	0.00	−0.02	±0.3
34400	4.30	4.28	4.27	4.28	4.27	4.26	−0.04	−0.02	−0.02	±0.3
40000	4.29	4.27	4.27	4.29	4.27	4.27	0.00	0.00	0.00	±0.3
43600	4.28	4.26	4.26	4.28	4.25	4.26	0.00	−0.02	0.00	±0.3
55400	4.27	4.25	4.25	4.27	4.25	4.25	0.00	0.00	0.00	±0.3
70000	4.26	4.24	4.24	4.26	4.24	4.24	0.00	0.00	0.00	±0.3
88800	4.25	4.23	4.23	4.25	4.22	4.23	0.00	−0.02	0.00	±0.3
112400	4.24	4.22	4.22	4.24	4.22	4.21	0.00	0.00	−0.02	±0.3
142400	4.22	4.20	4.20	4.21	4.20	4.20	−0.02	0.00	0.00	±0.3
161750	4.20	4.18	4.18	4.20	4.18	4.18	0.00	0.00	0.00	±0.3
180400	4.19	4.17	4.17	4.18	4.17	4.17	−0.02	0.00	0.00	±0.3
228400	4.16	4.14	4.14	4.15	4.13	4.13	−0.02	−0.02	−0.02	±0.3
289400	4.12	4.10	4.10	4.11	4.10	4.10	−0.02	0.00	0.00	±0.3
366400	4.08	4.06	4.06	4.08	4.06	4.06	0.00	0.00	0.00	±0.3
400000	4.06	4.04	4.04	4.05	4.04	4.04	−0.02	0.00	0.00	±0.3
464000	4.03	4.02	4.01	4.02	4.01	4.01	−0.02	−0.02	0.00	±0.3
587800	3.98	3.98	3.97	3.98	3.97	3.97	0.00	−0.02	0.00	±0.3
744200	3.93	3.93	3.93	3.93	3.93	3.92	0.00	0.00	−0.02	±0.3
942600	3.92	3.92	3.92	3.92	3.92	3.91	0.00	0.00	−0.02	±0.3
1193600	3.90	3.89	3.89	3.90	3.89	3.89	0.00	0.00	0.00	±0.3
1511600	3.89	3.88	3.88	3.89	3.89	3.88	0.00	0.02	0.00	±0.3
1914400	3.88	3.87	3.86	3.87	3.87	3.86	−0.02	0.00	0.00	±0.3
2424400	3.86	3.85	3.85	3.86	3.85	3.85	0.00	0.00	0.00	±0.3
3070200	3.83	3.82	3.81	3.82	3.82	3.81	−0.02	0.00	0.00	±0.3
3888000	3.78	3.77	3.76	3.78	3.76	3.76	0.00	−0.02	0.00	±0.3
4000000	3.77	3.76	3.75	3.78	3.76	3.75	0.02	0.00	0.00	±0.3
4923800	3.70	3.69	3.69	3.71	3.69	3.69	0.02	0.00	0.00	±0.3
6235400	3.60	3.59	3.60	3.59	3.60	3.59	−0.02	0.02	−0.02	±0.3
7896400	3.45	3.44	3.44	3.44	3.43	3.45	−0.03	−0.03	0.03	±0.3
10000000	3.30	3.30	3.30	3.27	3.29	3.28	−0.08	−0.03	−0.05	±0.3

SPEAG H-field frequency response tolerance criteria[1]:
±0.3dB for applied H-fields at calibration points from 3kHz to 10MHz

[1] Calibration uncertainty not taken into account (shared risk 50%).

MAGPy-8H3D+E3DV2 SN:3059
MAGPy-DASV2 SN:3064

May 15, 2024

Frequency Response, H-field, Channel 1

f/(Hz)	H-field/(A/m) Applied			H-field/(A/m) Reading			Difference/(dB)			Tolerance/(dB)
	x	y	z	x	y	z	x	y	z	
3000	1.48	1.48	1.48	1.46	1.47	1.48	-0.12	-0.06	0.00	±0.3
3200	1.47	1.47	1.47	1.46	1.49	1.48	-0.06	0.12	0.06	±0.3
4000	1.46	1.46	1.46	1.46	1.46	1.46	0.00	0.00	0.00	±0.3
5200	1.45	1.45	1.45	1.43	1.44	1.45	-0.12	-0.06	0.00	±0.3
6600	1.44	1.44	1.44	1.44	1.44	1.43	0.00	0.00	-0.06	±0.3
8200	1.43	1.43	1.43	1.42	1.43	1.43	-0.06	0.00	0.00	±0.3
9000	1.43	1.42	1.43	1.42	1.43	1.42	-0.06	0.06	-0.06	±0.3
10600	4.28	4.23	4.22	4.28	4.23	4.20	0.00	0.00	-0.04	±0.3
13400	4.27	4.24	4.24	4.27	4.24	4.24	0.00	0.00	0.00	±0.3
17000	4.28	4.24	4.24	4.25	4.24	4.25	-0.06	0.00	0.02	±0.3
21400	4.30	4.26	4.26	4.27	4.25	4.25	-0.06	-0.02	-0.02	±0.3
27200	4.30	4.26	4.26	4.27	4.25	4.26	-0.06	-0.02	0.00	±0.3
34400	4.30	4.28	4.27	4.28	4.28	4.27	-0.04	0.00	0.00	±0.3
40000	4.29	4.27	4.27	4.27	4.27	4.27	-0.04	0.00	0.00	±0.3
43600	4.28	4.26	4.26	4.26	4.27	4.27	-0.04	0.02	0.02	±0.3
55400	4.27	4.25	4.25	4.26	4.25	4.25	-0.02	0.00	0.00	±0.3
70000	4.26	4.24	4.24	4.25	4.24	4.24	-0.02	0.00	0.00	±0.3
88800	4.25	4.23	4.23	4.23	4.23	4.24	-0.04	0.00	0.02	±0.3
112400	4.24	4.22	4.22	4.22	4.21	4.22	-0.04	-0.02	0.00	±0.3
142400	4.22	4.20	4.20	4.21	4.19	4.20	-0.02	-0.02	0.00	±0.3
161750	4.20	4.18	4.18	4.19	4.18	4.18	-0.02	0.00	0.00	±0.3
180400	4.19	4.17	4.17	4.17	4.17	4.17	-0.04	0.00	0.00	±0.3
228400	4.16	4.14	4.14	4.15	4.14	4.14	-0.02	0.00	0.00	±0.3
289400	4.12	4.10	4.10	4.11	4.10	4.10	-0.02	0.00	0.00	±0.3
366400	4.08	4.06	4.06	4.07	4.06	4.07	-0.02	0.00	0.02	±0.3
400000	4.06	4.04	4.04	4.05	4.05	4.05	-0.02	0.02	0.02	±0.3
464000	4.03	4.02	4.01	4.02	4.02	4.03	-0.02	0.00	0.04	±0.3
587800	3.98	3.98	3.97	3.98	3.98	3.97	0.00	0.00	0.00	±0.3
744200	3.93	3.93	3.93	3.92	3.92	3.93	-0.02	-0.02	0.00	±0.3
942600	3.92	3.92	3.92	3.91	3.92	3.93	-0.02	0.00	0.02	±0.3
1193600	3.90	3.89	3.89	3.90	3.89	3.90	0.00	0.00	0.02	±0.3
1511600	3.89	3.88	3.88	3.89	3.88	3.88	0.00	0.00	0.00	±0.3
1914400	3.88	3.87	3.86	3.88	3.86	3.86	0.00	-0.02	0.00	±0.3
2424400	3.86	3.85	3.85	3.86	3.85	3.85	0.00	0.00	0.00	±0.3
3070200	3.83	3.82	3.81	3.83	3.82	3.81	0.00	0.00	0.00	±0.3
3888000	3.78	3.77	3.76	3.77	3.76	3.76	-0.02	-0.02	0.00	±0.3
4000000	3.77	3.76	3.75	3.76	3.76	3.75	-0.02	0.00	0.00	±0.3
4923800	3.70	3.69	3.69	3.69	3.69	3.70	-0.02	0.00	0.02	±0.3
6235400	3.60	3.59	3.60	3.59	3.58	3.59	-0.02	-0.02	-0.02	±0.3
7896400	3.45	3.44	3.44	3.44	3.44	3.40	-0.03	0.00	-0.10	±0.3
10000000	3.30	3.30	3.30	3.32	3.32	3.31	0.05	0.05	0.03	±0.3

SPEAG H-field frequency response tolerance criteria[1]:
±0.3dB for applied H-fields at calibration points from 3kHz to 10MHz

[1] Calibration uncertainty not taken into account (shared risk 50%).

MAGPy-8H3D+E3DV2 SN:3059
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May 15, 2024

Frequency Response, H-field, Channel 2

f/(Hz)	H-field/(A/m) Applied			H-field/(A/m) Reading			Difference/(dB)			Tolerance/(dB)
	x	y	z	x	y	z	x	y	z	
3000	1.48	1.48	1.48	1.48	1.47	1.48	0.00	-0.06	0.00	±0.3
3200	1.47	1.47	1.47	1.47	1.49	1.48	0.00	0.12	0.06	±0.3
4000	1.46	1.46	1.46	1.46	1.46	1.46	0.00	0.00	0.00	±0.3
5200	1.45	1.45	1.45	1.44	1.44	1.46	-0.06	-0.06	0.06	±0.3
6600	1.44	1.44	1.44	1.44	1.44	1.43	0.00	0.00	-0.06	±0.3
8200	1.43	1.43	1.43	1.42	1.42	1.43	-0.06	-0.06	0.00	±0.3
9000	1.43	1.42	1.43	1.43	1.42	1.42	0.00	0.00	-0.06	±0.3
10600	4.28	4.23	4.22	4.29	4.21	4.21	0.02	-0.04	-0.02	±0.3
13400	4.27	4.24	4.24	4.26	4.22	4.23	-0.02	-0.04	-0.02	±0.3
17000	4.28	4.24	4.24	4.27	4.23	4.22	-0.02	-0.02	-0.04	±0.3
21400	4.30	4.26	4.26	4.28	4.25	4.26	-0.04	-0.02	0.00	±0.3
27200	4.30	4.26	4.26	4.28	4.24	4.26	-0.04	-0.04	0.00	±0.3
34400	4.30	4.28	4.27	4.29	4.26	4.27	-0.02	-0.04	0.00	±0.3
40000	4.29	4.27	4.27	4.29	4.26	4.26	0.00	-0.02	-0.02	±0.3
43600	4.28	4.26	4.26	4.29	4.25	4.26	0.02	-0.02	0.00	±0.3
55400	4.27	4.25	4.25	4.26	4.25	4.25	-0.02	0.00	0.00	±0.3
70000	4.26	4.24	4.24	4.25	4.24	4.24	-0.02	0.00	0.00	±0.3
88800	4.25	4.23	4.23	4.24	4.22	4.22	-0.02	-0.02	-0.02	±0.3
112400	4.24	4.22	4.22	4.23	4.21	4.21	-0.02	-0.02	-0.02	±0.3
142400	4.22	4.20	4.20	4.21	4.19	4.20	-0.02	-0.02	0.00	±0.3
161750	4.20	4.18	4.18	4.19	4.18	4.18	-0.02	0.00	0.00	±0.3
180400	4.19	4.17	4.17	4.17	4.17	4.17	-0.04	0.00	0.00	±0.3
228400	4.16	4.14	4.14	4.15	4.13	4.13	-0.02	-0.02	-0.02	±0.3
289400	4.12	4.10	4.10	4.12	4.09	4.09	0.00	-0.02	-0.02	±0.3
366400	4.08	4.06	4.06	4.07	4.06	4.07	-0.02	0.00	0.02	±0.3
400000	4.06	4.04	4.04	4.05	4.04	4.04	-0.02	0.00	0.00	±0.3
464000	4.03	4.02	4.01	4.02	4.01	4.01	-0.02	-0.02	0.00	±0.3
587800	3.98	3.98	3.97	3.98	3.97	3.97	0.00	-0.02	0.00	±0.3
744200	3.93	3.93	3.93	3.93	3.92	3.92	0.00	-0.02	-0.02	±0.3
942600	3.92	3.92	3.92	3.92	3.92	3.91	0.00	0.00	-0.02	±0.3
1193600	3.90	3.89	3.89	3.91	3.89	3.89	0.02	0.00	0.00	±0.3
1511600	3.89	3.88	3.88	3.89	3.89	3.88	0.00	0.02	0.00	±0.3
1914400	3.88	3.87	3.86	3.88	3.87	3.87	0.00	0.00	0.02	±0.3
2424400	3.86	3.85	3.85	3.86	3.85	3.85	0.00	0.00	0.00	±0.3
3070200	3.83	3.82	3.81	3.84	3.82	3.81	0.02	0.00	0.00	±0.3
3888000	3.78	3.77	3.76	3.78	3.76	3.77	0.00	-0.02	0.02	±0.3
4000000	3.77	3.76	3.75	3.76	3.76	3.76	-0.02	0.00	0.02	±0.3
4923800	3.70	3.69	3.69	3.70	3.69	3.69	0.00	0.00	0.00	±0.3
6235400	3.60	3.59	3.60	3.60	3.60	3.60	0.00	0.02	0.00	±0.3
7896400	3.45	3.44	3.44	3.44	3.43	3.42	-0.03	-0.03	-0.05	±0.3
10000000	3.30	3.30	3.30	3.28	3.29	3.29	-0.05	-0.03	-0.03	±0.3

SPEAG H-field frequency response tolerance criteria[1]:
±0.3dB for applied H-fields at calibration points from 3kHz to 10MHz

[1] Calibration uncertainty not taken into account (shared risk 50%).

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Frequency Response, H-field, Channel 3

f/(Hz)	H-field/(A/m) Applied			H-field/(A/m) Reading			Difference/(dB)			Tolerance/(dB)
	x	y	z	x	y	z	x	y	z	
3000	1.48	1.48	1.48	1.47	1.48	1.47	−0.06	0.00	−0.06	±0.3
3200	1.47	1.47	1.47	1.47	1.48	1.49	0.00	0.06	0.12	±0.3
4000	1.46	1.46	1.46	1.46	1.46	1.46	0.00	0.00	0.00	±0.3
5200	1.45	1.45	1.45	1.43	1.43	1.46	−0.12	−0.12	0.06	±0.3
6600	1.44	1.44	1.44	1.45	1.44	1.43	0.06	0.00	−0.06	±0.3
8200	1.43	1.43	1.43	1.43	1.42	1.43	0.00	−0.06	0.00	±0.3
9000	1.43	1.42	1.43	1.42	1.43	1.42	−0.06	0.06	−0.06	±0.3
10600	4.28	4.23	4.22	4.29	4.21	4.22	0.02	−0.04	0.00	±0.3
13400	4.27	4.24	4.24	4.26	4.24	4.22	−0.02	0.00	−0.04	±0.3
17000	4.28	4.24	4.24	4.27	4.23	4.22	−0.02	−0.02	−0.04	±0.3
21400	4.30	4.26	4.26	4.28	4.27	4.27	−0.04	0.02	0.02	±0.3
27200	4.30	4.26	4.26	4.29	4.28	4.24	−0.02	0.04	−0.04	±0.3
34400	4.30	4.28	4.27	4.28	4.27	4.27	−0.04	−0.02	0.00	±0.3
40000	4.29	4.27	4.27	4.28	4.27	4.26	−0.02	0.00	−0.02	±0.3
43600	4.28	4.26	4.26	4.27	4.25	4.25	−0.02	−0.02	−0.02	±0.3
55400	4.27	4.25	4.25	4.26	4.24	4.24	−0.02	−0.02	−0.02	±0.3
70000	4.26	4.24	4.24	4.25	4.24	4.23	−0.02	0.00	−0.02	±0.3
88800	4.25	4.23	4.23	4.24	4.23	4.22	−0.02	0.00	−0.02	±0.3
112400	4.24	4.22	4.22	4.23	4.21	4.21	−0.02	−0.02	−0.02	±0.3
142400	4.22	4.20	4.20	4.22	4.19	4.19	0.00	−0.02	−0.02	±0.3
161750	4.20	4.18	4.18	4.19	4.17	4.18	−0.02	−0.02	0.00	±0.3
180400	4.19	4.17	4.17	4.18	4.17	4.17	−0.02	0.00	0.00	±0.3
228400	4.16	4.14	4.14	4.15	4.13	4.13	−0.02	−0.02	−0.02	±0.3
289400	4.12	4.10	4.10	4.10	4.11	4.09	−0.04	0.02	−0.02	±0.3
366400	4.08	4.06	4.06	4.07	4.06	4.06	−0.02	0.00	0.00	±0.3
400000	4.06	4.04	4.04	4.05	4.04	4.04	−0.02	0.00	0.00	±0.3
464000	4.03	4.02	4.01	4.02	4.01	4.01	−0.02	−0.02	0.00	±0.3
587800	3.98	3.98	3.97	3.98	3.97	3.97	0.00	−0.02	0.00	±0.3
744200	3.93	3.93	3.93	3.93	3.93	3.93	0.00	0.00	0.00	±0.3
942600	3.92	3.92	3.92	3.92	3.92	3.91	0.00	0.00	−0.02	±0.3
1193600	3.90	3.89	3.89	3.90	3.89	3.89	0.00	0.00	0.00	±0.3
1511600	3.89	3.88	3.88	3.88	3.88	3.88	−0.02	0.00	0.00	±0.3
1914400	3.88	3.87	3.86	3.87	3.86	3.87	−0.02	−0.02	0.02	±0.3
2424400	3.86	3.85	3.85	3.85	3.85	3.85	−0.02	0.00	0.00	±0.3
3070200	3.83	3.82	3.81	3.83	3.82	3.81	0.00	0.00	0.00	±0.3
3888000	3.78	3.77	3.76	3.78	3.77	3.77	0.00	0.00	0.02	±0.3
4000000	3.77	3.76	3.75	3.77	3.76	3.75	0.00	0.00	0.00	±0.3
4923800	3.70	3.69	3.69	3.70	3.70	3.69	0.00	0.02	0.00	±0.3
6235400	3.60	3.59	3.60	3.60	3.59	3.60	0.00	0.00	0.00	±0.3
7896400	3.45	3.44	3.44	3.44	3.44	3.42	−0.03	0.00	−0.05	±0.3
10000000	3.30	3.30	3.30	3.32	3.28	3.32	0.05	−0.05	0.05	±0.3

SPEAG H-field frequency response tolerance criteria[1]:
±0.3dB for applied H-fields at calibration points from 3kHz to 10MHz

[1] Calibration uncertainty not taken into account (shared risk 50%).

MAGPy-8H3D+E3DV2 SN:3059
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May 15, 2024

Frequency Response, H-field, Channel 4

f/(Hz)	H-field/(A/m) Applied			H-field/(A/m) Reading			Difference/(dB)			Tolerance/(dB)
	x	y	z	x	y	z	x	y	z	
3000	1.48	1.48	1.48	1.47	1.47	1.45	-0.06	-0.06	-0.18	±0.3
3200	1.47	1.47	1.47	1.46	1.49	1.47	-0.06	0.12	0.00	±0.3
4000	1.46	1.46	1.46	1.46	1.46	1.46	0.00	0.00	0.00	±0.3
5200	1.45	1.45	1.45	1.44	1.44	1.46	-0.06	-0.06	0.06	±0.3
6600	1.44	1.44	1.44	1.44	1.43	1.43	0.00	-0.06	-0.06	±0.3
8200	1.43	1.43	1.43	1.42	1.42	1.43	-0.06	-0.06	0.00	±0.3
9000	1.43	1.42	1.43	1.42	1.42	1.42	-0.06	0.00	-0.06	±0.3
10600	4.28	4.23	4.22	4.26	4.19	4.22	-0.04	-0.08	0.00	±0.3
13400	4.27	4.24	4.24	4.26	4.23	4.25	-0.02	-0.02	0.02	±0.3
17000	4.28	4.24	4.24	4.25	4.24	4.24	-0.06	0.00	0.00	±0.3
21400	4.30	4.26	4.26	4.28	4.24	4.27	-0.04	-0.04	0.02	±0.3
27200	4.30	4.26	4.26	4.28	4.26	4.25	-0.04	0.00	-0.02	±0.3
34400	4.30	4.28	4.27	4.28	4.27	4.27	-0.04	-0.02	0.00	±0.3
40000	4.29	4.27	4.27	4.28	4.26	4.26	-0.02	-0.02	-0.02	±0.3
43600	4.28	4.26	4.26	4.27	4.25	4.26	-0.02	-0.02	0.00	±0.3
55400	4.27	4.25	4.25	4.26	4.25	4.25	-0.02	0.00	0.00	±0.3
70000	4.26	4.24	4.24	4.25	4.23	4.24	-0.02	-0.02	0.00	±0.3
88800	4.25	4.23	4.23	4.24	4.22	4.22	-0.02	-0.02	-0.02	±0.3
112400	4.24	4.22	4.22	4.22	4.21	4.21	-0.04	-0.02	-0.02	±0.3
142400	4.22	4.20	4.20	4.21	4.20	4.19	-0.02	0.00	-0.02	±0.3
161750	4.20	4.18	4.18	4.19	4.18	4.17	-0.02	0.00	-0.02	±0.3
180400	4.19	4.17	4.17	4.18	4.17	4.17	-0.02	0.00	0.00	±0.3
228400	4.16	4.14	4.14	4.15	4.14	4.14	-0.02	0.00	0.00	±0.3
289400	4.12	4.10	4.10	4.11	4.10	4.10	-0.02	0.00	0.00	±0.3
366400	4.08	4.06	4.06	4.07	4.07	4.06	-0.02	0.02	0.00	±0.3
400000	4.06	4.04	4.04	4.05	4.05	4.04	-0.02	0.02	0.00	±0.3
464000	4.03	4.02	4.01	4.03	4.02	4.01	0.00	0.00	0.00	±0.3
587800	3.98	3.98	3.97	3.98	3.98	3.97	0.00	0.00	0.00	±0.3
744200	3.93	3.93	3.93	3.93	3.92	3.93	0.00	-0.02	0.00	±0.3
942600	3.92	3.92	3.92	3.92	3.92	3.92	0.00	0.00	0.00	±0.3
1193600	3.90	3.89	3.89	3.90	3.89	3.89	0.00	0.00	0.00	±0.3
1511600	3.89	3.88	3.88	3.89	3.88	3.87	0.00	0.00	-0.02	±0.3
1914400	3.88	3.87	3.86	3.87	3.87	3.87	-0.02	0.00	0.02	±0.3
2424400	3.86	3.85	3.85	3.86	3.85	3.85	0.00	0.00	0.00	±0.3
3070200	3.83	3.82	3.81	3.83	3.82	3.81	0.00	0.00	0.00	±0.3
3888000	3.78	3.77	3.76	3.78	3.76	3.77	0.00	-0.02	0.02	±0.3
4000000	3.77	3.76	3.75	3.76	3.76	3.75	-0.02	0.00	0.00	±0.3
4923800	3.70	3.69	3.69	3.70	3.70	3.70	0.00	0.02	0.02	±0.3
6235400	3.60	3.59	3.60	3.57	3.59	3.60	-0.07	0.00	0.00	±0.3
7896400	3.45	3.44	3.44	3.45	3.44	3.40	0.00	0.00	-0.10	±0.3
10000000	3.30	3.30	3.30	3.27	3.32	3.32	-0.08	0.05	0.05	±0.3

SPEAG H-field frequency response tolerance criteria[1]:
±0.3dB for applied H-fields at calibration points from 3kHz to 10MHz

[1] Calibration uncertainty not taken into account (shared risk 50%).

MAGPy-8H3D+E3DV2 SN:3059
MAGPy-DASV2 SN:3064

May 15, 2024

Frequency Response, H-field, Channel 5

f/(Hz)	H-field/(A/m) Applied			H-field/(A/m) Reading			Difference/(dB)			Tolerance/(dB)
	x	y	z	x	y	z	x	y	z	
3000	1.48	1.48	1.48	1.46	1.47	1.48	-0.12	-0.06	0.00	±0.3
3200	1.47	1.47	1.47	1.46	1.48	1.48	-0.06	0.06	0.06	±0.3
4000	1.46	1.46	1.46	1.45	1.46	1.46	-0.06	0.00	0.00	±0.3
5200	1.45	1.45	1.45	1.44	1.44	1.46	-0.06	-0.06	0.06	±0.3
6600	1.44	1.44	1.44	1.43	1.44	1.43	-0.06	0.00	-0.06	±0.3
8200	1.43	1.43	1.43	1.41	1.42	1.42	-0.12	-0.06	-0.06	±0.3
9000	1.43	1.42	1.43	1.42	1.42	1.42	-0.06	0.00	-0.06	±0.3
10600	4.28	4.23	4.22	4.25	4.22	4.21	-0.06	-0.02	-0.02	±0.3
13400	4.27	4.24	4.24	4.28	4.25	4.22	0.02	0.02	-0.04	±0.3
17000	4.28	4.24	4.24	4.26	4.23	4.22	-0.04	-0.02	-0.04	±0.3
21400	4.30	4.26	4.26	4.28	4.25	4.25	-0.04	-0.02	-0.02	±0.3
27200	4.30	4.26	4.26	4.28	4.25	4.25	-0.04	-0.02	-0.02	±0.3
34400	4.30	4.28	4.27	4.28	4.27	4.26	-0.04	-0.02	-0.02	±0.3
40000	4.29	4.27	4.27	4.27	4.27	4.26	-0.04	0.00	-0.02	±0.3
43600	4.28	4.26	4.26	4.27	4.26	4.25	-0.02	0.00	-0.02	±0.3
55400	4.27	4.25	4.25	4.26	4.25	4.24	-0.02	0.00	-0.02	±0.3
70000	4.26	4.24	4.24	4.25	4.24	4.23	-0.02	0.00	-0.02	±0.3
88800	4.25	4.23	4.23	4.23	4.22	4.22	-0.04	-0.02	-0.02	±0.3
112400	4.24	4.22	4.22	4.22	4.21	4.21	-0.04	-0.02	-0.02	±0.3
142400	4.22	4.20	4.20	4.21	4.19	4.19	-0.02	-0.02	-0.02	±0.3
161750	4.20	4.18	4.18	4.18	4.18	4.18	-0.04	0.00	0.00	±0.3
180400	4.19	4.17	4.17	4.18	4.17	4.16	-0.02	0.00	-0.02	±0.3
228400	4.16	4.14	4.14	4.14	4.13	4.13	-0.04	-0.02	-0.02	±0.3
289400	4.12	4.10	4.10	4.12	4.10	4.09	0.00	0.00	-0.02	±0.3
366400	4.08	4.06	4.06	4.07	4.06	4.06	-0.02	0.00	0.00	±0.3
400000	4.06	4.04	4.04	4.05	4.04	4.04	-0.02	0.00	0.00	±0.3
464000	4.03	4.02	4.01	4.02	4.01	4.01	-0.02	-0.02	0.00	±0.3
587800	3.98	3.98	3.97	3.98	3.97	3.97	0.00	-0.02	0.00	±0.3
744200	3.93	3.93	3.93	3.93	3.92	3.92	0.00	-0.02	-0.02	±0.3
942600	3.92	3.92	3.92	3.92	3.91	3.92	0.00	-0.02	0.00	±0.3
1193600	3.90	3.89	3.89	3.90	3.89	3.90	0.00	0.00	0.02	±0.3
1511600	3.89	3.88	3.88	3.89	3.88	3.88	0.00	0.00	0.00	±0.3
1914400	3.88	3.87	3.86	3.88	3.86	3.86	0.00	-0.02	0.00	±0.3
2424400	3.86	3.85	3.85	3.85	3.85	3.84	-0.02	0.00	-0.02	±0.3
3070200	3.83	3.82	3.81	3.83	3.82	3.81	0.00	0.00	0.00	±0.3
3888000	3.78	3.77	3.76	3.78	3.77	3.77	0.00	0.00	0.02	±0.3
4000000	3.77	3.76	3.75	3.76	3.76	3.75	-0.02	0.00	0.00	±0.3
4923800	3.70	3.69	3.69	3.69	3.69	3.69	-0.02	0.00	0.00	±0.3
6235400	3.60	3.59	3.60	3.60	3.57	3.60	0.00	-0.05	0.00	±0.3
7896400	3.45	3.44	3.44	3.45	3.44	3.41	0.00	0.00	-0.08	±0.3
10000000	3.30	3.30	3.30	3.29	3.30	3.32	-0.03	0.00	0.05	±0.3

SPEAG H-field frequency response tolerance criteria[1]:
±0.3dB for applied H-fields at calibration points from 3kHz to 10MHz

[1] Calibration uncertainty not taken into account (shared risk 50%).

MAGPy-8H3D+E3DV2 SN:3059
MAGPy-DASV2 SN:3064

May 15, 2024

Frequency Response, H-field, Channel 6

f/(Hz)	H-field/(A/m) Applied			H-field/(A/m) Reading			Difference/(dB)			Tolerance/(dB)
	x	y	z	x	y	z	x	y	z	
3000	1.48	1.48	1.48	1.52	1.47	1.46	0.23	-0.06	-0.12	±0.3
3200	1.47	1.47	1.47	1.46	1.49	1.47	-0.06	0.12	0.00	±0.3
4000	1.46	1.46	1.46	1.46	1.46	1.46	0.00	0.00	0.00	±0.3
5200	1.45	1.45	1.45	1.44	1.44	1.45	-0.06	-0.06	0.00	±0.3
6600	1.44	1.44	1.44	1.44	1.43	1.44	0.00	-0.06	0.00	±0.3
8200	1.43	1.43	1.43	1.42	1.42	1.43	-0.06	-0.06	0.00	±0.3
9000	1.43	1.42	1.43	1.43	1.42	1.43	0.00	0.00	0.00	±0.3
10600	4.28	4.23	4.22	4.28	4.20	4.21	0.00	-0.06	-0.02	±0.3
13400	4.27	4.24	4.24	4.27	4.22	4.23	0.00	-0.04	-0.02	±0.3
17000	4.28	4.24	4.24	4.26	4.22	4.23	-0.04	-0.04	-0.02	±0.3
21400	4.30	4.26	4.26	4.28	4.26	4.26	-0.04	0.00	0.00	±0.3
27200	4.30	4.26	4.26	4.29	4.26	4.25	-0.02	0.00	-0.02	±0.3
34400	4.30	4.28	4.27	4.29	4.26	4.27	-0.02	-0.04	0.00	±0.3
40000	4.29	4.27	4.27	4.28	4.26	4.26	-0.02	-0.02	-0.02	±0.3
43600	4.28	4.26	4.26	4.26	4.25	4.25	-0.04	-0.02	-0.02	±0.3
55400	4.27	4.25	4.25	4.26	4.24	4.24	-0.02	-0.02	-0.02	±0.3
70000	4.26	4.24	4.24	4.25	4.23	4.24	-0.02	-0.02	0.00	±0.3
88800	4.25	4.23	4.23	4.24	4.22	4.23	-0.02	-0.02	0.00	±0.3
112400	4.24	4.22	4.22	4.22	4.21	4.21	-0.04	-0.02	-0.02	±0.3
142400	4.22	4.20	4.20	4.21	4.19	4.19	-0.02	-0.02	-0.02	±0.3
161750	4.20	4.18	4.18	4.18	4.18	4.17	-0.04	0.00	-0.02	±0.3
180400	4.19	4.17	4.17	4.18	4.17	4.16	-0.02	0.00	-0.02	±0.3
228400	4.16	4.14	4.14	4.15	4.13	4.13	-0.02	-0.02	-0.02	±0.3
289400	4.12	4.10	4.10	4.11	4.09	4.10	-0.02	-0.02	0.00	±0.3
366400	4.08	4.06	4.06	4.07	4.06	4.06	-0.02	0.00	0.00	±0.3
400000	4.06	4.04	4.04	4.05	4.04	4.04	-0.02	0.00	0.00	±0.3
464000	4.03	4.02	4.01	4.02	4.01	4.01	-0.02	-0.02	0.00	±0.3
587800	3.98	3.98	3.97	3.98	3.97	3.97	0.00	-0.02	0.00	±0.3
744200	3.93	3.93	3.93	3.93	3.92	3.92	0.00	-0.02	-0.02	±0.3
942600	3.92	3.92	3.92	3.92	3.91	3.92	0.00	-0.02	0.00	±0.3
1193600	3.90	3.89	3.89	3.90	3.89	3.89	0.00	0.00	0.00	±0.3
1511600	3.89	3.88	3.88	3.89	3.89	3.88	0.00	0.02	0.00	±0.3
1914400	3.88	3.87	3.86	3.88	3.86	3.86	0.00	-0.02	0.00	±0.3
2424400	3.86	3.85	3.85	3.86	3.85	3.85	0.00	0.00	0.00	±0.3
3070200	3.83	3.82	3.81	3.84	3.82	3.81	0.02	0.00	0.00	±0.3
3888000	3.78	3.77	3.76	3.77	3.77	3.76	-0.02	0.00	0.00	±0.3
4000000	3.77	3.76	3.75	3.75	3.76	3.75	-0.05	0.00	0.00	±0.3
4923800	3.70	3.69	3.69	3.69	3.69	3.69	-0.02	0.00	0.00	±0.3
6235400	3.60	3.59	3.60	3.60	3.59	3.59	0.00	0.00	-0.02	±0.3
7896400	3.45	3.44	3.44	3.44	3.44	3.43	-0.03	0.00	-0.03	±0.3
10000000	3.30	3.30	3.30	3.29	3.29	3.34	-0.03	-0.03	0.10	±0.3

SPEAG H-field frequency response tolerance criteria[1]:
±0.3dB for applied H-fields at calibration points from 3kHz to 10MHz

[1] Calibration uncertainty not taken into account (shared risk 50%).

MAGPy-8H3D+E3DV2 SN:3059
MAGPy-DASV2 SN:3064

May 15, 2024

Frequency Response, H-field, Channel 7

	H-field/(A/m) Applied			H-field/(A/m) Reading			Difference/(dB)			
f/(Hz)	x	y	z	x	y	z	x	y	z	Tolerance/(dB)
3000	1.48	1.48	1.48	1.47	1.46	1.46	-0.06	-0.12	-0.12	±0.3
3200	1.47	1.47	1.47	1.46	1.48	1.48	-0.06	0.06	0.06	±0.3
4000	1.46	1.46	1.46	1.45	1.45	1.46	-0.06	-0.06	0.00	±0.3
5200	1.45	1.45	1.45	1.43	1.43	1.46	-0.12	-0.12	0.06	±0.3
6600	1.44	1.44	1.44	1.43	1.42	1.43	-0.06	-0.12	-0.06	±0.3
8200	1.43	1.43	1.43	1.41	1.42	1.43	-0.12	-0.06	0.00	±0.3
9000	1.43	1.42	1.43	1.41	1.42	1.42	-0.12	0.00	-0.06	±0.3
10600	4.28	4.23	4.22	4.28	4.24	4.20	0.00	0.02	-0.04	±0.3
13400	4.27	4.24	4.24	4.26	4.22	4.24	-0.02	-0.04	0.00	±0.3
17000	4.28	4.24	4.24	4.25	4.24	4.23	-0.06	0.00	-0.02	±0.3
21400	4.30	4.26	4.26	4.29	4.27	4.26	-0.02	0.02	0.00	±0.3
27200	4.30	4.26	4.26	4.28	4.25	4.27	-0.04	-0.02	0.02	±0.3
34400	4.30	4.28	4.27	4.28	4.28	4.26	-0.04	0.00	-0.02	±0.3
40000	4.29	4.27	4.27	4.26	4.27	4.26	-0.06	0.00	-0.02	±0.3
43600	4.28	4.26	4.26	4.27	4.26	4.25	-0.02	0.00	-0.02	±0.3
55400	4.27	4.25	4.25	4.25	4.25	4.25	-0.04	0.00	0.00	±0.3
70000	4.26	4.24	4.24	4.25	4.25	4.23	-0.02	0.02	-0.02	±0.3
88800	4.25	4.23	4.23	4.24	4.22	4.23	-0.02	-0.02	0.00	±0.3
112400	4.24	4.22	4.22	4.22	4.22	4.21	-0.04	0.00	-0.02	±0.3
142400	4.22	4.20	4.20	4.21	4.20	4.20	-0.02	0.00	0.00	±0.3
161750	4.20	4.18	4.18	4.18	4.18	4.18	-0.04	0.00	0.00	±0.3
180400	4.19	4.17	4.17	4.18	4.17	4.18	-0.02	0.00	0.02	±0.3
228400	4.16	4.14	4.14	4.15	4.15	4.14	-0.02	0.02	0.00	±0.3
289400	4.12	4.10	4.10	4.11	4.09	4.10	-0.02	-0.02	0.00	±0.3
366400	4.08	4.06	4.06	4.07	4.07	4.07	-0.02	0.02	0.02	±0.3
400000	4.06	4.04	4.04	4.05	4.05	4.04	-0.02	0.02	0.00	±0.3
464000	4.03	4.02	4.01	4.02	4.03	4.01	-0.02	0.02	0.00	±0.3
587800	3.98	3.98	3.97	3.98	3.98	3.98	0.00	0.00	0.02	±0.3
744200	3.93	3.93	3.93	3.93	3.94	3.93	0.00	0.02	0.00	±0.3
942600	3.92	3.92	3.92	3.92	3.92	3.93	0.00	0.00	0.02	±0.3
1193600	3.90	3.89	3.89	3.90	3.90	3.89	0.00	0.02	0.00	±0.3
1511600	3.89	3.88	3.88	3.89	3.89	3.87	0.00	0.02	-0.02	±0.3
1914400	3.88	3.87	3.86	3.88	3.87	3.86	0.00	0.00	0.00	±0.3
2424400	3.86	3.85	3.85	3.86	3.85	3.85	0.00	0.00	0.00	±0.3
3070200	3.83	3.82	3.81	3.84	3.83	3.81	0.02	0.02	0.00	±0.3
3888000	3.78	3.77	3.76	3.78	3.76	3.77	0.00	-0.02	0.02	±0.3
4000000	3.77	3.76	3.75	3.75	3.76	3.75	-0.05	0.00	0.00	±0.3
4923800	3.70	3.69	3.69	3.70	3.69	3.69	0.00	0.00	0.00	±0.3
6235400	3.60	3.59	3.60	3.59	3.60	3.61	-0.02	0.02	0.02	±0.3
7896400	3.45	3.44	3.44	3.44	3.43	3.41	-0.03	-0.03	-0.08	±0.3
10000000	3.30	3.30	3.30	3.29	3.32	3.34	-0.03	0.05	0.10	±0.3

SPEAG H-field frequency response tolerance criteria[1]:
±0.3dB for applied H-fields at calibration points from 3kHz to 10MHz

[1] Calibration uncertainty not taken into account (shared risk 50%).

MAGPy-8H3D+E3DV2 SN:3059
MAGPy-DASV2 SN:3064

May 15, 2024

Frequency Response, E-field, Channel 0

f/(Hz)	E-field/(V/m) Applied			E-field/(V/m) Reading			Difference/(dB)			Tolerance/(dB)
	x	y	z	x	y	z	x	y	z	
3000	169	169	172	170	170	172	0.05	0.05	0.00	±0.3
3200	167	167	162	167	169	163	0.00	0.10	0.05	±0.3
4000	175	175	170	175	175	170	0.00	0.00	0.00	±0.3
5200	165	165	163	166	165	163	0.05	0.00	0.00	±0.3
6600	163	163	160	163	163	160	0.00	0.00	0.00	±0.3
8200	162	162	159	163	162	159	0.05	0.00	0.00	±0.3
9000	163	163	164	164	163	164	0.05	0.00	0.00	±0.3
10600	166	166	159	167	166	159	0.05	0.00	0.00	±0.3
13400	163	163	162	164	164	161	0.05	0.05	−0.05	±0.3
17000	161	161	163	162	162	163	0.05	0.05	0.00	±0.3
21400	157	157	158	158	157	158	0.06	0.00	0.00	±0.3
27200	158	158	157	158	158	157	0.00	0.00	0.00	±0.3
34400	162	162	159	163	162	159	0.05	0.00	0.00	±0.3
40000	161	161	161	162	161	161	0.05	0.00	0.00	±0.3
43600	162	162	160	162	162	160	0.00	0.00	0.00	±0.3
55400	161	161	159	161	161	159	0.00	0.00	0.00	±0.3
70000	162	162	160	162	162	160	0.00	0.00	0.00	±0.3
88800	161	161	160	162	162	160	0.05	0.05	0.00	±0.3
112400	161	161	160	162	161	160	0.05	0.00	0.00	±0.3
142400	162	162	160	163	162	160	0.05	0.00	0.00	±0.3
161750	163	163	162	164	163	162	0.05	0.00	0.00	±0.3
180400	164	164	162	164	164	162	0.00	0.00	0.00	±0.3
228400	165	165	163	166	166	163	0.05	0.05	0.00	±0.3
289400	166	166	164	166	166	164	0.00	0.00	0.00	±0.3
366400	166	166	165	167	166	165	0.05	0.00	0.00	±0.3
400000	167	167	165	168	167	165	0.05	0.00	0.00	±0.3
464000	168	168	166	169	169	166	0.05	0.05	0.00	±0.3
587800	169	169	167	170	169	167	0.05	0.00	0.00	±0.3
744200	169	169	167	170	170	168	0.05	0.05	0.05	±0.3
942600	170	170	168	171	170	168	0.05	0.00	0.00	±0.3
1193600	171	171	169	171	171	169	0.00	0.00	0.00	±0.3
1511600	170	170	169	171	170	169	0.05	0.00	0.00	±0.3
1914400	170	170	168	170	170	168	0.00	0.00	0.00	±0.3
2424400	170	170	168	170	170	168	0.00	0.00	0.00	±0.3
3070200	171	171	169	171	171	169	0.00	0.00	0.00	±0.3
3888000	171	171	169	171	171	169	0.00	0.00	0.00	±0.3
4000000	171	171	169	171	171	170	0.00	0.00	0.05	±0.3
4923800	172	172	170	172	172	170	0.00	0.00	0.00	±0.3
6235400	174	174	172	174	174	172	0.00	0.00	0.00	±0.3
7896400	180	180	179	180	180	179	0.00	0.00	0.00	±0.3
10000000	201	201	199	201	201	199	0.00	0.00	0.00	±0.3

SPEAG E-field frequency response tolerance criteria[1]:
±0.3dB for applied E-fields at calibration points from 3kHz to 10MHz

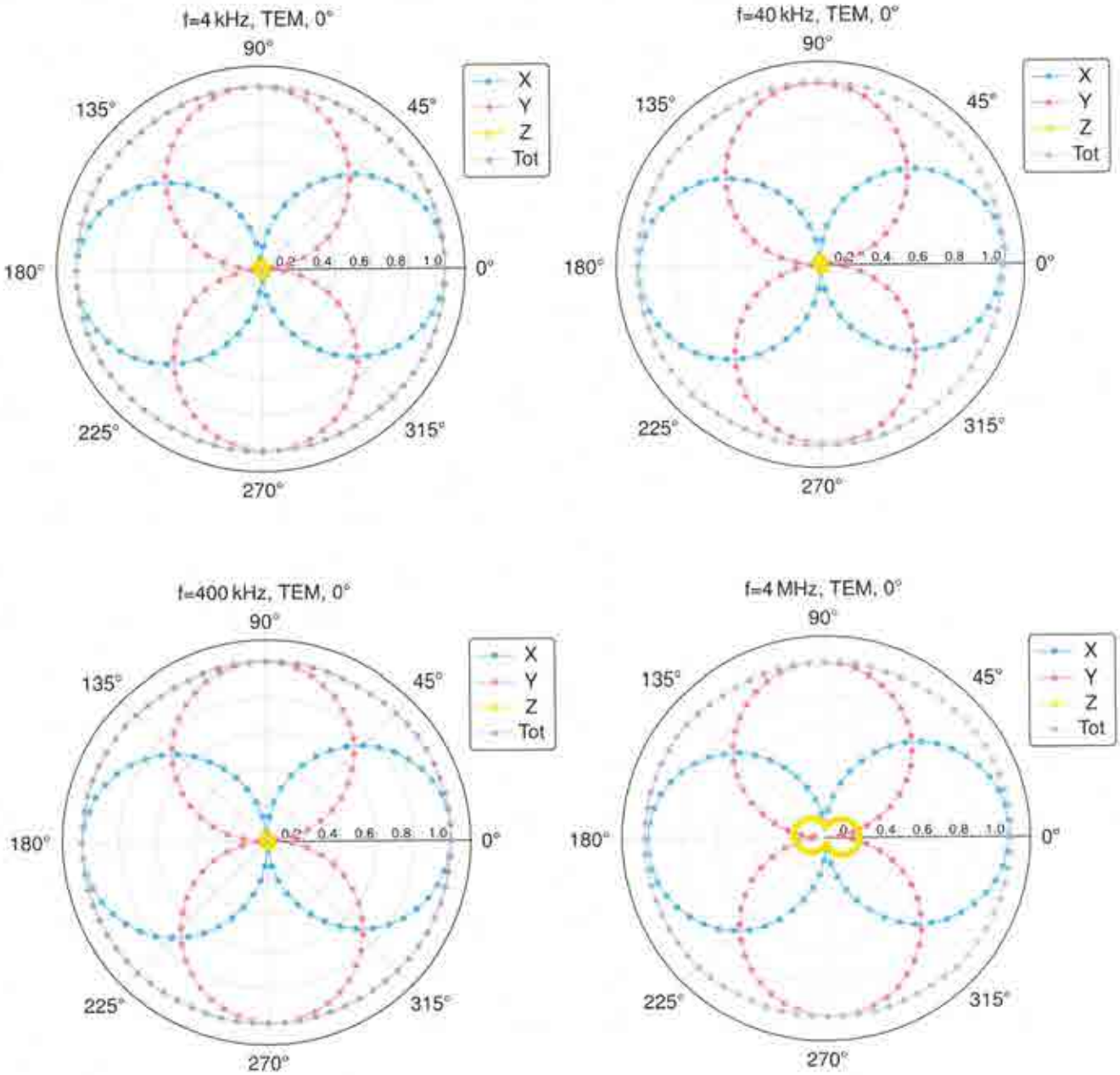
[1] Calibration uncertainty not taken into account (shared risk 50%).

MAGPy-8H3D+E3DV2 SN:3059
MAGPy-DASV2 SN:3064

May 15, 2024

Isotropy H-Field

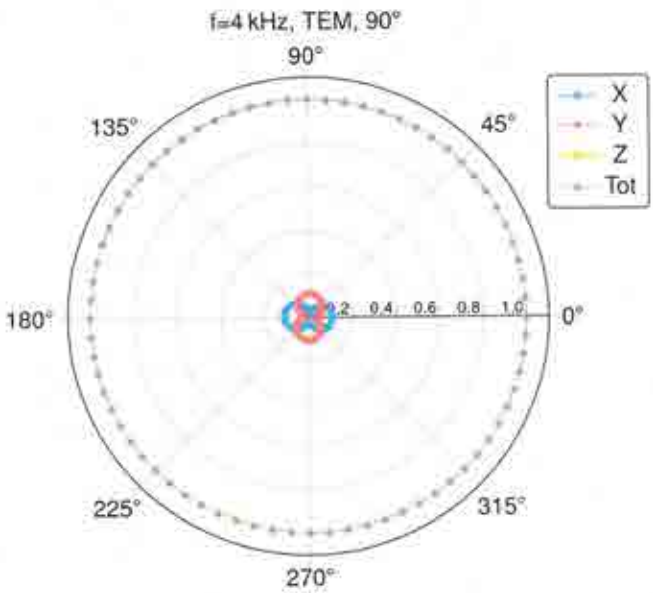
H-Field Receiving Pattern (ϕ), $\vartheta = 0°$

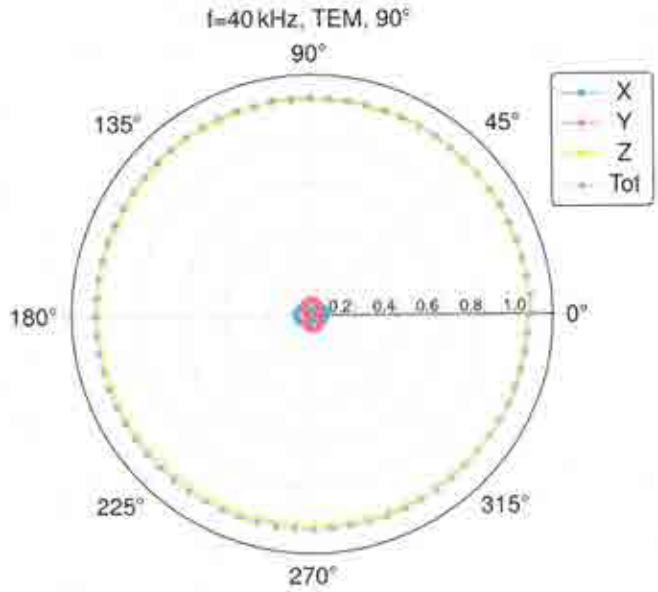


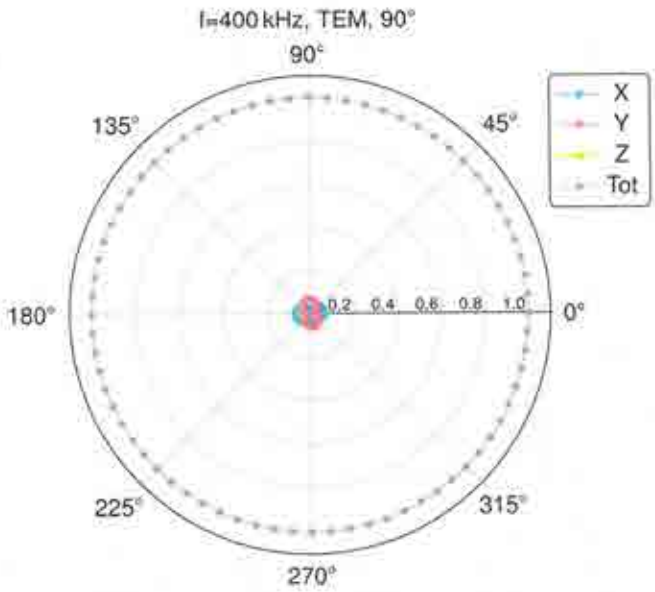
MAGPy-8H3D+E3DV2 SN:3059
MAGPy-DASV2 SN:3064

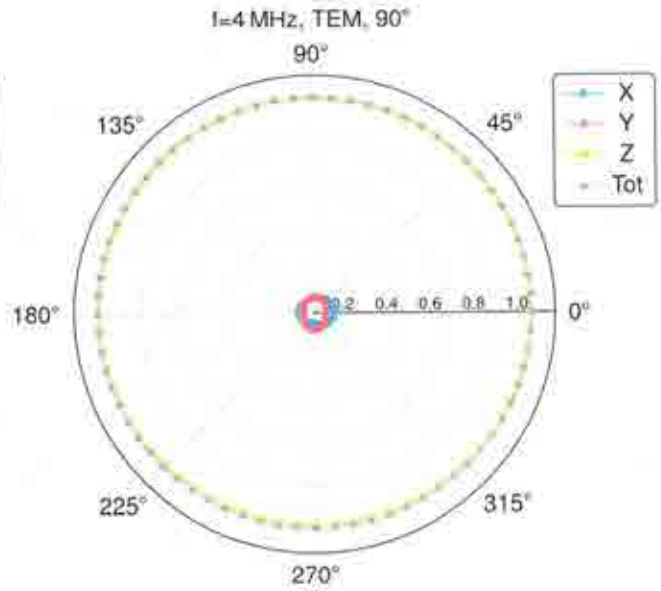
May 15, 2024

H-Field Receiving Pattern (ϕ), $\vartheta = 90°$





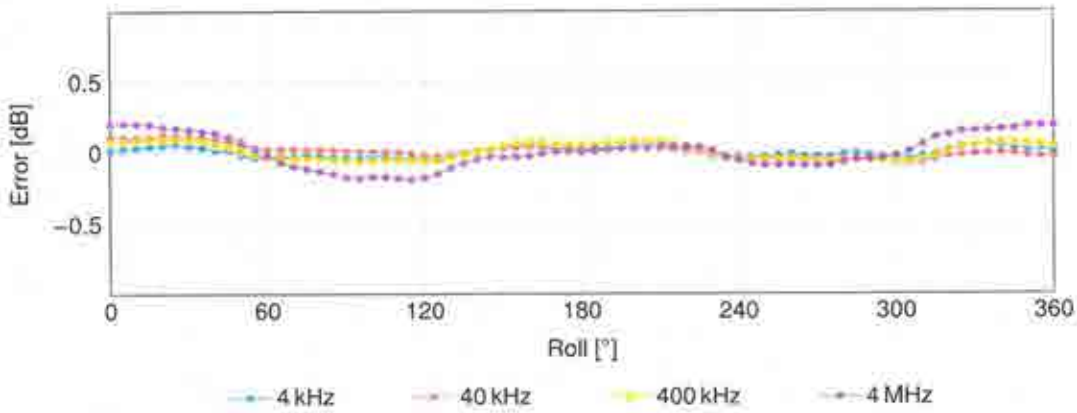




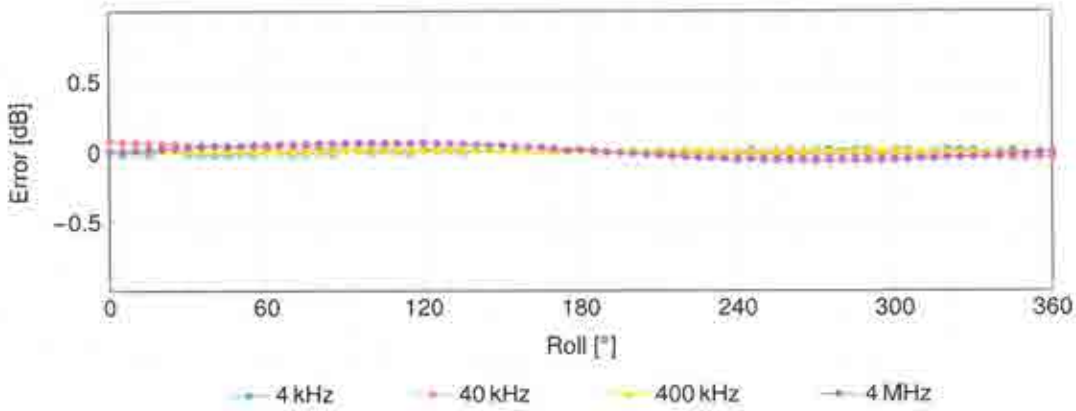
MAGPy-8H3D+E3DV2 SN:3059
MAGPy-DASV2 SN:3064

May 15, 2024

H-Field Receiving Pattern (ϕ), $\vartheta = 0°$



H-Field Receiving Pattern (ϕ), $\vartheta = 90°$



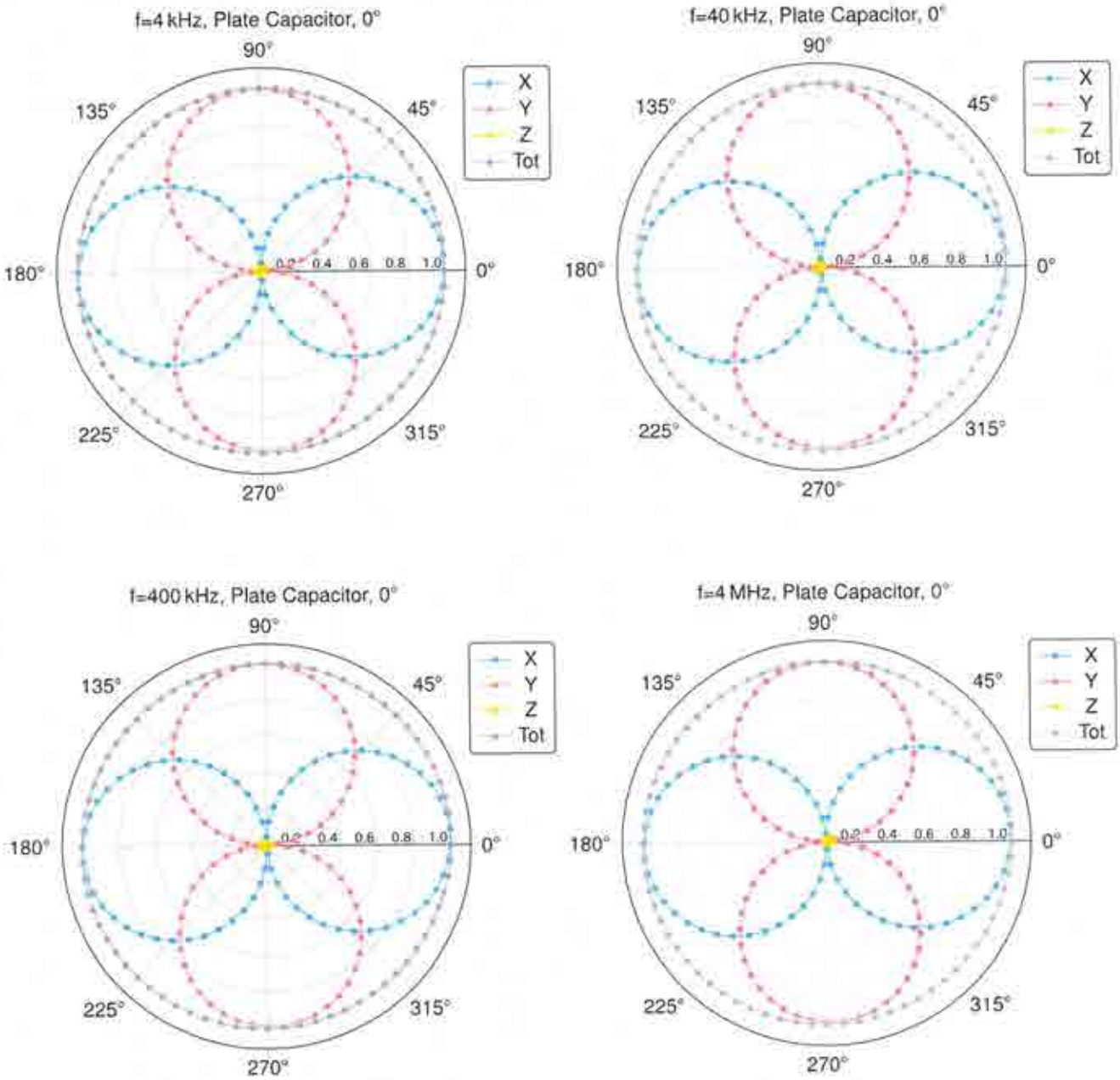
SPEAG axial deviation from the ideal response tolerance for H-field: ±0.6 dB

MAGPy-8H3D+E3DV2 SN:3059
MAGPy-DASV2 SN:3064

May 15, 2024

Isotropy E-Field

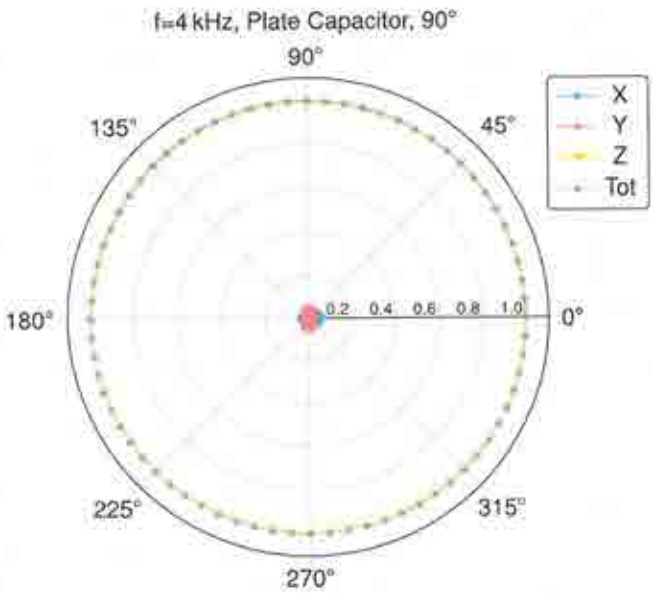
E-Field Receiving Pattern (ϕ), $\vartheta = 0°$

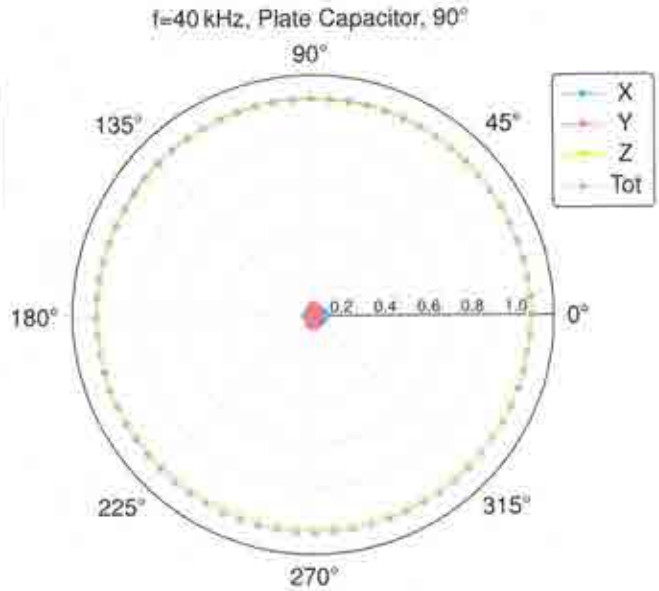


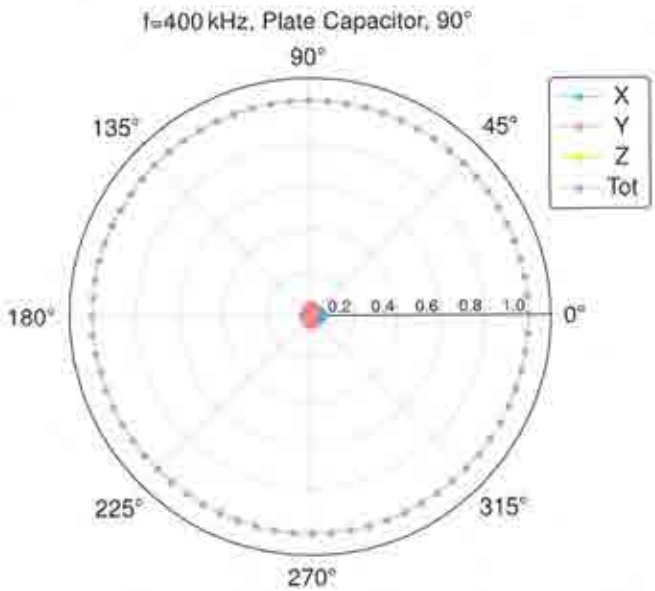
MAGPy-8H3D+E3DV2 SN:3059
MAGPy-DASV2 SN:3064

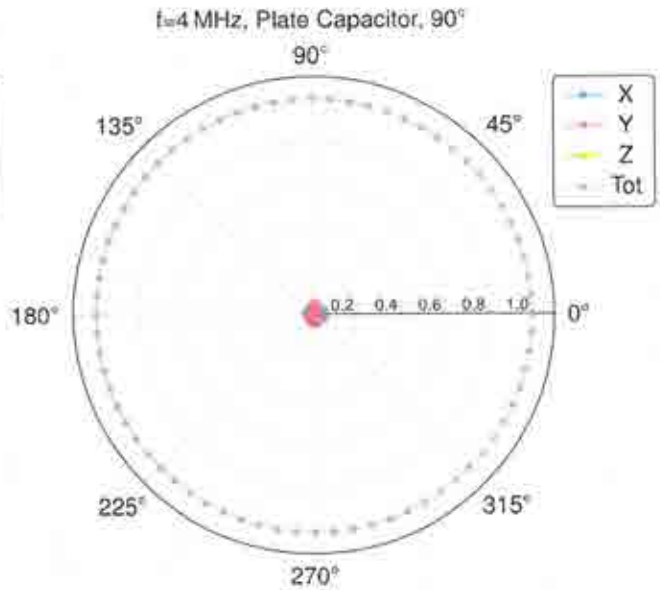
May 15, 2024

E-Field Receiving Pattern (ϕ), $\vartheta = 90°$





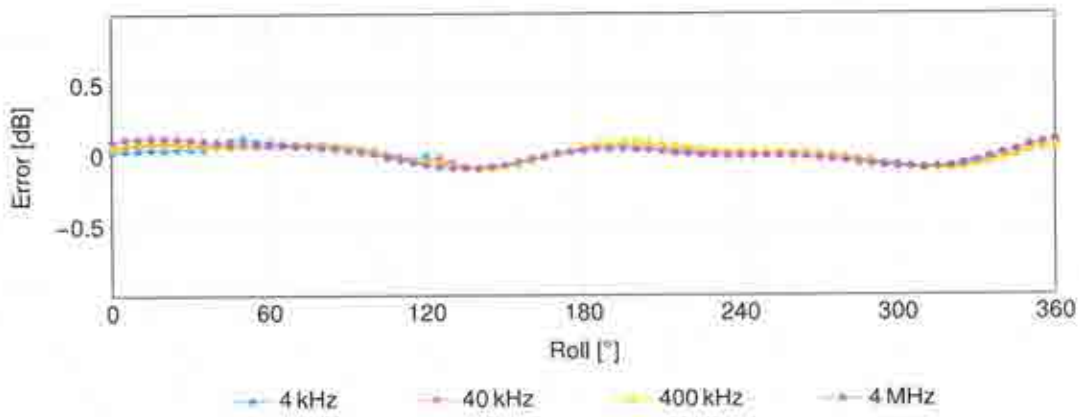




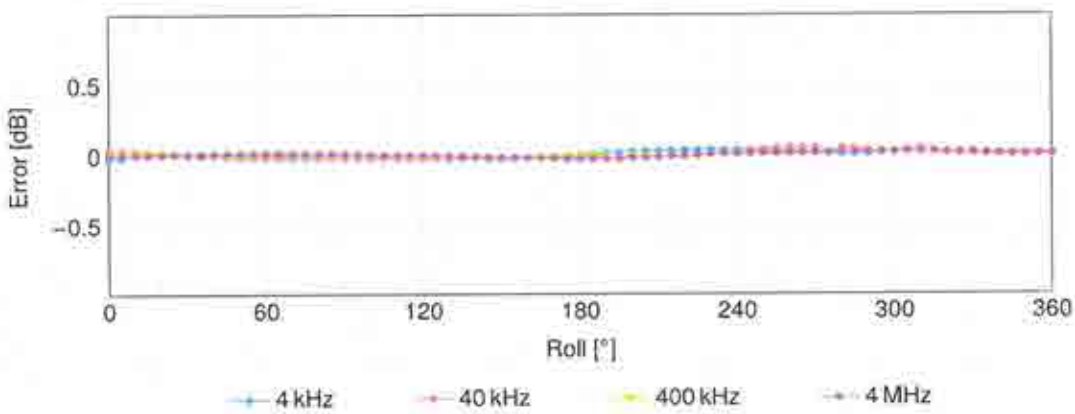
MAGPy-8H3D+E3DV2 SN:3059
MAGPy-DASV2 SN:3064

May 15, 2024

E-Field Receiving Pattern (ϕ), $\vartheta = 0°$



E-Field Receiving Pattern (ϕ), $\vartheta = 90°$



SPEAG axial deviation from the ideal response tolerance for E-field: ±0.8 dB

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

Client **Sporton**
Taoyuan

Certificate No: V-Coil350/85V2-1023_May24

CALIBRATION CERTIFICATE

Object	V-Coil350/85V2 - SN: 1023
Calibration procedure(s)	QA CAL-47.v13 Calibration Procedure for WPT Verification & Validation Sources
Calibration date:	May 22, 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 < 75%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
MAGPy-8H3D+E3D/DAS	SN: 3089/3079	17-Nov-23 (MAGPy-8H3D+E3D-3089)	Nov-24

Secondary Standards	ID #	Check Date (in house)	Scheduled Check

	Name	Function	Signature
Calibrated by:	Jingtian Xi	Project Leader	
Approved by:	Sven Kühn	Technical Manager	

Issued: May 29, 2024

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

Glossary:

WPT	wireless power transfer
V&V	verification & validation

Calibration is Performed According to the Following Standards:

- Internal procedure QA CAL-47 Calibration procedure for WPT verification & validation sources from 3 kHz to 10 MHz
- IEC/IEEE 63164, "Assessment methods of the human exposure to electric and magnetic fields from wireless power transfer systems – Models, instrumentation, measurement and computational methods and procedures (Frequency range 3 kHz to 30 MHz)", draft standard, 2023

Additional Documentation:

a) cDASY6/DASY8 Module WPT Manual

Methods Applied and Interpretation of Parameters:

- *Measurement Conditions:* The V&V source is switched on for at least 30 minutes.
- *Source Positioning:* The V&V source is placed in the center of the UniPV1 phantom such that the source surface is parallel to phantom surface. The probe location used for DUT teaching is the top center of the coil (marked on the source casing). The probe distance is verified using mechanical gauges placed on the source surface.
- *H-field distribution:* H-field is measured in the volume above the V&V source in a rectilinear grid with a uniform grid step of 7.33 mm.

Calibrated Quantity

- Spatial peak of H-field (RMS value) at *d* mm from the DUT surface (extrapolated from measurements)

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

Software version	cDASY6 Module WPT	2.4.0.4346
	Notebook GUI	2.4.0.2
	Sim4Life	7.2.4
Scan setup	Grid dimensions	x: 477 mm, y: 389 mm, z: 36.7 mm
	Grid resolutions	dx, dy, dz: 7.33 mm
Nominal frequency	85 kHz	

Calibrated Quantities

Distance (relative to source surface) (mm)	Peak H-field (A/m)	Uncertainty (k=2) (dB)
0	208	1.13
2	189	1.13

Appendix (Additional assessments outside the scope of SCS 0108)

Peak values of induced fields[1]

Distance (relative to source surface) (mm)	Induced peak current density, 1cm² area avg. (A/m²)	Induced peak E-field (V/m)			peak spatial SAR (mW/kg)	
		2mm cube avg.	Local	5mm line avg.	1g avg.	10g avg.
0	2.35	3.35	3.38	3.39	6.50	4.84
2	2.22	3.15	3.18	3.19	5.81	4.38

Voltage measurement

Total voltage (V)	Voltages at harmonics (dBc)
0.414	Highest harmonic: -40.1 2nd highest harmonic: -48.0

[1] determined for a virtual half-space phantom with tissue properties ε_r = 55, σ = 0.75 S/m, ρ=1000 kg/m³

Measurement report

cDASY6 Module WPT Measurement Report

Device under test

Info:
V-Coil350/85

Serial number:
1023

Scenario:
source calibration

Tool info

DASY software version:
cDASY6 Module WPT 2.4.0.4346

Probe model, serial no. and configuration date:
MAGPy-8H3D+E3Dv2, WP000231, *2024/01/10*

Software version:
2.0.49, *backend: 2.2.3*

Scan info

Center location:
x: -48.08 mm, y: -119.86 mm, z: 35.83 mm

Dimensions:
x: 477.0 mm, y: 389.0 mm, z: 36.7 mm

Resolution:
x: 7.33 mm, y: 7.33 mm, z: 7.33 mm

Completed on:
2024/05/22 21:39:05

Measurement results

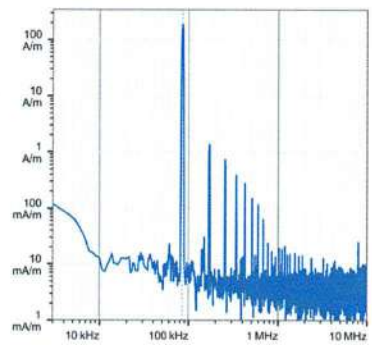
Maximum H-field [RMS]:
MAGNITUDE: 131.92 A/m
x: 113.01 A/m, y: 32.68 A/m, z: 59.70 A/m

Maximum H-field location relative to DUT:
x: 157.67 mm, y: -25.67 mm, z: 8.50 mm

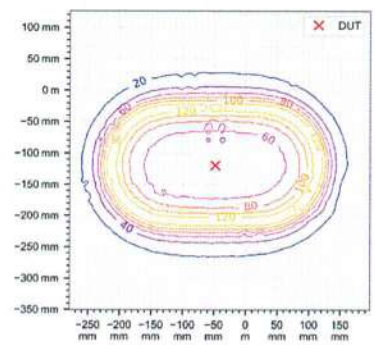
Distance to -20.0 dB boundary:
51.33 mm

Offset relative to DUT:
x: 0.00 m, y: 0.00 m, z: 1.00 mm

H-field magnitude [RMS] at maximum location



H-field magnitude [RMS] at lowest plane



Incident fields, and induced quantities in the anatomical model *(f = 85.00 kHz, σ = 0.750 S/m, tissue density = 1,000 kg/m³)*

Distance [mm]	Peak incident fields [RMS] H_{inc} [A/m]	Peak E_{ind} [V/m, RMS] Cube avg.	Local	Line avg.	Peak J_{ind} [A/m², RMS] Surface avg.	psSAR [mW/kg] 1g avg.	10g avg.	H-field extent -20 dB radius [mm]	Errors Sign	Vector potential	Boundary effect
0.0	208.0	3.35	3.38	3.39	2.35	6.5	4.84	182.0	1%	97%	36%
2.0	189.0	3.15	3.18	3.19	2.22	5.81	4.38	184.0	1%	97%	38%

Standard compliance evaluation, Absolute

Distance [mm]	ICNIRP 2010/2020 RL [RMS] pH_{inc} [A/m]	BR [RMS] pE_{ind} [V/m]	psSAR [mW/kg]	ICNIRP 1998 RL [RMS] pH_{inc} [A/m]	BR [RMS] pJ_{ind} [A/m²]	psSAR [mW/kg]	IEEE 2019 ERL [RMS] pH_{inc} [A/m]	DRL [RMS] pE_{ind} [V/m]	psSAR [mW/kg]	FCC MPE [RMS] pH_{inc} [A/m]	BR [RMS] pE_{ind} [V/m]	psSAR [mW/kg]	HC Code 6 RL [RMS] pH_{inc} [A/m]	BR [RMS] pE_{ind} [V/m]	psSAR [mW/kg]
0.0	208.0	3.35	4.84	208.0	2.35	4.84	208.0	3.39	4.84	208.0	N/A	6.5	208.0	3.38	6.5
2.0	189.0	3.15	4.38	189.0	2.22	4.38	189.0	3.19	4.38	189.0	N/A	5.81	189.0	3.18	5.81

Standard compliance evaluation, Relative

Distance [mm]	ICNIRP 2010/2020 [dB] RL pH_{inc}	BR pE_{ind}	psSAR	ICNIRP 1998 [dB] RL pH_{inc}	BR pJ_{ind}	psSAR	IEEE 2019 [dB] ERL pH_{inc}	DRL pE_{ind}	psSAR	FCC [dB] MPE pH_{inc}	BR pE_{ind}	psSAR	HC Code 6 [dB] RL pH_{inc}	BR pE_{ind}	psSAR
0.0	19.9	-10.7	-26.2	32.4	22.8	-26.2	2.1	-14.4	-26.2	7.3	N/A	N/A	27.7	-10.6	-23.9
2.0	19.1	-11.2	-26.6	31.5	22.3	-26.6	1.3	-14.9	-26.6	6.4	N/A	N/A	26.8	-11.1	-24.4

Document generated at 2024/05/22 22:14:05, simulation performed at 2024/05/22 22:01:24 using Sim4Life version 7.2.4.14019

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

Client **Sporton**
Taoyuan

Certificate No: V-Coil50/400V2-1018_May24

CALIBRATION CERTIFICATE

Object	V-Coil50/400V2 - SN: 1018
Calibration procedure(s)	QA CAL-47.v13 Calibration Procedure for WPT Verification & Validation Sources
Calibration date:	May 23, 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 < 75%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
MAGPy-8H3D+E3D/DAS	SN: 3089/3079	17-Nov-23 (MAGPy-8H3D+E3D-3089)	Nov-24

Secondary Standards	ID #	Check Date (in house)	Scheduled Check

	Name	Function	Signature
Calibrated by:	Jingtian Xi	Project Leader	Jingtian
Approved by:	Sven Kühn	Technical Manager	

Issued: May 29, 2024

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Engineering AG
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Glossary:

WPT	wireless power transfer
V&V	verification & validation

Calibration is Performed According to the Following Standards:

- Internal procedure QA CAL-47 Calibration procedure for WPT verification & validation sources from 3 kHz to 10 MHz
- IEC/IEEE 63164, "Assessment methods of the human exposure to electric and magnetic fields from wireless power transfer systems – Models, instrumentation, measurement and computational methods and procedures (Frequency range 3 kHz to 30 MHz)", draft standard, 2023

Additional Documentation:

a) cDASY6/DASY8 Module WPT Manual

Methods Applied and Interpretation of Parameters:

- *Measurement Conditions:* The V&V source is switched on for at least 30 minutes.
- *Source Positioning:* The V&V source is placed in the center of the UniPV1 phantom such that the source surface is parallel to phantom surface. The probe location used for DUT teaching is the top center of the coil (marked on the source casing). The probe distance is verified using mechanical gauges placed on the source surface.
- *H-field distribution:* H-field is measured in the volume above the V&V source in a rectilinear grid with a uniform grid step of 7.33 mm.

Calibrated Quantity

- Spatial peak of H-field (RMS value) at *d* mm from the DUT surface (extrapolated from measurements)

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

Software version	cDASY6 Module WPT	2.4.0.4346
	Notebook GUI	2.4.0.2
	Sim4Life	7.2.4
Scan setup	Grid dimensions	x: 125 mm, y: 125 mm, z: 36.7 mm
	Grid resolutions	dx, dy, dz: 7.33 mm
Nominal frequency	400 kHz	

Calibrated Quantities

Distance (relative to source surface) (mm)	Peak H-field (A/m)	Uncertainty (k=2) (dB)
0	261	1.13
2	229	1.13

Appendix (Additional assessments outside the scope of SCS 0108)

Peak values of induced fields[1]

Distance (relative to source surface) (mm)	Induced peak current density, 1cm² area avg. (A/m²)	Induced peak E-field (V/m)			peak spatial SAR (mW/kg)	
		2mm cube avg.	Local	5mm line avg.	1g avg.	10g avg.
0	2.68	4.21	4.32	4.32	7.13	3.56
2	2.30	3.64	3.75	3.75	5.24	2.66

Voltage measurement

Total voltage (V)	Voltages at harmonics (dBc)
0.405	Highest harmonic: -33.4 2nd highest harmonic: -33.8

[1] determined for a virtual half-space phantom with tissue properties ε_r = 55, σ = 0.75 S/m, ρ=1000 kg/m³

Measurement report

cDASY6 Module WPT Measurement Report

Device under test

Info:
V-Coil50/400

Serial number:
1018

Scenario:
source calibration

Tool info

DASY software version:
cDASY6 Module WPT 2.4.0.4346

Probe model, serial no. and configuration date:
MAGPy-8H3D+E3Dv2, WP000231, 2024/01/10

Software version:
2.0.49, *backend: 2.2.3*

Scan Info

Center location:
x: -186.16 mm, y: -319.38 mm, z: 36.38 mm

Dimensions:
x: 125.0 mm, y: 125.0 mm, z: 36.7 mm

Resolution:
x: 7.33 mm, y: 7.33 mm, z: 7.33 mm

Completed on:
2024/05/23 09:37:25

Measurement results

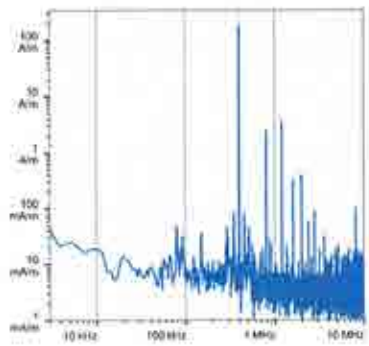
Maximum H-field [RMS]:
MAGNITUDE: 131.70 A/m
x: 17.90 A/m, y: 11.38 A/m, z: 129.98 A/m

Maximum H-field location relative to DUT:
x: 3.67 mm, y: 3.67 mm, z: 8.50 mm

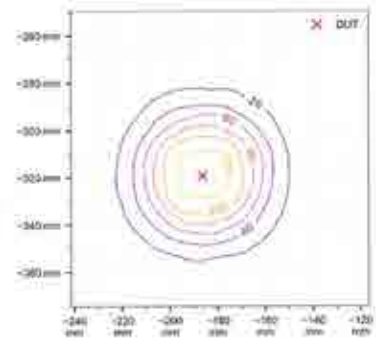
Distance to -20.0 dB boundary:
39.49 mm

Offset relative to DUT:
x: 0.00 m, y: 0.00 m, z: 1.00 mm

H-field magnitude [RMS] at maximum location



H-field magnitude [RMS] at lowest plane



Incident fields, and induced quantities in the anatomical model (f = 400.00 kHz, σ = 0.750 S/m, tissue density = 1,000 kg/m³)

Distance [mm]	Peak incident fields [RMS] H_{inc} [A/m]	Peak E_{ind} [V/m, RMS] Cube avg.	Local	Line avg.	Peak J_{ind} [A/m², RMS] Surface avg.	psSAR [mW/kg] 1g avg.	10g avg.	H-field extent -20 dB radius [mm]	Errors Sign	Vector potential	Boundary effect
0.0	261.0	4.21	4.32	4.32	2.68	7.13	3.56	39.3	1%	9%	25%
2.0	229.0	3.64	3.75	3.75	2.3	5.24	2.66	39.5	1%	8%	26%

Standard compliance evaluation, Absolute

Distance [mm]	ICNIRP 2010/2020 RL [RMS] pH_{inc} [A/m]	BR [RMS] pE_{ind} [V/m]	psSAR [mW/kg]	ICNIRP 1998 RL [RMS] pH_{inc} [A/m]	BR [RMS] pJ_{ind} [A/m²]	psSAR [mW/kg]	IEEE 2019 ERL [RMS] pH_{inc} [A/m]	DRL [RMS] pE_{ind} [V/m]	psSAR [mW/kg]	FCC MPE [RMS] pH_{inc} [A/m]	BR [RMS] pE_{ind} [V/m]	psSAR [mW/kg]	HC Code 6 RL [RMS] pH_{inc} [A/m]	BR [RMS] pE_{ind} [V/m]	psSAR [mW/kg]
0.0	261.0	4.21	3.56	261.0	2.68	3.56	261.0	4.32	3.56	261.0	N/A	7.13	261.0	4.32	7.13
2.0	229.0	3.64	2.66	229.0	2.3	2.66	229.0	3.75	2.66	229.0	N/A	5.24	229.0	3.75	5.24

Standard compliance evaluation, Relative

Distance [mm]	ICNIRP 2010/2020 [dB] RL pH_{inc}	BR pE_{ind}	psSAR	ICNIRP 1998 [dB] RL pH_{inc}	BR pJ_{ind}	psSAR	IEEE 2019 [dB] ERL pH_{inc}	DRL pE_{ind}	psSAR	FCC [dB] MPE pH_{inc}	BR pE_{ind}	psSAR	HC Code 6 [dB] RL pH_{inc}	BR pE_{ind}	psSAR
0.0	26.6	-22.2	-27.5	43.1	10.5	-27.5	9.1	-25.7	-27.5	N/A	N/A	-23.5	43.1	-21.9	-23.5
2.0	25.4	-23.4	-28.8	42.0	9.2	-28.8	8.0	-27.0	-28.8	N/A	N/A	-24.8	42.0	-23.2	-24.8

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