

Appendix D: Calibration Certificates



Accredited by the Swiss Accreditation Service (SAS)
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Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 0108

Client

RF Safety Lab
Catonsville, USA

Certificate No.

MAGPy-8H3D-3119_Oct25

CALIBRATION CERTIFICATE

Object

MAGPy-8H3D+E3DV2 SN:3119
MAGPy-DASV2 SN:3113

MAS
10/15/25

Calibration procedure(s)

QA CAL-46.v3
Calibration Procedure for MAGPy-8H3D+E3D
Near-field Electric and Magnetic Field Sensor System

Calibration date

October 03, 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
Oscilloscope	SN: 112135	15-Aug-25 (No. 4030A315010970)	Aug-26
Reference 20 dB Attenuator	SN: CC2552 (20x)	26-Mar-25 (No. 217-04284)	Mar-26
Type-N mismatch	SN: L1119	26-Mar-25 (No. 217-04292)	Mar-26

Secondary Standards	ID	Check Date (in house)	Scheduled Check
Network Analyzer E5061B	SN: MY49810822	In house check: Nov-24	In house check: Nov-25
TEM Cell	SN: S6029i	In house check: Nov-24	In house check: Nov-25
Plate Capacitor	SN: 6028i	In house check: Nov-24	In house check: Nov-25
Resonator (160kHz)	SN: 6030i	In house check: Nov-24	In house check: Nov-25

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

Signature

Issued: October 03, 2025

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



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Accreditation No.: **SCS 0108**

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 $\phi = 0^\circ \dots 360^\circ$; $\theta = 90^\circ$, and $\phi = 0^\circ \dots 360^\circ$; 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 $\phi = 0^\circ \dots 360^\circ$; $\theta = 90^\circ$, and $\phi = 0^\circ \dots 360^\circ$; 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)	3119
	MAGPy-DASV2 (SE UMS 303 AF)	3113
	MAGPy FPGA Board	WP000267
Adjustment Date	Last MAGPy Adjustment	October 03, 2025
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)			Tolerance/(dB)
x	y	z	x	y	z	x	y	z	
0.400	0.390	0.380	0.410	0.410	0.410	0.21	0.43	0.66	±1.00
0.540	0.530	0.520	0.540	0.530	0.550	0.00	0.00	0.49	±1.00
0.750	0.720	0.710	0.740	0.730	0.730	-0.12	0.12	0.24	±1.00
0.970	0.940	0.920	0.980	0.970	0.950	0.09	0.27	0.28	±1.00
1.31	1.27	1.25	1.34	1.29	1.26	0.20	0.14	0.07	±1.00
1.80	1.75	1.72	1.82	1.78	1.74	0.10	0.15	0.10	±1.00
2.40	2.33	2.28	2.42	2.37	2.31	0.07	0.15	0.11	±0.20
3.22	3.13	3.05	3.24	3.15	3.07	0.05	0.06	0.06	±0.20
4.37	4.25	4.15	4.39	4.26	4.15	0.04	0.02	0.00	±0.20
5.91	5.75	5.61	5.93	5.76	5.61	0.03	0.02	0.00	±0.20
7.95	7.75	7.54	7.97	7.76	7.54	0.02	0.01	0.00	±0.20
10.6	10.3	10.1	10.6	10.3	10.1	0.00	0.00	0.00	±0.20
14.3	14.0	13.6	14.3	14.0	13.6	0.00	0.00	0.00	±0.20
19.3	18.9	18.3	19.3	18.9	18.4	0.00	0.00	0.05	±0.20
26.0	25.5	24.7	26.1	25.5	24.8	0.03	0.00	0.04	±0.20
34.8	34.1	33.0	35.0	34.2	33.1	0.05	0.03	0.03	±0.20
47.0	46.1	44.5	47.2	46.3	44.8	0.04	0.04	0.06	±0.20
63.6	62.4	60.3	64.0	62.8	60.6	0.05	0.06	0.04	±0.20
87.4	85.9	82.9	87.0	85.5	82.5	-0.04	-0.04	-0.04	±0.20
114	112	108	114	112	108	0.00	0.00	0.00	±0.20
157	155	149	156	154	148	-0.06	-0.06	-0.06	±0.20
217	214	206	217	214	206	0.00	0.00	0.00	±0.20
300	296	285	295	291	280	-0.15	-0.15	-0.15	±0.20
442	436	421	437	431	416	-0.10	-0.10	-0.10	±0.20
608	600	579	605	598	576	-0.04	-0.03	-0.05	±0.20
906	894	863	911	899	868	0.05	0.05	0.05	±0.20
1370	1350	1300	1390	1380	1330	0.13	0.19	0.20	±0.30
1860	1830	1780	1920	1890	1830	0.28	0.28	0.24	±0.30
3010	2960	2880	3140	3090	3000	0.37	0.37	0.35	±0.50
3560	3500	3400	3730	3660	3560	0.41	0.39	0.40	±0.50

SPEAG H-field linearity tolerance criteria¹:

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

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

Dynamic Range, H-field, Channel 1

H-field/(A/m) Applied			H-field/(A/m) Reading			Difference/(dB)			Tolerance/(dB)
x	y	z	x	y	z	x	y	z	
0.410	0.390	0.390	0.430	0.420	0.420	0.41	0.64	0.64	±1.00
0.550	0.540	0.530	0.550	0.530	0.550	0.00	-0.16	0.32	±1.00
0.760	0.740	0.730	0.760	0.730	0.740	0.00	-0.12	0.12	±1.00
0.990	0.960	0.950	0.990	0.970	0.970	0.00	0.09	0.18	±1.00
1.34	1.30	1.29	1.35	1.30	1.32	0.06	0.00	0.20	±1.00
1.84	1.78	1.77	1.84	1.79	1.78	0.00	0.05	0.05	±1.00
2.45	2.38	2.35	2.45	2.40	2.38	0.00	0.07	0.11	±0.20
3.28	3.19	3.14	3.28	3.20	3.16	0.00	0.03	0.06	±0.20
4.45	4.33	4.27	4.48	4.35	4.28	0.06	0.04	0.02	±0.20
6.03	5.86	5.77	6.06	5.88	5.77	0.04	0.03	0.00	±0.20
8.11	7.90	7.76	8.16	7.91	7.76	0.05	0.01	0.00	±0.20
10.8	10.6	10.3	10.9	10.5	10.3	0.08	-0.08	0.00	±0.20
14.6	14.3	14.0	14.7	14.3	14.0	0.06	0.00	0.00	±0.20
19.7	19.2	18.8	19.7	19.3	18.8	0.00	0.05	0.00	±0.20
26.6	26.0	25.4	26.6	26.0	25.4	0.00	0.00	0.00	±0.20
35.5	34.7	33.9	35.6	34.9	34.0	0.02	0.05	0.03	±0.20
47.9	47.0	45.8	48.1	47.2	46.0	0.04	0.04	0.04	±0.20
64.8	63.6	62.0	65.2	64.0	62.3	0.05	0.05	0.04	±0.20
89.1	87.5	85.3	88.7	87.2	84.9	-0.04	-0.03	-0.04	±0.20
117	115	111	116	114	111	-0.07	-0.08	0.00	±0.20
160	158	153	159	157	153	-0.05	-0.06	0.00	±0.20
222	218	212	221	218	212	-0.04	0.00	0.00	±0.20
306	302	293	301	296	288	-0.14	-0.17	-0.15	±0.20
451	445	433	446	439	428	-0.10	-0.12	-0.10	±0.20
620	612	596	617	609	593	-0.04	-0.04	-0.04	±0.20
924	911	888	929	916	893	0.05	0.05	0.05	±0.20
1390	1370	1340	1420	1400	1370	0.19	0.19	0.19	±0.30
1900	1870	1830	1960	1930	1880	0.27	0.27	0.23	±0.30
3070	3020	2960	3200	3150	3080	0.36	0.37	0.35	±0.50
3630	3570	3500	3800	3730	3660	0.40	0.38	0.39	±0.50

SPEAG H-field linearity tolerance criteria¹:

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

¹Calibration 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)			Tolerance/(dB)
x	y	z	x	y	z	x	y	z	
0.400	0.390	0.400	0.430	0.410	0.410	0.63	0.43	0.21	±1.00
0.550	0.530	0.540	0.570	0.540	0.540	0.31	0.16	0.00	±1.00
0.750	0.730	0.740	0.740	0.740	0.730	-0.12	0.12	-0.12	±1.00
0.980	0.960	0.970	0.980	0.970	0.960	0.00	0.09	-0.09	±1.00
1.33	1.30	1.31	1.35	1.33	1.32	0.13	0.20	0.07	±1.00
1.82	1.78	1.79	1.82	1.80	1.79	0.00	0.10	0.00	±1.00
2.42	2.37	2.39	2.44	2.39	2.40	0.07	0.07	0.04	±0.20
3.25	3.18	3.19	3.26	3.20	3.20	0.03	0.05	0.03	±0.20
4.41	4.32	4.34	4.41	4.34	4.34	0.00	0.04	0.00	±0.20
5.96	5.85	5.86	5.98	5.87	5.87	0.03	0.03	0.01	±0.20
8.02	7.89	7.88	8.04	7.91	7.90	0.02	0.02	0.02	±0.20
10.7	10.5	10.5	10.7	10.5	10.5	0.00	0.00	0.00	±0.20
14.5	14.2	14.2	14.5	14.3	14.2	0.00	0.06	0.00	±0.20
19.5	19.2	19.1	19.5	19.2	19.2	0.00	0.00	0.05	±0.20
26.3	25.9	25.8	26.4	26.0	25.9	0.03	0.03	0.03	±0.20
35.1	34.7	34.5	35.3	34.9	34.6	0.05	0.05	0.03	±0.20
47.4	46.9	46.5	47.6	47.1	46.8	0.04	0.04	0.06	±0.20
64.1	63.5	63.0	64.5	63.9	63.4	0.05	0.05	0.05	±0.20
88.2	87.4	86.6	87.8	87.0	86.2	-0.04	-0.04	-0.04	±0.20
115	114	113	115	114	113	0.00	0.00	0.00	±0.20
158	157	156	158	157	155	0.00	0.00	-0.06	±0.20
219	218	215	219	217	215	0.00	-0.04	0.00	±0.20
303	302	298	298	296	293	-0.14	-0.17	-0.15	±0.20
446	444	440	441	438	434	-0.10	-0.12	-0.12	±0.20
614	611	606	610	608	602	-0.06	-0.04	-0.06	±0.20
914	909	903	919	914	907	0.05	0.05	0.04	±0.20
1380	1370	1360	1410	1400	1390	0.19	0.19	0.19	±0.30
1880	1870	1860	1930	1920	1910	0.23	0.23	0.23	±0.30
3040	3020	3010	3170	3140	3130	0.36	0.34	0.34	±0.50
3600	3560	3560	3760	3720	3720	0.38	0.38	0.38	±0.50

SPEAG H-field linearity tolerance criteria¹:

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

¹Calibration 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)			Tolerance/(dB)
x	y	z	x	y	z	x	y	z	
0.400	0.390	0.390	0.400	0.410	0.400	0.00	0.43	0.22	±1.00
0.540	0.530	0.530	0.540	0.540	0.520	0.00	0.16	-0.17	±1.00
0.750	0.720	0.730	0.740	0.740	0.720	-0.12	0.24	-0.12	±1.00
0.970	0.940	0.950	0.980	0.970	0.950	0.09	0.27	0.00	±1.00
1.32	1.28	1.28	1.34	1.32	1.29	0.13	0.27	0.07	±1.00
1.81	1.76	1.76	1.82	1.78	1.77	0.05	0.10	0.05	±1.00
2.41	2.34	2.34	2.42	2.37	2.36	0.04	0.11	0.07	±0.20
3.22	3.14	3.13	3.23	3.17	3.14	0.03	0.08	0.03	±0.20
4.38	4.26	4.25	4.39	4.28	4.26	0.02	0.04	0.02	±0.20
5.92	5.77	5.74	5.93	5.80	5.75	0.01	0.05	0.02	±0.20
7.96	7.78	7.73	7.98	7.81	7.74	0.02	0.03	0.01	±0.20
10.6	10.4	10.3	10.7	10.4	10.3	0.08	0.00	0.00	±0.20
14.4	14.1	13.9	14.4	14.1	13.9	0.00	0.00	0.00	±0.20
19.3	18.9	18.8	19.4	19.0	18.8	0.04	0.05	0.00	±0.20
26.1	25.6	25.3	26.1	25.6	25.4	0.00	0.00	0.03	±0.20
34.8	34.2	33.8	35.0	34.4	33.9	0.05	0.05	0.03	±0.20
47.0	46.2	45.6	47.2	46.5	45.9	0.04	0.06	0.06	±0.20
63.7	62.7	61.8	64.0	63.0	62.1	0.04	-0.04	0.04	±0.20
87.5	86.2	84.9	87.1	85.8	84.6	-0.04	-0.04	-0.03	±0.20
114	113	111	114	112	111	0.00	-0.08	0.00	±0.20
157	155	153	157	155	152	0.00	0.00	-0.06	±0.20
218	215	211	217	214	211	-0.04	-0.04	0.00	±0.20
301	297	292	295	292	287	-0.17	-0.15	-0.15	±0.20
443	438	431	437	432	426	-0.12	-0.12	-0.10	±0.20
609	603	594	606	600	591	-0.04	-0.04	-0.04	±0.20
907	897	885	912	902	890	0.05	0.05	0.05	±0.20
1370	1350	1340	1400	1380	1360	0.19	0.19	0.13	±0.30
1860	1840	1820	1920	1890	1880	0.28	0.23	0.28	±0.30
3020	2980	2950	3140	3080	3070	0.34	0.29	0.35	±0.50
3570	3510	3490	3740	3640	3650	0.40	0.32	0.39	±0.50

SPEAG H-field linearity tolerance criteria¹:

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

¹Calibration 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)			Tolerance/(dB)
x	y	z	x	y	z	x	y	z	
0.400	0.400	0.400	0.420	0.410	0.400	0.42	0.21	0.00	±1.00
0.540	0.540	0.540	0.560	0.540	0.540	0.32	0.00	0.00	±1.00
0.750	0.750	0.740	0.750	0.740	0.740	0.00	-0.12	0.00	±1.00
0.970	0.970	0.960	0.980	0.980	0.970	0.09	0.09	0.09	±1.00
1.32	1.32	1.30	1.32	1.33	1.31	0.00	0.07	0.07	±1.00
1.81	1.81	1.79	1.82	1.82	1.80	0.05	0.05	0.05	±1.00
2.41	2.41	2.38	2.43	2.43	2.39	0.07	0.07	0.04	±0.20
3.23	3.23	3.18	3.23	3.23	3.19	0.00	0.00	0.03	±0.20
4.38	4.39	4.32	4.39	4.39	4.32	0.02	0.00	0.00	±0.20
5.92	5.94	5.83	5.92	5.95	5.85	0.00	0.01	0.03	±0.20
7.97	8.00	7.85	7.96	8.01	7.86	-0.01	0.01	0.01	±0.20
10.6	10.7	10.5	10.6	10.7	10.5	0.00	0.00	0.00	±0.20
14.4	14.5	14.1	14.4	14.5	14.2	0.00	0.00	0.06	±0.20
19.4	19.5	19.1	19.4	19.5	19.1	0.00	0.00	0.00	±0.20
26.1	26.3	25.7	26.2	26.4	25.8	0.03	0.03	0.03	±0.20
34.9	35.2	34.3	35.0	35.4	34.5	0.02	0.05	0.05	±0.20
47.0	47.6	46.3	47.2	47.8	46.6	0.04	0.04	0.06	±0.20
63.7	64.5	62.7	64.1	64.8	63.1	0.05	0.04	0.06	±0.20
87.6	88.7	86.3	87.2	88.3	85.9	-0.04	-0.04	-0.04	±0.20
115	116	113	114	116	112	-0.08	0.00	-0.08	±0.20
157	160	155	157	159	154	0.00	-0.05	-0.06	±0.20
218	221	215	217	221	214	-0.04	0.00	-0.04	±0.20
301	306	297	296	300	292	-0.15	-0.17	-0.15	±0.20
443	450	438	438	445	433	-0.10	-0.10	-0.10	±0.20
610	620	603	607	617	600	-0.04	-0.04	-0.04	±0.20
908	923	899	914	929	904	0.06	0.06	0.05	±0.20
1370	1390	1360	1400	1420	1380	0.19	0.19	0.13	±0.30
1870	1890	1850	1920	1950	1910	0.23	0.27	0.28	±0.30
3020	3060	3000	3150	3190	3120	0.37	0.36	0.34	±0.50
3570	3610	3540	3740	3780	3710	0.40	0.40	0.41	±0.50

SPEAG H-field linearity tolerance criteria¹:

- ±1.0dB for applied H-fields < 2.0 A/m
- ±0.2dB for applied H-fields ≥ 2.0 A/m and < 1000 A/m
- ±0.3dB for applied H-fields ≥ 1000 A/m and < 2000 A/m
- ±0.4dB for applied H-fields ≥ 2000 A/m and < 3000 A/m
- ±0.5dB 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)			Tolerance/(dB)
x	y	z	x	y	z	x	y	z	
0.400	0.400	0.410	0.420	0.430	0.420	0.42	0.63	0.21	±1.00
0.540	0.550	0.550	0.570	0.560	0.560	0.47	0.16	0.16	±1.00
0.750	0.750	0.760	0.760	0.750	0.750	0.12	0.00	-0.12	±1.00
0.970	0.980	0.990	0.970	0.990	0.980	0.00	0.09	-0.09	±1.00
1.32	1.33	1.33	1.31	1.35	1.35	-0.07	0.13	0.13	±1.00
1.81	1.83	1.83	1.81	1.84	1.84	0.00	0.05	0.05	±1.00
2.41	2.44	2.44	2.41	2.44	2.45	0.00	0.00	0.04	±0.20
3.22	3.27	3.26	3.24	3.26	3.26	0.05	-0.03	0.00	±0.20
4.38	4.44	4.43	4.40	4.42	4.43	0.04	-0.04	0.00	±0.20
5.92	6.00	5.98	5.93	6.01	5.99	0.01	0.01	0.01	±0.20
7.97	8.09	8.05	7.97	8.09	8.05	0.00	0.00	0.00	±0.20
10.6	10.8	10.7	10.6	10.8	10.7	0.00	0.00	0.00	±0.20
14.4	14.6	14.5	14.4	14.6	14.5	0.00	0.00	0.00	±0.20
19.4	19.7	19.5	19.4	19.7	19.6	0.00	0.00	0.04	±0.20
26.1	26.6	26.4	26.2	26.6	26.4	0.03	0.00	0.00	±0.20
34.9	35.6	35.2	35.0	35.7	35.4	0.02	0.02	0.05	±0.20
47.0	48.1	47.5	47.2	48.3	47.8	0.04	0.04	0.05	±0.20
63.7	65.2	64.3	64.1	65.6	64.7	0.05	0.05	0.05	±0.20
87.6	89.6	88.4	87.2	89.3	88.1	-0.04	-0.03	-0.03	±0.20
115	117	116	114	117	115	-0.08	0.00	-0.08	±0.20
157	161	159	157	161	158	0.00	0.00	-0.05	±0.20
218	224	220	217	223	220	-0.04	-0.04	0.00	±0.20
301	309	304	296	304	299	-0.15	-0.14	-0.14	±0.20
443	455	449	438	450	444	-0.10	-0.10	-0.10	±0.20
609	627	618	607	624	615	-0.03	-0.04	-0.04	±0.20
908	933	921	913	938	927	0.05	0.05	0.06	±0.20
1370	1410	1390	1400	1430	1420	0.19	0.12	0.19	±0.30
1870	1920	1900	1920	1970	1950	0.23	0.22	0.23	±0.30
3020	3090	3070	3140	3220	3200	0.34	0.36	0.36	±0.50
3570	3650	3630	3740	3820	3800	0.40	0.40	0.40	±0.50

SPEAG H-field linearity tolerance criteria¹:

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

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

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	
0.410	0.400	0.400	0.430	0.430	0.430	0.41	0.63	0.63	±1.00
0.550	0.550	0.540	0.550	0.550	0.570	0.00	0.00	0.47	±1.00
0.760	0.750	0.750	0.760	0.760	0.770	0.00	0.12	0.23	±1.00
0.990	0.980	0.970	1.00	1.00	1.00	0.09	0.18	0.26	±1.00
1.33	1.33	1.32	1.36	1.34	1.33	0.19	0.07	0.07	±1.00
1.83	1.83	1.81	1.85	1.85	1.82	0.09	0.09	0.05	±1.00
2.44	2.44	2.40	2.46	2.46	2.41	0.07	0.07	0.04	±0.20
3.26	3.27	3.21	3.29	3.27	3.20	0.08	0.00	-0.03	±0.20
4.43	4.44	4.36	4.45	4.43	4.34	0.04	-0.02	-0.04	±0.20
6.00	6.00	5.90	6.01	6.00	5.89	0.01	0.00	-0.01	±0.20
8.07	8.09	7.94	8.07	8.08	7.92	0.00	-0.01	-0.02	±0.20
10.8	10.8	10.6	10.8	10.8	10.6	0.00	0.00	0.00	±0.20
14.6	14.6	14.3	14.5	14.6	14.3	-0.06	0.00	0.00	±0.20
19.6	19.7	19.3	19.6	19.7	19.2	0.00	0.00	-0.05	±0.20
26.4	26.6	26.0	26.5	26.6	26.0	0.03	0.00	0.00	±0.20
35.3	35.6	34.7	35.5	35.7	34.8	0.05	0.02	0.02	±0.20
47.6	48.1	46.8	47.8	48.3	47.1	0.04	0.04	0.06	±0.20
64.5	65.2	63.4	64.9	65.5	63.7	0.05	0.04	0.04	±0.20
88.7	89.6	87.2	88.3	89.3	86.9	-0.04	-0.03	-0.03	±0.20
116	117	114	116	117	114	0.00	0.00	0.00	±0.20
159	161	157	159	161	156	0.00	0.00	-0.06	±0.20
220	224	217	220	223	217	0.00	-0.04	0.00	±0.20
305	309	300	299	304	295	-0.17	-0.14	-0.15	±0.20
449	455	443	443	450	438	-0.12	-0.10	-0.10	±0.20
617	627	610	614	624	608	-0.04	-0.04	-0.03	±0.20
919	933	908	924	939	915	0.05	0.06	0.07	±0.20
1390	1410	1370	1410	1440	1400	0.12	0.18	0.19	±0.30
1890	1920	1870	1940	1980	1930	0.23	0.27	0.27	±0.30
3060	3090	3030	3180	3230	3160	0.33	0.38	0.36	±0.50
3620	3650	3580	3780	3830	3750	0.38	0.42	0.40	±0.50

SPEAG H-field linearity tolerance criteria¹:

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

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

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	
0.400	0.400	0.390	0.400	0.410	0.390	0.00	0.21	0.00	±1.00
0.550	0.540	0.520	0.540	0.550	0.530	-0.16	0.16	0.17	±1.00
0.750	0.740	0.720	0.740	0.740	0.720	-0.12	0.00	0.00	±1.00
0.980	0.970	0.940	0.980	0.980	0.950	0.00	0.09	0.09	±1.00
1.33	1.31	1.27	1.34	1.31	1.27	0.07	0.00	0.00	±1.00
1.83	1.80	1.74	1.83	1.81	1.74	0.00	0.05	0.00	±1.00
2.43	2.40	2.32	2.43	2.41	2.33	0.00	0.04	0.04	±0.20
3.26	3.22	3.10	3.25	3.21	3.10	-0.03	-0.03	0.00	±0.20
4.43	4.37	4.21	4.44	4.36	4.22	0.02	-0.02	0.02	±0.20
5.99	5.91	5.68	5.99	5.91	5.71	0.00	0.00	0.05	±0.20
8.05	7.97	7.65	8.05	7.98	7.68	0.00	0.01	0.03	±0.20
10.8	10.6	10.2	10.7	10.6	10.2	-0.08	0.00	0.00	±0.20
14.5	14.4	13.8	14.5	14.4	13.8	0.00	0.00	0.00	±0.20
19.6	19.4	18.6	19.6	19.4	18.6	0.00	0.00	0.00	±0.20
26.4	26.2	25.1	26.4	26.3	25.1	0.00	0.03	0.00	±0.20
35.2	35.0	33.4	35.4	35.2	33.6	0.05	0.05	0.05	±0.20
47.5	47.4	45.1	47.8	47.5	45.4	0.05	0.02	0.06	±0.20
64.4	64.2	61.1	64.8	64.5	61.4	0.05	0.04	0.04	±0.20
88.5	88.3	84.0	88.1	87.9	83.7	-0.04	-0.04	-0.03	±0.20
116	116	110	115	115	110	-0.08	-0.08	0.00	±0.20
159	159	151	158	158	150	-0.05	-0.05	-0.06	±0.20
220	220	209	220	220	209	0.00	0.00	0.00	±0.20
304	305	289	299	299	284	-0.14	-0.17	-0.15	±0.20
448	449	427	443	443	422	-0.10	-0.12	-0.10	±0.20
616	617	588	613	615	585	-0.04	-0.03	-0.04	±0.20
918	919	876	923	925	881	0.05	0.06	0.05	±0.20
1390	1390	1320	1410	1410	1350	0.12	0.12	0.20	±0.30
1890	1890	1800	1940	1940	1860	0.23	0.23	0.28	±0.30
3050	3050	2920	3180	3180	3040	0.36	0.36	0.35	±0.50
3610	3600	3450	3780	3770	3610	0.40	0.40	0.39	±0.50

SPEAG H-field linearity tolerance criteria¹:

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

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

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
0.380	0.220	0.100	0.390	0.220	0.090	0.23	0.00	-0.92	±5.00	±5.00	±5.00
0.510	0.300	0.140	0.520	0.300	0.140	0.17	0.00	0.00	±5.00	±5.00	±5.00
0.700	0.410	0.190	0.720	0.400	0.180	0.24	-0.21	-0.47	±5.00	±5.00	±5.00
0.920	0.530	0.240	0.920	0.540	0.220	0.00	0.16	-0.76	±5.00	±5.00	±5.00
1.24	0.720	0.330	1.26	0.730	0.320	0.14	0.12	-0.27	±5.00	±5.00	±5.00
1.70	0.990	0.450	1.70	0.990	0.470	0.00	0.00	0.38	±5.00	±5.00	±5.00
2.27	1.32	0.600	2.29	1.33	0.590	0.08	0.07	-0.15	±1.00	±5.00	±5.00
3.04	1.77	0.800	3.05	1.77	0.780	0.03	0.00	-0.22	±1.00	±5.00	±5.00
4.14	2.41	1.09	4.16	2.39	1.06	0.04	-0.07	-0.24	±1.00	±1.00	±5.00
5.60	3.26	1.47	5.63	3.23	1.45	0.05	-0.08	-0.12	±1.00	±1.00	±5.00
7.54	4.39	1.98	7.56	4.36	1.96	0.02	-0.06	-0.09	±1.00	±1.00	±5.00
10.1	5.87	2.64	10.1	5.84	2.61	0.00	-0.04	-0.10	±1.00	±1.00	±1.00
13.6	7.94	3.57	13.7	7.87	3.52	0.06	-0.08	-0.12	±1.00	±1.00	±1.00
18.4	10.7	4.81	18.4	10.6	4.74	0.00	-0.08	-0.13	±1.00	±1.00	±1.00
24.8	14.4	6.49	24.9	14.3	6.39	0.03	-0.06	-0.13	±1.00	±1.00	±1.00
33.2	19.3	8.66	33.4	19.2	8.55	0.05	-0.05	-0.11	±1.00	±1.00	±1.00
44.8	26.1	11.7	45.2	26.0	11.5	0.08	-0.03	-0.15	±1.00	±1.00	±1.00
60.8	35.4	15.8	61.2	35.3	15.6	0.06	-0.02	-0.11	±1.00	±1.00	±1.00
83.6	48.7	21.8	83.5	48.1	21.2	-0.01	-0.11	-0.24	±1.00	±1.00	±1.00
109	63.7	28.5	109	63.1	27.8	0.00	-0.08	-0.22	±1.00	±1.00	±1.00
150	87.6	39.1	150	86.7	38.2	0.00	-0.09	-0.20	±1.00	±1.00	±1.00
208	121	54.1	209	120	53.0	0.04	-0.07	-0.18	±1.00	±1.00	±1.00
288	168	74.8	291	168	73.8	0.09	0.00	-0.12	±1.00	±1.00	±1.00
425	247	110	411	237	109	-0.29	-0.36	-0.08	±1.00	±1.00	±1.00
584	340	152	571	330	152	-0.20	-0.26	0.00	±1.00	±1.00	±1.00
870	507	226	860	497	228	-0.10	-0.17	0.08	±1.00	±1.00	±1.00
1310	764	341	1320	761	349	0.07	-0.03	0.20	±1.00	±1.00	±1.00
1790	1040	464	1810	1050	480	0.10	0.08	0.29	±1.00	±1.00	±1.00
2890	1680	751	2960	1710	746	0.21	0.15	-0.06	±1.00	±1.00	±1.00
3410	1980	888	3520	2030	888	0.28	0.22	0.00	±1.00	±1.00	±1.00

SPEAG E-field linearity tolerance criteria¹:

±5.0dB for applied E-field < 2 V/m

±1.0dB for applied E-field ≥ 2 V/m

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

Frequency Response

Frequency Response, H-field, Channel 0

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	1.57	1.57	1.57	1.57	1.56	1.57	0.00	-0.06	0.00	±0.3
3200	1.57	1.57	1.57	1.56	1.57	1.58	-0.06	0.00	0.06	±0.3
4000	1.56	1.56	1.56	1.57	1.56	1.56	0.06	0.00	0.00	±0.3
5200	1.55	1.55	1.55	1.57	1.56	1.56	0.11	0.06	0.06	±0.3
6600	1.54	1.54	1.54	1.54	1.55	1.55	0.00	0.06	0.06	±0.3
8200	1.53	1.53	1.53	1.53	1.54	1.54	0.00	0.06	0.06	±0.3
9000	1.53	1.53	1.53	1.53	1.53	1.53	0.00	0.00	0.00	±0.3
10600	4.37	4.27	4.26	4.38	4.29	4.27	0.02	0.04	0.02	±0.3
13400	4.38	4.30	4.29	4.38	4.32	4.30	0.00	0.04	0.02	±0.3
17000	4.38	4.33	4.32	4.39	4.35	4.32	0.02	0.04	0.00	±0.3
21400	4.41	4.34	4.33	4.43	4.36	4.34	0.04	0.04	0.02	±0.3
27200	4.40	4.35	4.35	4.40	4.35	4.34	0.00	0.00	-0.02	±0.3
34400	4.40	4.37	4.36	4.40	4.38	4.36	0.00	0.02	0.00	±0.3
40000	4.39	4.36	4.36	4.39	4.37	4.36	0.00	0.02	0.00	±0.3
43600	4.39	4.36	4.35	4.39	4.36	4.35	0.00	0.00	0.00	±0.3
55400	4.37	4.35	4.34	4.37	4.36	4.34	0.00	0.02	0.00	±0.3
70000	4.36	4.34	4.33	4.36	4.34	4.33	0.00	0.00	0.00	±0.3
88800	4.34	4.32	4.32	4.35	4.33	4.31	0.02	0.02	-0.02	±0.3
112400	4.33	4.31	4.30	4.33	4.31	4.30	0.00	0.00	0.00	±0.3
142400	4.31	4.29	4.29	4.32	4.30	4.29	0.02	0.02	0.00	±0.3
161750	4.30	4.27	4.27	4.30	4.27	4.26	0.00	0.00	-0.02	±0.3
180400	4.28	4.26	4.26	4.28	4.26	4.26	0.00	0.00	0.00	±0.3
228400	4.25	4.22	4.22	4.25	4.22	4.22	0.00	0.00	0.00	±0.3
289400	4.21	4.19	4.18	4.21	4.19	4.19	0.00	0.00	0.02	±0.3
366400	4.16	4.14	4.14	4.17	4.15	4.14	0.02	0.02	0.00	±0.3
400000	4.15	4.13	4.12	4.15	4.13	4.12	0.00	0.00	0.00	±0.3
464000	4.13	4.10	4.10	4.13	4.11	4.11	0.00	0.02	0.02	±0.3
587800	4.07	4.05	4.05	4.07	4.05	4.05	0.00	0.00	0.00	±0.3
744200	4.02	4.01	4.01	4.02	4.01	4.00	0.00	0.00	-0.02	±0.3
942600	4.01	3.99	3.99	4.01	4.00	3.99	0.00	0.02	0.00	±0.3
1193600	3.98	3.96	3.96	3.98	3.97	3.97	0.00	0.02	0.02	±0.3
1511600	3.97	3.96	3.96	3.98	3.96	3.95	0.02	0.00	-0.02	±0.3
1914400	3.96	3.94	3.94	3.96	3.95	3.94	0.00	0.02	0.00	±0.3
2424400	3.94	3.92	3.92	3.94	3.92	3.92	0.00	0.00	0.00	±0.3
3070200	3.90	3.89	3.89	3.91	3.89	3.89	0.02	0.00	0.00	±0.3
3888000	3.85	3.83	3.83	3.85	3.85	3.83	0.00	0.05	0.00	±0.3
4000000	3.83	3.82	3.82	3.84	3.82	3.81	0.02	0.00	-0.02	±0.3
4923800	3.76	3.75	3.75	3.77	3.76	3.75	0.02	0.02	0.00	±0.3
6235400	3.66	3.64	3.64	3.66	3.66	3.65	0.00	0.05	0.02	±0.3
7896400	3.52	3.51	3.50	3.52	3.51	3.50	0.00	0.00	0.00	±0.3
10000000	3.37	3.35	3.35	3.35	3.35	3.34	-0.05	0.00	-0.03	±0.3

SPEAG H-field frequency response tolerance criteria¹:
±0.3dB for applied H-fields at calibration points from 3kHz to 10MHz

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

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	1.57	1.57	1.57	1.57	1.58	1.56	0.00	0.06	-0.06	±0.3
3200	1.57	1.57	1.57	1.57	1.57	1.57	0.00	0.00	0.00	±0.3
4000	1.56	1.56	1.56	1.57	1.56	1.56	0.06	0.00	0.00	±0.3
5200	1.55	1.55	1.55	1.57	1.56	1.55	0.11	0.06	0.00	±0.3
6600	1.54	1.54	1.54	1.54	1.55	1.55	0.00	0.06	0.06	±0.3
8200	1.53	1.53	1.53	1.54	1.53	1.54	0.06	0.00	0.06	±0.3
9000	1.53	1.53	1.53	1.53	1.53	1.53	0.00	0.00	0.00	±0.3
10600	4.37	4.27	4.26	4.36	4.26	4.28	-0.02	-0.02	0.04	±0.3
13400	4.38	4.30	4.29	4.37	4.30	4.30	-0.02	0.00	0.02	±0.3
17000	4.38	4.33	4.32	4.40	4.35	4.34	0.04	0.04	0.04	±0.3
21400	4.41	4.34	4.33	4.42	4.36	4.33	0.02	0.04	0.00	±0.3
27200	4.40	4.35	4.35	4.41	4.36	4.35	0.02	0.02	0.00	±0.3
34400	4.40	4.37	4.36	4.40	4.38	4.36	0.00	0.02	0.00	±0.3
40000	4.39	4.36	4.36	4.40	4.37	4.36	0.02	0.02	0.00	±0.3
43600	4.39	4.36	4.35	4.39	4.37	4.36	0.00	0.02	0.02	±0.3
55400	4.37	4.35	4.34	4.38	4.36	4.34	0.02	0.02	0.00	±0.3
70000	4.36	4.34	4.33	4.37	4.34	4.33	0.02	0.00	0.00	±0.3
88800	4.34	4.32	4.32	4.35	4.33	4.32	0.02	0.02	0.00	±0.3
112400	4.33	4.31	4.30	4.33	4.31	4.30	0.00	0.00	0.00	±0.3
142400	4.31	4.29	4.29	4.32	4.30	4.29	0.02	0.02	0.00	±0.3
161750	4.30	4.27	4.27	4.30	4.28	4.26	0.00	0.02	-0.02	±0.3
180400	4.28	4.26	4.26	4.29	4.26	4.25	0.02	0.00	-0.02	±0.3
228400	4.25	4.22	4.22	4.25	4.23	4.22	0.00	0.02	0.00	±0.3
289400	4.21	4.19	4.18	4.21	4.19	4.19	0.00	0.00	0.02	±0.3
366400	4.16	4.14	4.14	4.17	4.15	4.14	0.02	0.02	0.00	±0.3
400000	4.15	4.13	4.12	4.15	4.13	4.13	0.00	0.00	0.02	±0.3
464000	4.13	4.10	4.10	4.12	4.11	4.11	-0.02	0.02	0.02	±0.3
587800	4.07	4.05	4.05	4.07	4.05	4.05	0.00	0.00	0.00	±0.3
744200	4.02	4.01	4.01	4.03	4.01	4.01	0.02	0.00	0.00	±0.3
942600	4.01	3.99	3.99	4.02	4.00	3.99	0.02	0.02	0.00	±0.3
1193600	3.98	3.96	3.96	3.98	3.97	3.97	0.00	0.02	0.02	±0.3
1511600	3.97	3.96	3.96	3.98	3.96	3.96	0.02	0.00	0.00	±0.3
1914400	3.96	3.94	3.94	3.96	3.95	3.95	0.00	0.02	0.02	±0.3
2424400	3.94	3.92	3.92	3.94	3.93	3.92	0.00	0.02	0.00	±0.3
3070200	3.90	3.89	3.89	3.91	3.90	3.90	0.02	0.02	0.02	±0.3
3888000	3.85	3.83	3.83	3.85	3.84	3.84	0.00	0.02	0.02	±0.3
4000000	3.83	3.82	3.82	3.84	3.83	3.82	0.02	0.02	0.00	±0.3
4923800	3.76	3.75	3.75	3.77	3.75	3.75	0.02	0.00	0.00	±0.3
6235400	3.66	3.64	3.64	3.67	3.66	3.65	0.02	0.05	0.02	±0.3
7896400	3.52	3.51	3.50	3.52	3.51	3.51	0.00	0.00	0.02	±0.3
10000000	3.37	3.35	3.35	3.36	3.36	3.36	-0.03	0.03	0.03	±0.3

SPEAG H-field frequency response tolerance criteria¹:
±0.3dB for applied H-fields at calibration points from 3kHz to 10MHz

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

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	1.57	1.57	1.57	1.57	1.57	1.57	0.00	0.00	0.00	±0.3
3200	1.57	1.57	1.57	1.57	1.57	1.58	0.00	0.00	0.06	±0.3
4000	1.56	1.56	1.56	1.56	1.57	1.57	0.00	0.06	0.06	±0.3
5200	1.55	1.55	1.55	1.56	1.56	1.56	0.06	0.06	0.06	±0.3
6600	1.54	1.54	1.54	1.54	1.55	1.54	0.00	0.06	0.00	±0.3
8200	1.53	1.53	1.53	1.53	1.53	1.54	0.00	0.00	0.06	±0.3
9000	1.53	1.53	1.53	1.52	1.53	1.53	-0.06	0.00	0.00	±0.3
10600	4.37	4.27	4.26	4.38	4.33	4.26	0.02	0.12	0.00	±0.3
13400	4.38	4.30	4.29	4.37	4.30	4.31	-0.02	0.00	0.04	±0.3
17000	4.38	4.33	4.32	4.39	4.35	4.33	0.02	0.04	0.02	±0.3
21400	4.41	4.34	4.33	4.42	4.34	4.33	0.02	0.00	0.00	±0.3
27200	4.40	4.35	4.35	4.40	4.36	4.35	0.00	0.02	0.00	±0.3
34400	4.40	4.37	4.36	4.40	4.38	4.37	0.00	0.02	0.02	±0.3
40000	4.39	4.36	4.36	4.39	4.38	4.36	0.00	0.04	0.00	±0.3
43600	4.39	4.36	4.35	4.39	4.36	4.36	0.00	0.00	0.02	±0.3
55400	4.37	4.35	4.34	4.37	4.36	4.35	0.00	0.02	0.02	±0.3
70000	4.36	4.34	4.33	4.37	4.34	4.33	0.02	0.00	0.00	±0.3
88800	4.34	4.32	4.32	4.34	4.33	4.31	0.00	0.02	-0.02	±0.3
112400	4.33	4.31	4.30	4.33	4.32	4.30	0.00	0.02	0.00	±0.3
142400	4.31	4.29	4.29	4.32	4.29	4.29	0.02	0.00	0.00	±0.3
161750	4.30	4.27	4.27	4.30	4.28	4.26	0.00	0.02	-0.02	±0.3
180400	4.28	4.26	4.26	4.29	4.26	4.26	0.02	0.00	0.00	±0.3
228400	4.25	4.22	4.22	4.25	4.23	4.22	0.00	0.02	0.00	±0.3
289400	4.21	4.19	4.18	4.21	4.19	4.19	0.00	0.00	0.02	±0.3
366400	4.16	4.14	4.14	4.17	4.15	4.15	0.02	0.02	0.02	±0.3
400000	4.15	4.13	4.12	4.15	4.13	4.13	0.00	0.00	0.02	±0.3
464000	4.13	4.10	4.10	4.13	4.11	4.11	0.00	0.02	0.02	±0.3
587800	4.07	4.05	4.05	4.07	4.05	4.05	0.00	0.00	0.00	±0.3
744200	4.02	4.01	4.01	4.02	4.01	4.01	0.00	0.00	0.00	±0.3
942600	4.01	3.99	3.99	4.01	4.00	4.00	0.00	0.02	0.02	±0.3
1193600	3.98	3.96	3.96	3.98	3.98	3.97	0.00	0.04	0.02	±0.3
1511600	3.97	3.96	3.96	3.98	3.96	3.96	0.02	0.00	0.00	±0.3
1914400	3.96	3.94	3.94	3.96	3.95	3.94	0.00	0.02	0.00	±0.3
2424400	3.94	3.92	3.92	3.94	3.92	3.92	0.00	0.00	0.00	±0.3
3070200	3.90	3.89	3.89	3.91	3.89	3.89	0.02	0.00	0.00	±0.3
3888000	3.85	3.83	3.83	3.85	3.84	3.84	0.00	0.02	0.02	±0.3
4000000	3.83	3.82	3.82	3.84	3.83	3.82	0.02	0.02	0.00	±0.3
4923800	3.76	3.75	3.75	3.77	3.76	3.75	0.02	0.02	0.00	±0.3
6235400	3.66	3.64	3.64	3.66	3.67	3.64	0.00	0.07	0.00	±0.3
7896400	3.52	3.51	3.50	3.52	3.52	3.51	0.00	0.02	0.02	±0.3
10000000	3.37	3.35	3.35	3.36	3.35	3.36	-0.03	0.00	0.03	±0.3

SPEAG H-field frequency response tolerance criteria¹:
±0.3dB for applied H-fields at calibration points from 3kHz to 10MHz

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

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	1.57	1.57	1.57	1.57	1.58	1.57	0.00	0.06	0.00	±0.3
3200	1.57	1.57	1.57	1.56	1.56	1.58	-0.06	-0.06	0.06	±0.3
4000	1.56	1.56	1.56	1.56	1.56	1.56	0.00	0.00	0.00	±0.3
5200	1.55	1.55	1.55	1.57	1.56	1.56	0.11	0.06	0.06	±0.3
6600	1.54	1.54	1.54	1.55	1.54	1.55	0.06	0.00	0.06	±0.3
8200	1.53	1.53	1.53	1.53	1.53	1.54	0.00	0.00	0.06	±0.3
9000	1.53	1.53	1.53	1.52	1.53	1.52	-0.06	0.00	-0.06	±0.3
10600	4.37	4.27	4.26	4.38	4.28	4.29	0.02	0.02	0.06	±0.3
13400	4.38	4.30	4.29	4.37	4.30	4.30	-0.02	0.00	0.02	±0.3
17000	4.38	4.33	4.32	4.39	4.34	4.33	0.02	0.02	0.02	±0.3
21400	4.41	4.34	4.33	4.41	4.34	4.33	0.00	0.00	0.00	±0.3
27200	4.40	4.35	4.35	4.40	4.37	4.34	0.00	0.04	-0.02	±0.3
34400	4.40	4.37	4.36	4.41	4.38	4.37	0.02	0.02	0.02	±0.3
40000	4.39	4.36	4.36	4.40	4.37	4.36	0.02	0.02	0.00	±0.3
43600	4.39	4.36	4.35	4.38	4.37	4.37	-0.02	0.02	0.04	±0.3
55400	4.37	4.35	4.34	4.37	4.36	4.35	0.00	0.02	0.02	±0.3
70000	4.36	4.34	4.33	4.36	4.35	4.33	0.00	0.02	0.00	±0.3
88800	4.34	4.32	4.32	4.35	4.33	4.32	0.02	0.02	0.00	±0.3
112400	4.33	4.31	4.30	4.33	4.31	4.31	0.00	0.00	0.02	±0.3
142400	4.31	4.29	4.29	4.32	4.29	4.29	0.02	0.00	0.00	±0.3
161750	4.30	4.27	4.27	4.30	4.28	4.26	0.00	0.02	-0.02	±0.3
180400	4.28	4.26	4.26	4.29	4.26	4.26	0.02	0.00	0.00	±0.3
228400	4.25	4.22	4.22	4.25	4.23	4.23	0.00	0.02	0.02	±0.3
289400	4.21	4.19	4.18	4.21	4.19	4.19	0.00	0.00	0.02	±0.3
366400	4.16	4.14	4.14	4.17	4.15	4.15	0.02	0.02	0.02	±0.3
400000	4.15	4.13	4.12	4.15	4.13	4.12	0.00	0.00	0.00	±0.3
464000	4.13	4.10	4.10	4.13	4.12	4.11	0.00	0.04	0.02	±0.3
587800	4.07	4.05	4.05	4.07	4.06	4.05	0.00	0.02	0.00	±0.3
744200	4.02	4.01	4.01	4.02	4.02	4.01	0.00	0.02	0.00	±0.3
942600	4.01	3.99	3.99	4.01	4.00	3.99	0.00	0.02	0.00	±0.3
1193600	3.98	3.96	3.96	3.98	3.98	3.97	0.00	0.04	0.02	±0.3
1511600	3.97	3.96	3.96	3.97	3.96	3.96	0.00	0.00	0.00	±0.3
1914400	3.96	3.94	3.94	3.96	3.95	3.95	0.00	0.02	0.02	±0.3
2424400	3.94	3.92	3.92	3.94	3.93	3.92	0.00	0.02	0.00	±0.3
3070200	3.90	3.89	3.89	3.91	3.90	3.89	0.02	0.02	0.00	±0.3
3888000	3.85	3.83	3.83	3.85	3.83	3.84	0.00	0.00	0.02	±0.3
4000000	3.83	3.82	3.82	3.84	3.83	3.82	0.02	0.02	0.00	±0.3
4923800	3.76	3.75	3.75	3.76	3.75	3.76	0.00	0.00	0.02	±0.3
6235400	3.66	3.64	3.64	3.66	3.65	3.65	0.00	0.02	0.02	±0.3
7896400	3.52	3.51	3.50	3.53	3.51	3.51	0.02	0.00	0.02	±0.3
10000000	3.37	3.35	3.35	3.37	3.35	3.36	0.00	0.00	0.03	±0.3

SPEAG H-field frequency response tolerance criteria¹:
±0.3dB for applied H-fields at calibration points from 3kHz to 10MHz

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

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	1.57	1.57	1.57	1.57	1.58	1.56	0.00	0.06	-0.06	±0.3
3200	1.57	1.57	1.57	1.56	1.57	1.58	-0.06	0.00	0.06	±0.3
4000	1.56	1.56	1.56	1.57	1.56	1.57	0.06	0.00	0.06	±0.3
5200	1.55	1.55	1.55	1.56	1.55	1.55	0.06	0.00	0.00	±0.3
6600	1.54	1.54	1.54	1.54	1.54	1.54	0.00	0.00	0.00	±0.3
8200	1.53	1.53	1.53	1.53	1.53	1.54	0.00	0.00	0.06	±0.3
9000	1.53	1.53	1.53	1.53	1.53	1.53	0.00	0.00	0.00	±0.3
10600	4.37	4.27	4.26	4.37	4.29	4.26	0.00	0.04	0.00	±0.3
13400	4.38	4.30	4.29	4.38	4.31	4.30	0.00	0.02	0.02	±0.3
17000	4.38	4.33	4.32	4.39	4.34	4.33	0.02	0.02	0.02	±0.3
21400	4.41	4.34	4.33	4.41	4.34	4.33	0.00	0.00	0.00	±0.3
27200	4.40	4.35	4.35	4.41	4.36	4.34	0.02	0.02	-0.02	±0.3
34400	4.40	4.37	4.36	4.40	4.38	4.37	0.00	0.02	0.02	±0.3
40000	4.39	4.36	4.36	4.40	4.37	4.36	0.02	0.02	0.00	±0.3
43600	4.39	4.36	4.35	4.38	4.37	4.37	-0.02	0.02	0.04	±0.3
55400	4.37	4.35	4.34	4.37	4.36	4.34	0.00	0.02	0.00	±0.3
70000	4.36	4.34	4.33	4.36	4.34	4.34	0.00	0.00	0.02	±0.3
88800	4.34	4.32	4.32	4.35	4.32	4.32	0.02	0.00	0.00	±0.3
112400	4.33	4.31	4.30	4.34	4.31	4.31	0.02	0.00	0.02	±0.3
142400	4.31	4.29	4.29	4.32	4.29	4.29	0.02	0.00	0.00	±0.3
161750	4.30	4.27	4.27	4.30	4.28	4.26	0.00	0.02	-0.02	±0.3
180400	4.28	4.26	4.26	4.29	4.26	4.26	0.02	0.00	0.00	±0.3
228400	4.25	4.22	4.22	4.25	4.22	4.22	0.00	0.00	0.00	±0.3
289400	4.21	4.19	4.18	4.21	4.19	4.19	0.00	0.00	0.02	±0.3
366400	4.16	4.14	4.14	4.17	4.15	4.15	0.02	0.02	0.02	±0.3
400000	4.15	4.13	4.12	4.15	4.13	4.13	0.00	0.00	0.02	±0.3
464000	4.13	4.10	4.10	4.13	4.11	4.11	0.00	0.02	0.02	±0.3
587800	4.07	4.05	4.05	4.08	4.05	4.05	0.02	0.00	0.00	±0.3
744200	4.02	4.01	4.01	4.03	4.01	4.01	0.02	0.00	0.00	±0.3
942600	4.01	3.99	3.99	4.01	4.00	3.99	0.00	0.02	0.00	±0.3
1193600	3.98	3.96	3.96	3.98	3.97	3.97	0.00	0.02	0.02	±0.3
1511600	3.97	3.96	3.96	3.98	3.96	3.96	0.02	0.00	0.00	±0.3
1914400	3.96	3.94	3.94	3.96	3.95	3.95	0.00	0.02	0.02	±0.3
2424400	3.94	3.92	3.92	3.95	3.92	3.92	0.02	0.00	0.00	±0.3
3070200	3.90	3.89	3.89	3.91	3.90	3.89	0.02	0.02	0.00	±0.3
3888000	3.85	3.83	3.83	3.85	3.84	3.85	0.00	0.02	0.05	±0.3
4000000	3.83	3.82	3.82	3.84	3.83	3.82	0.02	0.02	0.00	±0.3
4923800	3.76	3.75	3.75	3.77	3.75	3.76	0.02	0.00	0.02	±0.3
6235400	3.66	3.64	3.64	3.66	3.66	3.65	0.00	0.05	0.02	±0.3
7896400	3.52	3.51	3.50	3.52	3.51	3.51	0.00	0.00	0.02	±0.3
10000000	3.37	3.35	3.35	3.36	3.34	3.34	-0.03	-0.03	-0.03	±0.3

SPEAG H-field frequency response tolerance criteria¹:
±0.3dB for applied H-fields at calibration points from 3kHz to 10MHz

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

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	1.57	1.57	1.57	1.57	1.57	1.57	0.00	0.00	0.00	±0.3
3200	1.57	1.57	1.57	1.57	1.56	1.58	0.00	-0.06	0.06	±0.3
4000	1.56	1.56	1.56	1.57	1.56	1.56	0.06	0.00	0.00	±0.3
5200	1.55	1.55	1.55	1.56	1.55	1.56	0.06	0.00	0.06	±0.3
6600	1.54	1.54	1.54	1.54	1.54	1.55	0.00	0.00	0.06	±0.3
8200	1.53	1.53	1.53	1.53	1.53	1.54	0.00	0.00	0.06	±0.3
9000	1.53	1.53	1.53	1.53	1.52	1.53	0.00	-0.06	0.00	±0.3
10600	4.37	4.27	4.26	4.36	4.29	4.27	-0.02	0.04	0.02	±0.3
13400	4.38	4.30	4.29	4.37	4.30	4.29	-0.02	0.00	0.00	±0.3
17000	4.38	4.33	4.32	4.38	4.34	4.33	0.00	0.02	0.02	±0.3
21400	4.41	4.34	4.33	4.41	4.35	4.34	0.00	0.02	0.02	±0.3
27200	4.40	4.35	4.35	4.40	4.36	4.34	0.00	0.02	-0.02	±0.3
34400	4.40	4.37	4.36	4.41	4.37	4.36	0.02	0.00	0.00	±0.3
40000	4.39	4.36	4.36	4.39	4.37	4.36	0.00	0.02	0.00	±0.3
43600	4.39	4.36	4.35	4.39	4.37	4.36	0.00	0.02	0.02	±0.3
55400	4.37	4.35	4.34	4.38	4.36	4.35	0.02	0.02	0.02	±0.3
70000	4.36	4.34	4.33	4.36	4.35	4.33	0.00	0.02	0.00	±0.3
88800	4.34	4.32	4.32	4.35	4.33	4.32	0.02	0.02	0.00	±0.3
112400	4.33	4.31	4.30	4.34	4.31	4.30	0.02	0.00	0.00	±0.3
142400	4.31	4.29	4.29	4.32	4.29	4.29	0.02	0.00	0.00	±0.3
161750	4.30	4.27	4.27	4.29	4.28	4.27	-0.02	0.02	0.00	±0.3
180400	4.28	4.26	4.26	4.28	4.27	4.26	0.00	0.02	0.00	±0.3
228400	4.25	4.22	4.22	4.25	4.22	4.22	0.00	0.00	0.00	±0.3
289400	4.21	4.19	4.18	4.20	4.19	4.19	-0.02	0.00	0.02	±0.3
366400	4.16	4.14	4.14	4.16	4.15	4.15	0.00	0.02	0.02	±0.3
400000	4.15	4.13	4.12	4.15	4.13	4.14	0.00	0.00	0.04	±0.3
464000	4.13	4.10	4.10	4.12	4.11	4.11	-0.02	0.02	0.02	±0.3
587800	4.07	4.05	4.05	4.07	4.05	4.05	0.00	0.00	0.00	±0.3
744200	4.02	4.01	4.01	4.02	4.01	4.01	0.00	0.00	0.00	±0.3
942600	4.01	3.99	3.99	4.01	4.00	3.99	0.00	0.02	0.00	±0.3
1193600	3.98	3.96	3.96	3.98	3.97	3.97	0.00	0.02	0.02	±0.3
1511600	3.97	3.96	3.96	3.97	3.96	3.96	0.00	0.00	0.00	±0.3
1914400	3.96	3.94	3.94	3.95	3.95	3.95	-0.02	0.02	0.02	±0.3
2424400	3.94	3.92	3.92	3.93	3.94	3.92	-0.02	0.04	0.00	±0.3
3070200	3.90	3.89	3.89	3.91	3.89	3.89	0.02	0.00	0.00	±0.3
3888000	3.85	3.83	3.83	3.85	3.83	3.85	0.00	0.00	0.05	±0.3
4000000	3.83	3.82	3.82	3.83	3.82	3.82	0.00	0.00	0.00	±0.3
4923800	3.76	3.75	3.75	3.77	3.76	3.75	0.02	0.02	0.00	±0.3
6235400	3.66	3.64	3.64	3.67	3.65	3.65	0.02	0.02	0.02	±0.3
7896400	3.52	3.51	3.50	3.52	3.51	3.51	0.00	0.00	0.02	±0.3
10000000	3.37	3.35	3.35	3.37	3.36	3.36	0.00	0.03	0.03	±0.3

SPEAG H-field frequency response tolerance criteria¹:
±0.3dB for applied H-fields at calibration points from 3kHz to 10MHz

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

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	1.57	1.57	1.57	1.58	1.57	1.56	0.06	0.00	-0.06	±0.3
3200	1.57	1.57	1.57	1.57	1.57	1.58	0.00	0.00	0.06	±0.3
4000	1.56	1.56	1.56	1.57	1.57	1.56	0.06	0.06	0.00	±0.3
5200	1.55	1.55	1.55	1.56	1.56	1.56	0.06	0.06	0.06	±0.3
6600	1.54	1.54	1.54	1.54	1.55	1.55	0.00	0.06	0.06	±0.3
8200	1.53	1.53	1.53	1.53	1.53	1.54	0.00	0.00	0.06	±0.3
9000	1.53	1.53	1.53	1.53	1.53	1.53	0.00	0.00	0.00	±0.3
10600	4.37	4.27	4.26	4.35	4.27	4.26	-0.04	0.00	0.00	±0.3
13400	4.38	4.30	4.29	4.40	4.31	4.29	0.04	0.02	0.00	±0.3
17000	4.38	4.33	4.32	4.39	4.34	4.32	0.02	0.02	0.00	±0.3
21400	4.41	4.34	4.33	4.42	4.35	4.34	0.02	0.02	0.02	±0.3
27200	4.40	4.35	4.35	4.41	4.36	4.35	0.02	0.02	0.00	±0.3
34400	4.40	4.37	4.36	4.40	4.38	4.36	0.00	0.02	0.00	±0.3
40000	4.39	4.36	4.36	4.39	4.37	4.36	0.00	0.02	0.00	±0.3
43600	4.39	4.36	4.35	4.39	4.37	4.37	0.00	0.02	0.04	±0.3
55400	4.37	4.35	4.34	4.38	4.35	4.35	0.02	0.00	0.02	±0.3
70000	4.36	4.34	4.33	4.37	4.34	4.33	0.02	0.00	0.00	±0.3
88800	4.34	4.32	4.32	4.35	4.32	4.32	0.02	0.00	0.00	±0.3
112400	4.33	4.31	4.30	4.33	4.31	4.31	0.00	0.00	0.02	±0.3
142400	4.31	4.29	4.29	4.32	4.29	4.29	0.02	0.00	0.00	±0.3
161750	4.30	4.27	4.27	4.29	4.27	4.26	-0.02	0.00	-0.02	±0.3
180400	4.28	4.26	4.26	4.29	4.26	4.26	0.02	0.00	0.00	±0.3
228400	4.25	4.22	4.22	4.25	4.23	4.22	0.00	0.02	0.00	±0.3
289400	4.21	4.19	4.18	4.21	4.19	4.19	0.00	0.00	0.02	±0.3
366400	4.16	4.14	4.14	4.17	4.15	4.14	0.02	0.02	0.00	±0.3
400000	4.15	4.13	4.12	4.15	4.13	4.13	0.00	0.00	0.02	±0.3
464000	4.13	4.10	4.10	4.12	4.11	4.11	-0.02	0.02	0.02	±0.3
587800	4.07	4.05	4.05	4.07	4.05	4.05	0.00	0.00	0.00	±0.3
744200	4.02	4.01	4.01	4.02	4.01	4.00	0.00	0.00	-0.02	±0.3
942600	4.01	3.99	3.99	4.01	4.00	3.99	0.00	0.02	0.00	±0.3
1193600	3.98	3.96	3.96	3.98	3.96	3.97	0.00	0.00	0.02	±0.3
1511600	3.97	3.96	3.96	3.97	3.96	3.97	0.00	0.00	0.02	±0.3
1914400	3.96	3.94	3.94	3.96	3.95	3.95	0.00	0.02	0.02	±0.3
2424400	3.94	3.92	3.92	3.93	3.94	3.92	-0.02	0.04	0.00	±0.3
3070200	3.90	3.89	3.89	3.91	3.89	3.91	0.02	0.00	0.04	±0.3
3888000	3.85	3.83	3.83	3.86	3.83	3.86	0.02	0.00	0.07	±0.3
4000000	3.83	3.82	3.82	3.83	3.82	3.81	0.00	0.00	-0.02	±0.3
4923800	3.76	3.75	3.75	3.77	3.76	3.76	0.02	0.02	0.02	±0.3
6235400	3.66	3.64	3.64	3.68	3.65	3.65	0.05	0.02	0.02	±0.3
7896400	3.52	3.51	3.50	3.52	3.50	3.53	0.00	-0.02	0.07	±0.3
10000000	3.37	3.35	3.35	3.37	3.35	3.35	0.00	0.00	0.00	±0.3

SPEAG H-field frequency response tolerance criteria¹:
±0.3dB for applied H-fields at calibration points from 3kHz to 10MHz

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

Frequency Response, H-field, Channel 7

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	1.57	1.57	1.57	1.56	1.58	1.56	-0.06	0.06	-0.06	±0.3
3200	1.57	1.57	1.57	1.57	1.57	1.58	0.00	0.00	0.06	±0.3
4000	1.56	1.56	1.56	1.56	1.56	1.57	0.00	0.00	0.06	±0.3
5200	1.55	1.55	1.55	1.56	1.56	1.56	0.06	0.06	0.06	±0.3
6600	1.54	1.54	1.54	1.54	1.55	1.55	0.00	0.06	0.06	±0.3
8200	1.53	1.53	1.53	1.54	1.53	1.54	0.06	0.00	0.06	±0.3
9000	1.53	1.53	1.53	1.52	1.53	1.53	-0.06	0.00	0.00	±0.3
10600	4.37	4.27	4.26	4.39	4.29	4.29	0.04	0.04	0.06	±0.3
13400	4.38	4.30	4.29	4.38	4.31	4.30	0.00	0.02	0.02	±0.3
17000	4.38	4.33	4.32	4.37	4.34	4.34	-0.02	0.02	0.04	±0.3
21400	4.41	4.34	4.33	4.41	4.35	4.34	0.00	0.02	0.02	±0.3
27200	4.40	4.35	4.35	4.42	4.37	4.36	0.04	0.04	0.02	±0.3
34400	4.40	4.37	4.36	4.41	4.38	4.37	0.02	0.02	0.02	±0.3
40000	4.39	4.36	4.36	4.39	4.37	4.37	0.00	0.02	0.02	±0.3
43600	4.39	4.36	4.35	4.39	4.37	4.35	0.00	0.02	0.00	±0.3
55400	4.37	4.35	4.34	4.38	4.35	4.35	0.02	0.00	0.02	±0.3
70000	4.36	4.34	4.33	4.37	4.35	4.34	0.02	0.02	0.02	±0.3
88800	4.34	4.32	4.32	4.34	4.33	4.32	0.00	0.02	0.00	±0.3
112400	4.33	4.31	4.30	4.35	4.32	4.32	0.04	0.02	0.04	±0.3
142400	4.31	4.29	4.29	4.32	4.29	4.29	0.02	0.00	0.00	±0.3
161750	4.30	4.27	4.27	4.30	4.28	4.27	0.00	0.02	0.00	±0.3
180400	4.28	4.26	4.26	4.29	4.27	4.26	0.02	0.02	0.00	±0.3
228400	4.25	4.22	4.22	4.26	4.24	4.22	0.02	0.04	0.00	±0.3
289400	4.21	4.19	4.18	4.21	4.19	4.19	0.00	0.00	0.02	±0.3
366400	4.16	4.14	4.14	4.16	4.15	4.14	0.00	0.02	0.00	±0.3
400000	4.15	4.13	4.12	4.15	4.12	4.13	0.00	-0.02	0.02	±0.3
464000	4.13	4.10	4.10	4.13	4.11	4.11	0.00	0.02	0.02	±0.3
587800	4.07	4.05	4.05	4.06	4.05	4.05	-0.02	0.00	0.00	±0.3
744200	4.02	4.01	4.01	4.03	4.01	4.01	0.02	0.00	0.00	±0.3
942600	4.01	3.99	3.99	4.00	4.00	4.00	-0.02	0.02	0.02	±0.3
1193600	3.98	3.96	3.96	3.98	3.97	3.98	0.00	0.02	0.04	±0.3
1511600	3.97	3.96	3.96	3.97	3.95	3.97	0.00	-0.02	0.02	±0.3
1914400	3.96	3.94	3.94	3.96	3.95	3.95	0.00	0.02	0.02	±0.3
2424400	3.94	3.92	3.92	3.94	3.92	3.92	0.00	0.00	0.00	±0.3
3070200	3.90	3.89	3.89	3.91	3.89	3.90	0.02	0.00	0.02	±0.3
3888000	3.85	3.83	3.83	3.85	3.84	3.85	0.00	0.02	0.05	±0.3
4000000	3.83	3.82	3.82	3.84	3.83	3.82	0.02	0.02	0.00	±0.3
4923800	3.76	3.75	3.75	3.77	3.75	3.76	0.02	0.00	0.02	±0.3
6235400	3.66	3.64	3.64	3.66	3.66	3.65	0.00	0.05	0.02	±0.3
7896400	3.52	3.51	3.50	3.52	3.52	3.52	0.00	0.02	0.05	±0.3
10000000	3.37	3.35	3.35	3.35	3.33	3.36	-0.05	-0.05	0.03	±0.3

SPEAG H-field frequency response tolerance criteria¹:
±0.3dB for applied H-fields at calibration points from 3kHz to 10MHz

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

Frequency Response, E-field, Channel 0

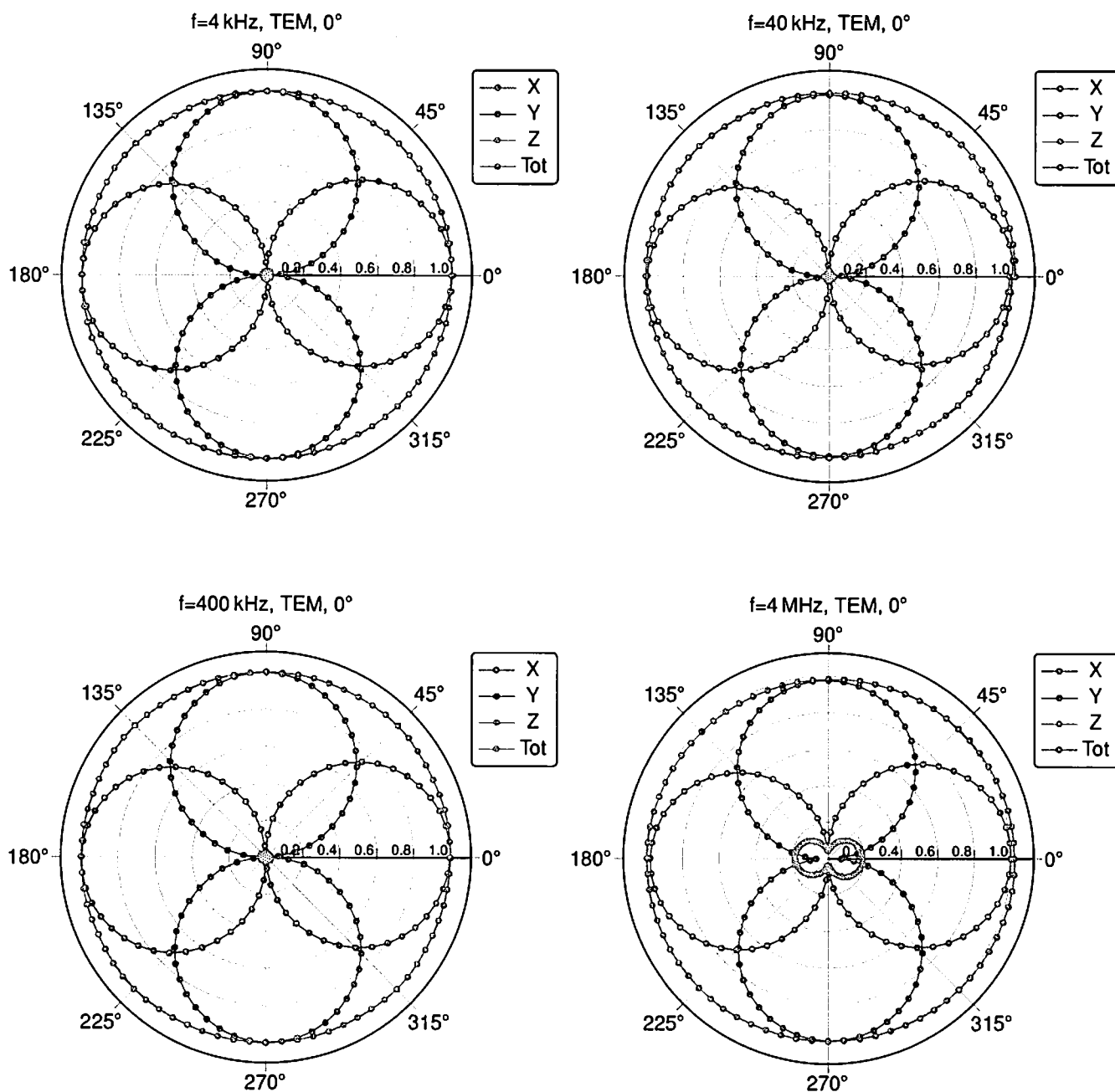
f/(Hz)	E-field/(V/m) Applied			E-field/(V/m) Reading			Difference/(dB)			Tolerance/(dB)
	x	y	z	x	y	z	x	y	z	
3000	84.6	84.6	88.0	84.7	84.7	87.9	0.01	0.01	-0.01	±0.3
3200	86.2	86.2	80.3	85.0	86.2	79.9	-0.12	0.00	-0.04	±0.3
4000	83.9	83.9	88.0	84.0	84.0	88.0	0.01	0.01	0.00	±0.3
5200	81.8	81.8	85.0	81.9	82.0	85.5	0.01	0.02	0.05	±0.3
6600	81.9	81.9	82.1	82.0	81.7	82.2	0.01	-0.02	0.01	±0.3
8200	78.0	78.0	82.1	78.1	78.1	82.0	0.01	0.01	-0.01	±0.3
9000	83.4	83.4	83.5	83.5	83.5	83.6	0.01	0.01	0.01	±0.3
10600	82.6	82.6	81.7	82.8	82.6	81.7	0.02	0.00	0.00	±0.3
13400	85.7	85.7	79.6	85.7	85.6	79.6	0.00	-0.01	0.00	±0.3
17000	84.9	84.9	78.2	84.9	84.9	78.3	0.00	0.00	0.01	±0.3
21400	83.1	83.1	82.6	83.3	83.2	82.5	0.02	0.01	-0.01	±0.3
27200	83.9	83.9	80.4	84.0	84.0	80.6	0.01	0.01	0.02	±0.3
34400	82.5	82.5	79.4	82.6	82.6	79.5	0.01	0.01	0.01	±0.3
40000	83.2	83.2	82.1	83.3	83.3	82.2	0.01	0.01	0.01	±0.3
43600	82.5	82.5	81.3	82.6	82.6	81.3	0.01	0.01	0.00	±0.3
55400	82.3	82.3	81.3	82.4	82.4	81.4	0.01	0.01	0.01	±0.3
70000	83.1	83.1	81.4	83.2	83.2	81.4	0.01	0.01	0.00	±0.3
88800	82.2	82.2	82.1	82.3	82.2	82.2	0.01	0.00	0.01	±0.3
112400	82.6	82.6	81.7	82.7	82.7	81.7	0.01	0.01	0.00	±0.3
142400	82.6	82.6	82.1	82.7	82.7	82.1	0.01	0.01	0.00	±0.3
161750	82.7	82.7	82.1	82.7	82.7	82.1	0.00	0.00	0.00	±0.3
180400	83.0	83.0	82.1	83.1	83.1	82.1	0.01	0.01	0.00	±0.3
228400	83.1	83.1	82.2	83.2	83.2	82.2	0.01	0.01	0.00	±0.3
289400	83.3	83.3	82.6	83.4	83.4	82.7	0.01	0.01	0.01	±0.3
366400	83.5	83.5	82.7	83.6	83.6	82.7	0.01	0.01	0.00	±0.3
400000	83.8	83.8	82.7	83.9	83.9	82.8	0.01	0.01	0.01	±0.3
464000	84.0	84.0	83.0	84.1	84.1	83.0	0.01	0.01	0.00	±0.3
587800	84.0	84.0	83.0	84.1	84.1	83.1	0.01	0.01	0.01	±0.3
744200	84.1	84.1	83.0	84.2	84.2	83.0	0.01	0.01	0.00	±0.3
942600	84.1	84.1	83.1	84.2	84.2	83.2	0.01	0.01	0.01	±0.3
1193600	83.8	83.8	82.7	83.9	83.9	82.7	0.01	0.01	0.00	±0.3
1511600	83.3	83.3	82.3	83.4	83.4	82.3	0.01	0.01	0.00	±0.3
1914400	82.9	82.9	82.0	83.0	83.0	82.1	0.01	0.01	0.01	±0.3
2424400	82.6	82.6	81.8	82.7	82.7	81.8	0.01	0.01	0.00	±0.3
3070200	82.5	82.5	81.5	82.5	82.6	81.6	0.00	0.01	0.01	±0.3
3888000	82.6	82.6	81.8	82.7	82.7	81.8	0.01	0.01	0.00	±0.3
4000000	82.4	82.4	81.7	82.5	82.5	81.8	0.01	0.01	0.01	±0.3
4923800	83.0	83.0	82.5	83.1	83.1	82.5	0.01	0.01	0.00	±0.3
6235400	85.7	85.7	85.0	85.8	85.8	85.0	0.01	0.01	0.00	±0.3
7896400	88.5	88.5	88.0	88.6	88.6	88.1	0.01	0.01	0.01	±0.3
10000000	96.8	96.8	96.2	96.8	96.8	96.2	0.00	0.00	0.00	±0.3

SPEAG E-field frequency response tolerance criteria¹:
±0.3dB for applied E-fields at calibration points from 3kHz to 10MHz

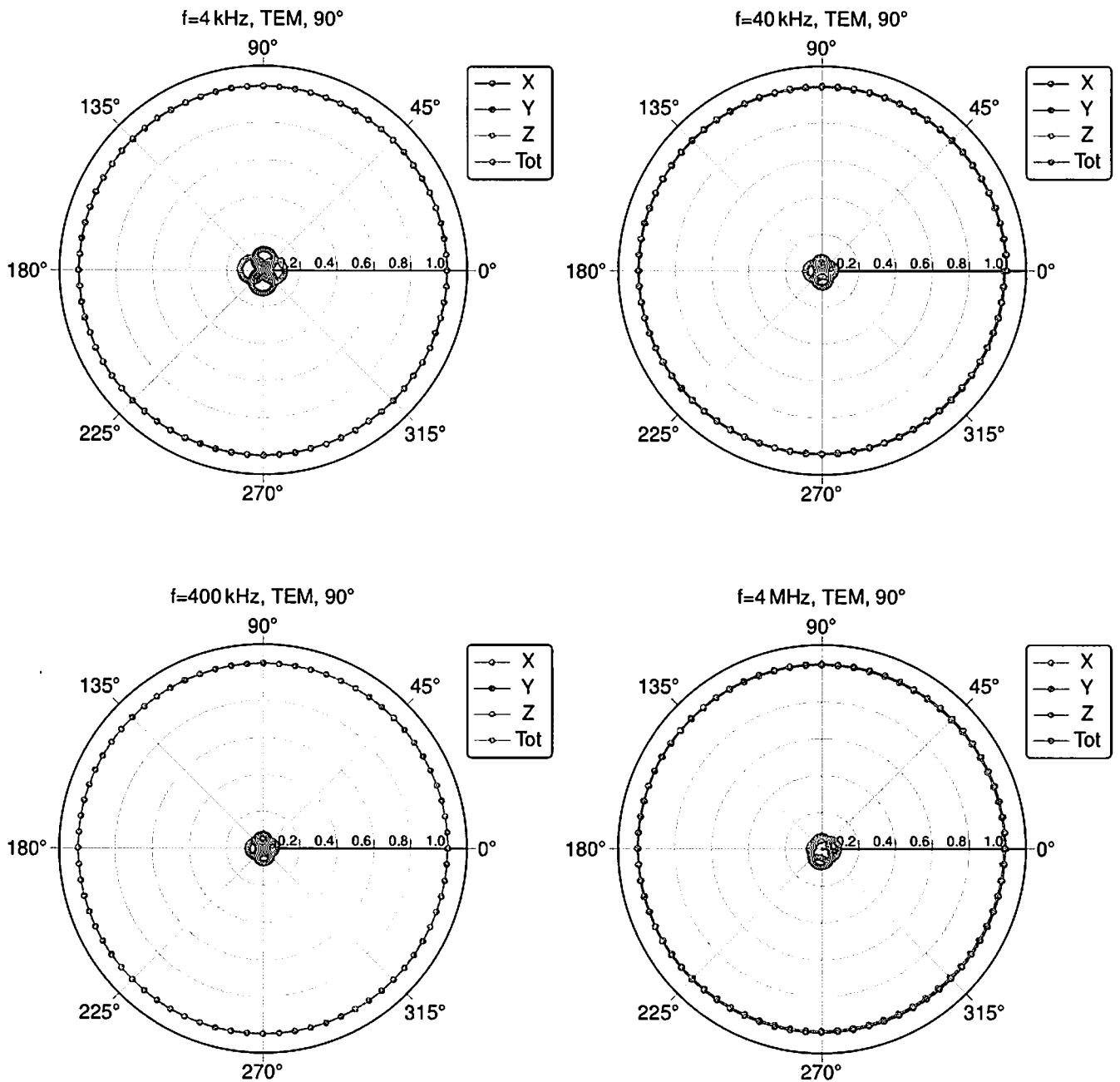
¹Calibration uncertainty not taken into account (shared risk 50%).

Isotropy H-Field

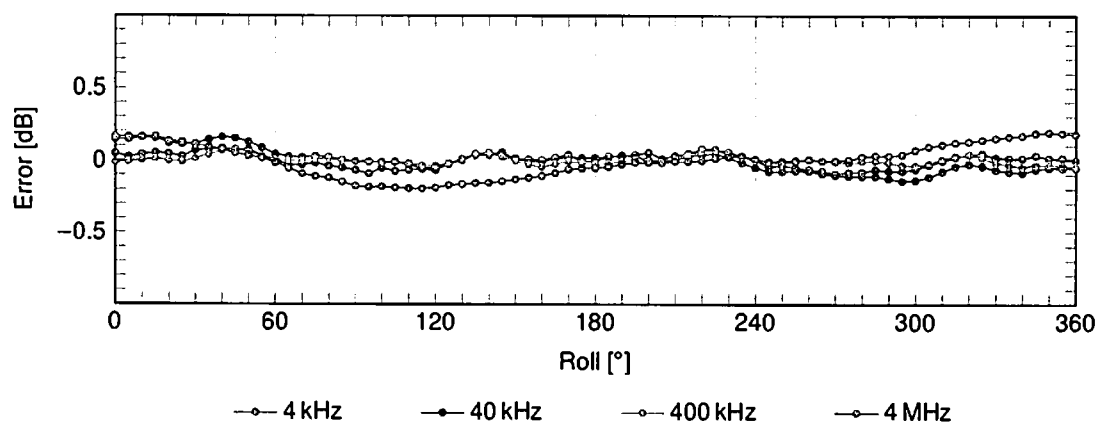
H-Field Receiving Pattern (ϕ), $\vartheta = 0^\circ$



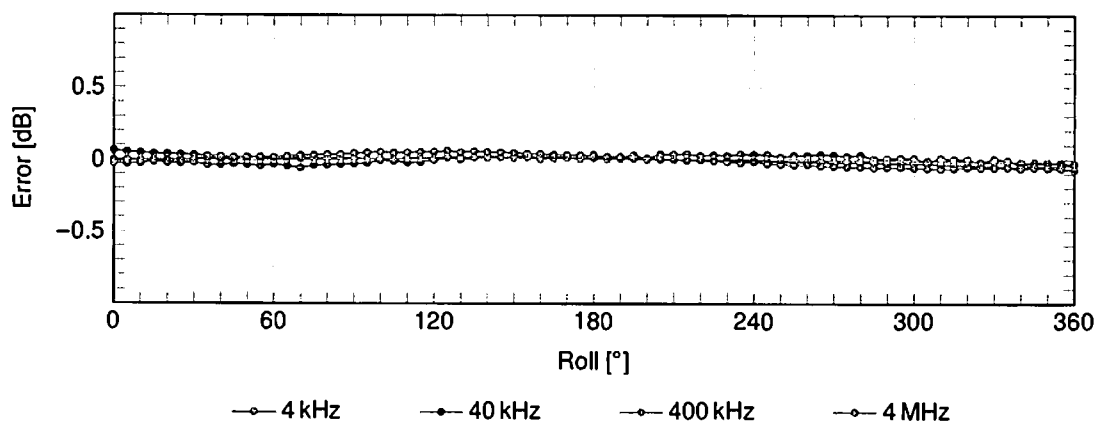
H-Field Receiving Pattern (ϕ), $\vartheta = 90^\circ$



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



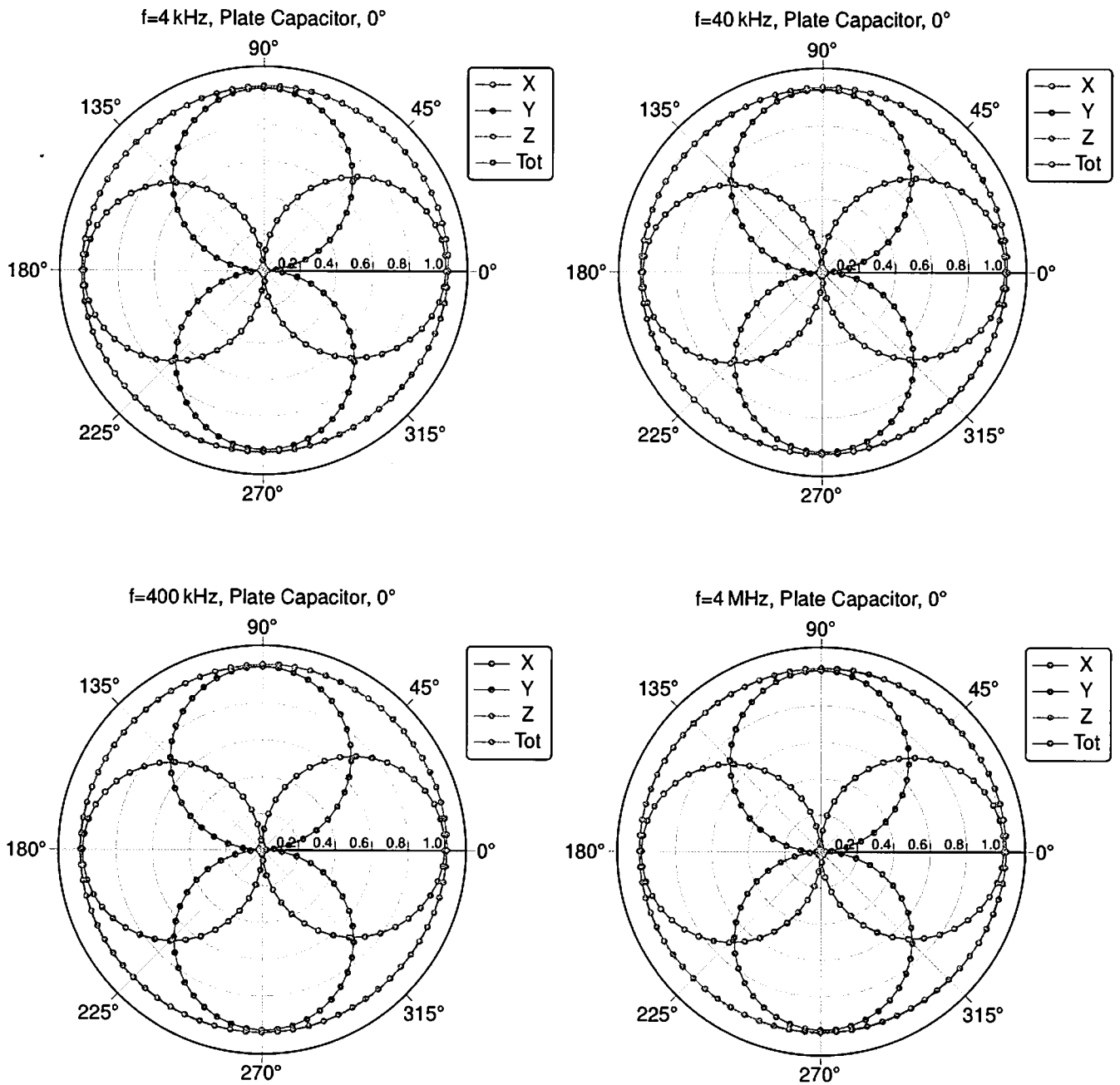
H-Field Receiving Pattern (ϕ), $\vartheta = 90^\circ$



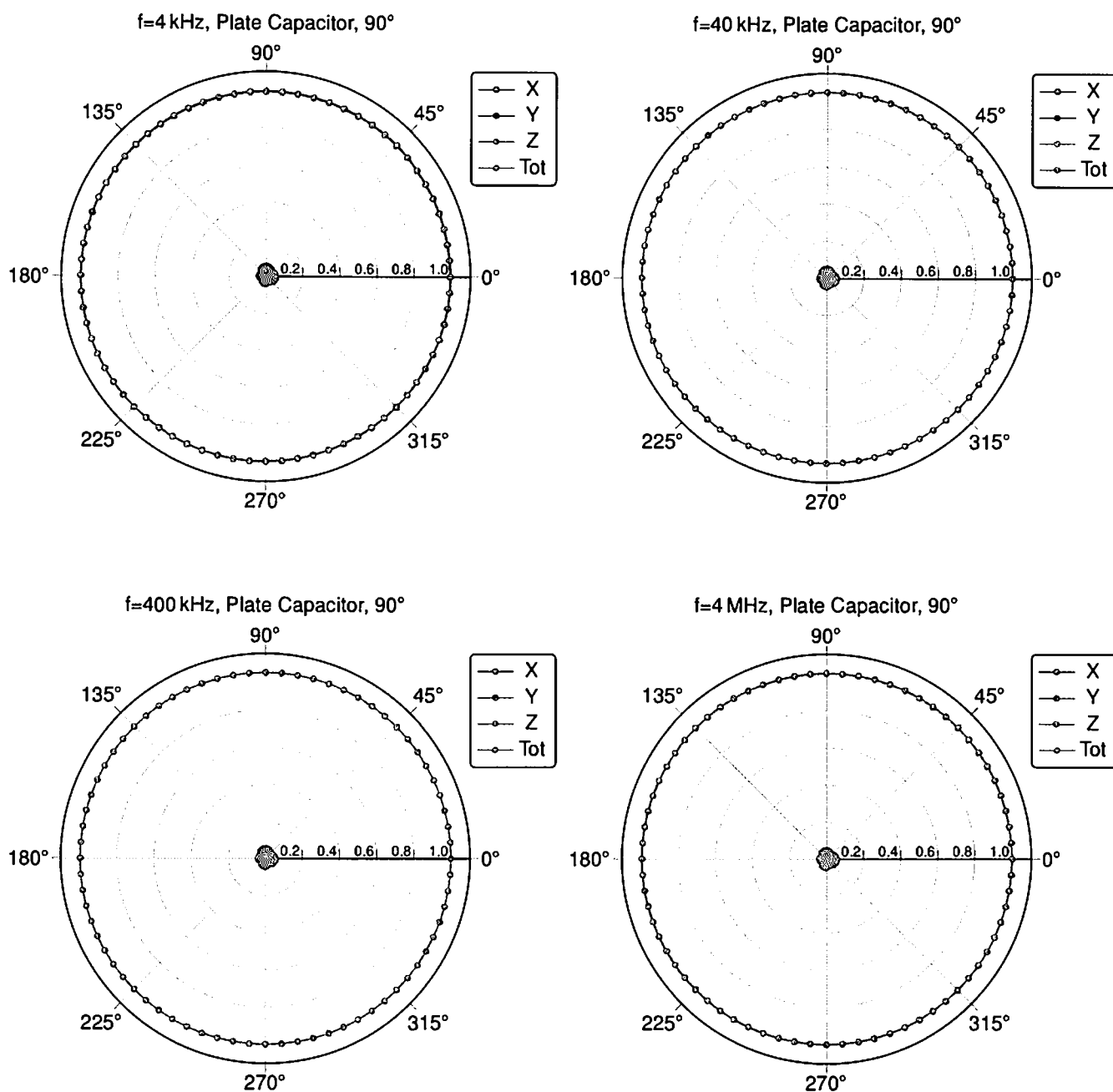
SPEAG axial deviation from the ideal response tolerance for H-field: ± 0.6 dB

Isotropy E-Field

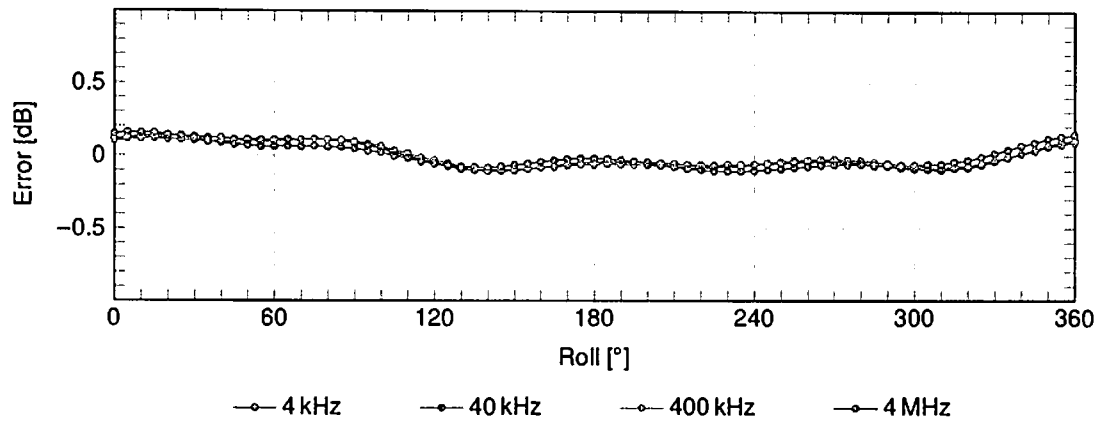
E-Field Receiving Pattern (ϕ), $\theta = 0^\circ$



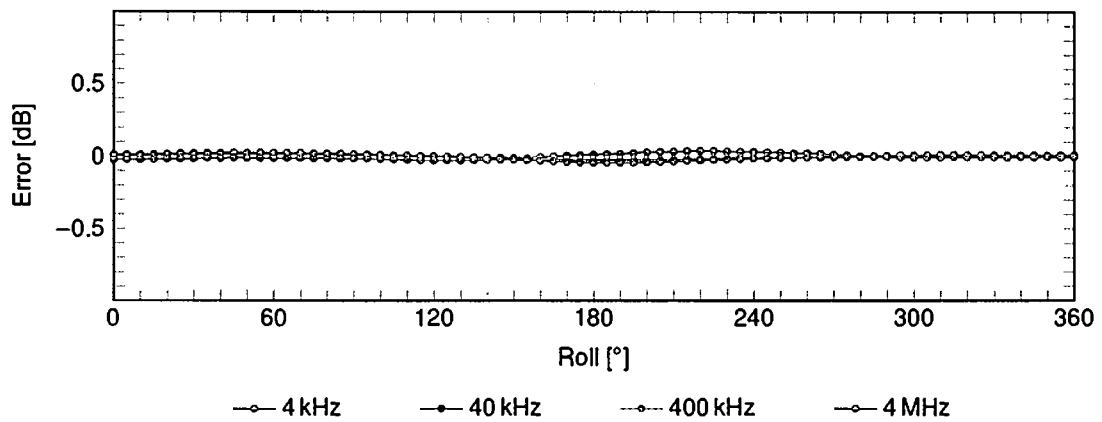
E-Field Receiving Pattern (ϕ), $\theta = 90^\circ$



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



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



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



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Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 0108

Client RF Safety Lab
Catonsville, USA

Certificate No. V-Coil350/85-1025_Oct25

CALIBRATION CERTIFICATE

Object V-Coil350/85V2 - SN: 1025

Calibration procedure(s) QA CAL-47.v14
Calibration Procedure for WPT Verification & Validation Sources

Calibration date: October 03, 2025

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

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 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	1-Oct-24 (MAGPy-8H3D-3089_Oct24)	Oct-25
Secondary Standards	ID #	Check Date (in house)	Scheduled Check

Calibrated by: Name Krešimir Franjić Function Laboratory Technician

Approved by: Sven Kühn Technical Manager

Signature

Issued: October 7, 2025

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



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Accreditation No.: **SCS 0108**

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	3.0.0.6328
	Notebook GUI	3.0.2.6
	Sim4Life	9.0.0
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	209	1.13
2	190	1.13

Appendix (Additional assessments outside the scope of SCS 0108)

Peak values of induced fields¹

Distance (relative to source surface) (mm)	Induced peak current density, 1cm ² area avg. (A/m ²)	Induced peak E-field (V/m)			peak spatial SAR (mW/kg)	
		2mm cube avg.	Local	5mm line avg.	1g avg.	10g avg.
0	2.36	3.36	3.39	3.40	6.51	4.82
2	2.22	3.16	3.19	3.20	5.81	4.36

Voltage measurement

Total voltage (V)	Voltages at harmonics (dBc)
0.408	Highest harmonic: -47.2 2 nd highest harmonic: -52.2

¹ determined for a virtual half-space phantom with tissue properties $\epsilon_r = 55$, $\sigma = 0.75$ S/m, $\rho = 1000$ kg/m³ and a 2 mm thick phantom shell

Measurement report

cDASY6 Module WPT Measurement Report

Device under test	Tool Info	Scan Info
Info: V-Coil350/85	DASY software version: cDASY6 Module WPT 3.0.0.6328	Center location: x: -48.07 mm, y: -119.87 mm, z: 36.24 mm
Serial number: 1025	Probe model, serial no. and configuration date: MAGPy-8H3D+E3Dv2, WP000231, 2024/10/01	Dimensions: x: 477.0 mm, y: 388.8 mm, z: 36.7 mm
Scenario: Source Calibration	Software version: 3.0.22, backend: 3.0.22	Resolution: x: 7.33 mm, y: 7.33 mm, z: 7.33 mm
		Completed on: 2025/10/03 14:19:42

Measurement results

Maximum H-field [RMS]:
MAGNITUDE: 133.74 A/m
x: 115.12 A/m, y: 34.32 A/m, z: 58.79 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 center location

H-field magnitude [RMS] at lowest plane

Incident fields and induced fields in the homogeneous phantom at the peak frequency (f = 85.00 kHz, σ = 0.750 Sm, tissue density = 1,000 kg/m³)

	Peak incident fields [rms]	Peak E _{Ind} [V/m, rms]			Peak J _{Ind} [A/m ² , rms]	psSAR [mW/kg]		H-field extent			Warnings
Distance [mm]	H _{inc} [A/m]	Cube avg.	Local	Line avg.	Surface avg.	1g avg.	10g avg.	-20 dB radius [mm]	Sign	Vector potential	Boundary effect
0.00	209	3.36	3.39	3.40	2.36	6.51	4.82	181	1%	98%	36%
2.00	190	3.16	3.19	3.20	2.22	5.81	4.36	183	1%	98%	38%

Compliance evaluation (Field values at the peak frequency) (f = 85.00 kHz)

Distance [mm]	ICNIRP 2010/2020			ICNIRP 1998			IEEE 2019			FCC			HC Code 6		
	RL [rms]			RL [rms]			ERL [rms]			MPE [rms]			RL [rms]		
	PH _{inc} [A/m]	PE _{ind} [V/m]	psSAR [mW/kg]	PH _{inc} [A/m]	PJ _{ind} [A/m²]	psSAR [mW/kg]	PH _{inc} [A/m]	PE _{ind} [V/m]	psSAR [mW/kg]	PH _{inc} [A/m]	PE _{ind} [V/m]	psSAR [mW/kg]	PH _{inc} [A/m]	PE _{ind} [V/m]	psSAR [mW/kg]
0.00	209	3.36	4.82	209	2.36	4.82	209	3.40	4.82	209	N/A	6.51	209	3.39	6.51
2.00	190	3.16	4.36	190	2.22	4.36	190	3.20	4.36	190	N/A	5.81	190	3.19	5.81

Compliance evaluation (Exposure ratios) (ratios in dB)

Distance [mm]	ICNIRP 2010/2020			ICNIRP 1998			IEEE 2019			FCC			HC Code 6		
	RL			RL			ERL			MPE			RL		
	NS	TH		NS	TH		NS	TH		N/A	N/A	TH	NS	TH	
0.00	20.0	N/A	-10.7	N/A	32.4	22.9	N/A	2.17	N/A	-14.4	N/A	7.33	N/A	N/A	-10.6
2.00	19.2	N/A	-11.2	N/A	31.6	22.3	N/A	1.35	N/A	-14.9	N/A	6.51	N/A	N/A	-11.1