

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

Client **HCT**  
 Gyeonggi-do, Korea (the Republic of)

Certificate No. **MAGPy-8H3D-3054**

**CALIBRATION CERTIFICATE**

Object **MAGPy-8H3D+E3D SN:3054**  
**MAGPy-DAS SN:3054**

Calibration procedure(s) **QA CAL-46.v1**  
**Calibration Procedure for MAGPy-8H3D+E3D**  
**Near-field Electric and Magnetic Field Sensor System**

Calibration date **January 09, 2023**

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: 110918	22-Oct-22 (No. 1335.8794K04)	Oct-23
Reference 20 dB Attenuator	SN: CC2552 (20x)	04-Apr-22 (No. 217-03527)	Apr-23
Type-N mismatch	SN: 310982 / 06327	04-Apr-22 (No. 217-03528)	Apr-23

Secondary Standards	ID	Check Date (in house)	Scheduled Check
Network Analyzer E5061B	SN: MY49810822	In house check: Nov-22	In house check: Nov-23
TEM Cell	SN: S6029f	In house check: Nov-22	N.A
Plate Capacitor	SN: 6028f	In house check: Nov-22	In house check: Nov-23
Resonator (160kHz)	SN: 6030f	In house check: Nov-22	In house check: Nov-23

	Name	Function	Signature
Calibrated by	Mischa Sabathy	Laboratory Engineer	
Approved by	Sven Kühn	Technical Manager	

Issued: January 09, 2023  
 This calibration certificate shall not be reproduced except in full without written approval of the laboratory.

검	정	사	인
장	장	장	장
REVIEW	DL / 김성호	CJ / 최종영	
일	2023 / 04 / 25	2023 / 04 / 26	

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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 3.0kHz to 10.0MHz.
- *Receiving Pattern*: Assessed for H-field polarizations  $\theta$ , 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  $\theta$ , 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).

### Reported Uncertainty

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+E3D (SP MGY 303 AA)	3054
	MAGPy-DAS (SE UMS 303 AA)	3054
	MAGPy FPGA Board	WP000201
Adjustment Date	Last MAGPy Adjustment	January 09, 2023
Firmware SW Version	MAGPy Firmware	Ver. 0.97
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	0.380	0.380	0.370	0.380	0.400	-0.68	0.00	0.45	±1.00
0.540	0.520	0.520	0.520	0.510	0.510	-0.33	-0.17	-0.17	±1.00
0.740	0.710	0.710	0.740	0.700	0.710	0.00	-0.12	0.00	±1.00
0.970	0.930	0.920	0.980	0.910	0.930	0.09	-0.19	0.09	±1.00
1.31	1.26	1.25	1.33	1.24	1.24	0.13	-0.14	-0.07	±1.00
1.80	1.73	1.72	1.80	1.74	1.71	0.00	0.05	-0.05	±1.00
2.39	2.30	2.29	2.42	2.33	2.27	0.11	0.11	-0.08	±0.20
3.19	3.07	3.05	3.20	3.09	3.04	0.03	0.06	-0.03	±0.20
4.33	4.17	4.14	4.33	4.17	4.14	0.00	0.00	0.00	±0.20
5.85	5.65	5.60	5.85	5.66	5.60	0.00	0.02	0.00	±0.20
7.86	7.59	7.52	7.86	7.61	7.52	0.00	0.02	0.00	±0.20
10.5	10.2	10.0	10.5	10.2	10.1	0.00	0.00	0.00	±0.20
14.2	13.7	13.6	14.2	13.7	13.6	0.00	0.00	0.00	±0.20
19.1	18.5	18.3	19.1	18.5	18.3	0.00	0.00	0.00	±0.20
25.8	25.0	24.7	25.8	25.0	24.7	0.00	0.00	0.00	±0.20
34.4	33.4	32.9	34.6	33.5	33.0	0.05	0.03	0.03	±0.20
46.4	45.2	44.4	46.6	45.3	44.8	0.04	0.02	0.04	±0.20
62.9	61.2	60.1	63.2	61.5	60.4	0.04	0.04	0.04	±0.20
86.4	84.3	82.7	86.2	84.0	82.4	-0.02	-0.03	-0.03	±0.20
113	110	108	113	110	108	0.00	0.00	0.00	±0.20
156	152	149	155	151	148	-0.06	-0.06	-0.06	±0.20
216	212	208	215	211	206	-0.04	-0.04	0.00	±0.20
298	293	285	300	288	282	0.06	-0.15	-0.09	±0.20
417	410	399	413	405	395	-0.08	-0.11	-0.09	±0.20
609	598	583	607	596	580	-0.03	-0.03	-0.04	±0.20
911	895	870	918	900	876	0.07	0.05	0.06	±0.20
1380	1360	1320	1410	1380	1340	0.19	0.13	0.13	±0.30
2070	2030	1980	2130	2090	2040	0.25	0.25	0.26	±0.40
3040	2980	2910	3160	3100	3020	0.34	0.34	0.32	±0.50
3630	3550	3470	3790	3700	3620	0.37	0.36	0.37	±0.50

SPEAG H-field linearity tolerance criteria<sup>1</sup>:

- ±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

<sup>1</sup> Calibration 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	
0.400	0.390	0.390	0.420	0.390	0.400	0.42	0.23	0.22	±1.00
0.550	0.520	0.530	0.550	0.540	0.550	0.00	0.33	0.32	±1.00
0.750	0.710	0.730	0.740	0.730	0.740	-0.12	0.24	0.12	±1.00
0.970	0.930	0.950	0.980	0.950	0.970	0.09	0.18	0.18	±1.00
1.32	1.28	1.28	1.31	1.28	1.28	-0.07	0.14	0.00	±1.00
1.80	1.73	1.76	1.80	1.73	1.74	0.00	0.00	-0.10	±1.00
2.40	2.31	2.34	2.40	2.29	2.34	0.00	-0.08	0.00	±0.20
3.20	3.08	3.12	3.20	3.07	3.13	0.00	-0.03	0.03	±0.20
4.35	4.19	4.24	4.35	4.18	4.23	0.00	-0.02	-0.02	±0.20
5.88	5.67	5.74	5.88	5.64	5.74	0.00	-0.05	0.00	±0.20
7.89	7.62	7.70	7.90	7.65	7.71	0.01	0.01	0.01	±0.20
10.5	10.2	10.3	10.5	10.2	10.3	0.00	0.00	0.00	±0.20
14.2	13.8	13.9	14.2	13.8	13.9	0.00	0.00	0.00	±0.20
19.2	18.6	18.8	19.2	18.6	18.8	0.00	0.00	0.00	±0.20
25.9	25.1	25.3	25.9	25.2	25.3	0.00	0.03	0.00	±0.20
34.5	33.5	33.7	34.8	33.7	33.8	0.08	0.05	0.03	±0.20
46.6	45.4	45.5	46.9	45.6	45.8	0.06	0.04	0.02	±0.20
63.1	61.5	61.6	63.5	61.8	61.9	0.05	0.04	0.04	±0.20
86.6	84.6	84.7	86.5	84.5	84.4	-0.03	-0.01	-0.03	±0.20
114	111	111	113	111	111	-0.08	0.00	0.00	±0.20
156	153	152	156	152	152	0.00	-0.06	0.00	±0.20
217	212	211	216	212	211	-0.04	0.00	0.00	±0.20
299	294	292	301	290	288	0.06	-0.12	-0.12	±0.20
418	411	409	415	407	405	-0.08	-0.08	-0.09	±0.20
611	601	597	610	599	595	-0.01	-0.03	-0.03	±0.20
914	899	891	922	906	899	0.08	0.07	0.08	±0.20
1390	1360	1350	1410	1390	1380	0.12	0.19	0.19	±0.30
2080	2040	2020	2140	2100	2090	0.25	0.25	0.30	±0.40
3060	3000	2980	3180	3110	3100	0.33	0.31	0.34	±0.50
3650	3570	3560	3810	3720	3710	0.37	0.36	0.36	±0.50

SPEAG H-field linearity tolerance criteria<sup>1</sup>:

- ±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

<sup>1</sup> 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)			Tolerance/(dB)
x	y	z	x	y	z	x	y	z	
0.400	0.380	0.400	0.430	0.390	0.410	0.63	0.23	0.21	±1.00
0.550	0.520	0.540	0.580	0.530	0.530	0.46	0.17	-0.16	±1.00
0.750	0.720	0.740	0.790	0.730	0.730	0.45	0.12	-0.12	±1.00
0.980	0.930	0.960	1.01	0.950	0.980	0.26	0.18	0.00	±1.00
1.32	1.27	1.30	1.33	1.26	1.28	0.07	-0.07	-0.13	±1.00
1.81	1.74	1.78	1.81	1.72	1.78	0.00	-0.10	0.00	±1.00
2.42	2.32	2.38	2.42	2.30	2.38	0.00	-0.08	0.00	±0.20
3.22	3.09	3.17	3.22	3.09	3.17	0.00	0.00	0.00	±0.20
4.38	4.20	4.30	4.37	4.19	4.30	-0.02	-0.02	0.00	±0.20
5.91	5.69	5.82	5.90	5.69	5.82	-0.01	0.00	0.00	±0.20
7.94	7.65	7.81	7.94	7.65	7.82	0.00	0.00	0.01	±0.20
10.6	10.2	10.4	10.6	10.2	10.4	0.00	0.00	0.00	±0.20
14.3	13.8	14.1	14.3	13.8	14.1	0.00	0.00	0.00	±0.20
19.3	18.7	19.0	19.3	18.7	19.0	0.00	0.00	0.00	±0.20
26.1	25.2	25.7	26.1	25.2	25.7	0.00	0.00	0.00	±0.20
34.7	33.6	34.2	34.9	33.8	34.4	0.05	0.05	0.05	±0.20
46.9	45.5	46.2	47.1	45.7	46.4	0.04	0.04	0.04	±0.20
63.5	61.6	62.5	63.8	62.0	62.9	0.04	0.06	0.06	±0.20
87.2	84.9	85.9	86.9	84.6	85.8	-0.03	-0.03	-0.01	±0.20
114	111	112	114	111	112	0.00	0.00	0.00	±0.20
157	153	155	156	153	154	-0.06	0.00	-0.06	±0.20
218	213	214	217	212	214	-0.04	-0.04	0.00	±0.20
301	295	296	303	290	293	0.06	-0.15	-0.09	±0.20
421	413	415	417	408	411	-0.08	-0.11	-0.08	±0.20
615	602	605	613	600	604	-0.03	-0.03	-0.01	±0.20
819	801	804	825	807	812	0.06	0.06	0.08	±0.20
1390	1370	1370	1420	1390	1400	0.19	0.13	0.19	±0.30
2090	2040	2050	2150	2110	2120	0.25	0.29	0.29	±0.40
3070	3000	3020	3190	3120	3140	0.33	0.34	0.34	±0.50
3670	3580	3610	3830	3730	3770	0.37	0.36	0.38	±0.50

SPEAG H-field linearity tolerance criteria<sup>1</sup>:

- ±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

<sup>1</sup>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)			Tolerance:(dB)
x	y	z	x	y	z	x	y	z	
0.400	0.380	0.380	0.430	0.380	0.400	0.63	0.00	0.45	±1.00
0.550	0.520	0.520	0.580	0.520	0.520	0.46	0.00	0.00	±1.00
0.750	0.710	0.710	0.780	0.720	0.710	0.34	0.12	0.00	±1.00
0.980	0.930	0.930	0.970	0.940	0.920	-0.09	0.09	-0.09	±1.00
1.33	1.26	1.25	1.32	1.27	1.26	-0.07	0.07	0.07	±1.00
1.82	1.73	1.72	1.80	1.74	1.71	-0.10	0.05	-0.05	±1.00
2.43	2.31	2.29	2.39	2.31	2.29	-0.14	0.00	0.00	±0.20
3.24	3.08	3.05	3.23	3.06	3.04	-0.03	-0.06	-0.03	±0.20
4.39	4.18	4.15	4.37	4.15	4.14	-0.04	-0.06	-0.02	±0.20
5.94	5.66	5.61	5.93	5.65	5.61	-0.01	-0.02	0.00	±0.20
7.97	7.61	7.54	7.97	7.63	7.54	0.00	0.02	0.00	±0.20
10.6	10.2	10.1	10.7	10.2	10.1	0.08	0.00	0.00	±0.20
14.4	13.8	13.6	14.4	13.8	13.6	0.00	0.00	0.00	±0.20
19.4	18.6	18.3	19.4	18.6	18.4	0.00	0.00	0.05	±0.20
26.2	25.1	24.8	26.2	25.2	24.8	0.00	0.03	0.00	±0.20
34.9	33.5	33.0	35.1	33.8	33.2	0.05	0.08	0.05	±0.20
47.1	45.3	44.5	47.3	45.6	44.9	0.04	0.06	0.08	±0.20
63.7	61.3	60.3	64.1	61.9	60.7	0.05	0.06	0.06	±0.20
87.6	84.5	82.9	87.3	84.4	82.8	-0.03	-0.01	-0.01	±0.20
115	111	108	114	111	108	-0.08	0.00	0.00	±0.20
156	153	149	157	152	149	-0.06	-0.06	0.00	±0.20
219	212	207	218	212	207	-0.04	0.00	0.00	±0.20
302	293	286	304	290	283	0.06	-0.09	-0.09	±0.20
423	411	400	419	408	397	-0.08	-0.06	-0.07	±0.20
617	600	584	616	600	583	-0.01	0.00	-0.01	±0.20
823	897	872	930	905	881	0.07	0.08	0.09	±0.20
1400	1360	1320	1430	1390	1350	0.18	0.19	0.20	±0.30
2100	2040	1980	2160	2100	2050	0.24	0.25	0.30	±0.40
3090	2990	2910	3210	3090	3040	0.33	0.29	0.38	±0.50
3680	3560	3480	3850	3680	3640	0.39	0.29	0.39	±0.50

SPEAG H-field linearity tolerance criteria<sup>1</sup>:

- ±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

<sup>1</sup> 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)			Tolerance/(dB)
x	y	z	x	y	z	x	y	z	
0.400	0.390	0.390	0.400	0.400	0.390	0.00	0.22	0.00	±1.00
0.550	0.530	0.540	0.530	0.530	0.530	-0.32	0.00	-0.16	±1.00
0.750	0.720	0.730	0.730	0.720	0.730	-0.23	0.00	0.00	±1.00
0.980	0.940	0.960	0.970	0.930	0.950	-0.09	-0.09	-0.09	±1.00
1.32	1.28	1.28	1.32	1.28	1.29	0.00	0.00	0.00	±1.00
1.81	1.76	1.77	1.80	1.77	1.77	-0.05	0.05	0.00	±1.00
2.41	2.34	2.36	2.40	2.35	2.36	-0.04	0.04	0.00	±0.20
3.22	3.13	3.15	3.21	3.14	3.16	-0.03	0.03	0.03	±0.20
4.37	4.25	4.28	4.36	4.24	4.27	-0.02	-0.02	-0.02	±0.20
5.90	5.75	5.79	5.90	5.75	5.78	0.00	0.00	-0.02	±0.20
7.93	7.73	7.77	7.93	7.74	7.77	0.00	0.01	0.00	±0.20
10.6	10.3	10.4	10.6	10.3	10.4	0.00	0.00	0.00	±0.20
14.3	14.0	14.0	14.3	14.0	14.0	0.00	0.00	0.00	±0.20
19.3	18.9	18.9	19.3	18.9	18.9	0.00	0.00	0.00	±0.20
26.1	25.5	25.5	26.1	25.5	25.5	0.00	0.00	0.00	±0.20
34.7	34.0	34.0	34.9	34.2	34.2	0.05	0.05	0.05	±0.20
46.8	46.0	45.9	47.0	46.2	46.1	0.04	0.04	0.04	±0.20
63.4	62.3	62.2	63.8	62.7	62.5	0.05	0.05	0.04	±0.20
87.1	85.8	85.5	86.9	85.6	85.2	-0.02	-0.02	-0.03	±0.20
114	112	112	114	112	112	0.00	0.00	0.00	±0.20
157	155	154	156	154	153	-0.06	-0.06	-0.06	±0.20
217	215	213	217	215	213	0.00	0.00	0.00	±0.20
300	298	295	303	294	291	0.09	-0.12	-0.12	±0.20
421	417	413	417	413	409	-0.08	-0.08	-0.08	±0.20
614	609	602	613	607	600	-0.01	-0.03	-0.03	±0.20
918	912	899	926	917	906	0.08	0.05	0.07	±0.20
1390	1380	1360	1420	1410	1390	0.19	0.19	0.19	±0.30
2080	2070	2040	2150	2130	2110	0.29	0.25	0.29	±0.40
3070	3040	3010	3190	3150	3120	0.33	0.31	0.31	±0.50
3660	3620	3590	3830	3770	3750	0.39	0.35	0.38	±0.50

SPEAG H-field linearity tolerance criteria<sup>1</sup>:

- ±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

<sup>1</sup> 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	0.390	0.410	0.420	0.390	0.420	0.42	0.00	0.21	±1.00
0.550	0.530	0.550	0.560	0.530	0.560	0.16	0.00	0.18	±1.00
0.750	0.730	0.750	0.750	0.730	0.760	0.00	0.00	0.12	±1.00
0.980	0.950	0.980	0.980	0.960	1.00	0.00	0.09	0.18	±1.00
1.33	1.29	1.33	1.34	1.30	1.34	0.07	0.07	0.07	±1.00
1.82	1.77	1.82	1.83	1.76	1.83	0.05	-0.05	0.05	±1.00
2.43	2.36	2.43	2.45	2.33	2.44	0.07	-0.11	0.04	±0.20
3.24	3.15	3.24	3.25	3.12	3.25	0.03	-0.08	0.03	±0.20
4.39	4.28	4.40	4.40	4.27	4.39	0.02	-0.02	-0.02	±0.20
5.94	5.80	5.95	5.95	5.81	5.95	0.01	0.01	0.00	±0.20
7.97	7.79	8.00	7.98	7.84	8.00	0.01	0.06	0.00	±0.20
10.6	10.4	10.7	10.7	10.4	10.7	0.08	0.00	0.00	±0.20
14.4	14.1	14.4	14.3	14.1	14.4	-0.06	0.00	0.00	±0.20
19.4	19.0	19.5	19.3	19.0	19.5	-0.04	0.00	0.00	±0.20
26.2	25.7	26.3	26.1	25.6	26.2	-0.03	-0.03	-0.03	±0.20
34.9	34.3	35.0	35.0	34.3	35.2	0.02	0.00	0.05	±0.20
47.1	46.4	47.2	47.2	46.4	47.5	0.02	0.00	0.06	±0.20
63.8	62.8	64.0	64.0	62.9	64.3	0.03	0.01	0.04	±0.20
87.6	86.5	88.0	87.2	85.9	87.7	-0.04	-0.06	-0.03	±0.20
115	113	115	114	113	115	-0.08	0.00	0.00	±0.20
158	156	158	157	155	158	-0.06	-0.06	0.00	±0.20
219	217	219	218	215	219	-0.04	-0.08	0.00	±0.20
302	300	303	304	295	300	0.06	-0.15	-0.09	±0.20
423	420	424	418	415	421	-0.10	-0.10	-0.06	±0.20
617	614	619	615	610	618	-0.03	-0.06	-0.01	±0.20
823	819	825	829	822	833	0.06	0.03	0.07	±0.20
1400	1380	1400	1420	1410	1430	0.12	0.12	0.18	±0.30
2100	2080	2100	2160	2140	2170	0.24	0.25	0.28	±0.40
3090	3060	3090	3200	3170	3220	0.30	0.31	0.36	±0.50
3680	3650	3690	3840	3790	3860	0.37	0.33	0.39	±0.50

SPEAG H-field linearity tolerance criteria<sup>1</sup>:

- ±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

<sup>1</sup> Calibration 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	
0.400	0.390	0.400	0.400	0.410	0.400	0.00	0.43	0.00	±1.00
0.540	0.530	0.540	0.540	0.550	0.550	0.00	0.32	0.16	±1.00
0.740	0.730	0.740	0.750	0.740	0.760	0.12	0.12	0.23	±1.00
0.970	0.950	0.970	0.970	0.950	0.980	0.00	0.00	0.09	±1.00
1.31	1.29	1.32	1.33	1.27	1.31	0.13	-0.14	-0.07	±1.00
1.79	1.77	1.80	1.79	1.77	1.81	0.00	0.00	0.05	±1.00
2.38	2.36	2.40	2.39	2.38	2.41	0.04	0.07	0.04	±0.20
3.18	3.15	3.20	3.18	3.15	3.21	0.00	0.00	0.03	±0.20
4.32	4.26	4.35	4.31	4.30	4.36	-0.02	0.04	0.02	±0.20
5.83	5.80	5.88	5.83	5.81	5.89	0.00	0.01	0.01	±0.20
7.83	7.80	7.90	7.84	7.81	7.90	0.01	0.01	0.00	±0.20
10.4	10.4	10.5	10.5	10.4	10.5	0.08	0.00	0.00	±0.20
14.1	14.1	14.2	14.1	14.1	14.2	0.00	0.00	0.00	±0.20
19.1	19.0	19.2	19.0	19.0	19.2	-0.05	0.00	0.00	±0.20
25.8	25.7	25.9	25.7	25.7	25.9	-0.03	0.00	0.00	±0.20
34.3	34.3	34.5	34.5	34.5	34.7	0.05	0.05	0.05	±0.20
46.3	46.4	46.7	46.5	46.6	46.8	0.04	0.04	0.02	±0.20
62.6	62.9	63.1	63.0	63.2	63.4	0.06	0.04	0.04	±0.20
86.1	86.5	86.8	85.8	86.3	86.5	-0.03	-0.02	-0.03	±0.20
113	113	114	112	113	113	-0.08	0.00	-0.08	±0.20
155	156	156	154	156	155	-0.06	0.00	-0.06	±0.20
215	217	217	214	217	216	-0.04	0.00	-0.04	±0.20
297	300	299	299	296	295	0.06	-0.12	-0.12	±0.20
416	421	419	412	416	415	-0.08	-0.10	-0.08	±0.20
607	614	612	605	613	609	-0.03	-0.01	-0.04	±0.20
908	919	914	914	926	920	0.06	0.07	0.06	±0.20
1370	1390	1380	1400	1420	1410	0.19	0.19	0.19	±0.30
2060	2090	2070	2120	2150	2140	0.25	0.25	0.29	±0.40
3030	3060	3050	3150	3180	3170	0.34	0.33	0.34	±0.50
3620	3650	3650	3780	3800	3800	0.38	0.35	0.35	±0.50

SPEAG H-field linearity tolerance criteria<sup>1</sup>:

- ±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

<sup>1</sup> 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	0.390	0.390	0.410	0.410	0.380	0.21	0.43	-0.23	±1.00
0.540	0.530	0.520	0.560	0.560	0.520	0.32	0.48	0.00	±1.00
0.740	0.730	0.720	0.760	0.730	0.700	0.23	0.00	-0.24	±1.00
0.960	0.950	0.930	0.970	0.950	0.920	0.09	0.00	-0.09	±1.00
1.30	1.28	1.27	1.29	1.27	1.27	-0.07	-0.07	0.00	±1.00
1.78	1.76	1.74	1.77	1.75	1.72	-0.05	-0.05	-0.10	±1.00
2.38	2.35	2.31	2.38	2.35	2.31	0.00	0.00	0.00	±0.20
3.17	3.14	3.08	3.15	3.12	3.09	-0.05	-0.06	0.03	±0.20
4.31	4.26	4.19	4.30	4.26	4.20	-0.02	0.00	0.02	±0.20
5.82	5.77	5.66	5.83	5.77	5.67	0.01	0.00	0.02	±0.20
7.81	7.75	7.61	7.82	7.79	7.61	0.01	0.04	0.00	±0.20
10.4	10.4	10.2	10.4	10.4	10.2	0.00	0.00	0.00	±0.20
14.1	14.0	13.7	14.1	14.0	13.7	0.00	0.00	0.00	±0.20
19.0	18.9	18.5	19.0	18.9	18.5	0.00	0.00	0.00	±0.20
25.7	25.6	25.0	25.7	25.5	24.9	0.00	-0.03	-0.03	±0.20
34.2	34.1	33.3	34.4	34.2	33.4	0.05	0.03	0.03	±0.20
46.1	46.1	44.9	46.4	46.2	45.2	0.06	0.02	0.06	±0.20
62.5	62.5	60.8	62.9	62.7	61.2	0.06	0.03	0.06	±0.20
85.8	86.0	83.6	85.7	85.7	83.3	-0.01	-0.03	-0.03	±0.20
112	113	109	112	112	109	0.00	-0.08	0.00	±0.20
155	155	151	154	155	150	-0.06	0.00	-0.06	±0.20
214	216	209	214	215	208	0.00	-0.04	-0.04	±0.20
296	299	288	299	294	285	0.09	-0.15	-0.09	±0.20
414	418	404	411	413	400	-0.06	-0.10	-0.09	±0.20
605	611	589	604	608	587	-0.01	-0.04	-0.03	±0.20
905	914	880	913	919	887	0.08	0.05	0.07	±0.20
1370	1380	1330	1400	1410	1360	0.19	0.19	0.19	±0.30
2050	2070	2000	2120	2140	2060	0.29	0.29	0.26	±0.40
3020	3050	2940	3150	3160	3060	0.37	0.31	0.35	±0.50
3610	3630	3510	3770	3780	3670	0.38	0.35	0.39	±0.50

SPEAG H-field linearity tolerance criteria<sup>1</sup>:

- ±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

<sup>1</sup> Calibration 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
0.350	0.220	0.080	0.360	0.220	0.070	0.24	0.00	-1.16	±5.00	±5.00	±5.00
0.480	0.300	0.110	0.480	0.280	0.120	0.00	-0.60	0.76	±5.00	±5.00	±5.00
0.660	0.410	0.150	0.650	0.410	0.140	-0.13	0.00	-0.60	±5.00	±5.00	±5.00
0.850	0.540	0.190	0.860	0.540	0.190	0.10	0.00	0.00	±5.00	±5.00	±5.00
1.16	0.730	0.260	1.17	0.730	0.230	0.07	0.00	-1.06	±5.00	±5.00	±5.00
1.59	1.00	0.360	1.60	1.01	0.340	0.05	0.09	-0.50	±5.00	±5.00	±5.00
2.12	1.32	0.470	2.12	1.31	0.440	0.00	-0.07	-0.57	±1.00	±5.00	±5.00
2.82	1.77	0.630	2.84	1.75	0.580	0.06	-0.10	-0.72	±1.00	±5.00	±5.00
3.83	2.40	0.850	3.84	2.39	0.840	0.02	-0.04	-0.10	±1.00	±1.00	±5.00
5.18	3.25	1.14	5.20	3.22	1.11	0.03	-0.08	-0.23	±1.00	±1.00	±5.00
6.95	4.35	1.52	6.99	4.31	1.48	0.05	-0.08	-0.23	±1.00	±1.00	±5.00
9.28	5.81	2.03	9.33	5.77	1.94	0.05	-0.06	-0.39	±1.00	±1.00	±1.00
12.6	7.86	2.73	12.6	7.78	2.64	0.00	-0.09	-0.29	±1.00	±1.00	±1.00
16.9	10.6	3.68	17.0	10.5	3.54	0.05	-0.08	-0.34	±1.00	±1.00	±1.00
22.8	14.3	4.95	22.9	14.2	4.78	0.04	-0.06	-0.30	±1.00	±1.00	±1.00
30.4	19.0	6.58	30.7	19.1	6.41	0.09	0.05	-0.23	±1.00	±1.00	±1.00
41.0	25.7	8.87	41.4	25.6	8.62	0.08	-0.03	-0.25	±1.00	±1.00	±1.00
55.5	34.8	12.0	56.1	34.8	11.7	0.09	0.00	-0.22	±1.00	±1.00	±1.00
76.2	47.8	16.4	76.3	47.3	15.9	0.01	-0.09	-0.27	±1.00	±1.00	±1.00
99.7	62.4	21.4	99.8	62.0	20.8	0.01	-0.06	-0.25	±1.00	±1.00	±1.00
137	85.9	29.4	137	85.0	28.5	0.00	-0.09	-0.27	±1.00	±1.00	±1.00
190	119	40.7	190	118	39.4	0.00	-0.07	-0.28	±1.00	±1.00	±1.00
262	164	56.1	264	164	54.9	0.07	0.00	-0.19	±1.00	±1.00	±1.00
365	229	78.2	352	218	76.7	-0.32	-0.43	-0.17	±1.00	±1.00	±1.00
531	333	113	516	319	112	-0.25	-0.37	-0.08	±1.00	±1.00	±1.00
791	495	168	776	480	168	-0.17	-0.27	0.00	±1.00	±1.00	±1.00
1190	747	253	1190	732	256	0.00	-0.18	0.10	±1.00	±1.00	±1.00
1780	1120	377	1790	1110	387	0.05	-0.08	0.23	±1.00	±1.00	±1.00
2610	1640	551	2650	1630	547	0.13	-0.05	-0.06	±1.00	±1.00	±1.00
3110	1950	654	3170	1960	653	0.17	0.04	-0.01	±1.00	±1.00	±1.00

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

<sup>1</sup> Calibration 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	1.49	1.49	1.49	1.49	1.49	1.50	0.00	0.00	0.06	±0.3
3200	1.49	1.49	1.48	1.51	1.49	1.48	0.12	0.00	0.00	±0.3
4000	1.48	1.48	1.48	1.47	1.48	1.48	-0.06	0.00	0.00	±0.3
5200	1.47	1.47	1.47	1.48	1.47	1.49	0.06	0.00	0.12	±0.3
6600	1.46	1.46	1.46	1.47	1.46	1.46	0.06	0.00	0.00	±0.3
8200	1.45	1.45	1.45	1.45	1.45	1.45	0.00	0.00	0.00	±0.3
9000	1.45	1.45	1.45	1.45	1.45	1.45	0.00	0.00	0.00	±0.3
10600	4.13	4.13	4.12	4.10	4.12	4.12	-0.06	-0.02	0.00	±0.3
13400	4.20	4.19	4.19	4.21	4.19	4.20	0.02	0.00	0.02	±0.3
17000	4.23	4.21	4.21	4.23	4.22	4.23	0.00	0.02	0.04	±0.3
21400	4.27	4.26	4.25	4.27	4.25	4.25	0.00	-0.02	0.00	±0.3
27200	4.29	4.27	4.27	4.29	4.26	4.27	0.00	-0.02	0.00	±0.3
34400	4.29	4.29	4.29	4.29	4.29	4.30	0.00	0.00	0.02	±0.3
40000	4.30	4.30	4.29	4.30	4.30	4.30	0.00	0.00	0.02	±0.3
43600	4.29	4.30	4.29	4.30	4.29	4.30	0.02	-0.02	0.02	±0.3
55400	4.29	4.29	4.29	4.29	4.29	4.30	0.00	0.00	0.02	±0.3
70000	4.28	4.29	4.29	4.28	4.28	4.28	0.02	0.00	0.00	±0.3
86800	4.27	4.28	4.28	4.28	4.28	4.29	0.02	0.00	0.02	±0.3
112400	4.26	4.27	4.27	4.27	4.27	4.28	0.02	0.00	0.02	±0.3
142400	4.24	4.25	4.25	4.26	4.25	4.26	0.04	0.00	0.02	±0.3
161750	4.23	4.24	4.24	4.23	4.23	4.24	0.00	-0.02	0.00	±0.3
180400	4.21	4.23	4.23	4.22	4.23	4.24	0.02	0.00	0.02	±0.3
228400	4.18	4.19	4.19	4.19	4.19	4.20	0.02	0.00	0.02	±0.3
289400	4.14	4.16	4.16	4.15	4.16	4.16	0.02	0.00	0.00	±0.3
368400	4.10	4.12	4.12	4.12	4.11	4.13	0.04	-0.02	0.02	±0.3
400000	4.08	4.10	4.10	4.09	4.10	4.10	0.02	0.00	0.00	±0.3
464000	4.05	4.07	4.08	4.07	4.07	4.08	0.04	0.00	0.00	±0.3
587600	4.01	4.03	4.03	4.03	4.03	4.04	0.04	0.00	0.02	±0.3
744200	3.97	3.98	3.99	3.98	3.98	3.99	0.02	0.00	0.00	±0.3
942600	3.95	3.97	3.98	3.98	3.96	3.98	0.07	-0.02	0.00	±0.3
1193600	3.93	3.94	3.95	3.95	3.94	3.96	0.04	0.00	0.02	±0.3
1511600	3.92	3.93	3.94	3.93	3.93	3.94	0.02	0.00	0.00	±0.3
1914400	3.90	3.90	3.92	3.91	3.90	3.92	0.02	0.00	0.00	±0.3
2424400	3.89	3.89	3.90	3.89	3.92	3.91	0.00	0.07	0.02	±0.3
3070200	3.86	3.86	3.87	3.87	3.91	3.88	0.02	0.11	0.02	±0.3
3888000	3.81	3.81	3.82	3.83	3.74	3.84	0.05	-0.16	0.05	±0.3
4000000	3.81	3.80	3.81	3.82	3.81	3.81	0.02	0.02	0.00	±0.3
4923800	3.75	3.74	3.75	3.76	3.73	3.76	0.02	-0.02	0.02	±0.3
6235400	3.63	3.62	3.62	3.63	3.63	3.61	0.00	0.02	-0.02	±0.3
7896400	3.51	3.50	3.51	3.52	3.52	3.52	0.02	0.05	0.02	±0.3
10000000	3.39	3.38	3.39	3.42	3.27	3.40	0.08	-0.29	0.03	±0.3

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

<sup>1</sup> Calibration 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	1.49	1.49	1.49	1.48	1.49	1.50	-0.06	0.00	0.06	±0.3
3200	1.49	1.49	1.48	1.51	1.50	1.47	0.12	0.06	-0.06	±0.3
4000	1.48	1.48	1.48	1.49	1.48	1.48	0.06	0.00	0.00	±0.3
5200	1.47	1.47	1.47	1.46	1.47	1.48	0.06	0.00	0.06	±0.3
6600	1.46	1.46	1.46	1.46	1.46	1.46	0.00	0.00	0.00	±0.3
8200	1.45	1.45	1.45	1.45	1.44	1.44	0.00	-0.06	-0.06	±0.3
9000	1.45	1.45	1.45	1.45	1.45	1.44	0.00	0.00	-0.06	±0.3
10600	4.13	4.13	4.12	4.13	4.15	4.13	0.00	0.04	0.02	±0.3
13400	4.20	4.19	4.19	4.22	4.19	4.20	0.04	0.00	0.02	±0.3
17000	4.23	4.21	4.21	4.22	4.21	4.21	-0.02	0.00	0.00	±0.3
21400	4.27	4.26	4.25	4.27	4.24	4.26	0.00	-0.04	0.02	±0.3
27200	4.29	4.27	4.27	4.29	4.27	4.28	0.00	0.00	0.02	±0.3
34400	4.29	4.29	4.29	4.30	4.29	4.29	0.02	0.00	0.00	±0.3
40000	4.30	4.30	4.29	4.29	4.29	4.30	-0.02	-0.02	0.02	±0.3
43600	4.29	4.30	4.29	4.29	4.29	4.29	0.00	-0.02	0.00	±0.3
55400	4.29	4.29	4.29	4.30	4.29	4.29	0.02	0.00	0.00	±0.3
70000	4.28	4.29	4.29	4.29	4.29	4.28	0.02	0.00	-0.02	±0.3
88800	4.27	4.28	4.28	4.29	4.28	4.28	0.04	0.00	0.00	±0.3
112400	4.26	4.27	4.27	4.27	4.26	4.27	0.02	-0.02	0.00	±0.3
142400	4.24	4.25	4.25	4.26	4.25	4.25	0.04	0.00	0.00	±0.3
161750	4.23	4.24	4.24	4.24	4.23	4.23	0.02	-0.02	-0.02	±0.3
180400	4.21	4.23	4.23	4.22	4.22	4.22	0.02	-0.02	-0.02	±0.3
228400	4.18	4.19	4.19	4.20	4.19	4.19	0.04	0.00	0.00	±0.3
289400	4.14	4.16	4.16	4.15	4.15	4.15	0.02	-0.02	-0.02	±0.3
368400	4.10	4.12	4.12	4.12	4.12	4.12	0.04	0.00	0.00	±0.3
400000	4.08	4.10	4.10	4.09	4.10	4.10	0.02	0.00	0.00	±0.3
464000	4.05	4.07	4.08	4.07	4.07	4.07	0.04	0.00	-0.02	±0.3
587800	4.01	4.03	4.03	4.02	4.03	4.03	0.02	0.00	0.00	±0.3
744200	3.97	3.98	3.99	3.99	3.98	3.98	0.04	0.00	-0.02	±0.3
942600	3.95	3.97	3.98	3.97	3.97	3.98	0.04	0.00	0.00	±0.3
1193600	3.93	3.94	3.95	3.94	3.94	3.94	0.02	0.00	-0.02	±0.3
1511600	3.92	3.93	3.94	3.93	3.92	3.93	0.02	-0.02	-0.02	±0.3
1914400	3.90	3.90	3.92	3.91	3.91	3.91	0.02	0.02	-0.02	±0.3
2424400	3.89	3.89	3.90	3.90	3.89	3.90	0.02	0.00	0.00	±0.3
3070200	3.86	3.86	3.87	3.87	3.87	3.84	0.02	0.02	-0.07	±0.3
3888000	3.81	3.81	3.82	3.82	3.81	3.82	0.02	0.00	0.00	±0.3
4000000	3.81	3.80	3.81	3.81	3.81	3.85	0.00	0.02	0.09	±0.3
4923800	3.75	3.74	3.75	3.76	3.74	3.76	0.02	0.00	0.02	±0.3
6235400	3.63	3.62	3.62	3.64	3.62	3.64	0.02	0.00	0.05	±0.3
7896400	3.51	3.50	3.51	3.52	3.51	3.50	0.02	0.02	-0.02	±0.3
10000000	3.39	3.38	3.39	3.41	3.41	3.34	0.05	0.08	-0.13	±0.3

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

<sup>1</sup> Calibration 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	1.49	1.49	1.49	1.49	1.49	1.50	-0.06	0.00	0.06	±0.3
3200	1.49	1.49	1.48	1.51	1.48	1.49	0.12	-0.06	0.06	±0.3
4000	1.48	1.48	1.48	1.47	1.47	1.49	-0.06	-0.06	0.06	±0.3
5200	1.47	1.47	1.47	1.47	1.48	1.49	0.00	0.06	0.12	±0.3
6600	1.46	1.46	1.46	1.46	1.46	1.47	0.00	0.00	0.06	±0.3
8200	1.45	1.45	1.45	1.45	1.45	1.44	0.00	0.00	-0.06	±0.3
9000	1.45	1.45	1.45	1.44	1.44	1.45	-0.06	-0.06	0.00	±0.3
10600	4.13	4.13	4.12	4.12	4.13	4.10	-0.02	0.00	-0.04	±0.3
13400	4.20	4.19	4.19	4.20	4.18	4.19	0.00	-0.02	0.00	±0.3
17000	4.23	4.21	4.21	4.23	4.22	4.24	0.00	0.02	0.06	±0.3
21400	4.27	4.26	4.25	4.27	4.25	4.26	0.00	-0.02	0.02	±0.3
27200	4.29	4.27	4.27	4.28	4.27	4.27	-0.02	0.00	0.00	±0.3
34400	4.29	4.29	4.29	4.29	4.30	4.29	0.00	0.02	0.00	±0.3
40000	4.30	4.30	4.29	4.30	4.29	4.30	0.00	-0.02	0.02	±0.3
43600	4.29	4.30	4.29	4.29	4.30	4.30	0.00	0.00	0.02	±0.3
55400	4.29	4.29	4.29	4.29	4.29	4.30	0.00	0.00	0.02	±0.3
70000	4.28	4.29	4.29	4.28	4.29	4.28	0.00	0.00	-0.02	±0.3
88900	4.27	4.28	4.28	4.28	4.27	4.27	0.02	-0.02	-0.02	±0.3
112400	4.26	4.27	4.27	4.26	4.27	4.27	0.00	0.00	0.00	±0.3
142400	4.24	4.25	4.25	4.25	4.25	4.26	0.02	0.00	0.02	±0.3
161750	4.23	4.24	4.24	4.23	4.23	4.24	0.00	-0.02	0.00	±0.3
180400	4.21	4.23	4.23	4.22	4.23	4.23	0.02	0.00	0.00	±0.3
228400	4.18	4.19	4.19	4.19	4.19	4.20	0.02	0.00	0.02	±0.3
289400	4.14	4.16	4.16	4.15	4.15	4.15	0.02	-0.02	-0.02	±0.3
366400	4.10	4.12	4.12	4.11	4.12	4.12	0.02	0.00	0.00	±0.3
400000	4.08	4.10	4.10	4.09	4.09	4.11	0.02	-0.02	0.02	±0.3
464000	4.05	4.07	4.08	4.06	4.07	4.07	0.02	0.00	-0.02	±0.3
587800	4.01	4.03	4.03	4.02	4.03	4.04	0.02	0.00	0.02	±0.3
744200	3.97	3.98	3.99	3.97	3.98	3.99	0.00	0.00	0.00	±0.3
942600	3.95	3.97	3.98	3.96	3.97	3.98	0.02	0.00	0.00	±0.3
1193600	3.93	3.94	3.95	3.94	3.94	3.95	0.02	0.00	0.00	±0.3
1511600	3.92	3.93	3.94	3.92	3.93	3.94	0.00	0.00	0.00	±0.3
1914400	3.90	3.90	3.92	3.90	3.91	3.92	0.00	0.02	0.00	±0.3
2424400	3.89	3.89	3.90	3.89	3.89	3.90	0.00	0.00	0.00	±0.3
3070200	3.86	3.86	3.87	3.87	3.87	3.88	0.02	0.02	0.02	±0.3
3888000	3.81	3.81	3.82	3.81	3.81	3.81	0.00	0.00	-0.02	±0.3
4000000	3.81	3.80	3.81	3.81	3.81	3.82	0.00	0.02	0.02	±0.3
4923800	3.75	3.74	3.75	3.75	3.74	3.76	0.00	0.00	0.02	±0.3
6235400	3.63	3.62	3.62	3.63	3.63	3.63	0.00	0.02	0.02	±0.3
7896400	3.51	3.50	3.51	3.51	3.52	3.52	0.00	0.05	0.02	±0.3
10000000	3.39	3.38	3.39	3.42	3.40	3.40	0.08	0.05	0.03	±0.3

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

<sup>1</sup> Calibration 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	1.49	1.49	1.49	1.49	1.49	1.49	0.00	0.00	0.00	±0.3
3200	1.49	1.49	1.48	1.51	1.48	1.48	0.12	-0.06	0.00	±0.3
4000	1.48	1.48	1.48	1.48	1.48	1.49	0.00	0.00	0.06	±0.3
5200	1.47	1.47	1.47	1.48	1.47	1.48	0.06	0.00	0.06	±0.3
6600	1.46	1.46	1.46	1.46	1.46	1.47	0.00	0.00	0.06	±0.3
8200	1.45	1.45	1.45	1.46	1.44	1.45	0.06	-0.06	0.00	±0.3
9000	1.45	1.45	1.45	1.45	1.44	1.45	0.00	-0.06	0.00	±0.3
10600	4.13	4.13	4.12	4.13	4.12	4.11	0.00	-0.02	-0.02	±0.3
13400	4.20	4.19	4.19	4.20	4.19	4.19	0.00	0.00	0.00	±0.3
17000	4.23	4.21	4.21	4.23	4.21	4.22	0.00	0.00	0.02	±0.3
21400	4.27	4.26	4.25	4.28	4.26	4.25	-0.02	0.00	0.00	±0.3
27200	4.29	4.27	4.27	4.29	4.27	4.27	0.00	0.00	0.00	±0.3
34400	4.29	4.29	4.29	4.29	4.29	4.29	0.00	0.00	0.00	±0.3
40000	4.30	4.30	4.29	4.31	4.29	4.29	0.02	-0.02	0.00	±0.3
43600	4.29	4.30	4.29	4.30	4.29	4.30	0.02	-0.02	0.02	±0.3
55400	4.29	4.29	4.29	4.29	4.29	4.29	0.00	0.00	0.00	±0.3
70000	4.28	4.29	4.29	4.29	4.29	4.28	0.02	0.00	-0.02	±0.3
88800	4.27	4.28	4.28	4.28	4.28	4.28	0.02	0.00	0.00	±0.3
112400	4.26	4.27	4.27	4.27	4.26	4.27	0.02	-0.02	0.00	±0.3
142400	4.24	4.25	4.25	4.25	4.25	4.25	0.02	0.00	0.00	±0.3
161750	4.23	4.24	4.24	4.23	4.23	4.24	0.00	-0.02	0.00	±0.3
180400	4.21	4.23	4.23	4.22	4.22	4.23	0.02	-0.02	0.00	±0.3
226400	4.18	4.19	4.19	4.19	4.19	4.20	0.02	0.00	0.02	±0.3
289400	4.14	4.16	4.16	4.15	4.15	4.16	0.02	-0.02	0.00	±0.3
366400	4.10	4.12	4.12	4.11	4.12	4.12	0.02	0.00	0.00	±0.3
400000	4.08	4.10	4.10	4.09	4.10	4.10	0.02	0.00	0.00	±0.3
464000	4.05	4.07	4.08	4.07	4.07	4.07	0.04	0.00	-0.02	±0.3
567800	4.01	4.03	4.03	4.02	4.03	4.03	0.02	0.00	0.00	±0.3
744200	3.97	3.98	3.99	3.98	3.98	3.98	0.02	0.00	-0.02	±0.3
942600	3.95	3.97	3.98	3.97	3.97	3.98	0.04	0.00	0.00	±0.3
1193600	3.93	3.94	3.95	3.94	3.94	3.94	0.02	0.00	-0.02	±0.3
1511600	3.92	3.93	3.94	3.93	3.93	3.93	0.02	0.00	-0.02	±0.3
1914400	3.90	3.90	3.92	3.91	3.91	3.91	0.02	0.02	-0.02	±0.3
2424400	3.89	3.89	3.90	3.89	3.90	3.90	0.00	0.02	0.00	±0.3
3070200	3.86	3.86	3.87	3.87	3.87	3.86	0.02	0.02	-0.02	±0.3
3888000	3.81	3.81	3.82	3.82	3.81	3.81	0.02	0.00	-0.02	±0.3
4000000	3.81	3.80	3.81	3.81	3.81	3.84	0.00	0.02	0.07	±0.3
4923800	3.75	3.74	3.75	3.75	3.74	3.77	0.00	0.00	0.05	±0.3
6235400	3.63	3.62	3.62	3.63	3.61	3.63	0.00	-0.02	0.02	±0.3
7896400	3.51	3.50	3.51	3.52	3.50	3.51	0.02	0.00	0.00	±0.3
10000000	3.39	3.38	3.39	3.39	3.37	3.40	0.00	-0.03	0.03	±0.3

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

<sup>1</sup> 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	1.49	1.49	1.49	1.49	1.49	1.49	0.00	0.00	0.00	±0.3
3200	1.49	1.49	1.48	1.51	1.49	1.47	0.12	0.00	-0.06	±0.3
4000	1.48	1.48	1.48	1.48	1.48	1.48	0.00	0.00	0.00	±0.3
5200	1.47	1.47	1.47	1.48	1.47	1.46	0.06	0.00	-0.06	±0.3
6600	1.46	1.46	1.46	1.46	1.46	1.46	0.00	0.00	0.00	±0.3
8200	1.45	1.45	1.45	1.45	1.45	1.44	0.00	0.00	-0.06	±0.3
9000	1.45	1.45	1.45	1.45	1.45	1.45	0.00	0.00	0.00	±0.3
10600	4.13	4.13	4.12	4.15	4.15	4.12	0.04	0.04	0.00	±0.3
13400	4.20	4.19	4.19	4.20	4.22	4.20	0.00	0.06	0.02	±0.3
17000	4.23	4.21	4.21	4.22	4.22	4.21	-0.02	0.02	0.00	±0.3
21400	4.27	4.26	4.25	4.27	4.25	4.26	0.00	-0.02	0.02	±0.3
27200	4.29	4.27	4.27	4.30	4.28	4.28	0.02	0.02	0.02	±0.3
34400	4.29	4.29	4.29	4.30	4.29	4.30	0.02	0.00	0.02	±0.3
40000	4.30	4.30	4.29	4.31	4.29	4.30	0.02	-0.02	0.02	±0.3
43600	4.29	4.30	4.29	4.31	4.30	4.29	0.04	0.00	0.00	±0.3
55400	4.29	4.29	4.29	4.29	4.29	4.30	0.00	0.00	0.02	±0.3
70000	4.28	4.29	4.29	4.29	4.28	4.29	0.02	-0.02	0.00	±0.3
88800	4.27	4.28	4.28	4.27	4.28	4.28	0.00	0.00	0.00	±0.3
112400	4.26	4.27	4.27	4.26	4.27	4.27	0.00	0.00	0.00	±0.3
142400	4.24	4.25	4.25	4.25	4.25	4.25	0.02	0.00	0.00	±0.3
161750	4.23	4.24	4.24	4.23	4.23	4.24	0.00	-0.02	0.00	±0.3
180400	4.21	4.23	4.23	4.22	4.23	4.23	0.02	0.00	0.00	±0.3
228400	4.18	4.19	4.19	4.19	4.19	4.20	0.02	0.00	0.02	±0.3
289400	4.14	4.16	4.16	4.15	4.15	4.16	0.02	-0.02	0.00	±0.3
366400	4.10	4.12	4.12	4.11	4.12	4.12	0.02	0.00	0.00	±0.3
400000	4.08	4.10	4.10	4.09	4.10	4.10	0.02	0.00	0.00	±0.3
464000	4.05	4.07	4.08	4.06	4.07	4.08	0.02	0.00	0.00	±0.3
587800	4.01	4.03	4.03	4.02	4.03	4.04	0.02	0.00	0.02	±0.3
744200	3.97	3.98	3.99	3.98	3.98	3.98	0.02	0.00	-0.02	±0.3
942600	3.95	3.97	3.96	3.96	3.97	3.98	0.02	0.00	0.00	±0.3
1193600	3.93	3.94	3.95	3.94	3.94	3.95	0.02	0.00	0.00	±0.3
1511600	3.92	3.93	3.94	3.93	3.93	3.94	0.02	0.00	0.00	±0.3
1914400	3.90	3.90	3.92	3.90	3.91	3.91	0.00	0.02	-0.02	±0.3
2424400	3.89	3.89	3.90	3.90	3.89	3.90	0.02	0.00	0.00	±0.3
3070200	3.86	3.86	3.87	3.87	3.87	3.86	0.02	0.02	-0.02	±0.3
3888000	3.81	3.81	3.82	3.81	3.81	3.81	0.00	0.00	-0.02	±0.3
4000000	3.81	3.80	3.81	3.81	3.81	3.84	0.00	0.02	0.07	±0.3
4929800	3.75	3.74	3.75	3.75	3.74	3.76	0.00	0.00	0.02	±0.3
6235400	3.63	3.62	3.62	3.63	3.62	3.63	0.00	0.00	0.02	±0.3
7896400	3.51	3.50	3.51	3.52	3.52	3.51	0.02	0.05	0.00	±0.3
10000000	3.39	3.38	3.39	3.42	3.37	3.39	0.08	-0.03	0.00	±0.3

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

<sup>1</sup> Calibration 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	1.49	1.49	1.49	1.49	1.49	1.50	0.00	0.00	0.06	±0.3
3200	1.49	1.49	1.48	1.50	1.49	1.48	0.06	0.00	0.00	±0.3
4000	1.48	1.48	1.48	1.49	1.47	1.48	0.06	-0.06	0.00	±0.3
5200	1.47	1.47	1.47	1.46	1.47	1.48	0.06	0.00	0.06	±0.3
6600	1.46	1.46	1.46	1.46	1.46	1.47	0.00	0.00	0.06	±0.3
8200	1.45	1.45	1.45	1.45	1.44	1.45	0.00	-0.06	0.00	±0.3
9000	1.45	1.45	1.45	1.45	1.44	1.45	0.00	-0.06	0.00	±0.3
10600	4.13	4.13	4.12	4.12	4.14	4.12	-0.02	0.02	0.00	±0.3
13400	4.20	4.19	4.19	4.23	4.18	4.18	0.06	-0.02	-0.02	±0.3
17000	4.23	4.21	4.21	4.23	4.21	4.21	0.00	0.00	0.00	±0.3
21400	4.27	4.26	4.25	4.26	4.25	4.25	-0.02	-0.02	0.00	±0.3
27200	4.29	4.27	4.27	4.29	4.28	4.27	0.00	0.02	0.00	±0.3
34400	4.29	4.29	4.29	4.30	4.30	4.30	0.02	0.02	0.02	±0.3
40000	4.30	4.30	4.29	4.30	4.30	4.30	0.00	0.00	0.02	±0.3
43600	4.29	4.30	4.29	4.31	4.30	4.30	0.04	0.00	0.02	±0.3
55400	4.29	4.29	4.29	4.29	4.29	4.29	0.00	0.00	0.00	±0.3
70000	4.28	4.29	4.29	4.29	4.29	4.29	0.02	0.00	0.00	±0.3
88800	4.27	4.28	4.28	4.28	4.27	4.28	0.02	-0.02	0.00	±0.3
112400	4.26	4.27	4.27	4.27	4.26	4.27	0.02	-0.02	0.00	±0.3
142400	4.24	4.25	4.25	4.25	4.25	4.25	0.02	0.00	0.00	±0.3
161750	4.23	4.24	4.24	4.23	4.24	4.24	0.00	0.00	0.00	±0.3
180400	4.21	4.23	4.23	4.22	4.23	4.23	0.02	0.00	0.00	±0.3
228400	4.18	4.19	4.19	4.19	4.19	4.20	0.02	0.00	0.02	±0.3
289400	4.14	4.16	4.16	4.15	4.16	4.16	0.02	0.00	0.00	±0.3
366400	4.10	4.12	4.12	4.11	4.12	4.12	0.02	0.00	0.00	±0.3
400000	4.08	4.10	4.10	4.09	4.10	4.10	0.02	0.00	0.00	±0.3
464000	4.05	4.07	4.08	4.06	4.07	4.07	0.02	0.00	-0.02	±0.3
587800	4.01	4.03	4.03	4.02	4.03	4.03	0.02	0.00	0.00	±0.3
744200	3.97	3.98	3.99	3.98	3.98	3.98	0.02	0.00	-0.02	±0.3
942600	3.95	3.97	3.98	3.96	3.96	3.98	0.02	-0.02	0.00	±0.3
1193600	3.93	3.94	3.95	3.94	3.94	3.94	0.02	0.00	-0.02	±0.3
1511600	3.92	3.93	3.94	3.92	3.93	3.94	0.00	0.00	0.00	±0.3
1914400	3.90	3.90	3.92	3.91	3.90	3.91	0.02	0.00	-0.02	±0.3
2424400	3.89	3.89	3.90	3.90	3.89	3.91	0.02	0.00	0.02	±0.3
3070200	3.86	3.86	3.87	3.87	3.86	3.86	0.02	0.00	-0.02	±0.3
3888000	3.81	3.81	3.82	3.82	3.81	3.81	0.02	0.00	-0.02	±0.3
4000000	3.81	3.80	3.81	3.81	3.81	3.84	0.00	0.02	0.07	±0.3
4923800	3.75	3.74	3.75	3.76	3.74	3.76	0.02	0.00	0.02	±0.3
6235400	3.63	3.62	3.62	3.64	3.63	3.63	0.02	0.02	0.02	±0.3
7896400	3.51	3.50	3.51	3.52	3.52	3.51	0.02	0.05	0.00	±0.3
10000000	3.39	3.38	3.39	3.40	3.37	3.36	0.03	-0.03	-0.08	±0.3

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

<sup>1</sup> Calibration 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	1.49	1.49	1.49	1.48	1.49	1.48	-0.06	0.00	-0.06	±0.3
3200	1.49	1.49	1.48	1.50	1.48	1.47	0.06	-0.06	-0.06	±0.3
4000	1.48	1.48	1.48	1.49	1.49	1.49	0.06	0.06	0.06	±0.3
5200	1.47	1.47	1.47	1.48	1.48	1.46	0.06	0.06	-0.06	±0.3
6600	1.46	1.46	1.46	1.46	1.46	1.46	0.00	0.00	0.00	±0.3
8200	1.45	1.45	1.45	1.46	1.45	1.44	0.06	0.00	-0.06	±0.3
9000	1.45	1.45	1.45	1.45	1.45	1.44	0.00	0.00	-0.06	±0.3
10600	4.13	4.13	4.12	4.12	4.16	4.11	-0.02	0.06	-0.02	±0.3
13400	4.20	4.19	4.19	4.20	4.21	4.18	0.00	0.04	-0.02	±0.3
17000	4.23	4.21	4.21	4.22	4.21	4.22	-0.02	0.00	0.02	±0.3
21400	4.27	4.26	4.26	4.28	4.27	4.25	0.02	0.02	0.00	±0.3
27200	4.29	4.27	4.27	4.29	4.27	4.27	0.00	0.00	0.00	±0.3
34400	4.29	4.29	4.29	4.29	4.29	4.29	0.00	0.00	0.00	±0.3
40000	4.30	4.30	4.29	4.30	4.30	4.30	0.00	0.00	0.02	±0.3
43600	4.29	4.30	4.29	4.30	4.29	4.30	0.02	-0.02	0.02	±0.3
55400	4.29	4.29	4.29	4.29	4.29	4.29	0.00	0.00	0.00	±0.3
70000	4.28	4.29	4.29	4.29	4.29	4.29	0.02	0.00	0.00	±0.3
88800	4.27	4.28	4.28	4.26	4.28	4.27	0.02	0.00	-0.02	±0.3
112400	4.26	4.27	4.27	4.26	4.27	4.26	0.00	0.00	-0.02	±0.3
142400	4.24	4.25	4.25	4.25	4.25	4.25	0.02	0.00	0.00	±0.3
161750	4.23	4.24	4.24	4.23	4.24	4.23	0.00	0.00	-0.02	±0.3
180400	4.21	4.23	4.23	4.22	4.23	4.23	0.02	0.00	0.00	±0.3
228400	4.18	4.19	4.19	4.19	4.19	4.19	0.02	0.00	0.00	±0.3
289400	4.14	4.16	4.16	4.15	4.15	4.15	0.02	-0.02	-0.02	±0.3
366400	4.10	4.12	4.12	4.11	4.12	4.11	0.02	0.00	-0.02	±0.3
400000	4.08	4.10	4.10	4.09	4.10	4.09	0.02	0.00	-0.02	±0.3
464000	4.05	4.07	4.08	4.06	4.07	4.07	0.02	0.00	-0.02	±0.3
587800	4.01	4.03	4.03	4.02	4.03	4.03	0.02	0.00	0.00	±0.3
744200	3.97	3.98	3.99	3.98	3.98	3.98	0.02	0.00	-0.02	±0.3
942600	3.95	3.97	3.98	3.96	3.97	3.98	0.02	0.00	0.00	±0.3
1193600	3.93	3.94	3.95	3.94	3.95	3.95	0.02	0.02	0.00	±0.3
1511600	3.92	3.93	3.94	3.93	3.94	3.94	0.02	0.02	0.00	±0.3
1914400	3.90	3.90	3.92	3.91	3.91	3.92	0.02	0.02	0.00	±0.3
2424400	3.89	3.89	3.90	3.90	3.89	3.90	0.02	0.00	0.00	±0.3
3070200	3.86	3.86	3.87	3.87	3.86	3.86	0.02	0.00	-0.02	±0.3
3888000	3.81	3.81	3.82	3.83	3.82	3.81	0.05	0.02	-0.02	±0.3
4000000	3.81	3.80	3.81	3.81	3.81	3.83	0.00	0.02	0.05	±0.3
4823800	3.75	3.74	3.75	3.75	3.74	3.75	0.00	0.00	0.00	±0.3
6235400	3.63	3.62	3.62	3.64	3.62	3.63	0.02	0.00	0.02	±0.3
7896400	3.51	3.50	3.51	3.52	3.49	3.51	0.02	-0.02	0.00	±0.3
10000000	3.39	3.38	3.39	3.38	3.42	3.38	-0.03	0.10	-0.03	±0.3

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

<sup>1</sup> Calibration 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	1.49	1.49	1.49	1.49	1.49	1.49	0.00	0.00	0.00	±0.3
3200	1.49	1.49	1.48	1.50	1.48	1.48	0.06	-0.06	0.00	±0.3
4000	1.48	1.48	1.48	1.48	1.48	1.48	0.00	0.00	0.00	±0.3
5200	1.47	1.47	1.47	1.48	1.47	1.49	0.06	0.00	0.12	±0.3
6600	1.46	1.46	1.46	1.46	1.46	1.47	0.00	0.00	0.06	±0.3
8200	1.45	1.45	1.45	1.45	1.44	1.45	0.00	-0.06	0.00	±0.3
9000	1.45	1.45	1.45	1.44	1.44	1.45	-0.06	-0.06	0.00	±0.3
10600	4.13	4.13	4.12	4.13	4.16	4.16	0.00	0.06	0.08	±0.3
13400	4.20	4.19	4.19	4.20	4.19	4.19	0.00	0.00	0.00	±0.3
17000	4.23	4.21	4.21	4.23	4.21	4.22	0.00	0.00	0.02	±0.3
21400	4.27	4.26	4.25	4.28	4.25	4.26	0.02	-0.02	0.02	±0.3
27200	4.29	4.27	4.27	4.30	4.27	4.27	0.02	0.00	0.00	±0.3
34400	4.29	4.29	4.29	4.30	4.30	4.29	0.02	0.02	0.00	±0.3
40000	4.30	4.30	4.29	4.29	4.31	4.30	-0.02	0.02	0.02	±0.3
43600	4.29	4.30	4.29	4.29	4.29	4.30	0.00	-0.02	0.02	±0.3
55400	4.29	4.29	4.29	4.29	4.29	4.30	0.00	0.02	0.00	±0.3
70000	4.28	4.29	4.29	4.28	4.30	4.29	0.00	0.02	0.00	±0.3
88800	4.27	4.28	4.28	4.28	4.26	4.28	0.02	-0.04	0.00	±0.3
112400	4.26	4.27	4.27	4.26	4.27	4.27	0.00	0.00	0.00	±0.3
142400	4.24	4.25	4.25	4.25	4.25	4.25	0.02	0.00	0.00	±0.3
161750	4.23	4.24	4.24	4.22	4.25	4.24	-0.02	0.02	0.00	±0.3
180400	4.21	4.23	4.23	4.23	4.23	4.23	0.04	0.00	0.00	±0.3
228400	4.18	4.19	4.19	4.19	4.20	4.19	0.02	0.02	0.00	±0.3
289400	4.14	4.16	4.16	4.15	4.16	4.16	0.02	0.00	0.00	±0.3
366400	4.10	4.12	4.12	4.11	4.12	4.12	0.02	0.00	0.00	±0.3
400000	4.08	4.10	4.10	4.09	4.10	4.10	0.02	0.00	0.00	±0.3
464000	4.05	4.07	4.08	4.06	4.07	4.07	0.02	0.00	-0.02	±0.3
587800	4.01	4.03	4.03	4.02	4.03	4.03	0.02	0.00	0.00	±0.3
744200	3.97	3.98	3.98	3.98	3.99	3.98	0.02	0.02	-0.02	±0.3
942600	3.95	3.97	3.98	3.96	3.98	3.97	0.02	0.02	-0.02	±0.3
1193600	3.93	3.94	3.95	3.94	3.93	3.94	0.02	-0.02	-0.02	±0.3
1511600	3.92	3.93	3.94	3.92	3.92	3.93	0.00	-0.02	-0.02	±0.3
1914400	3.90	3.90	3.92	3.91	3.92	3.92	0.02	0.04	0.00	±0.3
2424400	3.89	3.89	3.90	3.89	3.90	3.90	0.00	0.02	0.00	±0.3
3070200	3.86	3.86	3.87	3.87	3.87	3.88	0.02	0.02	0.02	±0.3
3888000	3.81	3.81	3.82	3.81	3.81	3.81	0.00	0.00	-0.02	±0.3
4000000	3.81	3.80	3.81	3.81	3.81	3.83	0.00	0.02	0.05	±0.3
4923800	3.75	3.74	3.75	3.76	3.75	3.75	0.02	0.02	0.00	±0.3
6235400	3.63	3.62	3.62	3.63	3.65	3.62	0.00	0.07	0.00	±0.3
7896400	3.51	3.50	3.51	3.52	3.52	3.51	0.02	0.05	0.00	±0.3
10000000	3.39	3.38	3.39	3.36	3.40	3.47	-0.08	0.05	0.20	±0.3

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

<sup>1</sup>Calibration 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	165	165	167	166	166	167	0.05	0.05	0.00	±0.3
3200	164	164	171	164	162	170	0.00	-0.11	-0.05	±0.3
4000	169	169	163	170	169	163	0.05	0.00	0.00	±0.3
5200	165	165	165	166	165	165	0.05	0.00	0.00	±0.3
6600	171	171	167	171	171	167	0.00	0.00	0.00	±0.3
8200	159	159	163	158	159	163	-0.05	0.00	0.00	±0.3
9000	167	167	167	168	168	169	0.05	0.05	0.10	±0.3
10600	168	168	164	168	169	165	0.00	0.05	0.05	±0.3
13400	165	165	165	165	165	167	0.00	0.00	0.10	±0.3
17000	163	163	166	164	164	167	0.05	0.05	0.05	±0.3
21400	166	166	166	167	167	166	0.05	0.05	0.00	±0.3
27200	164	164	165	165	164	164	0.05	0.00	-0.05	±0.3
34400	167	167	164	168	167	164	0.05	0.00	0.00	±0.3
40000	168	168	166	168	168	165	0.00	0.00	-0.05	±0.3
43600	167	167	166	167	167	165	0.00	0.00	-0.05	±0.3
55400	167	167	167	168	167	166	0.05	0.00	-0.05	±0.3
70000	166	166	166	167	166	166	0.05	0.00	0.00	±0.3
88900	167	167	167	168	167	167	0.05	0.00	0.00	±0.3
112400	169	168	169	168	168	167	0.00	0.00	-0.05	±0.3
142400	168	168	168	169	169	168	0.05	0.05	0.00	±0.3
161750	168	168	169	169	169	168	0.05	0.05	-0.05	±0.3
180400	170	170	169	170	170	169	0.00	0.00	0.00	±0.3
228400	170	170	170	171	170	170	0.05	0.00	0.00	±0.3
289400	171	171	171	172	171	171	0.05	0.00	0.00	±0.3
366400	173	173	172	173	173	172	0.00	0.00	0.00	±0.3
400000	173	173	173	173	173	172	0.00	0.00	-0.05	±0.3
464000	174	174	174	174	174	174	0.00	0.00	0.00	±0.3
587800	175	175	175	176	175	174	0.05	0.00	-0.05	±0.3
744200	175	175	175	175	175	175	0.00	0.00	0.00	±0.3
942600	176	176	175	176	176	175	0.00	0.00	0.00	±0.3
1183600	176	176	175	176	176	175	0.00	0.00	0.00	±0.3
1511600	175	175	174	175	175	174	0.00	0.00	0.00	±0.3
1914400	174	174	174	175	175	174	0.05	0.05	0.00	±0.3
2424400	174	174	173	174	174	173	0.00	0.00	0.00	±0.3
3070200	174	174	173	174	174	173	0.00	0.00	0.00	±0.3
3888000	174	174	173	174	174	173	0.00	0.00	0.00	±0.3
4000000	174	174	173	174	174	173	0.00	0.00	0.00	±0.3
4923800	175	175	174	175	175	174	0.00	0.00	0.00	±0.3
6235400	177	177	176	177	177	176	0.00	0.00	0.00	±0.3
7896400	182	182	181	182	182	180	0.00	0.00	-0.05	±0.3
10000000	191	191	190	191	191	190	0.00	0.00	0.00	±0.3

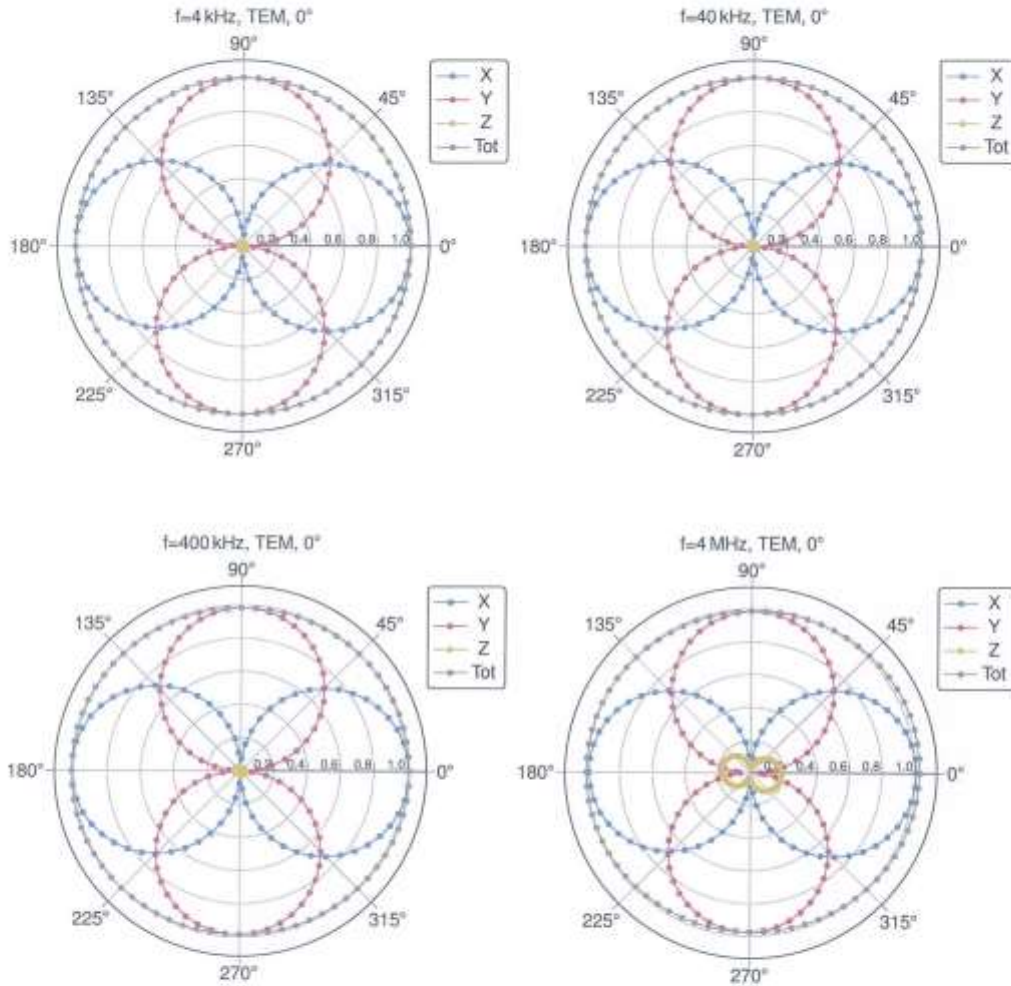
SPEAG E-field frequency response tolerance criteria<sup>1</sup>:  
±0.3dB for applied E-fields at calibration points from 3kHz to 10MHz

<sup>1</sup> Calibration uncertainty not taken into account (shared risk 50%).

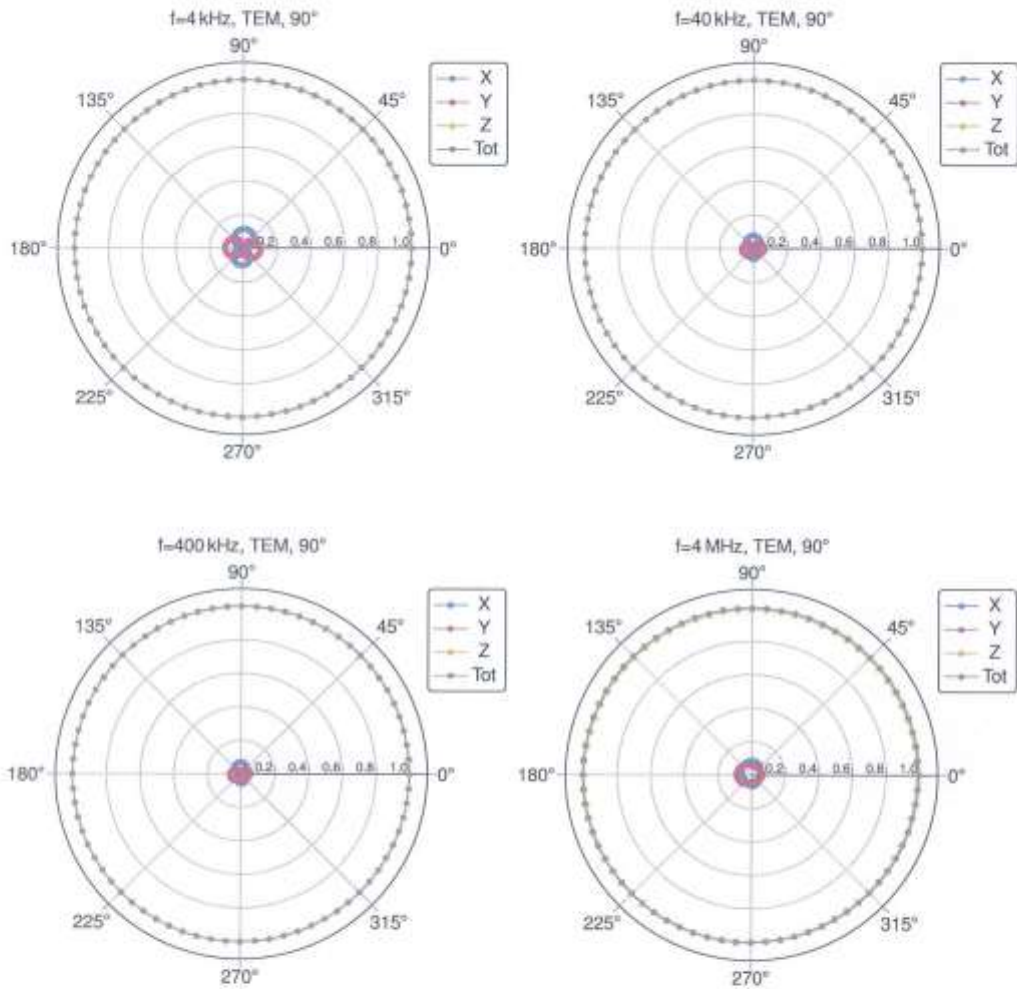


### Isotropy H-Field

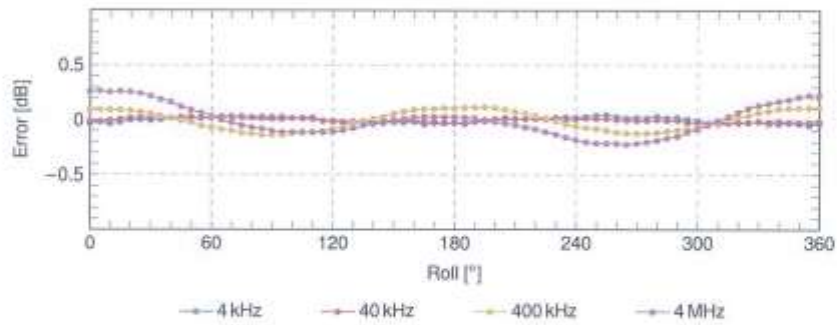
H-Field Receiving Pattern ( $\phi$ ),  $\theta = 0^\circ$



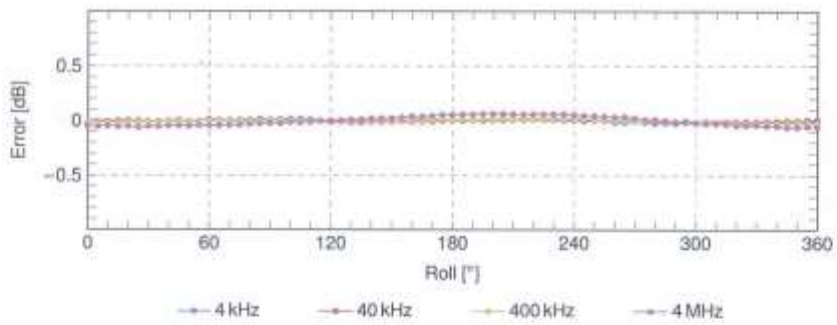
### H-Field Receiving Pattern ( $\phi$ ), $\theta = 90^\circ$



### H-Field Receiving Pattern ( $\phi$ ), $\theta = 0^\circ$



### H-Field Receiving Pattern ( $\phi$ ), $\theta = 90^\circ$

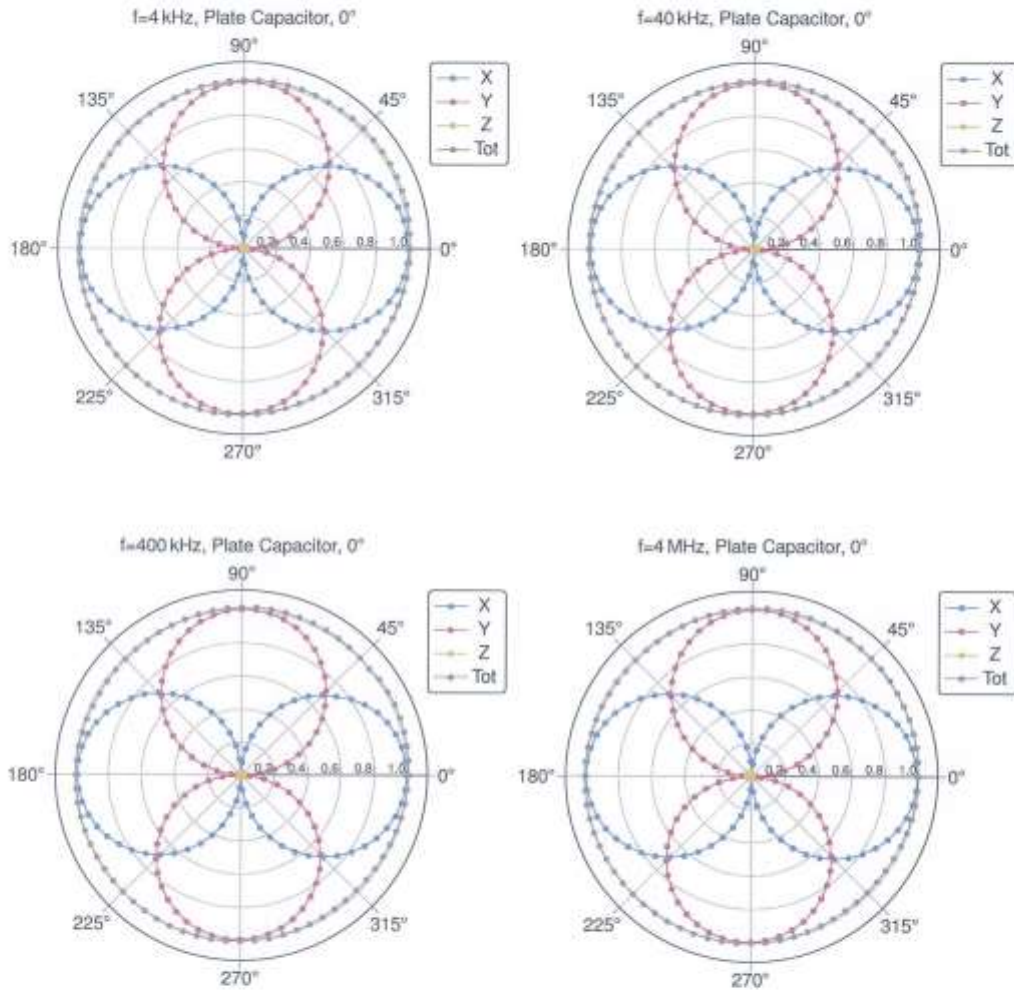


SPEAG axial deviation from the ideal response tolerance for H-field:  $\pm 0.6$  dB

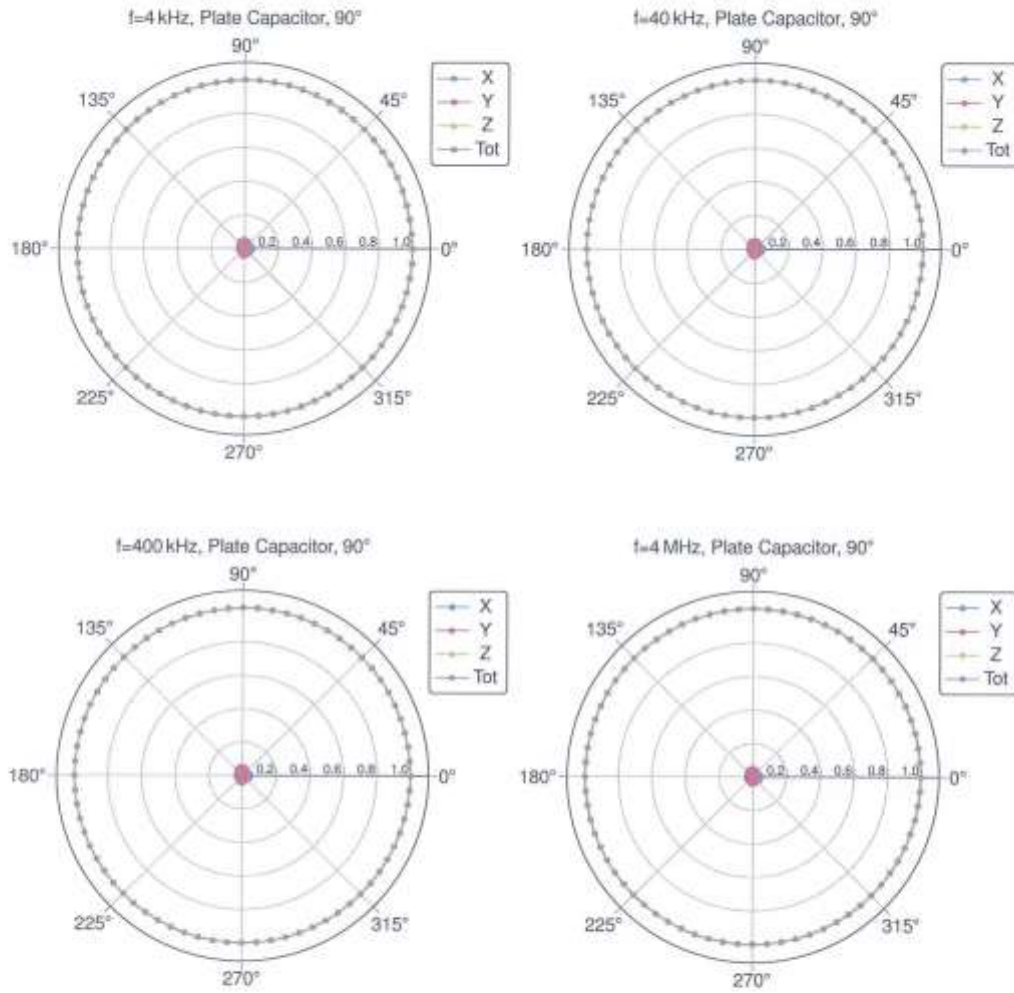


### Isotropy E-Field

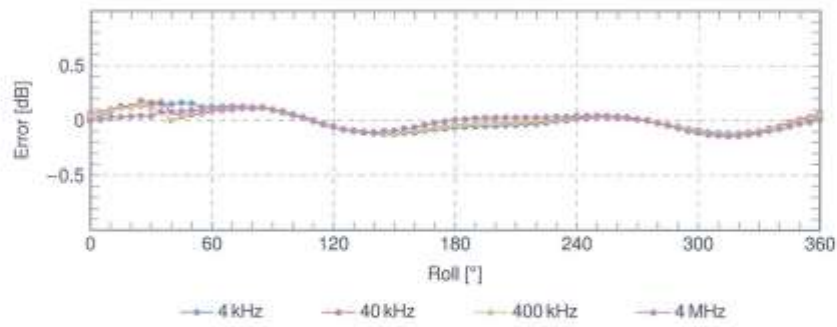
#### E-Field Receiving Pattern ( $\phi$ ), $\theta = 0^\circ$



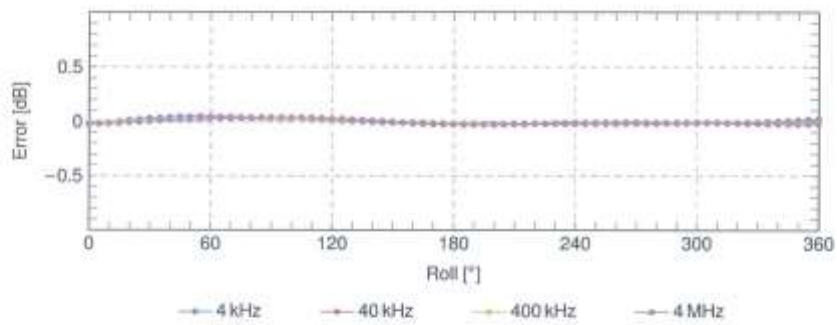
**E-Field Receiving Pattern ( $\phi$ ),  $\theta = 90^\circ$**



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



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



SPEAG axial deviation from the ideal response tolerance for E-field:  $\pm 0.8$ dB