Appendix D: Calibration Certificates

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

S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
S Servizio svizzero di taratura
S Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 0108

Client	RF Safety Laboratory Baltimore, USA	Certificate No.	MAGPy-8H3D-3119_Oct24

CALIBRATION CERTIFICATE

Object	MAGPy-8H3D+E3DV2 SN:3119 MAGPy-DASV2 SN:3113
Calibration procedure(s)	QA CAL-46.v1 Calibration Procedure for MAGPy–8H3D+E3D Near-field Electric and Magnetic Field Sensor System
Calibration date	October 10, 2024

MAS 10/14/24

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	03-Sep-24 (No. 4030A315008835)	Sep-25
Reference 20 dB Attenuator	SN: CC2552 (20x)	26-Mar-24 (No. 217-04046)	Mar-25
Type-N mismatch	SN: 310982 / 06327	26-Mar-24 (No. 217-04047)	Mar-25

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

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

Issued: October 10, 2024

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Glossary

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

Calibration is Performed According to the Following Standards:

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

Methods Applied and Interpretation of Parameters

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

Calibration Uncertainty

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

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

Measurement Conditions

Unit Type	MAGPy–8H3D+E3DV2 (SP MGY 303 AA)	3119
	MAGPy–DASV2 (SE UMS 303 AF)	3113
	MAGPy FPGA Board	WP000267
Adjustment Date	Last MAGPy Adjustment	October 10, 2024
Firmware SW Version	MAGPy Firmware	Ver. 1.00
Backend SW Version	MAGPy Backend	Ver. 1.0.2
Calibration SW Version	MAGACAP	Ver. 1.0

Dynamic Range

Dynamic Range, H-field, Channel 0

H-field/(A/m) Applied			H-field/(A/m) Reading			Difference/(dB)			
x	y	z	x	y	z	x	y	z	Tolerance/(dB)
0.400	0.390	0.380	0.420	0.410	0.410	0.42	0.43	0.66	±1.00
0.540	0.530	0.510	0.550	0.530	0.550	0.16	0.00	0.66	±1.00
0.740	0.730	0.710	0.740	0.730	0.740	0.00	0.00	0.36	±1.00
0.970	0.950	0.920	0.980	0.960	0.950	0.09	0.09	0.28	±1.00
1.31	1.28	1.25	1.34	1.29	1.26	0.20	0.07	0.07	±1.00
1.80	1.76	1.71	1.80	1.78	1.73	0.00	0.10	0.10	±1.00
2.40	2.34	2.28	2.41	2.36	2.29	0.04	0.07	0.04	±0.20
3.20	3.13	3.04	3.21	3.14	3.04	0.03	0.03	0.00	±0.20
4.35	4.25	4.13	4.35	4.25	4.13	0.00	0.00	0.00	±0.20
5.87	5.74	5.59	5.88	5.74	5.57	0.01	0.00	−0.03	±0.20
7.89	7.71	7.51	7.90	7.71	7.50	0.01	0.00	−0.01	±0.20
10.5	10.3	10.0	10.5	10.3	10.0	0.00	0.00	0.00	±0.20
14.2	13.9	13.5	14.2	13.9	13.6	0.00	0.00	0.06	±0.20
19.2	18.7	18.2	19.2	18.8	18.3	0.00	0.05	0.05	±0.20
25.9	25.3	24.6	25.9	25.3	24.7	0.00	0.00	0.04	±0.20
34.6	33.8	32.9	34.7	33.9	33.1	0.03	0.03	0.05	±0.20
46.7	45.6	44.4	47.0	45.9	44.6	0.06	0.06	0.04	±0.20
63.3	61.9	60.2	63.6	62.2	60.5	0.04	0.04	0.04	±0.20
86.9	85.0	82.7	86.6	84.7	82.3	−0.03	−0.03	−0.04	±0.20
114	111	108	113	111	108	−0.08	0.00	0.00	±0.20
156	153	148	156	152	148	0.00	−0.06	0.00	±0.20
216	211	206	216	211	205	0.00	0.00	−0.04	±0.20
299	292	284	294	287	280	−0.15	−0.15	−0.12	±0.20
440	430	419	435	425	414	−0.10	−0.10	−0.10	±0.20
605	591	576	602	588	573	−0.04	−0.04	−0.05	±0.20
901	880	856	904	884	861	0.03	0.04	0.05	±0.20
1360	1330	1290	1380	1350	1310	0.13	0.13	0.13	±0.30
1840	1800	1750	1900	1860	1810	0.28	0.28	0.29	±0.30
3010	2940	2870	3130	3060	2980	0.34	0.35	0.33	±0.50
3620	3550	3460	3790	3710	3620	0.40	0.38	0.39	±0.50

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

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

Dynamic Range, H-field, Channel 1

H-field/(A/m) Applied			H-field/(A/m) Reading			Difference/(dB)			
x	y	z	x	y	z	x	y	z	Tolerance/(dB)
0.400	0.390	0.390	0.420	0.420	0.420	0.42	0.64	0.64	±1.00
0.550	0.540	0.530	0.550	0.540	0.550	0.00	0.00	0.32	±1.00
0.760	0.740	0.720	0.750	0.730	0.730	−0.12	−0.12	0.12	±1.00
0.980	0.960	0.940	0.980	0.970	0.950	0.00	0.09	0.09	±1.00
1.33	1.30	1.28	1.34	1.29	1.30	0.07	−0.07	0.13	±1.00
1.83	1.79	1.76	1.82	1.79	1.77	−0.05	0.00	0.05	±1.00
2.44	2.38	2.34	2.43	2.38	2.36	−0.04	0.00	0.07	±0.20
3.25	3.18	3.12	3.25	3.19	3.13	0.00	0.03	0.03	±0.20
4.41	4.32	4.24	4.41	4.34	4.24	0.00	0.04	0.00	±0.20
5.96	5.84	5.73	5.98	5.86	5.72	0.03	0.03	−0.02	±0.20
8.01	7.84	7.70	8.05	7.85	7.69	0.04	0.01	−0.01	±0.20
10.7	10.5	10.3	10.8	10.5	10.3	0.08	0.00	0.00	±0.20
14.4	14.2	13.9	14.5	14.2	13.9	0.06	0.00	0.00	±0.20
19.5	19.1	18.7	19.5	19.1	18.7	0.00	0.00	0.00	±0.20
26.3	25.7	25.2	26.3	25.8	25.3	0.00	0.03	0.03	±0.20
35.1	34.4	33.7	35.3	34.5	33.9	0.05	0.03	0.05	±0.20
47.4	46.5	45.5	47.7	46.7	45.7	0.05	0.04	0.04	±0.20
64.3	63.0	61.7	64.6	63.3	62.0	0.04	0.04	0.04	±0.20
88.2	86.4	84.8	87.9	86.1	84.4	−0.03	−0.03	−0.04	±0.20
115	113	111	115	113	110	0.00	0.00	−0.08	±0.20
158	155	152	158	155	152	0.00	0.00	0.00	±0.20
220	215	211	219	215	211	−0.04	0.00	0.00	±0.20
303	298	292	298	292	287	−0.14	−0.18	−0.15	±0.20
447	438	429	442	432	424	−0.10	−0.12	−0.10	±0.20
615	602	590	611	599	588	−0.06	−0.04	−0.03	±0.20
914	895	878	918	900	883	0.04	0.05	0.05	±0.20
1380	1350	1320	1400	1370	1350	0.12	0.13	0.20	±0.30
1870	1830	1800	1930	1890	1850	0.27	0.28	0.24	±0.30
3050	2990	2940	3180	3110	3060	0.36	0.34	0.35	±0.50
3680	3610	3550	3850	3770	3710	0.39	0.38	0.38	±0.50

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

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

Dynamic Range, H-field, Channel 2

H-field/(A/m) Applied			H-field/(A/m) Reading			Difference/(dB)			Tolerance/(dB)
x	y	z	x	y	z	x	y	z	
0.400	0.390	0.390	0.430	0.420	0.420	0.63	0.64	0.64	±1.00
0.550	0.530	0.530	0.570	0.550	0.550	0.31	0.32	0.32	±1.00
0.750	0.740	0.740	0.740	0.740	0.730	−0.12	0.00	−0.12	±1.00
0.980	0.960	0.960	0.970	0.970	0.950	−0.09	0.09	−0.09	±1.00
1.33	1.30	1.30	1.33	1.32	1.30	0.00	0.13	0.00	±1.00
1.82	1.78	1.78	1.81	1.79	1.77	−0.05	0.05	−0.05	±1.00
2.42	2.37	2.37	2.43	2.38	2.37	0.04	0.04	0.00	±0.20
3.23	3.17	3.16	3.23	3.18	3.16	0.00	0.03	0.00	±0.20
4.39	4.30	4.30	4.38	4.31	4.29	−0.02	0.02	−0.02	±0.20
5.93	5.82	5.81	5.94	5.84	5.81	0.01	0.03	0.00	±0.20
7.97	7.82	7.80	7.98	7.84	7.81	0.01	0.02	0.01	±0.20
10.6	10.4	10.4	10.7	10.4	10.4	0.08	0.00	0.00	±0.20
14.3	14.1	14.1	14.4	14.1	14.1	0.06	0.00	0.00	±0.20
19.4	19.0	19.0	19.4	19.0	19.0	0.00	0.00	0.00	±0.20
26.1	25.6	25.6	26.2	25.7	25.6	0.03	0.03	0.00	±0.20
34.9	34.2	34.2	35.1	34.4	34.4	0.05	0.05	0.05	±0.20
47.2	46.3	46.1	47.4	46.5	46.4	0.04	0.04	0.06	±0.20
63.9	62.8	62.6	64.2	63.1	62.9	0.04	0.04	0.04	±0.20
87.8	86.1	86.0	87.4	85.8	85.5	−0.04	−0.03	−0.05	±0.20
115	113	112	114	112	112	−0.08	−0.08	0.00	±0.20
158	155	154	157	154	154	−0.06	−0.06	0.00	±0.20
218	214	214	218	214	213	0.00	0.00	−0.04	±0.20
302	297	296	297	291	291	−0.15	−0.18	−0.15	±0.20
444	436	435	439	431	430	−0.10	−0.10	−0.10	±0.20
611	600	598	607	596	595	−0.06	−0.06	−0.04	±0.20
909	892	891	913	896	895	0.04	0.04	0.04	±0.20
1370	1350	1340	1390	1370	1370	0.13	0.13	0.19	±0.30
1860	1830	1820	1920	1880	1880	0.28	0.23	0.28	±0.30
3040	2980	2980	3160	3100	3100	0.34	0.34	0.34	±0.50
3660	3600	3600	3830	3760	3760	0.39	0.38	0.38	±0.50

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

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

Dynamic Range, H-field, Channel 3

H-field/(A/m) Applied			H-field/(A/m) Reading			Difference/(dB)			
x	y	z	x	y	z	x	y	z	Tolerance/(dB)
0.400	0.390	0.390	0.420	0.430	0.400	0.42	0.85	0.22	±1.00
0.550	0.530	0.520	0.550	0.550	0.530	0.00	0.32	0.17	±1.00
0.750	0.730	0.720	0.750	0.740	0.720	0.00	0.12	0.00	±1.00
0.980	0.950	0.940	0.980	0.960	0.940	0.00	0.09	0.00	±1.00
1.32	1.28	1.27	1.34	1.32	1.28	0.13	0.27	0.07	±1.00
1.81	1.76	1.75	1.82	1.78	1.75	0.05	0.10	0.00	±1.00
2.42	2.35	2.33	2.42	2.36	2.34	0.00	0.04	0.04	±0.20
3.22	3.13	3.11	3.23	3.15	3.11	0.03	0.06	0.00	±0.20
4.38	4.25	4.22	4.38	4.26	4.22	0.00	0.02	0.00	±0.20
5.91	5.75	5.71	5.92	5.78	5.71	0.01	0.05	0.00	±0.20
7.94	7.72	7.67	7.95	7.75	7.68	0.01	0.03	0.01	±0.20
10.6	10.3	10.2	10.6	10.3	10.2	0.00	0.00	0.00	±0.20
14.3	13.9	13.8	14.3	13.9	13.9	0.00	0.00	0.06	±0.20
19.3	18.8	18.6	19.3	18.8	18.7	0.00	0.00	0.05	±0.20
26.0	25.3	25.1	26.1	25.4	25.2	0.03	0.03	0.03	±0.20
34.8	33.8	33.6	35.0	34.0	33.8	0.05	0.05	0.05	±0.20
47.0	45.7	45.3	47.3	46.0	45.5	0.06	0.06	0.04	±0.20
63.7	62.0	61.5	64.0	62.3	61.8	0.04	0.04	0.04	±0.20
87.5	85.1	84.5	87.1	84.8	84.1	−0.04	−0.03	−0.04	±0.20
114	111	110	114	111	110	0.00	0.00	0.00	±0.20
157	153	152	157	152	151	0.00	−0.06	−0.06	±0.20
218	212	210	217	211	210	−0.04	−0.04	0.00	±0.20
301	293	291	296	288	286	−0.15	−0.15	−0.15	±0.20
443	431	428	438	426	423	−0.10	−0.10	−0.10	±0.20
609	593	588	606	589	585	−0.04	−0.06	−0.04	±0.20
906	882	875	910	885	880	0.04	0.03	0.05	±0.20
1370	1330	1320	1390	1350	1340	0.13	0.13	0.13	±0.30
1850	1800	1790	1910	1850	1850	0.28	0.24	0.29	±0.30
3030	2950	2930	3150	3040	3050	0.34	0.26	0.35	±0.50
3650	3550	3530	3820	3680	3700	0.40	0.31	0.41	±0.50

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

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

Dynamic Range, H-field, Channel 4

H-field/(A/m) Applied			H-field/(A/m) Reading			Difference/(dB)			Tolerance/(dB)
x	y	z	x	y	z	x	y	z	
0.400	0.400	0.390	0.420	0.400	0.400	0.42	0.00	0.22	±1.00
0.550	0.550	0.530	0.550	0.540	0.530	0.00	−0.16	0.00	±1.00
0.750	0.750	0.740	0.740	0.750	0.740	−0.12	0.00	0.00	±1.00
0.980	0.980	0.960	0.970	0.990	0.960	−0.09	0.09	0.00	±1.00
1.32	1.33	1.30	1.32	1.33	1.29	0.00	0.00	−0.07	±1.00
1.82	1.83	1.78	1.81	1.83	1.78	−0.05	0.00	0.00	±1.00
2.42	2.43	2.38	2.43	2.43	2.38	0.04	0.00	0.00	±0.20
3.23	3.25	3.17	3.22	3.24	3.16	−0.03	−0.03	−0.03	±0.20
4.38	4.41	4.30	4.37	4.41	4.29	−0.02	0.00	−0.02	±0.20
5.92	5.96	5.81	5.91	5.96	5.81	−0.01	0.00	0.00	±0.20
7.95	8.00	7.81	7.94	8.01	7.82	−0.01	0.01	0.01	±0.20
10.6	10.7	10.4	10.6	10.7	10.4	0.00	0.00	0.00	±0.20
14.3	14.4	14.1	14.3	14.4	14.1	0.00	0.00	0.00	±0.20
19.3	19.5	19.0	19.3	19.5	19.0	0.00	0.00	0.00	±0.20
26.1	26.2	25.6	26.1	26.3	25.6	0.00	0.03	0.00	±0.20
34.8	35.1	34.2	35.0	35.2	34.4	0.05	0.02	0.05	±0.20
47.1	47.4	46.1	47.3	47.6	46.3	0.04	0.04	0.04	±0.20
63.8	64.3	62.6	64.1	64.6	62.9	0.04	0.04	0.04	±0.20
87.6	88.2	86.0	87.3	87.9	85.6	−0.03	−0.03	−0.04	±0.20
115	115	112	114	115	112	−0.08	0.00	0.00	±0.20
157	158	154	157	158	154	0.00	0.00	0.00	±0.20
218	219	214	218	219	214	0.00	0.00	0.00	±0.20
301	304	296	296	298	291	−0.15	−0.17	−0.15	±0.20
444	447	435	439	441	430	−0.10	−0.12	−0.10	±0.20
610	614	599	607	612	596	−0.04	−0.03	−0.04	±0.20
908	913	891	912	919	895	0.04	0.06	0.04	±0.20
1370	1380	1340	1390	1400	1370	0.13	0.12	0.19	±0.30
1860	1870	1820	1910	1930	1880	0.23	0.27	0.28	±0.30
3030	3060	2980	3160	3180	3100	0.36	0.33	0.34	±0.50
3650	3680	3600	3820	3850	3770	0.40	0.39	0.40	±0.50

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

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

Dynamic Range, H-field, Channel 5

H-field/(A/m) Applied			H-field/(A/m) Reading			Difference/(dB)			
x	y	z	x	y	z	x	y	z	Tolerance/(dB)
0.400	0.410	0.400	0.420	0.430	0.420	0.42	0.41	0.42	±1.00
0.540	0.550	0.540	0.560	0.550	0.560	0.32	0.00	0.32	±1.00
0.750	0.760	0.750	0.770	0.750	0.750	0.23	−0.12	0.00	±1.00
0.970	0.990	0.980	0.980	0.990	0.970	0.09	0.00	−0.09	±1.00
1.32	1.34	1.32	1.32	1.36	1.33	0.00	0.13	0.07	±1.00
1.81	1.84	1.81	1.79	1.83	1.81	−0.10	−0.05	0.00	±1.00
2.41	2.45	2.42	2.41	2.44	2.41	0.00	−0.04	−0.04	±0.20
3.21	3.27	3.22	3.21	3.27	3.21	0.00	0.00	−0.03	±0.20
4.36	4.43	4.38	4.37	4.41	4.37	0.02	−0.04	−0.02	±0.20
5.89	6.00	5.92	5.89	5.99	5.92	0.00	−0.01	0.00	±0.20
7.91	8.05	7.95	7.91	8.05	7.95	0.00	0.00	0.00	±0.20
10.6	10.7	10.6	10.6	10.8	10.6	0.00	0.08	0.00	±0.20
14.2	14.5	14.3	14.3	14.5	14.3	0.06	0.00	0.00	±0.20
19.2	19.6	19.3	19.3	19.6	19.4	0.05	0.00	0.04	±0.20
25.9	26.4	26.1	26.0	26.4	26.1	0.03	0.00	0.00	±0.20
34.6	35.3	34.8	34.8	35.4	35.0	0.05	0.02	0.05	±0.20
46.8	47.7	47.0	47.1	47.9	47.2	0.06	0.04	0.04	±0.20
63.5	64.7	63.7	63.7	65.0	64.1	0.03	0.04	0.05	±0.20
87.1	88.7	87.6	86.8	88.4	87.2	−0.03	−0.03	−0.04	±0.20
114	116	114	114	116	114	0.00	0.00	0.00	±0.20
156	159	157	156	159	157	0.00	0.00	0.00	±0.20
217	221	218	216	220	218	−0.04	−0.04	0.00	±0.20
300	305	301	294	300	296	−0.18	−0.14	−0.15	±0.20
441	449	443	436	444	438	−0.10	−0.10	−0.10	±0.20
607	618	610	603	614	607	−0.06	−0.06	−0.04	±0.20
903	919	907	907	923	912	0.04	0.04	0.05	±0.20
1360	1390	1370	1380	1410	1390	0.13	0.12	0.13	±0.30
1850	1880	1860	1900	1940	1920	0.23	0.27	0.28	±0.30
3020	3070	3040	3140	3190	3160	0.34	0.33	0.34	±0.50
3630	3700	3670	3800	3870	3840	0.40	0.39	0.39	±0.50

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

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

Dynamic Range, H-field, Channel 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	0.400	0.400	0.420	0.430	0.410	0.42	0.63	0.21	±1.00
0.550	0.550	0.540	0.560	0.550	0.540	0.16	0.00	0.00	±1.00
0.750	0.760	0.740	0.750	0.760	0.740	0.00	0.00	0.00	±1.00
0.980	0.990	0.960	0.990	1.00	0.970	0.09	0.09	0.09	±1.00
1.33	1.34	1.30	1.35	1.33	1.33	0.13	−0.07	0.20	±1.00
1.82	1.84	1.79	1.83	1.85	1.81	0.05	0.05	0.10	±1.00
2.43	2.44	2.39	2.44	2.45	2.39	0.04	0.04	0.00	±0.20
3.24	3.26	3.18	3.26	3.26	3.16	0.05	0.00	−0.05	±0.20
4.40	4.43	4.32	4.41	4.41	4.28	0.02	−0.04	−0.08	±0.20
5.94	5.99	5.84	5.96	5.98	5.82	0.03	−0.01	−0.03	±0.20
7.99	8.05	7.85	7.99	8.03	7.84	0.00	−0.02	−0.01	±0.20
10.7	10.7	10.5	10.7	10.7	10.4	0.00	0.00	−0.08	±0.20
14.4	14.5	14.1	14.4	14.5	14.1	0.00	0.00	0.00	±0.20
19.4	19.6	19.1	19.4	19.6	19.1	0.00	0.00	0.00	±0.20
26.2	26.4	25.7	26.3	26.4	25.7	0.03	0.00	0.00	±0.20
35.0	35.3	34.4	35.2	35.4	34.5	0.05	0.02	0.03	±0.20
47.3	47.7	46.4	47.5	47.9	46.6	0.04	0.04	0.04	±0.20
64.1	64.6	62.9	64.3	64.9	63.2	0.03	0.04	0.04	±0.20
88.0	88.7	86.5	87.6	88.4	86.1	−0.04	−0.03	−0.04	±0.20
115	116	113	115	116	113	0.00	0.00	0.00	±0.20
158	159	155	158	159	155	0.00	0.00	0.00	±0.20
219	221	215	218	220	215	−0.04	−0.04	0.00	±0.20
302	305	297	297	300	292	−0.15	−0.14	−0.15	±0.20
445	449	438	440	444	433	−0.10	−0.10	−0.10	±0.20
613	617	602	609	615	600	−0.06	−0.03	−0.03	±0.20
911	918	896	915	924	901	0.04	0.06	0.05	±0.20
1370	1380	1350	1400	1410	1380	0.19	0.19	0.19	±0.30
1860	1880	1830	1920	1940	1890	0.28	0.27	0.28	±0.30
3040	3070	3000	3160	3200	3120	0.34	0.36	0.34	±0.50
3670	3700	3620	3830	3870	3790	0.37	0.39	0.40	±0.50

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

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

Dynamic Range, H-field, Channel 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	0.380	0.420	0.390	0.380	0.42	−0.22	0.00	±1.00
0.550	0.540	0.520	0.550	0.540	0.520	0.00	0.00	0.00	±1.00
0.750	0.750	0.720	0.750	0.740	0.710	0.00	−0.12	−0.12	±1.00
0.980	0.980	0.930	0.980	0.980	0.940	0.00	0.00	0.09	±1.00
1.33	1.32	1.26	1.33	1.31	1.27	0.00	−0.07	0.07	±1.00
1.82	1.82	1.74	1.82	1.82	1.73	0.00	0.00	−0.05	±1.00
2.43	2.42	2.32	2.42	2.41	2.31	−0.04	−0.04	−0.04	±0.20
3.24	3.23	3.09	3.23	3.22	3.08	−0.03	−0.03	−0.03	±0.20
4.40	4.39	4.19	4.40	4.38	4.20	0.00	−0.02	0.02	±0.20
5.95	5.93	5.66	5.95	5.93	5.68	0.00	0.00	0.03	±0.20
7.99	7.96	7.61	7.99	7.98	7.64	0.00	0.02	0.03	±0.20
10.7	10.6	10.2	10.7	10.6	10.2	0.00	0.00	0.00	±0.20
14.4	14.4	13.7	14.4	14.4	13.8	0.00	0.00	0.06	±0.20
19.4	19.4	18.5	19.4	19.4	18.5	0.00	0.00	0.00	±0.20
26.2	26.1	24.9	26.3	26.1	25.0	0.03	0.00	0.03	±0.20
35.0	34.9	33.3	35.2	35.1	33.5	0.05	0.05	0.05	±0.20
47.3	47.2	45.0	47.5	47.4	45.2	0.04	0.04	0.04	±0.20
64.1	64.0	61.0	64.4	64.3	61.3	0.04	0.04	0.04	±0.20
88.0	87.8	83.8	87.7	87.5	83.5	−0.03	−0.03	−0.03	±0.20
115	115	110	115	115	109	0.00	0.00	−0.08	±0.20
158	158	150	158	157	150	0.00	−0.06	0.00	±0.20
219	218	208	219	218	208	0.00	0.00	0.00	±0.20
303	302	288	297	297	283	−0.17	−0.15	−0.15	±0.20
446	444	424	441	439	419	−0.10	−0.10	−0.10	±0.20
613	611	583	610	608	581	−0.04	−0.04	−0.03	±0.20
912	909	868	916	914	873	0.04	0.05	0.05	±0.20
1370	1370	1310	1400	1400	1330	0.19	0.19	0.13	±0.30
1870	1860	1780	1920	1920	1830	0.23	0.28	0.24	±0.30
3050	3040	2910	3170	3160	3020	0.34	0.34	0.32	±0.50
3670	3660	3510	3840	3830	3670	0.39	0.39	0.39	±0.50

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

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

Dynamic Range, 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	0.210	0.100	0.390	0.200	0.090	0.23	−0.42	−0.92	±5.00	±5.00	±5.00
0.510	0.290	0.140	0.510	0.280	0.130	0.00	−0.30	−0.64	±5.00	±5.00	±5.00
0.710	0.390	0.190	0.710	0.380	0.160	0.00	−0.23	−1.49	±5.00	±5.00	±5.00
0.920	0.510	0.250	0.920	0.510	0.270	0.00	0.00	0.67	±5.00	±5.00	±5.00
1.24	0.690	0.340	1.25	0.680	0.350	0.07	−0.13	0.25	±5.00	±5.00	±5.00
1.71	0.950	0.460	1.71	0.950	0.460	0.00	0.00	0.00	±5.00	±5.00	±5.00
2.28	1.27	0.620	2.28	1.25	0.610	0.00	−0.14	−0.14	±1.00	±5.00	±5.00
3.04	1.70	0.820	3.05	1.67	0.820	0.03	−0.15	0.00	±1.00	±5.00	±5.00
4.13	2.30	1.12	4.13	2.27	1.09	0.00	−0.11	−0.24	±1.00	±1.00	±5.00
5.58	3.11	1.51	5.59	3.06	1.49	0.02	−0.14	−0.12	±1.00	±1.00	±5.00
7.49	4.18	2.03	7.53	4.13	2.01	0.05	−0.10	−0.09	±1.00	±1.00	±1.00
10.0	5.58	2.71	10.1	5.52	2.66	0.09	−0.09	−0.16	±1.00	±1.00	±1.00
13.5	7.54	3.65	13.6	7.45	3.62	0.06	−0.10	−0.07	±1.00	±1.00	±1.00
18.2	10.2	4.93	18.3	10.1	4.85	0.05	−0.09	−0.14	±1.00	±1.00	±1.00
24.6	13.7	6.64	24.7	13.6	6.55	0.04	−0.06	−0.12	±1.00	±1.00	±1.00
32.8	18.3	8.88	33.1	18.2	8.74	0.08	−0.05	−0.14	±1.00	±1.00	±1.00
44.4	24.8	12.0	44.7	24.6	11.8	0.06	−0.07	−0.15	±1.00	±1.00	±1.00
60.2	33.6	16.3	60.6	33.4	16.1	0.06	−0.05	−0.11	±1.00	±1.00	±1.00
82.6	46.1	22.3	82.5	45.5	21.8	−0.01	−0.11	−0.20	±1.00	±1.00	±1.00
108	60.3	29.2	108	59.5	28.6	0.00	−0.12	−0.18	±1.00	±1.00	±1.00
148	82.8	40.1	148	81.8	39.3	0.00	−0.11	−0.18	±1.00	±1.00	±1.00
205	115	55.6	206	114	54.5	0.04	−0.08	−0.17	±1.00	±1.00	±1.00
284	159	76.8	287	159	75.9	0.09	0.00	−0.10	±1.00	±1.00	±1.00
418	233	113	407	227	112	−0.23	−0.23	−0.08	±1.00	±1.00	±1.00
575	321	156	564	315	156	−0.17	−0.16	0.00	±1.00	±1.00	±1.00
855	477	231	849	474	234	−0.06	−0.05	0.11	±1.00	±1.00	±1.00
1290	720	349	1300	725	357	0.07	0.06	0.20	±1.00	±1.00	±1.00
1750	977	473	1780	996	491	0.15	0.17	0.32	±1.00	±1.00	±1.00
2860	1600	773	2950	1650	769	0.27	0.27	−0.05	±1.00	±1.00	±1.00
3450	1920	931	3570	2000	933	0.30	0.35	0.02	±1.00	±1.00	±1.00

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

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

Frequency Response

Frequency Response, H-field, Channel 0

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	1.55	1.54	1.54	1.55	1.55	1.55	0.00	0.06	0.06	±0.3
3200	1.54	1.54	1.54	1.56	1.55	1.55	0.11	0.06	0.06	±0.3
4000	1.53	1.53	1.53	1.54	1.53	1.53	0.06	0.00	0.00	±0.3
5200	1.52	1.52	1.52	1.52	1.52	1.52	0.00	0.00	0.00	±0.3
6600	1.51	1.51	1.51	1.51	1.51	1.51	0.00	0.00	0.00	±0.3
8200	1.50	1.50	1.50	1.50	1.50	1.50	0.00	0.00	0.00	±0.3
9000	1.49	1.49	1.49	1.49	1.50	1.49	0.00	0.06	0.00	±0.3
10600	4.33	4.24	4.27	4.32	4.26	4.28	−0.02	0.04	0.02	±0.3
13400	4.36	4.30	4.29	4.37	4.31	4.29	0.02	0.02	0.00	±0.3
17000	4.36	4.30	4.28	4.36	4.31	4.30	0.00	0.02	0.04	±0.3
21400	4.38	4.32	4.30	4.39	4.33	4.31	0.02	0.02	0.02	±0.3
27200	4.38	4.31	4.30	4.37	4.31	4.32	−0.02	0.00	0.04	±0.3
34400	4.37	4.32	4.31	4.38	4.33	4.32	0.02	0.02	0.02	±0.3
40000	4.37	4.32	4.31	4.37	4.33	4.31	0.00	0.02	0.00	±0.3
43600	4.36	4.31	4.30	4.36	4.33	4.31	0.00	0.04	0.02	±0.3
55400	4.35	4.30	4.29	4.35	4.31	4.29	0.00	0.02	0.00	±0.3
70000	4.34	4.29	4.28	4.33	4.31	4.28	−0.02	0.04	0.00	±0.3
88800	4.32	4.28	4.27	4.33	4.27	4.27	0.02	−0.02	0.00	±0.3
112400	4.31	4.27	4.25	4.31	4.27	4.26	0.00	0.00	0.02	±0.3
142400	4.29	4.25	4.24	4.29	4.25	4.24	0.00	0.00	0.00	±0.3
161750	4.27	4.23	4.22	4.27	4.24	4.22	0.00	0.02	0.00	±0.3
180400	4.26	4.22	4.21	4.26	4.22	4.20	0.00	0.00	−0.02	±0.3
228400	4.23	4.19	4.18	4.23	4.19	4.18	0.00	0.00	0.00	±0.3
289400	4.19	4.15	4.14	4.18	4.16	4.14	−0.02	0.02	0.00	±0.3
366400	4.15	4.12	4.11	4.15	4.12	4.11	0.00	0.00	0.00	±0.3
400000	4.13	4.10	4.09	4.13	4.10	4.09	0.00	0.00	0.00	±0.3
464000	4.10	4.07	4.06	4.10	4.07	4.06	0.00	0.00	0.00	±0.3
587800	4.06	4.03	4.02	4.05	4.03	4.02	−0.02	0.00	0.00	±0.3
744200	4.01	3.98	3.97	4.00	3.99	3.97	−0.02	0.02	0.00	±0.3
942600	3.99	3.97	3.96	3.99	3.98	3.96	0.00	0.02	0.00	±0.3
1193600	3.97	3.95	3.94	3.97	3.95	3.94	0.00	0.00	0.00	±0.3
1511600	3.96	3.94	3.93	3.96	3.94	3.93	0.00	0.00	0.00	±0.3
1914400	3.95	3.92	3.92	3.94	3.92	3.91	−0.02	0.00	−0.02	±0.3
2424400	3.93	3.91	3.90	3.93	3.91	3.90	0.00	0.00	0.00	±0.3
3070200	3.91	3.88	3.87	3.90	3.87	3.87	−0.02	−0.02	0.00	±0.3
3888000	3.85	3.82	3.82	3.85	3.82	3.81	0.00	0.00	−0.02	±0.3
4000000	3.84	3.81	3.81	3.84	3.83	3.81	0.00	0.05	0.00	±0.3
4923800	3.78	3.75	3.74	3.78	3.76	3.74	0.00	0.02	0.00	±0.3
6235400	3.67	3.64	3.63	3.67	3.64	3.64	0.00	0.00	0.02	±0.3
7896400	3.53	3.50	3.50	3.53	3.50	3.50	0.00	0.00	0.00	±0.3
10000000	3.38	3.36	3.36	3.38	3.35	3.35	0.00	−0.03	−0.03	±0.3

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

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

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	1.55	1.54	1.54	1.54	1.55	1.55	−0.06	0.06	0.06	±0.3
3200	1.54	1.54	1.54	1.56	1.54	1.55	0.11	0.00	0.06	±0.3
4000	1.53	1.53	1.53	1.54	1.54	1.53	0.06	0.06	0.00	±0.3
5200	1.52	1.52	1.52	1.52	1.51	1.52	0.00	−0.06	0.00	±0.3
6600	1.51	1.51	1.51	1.51	1.51	1.51	0.00	0.00	0.00	±0.3
8200	1.50	1.50	1.50	1.50	1.50	1.50	0.00	0.00	0.00	±0.3
9000	1.49	1.49	1.49	1.49	1.49	1.49	0.00	0.00	0.00	±0.3
10600	4.33	4.24	4.27	4.34	4.25	4.24	0.02	0.02	−0.06	±0.3
13400	4.36	4.30	4.29	4.37	4.30	4.30	0.02	0.00	0.02	±0.3
17000	4.36	4.30	4.28	4.38	4.31	4.29	0.04	0.02	0.02	±0.3
21400	4.38	4.32	4.30	4.38	4.32	4.31	0.00	0.00	0.02	±0.3
27200	4.38	4.31	4.30	4.38	4.33	4.31	0.00	0.04	0.02	±0.3
34400	4.37	4.32	4.31	4.38	4.34	4.32	0.02	0.04	0.02	±0.3
40000	4.37	4.32	4.31	4.38	4.33	4.31	0.02	0.02	0.00	±0.3
43600	4.36	4.31	4.30	4.37	4.33	4.30	0.02	0.04	0.00	±0.3
55400	4.35	4.30	4.29	4.35	4.31	4.30	0.00	0.02	0.02	±0.3
70000	4.34	4.29	4.28	4.34	4.30	4.28	0.00	0.02	0.00	±0.3
88800	4.32	4.28	4.27	4.33	4.26	4.27	0.02	−0.04	0.00	±0.3
112400	4.31	4.27	4.25	4.31	4.27	4.26	0.00	0.00	0.02	±0.3
142400	4.29	4.25	4.24	4.29	4.25	4.24	0.00	0.00	0.00	±0.3
161750	4.27	4.23	4.22	4.28	4.23	4.22	0.02	0.00	0.00	±0.3
180400	4.26	4.22	4.21	4.27	4.23	4.21	0.02	0.02	0.00	±0.3
228400	4.23	4.19	4.18	4.24	4.19	4.18	0.02	0.00	0.00	±0.3
289400	4.19	4.15	4.14	4.19	4.15	4.15	0.00	0.00	0.02	±0.3
366400	4.15	4.12	4.11	4.15	4.12	4.11	0.00	0.00	0.00	±0.3
400000	4.13	4.10	4.09	4.13	4.10	4.09	0.00	0.00	0.00	±0.3
464000	4.10	4.07	4.06	4.11	4.07	4.06	0.02	0.00	0.00	±0.3
587800	4.06	4.03	4.02	4.05	4.03	4.02	−0.02	0.00	0.00	±0.3
744200	4.01	3.98	3.97	4.00	3.98	3.97	−0.02	0.00	0.00	±0.3
942600	3.99	3.97	3.96	3.99	3.97	3.96	0.00	0.00	0.00	±0.3
1193600	3.97	3.95	3.94	3.97	3.96	3.94	0.00	0.02	0.00	±0.3
1511600	3.96	3.94	3.93	3.96	3.94	3.93	0.00	0.00	0.00	±0.3
1914400	3.95	3.92	3.92	3.95	3.92	3.92	0.00	0.00	0.00	±0.3
2424400	3.93	3.91	3.90	3.93	3.90	3.90	0.00	−0.02	0.00	±0.3
3070200	3.91	3.88	3.87	3.91	3.88	3.87	0.00	0.00	0.00	±0.3
3888000	3.85	3.82	3.82	3.85	3.83	3.82	0.00	0.02	0.00	±0.3
4000000	3.84	3.81	3.81	3.85	3.81	3.80	0.02	0.00	−0.02	±0.3
4923800	3.78	3.75	3.74	3.78	3.75	3.75	0.00	0.00	0.02	±0.3
6235400	3.67	3.64	3.63	3.67	3.64	3.65	0.00	0.00	0.05	±0.3
7896400	3.53	3.50	3.50	3.53	3.50	3.49	0.00	0.00	−0.02	±0.3
10000000	3.38	3.36	3.36	3.39	3.38	3.37	0.03	0.05	0.03	±0.3

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

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

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	1.55	1.54	1.54	1.54	1.54	1.54	−0.06	0.00	0.00	±0.3
3200	1.54	1.54	1.54	1.56	1.54	1.55	0.11	0.00	0.06	±0.3
4000	1.53	1.53	1.53	1.53	1.54	1.53	0.00	0.06	0.00	±0.3
5200	1.52	1.52	1.52	1.52	1.52	1.53	0.00	0.00	0.06	±0.3
6600	1.51	1.51	1.51	1.51	1.51	1.51	0.00	0.00	0.00	±0.3
8200	1.50	1.50	1.50	1.50	1.50	1.49	0.00	0.00	−0.06	±0.3
9000	1.49	1.49	1.49	1.50	1.49	1.49	0.06	0.00	0.00	±0.3
10600	4.33	4.24	4.27	4.34	4.25	4.28	0.02	0.02	0.02	±0.3
13400	4.36	4.30	4.29	4.38	4.32	4.30	0.04	0.04	0.02	±0.3
17000	4.36	4.30	4.28	4.37	4.30	4.29	0.02	0.00	0.02	±0.3
21400	4.38	4.32	4.30	4.39	4.32	4.31	0.02	0.00	0.02	±0.3
27200	4.38	4.31	4.30	4.39	4.32	4.31	0.02	0.02	0.02	±0.3
34400	4.37	4.32	4.31	4.37	4.34	4.32	0.00	0.04	0.02	±0.3
40000	4.37	4.32	4.31	4.37	4.33	4.31	0.00	0.02	0.00	±0.3
43600	4.36	4.31	4.30	4.36	4.32	4.30	0.00	0.02	0.00	±0.3
55400	4.35	4.30	4.29	4.35	4.31	4.29	0.00	0.02	0.00	±0.3
70000	4.34	4.29	4.28	4.34	4.30	4.28	0.00	0.02	0.00	±0.3
88800	4.32	4.28	4.27	4.32	4.25	4.27	0.00	−0.06	0.00	±0.3
112400	4.31	4.27	4.25	4.31	4.27	4.26	0.00	0.00	0.02	±0.3
142400	4.29	4.25	4.24	4.29	4.24	4.24	0.00	−0.02	0.00	±0.3
161750	4.27	4.23	4.22	4.27	4.23	4.22	0.00	0.00	0.00	±0.3
180400	4.26	4.22	4.21	4.26	4.22	4.21	0.00	0.00	0.00	±0.3
228400	4.23	4.19	4.18	4.23	4.19	4.18	0.00	0.00	0.00	±0.3
289400	4.19	4.15	4.14	4.19	4.15	4.15	0.00	0.00	0.02	±0.3
366400	4.15	4.12	4.11	4.15	4.12	4.11	0.00	0.00	0.00	±0.3
400000	4.13	4.10	4.09	4.13	4.10	4.09	0.00	0.00	0.00	±0.3
464000	4.10	4.07	4.06	4.11	4.07	4.06	0.02	0.00	0.00	±0.3
587800	4.06	4.03	4.02	4.06	4.03	4.02	0.00	0.00	0.00	±0.3
744200	4.01	3.98	3.97	4.00	3.98	3.97	−0.02	0.00	0.00	±0.3
942600	3.99	3.97	3.96	3.99	3.97	3.96	0.00	0.00	0.00	±0.3
1193600	3.97	3.95	3.94	3.97	3.95	3.94	0.00	0.00	0.00	±0.3
1511600	3.96	3.94	3.93	3.96	3.93	3.94	0.00	−0.02	0.02	±0.3
1914400	3.95	3.92	3.92	3.95	3.92	3.92	0.00	0.00	0.00	±0.3
2424400	3.93	3.91	3.90	3.93	3.91	3.90	0.00	0.00	0.00	±0.3
3070200	3.91	3.88	3.87	3.90	3.87	3.87	−0.02	−0.02	0.00	±0.3
3888000	3.85	3.82	3.82	3.85	3.82	3.82	0.00	0.00	0.00	±0.3
4000000	3.84	3.81	3.81	3.85	3.82	3.81	0.02	0.02	0.00	±0.3
4923800	3.78	3.75	3.74	3.77	3.76	3.74	−0.02	0.02	0.00	±0.3
6235400	3.67	3.64	3.63	3.66	3.64	3.64	−0.02	0.00	0.02	±0.3
7896400	3.53	3.50	3.50	3.53	3.50	3.50	0.00	0.00	0.00	±0.3
10000000	3.38	3.36	3.36	3.38	3.36	3.39	0.00	0.00	0.08	±0.3

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

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

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	1.55	1.54	1.54	1.55	1.56	1.54	0.00	0.11	0.00	±0.3
3200	1.54	1.54	1.54	1.56	1.55	1.55	0.11	0.06	0.06	±0.3
4000	1.53	1.53	1.53	1.53	1.54	1.53	0.00	0.06	0.00	±0.3
5200	1.52	1.52	1.52	1.52	1.52	1.52	0.00	0.00	0.00	±0.3
6600	1.51	1.51	1.51	1.51	1.51	1.51	0.00	0.00	0.00	±0.3
8200	1.50	1.50	1.50	1.50	1.50	1.49	0.00	0.00	−0.06	±0.3
9000	1.49	1.49	1.49	1.49	1.50	1.49	0.00	0.06	0.00	±0.3
10600	4.33	4.24	4.27	4.34	4.25	4.28	0.02	0.02	0.02	±0.3
13400	4.36	4.30	4.29	4.37	4.31	4.29	0.02	0.02	0.00	±0.3
17000	4.36	4.30	4.28	4.36	4.30	4.30	0.00	0.00	0.04	±0.3
21400	4.38	4.32	4.30	4.40	4.33	4.32	0.04	0.02	0.04	±0.3
27200	4.38	4.31	4.30	4.38	4.31	4.31	0.00	0.00	0.02	±0.3
34400	4.37	4.32	4.31	4.38	4.33	4.33	0.02	0.02	0.04	±0.3
40000	4.37	4.32	4.31	4.37	4.33	4.32	0.00	0.02	0.02	±0.3
43600	4.36	4.31	4.30	4.36	4.31	4.32	0.00	0.00	0.04	±0.3
55400	4.35	4.30	4.29	4.34	4.30	4.30	−0.02	0.00	0.02	±0.3
70000	4.34	4.29	4.28	4.34	4.30	4.29	0.00	0.02	0.02	±0.3
88800	4.32	4.28	4.27	4.32	4.26	4.28	0.00	−0.04	0.02	±0.3
112400	4.31	4.27	4.25	4.30	4.26	4.26	−0.02	−0.02	0.02	±0.3
142400	4.29	4.25	4.24	4.29	4.25	4.24	0.00	0.00	0.00	±0.3
161750	4.27	4.23	4.22	4.26	4.23	4.22	−0.02	0.00	0.00	±0.3
180400	4.26	4.22	4.21	4.26	4.22	4.21	0.00	0.00	0.00	±0.3
228400	4.23	4.19	4.18	4.22	4.18	4.19	−0.02	−0.02	0.02	±0.3
289400	4.19	4.15	4.14	4.18	4.14	4.15	−0.02	−0.02	0.02	±0.3
366400	4.15	4.12	4.11	4.16	4.12	4.11	0.02	0.00	0.00	±0.3
400000	4.13	4.10	4.09	4.13	4.10	4.09	0.00	0.00	0.00	±0.3
464000	4.10	4.07	4.06	4.11	4.06	4.07	0.02	−0.02	0.02	±0.3
587800	4.06	4.03	4.02	4.05	4.03	4.02	−0.02	0.00	0.00	±0.3
744200	4.01	3.98	3.97	4.00	3.98	3.98	−0.02	0.00	0.02	±0.3
942600	3.99	3.97	3.96	3.99	3.98	3.96	0.00	0.02	0.00	±0.3
1193600	3.97	3.95	3.94	3.97	3.95	3.94	0.00	0.00	0.00	±0.3
1511600	3.96	3.94	3.93	3.96	3.94	3.94	0.00	0.00	0.02	±0.3
1914400	3.95	3.92	3.92	3.95	3.92	3.91	0.00	0.00	−0.02	±0.3
2424400	3.93	3.91	3.90	3.93	3.90	3.90	0.00	−0.02	0.00	±0.3
3070200	3.91	3.88	3.87	3.90	3.89	3.88	−0.02	0.02	0.02	±0.3
3888000	3.85	3.82	3.82	3.85	3.84	3.82	0.00	0.05	0.00	±0.3
4000000	3.84	3.81	3.81	3.84	3.81	3.81	0.00	0.00	0.00	±0.3
4923800	3.78	3.75	3.74	3.77	3.75	3.74	−0.02	0.00	0.00	±0.3
6235400	3.67	3.64	3.63	3.67	3.64	3.64	0.00	0.00	0.02	±0.3
7896400	3.53	3.50	3.50	3.53	3.51	3.50	0.00	0.02	0.00	±0.3
10000000	3.38	3.36	3.36	3.38	3.38	3.34	0.00	0.05	−0.05	±0.3

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

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

Frequency Response, H-field, Channel 4

	H-field/(A/m) Applied			H-field/(A/m) Reading			Difference/(dB)			
f/(Hz)	x	y	z	x	y	z	x	y	z	Tolerance/(dB)
3000	1.55	1.54	1.54	1.55	1.55	1.55	0.00	0.06	0.06	±0.3
3200	1.54	1.54	1.54	1.56	1.55	1.56	0.11	0.06	0.11	±0.3
4000	1.53	1.53	1.53	1.53	1.53	1.53	0.00	0.00	0.00	±0.3
5200	1.52	1.52	1.52	1.52	1.51	1.52	0.00	−0.06	0.00	±0.3
6600	1.51	1.51	1.51	1.51	1.51	1.50	0.00	0.00	−0.06	±0.3
8200	1.50	1.50	1.50	1.49	1.50	1.50	−0.06	0.00	0.00	±0.3
9000	1.49	1.49	1.49	1.50	1.49	1.49	0.06	0.00	0.00	±0.3
10600	4.33	4.24	4.27	4.34	4.23	4.27	0.02	−0.02	0.00	±0.3
13400	4.36	4.30	4.29	4.38	4.31	4.31	0.04	0.02	0.04	±0.3
17000	4.36	4.30	4.28	4.37	4.31	4.29	0.02	0.02	0.02	±0.3
21400	4.38	4.32	4.30	4.38	4.32	4.32	0.00	0.00	0.04	±0.3
27200	4.38	4.31	4.30	4.39	4.33	4.30	0.02	0.04	0.00	±0.3
34400	4.37	4.32	4.31	4.38	4.33	4.32	0.02	0.02	0.02	±0.3
40000	4.37	4.32	4.31	4.38	4.33	4.31	0.02	0.02	0.00	±0.3
43600	4.36	4.31	4.30	4.36	4.31	4.30	0.00	0.00	0.00	±0.3
55400	4.35	4.30	4.29	4.35	4.30	4.30	0.00	0.00	0.02	±0.3
70000	4.34	4.29	4.28	4.34	4.29	4.29	0.00	0.00	0.02	±0.3
88800	4.32	4.28	4.27	4.32	4.26	4.27	0.00	−0.04	0.00	±0.3
112400	4.31	4.27	4.25	4.31	4.27	4.26	0.00	0.00	0.02	±0.3
142400	4.29	4.25	4.24	4.29	4.25	4.24	0.00	0.00	0.00	±0.3
161750	4.27	4.23	4.22	4.27	4.24	4.22	0.00	0.02	0.00	±0.3
180400	4.26	4.22	4.21	4.26	4.22	4.21	0.00	0.00	0.00	±0.3
228400	4.23	4.19	4.18	4.23	4.19	4.18	0.00	0.00	0.00	±0.3
289400	4.19	4.15	4.14	4.19	4.16	4.15	0.00	0.02	0.02	±0.3
366400	4.15	4.12	4.11	4.15	4.12	4.11	0.00	0.00	0.00	±0.3
400000	4.13	4.10	4.09	4.13	4.10	4.09	0.00	0.00	0.00	±0.3
464000	4.10	4.07	4.06	4.11	4.07	4.06	0.02	0.00	0.00	±0.3
587800	4.06	4.03	4.02	4.05	4.03	4.02	−0.02	0.00	0.00	±0.3
744200	4.01	3.98	3.97	4.00	3.98	3.98	−0.02	0.00	0.02	±0.3
942600	3.99	3.97	3.96	3.99	3.97	3.96	0.00	0.00	0.00	±0.3
1193600	3.97	3.95	3.94	3.97	3.95	3.94	0.00	0.00	0.00	±0.3
1511600	3.96	3.94	3.93	3.96	3.93	3.94	0.00	−0.02	0.02	±0.3
1914400	3.95	3.92	3.92	3.95	3.92	3.92	0.00	0.00	0.00	±0.3
2424400	3.93	3.91	3.90	3.93	3.90	3.91	0.00	−0.02	0.02	±0.3
3070200	3.91	3.88	3.87	3.90	3.87	3.87	−0.02	−0.02	0.00	±0.3
3888000	3.85	3.82	3.82	3.85	3.83	3.83	0.00	0.02	0.02	±0.3
4000000	3.84	3.81	3.81	3.85	3.81	3.80	0.02	0.00	−0.02	±0.3
4923800	3.78	3.75	3.74	3.78	3.75	3.75	0.00	0.00	0.02	±0.3
6235400	3.67	3.64	3.63	3.66	3.65	3.64	−0.02	0.02	0.02	±0.3
7896400	3.53	3.50	3.50	3.53	3.51	3.50	0.00	0.02	0.00	±0.3
10000000	3.38	3.36	3.36	3.38	3.42	3.37	0.00	0.15	0.03	±0.3

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

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

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	1.55	1.54	1.54	1.55	1.55	1.55	0.00	0.06	0.06	±0.3
3200	1.54	1.54	1.54	1.55	1.54	1.55	0.06	0.00	0.06	±0.3
4000	1.53	1.53	1.53	1.54	1.53	1.53	0.06	0.00	0.00	±0.3
5200	1.52	1.52	1.52	1.52	1.52	1.53	0.00	0.00	0.06	±0.3
6600	1.51	1.51	1.51	1.51	1.52	1.51	0.00	0.06	0.00	±0.3
8200	1.50	1.50	1.50	1.50	1.50	1.49	0.00	0.00	−0.06	±0.3
9000	1.49	1.49	1.49	1.50	1.49	1.49	0.06	0.00	0.00	±0.3
10600	4.33	4.24	4.27	4.32	4.26	4.24	−0.02	0.04	−0.06	±0.3
13400	4.36	4.30	4.29	4.36	4.32	4.31	0.00	0.04	0.04	±0.3
17000	4.36	4.30	4.28	4.35	4.32	4.29	−0.02	0.04	0.02	±0.3
21400	4.38	4.32	4.30	4.39	4.30	4.31	0.02	−0.04	0.02	±0.3
27200	4.38	4.31	4.30	4.38	4.33	4.31	0.00	0.04	0.02	±0.3
34400	4.37	4.32	4.31	4.38	4.33	4.31	0.02	0.02	0.00	±0.3
40000	4.37	4.32	4.31	4.37	4.33	4.31	0.00	0.02	0.00	±0.3
43600	4.36	4.31	4.30	4.37	4.32	4.31	0.02	0.02	0.02	±0.3
55400	4.35	4.30	4.29	4.35	4.30	4.29	0.00	0.00	0.00	±0.3
70000	4.34	4.29	4.28	4.33	4.30	4.28	−0.02	0.02	0.00	±0.3
88800	4.32	4.28	4.27	4.32	4.26	4.27	0.00	−0.04	0.00	±0.3
112400	4.31	4.27	4.25	4.30	4.27	4.25	−0.02	0.00	0.00	±0.3
142400	4.29	4.25	4.24	4.29	4.25	4.24	0.00	0.00	0.00	±0.3
161750	4.27	4.23	4.22	4.27	4.23	4.23	0.00	0.00	0.02	±0.3
180400	4.26	4.22	4.21	4.26	4.22	4.21	0.00	0.00	0.00	±0.3
228400	4.23	4.19	4.18	4.23	4.19	4.18	0.00	0.00	0.00	±0.3
289400	4.19	4.15	4.14	4.19	4.15	4.15	0.00	0.00	0.02	±0.3
366400	4.15	4.12	4.11	4.15	4.11	4.11	0.00	−0.02	0.00	±0.3
400000	4.13	4.10	4.09	4.13	4.10	4.09	0.00	0.00	0.00	±0.3
464000	4.10	4.07	4.06	4.10	4.07	4.07	0.00	0.00	0.02	±0.3
587800	4.06	4.03	4.02	4.05	4.03	4.01	−0.02	0.00	−0.02	±0.3
744200	4.01	3.98	3.97	4.00	3.98	3.97	−0.02	0.00	0.00	±0.3
942600	3.99	3.97	3.96	3.99	3.97	3.96	0.00	0.00	0.00	±0.3
1193600	3.97	3.95	3.94	3.97	3.94	3.94	0.00	−0.02	0.00	±0.3
1511600	3.96	3.94	3.93	3.95	3.94	3.94	−0.02	0.00	0.02	±0.3
1914400	3.95	3.92	3.92	3.94	3.92	3.92	−0.02	0.00	0.00	±0.3
2424400	3.93	3.91	3.90	3.93	3.91	3.90	0.00	0.00	0.00	±0.3
3070200	3.91	3.88	3.87	3.92	3.88	3.88	0.02	0.00	0.02	±0.3
3888000	3.85	3.82	3.82	3.85	3.82	3.82	0.00	0.00	0.00	±0.3
4000000	3.84	3.81	3.81	3.85	3.82	3.81	0.02	0.02	0.00	±0.3
4923800	3.78	3.75	3.74	3.77	3.75	3.75	−0.02	0.00	0.02	±0.3
6235400	3.67	3.64	3.63	3.67	3.64	3.65	0.00	0.00	0.05	±0.3
7896400	3.53	3.50	3.50	3.53	3.51	3.50	0.00	0.02	0.00	±0.3
10000000	3.38	3.36	3.36	3.38	3.37	3.40	0.00	0.03	0.10	±0.3

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

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

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	1.55	1.54	1.54	1.56	1.54	1.54	0.06	0.00	0.00	±0.3
3200	1.54	1.54	1.54	1.57	1.54	1.55	0.17	0.00	0.06	±0.3
4000	1.53	1.53	1.53	1.54	1.53	1.54	0.06	0.00	0.06	±0.3
5200	1.52	1.52	1.52	1.52	1.51	1.53	0.00	−0.06	0.06	±0.3
6600	1.51	1.51	1.51	1.52	1.51	1.51	0.06	0.00	0.00	±0.3
8200	1.50	1.50	1.50	1.50	1.49	1.50	0.00	−0.06	0.00	±0.3
9000	1.49	1.49	1.49	1.49	1.49	1.50	0.00	0.00	0.06	±0.3
10600	4.33	4.24	4.27	4.34	4.24	4.19	0.02	0.00	−0.16	±0.3
13400	4.36	4.30	4.29	4.37	4.31	4.30	0.02	0.02	0.02	±0.3
17000	4.36	4.30	4.28	4.37	4.31	4.29	0.02	0.02	0.02	±0.3
21400	4.38	4.32	4.30	4.40	4.32	4.30	0.04	0.00	0.00	±0.3
27200	4.38	4.31	4.30	4.38	4.33	4.31	0.00	0.04	0.02	±0.3
34400	4.37	4.32	4.31	4.38	4.33	4.32	0.02	0.02	0.02	±0.3
40000	4.37	4.32	4.31	4.37	4.33	4.31	0.00	0.02	0.00	±0.3
43600	4.36	4.31	4.30	4.36	4.32	4.30	0.00	0.02	0.00	±0.3
55400	4.35	4.30	4.29	4.35	4.31	4.30	0.00	0.02	0.02	±0.3
70000	4.34	4.29	4.28	4.34	4.29	4.28	0.00	0.00	0.00	±0.3
88800	4.32	4.28	4.27	4.32	4.27	4.27	0.00	−0.02	0.00	±0.3
112400	4.31	4.27	4.25	4.31	4.27	4.26	0.00	0.00	0.02	±0.3
142400	4.29	4.25	4.24	4.29	4.25	4.24	0.00	0.00	0.00	±0.3
161750	4.27	4.23	4.22	4.27	4.23	4.22	0.00	0.00	0.00	±0.3
180400	4.26	4.22	4.21	4.26	4.22	4.21	0.00	0.00	0.00	±0.3
228400	4.23	4.19	4.18	4.23	4.19	4.18	0.00	0.00	0.00	±0.3
289400	4.19	4.15	4.14	4.19	4.16	4.15	0.00	0.02	0.02	±0.3
366400	4.15	4.12	4.11	4.15	4.12	4.11	0.00	0.00	0.00	±0.3
400000	4.13	4.10	4.09	4.13	4.10	4.09	0.00	0.00	0.00	±0.3
464000	4.10	4.07	4.06	4.10	4.08	4.07	0.00	0.02	0.02	±0.3
587800	4.06	4.03	4.02	4.05	4.03	4.03	−0.02	0.00	0.02	±0.3
744200	4.01	3.98	3.97	4.00	3.99	3.97	−0.02	0.02	0.00	±0.3
942600	3.99	3.97	3.96	3.99	3.97	3.96	0.00	0.00	0.00	±0.3
1193600	3.97	3.95	3.94	3.97	3.94	3.93	0.00	−0.02	−0.02	±0.3
1511600	3.96	3.94	3.93	3.96	3.94	3.94	0.00	0.00	0.02	±0.3
1914400	3.95	3.92	3.92	3.94	3.92	3.92	−0.02	0.00	0.00	±0.3
2424400	3.93	3.91	3.90	3.94	3.91	3.89	0.02	0.00	−0.02	±0.3
3070200	3.91	3.88	3.87	3.92	3.88	3.86	0.02	0.00	−0.02	±0.3
3888000	3.85	3.82	3.82	3.85	3.82	3.82	0.00	0.00	0.00	±0.3
4000000	3.84	3.81	3.81	3.85	3.82	3.80	0.02	0.02	−0.02	±0.3
4923800	3.78	3.75	3.74	3.77	3.75	3.75	−0.02	0.00	0.02	±0.3
6235400	3.67	3.64	3.63	3.67	3.64	3.65	0.00	0.00	0.05	±0.3
7896400	3.53	3.50	3.50	3.53	3.51	3.49	0.00	0.02	−0.02	±0.3
10000000	3.38	3.36	3.36	3.38	3.35	3.38	0.00	−0.03	0.05	±0.3

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

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

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	1.55	1.54	1.54	1.55	1.55	1.55	0.00	0.06	0.06	±0.3
3200	1.54	1.54	1.54	1.56	1.54	1.55	0.11	0.00	0.06	±0.3
4000	1.53	1.53	1.53	1.53	1.53	1.54	0.00	0.00	0.06	±0.3
5200	1.52	1.52	1.52	1.51	1.51	1.53	−0.06	−0.06	0.06	±0.3
6600	1.51	1.51	1.51	1.50	1.51	1.51	−0.06	0.00	0.00	±0.3
8200	1.50	1.50	1.50	1.50	1.50	1.49	0.00	0.00	−0.06	±0.3
9000	1.49	1.49	1.49	1.50	1.49	1.50	0.06	0.00	0.06	±0.3
10600	4.33	4.24	4.27	4.35	4.26	4.27	0.04	0.04	0.00	±0.3
13400	4.36	4.30	4.29	4.38	4.33	4.29	0.04	0.06	0.00	±0.3
17000	4.36	4.30	4.28	4.38	4.31	4.30	0.04	0.02	0.04	±0.3
21400	4.38	4.32	4.30	4.38	4.32	4.32	0.00	0.00	0.04	±0.3
27200	4.38	4.31	4.30	4.39	4.33	4.30	0.02	0.04	0.00	±0.3
34400	4.37	4.32	4.31	4.39	4.33	4.32	0.04	0.02	0.02	±0.3
40000	4.37	4.32	4.31	4.39	4.34	4.32	0.04	0.04	0.02	±0.3
43600	4.36	4.31	4.30	4.36	4.32	4.31	0.00	0.02	0.02	±0.3
55400	4.35	4.30	4.29	4.36	4.31	4.30	0.02	0.02	0.02	±0.3
70000	4.34	4.29	4.28	4.34	4.29	4.28	0.00	0.00	0.00	±0.3
88800	4.32	4.28	4.27	4.33	4.27	4.28	0.02	−0.02	0.02	±0.3
112400	4.31	4.27	4.25	4.31	4.27	4.26	0.00	0.00	0.02	±0.3
142400	4.29	4.25	4.24	4.30	4.25	4.24	0.02	0.00	0.00	±0.3
161750	4.27	4.23	4.22	4.28	4.24	4.23	0.02	0.02	0.02	±0.3
180400	4.26	4.22	4.21	4.26	4.23	4.21	0.00	0.02	0.00	±0.3
228400	4.23	4.19	4.18	4.23	4.19	4.18	0.00	0.00	0.00	±0.3
289400	4.19	4.15	4.14	4.19	4.16	4.15	0.00	0.02	0.02	±0.3
366400	4.15	4.12	4.11	4.15	4.12	4.11	0.00	0.00	0.00	±0.3
400000	4.13	4.10	4.09	4.13	4.10	4.09	0.00	0.00	0.00	±0.3
464000	4.10	4.07	4.06	4.10	4.07	4.06	0.00	0.00	0.00	±0.3
587800	4.06	4.03	4.02	4.05	4.03	4.02	−0.02	0.00	0.00	±0.3
744200	4.01	3.98	3.97	4.00	3.98	3.98	−0.02	0.00	0.02	±0.3
942600	3.99	3.97	3.96	3.99	3.97	3.97	0.00	0.00	0.02	±0.3
1193600	3.97	3.95	3.94	3.98	3.95	3.93	0.02	0.00	−0.02	±0.3
1511600	3.96	3.94	3.93	3.96	3.94	3.94	0.00	0.00	0.02	±0.3
1914400	3.95	3.92	3.92	3.95	3.92	3.92	0.00	0.00	0.00	±0.3
2424400	3.93	3.91	3.90	3.94	3.91	3.90	0.02	0.00	0.00	±0.3
3070200	3.91	3.88	3.87	3.90	3.88	3.87	−0.02	0.00	0.00	±0.3
3888000	3.85	3.82	3.82	3.85	3.83	3.83	0.00	0.02	0.02	±0.3
4000000	3.84	3.81	3.81	3.85	3.82	3.81	0.02	0.02	0.00	±0.3
4923800	3.78	3.75	3.74	3.78	3.75	3.74	0.00	0.00	0.00	±0.3
6235400	3.67	3.64	3.63	3.67	3.65	3.65	0.00	0.02	0.05	±0.3
7896400	3.53	3.50	3.50	3.53	3.50	3.50	0.00	0.00	0.00	±0.3
10000000	3.38	3.36	3.36	3.38	3.37	3.42	0.00	0.03	0.15	±0.3

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

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

Frequency Response, E-field, Channel 0

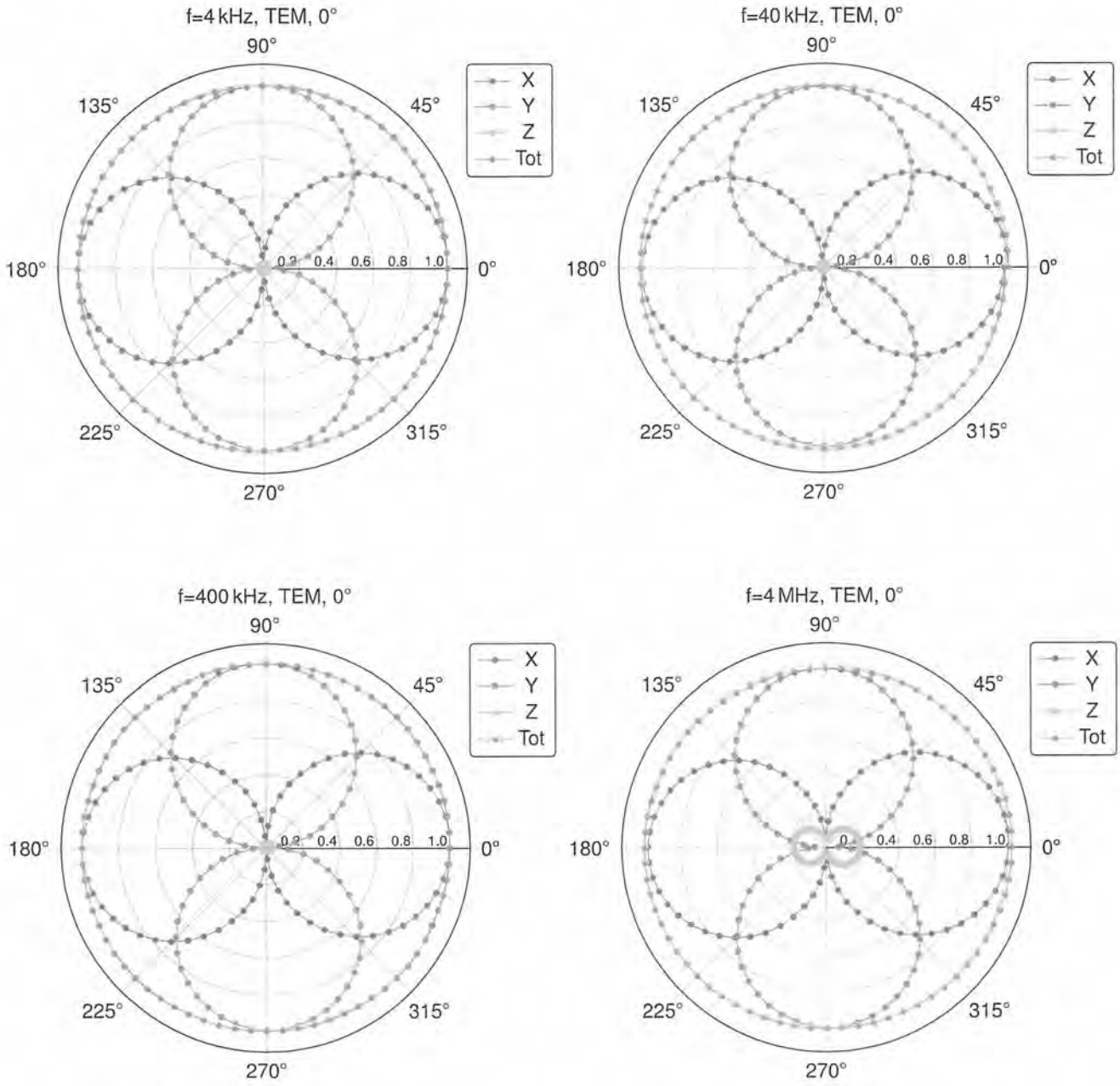
	E-field/(V/m) Applied			E-field/(V/m) Reading			Difference/(dB)			
f/(Hz)	x	y	z	x	y	z	x	y	z	Tolerance/(dB)
3000	82.8	82.8	83.7	82.8	82.8	83.7	0.00	0.00	0.00	±0.3
3200	82.2	82.2	79.2	82.1	82.1	78.9	−0.01	−0.01	−0.03	±0.3
4000	85.7	85.7	82.9	85.7	85.7	82.9	0.00	0.00	0.00	±0.3
5200	80.3	80.3	80.0	80.5	80.5	80.1	0.02	0.02	0.01	±0.3
6600	80.0	80.0	78.3	80.0	80.0	78.4	0.00	0.00	0.01	±0.3
8200	79.5	79.5	77.6	79.5	79.7	77.2	0.00	0.02	−0.04	±0.3
9000	79.9	79.9	80.0	80.0	80.0	80.1	0.01	0.01	0.01	±0.3
10600	81.5	81.5	77.7	81.5	81.6	77.9	0.00	0.01	0.02	±0.3
13400	80.1	80.1	79.2	80.2	80.0	79.3	0.01	−0.01	0.01	±0.3
17000	79.2	79.2	79.8	79.2	79.2	79.8	0.00	0.00	0.00	±0.3
21400	77.2	77.2	77.7	77.2	77.3	77.7	0.00	0.01	0.00	±0.3
27200	77.6	77.6	77.0	77.7	77.6	77.1	0.01	0.00	0.01	±0.3
34400	79.5	79.5	78.1	79.5	79.5	78.2	0.00	0.00	0.01	±0.3
40000	79.0	79.0	78.7	79.1	79.1	78.7	0.01	0.01	0.00	±0.3
43600	79.4	79.4	78.4	79.5	79.5	78.5	0.01	0.01	0.01	±0.3
55400	78.9	78.9	77.8	79.0	79.0	77.9	0.01	0.01	0.01	±0.3
70000	79.4	79.4	78.2	79.5	79.5	78.3	0.01	0.01	0.01	±0.3
88800	79.2	79.2	78.4	79.2	79.2	78.5	0.00	0.00	0.01	±0.3
112400	79.1	79.1	78.3	79.1	79.1	78.3	0.00	0.00	0.00	±0.3
142400	79.5	79.5	78.5	79.5	79.5	78.5	0.00	0.00	0.00	±0.3
161750	79.9	79.9	79.1	80.0	80.0	79.1	0.01	0.01	0.00	±0.3
180400	80.2	80.2	79.3	80.3	80.3	79.3	0.01	0.01	0.00	±0.3
228400	80.9	80.9	79.7	81.0	81.0	79.8	0.01	0.01	0.01	±0.3
289400	80.9	80.9	80.0	81.0	81.0	80.0	0.01	0.01	0.00	±0.3
366400	81.0	81.0	80.1	81.0	81.0	80.2	0.00	0.00	0.01	±0.3
400000	81.3	81.3	80.3	81.4	81.4	80.3	0.01	0.01	0.00	±0.3
464000	81.9	81.9	80.8	81.9	81.9	80.8	0.00	0.00	0.00	±0.3
587800	82.1	82.1	81.0	82.2	82.2	81.0	0.01	0.01	0.00	±0.3
744200	82.1	82.1	81.0	82.1	82.1	81.0	0.00	0.00	0.00	±0.3
942600	82.2	82.2	81.1	82.3	82.3	81.2	0.01	0.01	0.01	±0.3
1193600	82.4	82.4	81.1	82.4	82.4	81.2	0.00	0.00	0.01	±0.3
1511600	82.0	82.0	81.0	82.1	82.1	81.0	0.01	0.01	0.00	±0.3
1914400	81.7	81.7	80.7	81.8	81.8	80.8	0.01	0.01	0.01	±0.3
2424400	81.5	81.5	80.6	81.5	81.6	80.7	0.00	0.01	0.01	±0.3
3070200	81.6	81.6	80.8	81.7	81.7	80.8	0.01	0.01	0.00	±0.3
3888000	81.8	81.8	80.9	81.8	81.8	80.9	0.00	0.00	0.00	±0.3
4000000	81.9	81.9	81.1	81.9	81.9	81.1	0.00	0.00	0.00	±0.3
4923800	82.5	82.5	81.7	82.5	82.5	81.8	0.00	0.00	0.01	±0.3
6235400	83.6	83.6	82.5	83.7	83.7	82.5	0.01	0.01	0.00	±0.3
7896400	86.8	86.8	86.3	86.9	86.9	86.3	0.01	0.01	0.00	±0.3
10000000	94.4	94.4	93.8	94.4	94.4	93.8	0.00	0.00	0.00	±0.3

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

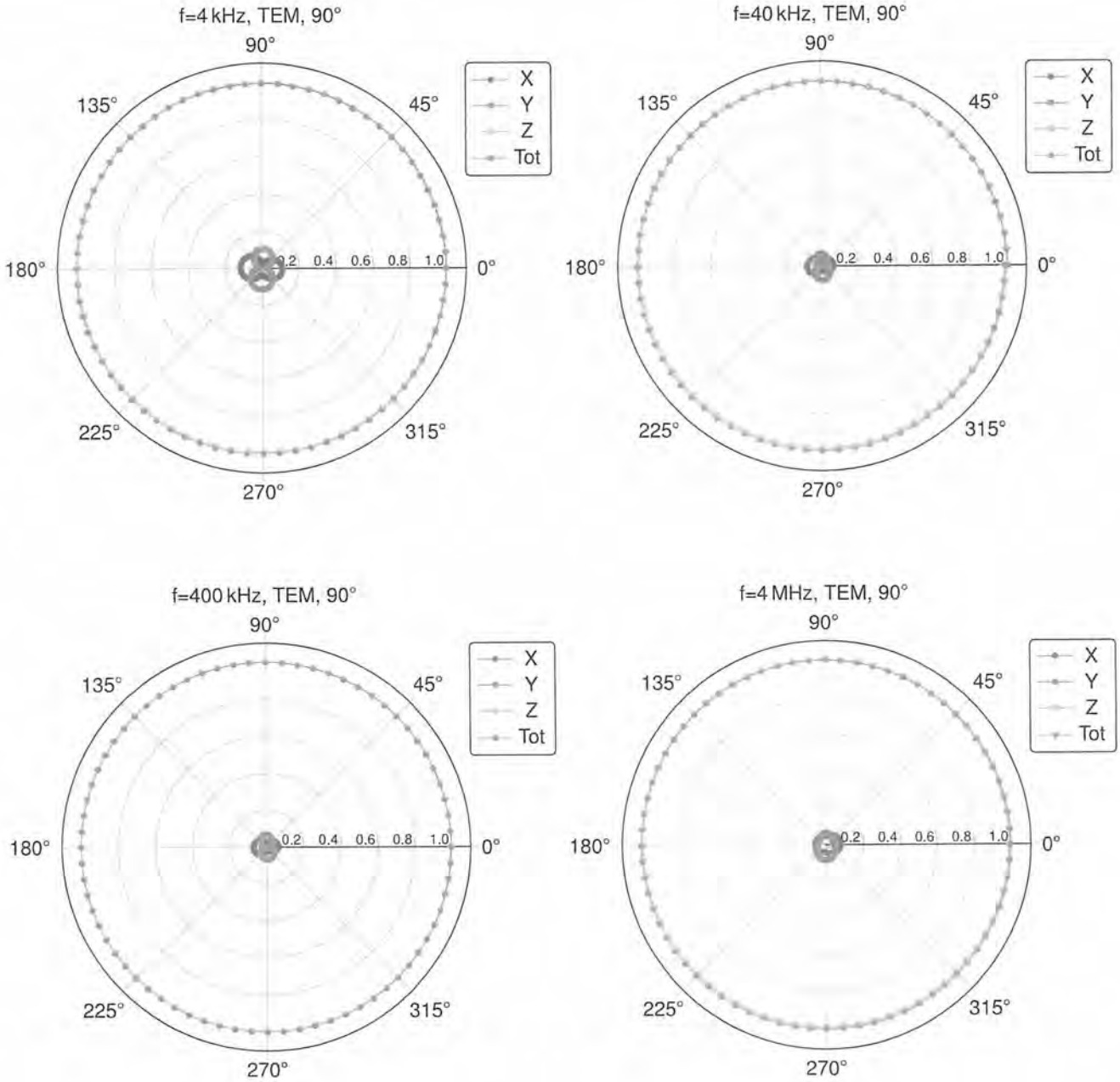
[1]Calibration uncertainty not taken into account (shared risk 50%).

Isotropy H-Field

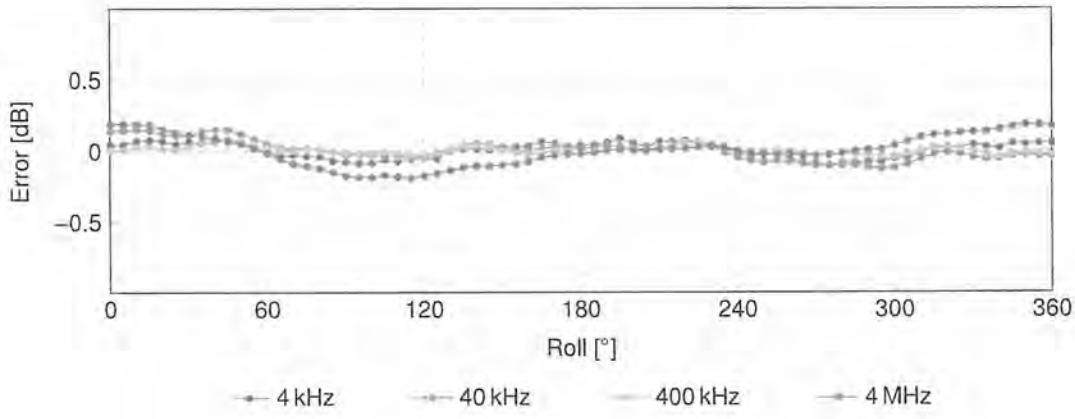
H-Field Receiving Pattern (ϕ), $\vartheta = 0°$



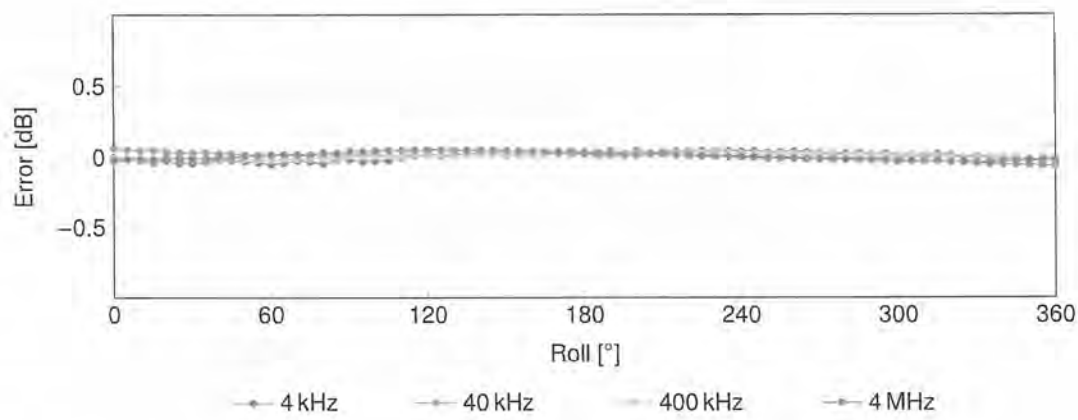
H-Field Receiving Pattern (ϕ), $\vartheta = 90°$



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



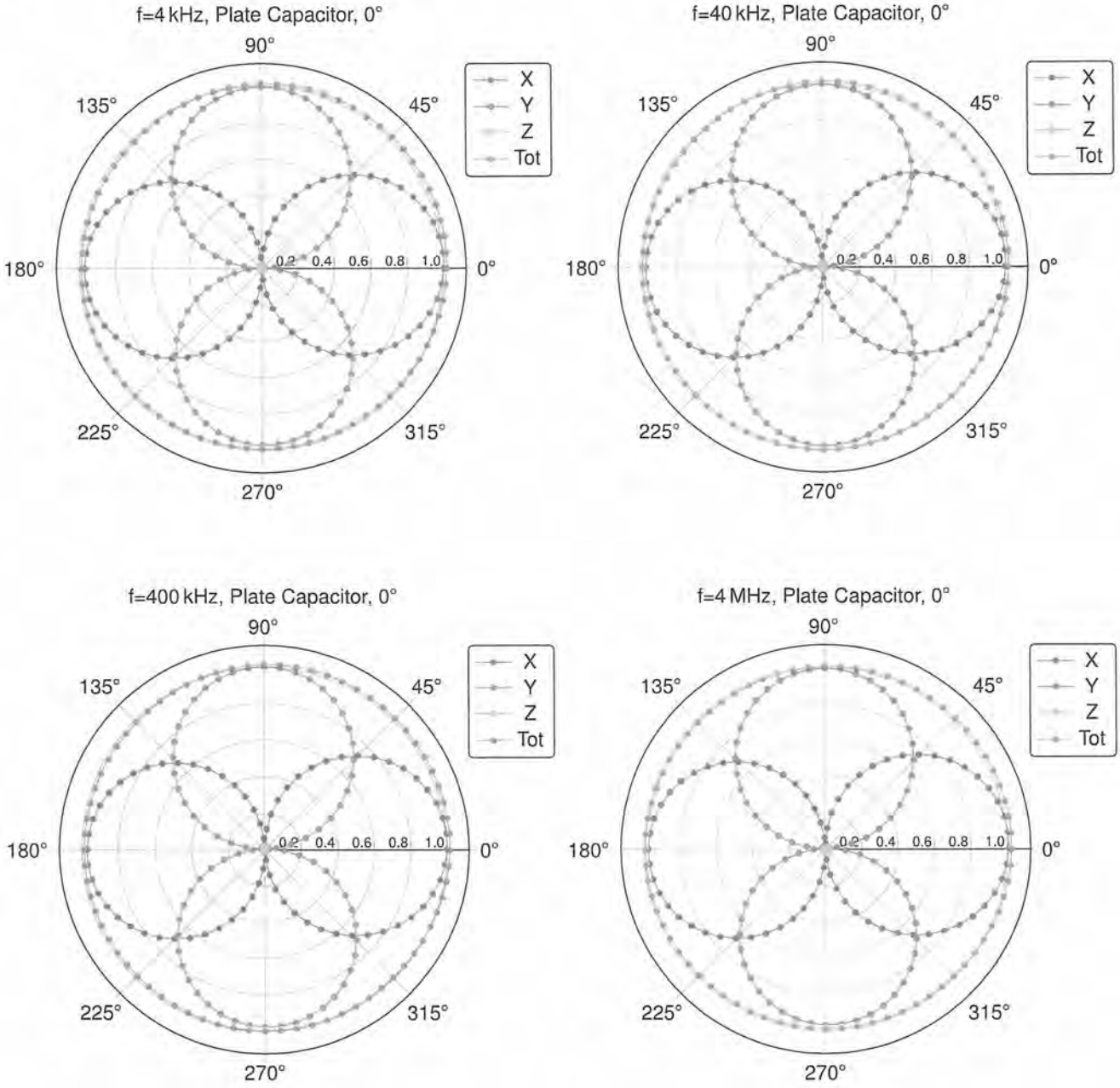
H-Field Receiving Pattern (ϕ), $\vartheta = 90°$



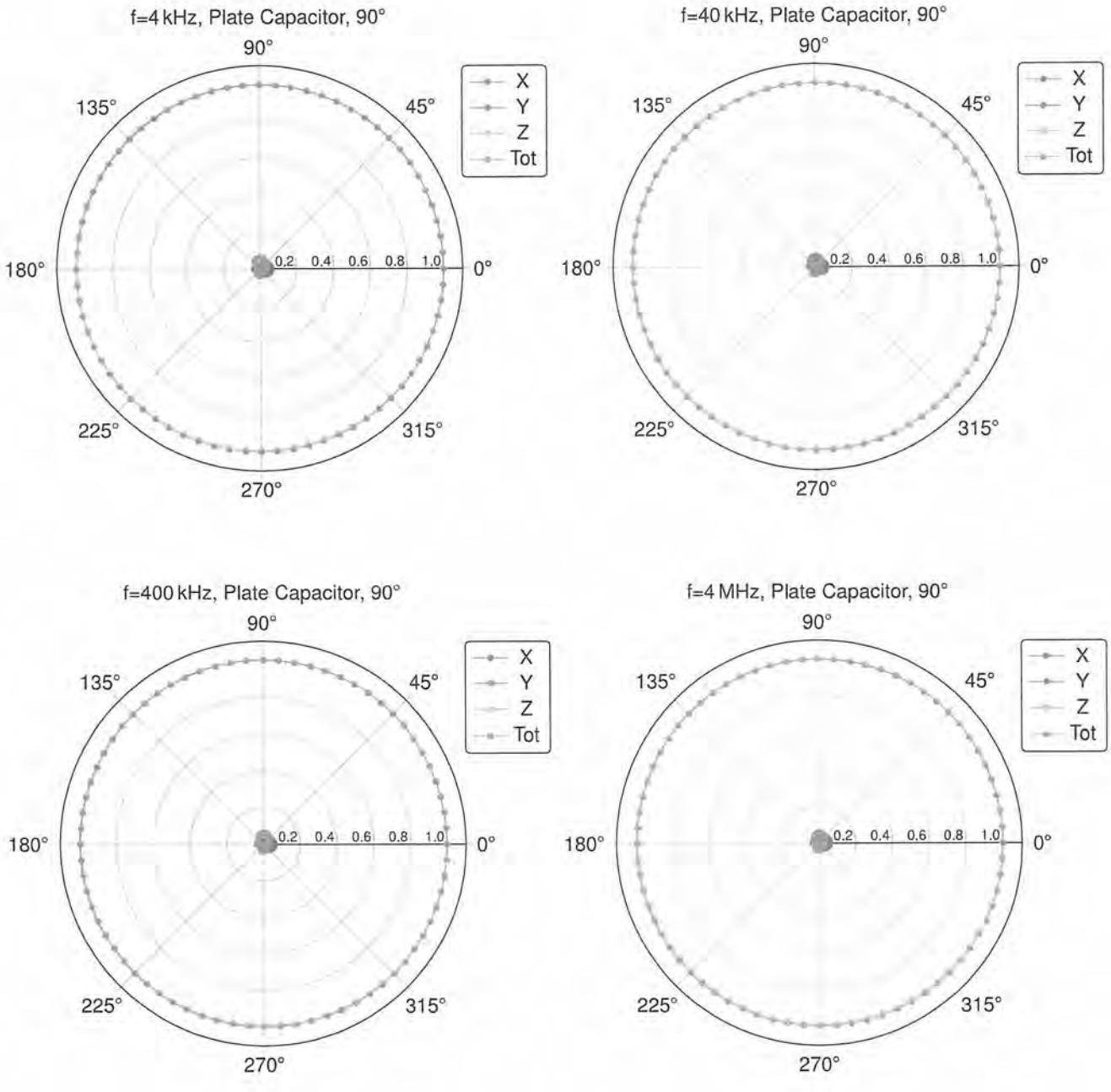
SPEAG axial deviation from the ideal response tolerance for H-field: ±0.6 dB

Isotropy E-Field

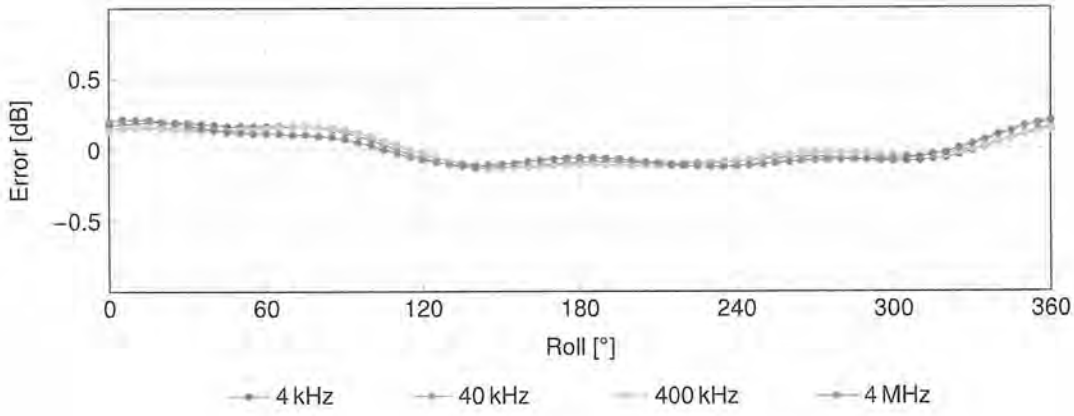
E-Field Receiving Pattern (ϕ), $\vartheta = 0°$



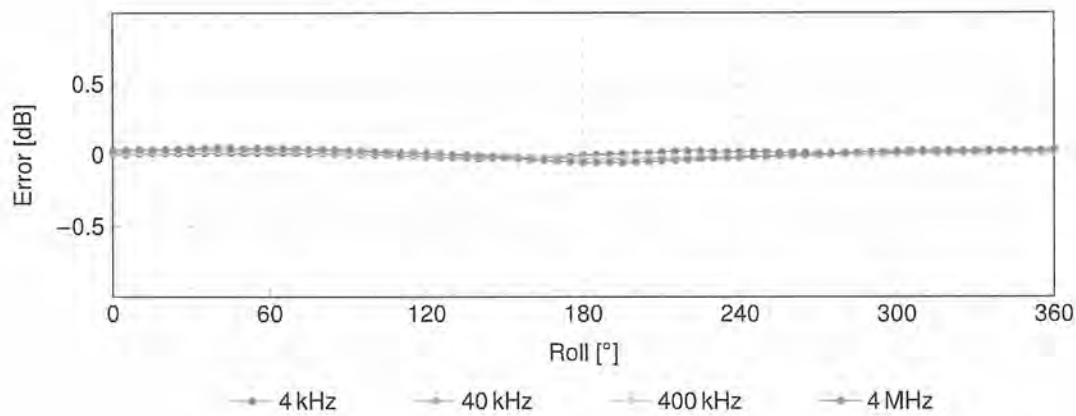
E-Field Receiving Pattern (ϕ), $\vartheta = 90°$



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



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



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

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

MAG 9/29/24

Client	**RF Safety Laboratory** **Baltimore, USA**	Certificate No:	**V-Coil350/85V2-1025_Aug24**

CALIBRATION CERTIFICATE

Object	V-Coil350/85V2 - SN: 1025
Calibration procedure(s)	QA CAL-47.v13 Calibration Procedure for WPT Verification & Validation Sources
Calibration date:	August 30, 2024

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

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 75%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
MAGPy-8H3D+E3D/DAS	SN: 3090/3078	22-Aug-24 (MAGPy-8H3D-3090_Aug24)	Aug-25
Secondary Standards	**ID #**	**Check Date (in house)**	**Scheduled Check**

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

Issued: September 11, 2024

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

Glossary:

WPT	wireless power transfer
V&V	verification & validation

Calibration is Performed According to the Following Standards:

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

Additional Documentation:

a) cDASY6/DASY8 Module WPT Manual

Methods Applied and Interpretation of Parameters:

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

Calibrated Quantity

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

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

Measurement Conditions

Software version	cDASY6 Module WPT	2.6.0.5002
	Notebook GUI	2.6.0.9
	Sim4Life	8.0.1
Scan setup	Grid dimensions	x: 477 mm, y: 389 mm, z: 36.7 mm
	Grid resolutions	dx, dy, dz: 7.33 mm
Nominal frequency	85 kHz	

Calibrated Quantities

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

Appendix (Additional assessments outside the scope of SCS 0108)

Peak values of induced fields[1]

Distance (relative to source surface) (mm)	Induced peak current density, 1cm² area avg. (A/m²)	Induced peak E-field (V/m)			peak spatial SAR (mW/kg)	
		2mm cube avg.	Local	5mm line avg.	1g avg.	10g avg.
0	2.36	3.37	3.40	3.41	6.52	4.82
2	2.22	3.17	3.20	3.21	5.82	4.37

Voltage measurement

Total voltage (V)	Voltages at harmonics (dBc)
0.409	Highest harmonic: -47.2 2nd highest harmonic: -51.9

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

Measurement report

cDASY6 Module WPT Measurement Report

Device under test

Info:
V-Coil350/85

Serial number:
1025

Scenario:
source calibration

Tool info

DASY software version:
cDASY6 Module WPT 2.6.0.5002

Probe model, serial no. and configuration date:
MAGPy-8H3D+E3Dv2, WP000230, *2024/08/23*

Software version:
2.0.63, *backend: 2.2.22*

Scan info

Center location:
x: -48.06 mm, y: -119.88 mm, z: 36.11 mm

Dimensions:
x: 477.0 mm, y: 388.8 mm, z: 36.7 mm

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

Completed on:
2024/08/30 11:37:25

Measurement results

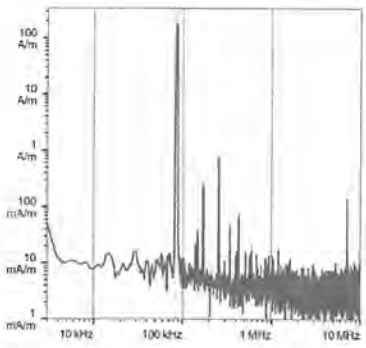
Maximum H-field [RMS]:
MAGNITUDE: 135.09 A/m
x: 117.37 A/m, y: 30.99 A/m, z: 59.27 A/m

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

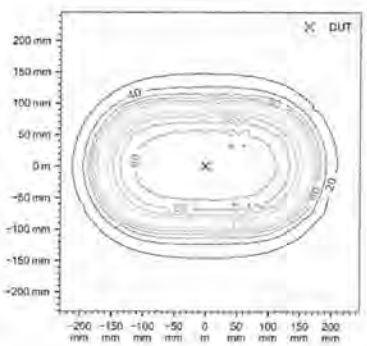
Distance to -20.0 dB boundary:
62.66 mm

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

H-field magnitude [RMS] at maximum location



H-field magnitude [RMS] at lowest plane



Incident fields and induced fields in the homogeous phantom at the peak frequency *(f = 65.00 kHz, σ = 0.750 S/m, tissue density = 1,000 kg/m³)*

Distance [mm]	Peak incident fields [RMS]	Peak E_{ind} [V/m, RMS]			Peak J_{ind} [A/m^2, RMS]	psSAR [mW/kg]		H-field extent	Warnings		
	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	208	3.37	3.40	3.41	2.36	6.52	4.82	181	1%	93%	36%
2.00	189	3.17	3.20	3.21	2.22	5.82	4.37	183	1%	93%	38%

Compliance evaluation (Field values at the peak frequency) *(f=65.00 kHz,)*

	ICNIRP 2010/2020			ICNIRP 1998			IEEE 2019			FCC			HC Code 6		
	RL [RMS]	BR [RMS]		RL [RMS]	BR [RMS]		ERL [RMS]	DRL [RMS]		MPE [RMS]	BR [RMS]		RL [RMS]	BR [RMS]	
Distance	pH_{inc}	pE_{ind}	psSAR	pH_{inc}	pJ_{ind}	psSAR	pH_{inc}	pE_{ind}	psSAR	pH_{inc}	pE_{ind}	psSAR	pH_{inc}	pE_{ind}	psSAR
[mm]	[A/m]	[V/m]	[mW/kg]	[A/m]	[A/m^2]	[mW/kg]	[A/m]	[V/m]	[mW/kg]	[A/m]	[V/m]	[mW/kg]	[A/m]	[V/m]	[mW/kg]
0.00	208	3.37	4.82	208	2.36	4.82	208	3.41	4.82	208	N/A	6.52	208	3.40	6.52
2.00	189	3.17	4.37	189	2.22	4.37	189	3.21	4.37	189	N/A	5.82	189	3.20	5.82

Compliance evaluation (Exposure ratios) *(ratios in dB)*

	ICNIRP 2010/2020				ICNIRP 1998			IEEE 2019				FCC			HC Code 6			
	RL		BR		RL	BR		ERL		DRL		MPE	BR		RL		BR	
Distance [mm]	pH_{inc}		pE_{ind}	psSAR	pH_{inc}	pJ_{ind}	psSAR	pH_{inc}		pE_{ind}	psSAR	pH_{inc}	pE_{ind}	psSAR	pH_{inc}		pE_{ind}	psSAR
	NS	TH	NS	TH	N/A	NS	TH	NS	TH	NS	TH	N/A	N/A	TH	NS	TH	NS	TH
0.00	19.9	N/A	-10.6	N/A	32.4	22.9	N/A	2.12	N/A	-14.3	N/A	7.28	N/A	N/A	7.28	N/A	-10.6	N/A
2.00	19.1	N/A	-11.2	N/A	31.5	22.3	N/A	1.28	N/A	-14.9	N/A	6.44	N/A	N/A	6.44	N/A	-11.1	N/A

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