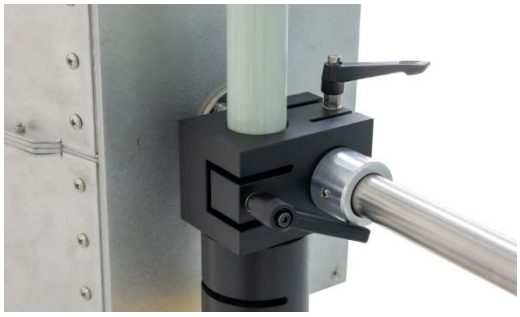
200MHz – 2 GHz MIL-STD Horn Antenna

1 Introduction

The TBMA9 is a broadband, double-ridged MIL-STD horn antenna, designed and manufactured to offer stable linear polarization over the frequency range of 200 MHz to 2 GHz. Providing high and nearly constant gain across the operating frequency range, the TBMA9 horn antenna serves as an alternative for biconical and log-periodic types in EMC testing setups. It is optimized for both radiated emissions and immunity measurements, and can sustain a continuous RF input of 500 W during immunity tests.







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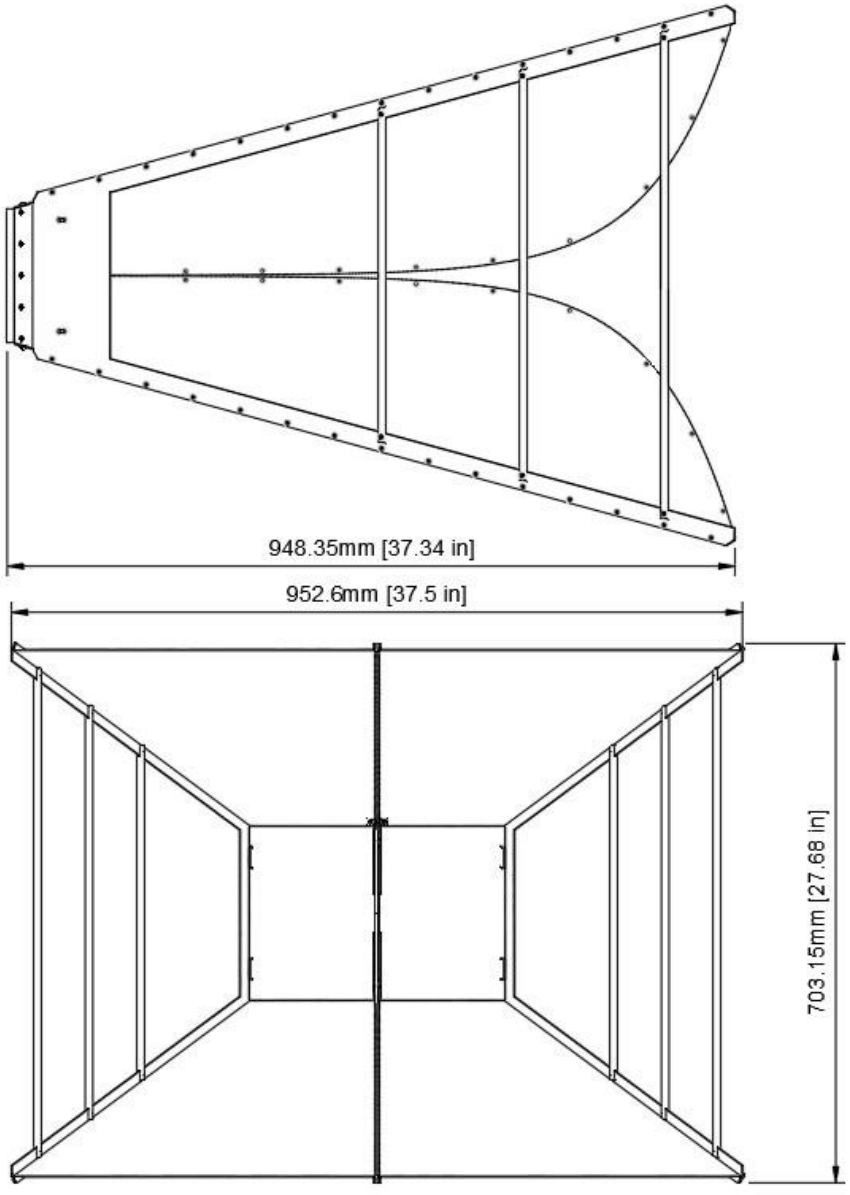
2 Product overview

The TBMA9 is made of lightweight aluminium sheets. The TBTP7 fiberglass tripod in combination with a TBMA8-PAT mounting adapter is recommended as a mounting option. A 22mm stainless steel shaft at the rear of the antenna enables rotation to set up the desired polarisation. Furthermore, there is a mounting panel at the bottom of the antenna.

200MHz – 2 GHz MIL-STD Horn Antenna

3 Technical specifications

Type	MIL-STD double ridged horn
Frequency range	200 MHz– 2000 MHz
VSWR	<2 (f > 270 MHz)
Isotropic gain at 1m spacing	4.80 … 8.86 dBi
Antenna factor at 1m spacing	11.27… 30.13 dB/m
Power handling (Peak/CW)	800 W Short-term (Peak) ; 500 W Continuous (CW)
Nominal impedance	50 Ω
RF Connector	N type female
Optional Tripod	Model TBTP6
Mechanical Dimensions	L x W x H: 948.35mm x 952.6mm x 703.15mm (37.34” x37.50” x27.68”)
Weight	16 kg (33 lbs)



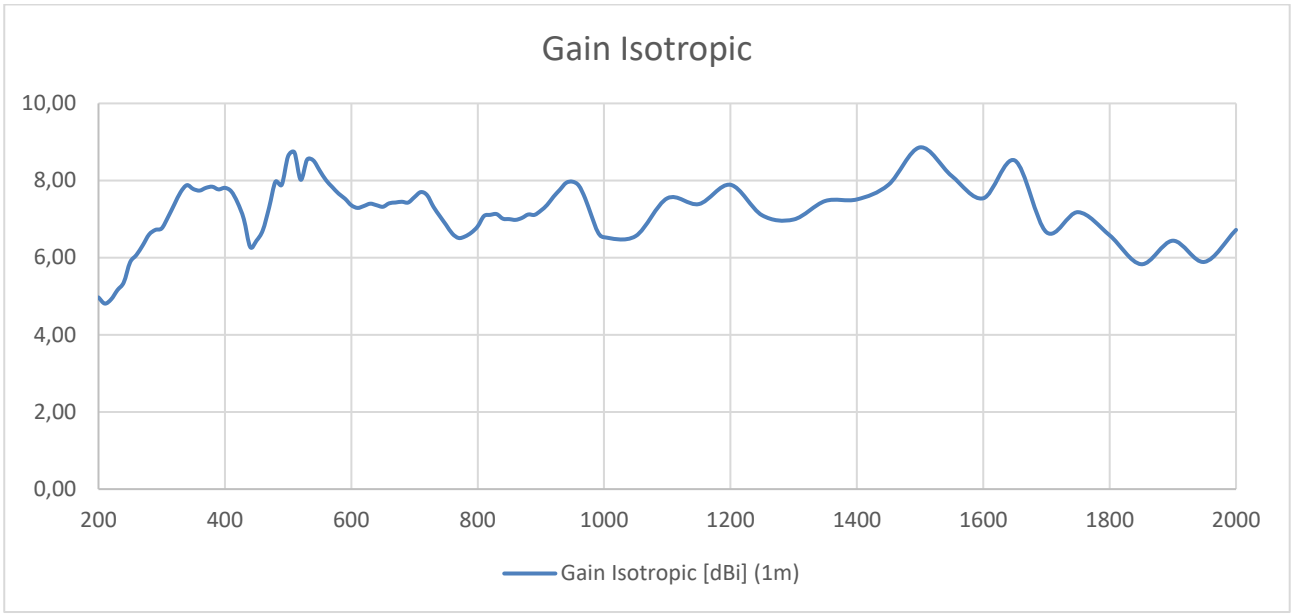
200MHz – 2 GHz MIL-STD Horn Antenna

4 Gain & Antenna Factor versus frequency

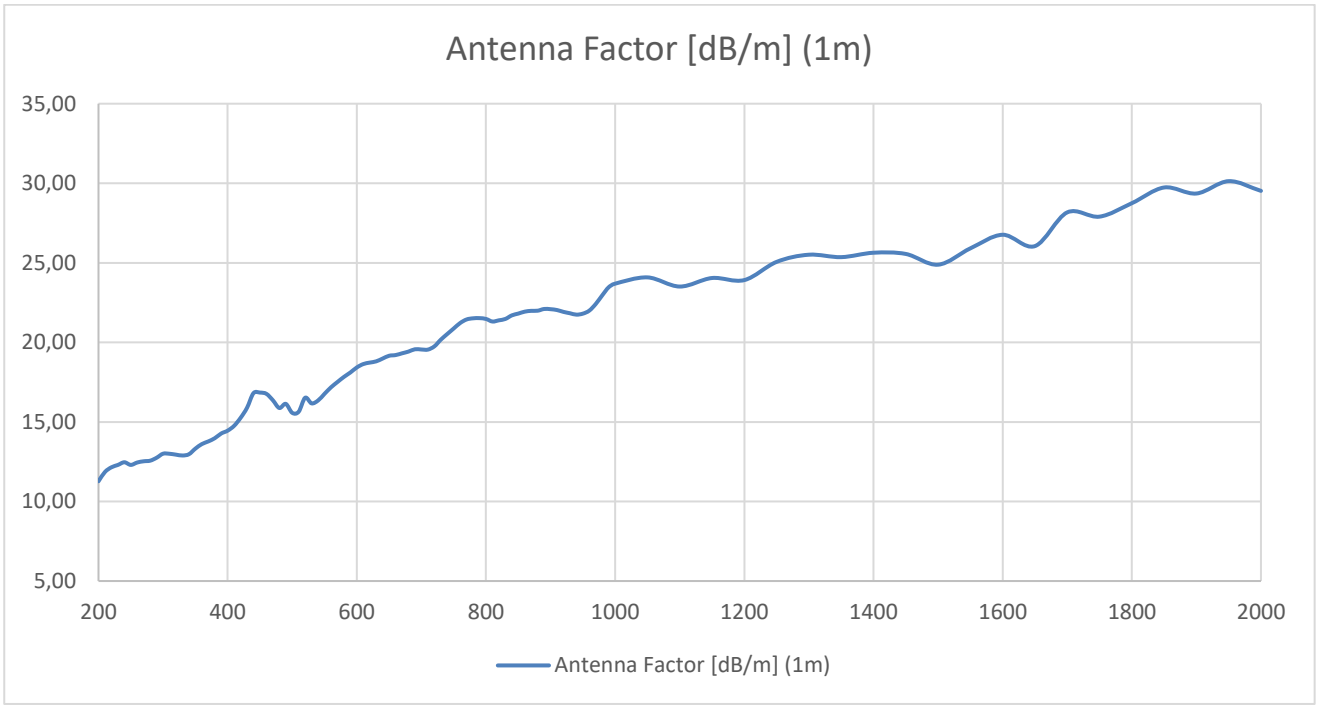
The TBMA9 has been characterized using standard calibration techniques and the results are documented in the tables further down.

Frequency	Wavelength	Isotropic Gain @ 1m	Antenna Factor @ 1m	Frequency	Wavelength	Isotropic Gain @ 1m	Antenna Factor @ 1m
MHz	m	dBi	dB/m	MHz	m	dBi	dB/m
200	1.50	4.97	11.27	710	0.42	7.7	19.54
210	1.43	4.81	11.85	720	0.42	7.62	19.75
220	1.36	4.92	12.15	730	0.41	7.32	20.17
230	1.30	5.16	12.29	740	0.41	7.08	20.52
240	1.25	5.36	12.46	750	0.40	6.85	20.87
250	1.20	5.88	12.30	760	0.39	6.62	21.22
260	1.15	6.07	12.45	770	0.39	6.51	21.44
270	1.11	6.32	12.53	780	0.38	6.55	21.51
280	1.07	6.6	12.56	790	0.38	6.65	21.52
290	1.03	6.72	12.75	800	0.38	6.81	21.47
300	1.00	6.76	13.00	810	0.37	7.08	21.31
310	0.97	7.05	13.00	820	0.37	7.11	21.39
320	0.94	7.38	12.94	830	0.36	7.13	21.47
330	0.91	7.7	12.89	840	0.36	7.01	21.70
340	0.88	7.88	12.97	850	0.35	7	21.81
350	0.86	7.78	13.32	860	0.35	6.98	21.93
360	0.83	7.74	13.61	870	0.34	7.03	21.98
370	0.81	7.81	13.77	880	0.34	7.12	21.99
380	0.79	7.84	13.98	890	0.34	7.11	22.10
390	0.77	7.77	14.27	900	0.33	7.22	22.08
400	0.75	7.81	14.45	910	0.33	7.37	22.03
410	0.73	7.72	14.76	920	0.33	7.58	21.92
420	0.71	7.43	15.25	930	0.32	7.76	21.83
430	0.70	7	15.89	940	0.32	7.94	21.74
440	0.68	6.28	16.81	950	0.32	7.97	21.80
450	0.67	6.44	16.84	960	0.31	7.87	22.00
460	0.65	6.71	16.76	970	0.31	7.54	22.42
470	0.64	7.3	16.36	980	0.31	7.09	22.95
480	0.63	7.97	15.87	990	0.30	6.67	23.46
490	0.61	7.89	16.13	1000	0.30	6.53	23.69
500	0.60	8.63	15.57	1050	0.29	6.56	24.08
510	0.59	8.73	15.64	1100	0.27	7.54	23.51
520	0.58	8.02	16.52	1150	0.26	7.39	24.04
530	0.57	8.54	16.17	1200	0.25	7.89	23.91
540	0.56	8.52	16.35	1250	0.24	7.1	25.06
550	0.55	8.26	16.77	1300	0.23	6.99	25.51
560	0.54	8.01	17.17	1350	0.22	7.47	25.36
570	0.53	7.83	17.51	1400	0.21	7.51	25.63
580	0.52	7.66	17.83	1450	0.21	7.89	25.56
590	0.51	7.53	18.11	1500	0.20	8.86	24.88
600	0.50	7.36	18.42	1550	0.19	8.12	25.91
610	0.49	7.29	18.64	1600	0.19	7.54	26.76
620	0.48	7.34	18.73	1650	0.18	8.52	26.05
630	0.48	7.4	18.81	1700	0.18	6.66	28.17
640	0.47	7.36	18.98	1750	0.17	7.18	27.90
650	0.46	7.32	19.16	1800	0.17	6.58	28.75
660	0.45	7.41	19.20	1850	0.16	5.83	29.73
670	0.45	7.43	19.31	1900	0.16	6.44	29.35
680	0.44	7.45	19.42	1950	0.15	5.89	30.13
690	0.43	7.43	19.57	2000	0.15	6.72	29.52
700	0.43	7.57	19.55				

200MHz – 2 GHz MIL-STD Horn Antenna



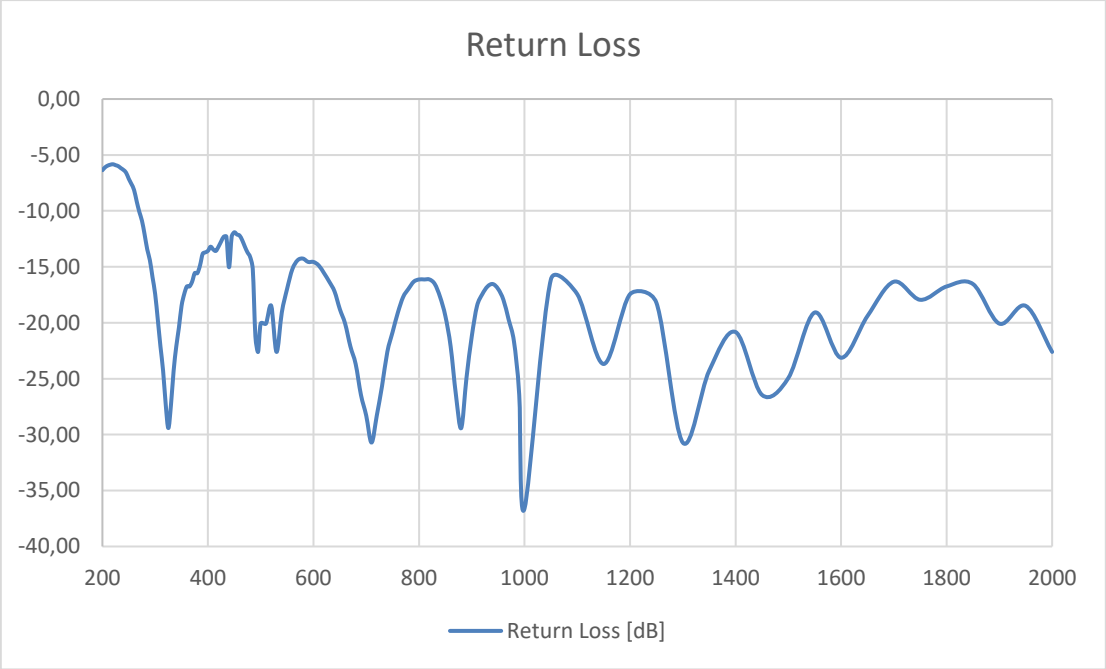
200 MHz … 2000 MHz, Isotropic Gain of TBMA9



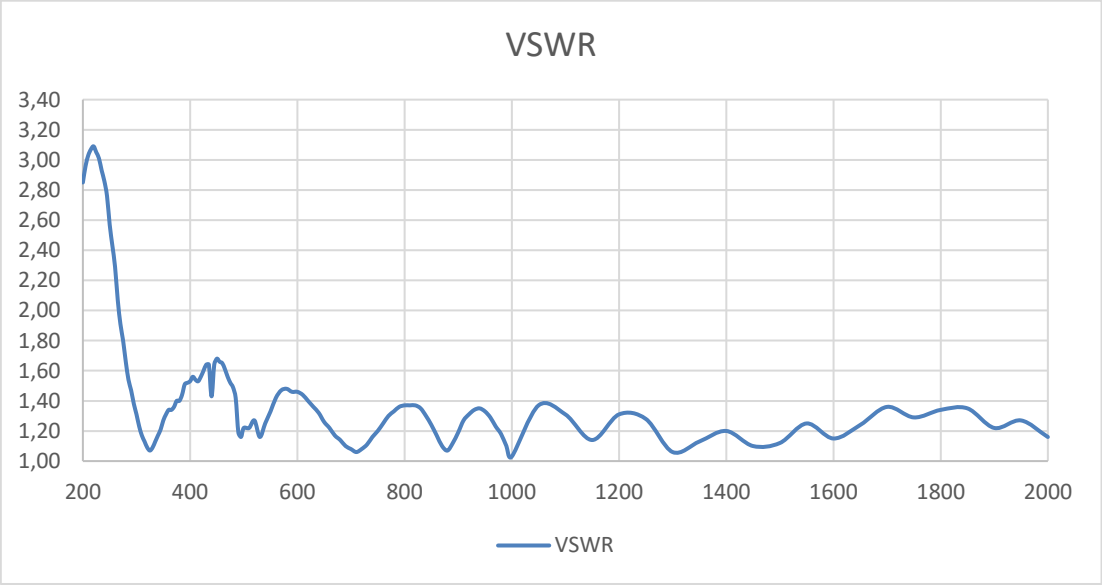
200 MHz … 2000 MHz, Antenna Factor of TBMA9

200MHz – 2 GHz MIL-STD Horn Antenna

5 Return Loss / VSWR



TBMA9, S11, 200 MHz … 2000 MHz

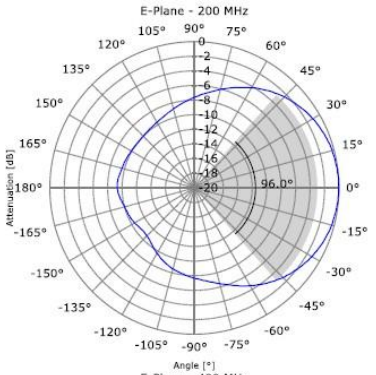


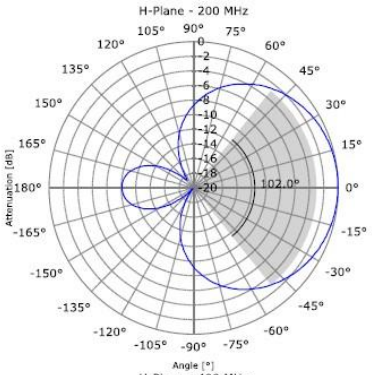
TBMA9, VSWR, 200 MHz … 2000 MHz

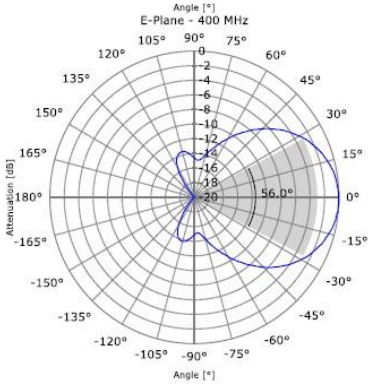
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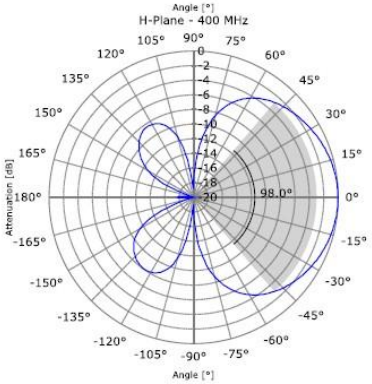
6 Directional plots

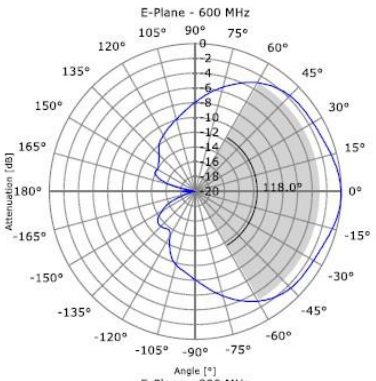
The grey angle marks the 3dB beamwidth.

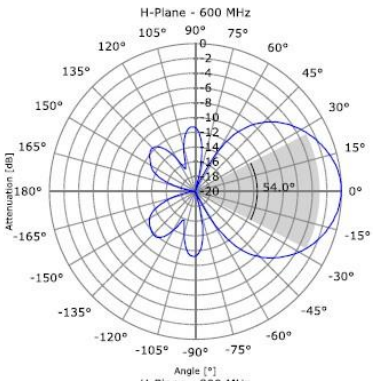


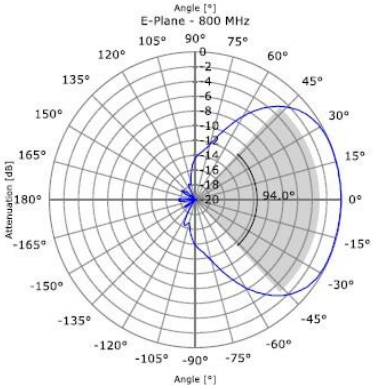


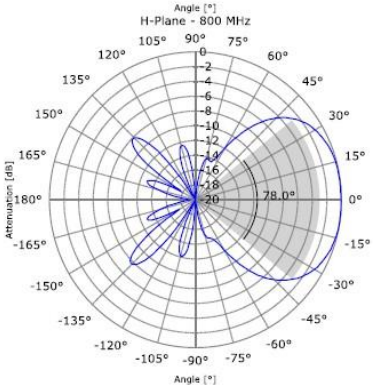




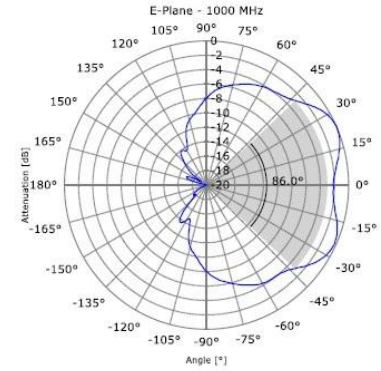


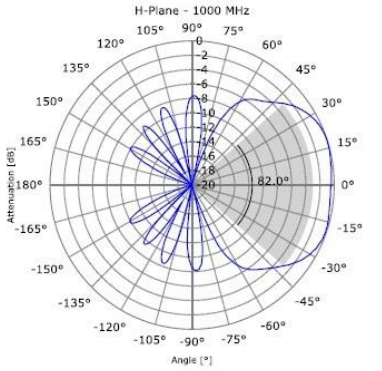


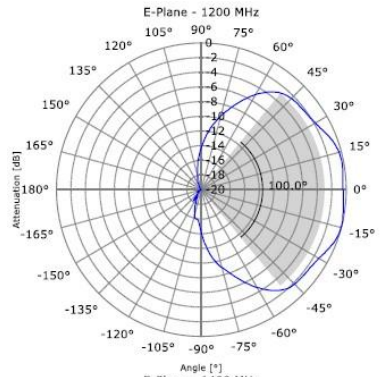


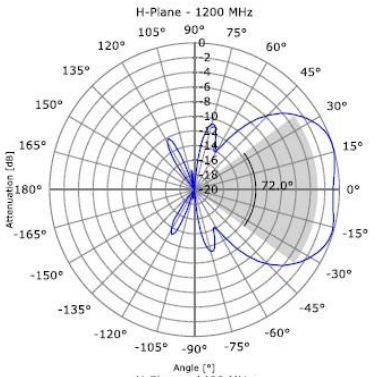


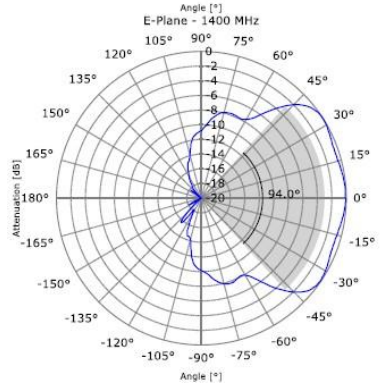
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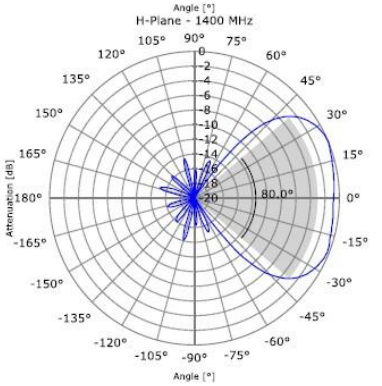


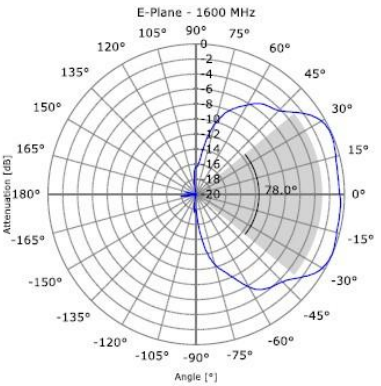


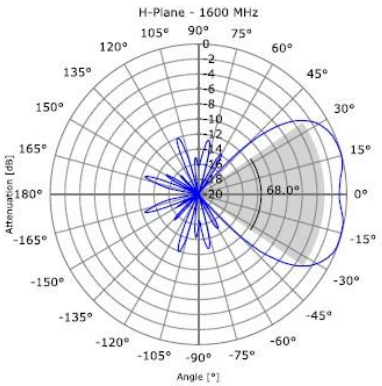




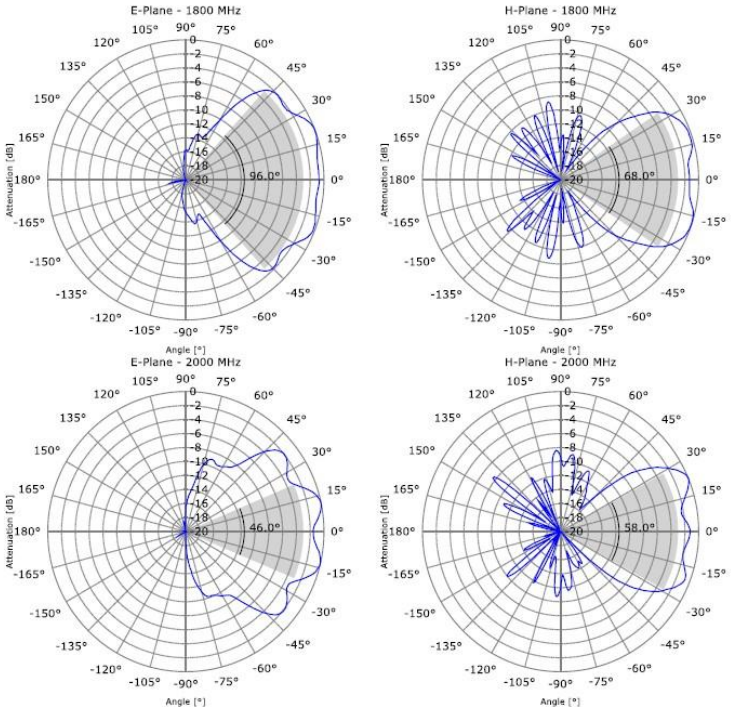








200MHz – 2 GHz MIL-STD Horn Antenna



5 Application

- General purpose receive and transmit antenna
- Radiated Emissions Measurements as specified in RE102 of MIL-STD-461
- Radiated Immunity Testing

6 Ordering Information

Part Number	Description
TBMA9	200 MHz – 2 GHz MIL-STD horn antenna, individual factory calibration using NIST traceable equipment
TBTP7	fiberglass tripod
TBMA8-PAT	tripod mounting adapter

7 History

Version	Date	Author	Changes
V1.0	20.04.2026	Mayerhofer	Creation of the document
V1.1	6.11.2026	Mayerhofer	Chapter 1, 2, 6 updated

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