

Nominal Horn Specifications

Waveguide Band	Freq. Range (GHz)	Horn Type	Physical Parameters			Electrical Parameters (calculated at mid-Band)		
			Horn Length (mm)	Aperture Diameter (mm)	Taper Half-Angle (deg)	Full 3 dB Beamwidth (deg)	Gain (dB)	Beam Waist Radius (mm)
WR-15	50 - 75	Conical	61.0	24.1	11.2	13	21	9.2
WR-12	60 - 90	Conical	52.0	19.9	10.8	13	21	7.6
WR-10	75 - 110	Conical	35.5	16.3	12.9	13	21	6.2
WR-8	90 - 140	Conical	35.5	13.6	10.8	12	21	5.2
WR-6.5	110 - 170	Conical	26.0	10.8	11.7	13	21	4.1
WR-5.1	140 - 220	Conical	20.5	8.4	11.6	13	21	3.2
WR-4.3	170 - 260	Conical	16.5	7.1	12.1	13	21	2.7
WR-3.4	220 - 325	Diagonal	56.0	5.6	2.9	10	26	2.3
WM-710 (WR-2.8)	260 - 400	Diagonal	46.0	4.6	2.9	10	26	1.9
WM-570 (WR-2.2)	325 - 500	Diagonal	36.0	3.6	2.9	10	26	1.5
WM-470 (WR-1.9)	400 - 600	Diagonal*	31.0	3.1	2.9	10	26	1.3
		Diagonal	15.4	3.1	5.7	11	25	1.1
WM-380 (WR-1.5)	500 - 750	Diagonal	24.0	2.4	2.9	10	26	0.99
WM-310 (WR-1.2)	600 - 900	Diagonal*	20.0	2.0	2.9	10	26	0.83
		Diagonal	10.7	2.0	5.3	11	25	0.76
WM-250 (WR-1.0)	750 - 1100	Diagonal	16.0	1.6	2.9	10	26	0.66
WM-200 (WR-0.8)	900 - 1400	Diagonal	13.0	1.3	2.9	10	26	0.54
WM-164 (WR-0.65)	1100 - 1700	Diagonal	5.9	1.1	5.3	11	25	0.41
WM-130 (WR-0.51)	1400 - 2200	Diagonal	4.6	0.85	5.3	11	25	0.32
WM-86 (WR-0.34)	2200 - 3250	Diagonal	3.1	0.56	5.2	11	25	0.21

*Not currently available.

Beamwidth and Radius are averages of E- and H-plane patterns

Fundamental Gaussian Mode Content

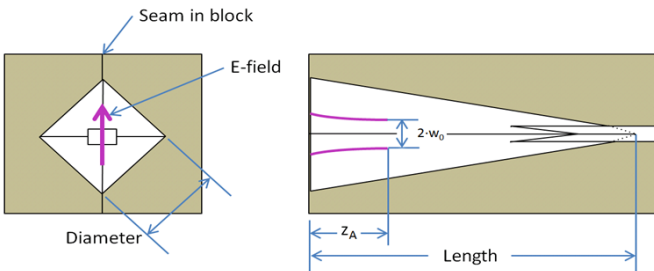
87% typical for Conical Horn
84% typical for Diagonal Horn

References

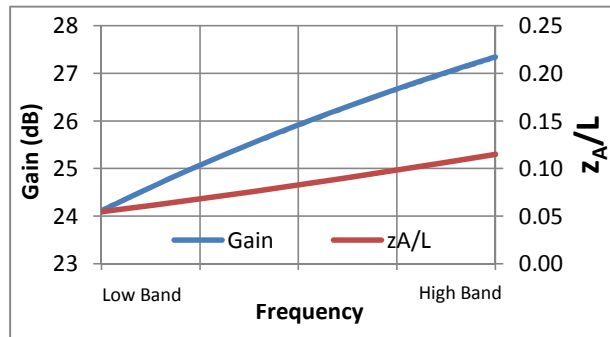
- Quasioptical Systems, Paul Goldsmith, IEEE Press, 1998
- The Handbook of Antenna Design Vol. 1, A.W. Rudge et al. (ed.), IEE Press, 1982
- Microwave Horns and Feeds, Oliver, A.D., et al., IEE Electromagnetic Waves Series. 39
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- "The Diagonal Horn as a Sub-Millimeter Wave Antenna," Johansson et al, IEEE-MTT40, May 1992, pp. 795-800

Aperture Diameter for Diagonal Horn

Taper angle measured from center line to nearest horn wall



Typical Gain vs Frequency



z_A is defined as the location of the beam waist radius (w_0) with respect to the horn aperture.