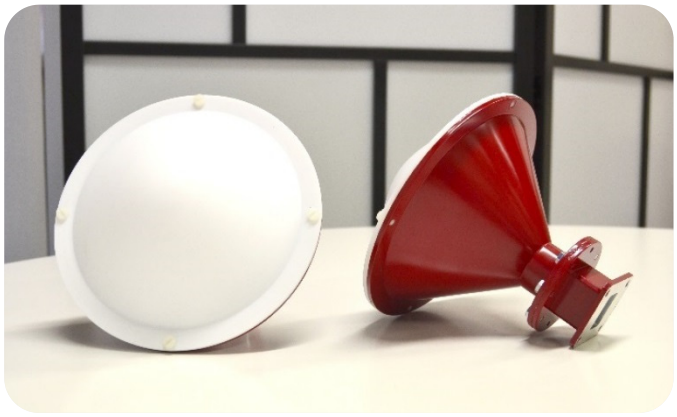
Lens Horn Antenna



- **Optimized design of high performance**
- **30 dB nominal gain at center frequency**
- **Very compact size**
- **Low VSWR**
- **Rectangular or circular waveguide feed**
- **Specific gain values can be requested**

Description

Anteral's Lens Horn Antennas are conical horn antennas with a TEFLON lens added in the aperture, in order to apply phase correction and achieve superior performance with minimum size. The lenses are designed with optimized hyperbolic profiles to reduce the aberration to the minimum. They are designed to cover the frequency range of 8 to 170 GHz, offering 30 dB nominal gain with a very compact size. Anteral designs all Lens Horn Antennas to show not only high gain, but also low VSWR (< 1.22) and low side lobes.

Applications

Lens Horn Antennas are especially useful when high gain is required with the minimum size. Therefore, these antennas are widely used in radar applications, communication and meteorological systems among others. Moreover, the very well defined radiated plane wave makes these antennas also very suitable for material characterization.

Additional Notes

Anteral offers custom designs to show any desired gain.

All designs are optimized to offer the maximum gain with the minimum size.

The performance of all devices is checked before delivery.

Extended performance datasheet is available if customer requires. Ask for more information.

©2012 Anteral S.L. www.anteral.com contact@anteral.com **+34 948 488458**
Edificio I+D "Jerónimo de Ayanz", Campus Arrosadia, 31006 Pamplona (Navarra), SPAIN

Lens Horn Antenna

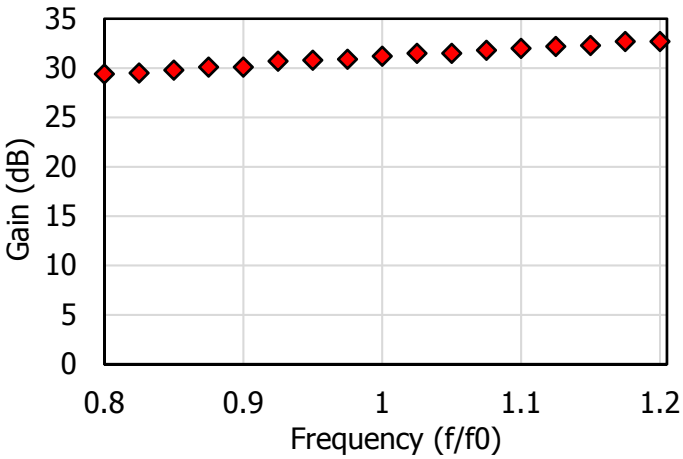
Mechanical and Electrical Specifications

	Description
Gain	> 30 dB
VSWR	< 1.22
Fabrication	In a single aluminum piece
External color	Ruby red
Material	Aluminum

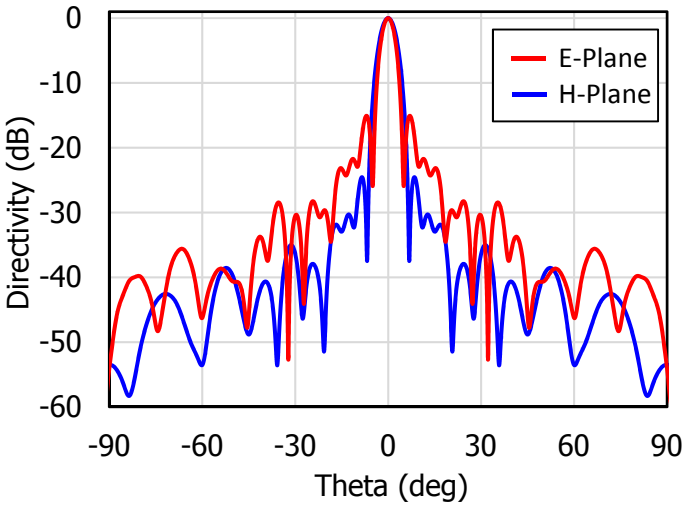
Radiation Pattern Parameters

Frequency [f/f0]	Directivity [dB]	FWHM (deg.)	
		E-plane	H-plane
0.800	29.4	2.7	3.3
0.825	29.5	2.6	3.3
0.850	29.8	2.6	3.2
0.875	30.1	2.5	3.1
0.900	30.1	2.4	3.0
0.925	30.7	2.3	2.9
0.950	30.8	2.3	2.9
0.975	30.9	2.2	2.7
1.000	31.2	2.2	2.6
1.025	31.5	2.1	2.6
1.050	31.5	2.1	2.6
1.075	31.8	2.0	2.5
1.100	32	2.0	2.4
1.125	32.4	1.9	2.4
1.150	32.3	1.9	2.3
1.175	32.7	1.8	2.2
1.200	32.7	1.8	2.2

Gain Vs Normalized Frequency



Radiation Pattern (central frequency)

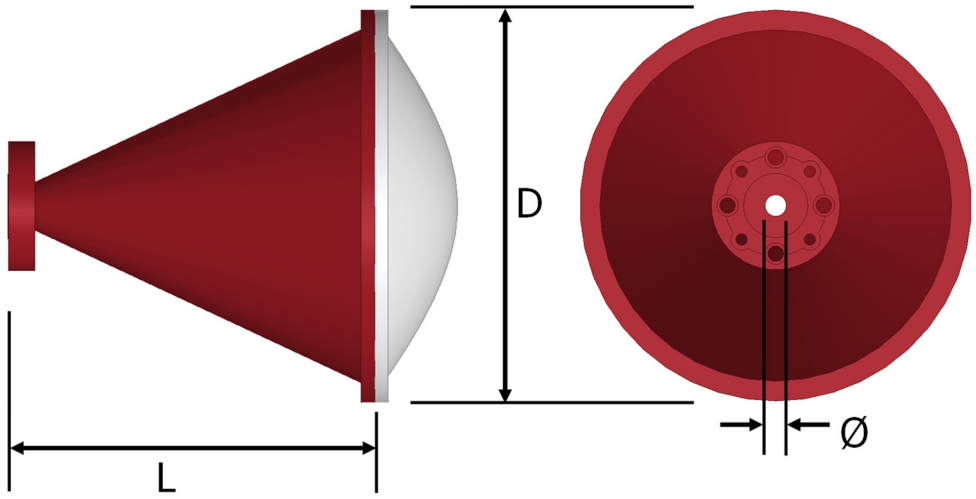


Lens Horn Antenna

Antenna Specifications

Circular Waveguide Feed

Model	Frequency (GHz)	Input Waveguide	Dimensions Ø (mm)	Standard Flange	D (mm)	L (mm)
LHA-30-WC94	8.5 – 11.6	WC-94	23.825	UG-39/U	378.32	382.32
LHA-30-WC59	13.4 – 18.4	WC-59	15.088	UG-419/U	266.00	265.00
LHA-30-WC44	18.2 – 24.9	WC-44	11.125	UG-595/U	184.54	178.54
LHA-30-WC28	28.3 – 38.8	WC-28	7.137	UG-599/U	128.78	122.78
LHA-30-WC22	36.4 – 49.8	WC-22	5.563	UG-383/U	100.36	98.36
LHA-30-WC19	42.4 – 58.1	WC-19	4.775	UG-383/U	85.00	83.00
LHA-30-WC14	56.6 – 77.5	WC-14	3.581	UG-385/U	68.00	68.00
LHA-30-WC13	63.5 – 87.2	WC-13	3.175	UG-387/U	58.00	54.00
LHA-30-WC09	84.8 – 116	WC-09	2.388	UG-387/U	48.54	44.54
LHA-30-WC7.9	101 – 138	WC-7.9	2.000	UG-387/U	40.61	36.61
LHA-30-WC6.7	119 – 163	WC-6.7	1.702	UG-387/U	34.79	30.79



Lens Horn Antenna

Rectangular Waveguide Feed

Model	Frequency (GHz)	Input Waveguide	Dimensions a x b (mm)	Standard Flange	D (mm)	L (mm)*
LHA-30-WR90	8.2 – 12.5	WR-90	22.860 x 10.160	UG-39/U	378.32	407.80
LHA-30-WR62	11.9 – 18	WR-62	15.799 x 7.899	UG-419/U	266.00	282.58
LHA-30-WR42	18 – 26.5	WR-42	10.668 x 4.318	UG-595/U	184.54	190.39
LHA-30-WR28	26.5 – 40	WR-28	7.112 x 3.556	UG-599/U	128.78	130.71
LHA-30-WR22	33 – 50	WR-22	5.690 x 2.845	UG-383/U	100.36	104.72
LHA-30-WR19	40 – 60	WR-19	4.775 x 2.388	UG-383/U	85.00	90.00
LHA-30-WR15	50 – 75	WR-15	3.759 x 1.880	UG-385/U	68.00	75.00
LHA-30-WR12	60 – 90	WR-12	3.0988 x 1.5494	UG-387/U	58.00	59.00
LHA-30-WR10	75 – 110	WR-10	2.5400 x 1.2700	UG-387/U	48.54	49.54
LHA-30-WR08	90 – 140	WR-08	2.0320 x 1.0160	UG-387/U	40.61	41.61
LHA-30-WR06	110 – 170	WR-06	1.6510 x 0.8255	UG-387/U	34.79	35.79

**The antenna length includes a rectangular to circular waveguide transition*