



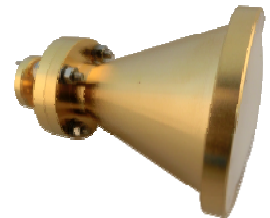
29.9 Lens Antenna

Lens antenna in working principle is similar to parabolic reflector antenna, are based on the principle of optical design. Its design principle is that the lens antenna's calibre size must be greater than the wavelength. Lens material requires stable dielectric constant, small dielectric loss, easy to forming, and lighter in weight.

Lens antenna has a conical horn lens antenna, pyramid horn lens antenna, feed radiation type lens antenna, spot focusing lens antenna, a metamaterial lens antenna, etc. In order to reduce the weight of the lens, in narrow-band application it adopts zoned lenses or a metamaterial lens design method.

29.9.1 Conical Horn Lens Antenna

Low sidelobe lens horn antenna is composed of conical horn or conical corrugated horn and planoconvex lens. It is characterized by short axial dimensions (versus ordinary horn), low sidelobe level, working in linear polarization, when increase the VTCWPS90° type circular waveguide polarization phase shifter, can make its work in the circular polarization.



【Specification】

Model No*	WG Type EIA	Freq Range (GHz)	Gain (dB)	Sidelobe Level (dB)		Beam Width (°)	VSW R	Interface	Antenna Diameter (Φmm)	Length (mm)
				E plane	H plane					
VT100LHA250	WR90	8.2-12.4	25	≤-15	≤-26	7~10	≤2.5	FBP-100	250	270
VT120LHA250	WR75	10.0-15.0	26	≤-15	≤-26	7~10	≤2.5	FBP-120	250	270
VT140LHA150	WR62	12.5-18.0	23	≤-15	≤-26	7~10	≤2.5	FBP-140	150	170
VT140LHA200	WR62	12.5-18.0	26	≤-15	≤-26	5~8	≤2.5	FBP-140	200	220
VT140LHA250	WR62	12.4-18.0	28	≤-15	≤-26	3~6	≤2.5	FBP-140	250	270
VT180LHA100	WR51	14.5-22.0	22	≤-15	≤-26	9~12	≤2.5	FBP-180	100	120
VT180LHA150	WR51	14.5-22.0	25	≤-15	≤-26	6~9	≤2.5	FBP-180	150	170
VT180LHA200	WR51	14.5-22.0	28	≤-15	≤-26	4~7	≤2.5	FBP-180	200	220
VT220LHA80	WR42	18.0-26.5	21	≤-15	≤-26	9~12	≤2.5	FBP-220	80	100
VT220LHA100	WR42	18.0-26.5	23	≤-15	≤-26	7~10	≤2.5	FBP-220	100	120
VT220LHA150	WR42	18.0-26.5	27	≤-15	≤-26	4~7	≤2.5	FBP-220	150	170
VT220LHA200	WR42	18.0-26.5	29	≤-15	≤-26	3~6	≤2.5	FBP-220	200	220
VT260LHA50	WR34	22.0-33.0	19	≤-15	≤-26	12~16	≤2.5	FBP-260	50	80
VT260LHA80	WR34	22.0-33.0	23	≤-15	≤-26	7~10	≤2.5	FBP-260	80	100

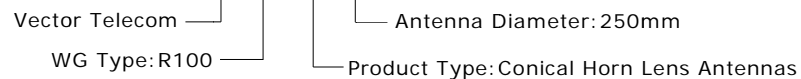


Model No*	WG Type EIA	Freq Range (GHz)	Gain (dB)	Sidelobe Level (dB)		Beam Width (°)	VSWR	Interface	Antenna Diameter (Φmm)	Length (mm)
				E plane	H plane					
VT260LHA100	WR34	22.0-33.0	25	≤-15	≤-26	6~9	≤2.5	FBP-260	100	120
VT260LHA150	WR34	22.0-33.0	29	≤-15	≤-26	3~6	≤2.5	FBP-260	150	170
VT260LHA200	WR34	22.0-33.0	31	≤-15	≤-26	2~4	≤2.5	FBP-260	200	220
VT320LHA50	WR28	26.5-40.0	21	≤-15	≤-26	10~13	≤2.5	FBP-320	50	80
VT320LHA80	WR28	26.5-40.0	25	≤-15	≤-26	6~9	≤2.5	FBP-320	80	100
VT320LHA100	WR28	26.5-40.0	27	≤-15	≤-26	4~7	≤2.5	FBP-320	100	120
VT320LHA150	WR28	26.5-40.0	31	≤-15	≤-26	3~5	≤2.5	FBP-320	150	170
VT320LHA200	WR28	26.5-40.0	33	≤-15	≤-26	2~4	≤2.5	FBP-320	200	220

*Indicates Model Number. See Ordering Information for complete part number.

【Ordering Information】

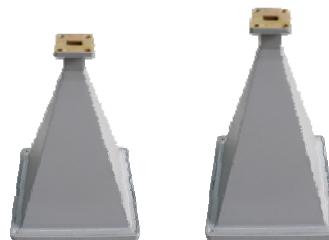
Example Part No: VT 100 LHA 250



- Flange type: Multiple types available - see VT Flanges page
- Finish: Corrosion protection plus black top coat

29.9.2 Pyramidal Horn Lens Antennas

Horn lens antenna can be composed of pyramidal Horn and planoconvex lens. It is characterized by short axial dimensions (versus ordinary horn), low sidelobe level, working in linear polarization, antenna size can be customized according to the requirements. The disadvantage is that increasing the weight of the lens.



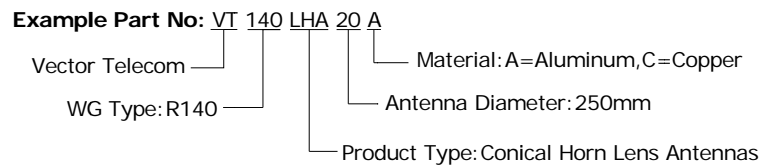
【Specification】

Model No*	WG Type EIA	Freq Range (GHz)	Gain (dB)	Sidelobe Level (dB)		VSWR	Interface	Antenna Diameter (mm)	Length (mm)
				E	H				
VT140LHA20A	WR62	11.9-18.0	20	≤-15	≤-26	≤2.5	FBP-140	120×90	205
VT260LHA25A	WR34	21.7-33.0	25	≤-15	≤-26	≤2.5	FBP-260	89×89	175

*Indicates Model Number. See Ordering Information for complete part number.



【Ordering Information】

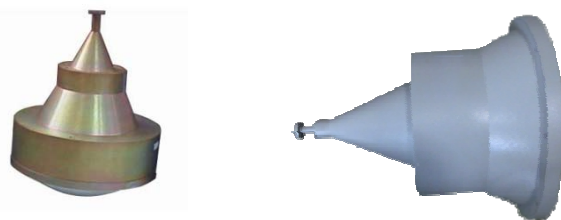


- Flange type: Multiple types available - see VT Flanges page
- Finish: Corrosion protection plus black top coat

29.9.3 Point Focusing Horn Lens Antenna

Point focusing lens antenna is composed of conical horn or conical corrugated horn and convex lens. Its characteristic is beam forms a focal spot under the designed focus. The focal length and diameter size can be customized according to the customer requirements. When the focus of the two point focusing lens antenna overlaps, the transmission loss between the two antennas is minimum. Because the area nearby intersection point is lesser, it is one of the best ways to study microwave potter permeability and reflection characteristics of special materials and substances in a local.

Note that the electrical parameters of the point focusing lens antenna cannot define and test in accordance with the general antenna. In the absence of the definition of beam width and antenna gain, so their electrical parameters are mainly: operating frequency range, focal length, and the focal spot size.



【Specification】

Model No*	WG Type EIA	Freq Range (GHz)	Antenna Diameter (Φmm)	Focal Length (mm)	Focal Spot Diameter (mm)	VSWR	Interface
VT32PLHA300F500	WR284	2.6-4	300	500	≤200	≤2.5	FDP-32
VT40PLHA300F500	WR229	3.3-4.9	300	500	≤200	≤2.5	FDP-40
VT48PLHA300F500	WR187	4-6	300	500	≤120	≤2.5	FDP-48
VT58PLHA250F500	WR159	4.9-7.0	250	500	≤80	≤2.5	FDP-58
VT70PLHA250F500	WR137	5.38-8.17	250	500	≤80	≤2.5	FDP-70
VT84PLHA250F500	WR112	6.57-9.99	250	500	≤60	≤2.5	FBP-84
VT100PLHA200F300	WR90	8.2-12.4	200	300	≤60	≤2.5	FBP-100

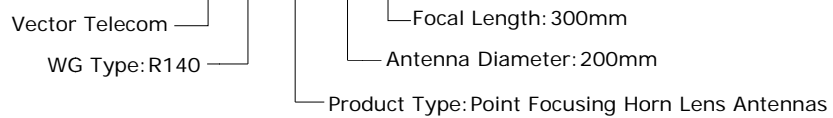


Model No*	WG Type EIA	Freq Range (GHz)	Antenna Diameter (Φmm)	Focal Length (mm)	Focal Spot Diameter (mm)	VSWR	Interface
VT120PLHA200F300	WR75	9.84-15.0	200	300	≤60	≤2.5	FBP-120
VT140PLHA200F300	WR62	11.9-18.0	200	300	≤50	≤2.5	FBP-140
VT180PLHA100F200	WR51	14.5-22.0	100	200	≤40	≤2.5	FBP-180
VT220PLHA100F200	WR42	17.6-26.7	100	200	≤35	≤2.5	FBP-220
VT260PLHA100F100	WR34	21.7-33.0	100	100	≤30	≤2.5	FBP-260
VT320PLHA100F100	WR28	26.5-40.0	100	100	≤25	≤2.5	FBP-320

*Indicates Model Number. See Ordering Information for complete part number.

【Ordering Information】

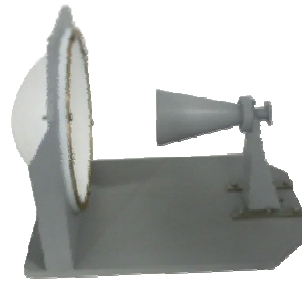
Example Part No: VT 140 PLHA 200 F300



- Flange type: Multiple types available - see VT Flanges page
- Finish: Corrosion protection plus black top coat

29.9.4 Feed Irradiation Lens Antennas

In order to improve the performance of the lens antenna, Vector Telecom adopts the method of irradiating the lens with a feed, by changing the irradiation function to the lens, the amplitude and phase distribution of the aperture field of the lens antenna is changed accordingly, to achieve the required antenna performance.



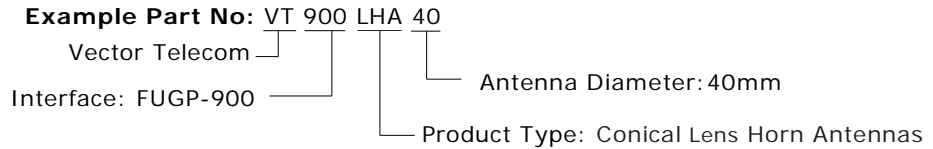
【Specification】

Model No*	Freq Range (GHz)	Gain (dB)	Sidelobe Level (dB)		VSWR	Interface	Antenna Diameter (mm)	Length (mm)
			E Plane	H Plane				
VT900LHA38.4	91.8-95.8	28	≤-25	≤-25	≤2	FUGP-900	Φ38.4	74
VT260LHA200	22-30	30	≤-25	≤-25	≤2	FBP-260	Φ200	275

*Indicates Model Number. See Ordering Information for complete part number



【Ordering Information】



- Flange type: Multiple types available - see VT Flanges page
- Finish: Corrosion protection plus black top coat

29.10 Corrugated Horn and Multimode Horn Antennas

The wide-angle corrugated horn antenna adopts broadband technology with variable slot depth and slot width to make it have good VSWR and radiation characteristics in the bandwidth closely to the octave band. It is widely used in high-performance broadband frond feed or offset feed antennas, such as: C-Band, Ku-Band communication antenna, can provide product frequency range up to 300GHz. In the full bandwidth, the low-end frequency, VSWR < 1.30, in the narrow-band, VSWR < 1.06, and at the -15dB E-H lobe equalization $\pm 5^\circ$. It can also be customized according to user requirements for frequency range and lobe width.



【Specification】

Model No*	Freq Range (GHz)	Horn caliber (mm)	Gain (dB)	VSWR	Input interface (mm)
VT114.58CHA10	1.76-2.42	Φ245	10	≤1.5	Φ114.58
VT97.87CHA10	2.1-2.8	Φ205	10	≤1.5	Φ97.87
VT83.62CHA10	2.45-3.3	Φ176	10	≤1.5	Φ83.62
VT71.42CHA10	2.83-3.88	Φ154	10	≤1.5	Φ71.42
VT51.99CHA10	3.9-5.3	Φ110	10	≤1.5	Φ51.99
VT44.45CHA10	4.55-6.23	Φ96	10	≤1.5	Φ44.45
VT38.1CHA10	5.3-7.3	Φ84	10	≤1.5	Φ38.1
VT32.537CHA10	6.3-8.5	Φ70	10	≤1.5	Φ32.537
VT27.788CHA10	7.3-9.5	Φ62	10	≤1.5	Φ27.788
VT23.825CHA10	8.5-11.5	Φ54	10	≤1.5	Φ23.825
VT17.415CHA10	11.6-15.9	Φ42	10	≤1.5	Φ17.415
VT15.088CHA10	13.4-18.4	Φ35	10	≤1.5	Φ15.088
VT12.7CHA10	15.9-21.8	Φ30	10	≤1.5	Φ12.7