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Circular Polarization Antenna



Vector Telecom Pty Ltd

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30 Circular Polarization Antenna

Vector Telecom manufactures a high quality line of circular polarization horn antenna, to assist the user in different frequencies, different bandwidth and gain requirements under the implementation of circular polarization antenna, the electromagnetic vibrator can be divided into circular polarization antenna, spiral antenna, circular polarization horn antenna, aperture circular polarization antenna, microstrip circularly polarized antenna reflector circular polarization antenna, variable polarization antenna and other circular polarization antenna, etc. Please call us with your specification and discuss your needs with one of our sales engineers.

30.1 Circular Polarization Horn Antenna

30.1.1 Circular Polarization Horn Antenna (Conical Horn Series)



【Specification】

Model No*	WG Type EIA	Freq Range (GHz)	Working bandwidth	Gain Range X(dB)	Axis Ratio (dB)	VSWR	Connector
VT70CPHAXN	WR137	5-8	≤5%	10~20	≤0.5	≤1.5	N Female
			≤10%		≤1	≤1.6	
			≤20%		≤2.5	≤1.8	
			≤40%		≤3.5	≤2	
			≤67%		≤4	≤2.5	
VT84CPHAXN	WR112	7-10	≤5%	10~20	≤0.5	≤1.5	N Female
			≤15%		≤2	≤1.8	
VT100CPHAXN	WR90	8-12.4	≤5%	10~20	≤0.5	≤1.5	N Female
≤15%	≤2	N Female					
VT120CPHAXN	WR75	10-15	≤5%	10~20	≤0.5	≤1.6	N Female
			≤15%		≤2		
VT140CPHAXS	WR62	12.4-18	≤5%	10~20	≤0.5	≤1.6	SMA Female
			≤15%		≤2		
VT180CPHAXS	WR51	15-22	≤5%	10~25	≤0.5	≤1.6	SMA Female
			≤15%		≤2		
VT220CPHAXK	WR42	15-22	≤5%	10~25	≤0.5	≤1.6	2.92 Female
			≤15%		≤2		
			≤15%		≤2		
VT260CPHAXK	WR34	22-33	≤5%	10~25	≤0.5	≤1.6	2.92 Female

Model No*	WG Type EIA	Freq Range (GHz)	Working bandwidth	Gain Range X(dB)	Axis Ratio (dB)	VSWR	Connector
VT320CPHAXK	WR28	26.5-40	≤5%	10~25	≤0.5	≤1.6	2.92 Female
			≤15%		≤2		
			≤15%		≤3		
VT400CPHAX	WR22	33-50	≤5%	10~25	≤0.5	≤1.5	FUGP400
			≤15%		≤2		
VT500CPHAX	WR19	40-60	≤5%	10~25	≤0.5	≤1.5	FUGP500
			≤15%		≤2		
VT620CPHAX	WR15	50-75	≤5%	10~25	≤0.5	≤1.5	FUGP620
			≤15%		≤2		
VT740CPHAX	WR12	60-90	≤5%	10~25	≤0.5	≤1.5	FUGP740
			≤15%		≤2		
VT900CPHAX	WR10	75-110	≤5%	10~25	≤0.5	≤1.6	FUGP900
			≤15%		≤2		

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

【Ordering Information】

Example Part No: VT 100 CPHA 10 N
 Vector Telecom ———|
 WG Type: R100 ———|
 Gain: 10dB ———|
 Coax Connector Type: N=Type N, S=SMA, K=2.92mm, V=2.4mm, 1.85=1.85mm ———|
 Product Type: Circular Polarization Horn Antenna (Conical Horn Series)

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

30.1.2 Dual Circular Polarization Horn Antenna (Conical Horn Series)

Double circular polarized conical horn antenna adopts the combination design of "OMT structure + linear circular polarizer + conical horn", to form the double circular polarized antenna, the optional gain range is 10 ~ 20 dB, the polarization isolation is greater than 25 dB, it is characterized by narrow work bandwidth, good axial ratio and a longer length.



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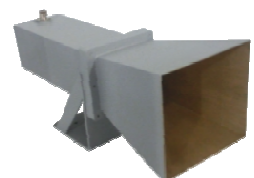
【Specification】

Model No*	WG Type EIA	Freq Range (GHz)	Working bandwidth	Axis Ratio (dB)	VSWR	Dimensions (mm)	Connector
VT70DCPHA15N	WR137	5-8	≤5%	≤0.5	≤1.5	Φ145x420	N Female
			≤15%	≤2			
			≤40%	≤3	≤1.8	Φ145x450	
VT84DCPHA15N	WR112	7-10	≤5%	≤0.5	≤1.5	Φ125x400	N Female
			≤15%	≤2			
			≤40%	≤3	≤1.8	Φ125x420	
VT100DCPHA15N	WR90	8-12.4	≤5%	≤0.5	≤1.5	Φ95x350	N Female
			≤15%	≤2			
			≤40%	≤3	≤1.8	Φ95x370	
VT120DCPHA15N	WR75	10-15	≤5%	≤0.5	≤1.5	Φ80x280	N Female
			≤15%	≤2			
			≤40%	≤3	≤1.8	Φ80x300	
VT140DCPHA15S	WR62	12.4-18	≤5%	≤0.5	≤1.5	Φ68x250	SMA Female
			≤15%	≤2			
			≤40%	≤3	≤1.8	Φ68x260	
VT180DCPHA15S	WR51	15-22	≤5%	≤0.5	≤1.5	Φ58x220	SMA Female
			≤15%	≤2			
			≤40%	≤3	≤1.8	Φ58x240	
VT220DCPHA15K	WR42	18-26	≤5%	≤0.5	≤1.5	Φ50x180	2.92 Female
			≤15%	≤2			
			≤40%	≤3	≤1.8	Φ50x200	
VT260DCPHA15K	WR34	22-33	≤5%	≤0.5	≤1.5	Φ38x150	2.92 Female
			≤15%	≤2			
			≤40%	≤3	≤1.8	Φ38x180	
VT320DCPHA15K	WR28	26.5-40	≤5%	≤0.5	≤1.5	Φ32x130	2.92 Female
			≤15%	≤2			
			≤40%	≤3	≤1.8	Φ32x150	
VT400DCPHA15	WR22	33-50	≤5%	≤1	≤1.5	Φ26x120	FUGP

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

30.1.3 Dual Circular Polarization Horn Antenna (Ladder Mebrane Type Square Cone Horn Series)

Double circular polarized square cone horn antenna adopts the design of "double port feeder ladder mebrane type square cone horn" to form double circular polarized antenna, it is characterized by small size, narrow bandwidth, good axial ratio, low cost, and suitable for low frequency.



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【Specification】

Model No*	WG Type EIA	Freq Range (GHz)	Working Bandwidth	Gain Range X(dB)	Axis Ratio (dB)	VSWR	Polar. Iso. (dB)	Dimensions (mm)			Connector
								W	H	L	
VT32DCPSHA10N	WR284	2.6-4	≤10%	10~20	≤1.5	≤1.5	28	170	170	400	N Female
			≤20%		≤2.5		25				
VT40DCPSHA10N	WR229	3.5-5	≤10%	10~20	≤1.5	≤1.5	28	140	140	350	N Female
			≤20%		≤2.5		25				
VT48DCPSHA10N	WR187	4.0-6	≤10%	10~20	≤1.5	≤1.5	28	110	110	300	N Female
			≤20%		≤2.5		25				
VT58DCPSHA10N	WR159	4.5-7	≤10%	10~20	≤1.5	≤1.5	28	100	100	280	N Female
			≤20%		≤2.5		25				
VT70DCPSHA10N	WR137	5-8	≤10%	10~20	≤1.5	≤1.5	28	90	90	260	N Female

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

30.1.4 Dual Circular Polarization Horn Antenna (Ladder Mebrane Type Conical Horn Series)

Double circular polarized conical horn antenna adopts the design of "double port feeder ladder mebrane type conical horn" to form double circular polarized antenna, it is characterized by small size, narrow bandwidth, good axial ratio, low cost, and suitable for low frequency.



【Specification】

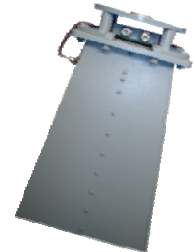
Model No*	WG Type EIA	Freq Range (GHz)	Working Bandwidth	Gain Range X(dB)	Axis Ratio (dB)	VSWR	Polar. Iso. (dB)	Dimensions (mm)	Connector
VT40DCPTCHA10N	WR229	3.5-5	≤10%	10~20	≤1.5	≤1.5	28	Φ130x320	N Female
			≤20%		≤2.5		25		
VT48DCPTCHA10N	WR187	4-6	≤10%	10~20	≤1.5	≤1.5	28	Φ110x280	N Female
			≤20%		≤2.5		25		
VT58DCPTCHA10N	WR159	4.5-7	≤10%	10~20	≤1.5	≤1.5	25	Φ100x260	N Female
			≤20%		≤2.5		25		
VT70DCPTCHA10N	WR137	5-8	≤10%	10~20	≤1.5	≤1.5	28	Φ90x240	N Female
			≤20%		≤2.5		25		

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



30.1.5 Broadband Circular Polarization Horn Antenna (Dual Linear Polarization Orthogonally Formed)

Broadband circular polarization horn antenna adopts broadband bridge + dual linear polarization antenna synthesis technology, also can get the octave even three octave circular polarized antenna, it is characterized by wide bandwidth, bad axial ratio and small size.

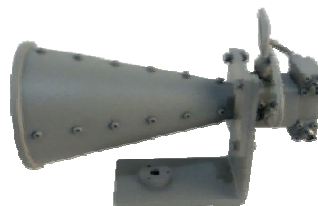


【Specification】

Model No*	Freq Range (GHz)	Gain (dB)	VSWR	Axis Ratio (dB)	Dimensions (mm)	Connector
VT0510CPHA7N	0.5-1	7~10	≤2.5	≤3	510X510X550	N Female
VT1020CPHA10N	1-2	10~15	≤2.5	≤3	250 X250 X460	N Female
VT1040CPHA7N	1-4	7~15	≤2.5	≤5	280 X280 X430	N Female
VT2040CPHA10N	2-4	10~15	≤2.0	≤3	250 X250 X430	N Female
VT4080CPHA10N	4-8	10~15	≤2.0	≤3	Φ140 X470	N Female
VT80180CPHA10S	8-18	10~18	≤2.5	≤5	Φ78 X165	SMA Female
VT180400CPHA10K	18-40	10~18	≤3.0	≤5	Φ40X80	2.92 Female

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

30.1.6 Broadband Dual Circular Polarization Horn Antenna (Dual Linear Polarization Orthogonally Formed)



【Specification】

Model No*	Freq Range (GHz)	Gain (dB)	VSWR	Axis Ratio (dB)	Polar. Iso. (dB)	Dimensions (mm)	Connector
VT1020DCPHA10N	1-2	10~15	≤2.5	≤3	15	510*510*550	N Female
VT2040DCPHA10N	2-4	10~15	≤2.5	≤3	15	250*250*430	N Female
VT4080DCPHA10N	4-8	10~15	≤2.5	≤3	15	Φ140*620	N Female
VT80180DCPHA10S	8-18	10~18	≤2.5	≤5	15	Φ78*165	SMA Female
VT180400DCPHA10K	18-40	10~18	≤3.0	≤5	15	Φ40*80	2.92 Female

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



【Ordering Information】

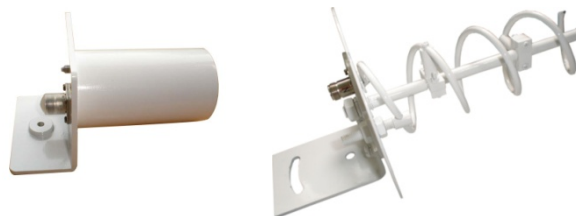
Example Part No: VT 1020 DCPHA 10 N

Vector Telecom ———
 Freq Range: 1-2GHz ———
 Coax Connector Type: N=Type N, S=SMA, K=2.92mm, V=2.4mm, 1.85=1.85mm ———
 Gain: 10dB ———
 Product Type: Dual Circular Polarization Horn Antenna ———

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

30.2 Spiral Antenna

The spiral antenna is one of the most commonly used circularly polarized antennas in engineering. It can acquire LHCP or RHCP by changing the direction of the spiral. Its suitable operating frequency is between 200-5000MHz. The gain is within 3-12dB. Especially at the low end of the frequency, the spiral antenna will be smaller than other antennas due to the wavelength. For higher gain requirements, spiral antennas can be used as feeds for parabolic reflector antennas, and the desired gain can be obtained by increasing the reflector size. The bandwidth of the spiral antenna is usually wide, and the VSWR will be around 1.5 in 20% relative bandwidth. The polarization axis ratio can be less than 3dB in the radiation axis, and the typical value is 2dB.



【Specification】

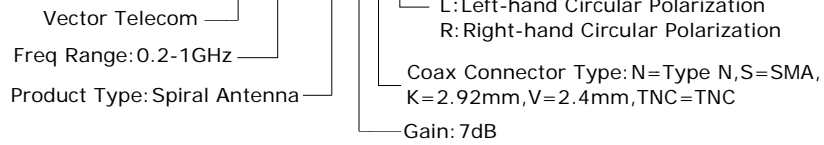
Model No*	Frequency Range (GHZ)	Working bandwidth	Axle ratio (dB)	Gain(dB)	VSWR	Connector
VT0210SA7N...	0.2-1	≤20%	≤2	7	≤1.5	N Female
		≤40%	≤3	7	≤1.5	N Female
VT1030SA10N...	1-3	≤20%	≤2	10	≤1.5	N Female
		≤40%	≤3	10	≤1.5	N Female
VT 3050SA12N...	3-5	≤20%	≤2	12	≤1.5	N Female
		≤40%	≤3	12	≤1.5	N Female

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



【Ordering Information】

Example Part No: VT 0210 SA 7 N L



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

30.3 Planar Spiral Antenna

The planar spiral antenna is an ultra-wideband circularly polarized antenna scheme, and its rotation direction is determined by the spiral direction. It can work in an extremely wide frequency band, radiating most of the power in an effective working area, and no radiation in its structure extension direction. The disadvantage is the antenna efficiency is low and cannot withstand a slightly larger microwave power due to the influence of the absorbing material in the cavity. It is often used as a receiving antenna or a receiving antenna feed in electronic reconnaissance.

【Specification】

Model No*	Freq Range (GHz)	VSWR	Gain (dB)	Dimensions (mm)	Connector
VT0220PSAS	0.2-2	≤2.5	-2~2	φ500x160	SMA Female
VT08100PSAS	0.8-10	≤2.5	-2~2	φ205x90	SMA Female
VT1060PSAS	1-6	≤2.5	1~5	φ90x60	SMA Female
VT2060PSAS	2-6	≤2.5	-2~2	φ60x60	SMA Female
VT20180PSAS	2-18	≤2.5	-1~3	φ61x55	SMA Female
VT25180PSAS	2.5-18	≤2.5	3~5	φ50x56	SMA Female
VT4080PSAS	4-8	≤2.5	2~4	φ50x45	SMA Female
VT80180PSAS	8-18	≤2.5	1~5	φ30x26	SMA Female

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

30.4 Quadrifilar Helix Antenna





【Specification】

Model No*	VT400410FSAN	VT1517FSAS
Freq Range (GHz)	400-410MHz	1.55-1.60GHz
Gain(dB)	-2.0 dB	≥4.4dB
Axis ratio (dB)	6.0 dB	2.6dB
VSWR	≤1.8	≤1.8
Dimension	φ300mm x438 mm	φ30mm x220 mm
Connector	N Female	SMA-J

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

【Ordering Information】

Example Part No: VT 1060 PSA S

Vector Telecom

Freq Range: 1-6GHz

Coax Connector Type: N=Type N, S=SMA,
K=2.92mm, V=2.4mm, TNC=TNC

Product Type: PSA(Planar Spiral Antenna)
FSA(Quadrifilar Helix Antenna)

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

30.5 Log-spiral antenna

Circular polarization ultra-wideband logarithmic spiral antenna series is a ultra-wideband circular polarization antenna. The spiral wound around it provides excellent heat dissipation conditions. Its circular polarization makes it quickly find radiation sources of electromagnetic frequencies.



【Specification】

Model No*	Freq Range (GHz)	VSWR	Gain (dB)	Dimensions (mm)	Connector
VT0210LSA3N	0.2-1	≤3	-9~5	φ330x830	N Female
VT0220LSA5N	0.2-2	≤3	5~7	φ331x850	N Female
VT10100LSA3N	1-10	≤3	0~6	φ165x420	N Female
VT20100CLSA	2-10	≤3	2~7	φ130x020	SMA Female

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



Section 3

Antennas

【Ordering Information】

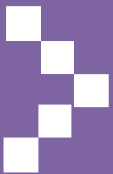
Example Part No: VT 0210 LSA 3 N
Vector Telecom
Freq Range: 0.2-1GHz
Product Type: Log-spiral antenna

Coax Connector Type: N=Type N,
S=SMA, 2.92=K2.92mm
Antenna Gain: 3dB

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

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