

- High gain
- High efficiency
- Wide band operation
- Low VSWR

Applications

- PtP and PMP radio links
- Radars
- Radio Astronomy



Description

ELVA-1 has developed a low cost high performance microwave antennas to meet needs of the broadband market. These antennas are dual reflector Cassegrain type ECA - XX series. Antennas of ECA - XX series are available for frequencies from 26.5GHz to 140GHz with reflector diameters ranging from 100mm to 600mm. The gain is up to 53dBi depending upon the frequency. The main reflector has a highly accurate surface and is designed from aluminium. The subreflector is a machined aluminium hyperboloid or ellipsoid, which is rigidly supported by special plastic cylinder.

These antennas are designed to have minimal cross-section to reduce aperture blockage, and hence produce low sidelobe levels (typically 18dB). Typical VSWR is 1.25:1. The gain of the antenna depends upon its diameter. The antenna feed is a circular waveguide of appropriate diameter with an optional circular-to-rectangular transition.

Custom band antennas for 110-170 GHz are also available by special orders. Each antenna can be shipped with antenna bracket and radome as standard options.

Specifications

for Cassegrain antenna ECA - XX series.

Ka band. 26,5-40 GHz

Part No	Diameter of main reflector (mm)	Gain dB,(typ)	Bandwidth in deg. at 3dB level (typ)	VSWR (typ)
ECA-Ka-X-100	100	26.3	6.0	1.40
ECA-Ka-X-200	200	32.7	2.9	1.35
ECA-Ka-X-300	300	36.4	2.0	1.25
ECA-Ka-X-450	450	40.9	1.3	1.25
ECA-Ka-X-600	600	42.9	0.9	1.25

Losses in a Protected cover is 0,7 dB (max)

Feed waveguide is circular or rectangular

Information for Ordering : X= Number for type of feed waveguide

Available types of Circular waveguides are:

Number	Frequency Band (GHz)	Diameter of Waveguide (inch)	Flange
X=0	26.0-28.5	0.328	UG-381/U
X=1	28.5-33.0	0.281	UG-381/U
X=2	33.0-38.5	0.250	UG-381/U
X=3	38.5-43.0	0.219	UG-381/U

Available type of Rectangular waveguide is:

X=28	26,5-40	WR-28	UG-599/U UG-381/U UG-600
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Data for Gain and Bandwidth are typical for middle of frequency range

Q band. 33-50 GHz

Part No	Diameter of main reflector (mm)	Gain dB,(typ)	Bandwidth in deg. at 3dB level (typ)	VSWR (typ)
ECA-Q-X-100	100	28.3	4.8	1.40
ECA-Q-X-200	200	34.6	2.3	1.35
ECA-Q-X-300	300	38.5	1.6	1.25
ECA-Q-X-450	450	42.9	1.0	1.25
ECA-Q-X-600	600	44.9	0.7	1.25

Losses in a Protected cover is 0,7 dB (max)

Feed waveguide is circular or rectangular

Information for Ordering : X= Number for type of feed waveguide

Available types of Circular waveguides are:

Number	Frequency Band (GHz)	Diameter of Waveguide (inch)	Flange
X=0	33.0-38.5	0.250	UG-383/U
X=1	38.5-43.0	0.219	UG-383/U
X=2	43.0-50.0	0.188	UG-383/U

Available type of Rectangular waveguide is:

X=22	33-50	WR-22	UG-383/U TRG719
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Data for Gain and Bandwidth are typical for middle of frequency range

U band. 40-60 GHz

Part No	Diameter of main reflector (mm)	Gain dB,(typ)	Bandwidth in deg. at 3dB level (typ)	VSWR (typ)
ECA-U-X-100	100	32.0	3.9	1.35
ECA-U-X-200	200	38.2	2.0	1.30
ECA-U-X-300	300	41.7	1.3	1.25
ECA-U-X-450	450	44.8	0.9	1.25
ECA-U-X-600	600	46.4	0.7	1.25

Losses in a Protected cover is 0,7 dB (max)

Feed waveguide is circular or rectangular

Information for Ordering : X= Number for type of feed waveguide

Available types of Circular waveguides are:

Number	Frequency Band (GHz)	Diameter of Waveguide (inch)	Flange
X=0	38.5-43.0	0.219	UG-383/U
X=1	43.0-50.0	0.188	UG-383/U
X=2	50.0-58.0	0.165	UG-383/U

Available type of Rectangular waveguide is:

X=19	40-60	WR-19	UG-383/U TRG720
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Data for Gain and Bandwidth are typical for middle of frequency range

V band. 50-75 GHz

Part No	Diameter of main reflector (mm)	Gain dB,(typ)	Bandwidth in deg. at 3dB level (typ)	VSWR (typ)
ECA-V-X-100	100	34.0	3.1	1.3
ECA-V-X-200	200	39.7	1.5	1.25
ECA-V-X-300	300	42.4	1.0	1.25
ECA-V-X-450	450	45.4	0.7	1.25
ECA-V-X-600	600	47.5	0.5	1.25

Losses in a Protected cover is 0,7 dB (max)

Feed waveguide is circular or rectangular

Information for Ordering : X= Number for type of feed waveguide

Available types of Circular waveguides are:

Number	Frequency Band (GHz)	Diameter of Waveguide (inch)	Flange
X=0	50.0-58.0	0.165	UG-385/U
X=1	58.0-68.0	0.141	UG-385/U
X=2	68.0-77.0	0.125	UG-385/U

Available type of Rectangular waveguide is:

X=15	50-75	WR-15	UG-385/U
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Data for Gain and Bandwidth are typical for middle of frequency range

E band. 60-90 GHz

Part No	Diameter of main reflector (mm)	Gain dB,(typ)	Bandwidth in deg. at 3dB level (typ)	VSWR (typ)
ECA-E-X-100	100	34.4	2.6	1.30
ECA-E-X-200	200	39.9	1.3	1.25
ECA-E-X-300	300	43.5	0.9	1.25
ECA-E-X-450	450	46.6	0.6	1.25

Losses in a Protected cover is 0,7 dB (max)

Feed waveguide is circular or rectangular

Information for Ordering : X= Number for type of feed waveguide

Available types of Circular waveguides are:

Number	Frequency Band (GHz)	Diameter of Waveguide (inch)	Flange
X=1	68.0-77.0	0.125	UG-387/U
X=2	77.0-87.0	0.110	UG-387/U
X=3	87.0-100.0	0.094	UG-387/U

Available type of Rectangular waveguide is:

X=12	60-90	WR-12	UG-387/U
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Data for Gain and Bandwidth are typical for middle of frequency range

W band. 75-110 GHz

Part No	Diameter of main reflector (mm)	Gain dB,(typ)	Bandwidth in deg. at 3dB level (typ)	VSWR (typ)
ECA-W-X-100	100	35.7	2.1	1.25
ECA-W-X-200	200	41.7	1.0	1.25
ECA-W-X-300	300	45.0	0.7	1.25
ECA-W-X-450	450	48.0	0.5	1.25
ECA-W-X-600	600	50.0	0.4	1.25

Losses in a Protected cover is 0,7 dB (max)

Feed waveguide is circular or rectangular

Information for Ordering : X= Number for type of feed waveguide

Available types of Circular waveguides are:

Number	Frequency Band (GHz)	Diameter of Waveguide (inch)	Flange
X=0	77.0-87.0	0.110	UG-387/U-M
X=1	87.0-100.0	0.094	UG-387/U-M
X=2	100.0-112.0	0.082	UG-387/U-M

Available type of Rectangular waveguide is:

X=10	75-110	WR-10	UG-387/U-M
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Data for Gain and Bandwidth are typical for middle of frequency range

F band. 90-140 GHz

Part No	Diameter of main reflector (mm)	Gain dB,(typ)	Bandwidth in deg. at 3dB level (typ)	VSWR (typ)
ECA-F-X-100	100	37.0	1.7	1.25
ECA-F-X-200	200	42.6	0.9	1.25
ECA-F-X-300	300	45.9	0.6	1.25
ECA-F-X-450	450	48.0	0.5	1.25

Losses in a Protected cover is 0,7 dB (max)

Feed waveguide is circular or rectangular

Information for Ordering : X= Number for type of feed waveguide

Available types of Circular waveguides are:

Number	Frequency Band (GHz)	Diameter of Waveguide (inch)	Flange
X=0	87.0-100.0	0.094	UG-387/U-M
X=1	100.0-112.0	0.082	UG-387/U-M
X=2	112.0-125.0	0.075	UG-387/U-M
X=3	125.0-140.0	0.067	UG-387/U-M

Available type of Rectangular waveguide is:

X=8	90-140	WR-8	UG-387/U-M
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Data for Gain and Bandwidth are typical for middle of frequency range

How to Order

Specify Model Number **ECA-A-X-BBB**

A- waveguide band

X - waveguide type

BBB – size of main reflector

Example

To order antenna meets the following specification: operation frequency 75-110 GHz, in WR-10 waveguide band with 300mm of main reflector, should be ordered as

ECA -W-10-300

All ELVA-1 antennas are warranted for one year after receipt.