

## Type Specification

The EA40575 radar Antenna provides two separate elevation beams, one optimized for air surveillance, the other optimized for sea surveillance.

The EA45075 antenna is based on a lightweight carbon fibre composite parabolic reflector. Two RF feed horns provide the air and sea beams.

Remotely controlled polarisation switching is provided between Horizontal (HP) and Circular (CP) on both beams. Polarisation can be individually selected for each beam. The antenna can also accommodate various forms of IFF antennas.

The antenna offers sub 0.52° azimuth 3dB beamwidth giving excellent range and azimuth resolution providing excellent target discrimination at long range. Offering a high standard specification, the antenna includes selectable horizontal or circular polarisation for weather penetration on both air and sea beams. On the air beam, the antenna provides inverse cosec<sup>2</sup> shaping for constant target illumination, and a modified pencil sea beam for long range detection and reduced rain and sea clutter.

The EA45075 antenna is designed for use mounted on a stabilised platform. An Easat turning unit and stabilised platform can be provided, or it can be mounted on a turning unit supplied by the customer.



General & Mechanical		Environmental	
Type	Shaped reflector	Wind Speed	45 m/s at 10 rpm with 25mm ice 30 m/s at 40 rpm with 25mm ice
Nominal dimensions (m)	4.5m x 0.75m	Temperature	-40 to +55°C +18°C Solar
Antenna weight	150 kg excluding ice	Humidity	10 to 100%
Stand Weight (steel) (kg)	100	Storage Temperature	-50 to +70°C
Height incl. Pedestal & stand (m)	1.075m	Protection	Suitable for Marine/Coastal Environment.
Max Swept radius (m)	2.4m	Design Life	20 years
Rotation rate (typical)	5 to 40 rpm		

RF Specification		
Beam Characteristics	Air Beam	Sea Beam
Frequency range	X band 8.8 - 9.1GHz	X band 9.2 - 9.5GHz
Gain	≥ 37.0 dBi	≥ 38.0 dBi
VSWR	≤ 1.30:1	≤ 1.30:1
Azimuth Sidelobes	± 5°	≤ -24.0 dB
	± 5° to ± 10°	≤ -30.0 dB
	Backlobes	≤ -35.0 dB
Azimuth -3dB Beam width	≤ 0.52° ±0.05°	≤ 0.53°
Elevation Beam Shape	Cosec <sup>2</sup> modified to give extra gain from 15° to 35° elevation.	Modified Pencil Beam
Elevation -3dB Beam width	4.0° ± 0.5°	3.8° ±0.4°
Angle between peaks of air & sea beams	≤ 3.8°	
Elevation Beam Alignment of Peak	- 0.75° ± 0.5°	
Polarisation	Selectable HP / CP	Selectable HP / CP
ICR	≤ -17dB min ICR in principle azimuth & elevation planes	
Cross Polar (HP)	≤ -20dB at Beam Peak	≤ -20dB at Beam Peak

Specifications are subject to change as part of Easat's ongoing improvement policy.  
Customers are advised to confirm specification prior to contract