



4 FT. X-BAND RADAR ANTENNA

Microstar Inc. designed, manufactured, and tested this 4 Ft. X-band Monopulse Radar Antenna for Tracor Flight Systems Inc. Tracor incorporated the antenna into a radar system which is used by the Swedish government on their missile test range facility. The radar tracks missiles fired at decoys and accurately computes miss distance.

The antenna provides monopulse-type sum and difference patterns in the frequency range 9.0 - 9.5 GHz which are transformed into servo control signals for autotracking fast moving targets. The specifications are listed on the reverse side of this page.

The reflector is of fiberglass construction, with a surface roughness of better than 0.010 inch rms. All metal parts incorporated into the reflector are made of stainless steel. The spars which support the apex feed system are also stainless steel.

The feed system uses a four-horn common aperture configuration to provide illumination of the reflector which is optimized for good efficiency and low sidelobes. All feed components are in waveguide and pressurized, along with the radome, to 30 psig.

SPECIFICATIONS

Frequency Range	9.0 – 9.5 GHz
Polarization	Linear
Peak Power	200 Kilowatts with 15 PSIG pressure
Average Power	200 Watts
Gain	36 dB minimum
Beamwidth	2.25 degrees nominal
Sum Channel Sidelobes	below -18 dB
Difference Channel Sidelobes	below -18 dB
Cross Polarization	30 dB minimum
Sum Channel VSWR	1.5 maximum
Difference Channel VSWR	1.7 maximum
Null Depth	32 dB minimum
Error Slope	Error channel less than 28 dB below Sum at 1 mil off boresight
Boresight Accuracy	0.1 mil max shift over frequency band
Waveguide Interface	UG136B/U flanges
Pressurization	15 PSIG
Mechanical Resonance	20 Hz minimum
Tracking Rate	100 degrees/sec
Tracking Acceleration	100 deg/sec/sec
Weight	Less than 50 pounds
Operating Temperature	-30 deg F to 120 deg F
Operating Wind	40 knots
Non-operating Wind	125 knots