

## 12 FT. TRANSPORTABLE C-BAND RADAR ANTENNA MODEL # 12CTC441827



Microstar's 12 ft. transportable C-band Radar antenna is designed for high dynamic autotracking applications. The antenna is very stiff, having a resonant frequency greater than 20 Hertz. It also incorporates design features which make it optimum for transportable applications. With the wings removed, the width of the antenna is 7 ft. 2 in., so that the antenna can be transported over highways in the "cup-up" configuration. The transport height of the antenna is only 51 inches, so it is ideal for use on a trailer-mounted pedestal which reclines for transport. For shipping, the antenna fits easily inside standard truck bodies or sea-going shipping containers, as shown above in the bottom right photo. The feed system is not disassembled for transport, so that no adjustment or re-calibration is necessary when the antenna is re-deployed. Two men can easily remove the

wings which weigh approximately 75 pounds each. The total antenna weight is less than 600 pounds. Three of these antennas have been purchased by British Aerospace Systems.

The reflector front and rear skins are 30 mil thick and the reflector core is aluminum honeycomb. Each skin is a layup of 10 mil thick high modulus graphite-epoxy outer layer over a 20 mil thick fiberglass inner layer. The reflector is reinforced using four full-length composite stiffeners made of graphite-epoxy over a 2 inch thick rigid closed-cell foam core.

The feed uses an eight-horn system to provide high performance 3-channel monopulse operation. A multimode monopulse feed horn with four auxiliary horns illuminate a 20 inch diameter subreflector, which in turn illuminates the main reflector. The subreflector is supported by a thin wall quartz-epoxy cone. The feed assembly is very stiff, with a very high resonant frequency.

### SPECIFICATIONS

Frequency Range	5.4 - 5.9 GHz
Polarization	Linear
Peak Power	1.0 Megawatt with 15 PSIG pressure
Average Power	2.0 Kilowatts
Gain	43.5 dB minimum
Beamwidth	1.0 degrees nominal
Sum Channel Sidelobes	below -18 dB
Difference Channel Sidelobes	below -20 dB
Cross Polarization	30 dB minimum
Sum Channel VSWR	1.5 maximum
Difference Channel VSWR	1.7 maximum
Null Depth	35 dB minimum
Error Slope	Error channel less than 22 dB below Sum at 1 mil off boresight
Boresight Accuracy	0.1 mil max shift over frequency band
Waveguide Interface	UG406 flanges
Pressurization	Withstand 30 PSIG
Mechanical Resonance	20 Hz minimum
Tracking Rate	40 degrees/sec
Tracking Acceleration	50 deg/sec/sec
Weight	Less than 600 pounds
Transportable Width	86 inches max
Transportable Height	51 inches max
Operating Temperature	-25 deg C to 50 deg C
Operating Wind	45 knots
Non-operating Wind	100 knots