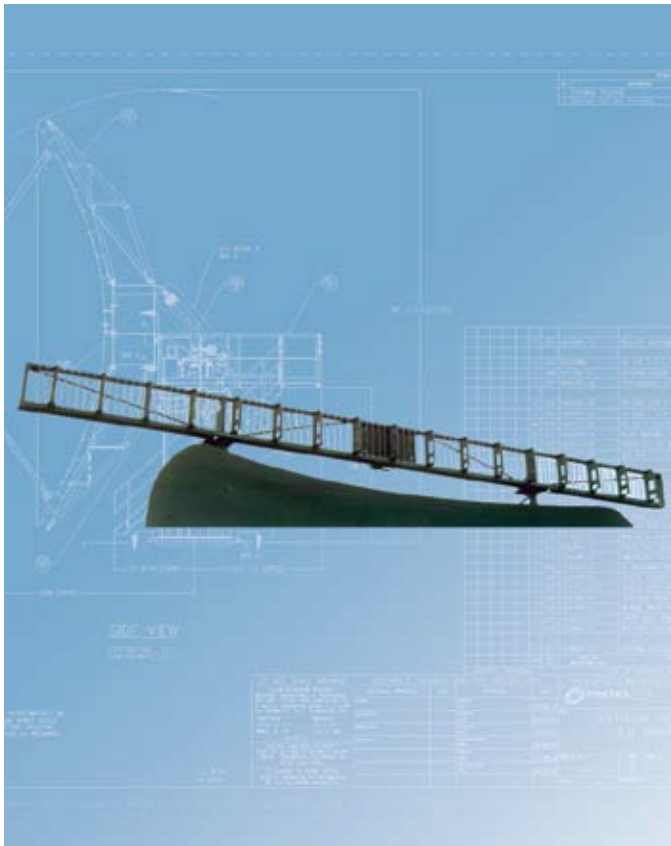


Model 114-S/M SSR ATM Antenna

Air Traffic Control Antennas



The Strength to Perform

Description

The Model 114 Secondary Surveillance Radar (SSR) is an Air Traffic Control Radar Beacon System (ATCRBS) antenna. The antenna operates in conjunction with the Airport Surveillance Radar (ASR) to provide a rapid means of identifying beacon-equipped aircraft on radar displays.

The SSR antenna is an integral part of the Air Traffic Control Beacon Interrogation (ATCBI) ground station equipment and offers improved performance and rugged design as a replacement for existing ATCBI (hog trough) type antennas.

Features

- Open structure for low wind load
- Encapsulated weatherproof dipole columns
- Lightweight (90 lbs)
- Superior RF performance (19 dB gain, minimum)

Options

- Standard (sum and difference) or monopulse configurations
- Stand-alone or co-mounted with primary radar

Model 114-S/M SSR ATM Antenna

Technical Specifications

Electrical*	114S	114M
Frequency Range		
Transmit	1030 ± 3.5 MHz	1030 ± 3.5 MHz
Receive	1090 ± 5.0 MHz	1090 ± 5.0 MHz
VSWR	1.7:1 maximum	1.7:1 maximum
Impedance	50 ohms	50 ohms
Power Handling Capacity	5 kW peak, 50 W average	5 kW peak, 50 W average
Polarization	Vertical	Vertical
Cross-Polarization	30 dB below Sum peak	30 dB below Sum peak
Gain	19 dB minimum	19 dB minimum
Number of Beams	2 (Sum, SLS)	3 (Sum, Difference, SLS)
Azimuth Patterns		
Sum Pattern 3 dB Beamwidth	4.8° nominal	4.2° nominal
Sum Pattern Sidelobe Level	-25 dB global peak, maximum	-25 dB global peak, maximum
Difference Pattern Peaks Difference		1 dB maximum
Difference Pattern Sidelobe Level		-25 dB global peak, maximum
Difference Pattern Boresight Null		-30 dB global peak, maximum
Sum/Difference 9 dB Beamwidth		2° minimum, 5° maximum
Sum/Difference Patterns Cross-Over		-3 ± 0.5 dB local peak
Elevation Patterns		
Sum Pattern Beam Peak	5° nominal	5° nominal
Sum Pattern Beamwidth	50° nominal	45° nominal
SLS Patterns		
SLS Pattern Boresight Null	-30 dB global peak, maximum	
Sum/SLS 9 dB Beamwidth	2° minimum, 5° maximum	
Sum/SLS Patterns Cross-Over	-3 ± 0.5 dB local peak	
SLS to Sum Sidelobe Coverage	4 dB minimum, 0 to -35 dB local peak	4 dB minimum, 0 to -35 dB local peak
SLS to Sum Cross-Over Level		-13 to -20 dB local Sum peak
SLS Boresight Notch		-4 dB minimum below lowest Sum cross-over
Mechanical		
Dimensions		
Height	15 in. (38 cm)	
Width	167 in. (424 cm)	
Depth	13 in. (33 cm)	
Weight	90 lbs. (41 kg)	
Environmental		
Elevation	0 to 12,000 ft (0 to 3,700 m) above sea level	
Temperature	-58° to +158° F (-50° to +70° C)	
Humidity	To 100%, condensing	
Precipitation		
Rain	To 2.4 in/h (60 mm/h)	
Hail	To 0.5 in (13 mm) diameter hailstones at 60 ft/second (18.3 m/second)	
Ice Loading	To 0.5 in (13 mm) radial thickness	
Wind		
Operating	87 knots maximum with 0.5 in (13 mm) radial ice	
Survival	125 knots maximum	
Barometric Pressure	Up to 30.5 in (77 mm) of mercury	
Operating Lifetime	20 years	

* Patterns available upon request.

GENERAL DYNAMICS SATCOM Technologies

2600 N. Longview Street • Kilgore, TX 75662 USA • Tel: (903) 984-0555 • Fax: (903) 984-1826 • Email: kilgore-sales@gdsatcom.com
Website: www.gdsatcom.com

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