GENERAL DYNAMICS
Mission Systems

SATCOM-on-the-Move®

M17-27A Airborne Antenna

Reliable high data rate X-band and Ku-band airborne satellite communications

Superior link availability and performance over a wide range of operational conditions

Designed for extended-duration airborne intelligence, surveillance, and reconnaissance (ISR) missions

Overview

General Dynamics Mission Systems SATCOM-on-the-Move (SOTM) products share a legacy of proven, reliable performance on aircraft, ships, fast boats and a variety of military wheeled and tracked vehicles.

The M17-27A was specifically designed for extended-duration airborne intelligence, surveillance, and reconnaissance (ISR) missions where beyond line of sight (BLOS) SATCOM capabilities are mission critical.

Key to the performance of any SOTM product is the ability to maintain the link during dynamic platform motion. SATCOM-on-the-Move products provide world- class "on satellite" tracking accuracy via a combination of integrated tracking receiver and high-bandwidth line-of-sight stabilization.

The modular design of the terminal leverages a common gimbal with band-swappable certified RF payloads enabling frequency band changeover within 5 minutes.

Features

- Full link performance maintained horizon-to-horizon through vehicle range of motion with elevation coverage to -10°
- Rapid SATCOM frequency changeover by swapping a single modular RF payload
- Embedded tracking receiver for rapid satellite acquisition independent of modem
- Non-proprietary interfaces for power, Ethernet/serial, and L-Band IF Tx/Rx
- Compatible with a wide range of commercially available modems
- Modular design enhances maintainability, simplifies future upgrades and minimizes life cycle cost
- Antenna includes the positioner, servo controller, tracking receiver, and the complete suite of RF components
- Compliant to ARSTRAT (X), Skynet (X) and FCC ESAA requirements (Ku-Band)

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SPECIFICATION	Ku	X
Frequency - Receive	10.95 to 12.75 GHz	7.25 to 7.75 GHz
Frequency - Transmit	13.75 to 14.50 GHz	7.90 to 8.40 GHz
Aperture Size	27 inches	
Pedestal	2 Axis Az/El	
SSPB Linear Power	≥ 30 Watts	≥ 50 Watts
G/T (Worst-case, 10° EL, 23° C) (1)	≥ 14.0 dB/K	≥ 9.0 dB/K
EIRP (Linear Across Temperature) (1)	≥ 52.6 dBW	≥ 48.8 dBW
Beamwidth, 3 dB, Rx/Tx Midband	2.7°/2.1°	4.0°/3.7°
Sidelobes, Tx	FCC Compliant	MIL-STD-188-164B CN1 (ARSTRAT) Skynet
Polarization	Linear H/V or V/H (Continuous Rotation)	Circular RH/LH Remotely Selectable
Transmit Cross Polarization within Tracking Accuracy	30 dB Typ, 26 dB Min	N/A
Azimuth Travel	360° deg continuous	
Elevation Travel (Full Performance)	-10° to +83°	
Elevation Travel (Total)	-10° to +87°	
Polarization Travel	360° Continuous	N/A
Tracking Performance	FCC ESAA Compliant (Pt Error < 0.2°, > 99.9%)	WGS / Skynet Compliant
Mean Time Before Failure (MTBF)	≥ 6,000 Hours per MIL-HDBK-217 Aircraft Uninhabited Cargo, 60°C, 100% duty cycle	
Satellite Acquisition Time	< 30 second cold start @ -40°C < 5 seconds hot	
Environmental Compliance	MIL-STD-810F tailored for airborne requirements MIL-STD-461F Army Aircraft External MIL-STD-704F (Tailored) Lightning Protection DO-160 Sect 22 Level 3, Waveform 5A	
Shock/ Vibration	6g, 11ms per MIL-STD-810F 4.60 g rms (Propeller aircraft) per MIL-STD-810F	
Operating Temperature (Within Radome)	-55°C to +60°C per MIL-STD-810F -40°C Cold boot (< 3 min, < 1 min typical)	
Weight	< 67 lbs	< 64 lbs
L Band IF Tx/Rx Range	950 to 1750 MHz	950 to 1450 MHz
Power	< 600 Watts Continuous	

(1) Excludes Radome Losses

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