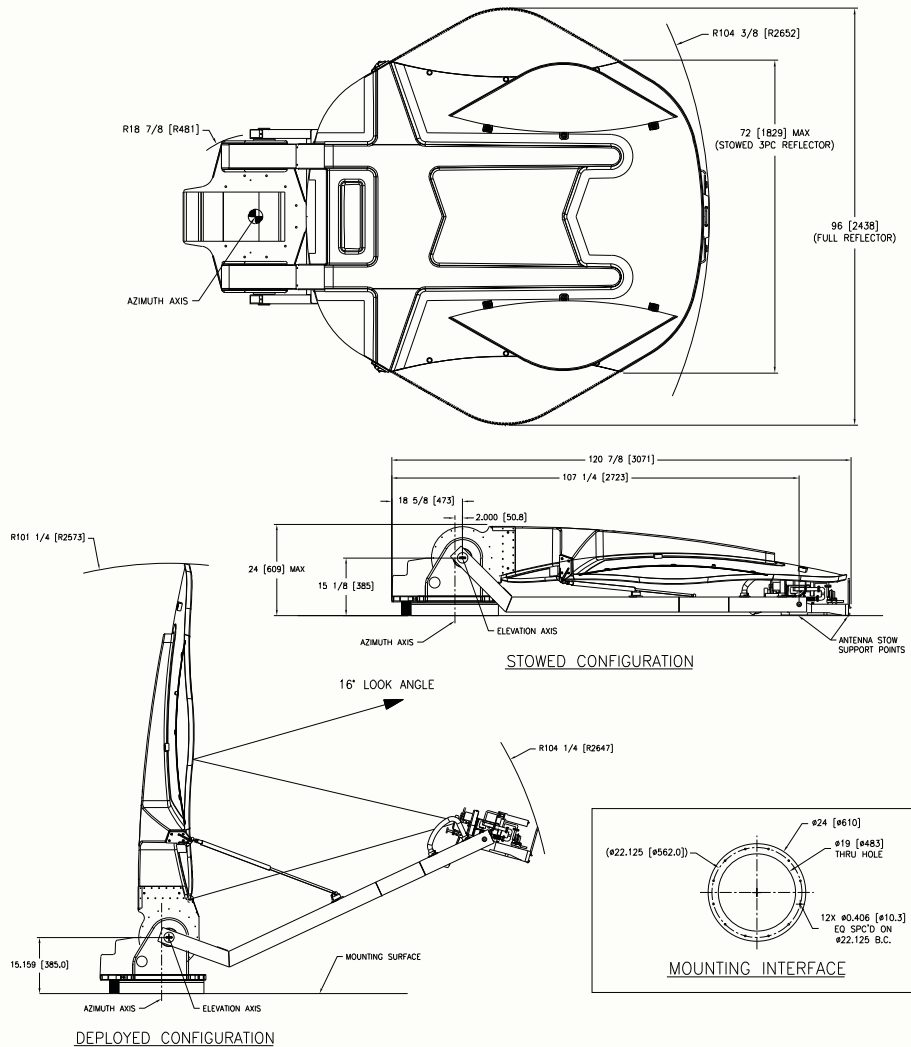


## Model 2.4m SM-LT Troposcatter Antenna



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### Troposcatter Antennas



### The Strength to Perform

Carbon fiber/aluminum construction

Lightweight, precision surface, high stiffness, robust design for vehicle mounting

High performance, low sidelobes

Stow/deployment -- low profile, stow position on vehicle, precision alignment, automatic deploy and stow

**Buy Now!**



### Description

The General Dynamics SATCOM Technologies 2.4m SM-LT antenna, configured for troposcatter operation, utilizes either a "conventional" C-band (4.4 to 5.0 GHz) feed or a proprietary dual-beam Ku-band feed (14.9 to 15.4 GHz) to provide high-quality, over-the-horizon communications. In C-band applications, space diversity is normally achieved using dual antennas in each terminal. For Ku-band applications, a unique, patent-pending, dual-beam feed is incorporated to provide two closely-spaced beams in elevation to achieve angle diversity in the troposcatter link.

Engineered to stringent standards for multiple applications, the 2.4m SM-LT delivers performance suitable for multi-band satcom and troposcatter operation. Various modes and/or frequency bands of operation are readily accommodated via interchangeable feed packages, making the antenna truly field-configurable. In any operational mode or frequency band, antenna performance is outstanding, with high gain, low sidelobes, and high crosspol and port-to-port isolation values. The use of carbon fiber technology and precision-machined aluminum components provides the ultimate in transportability, wind performance and longevity in tactical environments.

With an integral azimuth over elevation cable drive and lower azimuth bearing, the antenna system is readily fitted to HMMWVs, trailers or transportable pallets. The 2.4m SM-LT is fully compatible with the industry-standard General Dynamics SATCOM Technologies Model 123T Antenna Control System, which provides position control and tracking, as well as auto-deploy and auto-stow functionality for both troposcatter and satcom modes of operation.

### Options

- Complete tropo terminals available, including amplifiers, frequency converters, modems, antenna control systems and monitor and control systems
- Reflector configurations (single or three-piece segmented)
- Finishes (green, tan or per customer spec)
- Integration (various TWT/amplifier mounting arrangements)
- Anti-icing
- Satcom capable (L, C, X, Ku, DBS, Ka, low-PIM)

## Technical Specifications

| Mechanical           |   |
|----------------------|---|
| Azimuth Travel       | ±150° continuous  |
| Elevation Travel     | -4° to +90°   |
| Polarization Travel  | ±90° (satcom operation, linear only)  |
| Drive Rates          | 0.3°/second (azimuth)<br>0.7°/second (elevation)<br>2.6°/second (polarization), satcom operation, linear only |
| Reflector            | 2.4-meter (94.5 in) carbon fiber (single or three-piece configuration)  |
| Feed                 | Troposcatter or satcom multiband interchangeable  |
| Finish               | White (standard; other optional finishes also available)  |
| Weight               | 515 lbs (234 kg) without feed or deicing  |
| Stow Height          | 23.5 in (59.7 cm)   |
| Electrical Interface | 25 ft (7.6 m) cable, pre-connectorized for various controller options   |
| Integration          | 150 lbs (68 kg) feed boom mounted<br>300 lbs (136 kg) positioner mounted                                      |

| Environmental                     |   |
|-----------------------------------|---|
| Wind Loading*                     |   |
| Operational                       | 45 mph (72 km/h) gusting to 60 mph (97 km/h)  |
| Survival                          | 45 mph (72 km/h) gusting to 75 mph (121 km/h) any position<br>90 mph (145 km/h) stow position   |
| Pointing Loss (operational winds) | Maximum 2.0 dB Rx loss (Ku-band)  |
| Temperature                       |   |
| Operational                       | -22° to +122° F (-30° to +50° C)  |
| Survival                          | -40° to +158° F (-40° to +70° C)  |
| Rain                              |   |
| Operational                       | 4 in/h (10 cm/h)  |
| Survival                          | 6 in/h (15 cm/h)  |
| Relative Humidity                 | 0% to 100% with condensation  |
| Solar Radiation                   | 360 BTU/h/ft <sup>2</sup> (1000 Kcal/h/m <sup>2</sup> )   |
| Radial Ice (survival)             | 1 in (25 mm) on all surfaces, 1/2 in (12 mm) on all surfaces with 80 mph (130 km/h) wind gusts* |
| Corrosive Atmosphere              | As encountered in coastal regions and/or heavily industrialized areas                           |

\* Depending on vehicle capabilities.

## Model 2.4m SM-LT Troposcatter Antenna

| Electrical**                               | Tropo C-Band 2-Port Linear Polarized***  |               | Dual Beam Tropo Ku-Band 4-Port Linear Polarized  |                 |
|--|--|---------------|--|-----------------|
|  | Receive  | Transmit      | Receive  | Transmit        |
| Frequency (GHz)                            | 4.400 - 5.000  | 4.400 - 5.000 | 14.900 - 15.400  | 14.900 - 15.400 |
| Antenna Gain at Midband, dBi               | 38.30  | 38.30         | 49.70  | 49.70           |
| Antenna Noise Temperature                  | 81 K (1° elevation)<br>72 K (2° elevation)<br>40 K (10° elevation)<br>36 K (20° elevation) |               | 121 K (1° elevation)<br>101 K (2° elevation)<br>58 K (10° elevation)<br>50 K (20° elevation) |                 |
| Typical G/T                                |  |               |  |                 |
| at 20° Elevation, Clear Horizon, 4,400 GHz |  |               |  |                 |
| 35° K LNA                                  | 18.1 dB/K  |               |  |                 |
| 50° K LNA                                  | 17.3 dB/K  |               |  |                 |
| at 1° Elevation, Clear Horizon, 15,150 GHz |  |               |  |                 |
| 70° K LNA                                  |  |               | 26.7 dB/K  |                 |
| 90° K LNA                                  |  |               | 26.2 dB/K  |                 |
| Pattern Beamwidth (in degrees at midband)  |  |               |  |                 |
| -3 dB Beamwidth                            | 2.08   | 2.08          | 0.54   | 0.54            |
| -15 dB Beamwidth                           | 4.37   | 4.37          | 1.13   | 1.13            |
| Sidelobe Performance                       |  |               |  |                 |
| First Sidelobe Across the Band             | -20.0 ± 2 dB   | -20.0 ± 2 dB  | -20.0 ± 2 dB   | -20.0 ± 2 dB    |
| For Angle A from 14° to 22°                | -26 dB   | -26 dB        | -26 dB   | -26 dB          |
| For Angles Greater Than 22°                | -30 dB   | -30 dB        | -30 dB   | -30 dB          |
| Cross Polarization Isolation               |  |               |  |                 |
| On Axis                                    | 30.0 dB  | 30.0 dB       | 30.0 dB  | 30.0 dB         |
| Within 1.0 dB Beamwidth                    | 30.0 dB  | 30.0 dB       | 30.0 dB  | 30.0 dB         |
| VSWR                                       | 1.30:1   | 1.30:1        | 1.30:1   | 1.30:1          |
| Port-to-Port Isolation                     |  |               |  |                 |
| Rx/Tx (Rx frequency)                       | 0 dB   | -30 dB        | 0 dB   | -30 dB          |
| Tx/Rx (Tx frequency)                       | -30 dB   | 0 dB          | -30 dB   | 0 dB            |
| Feed Insertion Loss                        | 0.15 dB  | 0.15 dB       | 0.15 dB  | 0.15 dB         |
| Waveguide Interface Flange                 | CPR-187G   | CPR-187G      | WR-62  | WR-62           |
| Total Power Handling Capability            | 2 kW CW  |               | 1 kW CW  |                 |
| RF Specification                           | 975-3524   |               | 975-3358   |                 |

\*\* Vehicle capabilities directly affect antenna performance during and following transportation.

\*\*\* Tropo C-band operation requires dual antennas to achieve signal diversity.



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