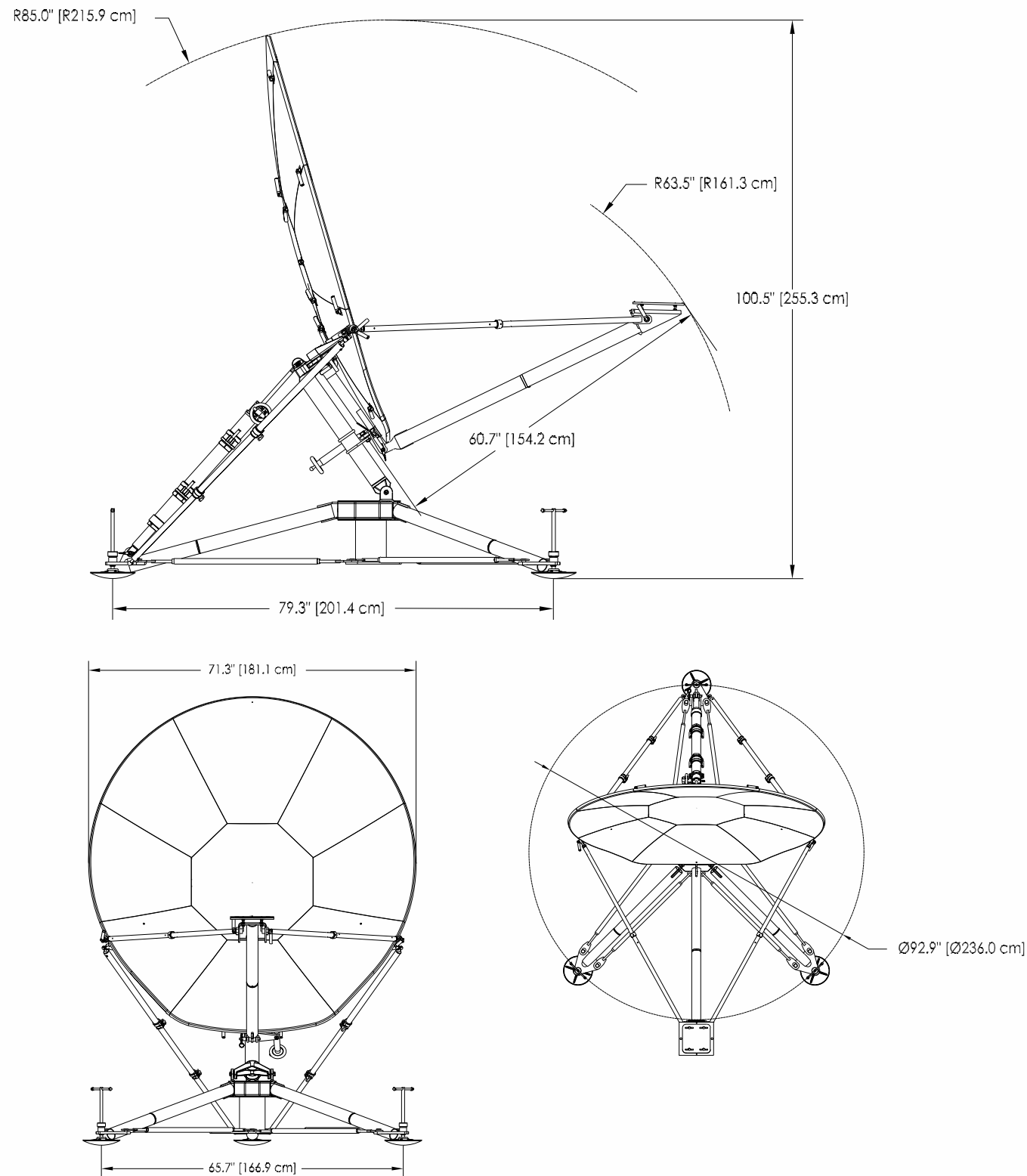


Model 1.8m SF Antenna



GENERAL DYNAMICS

SATCOM Technologies

1104 Energy Drive • Kilgore, TX 75662 USA • Tel: (903) 984-7811 • Fax: (903) 984-7597 • E-mail: kilgore-sales@gdsatcom.com
 Website: www.gdsatcom.com 655-0052E 4/08

© 2008 General Dynamics. All rights reserved. General Dynamics reserves the right to make changes in its products and specifications at anytime and without notice. All trademarks indicated as such herein are trademarks of General Dynamics. All other product and service names are the property of their respective owners. ® Reg. U.S. Pat. and Tm. Off.

Model 1.8m SF Antenna

Flyaway Antennas



The Strength to Perform

Description

The General Dynamics SATCOM Technologies lightweight 1.8-meter SF antennas are designed for worldwide transmit and receive operation in C, X, Ku and Ka band. These portable antennas consist of composite reflectors and aluminum tripod base mounts. This results in a low-weight antenna with superior stiffness and high performance under wind loading conditions.

The unique shape and the accurate reflector surface provide good sidelobe and cross-polarization performance. Repeatability is maintained with precision registration of the nine-piece reflector segments and the feed support structure.

The complete 1.8-meter antenna system, including a single feed, is packaged in multiple portable cases depending on options ordered.

Features

- Carbon fiber composite reflector
- Tripod base mount
- Less than 30-minute setup
- Captive hardware/fasteners
- No tools required
- Quick adjust positioner
- Intelsat/Eutelsat sidelobe compliant (C and Ku band)
- Feed boom supports up to 40 lbs. for amplifier mounting
- Lightweight transport cases

Options

- Multiple feed configurations
- Multiple colors

GENERAL DYNAMICS
 SATCOM Technologies

Technical Specifications

| Mechanical | | |
|--|---|------------------|
| Cross Elevation (Azimuth) Adjustment Range | ±20° manual adjustment | |
| Elevation Adjustment Range | 5° to 85° | |
| Antenna Optics | Single offset, 0.74 F/D ratio | |
| Reflector Material | Nine-piece carbon fiber composite | |
| Pedestal Structure | Aluminum, stainless steel and brass | |
| Boom Mounted HPA Loading* | 40 lbs. (18 kg) mounted near reflector (HPA may limit travel) | |
| Shipping Specifications | Ruggedized Aluminum Cases | |
| Case Contents | Size | Loaded Weight |
| Reflector | 41" x 35" x 33" H (104 x 89 x 84 cm) | 128 lbs. (58 kg) |
| Pedestal | 41" x 35" x 33" H (104 x 89 x 84 cm) | 132 lbs. (60 kg) |
| Components | 47" x 31" x 20" H (119 x 79 x 51 cm) | 148 lbs. (67 kg) |
| Feeds | Consult factory for options | |

| Environmental | |
|---|---|
| Wind Loading | |
| Operational (anchored) | 30 mph (48 km/h) gusting to 45 mph (72 km/h) |
| Survival (with tie-downs) | 60 mph (97 km/h) |
| Pointing Loss (operational winds) | Maximum 2.0 dB peak Rx loss at Ku |
| Ambient Temperature | |
| Operational (manual) | -22° to +140° F (-30° to +60° C) |
| Survival | -40° to +140° F (-40° to +60° C) |
| Relative Humidity (operational and survival) | 0% to 100% |
| Solar Radiation | 360 BTU/h/ft ² (1000 Kcal/h/m ²) |
| Shock and vibration tolerant to conditions encountered during shipment by airplane, ship or truck. Atmospheric tolerant to conditions encountered in coastal regions and/or heavily industrialized areas. | |

* Additional information available upon request.

| Electrical** | C-Band 2-Port Linear Polarized Feed | | C-Band 2-Port Circular Polarized Feed | | X-Band 2-Port Circular Polarized Feed | | Ku-Band 2-Port Linear Polarized Feed | | Ku-Band 2-Port Linear Polarized Feed (Cross-Pol Compensated) | |
|---|-------------------------------------|---------------|---------------------------------------|---------------|---------------------------------------|---------------|--------------------------------------|-----------------|--|-----------------|
| | Receive | Transmit | Receive | Transmit | Receive | Transmit | Receive | Transmit | Receive | Transmit |
| Frequency (GHz) | 3.625 - 4.200 | 5.850 - 6.425 | 3.625 - 4.200 | 5.850 - 6.425 | 7.250 - 7.750 | 7.900 - 8.400 | 10.950 - 12.750 | 13.750 - 14.500 | 10.950 - 12.750 | 13.750 - 14.500 |
| Antenna Gain at Midband | 35.60 dBi | 39.30 dBi | 35.30 dBi | 39.30 dBi | 41.30 dBi | 42.00 dBi | 45.10 dBi | 46.10 dBi | 44.90 dBi | 46.50 dBi |
| Antenna Noise Temperature | | | | | | | | | | |
| 5° Elevation | 56 K | | 73 K | | 67 K | | 73 K | | 69 K | |
| 10° Elevation | 42 K | | 59 K | | 57 K | | 61 K | | 57 K | |
| 20° Elevation | 37 K | | 54 K | | 52 K | | 54 K | | 50 K | |
| 40° Elevation | 38 K | | 55 K | | 54 K | | 53 K | | 49 K | |
| Typical G/T at 4.000 GHz, 20° Elevation, Clear Horizon | | | | | | | | | | |
| C-Band 35° K LNA | 17.0 dB/K | | 15.8 dB/K | | | | | | | |
| C-Band 50° K LNA | 16.2 dB/K | | 15.1 dB/K | | | | | | | |
| Typical G/T at 7.500 GHz, 20° Elevation, Clear Horizon | | | | | | | | | | |
| X-Band 60° K LNA | | | | | 20.8 dB/K | | | | | |
| X-Band 80° K LNA | | | | | 20.1 dB/K | | | | | |
| Typical G/T at 11.850 GHz, 20° Elevation, Clear Horizon | | | | | | | | | | |
| Ku-Band 70° K LNA | | | | | | | 24.2 dB/K | | 24.1 dB/K | |
| Ku-Band 90° K LNA | | | | | | | 23.5 dB/K | | 23.4 dB/K | |
| Pattern Beamwidth (in degrees at midband) | | | | | | | | | | |
| -3 dB Beamwidth | 2.84 | 1.87 | 2.88 | 1.86 | 1.44 | 1.33 | 0.92 | 0.83 | 0.95 | 0.80 |
| -15 dB Beamwidth | 5.96 | 3.93 | 6.05 | 3.91 | 3.02 | 2.79 | 1.93 | 1.74 | 1.99 | 1.68 |
| Sidelobe Performance | | | | | | | | | | |
| For Angle A beyond Mainbeam to 20° | | | | | 29-25 log A | 29-25 log A | | | | |
| For Angles from 20°-48° | | | | | 32-25 log A | 32-25 log A | | | | |
| For Angle A from 1°-30° | | | | | | | 29-25 log A | | | 29-25 log A |
| For Angle A beyond Mainbeam to 48° | 32-25 log A | 32-25 log A | 32-25 log A | 32-25 log A | | | | | | |
| For Angles from 48°-140° | -10 dBi | -10 dBi | -10 dBi | -10 dBi | -10 dBi | -10 dBi | | | | |
| For Angles from 140°-180° | 0 dBi | 0 dBi | 0 dBi | 0 dBi | 0 dBi | 0 dBi | | | | |
| For Angle A from 30°-130° | | | | | | | -10 dBi | -10 dBi | -10 dBi | -10 dBi |
| For Angles from 130°-180° | | | | | | | 0 dBi | 0 dBi | 0 dBi | 0 dBi |
| Cross Polarization | | | | | | | | | | |
| On Axis | 30.0 dB | 30.0 dB | 15.3 dB | 17.7 dB | 21.3 dB | 21.3 dB | 30.0 dB | 30.0 dB | 35.0 dB | 35.0 dB |
| Within 1.0 dB Beamwidth | 26.0 dB | 26.0 dB | 15.3 dB | 17.7 dB | 21.3 dB | 21.3 dB | 27.0 dB | 27.0 dB | 27.0 dB | 35.0 dB |
| VSWR | 1.30:1 | 1.30:1 | 1.30:1 | 1.30:1 | 1.30:1 | 1.30:1 | 1.30:1 | 1.30:1 | 1.35:1 | 1.30:1 |
| Axial Ratio | | | 3.01 dB*** | 2.28 dB | 1.50 dB**** | 1.50 dB | | | | |
| Port-to-Port Isolation | | | | | | | | | | |
| Rx/Tx (Rx frequency) | 0 dB | -30 dB | 0 dB | -50 dB | 0 dB | -110 dB | 0 dB | -35 dB | 0 dB | -30 dB |
| Tx/Rx (Tx frequency) | -70 dB | 0 dB | -85 dB | 0 dB | -110 dB | 0 dB | -85 dB | 0 dB | -85 dB | 0 dB |
| Feed Insertion Loss | 0.20 dB | 0.15 dB | 0.40 dB | 0.20 dB | 0.40 dB | 0.40 dB | 0.40 dB | 0.25 dB | 0.30 dB | 0.20 dB |
| Output Waveguide Flange Interface | CPR-229G | CPR-137G | CPR-229G | CPR-137G | CPR-112G | CPR-112G | WR-75 Flat | WR-75 Flat | WR-75 Flat | WR-75 Flat |
| Total Power Handling Capability | 2.00 kW CW | | 2.00 kW CW | | 5.00 kW CW | | 2.00 kW CW | | 2.00 kW CW | |
| RF Specification | 975-3381 | | 975-3380 | | 975-3125 | | 975-3379 | | 975-3437 | |

** Consult factory for Ka-band option.

*** Low axial ratio feed available.

**** Low axial ratio feed available. X-band dual polarization switch available.