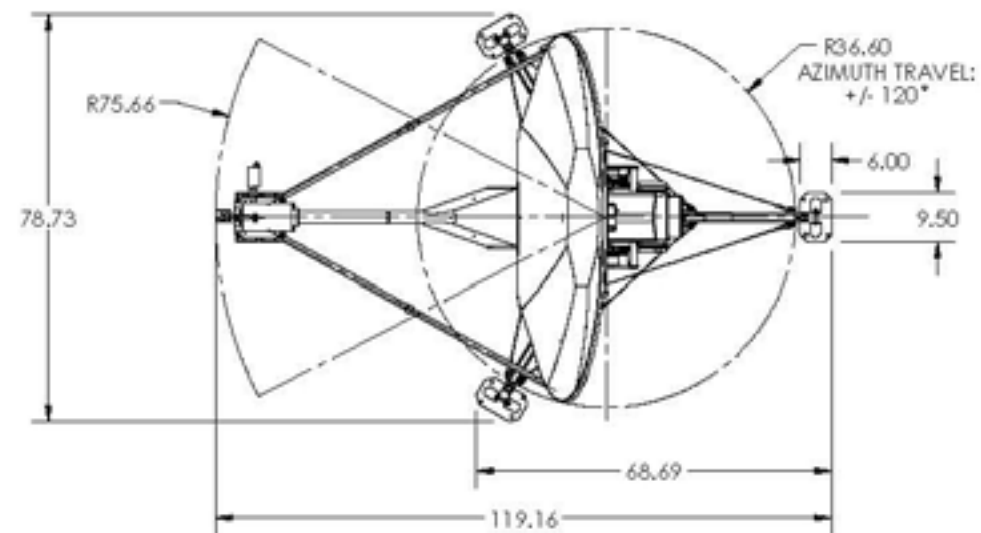
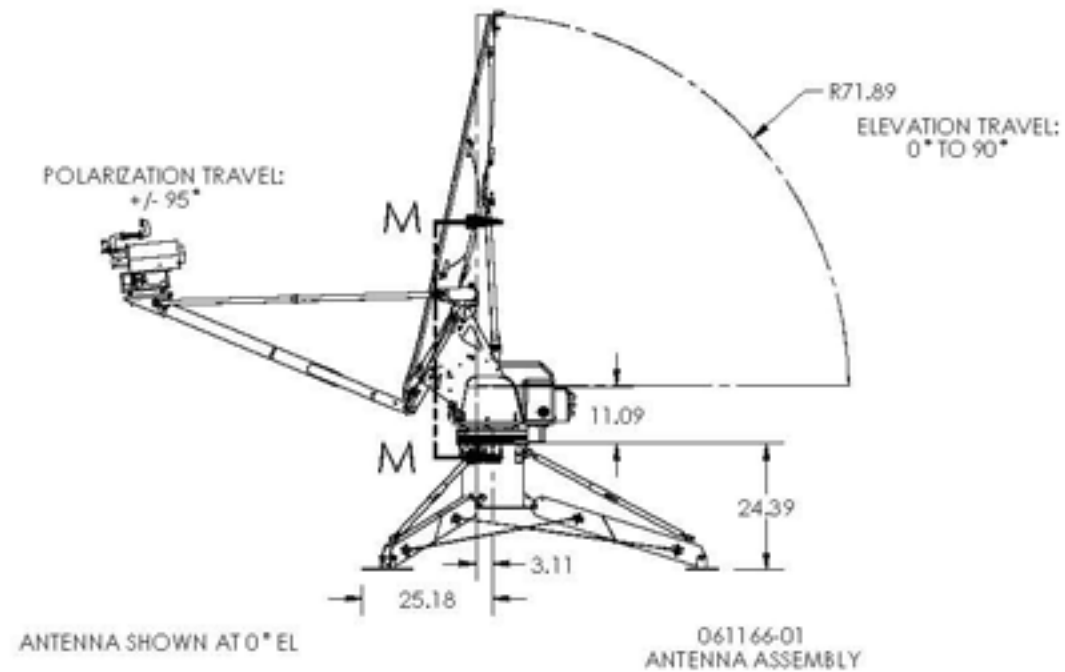


Model C180F Motorized Flyaway Antenna



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Flyaway Antennas



The Strength to Perform

Description

The General Dynamics SATCOM Technologies lightweight 1.8-meter motorized flyaway antenna is designed for worldwide transmit and receive operation in C, X, Ku and Ka-band. This flyaway antenna consists of a carbon fiber composite reflector, a cable-driven elevation-over-azimuth positioner and an aluminum/CFRP support structure. This results in a low-weight, motorized antenna with superior stiffness and high performance under wind loading conditions.

The unique shape and the accurate reflector surface provide exceptionally low sidelobe and cross-polarization performance meeting INTELSAT and EUTELSAT requirements. Repeatability is maintained with precision registration of the nine reflector segments and the feed support structure. The interchangeable feeds are palletized for quick, easy removal and replacement, allowing the end-user to effectively change frequency bands in the field within minutes. The complete antenna system, including a single feed and a motorized positioner, is packaged in four robust, portable cases.

Features

- Carbon fiber reflector: Lightweight, precision surface and high stiffness
- Cable-driven positioner: Composite/aluminum construction, lightweight, sturdy
- Easy deployment: Two-person assembly in less than 15 minutes, captive hardware and precision alignment
- Auto-acquisition with DVB reference
- 24 VDC or 100-240 VAC input
- High performance: Low sidelobes and high EIRP capability

Options

- Finishes: White, green, tan or per customer spec
- Feeds: Four-port, co-pol, CP/LP switchable
- L, C, X, Ku, Ka and DBS-band
- C-band CP/LP switchable also available
- Beacon receiver
- Spectrm Analyzer
- SSPB / LNB integration

GENERAL DYNAMICS
SATCOM Technologies

Technical Specifications

Mechanical		
Azimuth Travel	±180°	
Elevation Travel	0° to 90°	
Polarization Travel	±90° (linear polarization only)	
Reflector Structure	Carbon fiber composite	
Pedestal Structure	Aluminum/composite cable-driven azimuth-over-elevation positioner on carbon fiber structural case	
Boom Mounted HPA Loading ¹	60 lbs. (27.2 kg)	
Transport Configuration		
Case	Case Size (L x W x H)	Total weight (component and case)
Component Case 1	41.12 x 37.12 x 38.82 in (104.4 x 94.3 x 98.6 cm)	174 lbs (78.9 kg)
Component Case 2	30.00 x 30.00 x 28.79 in (76.2 x 76.2 x 73.1 cm)	156 lbs (70.8 kg)
Reflector Case 1	37.25 x 27.18 x 19.44 in (94.6 x 69 x 49.4 cm)	79 lbs (35.8 kg)
Reflector Case 2	37.38 x 37.38 x 38.43 in (94.9 x 94.9 x 97.6 cm)	163 lbs (73.9 kg)
Total System (feeds cased separately)	91.75 ft ³ (2.6 m ³)	572 lbs (259.5 kg)
Feeds ²	Multiple configurations and options available (L, C, X, Ku, Ka or DBS-band)	

Environmental	
Wind Loading	
Operational (with ballast)	30 mph (48 km/h) gusting to 45 mph (72 km/h)
Survival (with tie-downs)	60 mph (96 km/h)
Pointing Loss (operational winds)	Maximum 2.0 dB peak Rx loss at Ku
Temperature	
Operational	-22° to +122° F (-30° to +50° C)
Survival	-40° to +158° F (-40° to +70° 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.	

¹ Contact factory for mounting locations.

² Contact factory for details.

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Electrical ³	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 (Cross-Pol Compensated)		Ka-Band 2-Port Circular Polarized Feed	
	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	20.200 - 21.200	30.000 - 31.000
Antenna Gain at Midband	35.60 dBi	39.30 dBi	35.30 dBi	39.30 dBi	41.30 dBi	42.00 dBi	44.90 dBi	46.50 dBi	49.10 dBi	52.30 dBi
Antenna Noise Temperature										
5° Elevation	56 K		73 K		67 K		69 K		155 K	
10° Elevation	42 K		59 K		57 K		57 K		133 K	
20° Elevation	37 K		54 K		52 K		50 K		117 K	
40° Elevation	38 K		55 K		54 K		49 K		108 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							24.1 dB/K		25.3 dB/K	
Ku-Band 90° K LNA							23.4 dB/K		24.1 dB/K	
Pattern Beamwidth (in degrees at midband)										
-3 dB Beamwidth	2.84	1.87	2.88	1.86	1.44	1.33	0.95	0.80	0.55	0.38
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	35.0 dB	35.0 dB	24.8 dB	24.8 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	35.0 dB	24.8 dB	24.8 dB
VSWR	1.30:1	1.30:1	1.30:1	1.30:1	1.30:1	1.30:1	1.35:1	1.30:1	1.30:1	1.30:1
Axial Ratio			3.01 dB ⁴	2.28 dB	1.50 dB ⁵	1.50 dB			1.00 dB	1.00 dB
Port-to-Port Isolation										
Rx/Tx (Rx frequency)	0 dB	-30 dB	0 dB	-50 dB	0 dB	-110 dB	0 dB	-30 dB	0 dB	-70 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	0.30 dB	0.20 dB	0.50 dB	0.45 dB
Output Waveguide Flange Interface	CPR-229G	CPR-137G	CPR-229G	CPR-137G	CPR-112G	CPR-112G	WR-75 Flat	WR-75 Flat	WR-42 Flat	WR-28 Flat
Total Power Handling Capability	2.00 kW CW		2.00 kW CW		5.00 kW CW		2.00 kW CW		0.50 kW CW	
RF Specification	975-3381		975-3380		975-3125		975-3437		975-2985	

³ Other feeds available. Contact factory for information.

⁴ Low axial ratio feed available.

⁵ Low axial ratio feed available. X-band dual polarization switch available.