Satcom & Antenna Technologies Division



Overview

The General Dynamics SATCOM Technologies lightweight 1.8 meter manual 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, an ACME threaded locking rod elevation-over-azimuth positioner and an aluminum support structure. This results in a low-weight, manual 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 manual positioner, is packaged in robust, portable cases.

FEATURES

- Simple manual satellite acquisition
- Superior stiffness and high performance under wind loading conditions
- Easy 2-person deployment in less than 30 minutes
- Carbon fiber reflector: Lightweight, precision surface and high stiffness
- Low profile EL over AZ positioner installed: Composite/aluminum lightweight, sturdy
- Easy deployment: Two-person assembly in less than 30 minutes, captive hardware and precision alignment. No tools required for assembly
- High performance: Low sidelobes and high EIRP capability - FCC, ITU, DISA, ARSTRAT sidelobe compliant

OPTIONS

- Finishes
- Standard Ford Polar White reflector / feed
- Options Green Fed Std 595 34094 or Desert Sand Fed Std 595 33303
- Feeds
- 4-port, Co-Pol or CP/LP switchable
- Bands L, C, X, Ku, DBS and/or Ka
- Integration
 - SSPB and/or LNB
 - Specify at time of order

BENEFITS:

- Lightweight
- Designed for worldwide transmit and receive

APPLICATIONS:

 Superior stiffness and high performance under wind loading conditions



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Specifications

Mechanical									
Azimuth Travel	±180° Fine adjust +/-15°								
Elevation Travel	5° to 90°								
Polarization Travel	±90° (linear polarization)								
Reflector Structure	Carbon fiber composite								
Pedestal Structure	Aluminum positioner elevation over azimuth positioner								
Antenna Weight (by component)	Weight	Quantity	Reflector Total	Weight	Quantity				
Pedestal Total Pedestal w/ Legs Pedestal Case (55 x 35 X 27"/ 140 X 89 X 68.6 cm)	185 lbs (84 kg) 90 lbs (41 kg) 95 lbs (43 kg)	1 1	Petals Petal Case (37.4 X 37.4 X 38.4"/	146 lbs (66.2 kg) 56 lbs (25.4 kg) 90 lbs (40.8 kg)	1				
Positioner Total Manual Positioner Positioner Case (43 X 27.56 X 20" / 109.2 X 70 X 50.8 cm)	128 lbs (58 kg) 66 lbs (29.9 kg) 62 lbs (28.1 kg)	1 1	95 X 95 X 97.5 cm)		Ku Band Feed Case 28 x 21 x 15" X-Band Feed Case 28 x 21 x 15" C-Band CP/LP Feed 29.8 x 20.8 17.8 C-Band CP Feed 40 x 18 x 13.2"				
Backbeam + Feed Boom	198 lbs (89.8 kg) 89 lbs (40.4 kg) 109 lbs (49.4 kg)	1 1	Ku-Band Feed X-Band Feed C-Band CP/LP Feed C-Band CP Feed	15 lbs (6.8 kg) 26 lbs (11.8 kg) 25 lbs (11.3 kg) 30 lbs (13.6 kg)	Ku Band Feed Case 36 lbs (16.3 kg) X-Band Feed Case 36 lbs (16.3 kg) C-Band CP/LP Feed 45 lbs (20.4 kg) C-Band CP Feed 36 lbs (16.3 kg)				
Antenna Total	301 lbs (136.5 kg) without feed and cases								
Loading Operational (with ballast) Survival (with tie-downs)	30 mph (48 km/h) gusting to 45 mph (72 km/h) 60 mph (96 km/h) gusting to 70 mph (113 km/h); antenna must be at stow position (90°elevation)								
Pointing Loss (operational winds)	Maximum 2.0 dB peak loss								
Temperature Operational Survival	-40° to +140° F (-40° to +60° C) -40° to +160° F (-40° to +71° C)								
Relative Humidity (operational and survival)	0% to 95%, +86°to +140°F (+30°to +60°C)								
Solar Radiation	355 BTU/h/ft2 (964 Kcal/h/m2)								
Shock and vibration	As encountered during shipment by commercial air, sea or land								
Corrosive Atmosphere	As encountered	in coastal re	egions and/or heavily	industrialized are	eas				



Specifications

Electrical	C-Band 2-Port Linear Polarized		C-Band 2-Port Circular Polarized		X-Band 2-Port Circular Polarized		Ka-Band 2-Port Linear Polarized		Ka-Band 4-Port Linear Polarized		Ka-Band 2-Port Circular Polarized	
	Receive	Transmit	Receive	Transmit	Receive	Transmit	Receive	Transmit	Receive	Transmit	Receive	Transmit
Frequency (GHz)	3.625 -	5.850 -	3.625	- 5.850 -	7.250 -	7.900 -	10.950	- 13.750 -	10.750	-13.750	-20.200	-30.000 -
	4.200	6.425	4.200	6.425	7.750	8.400	12.750	14.500	12.750	14.500	21.200	31.000
Antenna Gain at Midband, dBi	35.6	39.3	35.3	39.3	41.3	42.0	45.0	47.1	44.6	46.3	49.1	52.3
Antenna Noise Temperature												
5° Elevation 10° Elevation 20° Elevation 40° Elevation	56K 42K 37K 38K		73K 59K 54K 55K		65K 55K 51K 52K		85K 71K 64K 64K		80K 68K 62K 61K		155K 133K 117K 108K	
Pattern Beamwidth (in degrees at midband) -3 dB Beamwidth	2.84	1.87	2.88	1.86	1.44	1.33	0.94	0.75	0.96	0.80	0.55	0.38
Sidelobe Performance** For Angle A from 2° to 30° (typical)									24-25 L PLANE) 29-25 L General	og A (in	29 - 25	Log A
For Angle A beyond mainbeam to 48°	32-25 L	og A	32-25 Log A		*29-25 Log A *32-25 Log A		Meets ITU- RS580 / FCC 25.209					
For Angle A from 48° to 140°	-1	0 dBi	-10 dBi		-10 dBi				-10 dBi	-10 dBi	-10 dBi	-10 dBi
For Angle A from 140° to 180°	0	dBi	0	dBi	0 dBi				0 dBi	0 dBi	0 dBi	0 dBi
Cross Polarization On Axis Within 1.0 dB BW	30.0 dB 26.0 dB	30.0 dB 26.0 dB	19.7 dB 19.7 dB	27.3 dB 24.0 dB	21.3 dB 21.3 dB			35.0 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	1.35:1	1.30:1		1.30:1
Axial Ratio			1.81 dB	0.75 dB	1.50 dE	1.50 dB					1.00 dl	31.00 dB
Port-to-Port Isolation Rx/Tx (Rx frequency) Tx/Rx (Tx frequency)	0 dBi -70 dB	-30 dB 0 dB	0 dBi -100 dB	-50 dB 0 dB	0 dBi -110 dE		0 dBi -85 dB		0 dBi -85 dB		0 dB -85 dB	-70 dB 0 dB
Feed Insertion Loss	0.20 dB	0.15 dB	0.40 dB	0.20 dB	0.40 dE	0.40 dB	0.30 dB	0.20 dB	0.55 dB	0.40 dB	0.30 dB	0.30 dB
Waveguide Interface Flange	CPR- 229G	CPR-1370	CPR- 229G	CPR-137G	CPR-112	G CPR- 112G	WR-75 Flat	WR-75 Flat	WR-75	WR-75	WR-42	WR-28
Total Power Handling Capability		2 kW CW		2 kW CW		2 kW CW		1 kW CW		1 kW CW	/	500 W CW
RF Specification	97!	5-3381	97	5-2849	975	-3125	975	-5380	975	-4414	975	5-2985

^{*} Angular values for X-band are A° to 20° , 20° to 40° for main beam.

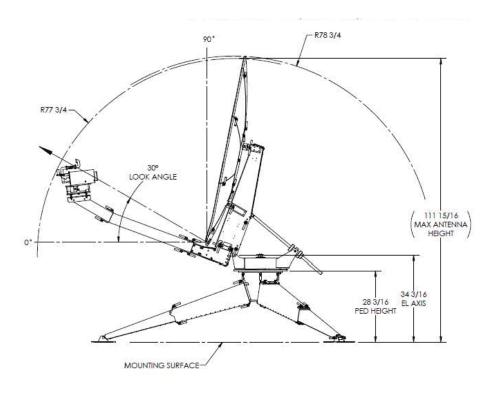
Other feeds available. Contact factory for information.

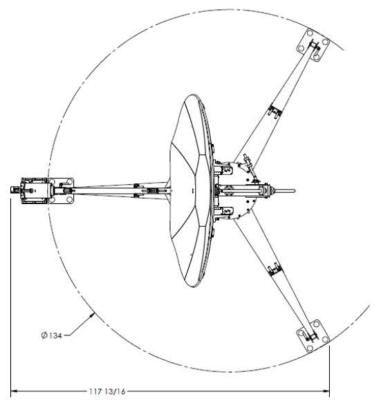
Low axial ratio feed available.

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



^{*} Angular values for Ka-band are 1° to 30°, 30° to 130° and 130° to 180°.







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For more detailed information, please refer to the corresponding CPI technical description if one has been published, or contact CPI. Specifications may change without notice as a result of additional data or product refinement. Please contact CPI before using this information for system design.

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