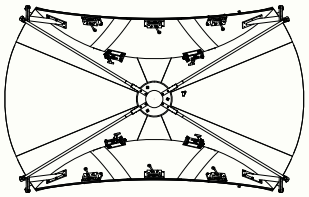
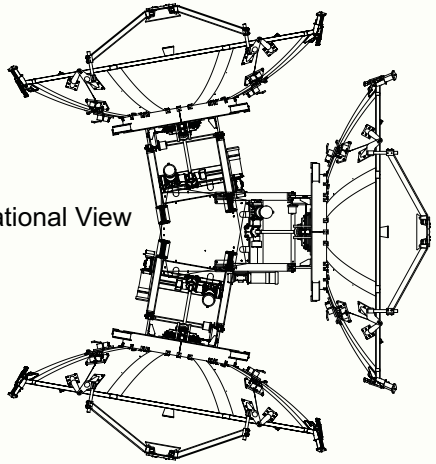
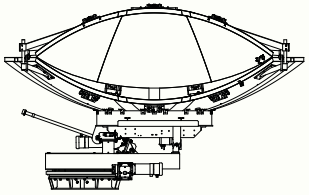
Model 3.9m FMA Folding Mobile Antenna



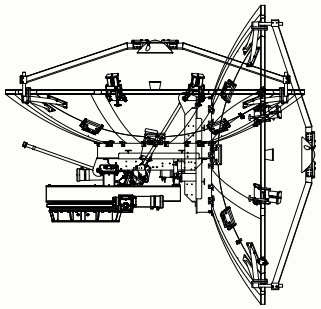
Stowed View



Operational View



Side View - Stowed



Side View - Operational

Model 3.9m FMA Folding Mobile Antenna

Quad-Band Mobile Antennas

The Strength to Perform

Designed to operate with high performance at Quad-band (C, X, Ku & Ka); INTELSAT and EUTELSAT compliant

Aluminum reflector provides lightweight, precision surface and high stiffness

No tools, one-person deployment of side wings; two-person deployment in under 20 minutes, captive hardware

Lightweight aluminum jack/gear-driven positioner

Precision tracking systems

Description

The General Dynamics SATCOM Technologies quad-band 3.9-meter motorized mobile antenna is designed for worldwide transmit and receive operation in C, X, Ku and Ka-band. This mobile antenna consists of an aluminum composite reflector, a jack-driven elevation positioner, a gear-driven azimuth positioner and an aluminum support structure. This results in a light-weight, motorized antenna with superior stiffness and high performance under wind loading conditions.

The unique shape and the accurate reflector honeycomb construction provide exceptionally low sidelobe and cross-polarization performance well within INTELSAT and EUTELSAT requirements. Compact highway and air transport features include folding sides and low profile. The interchangeable feeds are modular 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, can be deployed in less than 20 minutes.

Options

- Feeds (four-port, Co-Pol, CP/LP switchable, extended/alternate frequency bands)
- Finishes (white or per customer spec)
- Lightning protection/grounding
- HPA mount at rear of reflector
- Auto acquire
- Low passive intermodulation capable

Model 3.9m FMA Folding Mobile Antenna

Technical Specifications

Mechanical	
Azimuth Travel	±100° continuous
Azimuth Travel Rate	.8 degrees/second max
Elevation Travel	0° to 90°
Elevation Travel Rate	.4 degrees/second max
Polarization Travel	±90° (linear polarization only)
Reflector Structure	Stretch Formed Aluminum, Honeycomb Core
Pedestal Structure	Steel Frame
Mounted Electronics Loading*	200 lbs. (91 kg), mounted on rear of reflector
Antenna Weight	
Reflector, Apex and Subreflector	750 lbs. (340 kg)
Pedestal, Bearing and Drives	1050 lbs. (476 kg)
Packaging	Consult factory for details
Feed Weights	
Ka-Band Feed	25 lbs. (11.3 kg)
Ku-Band Feed	30 lbs. (13.6 kg)
X-Band Feed	41 lbs. (18.1 kg)
X-Band Low PIM Feed	61 lbs. (27.7 kg)
C-Band CP/LP Feed	40 lbs. (18.1 kg)
C-Band CP Feed	45 lbs. (20.4 kg)

Environmental	
Wind Loading	
Operational (on stable platform)	45 mph (72 km/h) gusting to 60 mph (97 km/h)
Survival (stowed)	110 mph (177 km/h)
Pointing Loss (operational winds)	Maximum 2.0 dB peak Rx loss (performance dependent on controller and vehicle capability)
Temperature	
Operational	-22° to +122° F (-30° to +50° C)
Survival (stored)	-40° to +158° F (-40° to +70° C)
Relative Humidity (operational and survival)	0% to 100%
Solar Radiation	360 BTU/h/ft² (1000 Kcal/h/m²)
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.	

* Consult factory for mounting locations and apparatus.

	C-Band 2-Port Circular Polarized**		X-Band 2-Port Circular Polarized***		Ku-Band 2-Port Linear Polarized		Ka-Band 2-Port Circular Polarized	
Electrical	Receive	Transmit	Receive	Transmit	Receive	Transmit	Receive	Transmit
Frequency (GHz)	3.625-4.200	5.850-6.425	7.250-7.750	7.900-8.400	10.950-12.750	14.000-14.500	20.200-21.200	30.000-31.000
Antenna Gain at Midband, dBi	42.60	46.70	48.20	48.90	52.10	53.70	56.70	59.30
Antenna Noise Temperature								
5° Elevation	63 K		72 K		78 K		199 K	
10° Elevation	54 K		61 K		64 K		153 K	
20° Elevation	49 K		55 K		54 K		117 K	
40° Elevation	46 K		53 K		49 K		98 K	
Typical G/T at 20° Elevation								
35 K LNA	23.4 dB/K							
50 K LNA	22.7 dB/K							
60 K LNA			27.6 dB/K					
80 K LNA			26.9 dB/K					
70 K LNA					31.2 dB/K			
90 K LNA					30.5 dB/K			
120 K LNA							32.8 dB/K	
200 K LNA							31.5 dB/K	
Pattern Beamwidth								
-3 dB Beamwidth	1.25	0.79	0.65	0.60	0.41	0.35	0.23	0.17
-15 dB Beamwidth	2.63	1.66	1.36	1.26	0.86	0.73	0.48	0.36
Sidelobe Performance								
For Angle A from 1° to 48°	Meets IESS (Intelsat)		Meets ITU-RS-580		Meets ITU-RS-580		Meets ITU-RS-580	
For Angle A from 48° to 180°	or ITU-RS-580		Meets ITU-RS-580		Meets ITU-RS-580		Meets ITU-RS-580	
Cross Polarization								
On Axis	19.7 dB	27.3 dB	21.3 dB	21.3 dB	35.0 dB	35.0 dB	24.8 dB	24.8 dB
Within 1.0 dB BW	19.7 dB	27.3 dB	21.3 dB	21.3 dB	35.0 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	1.30:1	1.30:1
Axial Ratio	1.80 dB	.75 dB	1.50 dB	1.50 dB			1.00 dB	1.00 dB
Port-to-Port Isolation								
Rx/Tx (Rx frequency)	0 dB	-50 dB	0 dB	-110 dB	0 dB	-30 dB	0 dB	-50 dB
Tx/Rx (Tx frequency)	-85 dB	0 dB	-110 dB	0 dB	-85 dB	0 dB	-85 dB	0 dB
Feed Insertion Loss	0.35 dB	0.25 dB	0.45 dB	0.45 dB	0.50 dB	0.30 dB	0.50 dB	0.45 dB
Waveguide Interface Flange	CPR-229G	CPR-137G	WR-137	WR-137	WR-75 Flat	WR-75 Flat	WR-42	WR-28
Total Power Handling Capability	2.00 kW CW		2.00 kW CW		2.00 kW CW		100 W CW	
RF Specification	975-3759		975-3757		975-2089		975-2191	

** C-band CP/LP feed available.

*** Optional low PIM version available. XTAR compliant, MIL-188-164A compliant options available.

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