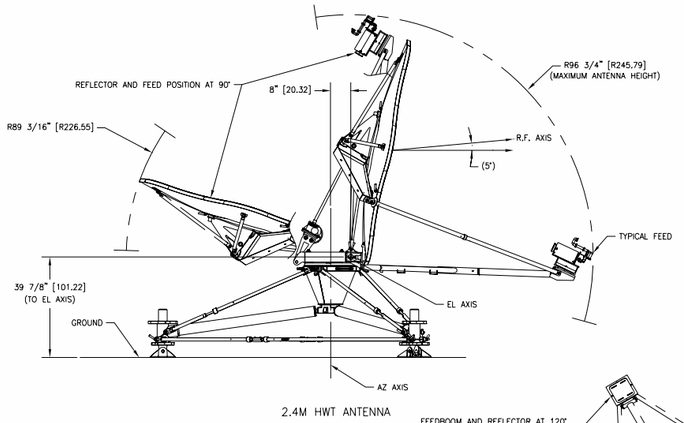
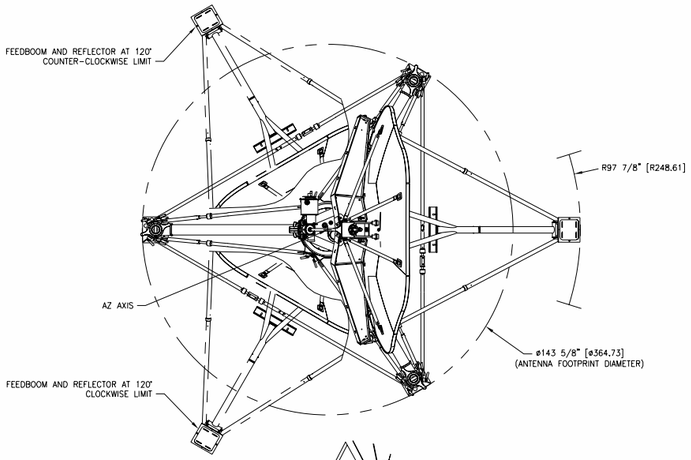
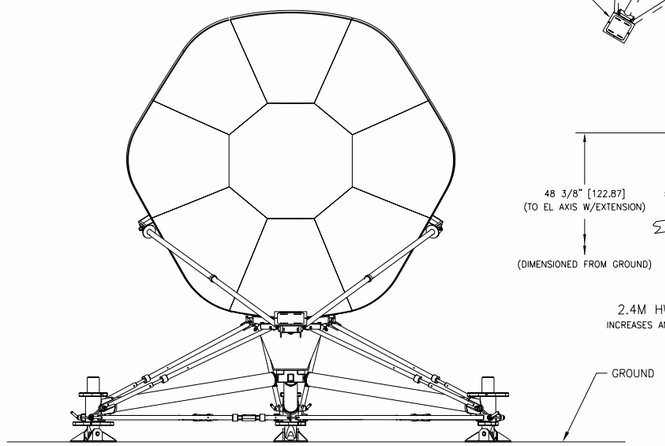
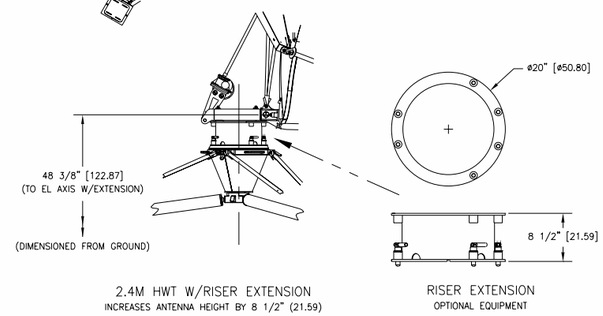
Model 2.4m HWT High Wind Transportable Antenna



2.4M HWT ANTENNA







2.4M HWT W/RISER EXTENSION
INCREASES ANTENNA HEIGHT BY 8 1/2" (21.59)

RISER EXTENSION
OPTIONAL EQUIPMENT

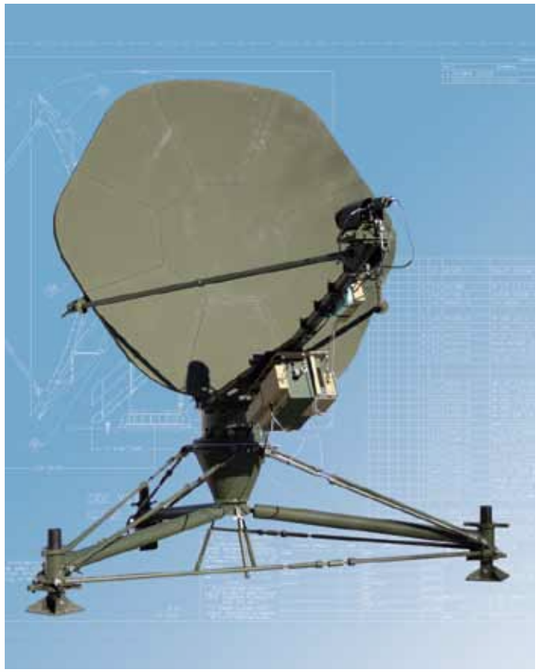
GENERAL DYNAMICS
SATCOM Technologies

1104 Energy Drive • Kilgore, TX 75662 USA • Tel: (903) 984-7811 • Fax: (903) 984-7597 • Email: kilgore-sales@gdsatcom.com
Website: www.gdsatcom.com

655-0041C, 02/09

Model 2.4m HWT High Wind Transportable Antenna

Transportable Antennas



The Strength to Perform

Description

The General Dynamics SATCOM Technologies 2.4-meter motorized transportable antenna is designed for worldwide transmit and receive operation in C, X, Ku and Ka-band. This mobile antenna consists of a carbon fiber composite reflector, a jack-driven elevation positioner, a gear-driven azimuth positioner and an aluminum support structure. This results in a medium-weight, motorized antenna with superior stiffness and high performance under high wind loading conditions.

The unique shape and the accurate reflector surface provide exceptionally low sidelobe and cross-polarization performance well within 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, can be packaged in nine robust, portable cases.

Features

- Carbon fiber reflector provides lightweight, precision surface and high stiffness
- Jack/gear-driven positioner is of carbon fiber/aluminum construction and is lightweight and sturdy
- Easy deployment -- two-person assembly in less than 30 minutes, captive hardware, precision alignment
- INTELSAT type approval pending, EUTELSAT and MIL-188-164A compliant
- High performance, low sidelobes, high EIRP capability

Options

- Feeds (four-port, Co-Pol, CP/LP switchable, DBS, Ka-band, L-band)
- Finishes (green, tan or per customer spec)
- Pedestal/T-head riser for boom mounting options
- Lightning protection/grounding
- Transit cases
- Motorized polarization drive
- IFL cables
- Auto-acquire tracking receiver
- Low passive intermodulation capable
- Troposcatter capable

GENERAL DYNAMICS
SATCOM Technologies

Model 2.4m HWT High Wind Transportable Antenna

Technical Specifications

Mechanical	
Azimuth Travel	±120° (consult factory for CFE equipment mounting)
Elevation Travel	0° to 90° (consult factory for CFE equipment mounting)
Polarization Travel	±90° (linear polarization only)
Reflector Structure	Carbon fiber reinforced polymer (CFRP)
Pedestal Structure	Aluminum alloy
Boom Mounted Electronics Loading*	120 lbs. (54 kg), not including feed assembly (electronics may limit travel)
Antenna Weight	
Reflector (9-piece)	120 lbs. (54 kg)
Pedestal Assembly	589 lbs. (267 kg)
Packaging	Consult factory for details
Feed Weights	
Ka-Band Feed	10 lbs. (4.5 kg)
Ku-Band Feed	15 lbs. (6.8 kg)
X-Band Feed	26 lbs. (11.8 kg)
X-Band Low PIM Feed	46 lbs. (20.9 kg)
C-Band CP/LP Feed	25 lbs. (11.3 kg)
C-Band CP Feed	30 lbs. (13.6 kg)

Environmental	
Wind Loading	
Operational (no ballast)	25 mph (40 km/h) gusting to 30 mph (48 km/h)
Operational (with ballast)	45 mph (72 km/h) gusting to 60 mph (97 km/h)
Survival (stowed)	90 mph (145 km/h)
Pointing Loss (operational winds)	Maximum 2.0 dB peak Rx loss (performance dependent on controller 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 Linear Polarized**		C-Band 2-Port Circular Polarized**		X-Band 2-Port Circular Polarized***		Ku-Band 2-Port Linear Polarized		Ku-Band 4-Port Linear Polarized		Ka-Band 4-Port Circular Polarized	
Electrical	Receive	Transmit	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	20.200 - 21.200	30.000 - 31.000
Antenna Gain at Midband, dBi	38.20	42.00	38.06	42.10	43.50	44.20	47.19	49.00	47.10	48.80	52.20	55.20
Antenna Noise Temperature												
5° Elevation	49 K		51 K		65 K		63 K		85 K		145 K	
10° Elevation	38 K		50 K		55 K		60 K		75 K		125 K	
20° Elevation	33 K		49 K		51 K		56 K		69 K		111 K	
40° Elevation	34 K		48 K		52 K		55 K		68 K		103 K	
Pattern Beamwidth (in degrees at midband)												
-3 dB Beamwidth	2.12	1.37	2.09	1.35	1.12	1.03	0.72	0.60	0.71	0.60	0.40	0.29
-15 dB Beamwidth	4.45	2.88	4.39	2.84	2.35	2.16	1.51	1.26	1.49	1.26	0.84	0.61
Sidelobe Performance												
For Angle A from 2° to 30° (typical)	29-25 Log A		29-25 Log A		29-25 Log A		29-25 Log A (in general)		29-25 Log A (in general)		29-25 Log A	
For Angle A beyond mainbeam to 20°												
For Angle A from 30° to 140°									-10 dBi	-10 dBi	-10 dBi	-10 dBi
For Angle A from 140° to 180°									0 dBi	0 dBi	0 dBi	0 dBi
Cross Polarization												
On Axis	30.0 dB	30.0 dB	19.7 dB	27.3 dB	21.3 dB	21.3 dB	35.0 dB	35.0 dB	35.0 dB	35.0 dB	24.8 dB	24.8 dB
Within 1.0 dB BW	28.0 dB	28.0 dB	19.7 dB	27.3 dB	21.3 dB	21.3 dB	27.0 dB	35.0 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	1.25:1	1.35:1	1.30:1	1.30:1	1.30:1
Axial Ratio			1.81 dB	0.75 dB	1.50 dB	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	-50 dB	0 dB	-85 dB
Tx/Rx (Tx frequency)	-60 dB	0 dB	-100 dB	0 dB	-110 dB	0 dB	-85 dB	0 dB	-85 dB	0 dB	-85 dB	0 dB
Feed Insertion Loss	0.15 dB	0.15 dB	0.40 dB	0.20 dB	0.40 dB	0.40 dB	0.30 dB	0.20 dB	0.60 dB	0.45 dB	0.35 dB	0.30 dB
Waveguide Interface Flange	CPR-229G	CPR-137G	CPR-229G	CPR-137G	CPR-112G	CPR-112G	WR-75 Flat	WR-75 Flat	WR-75 Flat	WR-75 Flat	WR-42	WR-28
Total Power Handling Capability	2 kW CW		2 kW CW		2 kW CW		1 kW CW		2 kW CW		100 W CW	
RF Specification	975-2837		975-2712		975-1701		975-1575		975-1708		975-1492	

** C-band CP/LP feed available.

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