EXHIBIT B

ANTENNA SPECIFICATIONS

GENERAL DYNAMICS 1.2M ANTENNA

1.2M Ku-Band Rx/Tx

Series 1132

Technical Specifications

Electrical		Series 1132 Ku-Band
Antenna Size		1.2 M (47 in.)
Operating Frequency (GHz)	Receive Transmit	10.70 - 12.75 GHz 13.75 - 14.50 GHz
Midband Gain (+/- .5dB)	Receive Transmit	41.4 dBi 43.3 dBi
Antenna Noise Temperature	20° Elevation 30° Elevation	57 K 56 K
Pattern Beamwidth (in degrees at midband)	-3 dB -15 dB	Tx: 1.2° Rx: 1.5° Tx: 2.8° Rx: 3.4°
Sidelobe Envelope, Co-Pol (dBi) $1° \le \theta \le 20°$ $20° < \theta \le 26.3°$ $26.3° < \theta \le 48°$ $48° \le \theta$		 29 - 25 Logθ -3.5 dBi 32 - 25 -10 dBi (averaged)
Power Handling		100 W
Cross-Polarization Isolation	On Axis Within 1.0 dB Beamwidth	Tx: 35 dB Rx: 30 dB Tx: 27 dB Rx: 25 dB
VSWR		Tx: 1.3:1 Max Rx: 1.5:1 Max
Feed Interface Output Waveguide Interface Flange		WR75
ODU		Tier 1 = 6 lbs. Tier 2 = 12 lbs

Mechanical	
Reflector Material	Glass Fiber Reinforced Polyester SMC
Antenna Optics	Prime Focus, Offset Feed
Mount Type	Elevation over Azimuth
Mast Pipe Size	2.5" SCH 40 Pipe (2.88" OD) 73 mm.
Elevation Adjustment Range	5° to 90°, Continuous Fine Adjustment
Azimuth Adjustment Range	+ 20° Fine, 360° Continuous
Shipping Specifications: Approx. Net Weight	48 lbs. (22 kg.)

Environmental Performance		
Wind Loading	Operational Survival	50 mph (80 km/h) 125 mph (201 km/h)
Temperature	Operational	-40° to 140° F (-40° to 60° C)
Rain	Operational	1/2" (13 mm)/hr
Ice	Operational	------
Atmospheric Conditions		Salt, Pollutants and Contaminants as Encountered in Coastal and Industrial Areas
Relative Humidity		0 to 100% with Condensation
Solar Radiation		360 BTU/h/ft2

GENERAL DYNAMICS
SATCOM Technologies

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1000-010 Rev. 09/11

TOUGHSAT 1.2M ANTENNA

1.2M Ku-Band Rx/Tx

Series 1132

Technical Specifications

Electrical		Series 1132 Ku-Band
Antenna Size		1.2 M (47 in.)
Operating Frequency (GHz)	Receive Transmit	10.70 - 12.75 GHz 13.75 - 14.50 GHz
Midband Gain (+/- .5dB)	Receive Transmit	41.4 dBi 43.3 dBi
Antenna Noise Temperature	20° Elevation 30° Elevation	57 K 56 K
Pattern Beamwidth (in degrees at midband)	-3 dB -15 dB	Tx: 1.2° Rx: 1.5° Tx: 2.8° Rx: 3.4°
Sidelobe Envelope, Co-Pol (dBi) $1° \le \theta \le 20°$ $20° < \theta \le 26.3°$ $26.3° < \theta \le 48°$ $48° \le \theta$		 29 - 25 Logθ -3.5 dBi 32 - 25 -10 dBi (averaged)
Power Handling		100 W
Cross-Polarization Isolation	On Axis Within 1.0 dB Beamwidth	Tx: 35 dB Rx: 30 dB Tx: 27 dB Rx: 25 dB
VSWR		Tx: 1.3:1 Max Rx: 1.5:1 Max
Feed Interface Output Waveguide Interface Flange		WR75
ODU		Tier 1 = 6 lbs. Tier 2 = 12 lbs

Mechanical	
Reflector Material	Glass Fiber Reinforced Polyester SMC
Antenna Optics	Prime Focus, Offset Feed
Mount Type	Elevation over Azimuth
Mast Pipe Size	2.5" SCH 40 Pipe (2.88" OD) 73 mm.
Elevation Adjustment Range	5° to 90°, Continuous Fine Adjustment
Azimuth Adjustment Range	+ 20° Fine, 360° Continuous
Shipping Specifications: Approx. Net Weight	48 lbs. (22 kg.)

Environmental Performance		
Wind Loading	Operational Survival	50 mph (80 km/h) 125 mph (201 km/h)
Temperature	Operational	-40° to 140° F (-40° to 60° C)
Rain	Operational	1/2" (13 mm)/hr
Ice	Operational	------
Atmospheric Conditions		Salt, Pollutants and Contaminants as Encountered in Coastal and Industrial Areas
Relative Humidity		0 to 100% with Condensation
Solar Radiation		360 BTU/h/ft2

GENERAL DYNAMICS
SATCOM Technologies

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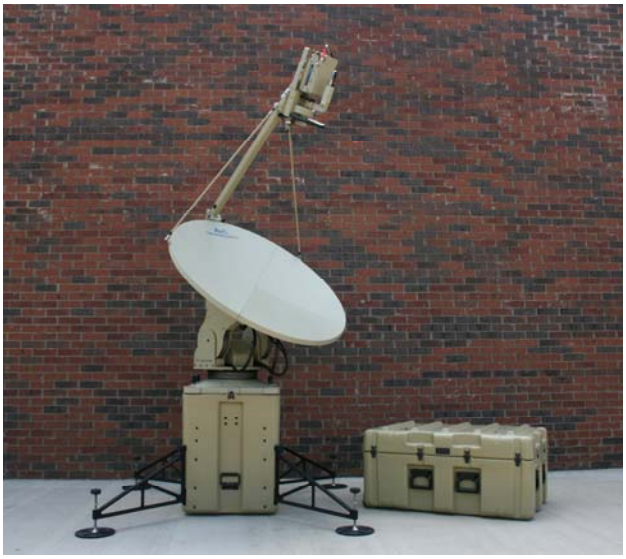
1000-010 Rev. 09/11

AVL 1.2M ANTENNA

AvL TECHNOLOGIES

Model 1268 PIB F/A

1.2M Ku/Ka Band Portable Auto-Acquisition Antenna



Reflector Type	1.2M 4-piece Carbon Fiber
Optics	Offset, Prime Focus, 0.8 F/D
Interchangeable Feeds	Ku LP, Ka CP
Positioner	Case-based
Az/El Drive System	Patented Roto-Lok® Positioner
Mount Geometry	Elevation over Azimuth
Polarization Adjustment	Motorized Rotation Feed
Military Standard	MIL-STD-188-164a Type E-V

Mechanical

Travel - Azimuth	±200°
- Elevation	0°-95° of boresight
- Polarization	±91° for Linear Feeds, Adjustable within <1°
Speed - Slewing/Deploying	2°/second
- Peaking	0.2°/second
- Tracking	0.1/second
Electrical Interface	32 ft. Cable with Connectors for Controller
Emergency Drive	Handcrank on Az, El; Knob on Pol
Wind - Operational-mph	
Without anchoring	30 mph
With anchoring	30 mph gusting to 45 mph
- Survival (anchored)	80 mph in zenith stowed position
Temperature - Operational	-20° to 125°F
- Survival	-40° to 140°F
Configuration - Rugged Cases	
Motorized Positioner	22” x 21” x 23”; less than 165 lbs.
Outriggers/Feed Boom/ Reflector	43” x 28” x 21; less than 110 lbs.
RF Interface	
BUC Mounting	Mounted on antenna feed boom
Set-up Time	Less than 15 minutes

Controllers

Type	Fully Automatic Satellite Acquisition, Peaking, and Cross-Pol Adjustment using GPS, Compass, Level Sensor Inputs and auto compensation with Entry of Desired Satellite.
Operator Interface	Front panel keyboard or hand-held remote
Auto Positioning Accuracy	± 0.2°
Input Power	90-256V AC power supply, 8A peak, 2A continuous

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(Specifications subject to change without notice) **RevA 1-09**

AvL TECHNOLOGIES

Model 1268 PIB F/A

1.2M Ku/Ka Band Portable Auto-Acquisition Antenna

Ku-Band	**Receive**	**Transmit**
Frequency	10.95-12.75 GHz	13.75-14.5 GHz
Gain (Midband)	41.6 dBi	43.1 dBi
VSWR	1.30:1	1.30:1
Beamwidth (degrees)		
-3 dB	1.5	1.2
-10 dB	2.7	2.3
Radiation Pattern Compliance	FCC §25.209, ITU-R S.580	
Antenna Noise Temperature	54° K at 20° Elevation, 11.85 GHz	
Polarization	Linear Orthogonal standard, Optional Co-pol	
Power Handling Capability		0.5KW per port
Cross-Pol Isolation		
On-Axis (minimum)	35 dB	35 dB
Off-Axis (within 1 dB BW)	27 dB	28 dB (35dB with Mode-matched)
Port-to-Port Isolation	35 dB	85 dB
Satellite System Compliance	FCC, Intelsat, and PanAmSat	

Ka-Band	**Receive**	**Transmit**
Frequency	20.2-21.2 GHz	30.0-31.0 GHz
Gain (Midband)	46.2 dBi	49.5 dBi
VSWR	1.30:1	1.30:1
Beamwidth (degrees)		
-3 dB	0.9	0.6
-10 dB	1.5	1.1
Radiation Pattern Compliance	FCC and MIL-STD-188-164A	
Antenna Noise Temperature	107°K at 20° Elevation, 20.7 GHz	
Polarization	Circular convertible to either RHCP or LHCP	
Power Handling Capability		250 watts per port
Axial Ratio	1.5 dB	1.0 dB
Port-to-Port Isolation	35 dB	35 dB (85 dB with optional TX reject filter)

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AVL 1.8M ANTENNA

AVL TECHNOLOGIES

MODEL 1878KF Ku Band MVSAT

1.8 METER MOTORIZED VEHICULAR ANTENNA

Reflector	1.8 meter Single-skin Steel
Feed	Corrugated Horn, .6 F/D
Optics	Offset, Prime Focus
Drive System	Patented Roto-Lok® Positioner
Mount Geometry	Elevation over Azimuth
Polarization Adjustment	Rotation of Feed

Electrical RF	**Receive**	**Transmit**
Frequency		
Standard	10.7 -12.75 GHz	13.75-14.5 GHz
Gain (Midband)		
2-port	45.1 dBi	46.7 dBi
VSWR	1.43:1	1.22:1
Beamwidth (degrees)		
-3 dB	1.0°	0.85°
-10 dB	1.8°	1.5°
First Sidelobe Level (Typical)	-25 dB	-25 dB
Radiation Pattern Compliance	32-25 Log Ø 1.5º to 7º	29-25 Log Ø 1.5º to 7º
Antenna Noise Temperature	55° K at 10° Elevation	
Polarization	Linear	Linear
Power Handling Capability		40 watts at TX Port
Cross-Pol Isolation		
On-Axis (minimum)	30 dB	30 dB
Feed Port Isolation – TX to RX	40 dB	90 dB

Controllers

Standard	Three-axis Jog Control & Display with Auto-stow
Optional Upgrades	
Semi-automatic Operation	Drive to calculated position based on operator entered vehicle location, heading, plus satellite (longitude or listed)
Automatic Operation	Drive to calculated position based on auto GPS and Flux-Gate Compass data and satellite peaking with LNB signal
Auto-acquisition	One-button acquisition of selected satellite including peaking and optimization of cross-pol (certified for auto-commissioning on most satellite services)
Size	Two Rack Units for Semi-automatic & Automatic Controllers
Input Power	110/240 VAC, 1 ph, 50/60 Hz, 10/5A peak, 1A continuous

All specifications subject to change without notice.

BUY NOW

RevB 10-06

AVL TECHNOLOGIES

MODEL 1878KF MVSAT

1.8 METER MOTORIZED VEHICULAR ANTENNA

Mechanical

Az/El Drive System	Patented Roto-Lok® Cable Drive System
Polarization Drive System	Motorized Gear-drive
Travel	
Azimuth	400° Standard,
Elevation	True elevation readout from calibrated inclinometer
Mechanical	0° to 90° of reflector boresight
Electrical	Standard limits at 5° to 65° (CE Approval) or 5° to 90°
Polarization	±95°
Speed	
Slewing/Deploying	2°/second
Peaking	0.2°/second
Motors	24V DC Variable Speed, Constant Torque
RF Interface	
BUC Mounting	Feed Boom or Rear of Reflector
Transmit	WR75 Flexible to W/G Adapter on Feed
Receive	WR75 Flat Flange at feed OMT
RX Coax	RG59 from feed to base plus 25 ft. (8 m)
TX Coax	As required per customer or spec
Electrical Interface	25 ft. (8 m) Cable with Connectors for Controller
Manual Drive	Handcrank on Az and El Axii, Leads from 12VDC Pol Motor
Weight	360 lbs. (163 kgs)
Stowed Dimensions	104 5/8 L x 74¼ W x 25 5/8 H inches (266 L x 189 W x 65 H cm)

Environmental

Wind	
Survival	
Deployed	60 mph (96 kmph)
Stowed	80mph (128 kmph)
Operational	30 mph (48 kmph), Gusts to 45 mph (72 kmph)
Pointing Loss in Winds	
20 mph (32 kmph)	0.1 dB RMS, 0.2 degrees Typical
30 Gusting to 45 mph (48 to 72 kmph)	0.5 dB RMS, 0.4 degrees Typical
Temperature	
Operational	+5° to 125°F (-29° to 52°C)
Survival	-40° to 140°F (-40° to 60°C)

All specifications subject to change without notice.

RAYSAT 1.2M ANTENNA

StealthRay™ 2000
TechSpec

2-way low-profile in-motion satellite antenna compatible with any external standard Ku band BUC (up to 50W)

Physical	Outdoor unit size	115 L x 90 W x 15 H cm (45 x 35 x 6 in)
	Outdoor unit weight	28 kg (62 lb)
	Indoor unit size	18 L x 23 W x 7 H cm (7 x 9 x 3 in)
	Indoor unit weight	1.3 kg (2.8 lb)
		(The radome is included in all measurements and dimensions)
Electrical	Frequency band	
	Receive	High band 11.7 - 12.75 GHz
		Low band 10.95 - 11.7 GHz
		(Factory option)
	Transmit	14.0 - 14.5 GHz
	Polarization	Linear (auto polarization control)
	Gain	
	Receive	30 dBi
	Transmit	27 dBi
	Antenna G/T	8 dB/°K at 30° elevation
		or 9 dB/°K at 45° elevation
	Uplink EIRP	41.7 dBW (with external 40 Watt BUC)
	Cross polarization	> 25dB
	IF input (Tx)	950 - 1450 MHz
	IF output (Rx)	950 - 2150 MHz
	Ku band input	14 - 14.5 GHz, 50W max.
	Power supply	10 - 30 VDC
	Continuous power consumption	55 W (ant. only, excluding BUC)
Antenna Performance	Elevation look angle range	Automatically adjusted, 25° - 80°
	Azimuth angle range	Automatically adjusted, 360° continuous
	Tracking rate	60°/sec
	Polarization angle range	Automatically adjusted, -180° to +180°
	Initial satellite acquisition & lock	< 60 sec, fully automated with integrated GPS
	Satellite re-acquisition	< 10 sec (when LoS blocage is < 2 minutes)
	Azimuth tracking accuracy	0.5°@ 60°/s, 360°/s^2
	Elevation tracking accuracy	1.0°@ 45°/s, 180°/s^2
Electrical Interfaces	Tx input	N (50Ω)
	Rx output	TNC (50Ω)
Environmental	Temperature range	-25° to +70°C (-13° to +158°F)
	Relative humidity	Up to 95%
	Ground speed	Up to 350 Km/h (220 mi/h)

About RAS

Established in 2006, Raysat Antenna Systems (RAS) is a world leader in providing low-profile,in-motion, two-way satellite antennas for land mobile applications of COTM (Comms on-the-move). RAS products are used extensively for mobile emergency communications, homeland security, governmental organizations, DSNG, private security, asset tracking, research & exploration, and general mobile satellite data communications. RAS products operate in both Ku and Ka bands. RAS is a wholly owned subsidiary of Gilat Satellite Networks (NASDAQ: GILT).

ANTENNA SYSTEMS RaySat Satcom on-the-move

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