

# Model 870

## 85 cm Motorized FlyAway Antenna



The AvL 85 cm MEO Tracking Ka-Band Antenna offers the power of O3b's high throughput, low latency connectivity in a compact and transportable design.



### Overview

AvL's 85 cm MEO tracking Ka-Band antenna is a transportable, rapid-deploy, tactical terminal with a geared drive for continuous operation. The antennas operate in tandem pairs with make-before-break communications, and are designed to be transported in durable transit cases and to be set-up and on-the-air within 90 minutes.

### Features

- Designed for high duty cycle MEO satellite tracking
- Make-before-break handover on two antenna systems
- <90 minutes set-up
- Standard RX/TX feed
  - 2-Port Ka-Band Commercial (CP or LP)
- Optional RX/TX feeds
  - 2-Port Ka-Band MIL (CP or LP) (WGS)
  - 2-Port Ka-Band Wideband (CP) (WGS and Commercial)
  - 2-Port X-Band MIL (CP) (WGS) - Opt. RX/TX Reject Filter Kit
  - 2-Port Ku-Band Precision (LP)
  - 2-Port Ku-Band Mode-Match (LP) (enhanced Cross-Pol comp.)
- Other options
  - Single or Dual antenna systems available
  - Vehicle or Trailer or Pole Mount options available
  - BUC/LNB integration
- Standard colorization (optional colors available):
  - White
  - OD Green
  - Desert Tan
- Antenna size options:
  - 1 meter class: 0.85 m, 1.0 m, 1.2 m
- Operates with O3b Networks, virtually all GEO SatCom systems

## Mechanical

Az/El Drive	Motorized Dual Slew Drive Positioner
Polarization Drive System	Motorized rotation of feed
Reflector Construction	Segmented carbon fiber
<b>Axis Travel</b>	
Azimuth	360 degree continuous
Elevation (reflector bore sight)	0-90 degrees
Polarization	+/- 90 degrees
<b>Az/El Speed</b>	
Slewing/Deploying/Tracking	4 degrees/second
Motors	24VDC variable speed, constant torque
<b>Standard Integration Interfaces</b>	
TX Input	Waveguide flange (cover) @ Feed; 50 ohm connector @ Lower I/O panel
RX Input	Waveguide flange (cover) @ Feed; 50 ohm connector @ Lower I/O panel

## RF/Electrical

Feed Type ⇨	Opt. 2-Port Ka-Band Commercial**		Opt. 2-Port Ka-Band Military		Opt. 2-Port X-Band (Military/WGS)		Opt. 2-Port Precision Ku-Band	
	Receive	Transmit	Receive	Transmit	Receive	Transmit	Receive	Transmit
RF Parameter ⇩								
Frequency Range (GHz)	17.85 – 19.27**	27.65 – 29.07**	20.2 – 21.2	30.0 – 31.0	7.25 – 7.75	7.90 – 8.40	10.95 – 12.75	13.75-14.50
Polarization Configuration	RHCP or LHCP Co-Pol		Circular (opt. linear feed available)		RHCP or LHCP Co-Pol		Linear orthogonal standard, optional co-pol	
Gain (mid-band)	42.3 dBi	45.8 dBi	43.2 dBi	46.5 dBi	34.5 dBi***	35.2 dBi***	38.5 dBi	40.0 dBi
-3 dB Beam width (mid-band)	1.3°	0.9°	1.2°	0.8°	3.3°	3.0°	2.1°	1.7°
Radiation Pattern Compliance	FCC 25.209, ITU-R 5.580-6		FCC 25.209, MIL-STD-188-164A		MIL-STD-188-164A		FCC 25.209*, ITU-R 5.580-6	
EIRP, 29 GHz, with 5 w BUC	-	53.0	-	-	-	-	-	-
with 10 w BUC	-	56.0	-	-	-	-	-	-
with 20 w BUC	-	-	-	-	-	-	-	-
G/T with LNB, mid-band, clear horizon	19.3 dB/° K (100° LNB)	-	20.0 dB/° K (100° LNB)	-	14.1 dB/° K (55° LNB)	-	18.1 dB/° K (50° LNB)	-
Antenna Noise Temp. (mid-band, 20° El)	109° K	-	109° K	-	49° K	-	55° K	-
Maximum Feed Transmit (TX) Power	-	250 watts	-	250 watts	-	1000 watts	-	500 watts
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 (Ka and X only, within pointing cone)	1.8 dB	1.8 dB	1.5 dB	1.0 dB	1.21 dB	2 dB	-	-
Cross-Polarization Isolation (Ku only)								
On Axis (minimum)	-	-	-	-	-	-	35 dB	35 dB
Within pointing cone std. Precision feed	-	-	-	-	-	-	26 dB	27 dB
Within pointing cone opt. MM feed	-	-	-	-	-	-	25 dB	35 dB
Feed Port Isolation (TX to RX)	35 dB	85 dB	35 dB	80 dB (incl. filter)	100 (incl. opt. filter)	100 (incl. opt. filter)	35 dB	80 dB (incl. filter)

## Controller

Controller ⇨	AvL AAQ
Features	AvL one button auto-acquisition of selected satellites, including peaking and optimization of cross pol. Internal movement detector and automatic stow. Optional hand-held control and separate power supply. Certified for auto-commissioning on most satellite services.
Size	Embedded ACU with separate 1 Rack Unit Controller Interface Panel (CIP) power supply with LCD and keypad. 250 W and 500 W (1.6 m and larger antennas) versions available.
CIP Input Power	120/240 VAC 60/50 Hz, 6/3 A Max. Power consumption is antenna size dependent: during acquisition 150 W or 300 W is typical, ~ 50 W Idle

## Available options, upgrades and services

- Vehicle/Trailer Mount, Pole Mount, & Fly & Drive options available
- Upgrade from 2-Port Ka-Band Commercial (CP or LP):
  - a) 2-Port Ka-Band MIL (CP or LP) (WGS)
  - b) 2-Port Ka-Band Wideband (CP) (WGS and Commercial)
  - c) 2-Port X-Band MIL (CP) (WGS) – Opt. RX/TX Reject Filter Kit
  - d) 2-Port Ku-Band Mode-Match (LP) (enhanced Cross-Pol comp.)
  - e) 2-Port Ku-Band Precision (LP)
- Add co-polarization Kit (for 2-Port Ku feeds only) - configures RX and TX to same polarization sense
- Add BUC/HPLA mounting (**NOTE:** minimum elevation may be restricted by these options) (may require additional case)
- Upgrade to custom RF/IF I/O cabling configurations available
- Custom colorization (contact factory for available colors)
- Add custom logo on reflector face (1- or 2-Color; per AvL Logo Policy)
- Spare parts kit
- Tie down kits: simple stakes or earth anchors, refillable sandbags

## AVL TECHNOLOGIES

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\* Outside main beam / \*\* Contact Sales for commercial Ka-Band frequency range options and circular or linear polarization options. / \*\*\* Excluding optional filters