Model 1088
1.0m Vehicle Mount Motorized Antenna

ANTENNA FEATURES

- 1.0m carbon fiber single-piece reflector
- Zero-backlash AvL Cable Drive
- Rotary joint on polarization axis with optional flex waveguide to BUC
- One-button auto-acquisition enabled with controller
- Offset, prime focus, 0.8f/D optics
- Standard Ku-Band Precision Feed (Two-Port) – standard cross-polarization composition
- Optional Ku-Band Wideband or Ka-Band (Two- or Four-Port), X-Band (Two-Port), L-Band
- Motorized worm gear drive for polarization adjustment
- Standard white colorization with optional colors available

MECHANICAL SPECIFICATIONS

Az/El Drives		Motorized AvL Cable Drive with zero backlash
Polarization Drive System		Motorized worm gear drive
Reflector Construction		1.0m single-piece carbon fiber
Axis Travel	**Azimuth**	400° (± 200°)
	Elevation	0° to 90° of reflector boresight; standard limits at 5° to 65° (CE approval) or 0° to 90°
	Polarization	± 95°
Axis Speed	**Slewing/Deploying**	2°/second azimuth, 2°/second elevation
	Peaking	0.2°/second
Motors		24 VDC variable speed, constant torque
RF Interface	**BUC/HPA Mounting**	Feed boom (30 lbs. (13.6 kg). Maximum BUC envelope: 15 L x 11.5 W x 6 H inches (38 L x 29 W x 15 H cm)
	Coax	Feed to base plus 25 ft. (8m) – specify 50 ohm or 75 ohm
Electrical Interface		One 25 ft. (8m) cable with connectors for controller
Manual/Emergency Drive		Hand crank on azimuth, elevation, and polarization axes
Weight (approximate)		100 lbs. (45 kg)
Stowed Dimensions		61.5 L x 40 W x 13.5 H inches (156 L x 100 W x 35 H cm)

ENVIRONMENTAL SPECIFICATIONS

Wind – Survival	Deployed	75 mph (121 km/h)
	Stowed	100 mph (161 km/h)
Wind – Operational		30 mph (48 km/h); gusts to 45 mph (72 km/h)
Pointing Loss in Wind (RX)	**Ku-Band**	
	20 mph (32 km/h)	0.2 dB typical
	30 mph gusting to 45 mph (48 km/h to 72 km/h)	0.8 dB typical
Temperature	Operational	-22° to 125° F (-30° to 52° C)
	Survival	-40° to 140° F (-40° to 60° C)

Specifications subject to change without notice.
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RF PARAMETERS: KU-BAND (TWO-PORT)

Ku-Band (DBS bands available upon request)		Receive	Transmit
Frequency Range (GHz)		10.95 – 12.75	13.75 – 14.50
Polarization Configuration		Linear orthogonal standard, optional co-polarization	
Gain (dBi)		40.0	41.5
Beamwidth	-3 dB	1.8°	1.5°
Radiation Pattern Compliance		FCC 25.209, ITU-R S.580-6, IESS 208	
Antenna Noise Temperature (Midband, 20° El)		54° K	--
Power Handling Capability		--	1000 W per port
Feed Port Isolation (Tx to Rx, dB)		35	80 (including filter)
G/T, Midband, Clear Horizon		19.6 dB/° K with 50° LNB	--

RF PARAMETERS: KA-BAND (TWO-PORT)

Ka-Band		Receive	Transmit
Frequency Range (GHz)		Military: 20.2 – 21.2 Commercial: 17.7 – 20.2	Military: 30.0 – 31.0 Commercial: 27.5 – 30.0
Polarization Configuration		Circular or Linear	
Gain (dBi)		43.2 (Military)	46.5 (Military)
Beamwidth	-3 dB	2.1°	1.7°
Radiation Pattern Compliance		FCC 25.209, MIL-STD-188-164C	
Antenna Noise Temperature (Midband, 20° El)		107° K	--
Power Handling Capability		--	250 W
Feed Port Isolation (Tx to Rx, dB)		85	85 (including filter)
G/T, Midband, Clear Horizon		20.0 dB/° K with 100° LNB	--

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RF PARAMETERS: X-BAND (TWO-PORT)

X-Band		Receive	Transmit
Frequency Range (GHz)		7.25 – 7.75	7.90 – 8.40
Polarization Configuration		RHCP or LHCP	
Gain (dBi)		34.6 (not including optional filter)	35.3 (not including optional filter)
Beamwidth	-3 dB	3.3°	3.0°
Radiation Pattern Compliance		MIL-STD-188-164C	
Antenna Noise Temperature (Midband, 20° El)		52° K (including optional filter)	--
Power Handling Capability		--	1000 W
Feed Port Isolation (Tx to Rx, dB)		115 (including optional filter)	115 (including optional filter)
G/T, Midband, Clear Horizon		14.3 dB/°K with 55° LNB	--

RF PARAMETERS: L-BAND

L-Band (1088)		Receive	Transmit
Frequency Range (GHz)		1.515 – 1.565	1.625 – 1.680
Polarization Configuration		RHCP or LHCP	
Gain (dBi)		21.2	21.74
Beamwidth	-3 dB	16.82	15.8
Radiation Pattern Compliance		FCC 25.209, ITU-R S.580-6, IESS 208	
Antenna Noise Temperature (Midband, 20° El)		110°K	--
G/T 0.4 NF LNA		-2.23 dB/K	--
Power Handling Capability		--	200W maximum
Feed Port Isolation (Tx to Rx, dB)		10	10

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CONTROLLER – AvL AAQ1500

Features	Embedded controller with Ethernet IP interface (optional rack-mount P/S available); inclined orbit tracking using step-track, memory track, or TLE track; automatic band sensing
Software / GUI	AAQRemote (AvL GUI) for onboard or remote control
Input Power	28 VDC (at antenna positioner); optional 115/230 VAC rack-mount power supply; up to 200W

OPTIONS – UPGRADES AND SERVICES

- Upgrade feed:
  - Two- or Three-Port Ku-Band Wideband
  - Four-Port Ku-Band Wideband
  - Two- or Four-Port Ka-Band
  - Two-Port X-Band
  - L-Band
- Optional H/V switch (Ku-Band Wideband)
- Add Co-Polarization Kit (Ku-Band Wideband) - configures Rx and Tx to same polarization sense
- Add BUC/HPA Mounting (note that minimum elevation may be restricted by these options)
- Upgrade to custom RF/IF I/O cabling configurations available
- Custom colorization (contact AvL for available colors)
- Add custom logo on reflector face (one- or two-color, as per AvL Logo Policy)
- Spare Parts Kit

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