Model 2020
2.0m Fly-Away SNG/Military Antenna

ANTENNA FEATURES

- 2.0m segmented nine-piece carbon fiber reflector
- Rugged/heavy-duty tripod-based positioner
- 15-minute setup; one-button auto-acquisition
- Standard receive/transmit feed: Two-Port Ku-Band Precision (standard cross-polarization composition)
- Optional feeds:
  - Four-Port Ku-Band Precision (standard cross-polarization composition)
  - Two- or Four-Port Ku-Band Mode-Match (enhanced cross-polarization composition)
  - Two- or Four-Port C-Band
  - Two-Port S-Band
  - Two-Port X-Band with optional transmit/receive reject filter kit
  - Two- or Four-Port Ka-Band (military or commercial)
- MIL-STD-188-164: compliant
- Polarization adjustment via motorized rotation of feed

MECHANICAL SPECIFICATIONS

Az/El Drives		Motorized AvL low-backlash cable drive system
Polarization Drive System		Motorized rotation of feed
Reflector Construction		2.0m segmented four-piece carbon fiber
Axis Travel	**Azimuth**	±200°
	Elevation	0° to 90° of reflector boresight from calibrated inclinometer
	Polarization	±95° adjustable within <1°
Axis Speed	**Slewing/Deploying**	2°/second azimuth, 1°/second elevation
	Peaking	0.2°/second
Motors		24 VDC variable speed, constant torque
RF Interface	**BUC/HPA Mounting**	Feed boom or behind reflector (additional CFE case or optional case required)
	RF	Standard 50-ohm coax (two) at base, cover flange at feed transmit port
Electrical Interface		30-foot (9.14m) cable with connectors for controller
Manual/Emergency Drive		Hand crank for azimuth and elevation; knob on polarization axis
Configuration	**Cases**	Four or five weather-resistant plastic cases
	Positioner	29 L x 26 W x 30 H in. (73 L x 67 W x 75 H cm); 169 lbs. (76 kg)
	Boom/Ku-Band or Ka-Band Feeds	58 L x 33 W x 23 H in. (148 L x 84 W x 59 H cm); 155 lbs. (70 kg) - includes Ku-Band or Ka-Band
	Tripod	58 L x 33 W x 23 H in. (148 L x 84 W x 59 H cm); 135 lbs. (62 kg)
	Reflector	39 L x 39 W x 24 H in. (99 L x 99 W x 61 H cm); 170 lbs. (70 kg)
	Additional Feeds	58 L x 33 W x 23 H in. (148 L x 84 W x 59 H cm); 70 lbs. (32 kg) - typical, dependent on feed
Setup Time		Less than 15 minutes

ENVIRONMENTAL SPECIFICATIONS

Wind – Survival	Anchored	80 mph (129 km/h) in zenith stowed position
Wind – Operational	Without Anchoring	25 mph (40 km/h)
	With Anchoring	30 mph gusting to 45 mph (48 to 72 km/h)
Pointing Loss in Wind (RX)	Ku-Band – Operational	1.3 dB typical, 2.4 dB maximum
	Ka-Band – Limited Wind*	1.0 dB typical, 2 dB maximum, 20 mph gusting to 30 mph (32 to 48 km/h)
Temperature	Operational	-22° to 125° F (-30° to 52° C)
	Survival	-40° to 140° F (-40° to 60° C)

*Active wind tracking required for Ka-Band in higher wind.

RF PARAMETERS: KU-BAND PRECISION (TWO-PORT)*

		Receive	Transmit
Frequency Range (GHz)		10.95 – 12.75	13.75 – 14.50
Polarization Configuration		Orthogonal Linear, optional co-polarization Linear	
Gain (dBi)	Two-Port	46.0	47.6
	Four-Port	--	--
Beamwidth (Degrees)	-3 dB	0.9	0.7
Radiation Pattern Compliance		FCC 25.209, ITU-R S.580-6, IESS 208	
Antenna Noise Temperature (Midband, 20° El)	Two-Port	57° K	--
	Four-Port	--	--
Power Handling Capability		--	500W per port
G/T with LNB, Midband		25.7 dB/° K (with 50°K LNB)	--
Axial Ratio		--	--
VSWR		1.30:1	--
Feed Port Isolation (Tx to Rx, dB)		35	80 (includes filter)

***DBS bands available upon request.**

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

		Receive	Transmit
Frequency Range (GHz)		20.20 – 21.20 (military) 17.70 – 20.20 (commercial)	30.0 – 31.0 (military) 27.50 – 30.0 (commercial)
Polarization Configuration		Circular or Linear	
Gain (dBi)	Two-Port	50.6	53.8
	Four-Port	--	--
Beamwidth (Degrees)	-3 dB	0.4	0.3
Radiation Pattern Compliance		FCC 25.209, MIL-STD-188-164	
Antenna Noise Temperature (Midband, 20° El)	Two-Port	106° K	--
	Four-Port	--	--
Power Handling Capability		--	250W per port
G/T with LNB, Midband		27.5 dB/° K (with 100° K LNB)	--
Axial Ratio		1.5 dB (CP only)	1.0 dB (CP only)
VSWR		1.30:1	--
Feed Port Isolation (Tx to Rx, dB)		30	80 (includes filter)

RF PARAMETERS: X-BAND (TWO-PORT)

		Receive	Transmit
Frequency Range (GHz)		7.25 – 7.75	7.90 – 8.40
Polarization Configuration		Circular RHCP or LHCP	
Gain (dBi)	Two-Port	42.0	42.80
	Four-Port	--	--
Beamwidth (Degrees)	-3 dB	1.2	1.1
Radiation Pattern Compliance		MIL-STD-188-164	
Antenna Noise Temperature (Midband, 20° El)	Two-Port	50° K	--
	Four-Port	--	--
Power Handling Capability		--	1000W per port
G/T with LNB, Midband		21.7 dB/° K (with 55° K LNB)	--
Axial Ratio		1.21 dB (CP only)	2.0 dB (CP only)
VSWR		1.30:1	--
Feed Port Isolation (Tx to Rx, dB)		115 (includes filter)	115 (includes filter)

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RF PARAMETERS: C-BAND (TWO-PORT STANDARD)

		Receive	Transmit
Frequency Range (GHz)		3.625 – 4.20	5.85 – 6.425
Polarization Configuration		Linear or Circular	
Gain (dBi)	Two-Port	36.40	40.30
Beamwidth (Degrees)	-3 dB	2.7	1.7
Radiation Pattern Compliance		FCC 25.209, ITU-R S.580-6	
Antenna Noise Temperature (Midband, 20° El)	Two-Port	42° K	--
Power Handling Capability		--	1000W per port
G/T with LNB, Midband		18.5 dB/° K (with 20° LNB)	--
Axial Ratio		3	2.3
VSWR		1.30:1	1.3:1
Feed Port Isolation (Tx to Rx, dB)		40	100

RF PARAMETERS: S-BAND (TWO PORT)

		Receive	Transmit
Frequency Range (GHz)		2 – 2.6	2 – 2.6
Polarization Configuration		CP	
Gain (dBi)	Two-Port	31.8	31.8
Beamwidth (Degrees)	-3 dB	4.6	4.6
Radiation Pattern Compliance		FCC 25.209, ITU-R S.580-6	
Antenna Noise Temperature (Midband, 20° El)	Two-Port	30.7° K	--
Power Handling Capability		--	500W
G/T with LNB, Midband		11.55 dB/° K (with 75° LNB)	--
Axial Ratio		2.5	2.5
VSWR		1.35:1	1.35:1
Feed Port Isolation (Tx to Rx, dB)		14	14

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CONTROLLER – AAQ1500

	Standard Auto-Acquire with Optional Ethernet IP Interface	Optional Enhanced Auto-Acquire with Ethernet IP Interface
Standard Features	Fully-automatic satellite acquisition with automatic azimuth, elevation and cross-polarization peaking; includes onboard, one-button deploy/acquire interface for pre-configured systems; includes onboard GPS, electronic compass, level sensors, and auto-compensation; customer-configurable satellite list. Note that using a beacon receiver or modem as the acquisition signal source may be required for non-commercial satellites.	
Integration	Embedded with handheld, including shelf-mount power supply (optional 1RU with front-panel keypad and integral power supply)	Embedded with Ethernet IP interface (power supply optional); optional rack-mount power supply available
User Interface	Menu-driven display with keypad	Intelligent/simple GUI (AAQRemote or AAQ WebUI) for onboard or remote CFE computer
Input Power	115/230 VAC (at rack); up to 200W	28 VDC at antenna positioner; optional 115/230 VAC rack-mount power supply; up to 200W
Software Upgrades / Options	Inclined orbit tracking (using step-track or TLE track); automatic band sensing	Inclined orbit tracking (using step-track, memory track, or TLE track); automatic band sensing

OPTIONS – UPGRADES AND SERVICES

BUC/HPA mounting
- Optional 75-ohm coax
- Waveguide interconnect options
- Beacon receiver, inclined orbit tracking, resolvers/upgrade
- Grounding options (lightning dissipator)
- Anchoring kit options
- Custom logo on reflector face (one- or two-color, as per the AvL Logo Policy)
- Controller options – see above
- Spare parts kit

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