

# AVL TECHNOLOGIES

## MODEL 1660 / 2020 PIB F/A

### 1.6M Quad-Band Portable Auto-Acquisition Antenna

Reflector	1.6 Meter, 4 piece Carbon Fiber
Optics	Offset, Prime Focus, 0.8 f/D
Interchangeable Feeds	C-LP, C-CP, X-CP, Ku-LP, Ka-CP, Ka-LP
Positioner Type	Case-based Pack-in-the-Box
Drive System	Patented Roto-Lok® Positioner
Mount Geometry	Elevation over Azimuth
Polarization	Rotation of Feed



#### Mechanical

##### Travel

Azimuth	± 200°
Elevation	0° to 90° of reflector boresight from calibrated inclinometer
Polarization	± 95°

##### Speed

Slewing/Deploying	2°/second Az, 1°/second El
Peaking	0.2°/second

##### Motors

24V DC variable speed, constant torque

##### Emergency Axes Drives

Handcranks on Az and El; Knob on Pol

##### Stowed Configuration

Three rugged, weather-resistant plastic cases, total weight: 450 lbs.

Positioner 26" x 24" x 30", 170 lbs.

Outriggers/Feed Boom/Ku or Ka feed 71" x 18" x 19", 105 lbs. (includes Ku or Ka feed)

Reflector 38" x 38" x 22", 120 lbs.

Additional Feeds 43" x 27" x 20", 70 lbs. typical, dependent on feed options selected

##### Set-up Time

Less than 15 minutes

##### RF Interface

BUC Mounting

Feed boom or behind reflector (additional case required)

Coax

Two connectors at positioner base

##### Electrical Interface

Connector at positioner base

#### Environmental

##### Wind

###### Operational

Without anchoring 30 mph

With anchoring 30 mph gusting to 45 mph

###### Survival (anchored)

80 mph in zenith (90° elevation) position

##### Pointing Loss in Wind

Ku-band Receive, Operational winds 0.1 dB typical, 0.5 dB max

Ka-band Receive, Operational winds 0.3 dB typical, 1 dB max

##### Temperature

Operational -22° to 125° F (-30° to 52° C)

Survival -40° to 140° F (-40° to 60° C)

#### Options

BUC/HPA mounting

Controller options- see below

Stabilization leg options

Beacon receiver – inclined orbit tracking – resolvers/upgrade

Waveguide interconnect options

High wind options – ground stakes

Grounding options (lightning conductor)

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<u>C-Band</u>	<u>Receive</u>	<u>Transmit</u>
Polarization	Standard (LP or CP)	Standard (LP or CP)
Frequency (GHz) (extended band available on request)	3.625 - 4.20	INSAT (LP) 4.50 - 4.80 Standard (LP or CP) 5.85 - 6.425 INSAT (LP) 6.725 - 7.025
Gain (Midband) (dBi)	34.2	36.0 38.1 39.4
VSWR	1.30:1	1.30:1
Beamwidth (-3 dB)	3.4°	2.8° 2.1° 1.9°
Radiation Pattern Compliance (beyond mainbeam)	FCC 25.209, ITU-R S.580-6 IESS 207	ITU-R S.580-6 FCC 25.209, ITU-R S.580-6 IESS 207
Ant Noise Temperature @ 20° EI, midband	49° K	48° K
G/T with 20° LNB, midband, clear horizon	15.8 dB/° K	-
Axial Ratio (CP only, within pointing cone)	2.3 dB	1.3 dB
Cross Pol Isolation (on-axis/within pointing cone)	35 dB / 30 dB	35 dB / 30 dB
Feed Port Isolation – TX to RX (dB)	65	35 105 (includes filter)
Power Handling Capability		1000 watts per port 1000 w per port
<u>X-Band</u>	<u>Receive</u>	<u>Transmit</u>
Polarization	RHCP or LHCP	LHCP or RHCP
Frequency Range (GHz)	7.25 - 7.75	7.90 - 8.40
Gain (Midband) (dBi)	39.7	40.5
VSWR	1.30:1	1.30:1
Beamwidth (-3 dB)	1.8°	1.6°
Radiation Pattern Compliance (beyond mainbeam)	MIL-STD-188-164A	MIL-STD-188-164A
Ant Noise Temperature @ 20° EI, midband	45° K	
G/T with 55° LNB, midband, clear horizon	19.7 dB/° K	
Axial Ratio (CP only, within pointing cone)	1.21 dB	2 dB
Feed Port Isolation – TX to RX (dB)	115 (includes optional filter)	115 (includes optional filter)
Power Handling Capability		1000 watts per port
<u>Ku-Band</u> (DBS bands available on request)	<u>Receive</u>	<u>Transmit</u>
Polarization	Linear orthogonal standard, optional co-pol	
Frequency Range (GHz)	10.95 - 12.75	13.75-14.50
Gain (Midband) (dBi)	43.7	45.3
VSWR	1.30:1	1.30:1
Beamwidth (-3 dB)	1.1°	0.9°
Radiation Pattern Compliance	FCC 25.209, ITU-R S.580-6, IESS 208	FCC 25.209, ITU-R S.580-6, IESS 208
Ant Noise Temperature @ 20° EI, midband	54° K	
G/T with 50° LNB, midband, clear horizon	23.5 dB/° K	
Cross Pol Isolation, on-axis	35 dB	35 dB
Cross Pol Isolation, within pointing cone	28 dB standard, 25dB optional MM feed	30 dB standard, 35 optional MM feed
Feed Port Isolation – TX to RX (dB)	35	80 (includes filter)
Power Handling Capability		500 watts per port
<u>Ka-Band</u>	<u>Receive</u>	<u>Transmit</u>
Polarization	Circular or Linear	
Frequency Range (GHz)	20.2 - 21.2 (military) or 17.7 - 20.2 (commercial)	30.0 - 31.0 (military) or 27.5 - 30.0 (commercial)
Gain (Midband military) (dBi)	48.9	52.3
VSWR	1.30:1	1.30:1
Beamwidth (-3 dB)	0.6°	0.4°
Radiation Pattern Compliance	FCC 25.209, MIL-STD-188-164A	FCC 25.209, MIL-STD-188-164A
Ant Noise Temperature @ 20° EI, midband	107° K	
G/T with 100° LNB, midband, clear horizon	25.3 dB/° K	
Axial Ratio (CP only, within pointing cone)	1.5 dB	1.0 dB
Feed Port Isolation – TX to RX (dB)	30	80 (includes filter)
Power Handling Capability		250 watts per port
<u>Controller</u>	Fully Automatic Satellite Acquisition, Peaking, and Cross-Pol Adjustment with GPS, Compass, Level Inputs and auto compensation with Entry of Desired Satellite. Select 10"x9"x2.5" power supply/hand-held controller or 1 RU P.S. controller or 2 RU controller option. With 2 RU additional options include inclined orbit tracking, resolvers, hand-held remote, remote GUI, waveguide switch control. A 2 RU jog controller is also offered.	
Positioning Accuracy ±0.2°	±0.2°	
Input Power	95-250VAC auto-ranging or 2 RU option 110/240 VAC, 1 phase, 50/60 Hz, 6/3 A peak, 1 A continuous	