ACS-12SQD-XK (Super Quick Deploy) Antenna System
Powered by AVL Technologies

The ACS-12SQD-XK is the first in its class of Super Quick Deploy Satcoms antenna systems designed to provide the Warfighter with the latest in Quick-on-the-Halt, (QOTH) communications. The system locates the desired target satellite in 20-50 seconds, (typically ~35 seconds). The system employs many new features such as the ability to locate the spacecraft even when GPS signals are blocked or not available. The terminals can be dual-band or tri-band configured so that X, KU or KA-Band feeds can be quickly interchanged on-the-fly, to provide for a different band of communications. Antenna sizes range from 60cm to 1.8M with an assortment of BUC power and modems to suit any application and uplink bandwidth up to 15Mbps. As always ACS custom integrates all RF and electronics to maximize transmission capabilities

Key Features

Reflector:	1.2 m Carbon Fiber (CF) w/Integral CF Backing Structure
Optics:	Offset, Prime Focus, 0.6 f/D
Feed Kits w/Dedicated Feed Booms:	Standard: 2-Port LP Mode matched, Ku-band with Motorized Polarization & Integral RJ
	Optional: 2-Port CP X-band, Optional: 2-Port CP Ka-Band
One-Touch Motorized Drive System:	AvL Cable Drive – Azimuth and Elevation
Mount Geometry:	Elevation over Azimuth
Low Weight & Low Profile:	135 lbs (with Cowling) & 10 inches High
Warranty:	3-yr Mechanical/RF; 1-yr Controller

Mechanical

Travel	
Azimuth	400° (± 200°)
Elevation – Mechanical	0° to 100° (Reflector Bore sight)
Elevation – Electrical (limits)	Standard: 5° to 65° (meets CE Approval); Optional: 0° to 90°
Polarization	Standard: ± 95° (relative to feed horn axis)
Speed	
Slewing/Deploying (Super Quick Deploy)	14°/second typical Az, 14°/second typical El, High Speed Deploy
Peaking	0.2°/second
Motors	24V variable speed, constant torque
RF Interface	
BUC Mounting	Interchangeable Band-Specific Feed booms, 25 lbs. max. Weight
Waveguide	Flex waveguide from feed with O-ring groove
Coax	Two Type F or BNC connectors at antenna base
Electrical Interface	One 32 ft. cable with connectors to controller
Manual Drive	Hand crank for Az, El and Pol
Weight	115 lb (53 kg) without cowling; 135 lb (62 kg) with cowling
Stowed Dimensions	86 L x 52 W x 10 H inches (218 L x 132 W x 26 H cm) incl. cowling
Time to Acquisition	Less than 1 minute typical
Vehicle Roof Mounting	Integral composite base/vehicle adapter/aerodynamic cowling

* All specifications subject to change without notice.

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Environmental

Wind
Survival Deployed	70 mph (105 kph)
Survival Stowed	85 mph (129 kph)
Operational	50 mph (72 kph)

Pointing Loss in Wind
20 mph (32 kph)	0.2 dB Typical, Ku-band
30 mph gusting to 45 mph (48 to 72 kph)	0.8 dB Typical, Ku-band

Temperature
Operational	-25° to 130° F (-32° to 55° C)
Survival	-40° to 145° F (-40° to 63° C)

Controls

ACS SQD Controller	AvL Standard-Speed Auto-Acquire (Hand-Held or Optional 1RU)
Input Power (AvL Standard Auto-Acquire)	100–240VAC 50/60Hz 8A peak, 380W running with max wind/BUC load

Electrical RF

X-Band	Receive	Transmit
• Polarization	RHCP or LHCP	LHCP or RHCP
• Frequency Range (GHz)	7.25 - 7.75	7.90 - 8.40
• Gain (Midband) (dBi)	37.6	38.1
• VSWR	1.30:1	1.30:1
• Beamwidth (-3 dB)	2.3°	2.1°
• Radiation Pattern Compliance (beyond mainbeam)	MIL-STD-188-164A	MIL-STD-188-164A
• Ant Noise Temperature @ 20° El, midband	52° K	
• G/T with 55° LNB, midband, clear horizon	17.3 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		500 watts per port

Ku-Band	Receive	Transmit
• Polarization	Linear orthogonal (optional co-pol)	
• Frequency Range (GHz)	10.95 - 12.75	13.75-14.50
• Gain (Midband) (dBi)	41.6	43.1
• VSWR	1.30:1	1.30:1
• Beamwidth (-3 dB)	1.5°	1.2°
• 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° El, midband	54° K	
• G/T with 50° LNB, midband, clear horizon	21.3 dB/° K	
• Cross Pol Isolation, on-axis (minimum)	35 dB (AvL Precision Feed)	35 dB (AvL Precision Feed)
• Cross Pol Isolation, off-axis (within 1 dB BW)	30dB (AvL Precision Feed)	32 dB (AvL Precision Feed)
• Cross Pol Isolation, off-axis (peak)	22 dB (AvL Precision Feed)	25 dB (AvL Precision Feed)
• Feed Port Isolation – TX to RX (dB)	35	80 (includes filter)
• Power Handling Capability		500 watts per port

Ka-Band	Receive	Transmit
• Polarization	Circular or Linear	
• Frequency Range (GHz)	20.2 - 21.2 (mil) or 17.7 - 20.2 (com)	30.0 - 31.0 (mil) or 27.5 - 30.0 (com)
• Gain (Midband military) (dBi)	46.2	49.5
• VSWR	1.30:1	1.30:1
• Beamwidth (-3 dB)	0.8°	0.6°
• Radiation Pattern Compliance	FCC 25.209, MIL-STD-188-164A	FCC 25.209, MIL-STD-188-164A
• Ant Noise Temperature @ 20° El, midband	107°K	
• G/T with 100° LNB, midband, clear horizon	23.0 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

Options

BUC/HPA mounting (on Boom)	Worldwide Controller Software Upgrade	Ku-band Feed Co-Polarization Kit
External GPS input via Ethernet	Direct Point-maintains location when not in use	Operational when GPS signals lost or blocked
Aerodynamic Composite Cowling	Custom cable lengths	Custom Colorization & Logos
X, Ku, Ka-Band Feeds	AvL Standard- or High-Speed Controller	Feed Band Sensing (AvL Controllers only)
2-Port CP X-band	2-Port CP Ka-Band	

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