

Av-Comm 4.5m C Band Inclined Orbit Antenna System TECHNICAL SPECIFICATIONS

The Av-Comm 4.5m C Band Inclined Orbit Antenna System has been designed to provide a reliable and cost effective solution for inclined orbit tracking applications. Our solution utilises a high performance 4.5m reflector integrated with an Antenna Control Unit (ACU) which provides the motorisation and tracking functionality. Our solution can be configured for use in a variety of frequency bands and can support tracking via Step, Memory, or TLE methods.

The Av-Comm 4.5m C Band Inclined Orbit Antenna System is designed for teleport and uplink providers who require accurate and reliable antenna positioning required for inclined orbit tracking operations. The antenna system can also be used as motorised system allow for fast and accurate positioning of the antenna between satellites.

*Additional frequency band solutions available

Main Features

- 4.5m Aperture Antenna
- Step Track/Memory Track/TLE Tracking
- 16 Bit Resolver Position Sensors 0.005 degree resolution
- Variable Speed Drives (VFDs) for Azimuth and Elevation motor control (single or dual speed)
- Three axis motorisation (Az/El/Pol*)
- Ethernet interface
- Support SNMP Monitoring
- Spectrum Analyser* optional
- Local antenna jog control
- Stainless steel ACU enclosure*
- Emergency Stop
- Hard and soft position limit interlocks
- Integrated beacon receiver for satellite position tracking*

Antenna Specifications cat# D1045

Parameter Receive Transmit Frequency (GHz) 3.625-4.2 5.850-6.425 *3.4-4.2 5.925-6.725 Gain at Midband 43.6dB 47.3dB Sidelobes 1st sidelobe -14dB -14dB 100λ/D° ≤ Θ ≤48° 29-25log Θ dBi 29-25log Θ dBi 29-25log Θ dBi VSVR 1.25:1 1.25:1 1.25:1 Beamwidth 1.09° 0.71° Typical G/T at 20° Elevation, Clear Horizon, 4Hz with 55°K LINA 24.8dB/°K (11.85GHz, 4Hz with 55°K LINA 0.17dB Feed Interface CPR-229F CPR-137G Feed Insertion Loss 0.15dB 0.17dB Cross Polarization Isolation 35dB 35dB On Axis 35dB 35dB Port to Port Isolation(Tx-RX with Filter) ≥85dB 30dB Port to Port Isolation(Tx-RX with Filter) ≥85dB Axial Ratio (Circular Polarization) 2 Port Tx/Rx 1.3 1.09			
Action M2Action M2Action M2*3.4-4.2 $5.925-6.725$ Gain at Midband43.6dB $47.3dB$ Sidelobes $-14dB$ $-14dB$ $100A/D^{0} ≤ \Theta ≤ 48^{\circ}$ $29-25\log \Theta dBi$ $29-25\log \Theta dBi$ VSWR $1.25:1$ $1.25.1$ Beamwidth 1.09° 0.71° Typical G/T at 20° Elevation, Clear Horizon, 4Hz with 55°K LNA $24.8dB/^{\circ}K$ (11.85GHz, 4Hz with 90°K LNA)Feed InterfaceCPR-229FCPR-137GFeed Insertion Loss $0.15dB$ $0.17dB$ Cross Polarization Isolation $35dB$ $35dB$ Within 1dB Beamwidth $30dB$ $30dB$ Port to Port Isolation(Tx-RX with Filter) $\geq 85dB$ Axial Ratio (Circular Polarization) $\geq 1.14dB$	Parameter	Receive	Transmit
Gain at Midband43.6dB47.3dBSidelobes 1 st sidelobe-14dB-14dB $100\lambda/D^{\circ} \le 0 \le 48^{\circ}$ 29-25log 0 dBi29-25log 0 dBiVSWR1.25:11.25.1Beamwidth1.09°0.71°Typical G/T at 20° Elevation, Clear Horizon, 4Hz with 55°K LNA24.8dB/°K (11.85GHz, with 90°K LNA)Feed InterfaceCPR-229FCPR-137GFeed Interface0.15dB0.17dBCross Polarization Isolation35dB35dBWithin 1dB Beamwidth30dB30dBPort to Port Isolation(Tx-RX with Filter) $\ge 85dB$ Axial Ratio (Circular Polarization) $\ge 1000000000000000000000000000000000000$	Frequency (GHz)	3.625-4.2	5.850-6.425
Sidelobes 1 st sidelobe 100 λ /D° ≤ Θ ≤48°-14dB 29-25log Θ dBi 29-25log Θ dBi 29-2		*3.4-4.2	5.925-6.725
1 st sidelobe 100λ/D° ≤ Θ ≤48°-14dB 29-25log Θ dBi-14dB 29-25log Θ dBiVSWR1.25:11.25:1Beamwidth1.09°0.71°Typical G/T at 20° Elevation, Clear Horizon, 4Hz with 55°K LNA24.8dB/°K (11.85GHz, with 90°K LNA)Feed InterfaceCPR-229FCPR-137GFeed Insertion Loss0.15dBOn Axis35dB35dB35dBWithin 1dB Beamwidth30dBPort to Port Isolation(Tx-RX with Filter)≥85dBAxial Ratio (Circular Polarization)	Gain at Midband	43.6dB	47.3dB
Beamwidth1.09°0.71°Typical G/T at 20° Elevation, Clear Horizon, 4Hz with 55°K LNA24.8dB/°K (11.85GHz, with 90°K LNA)Feed InterfaceCPR-229FCPR-137GFeed Insertion Loss0.15dBOn Axis35dB35dB35dBWithin 1dB Beamwidth30dBPort to Port Isolation(Tx-RX with Filter)≥85dBAxial Ratio (Circular Polarization)	1 st sidelobe	1.1615	1.1015
Typical G/T at 20° Elevation, Clear Horizon, 4Hz with 55°K LNA24.8dB/°K (11.85GHz, with 90°K LNA)Feed InterfaceCPR-229FFeed Insertion Loss0.15dBOn Axis35dBOn Axis35dBWithin 1dB Beamwidth30dBPort to Port Isolation(Tx-RX with Filter)≥85dBAxial Ratio (Circular Polarization)	VSVVR	1.25:1	1.25.1
Clear Horizon, 4Hz with 55% LNA(11.85GHz, with 90% LNA)Feed InterfaceCPR-229FCPR-137GFeed Insertion Loss0.15dBOn Axis35dBOn Axis35dBWithin 1dB Beamwidth30dBPort to Port Isolation(Tx-RX with Filter)≥85dBAxial Ratio (Circular Polarization)	Beamwidth	1.09°	0.71°
Feed Insertion Loss 0.15dB 0.17dB Cross Polarization Isolation 0 0 On Axis 35dB 35dB Within 1dB Beamwidth 30dB 30dB Port to Port Isolation(Tx-RX with Filter) ≥85dB Axial Ratio (Circular Polarization)	Ćlear Horizon,	(11.85GHz,	
Cross Polarization IsolationOn Axis35dB35dBWithin 1dB Beamwidth30dB30dBPort to Port Isolation(Tx-RX with Filter)≥85dBAxial Ratio (Circular Polarization)	Feed Interface	CPR-229F	CPR-137G
On Axis35dB35dBWithin 1dB Beamwidth30dB30dBPort to Port Isolation(Tx-RX with Filter)≥85dBAxial Ratio (Circular Polarization)	Feed Insertion Loss	0.15dB	0.17dB
Within 1dB Beamwidth30dB30dBPort to Port Isolation(Tx-RX with Filter)≥85dBAxial Ratio (Circular Polarization)	Cross Polarization Isolation		
Port to Port Isolation(Tx-RX with Filter) ≥85dB Axial Ratio (Circular Polarization)	On Axis	35dB	35dB
Axial Ratio (Circular Polarization)	Within 1dB Beamwidth	30dB	30dB
	Port to Port Isolation(Tx-RX with Filter)	≥85dB	
2 Port Tx/Rx 1.3 1.09	Axial Ratio (Circular Polarization)		
	2 Port Tx/Rx	1.3	1.09







Environment Specifications

Wind Loading Operational	126km/h
Wind Loading Survival	198km/h
Mechanical Specifications	Parameters
Azimuth Adjustment	360° continuous
Elevation Adjustment	5° to -90°
Polarisation Adjustment	±90°
*Optional	