4.9 Meter Dual-Reflector Earth Station Antenna

C-, X-, Ku-, K-Band Capabilities

Intelsat® Type Approved C & Ku-Band 2 & 4 port versions

Now communications system integrators and designers can bring their systems on line faster, more economically, and with superior performance with the Andrew 4.9 m earth station antenna.

The Andrew 4.9 m earth station antenna system incorporates features and versatility unmatched in its class. Like all Andrew earth station antennas, the 4.9 m earth station provides high gain and exceptional pattern characteristics.

The Andrew 4.9 m antenna features a dual reflector Gregorian system coupled with close-tolerance manufacturing techniques. This combination provides an extremely accurate surface contour, exceptionally high gain, superior efficiency, and closely controlled radiation pattern characteristics.

Our wide selection of type-approved antennas speeds system commissioning.

The 2-port C-Band Circular-polarized receive/transmit feed system is manually field switchable to linear polarization. The 52" (1321 mm) diameter by 32" (812 mm) equipment enclosure with a door allows hub mounting of LNA systems.

With standard hot-dipped galvanized steel ground mount assemblies and stainless steel hardware to minimize corrosion and ensure extended product life, all Andrew earth station antennas provide maximum durability with minimal maintenance.

4.9 m Intelsat tested and approved anti-icing

Features

- Provides no degradation to 18 GHz with Anti-icing installed
- Motorization and grounding kits
- Gregorian optics
- Self-aligning main reflector—no field alignment
- Field changeable feed system, C-Band, circular to linear, 2 port only
- 3-year warranty on all structural components
- Rugged aluminum and steel construction
- Full operational temperature ranges—-50° to 125° F (-50° to 52° C)
- Transmit waveguide kits

Compliances and Type-Approvals

- Intelsat® F-1 type approval certificates
  - IA081A00: 2 port
  - IA081B00: 4 port
- Intelsat® E-2 type approval certificates
  - IA089A00: 2 port
  - IA089B00: 4 port
- ITU-R, S.580 and S.465
- EUTELSAT
- U.S. FCC regulation 25.209 at Ku-Band
- ASIASAT
- APSTAR

Specifications for 4.9 Meter Dual-Reflector Earth Station Antenna

Electrical

Operating frequency band

C-Band receive, *GHz*	3.4–4.2
C-Band transmit, *GHz*	5.850–6.725
X-Band receive, *GHz*	7.25–7.75
X-Band transmit, *GHz*	7.90–8.40
Ku-Band receive, *GHz*	10.7–13.25
Ku-Band transmit, *GHz*	13.75–14.8
K-Band receive, *GHz*	10.7–13.25
K-Band transmit, *GHz*	17.3–18.4

Gain, with two port linear or circular combiner (dBi, ±0.2 dB)

Rx Freq., *GHz*	***Rx Gain***	***Tx Freq.,*** *GHz*	***Tx Gain***
3.400	43.0	5.850	47.8
3.625	43.8	6.175	48.3
4.000	44.7	6.425	48.6
4.200	45.1	6.725	48.7
7.250	49.5	7.90	50.0
7.500	49.7	8.15	50.2
7.750	49.9	8.40	50.6
10.700	52.7	13.75	54.9
10.950	53.2	14.00	55.1
11.950	53.8	14.25	55.3
12.750	54.2	14.50	55.4
		14.80	55.5
		17.30	57.0
		18.40	57.5

Polarization

C-Band	Circular (switchable to linear) 2-port or linear only
X-Band	Circular
Ku-Band	Linear
K-Band	Linear

Polarization discrimination, (linearly-polarized)
>35 dB across 1 dB beamwidth – C- or Ku-Band or K-Band

Voltage axial ratio, (circularly-polarized) across the 1 dB beamwidth

C-Band	<1.09:1 on axis,Tx
C-Band	<1.20:1 on axis, Rx
X-Band	<1.20:1 on axis, Tx and Rx

Beamwidth, mid-band, degrees, *receive (transmit)*

	C-Band	***Ku-Band***	***X-Band***	***K-Band***
3 dB	0.98 (0.63)	0.34 (0.29)	0.51 (0.47)	0.34 (0.23)
15 dB	1.90 (1.26)	0.64 (0.54)	1.01 (0.93)	0.64 (0.40)

Antenna noise temperature,
Under clear sky conditions, at 68°F (20°C), with 2 port combiner.

Elevation	***C-Band,*** *K*	***X-Band,*** *K*	***Ku-Band,*** *K*	***Ku-Band,*** *K*
10°	49	45	70	80
30°	41	35	59	69
50°	38	33	53	63

Antenna VSWR, transmit and receive <1.30:1

Mechanical

Antenna type	Dual-reflector, Gregorian
Reflector material	Precision-formed aluminum
Reflector segments	12 stretch formed panels
Mount type	El over AZ, pedestal
Azimuth	+/-60º continuous, 360º coarse
Elevation	0–90º
Hub enclosure dimensions	
Diameter, *in (mm)*	52 (1.320)
Depth, *in (mm)*	32 (0.812)

Environmental

Operating temperature, *F (C)*	-50° to 125° (-40° to 52°)
Wind loading	
Survival, *mph (km/h)*	125 (200) in any position of operation
Optional motor drives, *mph (km/h)*	45 (72) gusting to 65 (105)
Rain, *in (mm)*	4 (102) per hour
Solar radiation, *BTU/hr/ft² (watts/m²)*	360 (1135)
Relative humidity, %	100

Shock and vibration,
As encountered by commercial air, rail and truck shipment

Atmospheric conditions,
As encountered in a moderately corrosive coastal/industrial area
Severe conditions require additional protection

G/T Performance

C-Band

LNA/LNB noise temperature, *K*	65	45	30
ES37 G/T at 10° EL, *dB/K*	23.1	24.9	25.7

Based on a 2-port, antenna configuration at 4 GHz and at 10° elevation under clear sky conditions.

X-Band

LNA/LNB noise temperature, *K*	50	75	100
ES37 G/T at 10° EL, *dB/K*	29.7	28.7	27.9

Based on a 2-port, circularly-polarized antenna configuration at 7.50 GHz and at 10° elevation under clear sky conditions.

Ku-Band

LNA/LNB noise temperature, *K*	165	125	90
ES45 G/T at 10° EL, *dB/K*	30.2	31.1	32.0

Based on a 2-port, linearly-polarized antenna configuration at 12 GHz and at 10° elevation under clear sky conditions.

Typical Slab Foundation

Soil bearing capacity, *lb/ft² (kg/m²)*	2000 (9.77)
Reinforcing steel, *lb (kg)*	821 (372)
Concrete compressive strength, *lb/in² (kg/cm²)*	3000 (211)
Foundation size	
Length, *ft (m)*	12 (3.66)
Width, *ft (m)*	12 (3.66)
Depth, *ft (m)*	1.5 (0.5)
Concrete volume, *yd³ (m³)*	8 (6.12)

Typical Shipping Information

Net weight, *lb (kg)*	3600
Shipping weight, *lb (kg)*	4700
Shipping volume, *ft³ (m³)*	720
Shipping container	2 per 20 ft container 3 per 40 ft container

For More Information

The following publications are available on the Andrew website:

237636	Foundation Specification
SP50277-49	Earth Station Feed System
SP50345	General Description Specification

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