

## C-Band Capabilities

# 6.5 Meter Dual-Reflector Earth Station Antennas

**C**ommunications system integrators and designers can now bring their systems on line faster, more economically, and with superior performance with Andrew 6.5-meter Earth Station Antennas.

Excellent for high-density data, voice, communications networks, and broadcast applications, the Andrew 6.5-meter ESA features a uniquely formed dual reflector Gregorian system coupled with close-tolerance manufacturing techniques. This combination provides extremely accurate surface contour, exceptionally high gain, superior efficiency, and closely controlled pattern characteristics.

The 6.5 meter antenna is fully compliant with the FCC 25.209 specifications from 1° to 180° at C- band. Waivers are not required for routine licensing of the 6.5 meter at C band.

Andrew ESAs provide maximum durability with minimal maintenance. The hot-dipped galvanized steel ground mount assembly ensures extended product life. Galvanized and stainless steel hardware maximize corrosion resistance.

For cost effective system expansion, available modular equipment options include anti-icing equipment and pressurization systems. Microprocessor steptrack control and two mount options – manual only and motorizable – are also available.

### Features:

- *High Gain, Excellent Pattern Characteristics*
- *Advanced Gregorian Optics*
- *Self-Aligning Main Reflector – No Field Alignment*
- *Field Switchable Rx/Tx Combiner, 2-Port C-Band Circular*
- *Rugged Aluminum and Steel – 125 mph (200 kph) Wind Survival*
- *3-year Warranty on All Structural Components*



### Compliances:

- ASIASAT
- APSTAR
- BRAZILSAT
- EUTELSAT
- INTELSAT D-1, F-1, F-2 at C-band
- FCC regulation 25.209, from 1° to 180°
- ITU-R, S.580-5 and S.465-5

**Electrical**

<b>Operating Frequency Band</b>	
<i>C-Band Receive</i>	3.400-4.2 GHz
<i>C-Band Transmit</i>	5.850-6.725 GHz

<b>Gain, with 2 port linear combiner (dBi, ±0.2dB)</b>			
<i>Rx Frequency</i>	<i>Rx Gain</i>	<i>Tx Frequency</i>	<i>Tx Gain</i>
3.400 GHz	45.9	5.850 GHz	50.6
3.625 GHz	46.5	6.175 GHz	50.9
4.000 GHz	47.4	6.425 GHz	51.1
4.200 GHz	47.8	6.725 GHz	51.4

**Polarization**  
*C-Band* Linearly- or Circularly-Polarized

**Polarization Discrimination, (Linearly-Polarized):**  
>35 dB across 1 dB beamwidth  $19 - 25 \log \theta$  from 1.8° to 9.2°

**Voltage Axial Ratio, C-Band, circularly-polarized with 4-port combiner**  
<1.06:1 across the 1 dB beamwidth <1.09 and 1.2 with 2-port

<b>Beamwidth, Mid-band, Degrees</b>	<i>C-Band</i>
<i>3 dB Receive (Transmit)</i>	.74 (.45)
<i>15 dB Receive (Transmit)</i>	1.46 (.87)

**Antenna Noise Temperature** - under clear sky conditions, at 68°F (20°C), with 2-port linear combiner.

<i>Elevation</i>	<i>Kelvin (C-Band)</i>
10°	39
30°	29
50°	26

**Antenna VSWR, Transmit and Receive <1.3:1**

**Typical Shipping Information**

<b>Net Weight</b>	6400 lb
<b>Gross Shipping Weight (typical)</b>	8101 lb
<b>Shipping Volume (typical)</b>	780 ft <sup>3</sup> (22.1 m <sup>3</sup> )
<b>Shipping Container</b>	Standard 20 ft land/sea container

**G/T Performance (C-Band)**

<b>LNA/LNB Noise Temperature</b>	65K	45K	30K
<b>ES65 G/T at 10° EL (dB/K)</b>	27.2	28.1	29.0

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

**Uplink ERP Capability (C-Band)**

<b>HPA Output (Watts)</b>	125	500	3000
<b>Uplink EIRP (dBW)</b>	72.0	78.0	85.8

Based on a 2-port antenna configuration at 6.175 GHz and 0 dB allowance for waveguide (IFL) loss between the HPA and the antenna.

**Mechanical**

<b>Feed Type</b>	Dual-Reflector, Gregorian
<b>Reflector Material</b>	Precision-Formed Aluminum
<b>Reflector Segments</b>	16
<b>Mount Type</b>	EI over AZ, Manual or motorizable pedestal

<b>Antenna Pointing Range, Coarse/(Continuous)</b>	
<i>Elevation</i>	0-90° (90°)
<i>Azimuth</i>	180° (120°)
<i>Polarization</i>	180° (180°)

<b>Hub/Enclosure Dimensions</b>	
<i>Diameter</i>	52 in (1.22 m)
<i>Depth</i>	48.5 in (1.17 m)

**Wind Loading, Survival**  
125 mph (200 km/h) in any position of operation

**Wind Loading, Operational**  
45 mph (72 km/h), gusting to 65 mph (105 km/h) (motor drives)

**Temperature, Operational** -40° to 125°F (-40° to 52°C)

**Rain** 4 in (102 mm) per hour

**Solar Radiation** 360 BTU/hr/ft<sup>2</sup> (1135 Watts/m<sup>2</sup>)

**Relative Humidity** 100%

**Shock and Vibration** As encountered by commercial air, rail and truck shipment

**Atmospheric Conditions** Moderate coastal/industrial areas. Severe conditions require additional protection.

**Typical Slab Foundation Information**

<b>Soil Bearing Capacity</b>	2000 lb/ft <sup>2</sup> (9,764 kg/m <sup>2</sup> )
<b>Reinforcing Steel</b>	1780 lb (807 kg)
<b>Concrete Compressive Strength</b>	3000 lb/in <sup>2</sup> (211 kg/cm <sup>2</sup> )
<b>Foundation Size:</b>	
<i>Length</i>	15.5 ft (4.7 m)
<i>Width</i>	15.5 ft (4.7 m)
<i>Depth</i>	2.0 ft (0.6 m)
<b>Concrete Volume</b>	17.8 yd <sup>3</sup> (13.6 m <sup>3</sup> )



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