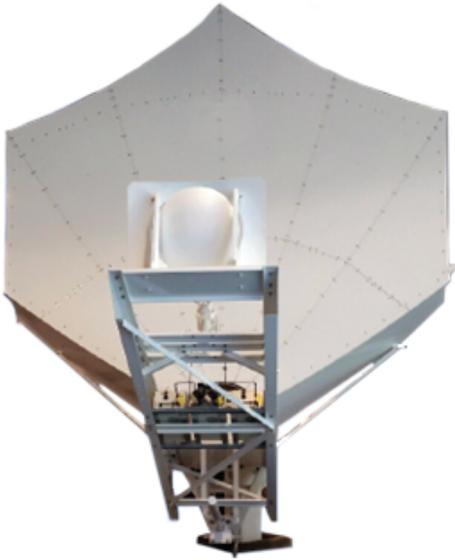


3.8 Meter Dual Offset Antenna

Antenna Technologies



Overview

The CPI Antenna Technologies' 3.8 meter antenna delivers exceptional performance for transmit/receive and receive only applications for L through Ka-Band frequencies. This antenna offers a dual offset reflector design that incorporates precision formed panels, contoured radials and a machined hub assembly. The state-of-the-art design provides exceptional performance for low cross-polarization levels and excellent sidelobe patterns.

The rugged feed boom can support up to 300 lbs. (136 kg) of integration equipment. The reflector is supported by a galvanized steel fixed or motorizable pedestal that provides the required stiffness for pointing and tracking accuracy. The pedestals are designed for full orbital arc coverage and are readily adaptable to ground or rooftop installations using concrete foundations, load-frames or non-penetrating mounts. The electrical performance is compliant with FCC 25.209 regulations and ITU-RS-580 sidelobe specifications. Type approved configurations are available for Intelsat (F1, E2), Eutelsat (L, M), Asiasat, Europe Star and Singapore Telecom.

FEATURES:

- 'Type-Approved' bolt-together, all-aluminum reflector with self-aligning, fully interchangeable components
- Designed for 1.5 to 31 GHz operation, meeting FCC 25.209 regulations in Ku-Band and beyond the main beam at C-Band
- Feed boom supports 300 lbs (136 kg) of equipment
- Galvanized steel EL over AZ pedestal with jackscrews or struts
- Standard: Survives 125 mph (200 km/h) winds in any position; 130 mph (209 km/h) at preferential stow orientation. Optional: HWA survives 150 mph (240 km/h) winds in stow orientation (true zenith)

OPTIONS:

- L, S, C, X, Ku, DBS and Ka-Band feeds
- C/Ku receive-only feed systems
- Specialized feed systems (e.g., extended, multi-band)
- Antenna control system with tracking
- Reflector and feed deicing systems
- Integrated transmit cross-axis kits
- Integrated LNA or LNB systems
- HPAs, converters and M&C systems
- Fixed or motorizable pedestals
- Non-penetrating and load frame mounts
- Packing for sea and air transport
- Turnkey installation and testing
- High wind antenna (HWA) option for 150 mph (240 kmh) wind survival

UPGRADES:

- Low operating temperatures
- High power configurations
- Special upgrades - available upon request

BENEFITS:

- High antenna efficiency
- Excellent rejection of noise and microwave interference

APPLICATIONS:

- Communications, Data Transfer, Broadcast

3.8 Meter Dual Offset Antenna

Specifications

| ELECTRICAL ⁽¹⁾ | C-Band 4 Port Circular Polarized | | C-Band 4 Port Linear Polarized | | X-Band 2 Port Linear Polarized ⁽⁷⁾ | |
|--|--------------------------------------|--------------------|--|-------------------------|--|--------------------|
| | Receive | Transmit | Receive | Transmit | Receive | Transmit |
| Frequency (GHz) | 3.400- 4.200 | 5.725 - 6.725 | 3.400 - 4.200 | 5.850 - 6.725 | 7.250 - 7.750 | 7.900 - 8.400 |
| Antenna Gain, Midband dBi ⁽²⁾ (+/- 0.2 dB) 3.400 / 5.850 GHz 4.000 / 6.300 GHz 4.200/6.750 GHz | 42.00 | 45.00 | 40.90 42.40 42.90 | 45.10 45.20 46.20 | 47.30 | 47.70 |
| VSWR | 1.30:1 | 1.30:1 | 1.30:1 | 1.30:1 | 1.25:1 | 1.25:1 |
| Pattern Beamwidth ⁽²⁾ -3 dB, at midband -15 dB, at midband | 1.29° 2.71° | 0.94° 1.97° | 1.29° 2.71° | 0.93° 1.95° | 0.72° 1.51° | 0.69° 1.45° |
| Antenna Noise Temperature 5° Elevation 10° Elevation 20° Elevation 40° Elevation | 66 K 57 K 52 K 50 K | | 54 K 44 K 37 K 44 K | | 63 K 52 K 46 K 44 K | |
| Typical G/T (dB/K) ⁽³⁾ 4.000 GHz, 35 K LNA 4.000 GHz, 35 K LNA 4.000 GHz, 50 K LNA 11.725 GHz, 70 K LNA | 22.8 | | 23.7 22.9 | | 27.5 | |
| Axial Ratio | 0.50 dB | 0.50 dB | 1.49 dB | 1.49 dB | 1.49 dB | 1.49 dB |
| Power Handling (total) | 2 kW CW | | 10 kW CW | | 5 kW CW | |
| Cross Polarization On Axis Within a 1.0 dB Beamwidth | 30.8 dB 30.8 dB | 30.8 dB 30.8 dB | 30.0dB 30.0 dB | 30.0 dB 30.0 dB | 21.3 dB 21.3 dB | 21.3 dB 21.3 dB |
| Port-to-Port Isolation Rx/Tx (Rx frequency) Tx/Rx (Tx frequency) | 0 dB -85 dB | -85 dB 0 dB | 0 dB -85 dB | -70 dB 0 dB | 0 dB -110 dB | -110 dB 0 dB |
| Sidelobe Performance | Meets ITU-RS-580, FCC ⁽⁴⁾ | | Meets 25.209, FCC ⁽⁵⁾ IESS (Intelsat) or ITU-RS-580 ⁽⁶⁾ | | Meets ITU-RS-580, FCC ⁽⁴⁾ | |
| RF Specification | 975-1744 | | 975-2495 | | 975-2192 | |

⁽¹⁾All values are at rear feed flange. ⁽²⁾C-Band Rx values are at 4 GHz. ⁽³⁾Typical G/T at 20° elevation with clear horizon using single bolt-on LNA feed.

⁽⁴⁾Meets FCC 25.209 beyond the main beam in C-Band. ⁽⁵⁾Meets FCC 25.209 For Angle A beyond main beam to 48 Degrees

⁽⁶⁾Meets IESS (Intelsat) or FCC ITU-RS-580 For Angles from 48 to 180 Degrees. ⁽⁷⁾Also available in extended frequency bands.

Notes: -10% of sidelobes may exceed the sidelobe specifications where applicable. -Power handling capability is based on and limited by the physical characteristics in the feed components. Microwave power at these levels may contribute to the radiation hazard or exceed certain off axis EIRP specifications.

3.8 Meter Dual Offset Antenna

Specifications

| ELECTRICAL ⁽¹⁾ | Ku-Band 4 Port Linear Polarized ⁽⁷⁾ | | DBS-Band 2 Port Linear Polarized | | Ka-Band 4 Port Circular Polarized | |
|--|---|--------------------|-------------------------------------|--------------------|--------------------------------------|--------------------|
| | Receive | Transmit | Receive | Transmit | Receive | Transmit |
| Frequency (GHz) | 10.700 - 12.950 | 13.750 - 14.800 | 10.700 - 12.750 | 17.350 - 18.400 | 17.700 - 22.000 | 27.000 - 31.000 |
| Antenna Gain, Midband dBi ⁽²⁾ | 50.80 | 52.20 | 51.40 | 54.60 | 55.00 | 57.50 |
| VSWR | 1.30:1 | 1.30:1 | 1.30:1 | 1.30:1 | 1.30:1 | 1.30:1 |
| Pattern Beamwidth ⁽²⁾ | | | | | | |
| -3 dB, at midband | 0.45° | 0.39° | 0.45° | 0.31° | 0.27° | 0.20° |
| -15 dB, at midband | 0.94° | 0.82° | 0.94° | 0.65° | 0.57° | 0.42° |
| Antenna Noise Temperature | | | | | | |
| 5° Elevation | 85 K | | 68 K | | 222 K | |
| 10° Elevation | 72 K | | 52 K | | 178 K | |
| 20° Elevation | 62 K | | 43 K | | 140 K | |
| 40° Elevation | 58 K | | 39 K | | 110 K | |
| Typical G/T (dB/K) ⁽³⁾ | | | | | | |
| 11.725 GHz, 70 K LNA | 29.6 | | 30.9 | | 30.9 | |
| 19.850 GHz, 120 K LNA | | | | | 29.7 | |
| 19.850 GHz, 200 K LNA | | | | | | |
| Axial Ratio | | | | | 0.50 dB | 0.50 dB |
| Power Handling (total) | 2 kW CW | | 2 kW CW | | 500 Watts | |
| Cross Polarization | | | | | | |
| On Axis | 35.0 dB | 35.0 dB | 35.0 dB | 35.0 dB | 30.8 dB | 30.8 dB |
| Within a 1.0 dB Beamwidth | 35.0 dB | 35.0 dB | 35.0 dB | 30.0 dB | 30.8 dB | 30.8 dB |
| Port-to-Port Isolation | | | | | | |
| Rx/Tx (Rx frequency) | 0 dB | -120 dB | 0 dB | -75 dB | 0 dB | -85 dB |
| Tx/Rx (Tx frequency) | -120 dB | 0 dB | -85 dB | 0 dB | -85 dB | 0 dB |
| Sidelobe Performance | Meets ITU-RS-580, FCC ⁽⁴⁾ | | Meets ITU-RS-580, FCC | | Meets ITU-RS-580 | |
| RF Specification | 975-4465 | | 975-2091 | | 975-4953 | |

⁽¹⁾ All values are at rear feed flange. ⁽²⁾ C-Band Rx values are at 4 GHz. ⁽³⁾ Typical G/T at 20° elevation with clear horizon using single bolt-on LNA feed.

⁽⁴⁾ Meets FCC 25.209 beyond the main beam in C-Band. ⁽⁵⁾ Meets FCC 25.209 For Angle A beyond main beam to 48 Degrees

⁽⁶⁾ Meets IESS (Intelsat) or FCC ITU-RS-580 For Angles from 48 to 180 Degrees. ⁽⁷⁾ Also available in extended frequency bands.

Notes: -10% of sidelobes may exceed the sidelobe specifications where applicable. -Power handling capability is based on and limited by the physical characteristics in the feed components. Microwave power at these levels may contribute to the radiation hazard or exceed certain off axis EIRP specifications.

3.8 Meter Dual Offset Antenna

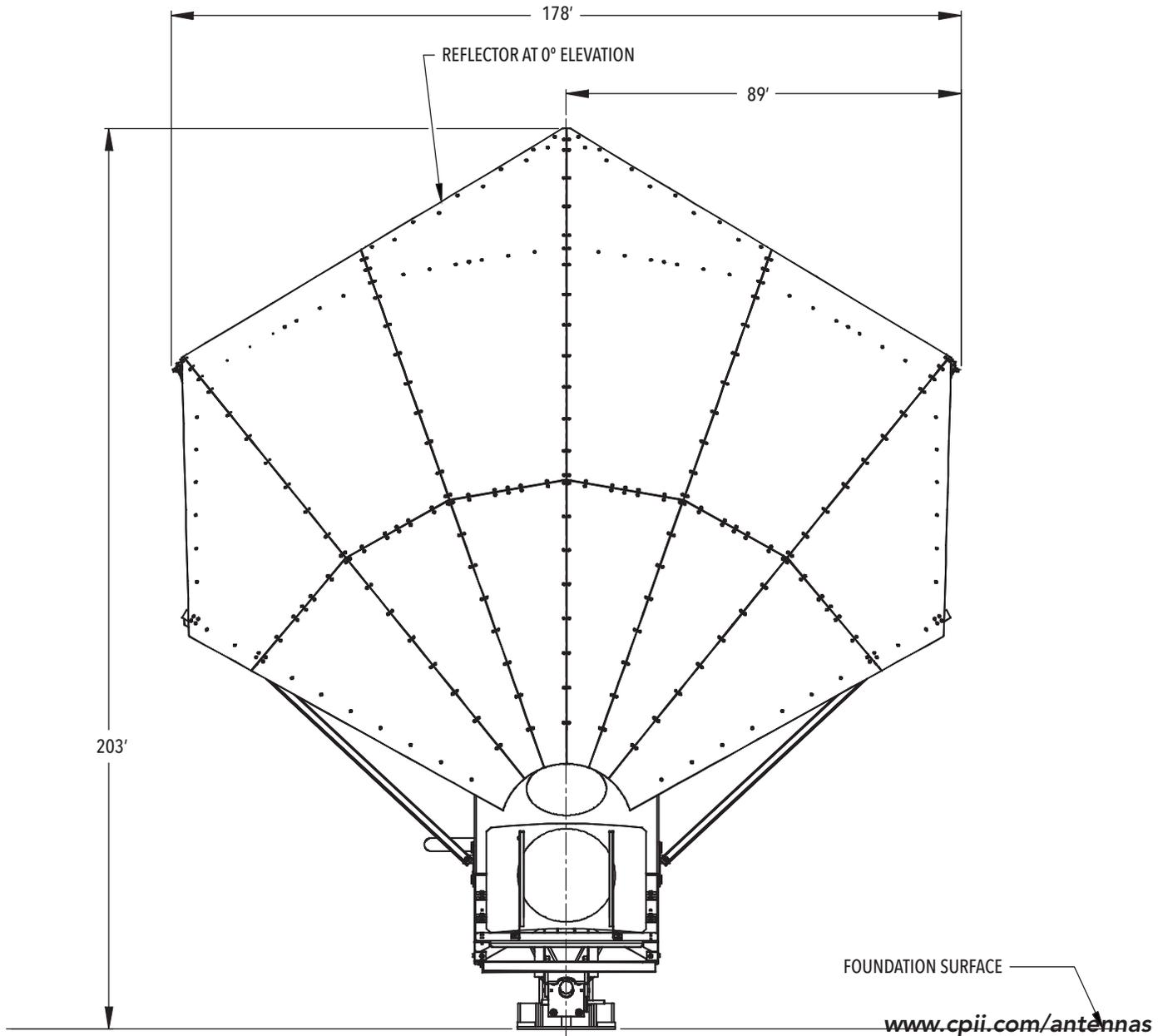
Specifications

| MECHANICAL/ENVIRONMENTAL ⁽⁶⁾ | | Fixed Post Mount Pedestal (PM) | V-frame Pedestal (VX) |
|---|----------------------------|---|--|
| Antenna Size | | 3.8 meters (12.5 feet) | |
| Antenna Type | | Dual offset reflector design | |
| Reflector Construction | | Precision-formed aluminum panels with heat-diffusing white paint; cleaned and brightened aluminum back-up structure | |
| Mount Configuration | | Elevation over azimuth pedestal, constructed of galvanized steel | |
| Drive Type | | Manual struts | Motorized jack screws |
| Azimuth Travel | | 360° coarse, 40° fine adjustment | 190° (2 continuous 120° segments) |
| Elevation Travel | | 0 to 90° continuous | 0 to 90° continuous |
| Foundation (L x W x D) | | 13.5 x 13.5 x 1.5 ft (4.1 x 4.1 x 0.46 m) | 11.5 x 11.5 x 1.5 ft (3.5 x 3.5 x 0.46 m) |
| | Concrete Reinforcing Steel | 10.1 yds ³ (7.74 m ³) 1,294 lbs. (587 kg) | 7.4 yds ³ (5.66 m ³) 685 lbs. (311 kg) |
| Shipping Containers | | One 20 ft standard container | |
| Wind Loading | Operational Survival | 45 mph (72 km/h) gusting to 60 mph (97 km/h) 125 mph (200 km/h) @ 58° F (15° C), any position 130 mph (209 km/h) at preferential stow orientation | |
| Temperature | Operational Survival | +5° to +122°F (-15° to +50° C) -22° to +140°F (-30° to +60° C), low temperature options available | |
| Rain | | Up to 4 in/h (10 cm/h) | |
| Relative Humidity | | 0 to 100% with condensation | |
| Solar Radiation | | 360 BTU/h/ft ² (1,000 Kcal/h/m ²) | |
| Ice | Survival | 1 in (2.5 cm) on all surfaces or 1/2 in (1.3 cm) on all surfaces with 80 mph (130 km/h) wind gusts | |
| Atmospheric Conditions | | As encountered in coastal regions and/or heavily industrialized areas | |
| Shock and Vibration | | As encountered during shipment by airplane, ship or truck | |

⁽⁶⁾ Some specifications may vary based on the combination of equipment, options and/or upgrades ordered.

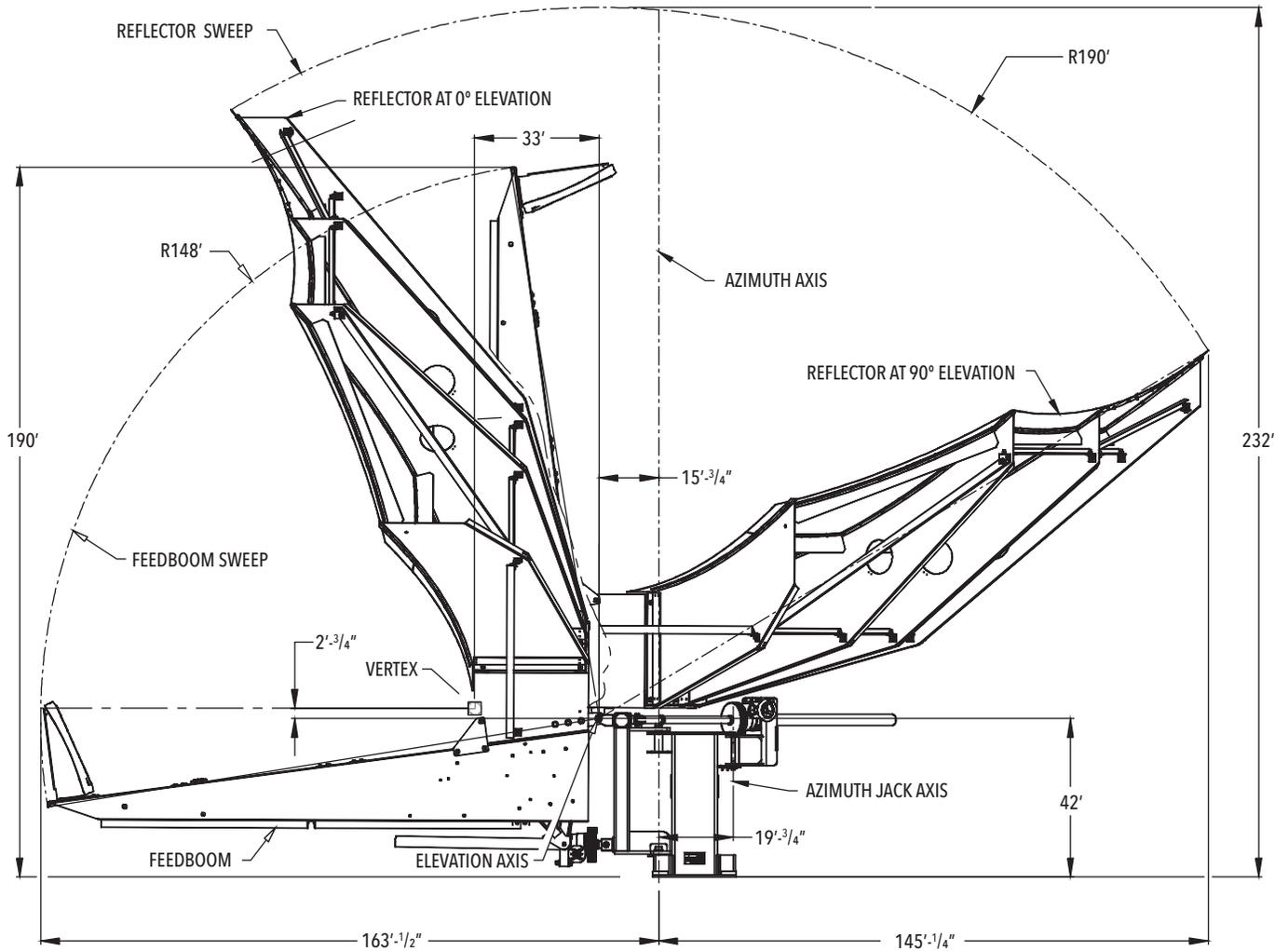


3.8 Meter Dual Offset Antenna



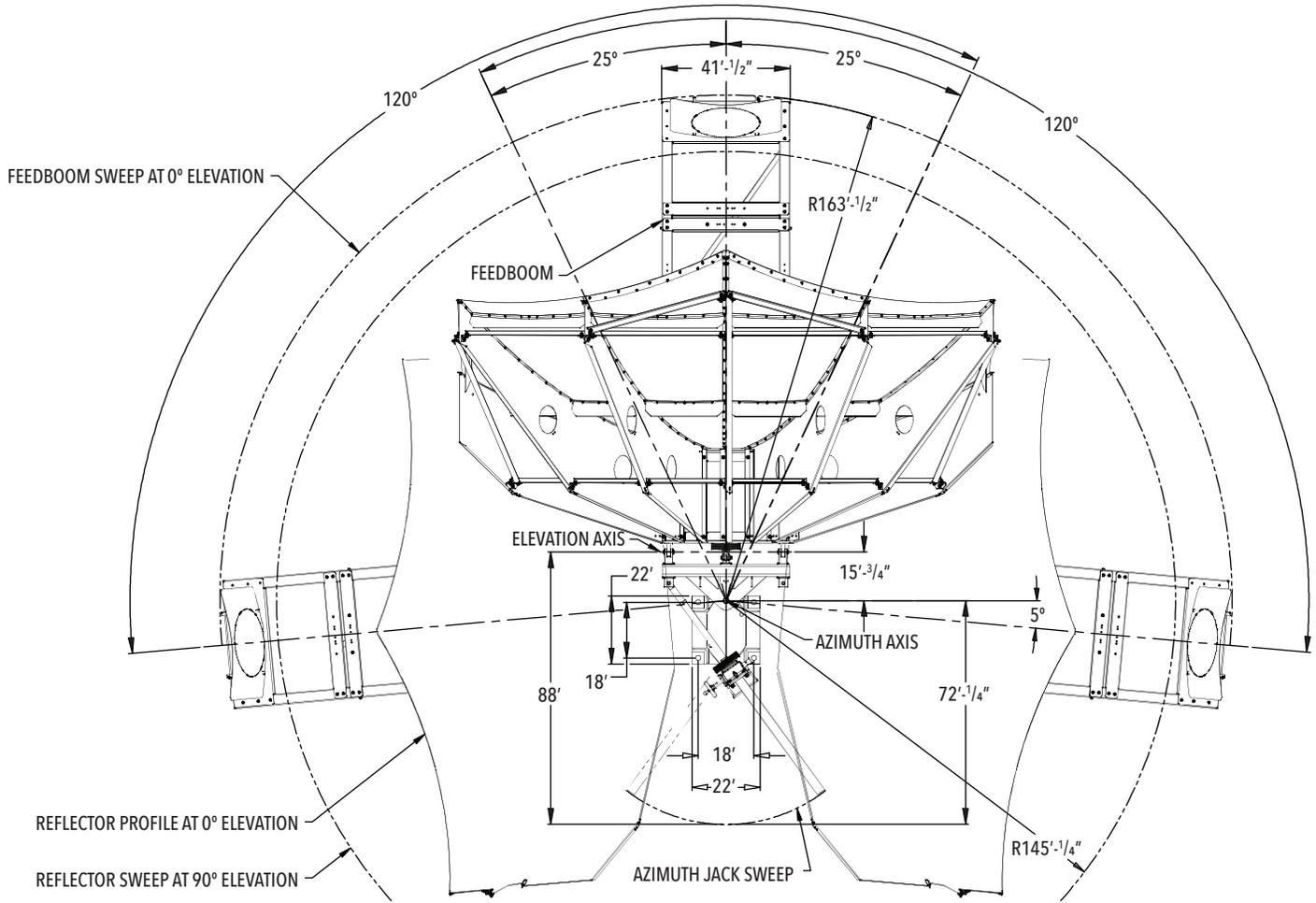
V FRAME FRONT VIEW

3.8 Meter Dual Offset Antenna



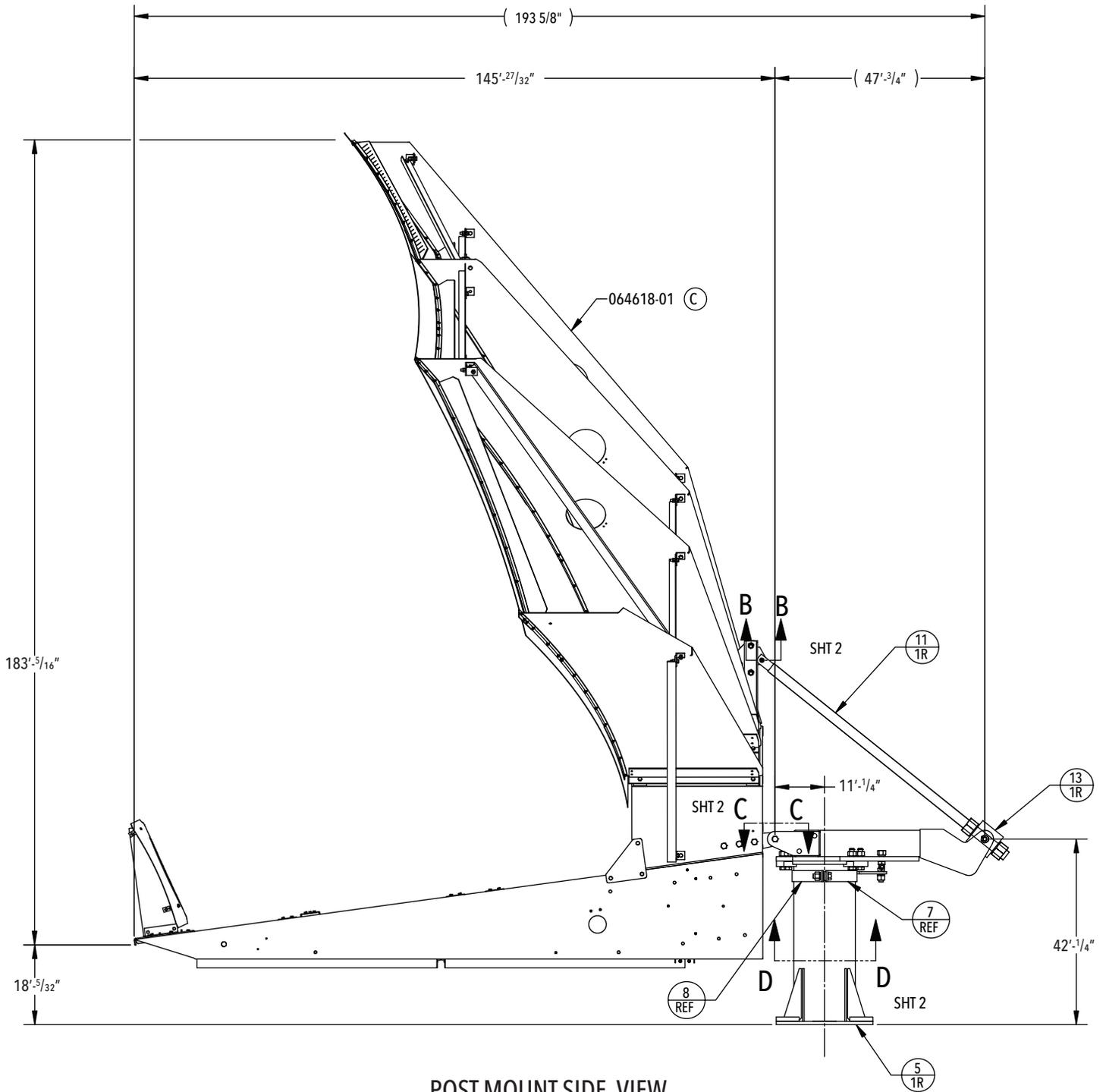
V FRAME SIDE VIEW

3.8 Meter Dual Offset Antenna



V FRAME PLAN VIEW

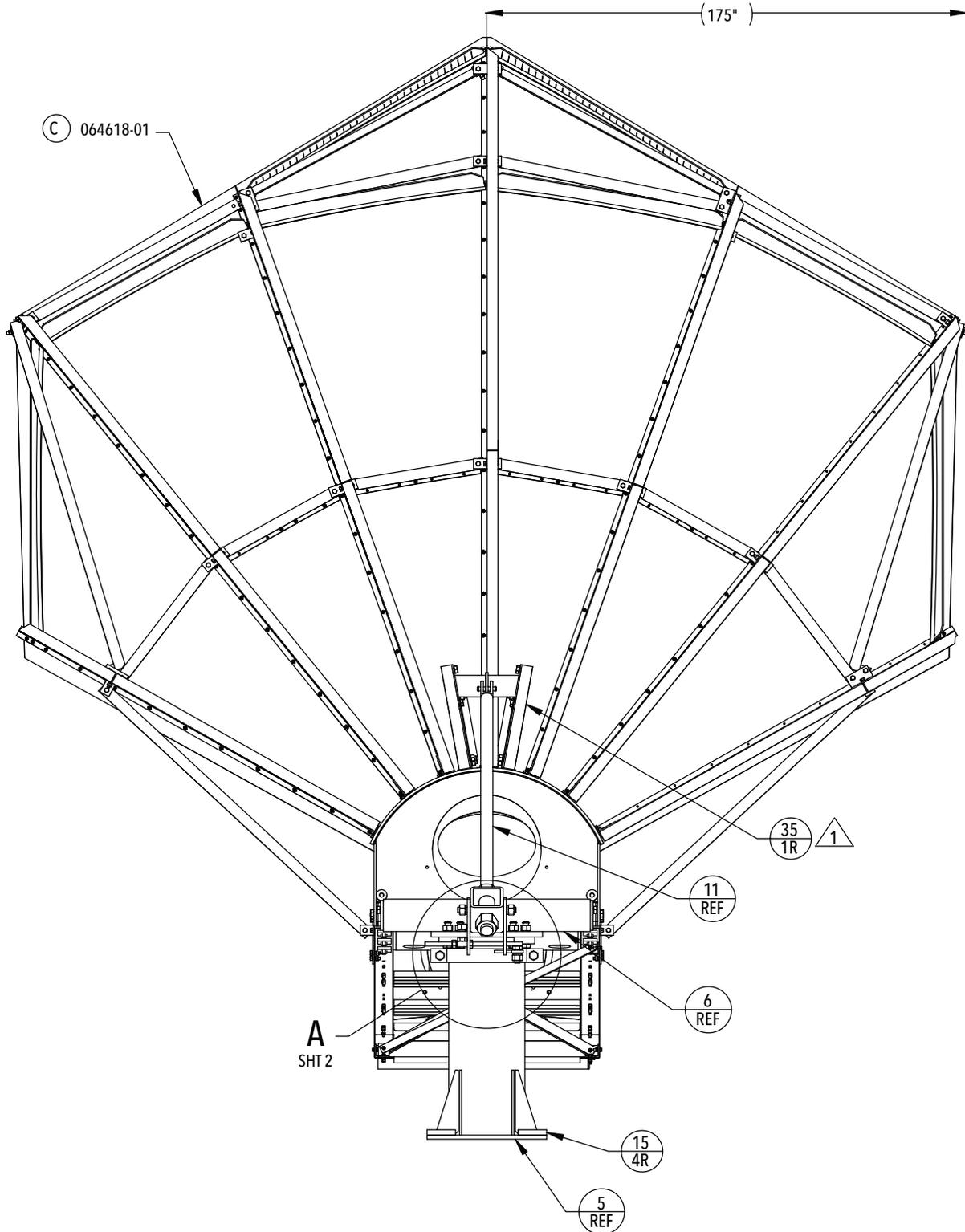
3.8 Meter Dual Offset Antenna



NOTE:

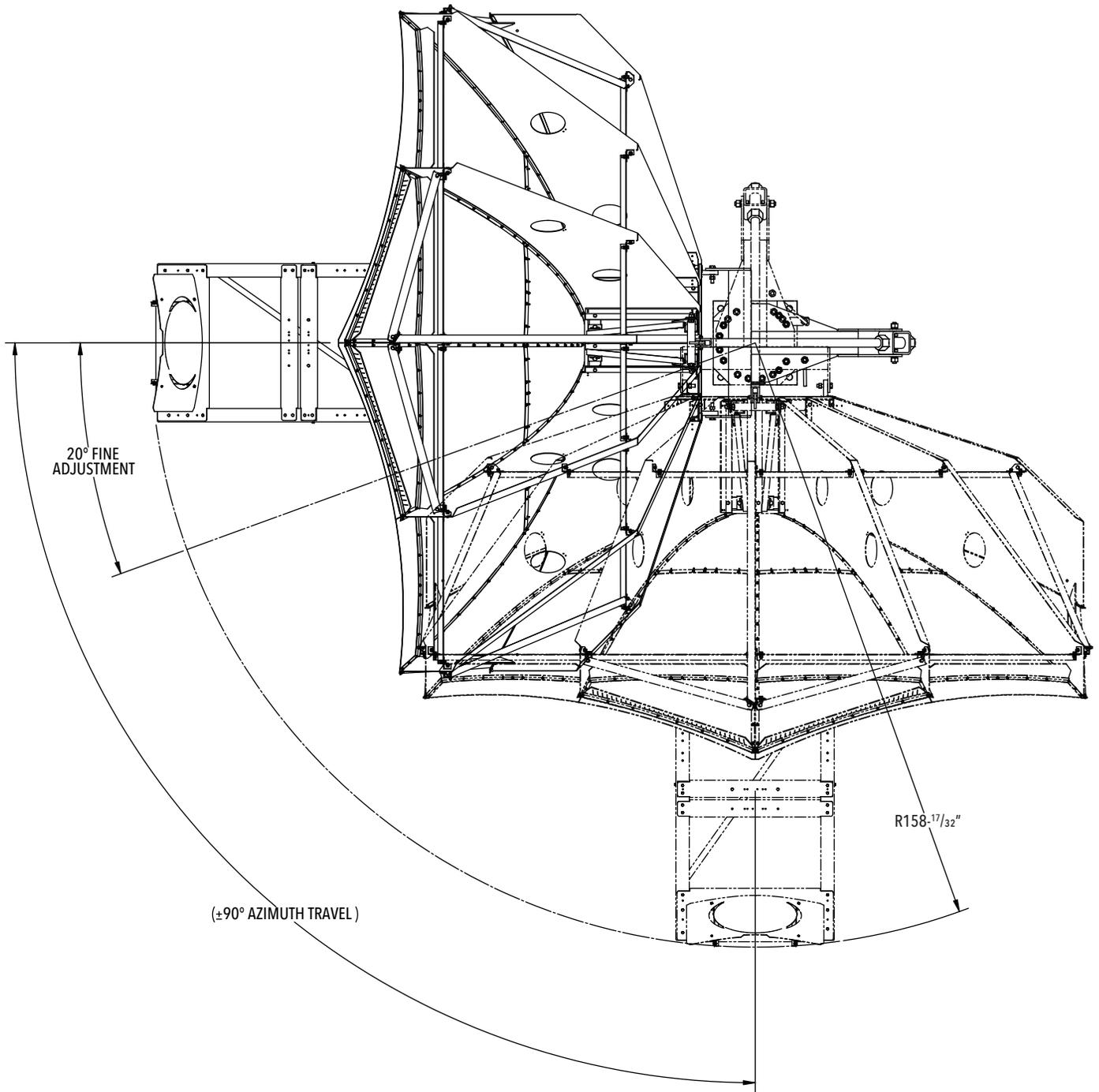
1. ITEM 35 INSTALLATION IS SHOWN ON DRAWING (065250).

3.8 Meter Dual Offset Antenna



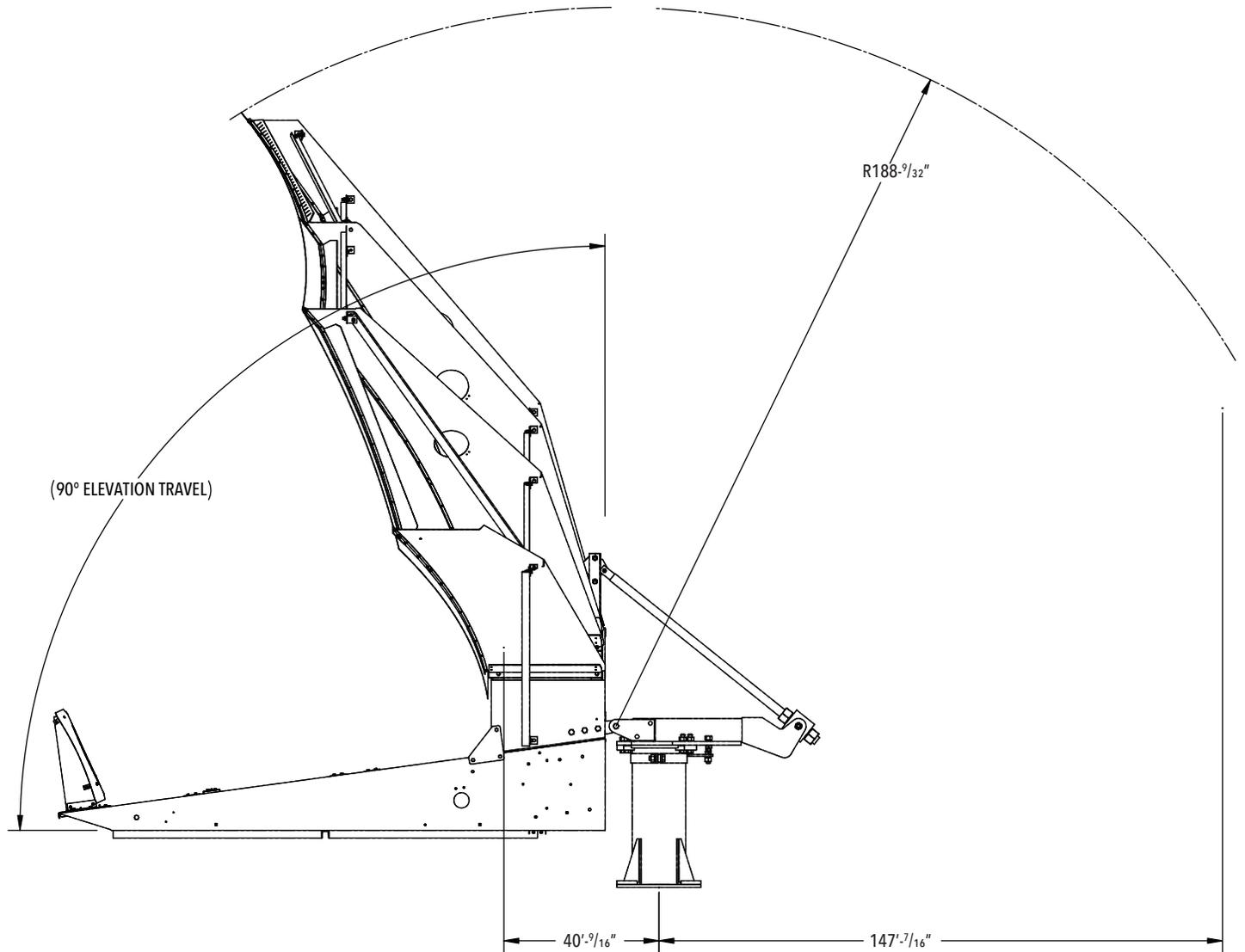
POST MOUNT BACK VIEW

3.8 Meter Dual Offset Antenna



POST MOUNT ELEVATION AZIMUTH TRACKING

3.8 Meter Dual Offset Antenna



POST MOUNT ELEVATION TRACKING

