

Q-BAND CASSEGRAIN ANTENNA

ERAVANT
FORMERLY SAGE MILLIMETER



SAY-3735135302-22-S1-DP-WR is a dual polarized Cassegrain Weather Resistant antenna assembly for new space satellite communication system ground station applications. The antenna assembly offers a nominal gain of 53 dBi and a half power beamwidth of 0.2 degrees. The assembly features an integrated orthomode transducer (OMT) that provides high port isolation and cross-polarization cancellation between the transmitting and receiving ports. The H and V port of the OMT has an integrated band-pass filter with pass-band frequency ranges 46 to 51 GHz for TX and 37 to 42 GHz for RX respectively. The filters offer 40 dB typical rejection between the TX and RX frequencies. The main reflector is fabricated with fiber glass to offer a light weight and rugged mechanical structure. The corrugated horn is used to provide the best feed efficiency and the most uniform illumination. The antenna also features a linear to circular polarizer to transform linear waveforms to circularly polarized waveforms. The antenna can also support linear waveforms which are offered under a different model number. The TX and RX ports are WR-22 waveguide bulkheads with UG-383/U anti-cocking grooved flanges and removable O-rings.

FEATURES

- Rugged Configuration and Low Profile
- Weather Resistant
- Low Loss and High Gain

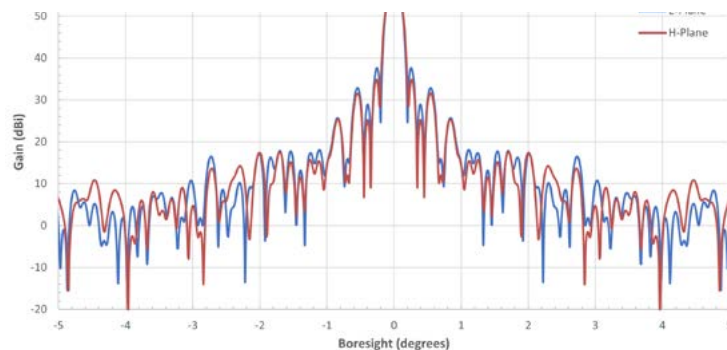
APPLICATIONS

- Satellite Communication Ground Station

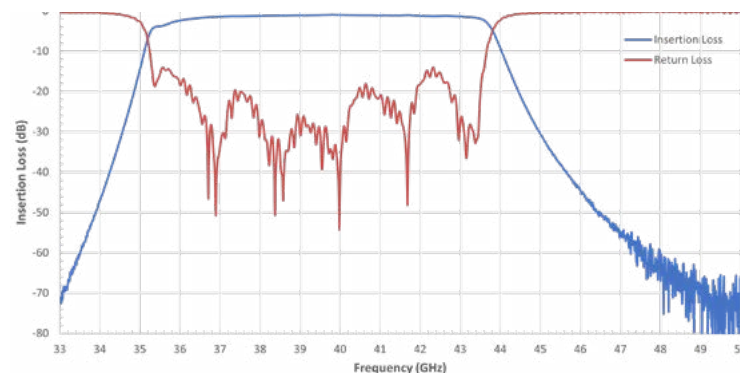
Key Specifications

Model	SAY-3735135302-22-S1-DP-WR
Transmit Frequency Range	46 to 51 GHz
Receive Frequency Range	37 to 42 GHz
Gain Without OMT or Filters	56 dBi
Beam Width	53 dBi
Max Side-lobe Levels	-15 dB up to 0.5 degree offset -40 dB above 1.0 degree offset
OMT Port Isolation	35 dB
Min Tx/Rx Isolation	40 dB

Simulated Antenna Patterns @ 48.5 GHz



Typical Measured Bandpass Filter Performance vs Frequency (RX)



INTEGRATED CASSEGRAIN ANTENNA ASSEMBLIES

Support Q & V Band Satellite & Telescope Applications

In the world of high-gain reflector antennas, Cassegrain antennas stand out as having excellent polarity control with very low back-lobe and side-lobe responses. With a forward-facing feed horn and a secondary reflector located near the focal point of the main reflector, Cassegrain antennas have a symmetrical structure that delivers high rejection of cross-polarized signals with minimal loss of co-polarized signals.

Eravant offers standard and custom Cassegrain antenna assemblies for satellite communications and radio telescopes. A typical assembly includes an orthomode transducer (OMT) and an optional polarizer to provide separate ports for left-hand and right-hand circular polarizations. Alternatively, the antennas can be configured to support vertical and horizontal polarizations by eliminating the polarizer. Integrated band-pass filters provide additional isolation between the Transmit and Receive channels, while rejecting out-of-band signals.

Providing 53 dBi overall gain, model SAY-3735135302-22-S1-DP-WR is a high-gain dual-polarized Cassegrain antenna assembly designed for satellite

communication ground stations. With a reflector diameter of 96 inches, the antenna includes separate WR-22 ports for left-hand and right-hand circular polarizations. Typical isolation between ports is 40 dB and the half-power beamwidth is 0.2 degrees. Frequency coverage is 37 to 42 GHz for the Receive channel and 46 to 51 GHz for the Transmit channel. Integrated bandpass filters are also included.

