Antenna Development Corporation
151 S. Walnut St. #B-6, Las Cruces, NM 88001

Medium Gain GPS Antenna

Restrictions:

Antenna Development Corporation, Inc. (AntDevCo) offers a medium gain spacecraft microstrip patch antenna. This single-frequency unit is designed for GPS receive operation. This antenna is capable of supporting high data rates and up to an estimated 25 Watts of transmitted power.

All antennas are supplied with extensive testing data including principal plane radiation pattern plots, gain bounds plots, and coverage statistics. Simulations of the expected performance on your satellite can also be supplied.

The antennas may also be ordered with semi-conductive radomes for satellite applications where no exposed dielectrics are allowed.

- Space qualified by similarity
- Conformal form factor
- Low mass
- High Performance

Heritage information is available on request.

A anti-charging cover film is an option. This cover prevents charge accumulation on the antennas surface. Addition of the film is a minor cost and has only a very minor effect on the gain of the antenna (< 0.1 dB reduction).

Export of the antenna is subject to ITAR control.

Other options (different frequencies, polarizations, and gains, for example) for this type of antenna are described in the AntDevCo data sheet number ADC-0512271640, available on request.

GPS L1
Patch Array Antenna (8 X 8 inches)

Specifications

- Gain: 10 dB nominal
- Frequency: 1575 MHz
- Bandwidth: 20 MHz nominal
- HPBW: ~ 42 degrees full width (Exact values of HPBW and Gain depend on mounting details)
- Impedance: 50 Ohms
- Polarization: RHCP
- VSWR: < 1.5
- Axial Ratio: < 4 dB on axis
- Connector: SMA Female
- Dimensions: 8 X 8 X 0.120" (excluding connector projection)
- Mounting: Screw ferrules can be supplied. Adhesive attachment to the vehicle or a metal base plate is recommended due to the high area to thickness ratio.
- Mass: < 220 grams (no base plate)
- Temperature: -70 C to +100 C (Test values – absolute limits TBD)
- Power: up to 25 Watts CW
- IR properties Depends on radome option

AntDevCo is ISO 9001-2008 certified

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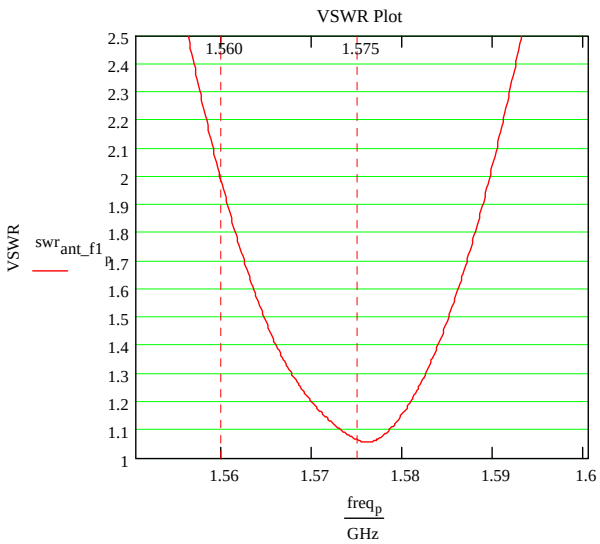
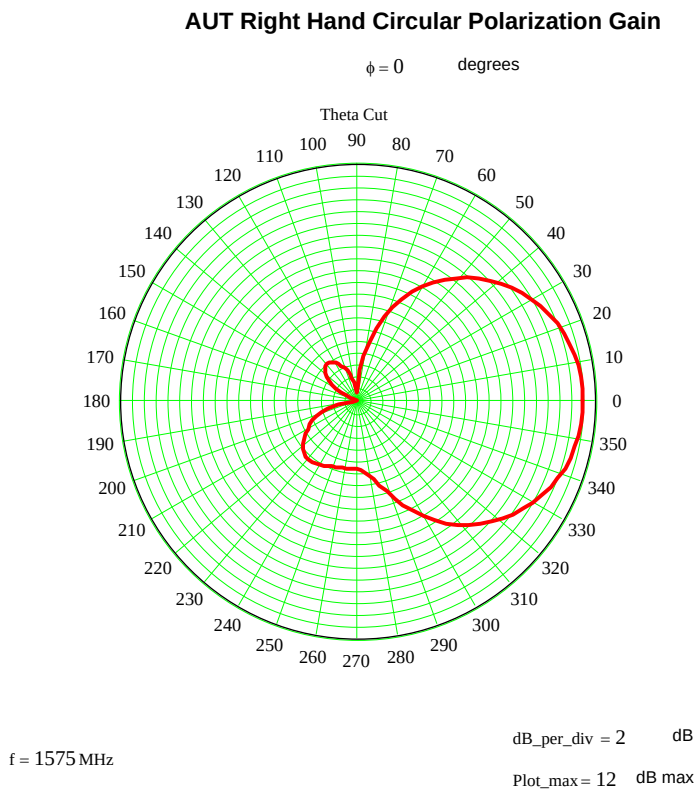
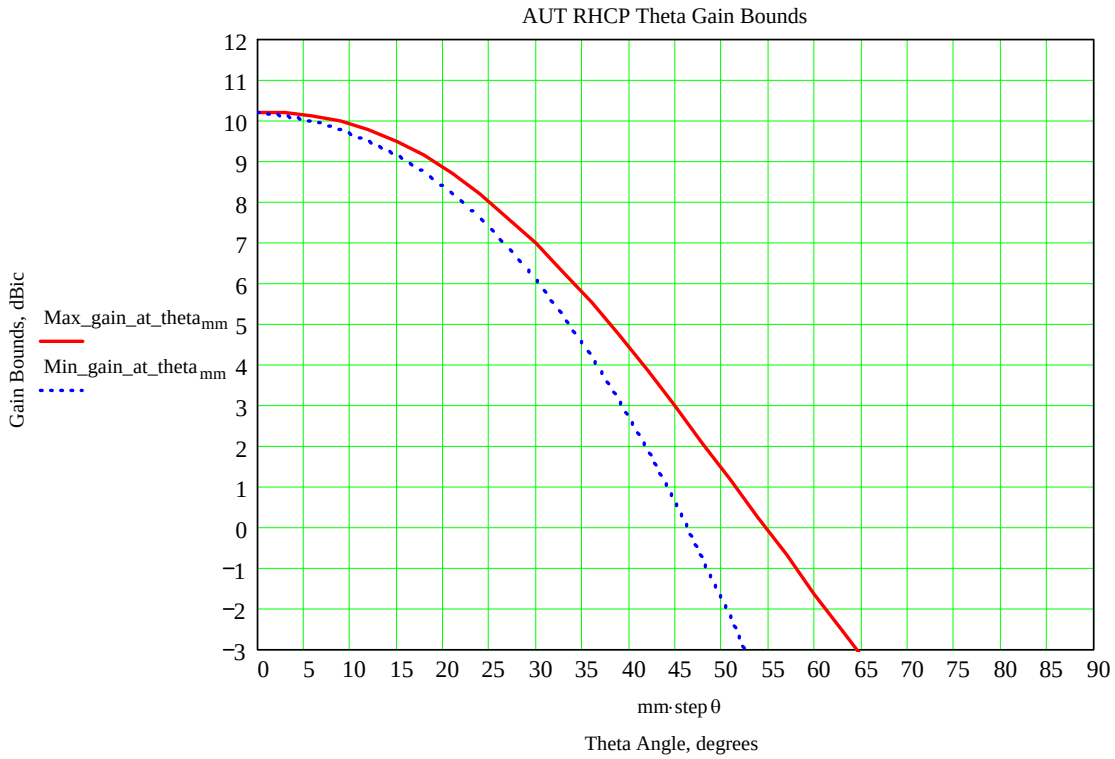


Typical VSWR performance of the antenna.



Typical radiation pattern (somewhat dependent on the mounting details).



f = 1575 MHz

This plot summarizes the gain performance of the antenna over all view angles in the upper hemisphere. For each theta angle shown, the gain was measured to be between the two extremes on the plot. As shown, the gain on axis was greater than 8 dB for theta angles between 0 and 20 degrees. Again, the performance is somewhat dependent on the exact mounting arrangement and size of the ground plane under the antenna.

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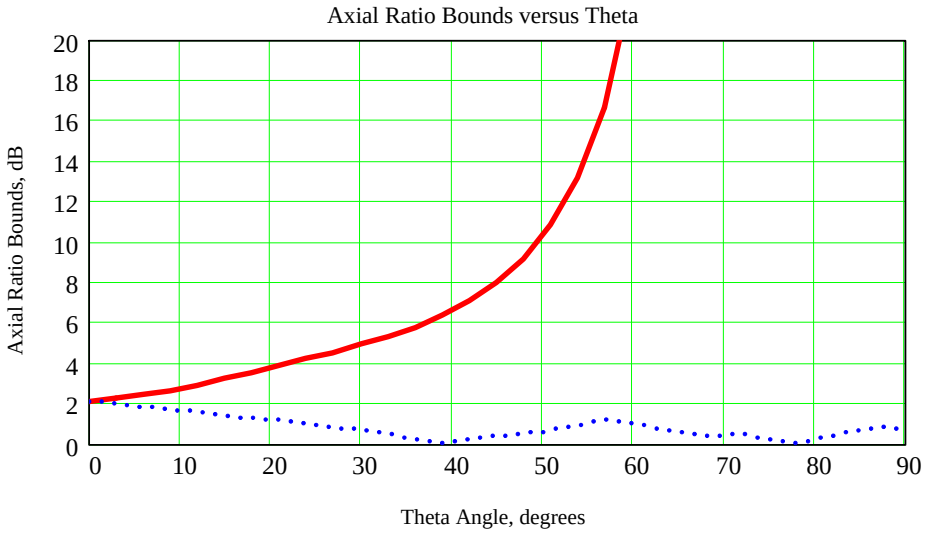

f = 1575 MHz

This plot summarizes the axial ratio performance of the antenna over all view angles in the upper hemisphere. For each theta angle shown, the axial ratio falls between the two extremes on the plot as the roll angle is changed. As shown, the axial ratio on axis was about 2 dB. The axial ratio is less than 6 dB over the full 3 dB beam width of about 70 degrees.

Again, the axial ratio performance is somewhat dependent on the exact mounting arrangement and on the influence of nearby projections or structures.

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