

GPS Active Mag. Ant. to 5M to SMA ST Plug. IP67

SPECIFICATION FOR GPS ANTENNA WITH LOW NOISE AMPLIFIER

1.0 SYSTEM

This antenna system consists of two functional blocks, the LNA portion and the patch antenna.

2.0 GENERAL

2.1 ENVIRONMENTAL CONDITIONS

2.1.1	Operation Temperature	-30°C to + 80°C
2.1.2	Storage Temperature	-40°C to + 100°C
2.1.3	Relative Humidity	40% to 95%

2.2 ELECTRICAL SPECIFICATIONS

2.2.1	Operation Voltage	Min: 2.5 V	Typ: 3.0 V	Max: 5.5V
2.2.2	Current Consumption	Typ: 11 mA	Max: 15mA	@ 3.0V

2.3 MECHANICAL SPECIFICATIONS

2.3.1	Mounting	Magnet mount.
2.3.2	Horizontal Pulling Force of Magnet	1.5 Kg Min.
2.3.3	Water Proof	Deep into water 50cm, 30 Min.
2.3.4	Shock	10msec. Half sine wave.
2.3.5	Vibration	10~200Hz Log. Sweep 3.0G sweep time: 15 Minutes, 3 Axes.
2.3.6	Magnet Threshold	The antenna must stay attached to the vehicle, at a speed of 180 km/h.
2.3.7	Cable Pulling Off Force	At room temperature Min 7Kg /10sec. Apply 7Kg /10sec pulling force between the cable and the antenna unit, no visible damage shall appear on the cable and connector.
2.3.8	Bending Test	After bending 90° right and left for 1,000 cycles, no permanent damage were found.
2.3.9	Weight	105g Max.
2.3.10	Dimension	See Fig. 2

3.0 ANTENNA

3.1	Frequency Range	1575.42 ± 1.023 MHz.
3.2	Bandwidth	15 MHz min. (Return loss –10 dB)
3.3	Gain	at Zenith : + 5.0 dBi Typ. at 10° Elevation: -1.0 dBi Typ . Mounted on the 70mm*70mm ground plane.
3.4	Polarization	RHCP
3.5	Axial Ratio	3.0dB Max. Mounted on the 70mm*70mm ground plane.

4.0 LNA

4.1	Frequency Range	1575.42±1.023 MHz
4.2	Gain	28dB Min. 30dB Typ. (+ 25 °C ± 5°C)
4.3	Noise Figure	1.6 dB Max. (+ 25 °C ± 5°C) @ 3.0V
4.4	Output Impedance	50 Ω

5.0 TOTAL SPECIFICATIONS (Through Antenna, LNA, Cable and Connector)

5.1	RF Cable	RG174 , ψ 2.7 ± 0.1mm , Black
		Cable Length 5M ± 5cm
5.2	RF Connector	SMA (M)
5.3	Frequency Range	1575.42 ± 1.023MHz
5.4	Gain	at Zenith :Typ 35 dBi – (cable loss) Note:1 mounted on the the 70mm*70m ground plane
5.5	Output Impedance	50Ω
5.6	VSWR	2.0 Max

Note 1: Cable Loss = Max.(–1.2dB / m)

6.0 BLOCK DIAGRAM

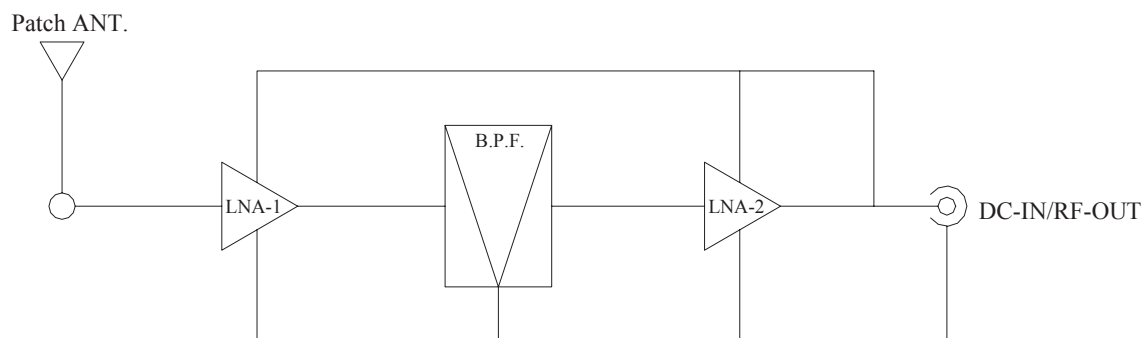


Fig.1

7.0 CAUTIONS

GPS (Global Positioning System) is a satellite-based navigation system. In an unobstructed clear view of the sky, GPS works anywhere in the world, 24 hours a day.

GPS is developed and operated by the government of United States. Under the policy of the government, the degradation in accuracy shall occur without prior warnings, and sometimes satellites don't transmit signal due to adjustment, test, and orbital revision.

Also, please note:

1. products such as motors, computer, and RF devices, which emit high levels of magnetic field and interference, that may cause the performance of the GPS unit to drop.
2. the optimal position during automobile applications is on the roof top of the vehicles. If the GPS antenna unit is to be placed inside the car, be certain to avoid coverage by metal objects for optimal performance.

8.0 OUTLINE

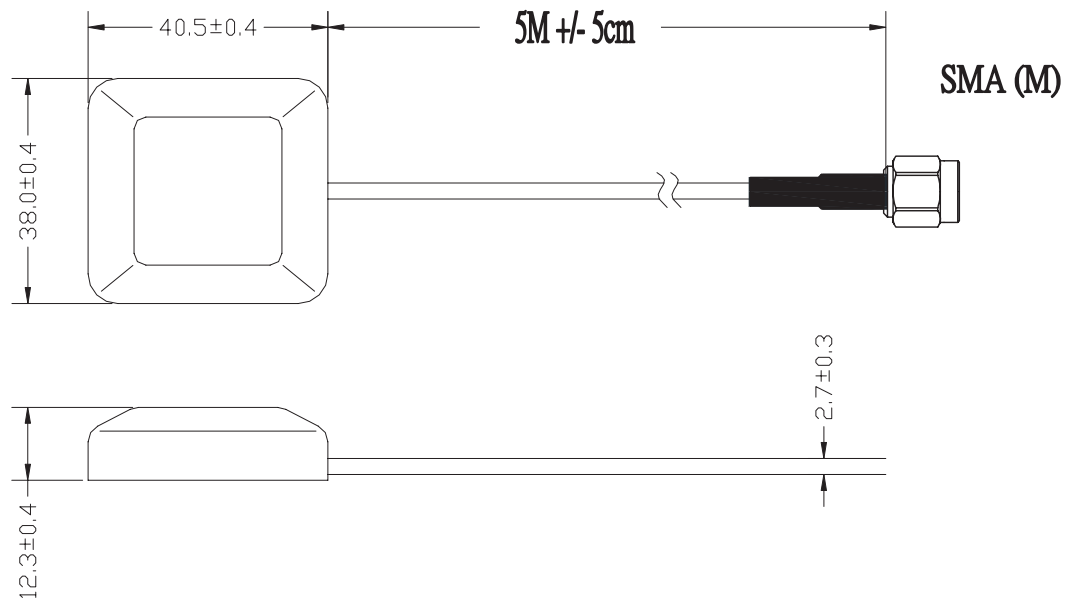


Fig. 2

Unit:mm

9.0 ANTENNA PATTERN

9.1 H-Plan

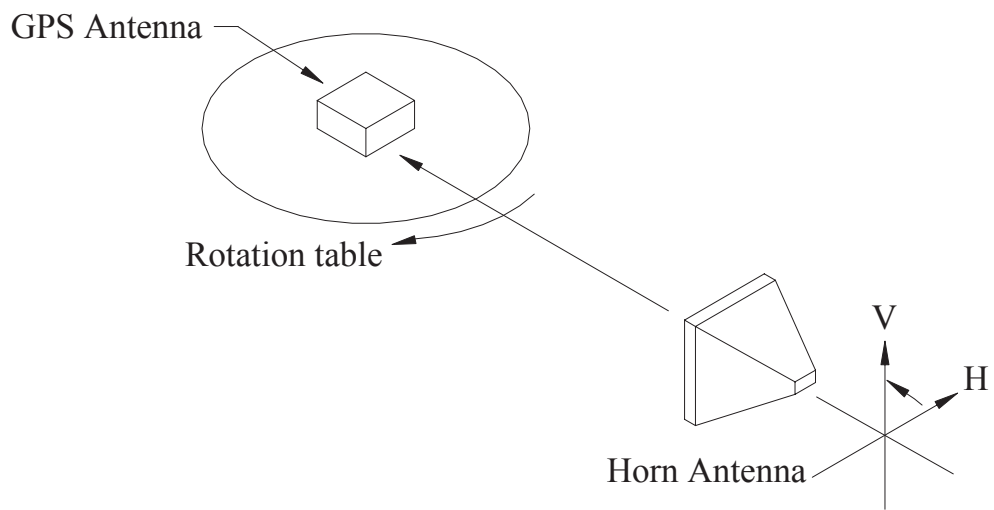
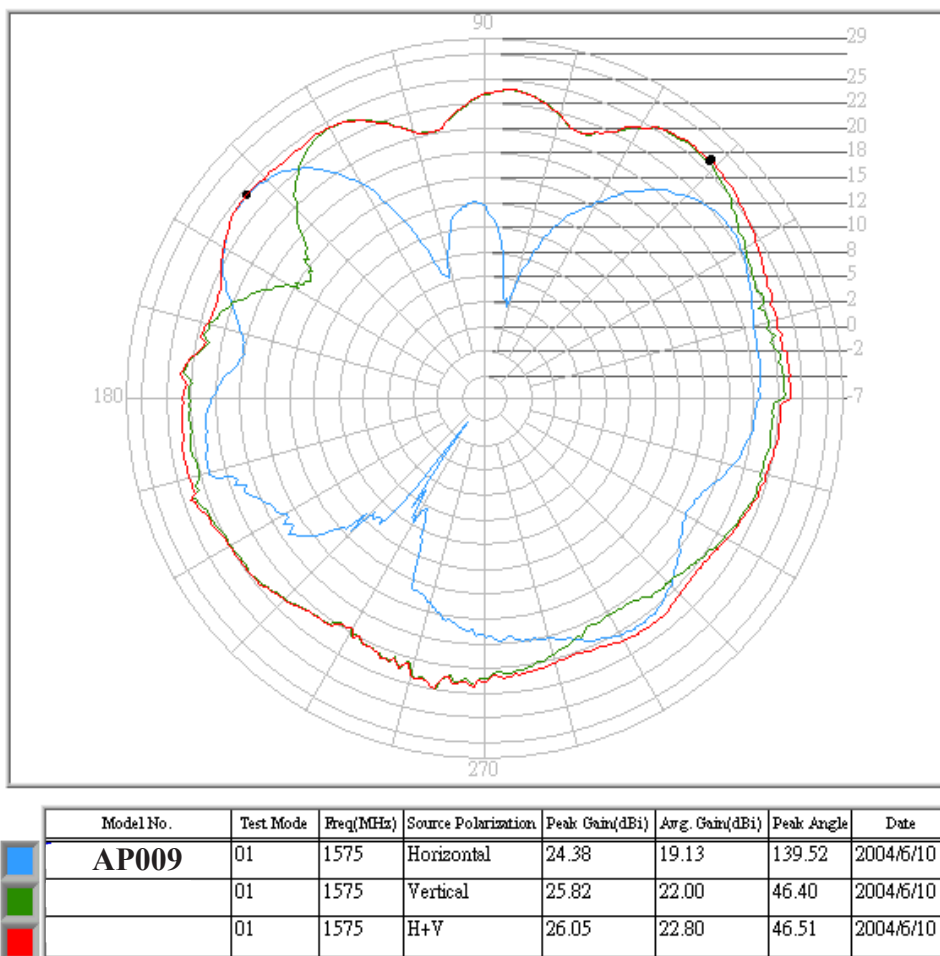


Fig. 3. 5 m cable antenna 180°. (at 3.0V)

Antenna Pattern Measurement



9.2 E-plan

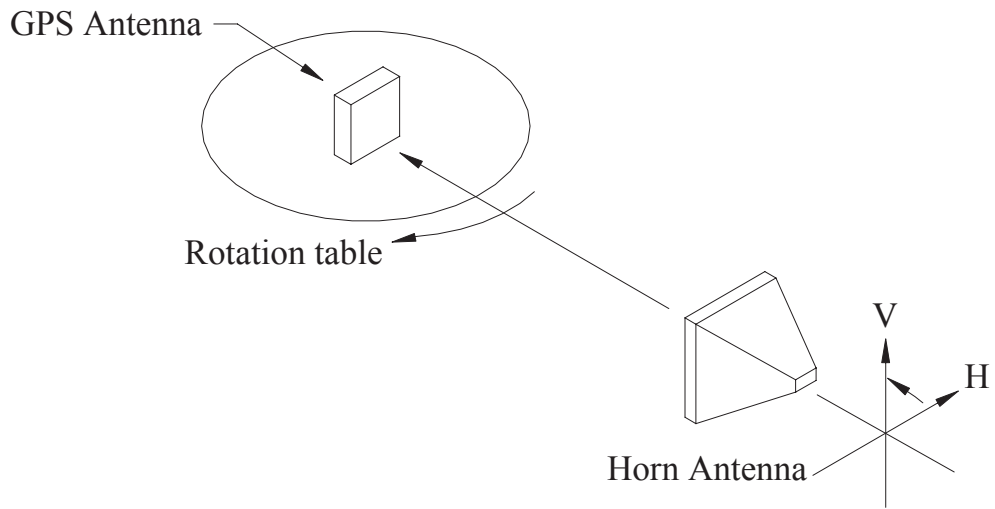
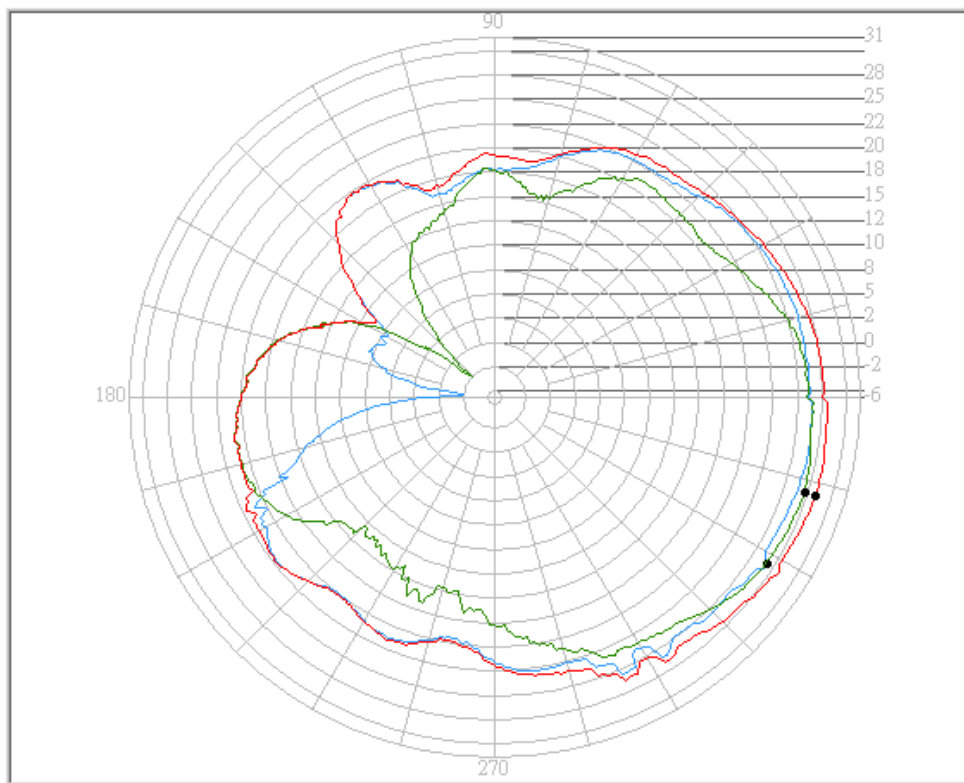


Fig. 4 5m cable antenna 90° (at 3.0V)

Antenna Pattern Measurement



Model No.	Test Mode	Freq(MHz)	Source Polarization	Peak Gain(dBi)	Avg. Gain(dBi)	Peak Angle	Date
AP009	02	1575	Horizontal	26.90	22.57	328.13	2004/6/10
	02	1575	Vertical	27.21	21.56	342.82	2004/6/10
	02	1575	H+V	28.37	23.78	342.78	2004/6/10