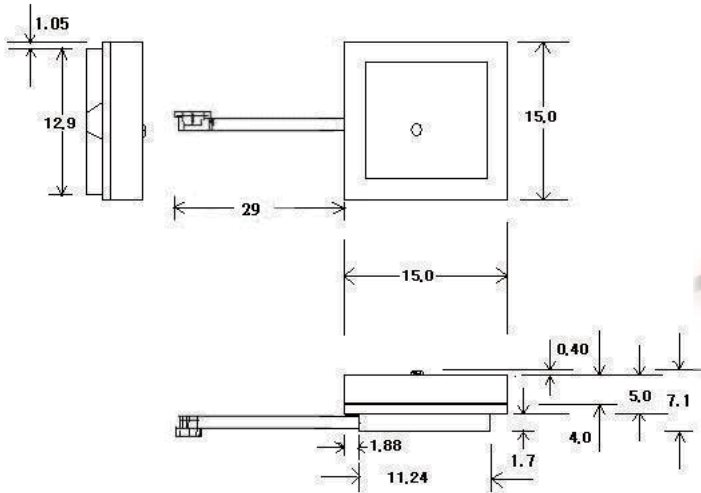


AE004 GPS Module Antenna

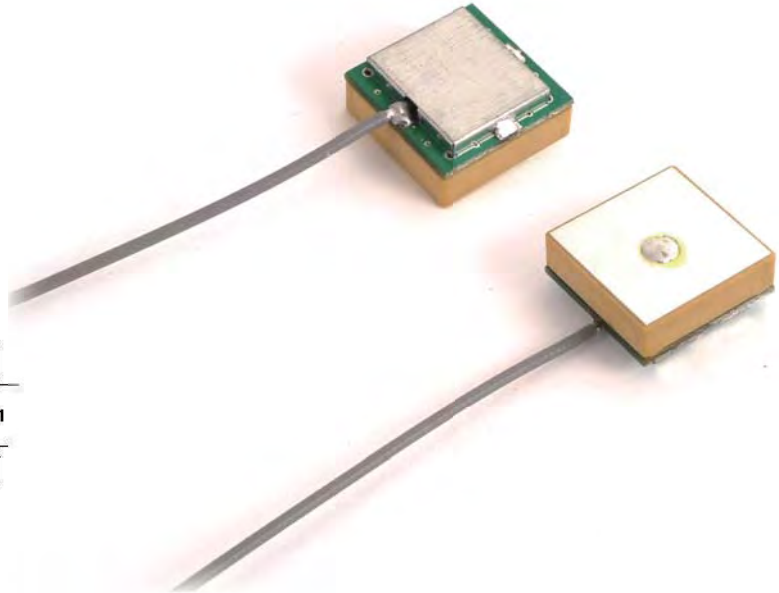
Active Patch Antenna with Embedded LNA Module

Product No. AE00453GPS000

Dimensions (unit: mm)



Tolerances On: X.X=+/-0.2, X.Xx=+/-0.05



Application

- Navigation systems or position tracking systems
- Hand-held devices when GPS function is needed, e.g., PDA, Smart phone, PND.

Features

- Stable and reliable in performances
- Low temperature coefficient of frequency
- Compact size
- RoHS compliance

Physical Specification

Dimensions	15 x 15 x 7.1 mm
Weight	5.8 ± 0.5 g (typ)
Operating Condition	Temperature -40 °C ~ +85 °C
	Humidity 10 ~ 95% RH
Storage Condition	Temperature -40 °C ~ +90 °C
	Humidity 10 ~ 95% RH

Electrical Specification

Patch

Center Frequency	1575.42±1.023 MHz *when covered with a radome and measured by 15x15mm ground plane
Bandwidth (10dB return loss)	11 MHz Min.
Gain at Zenith	1 dBic Max.
Gain at 10° elevation	-4.0 dBic typ
Polarization	R.H.C.P
Axial Ratio	3.0 dB typ
Patch size	15 x 15 x 4 mm

Filter/LNA

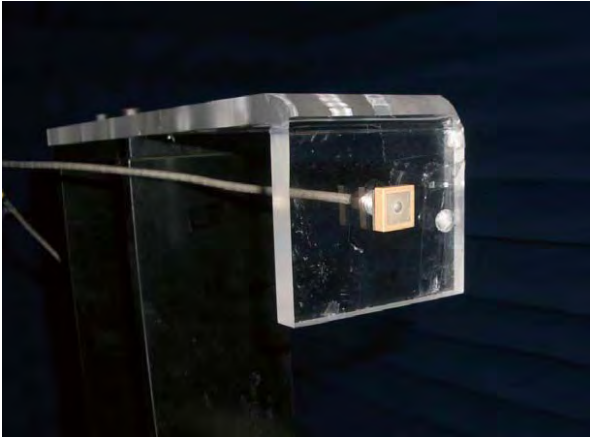
Center Frequency	1575.42 ± 1.023 MHz
Gain	28 dB typ at 3V
Noise Figure	1.3 dB at 3V
Filter (Out of band attenuation)	Saw filter 40dB typ fo ± 50MHz 45dB min fo ± 100MHz (fo=1575.42MHz)
Output V.S.W.R	2.0 max
Voltage	DC = 3.0±0.5V
Current	DC = 16.5mA at 3V

All value are defined at 25±15 °C ,65±20 % RH, power handling 1 μw, air pressure 960 ±100 HPA unless otherwise noted.

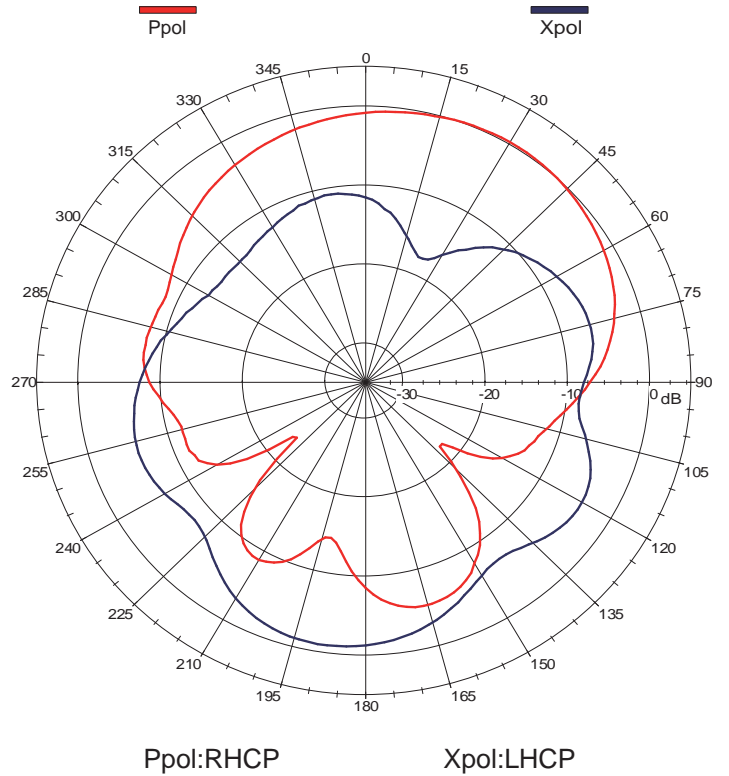


Performance testing and results

Radiation Pattern (exclude LNA Gain)



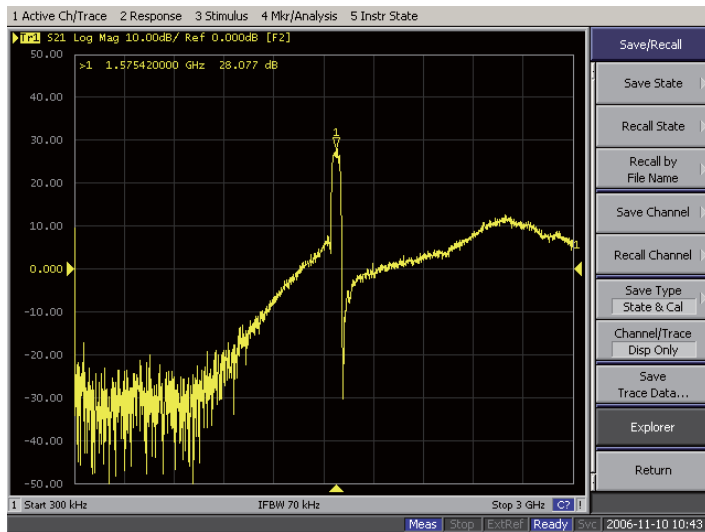
Measurement method



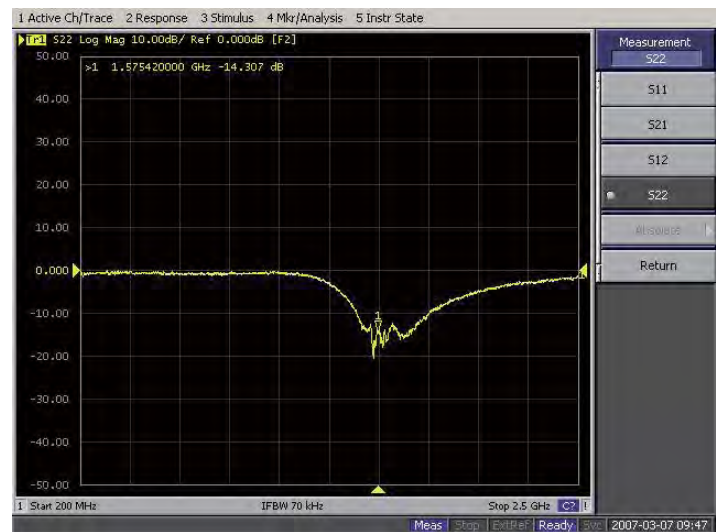
$$Ps : \text{Total Gain} = \text{Radiation Pattern (exclude LNA Gain)} + \text{LNA Gain} - \text{cable loss}(1.1\text{dB/m})$$

Measured value LNA

S21(network analyzer input power is -40dBm)

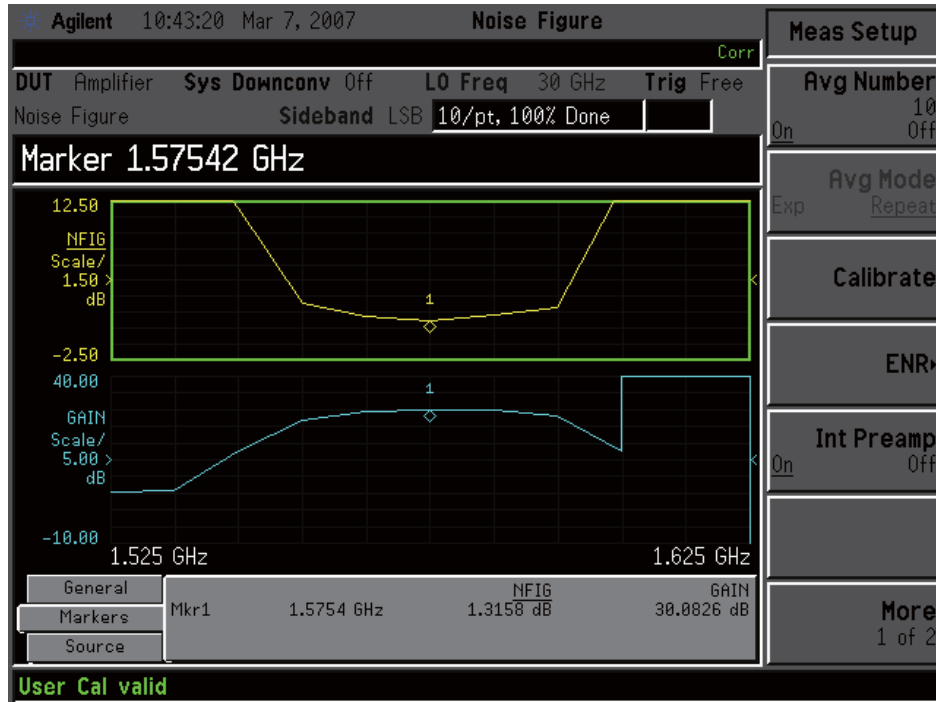


S22(network analyzer input power is -40dBm)



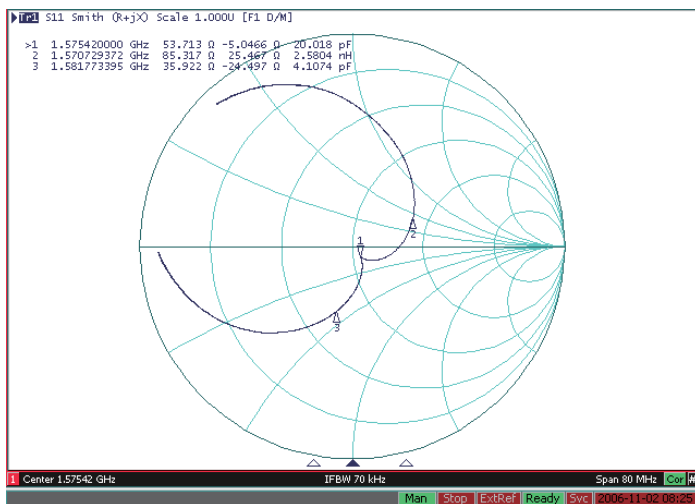


Noise figure value (noise meter)



Measured value Patch

S11



Return loss & Bandwidth (S11<-10dB)

