

SPECIFICATION

Part No. : **AP.25E.07.0054A**

Spec No. : AP.25E

Product Name : 25mm One Stage GPS Active Patch

Antenna Module with front-end Saw Filter

Features : Industry leading GPS antenna performance

35mm*35mm*4.50mm (Ground Plane)

54mm Ø1.13 I-PEX MHFI (U.FL)

15dB LNA

Wide Input Voltage 1.8V to 5.5V

Low Power Consumption

ROHS Compliant

Photo :



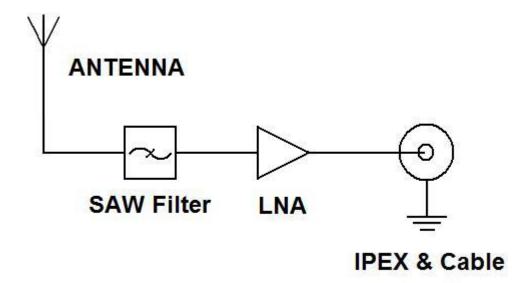


1.0Introduction

The AP.25E has been designed specifically for embedded (inside device) integration with GPS receiver modules where there is a GSM transmitter nearby and risk of interference and saturation.

The AP.25E combines a 25*25*2mm advanced low profile ceramic patch antenna with a one stage LNA and a front-end SAW filter with ultra thin coaxial cable.

The Ground Plane size of 35*35mm combined with the larger size GPS Patch, gives this solution a performance increase in gain of 1~2dB. It also helps shields the patch antenna from noise and increases performance at low elevations. Taoglas active antenna modules utilise XtremeGain™ technology for the highest sensitivity in the industry. The AP.25E consists of 2 functional blocks – the LNA and also the patch antenna.



The AP.25E has a SAW filter on the front of it. The main use of the AP.25E would be for small devices where the GSM transmitter is close to the GPS antenna, it helps avoid burn-out of the LNA or the module due to interference from the GSM transmitter at out band frequencies.



2.0 Specification

Patch Antenna

Parameter	Specification		
Frequency	1575.42 ± 1.023MHz		
Gain @ Zenith	+1.5 dBic Typ. @ Zenith		
Polarization	RHCP		
Axial Ratio	3.0dB max. @Zenith		
Patch Dimension	25*25*2mm		

LNA

Parameter	Specification			
Frequency	1575.42 ± 1.023MHz			
	F0=1575.42MHz			
	F0±30MHz 9dB min.			
	F0±50MHz 20dB min.			
Outer Band Attenuation	F0±100MHz 25dB min.			
Output Impedance	50Ω			
Output VSWR	2.0 Max			
Pout at 1dB Gain	Typ2dBm			
Compression point	Min6dBm			
LNA Gain, Power Consumption and Noise Figure				

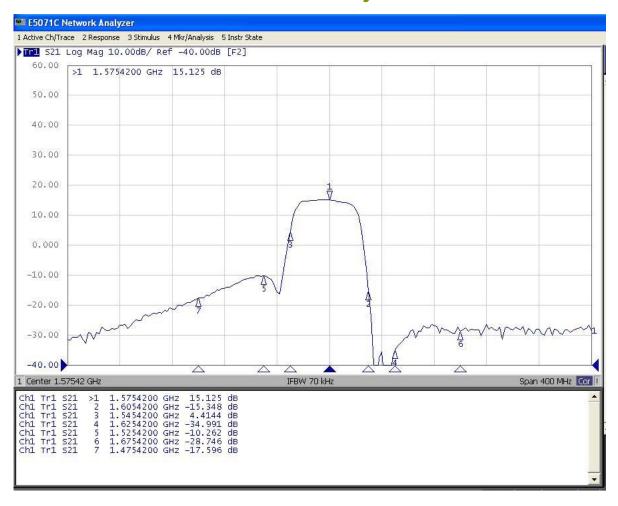
	LNA Gain		Noise Figure
Voltage	(Typ)	Power Consumptio (mA) Typ	Тур
Min. 1.8V	14dB	3mA	2.5dB
Typ. 3.0V	15dB	3mA	2.5dB
Max. 5.5V	15dB	3mA	2.5dB

Cable* & Connector

Parameter	Specification
RF Cable	Coaxial Cable Ø1.13 ± 0.1mm, length 54 ± 2.5mm
Connector	IPEX MHFI (U.FL)

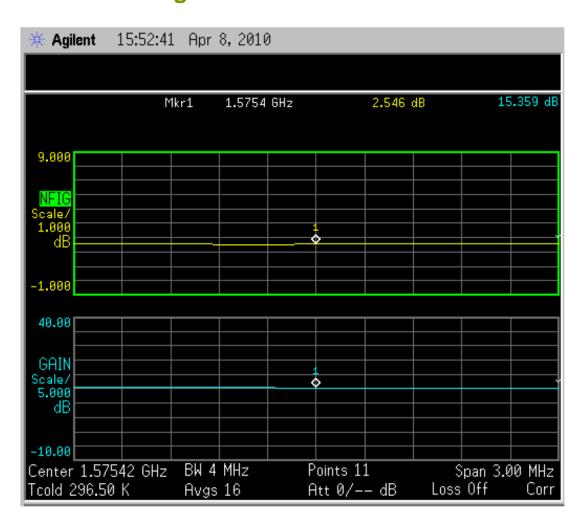


3.0 LNA Gain and Out Band Rejection @3.0V





4.0 LNA Noise Figure @3.0V





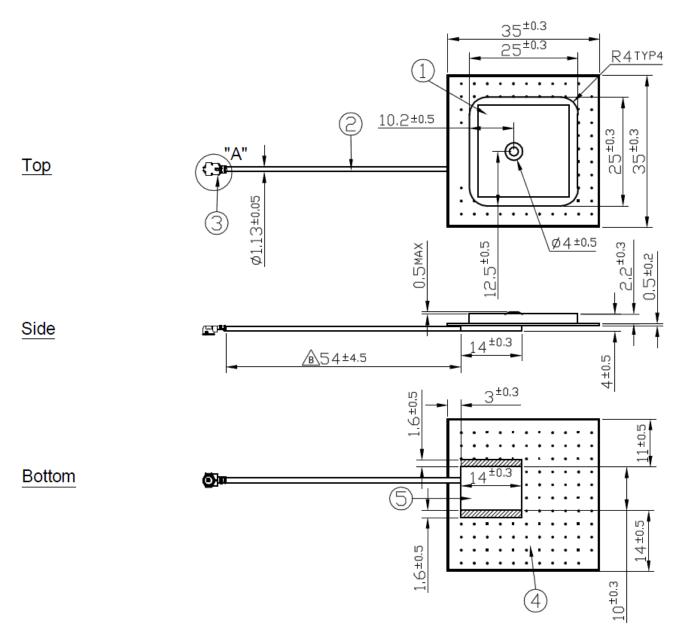
5.0 Total Specification

(through Antenna, LNA, Cable and Connector)

Parameter	Specification			
Frequency	1575.42 ± 1.023MHz			
	At 5V:16.5± 3dBic			
	At 3V: 16.5 ± 3dBic			
Gain	At 1.8V: 15.5 ± 3dBic			
Output Impedance	50Ω			
Polarization	RHCP			
Output VSWR	Max 2.0			
Operation Temperature	-40°C to + 85°C			
Storage Temperature	-40°C to + 85°C			
Relative Humidity	40% to 95%			
Input Voltage	Min:1.8V Typ. 3.0V Max:5V			
Antenna	35*35*4.5mm			

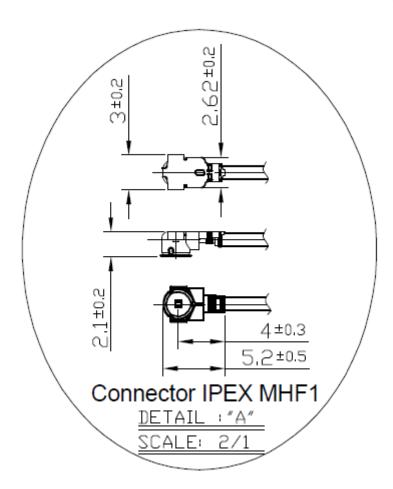
6.0 Technical Drawing





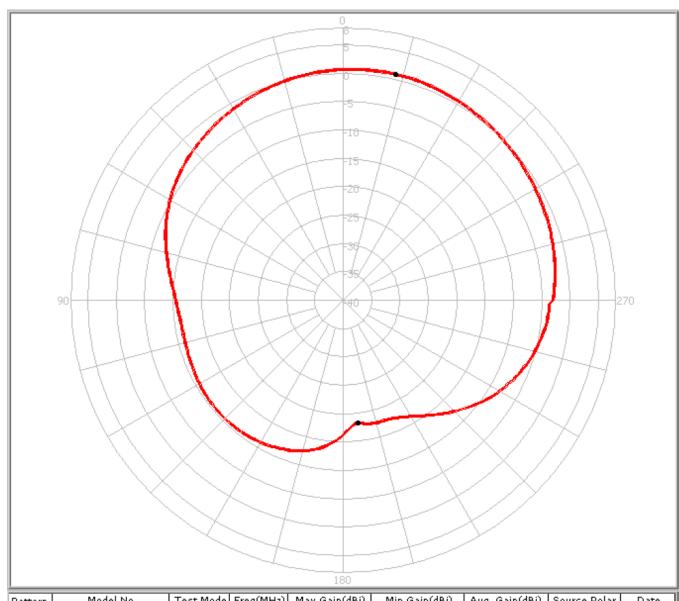
	Name	Material	Finish	QTY
1	AP.25E Patch(25*25*2mm)	Ceramic	Clear	1
2	1.13 Coaxial Cable	FEP	Gray	1
3	IPEX MHF1	Brass	Gold	1
4	AP.25E PCB	FR4 0.5t	Green	1
5	Shielding Case	SPTE (Tin)	Tin Plated	1







7.1 XZ Plane

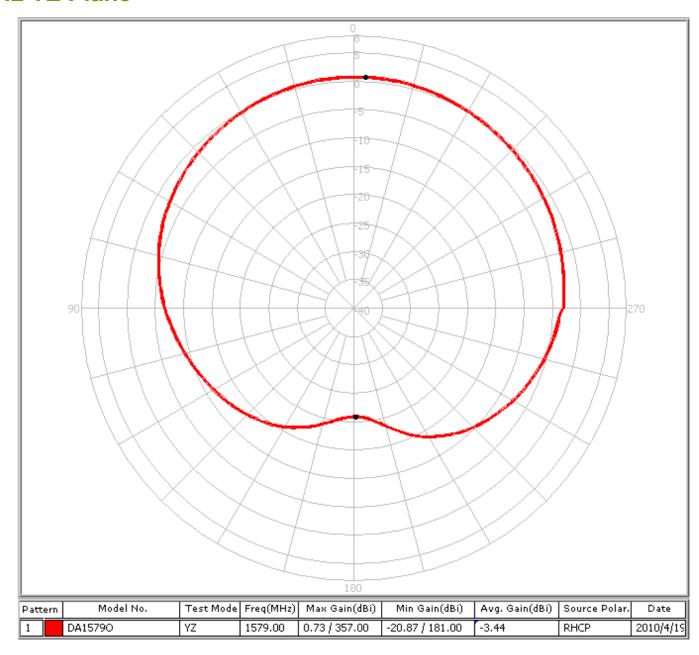


 Pattern
 Model No.
 Test Mode
 Freq(MHz)
 Max Gain(dBi)
 Min Gain(dBi)
 Avg. Gain(dBi)
 Source Polar.
 Date

 1
 DA15790
 XZ
 1579.00
 0.86 / 347.00
 -18.16 / 187.00
 -3.65
 RHCP
 2010/4/15

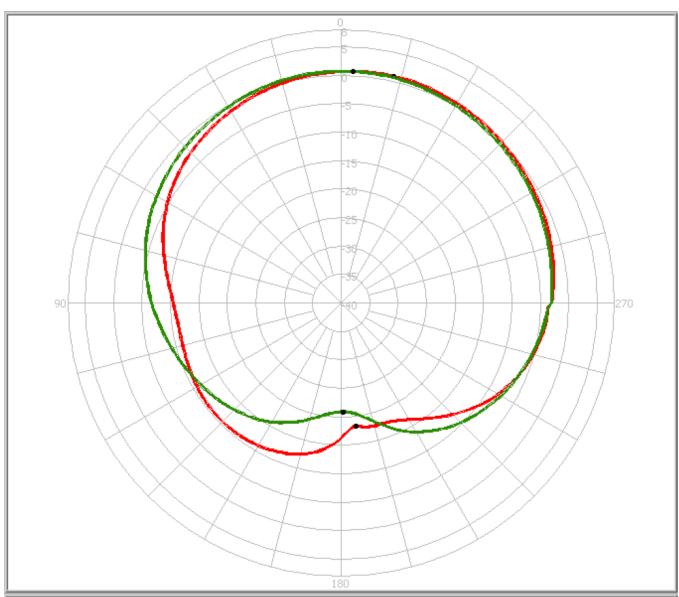


7.2 YZ Plane





7.3 XY Plane



Pat	tern	Model No.	Test Mode	Freq(MHz)	Max Gain(dBi)	Min Gain(dBi)	Avg. Gain(dBi)	Source Polar.	Date
1		DA15790	XZ	1579.42	0.86 / 347.00	-18.16 / 187.00	-3.65	RHCP	2010/4/19
2		DA1579O	YZ	1579.42	0.73 / 357.00	-20.87 / 181.00	-3.44	RHCP	2010/4/19