

# **SPECIFICATION**

Part No.	:	AP.35A.07.0054A
Spec No.	:	AP.35A
Product Name	:	35mm One Stage GPS Active Patch Antenna Module with back-end Saw Filter
Features	:	35mm*35mm*5.5mm (Ground Plane) 54mm Ø1.13 I-PEX MHFI (U.FL) 15dB LNA ROHS Compliant
Photo :		



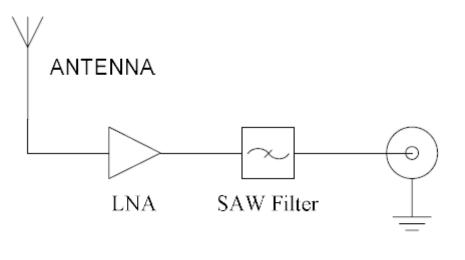


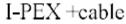
#### **1.0 Introduction**

The AP.35A has been designed for embedded (inside device) integration with GPS receiver modules, the AP.35A combines a 35\*35\*3.5mm advanced low profile ceramic patch antenna with a one stage LNA and 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<sup>™</sup> technology for the highest sensitivity in the industry.

This antenna system consists of two functional blocks, the LNA portion and the patch antenna. The AP.35A has a back-end SAW filter.







# 2.0 Specification

# **Patch Antenna**

Parameter	Specification				
Frequency	1575.42 ± 1.023MHz				
Gain @ Zenith	+2.5 dBic Typ. @ Zenith (35mm GP)				
Polarization	RHCP				
Axial Ratio	3.0dB max. @Zenith				
Patch Dimension	35*35*3.5mm				

#### LNA

Parameter	Specification					
Frequency	1575.42 ± 1.023MHz					
	F0=1575.42MHz					
	F0±30MHz 5dB min.					
	F0±50MHz 23dB min.					
Outer Band Attenuation	F0±100MHz 28dB 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	(Тур)	Power Consumption(mA) Typ	Тур
Min. 1.8V	14dB	3mA	1.5dB
Typ. 3.0V	15dB	3mA	1.5dB
Max. 5.5V	15dB	3mA	1.5dB

#### **Cable & Connector**

Parameter	Specification				
RF Cable	Coaxial Cable $Ø1.13 \pm 0.1$ mm, length 54 ± 2.0mm				
Connector	IPEX MHFI (U.FL)				

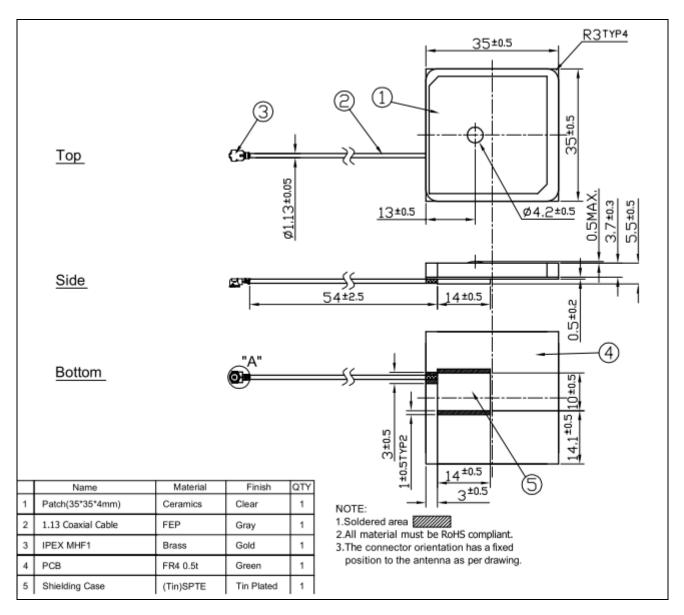


Connectory						
Specification						
1575.42 ± 1.023MHz						
At 90° At 5V:18± 3dBic						
At 3V: 17.5 ± 3dBic						
At 1.8V: 15.5 ± 3dBic						
50Ω						
RHCP						
Max 2.0						
-40°C to + 85°C						
-40°C to + 85°C						
40% to 95%						
Min:1.8V Typ. 3.0V Max:5V						
35*35*5.5mm						

# Total Specification (through Antenna, LNA, Cable and Connector)



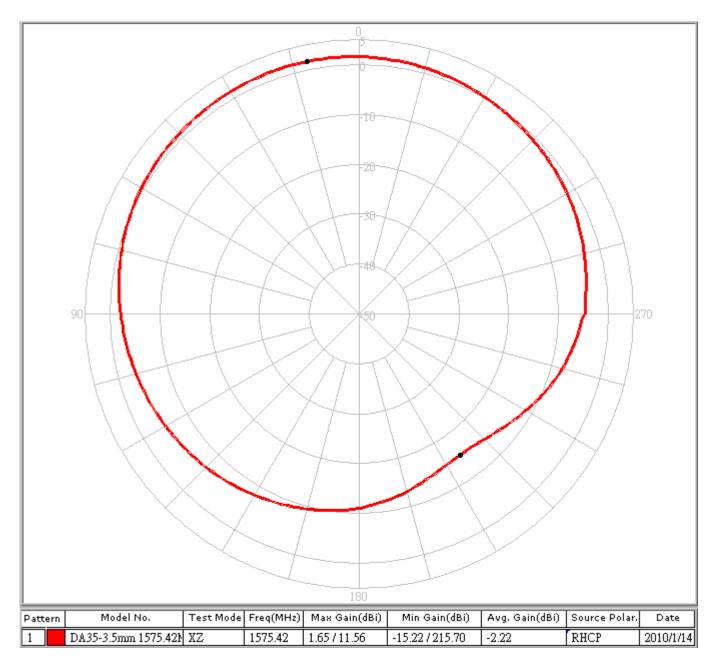
## 3.0 Technical Drawing





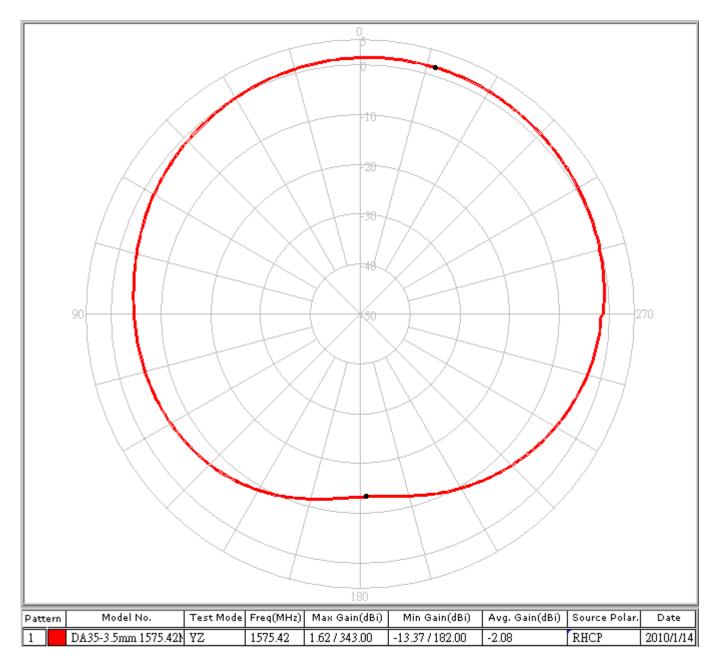
#### 4.0 Radiation Patterns

#### XZ



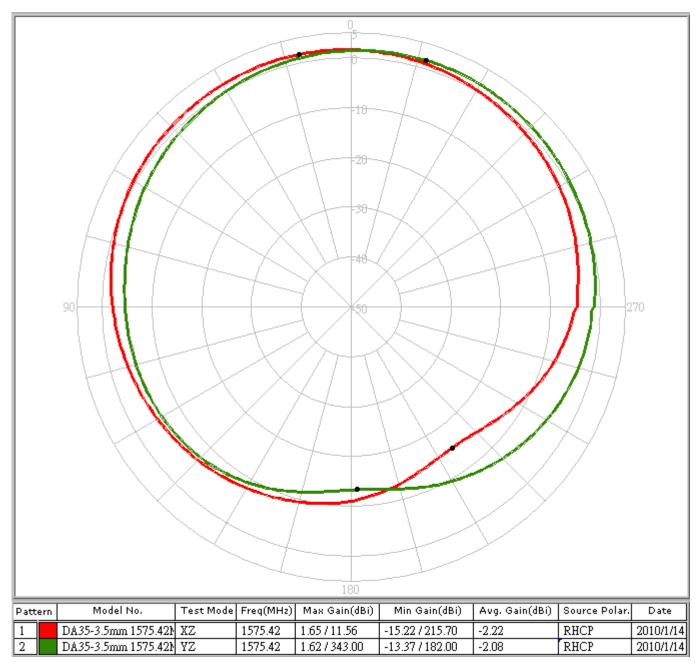


# YΖ



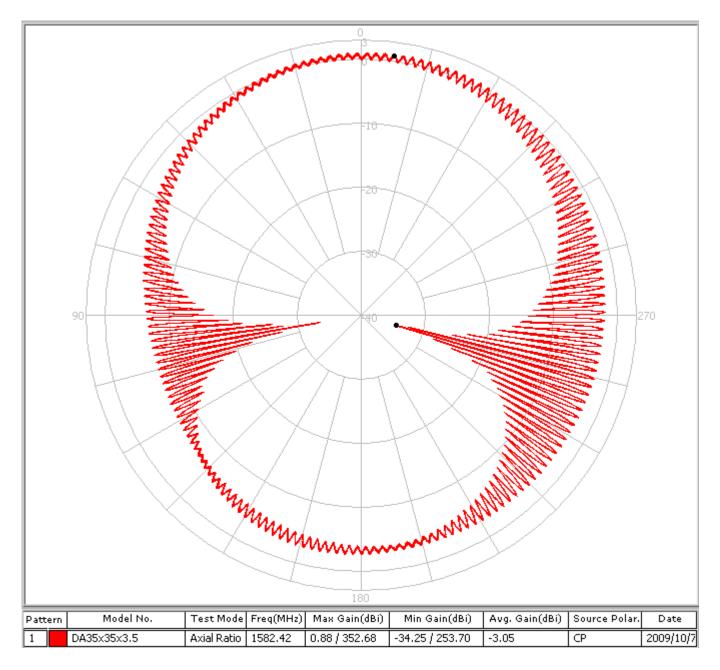






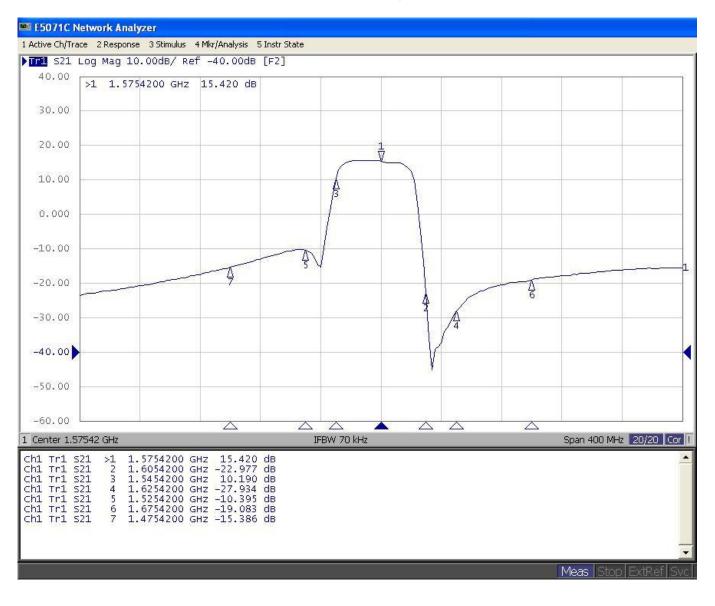


#### **5.0 Axial Ratio**





#### 6.0 LNA Gain and Out of Band Rejection at 3.0V

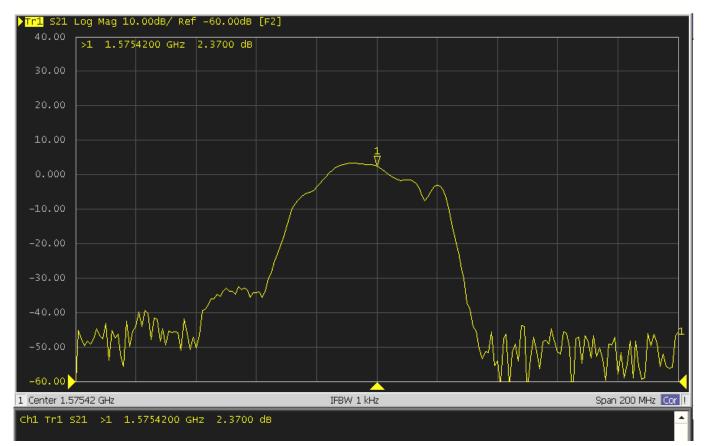




🔆 Agilent	18:35:22	2 Apr 7	7,2010	l					
	٢	lkr1	1.5754	GHz		1.223	яв	15	.687 dB
9.000									
NFIG									
Scale/ 1.000									
dB				4	>				
-1.000									
40.00									
GAIN									
Scale/ 5.000					>				`
dB									
-10.00									
Center 1.57					oints 11		S Loss	pan 3.0	
Tcold 296.5	אשו	Avgs	32	H	tt 0/-	– aB	LUSS	UTT	Corr

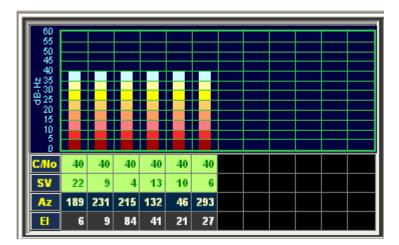
# 7.0 LNA Noise Figure at 3.0V





## 8.0 Reliability Test (Room temperature +25°C)

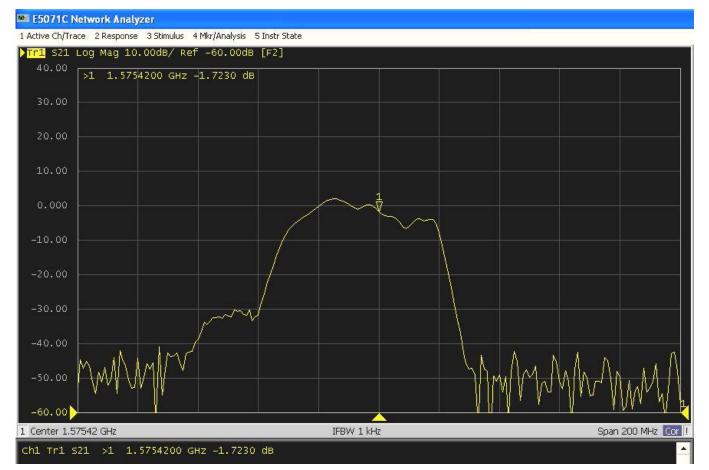
#### S21 Radiation Gain at +25°C



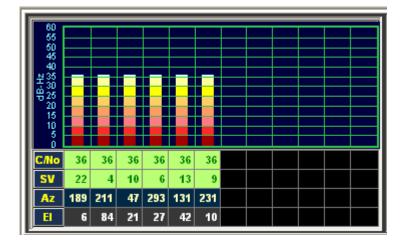
#### C/N at +25°C



# 8.1 Reliability Test (High temperature +85°C)

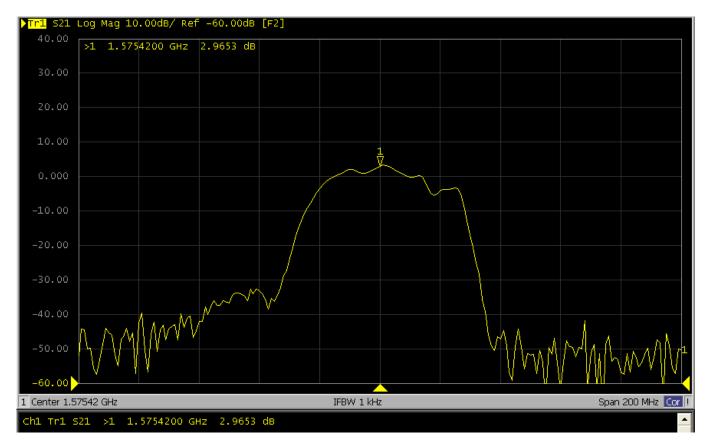


#### S21 Radiation Gain at +85°C



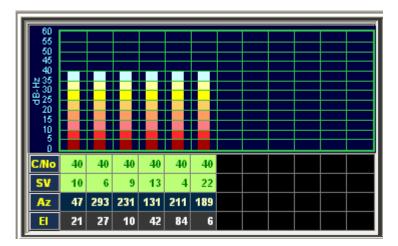
#### C/N at +85°C





# 8.2 Reliability Test (Low temperature -40°C)

#### S21 Radiation Gain at -40°C



#### C/N at -40°C