

## 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 :

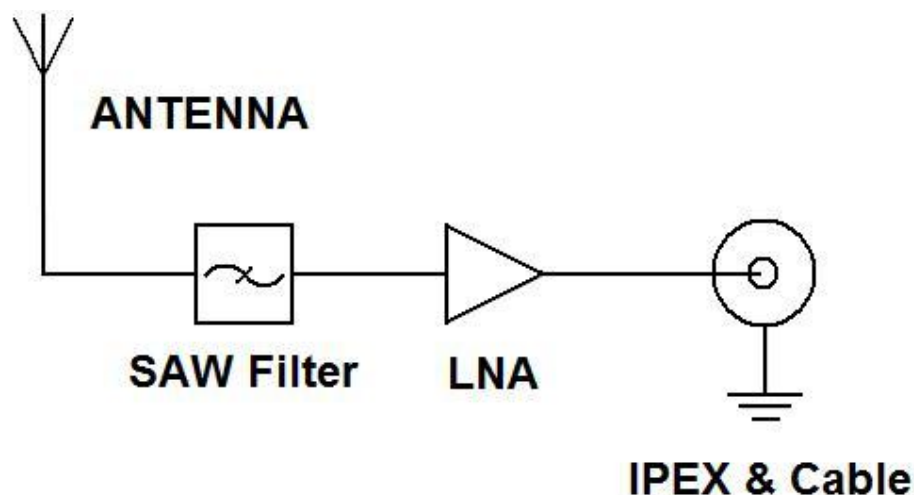


## 1.0 Introduction

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

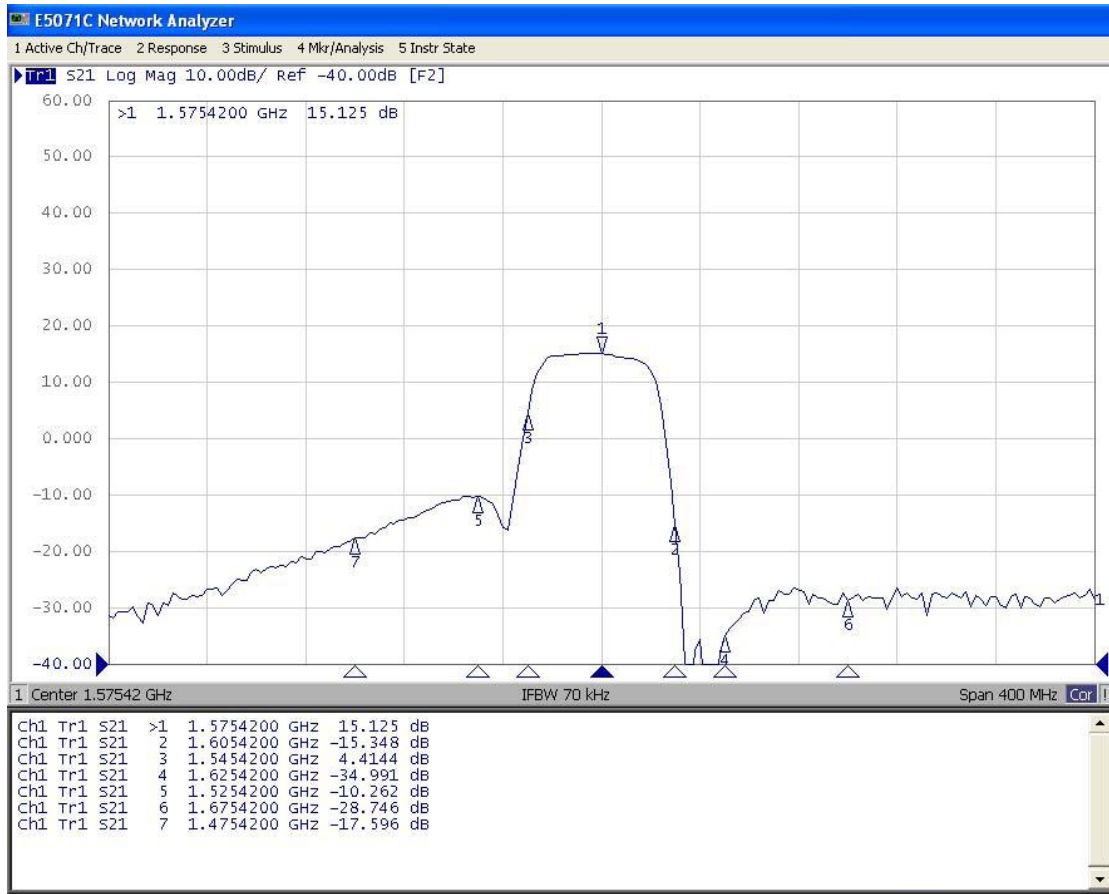
### LNA

Parameter	Specification																
Frequency	1575.42 ± 1.023MHz																
Outer Band Attenuation	F0=1575.42MHz																
	F0±30MHz 9dB min.																
	F0±50MHz 20dB min.																
	F0±100MHz 25dB min.																
Output Impedance	50Ω																
Output VSWR	2.0 Max																
Pout at 1dB Gain	Typ. -2dBm																
Compression point	Min. -6dBm																
LNA Gain, Power Consumption and Noise Figure																	
	<table border="1"> <thead> <tr> <th>Voltage</th> <th>LNA Gain (Typ)</th> <th>Power Consumption (mA) Typ</th> <th>Noise Figure Typ</th> </tr> </thead> <tbody> <tr> <td>Min. 1.8V</td> <td>14dB</td> <td>3mA</td> <td>2.5dB</td> </tr> <tr> <td>Typ. 3.0V</td> <td>15dB</td> <td>3mA</td> <td>2.5dB</td> </tr> <tr> <td>Max. 5.5V</td> <td>15dB</td> <td>3mA</td> <td>2.5dB</td> </tr> </tbody> </table>	Voltage	LNA Gain (Typ)	Power Consumption (mA) Typ	Noise Figure Typ	Min. 1.8V	14dB	3mA	2.5dB	Typ. 3.0V	15dB	3mA	2.5dB	Max. 5.5V	15dB	3mA	2.5dB
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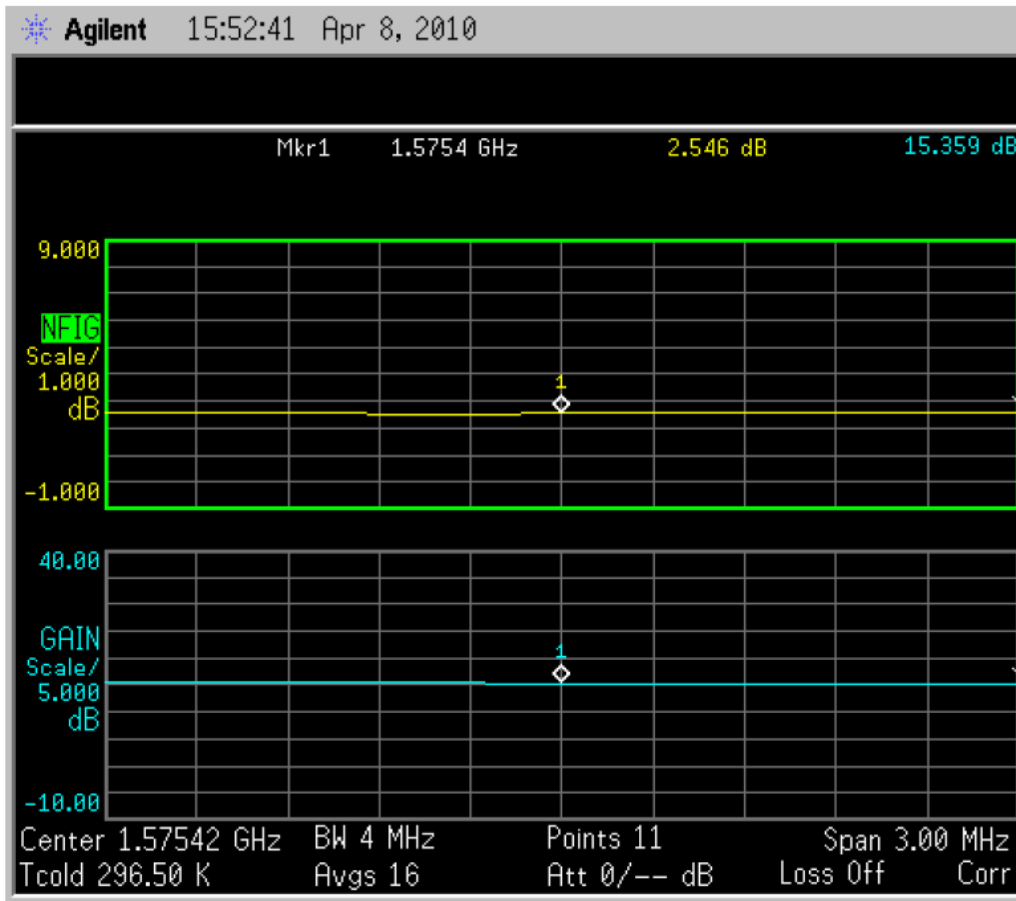
### Cable\* & Connector

Parameter	Specification
RF Cable	Coaxial Cable $\varnothing 1.13 \pm 0.1\text{mm}$ , length $54 \pm 2.5\text{mm}$
Connector	IPEX MHFI (U.FL)

### 3.0 LNA Gain and Out Band Rejection @3.0V



## 4.0 LNA Noise Figure @3.0V

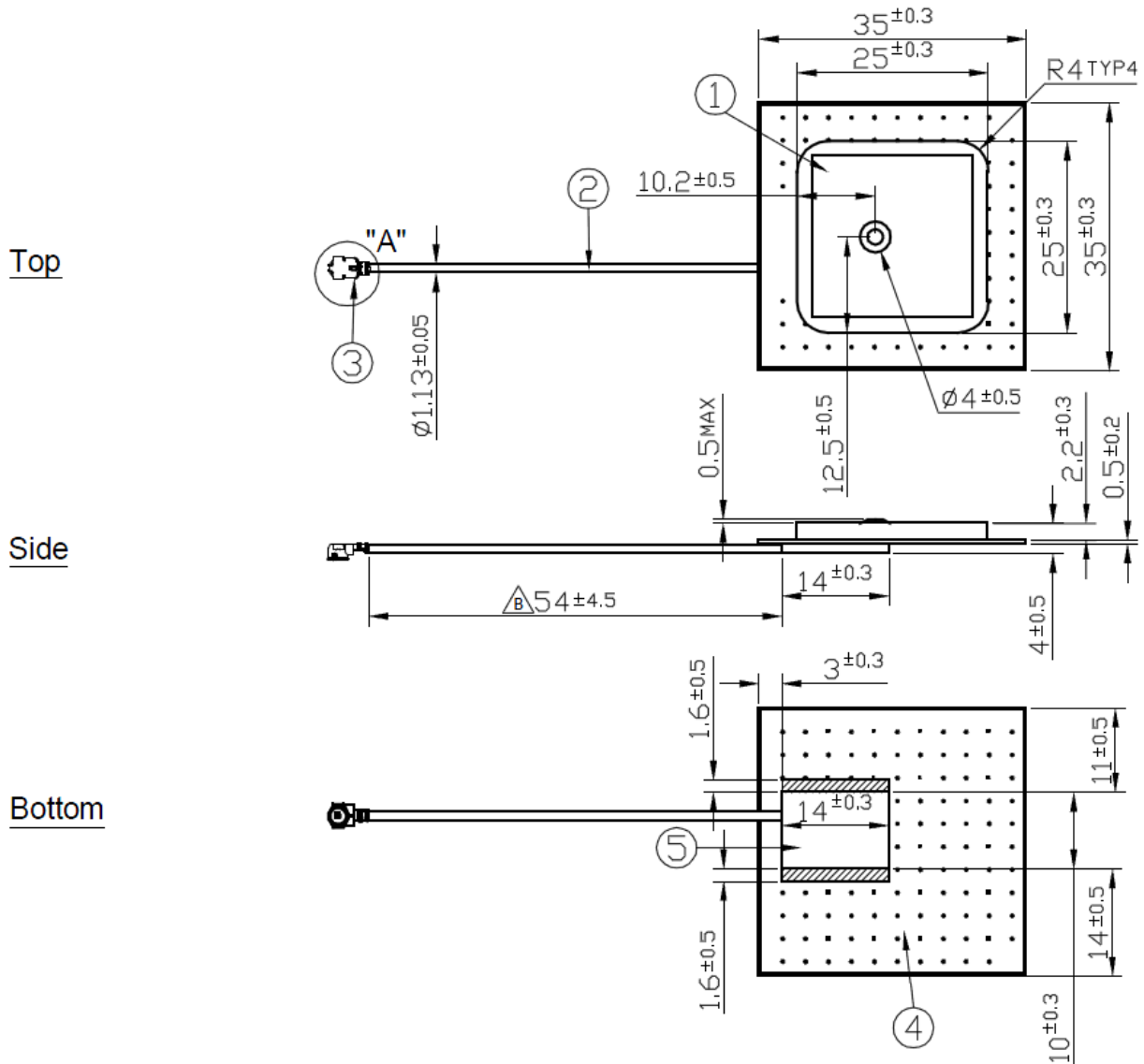


## 5.0 Total Specification

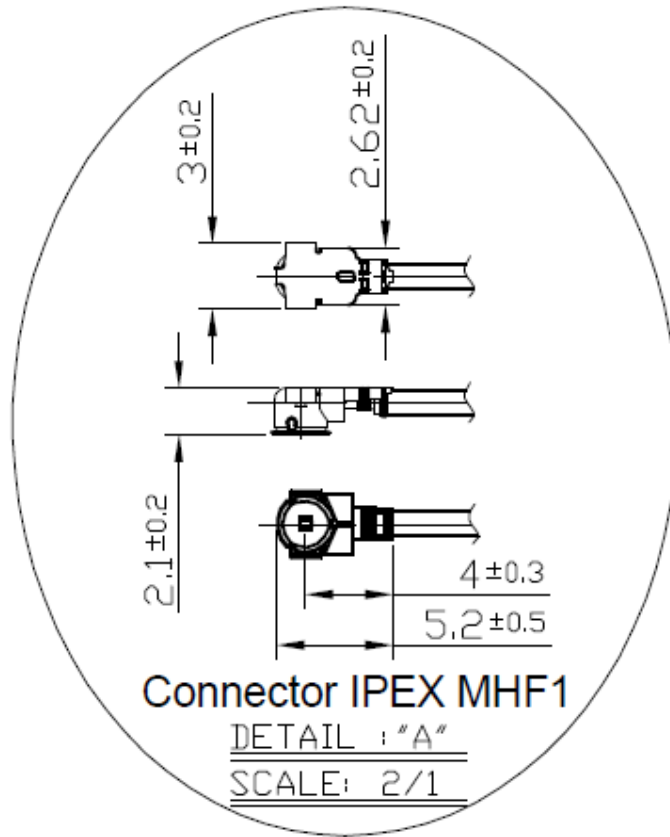
### (through Antenna, LNA, Cable and Connector)

Parameter	Specification
Frequency	1575.42 ± 1.023MHz
Gain	At 5V: 16.5± 3dBic At 3V: 16.5 ± 3dBic 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

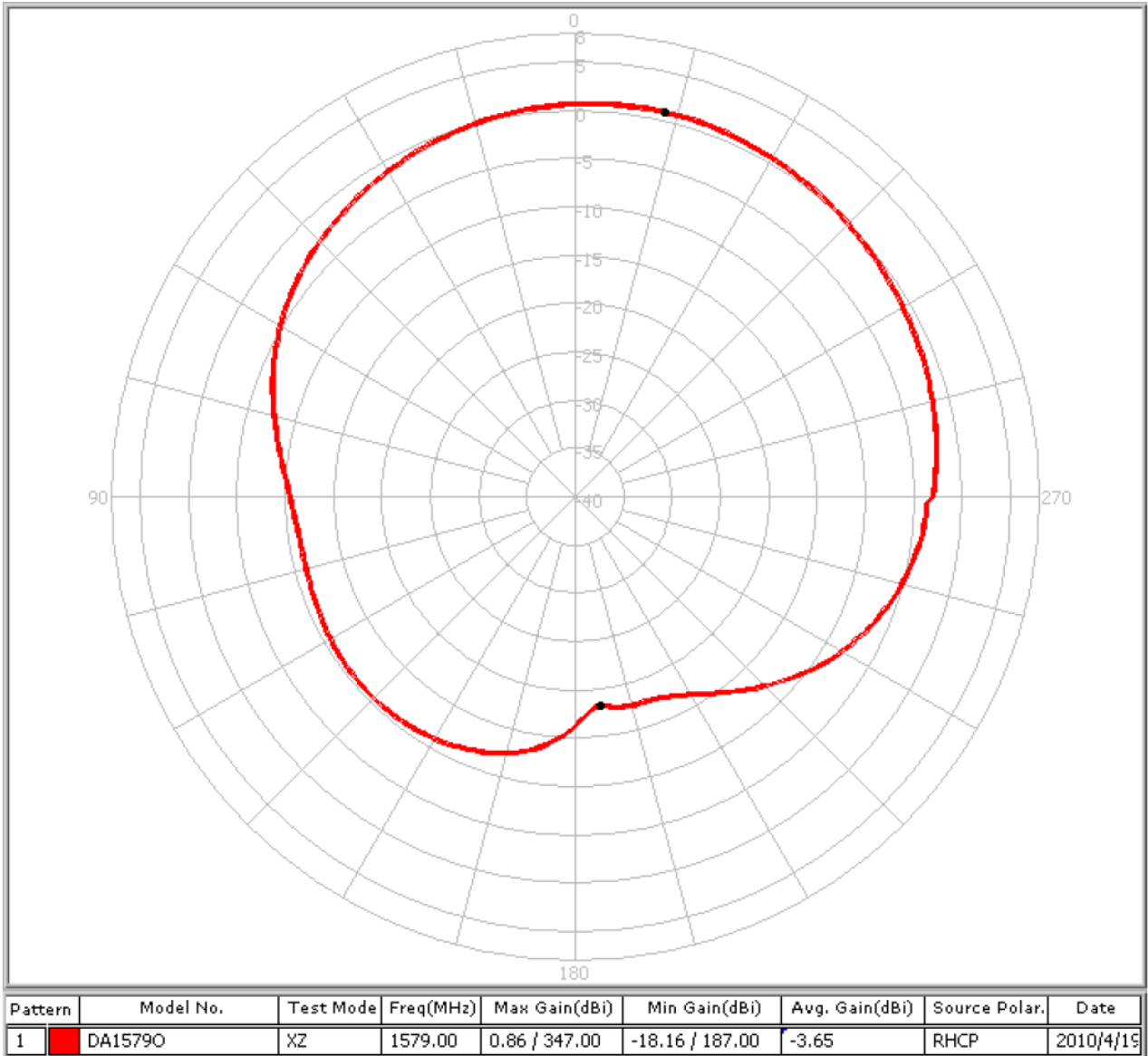


	Name	Material	Finish	QTY
1	AP.25E Patch(25*25*2mm)	Ceramic	Clear	1
2	1.13 Coaxial Cable	FEP	Gray	1
3	IPEX MHF1	Brass	Gold	1
4	AP.25E PCB	FR4 0.5t	Green	1
5	Shielding Case	SPTE (Tin)	Tin Plated	1

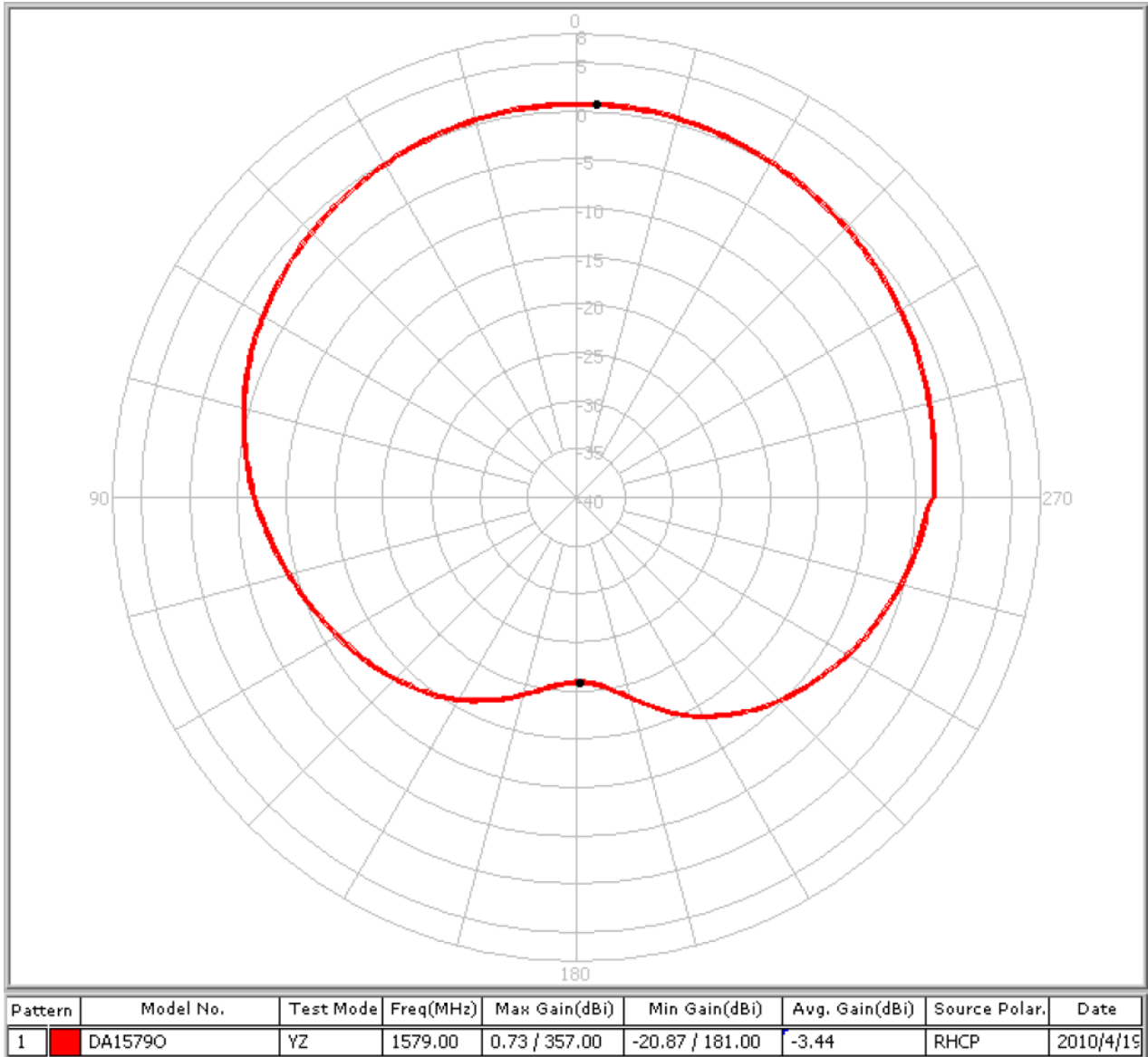




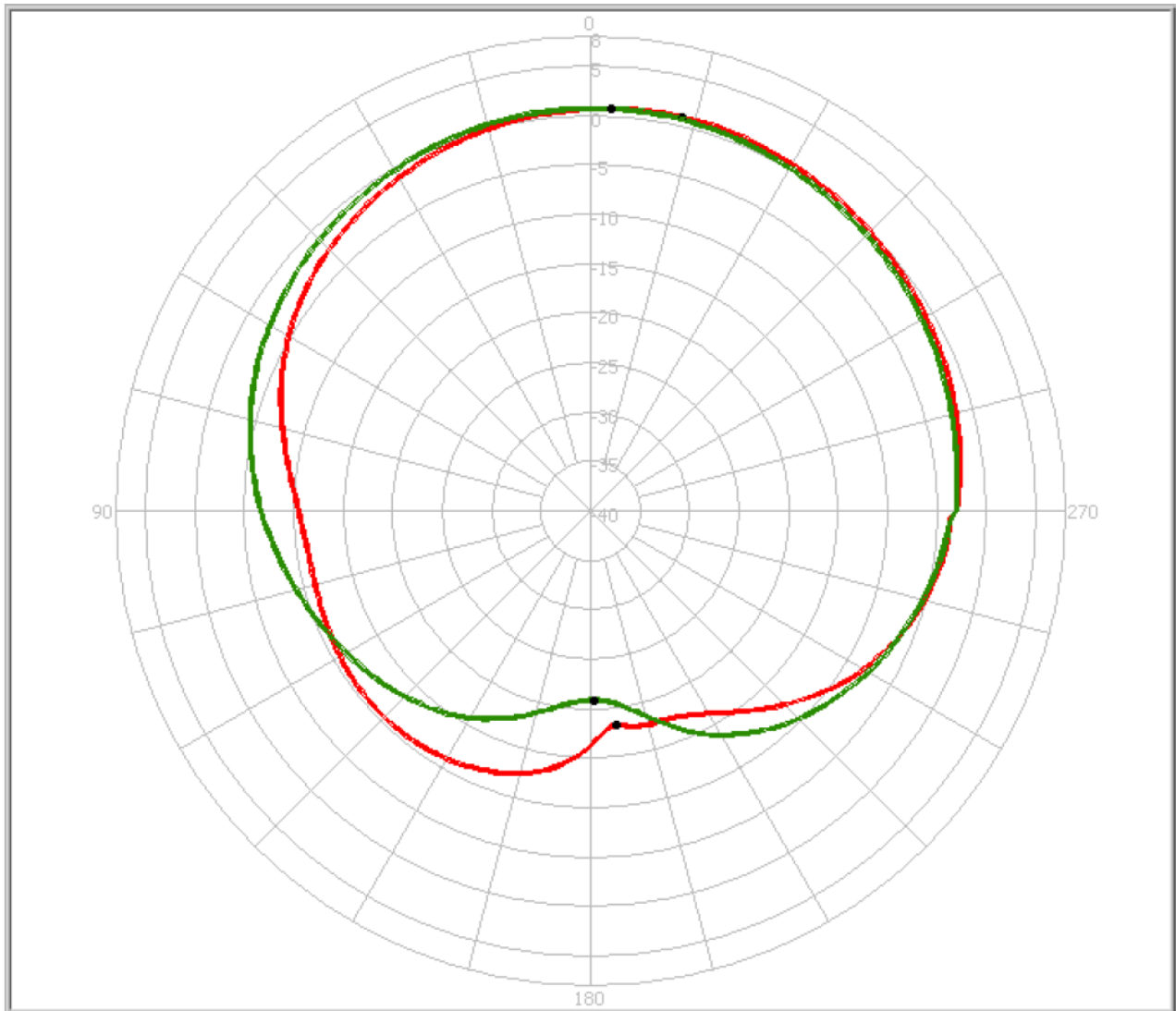
## 7.1 XZ Plane



## 7.2 YZ Plane



## 7.3 XY Plane



Pattern	Model No.	Test Mode	Freq(MHz)	Max Gain(dBi)	Min Gain(dBi)	Avg. Gain(dBi)	Source Polar.	Date
1	DA1579O	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