



# DATA SHEET

**Model No. :** ANT24-1514PC  
**Description :** 2.4~2.5 GHz DUAL POLARIZATION  
SECTOR ANTENNA  
**Date :** 2010/05/03  
**Rev :** 1

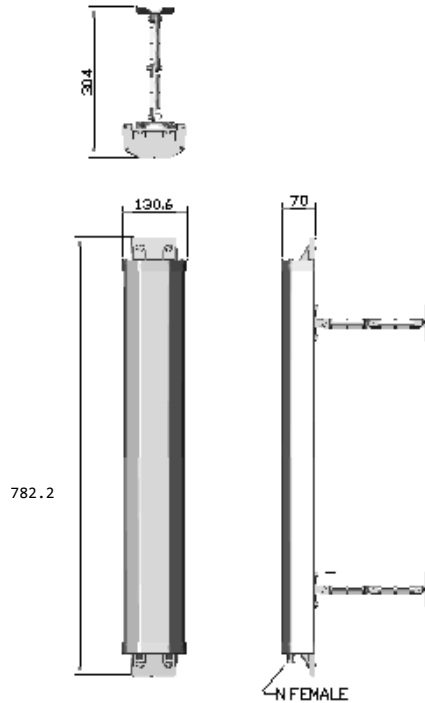
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## 1. OVERVIEW & SPECIFICATIONS



### Electrical Specifications:

Frequency Range :	+ 45° Polarization: 2.4~2.5 GHz - 45° Polarization: 2.4~2.5 GHz
VSWR :	≤ 2.0
Isolation :	20 dB (min.)
Impedance :	50Ω ± 5Ω
Gain :	15dBi / 15 dBi
Polarization :	+45° / -45° Polarization

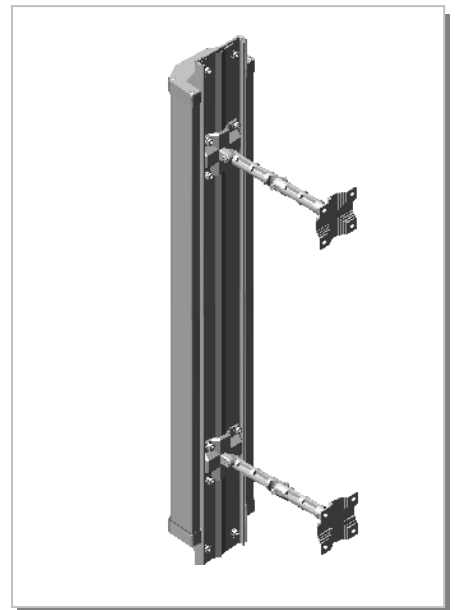
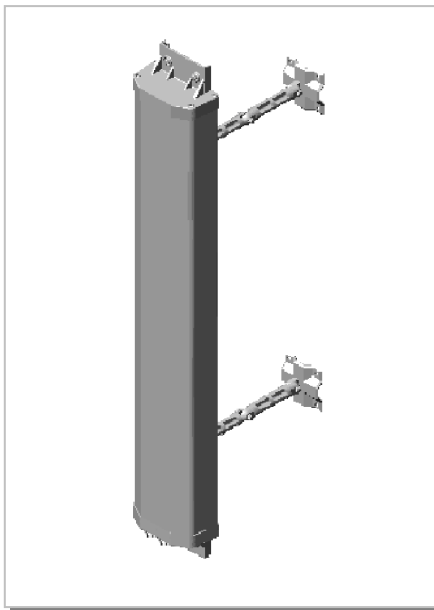
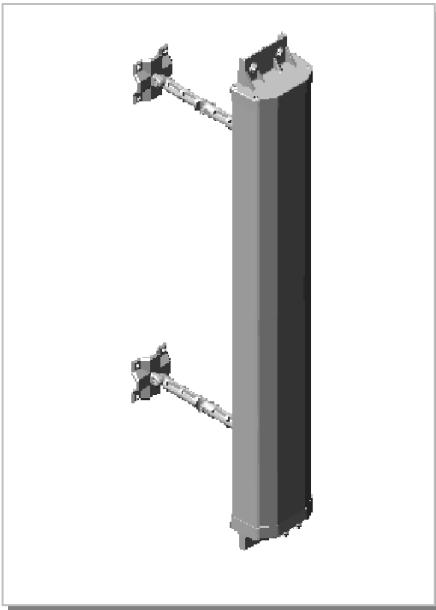
### Mechanical Specifications:

Connector :	N Female
Operation Temp. :	-30°C ~ +60°C
Material :	Radome: ABS Mount: Zinc Alloy & Alumimium Alloy
Dimension (L*W*H) :	782.2*130.6*70 mm
Weight :	1337 ± 20g
Color :	Cool Gray 1C

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## 2. TESTING CONDITION

### 2.1 TEST SETUP

VSWR measurement (S11): Use ROHDE & SCHWARZ ZV8 Network Analyzer with Harbour RG-142 coaxial cable: 1000mm length in free space.

#### 2.1.1 VSWR

The table as below summarizes concern about Return loss measurement according to The frequency band is based on FWS design. The detail be shown as appendix that is from ROHDE & SCHWARZ ZV8 Network Analyzer

+ 45° Polarization : VSWR Performance			
Freq(MHz)	2400	2450	2500
Free space	1.32	1.18	1.44

- 45° Polarization : VSWR Performance			
Freq(MHz)	2400	2450	2500
Free space	1.35	1.39	1.61

#### 2.1.2 ISOLATION MEASUREMENT

The isolation of the dual polarization antenna was measured by ROHDE & SCHWARZ ZV8 Network Analyzer. The way to measured isolation is connect output ports and the other ports mount with 50 ohm matches respectively. The table as below summarizes concern about isolation measurement according to the frequency band is based on FWS design.

Isolation Performance			
Freq(MHz)	2400	2450	2500
Free space	-27.18	-23.14	-22.16

## 3. GAIN MEASUREMENT

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### 3.1 TEST SETUP

The gain of the antenna was measured by **FWS** Chamber. The chamber provides less than  $-30$  dB reflectivity from 800 MHz through 6 GHz and a 60cm diameter spherical quiet zone. The measurement results are calibrated using both **SCHWARZBECK** horn standards. A decoupling sleeve is used to reduce feed line radiation

### 3.2 TEST RESULT

The peak gain is picked up as table list from Network analyzer in Chamber room, the completely gain plots also be shown as appendix.

+ 45° Polarization : Peak Gain (dBi) / Beam width( ° )			
Freq(MHz)	2400	2450	2500
H PLANE	13.89/76.50°	15.23/75.50°	14.49/76.50°
E PLANE	14.02/12.70°	15.04/10.80°	14.20/11.70°

- 45° Polarization : Peak Gain (dBi) / Beam width( ° )			
Freq(MHz)	2400	2450	2500
H PLANE	14.22/77.40°	14.78/78.60°	14.63/77.50°
E PLANE	14.25/13.30°	14.86/10.70°	14.29/11.60°

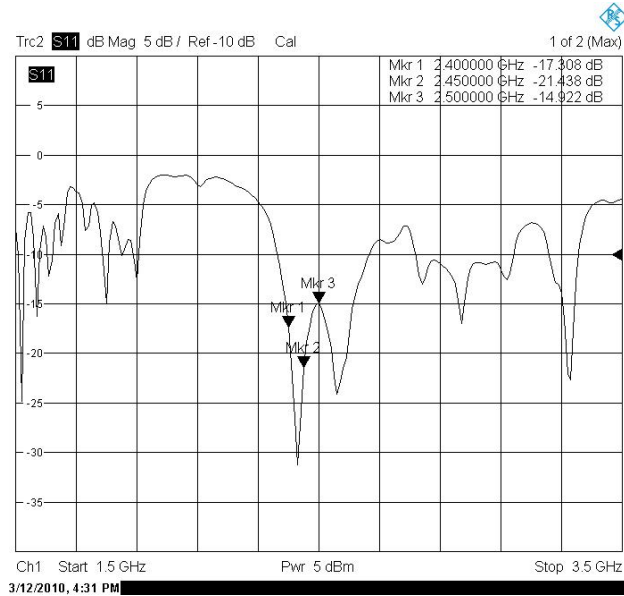


## 4. APPENDIX

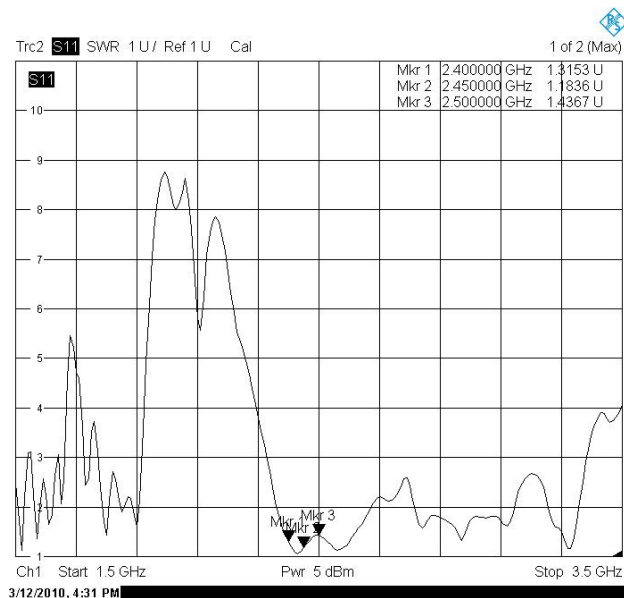
### 4.1 RETURN LOSS & VSWR

**+ 45° Polarization:**

#### RETURN LOSS



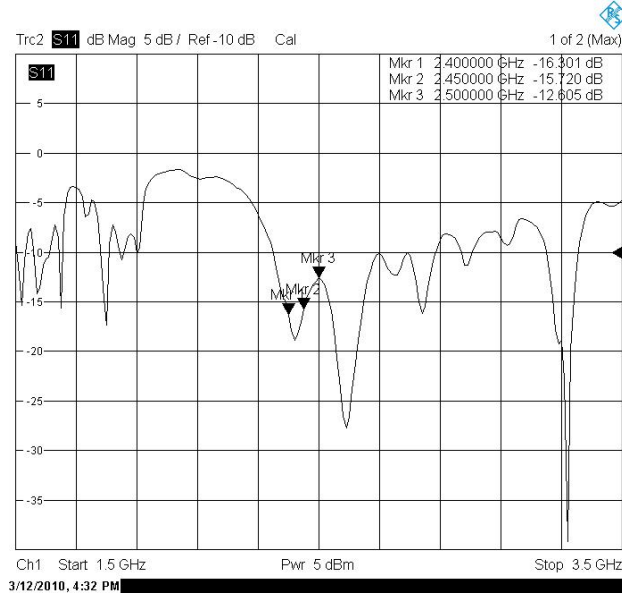
#### SWR



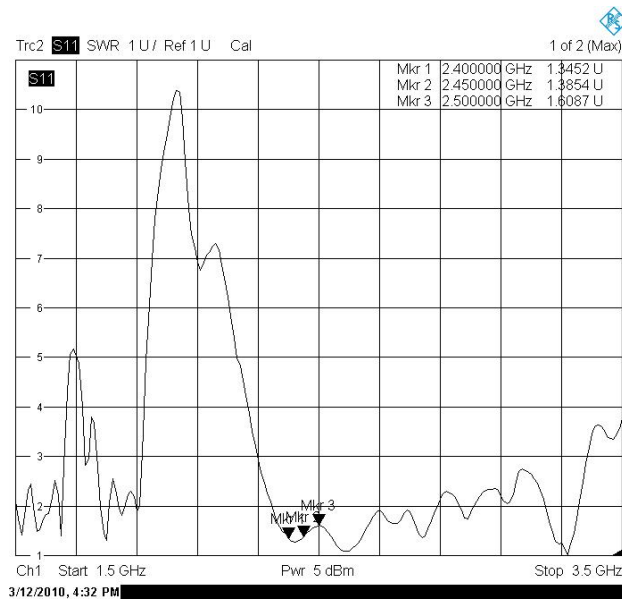


# - 45° Polarization :

## RETURN LOSS

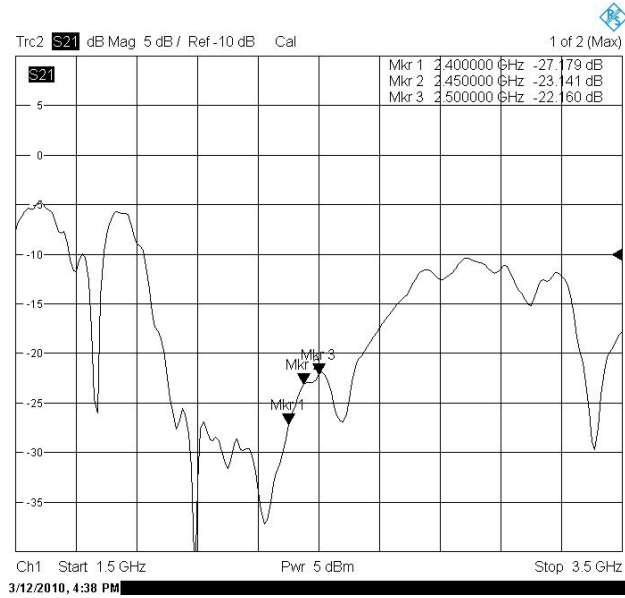


## SWR





## 4.2 ISOLATION



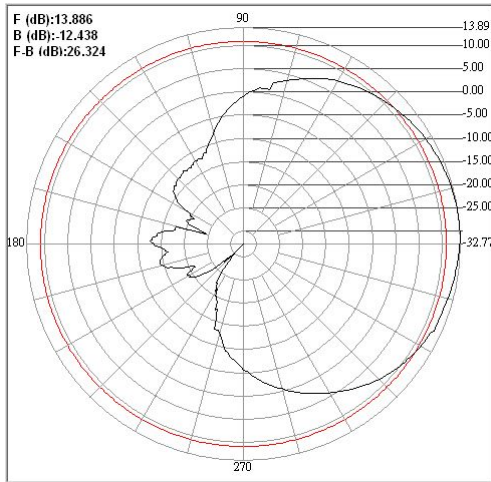




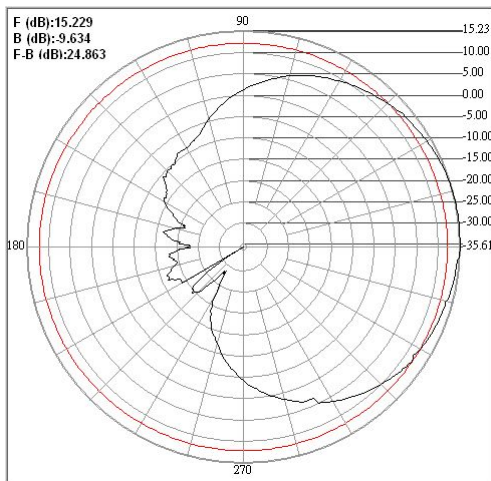
### 4.3 RADIATION PATTERN

**+ 45° Polarization :**

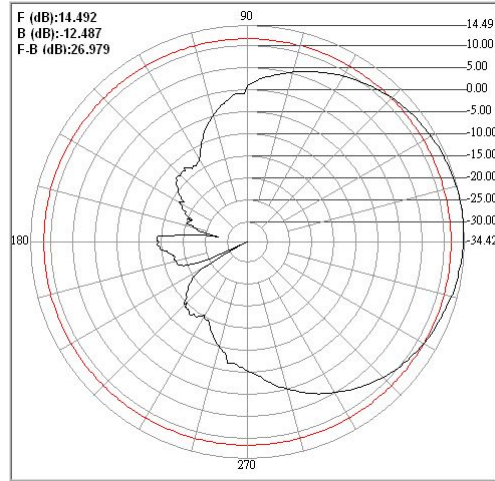
**H-PLANE**



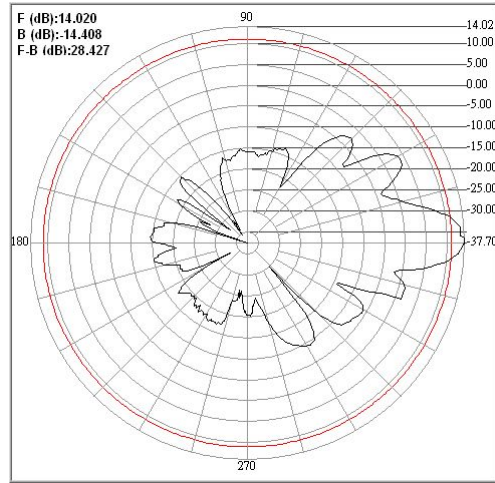
Center freq.(MHz): <b>2400</b>	Plane : <b>H Plane</b>	
Max gain(dBi) : <b>13.89</b>	Min gain(dBi) : <b>-32.77</b>	Avg gain(dBi) : <b>7.88</b>
-3dB1(°) : <b>43.10</b>	-3dB2(°) : <b>-33.40</b>	HPB(°) : <b>76.50</b>
Front (dB) : <b>13.886</b>	Back (dB) : <b>-12.438</b>	F B Ratio (dB) : <b>26.324</b>



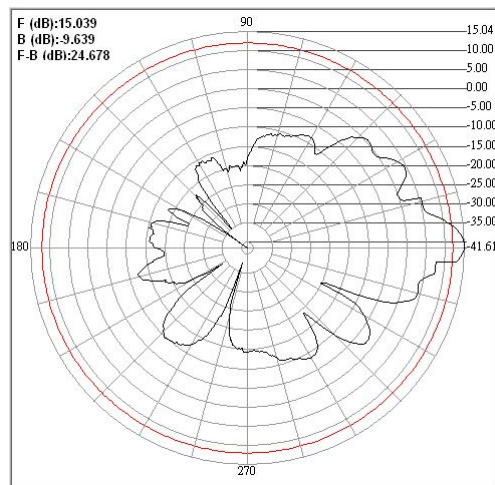
Center freq.(MHz): <b>2450</b>	Plane : <b>H Plane</b>	
Max gain(dBi) : <b>15.23</b>	Min gain(dBi) : <b>-35.61</b>	Avg gain(dBi) : <b>9.27</b>
-3dB1(°) : <b>44.80</b>	-3dB2(°) : <b>-30.70</b>	HPB(°) : <b>75.50</b>
Front (dB) : <b>15.229</b>	Back (dB) : <b>-9.634</b>	F B Ratio (dB) : <b>24.863</b>



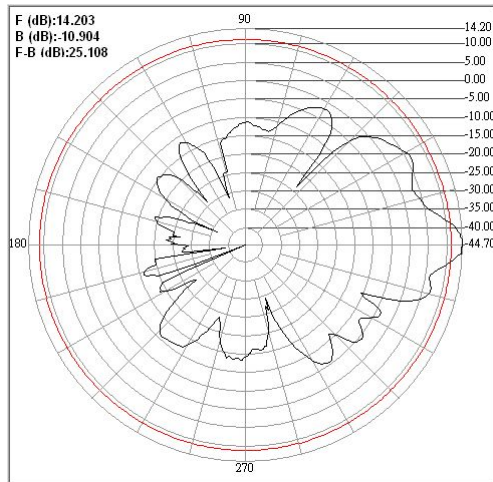
Center freq.(MHz): <b>2500</b>	Plane : <b>H Plane</b>	
Max gain(dBi) : <b>14.49</b>	Min gain(dBi) : <b>-34.42</b>	Avg gain(dBi) : <b>8.46</b>
-3dB1(°) : <b>46.00</b>	-3dB2(°) : <b>-30.50</b>	HPB(°) : <b>76.50</b>
Front (dB) : <b>14.492</b>	Back (dB) : <b>-12.487</b>	F B Ratio (dB) : <b>26.979</b>



Center freq.(MHz): <b>2400</b>	Plane : <b>E Plane</b>	
Max gain(dBi) : <b>14.02</b>	Min gain(dBi) : <b>-37.70</b>	Avg gain(dBi) : <b>2.59</b>
-3dB1(°) : <b>7.90</b>	-3dB2(°) : <b>-4.80</b>	HPB(°) : <b>12.70</b>
Front (dB) : <b>14.020</b>	Back (dB) : <b>-14.408</b>	F B Ratio (dB) : <b>28.427</b>



Center freq.(MHz): <b>2450</b>	Plane : <b>E Plane</b>	
Max gain(dBi) : <b>15.04</b>	Min gain(dBi) : <b>-41.61</b>	Avg gain(dBi) : <b>3.86</b>
-3dB1(°) : <b>6.40</b>	-3dB2(°) : <b>-4.40</b>	HPB(°) : <b>10.80</b>
Front (dB) : <b>15.039</b>	Back (dB) : <b>-9.639</b>	F B Ratio (dB) : <b>24.678</b>

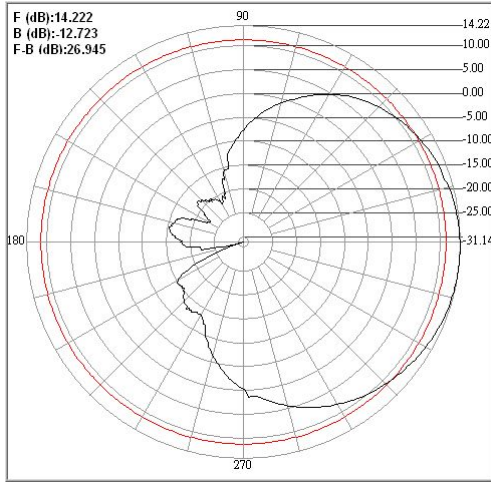


Center freq.(MHz): <b>2500</b>	Plane : <b>E Plane</b>	
Max gain(dBi) : <b>14.20</b>	Min gain(dBi) : <b>-44.70</b>	Avg gain(dBi) : <b>3.44</b>
-3dB1(°) : <b>6.90</b>	-3dB2(°) : <b>-4.80</b>	HPB(°) : <b>11.70</b>
Front (dB) : <b>14.203</b>	Back (dB) : <b>-10.904</b>	F B Ratio (dB) : <b>25.108</b>

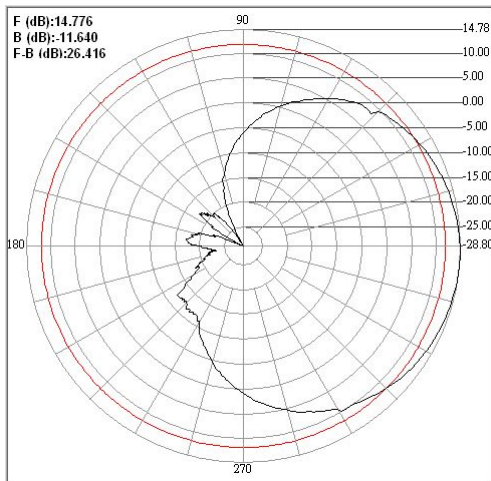


# - 45° Polarization:

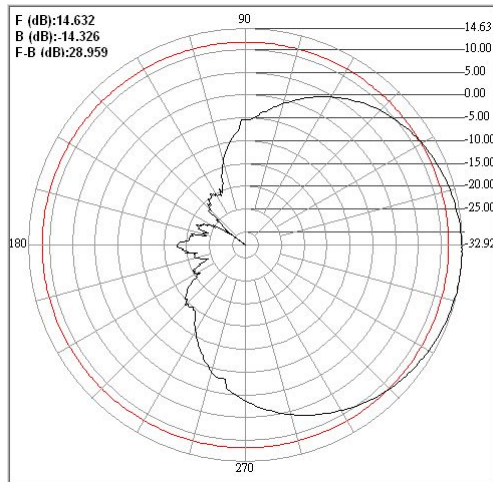
## H-PLANE



Center freq.(MHz): <b>2400</b>	Plane : <b>H Plane</b>	
Max gain(dBi) : <b>14.22</b>	Min gain(dBi) : <b>-31.14</b>	Avg gain(dBi) : <b>8.26</b>
-3dB1(°) : <b>393.30</b>	-3dB2(°) : <b>315.90</b>	HPB(°) : <b>77.40</b>
Front (dB) : <b>14.222</b>	Back (dB) : <b>-12.723</b>	F B Ratio (dB) : <b>26.945</b>



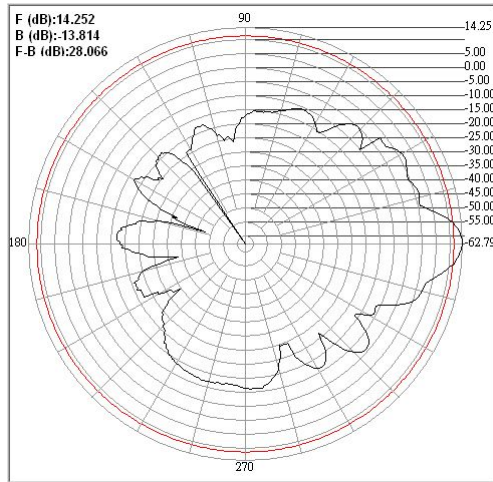
Center freq.(MHz): <b>2450</b>	Plane : <b>H Plane</b>	
Max gain(dBi) : <b>14.78</b>	Min gain(dBi) : <b>-28.80</b>	Avg gain(dBi) : <b>8.87</b>
-3dB1(°) : <b>392.70</b>	-3dB2(°) : <b>314.10</b>	HPB(°) : <b>78.60</b>
Front (dB) : <b>14.776</b>	Back (dB) : <b>-11.640</b>	F B Ratio (dB) : <b>26.416</b>



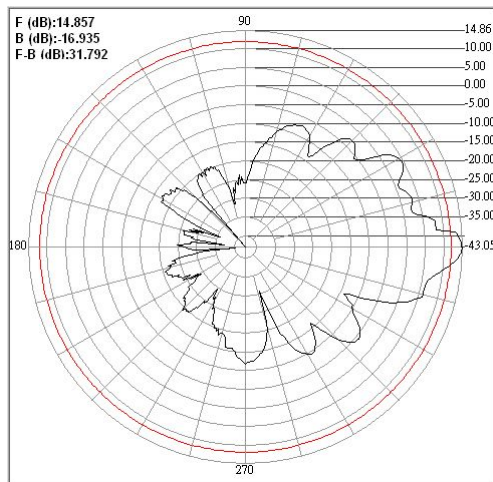
Center freq.(MHz): <b>2500</b>	Plane : <b>H Plane</b>	
Max gain(dBi) : <b>14.63</b>	Min gain(dBi) : <b>-32.92</b>	Avg gain(dBi) : <b>8.71</b>
-3dB1(°) : <b>391.40</b>	-3dB2(°) : <b>313.90</b>	HPB(°) : <b>77.50</b>
Front (dB) : <b>14.632</b>	Back (dB) : <b>-14.326</b>	F B Ratio (dB) : <b>28.959</b>



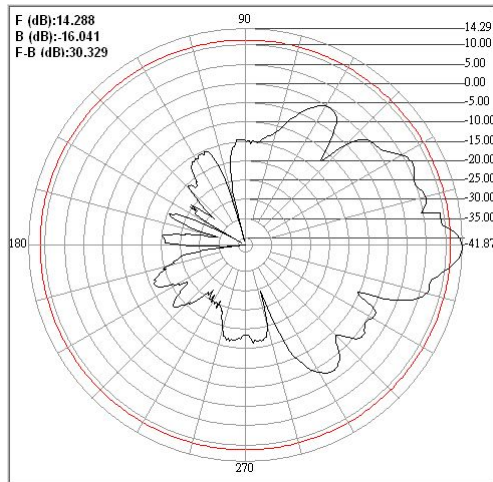
**E-PLANE**



Center freq.(MHz): <b>2400</b>	Plane : <b>E Plane</b>	
Max gain(dBi) : <b>14.25</b>	Min gain(dBi) : <b>-62.79</b>	Avg gain(dBi) : <b>2.91</b>
-3dB1(°) : <b>6.80</b>	-3dB2(°) : <b>-6.50</b>	HPB(°) : <b>13.30</b>
Front (dB) : <b>14.252</b>	Back (dB) : <b>-13.814</b>	F B Ratio (dB) : <b>28.066</b>



Center freq.(MHz): <b>2450</b>	Plane : <b>E Plane</b>	
Max gain(dBi) : <b>14.86</b>	Min gain(dBi) : <b>-43.05</b>	Avg gain(dBi) : <b>3.53</b>
-3dB1(°) : <b>365.00</b>	-3dB2(°) : <b>354.30</b>	HPB(°) : <b>10.70</b>
Front (dB) : <b>14.857</b>	Back (dB) : <b>-16.935</b>	F B Ratio (dB) : <b>31.792</b>



Center freq.(MHz): <b>2500</b>	Plane : <b>E Plane</b>	
Max gain(dBi) : <b>14.29</b>	Min gain(dBi) : <b>-41.87</b>	Avg gain(dBi) : <b>3.60</b>
-3dB1(°) : <b>364.80</b>	-3dB2(°) : <b>353.20</b>	HPB(°) : <b>11.60</b>
Front (dB) : <b>14.288</b>	Back (dB) : <b>-16.041</b>	F B Ratio (dB) : <b>30.329</b>