

# **SPECIFICATION FOR APPROVAL**

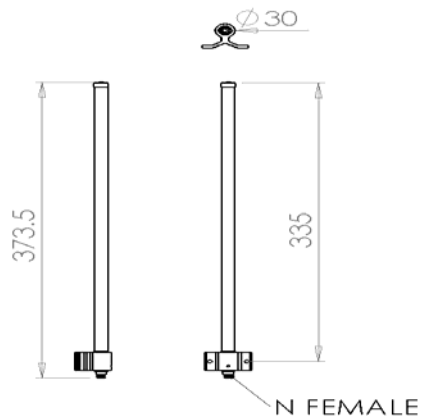
**Customer:**

**Model No. :** OE-004

**Description:** 2.4~2.4835 GHz OMEI ANTENNA

**Date:** 2009/03/10

**Rev :** 2



### **Electrical Specifications:**

Frequency Range :	2.4~2.4835GHz
VSWR :	$\leq 2.0$
Impedance :	$50\Omega \pm 5\Omega$
Forward Gain :	5dBi
Polarization :	Vertical
Power Handling :	10 Watt

### **Mechanical Specifications:**

Connector :	N FEMALE
Operation Temp :	$-30^{\circ}\text{C} \sim +60^{\circ}\text{C}$
Material :	Radome: Fiberglass Base: Aluminum alloy Mount: Aluminum
Dimension (L*W*H) :	373.5* $\varnothing$ 30 mm
Weight :	354g $\pm$ 20g

**3D Illustration**



## 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 PRO-CELL design. The detail be shown as appendix that is from ROHDE & SCHWARZ ZV8 Network Analyzer

	VSWR Performance		
Freq(MHz)	2400	2450	2500
Free space	1.4	1.1	1.4

### 3. GAIN MEASUREMENT

#### 3.1 TEST SETUP

The gain of the antenna was measured by **PROCELL** 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

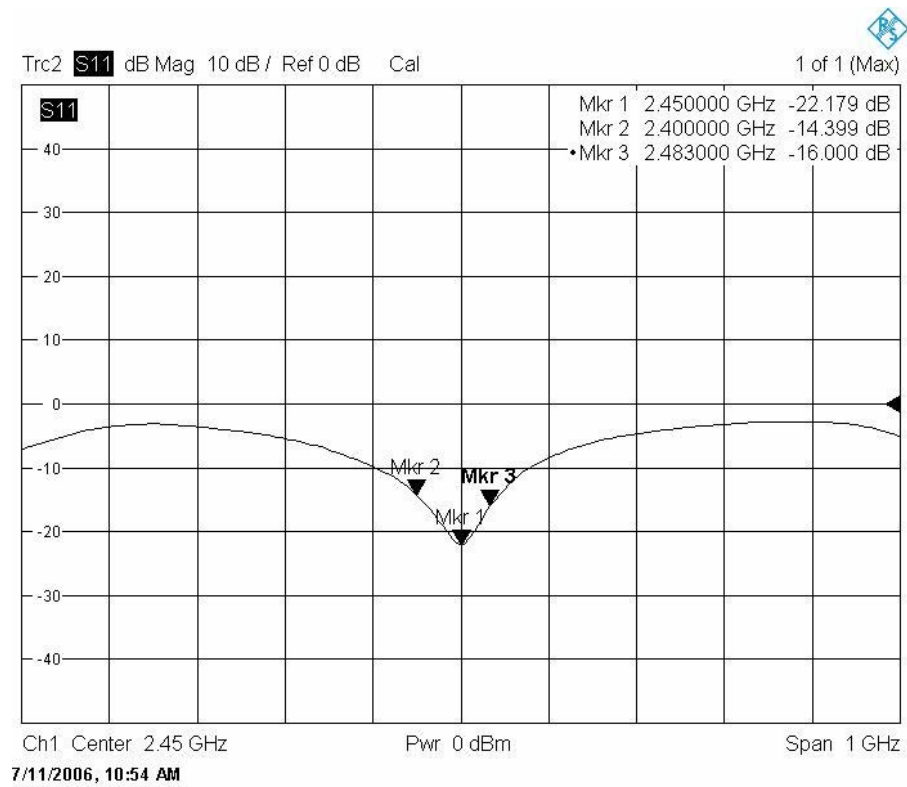
The peak gain is picked up as table list from Network analyzer in Chamber room, the completely gain plots also be shown as appendix.

	Peak Gain		
Freq(MHz)	2400	2450	2500
Peak Gain	4.7	5.2	4.2

## 4. APPENDIX

### 4.1 RETURN LOSS & VSWR

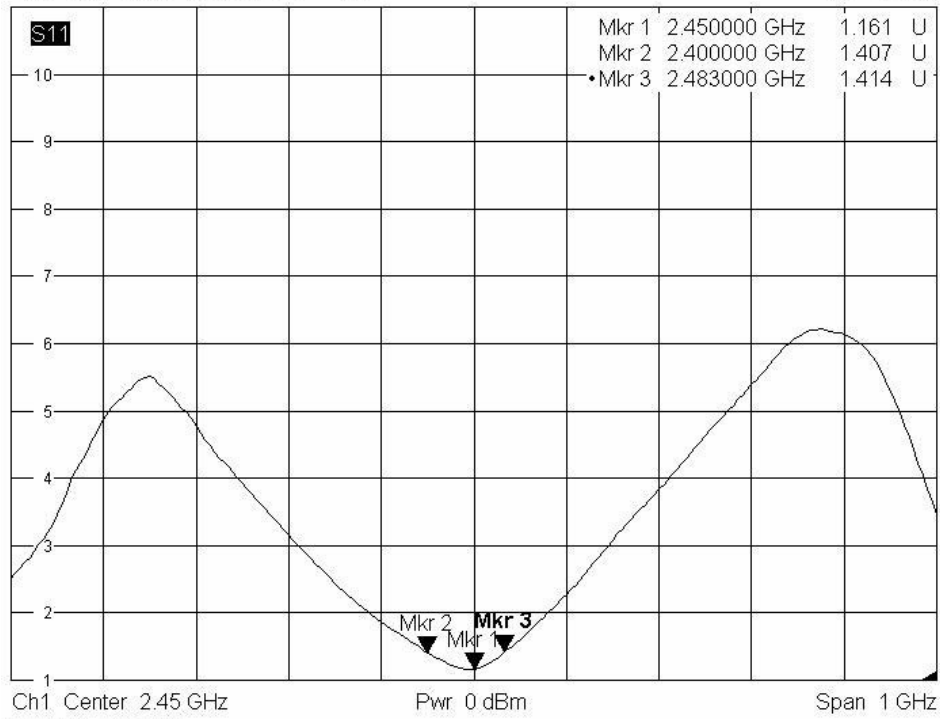
#### RETURN LOSS





Trc2 **S11** SWR 1 U / Ref 1 U Cal

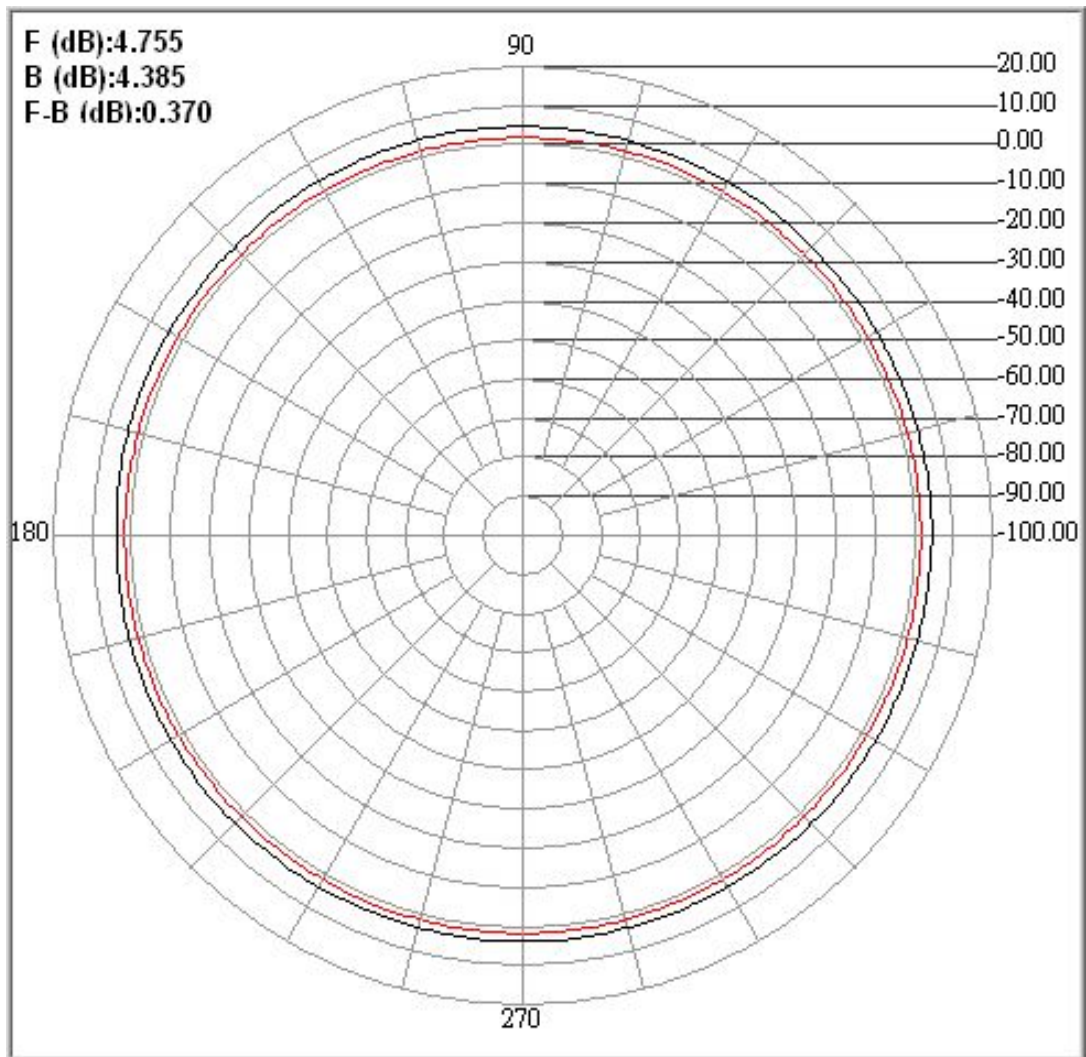
1 of 1 (Max)



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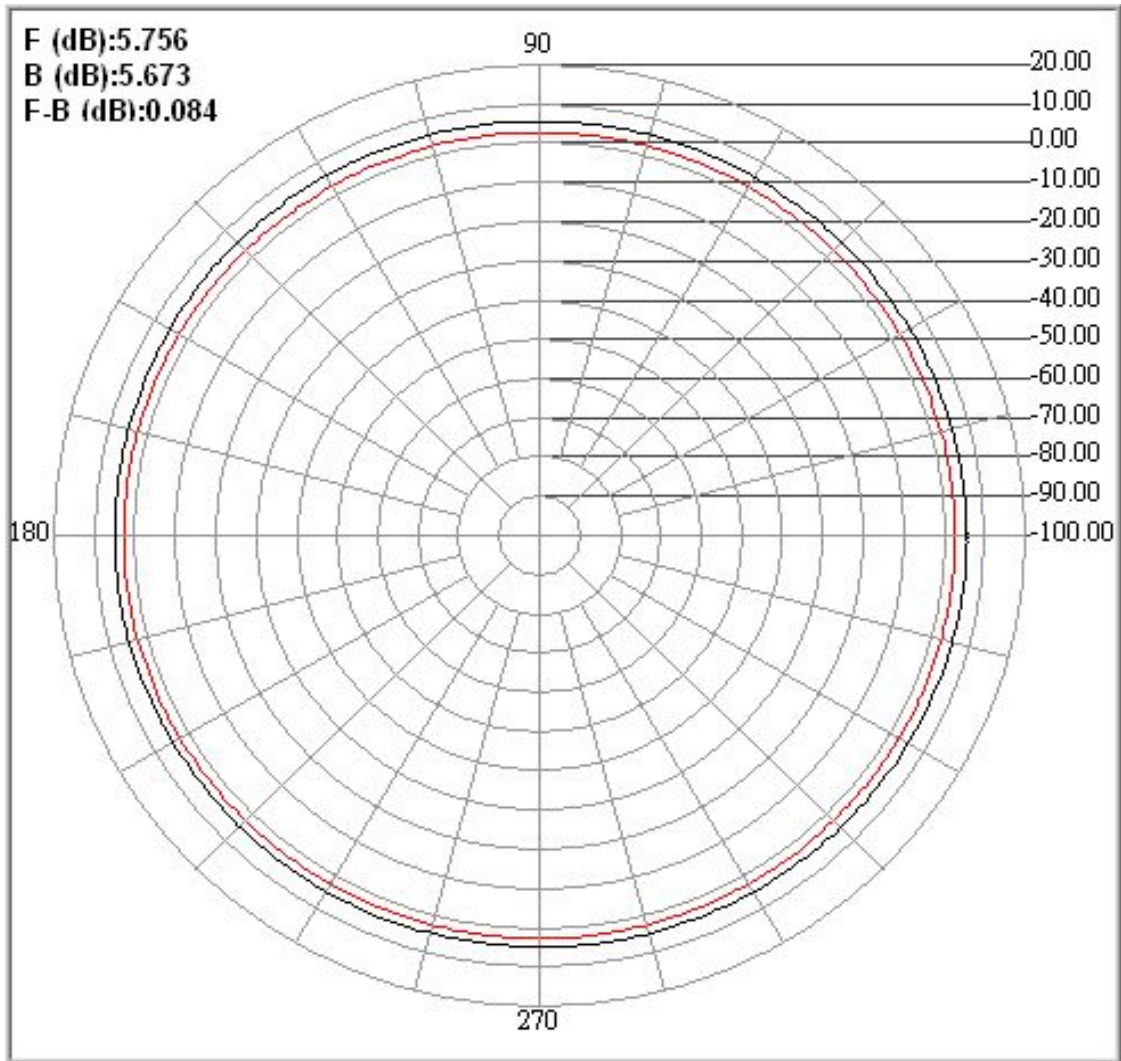
## 4.2 RADIATION PATTERN

### H-PLANE

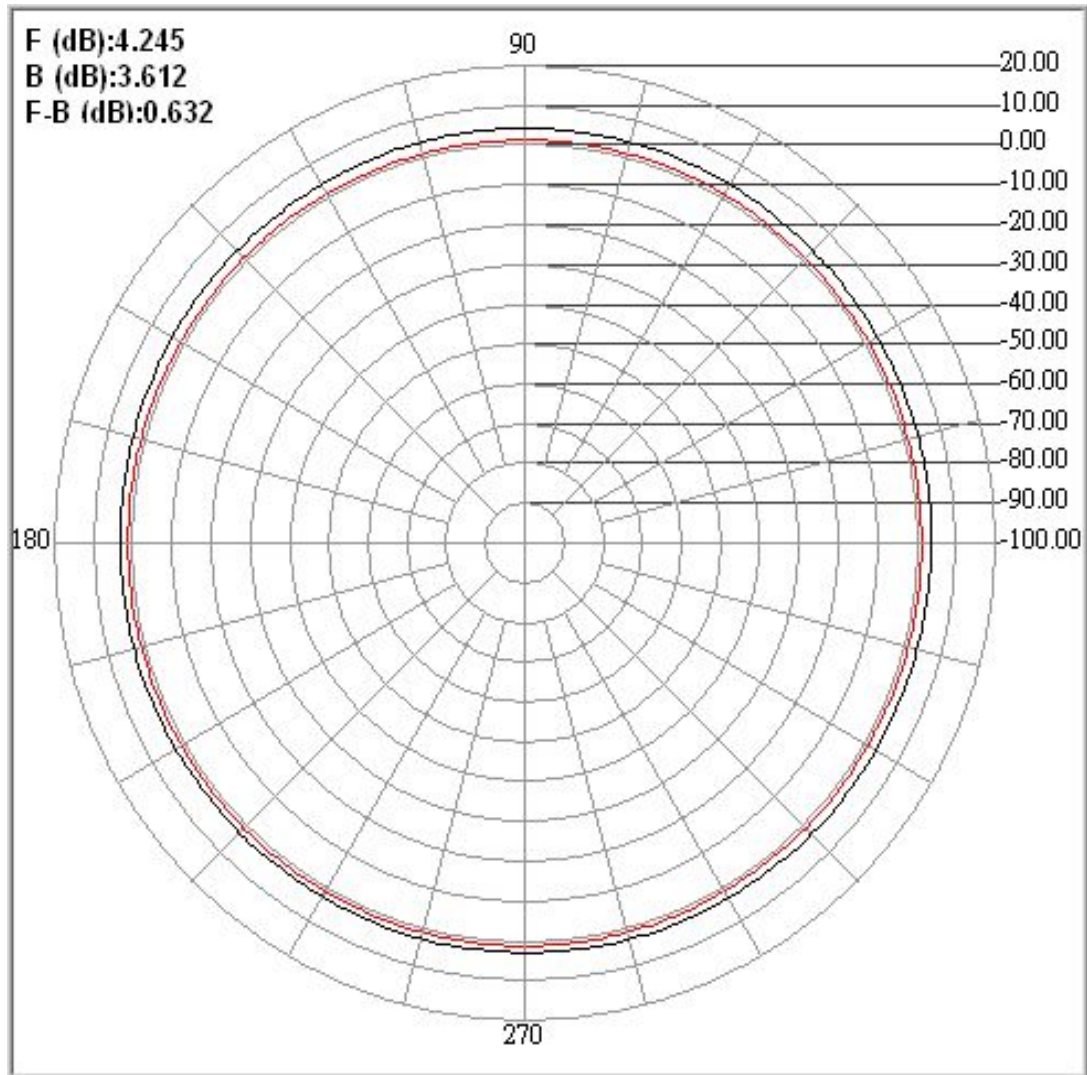


Center freq.(MHz): <b>2400</b>	Plane : <b>H Plane</b>	
Max gain(dBi) : <b>4.76</b>	Min gain(dBi) : <b>3.79</b>	Avg gain(dBi) : <b>4.29</b>
-3dB1(°) : <b>0.00</b>	-3dB2(°) : <b>0.00</b>	HPB(°) : <b>360.00</b>
Front (dB) : <b>4.755</b>	Back (dB) : <b>4.385</b>	F B Ratio (dB) : <b>0.370</b>



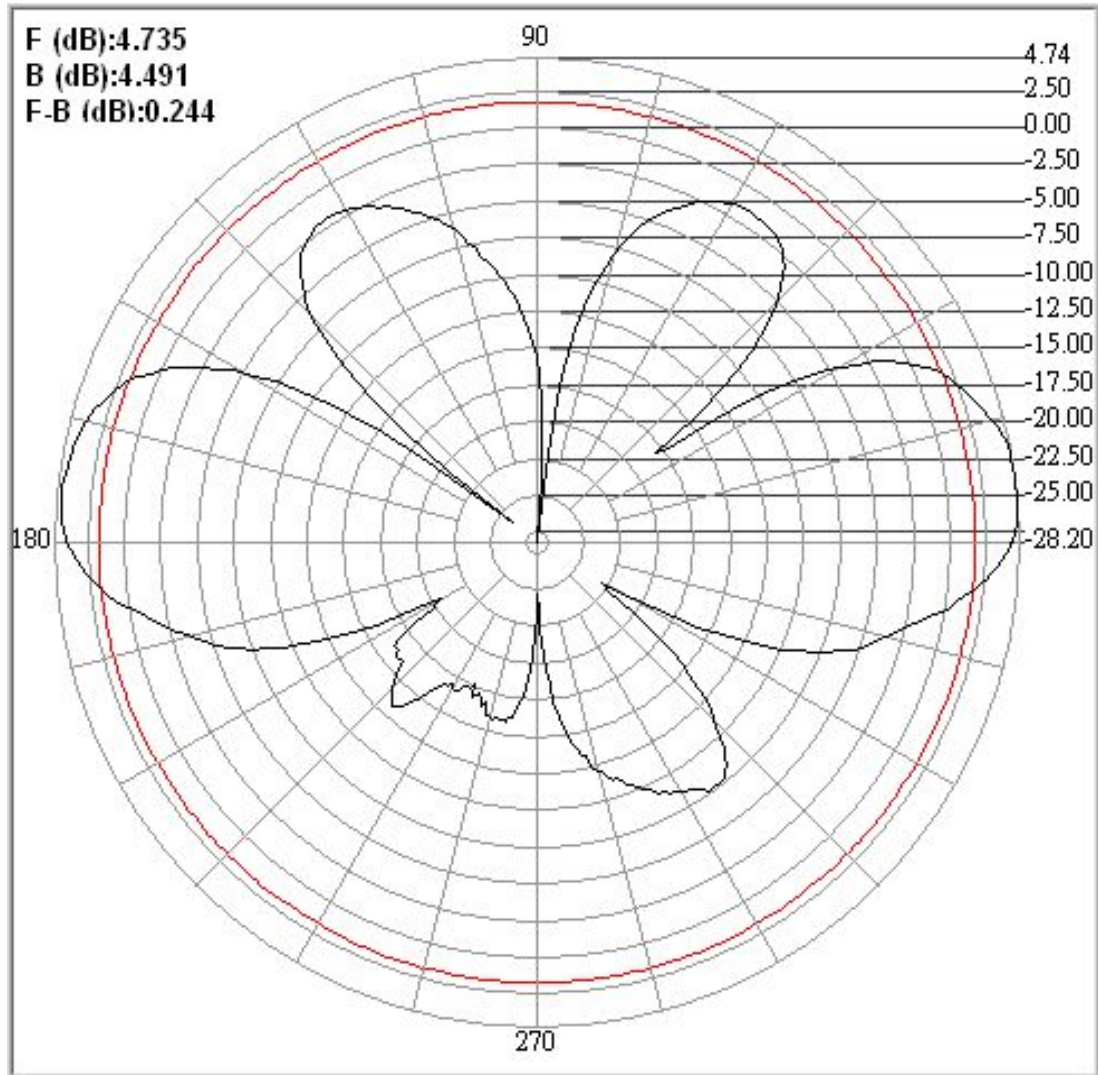


Center freq.(MHz): <b>2450</b>	Plane : <b>H Plane</b>	
Max gain(dBi) : <b>5.76</b>	Min gain(dBi) : <b>4.65</b>	Avg gain(dBi) : <b>5.32</b>
-3dB1(°) : <b>0.00</b>	-3dB2(°) : <b>0.00</b>	HPB(°) : <b>360.00</b>
Front (dB) : <b>5.756</b>	Back (dB) : <b>5.673</b>	F B Ratio (dB) : <b>0.084</b>

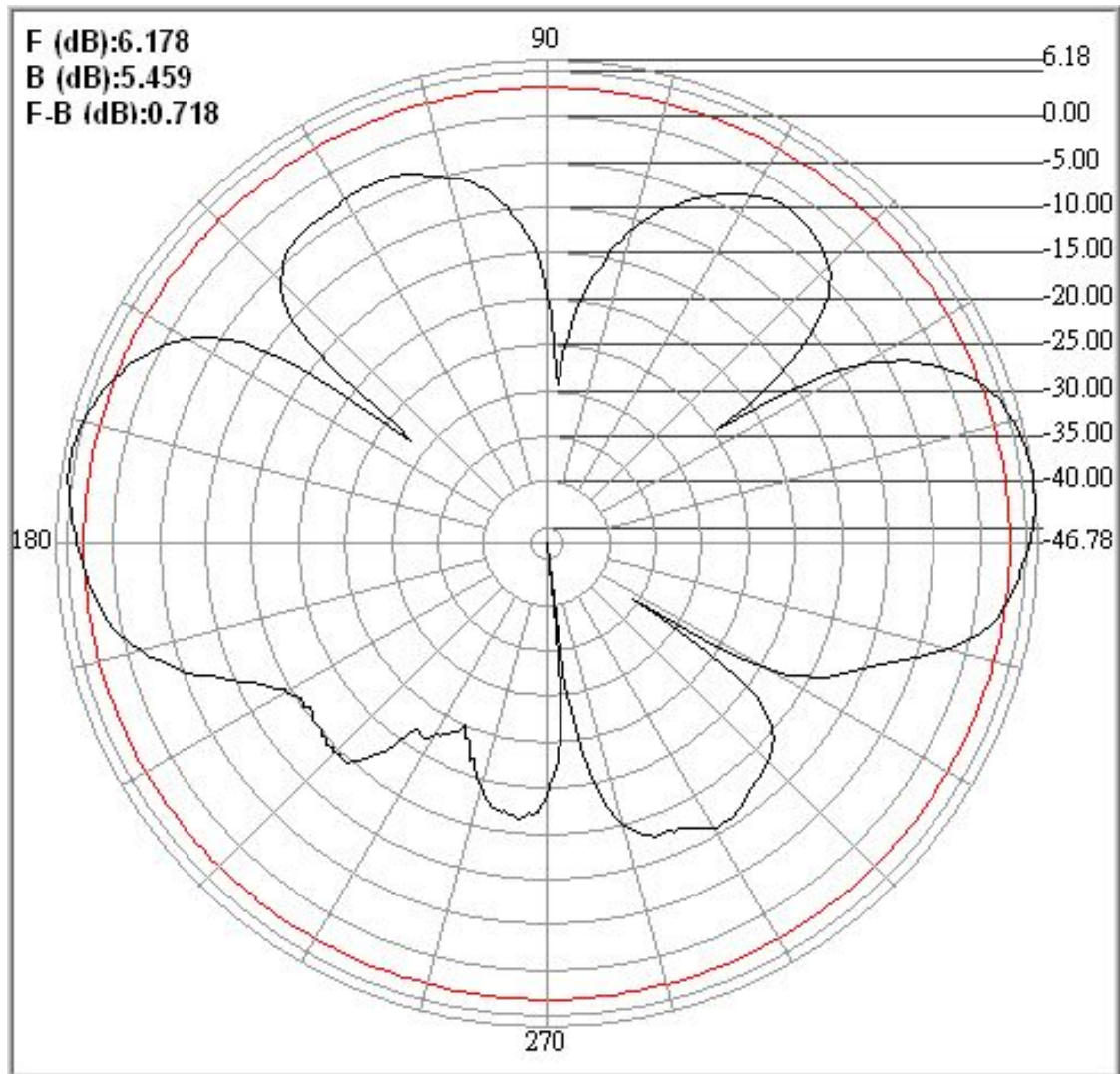


Center freq.(MHz): <b>2500</b>	Plane : <b>H Plane</b>	
Max gain(dBi) : <b>4.24</b>	Min gain(dBi) : <b>2.73</b>	Avg gain(dBi) : <b>3.55</b>
-3dB1(°) : <b>0.00</b>	-3dB2(°) : <b>0.00</b>	HPB(°) : <b>360.00</b>
Front (dB) : <b>4.245</b>	Back (dB) : <b>3.612</b>	F B Ratio (dB) : <b>0.632</b>

## E-PLANE

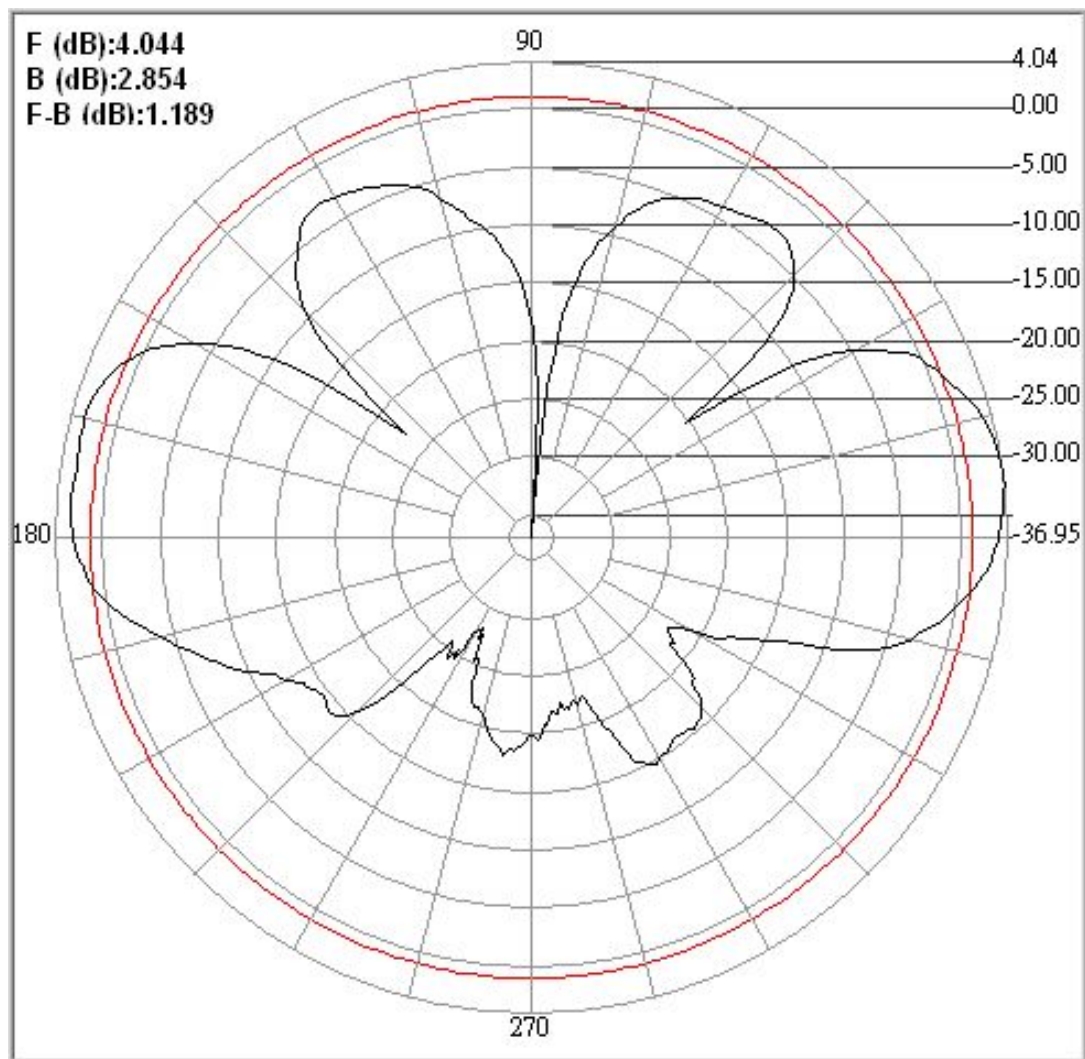


Center freq.(MHz): <b>2400</b>	Plane : <b>E Plane</b>	
Max gain(dBi) : <b>4.74</b>	Min gain(dBi) : <b>-28.20</b>	Avg gain(dBi) : <b>-1.82</b>
-3dB1(°) : <b>23.40</b>	-3dB2(°) : <b>-7.20</b>	HPB(°) : <b>30.60</b>
Front (dB) : <b>4.735</b>	Back (dB) : <b>4.491</b>	F B Ratio (dB) : <b>0.244</b>



Center freq.(MHz): <b>2450</b>	Plane : <b>E Plane</b>	
Max gain(dBi) : <b>6.18</b>	Min gain(dBi) : <b>-46.78</b>	Avg gain(dBi) : <b>-0.91</b>
-3dB1(°) : <b>20.80</b>	-3dB2(°) : <b>-7.70</b>	HPB(°) : <b>28.50</b>
Front (dB) : <b>6.178</b>	Back (dB) : <b>5.459</b>	F B Ratio (dB) : <b>0.718</b>





Center freq.(MHz): <b>2500</b>	Plane : <b>E Plane</b>	
Max gain(dBi) : <b>4.04</b>	Min gain(dBi) : <b>-36.95</b>	Avg gain(dBi) : <b>-2.76</b>
-3dB1(°) : <b>22.40</b>	-3dB2(°) : <b>-7.40</b>	HPB(°) : <b>29.80</b>
Front (dB) : <b>4.044</b>	Back (dB) : <b>2.854</b>	F B Ratio (dB) : <b>1.189</b>