



## 規格承認書

Specification for Approval

客 戶：永 洋

Customer

品 名：2.4GHz 2 . 3 5dBi ANTENNA WHITE

Part name

料 號：GY111HT467-026

Part No.

客戶料號：11320Y11127A1

Customer Part No.

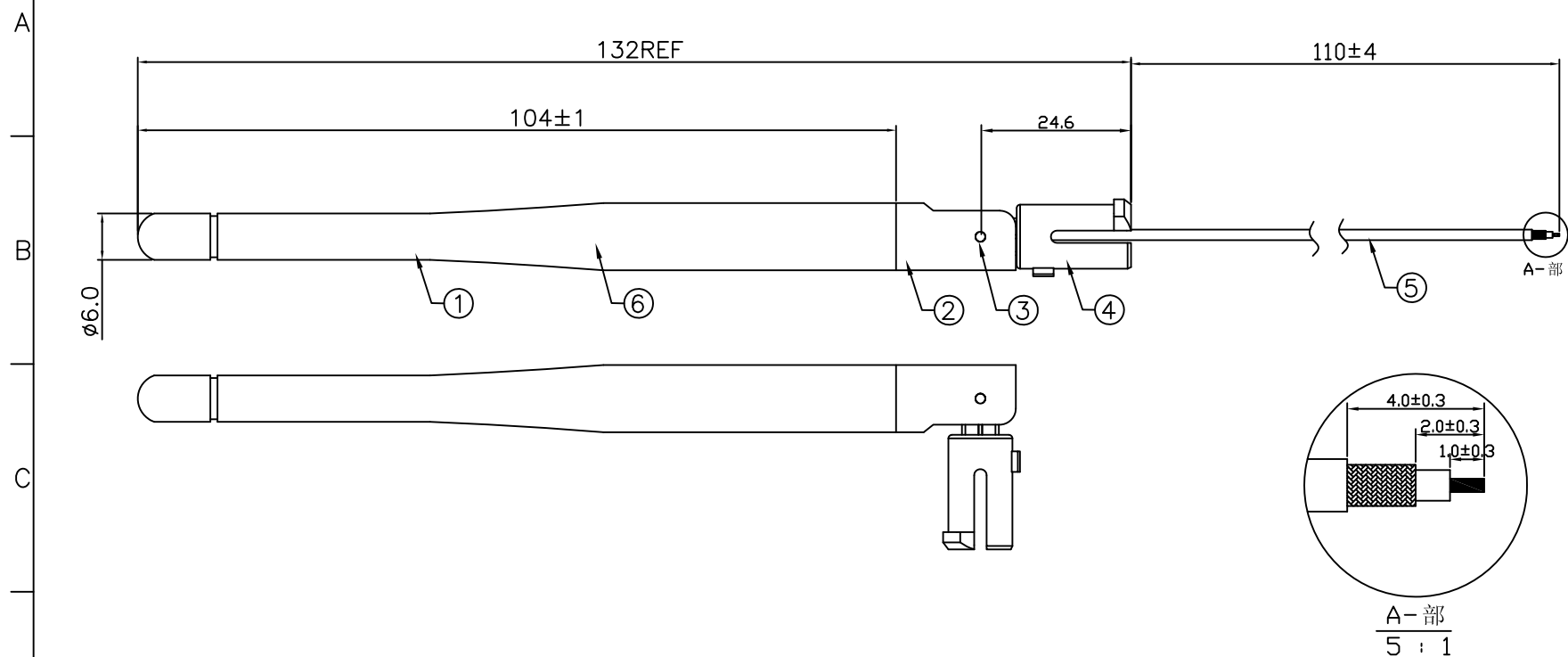
Rev.(版本): 01

客戶承認印 CUSTOMER APPROVED BY		
APPROVAL	CHIEF	SUPERVISOR
Approval No.		
Model		
Part No.		

CHIEF	SALES	R&D	DESIGN
Andy	Teri Tseng	JERRY	JOSN
Date: 2012/4/25		Date: 2012/4/25	
驊 陞 科 技 股 份 有 限 公 司 WIESON TECHNOLOGIES CO., LTD.			

表格編號：324012 版本: 第四版

REV	DATE	DESCRIPTION	NAME
01	12.03.26	NEW RELEASE	JOSN



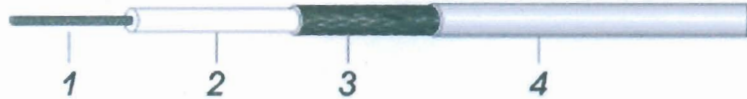
NOTES:

1. 2.4~2.5GHz VSWR:< 2.0
2. GAIN:2dBi
3. USE ENVIRONMENT PROTECT MATERIAL(ROHS Compliant).

⑦				WIESON TECHNOLOGIES CO., LTD WIESON	PART NO.: GY111HT467-026			
⑥	G0140-1222012	COPPER TUBE,TINNED PLATED	1					
⑤	GMINI-178B01D11S	MINI COAXIAL CABLE OD:1.13mm,32AWG*1C+BRAID+FEP,BLACK JACKET,	1	TITLE: 2.4G 2dBi ANTENNA				
④	GMY111-C031402A	BASE-2,PC;WHITE(DS-525)	1					
③	G0102-7801033	FIXED PIN,POM;WHITE	2	DRAWN BY	JOSN(WSC)	DRAWING NO.	GY111HT467-026	
②	GMY111-B020204A	BASE-1,PC;WHITE(DS-418)	1	CHECKED BY		DRAWING SIZE	NONE	
①	GMY111-B010204A	COVER,TPE;WHITE(DS-417)	1	APPROVED BY		UNIT		
NO.	ITEM	DESCRIPTION	QTY	SORTING NO.	WSC	PAGE	1	1



## SFF-50-0.6 (1.13)



型号 Cable Type	SFF-50-0.6	1.13(T <sub>x</sub> )
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### 结构 Structure

1	内导体 Inner conductor Ømm	Cu-silverplated 7×0.08±0.008
2	绝缘体 Dielectric Ømm	FEP 0.68±0.05
3	编织层 Braid conductor	Tinned copper 16×4/0.05±0.008
4	护套 Jacket Ømm	FEP 1.13±0.08

### 电性能参数 Electrical Characteristics

电容 Capacitance(pF/m)	98
阻抗 Impedance(ohm)	50±2.0
速率 Velocity(%)	70
弯曲半径 Bending radius(mm)	12
检验电压 Working voltage (KVMS)	1.0
工作温度范围 Operating Temp. (°C)	-55 to 125

### 衰减(典型值) Attenuation(Typical)(≥dB/m)

频率 Frequency	Cable+接头
1 GHz	2.2
2 GHz	3.1
3 GHz	3.9
4 GHz	4.5
5 GHz	5
6 GHz	5.5

### 应用 Application

应用于高频传输，特别是发报机、接收器、电脑、无线电设备、视频信号、射频信号传输。同轴电缆保证各式机械、热力、电子设备中能达到GHz高频层次的应用。

Coaxial cables are used in high frequency transmission, especially for transmitters and receivers, computers, radio and TV transmissions. The varied mechanical, thermal and electronic properties of Coaxial cables mean that they can be used up into the GHz levels, as pes cable type.



### I. SUMMARY :

This report to account for the measurement setup and result of the Antenna.

1. The measurement setup includes s-parameter, pattern, and gain measurement.
2. The measured data for Antenna are presented and analysis.

### II. S-PARAMETER MEASUREMENT :

#### A. Reflection coefficient :

(a) Instrument : Network Analyzer.

(b) Setup :

- (1) Calibrate the Network Analyzer by one port calibration using O.S.L. calibration kits.
- (2) Connect the antenna under test to the Network Analyzer.
- (3) Measure the S11(reflection coefficient) shown in Fig. 1.
- (4) Generally, the S11 is less than  $-10\text{dB}$  to ensure the 90% power into antenna and only less than 10% power back to system.

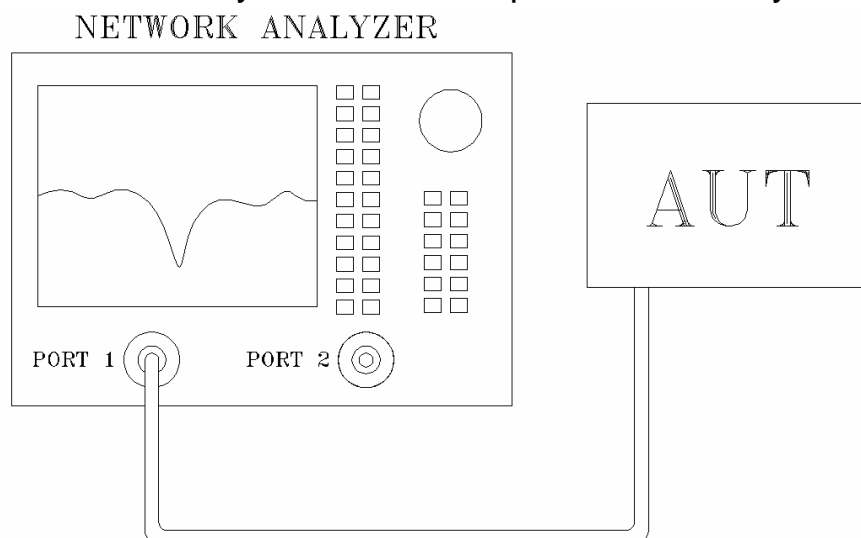


Fig.1 Antenna measured in Network Analyzer

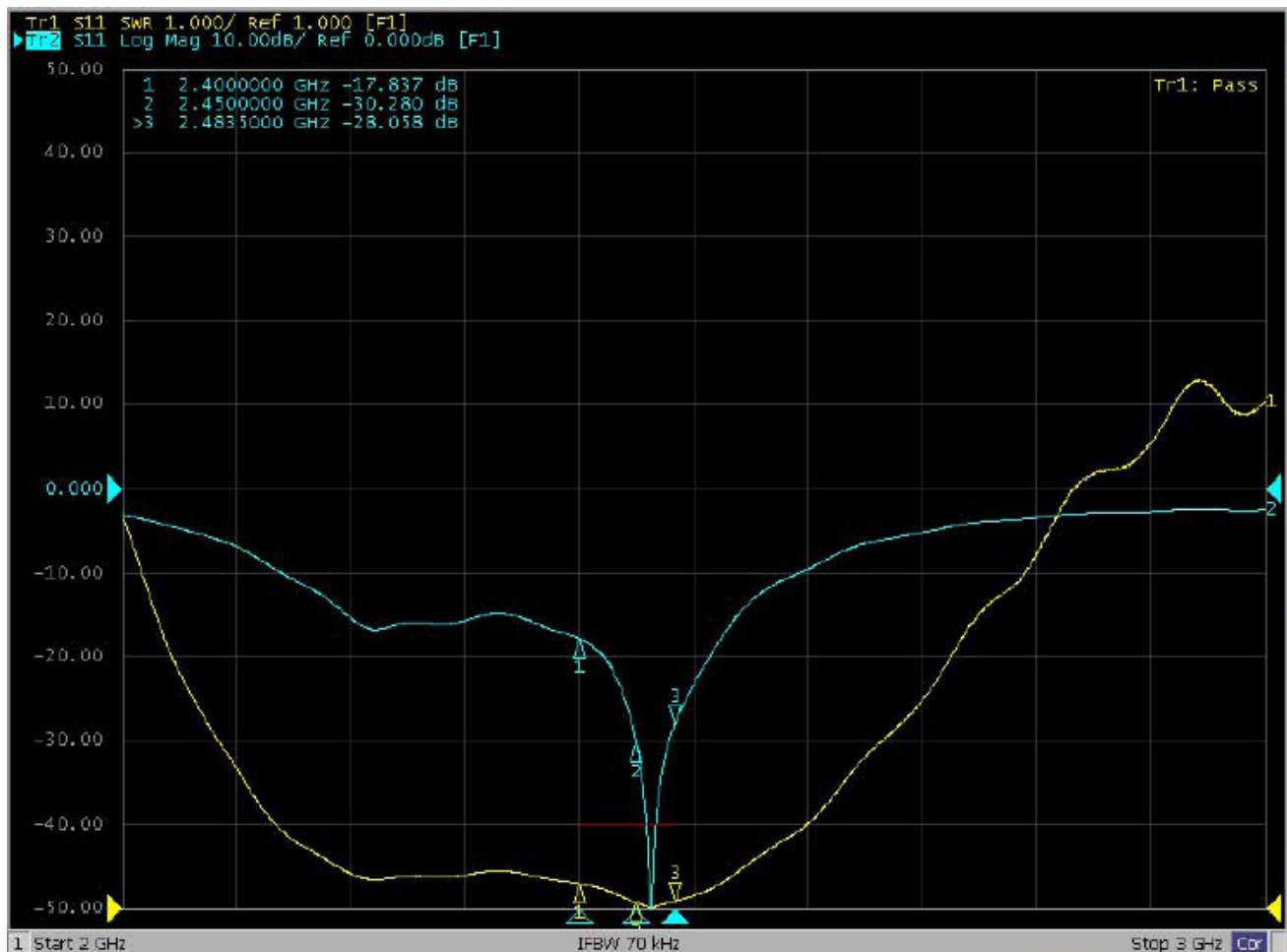


### III. S-PARAMETER TEST RESULT :

#### Antenna Retune Loss

(a) Antenna :

Frequency	2.4GHz	2.45GHz	2.4835GHz
Sample			
1	-17.837dB	-30.28dB	-28.058dB



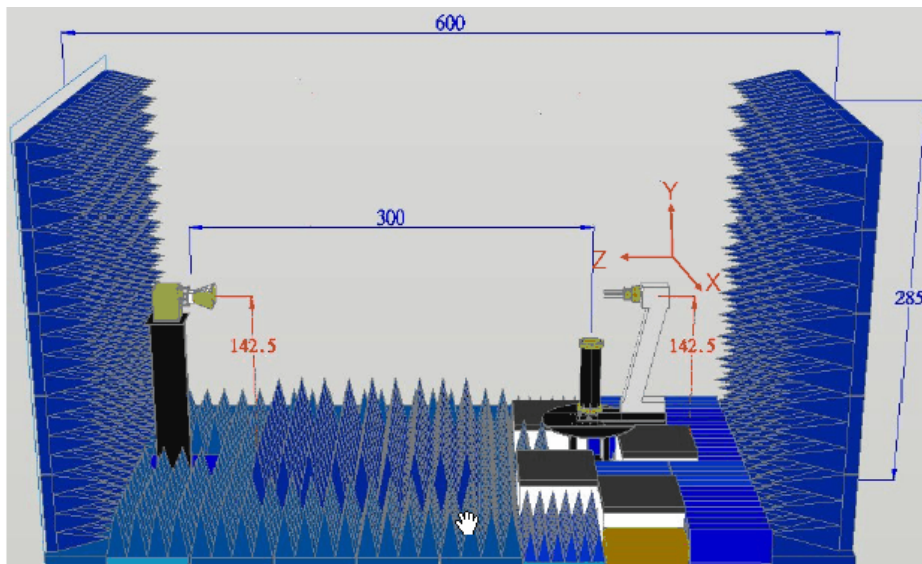


### IV. THE TEST INFORMATION IN ANECHOIC CHAMBER

#### A. Scope

This statement of work defines the requirements of a far-field antenna measurement range, which includes

- (1) One 325 cm (W) x 285 cm (H) x 640 cm (L) Antenna Measurement Anechoic Chamber, detailed requirements refer section 2.0 .
- (2) One Far-field Antenna Measurement System with spinning linear CP measurement capabilities, detailed requirement refer section 3.0 .
- (3) One broad-band transmitted antenna, detailed requirements refer section 8.0 .
- (4) Three NRL-4433 standard gain antennas, detailed requirements refer section 9.0 .



#### B. Antenna Measurement Anechoic Chamber

Fully anechoic chamber with dimension 325 cm in width, 285 cm in height and 640 cm in length. The quiet zone of this Chamber shall be greater than



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70 cm @ 0.9 GHz, 50 cm @1.8 GHz, 44 cm @2.4 GHz, 28 cm @5.8 GHz, 16 cm @18 GHz. Contractor should be aware of this anechoic chamber is going to be used for performing far-field antenna measurement.

### C. Electrical specifications

Frequency Range: 800 MHz to 18 GHz,

Quiet zone size: >70 cm @ 0.9 GHz, >50 cm @1.8 GHz, >44 cm @2.4 GHz,

>28 cm @5.8 GHz, >16 cm @18 GHz.

Quiet zone ripple: < +/- 0.5 dB @1.5~2.4 GHz, < +/- 0.25 dB @2.4~18GHz

Field Probing Frequency	Peak-to-Peak Amplitude Ripple (within specified Quiet Zone Area)	Quiet Zone Size (cm)	Compliant
0.9 GHz	< 0.8 dB	70	Yes
1.575 GHz	< 0.6 dB	55	Yes
1.8 GHz	< 0.5 dB	50	Yes
2.45 GHz	< 0.4 dB	44	Yes
4.8 GHz	< 0.3 dB	31	Yes
5.8 GHz	< 0.3 dB	28	Yes



### **D. Absorbers**

We shall design and install proper absorbers on the inner walls of the chamber to guarantee the electrical specifications . However, the absorbers height shall be no less than 24" which enables the space in the chamber to be around 203 cm (W) x 163 cm (H) x 533 cm (L). All the absorber used shall meet NRL-8093 fire retardant regulations

### **E. Far-field Antenna Measurement System**

We shall supply all the hardware and software which are capable of characterizing antenna radiation patterns from 30 KHz to 6 GHz or 18GHz using the existed Agilent 5230A PNA-L or Agilent 8753ES Vector Network Analyzer. The system shall be able to automatically measure and plot single axis amplitude and phase antenna patterns in either Cartesian or polar formats.

### **F. Far-field measurement software**

The software consists of the control or data acquisition software and the data plotting software.

(1) The data acquisition software shall at least be capable of the following functions:

- \*measuring single frequency per cut - single axis (azimuth); system can automatically switch frequency at the end of a scan.
- \*measuring data in Uni-direction or bi-direction
- \*measuring data at least with azimuth 360 degrees. (+/- 180 degrees or 0-360 degrees)
- \*real time plot in Cartesian or polar format
- \*screen shows real time angle position





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- \*system automatically calculates S/N ratio level based on measured signal fluctuation
- \*function to set positioner zero position
- \*operator can set data taking velocity and data sampling interval
- \*entry to allow positioner offset to any angle

(2) The data plotting software shall at least be capable of the following functions:

- \*Editing plot data
- \*plotting data in Cartesian, Polar or delimited ASCII output with header information
- \*plotting data in linear or dB scales
- \*normalizing data to peak (dB), standard gain reference (dBi), or no normalization
- \*overlaying data, (drag and drop capability is preferable)
- \*outputting data to any Windows supported printers

### **G. Broadband Transmitted antenna**

We shall provide a linear-polarized broadband antenna with the specifications better than those listed hereafter in this article,  
Frequency: 1-18 GHz, Gain: >12 dBi @10 GHz, VSWR:<2.0:1, Front to Back Ratio > 20 dB

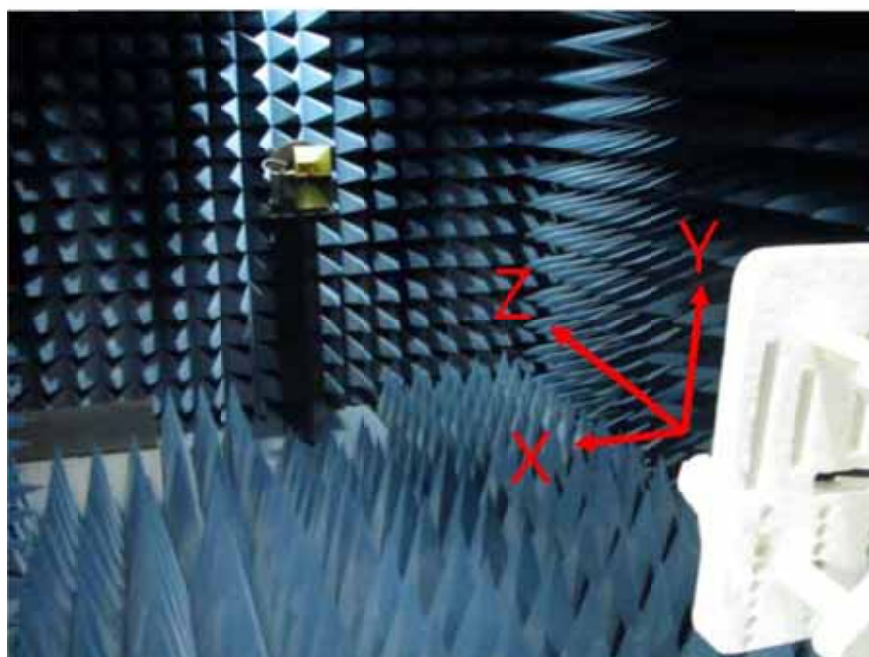
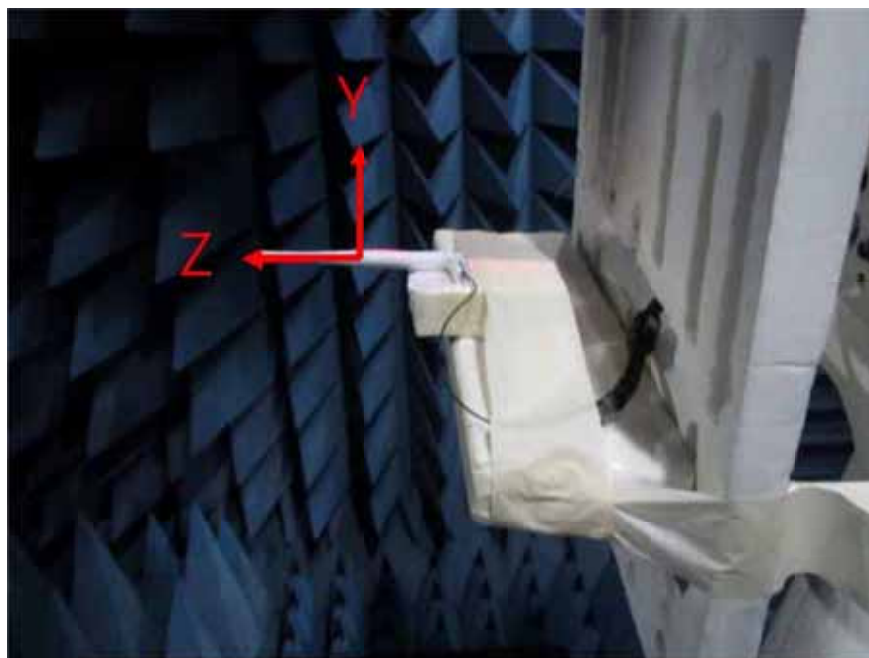
### **H. NRL4433 Standard Gain Horns**

We shall provide one WR-430, WR-187 one DRH0118 standard gain horns which meets the specifications of NRL-4433 report. The operating frequency of WR-430 standard gain horn is from 1.7 to 2.6 GHz, and WR-187 from 3.95 to 5.85 GHz, and DRH-0118 from 0.8 to 18GHz. We shall also provide NRL-4433 theoretical gain curves and tables for the standard gain horns.



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### V. Chamber Test Photo





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### VI. CHAMBER TEST RESULT

Frequency (GHz)	2.4	2.45	2.5
Peak Gain (dBi)	1.79	2.35	2.24
Avg. Gain (dBi)	-1.18	-1.03	-1.45
Efficiency(%)	76	79	72

#### Antenna Pattern

