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承 認 書

**SPECIFICATION FOR APPROVAL**

客戶名稱： 盛達

**CUSTOMER**

產 品： Billion 7820NZ 2.4GHz Embedded DIPOLE Antenna R-Side

**PRODUCT**

客戶料號： AOZANE2IERANWLR700

**PART NO.**

榮昌料號： R-AN-WLR-7820NZ

**PART NO.**

承認書編號： RC140425002

**SHEET NO.**

**DATE** : 2014/04/25

**CUSTOMER CONCLUSION** :  **APPROVED** (承 認)

( 客 戶 判 定 )  **REJECTED** (不合格)

**LIMITED** (允 收)

**CONDITIONAL APPROVAL** (條 件 認 可)

**INCLUDING THIS COVER TOTAL 12 PAGES**

( 含 此 封 面 頁 共 12 頁 )

**\* PLEASE SIGNED AND FAX THE RESULT TO US .**

( 請 於 判 定 簽 名 後 將 結 果 傳 回 )

**AUTHORIZE DSIGNATURES**

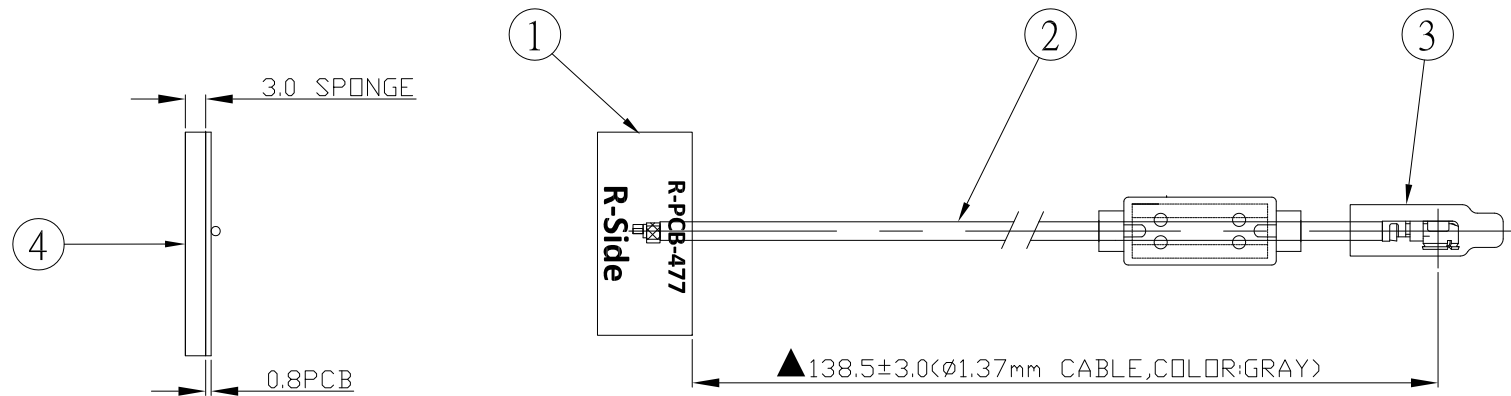


Part No.		Item No.	R-AN-WLR-7820NZ	Customer Code:	G0752
Edited By:	Jason	Check By:	Mark	Approved by:	Minghu

## Standard Specification

REVISIONS				
DATE	REV.	ZONE	DESCRIPTION	ECN NO.
2014/04/14	X1		NEW RELEASE	

Frequency Range(MHz)	2.4~2.5GHz
VSWR	2.0 : 1 Max.



**檢驗重點:**

1. 插頭方向如圖所示
2. PCB板方向如圖所示
3. ▲為重要量測尺寸

RoHS

UNLESS OTHERWISE SPECIFIED TOLERANCE : ANGLES : ±2° X.X ±0.3 X.XX ±0.15 DO NOT SCALE DRAWING		榮昌科技股份有限公司 GRAND-TEK TECHNOLOGY CO., LTD.				
DRAWN BY		Jason		TITLE		G0752
CHECKED BY		Mark		SIZE	UNIT	REV.
APPROVED BY		Minghu		A	mm	X1
DWG NO.		SCALE		PART NO.		PAGE
		2 : 1		Billion 7820NZ 2.4GHz Embedded DIPOLE Antenna R-Side		1 OF 1
		THIRD ANGLE PROJECTION		ITEM NO.		DATE
				R-AN-WLR-7820NZ		2014/04/14

TITLE	QTY	U/M	DESCRIPTION
4	1	EA	SPONGE+G9000,SIZE:30.0(L)x14.0(W)x3.0(T)mm
3	1	EA	TRANSPARENT TUBE F32,Φ2.5mm COLOR:CLEAR,L=20.0mm
2	1	EA	TNV-088 TO OPEN END FOR 1.37mm CABLE ,COLOR:GRAY
1	1	EA	FR4 T=0.8mm FOR 7820NZ ANTENNA R-SIDE



**Billion Indoor AP 7820NZ WiFi 2.4GHz Antenna Test Report**  
( 2.4~2.5GHz\*2)

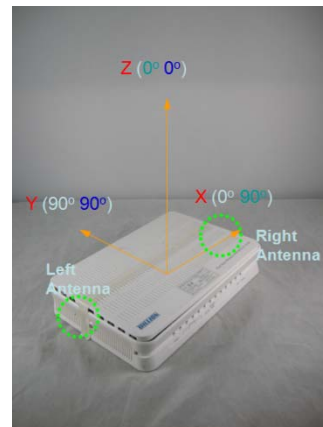
By GTT RF Design Center  
17/Jan./2014

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# Specification

Electrical Specifications Typical Characteristics in PC/ABS housing	Antenna NO.	Ant.1(Left 2.4G)	Ant.2(Right 2.4G)
	Peak Gain	2.9 dBi Max.	3.5 dBi Max.
	Efficiency	71% Min.	77% Min.
	VSWR	2.0 Max. : 1	2.0 Max. : 1
	Feed Point Impedance	50 $\Omega$ unbalanced	



## Ant 1.(2.4G)

### ■ VSWR (S11)

2.4~2.5GHz : 2.0Max : 1

### ■ Efficiency :

2.4~2.5GHz : 71~74 %

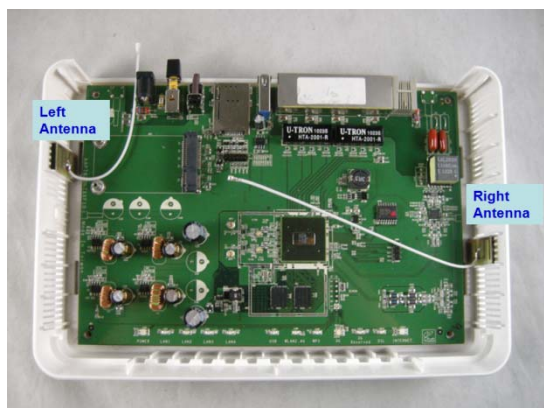
## Ant 2.(2.4G)

### ■ VSWR (S11)

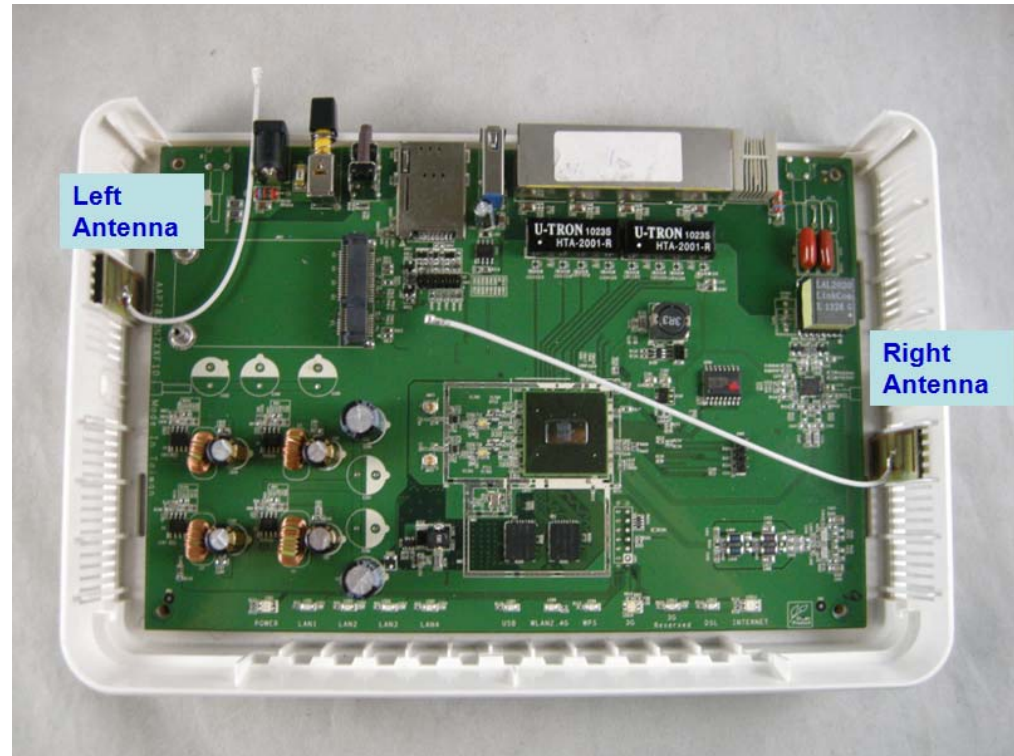
2.4~2.5 GHz : 2.0Max : 1

### ■ Efficiency :

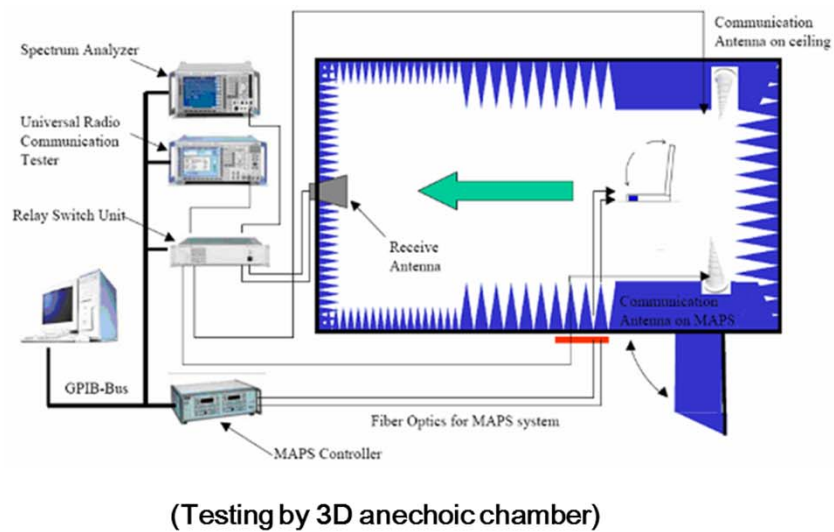
2.4~2.5 GHz : 77~78 %



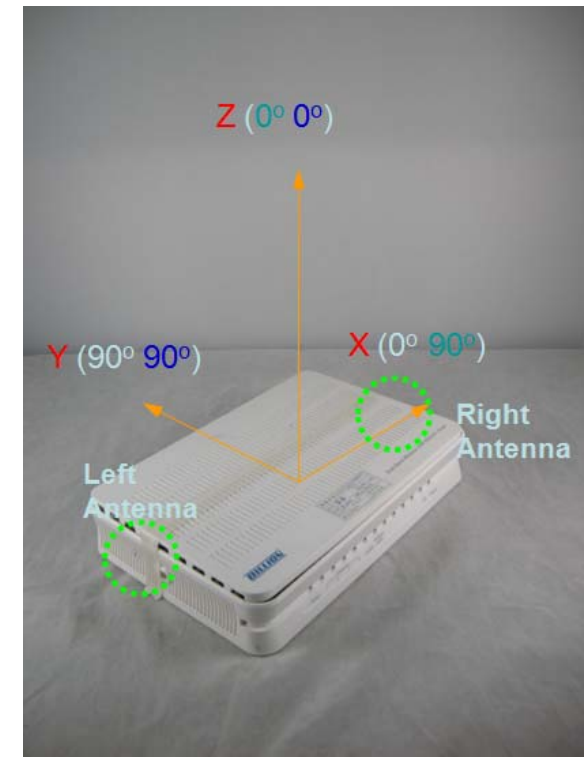
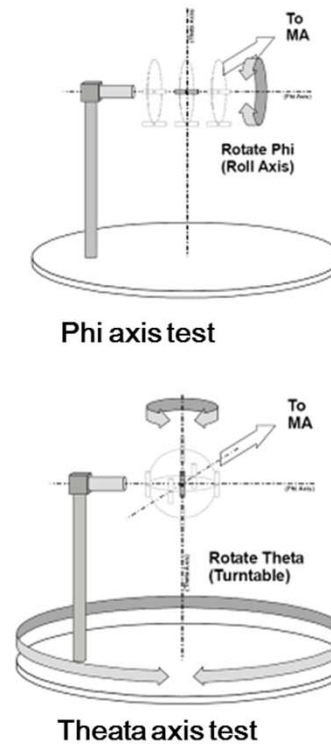
# Antenna Position



## Antenna Testing Conditions

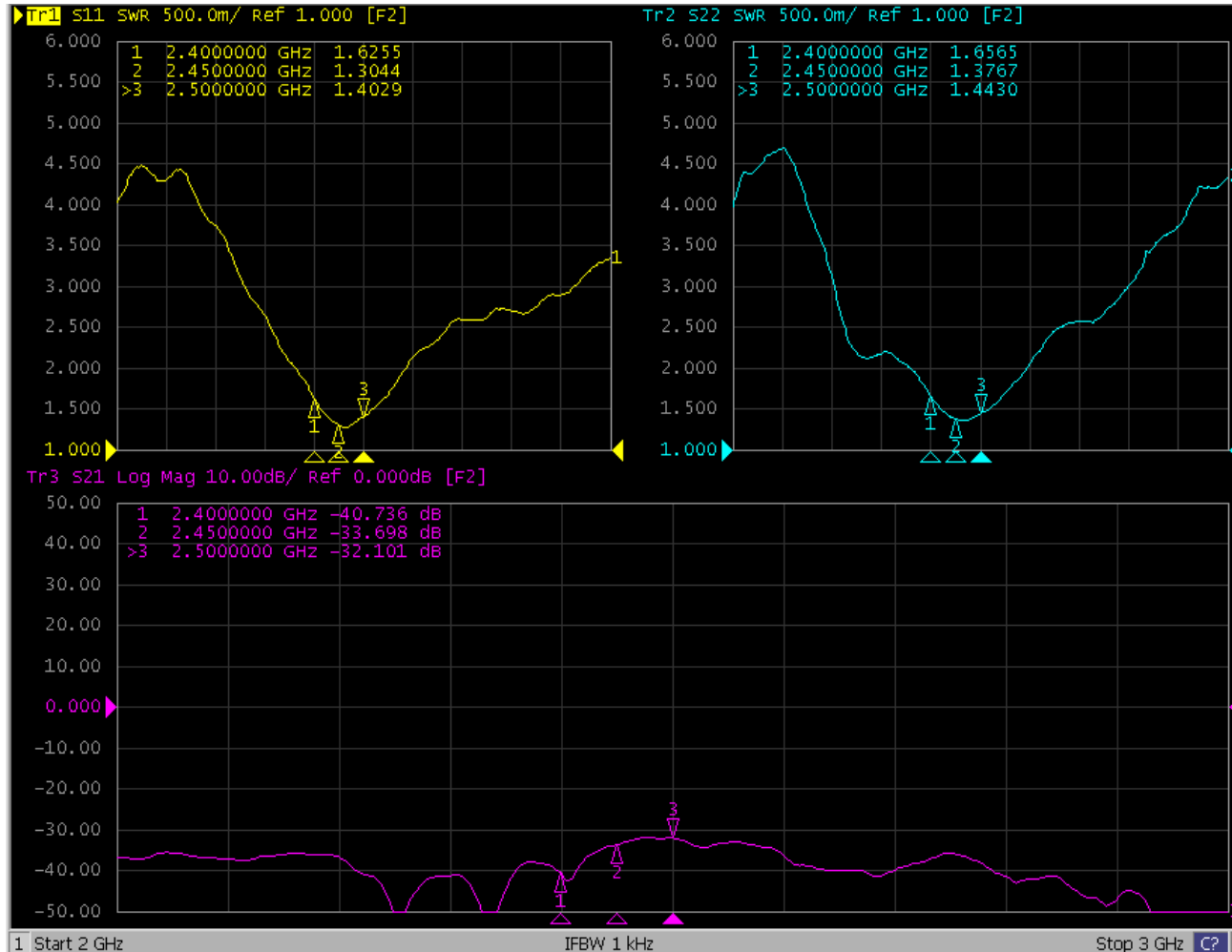


## Antenna Scanning Illustration





# VSWR Analysis



## Ant.1 2.4~2.5GHz(Left Antenna)

### ■ VSWR (S11)

MP Spec. : 2.0 Max : 1

## Ant.2 2.4~2.5GHz(Right Antenna)

### ■ VSWR (S11)

MP Spec. : 2.0 Max : 1

## Ant.1 vs Ant.2 Isolation

■ MP Spec. : 33dB Min.

# Radiation Pattern Test

## -Summary-



### Ant.1 2.4~2.5GHz(Left antenna)

Frequency (MHz)	3D			V+H Avg. Gain			V+H Peak Gain		
	Efficiency	Avg. Gain	Peak Gain	XY-plane	YZ-plane	ZX-plane	XY-plane	YZ-plane	ZX-plane
2400	74%	-1.3	2.3	-0.2	-1.7	-3.1	0.5	1.7	0.0
2450	72%	-1.4	2.5	-0.3	-1.8	-2.9	1.1	1.8	0.1
2500	71%	-1.5	2.9	-0.4	-1.8	-2.9	1.4	2.1	0.0

### Ant.2 2.4~2.5GHz(Right antenna)

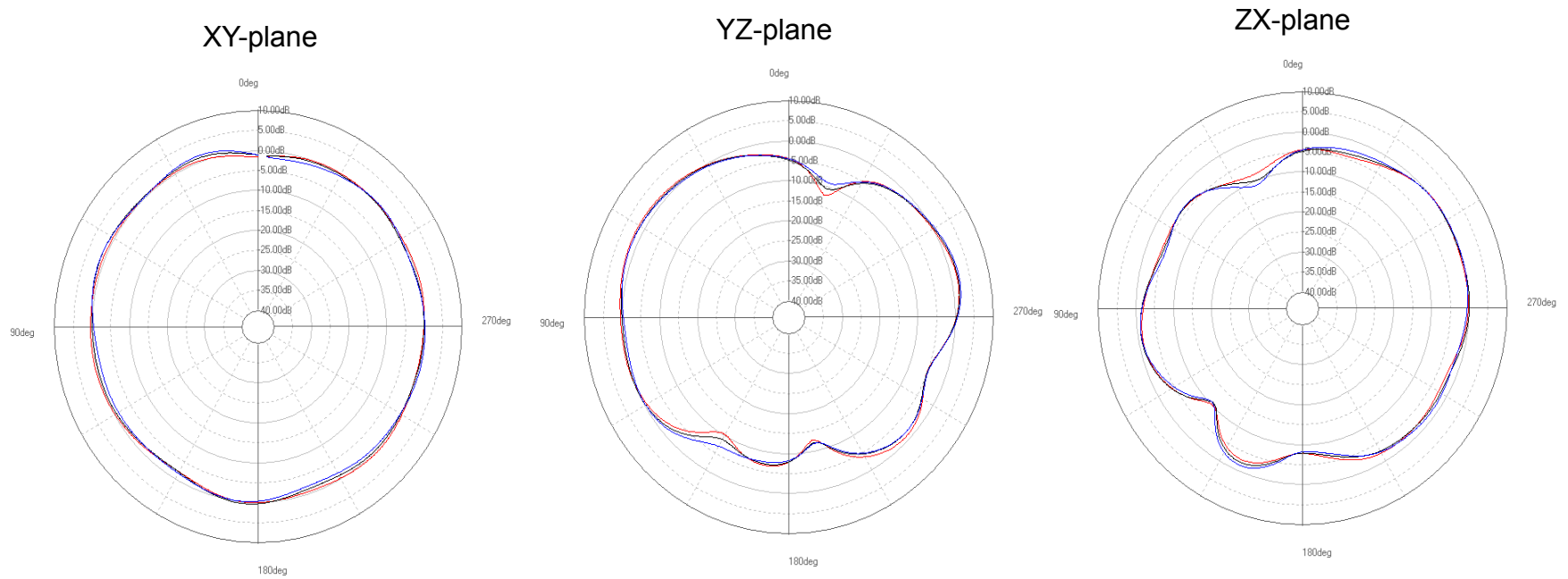
Frequency (MHz)	3D			V+H Avg. Gain			V+H Peak Gain		
	Efficiency	Avg. Gain	Peak Gain	XY-plane	YZ-plane	ZX-plane	XY-plane	YZ-plane	ZX-plane
2400	78%	-1.1	3.1	0.6	-2.0	-3.1	3.1	1.9	1.0
2450	77%	-1.2	3.3	0.7	-1.8	-3.1	3.3	1.8	0.9
2500	77%	-1.1	3.5	0.6	-1.7	-3.3	3.4	1.6	0.6

# Radiation Pattern



## WiFi 2.4G Antenna 1 : 2.4~2.5GHz (Left Antenna)

Legend  
— 2400(MHz)  
— 2450(MHz)  
— 2500(MHz)



# Radiation Pattern



## WiFi 2.4G Antenna 2 : 2.4~2.5GHz (Right Antenna)

Legend  
— 2400(MHz)  
— 2450(MHz)  
— 2500(MHz)

