



榮 昌 科 技 股 份 有 限 公 司

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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 L-Side

PRODUCT

客戶料號： A0ZANE2IDRANWLL700

PART NO.

榮昌料號： R-AN-WLL-7820NZ

PART NO.

承認書編號： RC140425001

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 SINGED 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-WLL-7820NZ	Customer Code:	G0752
Edited By:	Jason	Check By:	Mark	Approved by:	Minghu

Standard Specification

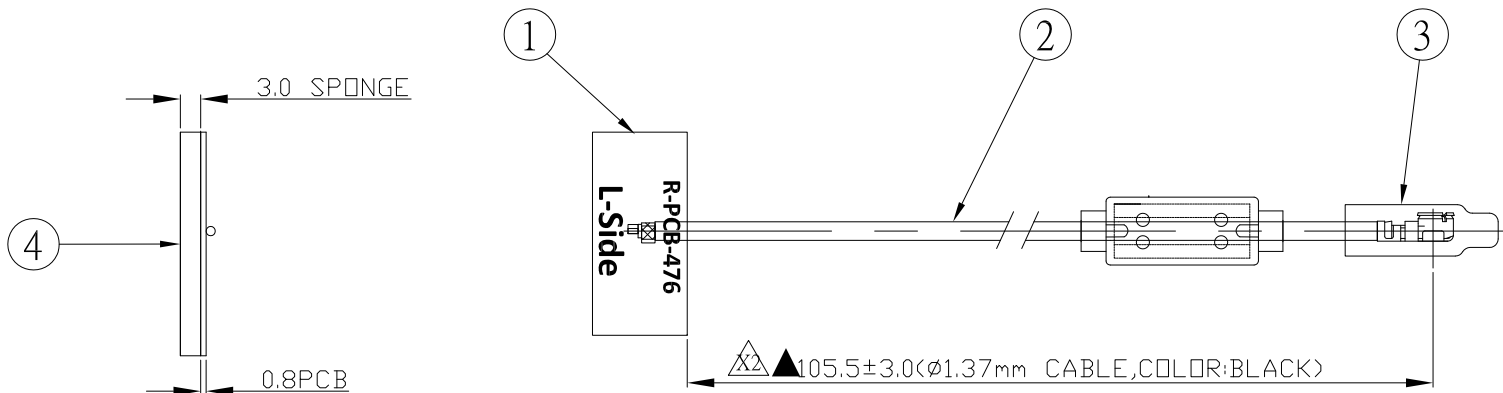
REVISIONS				
DATE	REV.	ZONE	DESCRIPTION	ECN NO.
2014/04/15	X1		NEW RELEASE	
2014/04/24	X2		CHANGE CABLE LENGTH 95.5 TO 105.5	

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°		榮昌科技股份有限公司 GRAND-TEK TECHNOLOGY CO., LTD.			Billion 7820NZ 2.4GHz Embedded DIPOLE Antenna L-Side G0752			
X.X	±0.3		DO NOT SCALE DRAWING							SIZE A	UNIT mm
4	1	EA	SPONGE+G9000,SIZE:30.0(L)x14.0(W)x3.0(T)mm		DRAWN BY	Jason		SCALE	1 : 1	THIRD ANGLE PROJECTION	PAGE 1 OF 1
3	1	EA	TRANSPARENT TUBE F32,Φ2.5mm COLOR:CLEAR,L=20.0mm		CHECKED BY	Mark		DATE	2014/04/24	ITEM NO. R-AN-WLL-7820NZ	
2	1	EA	TNV-088 TO OPEN END FOR ∅1.37mm CABLE ,COLOR:BLACK		APPROVED BY	Minghu					
1	1	EA	FR4 T=0.8mm FOR 7820NZ ANTENNA L-SIDE		DWG NO.						
TITLE	QTY	U/M	DESCRIPTION								



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

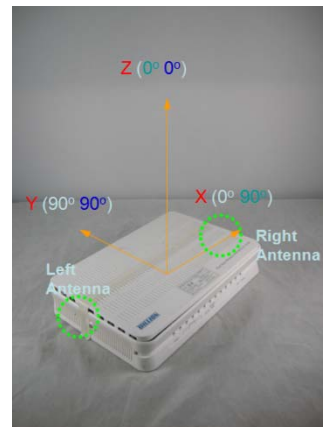
By GTT RF Design Center
17/Jan./2014

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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 Ω unbalanced	



Ant 1.(2.4G)

■ VSWR (S11)

2.4~2.5GHz : 2.0Max : 1

■ Efficiency :

2.4~2.5GHz : 71~74 %

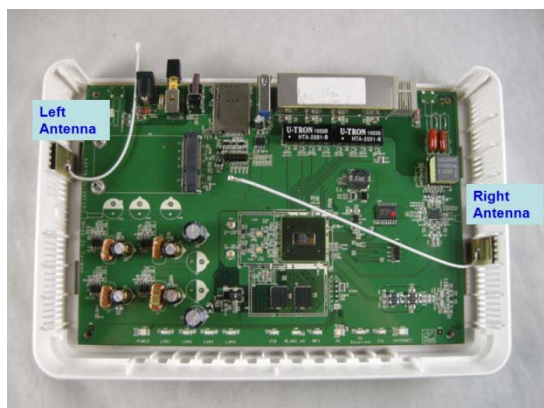
Ant 2.(2.4G)

■ VSWR (S11)

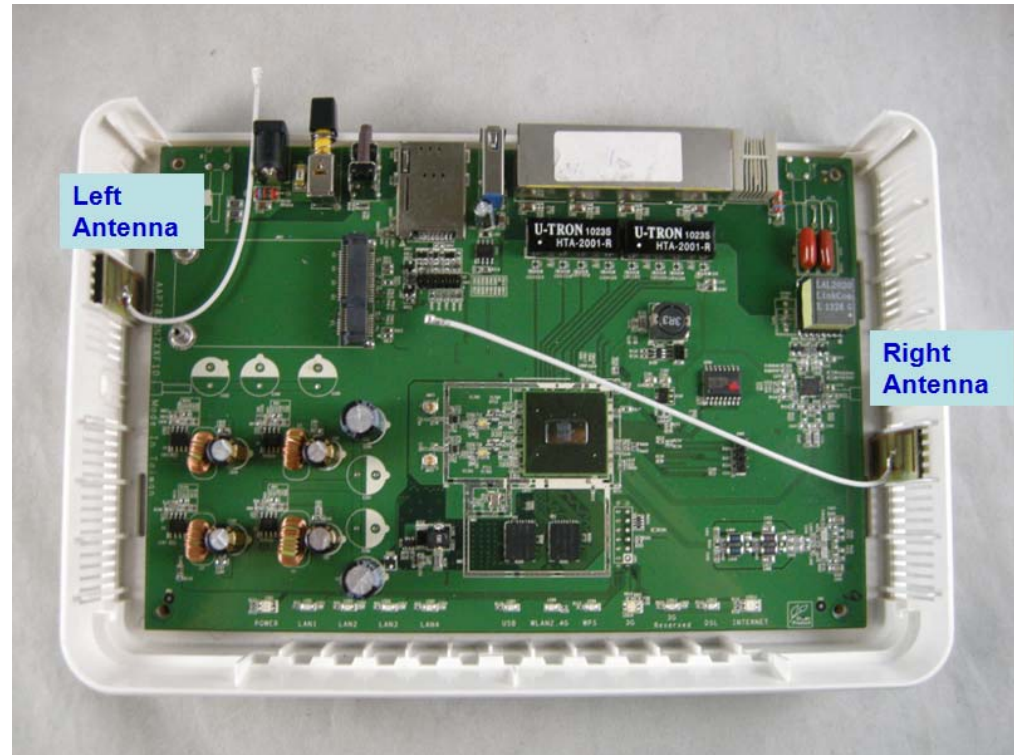
2.4~2.5 GHz : 2.0Max : 1

■ Efficiency :

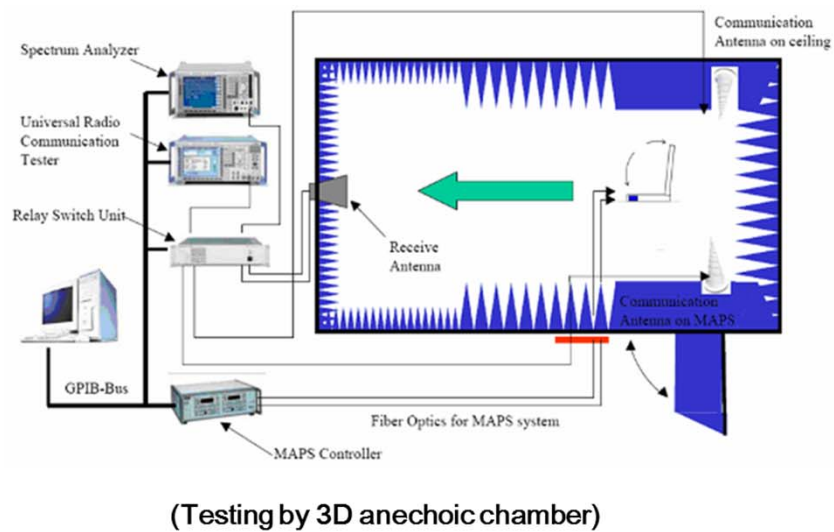
2.4~2.5 GHz : 77~78 %



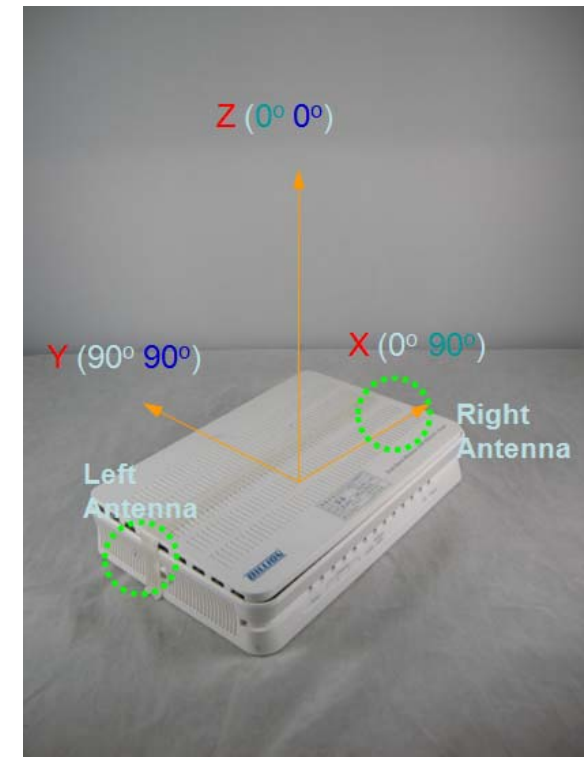
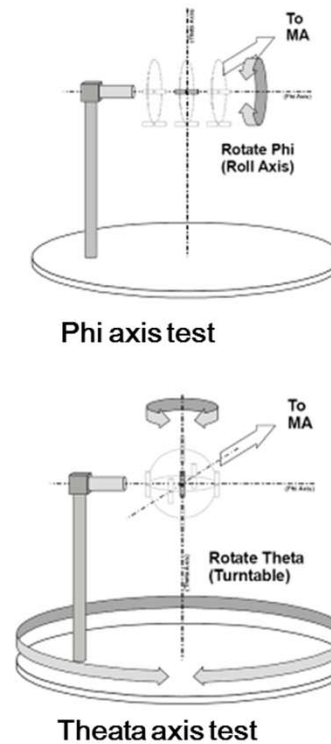
Antenna Position



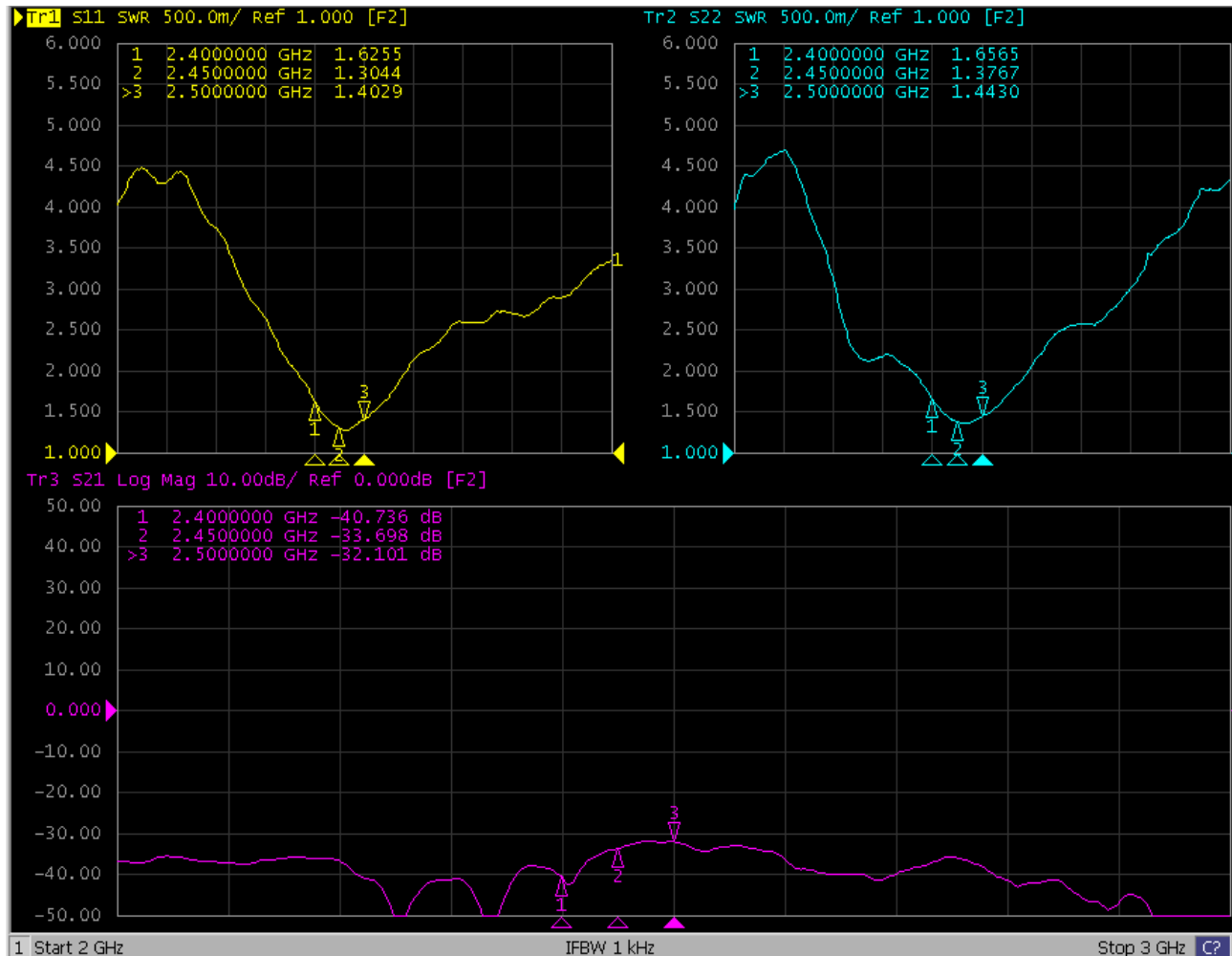
Antenna Testing Conditions



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)

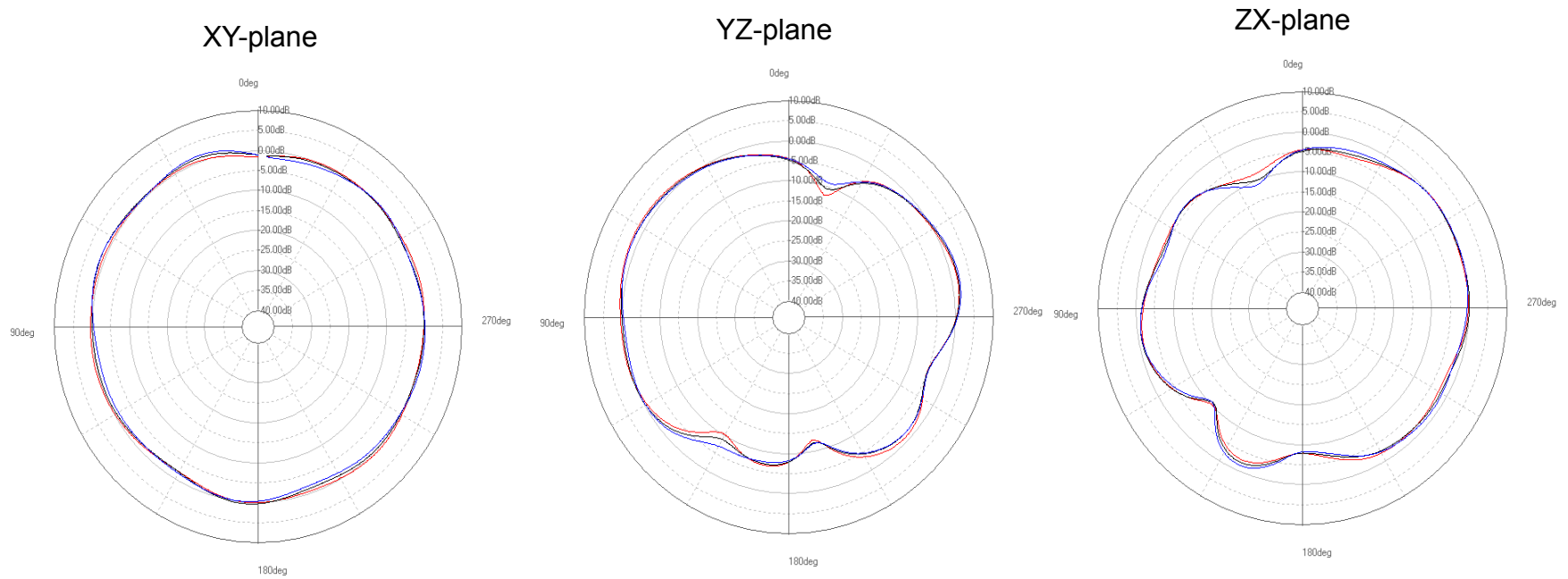
Frequency (MHz)	3D			V+H Avg. Gain			V+H Peak Gain		
	Efficiency	Avg. Gain	Peak Gain	XY-plane	YZ-plane	ZX-plane	XY-plane	YZ-plane	ZX-plane
2400	78%	-1.1	3.1	0.6	-2.0	-3.1	3.1	1.9	1.0
2450	77%	-1.2	3.3	0.7	-1.8	-3.1	3.3	1.8	0.9
2500	77%	-1.1	3.5	0.6	-1.7	-3.3	3.4	1.6	0.6

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)

