
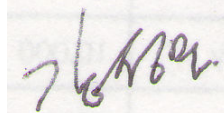



# Approval Sheet

Product	Bluetooth Antenna		
Customer	UNEEDS Commers Co.,LTD.		
Model	UM-1100C		
Customer Code			
Supplier	MicroRF Co., LTD.		
Supplier Code	Conduction Tape ANT		
Customer	Designed by	Checked by	Approved by
MicroRF	Designed by	By checked	By approved
			
	R&D	QC	R&D
	Taeyoung, Nam	Sunmo, Kang	Seungyun, Kim

2009. 5. 25.


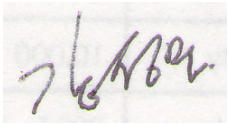

MicroRF Co., Ltd.

TEL. 82-2-6406-5590

FAX. 82-2-6406-5591

# SPECIFICATION

Model : Bluetooth Antenna (Conduction Tape Antenna)

Designed by	Approved by	Approved by
		
R&D	QC	R&D
Taeyoung, Nam	Sunmo, Kang	Seungyun, Kim
090525	090525	090525

2009.05.25.

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# Contents

1. Revision History -----	1
2. Features and Applications -----	2
3. Code No. -----	2
4. Electrical Specifications -----	2
5. Mechanical Dimensions -----	5
6. Measurement Method and Conditions -----	6
7. Environmental Specifications -----	7
8. Environmental Tests and conditions -----	8
9. Recommended Soldering Patterns -----	9
10. Packaging -----	10
11. Usage and Cautions -----	10

## 1. Revision History

Rev No.	Date	Name	Page	Item	Revision Issue
1.0	071209	T.Y.Nam			Issued
1.1	090525	T.Y.Nam		Customer model name	Customer model name changed

## 2. FEATURES AND APPLICATIONS

This antenna is applied to 2.4 GHz ISM band applications, i.e. wireless LAN, Bluetooth, Zigbee, etc..

## 3. CODE NO.

CODE NO. : Conduction Tape ANT

CUSTOMER PART NO. :

## 4. ELECTRICAL SPECIFICATIONS

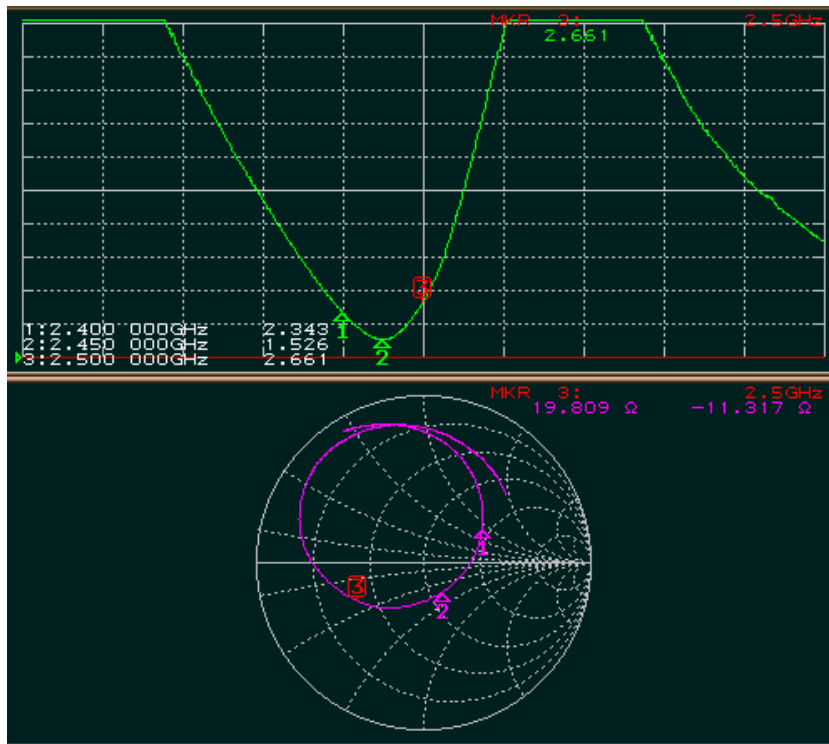
4-1.

\* All items are measured in room temperature (25℃).

\* All items are measured at customer set condition.

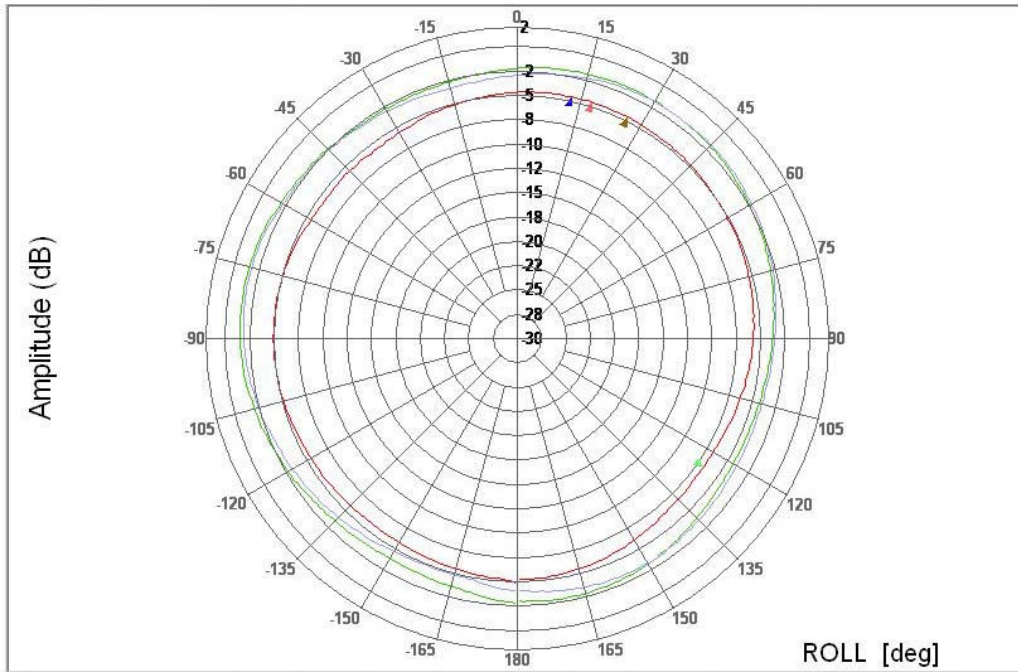
No.	Items	Specification	Typical Data
1	Frequency	2400 ~ 2500 MHz	2400 ~ 2484 MHz
2	VSWR	3.0 max	2.7 Max
3	Total Gain (Peak/AVG)	Peak Gain : -1 dBi (Min.)	-0.34/-1.66 dBi
4	Impedance	50 $\Omega$	50 $\Omega$
5	Polarization	Linear	Linear

4-2 VSWR data (S11 of SET condition)

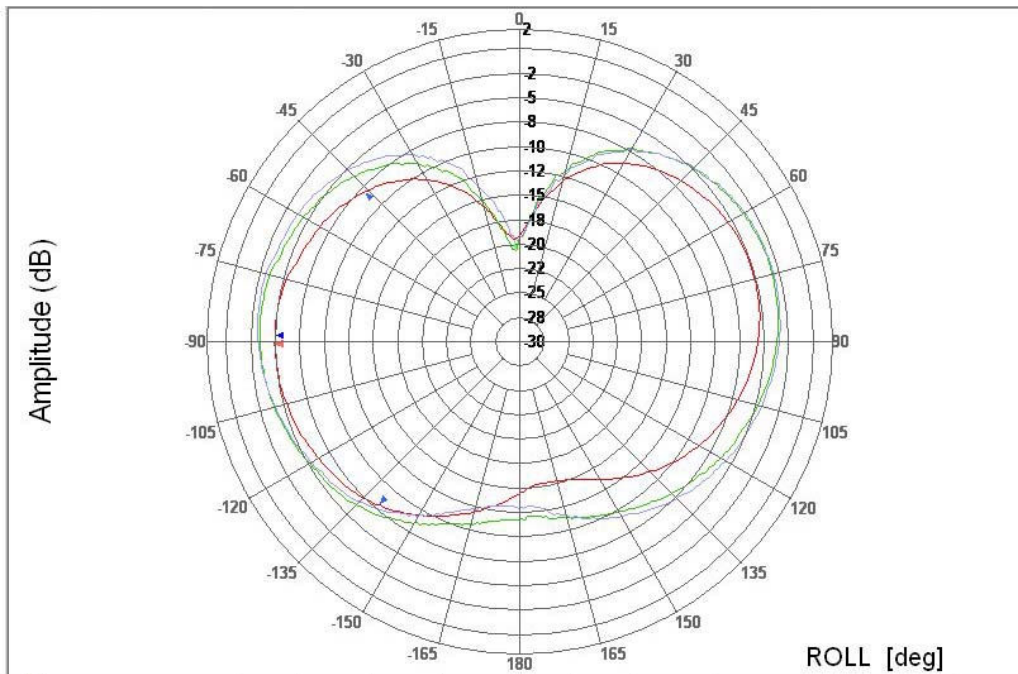


#### 4-3 Radiation Patterns

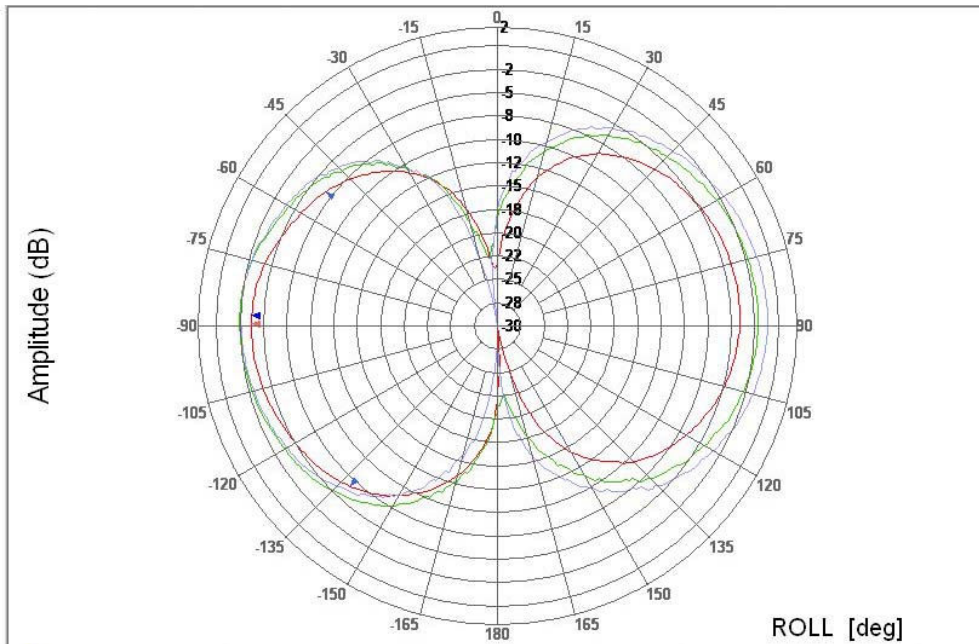
(a) Azimuth Plane (XY) – Vertical Polarization



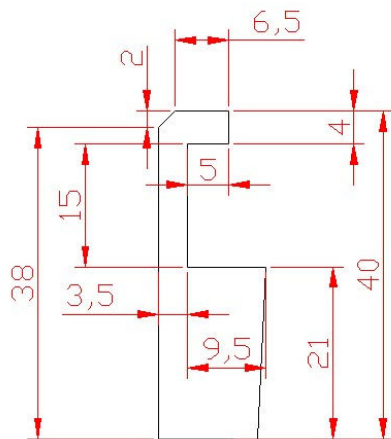
(b) Elevation Plane (YZ) – Horizontal Polarization



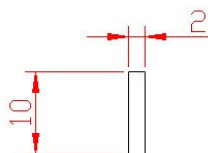
(c) Elevation Plane (ZX) – Horizontal Polarization



## 5. MECHANICAL DIMENSIONS



**ANT.**



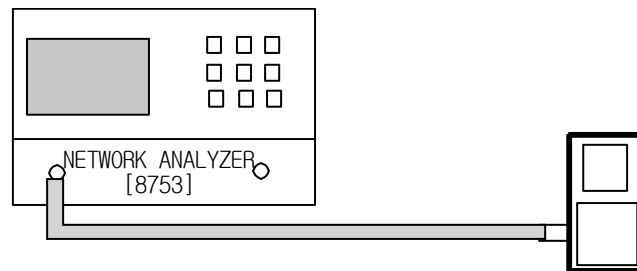
**Feeding line**



## 6. Measurement Method and Conditions

The measurement of antenna performance is measurement of gain, radiation pattern using ORBIT/FR apparatus in Anechoic chamber and measurement of VSWR using Network analyser.

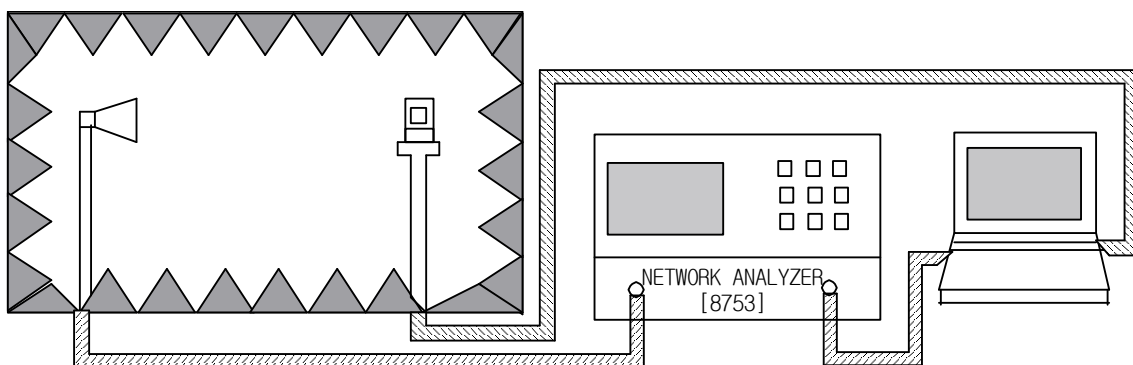
### 6-1. The measurement of Frequency and VSWR



#### <Measurement Method>

- 1) As seen the above, network analyser is set up for S11 measurement.
- 2) The measurement frequency range is to set up from 2 GHz to 3 GHz.
- 3) Perform S11 one port full calibration.
- 4) Measure the VSRW of three points of Bluetooth frequency range such as 2400 MHz, 2450 MHz, and 2500 MHz.

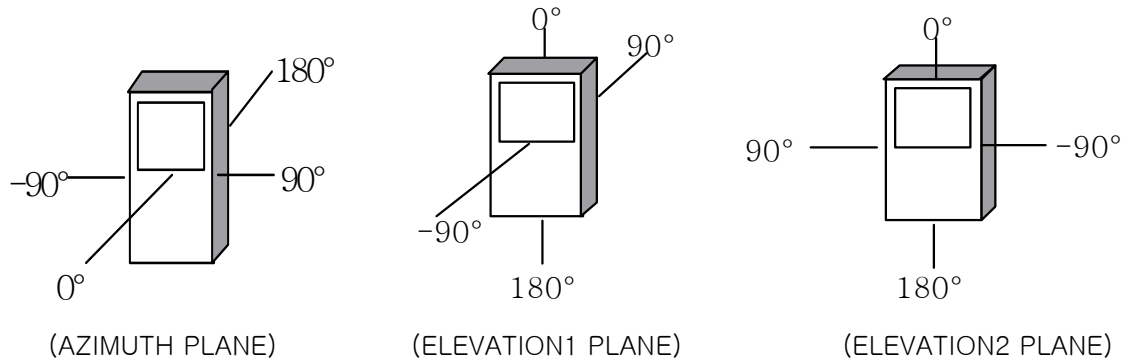
### 6-2. The measurement of Gain and Radiation Patterns



#### <Measurement Method>

- 1) As seen the above, network analyzer is to set up in Anechoic chamber.
- 2) As seen the beneath, for the measurement planes as Azimuth, Elevation1, and Elevation2, measure Gain data of vertical polarization and horizontal polarization for each

plane.



## 7. ENVIRONMENTAL SPECIFICATIONS

No.	Items	Specifications
1	Material	Pb-free system
2	Operating Temperature Range	-30 ~ +85 °C
3	Operating Humidity Range	45 ~ 85 % RH

## 8. ENVIRONMENTAL TESTS

No.	Item	Test Conditions
1	High Temperature Storage	Leave for $72\pm 2$ hours in a test bath retaining $85\pm 2^{\circ}\text{C}$ . After then, leave on the test conditions for 1.5 hours.
2	Low Temperature Storage	Leave for $72\pm 2$ hours in a test bath retaining $-30\pm 2^{\circ}\text{C}$ . After then, leave on the test condition for 1.5 hours.
3	Static Humidity	Leave for $24\pm 2$ hours in a test bath retaining 90~95% RH / $50\pm 3^{\circ}\text{C}$ . After then, leave in the test condition for 1.5 hours.
4	Thermal Shock	Cool from $25^{\circ}\text{C}$ down to $-30\pm 2^{\circ}\text{C}$ and leave for 30 minutes. After that, heat up to $+85\pm 2^{\circ}\text{C}$ and leave for 30 minutes. After then, cool down to $25^{\circ}\text{C}$ . Repeat the cycle 15 times and leave on the test conditions for 1.5 hours.
5	Drop Shock	Drop 150g weight onto steel floor from the height of 152cm, 19 times and 120cm, 12 times.
6	Vibration	With 5g of the whole acceleration at 20 to 2000 Hz, apply a vibration for 2 hours for each of 3 directions.
7	Solder Proof	No reaching after reflow for $5\pm 1$ sec at $260^{\circ}\text{C}$ . ( Not applied to this case )
8	Soldering Conditions	$230\pm 5^{\circ}\text{C}$ / $5\pm 1$ sec for Sn/Pb soldering system $245\pm 5^{\circ}\text{C}$ / $2\pm 1$ sec for Pb-free soldering system

## 9. RECOMMENDED SOLDERING PATTERNS

As drawn in PCB Layout

## 10. PACKAGING

Bulk type packing ( Packed in Vacuum Pack)

## 11. USAGE AND CAUTIONS

– Safe-keeping conditions : 3 months in  $20\pm 15^{\circ}\text{C}$  and less than 60% RH