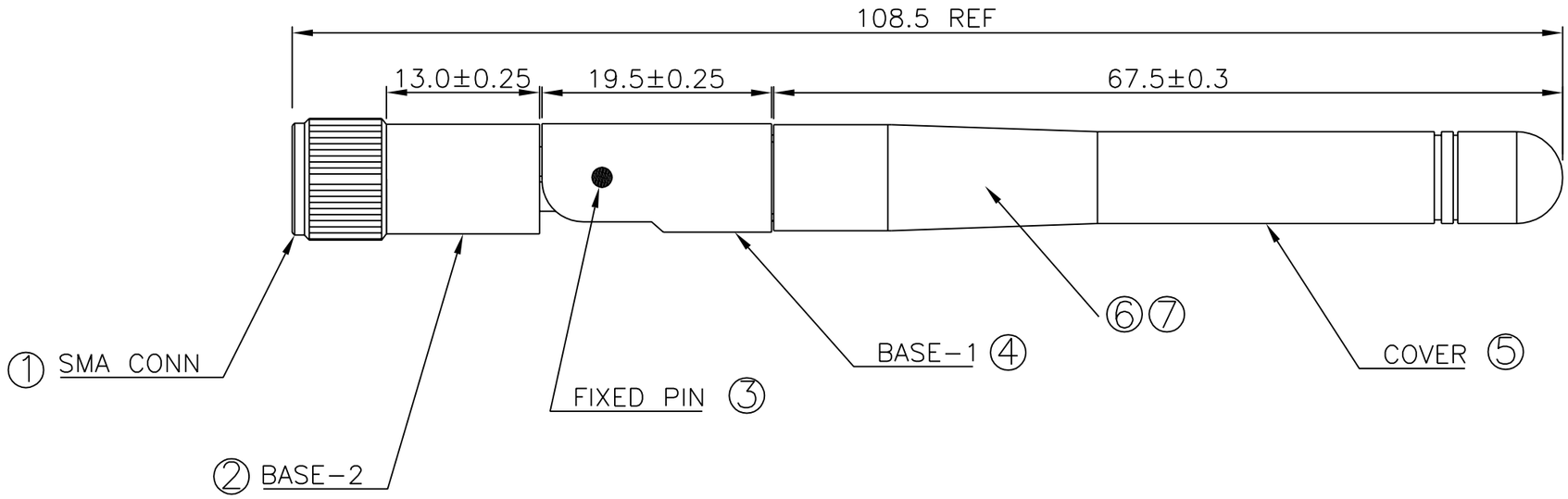
Proposal Drawing

REV	DATE	DESCRIPTION	NAME
01	05.11.04	NEW RELEASE	



NOTES:

1. VSWR 2.0 MAX.

NO.	ITEM	DESCRIPTION	QTY
⑦	G0140-1201011	COPPER TUBE , TINNED PLATED	1
⑥	GRG-178BUN0118X	COAXIAL CABLE RG178B/U 30AWG(7/0.102)*1C+BRAID+FEP BROWN JACKET, OD=1.8mm	1
⑤	GMY111-B010101	COVER , BLACK	1
④	GMY111-B020100	BASE-1 , BLACK	1
③	G0102-7801011	FIXED PIN , BLACK COATING	2
②	GMY111-B030100	BASE-2 , BLACK	1
①	G7109-01010400	SMA CONNECTOR MALE (REVERSE PIN) , BLACK COATING CONNECTOR BODY	1

WIESON TECHNOLOGIES CO., LTD

PART NO.: GY111HT0012-007

TITLE: 2.4GHz SMA ANTENNA

DRAWN BY	Zhwen(WSC)	DRAWING NO.	WSTS033598
CHECKED BY	OWEN	DRAWING SIZE	NONE A4
APPROVED BY	DRAGON	UNIT	mm
SORTING NO.	WST	PAGE	1 OF 1

[ARTICLE:044032 V4]

WIESON TECHNOLOGIES CO.,LTD

BILL OF MATERIAL

Cust.	永 洋	TITLE	2.4GHz Antenna
Cust.P/N		WIESON P/N	GY111HT0012-007

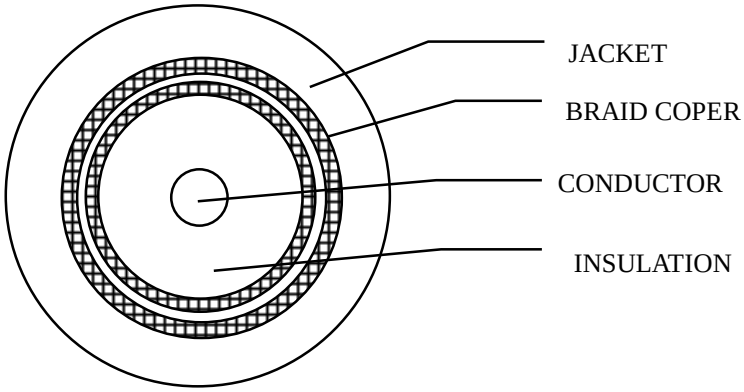
NO.	DESCRIPTION	SUPPLIER	SUPPLIER PART NO.	UL NO.	AVL	QUANTITY	REMARK
1	COAX CABLE RG-178, BROWN JACKET OD:1.8mm	/	/	/		MM	/
2	COVER BLACK	WIESON	MY111-B010101	/		1PCS	/
3	BASE-1 BLACK	WIESON	MY111-B020100	/		1PCS	/
4	BASE-2 BLACK	WIESON	MY111-C030101	/		1PCS	/
5	COPPER TUBE TINNED PLATED	WIESON	G0140-1201011	/		1PCS	/
6	FIXED PIN BLACK COATING	WIESON	0102-780101	/		2PCS	/
7	SMA MALE(R.P) BLACK COATING	WIESON	7109-01010400	/		1PCS	

APPROVED BY:Dragon Yang **CHECKD BY: OWEN** **DESIGNED BY: Zhwen**

CABLE CONSTRUCTION(電纜結構):

ITEM(結構項目)		SPECIFICATION(規格說明)
CONDUCTOR 導體	AWG(線規)	30AWG
	MATERIAL(材質)	SCCS
	COND.SIZE(尺寸)	7/0.102±0.008 ㎜
INSULATION 絕緣體	MIN.AVG.THICK(最小厚度)	0.50 ㎜
	MATERIAL(材質)	FEP
	O . D(外徑)	1.52±0.05 ㎜
	N O.(線數)	1C
AL.MYLAR 鋁箔	COVERAGE(遮蔽率)	/
	OVERLAP(重疊率)	/
MYLAR 麥拉	COVERAGE(遮蔽率)	/
	OVERLAP(重疊率)	/
DRAIN 地線	AWG(線規)	/
	MATERIAL(材質)	/
	SIZE(尺寸)	/
BRAID 編織 COPPER	MATERIAL(材質)	SC
	SIZE(尺寸)	16×5/0.10±0.008 ㎜
SPIRAL 纏繞 COPPER	MATERIAL(材質)	/
	SIZE(尺寸)	/
COVERING 被覆體	MIN.AVG.THICK(最小厚度)	/
	MATERIAL(材質)	/
	O.D(外徑)	/
	NO.(線數)	/
FILLER 填充	MATERIAL(材質)	/
LAYER 集合	DIRECTION(絞向)	/
	PITCH(絞距)	/
FOAMED PP TAPE 發泡 PP 膜	COVERAGE(遮蔽率)	/
	OVERLAP(重疊率)	/
AL.MYLAR 鋁箔	COVERAGE(遮蔽率)	/
	OVERLAP(重疊率)	/
PAPER 紙	COVERAGE(遮蔽率)	/
	OVERLAP	/
DRAIN 地線	AWG(線規)	/
	MATERIAL(材質)	/
	SIZE(尺寸)	/
BRAID(編織) COPPER	MATERIAL(材質)	SC
	SIZE(尺寸)	16×5/0.10±0.008 ㎜
SPIRAL(纏繞) COPPER	MATERIAL(材質)	/
	SIZE(尺寸)	/
JACKET 被覆體	MIN.AVG.THICK(最小厚度)	0.20 ㎜
	MATERIAL(材質)	FEP
	COLOUR(顏色)	BLACK
	O . D(外徑)	2.94±0.10 ㎜
MARKING 印字	MARKING 印字	NO MARKING

CONSTRUCTION(構造)



COLOR CODE:(顏色代碼)

1. NATURAL

PHYSICAL PROPERTY & TRANSMISSION PERFORMANGE SPECIFICATIONS

Electric Characters(電氣特性)

1.Attenuation(normal): at 400MHz 17.0dB/100 Ft .

2.Impedance : 75 ± 3Ω @TDR

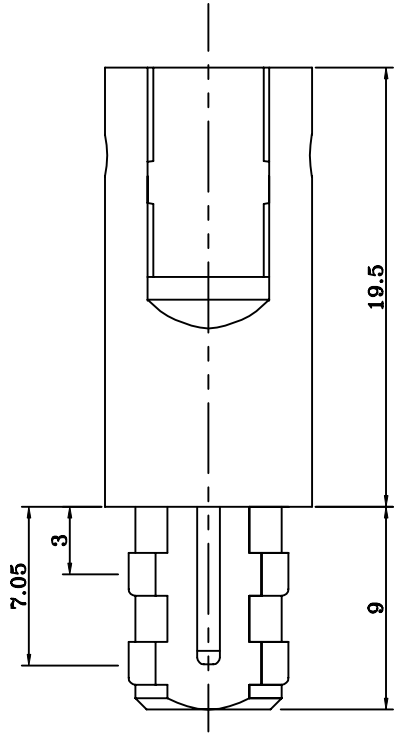
3.Conductor Resistance: at 20℃ MAX 846Ω/km;

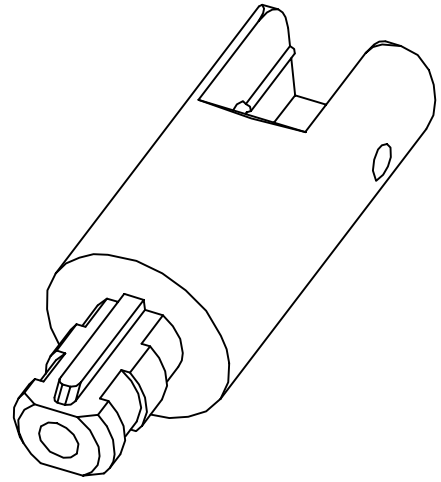
Y111 SERIES ANTENNA BASE-1

REV	DATE	DESCRIPTION	ECN NO.	NAME
A	03'.09.26	NEW RELEASE		Jack

MATERIAL:

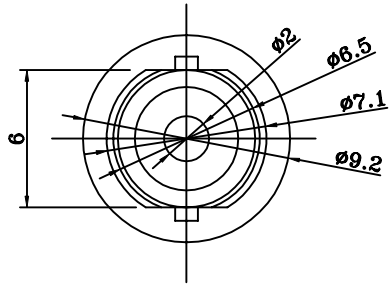
1)Thermal plastic,color gray .

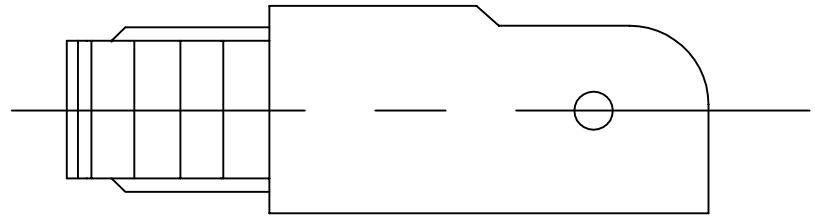




MY111-B 02 ** 00

01: BLACK(FA401)
02: WHITE
03: GRAY(AC105)
04: GRAY(AC106)





GENERAL TOLERANCE ±0.25mm GENERAL ANGLE TOLERANCE ±3°	WIESON TECHNOLOGIES CO., LTD	PART NO.:	MY111 - B02**00
	DRAWN BY: Jack (WST)	DRAWING NO.	MY111-002
	CHECKED BY:	DRAWING SIZE	4 : 1 A3
	APPROVED BY: IVAN	UNIT	mm
	SORTING NO.: WSC	PAGE	1 OF 1

ISSUED

[ARTICLE:044033 V3]

REV	DATE	DESCRIPTION	ECN NO.	NAME
A	03'.09.26	NEW RELEASE		Jack

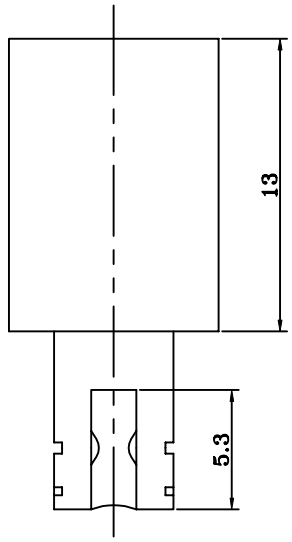
Y111 SERIES ANTENNA BASE-2

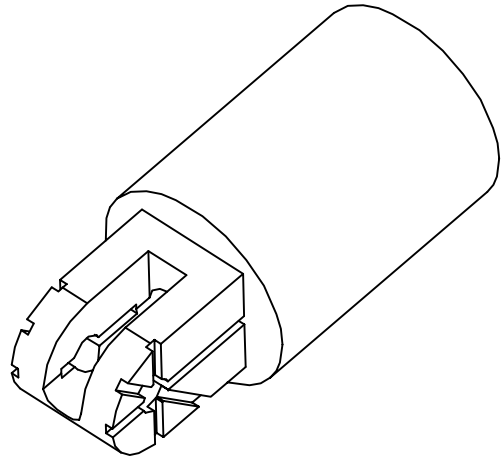
MATERIAL:

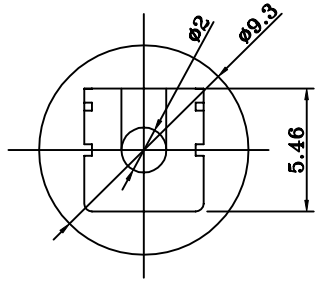
1)Thermal plastic , color black & white & gray .

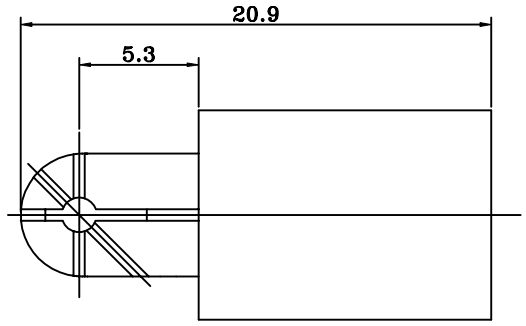
MY111-B 03 ** 00

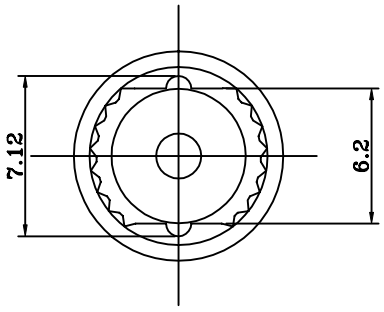
01: BLACK
02: WHITE
03: GRAY(AC105)
04: GRAY(AC106)











GENERAL TOLERANCE ±0.25mm GENERAL ANGLE TOLERANCE ±3°	WIESON TECHNOLOGIES CO., LTD	PART NO.:	MY111-B03**00
	DRAWN BY: Jack(WST)	DRAWING NO.	MY111-003
	CHECKED BY:	DRAWING SIZE	4 : 1 A3
	APPROVED BY: IVAN	UNIT	mm
	SORTING NO.: WSC	PAGE	1 OF 1

ISSUED

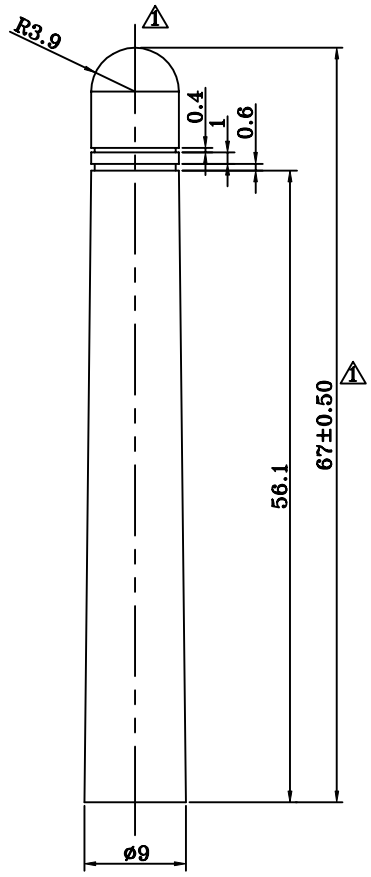
[ARTICLE:044033 V3]

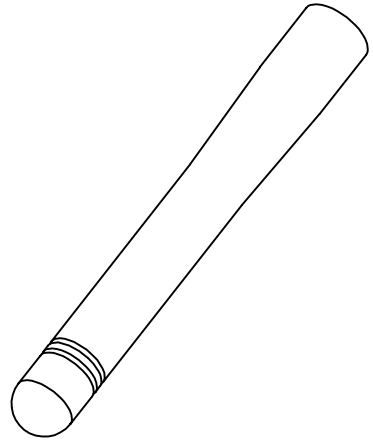
REV	DATE	DESCRIPTION	ECN NO.	NAME
A	03'.09.26	NEW RELEASE		Jack
B	04'.01.08	⚠1 ADD DIMENSION, CHANGE PART NUMBER	TECR04001004	Jack

Y111 SERIES 2.4GHz ANTENNA WITH SMA CONN.

MATERIAL:

1)Thermal plastic , UL-94V0 .
2)Color : Black , white or gray .

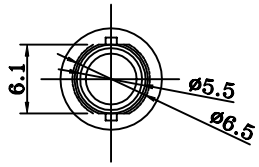




MY111-B 01 ** 01 ⚠1

01: BLACK
02: WHITE
03: GRAY(DC301)
04: GRAY(DC302)

01:W/O PARTING LINE



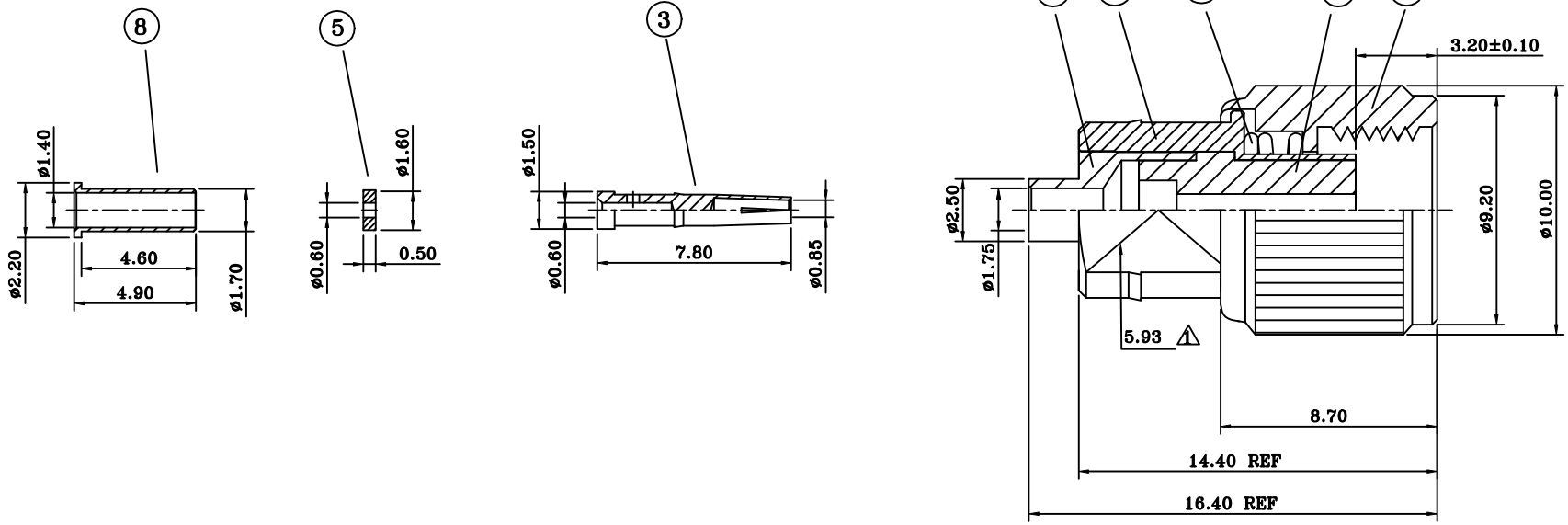
GENERAL TOLERANCE ±0.25mm GENERAL ANGLE TOLERANCE ±3°	WIESON TECHNOLOGIES CO., LTD	PART NO.:	MY111-B01**01
	DRAWN BY: Jack (WST)	DRAWING NO.	MY111-001
	CHECKED BY:	DRAWING SIZE	2 : 1 A3
	APPROVED BY: IVAN	UNIT	mm
	SORTING NO.: WSC	PAGE	1 OF 1

ISSUED

[ARTICLE:044033 V3]

7109 SERIES SMA MALE CRIMP TYPE REVERSE POLARITY

REV	DATE	DESCRIPTION	ECN NO.	NAME
A	03.06.04	NEW RELEASE		ANLG
B	03.07.31	⚠Modify dimm.	AK0307022	Ken
C	04.01.09	⚠2Modify	AK0401011	XZ



⚠2

NO	Description	Q'ty	Material	Finish
8	Ferrule	1	Brass	Nickel
7	Spring	1	Steel	None
6	Shell	1	Brass	Black Chrome
5	Dielectric	1	Teflon	None
4	Dielectric	1	Teflon	None
3	Pin	1	Phos bronze	Gold
2	Body	1	Brass	Gold
1	Body	1	Brass	Black Chrome

⚠2

GENERAL TOLERANCE ±0.2mm GENERAL ANGLE TOLERANCE ±1°	WIESON TECHNOLOGIES CO., LTD	PART NO.:	7109-01010400
	DRAWN BY: ANLG(WSC)	DRAWING NO.	7109-01010400
	CHECKED BY:	DRAWING SIZE	A3
	APPROVED BY: KEVIN	UNIT	mm
	SORTING NO.: P1278(WST)	PAGE	1 OF 1

ISSUED

[ARTICLE: 044033 V3]

2.4GHz SMA Dipole Antenna Measurement and Performance Report

Summary:

This report is to account for the measurement setup and results of 2.4GHz SMA Dipole Antenna.

1. The measurement setup includes reflection coefficient, pattern, and gain measurements.
2. The measured data for 2.4GHz SMA Dipole antenna are presented and analysis.

I. Measurement Setup:

A. Reflection Coefficient Measurement:

(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 −10dB to ensure the 90% power into antenna and only less than 10% power back to system.

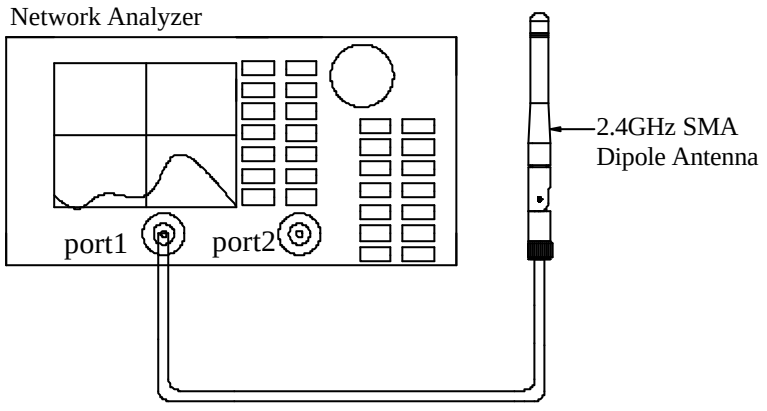


Fig.1 2.4GHz SMA Dipole Antenna measured in Network Analyzer

IV**. Pattern Measurement:**

(a) **Instrumrnts**: Anechoic Chamber, Network Analyzer, Standard Gain Antenna.

(b) **Chamber description**:

(1) The anechoic chamber is a far-field measurement system with size of 8m*4m*3.5m. The quiet zone region is 20cm x 20cm x 20cm at frequency range of 2.4 Ghz in the center of the rotator.

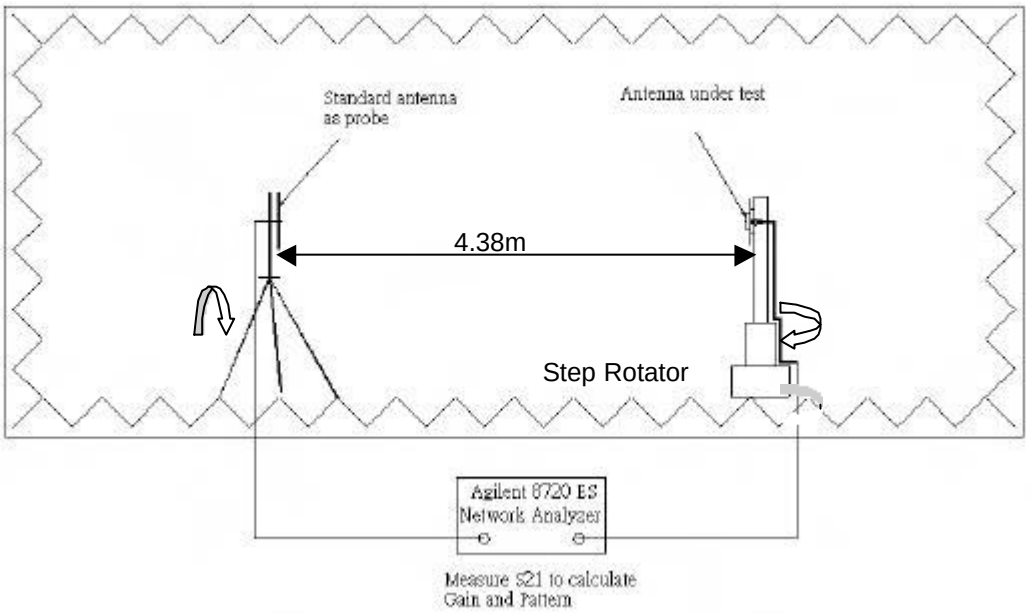


Fig. 2. The interior components of the anechoic

(2) Fig. 2 shows the interior components of Anechoic chamber and the connection to the network analyzer. The distance between standard antenna as probe and antenna under test (AUT) is 4.38m. The antenna under test is fixed on a step rotator. We can control the rotating angle for accurate or rough measurement.

The probing antenna is the TDK 900MHz~18 GHz module (9120D horn antenna).

(3) While we measure the radiation patterns by rotating AUT with 360 degrees and repeat again by replacing the AUT with the standard gain antenna under test, we compare both data and using a formula to obtain the

$$G_{AUT} = G_{s\tan d} + P_{AUT} - P_{s\tan d}$$

G_{AUT} : *Gain of AUT*

$G_{s\tan d}$: *Gain of Standard Gain Antenna*

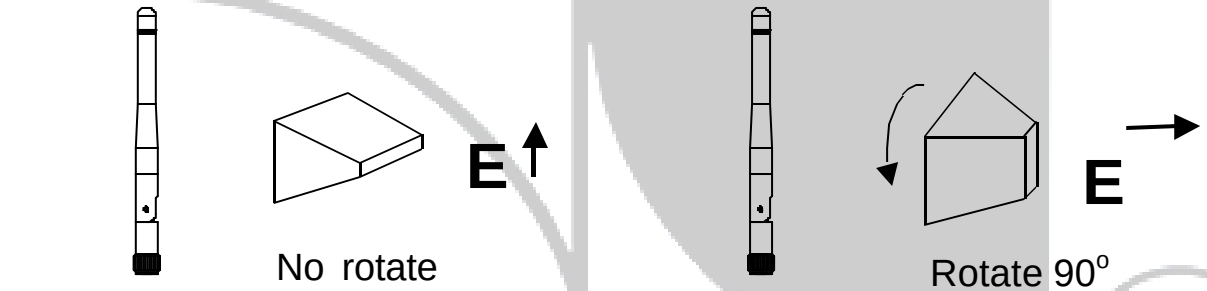
P_{AUT} : *Measured Power of AUT*

$P_{s\tan d}$: *Measured Power of Standard Gain Antenna*

(4) gain of AUT. The standard gain antenna is a gain horn (BBHA 9120 LFA 700MHz~6GHZ).

(5) The planes defined in the Fig. 4 which we want to measure are H(X-Y) and E(X-Z) planes. The vertical or horizontal polarization' s power is measured by rotating the antenna probe to 0 degree or to 90 degree shown in Fig. 3, respectively. While we combine both vertical and horizontal power, we obtain total power.

(6) From the total power in three basic planes (H,and E), we can analyze the performance of the antenna is good or not.



(a) Antenna Probe at 0° as a Vertical Polarization.

(b) Antenna Probe at 90° as a Horizontal Polarization.

Fig. 3. The definition of vertical and horizontal polarization.

(C) Plane definition:

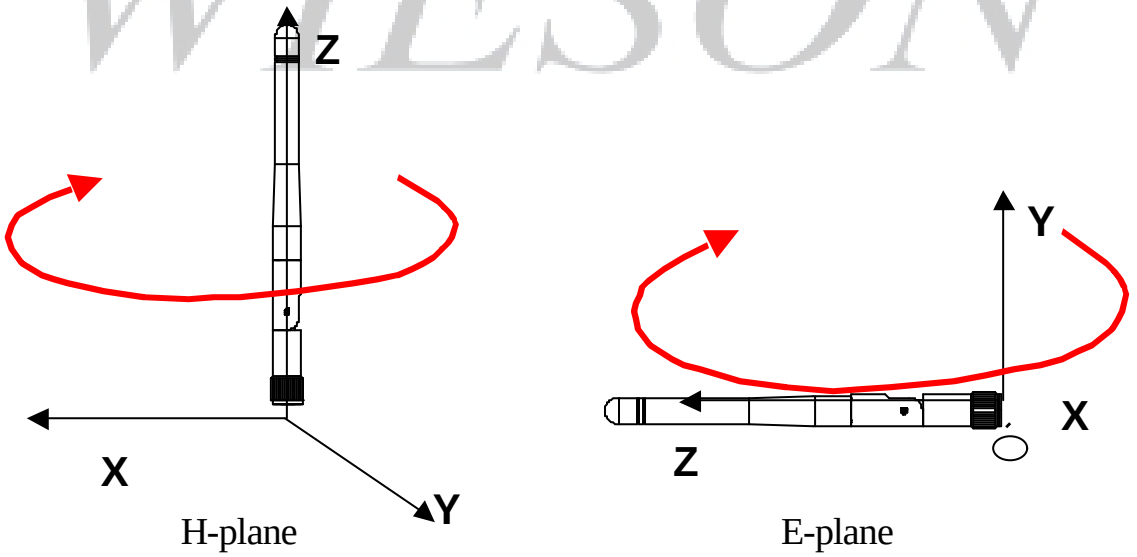


Fig. 4. The plane definition: H-Planes and E-planes.

V. Gain and Radiation Pattern:

A: Antenna Gain:

Antenna Gain for 2.4GHz SMA Dipole Antenna.

Total power H	Max (dBi)	Min (dBi)	Average (dBi)
2400MHz	3.12	-0.32	1.21
2450MHz	3.48	0.16	1.81
2483MHz	2.87	-0.16	1.55

(a) H-plane total power.

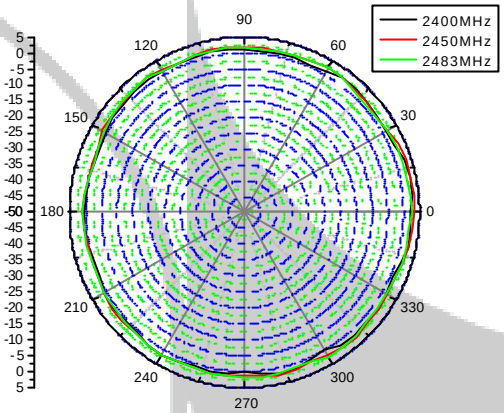
Total power E	Max (dBi)	Min (dBi)	Average (dBi)
2400MHz	2.95	-17.49	-1.50
2450MHz	2.38	-17.82	-1.45
2483MHz	2.37	-16.3	-1.43

(b) E-plane total power.

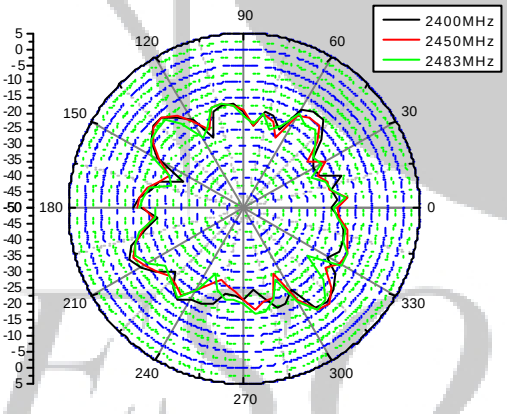
Fig. 6. The total power in 2.4GHz SMA Dipole antenna.

B. Radiation Patterns:

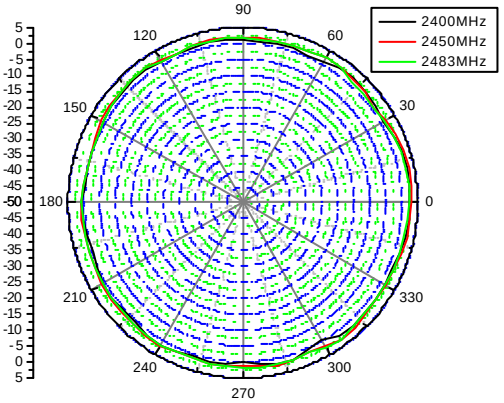
First, radiation patterns for 2.4GHz SMA Dipole antenna was measured in Fig. 7 and Fig. 8.



H-plane pattern (vertical polarization)

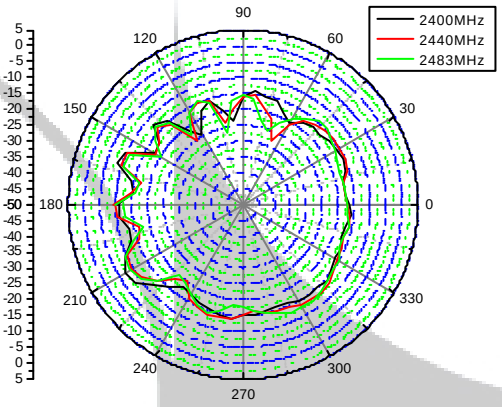


H-plane pattern (horizontal polarization)

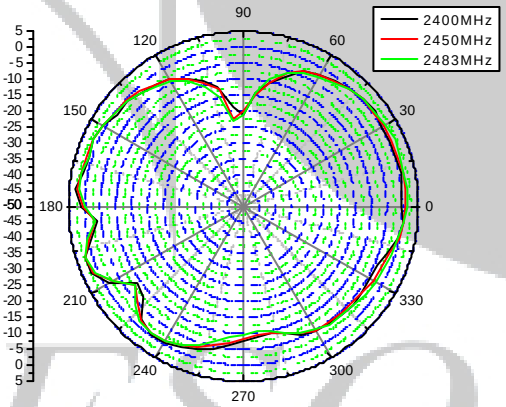


H-plane pattern (total power)

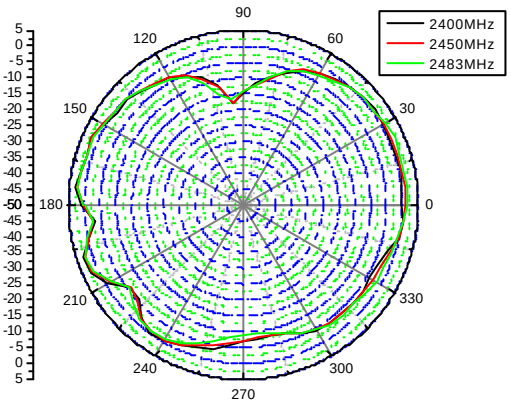
Fig. 7. Radiation patterns for 2.4GHz SMA Dipole antenna in H-planes.



E-plane pattern (horizontal polarization)



E-plane pattern (vertical polarization)



E-plane pattern (total power)

Fig. 8. Radiation patterns for 2.4GHz SMA Dipole antenna in E-planes.