

EW3000GX-PRO

# Antenna report

**Model:** EW3000GX-PRO

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**Manufacture:** Dongguan RF Electronic Technology Co., Ltd

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**Address:** No.1, Sankeng Road, Qinghu Tou, Tangxia Town,  
Dongguan City, China

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**Version:** V2.0

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**Antenna type** External flat Omnidirection

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# 1 Basic description

## 1.1 Test Environment

Item	Configure	Remark
Name of laboratory	<i>RF Antenna Manufacturers Laboratory.</i>	
Darkroom system	<i>Satimo 5m*4m*3m ,</i>	
Relative coordinate	<i>Photo caption, relative coordinate system of the entire device, the same coordinate system needs to be maintained throughout the antenna report</i>	

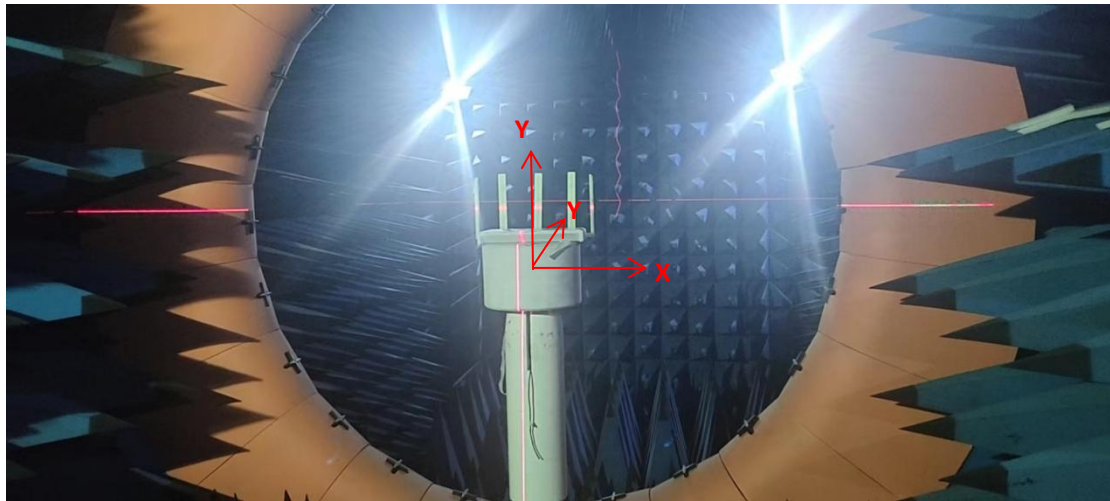


Figure 1 Relative coordinates illustrating Figure 1

## 1.2 Basic description of the device to be tested

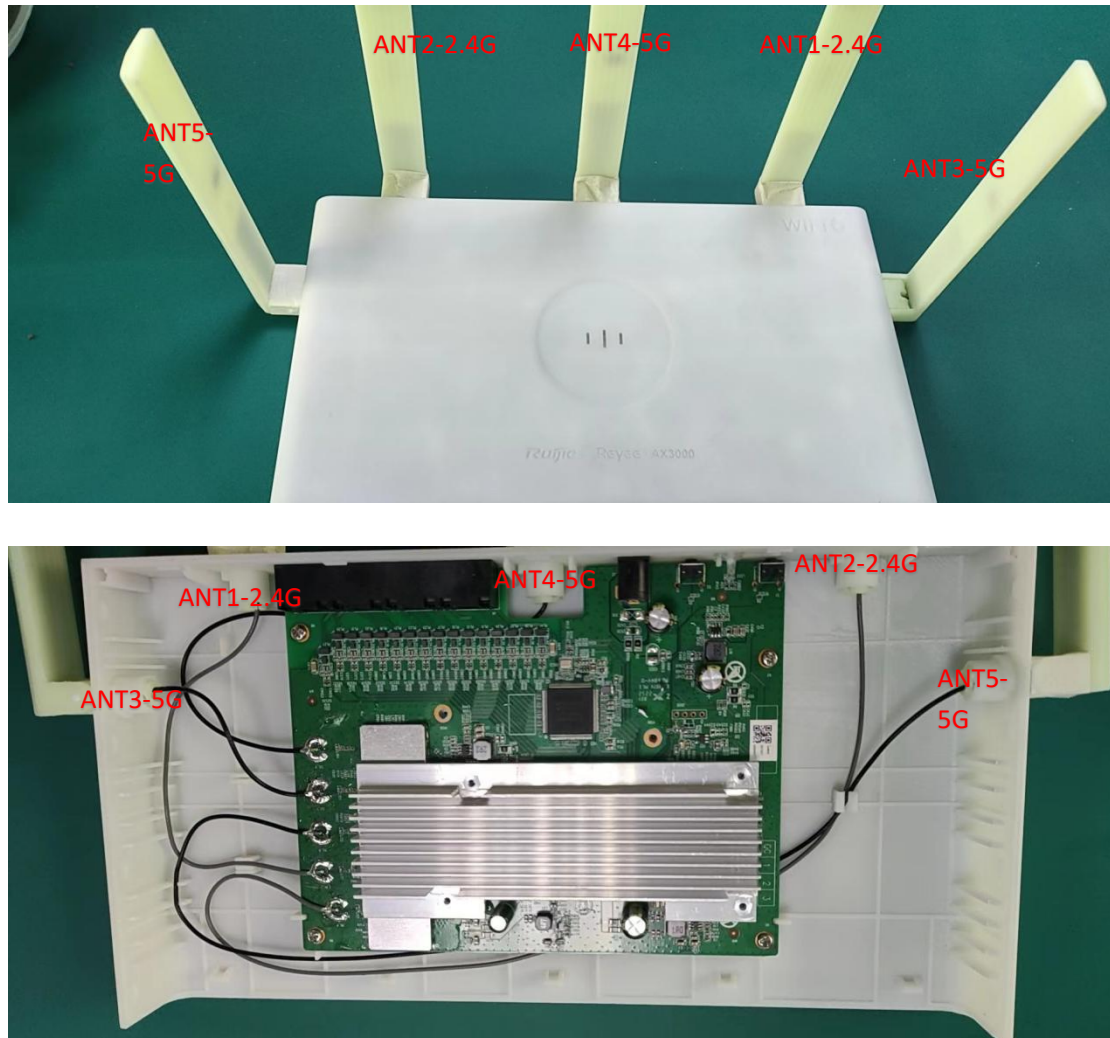


Fig. 2 Illustration of the relative positions of the antennas

## 2、 WiFi Antenna Passive Test

### 2.1 2.4G WIFI antenna1

#### 2.1.1 Operating Frequency, VSWR

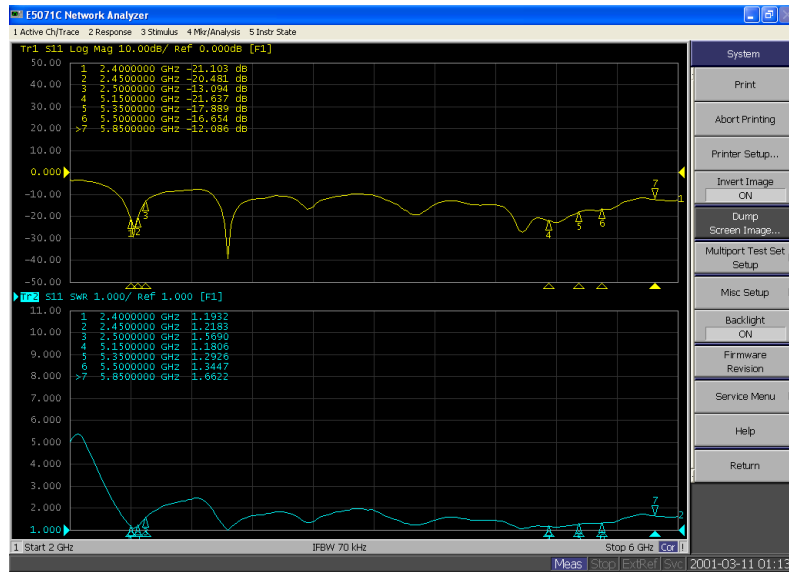


Fig. 3 ANT1 (2.4G WIFI) operating frequency VSWR

#### 2.1.2 Degree of isolation

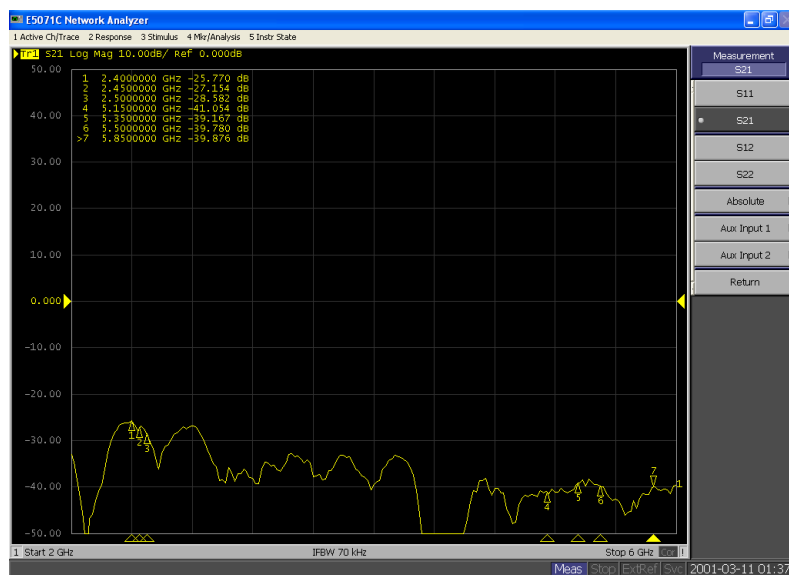


Fig. 4 Isolation between ANT1 (2.4G WIFI) and ANT2 (2.4G WIFI)

### 2.1.3 Efficiency and Gain

	ANT1	
Freq (MHz)	Effi (%)	Gain (dBi)
2400	72.27	4.62
2410	74.43	4.72
2420	76.47	4.86
2430	78.75	5.05
2440	80.31	5.24
2450	79.92	5.34
2460	78.18	5.36
2470	77.04	5.34
2480	76.66	5.32
2490	75.35	5.28
2500	73.52	5.22

Fig. 5 Efficiency and gain of ANT1-2.4G

### 2.1.4 Antenna Orientation Diagram

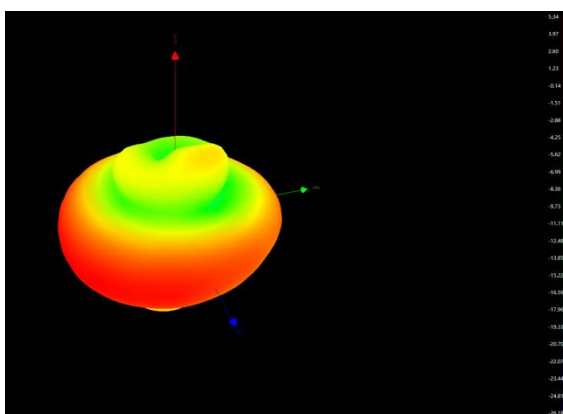


H-side: XY (horizontal)

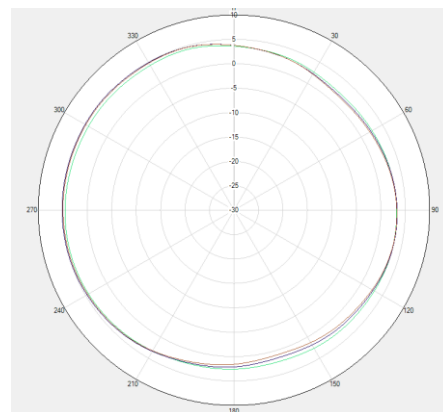
E1 side: XZ

E2 side: YZ

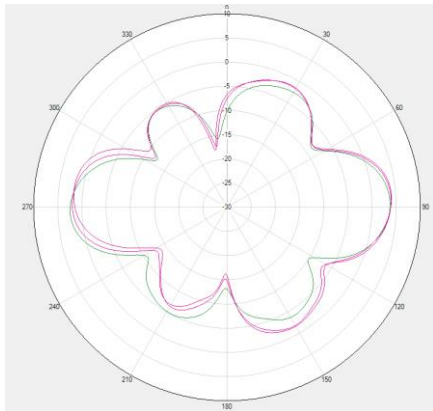
far-field orientation diagram



H



E1



E2

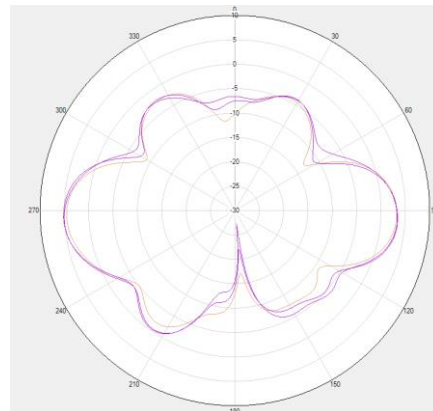


Fig. 6 3D and 2D field pattern of antenna 2.45G

## 2.2 2.4G WIFI Antenna 2

### 2.2.1 Operating Frequency, VSWR

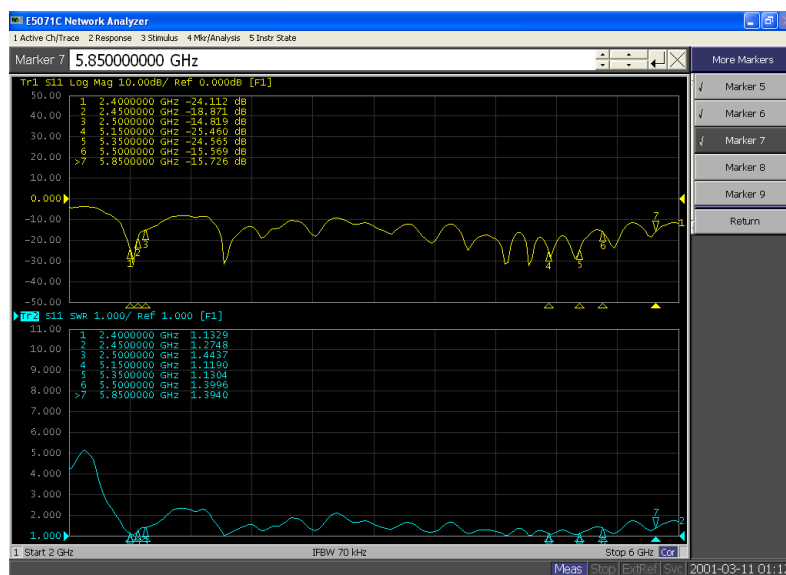


Fig 7 ANT2 (2.4G WIFI) Operating Frequency VSWR

## 2.2.2 Degree of isolation

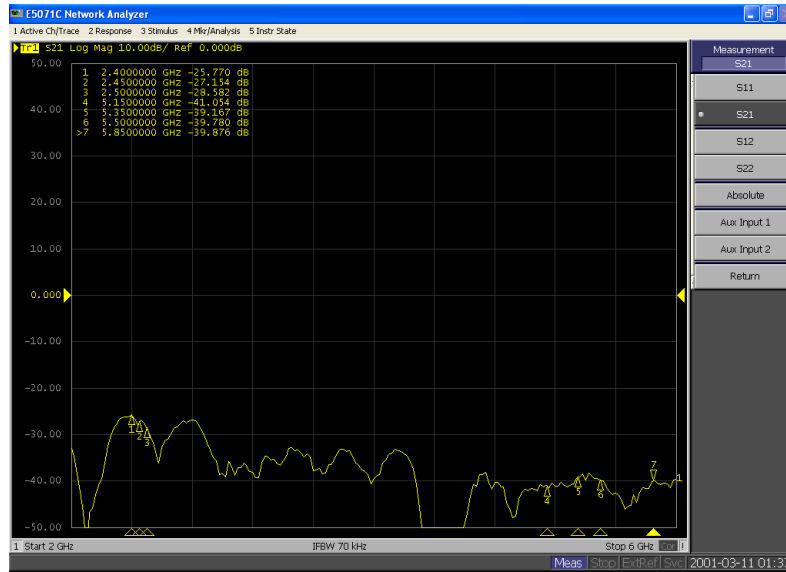


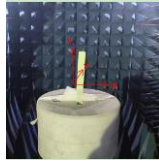
Fig. 8 ANT1 (2.4G WIFI) vs. ANT2 (2.4G WIFI) Isolation

## 2.2.3 Efficiency and Gain

	ANT 2	
Freq (MHz)	Effi (%)	Gain (dBi)
2400	69.64	4.78
2410	72.27	4.83
2420	74.07	4.87
2430	76.28	4.95
2440	77.04	5.01
2450	76.28	4.72
2460	74.62	4.97
2470	73.89	4.91
2480	73.34	4.85
2490	71.03	4.74
2500	68.45	4.61

Fig 9 Efficiency and gain of ANT2-2.4G

## 2.2.4 Antenna Orientation Diagram

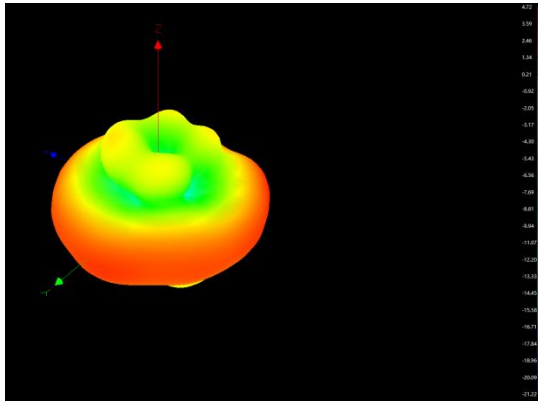


H-side: XY (horizontal)

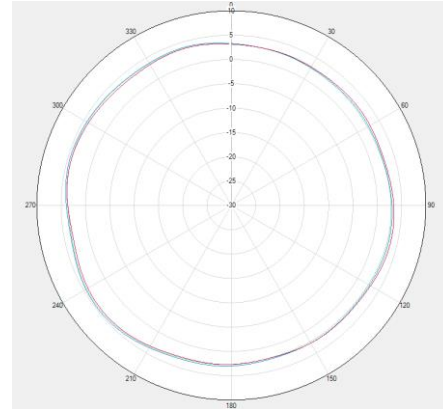
E1 side: XZ

E2 side: YZ

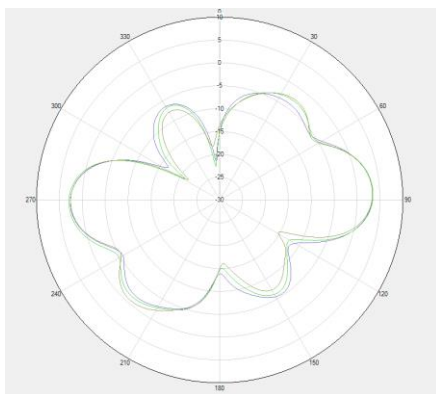
far-field orientation diagram



H



E1



E2

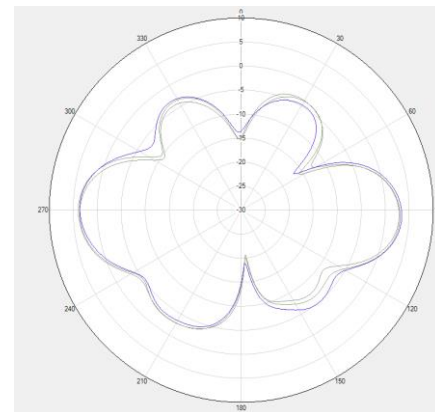


Fig. 10 3D and 2D field pattern of antenna 2.45G



### 3、 5G WiFi Antenna Passive Test

#### 3.1 5G WIFI Antenna 1

##### 3.1.1 Operating Frequency, VSWR

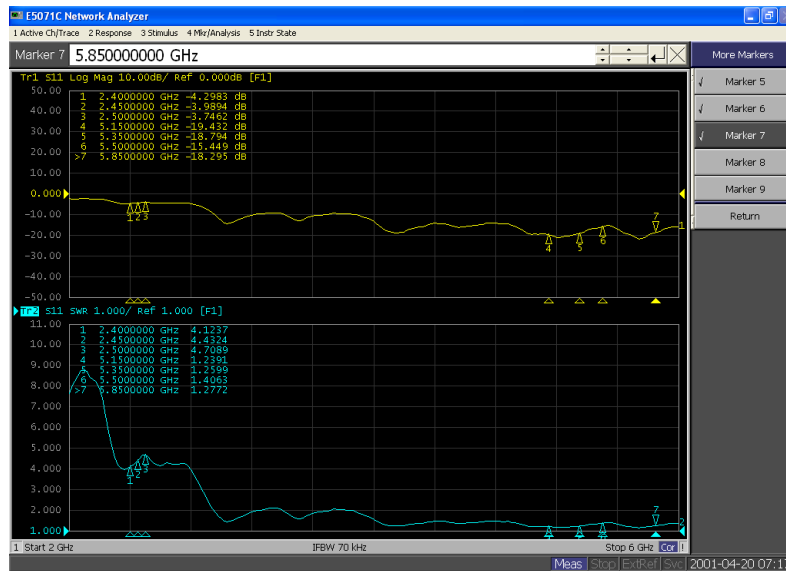


Fig. 11 ANT1 (5G WIFI) operating frequency VSWR

##### 3.1.2 Degree of isolation

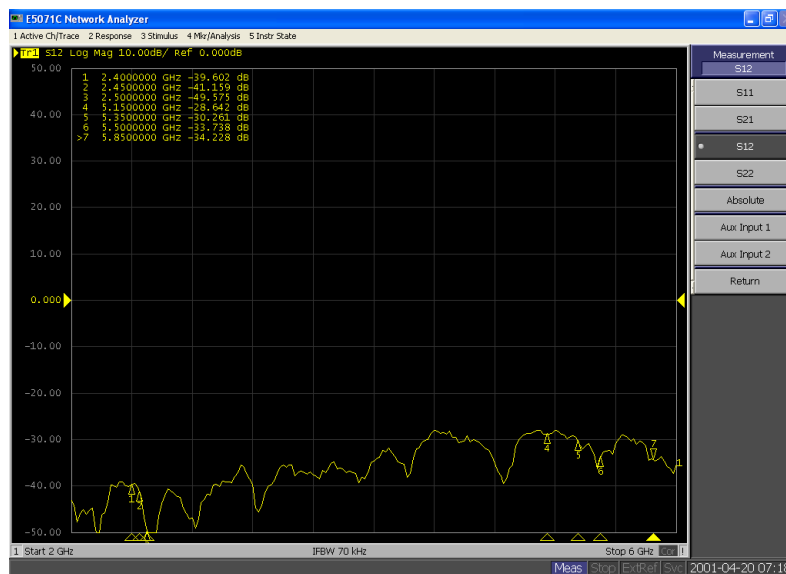


Fig 12 ANT1 (5G WIFI) vs. ANT4 (5G WIFI) Isolation

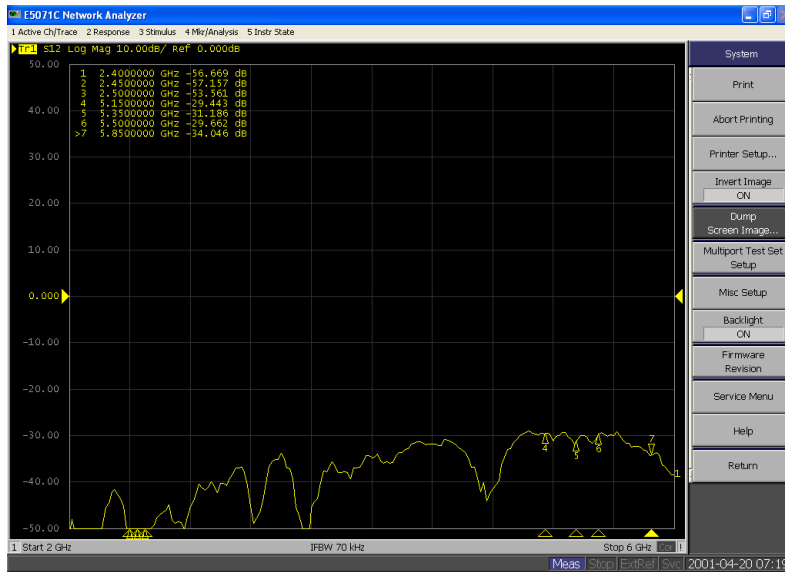


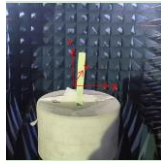
Fig 13 ANT1 (5G WIFI) vs. ANT5 (5G WIFI) Isolation

### 3.1.3 Efficiency and Gain

ANT1		
Freq (MHz)	Effi (%)	Gain (dBi)
5150	75.68	5.19
5200	74.98	5.30
5250	76.91	5.42
5300	74.30	5.04
5350	72.61	5.02
5400	74.64	5.49
5450	72.61	5.22
5500	74.83	5.30
5550	75.61	5.32
5600	72.53	5.19
5650	71.53	5.10
5700	71.94	5.21
5750	74.70	5.08
5800	75.10	5.03
5850	75.71	5.22

Fig. 14 Efficiency and gain of ANT1-5G

### 3.1.4 Antenna Orientation Diagram

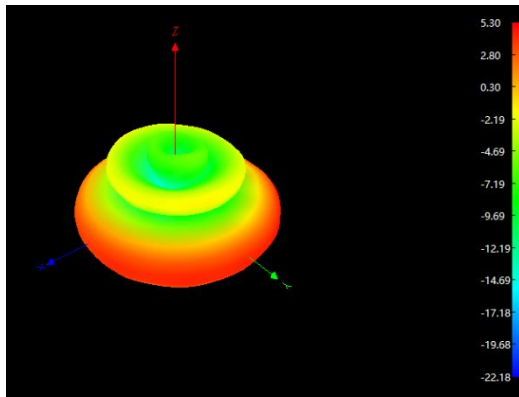


H-side: XY (horizontal)

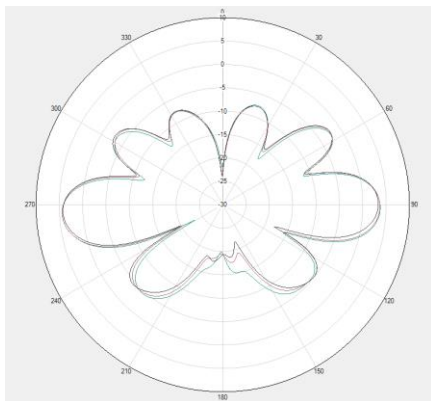
E1 side: XZ

E2 side: YZ

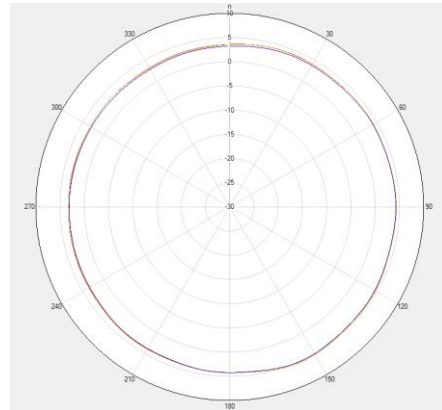
far-field orientation diagram



E1



H



E2

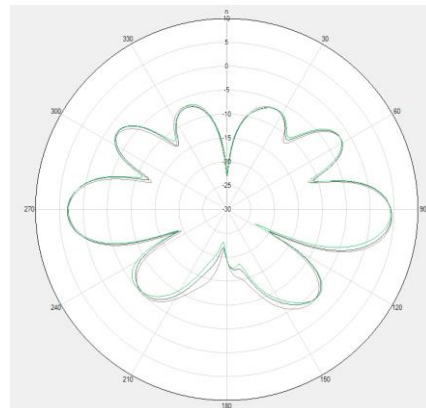


Fig. 15 3D and 2D field pattern of antenna 5.5G

## 3.2 5G WIFI Antenna 2

### 3.2.1 Operating Frequency, VSWR

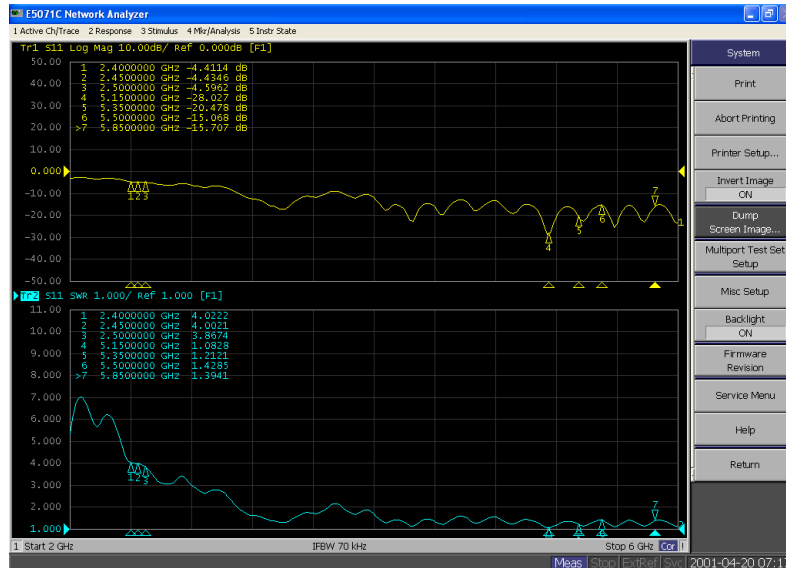


Fig. 16 ANT2 (5G WIFI) operating frequency VSWR

### 3.2.2 Degree of isolation

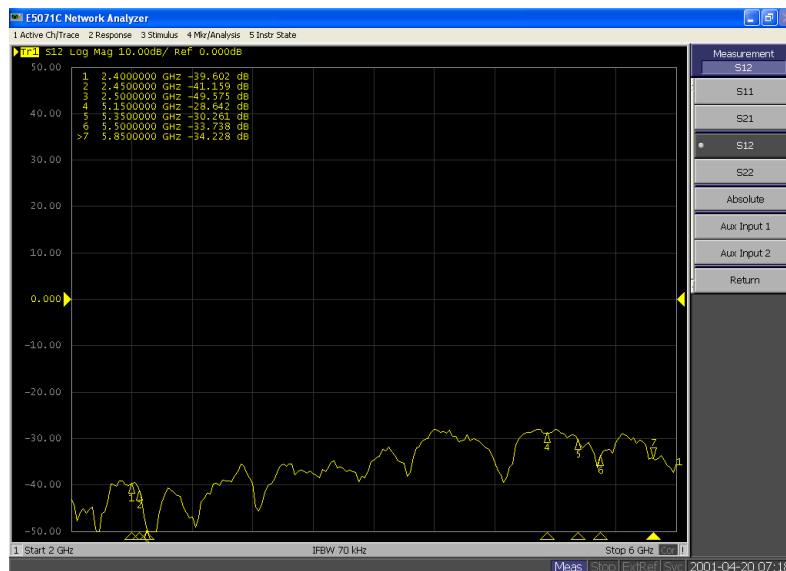


Fig 17 ANT1 (5G WIFI) vs. ANT2 (5G WIFI) Isolation

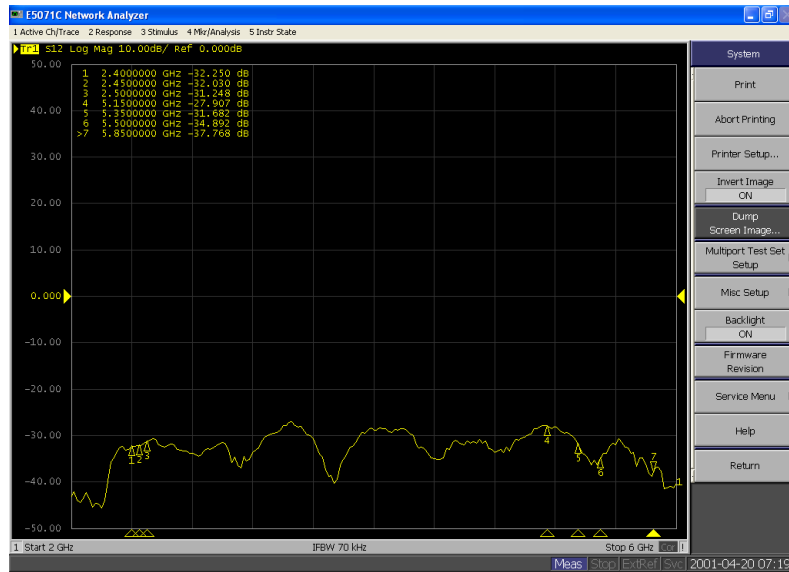


Figure 18 ANT2 (5G WIFI) vs. ANT3 (5G WIFI) Isolation

### 3.2.3 Efficiency and Gain

ANT 2		
Freq (MHz)	Effi (%)	Gain (dBi)
5150	70.34	4.83
5200	71.45	4.91
5250	68.87	5.05
5300	68.23	4.76
5350	66.99	4.80
5400	67.92	5.11
5450	70.68	4.94
5500	73.53	4.86
5550	74.12	5.03
5600	72.09	4.87
5650	73.10	4.94
5700	69.16	4.82
5750	67.02	5.15
5800	68.88	4.14
5850	69.70	5.04

Fig. 19 Efficiency and gain of ANT2-5G

### 3.2.4 Antenna Orientation Diagram

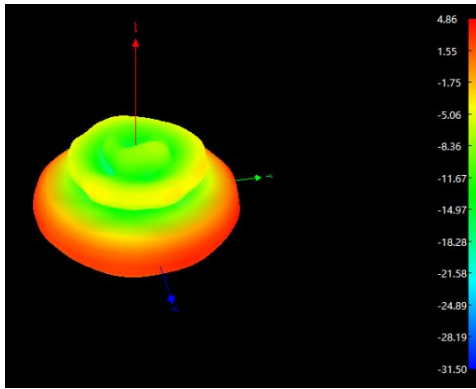


H-side: XY (horizontal)

E1 side: XZ

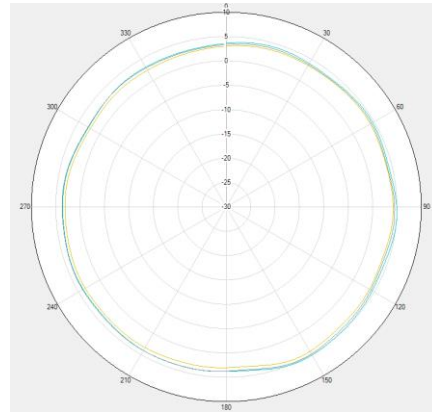
E2 side: YZ

far-field orientation diagram



E1

H



E2

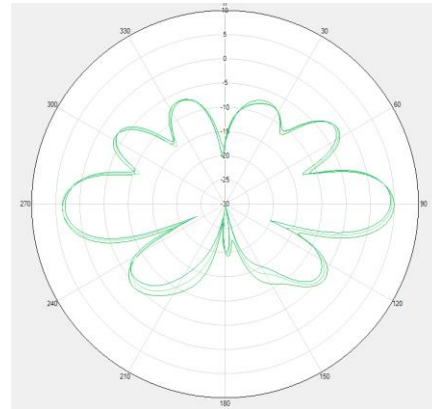
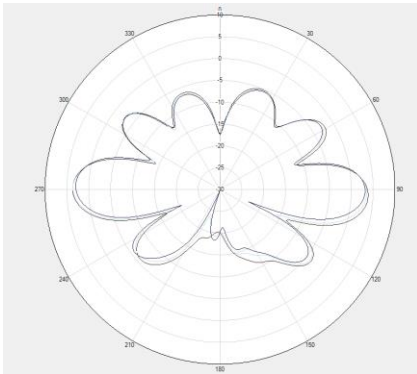


Fig. 20 3D vs. 2D field pattern of antenna 5.5G

## 3.3 5G WIFI Antenna 3

### 3.3.1 Operating Frequency, VSWR

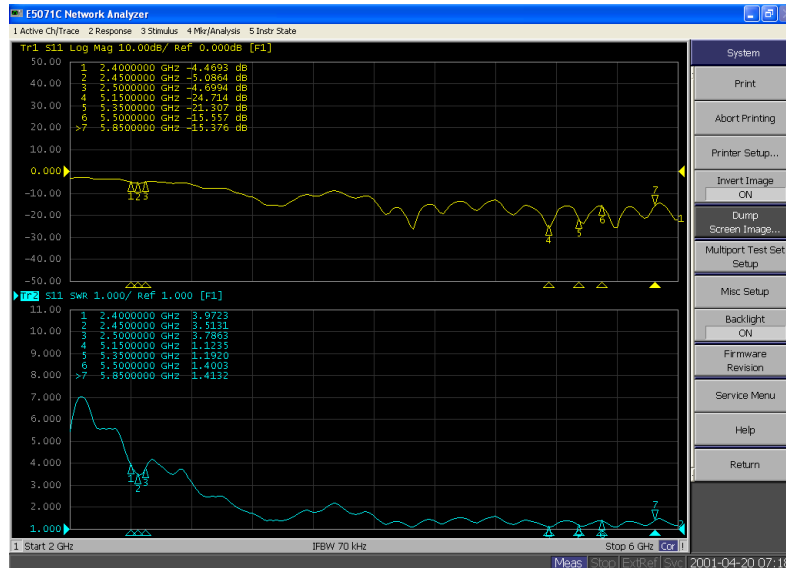


Fig. 21 ANT3 (5G WIFI) operating frequency VSWR

### 3.3.2 Degree of isolation

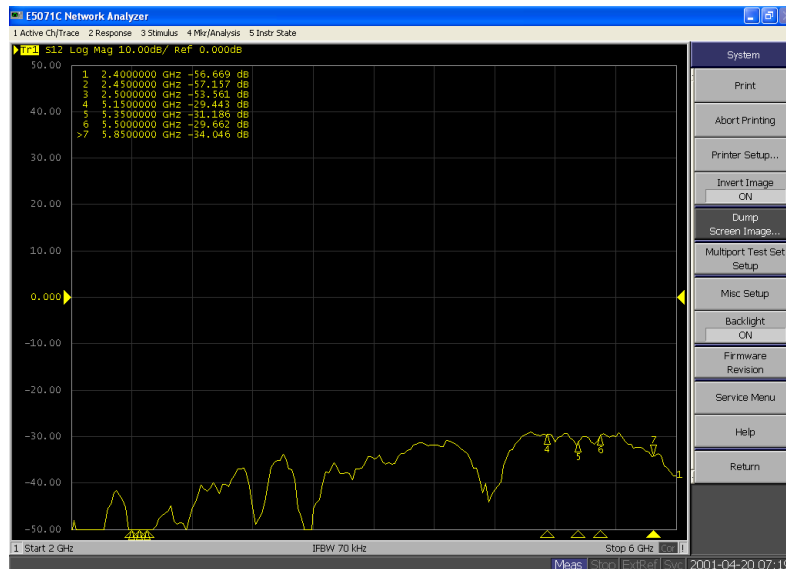


Fig 22 ANT1 (5G WIFI) vs. ANT3 (5G WIFI) Isolation

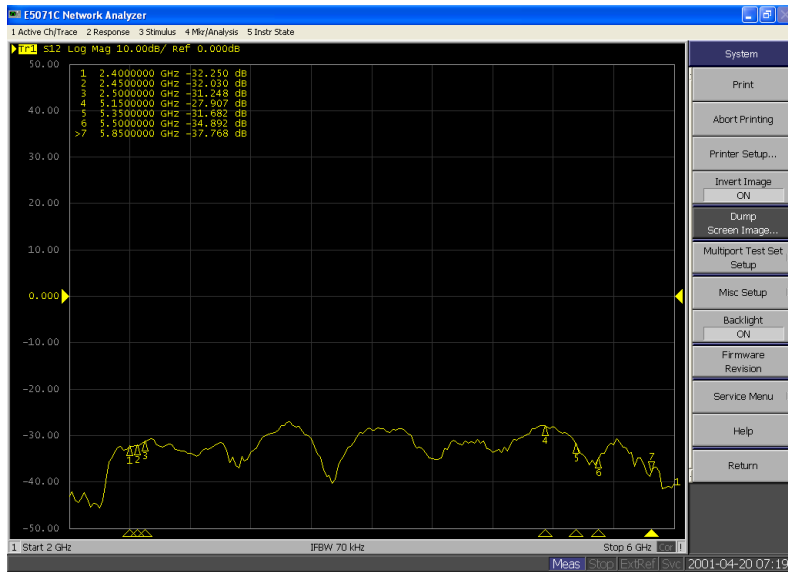


Fig 23 ANT2 (5G WIFI) vs. ANT3 (5G WIFI) Isolation

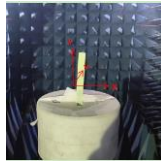
### 3.3.3 Efficiency and Gain

ANT 3		
Freq (MHz)	Effi (%)	Gain (dBi)
5150	69.18	4.88
5200	69.98	4.90
5250	66.53	4.69
5300	66.68	4.61
5350	66.68	4.61
5400	68.08	4.89
5450	69.92	4.70
5500	72.81	4.90
5550	73.53	4.98
5600	72.09	5.38
5650	72.66	5.30
5700	68.48	5.24
5750	70.59	5.07
5800	67.28	4.74
5850	68.08	4.84

Fig. 24 Efficiency and gain of ANT3-5G



### 3.3.4 Antenna Orientation Diagram



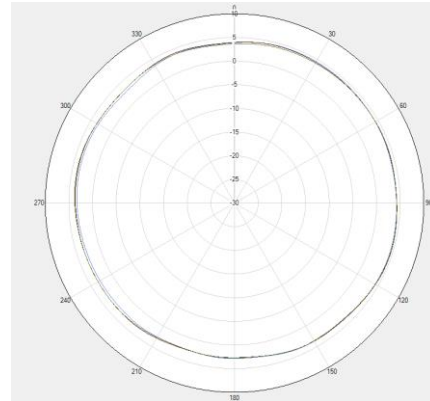
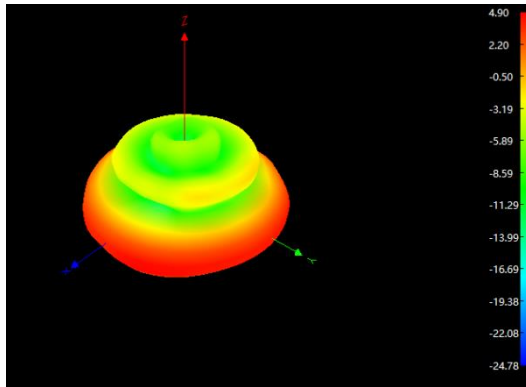
H-side: XY (horizontal)

E1 side: XZ

E2 side: YZ

far-field orientation diagram

H



E1

E2

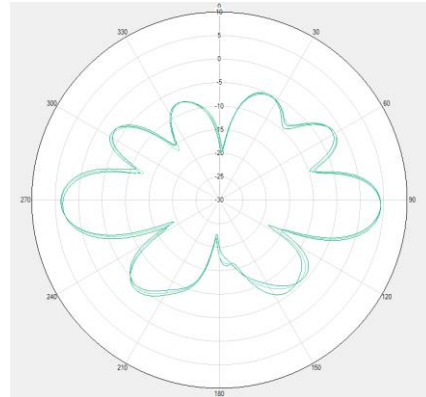
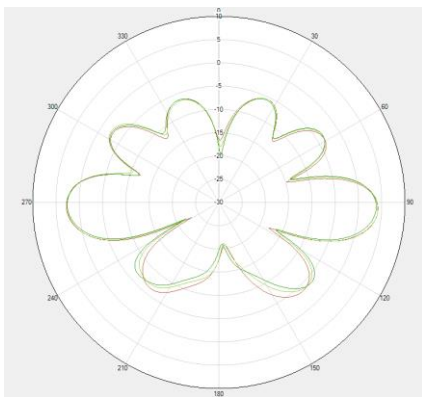


Fig. 25 3D and 2D field pattern of antenna 5.5G

#### 4、 Active test description: OTA not normal need to test conduction

2.4G					
Mode	Channel	Data Rate, Mbps	TRP	Peak EIRP	wired power
IEEE 802.11g	1	6	22.2	27.11	/
	7	6	22.54	27.74	/
	11	6	22.10	27.48	/

2.4G					
Mode	Channel	Data Rate, Mbps	TIS	Peak EIS	wired sensitivity
IEEE 802.11g	1	54	-76.55	-80.47	/
	7	54	-76.07	-81.30	/
	11	54	-76.38	-80.72	/

5G					
Mode	Channel	Data Rate, Mbps	TRP	Peak EIRP	wired power
IEEE 802.11a	36	6	27.33	33.77	/
	64	6	27.11	33.39	/
	149	6	26.77	30.57	/
	161	6	27.48	32.84	/

5G					
Mode	Channel	Data Rate, Mbps	TIS	Peak EIS	wired sensitivity
IEEE 802.11a	36	54	-77.45	-83.27	/
	64	54	-77.30	-81.61	/
	149	54	-76.46	-81.27	/
	161	54	-76.89	-81.68	/

## 5 、 Throughput test

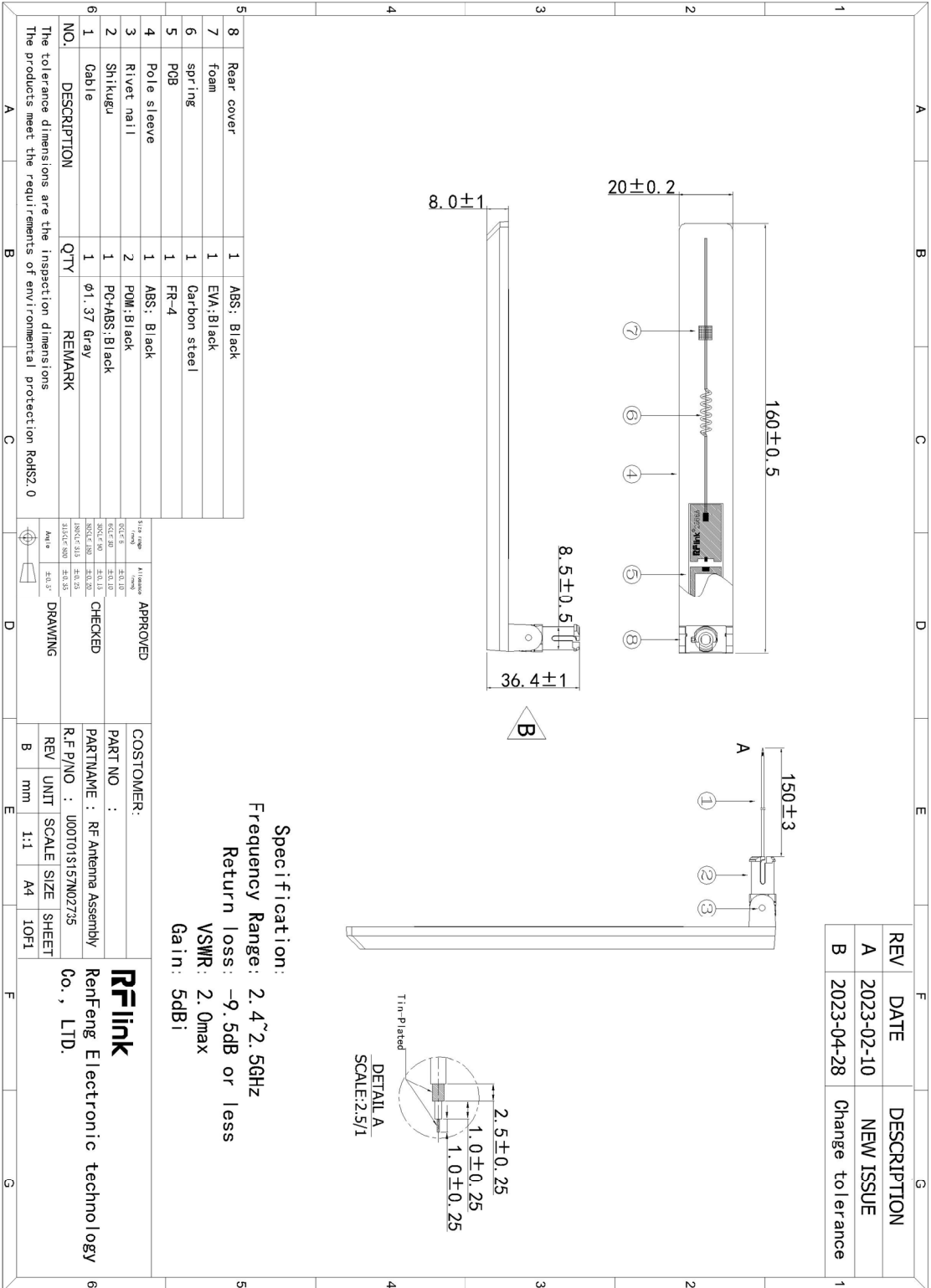
2.4G test bandwidth: HT40, attenuation 0, 50dB;

5G test bandwidth: HT160, attenuation 30, 50dB;

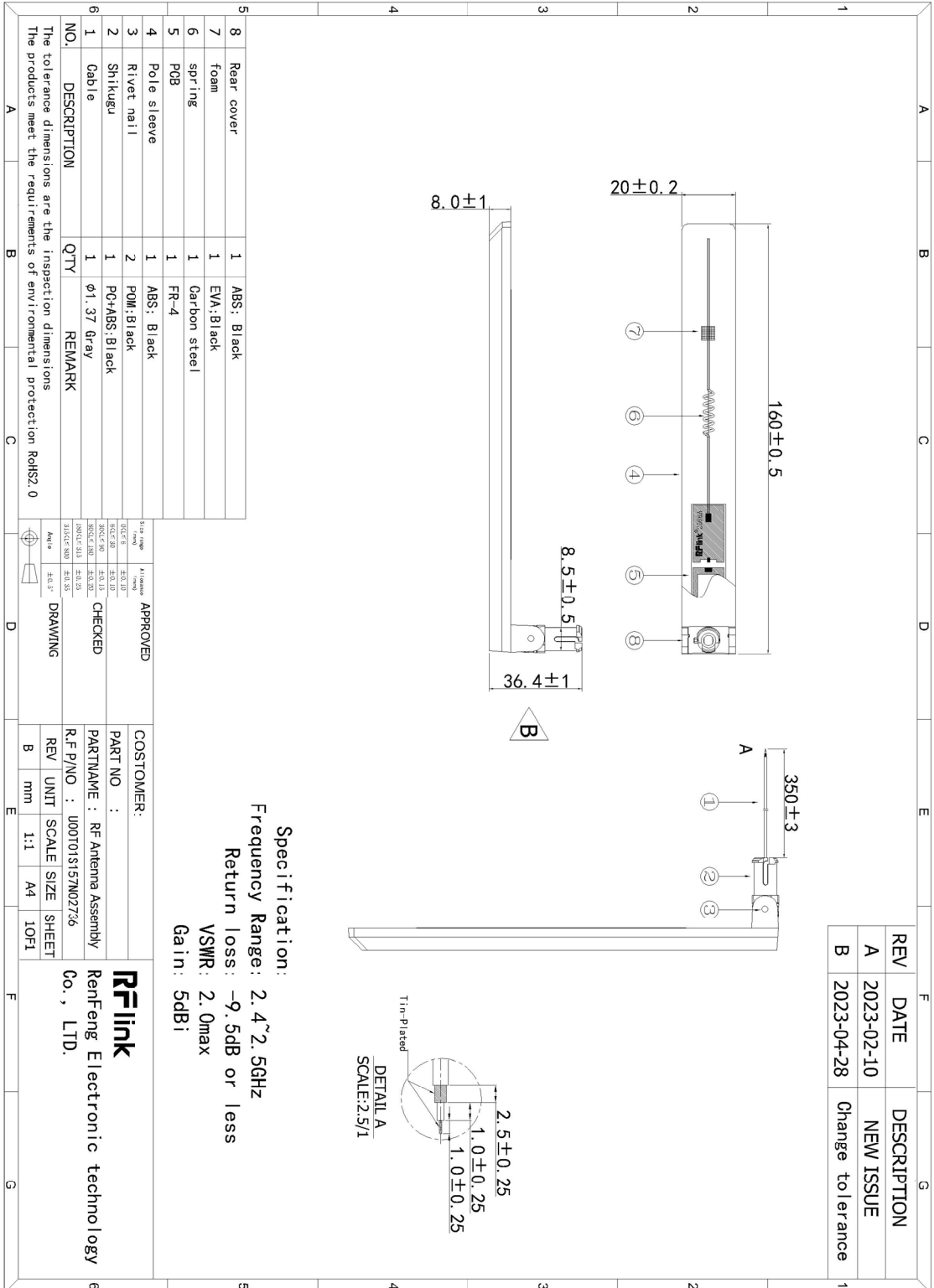
2.4G-RX			2.4G-TX		
Att\Angle	0.00	50.00	Att\Angle	0.00	50.00
0.00	418.69	166.16	0.00	454.85	89.77
15.00	422.31	211.57	15.00	453.92	95.35
30.00	420.46	176.36	30.00	456.92	93.21
45.00	420.92	193.31	45.00	452.62	95.33
60.00	420.46	171.67	60.00	454.38	94.76
75.00	420.15	161.05	75.00	455.15	94.70
90.00	420.31	170.87	90.00	456.38	74.58
105.00	417.54	177.63	105.00	450.08	83.05
120.00	408.92	168.43	120.00	454.69	95.45
135.00	415.23	198.53	135.00	456.15	80.44
150.00	421.77	184.07	150.00	454.15	84.41
165.00	422.54	197.57	165.00	454.15	82.38
180.00	423.62	199.79	180.00	454.08	88.94
195.00	412.92	231.92	195.00	452.69	129.50
210.00	409.08	207.77	210.00	455.54	89.29
225.00	412.38	221.50	225.00	454.54	101.52
240.00	412.31	204.86	240.00	451.77	89.21
255.00	422.23	176.52	255.00	452.69	82.69
270.00	428.15	170.34	270.00	451.54	77.04
285.00	419.62	162.11	285.00	455.23	75.72
300.00	420.62	182.29	300.00	453.31	74.65
315.00	423.23	182.49	315.00	454.69	79.81
330.00	422.38	165.14	330.00	454.23	82.36
345.00	423.54	206.93	345.00	456.08	89.61

5G-RX			5G-TX		
Att\Angle	30.00	50.00	Att\Angle	30.00	50.00
0.00	912.38	103.32	0.00	847.31	208.50
15.00	900.15	113.57	15.00	840.08	212.69
30.00	929.92	116.36	30.00	849.15	227.69
45.00	949.15	115.71	45.00	849.54	209.08
60.00	922.85	96.06	60.00	852.69	197.79
75.00	824.77	114.14	75.00	855.77	198.07
90.00	830.08	115.93	90.00	869.54	207.86
105.00	835.46	105.62	105.00	825.85	193.07
120.00	893.23	115.79	120.00	804.77	236.00
135.00	949.08	114.93	135.00	866.62	218.00
150.00	855.31	115.14	150.00	907.38	213.08
165.00	893.31	114.64	165.00	805.46	196.24
180.00	901.38	110.27	180.00	829.15	201.50
195.00	924.54	116.50	195.00	857.85	214.77
210.00	949.23	115.43	210.00	931.85	225.54
225.00	949.08	115.71	225.00	941.00	208.54
240.00	902.38	97.02	240.00	849.77	194.36
255.00	878.92	114.33	255.00	826.31	184.00
270.00	856.38	114.07	270.00	837.69	192.92
285.00	925.77	115.57	285.00	866.38	202.29
300.00	869.69	105.77	300.00	863.46	203.29
315.00	949.31	110.71	315.00	888.46	201.14
330.00	926.08	114.62	330.00	861.31	181.93
345.00	891.77	115.14	345.00	828.00	197.23

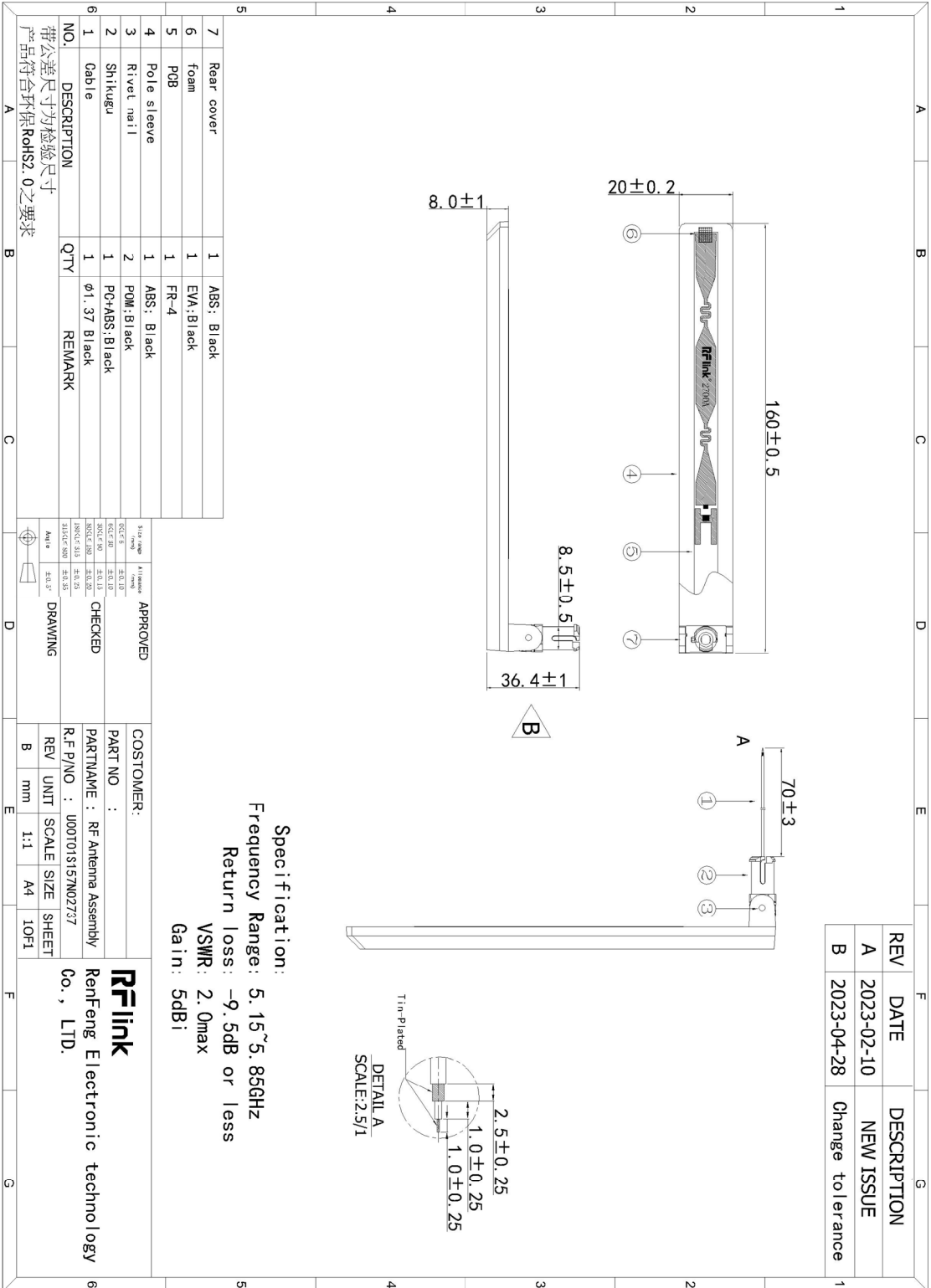
## 5.Finished drawing 2.4G WiFi Ant1



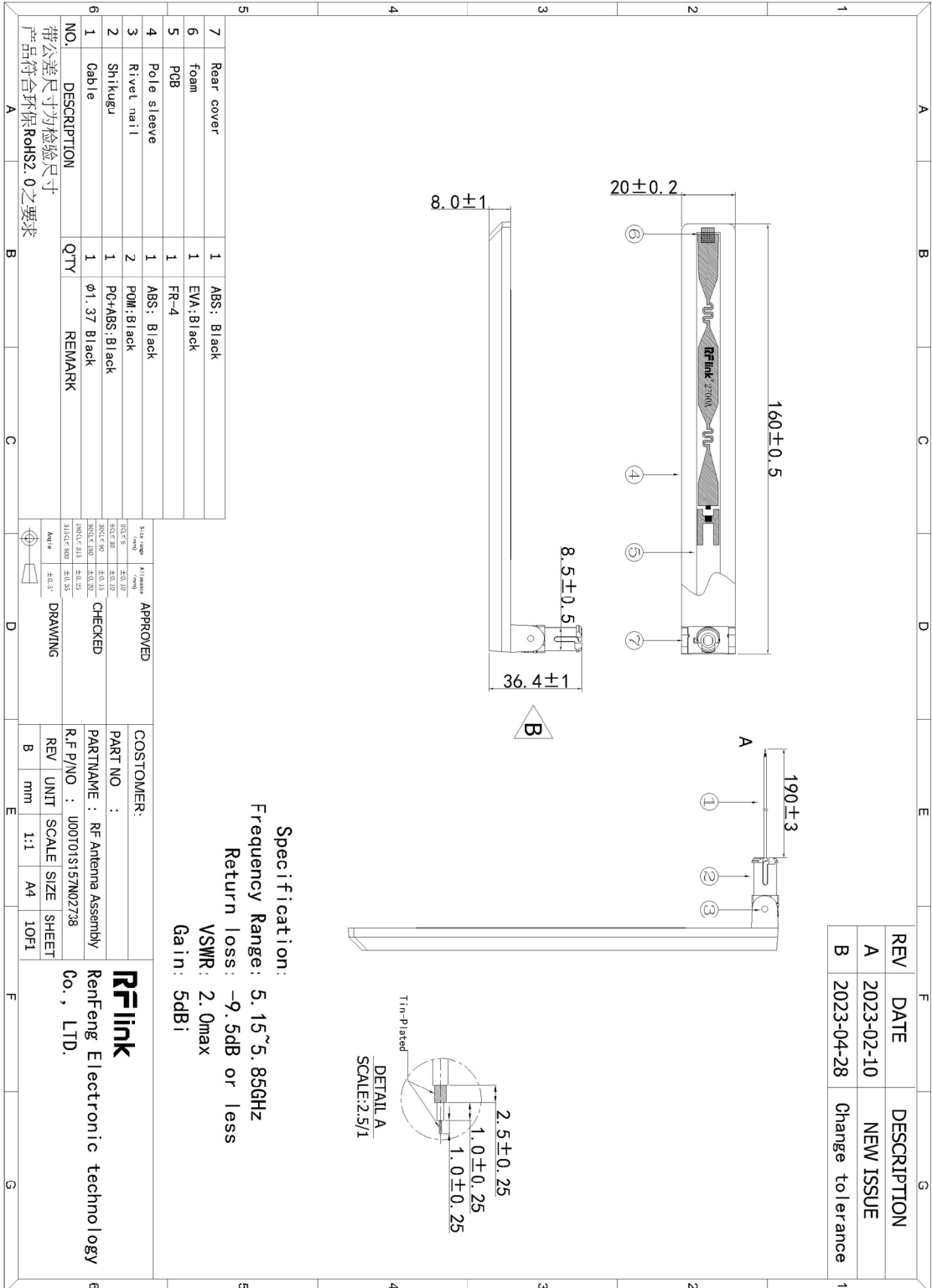
## 5.Finished drawing 2.4G WiFi Ant2



### 5.Finished drawing 5G WiFi Ant1



### 5.Finished drawing 5G WiFi Ant2





## 5.Finished drawing 5G WiFi Ant3

