



Shenzhen xingtong wireless technology co.,  
Telephone: +86-755- 27850514 Fax: +86- 0755-27850514  
Address: 3/F, Building A1, Qiangrongdong Industrial Zone,  
Jiuwei, Xixiang, Baoan District, Shenzhen

# Product specification

Product number: MT022

Product name: MT022-WiFi/GPS/BT-ANT

Product item number:ANT-MT022-GWB-ANT-XT001

Producer	Audit	Date
Huangjiajun	Wu Yanlong	2024-07-11

Customer confirmation:

Customer name: Shenzhen Xinruizhi Industrial Co., Ltd
Approval :
Date :
Notes :

Please accept your signature and seal and return one copy to our company for filing. Thank you for your cooperation!



Shenzhen Xingtong Wieress Technology Co., Ltd

Date

2024-07-11

Version

A0

File number

XT-YF-004

Product model

MT022-G/W/B antenna

Product number

XT-MT022-APP

### 1.Product Constrution:

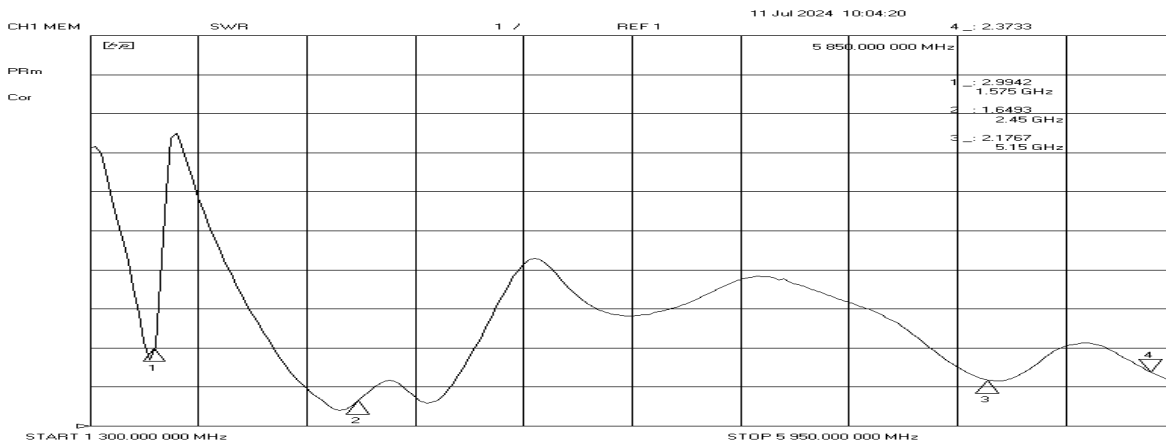
- 1. Antenna material: FPC
- 2. Adhesive tvpe: 3M9470
- 3. Antenna size: See engineering drawing at the end page
- 4. Coaxial line size: not have

### 2. parameters

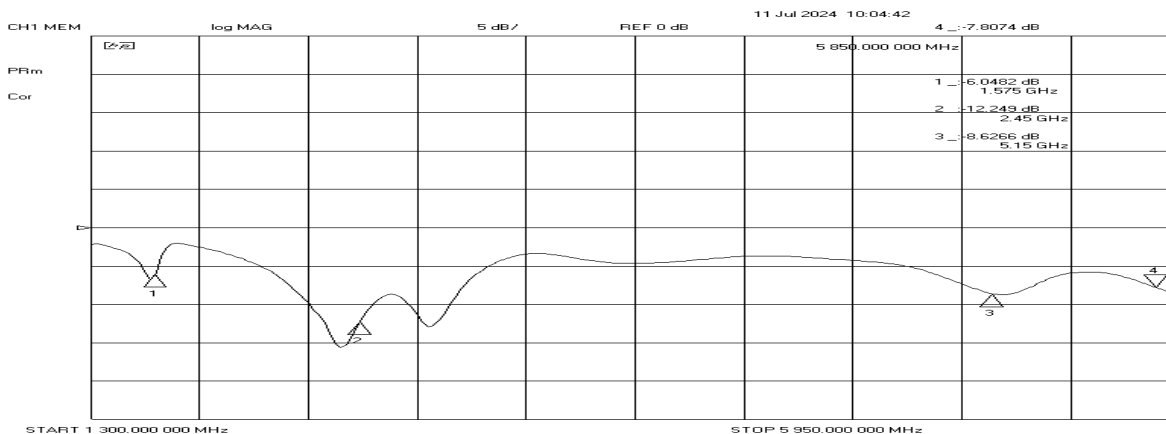
- Scope of use: customer-supplied machines
- Antenna frequency: 1550-1560Mhz, 2400-2500Mhz 5150-5850Mhz
- Polarization method: horizontal/vertical
- Antenna free space gain: 2.4G $\geq$ 1.37dbi 5G $\geq$ 1.93dbi 1.57G $\geq$ -0.73dbi
- Polarization mode: horizontal/vertical
- Installation mode: Antenna nasted inside the bottom shell
- Packing method: use PE bag+packing box

### 3.S11 value of antenna (S11)

#### ■ 3.1: antenna standing wave ratio



#### ■ 3.2: Antenna return loss value





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### 4. Antenna performance (OTA)

4.1: Antenna matching recommendations  
Matching without modification

4.2: Antenna OTA/ efficiency/gain (test instruments: network analyzer, oscilloscope, customer engineering prototype, various standard cards, etc.)

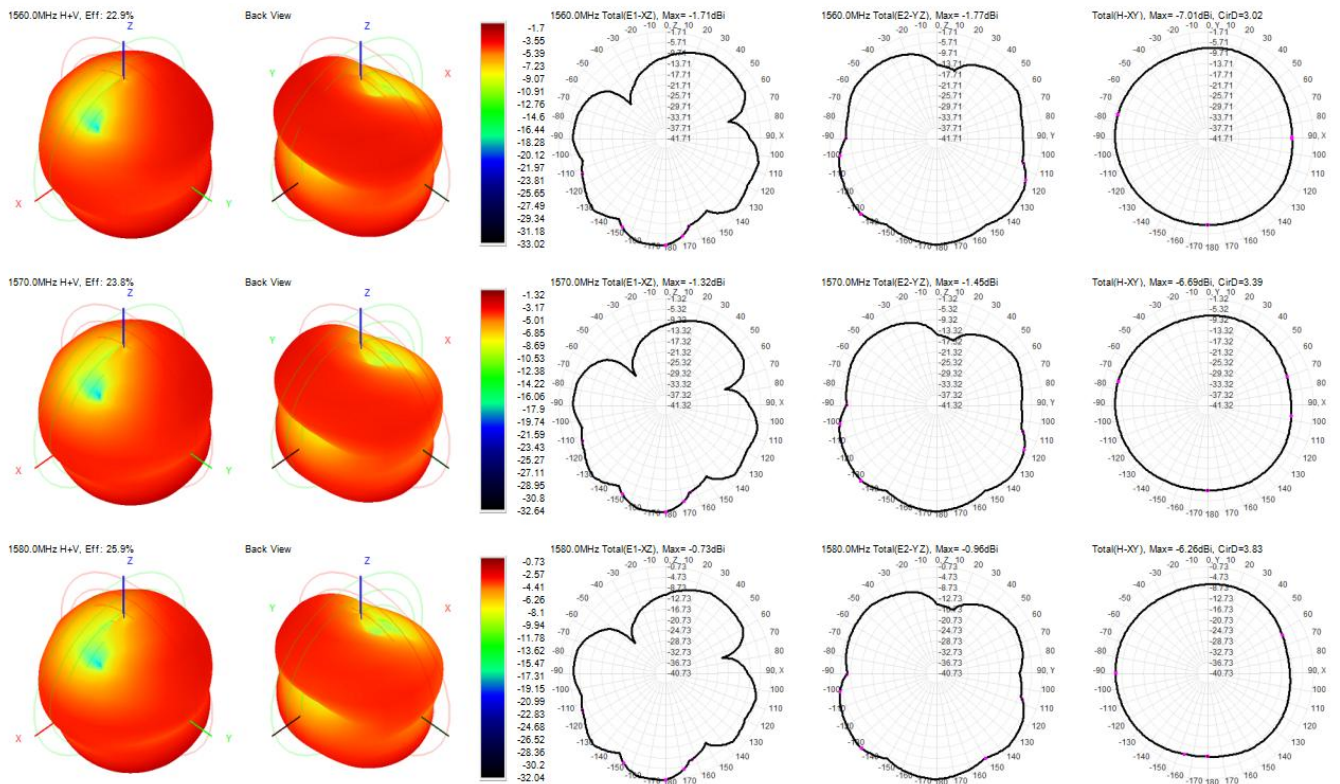
GPS/WIFI2.4G-2D

Frequency ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Frequency (MHz)	1550.0	1560.0	1570.0	1580.0	1590.0	1600.0	2400.0	2410.0	2420.0	2430.0	2440.0	2450.0	2460.0	2470.0	2480.0	2490.0	2500.0
Efficiency (dBi)	-6.90	-6.41	-6.24	-5.87	-5.67	-5.87	-6.35	-6.34	-6.11	-6.07	-6.33	-6.03	-6.16	-6.45	-6.17	-6.40	-6.54
Gain (dBi)	-2.26	-1.70	-1.32	-0.73	-0.30	-0.31	1.86	1.91	2.08	2.05	1.68	1.85	1.70	1.41	1.74	1.50	1.37
Efficiency (%)	20.42	22.86	23.76	25.90	27.07	25.88	23.15	23.23	24.50	24.71	23.30	24.94	24.24	22.63	24.13	22.89	22.19
Directivity (dB)	4.64	4.71	4.92	5.14	5.38	5.56	8.21	8.25	8.19	8.12	8.01	7.88	7.86	7.87	7.91	7.90	7.91
Peak Gain Position (Theta)	165.00	165.00	180.00	180.00	180.00	180.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00
Peak Gain Position (Phi)	345.00	345.00	0.00	0.00	15.00	15.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00
Efficiency ThetaPol (%)	12.68	14.11	14.39	15.38	15.84	14.89	14.80	14.68	15.41	15.57	14.50	15.33	14.82	13.93	14.90	14.11	13.83
Efficiency PhiPol (%)	7.74	8.75	9.36	10.53	11.24	10.99	8.35	8.55	9.09	9.14	8.79	9.61	9.42	8.70	9.23	8.78	8.36
Upper Hem. Efficiency (%)	6.75	7.35	7.45	8.04	8.41	8.08	5.88	5.92	6.40	6.66	6.42	6.92	6.68	6.17	6.60	6.41	6.44
Lower Hem. Efficiency (%)	13.67	15.51	16.31	17.87	18.66	17.80	17.27	17.32	18.10	18.06	16.88	18.02	17.55	16.46	17.53	16.49	15.75

5G-2D

Frequency ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Frequency (MHz)	5150.0	5200.0	5250.0	5300.0	5350.0	5400.0	5450.0	5500.0	5550.0	5600.0	5650.0	5700.0	5750.0	5800.0	5850.0
Efficiency (dBi)	-4.97	-4.10	-4.07	-5.37	-5.36	-5.30	-6.53	-5.68	-4.71	-5.78	-5.40	-4.50	-5.25	-5.75	-4.70
Gain (dBi)	2.06	3.17	4.18	2.79	3.38	3.07	1.93	2.32	2.73	2.14	2.33	3.91	2.74	2.78	3.44
Efficiency (%)	31.84	38.91	39.16	29.01	29.12	29.52	22.21	27.06	33.83	26.42	28.83	35.47	29.87	26.62	33.90
Directivity (dB)	7.03	7.27	8.25	8.17	8.74	8.37	8.47	7.99	7.44	7.92	7.73	8.42	7.98	8.53	8.14
Peak Gain Position (Theta)	60.00	60.00	60.00	60.00	60.00	75.00	60.00	75.00	60.00	60.00	60.00	60.00	45.00	45.00	45.00
Peak Gain Position (Phi)	105.00	120.00	90.00	105.00	105.00	105.00	105.00	105.00	105.00	90.00	75.00	105.00	105.00	105.00	105.00
Efficiency ThetaPol (%)	24.39	29.67	30.42	23.61	22.84	23.30	17.51	21.13	26.86	20.68	22.56	27.38	22.37	19.47	24.05
Efficiency PhiPol (%)	7.45	9.24	8.74	5.41	6.28	6.22	4.70	5.94	6.96	5.74	6.27	8.09	7.50	7.15	9.85
Upper Hem. Efficiency (%)	22.17	27.01	28.10	20.76	21.06	21.88	16.11	19.29	24.81	19.39	21.00	26.61	22.12	19.63	24.73
Lower Hem. Efficiency (%)	9.67	11.90	11.06	8.26	8.06	7.64	6.10	7.77	9.02	7.03	7.82	8.86	7.75	6.99	9.17

### 3D-OTA-GPS/WIFI 2.4G







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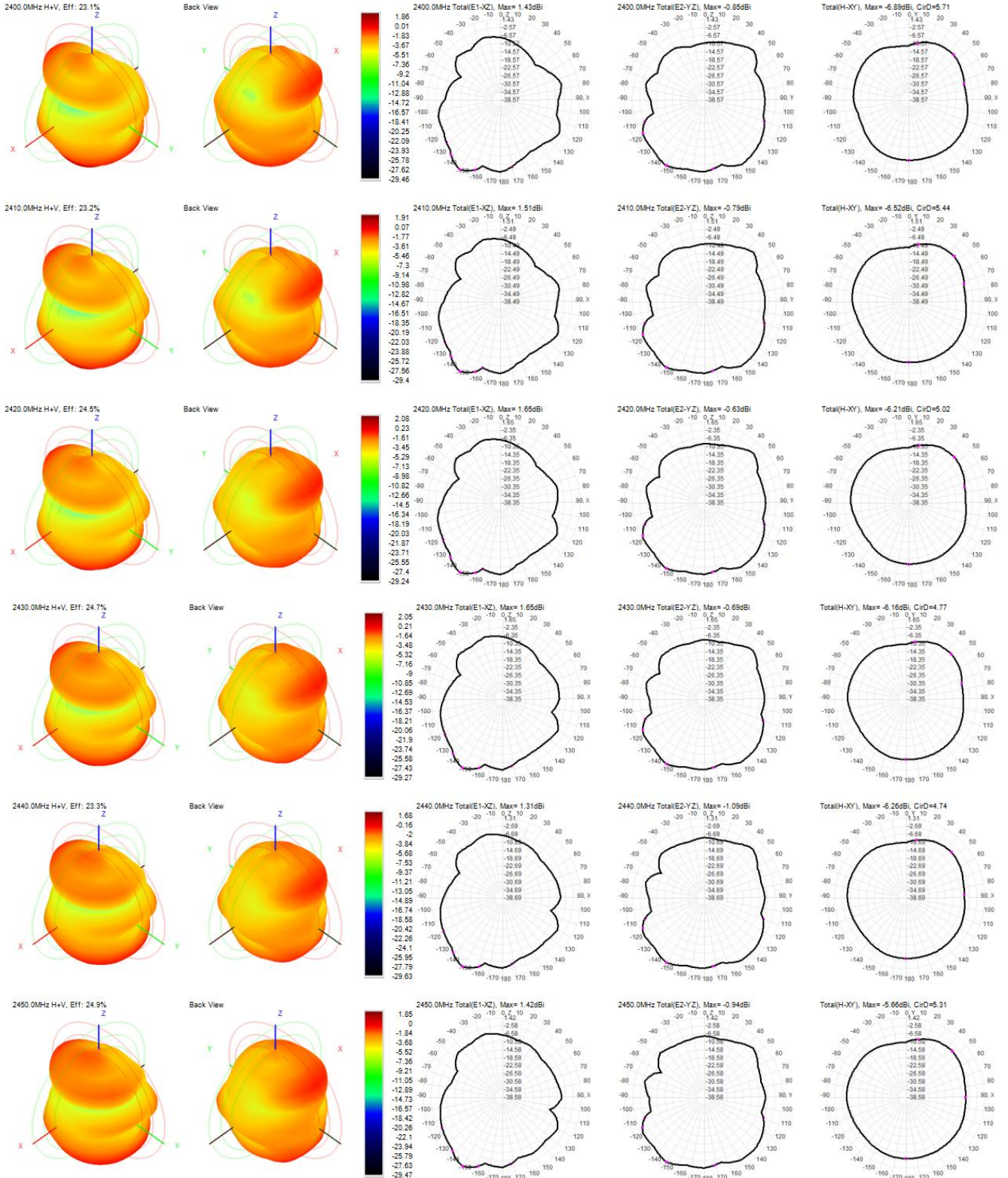
Product model

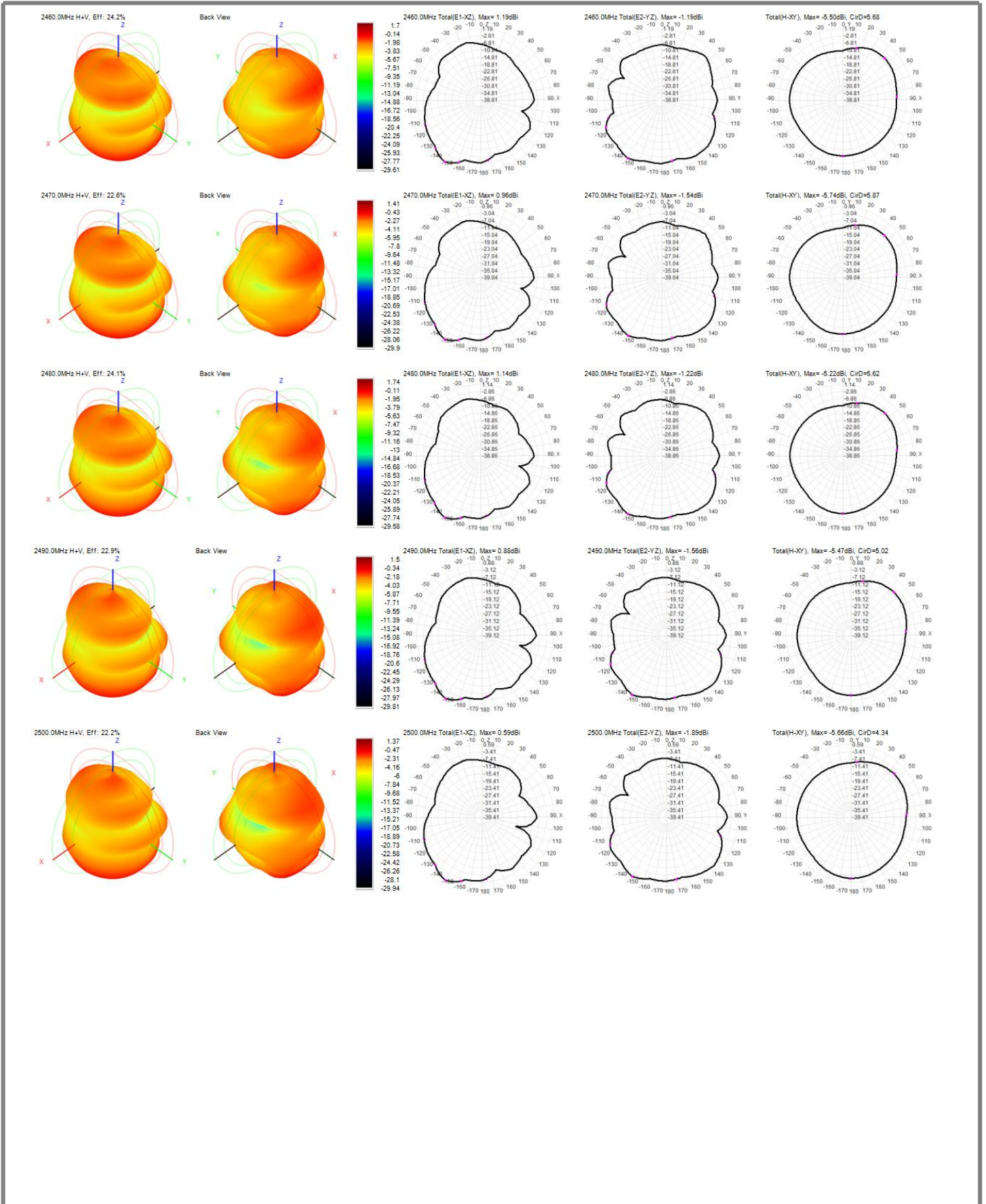
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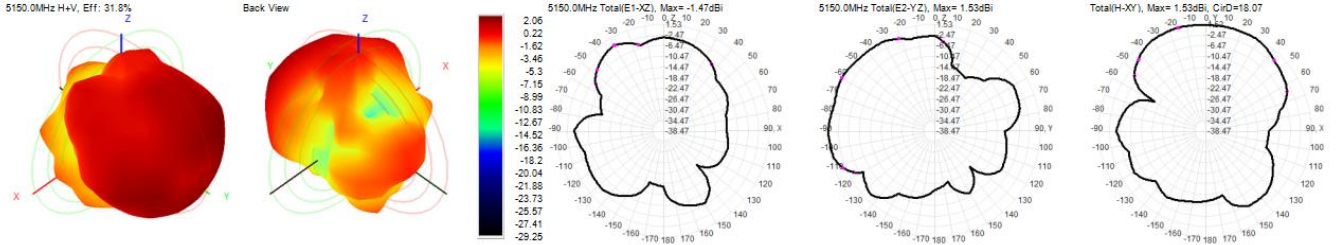
MT022-G/W/B antenna

Product number

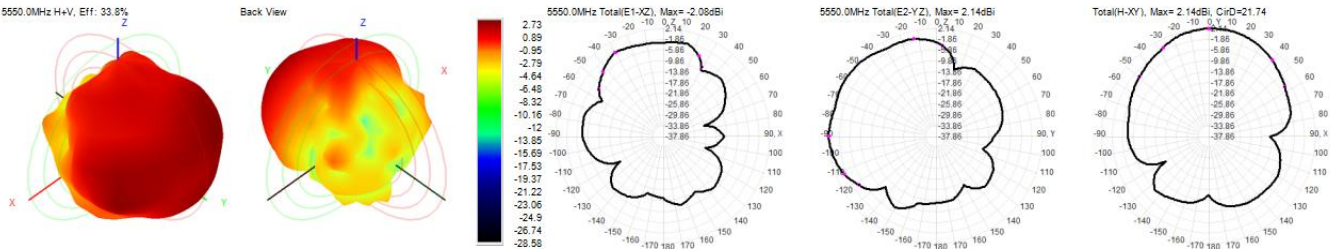
XT-MT022-APP

### 3D-OTA-5G

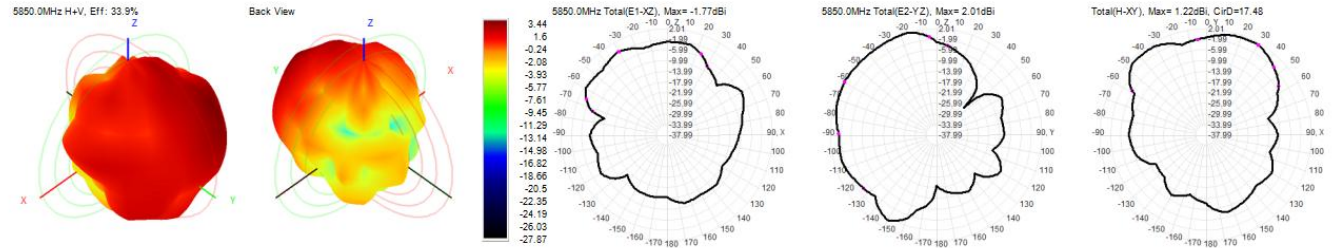
#### 5150MHZ



#### 5550MHZ

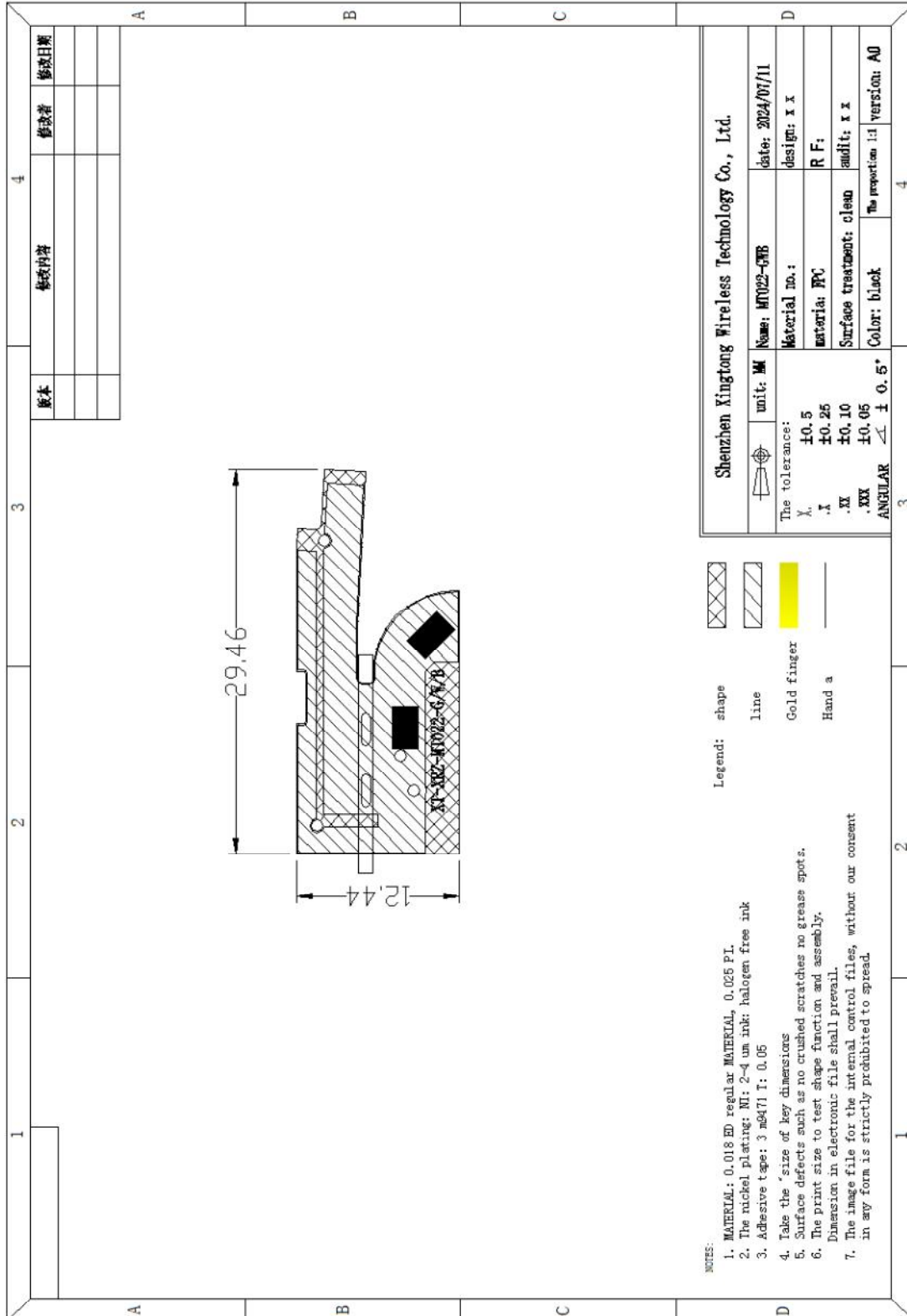


#### 5850MHZ



### 5. Attached figure:

#### 5.1: Finished antenna drawing





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### 6. Maintenance verification:

Tests/test items	Maintainability	Inspection order number
Product name/specification	G/W/B built-in fpc antenna	Test quantity: 5PCS
Date of inspection: 2024/07/10		Completiondate: 2024/07/11

Test/inspection equipment:

1. The tensile tester tests 5 times. (The tester is shown in the figure)



Note: Uniform speed test is required, not extreme speed test.

Projects Condition	Maintaining force between terminal and cable $\geq 0.6\text{kgf}$ .				
Test times	1	2	3	4	5
test result	0.6	0.7	0.7	0.9	0.7

Test/inspection result: acceptable

Test/inspection judgment:

Qualified

Unqualified

Make no judgment

Test: Zhu Yongjian

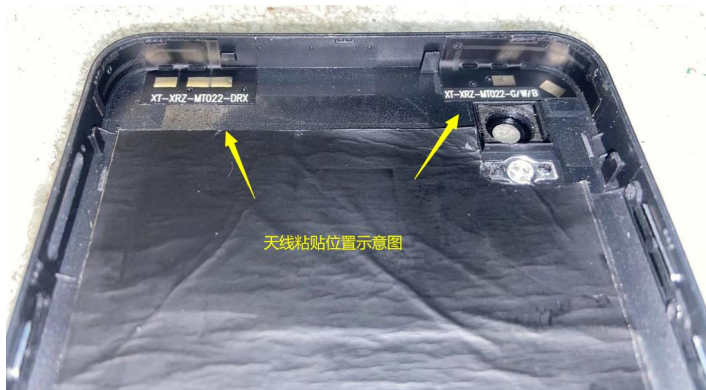
Audit: Wu Yanlong



### 7. Reliability test:

Serialnumber	test item	Test requirements	testing tool	test result
1	Resistance to tin melting	288°C, 10S, no delamination, no foaming	Tin furnace	Ok
2	weldability	245°C, 5s, smooth tin surface, solder surface $\geq 95\%$	Tin furnace	Ok
3	Pulling force	N/A	tautness meter	Ok
4	Reverse pulling force	N/A	tautness meter	Ok
5	Peel strength (covering film)	$\geq 0.35\text{kg/cm}$	peel strength	Ok
6	Peel strength (copper foil)	$\geq 0.8\text{kg/cm}$	peel strength	Ok
7	Hot melt adhesive fluidity	0.1~0.15	/	Ok

### 7. Matters needing attention:



After opening, please carefully check whether the goods are complete. If there is any damage, please contact us immediately.