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: B5-WIFI-2.4/5GHZ

Product name: B5-FPC-WIFI-ANT

Product item number:ANT-B5WIFIANT0-XT002

Producer	Audit	Date
Huangjiajun	Wu Yanlong	2023-11-06

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	2023-11-06
		Version	A0
		File number	XT-YF-004
Product model	B5-WIFI antenna	Product number	B5-WIFI-APP

1.Product Constrution:

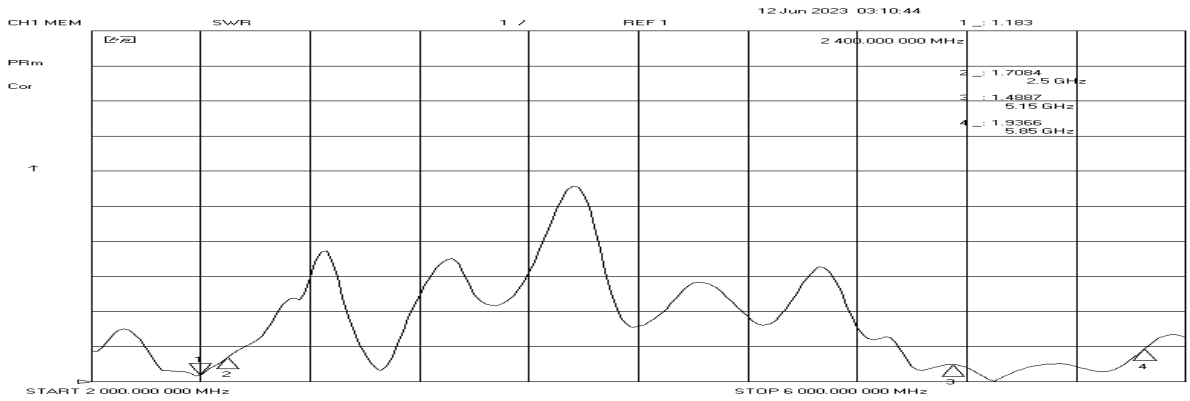
- 1. Antenna material：FPC
- 2. Adhesive type：3M300
- 3. Antenna size：38.3*21.2（Tolerance+0.2）
- 4. Coaxial line size：207 * 0.81 single head third-generation IPEX terminal (tolerance ± 1.0mm)

2. parameters

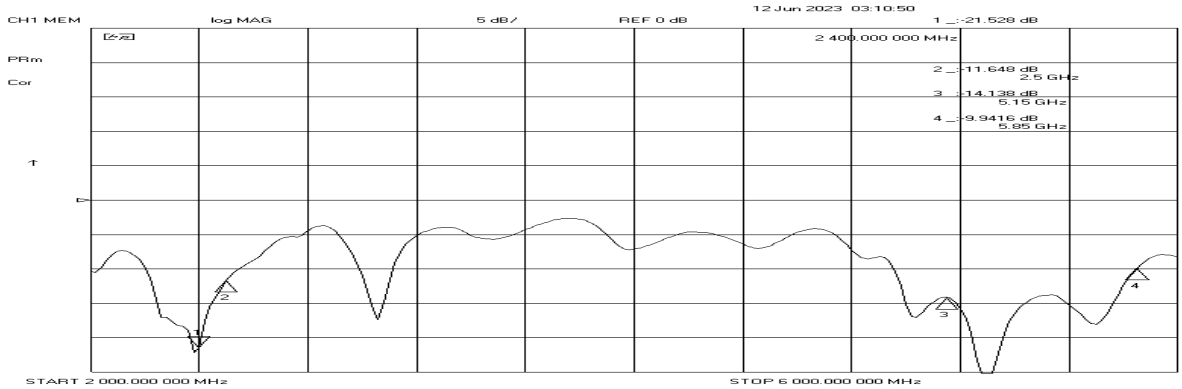
- Scope of use: customer-supplied machines
- Antenna frequency: 2412-2484Mhz 5150-5850Mhz
- Polarization method: horizontal/vertical
- Antenna free space gain: 2.4G≥1.74dbi 5G≥2.76dbi
- Installation mode: terminal wire is welded to motherboard OUT
- Packing method: use PE bag+packing box

3.S11 value of antenna (S11)

- 3.1：antenna standing wave ratio



- 3.2：Antenna return loss value



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.)

2.4G-2D

Frequency ID	1	2	3	4	5	6	7	8	9	10	11
Frequency (MHz)	2400.0	2410.0	2420.0	2430.0	2440.0	2450.0	2460.0	2470.0	2480.0	2490.0	2500.0
Efficiency (dBi)	-5.31	-5.26	-5.10	-5.17	-5.49	-5.28	-5.46	-5.72	-5.44	-5.60	-5.61
Gain (dBi)	1.45	1.59	1.74	1.65	1.23	1.27	1.04	1.17	1.18	1.21	1.19
Efficiency (%)	29.43	29.77	30.93	30.40	28.27	29.64	28.47	26.79	28.59	27.53	27.46
Directivity (dB)	5.76	5.85	5.84	5.82	5.72	5.55	5.50	5.55	5.62	5.81	5.80
Peak Gain Position (Theta)	135.00	135.00	135.00	135.00	135.00	135.00	135.00	150.00	150.00	150.00	150.00
Peak Gain Position (Phi)	165.00	165.00	165.00	165.00	180.00	165.00	180.00	45.00	45.00	45.00	45.00
Efficiency ThetaPol (%)	16.78	16.91	17.54	17.25	15.73	16.17	15.32	14.33	15.09	14.20	14.01
Efficiency PhiPol (%)	12.65	12.87	13.39	13.15	12.54	13.47	13.15	12.46	13.51	13.32	13.45
Upper Hem. Efficiency (%)	11.49	11.66	12.17	11.99	11.09	11.57	11.01	10.25	10.76	10.15	9.92
Lower Hem. Efficiency (%)	17.94	18.11	18.76	18.41	17.18	18.07	17.46	16.53	17.84	17.38	17.55

5G-2D

Frequency ID	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Frequency (MHz)	5140.0	5150.0	5160.0	5170.0	5180.0	5190.0	5200.0	5210.0	5220.0	5230.0	5240.0	5250.0	5260.0	5270.0	5280.0	5290.0	5300.0
Efficiency (dBi)	-4.78	-5.44	-4.48	-4.72	-5.25	-4.01	-4.45	-5.24	-4.22	-4.63	-5.14	-4.28	-4.73	-5.48	-4.41	-4.76	-5.17
Gain (dBi)	0.59	-0.19	0.61	0.10	0.39	1.35	1.10	0.38	1.68	1.33	0.82	1.49	1.37	0.62	2.43	0.97	0.87
Efficiency (%)	33.26	28.57	35.66	33.72	29.84	39.70	35.92	29.92	37.87	34.42	30.58	37.35	33.65	28.32	36.21	33.41	30.40
Directivity (dB)	5.37	5.25	5.09	4.82	5.64	5.36	5.55	5.62	5.89	5.96	5.97	5.76	6.10	6.09	6.84	5.73	6.04
Peak Gain Position (Theta)	165.00	165.00	165.00	165.00	165.00	165.00	165.00	165.00	165.00	165.00	165.00	165.00	165.00	165.00	165.00	165.00	165.00
Peak Gain Position (Phi)	105.00	135.00	120.00	120.00	90.00	120.00	135.00	135.00	120.00	105.00	105.00	120.00	105.00	105.00	120.00	135.00	105.00
Efficiency ThetaPol (%)	16.41	14.26	18.15	17.37	15.59	20.28	18.38	15.90	19.89	18.44	16.17	19.77	18.10	15.34	19.29	17.36	16.21
Efficiency PhiPol (%)	16.86	14.31	17.51	16.34	14.25	19.42	17.55	14.01	17.98	15.99	14.42	17.57	15.55	12.98	16.93	16.05	14.20
Upper Hem. Efficiency (%)	21.13	18.38	22.66	21.47	18.78	24.90	22.71	18.34	23.50	21.34	18.65	23.13	19.99	17.12	21.66	20.34	18.09
Lower Hem. Efficiency (%)	12.13	10.18	13.00	12.25	11.07	14.80	13.21	11.58	14.37	13.09	11.94	14.22	13.66	11.20	14.56	13.07	12.31

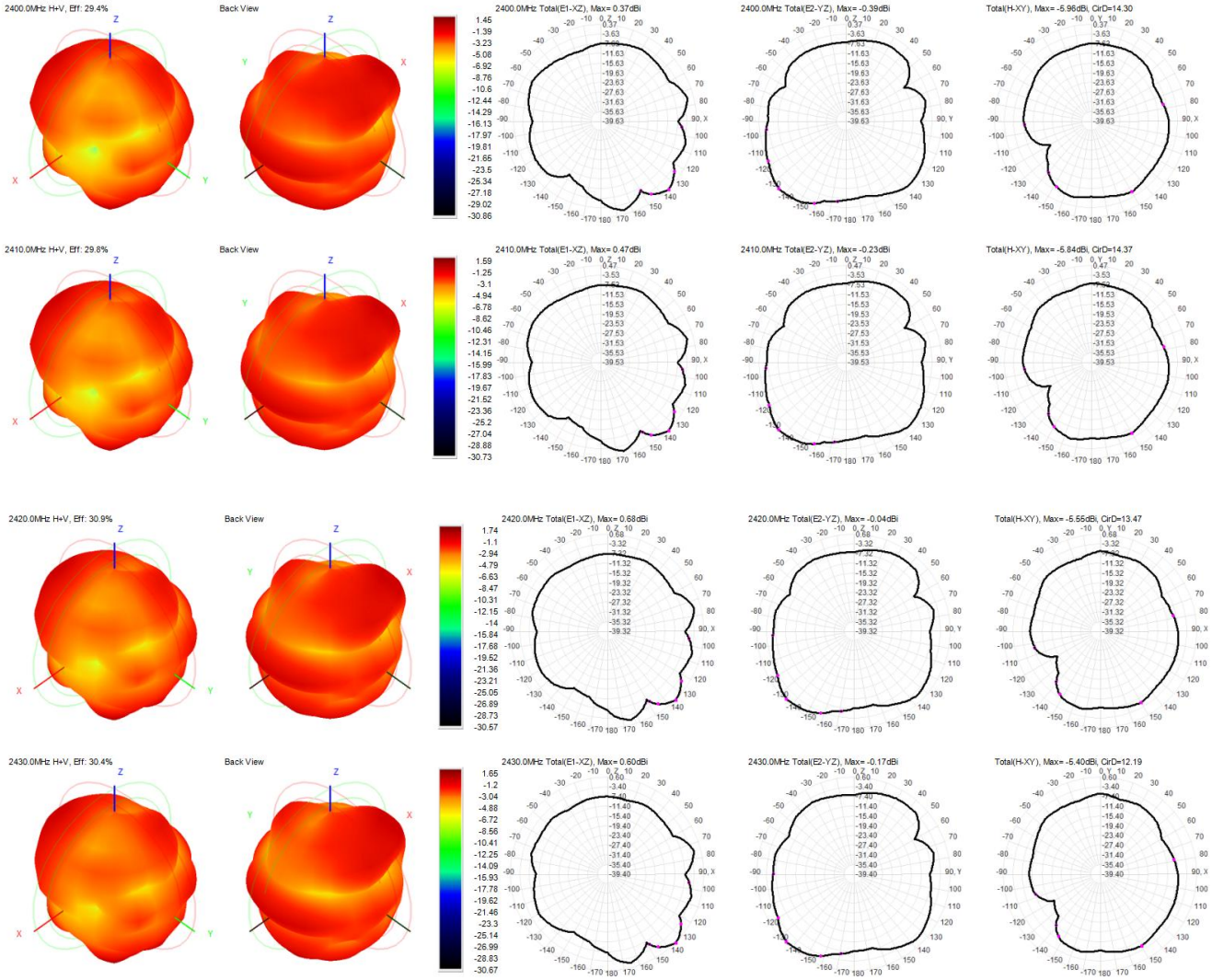
Frequency ID	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
Frequency (MHz)	5310.0	5320.0	5330.0	5340.0	5350.0	5360.0	5370.0	5380.0	5390.0	5400.0	5410.0	5420.0	5430.0	5440.0	5450.0	5460.0	5470.0	5480.0	5490.0	5500.0
Efficiency (dBi)	-4.38	-5.04	-5.47	-4.39	-4.91	-5.22	-4.32	-5.05	-5.55	-4.63	-5.32	-5.62	-4.33	-5.22	-5.78	-4.38	-5.27	-5.75	-4.27	-5.26
Gain (dBi)	1.75	1.16	1.42	2.26	1.73	0.84	1.95	1.67	0.49	1.81	1.17	0.79	1.96	0.77	0.42	2.44	1.25	0.66	2.24	2.23
Efficiency (%)	36.49	31.32	28.39	36.36	32.28	30.06	37.02	31.24	27.87	34.43	29.37	27.42	36.86	30.06	26.43	36.49	29.72	26.62	37.38	29.78
Directivity (dB)	6.13	6.21	6.89	6.65	6.64	6.06	6.26	6.72	6.04	6.44	6.49	6.41	6.29	5.99	6.20	6.82	6.52	6.41	6.51	7.49
Peak Gain Position (Theta)	165.00	165.00	165.00	165.00	165.00	165.00	165.00	165.00	165.00	165.00	165.00	165.00	165.00	165.00	165.00	165.00	165.00	165.00	165.00	165.00
Peak Gain Position (Phi)	105.00	120.00	105.00	105.00	105.00	150.00	105.00	105.00	105.00	105.00	105.00	135.00	120.00	150.00	120.00	120.00	105.00	90.00	165.00	120.00
Efficiency ThetaPol (%)	19.55	16.69	14.93	18.95	17.64	16.49	20.28	16.79	15.20	19.10	16.38	15.63	20.97	16.86	15.14	20.84	16.75	14.97	20.87	16.74
Efficiency PhiPol (%)	16.94	14.63	13.46	17.41	14.64	13.57	16.74	14.45	12.67	15.33	13.00	11.79	15.89	13.21	11.29	15.65	12.98	11.65	16.51	13.03
Upper Hem. Efficiency (%)	21.72	18.46	16.80	21.27	18.62	17.30	21.54	18.06	15.81	19.33	16.77	15.32	20.89	17.02	15.03	20.73	17.15	15.15	21.69	17.15
Lower Hem. Efficiency (%)	14.77	12.86	11.59	15.09	13.66	12.76	15.48	13.18	12.07	15.10	12.61	12.09	15.98	13.04	11.40	15.76	12.58	11.47	15.69	12.63

Frequency ID	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68
Frequency (MHz)	5510.0	5520.0	5530.0	5540.0	5550.0	5560.0	5570.0	5580.0	5590.0	5600.0	5610.0	5620.0	5630.0	5640.0	5650.0	5660.0	5670.0	5680.0	5690.0	5700.0
Efficiency (dBi)	-5.82	-3.91	-4.84	-5.10	-3.82	-4.65	-5.20	-3.69	-4.48	-4.67	-3.53	-4.36	-4.68	-3.70	-4.52	-4.52	-3.72	-4.66	-4.56	-3.90
Gain (dBi)	0.69	1.97	1.23	1.38	2.17	1.15	0.87	2.24	1.43	1.46	2.37	1.61	1.17	1.93	1.64	1.87	2.76	1.65	1.62	2.44
Efficiency (%)	26.16	40.64	32.77	30.89	41.49	34.27	30.17	42.72	35.61	34.13	44.38	36.65	34.03	42.67	35.28	35.33	42.43	34.21	34.96	40.77
Directivity (dB)	6.51	5.88	6.07	6.48	5.99	5.81	6.07	5.94	5.91	6.13	5.90	5.96	5.85	5.62	6.17	6.39	6.49	6.31	6.18	6.33
Peak Gain Position (Theta)	165.00	165.00	165.00	165.00	165.00	165.00	165.00	165.00	165.00	165.00	165.00	165.00	165.00	165.00	165.00	165.00	165.00	165.00	165.00	165.00
Peak Gain Position (Phi)	120.00	105.00	105.00	105.00	150.00	120.00	165.00	165.00	120.00	135.00	150.00	105.00	105.00	120.00	105.00	105.00	195.00	135.00	195.00	165.00
Efficiency ThetaPol (%)	14.16	21.73	17.45	16.32	21.77	17.60	15.65	21.58	17.86	17.45	21.91	18.36	17.12	21.61	18.36	18.13	21.97	17.64	17.90	20.53
Efficiency PhiPol (%)	11.99	18.90	15.32	14.57	19.72	16.66	14.52	21.14	17.76	16.67	22.48	18.29	16.91	21.06	16.92	17.20	20.46	16.57	17.06	20.23
Upper Hem. Efficiency (%)	15.37	23.86	19.60	18.77	25.30	21.03	18.65	26.76	22.17	21.29	28.09	23.26	21.65	27.27	22.00	22.27	26.74	21.33	22.05	25.78
Lower Hem. Efficiency (%)	10.79	16.78	13.17	12.12	16.20	13.24	11.52	15.96	13.44	12.84	16.29	13.39	12.38	15.40	13.28	13.06	15.69	12.88	12.91	14.98

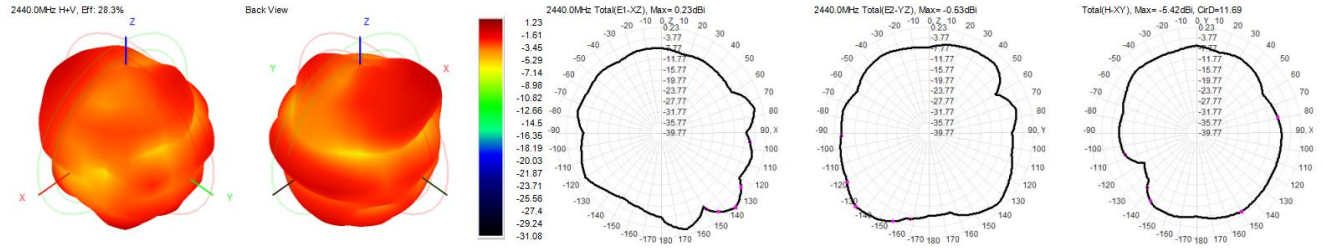
Shenzhen Xingtong Wieress Technology Co., Ltd		Date	2023-11-06
		Version	A0
		File number	XT-YF-004
Product model	B5-WIFI antenna	Product number	B5-WIFI-APP

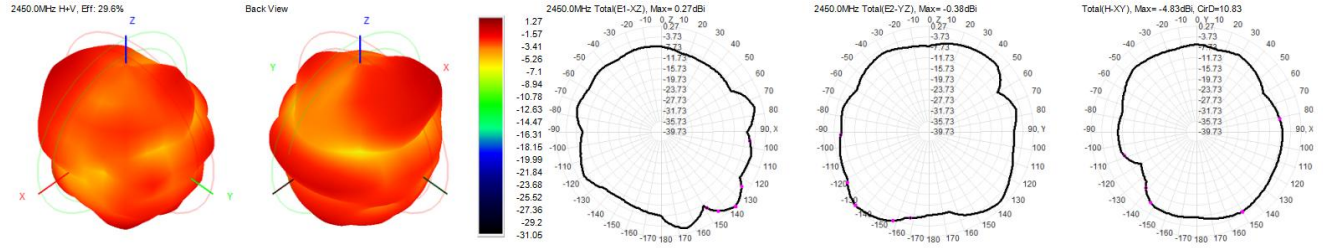
Frequency ID	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84
Frequency (MHz)	5710.0	5720.0	5730.0	5740.0	5750.0	5760.0	5770.0	5780.0	5790.0	5800.0	5810.0	5820.0	5830.0	5840.0	5850.0	5860.0
Efficiency (dBi)	-4.87	-4.61	-4.07	-5.05	-4.69	-4.17	-5.16	-4.60	-4.47	-5.45	-4.96	-4.27	-5.29	-4.45	-4.38	-5.38
Gain (dBi)	1.23	1.70	2.50	1.56	2.00	2.40	1.26	1.98	1.99	1.98	2.10	2.73	1.52	2.28	2.47	2.06
Efficiency (%)	32.55	34.56	39.19	31.25	33.93	38.27	30.45	34.65	35.76	28.52	31.93	37.41	29.58	35.92	36.46	29.01
Directivity (dB)	6.11	6.31	6.57	6.61	6.70	6.57	6.43	6.59	6.45	7.43	7.06	7.00	6.81	6.73	6.86	7.44
Peak Gain Position (Theta)	165.00	165.00	165.00	165.00	165.00	165.00	165.00	165.00	165.00	165.00	165.00	165.00	165.00	165.00	165.00	165.00
Peak Gain Position (Phi)	120.00	195.00	180.00	195.00	180.00	165.00	195.00	180.00	180.00	210.00	195.00	195.00	165.00	195.00	180.00	180.00
Efficiency ThetaPol (%)	16.45	17.52	19.49	15.51	16.85	19.11	14.77	17.05	17.32	14.08	15.58	18.81	14.75	17.43	17.53	13.92
Efficiency PhiPol (%)	16.10	17.04	19.71	15.73	17.08	19.16	15.68	17.60	18.44	14.44	16.36	18.60	14.84	18.49	18.93	15.09
Upper Hem. Efficiency (%)	20.74	21.88	24.91	19.50	21.39	24.02	19.34	21.82	22.67	17.38	20.08	23.05	18.00	22.06	22.76	18.09
Lower Hem. Efficiency (%)	11.81	12.69	14.28	11.75	12.54	14.26	11.11	12.83	13.09	11.14	11.85	14.36	11.58	13.86	13.70	10.92

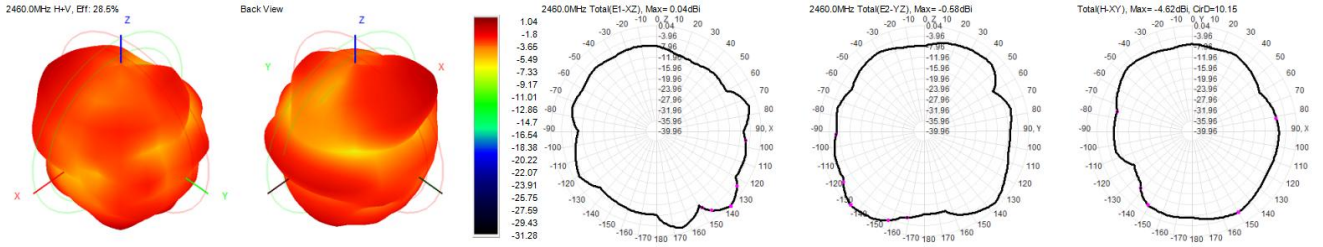
3D-OTA-2.4G

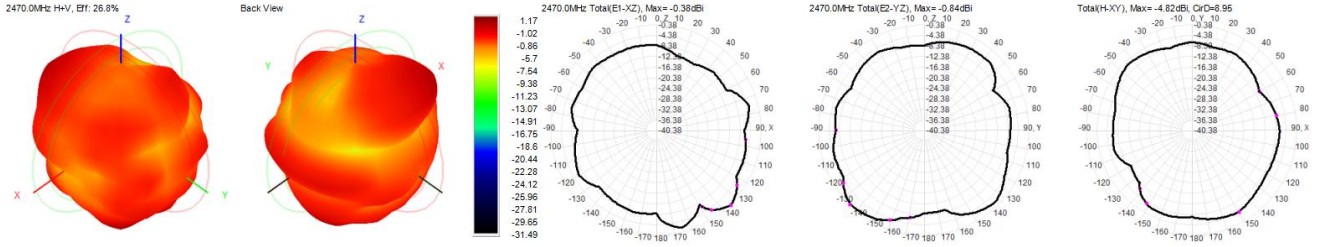


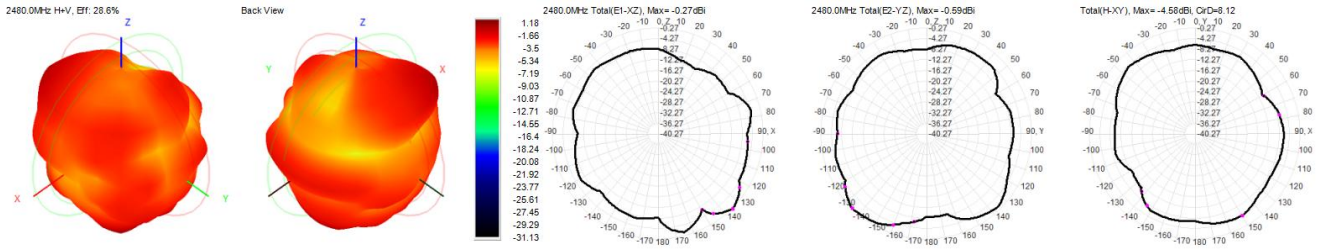
Shenzhen Xingtong Wieress Technology Co., Ltd		Date	2023-11-06
		Version	A0
		File number	XT-YF-004
Product model	B5-WIFI antenna	Product number	B5-WIFI-APP

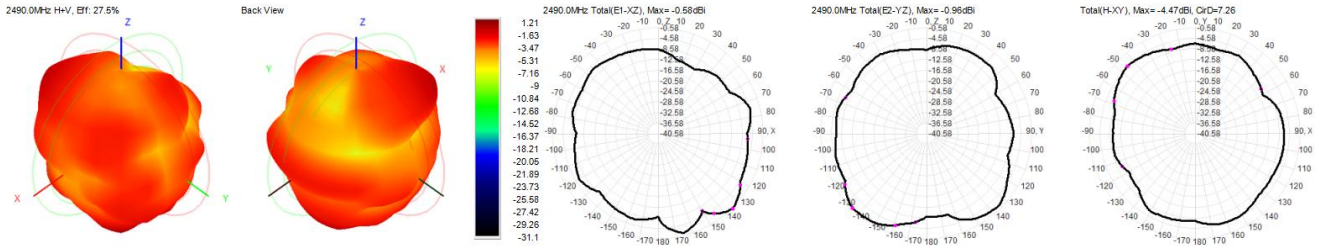






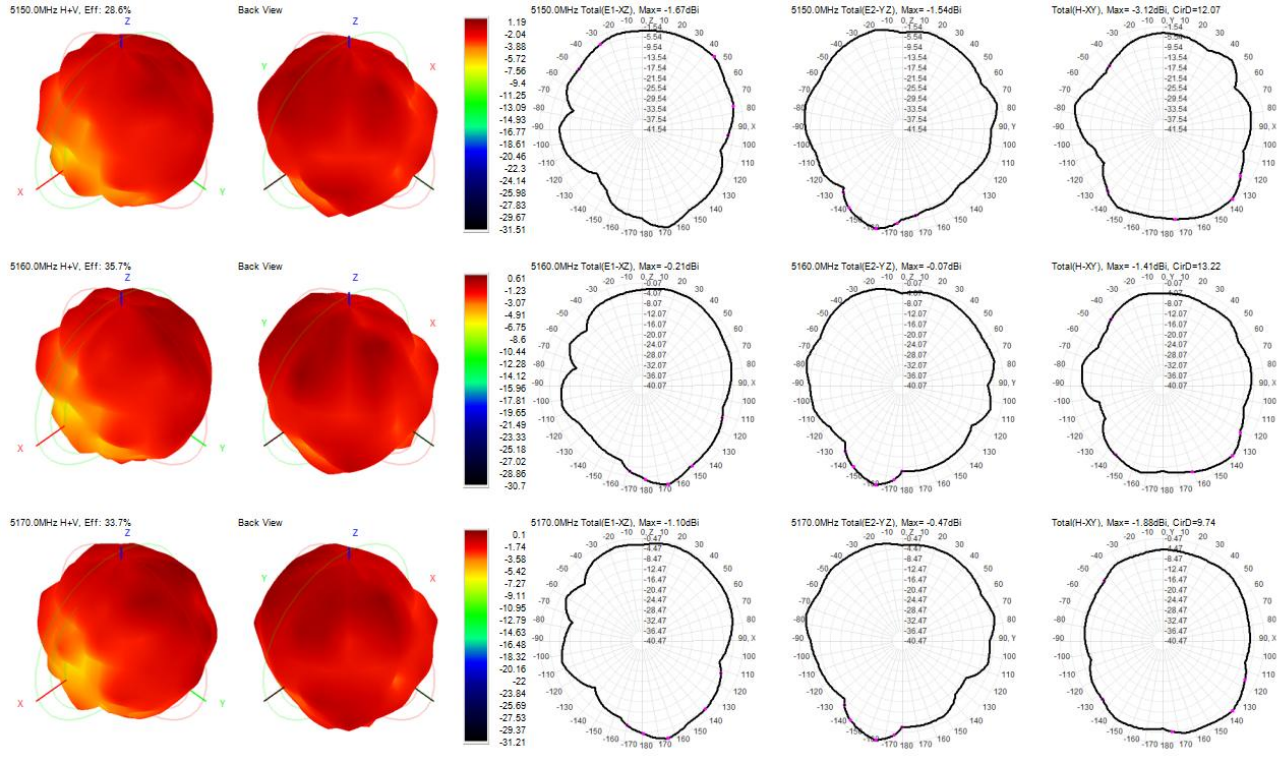






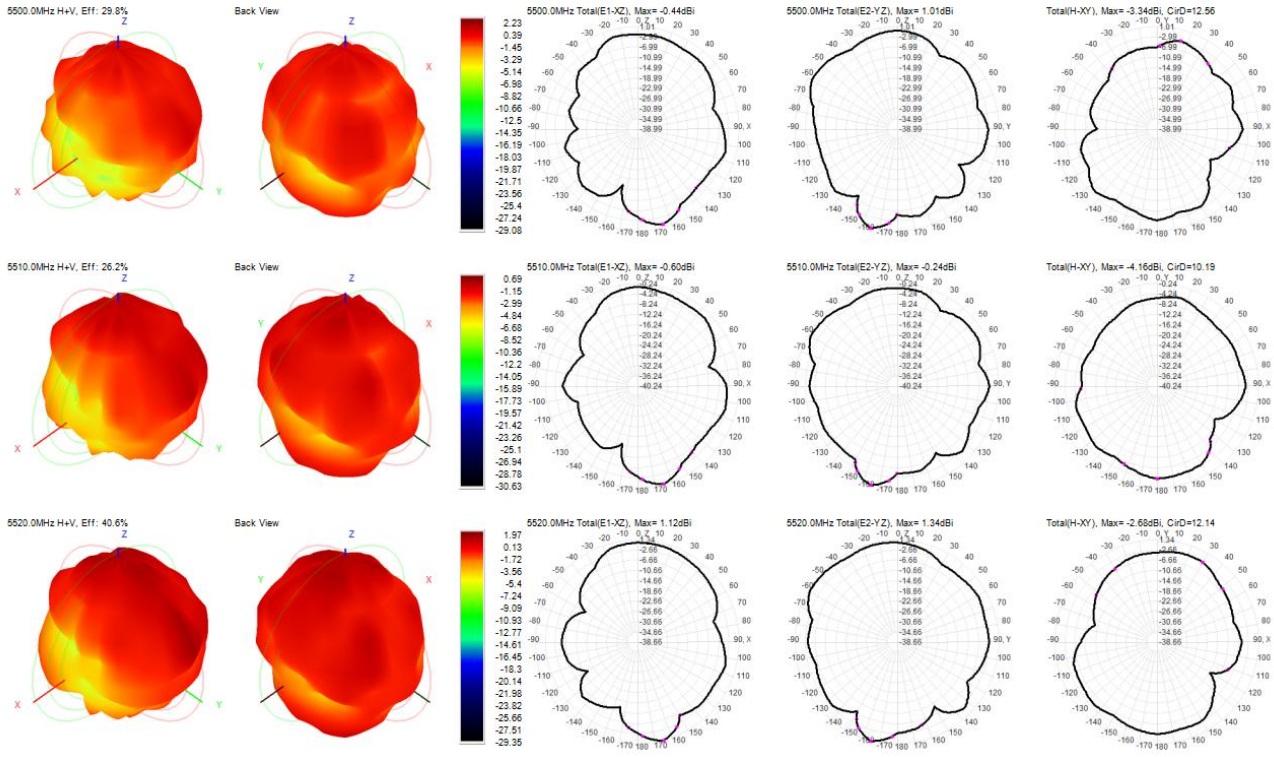
3D-OTA-5G

5150MHZ

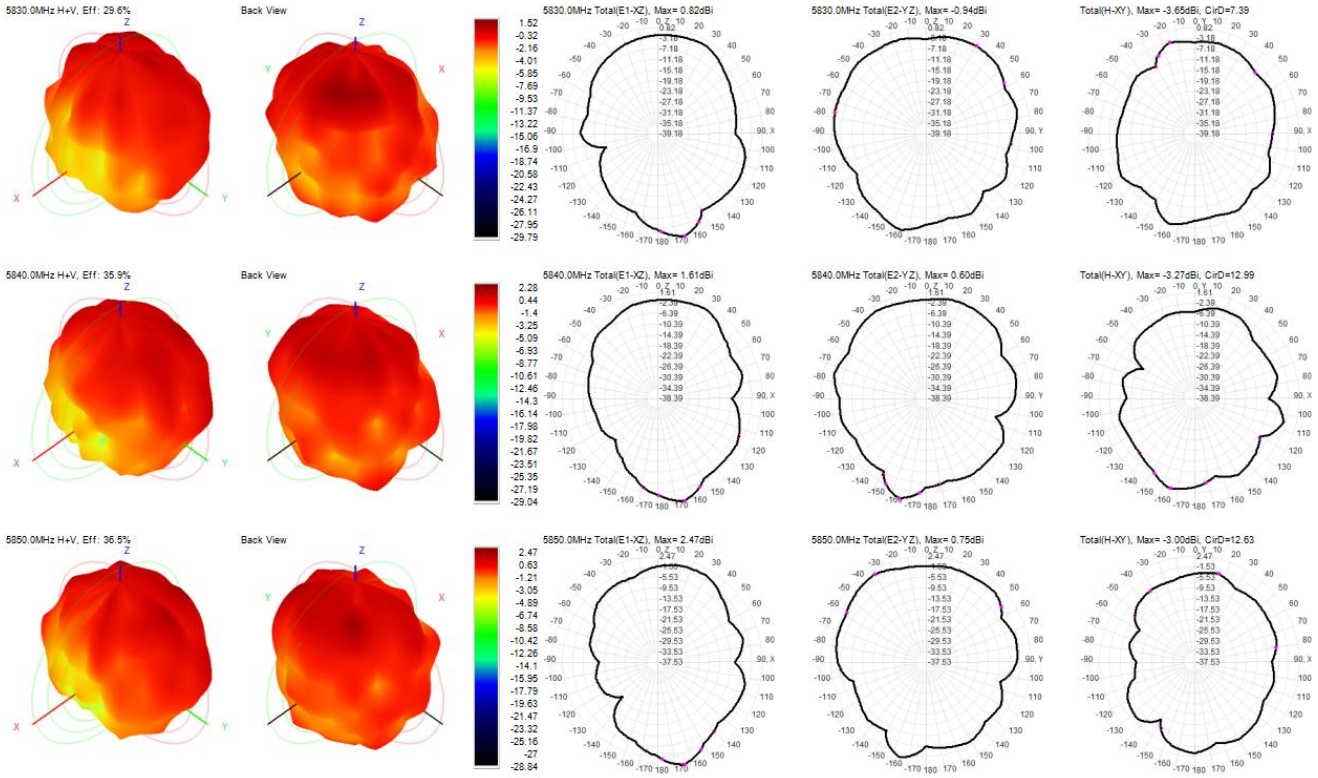


5550

MHZ

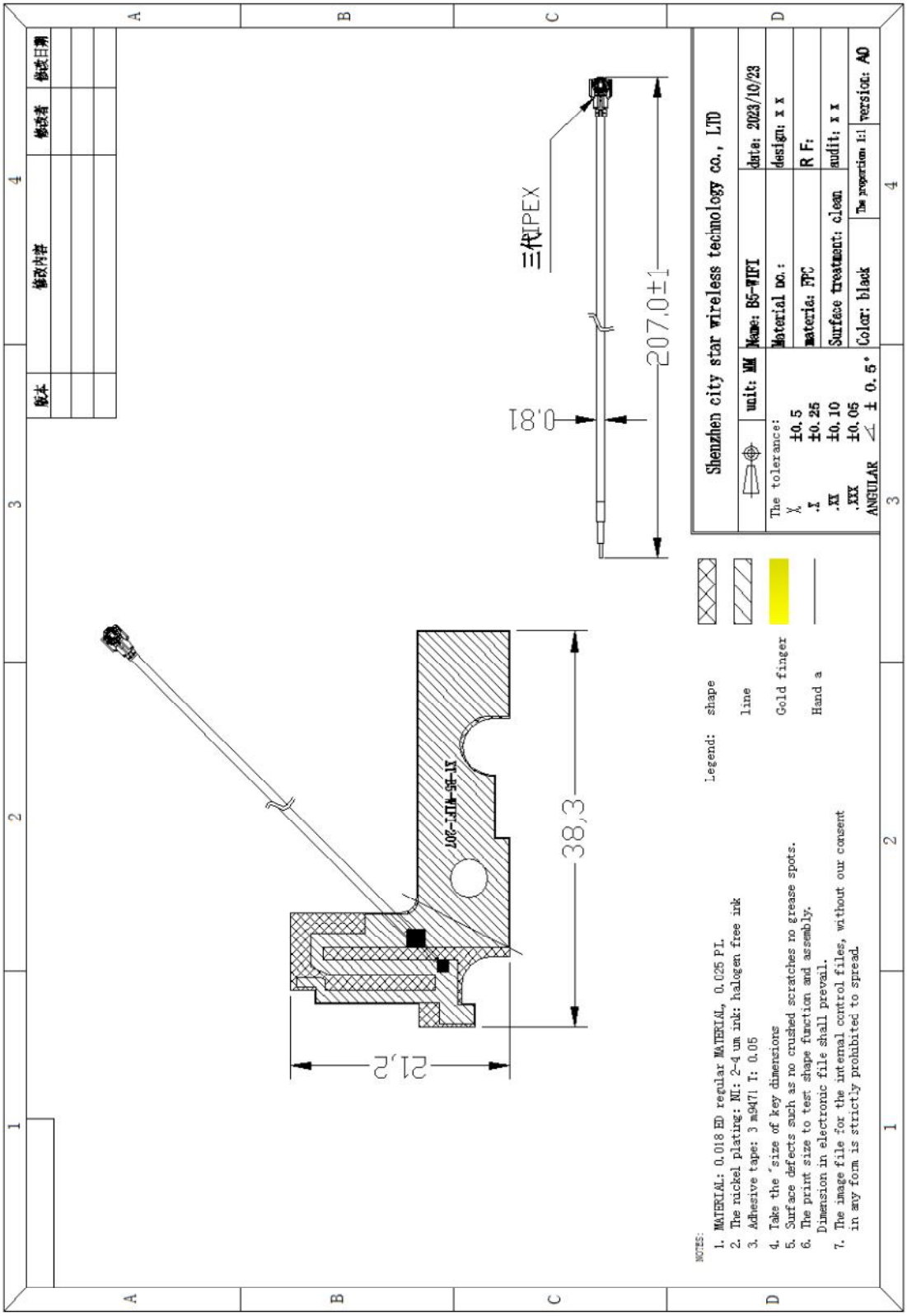


5850MHZ


5830.0MHz H+V, Eff: 29.6%
Back View
5830.0MHz Total(E1-XZ), Max= 0.82dBi
5830.0MHz Total(E2-YZ), Max= -0.94dBi
Total(H-XY), Max= -3.65dBi, CirD=7.39
5840.0MHz H+V, Eff: 35.9%
Back View
5840.0MHz Total(E1-XZ), Max= 1.61dBi
5840.0MHz Total(E2-YZ), Max= 0.60dBi
Total(H-XY), Max= -3.27dBi, CirD=12.99
5850.0MHz H+V, Eff: 36.5%
Back View
5850.0MHz Total(E1-XZ), Max= 2.47dBi
5850.0MHz Total(E2-YZ), Max= 0.75dBi
Total(H-XY), Max= -3.00dBi, CirD=12.63

5. Attached figure:

■ 5.1：Finished antenna drawing



6. Maintenance verification:

Tests/test items	Maintainability	Inspection order number
Product name/specification	2.4/5.8G bluetooth /WIFI built-in fpc antenna	Test quantity: 5PCS
Date of inspection: 2023/10/23		Completiondate: 2023/10/23

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 ≥ 0.6kgf.				
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℃, 10S, no delamination, no foaming	Tin furnace	Ok
2	weldability	245℃, 5s, smooth tin surface, solder surface≥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)	≥0.35kg/cm	peel strength	Ok
6	Peel strength (copper foil)	≥0.8kg/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.