Tianin Intelligent Internet of Things Technology (Shenzhen) Co., LTD

acknowledgement

Name material: Said: cast beauty

Household household: Type: X5 projector

Guest guest guest: No.:

Description: Built-in antenna Antenna/2.4G-WiFi/3dBi/50ohm/FPC

Confirmation of signature and seal					
Tianfrequency intelligent confirmation customer confirmation					
Sample preparation audit approval verification audit approval					
Signature and seal of the customer					
Date 2022-11-23 Date 2022- -					

Tianin Intelligent Internet of Things Technology (Shenzhen) Co., LTD
Contact person: Wang Jianguo Mobile phone: 13424341872

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2. Document formulation / revision / abolition of the resume

Version date	Make / revise	Mak	Appro	remarks
A1.0 2022.11.23	the content	e Fan	val of	
	sample seal	Lei	Qin	
	sample test		Sulin	
	output			

3. Directory

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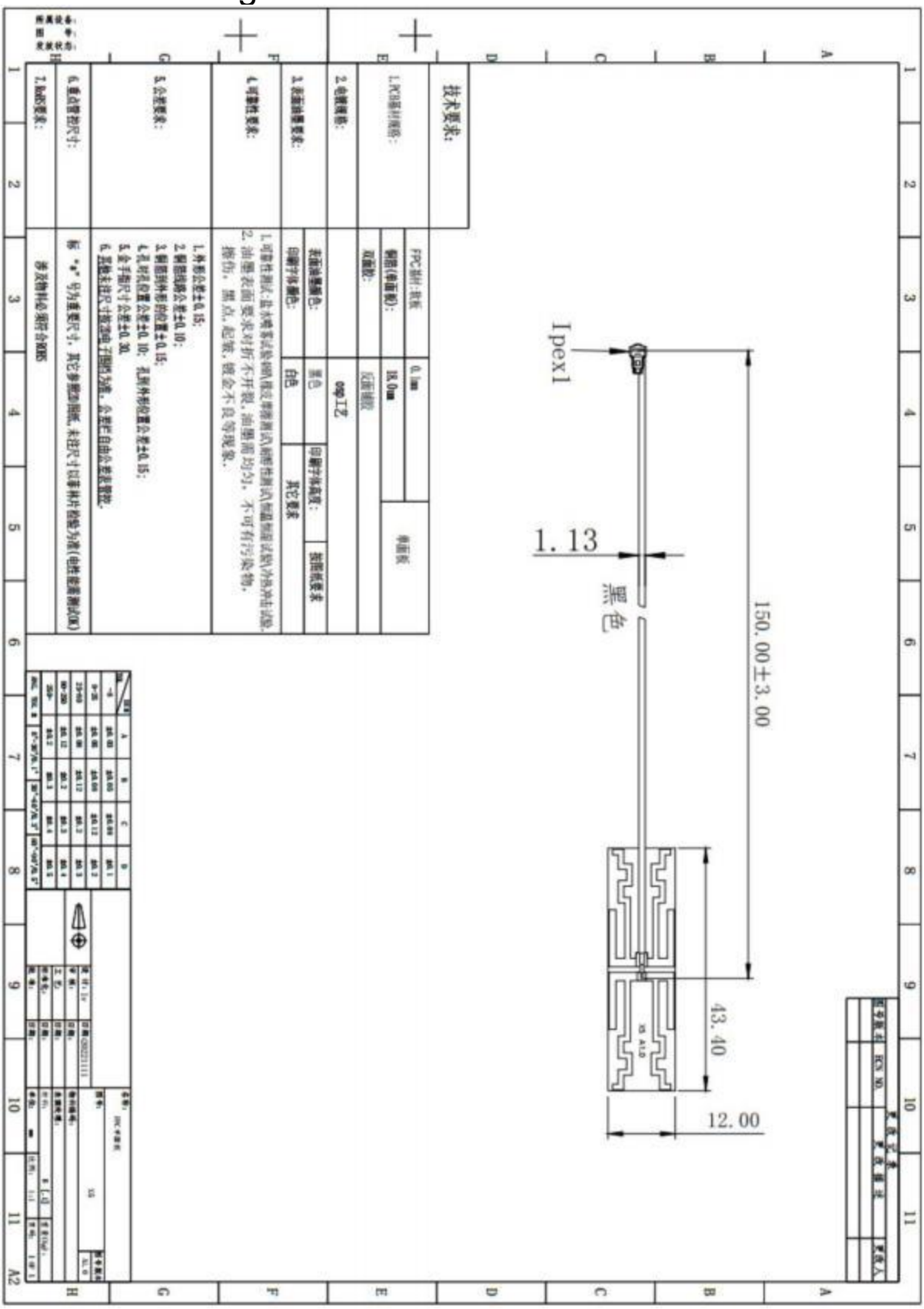
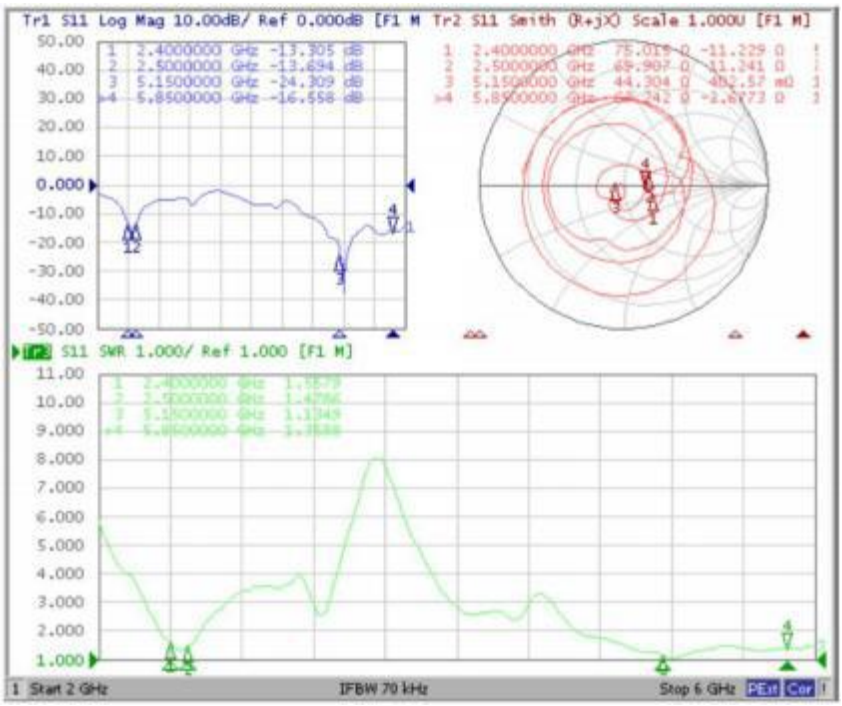
4. Product drawings



5. passive performance test parameters

S11



Fre(GHz)	2.4	2.5
ReeturnLoss	-13.30	-13.69
VSWR	1.55	1.47

Efficiency, gain, and direction diagram

Frequency ID	1	3	5	7	9	11	12	14	16	18	20	22	24	26
Frequency (MHz)	2400.0	2420.0	2440.0	2460.0	2480.0	2500.0	5150.0	5250.0	5350.0	5450.0	5550.0	5650.0	5750.0	5850.0
Efficiency (dBi)	-2.60	-2.61	-3.08	-3.39	-3.03	-2.61	-4.71	-4.91	-3.51	-3.51	-4.15	-4.60	-4.46	-4.21
Gain (dBi)	2.70	2.75	2.63	2.54	2.65	3.39	2.86	2.48	4.01	4.09	3.53	3.30	3.28	3.18
Efficiency (%)	54.95	54.81	49.21	45.78	49.77	54.86	33.80	32.28	44.58	44.59	38.50	34.67	35.81	37.97
Directivity (dB)	5.30	5.36	5.70	5.94	5.68	6.00	7.57	7.39	7.52	7.60	7.67	7.90	7.74	7.38
Peak Gain Position (Theta)	96.00	110.00	98.00	96.00	101.00	108.00	99.00	68.00	96.00	71.00	70.00	69.00	70.00	99.00
Peak Gain Position (Phi)	71.00	62.00	70.00	72.00	69.00	65.00	64.00	91.00	74.00	87.00	89.00	87.00	84.00	63.00
Efficiency ThetaPol (%)	44.13	43.69	39.28	37.66	40.31	44.84	30.68	28.07	40.36	40.98	34.90	30.84	32.28	34.08
Efficiency PhiPol (%)	10.82	11.12	9.93	8.11	9.46	10.02	3.12	4.20	4.23	3.61	3.60	3.83	3.53	3.90
Upper Hem. Efficiency (%)	31.68	30.27	26.30	25.46	28.01	29.56	20.11	17.97	25.14	25.47	22.73	20.81	21.25	22.10
Lower Hem. Efficiency (%)	23.27	24.54	22.92	20.32	21.76	25.31	13.69	14.31	19.44	19.12	15.76	13.86	14.56	15.88

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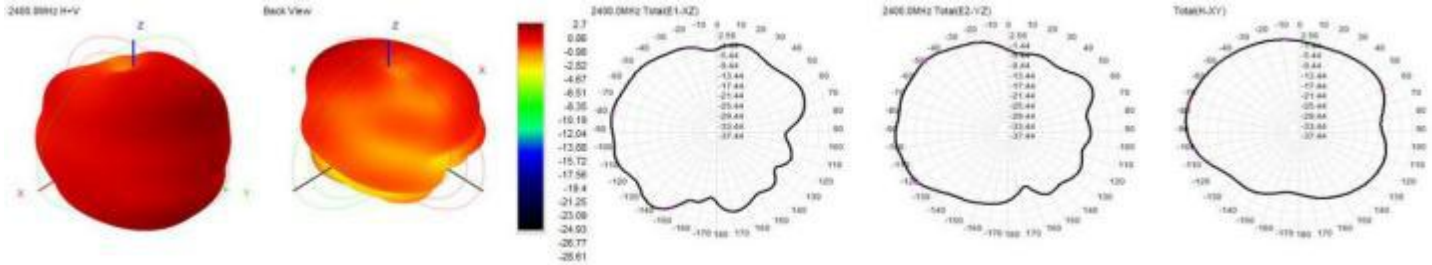
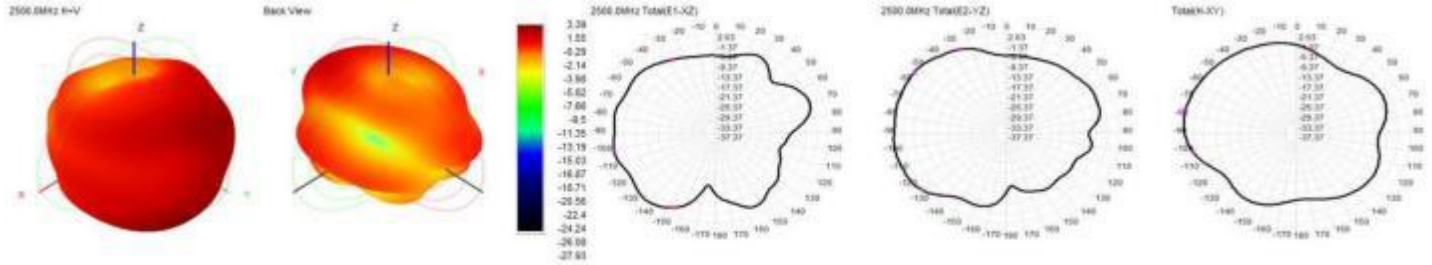


2.4GHz



2.5GHz

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6. Electrical performance parameters

	spray test
	working temperature
frequency range	
input impedence	
standing-wave ratio	
gain 2.4GHz	
gain 5.8GHz	
Polarization mode	
radiation direction	
Connector model	
wire length	
Maintenance force	

coaxial cable salt

	Electrical parameters	ss-polarized omnidirectional
2.4-2.5GHz		Ip ex1
50Ω		Mechanical parameters
<2.0		150 mm/ Black is 1.13mm
3 dBi		
3 dBi		
C r o		enviromental parameter
		-40~85℃

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7. Reliability test report

7.1. Constant temperature and humidity test

Test / test items	steady temperature damp test	Inspection sheet number
Product name / specification	2.4G-FPC RF1.13mm Line, line length of 150mm, Ip ex1	Number of tests: 5 PCS
		Completion date: 20-2022

Inspection date: November 29,2022

Test / inspection equipment:
1. Program-type constant temperature and humidity test box
2.8753 ES network analyzer

Test / Inspection Conditions:
1. Test for 12H at constant temperature-40℃
2. + 65 ° 65 ~ 70% RH test 12H, a total of 24 hours;

end of test

requirement:
1. No cracks and separation on the metal surface; the non-metallic part should not have discoloration, cracking, deformation, glue and other bad;
2. The electrical test meets the standard requirements; the voltage ratio test is qualified

Test / inspection determination:lqualified⭘unqualified⭘Do not make judgment

Test: Audit:

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7.2. Cold and cold shock at high and low temperature

Test / test items	Cold and cold shock at high and low temperature 2.4G-FPC RF1.13mm Line, line length of 150mm, Ip ex1	Inspection sheet number Number of tests: 5 PCS Completion date: 20-November, 2022
Inspection date: November 29,2022		
Test / inspection equipment: 1. High and low temperature are alternating with humid heat 2.8753 ES Network Analyzer		
Test / Inspection Conditions: -40℃ (2H) - -80℃ (2H) interval, 6 cycles, a total of 24 hours;		
end of test		
requirement: 3. The metal surface coating shall not be peeling, cracking, separation, etc.; the non-metallic part shall not have discoloration, cracking, deformation, bonding and other bad; 4. The electrical test meets the standard; the voltage wave ratio test is qualified.		
Test / inspection determination:lqualified○unqualified○Do not make judgment		

Test: Audit:

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8. Packaging specifications

Product material number:

Product specification: built-in antenna Antenna/2.4G-WiFi/3dBi/50ohm/FPC 43.40*12.00mm/RF1.13mm black coaxial axis L=150mm + Ip ex1

1. labeling requirement

Inner label length 45 wide 70					Outer label long 45 wide 70			
demander					demander			
supplier	Tianfrequency Intelligent Internet of Things Technology (Shenzhen) Co., LTD				supplier	Tianfrequency Intelligent Internet of Things Technology (Shenzhen) Co., LTD		
Customer order number					Customer order			
Custom			50 PCS 5000 PCS				Custome	
er material			2. Packaging		examination clerk		r material	
number material			matters need attention:		date of manufacture		number material	
code product							code product	
name							name	
specific ation							specifica tion	
Quantity / unit							Quantity / unit	
remarks							remarks	

2. The packing requirements

1. Internal packaging products

date of manufacture

examination clerk

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