

Shenzhen HaoTianCheng Wireless
Technology Co., Ltd

Name: Sample Approval

Ver: V1.0

date: 2024.01.11

Sample Approval Sheet

Project Name: WS01Sample Name: WIFI/BT 天线Sample SPEC: FPC material, gold-plated, 3M300 backing adhesive

Customer PN.:

Transfer Date: 2024.01.11

Supplier Confirm	Project	Engineer	Quality
	Xiao Qiang	Michael Huang	Gu Shuang
Date	2024.01.11	2024.01.11	2024.01.11

Customer confirm	PM	Electron	MD	PD	QE
Date					

conclusion	☐ MP	☐ Limits use () K
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☐ ROHS

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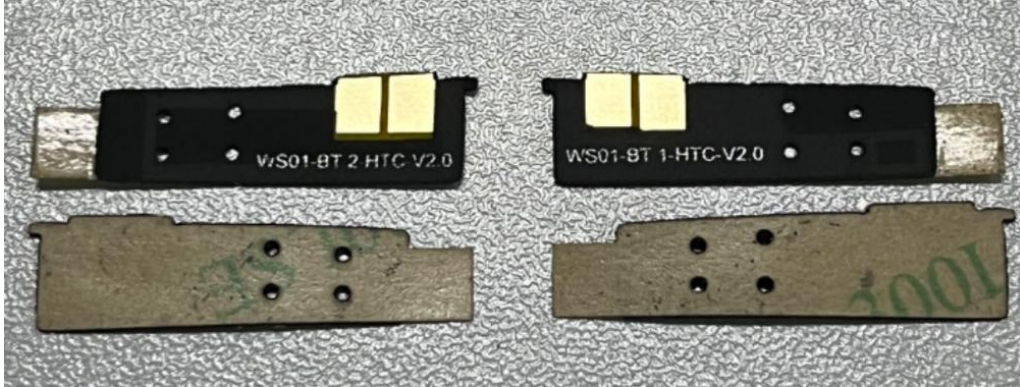
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1. Overview of Recognition Letter

This specification describes the condition of the built-in antenna of the Infinite WS01, and its frequency band WIFI/BT manufacturer is Shenzhen HaoTianCheng Wireless Technology Co., Ltd.

2. Appearance



3. Electrical performance

3.1. Antenna frequency band

	WIFI/BT
transmit frequency band(MHz)	2400~2500
Receiving frequency band(MHz)	2400~2500

3.2. Matching circuit

Matching circuit not changed

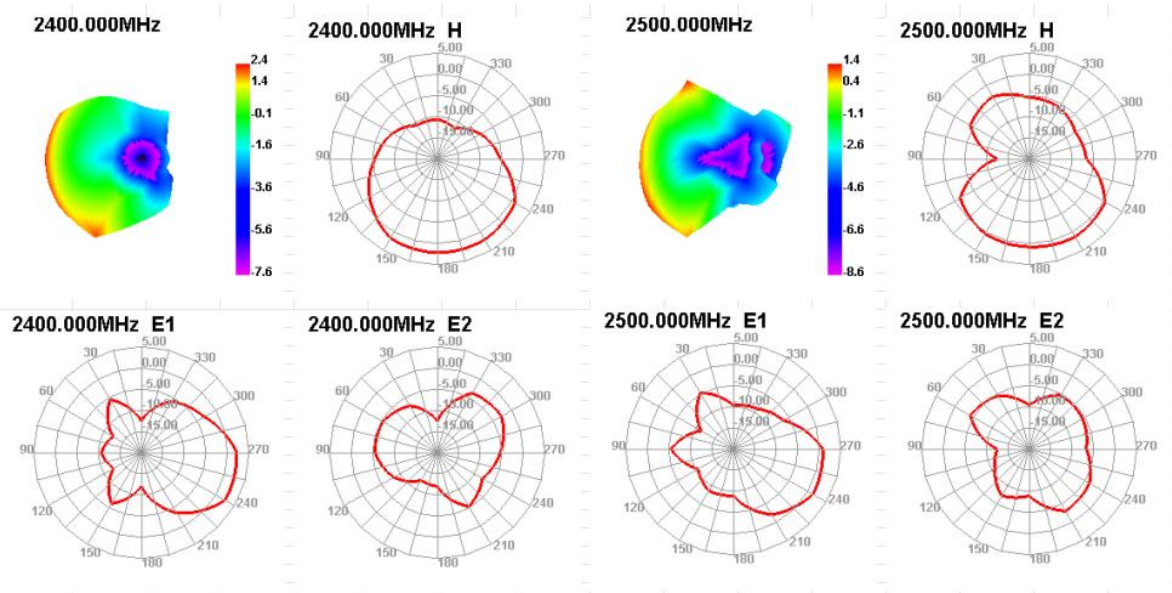
3.3. Impedance requirements

50 ohm

3.4. Passive gain efficiency of antenna and apple chart

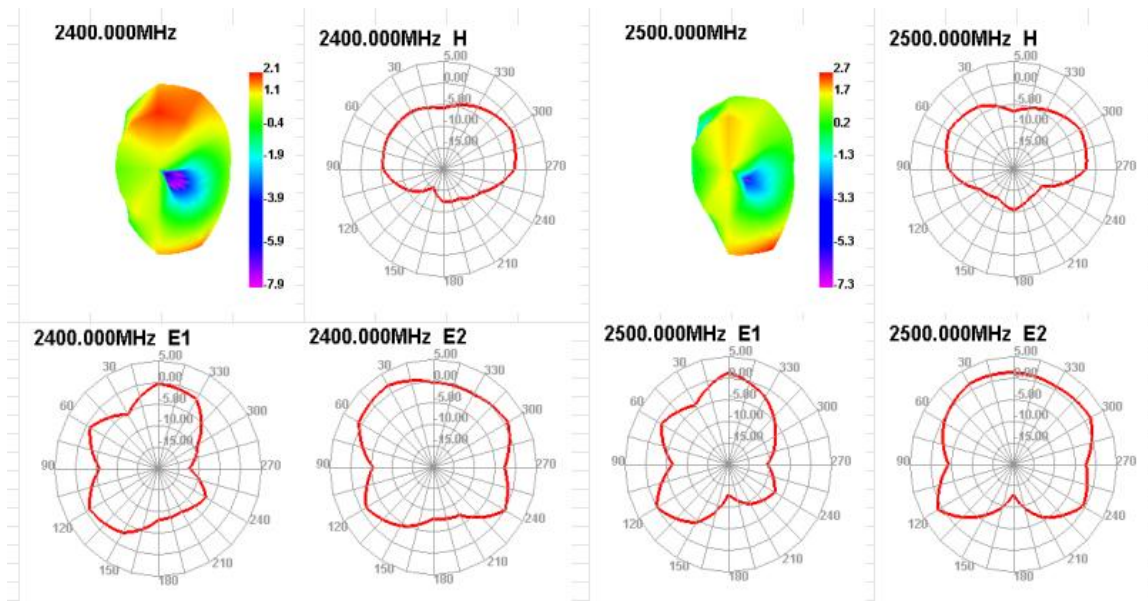
BT-A

Freq (MHz)	Effi (%)	Gain (dBi)
2400	47.13	2.45
2410	47.65	2.44
2420	46.08	2.21
2430	46.99	2.19
2440	47.38	2.23
2450	48.38	2.3
2460	50.89	2.42
2470	51.01	2.31
2480	48.31	1.94
2490	46.87	1.6
2500	46.14	1.36



BT-B

Freq (MHz)	Effi (%)	Gain (dBi)
2400	54.72	2.06
2410	57.38	2.34
2420	54.55	2.1
2430	55	2.22
2440	56.35	2.26
2450	57.74	2.54
2460	57.94	2.67
2470	58.37	2.77
2480	57.87	2.77
2490	57.57	2.68
2500	57.6	2.68



3.5. Antenna test data

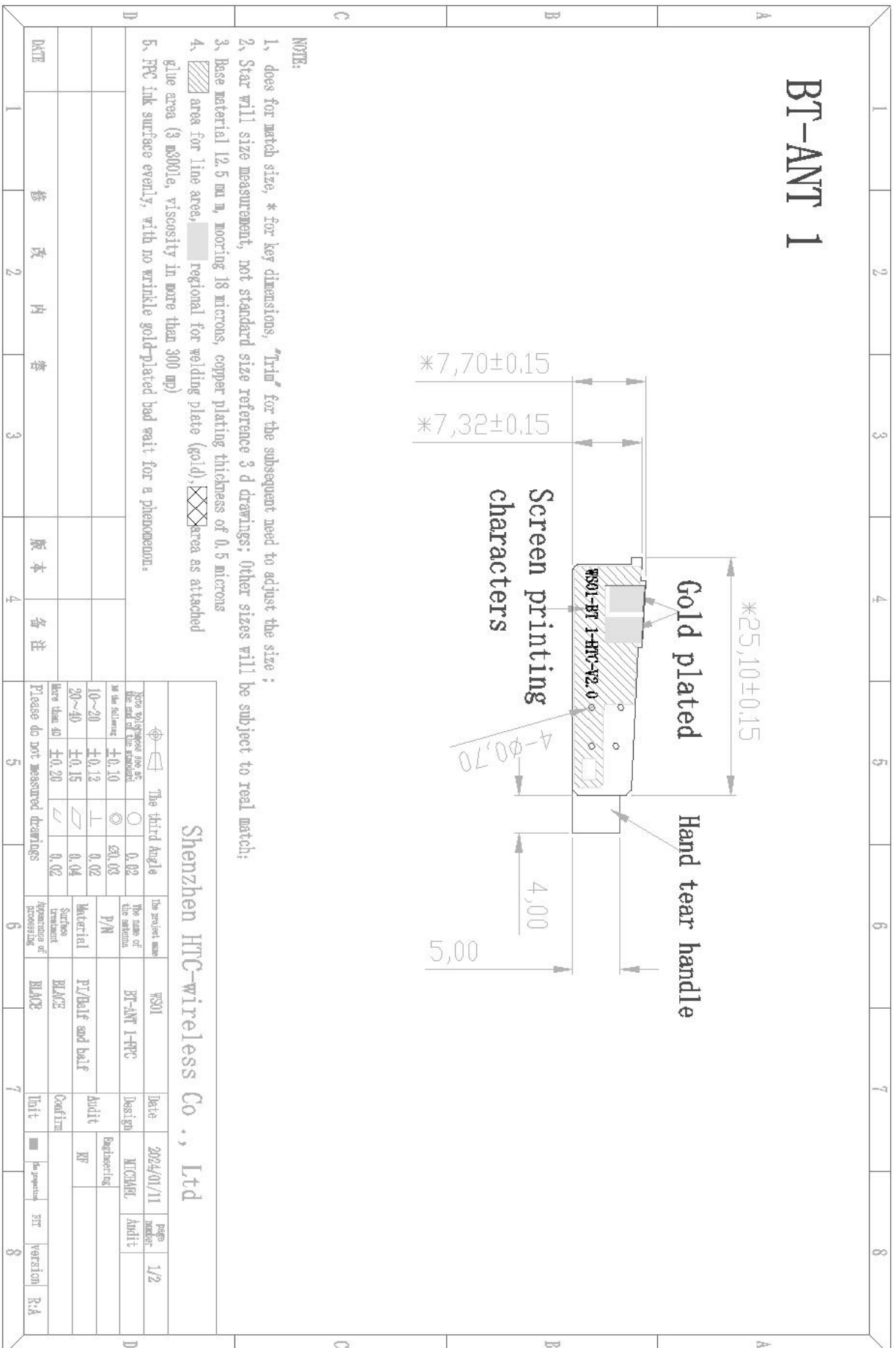
Band	TRP/TIS	L	M	H
BT_A	TRP	2.18	2.27	2.36
	TIS			-92.22
BT_B	TRP	20.57	20.15	19.30
	TIS			-91.24

4 Appearance structure

4.1 Antenna material

Antenna material: FPC antenna, black ink, gold plated in exposed copper area.
Substrate+double-sided tape+release paper

4.2 Structural drawings



Technical drawing of a rectangular component with the following dimensions and labels:

- Overall width: $7,32 \pm 0,15$
- Overall height: $24,30 \pm 0,15$
- Top edge features:
 - Distance from top-left corner to start of notch: 5,00
 - Notch width: 4,00
- Left edge features:
 - Four holes: $4 - \varnothing 0,70$
- Internal features:
 - Screen printing characters: $\varnothing$ MS01-RT 2-HMC-V2.0
 - Gold plated area (indicated by hatching)
- Labels:
 - Hand tear handle (pointing to the notch)
 - Gold plated (pointing to the hatched area)

1. does for match size, * for key dimensions, "trim" for the subsequent need to adjust the size ;
2. Star will size measurement, not standard size reference 3 d drawings; Other sizes will be subject to real match;

- Shenzhen HTC-Wireless Co., Ltd

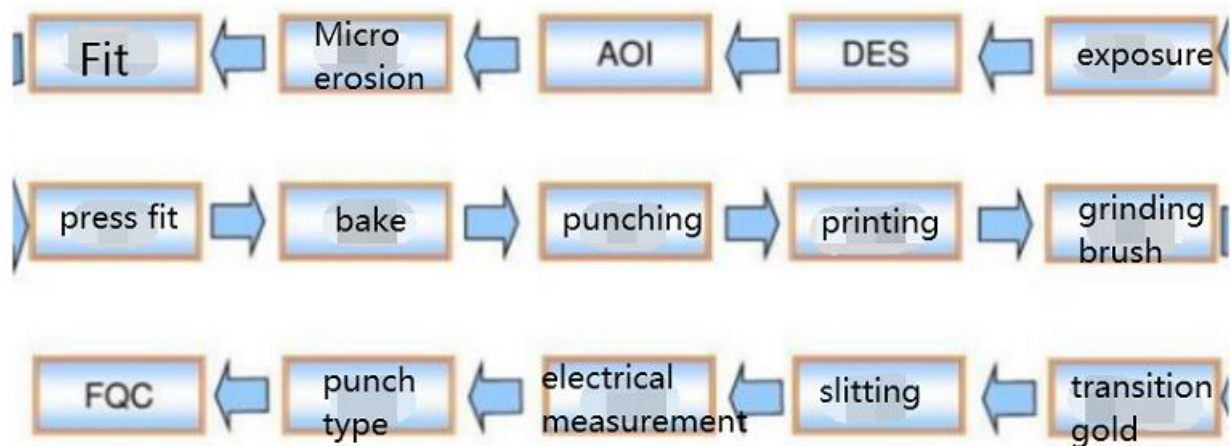
Shenzhen HTC-wireless Co., Ltd							
	The third Angle	The project name		Date	2024/01/11	pages number	2/2
Note: you please size at the end of the standard.		The name of the instruction	HTC-WT 2-TPPC	Design	MICHAEL	Audit	
at the following	+0.10	P/N		Engineering	RF		
10~20	+0.12			Audit			
20~40	+0.15	Material	PI/half and half	Confirm			
bore diam 40	+0.20	Surface treatment	BLAZE	Unit			
Please do not measured drawings		dependence of dimensions	BLAZE	☒ Inspected	FIT	version	R.A.
5		6		7		8	

5 Bill of Materials (BOM)

List of main materials

number	Product information						Test report	
	Code (component Code)	Product name	重量 (g)	Name of raw material	Raw material No Chemical registration number	Raw material supplier	Certification company	Report no
1	FPC antenna	Copper foil substrate (PI)	0.0542	CU	SP14-033405-SH	Cai lungeti	SGS	SHA16-245544-02
			0.03	polyimide film				
2		Ink (black)	0.005	PRINT INK (Printing ink)	P800	Youli	SGS	
3		Adhesive paper	0.1132	3M	3M9471LSE	Heilihua	SGS	
4		Electrogold	/	additive	JSTD8001	Kingsoft	SGS	CANEC1617433203

6 Production process diagram



7 Reliability Test Report

Shenzhen HaoTian Cheng Wireless Technology CO. Ltd

Reliability test report

customer	MAX	The customer model	WS01	Product model	BT 1/2	DATE	2024/1/10	inspector: GU
Number	Reliability project	The experimental method	Decision criteria	Cycle	number of experiments	1	2	3
1	Peel strength	Tension meter	From 70 to 80 n / 100 mm (paste) on ABS material	time/batch	5PCS	OK	OK	OK
2	The coating adhesion	Clean surface of FPC goldfinger, then on the surface of gold finger put new 3 m600 back glue, laminating surface to cover the surface of gold finger, and residual pressure must not have bubbles with his fingers. About 10 seconds, along with gold finger side into the direction of the Angle of 90 degrees quickly pull up the tape, and repeat this three times this action.	Check the surface gold finger without coating fall off phenomenon, there is no loss of coating film of adhesive tape.	1 time/batch	5PCS	OK	OK	OK
3	Salt fog	At 35 °C plus or minus 2 °C airtight environment, and the salt solution with a PH value of 6.5 to 7.25 (5% solution composition of 95% sodium chloride and distilled water) with 80 square centimeters to 10 cm in diameter of the atomizer in 16 hours average collection in 1 to 2 ml of spray amount, continuous spray after 48 hours to take out the test.	FPC not blister. Oxidation discoloration and rust.	1 time/batch	5PCS	OK	OK	OK
4	Bending test	Positive and negative bending 180°, 30 times	Still conduction after bending, performance is good. No fracture	1 time/batch	5PCS	OK	OK	OK
5	High and low temperature impact	Will be set to high and low temperature test chamber cold - 30 °C, the temperature is set to + 70 °C, the switching speed for 30 seconds, each holding 0.5 H, is set to 32. After the test after back 2 hours at room temperature.	Good electrical	1 time/batch	5PCS	OK	OK	OK
6	High temperature and high humidity test	Test environment: temperature of 60 plus or minus 2 °C; Humidity is 93 + / - 3% (RH); Place for 48 hours; Recovery time: 2 hours.	Good electrical	1 time/batch	5PCS	OK	OK	OK

Prepared : GU

checked by :XIAO

Control number: SR-FM-QRA-008

8 Antenna and accessory material GP test report (ROHS. SGS. MSDS):

												
ZYFS (单面板) RoHS2.0&卤素 &Be元素	ZYFS (单面板) SVHC 224项	金源星辉REACH 中文	金源星辉RoHS中 文	金源中文版 MSDS	台湾优立800-油 墨中文2023年 MSDS	优立-800油墨 -2023-07-13-R OHS报告(黑色系 列)	优立-PM-800油 墨-(热固)224项 及28批9项关注 物	众创前FPC-3M 背胶 Reach报告 -2023	众创前-FPC-3M 背胶-系列ROHS 十项 -2023	众创前FPC-3M 背胶-系列卤素 -2023	众创前-覆铜板 MSDS (正业)	

9 Packaging

The FPC antenna is welded, and the coaxial line is shipped in a single PCs, which is packed in a small bundle of 100pcs into PP bags and shipped in cartons; a small box of 10 bags of finished products is expected to have 1000 sets of antennas.

