Seeking truth value win-win

Shenzhen Qianmu Communication Technology Co., Ltd

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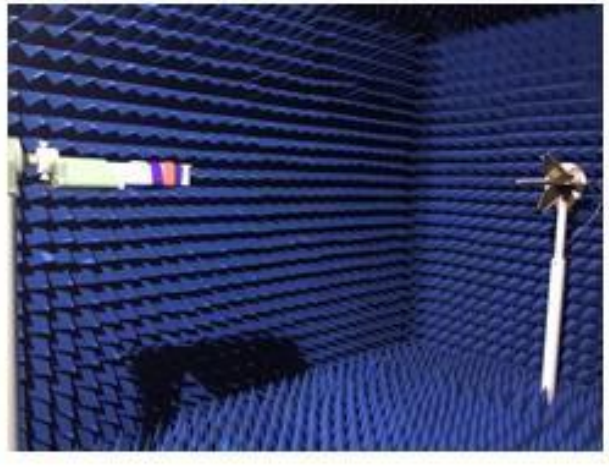
Focus on antenna solutions design and production

Client: Leading:
LA24
Date:2022.7.6
Version:A1
Frequency:Liu Chu Sheng

Table

Test environment

	Test the project	equipment
1. S-parameter	1. Return Loss 2 Voltage standing wave ratio (VSWR).	Network analyzer: Agilent E5071B HP 8753D
2. Active testing （Active ）	1. Transmit power (TRP). 2. Receive sensitivity (TIS). 3. Frequency error 4. Screen off, screen on	1. Darkroom: ETS 7x4x3 m (3D) Chamber ETS 5x3x3 m (3D) Chamber 2. Comprehensive tester: Agilent 8960 E5515B ×2
3. Passive testing （Passive）	1. Antenna gain (Gain). 2. Antenna efficiency (Efficiency).	1. Darkroom: ETS 7x4x3 m (3D) Chamber ETS 5x3x3 m (3D) Chamber 2. Network analyzer: Agilent E5071B HP 8753D



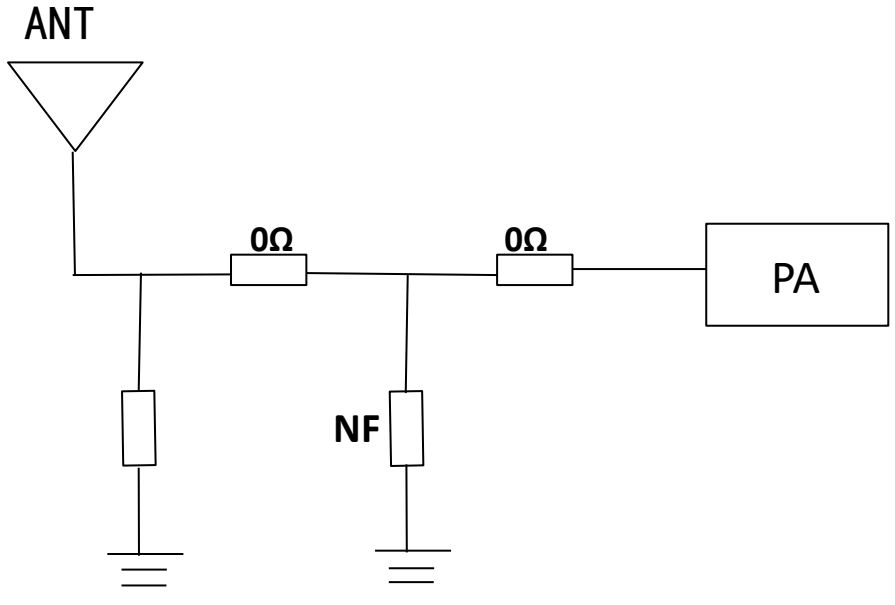
Description of previous debugging records

date	version	Debug record description
2022-7-6	A1	Bluetooth cable, test prototype

Debugging instructions of the whole machine

Models	Bluetooth watch						
Fit	mainboard						
Antenna overview		Antenna status		Antenna status	Antenna form	Design area	Match the changes
	Bluetooth antenna	BT	2.4GHz~2.5GHz	Bluetooth cable D:0.6mm L:22mm	Monopole	bracket	not
Prototype status	Commissioning the machine			Environmental treatment			

Matching circuit -BTantenna

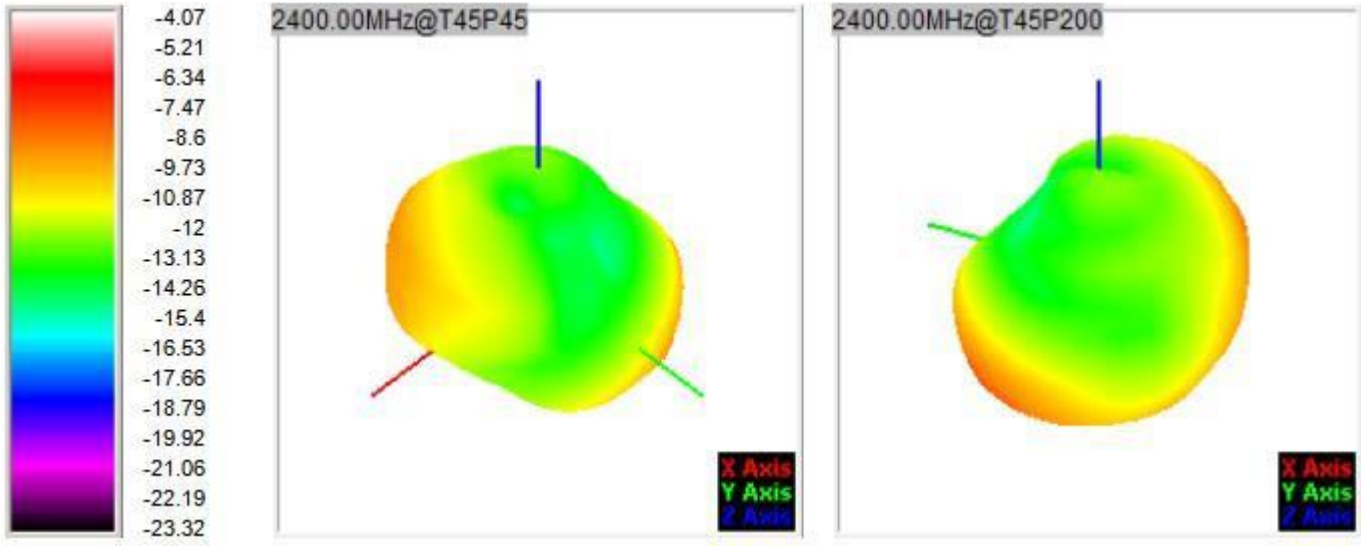


The original match has not changed

Antenna passive efficiency gain data

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
Point Values											
Ant. Port Input Pwr. (dBm)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tot. Rad. Pwr. (dBm)	-8.43	-8.50	-8.52	-8.36	-8.30	-8.03	-7.97	-8.14	-7.96	-7.73	-7.56
Peak EIRP (dBm)	-4.07	-4.06	-3.96	-3.78	-3.74	-3.50	-3.52	-3.81	-3.84	-3.67	-3.51
Directivity (dBi)	4.36	4.44	4.56	4.58	4.56	4.53	4.45	4.33	4.12	4.06	4.05
Efficiency (dB)	-8.43	-8.50	-8.52	-8.36	-8.30	-8.03	-7.97	-8.14	-7.96	-7.73	-7.56
Efficiency (%)	14.40	14.10	14.10	14.60	14.80	15.70	16.00	15.30	16.00	16.90	17.50
Gain (dBi)	-4.07	-4.06	-3.96	-3.78	-3.74	-3.50	-3.52	-3.81	-3.84	-3.67	-3.51
NHPRP ±Pi/4 (dBm)	-9.34	-9.41	-9.44	-9.28	-9.22	-8.97	-8.91	-9.07	-8.89	-8.65	-8.48
NHPRP ±Pi/6 (dBm)	-10.52	-10.59	-10.62	-10.47	-10.42	-10.17	-10.12	-10.29	-10.11	-9.88	-9.71
NHPRP ±Pi/8 (dBm)	-11.46	-11.52	-11.55	-11.41	-11.38	-11.14	-11.09	-11.26	-11.08	-10.84	-10.68
Upper Hem. PRP (dBm)	-12.47	-12.59	-12.61	-12.47	-12.48	-12.23	-12.25	-12.47	-12.29	-12.03	-11.86
Lower Hem. PRP (dBm)	-10.61	-10.64	-10.67	-10.50	-10.39	-10.11	-10.00	-10.14	-9.96	-9.74	-9.58
Upper Hem. PRP (%)	5.67	5.50	5.48	5.67	5.65	5.99	5.96	5.67	5.90	6.26	6.52
Lower Hem. PRP (%)	8.69	8.63	8.58	8.91	9.15	9.74	10.00	9.67	10.08	10.62	11.00

Antenna pattern and apple diagram



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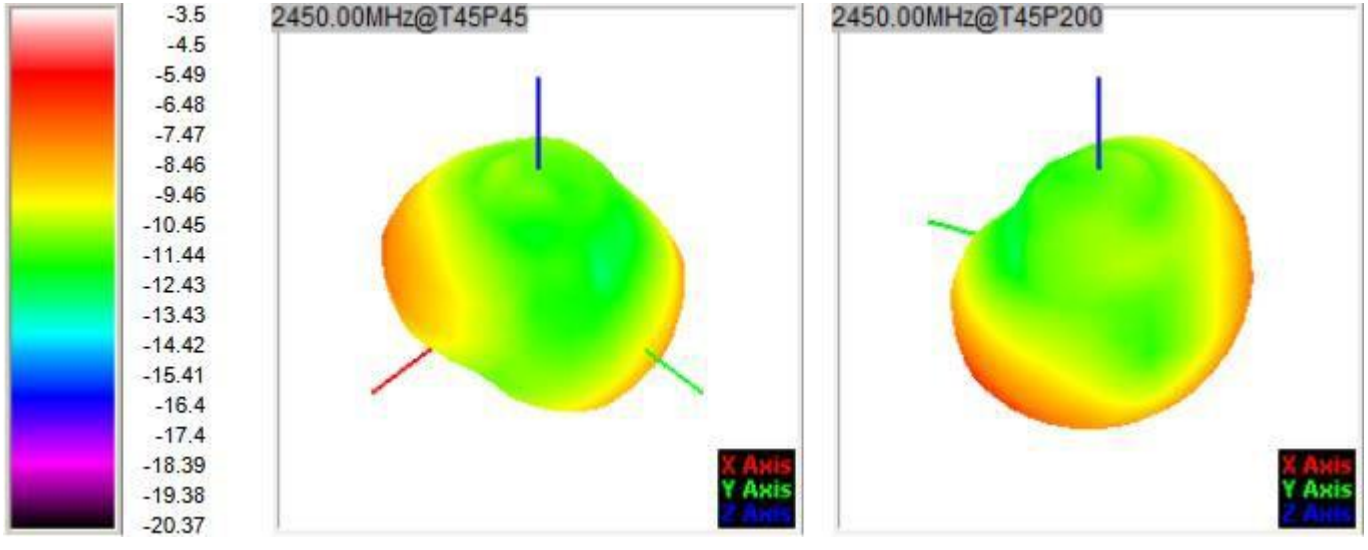

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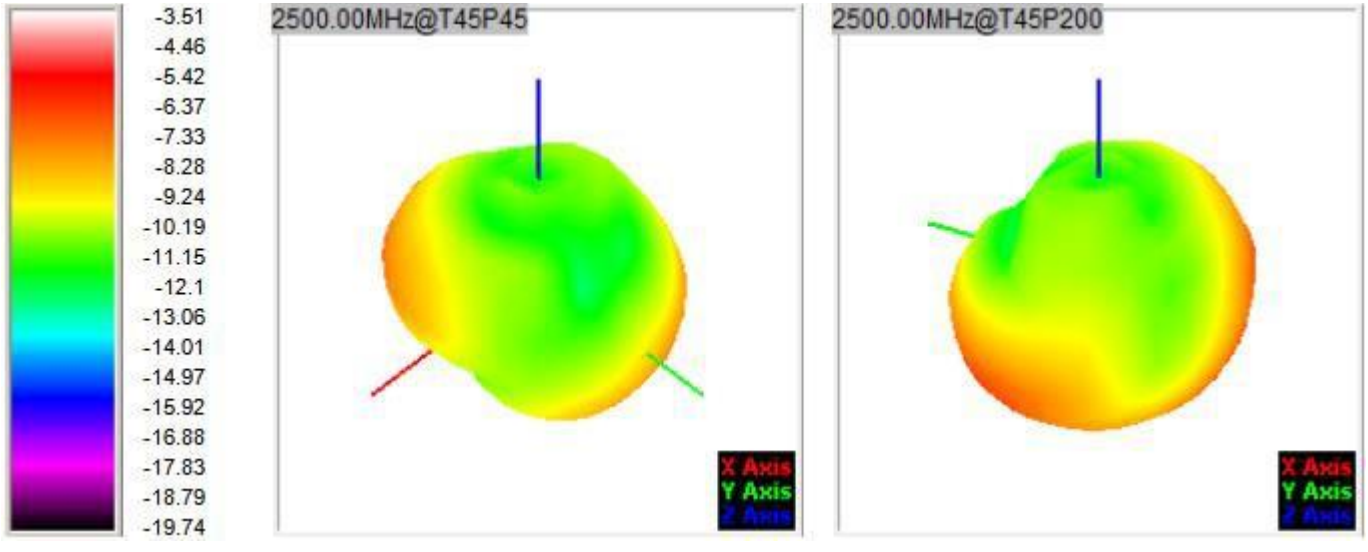
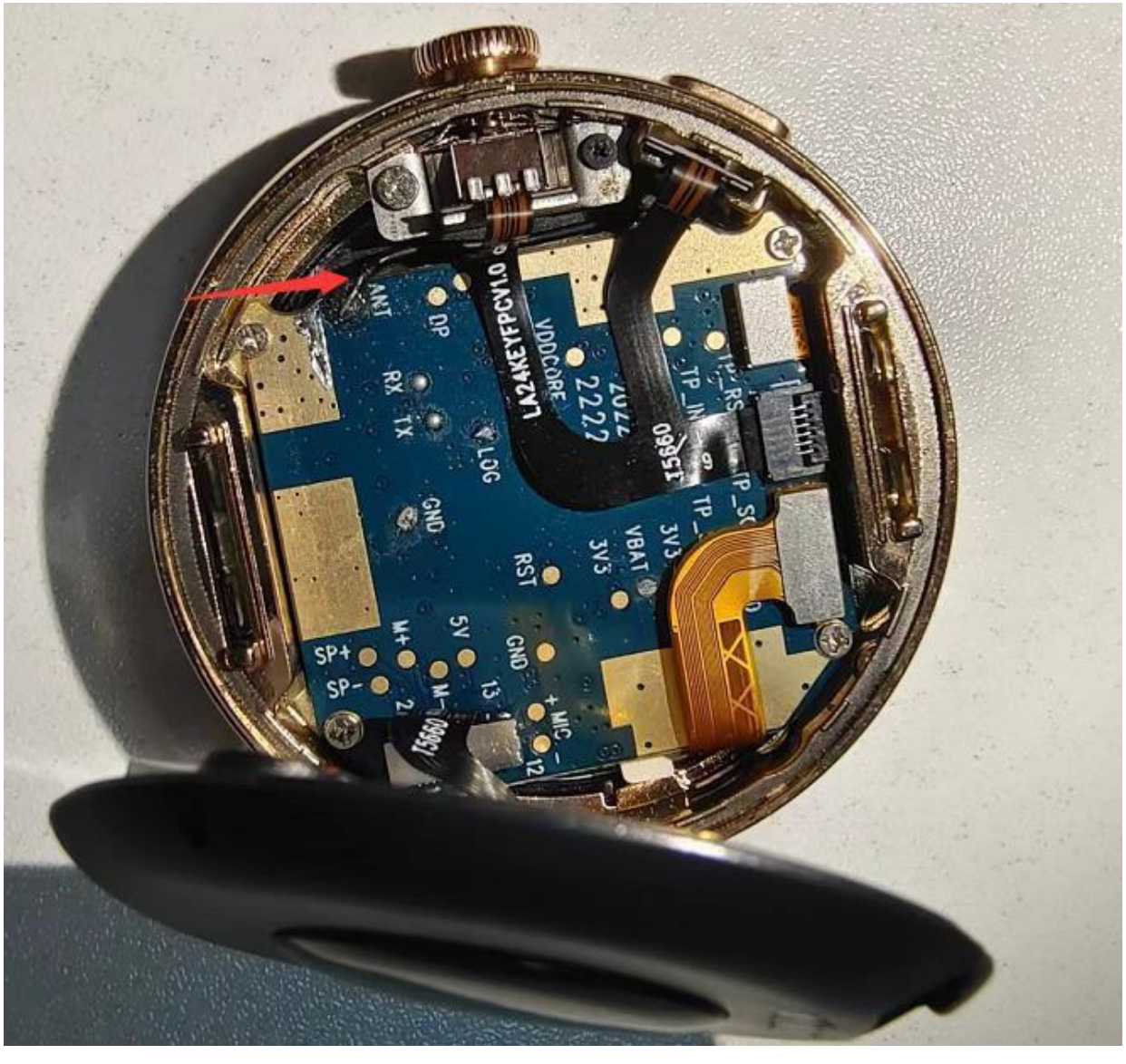


BT antenna placement:



BT antenna measurement:

The arrow indicates: Test method

BTantenna

1. The Android system mobile phone is connected to the bracelet, and the bracelet finds the mobile phone

2. Android system mobile phone connection bracele phone (outdoor) test

Try to get a straight line distance of 13 meters

BTantenna measurement:call test

1. Call Bluetooth measurement, by dialing mobile phone calls, bracelets (Indoors) Test that the call is smooth and does not freeze for about 10 meters when the straight-line distance of the call is unobstructed.

2. Play music through mobile phone, bracelet (indoor) test listening to songs Smooth and not stuttering about 30 meters in a straight line without obstacles.

Prompt description

Tip:

1. This data is only for the data generated by the prototype provided by the customer, and does not represent the final mass production status of the customer; 2. Please carefully confirm our report, matching circuit modification and environmental treatment instructions; 3. Before mass production, please cooperate to provide trial production prototypes to our company for secondary verification; If there is a replacement material, software update and environment

Please inform us in advance of processing, etc.; 4. If the customer needs a third-party retest, or send the customer for testing, please go to our company to verify and then send the prototype; Prevent machine

There is a difference between the device and the debugger; V: Our company does not accept machine data other than our debugging and other darkroom test data, but can refer to ,

Except for the certification chamber, if there is a difference in data, everything is subject to the debugger to find the reason.

Thanks!