



shenzhenTian wei xun wireless technology co., ltd.

Product performance and specification

Tian wei xun antenna the research and development department

CUSTOMER NAME: Shenzhen AZW Technology Co., Ltd

PRODUCT NAME: Key N BOARD MODEL: V1

TIAN WEI XUN P/N: TWX-069-086 PCB MODEL: _____

CUSTOMER P/N: _____

Client	Admit manufacturing party		
Customers confirmation	Quality department	R&D	Approval
		ME:	
		RF:	
Date:	(Date): Wednesday, July 3rd, 2024		

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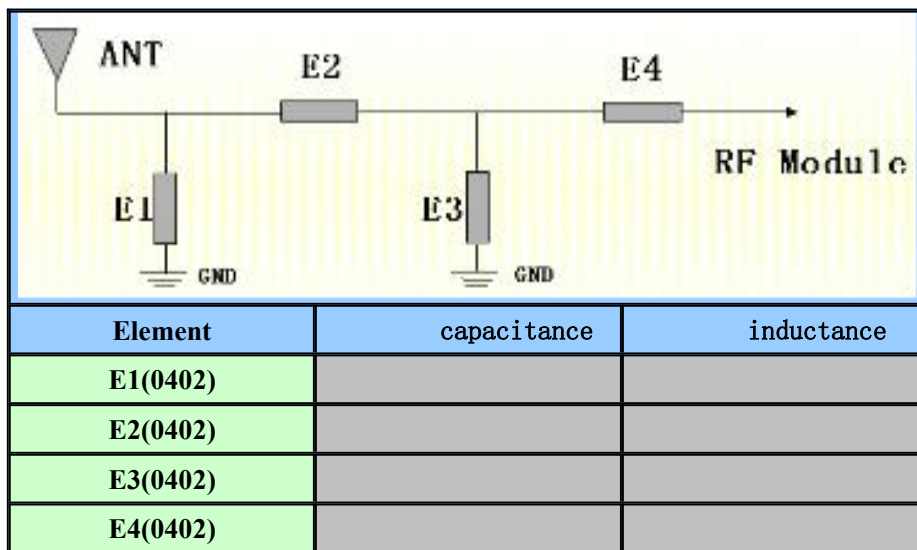
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1.1 Project Diagram



MAX N

1.1.1 Antenna matching diagram



Matching instructions: Match according to the original motherboard without any changes.

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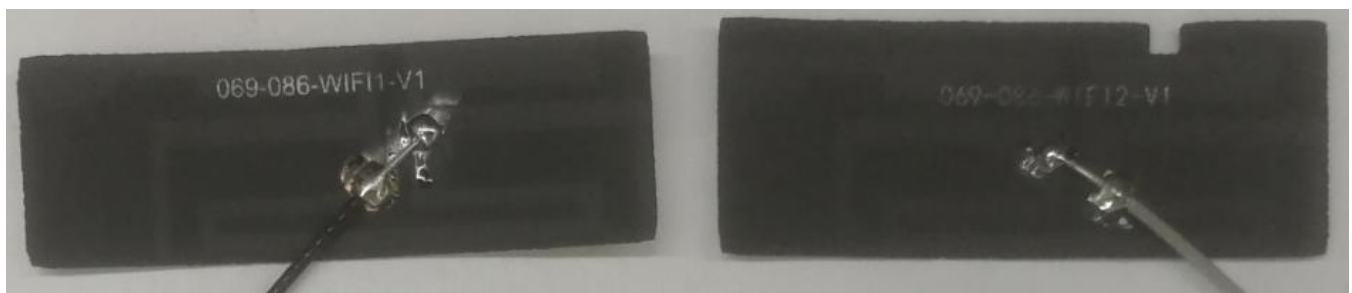
2.1 objective

Standardize the specifications and testing methods of mobile communication terminal antenna products produced by Tianweixun to avoid errors caused by different testing conditions and methods.

3.1 antenna

3.1.1 Main antenna electrical specifications and materials

This report mainly provides the testing status of the structural performance parameters of mobile phone antenna MAXN.



Physical image of antenna designed by Tianwei Xun

3.1.2 Antenna form

Implementation type: PIFA antenna

3.1.3 Antenna design operating frequency band

The working frequency band of the antenna is

2412MHz~2472MHz, 5100MHz~5820MHz

3.1.4 Measurement data of the main antenna in the ETS-SG24SYSTEM 3D testing system

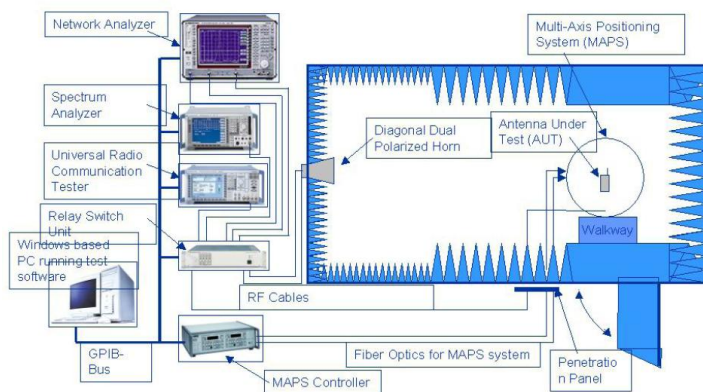


Figure (2) ETS Testing System

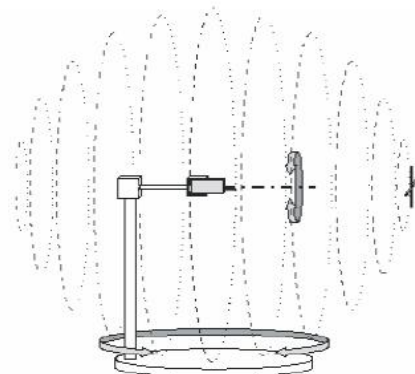


Figure (3) Three dimensional positioning device for mobile phone in darkroom

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The following table shows the passive performance indicators of Tianweixun's designed and mass-produced antennas:

Freq. (MHz)	Gain (dBi)	Efficiency (%)	Freq. (MHz)	Gain (dBi)	Efficiency (%)	Freq. (MHz)	Gain (dBi)	Efficiency (%)
2400	1.73	40.1	5100	2.89	44.8	5485	3.42	48.2
2410	1.75	40.0	5135	2.82	44.8	5520	2.85	42.6
2420	1.95	40.1	5170	2.23	48.2	5555	2.75	41.4
2430	1.85	40.7	5205	2.46	44.3	5590	2.79	44.5
2440	1.87	41.2	5240	2.11	40.2	5625	2.06	41.9
2450	1.93	42.4	5275	2.40	42.7	5660	2.36	41.6
2460	1.99	41.9	5310	2.07	40.4	5695	2.39	44.5
2470	1.81	41.7	5345	2.14	41.2	5730	2.20	39.0
2480	1.74	42.7	5380	2.89	46.6	5765	2.48	39.0
2490	1.66	41.5	5415	2.88	46.0	5800	2.27	39.0
2500	1.76	41.8	5450	3.07	46.3			

BT ANT

Freq. (MHz)	Gain (dBi)	Efficiency (%)	Freq. (MHz)	Gain (dBi)	Efficiency (%)	Freq. (MHz)	Gain (dBi)	Efficiency (%)
2400	-0.30	36.1	5100	3.48	35.8	5485	3.67	44.3
2410	-0.22	36.1	5135	3.75	37.2	5520	3.20	38.3
2420	-0.16	36.8	5170	4.53	42.3	5555	3.48	39.0
2430	-0.22	35.7	5205	4.19	40.9	5590	3.77	43.5
2440	-0.31	35.8	5240	3.56	37.0	5625	3.66	40.5
2450	-0.31	39.0	5275	3.71	42.6	5660	3.47	41.6
2460	-0.24	38.1	5310	3.42	39.4	5695	4.39	46.8
2470	-0.15	37.7	5345	3.52	39.7	5730	3.55	39.2
2480	-0.08	37.5	5380	3.94	43.7	5765	4.34	42.1
2490	0.22	37.0	5415	3.71	42.6	5800	3.98	38.8
2500	0.68	36.3	5450	3.85	42.9			

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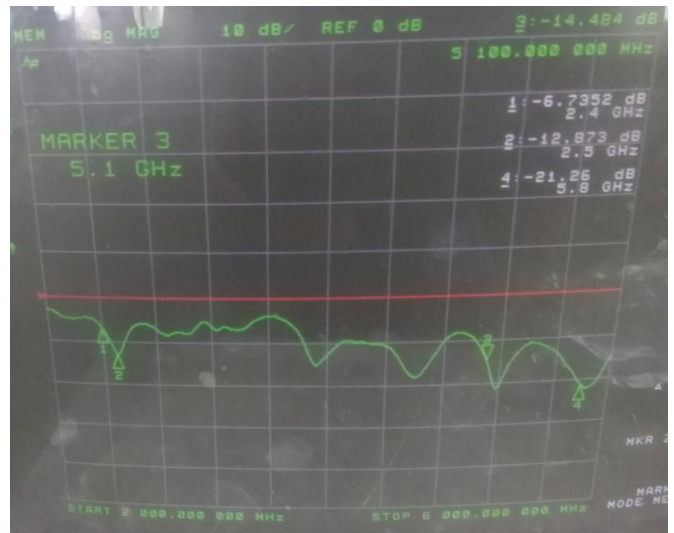
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3.1.5 Passive standing wave and return loss of antenna



Voltage standing wave ratio (SWR)



Return loss (Return loss)

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Voltage standing wave ratio (SWR)



Return loss (Return loss)

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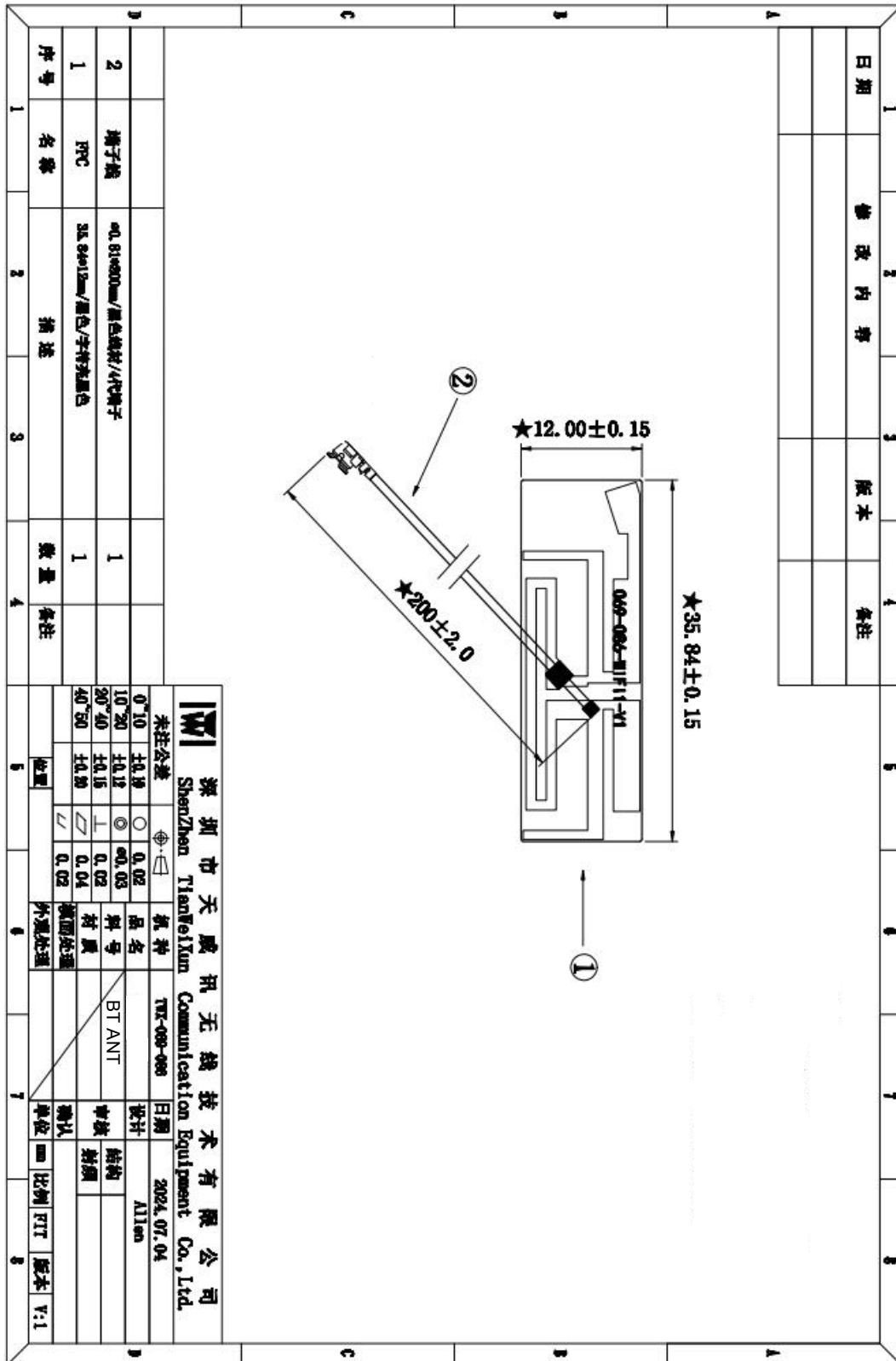
3.1.6 WiFi Antenna active test data

		Channel No.	TRP (dBm)	TIS (dBm)
WiFi	2.4G	1	12.99	-80.62
		6	13.04	-79.34
		13	13.13	-79.18
	5G	36	13.72	-71.29
		64	13.17	-70.37
		149	12.82	-71.25
		157	13.16	-70.93
		165	12.36	-70.82

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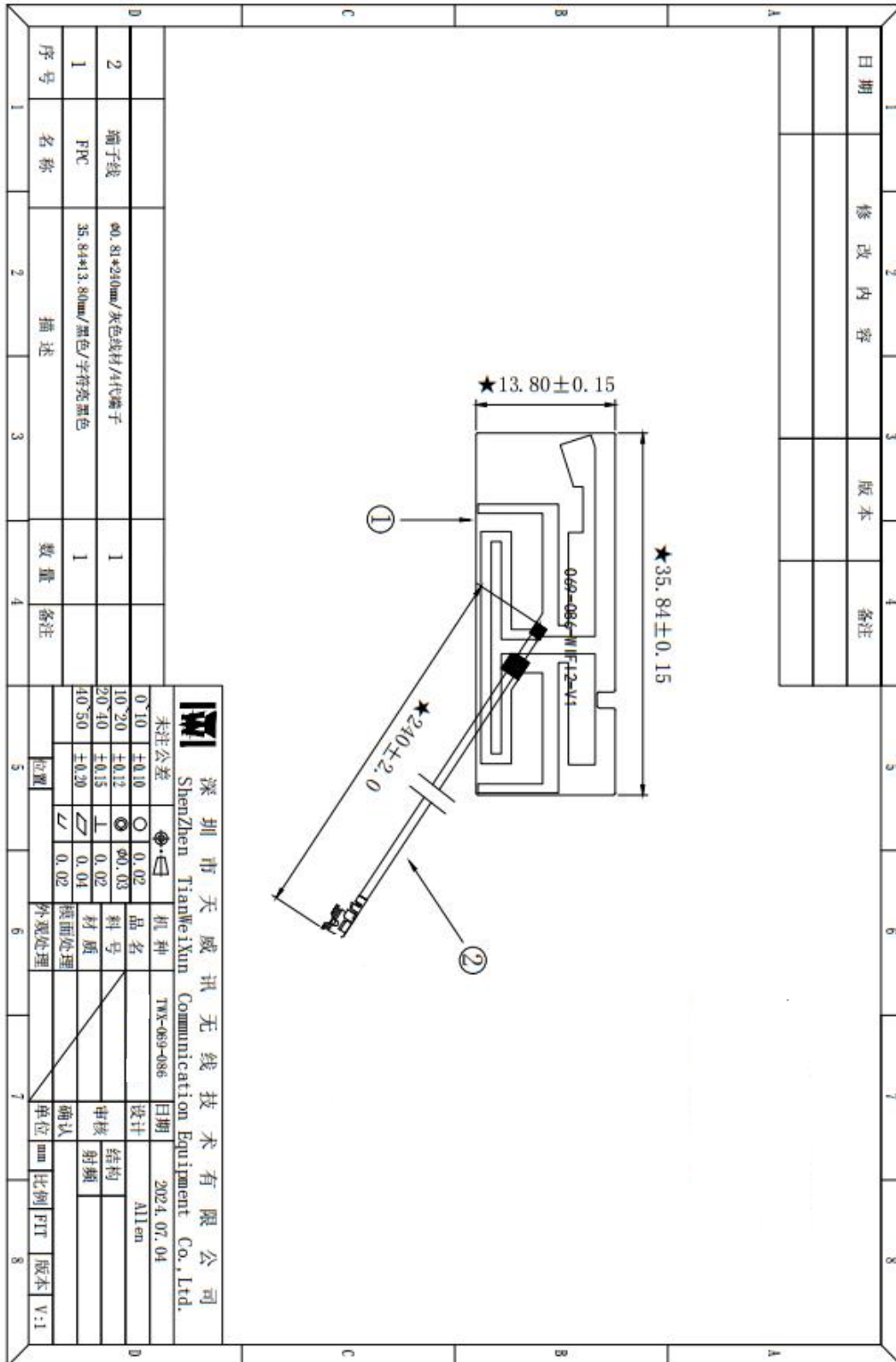
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