

Product specification acknowledgement

Mobile communication terminal antenna
Product design and manufacturing

PRODUCT NAME: Ebike high configuration

CUSTOMER NAME: BEIJINGKANKAN

DATE: 2024 Y 07 M 30 D

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Protocol	WUXICHUN	Specification	Versions	A
Issuing department	Research and Development Department(R&D)		Issuing date	18.05.04

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1. Purpose

To standardize the product specifications and test methods of the mobile communication terminal antenna produced by Shenzhen Zhongke Wireless Co., Ltd. to avoid errors caused by different test conditions and methods

2.Product category and product model overview

2.1 Product model overview

This report mainly Outlines the electrical results of the antenna designed by the Ebike high configuration project. The antenna design frequency band is: FDD-B1/B3/B5/B8 TDD-B34/B38/B39/B40/B41 segment.

3.Description of basic parameters and experimental equipment

3.1 Essential parameter

Product electrical performance index	
operating frequency range	824-960MHz 1710-2690MHz
SWR	824-960 MHz: < 1.5 1710-2694MHz: <1.5
GAIN	824-960 MHz: 1dBi ± 0.5dBi 1710-2690MHz: 1.5dBi± 0.5dBi
Efficiency	824-960 MHz: > 30% 1710-2690MHz: >30%
Impedance	50 ohm
Product material description	
	FPC
Product environment description	
Operating temperature	- 30℃ ~ + 85 ℃
Sorage temperature	- 30℃ ~ + 85 ℃

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3.2 Description of experimental equipment

List	Testing project	Equipment
1. S Parameters	1.Return loss 2. VSWR at	Network analyzer: Agilent 8753ES
2. Coupling power test	1. Transmission power 2. Receiving sensitivity	Comprehensive tester: Agilent 8960 E5515C
3. Radiation pattern and gain	1. Radiation pattern 2. Antenna gain	1. Darkroom: 4x4x4 m (3D) 2. Network analyzer : Agilent 5071C

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4. Antenna test data

Min door (free-space)					
Frequency band	CH	MAX	TRP	MIN	TIS
FDD-B1	18050		18.3		
	18300		17.5		
	18550		17.9		-91.5
FDD-B3	19250		19.2		
	19575		18.1		
	19900		18.6		-93.7
FDD-B5	20450		16.4		
	20525		17.5		
	20600		16.7		-90.5
FDD-B8	21500		17.4		
	21625		16.6		
	21750		16.9		-90.2
FDD-B34	36250		17.6		
	36275		18.8		
	36300		19.2		-92.3
TDD-B39	38350		17.8		
	38450		18.5		
	38550		17.6		-91.6
TDD-B38	38750		19.2		
	38000		18.7		
	38150		19.4		-93.2
TDD-B40	38750		18.6		
	9150		19.9		
	39550		20.5		-92.1
TDD-B41	40340		17.6		
	40620		17.9		
	41140		18.3		-90.5

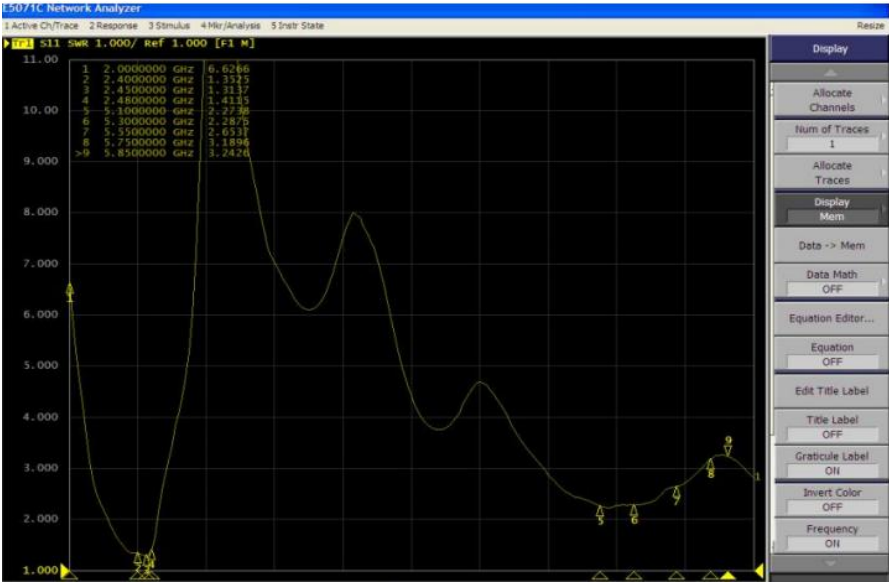
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4.1 BT Passive data association

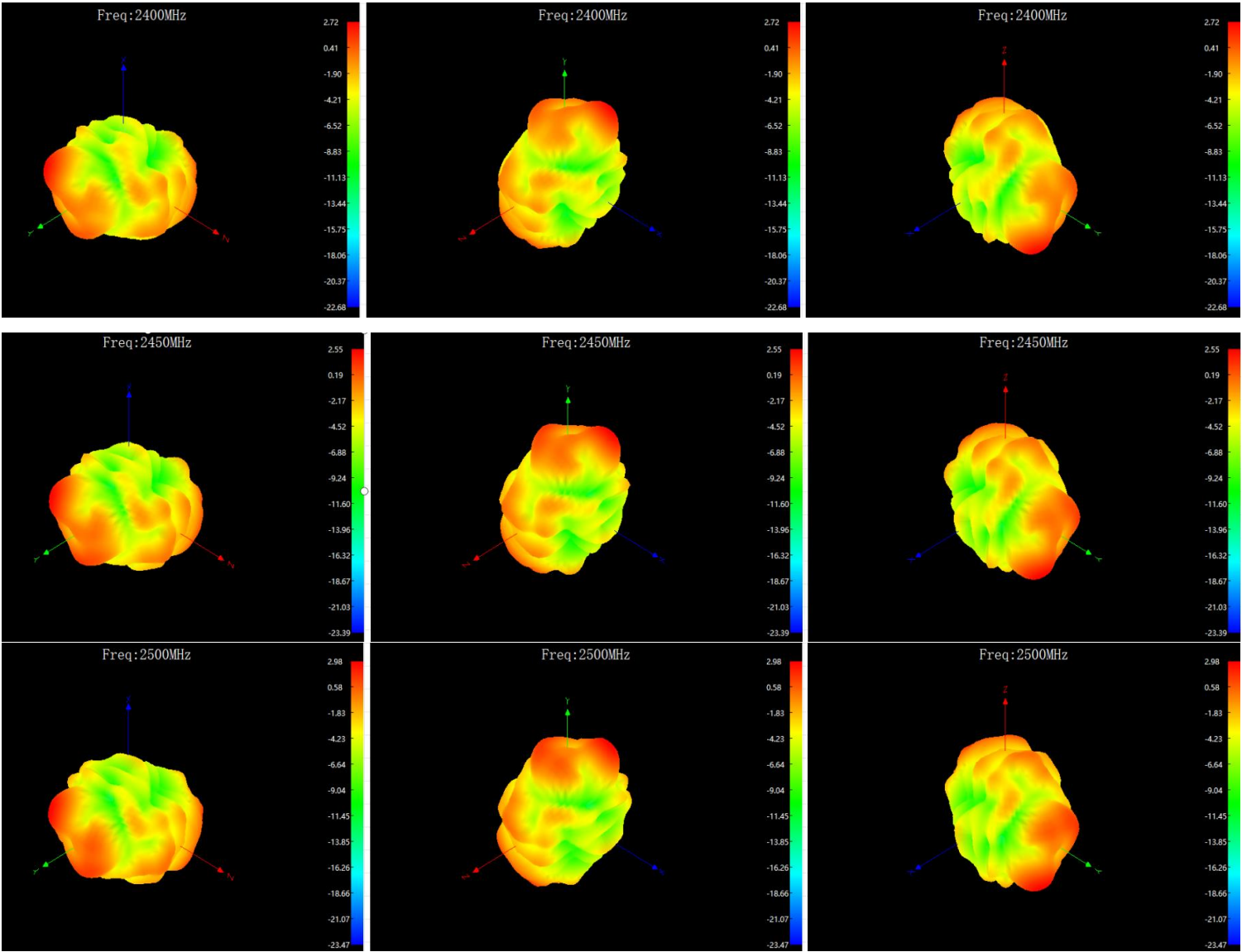
无源数据 Passive data association			
Frequency/Mhz		Efficiency / %	MaxGain/dBi
2.4G	2400	34.52	0.42
	2410	37.15	0.64
	2420	40.37	0.69
	2430	42.28	0.82
	2440	46.22	1.04
	2450	48.31	1.33
	2460	45.29	1.19
	2470	41.03	0.96
	2480	38.26	0.62

4.1.1 BT VSWR



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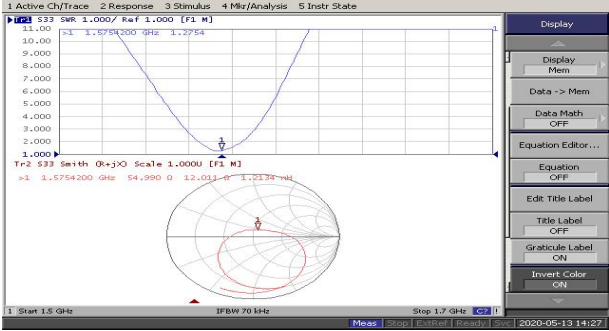
4.1.2 The 3D figure 2.4G antenna



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4.2 GPS VSWR



4.2.1 GPS Passive data association

passive data association			
Frequency/Mhz		Efficiency / %	MaxGain/dBi
1575	1550	40.17	0.42
	1555	41.32	0.53
	1560	42.54	0.55
	1565	45.28	0.72
	1570	43.15	0.62
	1575	40.23	0.46
	1580	39.37	0.31
	1585	36.69	0.12

4.2.2 GPS Actual measurement

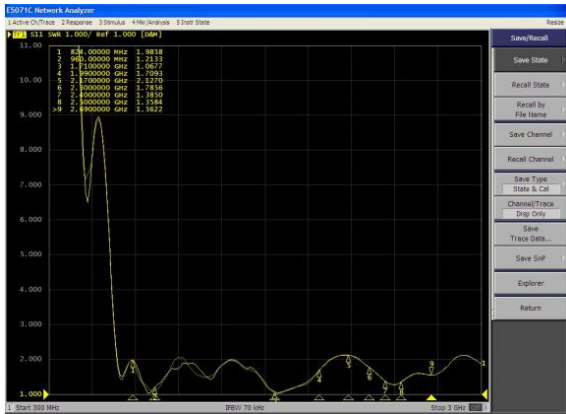


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4.3 The main antenna is passive

VSWR



4.3.1 Main antenna efficiency

Passive data association			
Frequency/Mhz		Efficiency / %	MaxGain/dBi
824-960	820	31.15	-0.14
	830	32.07	-0.13
	840	34.23	-0.07
	850	35.72	0.21
	860	38.22	0.46
	870	40.53	0.53
	880	40.79	0.67
	890	41.37	0.63
	900	42.45	0.81
	910	39.02	0.7
	920	36.31	0.51
	930	32.36	0.29
	940	30.84	-0.07
	950	30.17	-0.22
	960	29.61	-0.35

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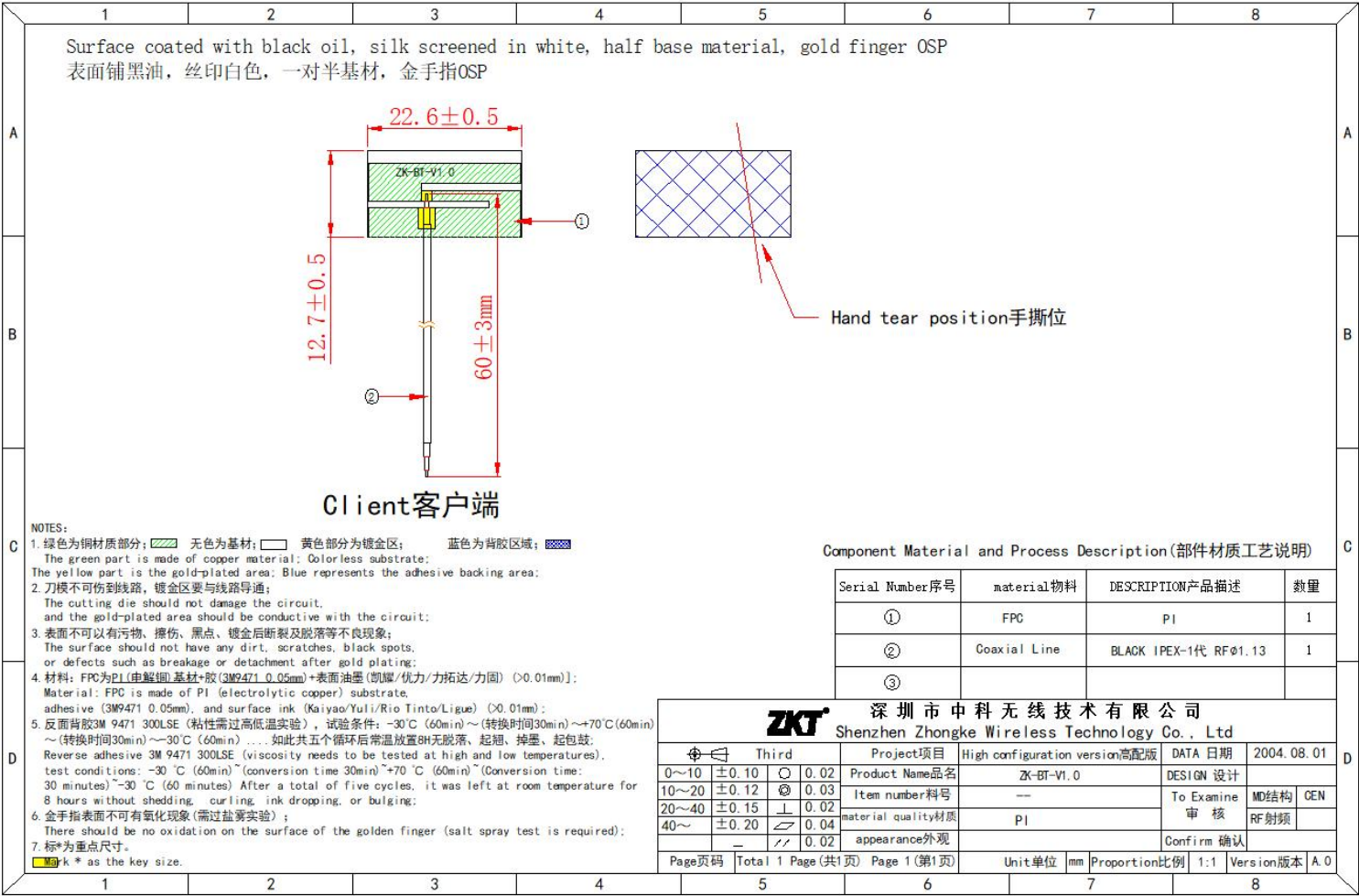
Passive data association			
Frequency/Mhz		Efficiency / %	MaxGain/dBi
1710-2690	1710	39.38	0.87
	1750	41.16	0.88
	1880	41.53	0.92
	1850	43.32	1.05
	1900	44.92	1.24
	1950	46.17	1.55
	2000	43.32	0.79
	2050	40.25	0.36
	2100	38.58	0.48
	2150	41.04	0.97
	2200	35.42	0.54
	2250	43.73	1.12
	2300	45.14	1.6
	2350	40.35	0.78
	2400	43.12	0.82
	2450	46.25	1.54
	2500	37.42	0.64
	2550	35.51	0.59
	2600	32.74	0.54
	2650	33.32	0.22
	2700	37.63	0.37

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