

SPECIFICATION FOR APPROVAL

CUSTOMER: Launch Tech Co., Ltd.

CUSTOMER PART NO.:

SUPPLIER : Tongxun Technology

SUPPLIER PART NO. IA.0320.LA.0FE

PRODUCT NAME: FPC built-in Bluetooth antenna

DATE: 2021-04.-07

NOTE: Please return this copy as a certification of your approval !

IA.0320.LA.0FE Bluetooth Antenna Specification

1. Application:

This application shall apply for antenna unit which shall be used such as automotive, conventional communications, smart home, etc..

2. Electrical Specification:

Those specifications were specially defined for customer's model, and all characteristics were measured under the model's handset testing jig .

2-1. Frequency Band:

Frequency Band	MHz
Bluetooth	2400-2500

2-2. Impedance

50 ohm nominal


2-3. VSWR

2-3-1. Measurement frequency points and VSWR value

Frequency Band(MHz)	2400	2450	2500
2-3-3. Typical Value:	1.45	1.38	1.35

2-3-2. VSWR

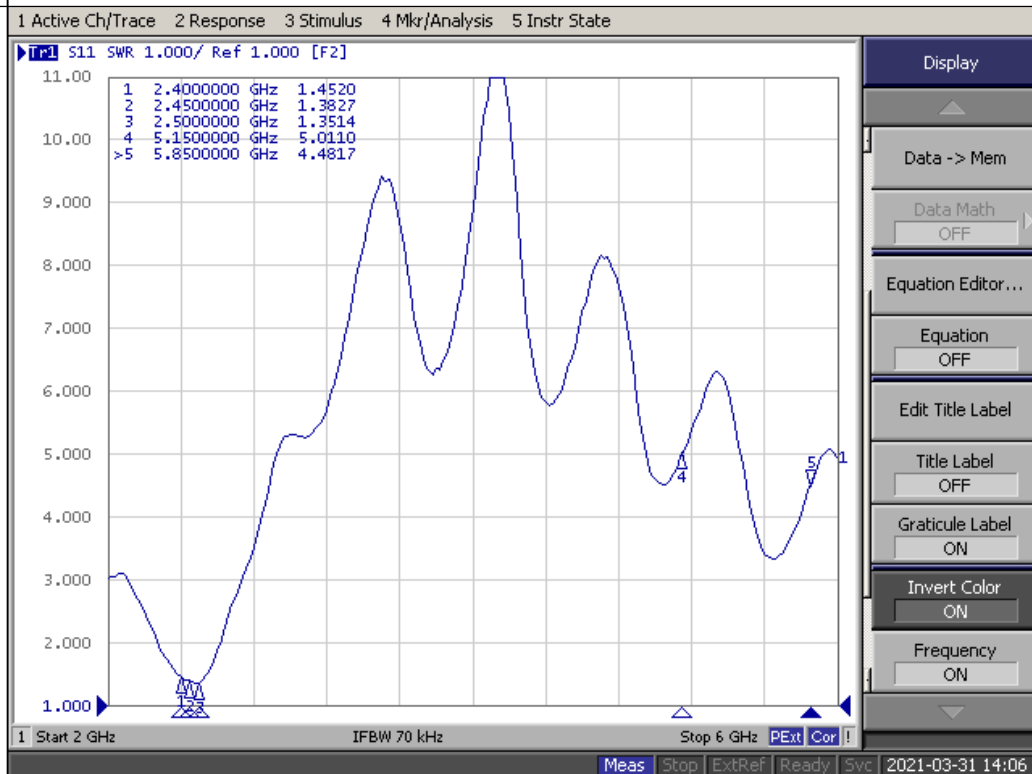
Frequency Band(MHz)	2400	2450	2500
Typical Value:	≤ 2	≤ 2	≤ 2


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2-3-3 Measuring Method

1. A 50 Ω coaxial cable is connected to the antenna. Then this cable is connected to a network analyzer to measure the VSWR.
2. Keeping this jig away from metal at least 20 cm

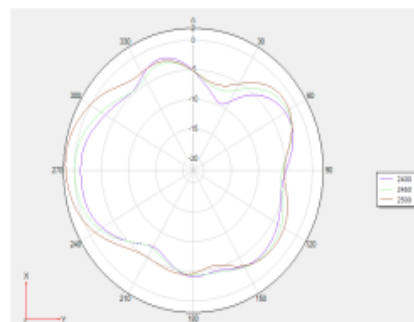
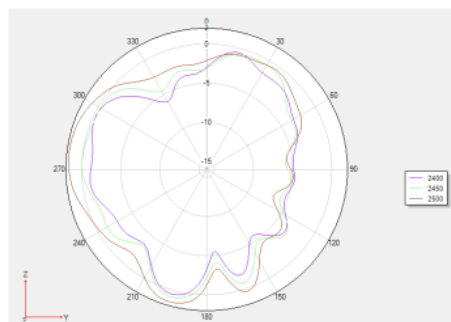
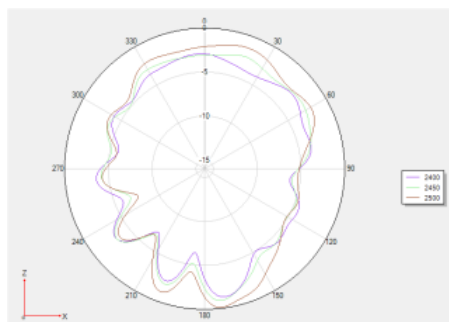
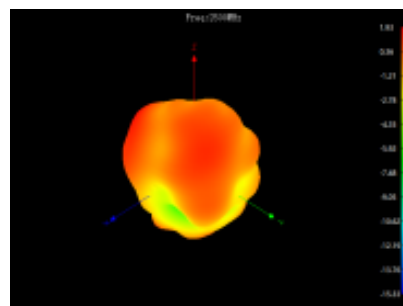
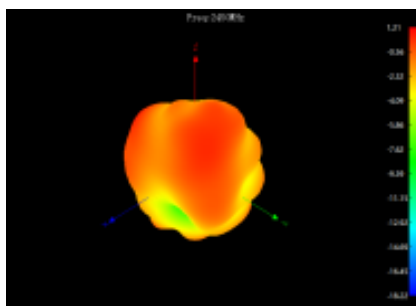
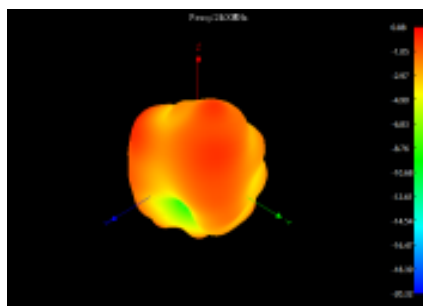
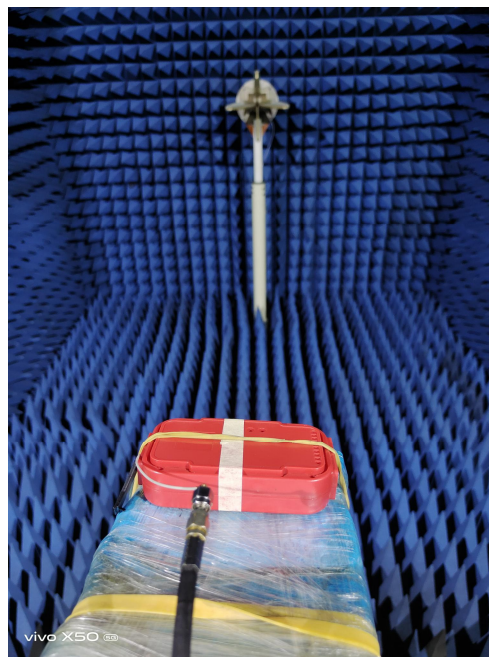
2-3-4 Picture



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2-4-1 Efficiency and Gain

Passive Test For TEST-2.4			
Freq	Effi	Effi	Gain
(MHz)	(%)	(dB)	(dBi)
2400	47.6	-3.22	0.88
2410	52.78	-2.78	1.28
2420	52.74	-2.78	1.19
2430	56.18	-2.5	1.42
2440	48.79	-3.12	0.98
2450	49	-3.1	1.21
2460	52.45	-2.8	1.58
2470	50.3	-2.98	1.65
2480	51.87	-2.85	1.89
2490	51.44	-2.89	2.08
2500	48.76	-3.12	1.93



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UNIT: mm

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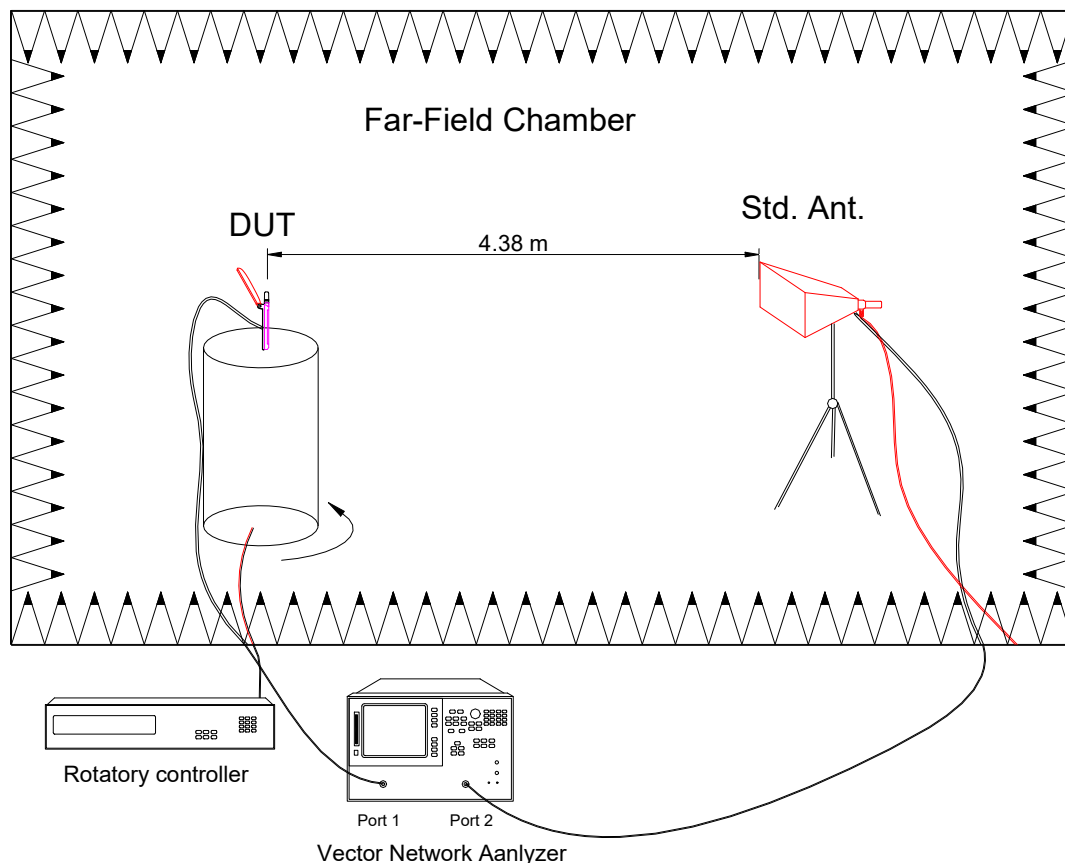
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2-4-2 Measure method

1. Using a low loss coaxial cable to link a standard handset jig
2. Fixed this handset jig on chamber's rotator plane
3. Linking jig into network analyzer port and using a probing horn antenna to collect data.
4. Using another standard gain horn antenna to calibrated those data

2-4-3 Chamber definition



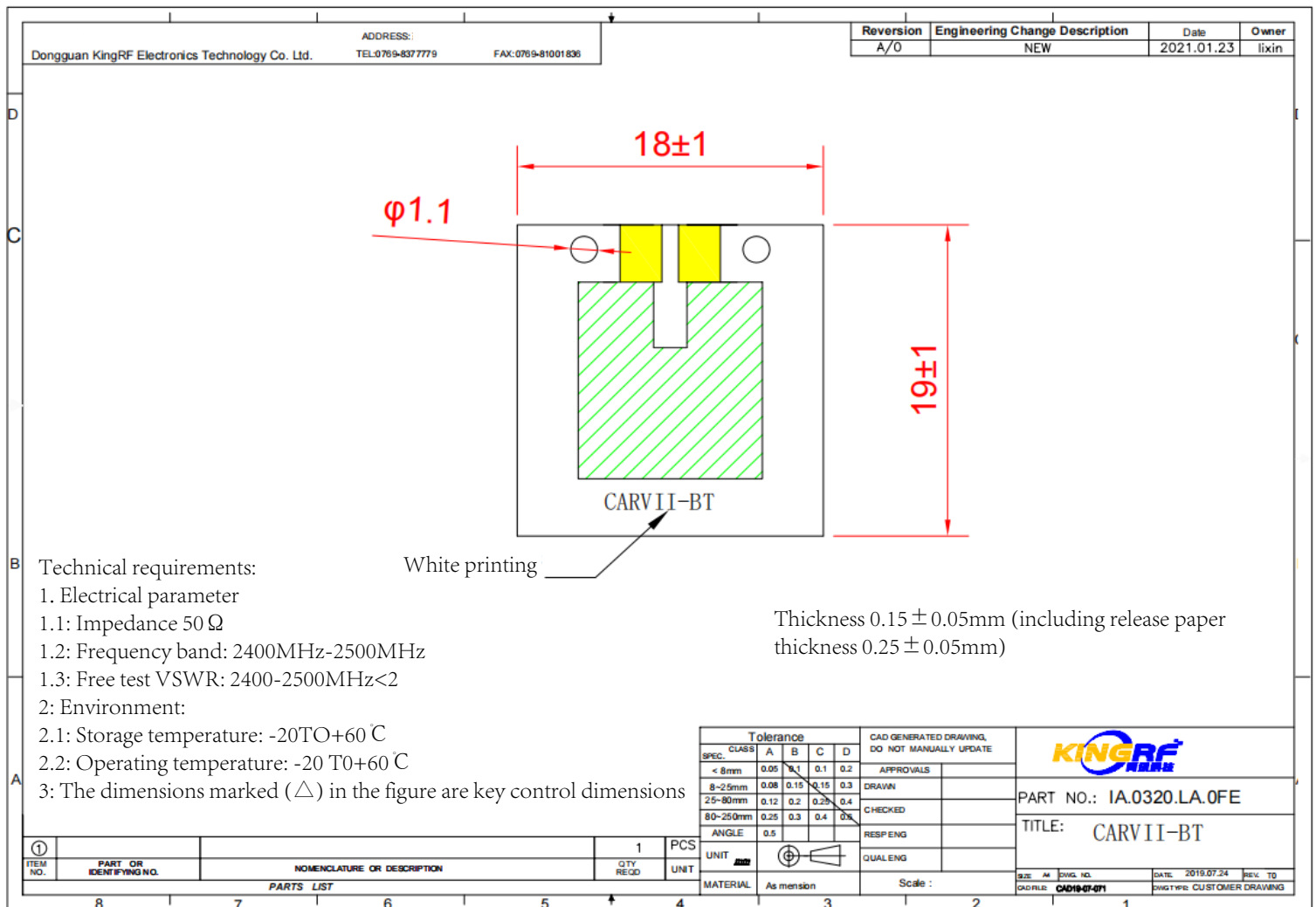
1. An anechoic chamber (7mx4mx3m) which satisfied far-field condition was applied to avoid multi-path effect
2. The quite room region is 40cmx40cmx40cm at the center of rotator
3. The distance between DUT and standard antenna is 4.38 m
4. Probing antenna (9120D horn antenna) and standard gain horn antenna (BBHA9120 LPF 700MHz ~6GHz)

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3. Mechanical Specification:

3-1. Mechanical Configuration (Unit: mm)

The appearance of the antenna is according to drawing



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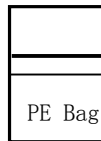
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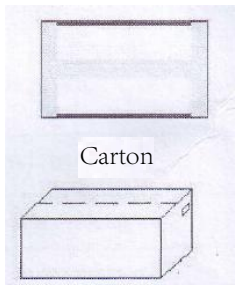
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4. Packaging specifications:


Product number: xxx			
Product Model: xxx			
1. Labeling requirements:			
Demand side	xxx		
Supplier	xxxxxx		
Material Code	xx		
Product Model	xx		
Quantity/Order	xxx PCS	Date	
Notes/Other			
2. Packing requirements: Operation instructions: 1) Inner Packing: The product is XXpcs per bag, put into a small PE bag; 2) Outer packing: XxPCS per box; 3) Note: a. Whether to add partitions and pearl cotton; b. Attachment of labels, such as ROHS, etc.;			



PE Bag



Carton

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