

# 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

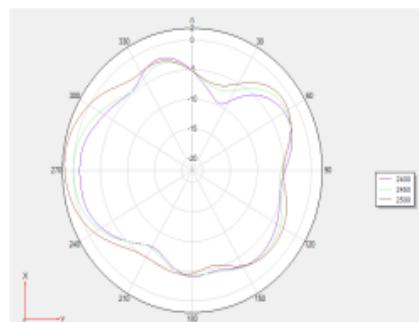
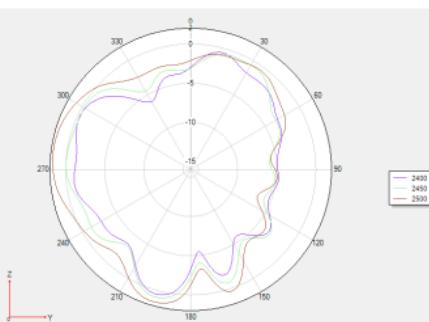
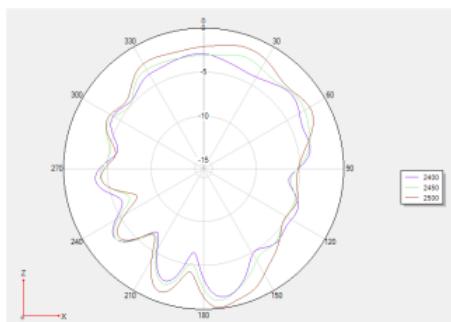
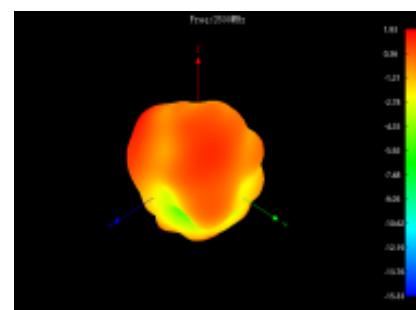
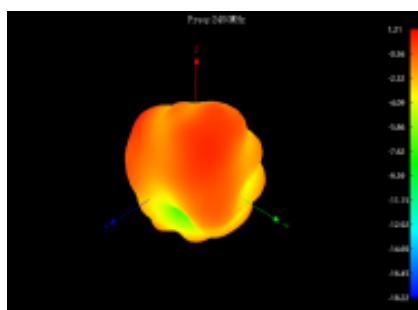
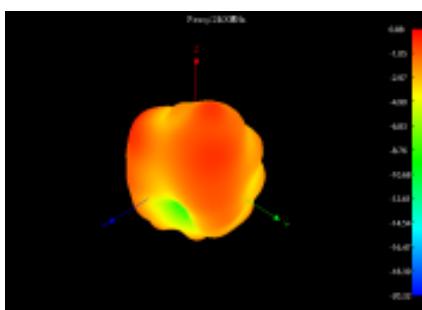
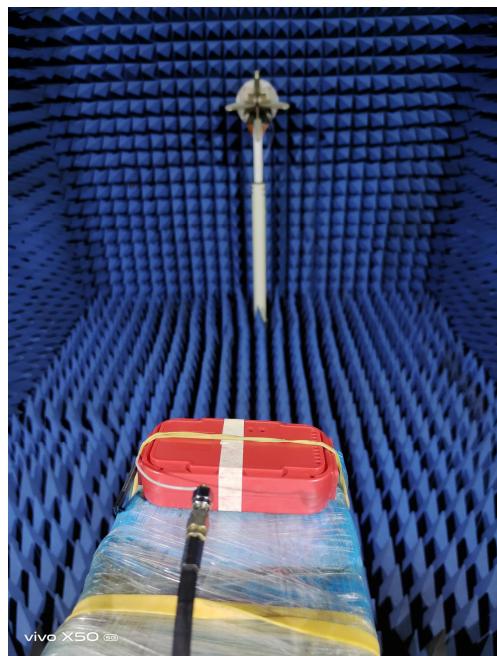
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TITLE: IA.0320.LA.0FE Bluetooth Antenna Specification		SPEC REV.
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2-3-3 Measuring Method	<ol style="list-style-type: none"> <li>1. A <math>50 \Omega</math> coaxial cable is connected to the antenna. Then this cable is connected to a network analyzer to measure the VSWR.</li> <li>2. Keeping this jig away from metal at least 20 cm</li> </ol>
2-3-4 Picture	

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## 2-4-1 Efficiency and Gain

Passive Test For TEST-2.4			
Freq	Effi (%)	Effi (dB)	Gain (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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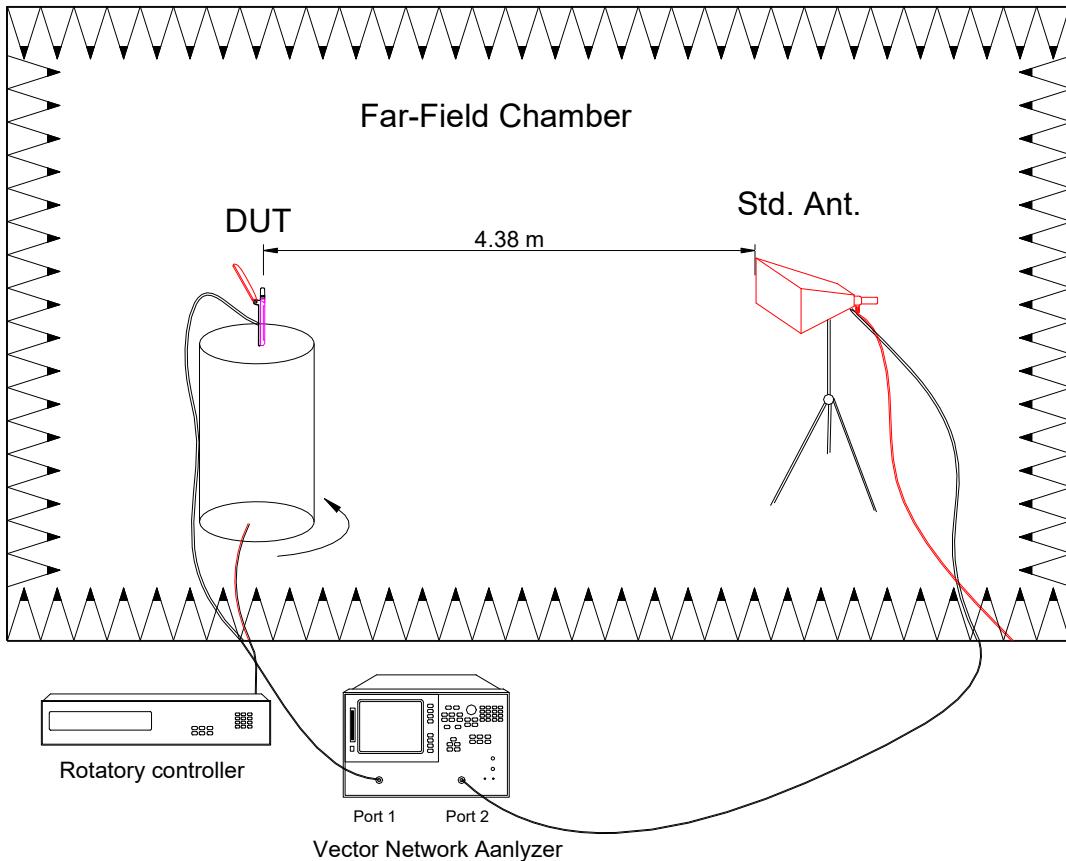
**SPEC REV.**

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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



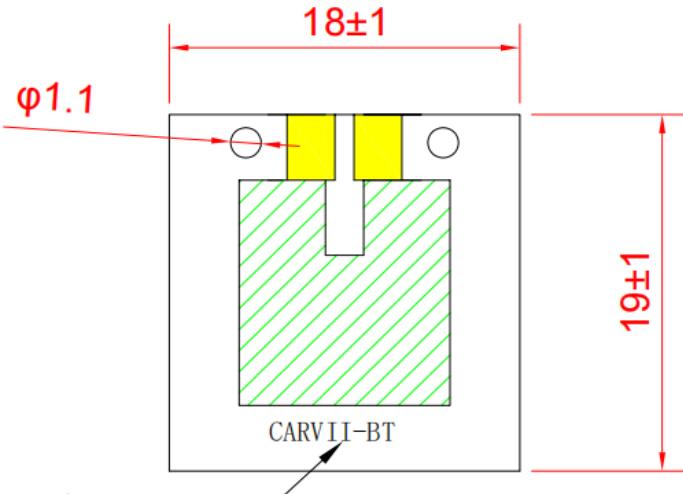
1. An anechoic chamber (7mx4mx3m) which satisfied far-field condition was applied to avoid multi-path effect
2. The quite room region is 40cmx40cmx40cm at the center of rotator
3. The distance between DUT and standard antenna is 4.38 m
4. Probing antenna (9120D horn antenna) and standard gain horn antenna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

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### 3. Mechanical Specification:

#### 3-1. Mechanical Configuration (Unit: mm)

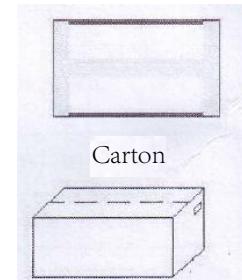
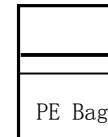
The appearance of the antenna is according to drawing

Dongguan KingRF Electronics Technology Co. Ltd.		ADDRESS: TEL:0769-8377779 FAX:0769-81001836	Reversion A/0	Engineering Change Description NEW	Date 2021.01.23	Owner lixin																																										
D	C																																															
B	<p>Technical requirements:</p> <p>1. Electrical parameter 1.1: Impedance 50 Ω 1.2: Frequency band: 2400MHz-2500MHz 1.3: Free test VSWR: 2400-2500MHz&lt;2</p> <p>2: Environment: 2.1: Storage temperature: -20TO+60 °C 2.2: Operating temperature: -20 TO+60 °C</p> <p>3: The dimensions marked (△) in the figure are key control dimensions</p>					White printing																																										
A	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="4" style="text-align: center; padding: 5px;">Tolerance</td> <td colspan="2" style="text-align: center; padding: 5px;">CAD GENERATED DRAWING, DO NOT MANUALLY UPDATE</td> </tr> <tr> <td style="text-align: center; padding: 5px;">SPEC.</td> <td style="text-align: center; padding: 5px;">A</td> <td style="text-align: center; padding: 5px;">B</td> <td style="text-align: center; padding: 5px;">C</td> <td style="text-align: center; padding: 5px;">D</td> <td style="text-align: center; padding: 5px;">APPROVALS</td> </tr> <tr> <td style="text-align: center; padding: 5px;">&lt; 8mm</td> <td style="text-align: center; padding: 5px;">0.05</td> <td style="text-align: center; padding: 5px;">0.1</td> <td style="text-align: center; padding: 5px;">0.15</td> <td style="text-align: center; padding: 5px;">0.2</td> <td style="text-align: center; padding: 5px;">DRAWN</td> </tr> <tr> <td style="text-align: center; padding: 5px;">8~25mm</td> <td style="text-align: center; padding: 5px;">0.08</td> <td style="text-align: center; padding: 5px;">0.16</td> <td style="text-align: center; padding: 5px;">0.15</td> <td style="text-align: center; padding: 5px;">0.3</td> <td style="text-align: center; padding: 5px;">CHECKED</td> </tr> <tr> <td style="text-align: center; padding: 5px;">25~80mm</td> <td style="text-align: center; padding: 5px;">0.12</td> <td style="text-align: center; padding: 5px;">0.2</td> <td style="text-align: center; padding: 5px;">0.25</td> <td style="text-align: center; padding: 5px;">0.4</td> <td style="text-align: center; padding: 5px;">RESP ENG</td> </tr> <tr> <td style="text-align: center; padding: 5px;">80~250mm</td> <td style="text-align: center; padding: 5px;">0.25</td> <td style="text-align: center; padding: 5px;">0.3</td> <td style="text-align: center; padding: 5px;">0.4</td> <td style="text-align: center; padding: 5px;">0.6</td> <td style="text-align: center; padding: 5px;">QUAL ENG</td> </tr> <tr> <td style="text-align: center; padding: 5px;">ANGLE</td> <td style="text-align: center; padding: 5px;">0.5</td> <td colspan="4" style="text-align: center; padding: 5px;">Scale :</td> </tr> </table>					Tolerance				CAD GENERATED DRAWING, DO NOT MANUALLY UPDATE		SPEC.	A	B	C	D	APPROVALS	< 8mm	0.05	0.1	0.15	0.2	DRAWN	8~25mm	0.08	0.16	0.15	0.3	CHECKED	25~80mm	0.12	0.2	0.25	0.4	RESP ENG	80~250mm	0.25	0.3	0.4	0.6	QUAL ENG	ANGLE	0.5	Scale :				 PART NO.: IA.0320.LA.0FE TITLE: CARVII-BT DATE: 2019.07.24 REV. TO CAD FILE: CAD1907-01 DWG TYPE: CUSTOMER DRAWING
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#### 4. Packaging specifications:

<b>Product number: xxx</b>			
<b>Product Model: xxx</b>			
1. Labeling requirements:			
Demand side	<b>xxx</b>		
Supplier	<b>xxxxx</b>		
Material Code	<b>xx</b>		
Product Model	<b>xx</b>		
Quantity/Order	<b>XXX PCS</b>	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.;			



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