

Shenzhen World Elite Electronic Co. LTD.

Sample Approval Sheet

Product Information:

Customer	Zhong Shan City Richsound Electronic Industrial Ltd
Material Description	Bar2.1ESS TX Antenna
Customer's Part number	101000783
Specifications	FPC (45*12mm) +White Coaxial Cable (ϕ 1.13*110mm) +Welding+UV adhesive+Sponge
Supplier's Part number	01-05-001-000021
Date	2025-11-8

Supplier:

Prepared By	Checked By	Approved By
Zhang Dengqiao	Li Yuepeng	Zhang Hongying

Customer Approval:

Accepted By	Checked By	Approved By

Results:

- ☐ Full Approval
- ☐ Conditional Approval
- ☐ Unqualified
- ☐ Others:

Shenzhen World Elite Electronic Co. LTD.

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1、Specification

This report mainly provides the testing status of various electrical and structural performance parameters of Bar2.1ESS TX Antenna.



Figure 1 Antenna

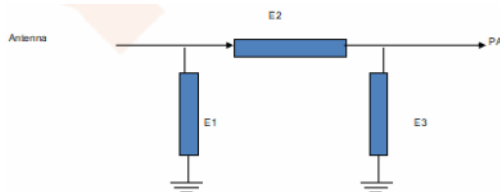
1.1 Electrical specification standard

1.1.1 Electrical Specifications

The antenna operates in the 2400-2480 MHz. The following table is the electrical performance index of the antenna designed by our company.

Antenna	Bar2.1ESS TX Antenna
Frequency Range	2400-2480MHz
VSWR	< 2.0
Efficiency	>50%
Impedance	50 ohm
Polarization	Linear polarization

1.1.2 Antenna Matching Network



Element	Value
E1(0402)	N/A
E2(0402)	N/A
E3(0402)	N/A

2、Test

The antenna was debugged and tested with the prototype provided by the customer.

2.1 Test of passive S11

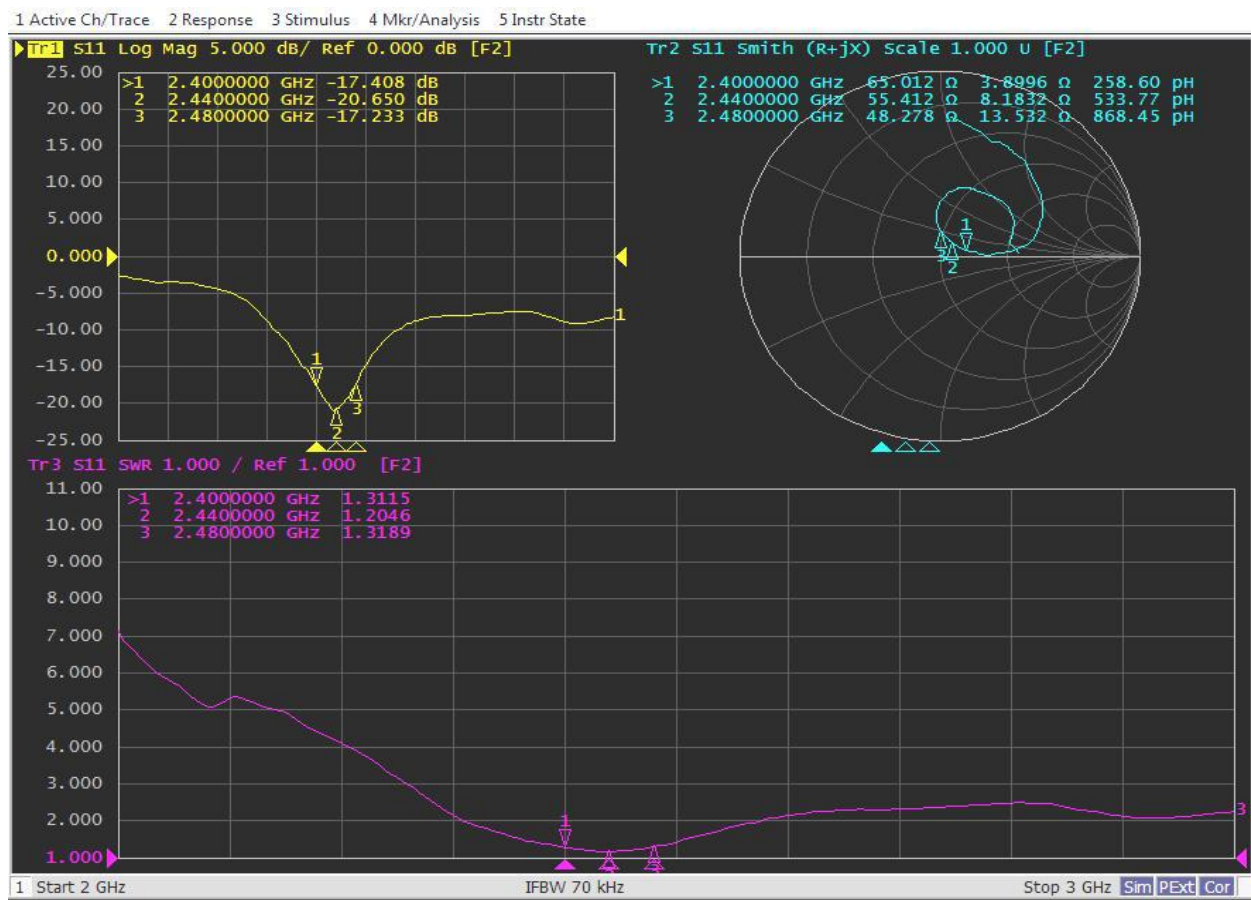
2.1.1 Test connection

The passive S11 test device is connected as follows: Network Analyzer → Test Line → Test Fixture.

2.1.2 Passive S11

The following table shows the standing wave ratio values of the edge frequency points of the antenna operating frequency band. The waveform of Return Loss and VSWR obtained by the test is shown as follows.

Frequency(MHz)	2400	2440	2480
VSWR	1.31	1.20	1.32
Return Loss	-17.41	-20.65	-17.23



2.2 Gain and efficiency test

2.2.1 Test Position

Microwave anechoic chamber, the test frequency range is 400MHz-6GHz.

2.2.2 Test equipment

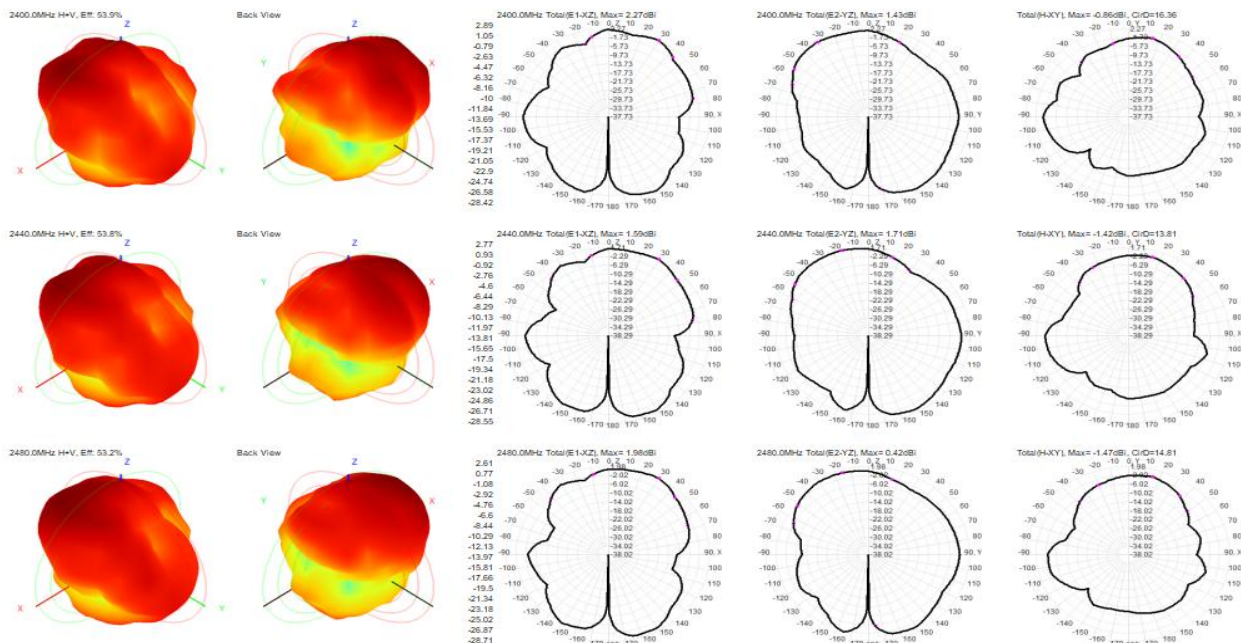
Network analyzer, standard horn antenna, multi-probe near field antenna test system, test computer, etc

2.2.3 Results Summary

In the microwave anechoic chamber, the measured values related to efficiency and gain are shown in the table below.

Frequency(MHz)	Gain(dBi)	Efficiency(%)
2400	2.89	53.86
2410	2.91	54.80
2420	2.83	53.10
2430	2.65	51.92
2440	2.77	53.76
2450	2.59	53.15
2460	2.56	53.86
2470	2.58	54.09
2480	2.61	53.19
2490	2.86	56.04
2500	2.93	55.98

2.2.4 Radiation Pattern Results



2.3 OTA test

2.3.1 Results Summary

Channels	TRP	TIS
0	1.57	-91.66
39	1.19	-90.27
78	1.26	-91.03

3、 Conclusion

This antenna is designed on the basis of the prototype provided by the customer. The above electrical performance parameters are tested under the environmental treatment conditions of the test prototype. The electrical parameters and structural performance have met the technical requirements. Please confirm!

Rev	Description	Date	Remark
A	New drawing		

Technical drawing of a PCB assembly. The drawing shows a top-down view of a rectangular PCB with a width of 110±3 mm and a length of 80 mm. A circular feature with a diameter of 01.13 (white) is located near the top edge. A rectangular feature with a width of 12.00±0.15 mm is located near the bottom edge. A circular feature with a diameter of 45.00±0.15 mm is located near the right edge. Callouts 1, 2, and 3 point to specific components. A note indicates a diameter of 01.13 (white).

深圳市沃莱特电子有限公司			
Shenzhen World Elite Electronic Co. LTD			
Third Angle	Project	Date	
0~10 ±0.05	TX天线	2025-11-08	
10~18 ±0.10	Part No.	Designed by	
18~30 ±0.12	01-05-001-000021	RF	
30~40 ±0.15	Material	Checked by	
40~ ±0.20	Angle ±0.5°	MD	
Location	Technology	Approved by	
		Unit mm	
		Scale 1:1	
		Rev V2	

技术要求:	
1. 未标注尺寸依照图纸;	
2. 无虚焊、假焊、连锡、短路、断路等焊接不良现象;	
3. 所有部件需符合RoHS/REACH要求。	

No.	Part No.	Name	Specification	Amount	Remark
3	05-03-004-000561	Bar2: IESS TX天线	黑色海绵/80*15*2mm	1	
2	164-B8907-S2A	TX8907 TX 82 50mm	φ1.13*110mm/白色同轴馈线/一代端子	1	
1	05-01-002-000771	Bar2: IESS TX PCB	单面板PCB电路板, 黑色, 背胶3M9471	1	