

Shenzhen World Elite Electronic Co. LTD.

Sample Approval Sheet

Product Information:

Material Description	U2520 TX 5G Antenna
Customer's Part number	
Specifications	FPC (38.6*12.2mm) +Black Coaxial Cable (φ 1.13*110mm) +Welding+UV adhesive
Supplier's Part number	136-H003A-20A
Date	2024-10-8

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.

Add: Xiangyuer Industrial Park, No. 8, Longsheng Road, Longgang Street, Longgang District, Shenzhen, Guangdong, China

Tel: 86-755-89983786

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1、Specification

This report mainly provides the testing status of various electrical and structural performance parameters of H003A TX 5G Antenna.



Figure 1 Antenna

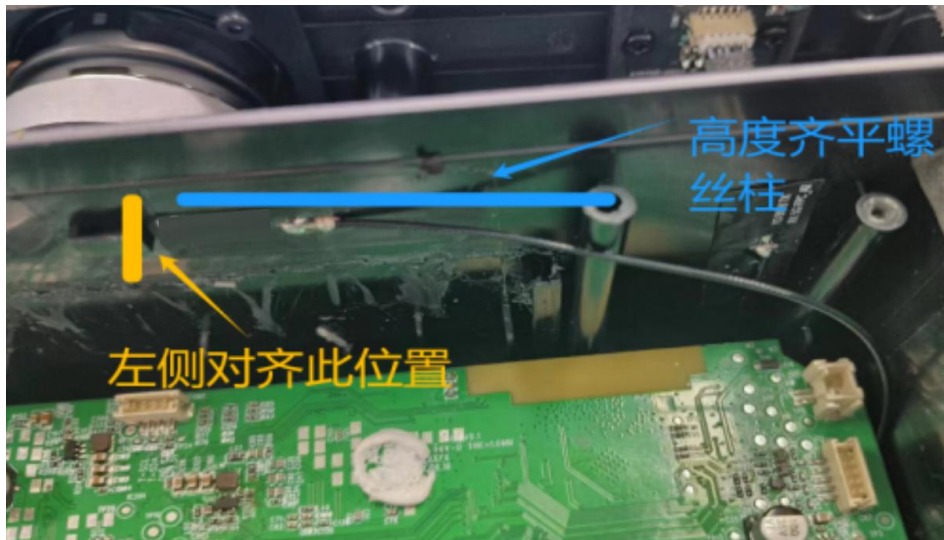


Figure 2 Antenna Location

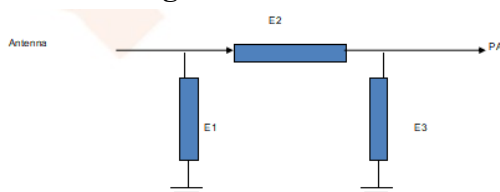
1.1 Electrical specification standard

1.1.1 Electrical Specifications

The antenna operates in the 5150-5850 MHz. The following table is the electrical performance index of the antenna designed by our company.

Antenna	H003A TX 5G Antenna
Frequency Range	5150-5850MHz
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

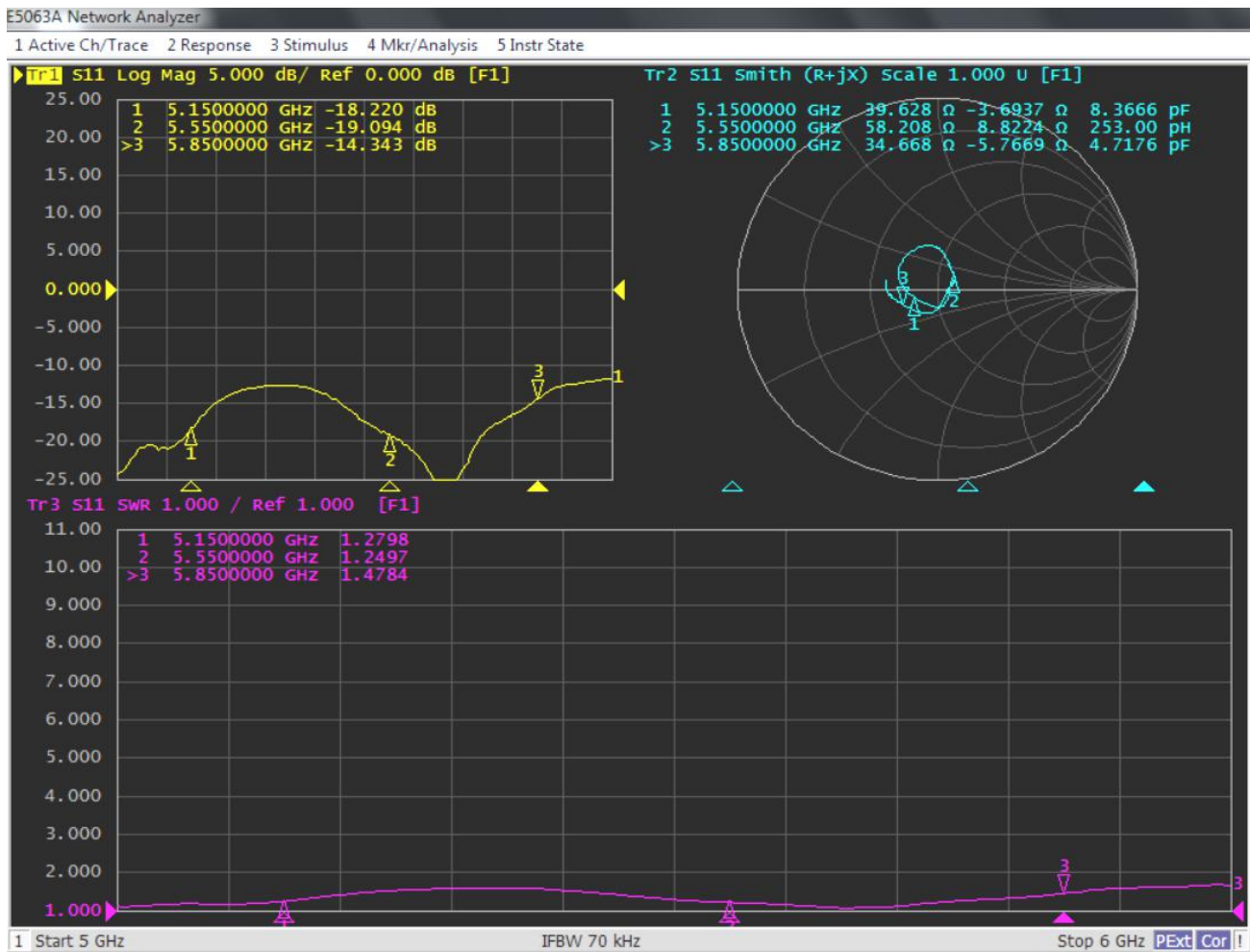
2.1.1 Test connection

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)	5150	5550	5850
VSWR	1.28	1.25	1.48
Return Loss	-18.22	-19.09	-14.34



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

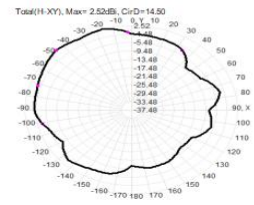
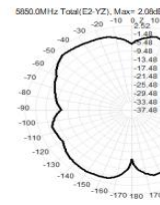
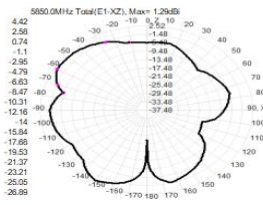
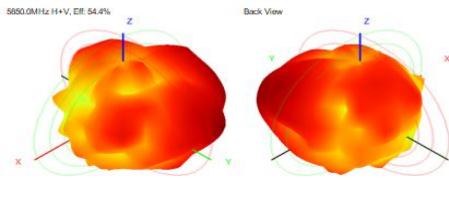
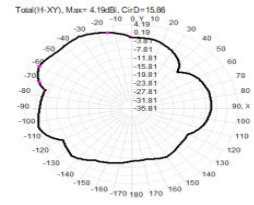
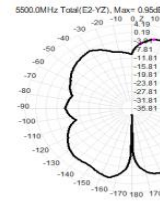
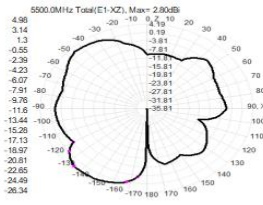
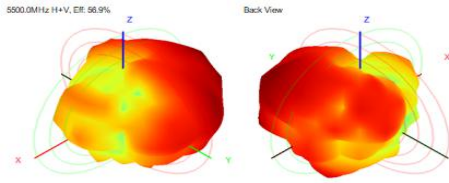
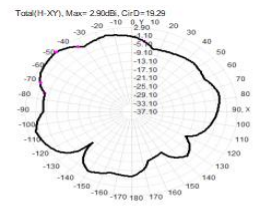
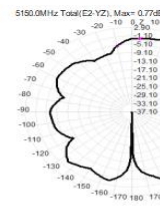
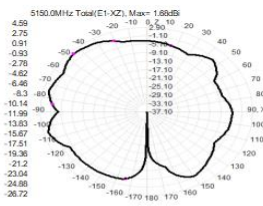
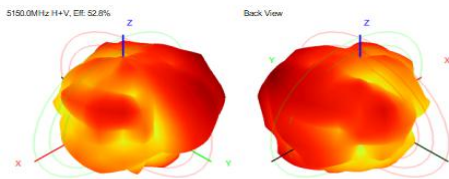
Network analyzer, standard horn antenna, multi-probe near field antenna test system, test computer, etc

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 (%)
5150	4.59	52.85
5200	4.82	51.78
5250	4.93	52.83
5300	5.45	50.65
5350	6.13	54.92
5400	5.73	55.62
5450	5.80	54.27
5500	4.98	56.93
5550	4.72	56.27
5600	4.31	55.23
5650	4.68	55.90
5700	5.21	56.17
5750	4.60	55.82
5800	4.50	55.63
5850	4.42	54.36

2.2.4 Radiation Pattern Results



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!

4、Part Drawing

1	2	3	4	5	6	7	8																																																										
					Rev	Description	Date	Remark																																																									
					A	New drawing																																																											
<p>Technical requirement:</p> <p>1. Dimensions not marked as per drawing;</p> <p>2. There is no poor welding phenomenon such as false soldering, solder bonding, short circuit, etc;</p> <p>3. All parts shall meet RoHS/REACH requirements.</p>					<p style="font-size: 1.2em; font-weight: bold;">Shenzhen World Elite Electronic Co. LTD</p>																																																												
<p>Third Angle</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%;">0~10</td> <td style="width: 10%;">± 0.05</td> <td style="width: 10%;"></td> <td style="width: 10%;">0.02</td> <td style="width: 10%;">Project</td> <td style="width: 10%;">H003A</td> <td style="width: 10%;">Date</td> <td style="width: 10%;">2024-08-19</td> </tr> <tr> <td>10~18</td> <td>± 0.10</td> <td></td> <td>0.03</td> <td>Part Name</td> <td>TX 5G Antenna</td> <td>Designed by</td> <td>Zhang Dengqiao</td> </tr> <tr> <td>18~30</td> <td>± 0.12</td> <td></td> <td>0.04</td> <td>Part No.</td> <td>136-H003A-20A</td> <td>Checked by</td> <td>RF</td> </tr> <tr> <td>30~40</td> <td>± 0.15</td> <td></td> <td>0.04</td> <td>Material</td> <td>/</td> <td>MD</td> <td></td> </tr> <tr> <td>40~</td> <td>± 0.20</td> <td>Angle</td> <td>$\pm 0.5^\circ$</td> <td>Technology</td> <td></td> <td>Approved by</td> <td></td> </tr> </table>					0~10	± 0.05		0.02	Project	H003A	Date	2024-08-19	10~18	± 0.10		0.03	Part Name	TX 5G Antenna	Designed by	Zhang Dengqiao	18~30	± 0.12		0.04	Part No.	136-H003A-20A	Checked by	RF	30~40	± 0.15		0.04	Material	/	MD		40~	± 0.20	Angle	$\pm 0.5^\circ$	Technology		Approved by		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%;">No.</td> <td style="width: 10%;">Part No.</td> <td style="width: 10%;">Name</td> <td style="width: 10%;">Specification</td> <td style="width: 10%;">Amount</td> <td style="width: 10%;">Remark</td> </tr> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">100-H003A-21A</td> <td style="text-align: center;">H003A RX 5G FPC</td> <td style="text-align: center;">Pl. Black, 3M9471</td> <td style="text-align: center;">1</td> <td></td> </tr> <tr> <td style="text-align: center;">2</td> <td style="text-align: center;">164-B8907-42A</td> <td style="text-align: center;">T88907 TX 5G Cable</td> <td style="text-align: center;">1.13x1.1mm/Black Coaxial Cab./MHF-1 plug</td> <td style="text-align: center;">1</td> <td></td> </tr> </table>			No.	Part No.	Name	Specification	Amount	Remark	1	100-H003A-21A	H003A RX 5G FPC	Pl. Black, 3M9471	1		2	164-B8907-42A	T88907 TX 5G Cable	1.13x1.1mm/Black Coaxial Cab./MHF-1 plug	1	
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