

Shenzhen World Elite Electronic Co. LTD.

Sample Approval Sheet

Product Information:

Customer	Zhong Shan City Richsound Electronic Industrial Ltd
Material Description	UW220 DONGLE METAL Antenna
Customer's Part number	101000803
Specifications	Metal Antenna / Copper-Nickel-Zinc Alloy,T=0.2mm / 24.5*8*1.1mm
Supplier's Part number	05-02-063-000358
Date	2025-12-4

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

Contents

1、 Specification.....	3
1.1 Electrical specification standard.....	3
1.1.1 Electrical Specifications.....	3
1.1.2 Antenna Matching Network.....	3
2、 Test.....	3
2.1 Test of passive S11.....	3
2.1.1 Test connection.....	3
2.1.2 Passive S11.....	4
2.2 Gain and efficiency test.....	4
2.2.1 Test Position.....	4
2.2.2 Test equipment.....	4
2.2.3 Results Summary.....	5
2.2.4 Radiation Pattern Results.....	5
3、 Conclusion.....	6
4、 Part Drawing.....	7

1、Specification

This report mainly provides the testing status of various electrical and structural performance parameters of UW220 DONGLE METAL Antenna.

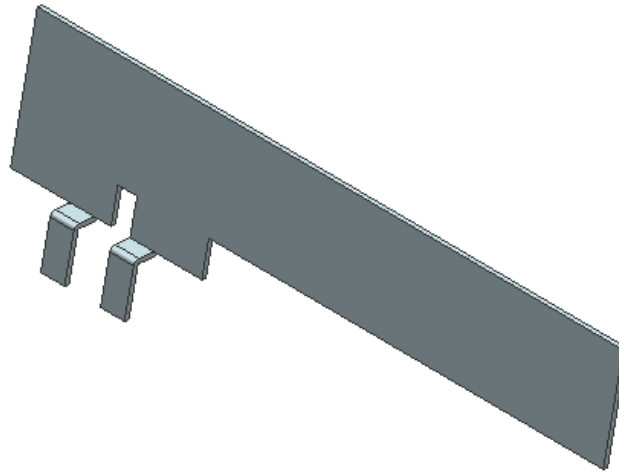


Figure 1 Antenna

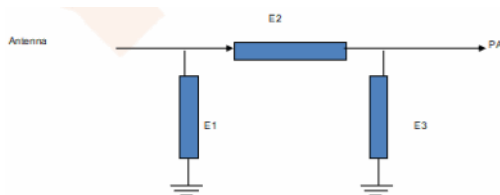
1.1 Electrical specification standard

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	UW220 DONGLE METAL 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)	NC
E2(0402)	NC
E3(0402)	NC

2、Test

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

2.1 Test of passive S11

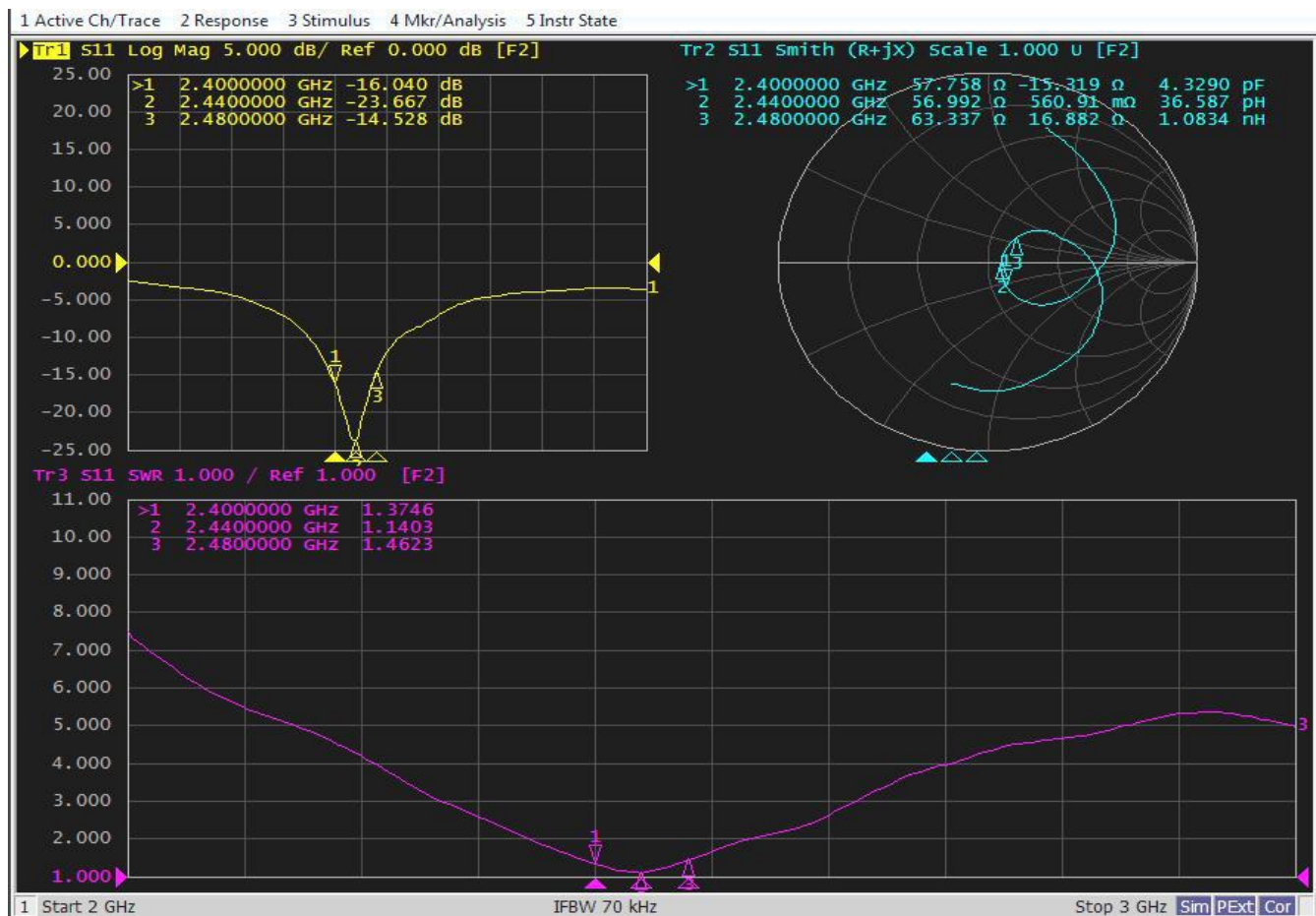
2.1.1 Test connection

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	1.37	1.14	1.46
Return Loss	-16.04	-23.67	-14.53



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

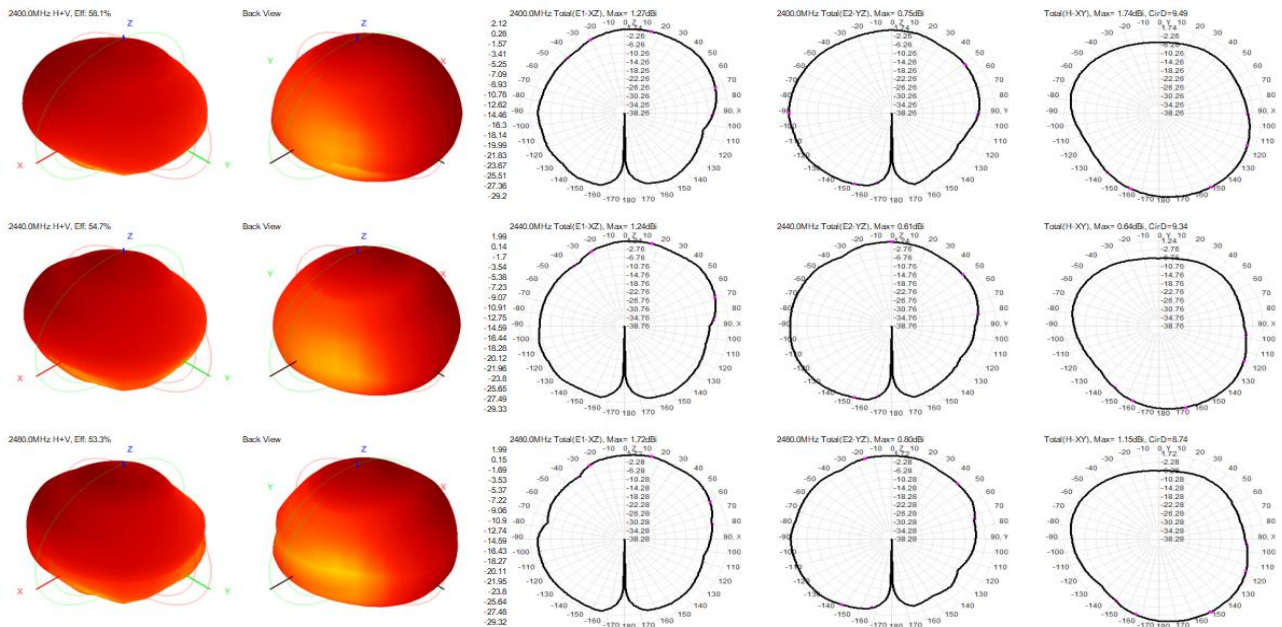
Network analyzer, standard horn antenna, multi-probe near field antenna test system, test computer, etc

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	2.12	58.09
2410	2.12	58.37
2420	2.00	57.86
2430	1.90	56.17
2440	1.99	54.74
2450	2.31	56.97
2460	2.16	54.30
2470	2.07	53.78
2480	1.99	53.30
2490	1.89	53.41
2500	1.69	53.06

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																																																																									
技术要求: 1. 材质: 洋白铜, T=0.2mm; 2. 未标注尺寸依照3D; 3. 所有部件需符合RoHS/REACH要求。 深圳市沃莱特电子有限公司 Shenzhen World Elite Electronic Co. LTD <table border="1"><thead><tr><th colspan="2">Third Angle</th><th colspan="2">Project</th><th colspan="2">UW220</th><th colspan="2">Date</th><th colspan="2">2025-11-19</th></tr></thead><tbody><tr><td>0~10</td><td>±0.05</td><td>0.02</td><td>Part Name</td><td colspan="2">DONGLE贴片天线</td><td colspan="2">Designed by</td><td colspan="2">张登桥</td></tr><tr><td>10~18</td><td>±0.10</td><td>0.03</td><td>Part No.</td><td colspan="2">05-02-063-000358</td><td colspan="2">Checked by</td><td colspan="2">RF</td></tr><tr><td>18~30</td><td>±0.12</td><td>0.02</td><td>Material</td><td colspan="2">洋白铜</td><td colspan="2">Approved by</td><td colspan="2">MD</td></tr><tr><td>30~40</td><td>±0.15</td><td>0.04</td><td>Technology</td><td colspan="2">T=0.2</td><td colspan="2">Unit</td><td colspan="2">mm</td></tr><tr><td>40~</td><td>±0.20</td><td>±0.5°</td><td>Location</td><td colspan="2"></td><td colspan="2">Scale</td><td colspan="2">1:1</td></tr><tr><td colspan="2">1</td><td colspan="2">2</td><td colspan="2">3</td><td colspan="2">4</td><td colspan="2">5</td><td colspan="2">6</td><td colspan="2">7</td><td colspan="2">8</td></tr></tbody></table>														Third Angle		Project		UW220		Date		2025-11-19		0~10	±0.05	0.02	Part Name	DONGLE贴片天线		Designed by		张登桥		10~18	±0.10	0.03	Part No.	05-02-063-000358		Checked by		RF		18~30	±0.12	0.02	Material	洋白铜		Approved by		MD		30~40	±0.15	0.04	Technology	T=0.2		Unit		mm		40~	±0.20	±0.5°	Location			Scale		1:1		1		2		3		4		5		6		7		8		Rev		Description		Date		Remark	
														Third Angle		Project		UW220		Date		2025-11-19																																																																											
														0~10	±0.05	0.02	Part Name	DONGLE贴片天线		Designed by		张登桥																																																																											
10~18	±0.10	0.03	Part No.	05-02-063-000358		Checked by		RF																																																																																									
18~30	±0.12	0.02	Material	洋白铜		Approved by		MD																																																																																									
30~40	±0.15	0.04	Technology	T=0.2		Unit		mm																																																																																									
40~	±0.20	±0.5°	Location			Scale		1:1																																																																																									
1		2		3		4		5		6		7		8																																																																																			
A		New drawing																																																																																															