

Shenzhen World Elite Electronic Co. LTD.


Sample Approval Sheet

Product Information:

| | |
|------------------------|--|
| Customer | Acoustic Innovation (Huizhou) Co., Ltd. |
| Material Description | BTH1483 Antenna |
| Customer's Part number | |
| Specifications | FPC (L37.8*W9.9mm) +Black Coaxial Cable (ϕ 0.81*80mm) +Welding |
| Supplier's Part number | 136-H1483-10A |
| Date | 2024-1-10 |

Supplier:

| | | |
|----------------|------------|-----------------|
| Prepared By | Checked By | Approved By |
| Zhang Dengqiao | Li Yuepeng | Zhang Xiangting |



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

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1、 Specification

This report mainly provides the testing status of various electrical and structural performance parameters of BTH1483 Antenna.



Figure 1 Antenna



Figure 2 Antenna Placement

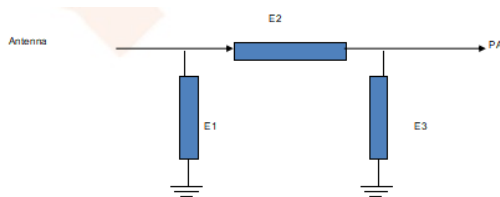
1.1 Electrical specification standard

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 | BTH1483 Antenna |
| Frequency Range | 2400-2480MHz |
| VSWR | < 2.0 |
| Efficiency | 37-49% |
| Impedance | 50 ohm |
| Polarization | Linear polarization |

1.1.2 Antenna Matching Network



| Element | Value |
|----------|-------|
| E1(0402) | N/A |
| E2(0402) | 1.5NH |
| 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

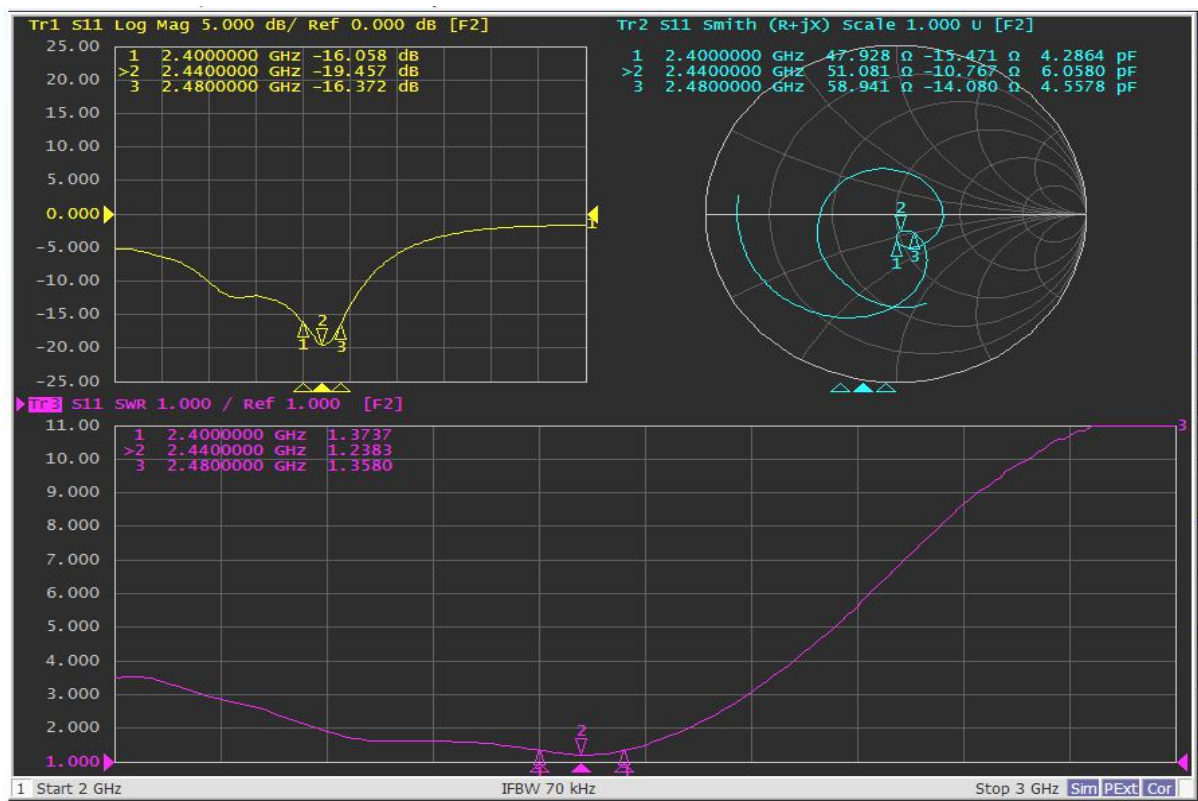
2.1.1 Test connection

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 | 1.37 | 1.24 | 1.36 |
| Return Loss | -16.06 | -19.46 | -16.37 |



2.2 Gain and efficiency test

2.2.1 Test Position

Yuande 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

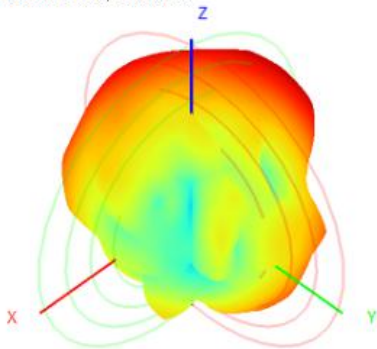
2.2.3 Results Summary

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

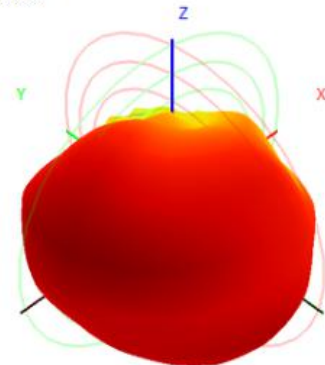
| Frequency (MHz) | Gain (dBi) | Efficiency (%) |
|-----------------|------------|----------------|
| 2400 | 4.49 | 46.50% |
| 2410 | 4.42 | 48.10% |
| 2420 | 4.19 | 49.00% |
| 2430 | 3.85 | 49.30% |
| 2440 | 3.61 | 49.20% |
| 2450 | 3.45 | 48.80% |
| 2460 | 3.09 | 46.50% |
| 2470 | 2.8 | 44.20% |
| 2480 | 2.41 | 41.60% |
| 2490 | 2.03 | 39.10% |
| 2500 | 1.76 | 37.20% |

2.2.4 Radiation Pattern Results

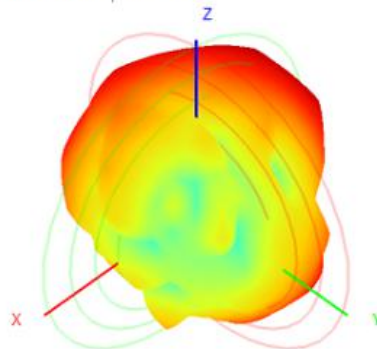
2400.0MHz H+V, Eff: 46.5%



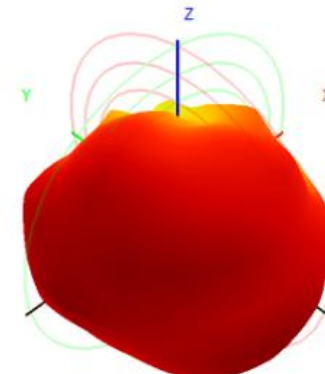
Back View



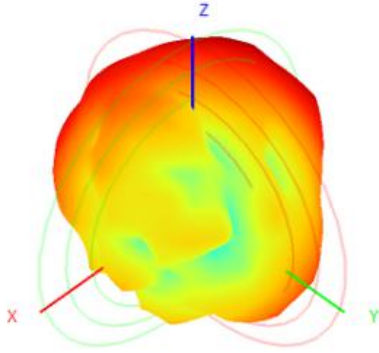
2440.0MHz H+V, Eff: 49.2%



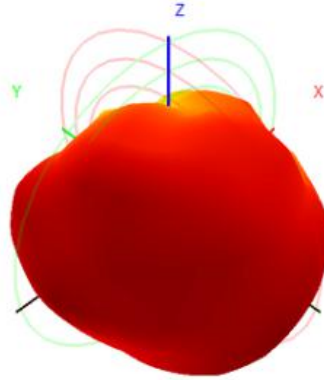
Back View



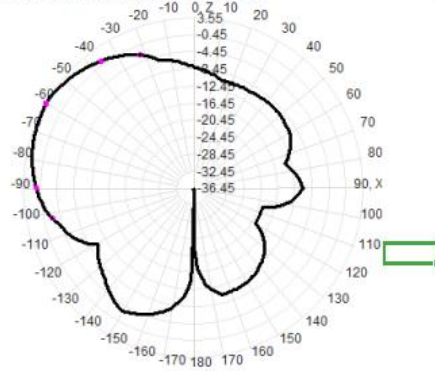
2480.0MHz H+V, Eff: 41.6%



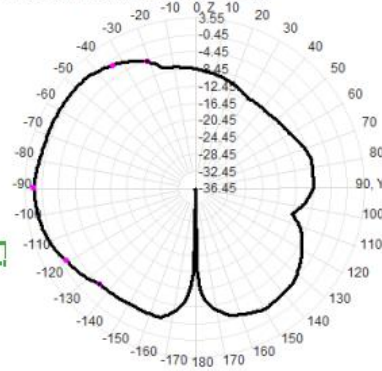
Back View



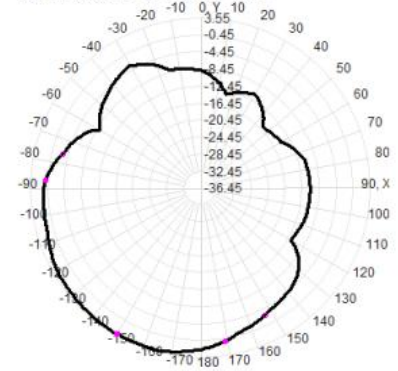
2400.0MHz Total(E1-XZ), Max= 3.55dBi



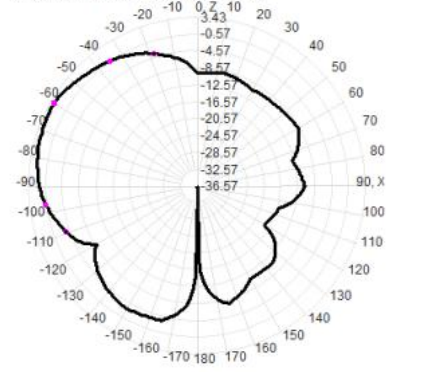
2400.0MHz Total(E2-YZ), Max= 1.38dBi



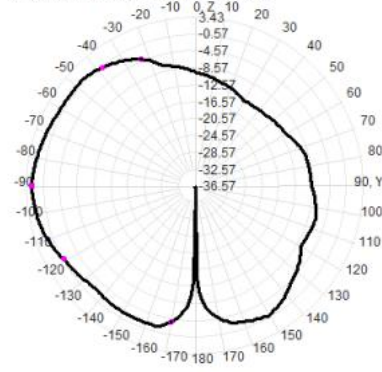
Total(H-XY), Max= 2.99dBi, CirD=18.99



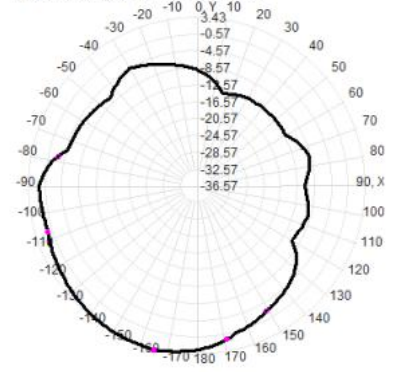
2440.0MHz Total(E1-XZ), Max= 2.57dBi



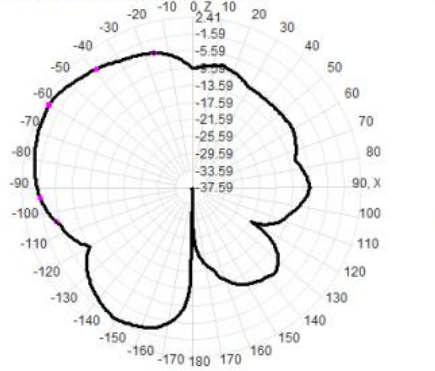
2440.0MHz Total(E2-YZ), Max= 2.14dBi



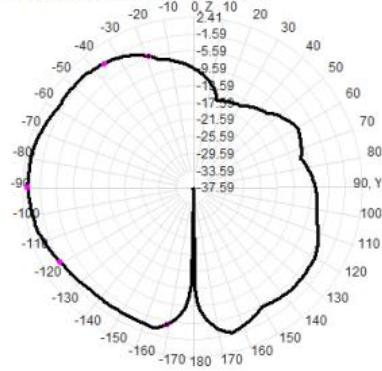
Total(H-XY), Max= 3.43dBi, CirD=17.36



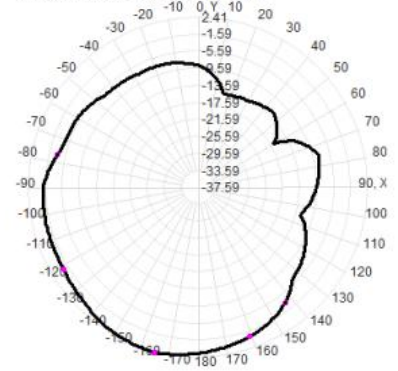
2480.0MHz Total(E1-XZ), Max= 1.26dBi



2480.0MHz Total(E2-YZ), Max= 1.26dBi



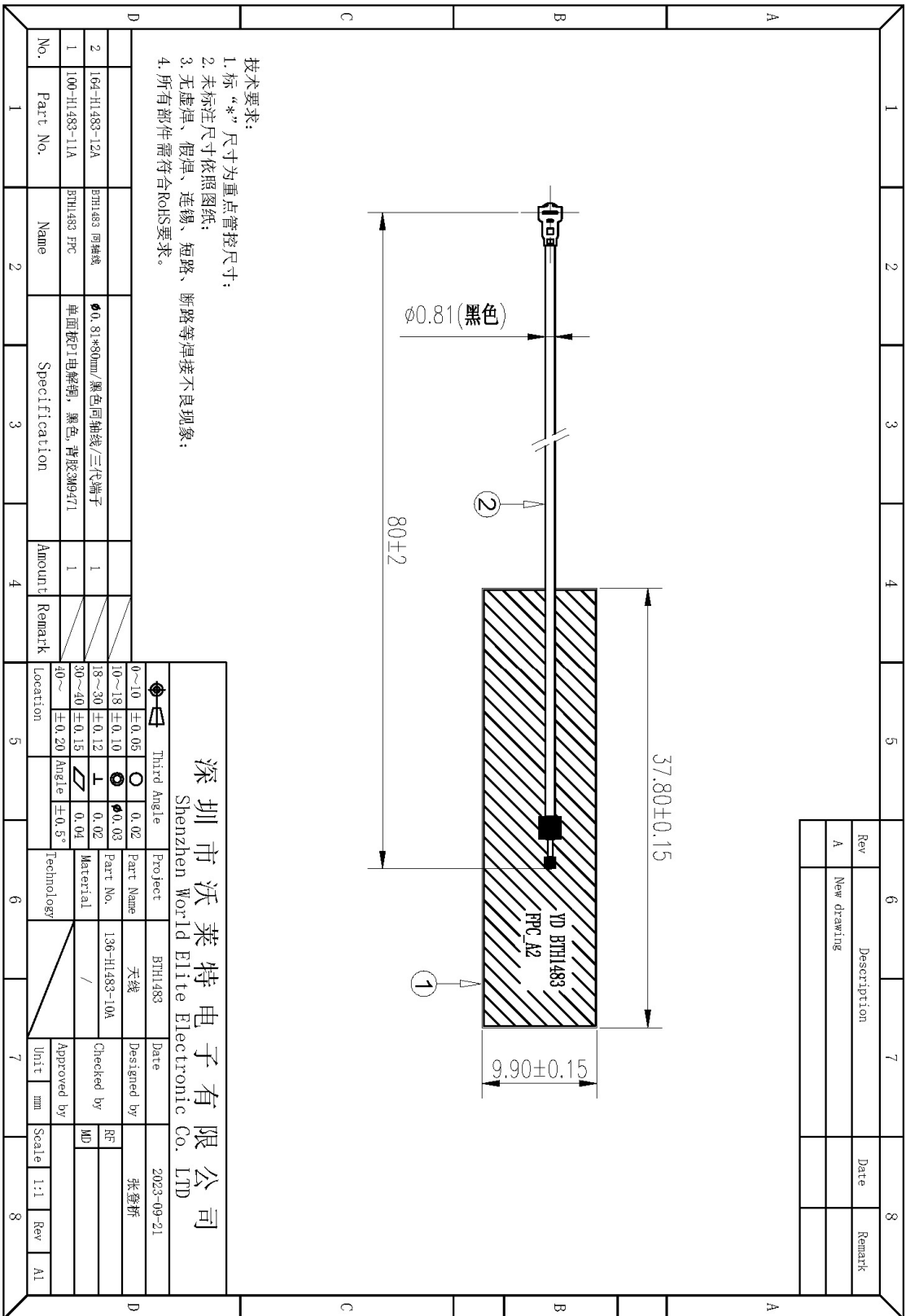
Total(H-XY), Max= 2.41dBi, CirD=19.52



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



- 技术要求:
1. 标“*”尺寸为重点管控尺寸;
 2. 未标注尺寸依照图纸;
 3. 无虚焊、假焊、连锡、短路、断路等焊接不良现象;
 4. 所有部件需符合RoHS要求。

| No. | Part No. | Name | Specification | Amount | Remark |
|-----|---------------|-------------|--------------------------------|--------|--------|
| 1 | 100-HI483-11A | BTH1483 FPC | 单面板E1电解铜, 黑色, 背胶3M9471 | 1 | |
| 2 | 164-HI483-12A | BTH1483 同轴线 | $\phi 0.81 * 30$ mm/黑色同轴线/三代端子 | 1 | |

| 深圳市沃莱特电子有限公司 | | | | | | | | | |
|---|------------|---------|-----------------|------------|---------------|-------------|-----|------------|-----|
| Shenzhen World Elite Electronic Co. LTD | | | | | | | | | |
| Third Angle | | Project | | BTH1483 | | Date | | 2023-09-21 | |
| 0~10 | ± 0.05 | 0.02 | 0.02 | 天线 | 天线 | Designed by | 张登桥 | RF | |
| 10~18 | ± 0.10 | 0.03 | 0.03 | Part No. | L36-HI483-10A | Checked by | | MD | |
| 18~30 | ± 0.12 | 0.02 | 0.02 | Material | / | Approved by | | | |
| 30~40 | ± 0.15 | 0.04 | 0.04 | Technology | | Unit | mm | Scale | 1:1 |
| 40~ | ± 0.20 | Angle | $\pm 0.5^\circ$ | | | Rev | | Rev | A1 |
| Location | | | | | | | | | |

| Rev | Description | Date | Remark |
|-----|-------------|------|--------|
| A | New drawing | | |