

# Shenzhen Hetuo Technology Co., Ltd

Building 1202B, Building C 6, Hengfeng industrial city, Hezhou, xixiang, Baoan District, Shenzhen City

## Sample Approved Sheet

Antenna Type:FPC

Hetuo (R1360-R+Touch) Acknowledgment

Customer Name Dongguan Shui Wo Electronic Technology Co. , Ltd.

Client Type R1360

Brand HT-R1360-R+Touch

Hetuo Judgment Audit Team

| Formulate     | Check        | Ratify      | Acknowledge the book completion time |
|---------------|--------------|-------------|--------------------------------------|
| ZhongXiaoMing | HuangZhiLing | Daitingting | 2025.5.13                            |

(Ruihe) Judgment Audit Team

Acknowledgement Number\_\_\_\_\_

Proving time

| acknowledge | check | ratify | Acknowledge the book completion time |
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|             |       |        |                                      |

Project Review ☐Three acknowledgements☐Specifications/drawings

☐examining report ☐Specimen PCS ☐Safety standard ☐HSF

Appraisal report☐Accept

☐Conditional acceptance

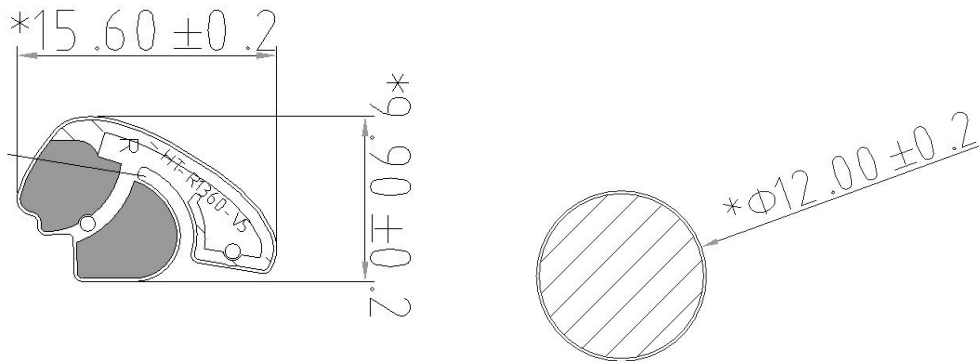
☐Refuse

Confidential Information

| Items | Date        | Version | The revised notes  | Notes |
|-------|-------------|---------|--------------------|-------|
| 1     | 2025. 5. 13 | A0      | For the first time |       |
| 2     |             |         |                    |       |
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## 1. Antenna picture

The report mainly provides the test status of the electrical properties parameters of **HT-R1360-R+Touch**. The **HT-R1360-R+Touch** antenna is a **BT** Band . The antenna Picture and assembly are shown below.



Antenna picture & assembly picture

## 2. Antenna Test Equipment Introduction

Test of antenna input characteristics using **Agilent E5071C** and **Agilent 5062A** vector network analyzer; The radiation pattern of the antenna are tested using the Satimo starlab 3D near field Anechoic Chamber , and the instrument is used to agilent8960 E5515 and Agilent E4438C. The test coordinates of the darkroom are as follows:

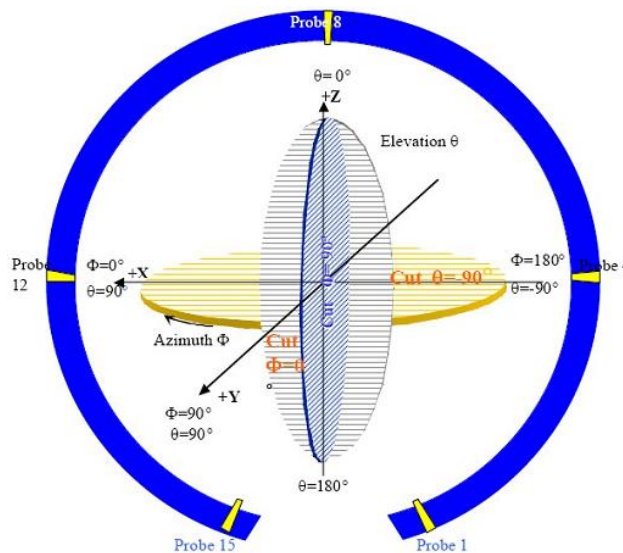


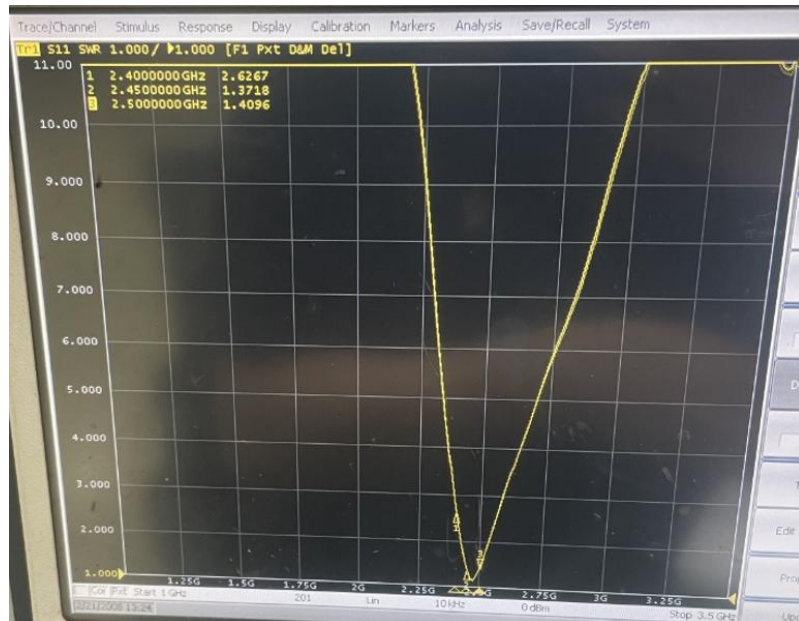
图 4 3D 微波暗室测试坐标系 (back view)

### 3. Electrical Specification

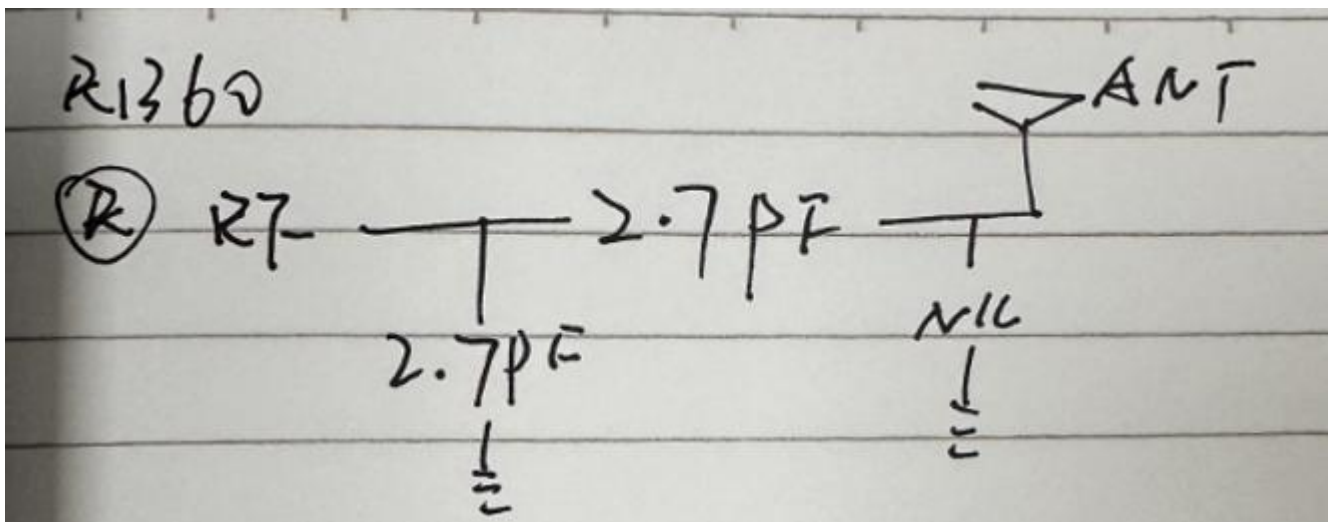
#### 3-2 Passive S11 parameter

Measuring Method is a  $50\ \Omega$  coaxial cable is connected to the antenna. Then this cable is connected to a network analyzer to measure the S11 parameter, Keeping this fixture away from metal at least 20cm.

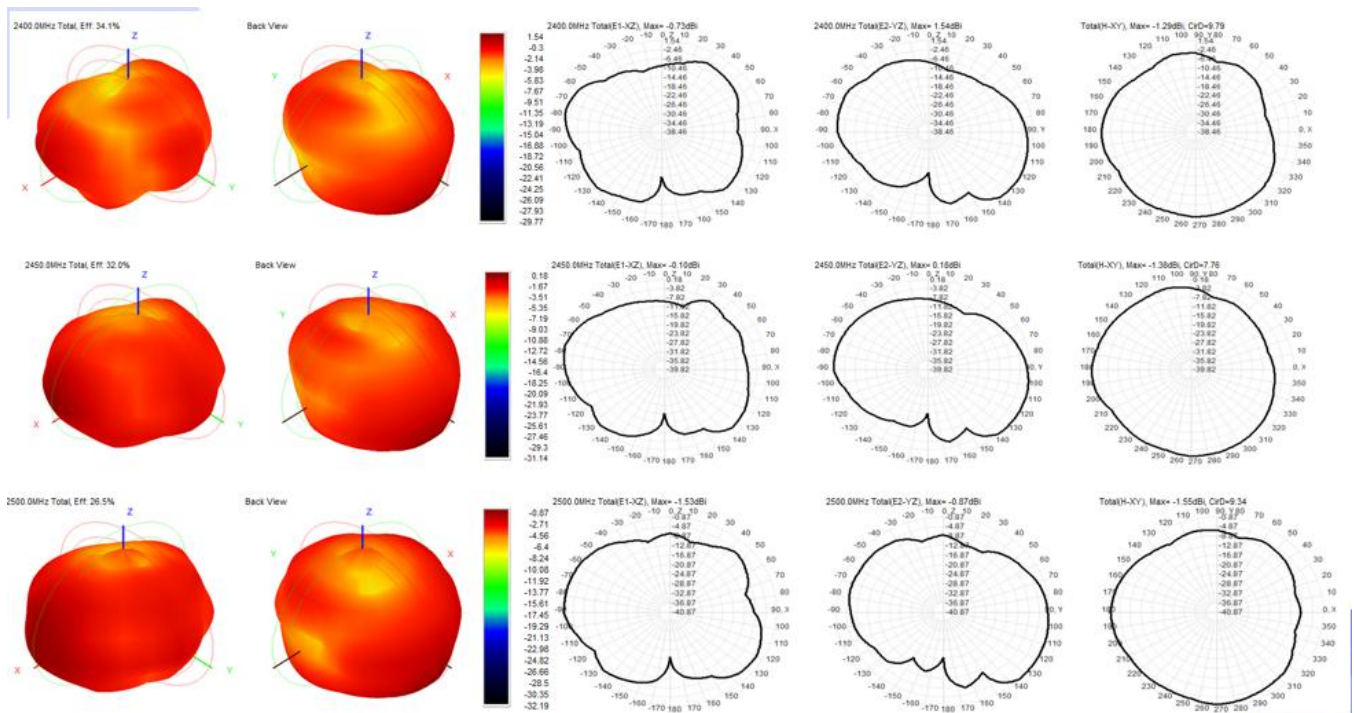
VSWR



#### 3-3 Antenna Matching Network



| Frequency (MHz) | Efficiency (%) | Gain (dBi) |
|-----------------|----------------|------------|
| 2400            | 29.05          | 1.54       |
| 2410            | 29.28          | 1.41       |
| 2420            | 28.15          | 1.09       |
| 2430            | 28.09          | 0.79       |
| 2440            | 27.34          | 0.41       |
| 2450            | 27.24          | 0.18       |
| 2460            | 27.07          | -0.03      |
| 2470            | 26.20          | -0.37      |
| 2480            | 25.80          | -0.70      |
| 2490            | 25.10          | -0.75      |
| 2500            | 24.52          | -0.87      |



**BT-R<sub>ANT</sub>-FS**

|                 |                   |         |          |          |
|-----------------|-------------------|---------|----------|----------|
| Test Equipment: | R&S CMW500        |         |          |          |
| Test Condition: | 3D chamber        |         |          |          |
| Band            | Wireless Protocol | Channel | TRP(dBm) | TIS(dBm) |
| BT              | CLASS 1           | 0       | 2.87     | -88.56   |
|                 |                   | 39      | 3.57     | -87.51   |
|                 |                   | 78      | 4.12     | -87.65   |

**BT-R<sub>ANT</sub>-BH**

|                 |                   |         |          |          |
|-----------------|-------------------|---------|----------|----------|
| Test Equipment: | R&S CMW500        |         |          |          |
| Test Condition: | 3D chamber        |         |          |          |
| Band            | Wireless Protocol | Channel | TRP(dBm) | TIS(dBm) |
| BT              | CLASS 1           | 0       | 0.09     | -84.47   |
|                 |                   | 39      | 0.51     | -83.38   |
|                 |                   | 78      | 0.18     | -83.16   |



Confidential Information

报价  
 开模  
 检测  
 出图  
 参考  
 REFERENCE

FOR QUOTATION  
 FOR TOOLING  
 FOR EVALUATION  
 APPROVED BY  
 REFERENCE

MODIFICATION  
 VER. DESCRIPTION DATE ENGINEER

$\varnothing 12.00 \pm 0.2$

Technical requirements:

1. It must comply with EU RoHS and REACH, as detailed in the appendix;
2. Single machine usage: 2PCS
3. FPC copper wiring section on side A, while side B represents the use of 3M 9471 adhesive backing
4. The total thickness of FPC is 0.11-1.15mm (excluding adhesive release paper), and the contact point needs to be processed with a 3-mil gold deposition process
5. Please use PI 1 to 1 substrate, electrolytic copper; Surface black ink line printed in white
6. The ink does not contain carbon or metal particles, and the surface is UV resistant and UV resistant;

| Shenzhen Hetuo Technology Co., Ltd                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |      | Drawn            |      |       |      |       |   |    |     |    |     |   |    |     |    |     |   |    |     |    |     |   |    |     |    |     |   |    |     |    |     |   |    |     |    |     |   |    |     |    |     |   |    |     |    |     |   |    |     |    |     |    |    |     |    |     |                                                  |  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------------------|------|-------|------|-------|---|----|-----|----|-----|---|----|-----|----|-----|---|----|-----|----|-----|---|----|-----|----|-----|---|----|-----|----|-----|---|----|-----|----|-----|---|----|-----|----|-----|---|----|-----|----|-----|---|----|-----|----|-----|----|----|-----|----|-----|--------------------------------------------------|--|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |      | Designed         |      |       |      |       |   |    |     |    |     |   |    |     |    |     |   |    |     |    |     |   |    |     |    |     |   |    |     |    |     |   |    |     |    |     |   |    |     |    |     |   |    |     |    |     |   |    |     |    |     |    |    |     |    |     |                                                  |  |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |      | Approved         |      |       |      |       |   |    |     |    |     |   |    |     |    |     |   |    |     |    |     |   |    |     |    |     |   |    |     |    |     |   |    |     |    |     |   |    |     |    |     |   |    |     |    |     |   |    |     |    |     |    |    |     |    |     |                                                  |  |
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| (DIMENSIONS: mm) <table border="1"> <tr> <th>ITEM</th> <th>UNIT</th> <th>VALUE</th> <th>UNIT</th> <th>VALUE</th> </tr> <tr> <td>1</td> <td>mm</td> <td>1.2</td> <td>mm</td> <td>1.2</td> </tr> <tr> <td>2</td> <td>mm</td> <td>1.2</td> <td>mm</td> <td>1.2</td> </tr> <tr> <td>3</td> <td>mm</td> <td>1.2</td> <td>mm</td> <td>1.2</td> </tr> <tr> <td>4</td> <td>mm</td> <td>1.2</td> <td>mm</td> <td>1.2</td> </tr> <tr> <td>5</td> <td>mm</td> <td>1.2</td> <td>mm</td> <td>1.2</td> </tr> <tr> <td>6</td> <td>mm</td> <td>1.2</td> <td>mm</td> <td>1.2</td> </tr> <tr> <td>7</td> <td>mm</td> <td>1.2</td> <td>mm</td> <td>1.2</td> </tr> <tr> <td>8</td> <td>mm</td> <td>1.2</td> <td>mm</td> <td>1.2</td> </tr> <tr> <td>9</td> <td>mm</td> <td>1.2</td> <td>mm</td> <td>1.2</td> </tr> <tr> <td>10</td> <td>mm</td> <td>1.2</td> <td>mm</td> <td>1.2</td> </tr> </table> |      | ITEM             | UNIT | VALUE | UNIT | VALUE | 1 | mm | 1.2 | mm | 1.2 | 2 | mm | 1.2 | mm | 1.2 | 3 | mm | 1.2 | mm | 1.2 | 4 | mm | 1.2 | mm | 1.2 | 5 | mm | 1.2 | mm | 1.2 | 6 | mm | 1.2 | mm | 1.2 | 7 | mm | 1.2 | mm | 1.2 | 8 | mm | 1.2 | mm | 1.2 | 9 | mm | 1.2 | mm | 1.2 | 10 | mm | 1.2 | mm | 1.2 | Customer Rev: HT-R1360-TOUCH-FPC<br>SHEET 1 OF 1 |  |
| ITEM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | UNIT | VALUE            | UNIT | VALUE |      |       |   |    |     |    |     |   |    |     |    |     |   |    |     |    |     |   |    |     |    |     |   |    |     |    |     |   |    |     |    |     |   |    |     |    |     |   |    |     |    |     |   |    |     |    |     |    |    |     |    |     |                                                  |  |
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| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | mm   | 1.2              | mm   | 1.2   |      |       |   |    |     |    |     |   |    |     |    |     |   |    |     |    |     |   |    |     |    |     |   |    |     |    |     |   |    |     |    |     |   |    |     |    |     |   |    |     |    |     |   |    |     |    |     |    |    |     |    |     |                                                  |  |
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| 8                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | mm   | 1.2              | mm   | 1.2   |      |       |   |    |     |    |     |   |    |     |    |     |   |    |     |    |     |   |    |     |    |     |   |    |     |    |     |   |    |     |    |     |   |    |     |    |     |   |    |     |    |     |   |    |     |    |     |    |    |     |    |     |                                                  |  |
| 9                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | mm   | 1.2              | mm   | 1.2   |      |       |   |    |     |    |     |   |    |     |    |     |   |    |     |    |     |   |    |     |    |     |   |    |     |    |     |   |    |     |    |     |   |    |     |    |     |   |    |     |    |     |   |    |     |    |     |    |    |     |    |     |                                                  |  |
| 10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | mm   | 1.2              | mm   | 1.2   |      |       |   |    |     |    |     |   |    |     |    |     |   |    |     |    |     |   |    |     |    |     |   |    |     |    |     |   |    |     |    |     |   |    |     |    |     |   |    |     |    |     |   |    |     |    |     |    |    |     |    |     |                                                  |  |
| SCALE: 1:10<br>UNIT: mm<br>USED ON:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |      | DATE: 2024.08.19 |      |       |      |       |   |    |     |    |     |   |    |     |    |     |   |    |     |    |     |   |    |     |    |     |   |    |     |    |     |   |    |     |    |     |   |    |     |    |     |   |    |     |    |     |   |    |     |    |     |    |    |     |    |     |                                                  |  |