



XE3000 project antenna material requirements specification

customer name: Shenzhen Guanglian Zhitong Technology Co., LTD

Customer product name: GL-XE3000NR

Product name: Antenna assembly

Product specification: FPC + common-axis welding

Material code: FPC assembly 205-1019

Change Content CV:

| order number | edition | state | Start and end date | person liable | page number | remarks |
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| 1 | R:A | editio princeps | 2023-03-30 | Yuan Shujun | 9 | |

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| RF | He lei | | | |

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| Development & Design Engineer / Date | SQE Engineer / Date | Purchasing Leader / Date | Development Manager approval / date |

catalogue

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|--------------------------------------------------------------------------------|----------|
| 1. OVERVIEW | 3 |
| 1.1 SCOPE OF APPLICATION | 3 |
| 1.2 PROJECT BASIC INFORMATION | 3 |
| 2. TECHNICAL INDEX REQUIREMENTS | 3 |
| 2.1 INTRODUCTION OF TEST ITEMS AND EQUIPMENT | 3 |
| 2.2 TEST INSTRUCTIONS | 3 |
| 3. TEST REPORT | 4 |
| 3.1: ANTENNA PASSIVE PARAMETERS-FPC 5.8 G | 4 |
| 3.2: ANTENNA PASSIVE PARAMETERS-5 GWIFI (FPC) | 4 |
| 3.3 : RADIATION PATTERN FOR WIFI FPC ANTENNA (5600MHZ) , PEAK GAIN : 3.48DBI | 5 |
| 3.4: ANTENNA PASSIVE PARAMETERS- (FPC) 5G DIRECTION DIAGRAM | 5 |
| 3.5 LOCATION OF THE ANTENNA | 6 |
| 3.6 PICTURE OF THE WHOLE MACHINE | 6 |
| 4. STRUCTURAL SIZE DIAGRAM | 7 |
| 5. BOM TABLE (BILL OF MATERIALS) | 8 |
| 6. PACKAGING DIAGRAM | 9 |

1. Overview

1.1 Scope of application

This requirement specifies the antenna technical requirements and material requirements specifications for XE3000 products.

This requirement is applicable to the antenna selection, testing and acceptance of XE3000 products.

1.2 Project basic information

| | |
|-------------------|--------------------|
| Antenna name: | XE3000 |
| Antenna band: | WIFI: 5.8G |
| Antenna material: | FPC+ coaxial cable |
| Antenna version: | V0.6 |

2. Technical index requirements

2.1 Introduction of test items and equipment

| inventory | test item | equipment |
|---------------|--------------------------------|---------------------------------------|
| S11 parameter | Standing wave ratio, echo loss | network analyzer |
| Active test | TRP,TIS | Integrated tester, microwave darkroom |
| Passive test | Gain, efficiency | network analyzer |

2.2 Test instructions

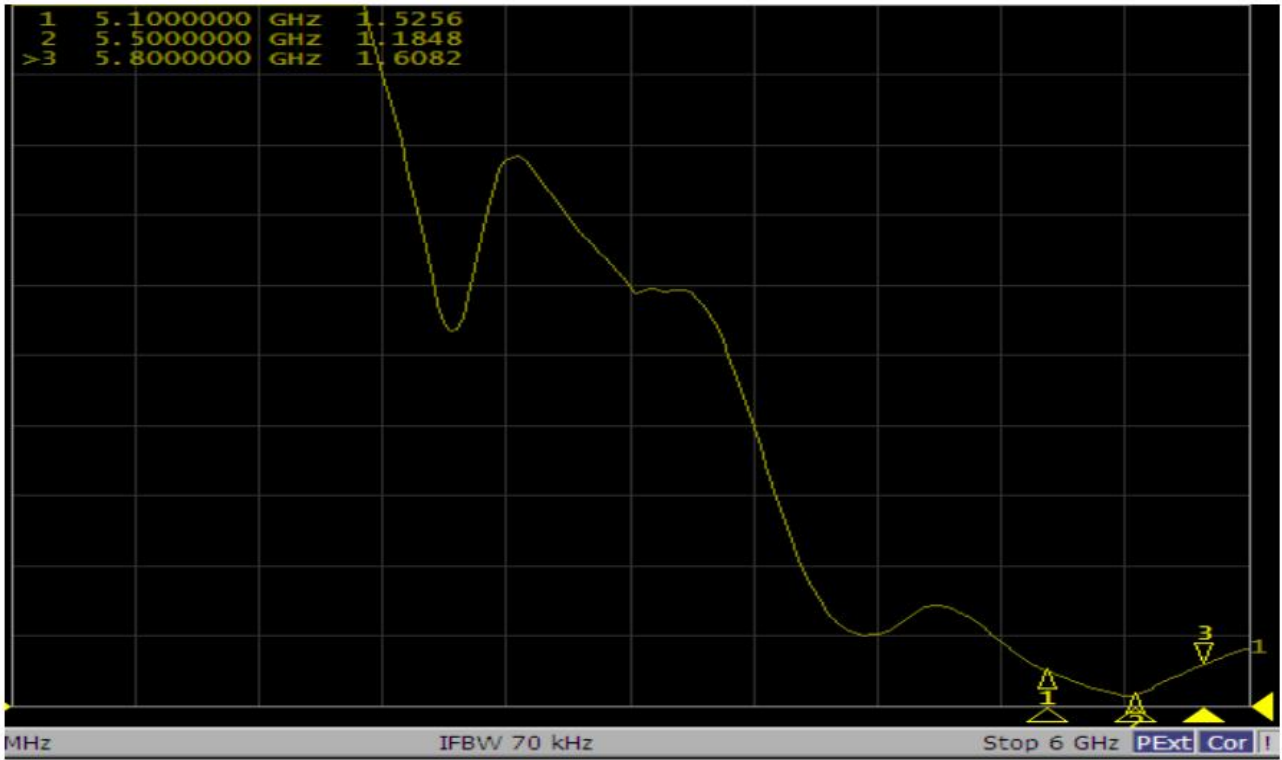
Test tools: Agilent8960 instrument, R & S CMW500, full wave far field ETS dark room, high precision positioning system and its controller and computer with automatic test program

Test environment: temperature $22^{\circ}\text{C} \pm 3^{\circ}\text{C}$, humidity $50\% \pm 15\%$

Test method: DUT is fixed in the center of the turntable on the same horizontal line as the center of the horn antenna. The positioning system enables the DUT to rotate in the whole sphere to satisfy the high-precision 3 D positioning. Each RF instrument and turntable controller communicate with the PC with automatic test software through the GPIB interface

3. Test report

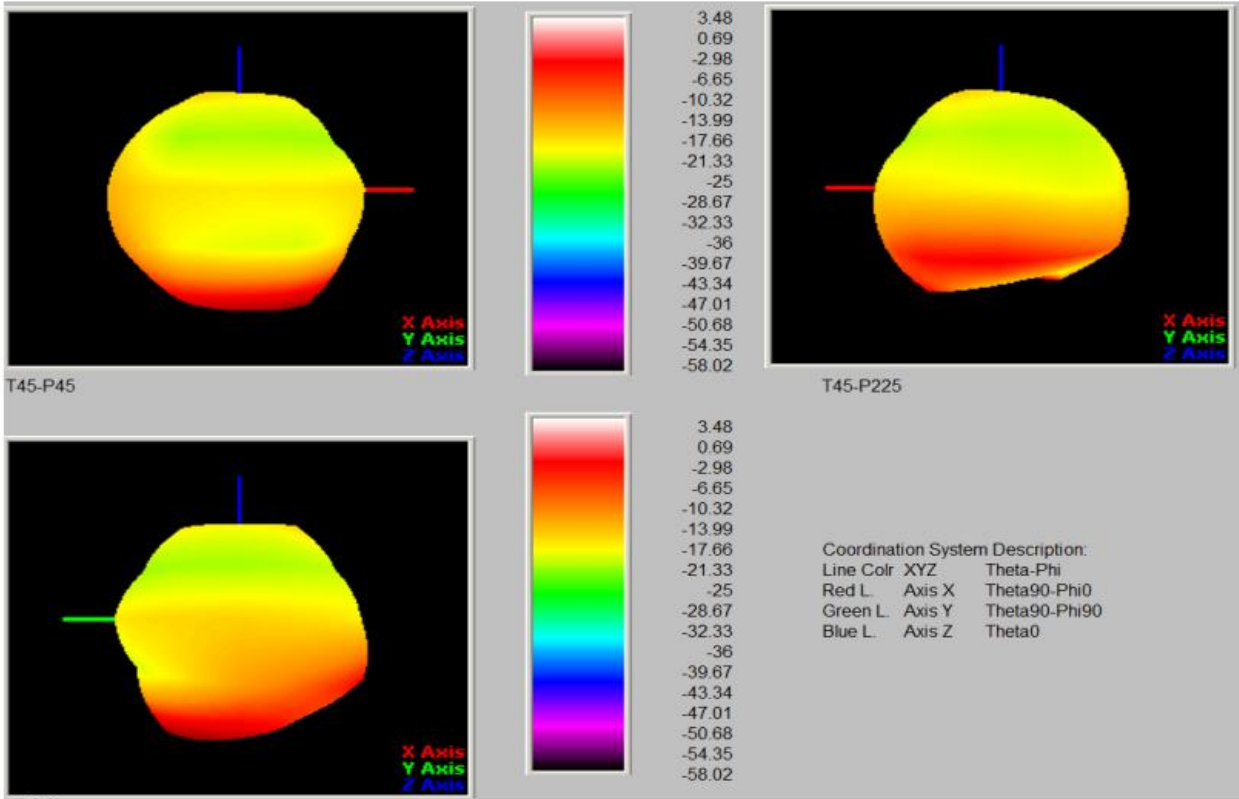
3.1: Antenna passive parameters-FPC 5.8 G



3.2: Antenna passive parameters-5 GWIFI (FPC)

| Test Point ID | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
|----------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Freq. (MHz) | 5100.0 | 5150.0 | 5200.0 | 5250.0 | 5300.0 | 5350.0 | 5400.0 | 5450.0 | 5500.0 | 5550.0 | 5600.0 | 5650.0 | 5700.0 | 5750.0 | 5800.0 |
| Gain (dBi) | 2.35 | 2.42 | 2.68 | 2.93 | 3.11 | 3.04 | 3.14 | 3.28 | 3.53 | 3.65 | 3.46 | 3.27 | 3.13 | 2.98 | 2.81 |
| Efficiency (%) | 54.2% | 55.1% | 55.9% | 56.5% | 57.7% | 58.6% | 59.3% | 61.7% | 62.5% | 61.9% | 61.2% | 59.8% | 58.6% | 57.9% | 57.1% |

3.3 : Radiation Pattern For WIFI FPC Antenna (5600MHz) , Peak Gain : 3.48dbi

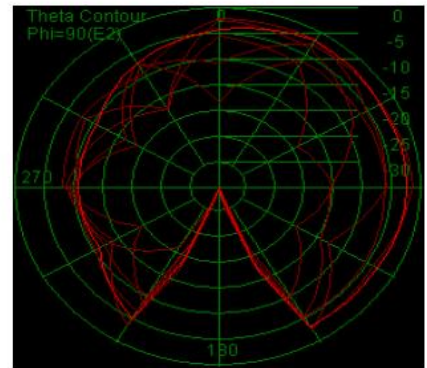
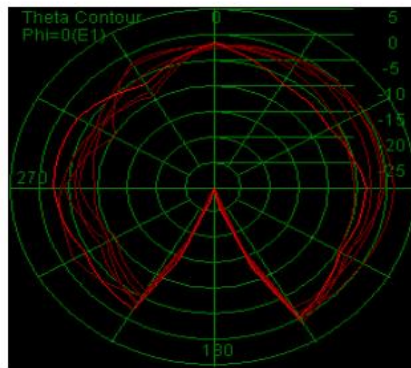
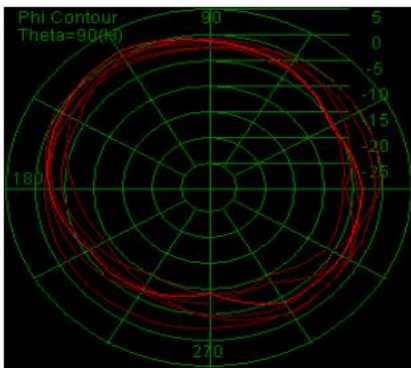


3.4: Antenna passive parameters- (FPC) 5G direction diagram

Thete=90 (Phi=270° 为正前方)

Phi=90°

Phi=180°



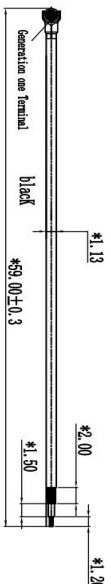
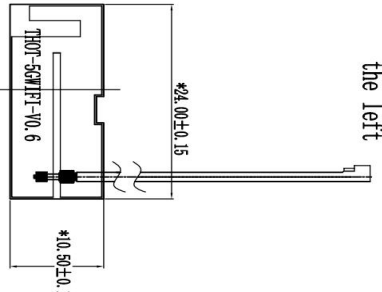
3.5 Location of the antenna



3.6 Picture of the whole machine



4. Structural size diagram

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| <p>A</p>  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>由 Autodesk 教育版产品制作</p> <p>skills requirements:</p> <table border="1"> <tr> <td>PI substrate:</td> <td>Electrolytic copper (1 to half)</td> </tr> <tr> <td>1. PCB substrate specifications:</td> <td>0.5oz (20)</td> </tr> <tr> <td>Double-sided tape:</td> <td>3M-9471LSB</td> </tr> <tr> <td>2. Electroplating specifications:</td> <td>Nickel plated: 3μm Gilded: 0.0125um</td> </tr> <tr> <td>3. Surface ink requirements:</td> <td>Surface ink color: Matt black Printing font color: Bright black Printing font height: According to drawings</td> </tr> </table> <p>4. Reliability requirements:</p> <ol style="list-style-type: none"> 1. Reliability test: salt spray test\rubber friction test\alcohol resistance test\100 grid test. 2. The front ink, the surface of the ink is required to be folded in half without cracking, scratching, etc. <p>5. Tolerance requirements:</p> <ol style="list-style-type: none"> 1. Shape tolerance ± 0.10; 2. Copper foil circuit tolerance ± 0.05; 3. The position of the copper foil to the shape is ± 0.15; 4. Hole-to-hole position tolerance ± 0.10; hole-to-shape position tolerance ± 0.15; 5. The size tolerance of gold finger is ± 0.20. 6. For other unmarked dimensions, refer to 2D drawings. | PI substrate: | Electrolytic copper (1 to half) | 1. PCB substrate specifications: | 0.5oz (20) | Double-sided tape: | 3M-9471LSB | 2. Electroplating specifications: | Nickel plated: 3 μ m Gilded: 0.0125um | 3. Surface ink requirements: | Surface ink color: Matt black Printing font color: Bright black Printing font height: According to drawings |  <p>Opening to the left</p> <p>Centrifugal paper separation line</p> <p>Double-sided printing black oil</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PI substrate: | Electrolytic copper (1 to half) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| <p>6. Key control size:</p> <p>The dimensions marked with numbers are regarded as important dimensions, and the others refer to 2D drawings</p> <p>7. Environmental requirements:</p> <p>Parts meet ROHS2.0/REACH/GR environmental protection requirements</p> <p>8. Packaging requirements:</p> <p>Packed in PE bags, the quantity of each bag is 100PCS, there is a mark on the outside of the bag</p> <table border="1"> <tr> <td>DATE</td> <td>Modify the content</td> <td>Version</td> <td>Revise</td> </tr> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> </table> | DATE | Modify the content | Version | Revise | 1 | 2 | 3 | 4 | <p>Shenzhen Yu Sheng Communication Equipment Co., Ltd.</p> <table border="1"> <tr> <td>Model</td> <td>X3000</td> <td>DATE</td> <td>20230330</td> </tr> <tr> <td>Name</td> <td>WiFi antenna</td> <td>Design</td> <td>JFB</td> </tr> <tr> <td>Part NO</td> <td>385014-1A</td> <td>Review</td> <td>JFB</td> </tr> <tr> <td>Material quality</td> <td>Electrolytic copper (1 to half)</td> <td>PP</td> <td>CHK</td> </tr> <tr> <td>Weld surface treatment</td> <td></td> <td>confirm</td> <td></td> </tr> <tr> <td>Appearance treatment</td> <td></td> <td>UNIT</td> <td></td> </tr> </table> <table border="1"> <tr> <td>位置</td> <td>5</td> <td>6</td> <td>7</td> <td>8</td> </tr> <tr> <td>位置</td> <td></td> <td></td> <td></td> <td></td> </tr> </table> | Model | X3000 | DATE | 20230330 | Name | WiFi antenna | Design | JFB | Part NO | 385014-1A | Review | JFB | Material quality | Electrolytic copper (1 to half) | PP | CHK | Weld surface treatment | | confirm | | Appearance treatment | | UNIT | | 位置 | 5 | 6 | 7 | 8 | 位置 | | | | |
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| 1 | 2 | 3 | 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 位置 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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