

## 产品承认书/SPECIFICATION FOR APPROVAL

|                              |                                                                 |
|------------------------------|-----------------------------------------------------------------|
| 客户名称:<br>Customer Name       | 成都长城开发科技股份有限公司<br>Shenzhen Kaifa Technology (Chengdu) Co., Ltd. |
| 客户料号:<br>Customer P/N        |                                                                 |
| 产品描述:<br>Product Description | 弹簧天线<br>Spring antenna                                          |
| 制造商 P/N:<br>Manufacturer P/N | CCF-041B                                                        |
| 制造商:<br>Manufacturer         | 深圳市广和通无线股份有限公司<br>FIBOCOM Wireless Inc.                         |
| 承认日期:<br>Approve Date        | 2023年10月19日                                                     |

| 供应商签章 Supplier Sign and Seal | 客户签章 Customer Sign and Seal |
|------------------------------|-----------------------------|
|                              |                             |

| 变更内容 Change the content | 版本 Version | 日期 Date    |
|-------------------------|------------|------------|
| 初版 First Release        | RA         | 2023.10.19 |
|                         |            |            |
|                         |            |            |
|                         |            |            |

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## 目录 Directory

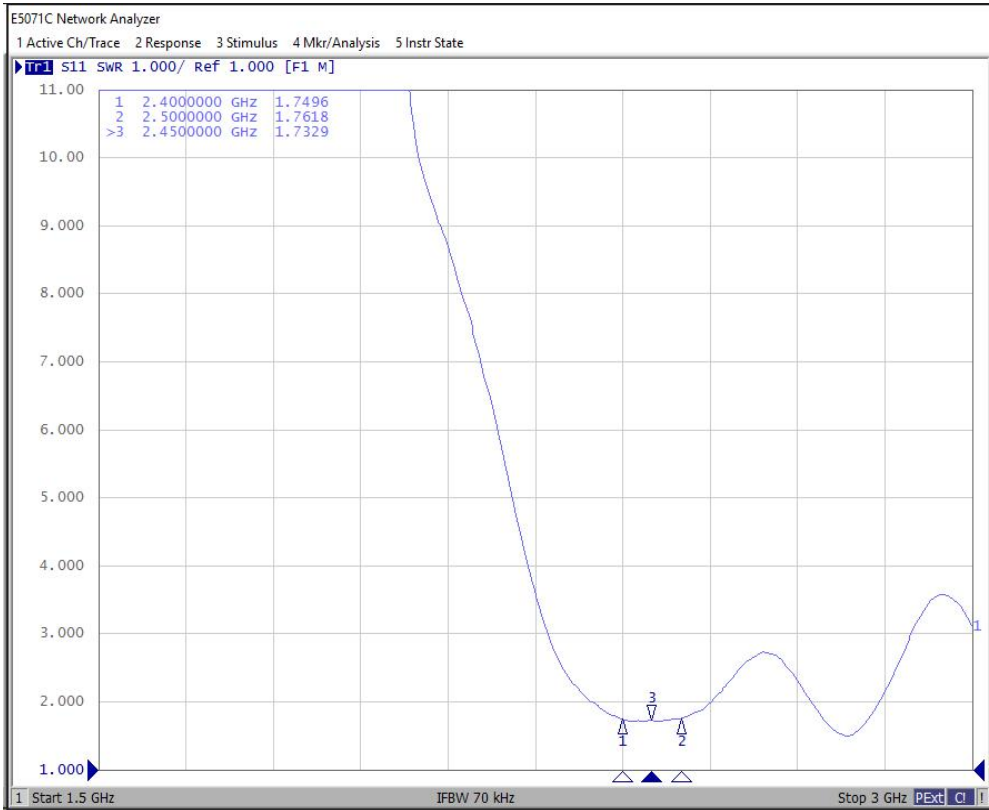
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|                                        |                      |
|----------------------------------------|----------------------|
| 1.1:电气特性 Electrical Specification      |                      |
| 频段范围 Freq.Range (MHz)                  | WIFI:2.4G            |
| 阻抗 Impedance (Ω)                       | 50(Ω)                |
| 驻波比 VSWR                               | ≤3                   |
| 辐射方向 Directional                       | 全向性 Omni directional |
| 极化方式 Polarization                      | 线性 Linear            |
| 峰值增益 Peak Gain (dBi)                   | 2400-2500MHz:0.62dBi |
|                                        | /                    |
| 1.2:机械指标 Mechanical Specification      |                      |
| 材质 Material                            | SUS304               |
| 连接器类型 Connector Type                   | /                    |
| 1.3: 环境指标 Environmental Specification  |                      |
| 工作温度 Operation temp                    | -40℃ ~+85℃           |
| 盐雾试验标准 Salt Spray Test Standard        | 48H                  |
| 双85试验标准 Temperature Humidity Bias Test | 500H                 |
| 储存温度 Storage temp                      | - 40℃ ~+85℃          |
|                                        |                      |

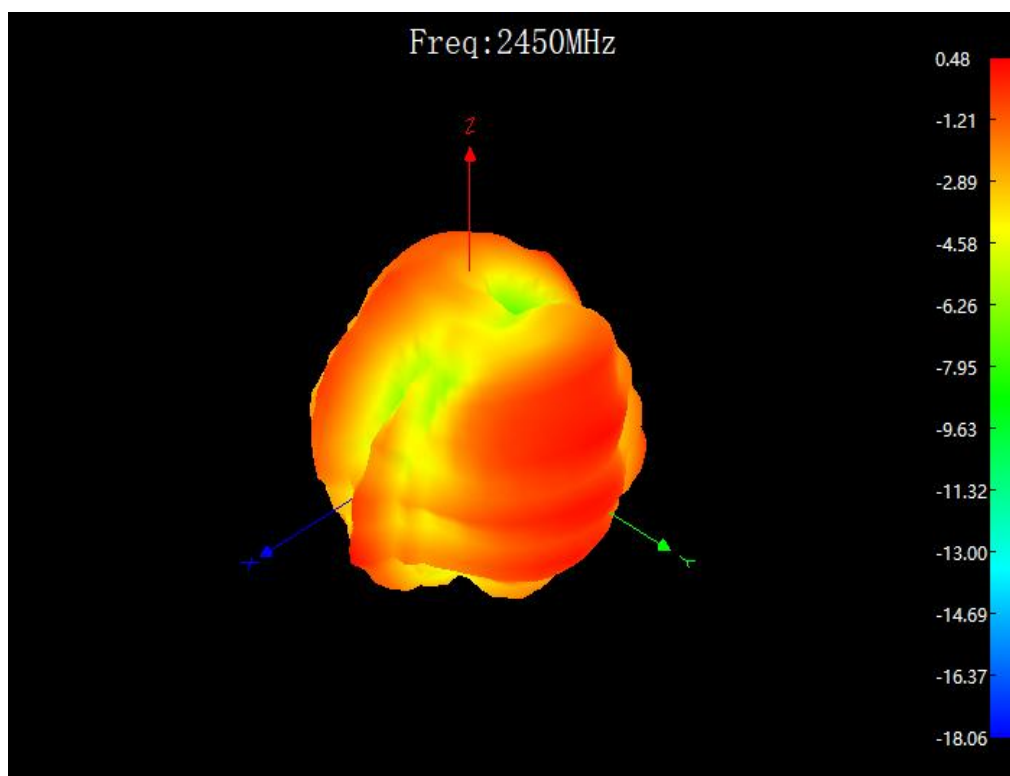
**2.1: 天线图片 Antenna Picture**



3.1:、驻波图 VSWR



### 3.2、方向图 directional diagram



3.3、天线效率与增益 Antenna efficiency and gain

| 效率与增益         |                |             |
|---------------|----------------|-------------|
| Frequency/Mhz | Efficiency / % | MaxGain/dBi |
| 2400          | 42.07          | 0.51        |
| 2410          | 46.67          | 0.09        |
| 2420          | 50.7           | 0.53        |
| 2430          | 49.09          | 0.62        |
| 2440          | 48.98          | 0.51        |
| 2450          | 49.32          | 0.48        |
| 2460          | 44.98          | 0.44        |
| 2470          | 46.77          | 0.51        |
| 2480          | 48.64          | 0.47        |
| 2490          | 47.42          | 0.32        |
| 2500          | 46.34          | 0.28        |

A

B

C

D

A

B

C

D

1

2

3

4

5

6

REVISIONS (试产/量产: A, B, C, D)

REV

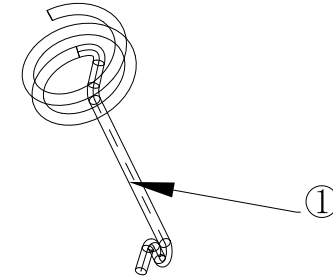
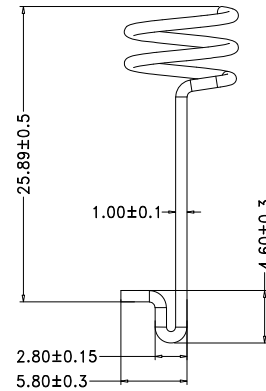
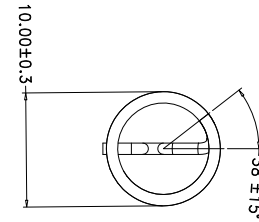
ZONE

DESCRIPTIONS

AUTHOR

DATE

  
变更符号



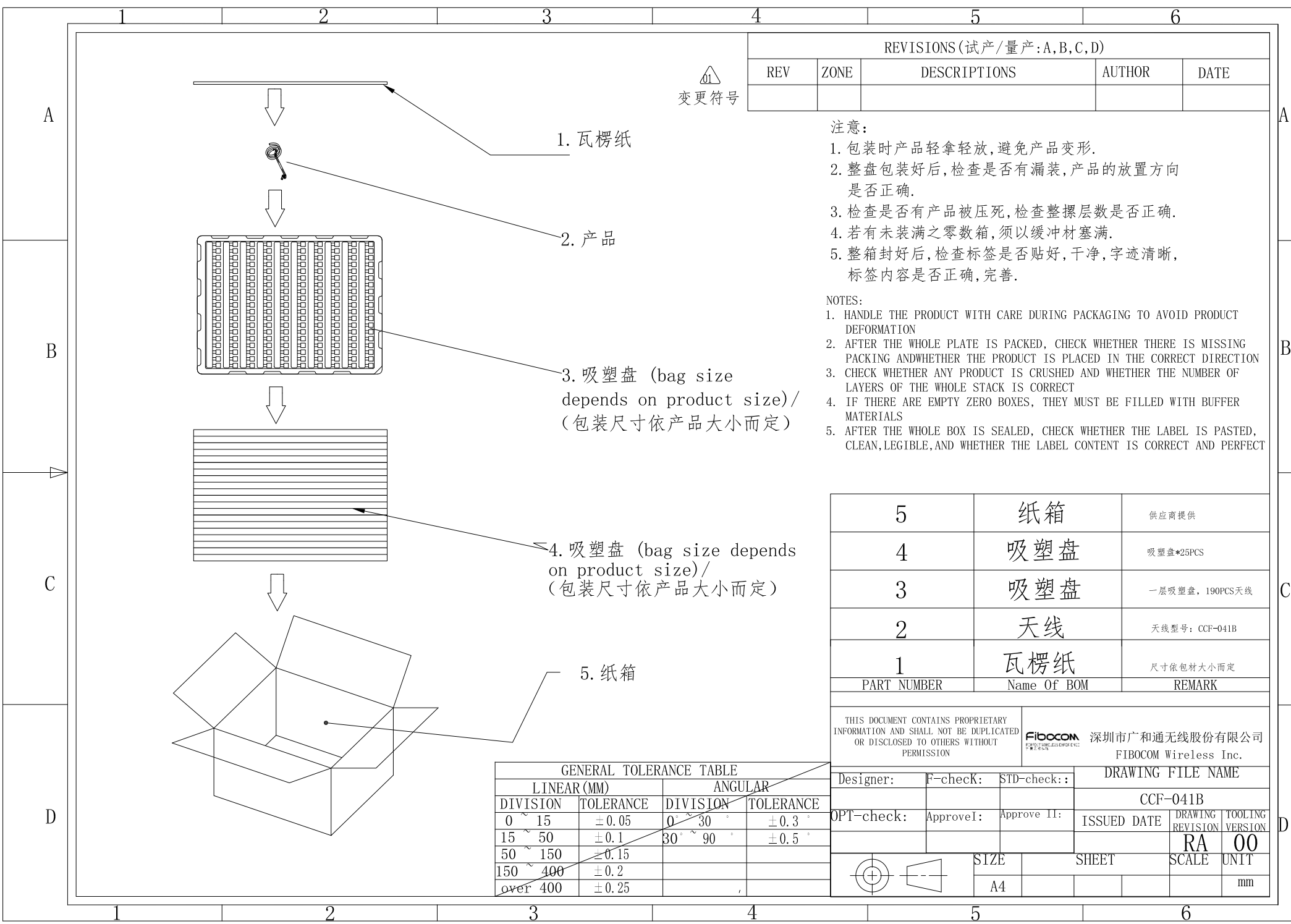
## 技术要求(Technical requirements):

- 1、未注尺寸以实物为准,详情参照3D图纸;
- 2、螺距2.8MM, 共2.11圈;
- 3、 $\phi 1.0\text{mm}$ SUS304, 预镀镍, 盐雾试验48H需合格。
- 1、The dimensions not indicated are subject to the actual product, please refer to the 3D drawings for details;
- 2、pitch 2.8MM, a total of 2.11 turns;
- 3、 $\phi 1.0\text{mm}$ SUS304, and the salt spray test 48H needs to be qualified.

GENERAL TOLERANCE TABLE

| LINEAR (MM) |            | ANGULAR   |                 |
|-------------|------------|-----------|-----------------|
| DIVISION    | TOLERANCE  | DIVISION  | TOLERANCE       |
| 0 ~ 15      | $\pm 0.05$ | 0° ~ 30°  | $\pm 0.3^\circ$ |
| 15 ~ 50     | $\pm 0.1$  | 30° ~ 90° | $\pm 0.5^\circ$ |
| 50 ~ 150    | $\pm 0.15$ |           |                 |
| 150 ~ 400   | $\pm 0.2$  |           |                 |
| over 400    | $\pm 0.25$ |           |                 |

|                                                                                                                      |  |             |             |                   |                  |
|----------------------------------------------------------------------------------------------------------------------|--|-------------|-------------|-------------------|------------------|
| ①                                                                                                                    |  | 弹簧天线        |             | 线径1mm, sus304不锈钢  |                  |
| PART NUMBER                                                                                                          |  | Name Of BOM |             | REMARK            |                  |
| THIS DOCUMENT CONTAINS PROPRIETARY INFORMATION AND SHALL NOT BE DUPLICATED OR DISCLOSED TO OTHERS WITHOUT PERMISSION |  |             |             |                   |                  |
| Designer:                                                                                                            |  | F-check:    | STD-check:  | DRAWING FILE NAME |                  |
| OPT-check:                                                                                                           |  | Approve I:  | Approve II: | CCF-041B          |                  |
|                                                                                                                      |  |             |             | ISSUED DATE       | DRAWING REVISION |
|                                                                                                                      |  |             |             |                   | TOOLING VERSION  |
|                                 |  | SIZE        | SHEET       |                   | SCALE            |
|                                 |  | A4          |             |                   | UNIT             |
|                                                                                                                      |  |             |             |                   | mm               |



变更符号

REVISIONS (试产/量产:A,B,C,D)

| REV | ZONE | DESCRIPTIONS | AUTHOR | DATE |
|-----|------|--------------|--------|------|
|     |      |              |        |      |

- 注意:
1. 包装时产品轻拿轻放,避免产品变形.
  2. 整盘包装好后,检查是否有漏装,产品的放置方向是否正确.
  3. 检查是否有产品被压死,检查整摞层数是否正确.
  4. 若有未装满之零数箱,须以缓冲材塞满.
  5. 整箱封好后,检查标签是否贴好,干净,字迹清晰,标签内容是否正确,完善.

- NOTES:
1. HANDLE THE PRODUCT WITH CARE DURING PACKAGING TO AVOID PRODUCT DEFORMATION
  2. AFTER THE WHOLE PLATE IS PACKED, CHECK WHETHER THERE IS MISSING PACKING ANDWHETHER THE PRODUCT IS PLACED IN THE CORRECT DIRECTION
  3. CHECK WHETHER ANY PRODUCT IS CRUSHED AND WHETHER THE NUMBER OF LAYERS OF THE WHOLE STACK IS CORRECT
  4. IF THERE ARE EMPTY ZERO BOXES, THEY MUST BE FILLED WITH BUFFER MATERIALS
  5. AFTER THE WHOLE BOX IS SEALED, CHECK WHETHER THE LABEL IS PASTED, CLEAN,LEGIBLE,AND WHETHER THE LABEL CONTENT IS CORRECT AND PERFECT

|             |     |                 |
|-------------|-----|-----------------|
| 5           | 纸箱  | 供应商提供           |
| 4           | 吸塑盘 | 吸塑盘*25PCS       |
| 3           | 吸塑盘 | 一层吸塑盘, 190PCS天线 |
| 2           | 天线  | 天线型号: CCF-041B  |
| 1           | 瓦楞纸 | 尺寸依包材大小而定       |
| PART NUMBER |     | Name Of BOM     |
|             |     | REMARK          |

|                                                                                                                      |            |             |                                                 |                  |                 |
|----------------------------------------------------------------------------------------------------------------------|------------|-------------|-------------------------------------------------|------------------|-----------------|
| THIS DOCUMENT CONTAINS PROPRIETARY INFORMATION AND SHALL NOT BE DUPLICATED OR DISCLOSED TO OTHERS WITHOUT PERMISSION |            |             | Fibocom 深圳市广和通无线股份有限公司<br>FIBOCOM Wireless Inc. |                  |                 |
| Designer:                                                                                                            | F-check:   | STD-check:: | DRAWING FILE NAME                               |                  |                 |
|                                                                                                                      |            |             | CCF-041B                                        |                  |                 |
| OPT-check:                                                                                                           | Approve I: | Approve II: | ISSUED DATE                                     | DRAWING REVISION | TOOLING VERSION |
|                                                                                                                      |            |             | RA                                              |                  | 00              |
| SIZE                                                                                                                 |            | SHEET       |                                                 | SCALE            | UNIT            |
| A4                                                                                                                   |            |             |                                                 |                  | mm              |

| GENERAL TOLERANCE TABLE |           |           |           |
|-------------------------|-----------|-----------|-----------|
| LINEAR (MM)             |           | ANGULAR   |           |
| DIVISION                | TOLERANCE | DIVISION  | TOLERANCE |
| 0 ~ 15                  | ± 0.05    | 0° ~ 30°  | ± 0.3°    |
| 15 ~ 50                 | ± 0.1     | 30° ~ 90° | ± 0.5°    |
| 50 ~ 150                | ± 0.15    |           |           |
| 150 ~ 400               | ± 0.2     |           |           |
| over 400                | ± 0.25    |           |           |