



深圳市南斗星科技有限公司

SHENZHEN SOUTH STAR TECHNOLOGY CO.,LTD

承认书

APPROVAL SHEET

样品封订

客户名称 Customer Name 多酷

产品型号 Product Model WR3600E

客户料号 Customer P/N

规格描述 Specifications 内置天线, 2.4G-2, 1.37 灰色 L=90mm

南斗星料号 Southstar P/N 3.N101.1644

制作日期 Production date 2024.10.11

制作版本 Revision 1.0

南斗星 (Southstar)

| | | |
|--------------|----------|----------|
| 编制 (FICTION) | 品质 (DQE) | 研发 (R&D) |
| | | |

客户 (Customer)

| | | |
|-----------|---------|----------|
| 采 购 (PUR) | 品质 (QC) | 研发 (R&D) |
| | | |

制造厂商：深圳市南斗星科技有限公司

办公地址：深圳市宝安区福海街道新和社区宝安大道 6099 号星港同创汇天枢座 803

制造地址：广东省东莞市虎门镇赤岗南坊一路 3 号

电 话：0755-27474071 0769-88086190

网 址：www.southstar-tech.com



深圳市南斗星科技有限公司

SHENZHEN SOUTH STAR TECHNOLOGY CO.,LTD

承认书变更履历



深圳市南斗星科技有限公司

SHENZHEN SOUTH STAR TECHNOLOGY CO.,LTD

目 录

Index

| | |
|--|-----|
| 一、封面 (Cover) | 1 |
| 二、版本记录 (Colophon) | 2 |
| 三、目录 (Index) | 3 |
| 四、基本参数 (The basic parameters) | 4 |
| 五、工程图纸 (Product Drawing) | 5 |
| 六、测试设备 (Test Equipment & Conditions) | 6 |
| 七、测试报告 (Test Report) | 7-8 |
| 八、天线装配图片 (Antenna assembly picture) | 9 |
| 九、包装方式 (Packing method) | 10 |



深圳市南斗星科技有限公司

SHENZHEN SOUTH STAR TECHNOLOGY CO.,LTD

基本参数 (The basic parameters) :

| A. 电性能 Electrical Characteristics | |
|--|------------------|
| Frequency 频率 | 2400MHz ~2500MHz |
| VSWR 电压驻波比 | ≤2 |
| Efficiency 效率 | 77.54%@2450MHz |
| Impedance 阻抗 | 50 Ohm |
| Polarization 极化 | Linear |
| Gain 增益 | 5.16dBi@2450MHz |
| Note 备注: | |
| B. 材料&物理性能 Material & Mechanical Characteristics | |
| 射频材料 Material of Radiator | 内置 |
| 射频线类型 Cable Type | 1.37mm 灰色 |
| 接头类型 Connector Type | 一代 |
| C. 环境 Environmental | |
| 工作温度 Operation Temperature | -30°C ~ +65°C |
| 存放温度 Storage Temperature | -40°C ~ +70°C |

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|--------|------------|------------------|-----------|-----------|---------|-----|-------------|----------------|----------------|-----|--|---------|--|-----|--|----------------|--|-------|------|---|-----|-----|-----------|-----|----|------------|--|--|-------|------|---|-----|--------|--|--|--|--|--|--|--|--|--|--|---------|------|---|-----|-------------|-----|----------------|--|--|--|--|---------|------|--|--|--|--|--|--|--|--|--|------|--|--|--|--|--|--|--|--|--|--|----------|------|---|-----|------|---|-----|--|--|--|--|-----------|------|--|--|--|--|----|--|--|--|--|-----|--|--|--|--|--|--|--|--|--|--|-----------|------|---|-----|--|--|----|--|--|--|--|---------|-----|--|--|--|--|---|---|----|----|------|-----|-----|---------|-----|-----|------------|-----|---|--------|------------|------------------|---|--|--|--|--|--|-----|---|--------|----------|--------|---|--|--|--|--|--|----|---|--|--|--|---|--|--|---|---|---|---|--|--|--|--|--|--|--|--|--|--|---|
| <p style="text-align: right;">A</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p style="text-align: right;">B</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p style="text-align: right;">C</p> <p>技术要求:</p> <ol style="list-style-type: none"> 标“**”尺寸为重点管控尺寸, 标“Cpk”尺寸需做制程能力分析; 未标注公差依照图纸未注公差表; 电性符合规格书要求; 所有部件需符合RoHS2.0、REACH要求。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p style="text-align: right;">D</p> <table border="1"> <thead> <tr> <th colspan="3">未注公差表</th> <th colspan="2">项 目</th> <th colspan="2">WR3600E</th> <th colspan="2">结 构</th> <th colspan="2">霍雄兵 2024-10-10</th> </tr> </thead> <tbody> <tr> <td>0.5~6</td><td>±0.1</td><td>—</td><td>0.1</td><td>品 名</td><td>2.4G-2 天线</td><td>射 频</td><td>蒋帅</td><td>2024-10-10</td><td></td><td></td> </tr> <tr> <td>>6~30</td><td>±0.2</td><td>○</td><td>0.1</td><td>端子方向标准</td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td></td><td></td><td></td><td></td><td>>30~120</td><td>±0.3</td><td>◎</td><td>料 号</td><td>3.N101.1644</td><td>审 核</td><td>梅海金 2024-10-10</td> </tr> <tr> <td></td><td></td><td></td><td></td><td>线长L≤100</td><td>±0.1</td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td></td><td></td><td></td><td></td><td>±45°</td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td></td><td></td><td></td><td></td><td>>120~400</td><td>±0.5</td><td>—</td><td>0.1</td><td>客户料号</td><td>/</td><td>单 位</td> </tr> <tr> <td></td><td></td><td></td><td></td><td>100<L≤200</td><td>±0.5</td><td></td><td></td><td></td><td></td><td>mm</td> </tr> <tr> <td></td><td></td><td></td><td></td><td>45°</td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td></td><td></td><td></td><td></td><td>>400~1000</td><td>±0.8</td><td>□</td><td>0.1</td><td></td><td></td><td>版本</td> </tr> <tr> <td></td><td></td><td></td><td></td><td>线长L>200</td><td>不管控</td><td></td><td></td><td></td><td></td><td>A</td> </tr> <tr> <td>1</td><td>料号</td><td>品名</td><td>规格描述</td><td>数 量</td><td>备 注</td><td>∠ ±1.0°</td><td>页 阔</td><td>1/1</td><td>④ - □ 第三视角</td><td>比 例</td> </tr> <tr> <td>2</td><td>xxxxxx</td><td>2.4G-2 射频线</td><td>Ø1.37双锡线白色 +一代端子</td><td>1</td><td></td><td></td><td></td><td></td><td></td><td>FIT</td> </tr> <tr> <td>1</td><td>xxxxxx</td><td>2.4G PCB</td><td>FR4 黑色</td><td>1</td><td></td><td></td><td></td><td></td><td></td><td>版本</td> </tr> <tr> <td>1</td><td></td><td></td><td></td><td>3</td><td></td><td></td><td>4</td><td>5</td><td>6</td><td>7</td> </tr> <tr> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>8</td> </tr> </tbody> </table> | | | | | | | | 未注公差表 | | | 项 目 | | WR3600E | | 结 构 | | 霍雄兵 2024-10-10 | | 0.5~6 | ±0.1 | — | 0.1 | 品 名 | 2.4G-2 天线 | 射 频 | 蒋帅 | 2024-10-10 | | | >6~30 | ±0.2 | ○ | 0.1 | 端子方向标准 | | | | | | | | | | | >30~120 | ±0.3 | ◎ | 料 号 | 3.N101.1644 | 审 核 | 梅海金 2024-10-10 | | | | | 线长L≤100 | ±0.1 | | | | | | | | | | ±45° | | | | | | | | | | | >120~400 | ±0.5 | — | 0.1 | 客户料号 | / | 单 位 | | | | | 100<L≤200 | ±0.5 | | | | | mm | | | | | 45° | | | | | | | | | | | >400~1000 | ±0.8 | □ | 0.1 | | | 版本 | | | | | 线长L>200 | 不管控 | | | | | A | 1 | 料号 | 品名 | 规格描述 | 数 量 | 备 注 | ∠ ±1.0° | 页 阔 | 1/1 | ④ - □ 第三视角 | 比 例 | 2 | xxxxxx | 2.4G-2 射频线 | Ø1.37双锡线白色 +一代端子 | 1 | | | | | | FIT | 1 | xxxxxx | 2.4G PCB | FR4 黑色 | 1 | | | | | | 版本 | 1 | | | | 3 | | | 4 | 5 | 6 | 7 | | | | | | | | | | | 8 |
| 未注公差表 | | | 项 目 | | WR3600E | | 结 构 | | 霍雄兵 2024-10-10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.5~6 | ±0.1 | — | 0.1 | 品 名 | 2.4G-2 天线 | 射 频 | 蒋帅 | 2024-10-10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| >6~30 | ±0.2 | ○ | 0.1 | 端子方向标准 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | >30~120 | ±0.3 | ◎ | 料 号 | 3.N101.1644 | 审 核 | 梅海金 2024-10-10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | 线长L≤100 | ±0.1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | ±45° | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | >120~400 | ±0.5 | — | 0.1 | 客户料号 | / | 单 位 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | 100<L≤200 | ±0.5 | | | | | mm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | 45° | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | >400~1000 | ±0.8 | □ | 0.1 | | | 版本 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | 线长L>200 | 不管控 | | | | | A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 料号 | 品名 | 规格描述 | 数 量 | 备 注 | ∠ ±1.0° | 页 阔 | 1/1 | ④ - □ 第三视角 | 比 例 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | xxxxxx | 2.4G-2 射频线 | Ø1.37双锡线白色 +一代端子 | 1 | | | | | | FIT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | xxxxxx | 2.4G PCB | FR4 黑色 | 1 | | | | | | 版本 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | | | | 3 | | | 4 | 5 | 6 | 7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | 8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

测试设备 (Test Equipment & Conditions) :

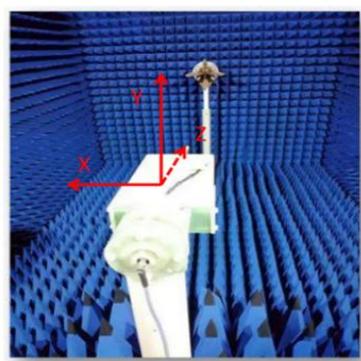
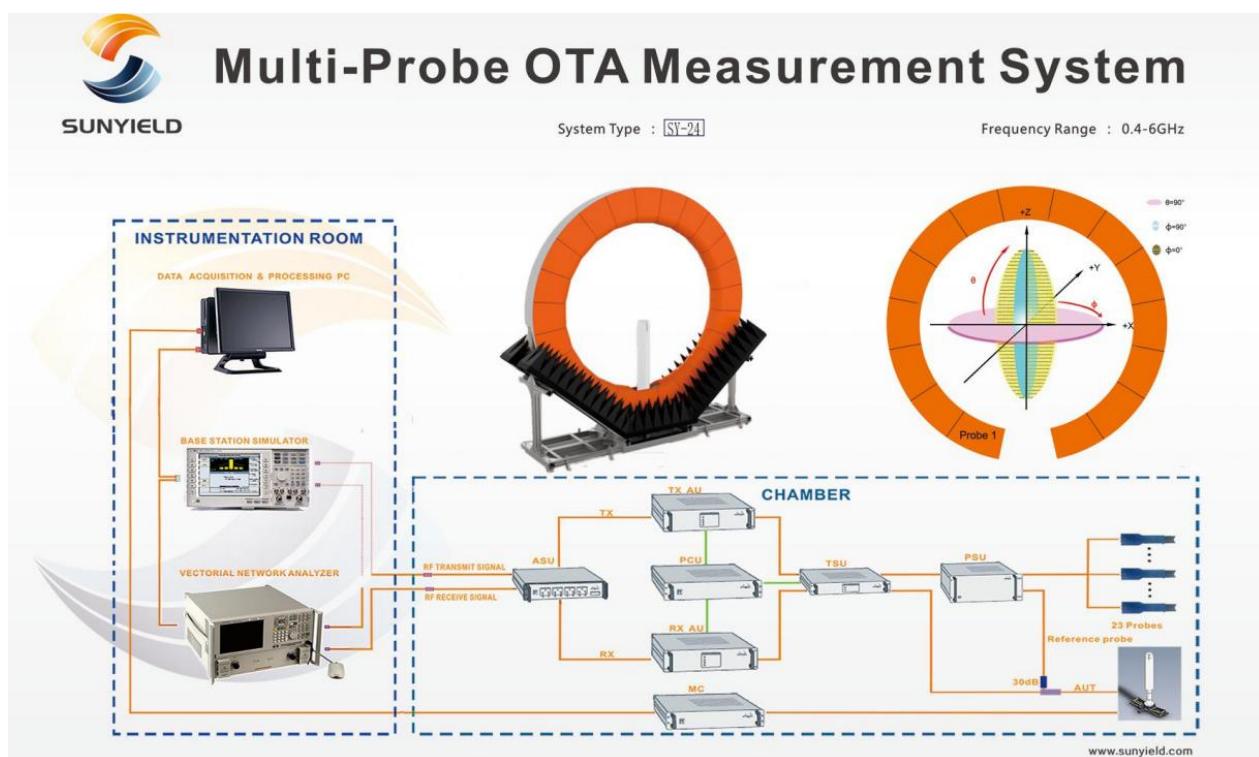
1. 网络分析仪 Network Analyzers:

Keysight E5071C

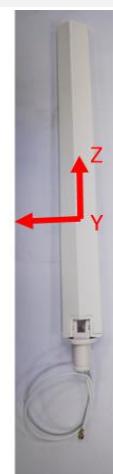
2. 综合测试仪 Comprehensive tester:

CMW500 、 MT8000A、 MT8862A

3. 3D 暗室测试系统 3D Chamber Test System:



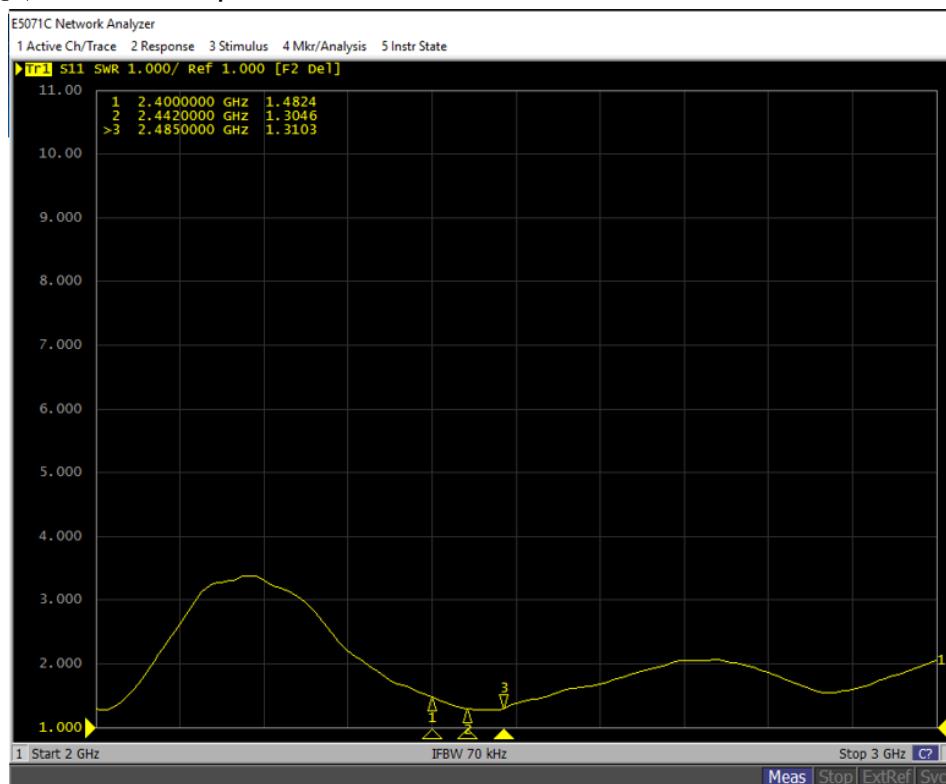
H 面：XOY轴；
E1面：XOZ轴；
E2面：YOZ轴；





深圳市南斗星科技有限公司
SHENZHEN SOUTH STAR TECHNOLOGY CO.,LTD

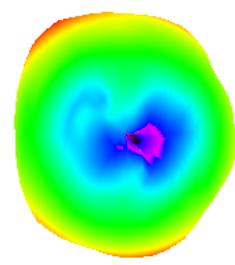
天线阻抗(Antenna Impedance) : S11



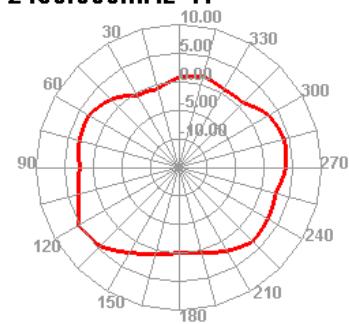
效率&增益(Efficiency & Gain) :

| Freq (MHz) | Effi (%) | Gain (dBi) |
|---------------|-------------|---------------|
| 2400 | 70.58 | 4.24 |
| 2410 | 67.22 | 4.16 |
| 2420 | 67.71 | 4.33 |
| 2430 | 72.56 | 4.69 |
| 2440 | 73.16 | 4.8 |
| 2450 | 77.54 | 5.16 |
| 2460 | 79.78 | 5.36 |
| 2470 | 73.48 | 5.61 |
| 2480 | 73.64 | 5.61 |
| 2490 | 71.7 | 5.42 |
| 2500 | 75.74 | 5.66 |

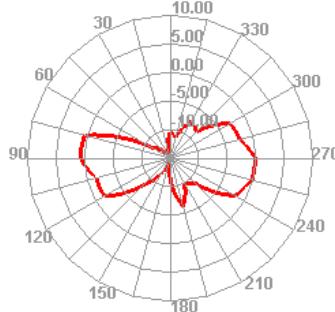
2450.000MHz



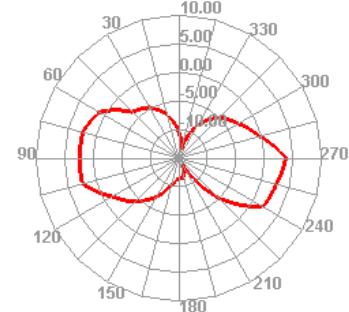
2450.000MHz H



2450.000MHz E1



2450.000MHz E2

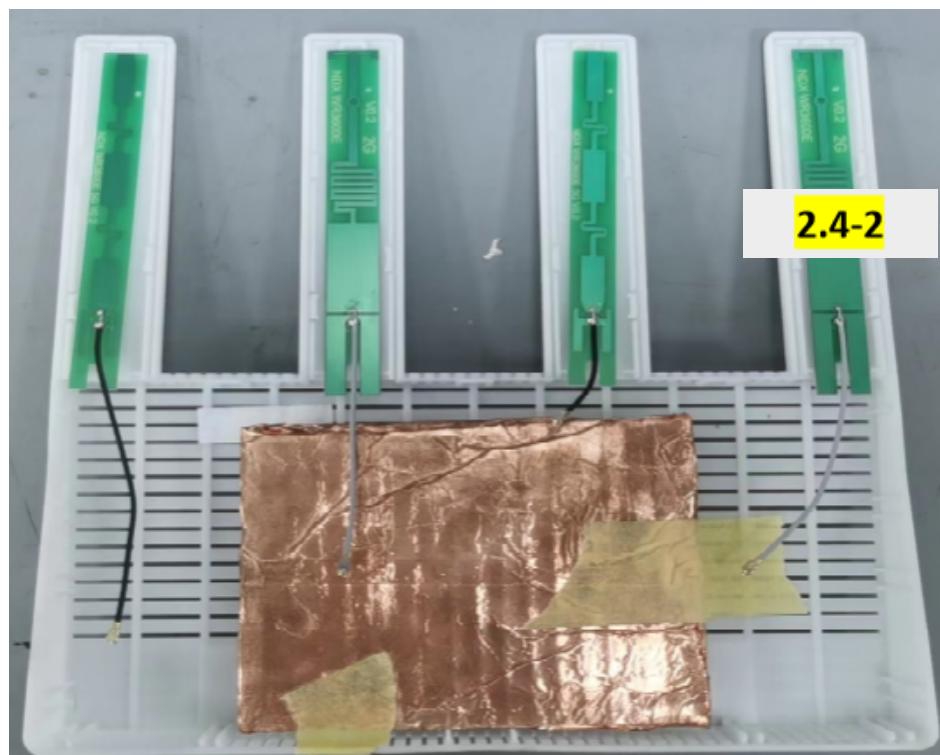




深圳市南斗星科技有限公司

SHENZHEN SOUTH STAR TECHNOLOGY CO.,LTD

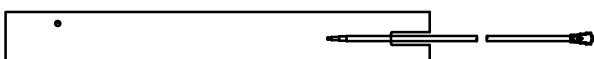
天线装配图片 (Antenna assembly picture) :



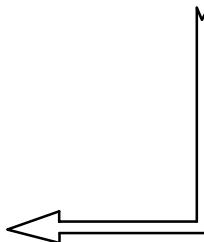
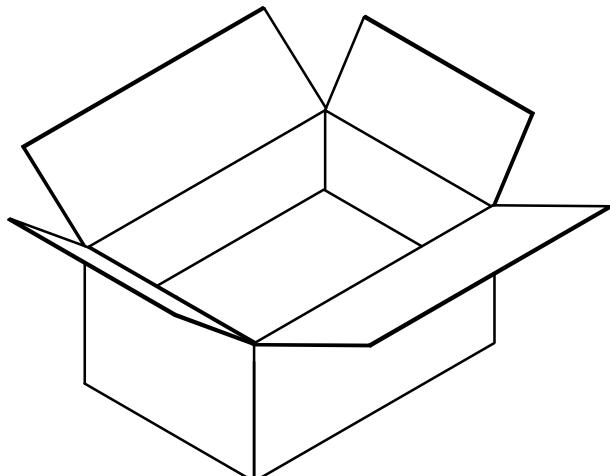
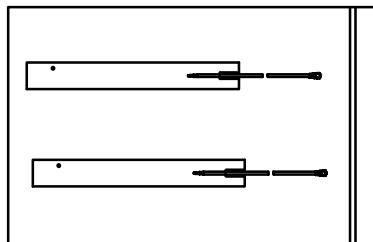


| | |
|-------------------|--------|
| 成品名称 : WR3600E 天线 | 版本: A |
| | 客户: 多酷 |

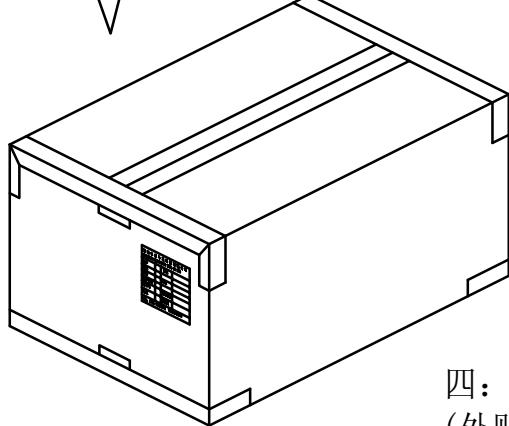
一：成品天线



二：装袋，每PE袋装100PCS产品。



三：装箱(以实际包装为准)。

四：封箱，外箱贴我司生产标签
(外贴RoHS、无铅等标识)。