



# 承认书

## APPROVAL SHEET

|                             |             |
|-----------------------------|-------------|
| 客户 (Customer)               | 信雅达         |
| 客户型号 (Customer Model)       | S60         |
| 产品 (Product)                | WBG 天线 内置天线 |
| 客户料号 (Customer Part Number) | S2JD01026X1 |
| 柎飞料号 (Nuphiz Part Number)   | F1-000660   |
| 签发时间 (Issued Date)          | 2024-11-04  |

### 客户 CUSTOMER

|                     |                          |                |
|---------------------|--------------------------|----------------|
| 品质部<br>QUALITY DEPT | 工程部<br>ENGINEER R&D DEPT | 批准<br>APPROVED |
|                     |                          |                |

### 柎飞 Nuphiz

|                   |                          |                |
|-------------------|--------------------------|----------------|
| 制作人<br>WRITTEN BY | 工程部<br>ENGINEER R&D DEPT | 批准<br>APPROVED |
| 陈莎莉               | 谭智杨                      | 叶晓宇            |



# 目 录

## Index

|                                                 |     |
|-------------------------------------------------|-----|
| 一、 封面 (Cover) . . . . .                         | 1   |
| 二、 目录 (Index) . . . . .                         | 2   |
| 三、 天线基本参数 (Antenna basic parameters) . . . . .  | 3   |
| 四、 测试设备 (Test Equipment & Conditions) . . . . . | 4-5 |
| 五、 测试数据 (Test Data) . . . . .                   | 6-8 |
| 六、 天线装配图 Antenna assembly drawing . . . . .     | 9   |
| 七、 工程图纸 (Product Drawing) . . . . .             | 10  |
| 八、 包装方式 (Manner of packing) . . . . .           | 11  |

## 规格表

## RF Cable Assembly Specification

| 主要技术指标            |           | Main technical specification |           |
|-------------------|-----------|------------------------------|-----------|
| 频率范围 (MHz)        | 1575-5825 | Frequency Range (MHz)        | 1575-5825 |
| 特性阻抗 ( $\Omega$ ) | 50        | Impedance                    | 50        |
| 效率                | >23%      | Efficiency                   | >23%      |
| 增益                | 2.49dBi   | Gain                         | 2.49dBi   |
| 物理特性              |           | Physical Properties          |           |
| 线材/颜色             | ----      | Cable Type                   | ----      |
| 连接头               | ----      | Connector                    | ----      |
| 保存温度              | -20℃~+70℃ | Storage Temp                 | -20℃~+70℃ |
| 工作温度              | -20℃~+60℃ | Operating Temp               | -20℃~+60℃ |

## 测试设备和条件

### Test Equipment & Conditions

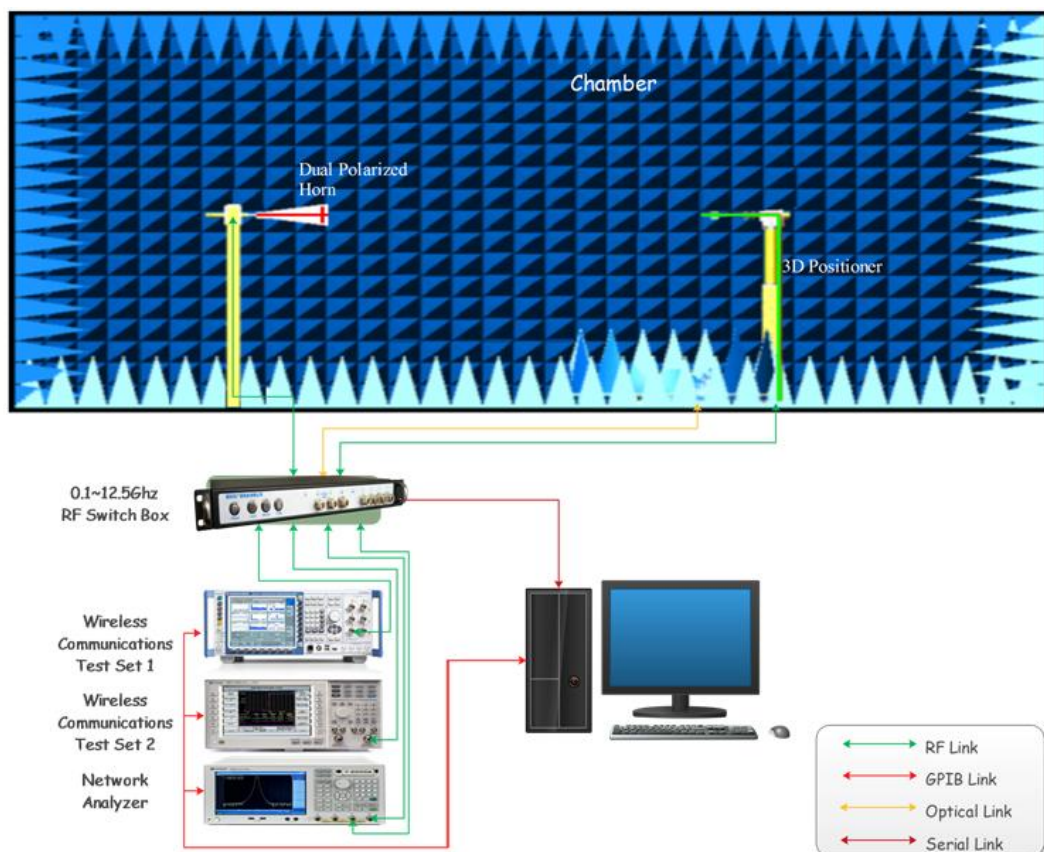
#### 1. Network Analyzers :

Agilent 5071C

#### 2. Communications Test Set:

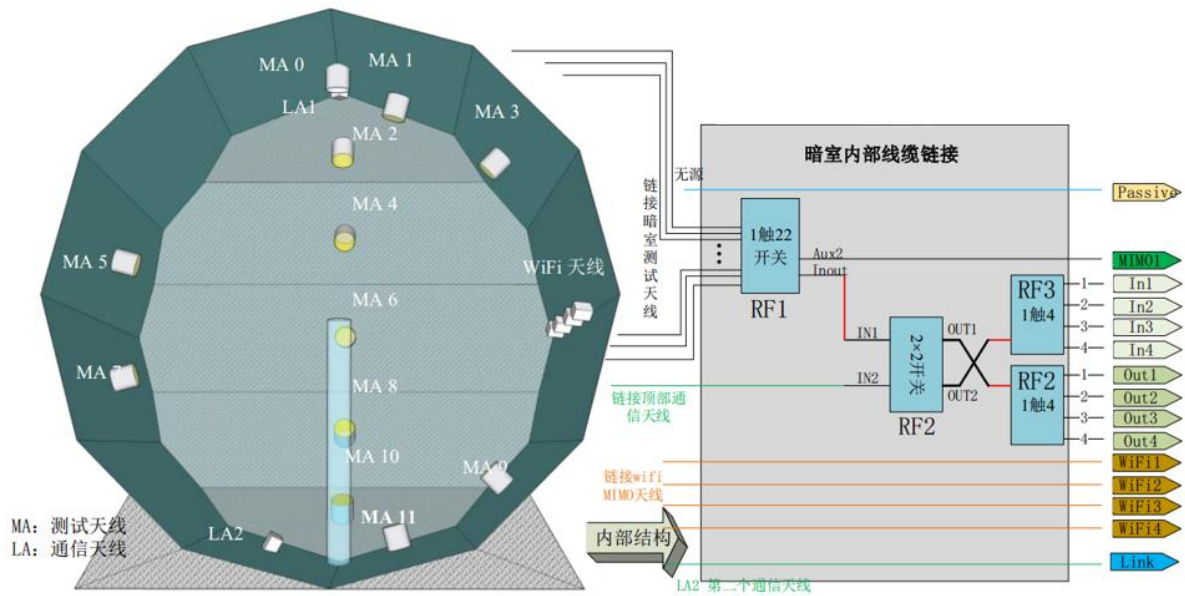
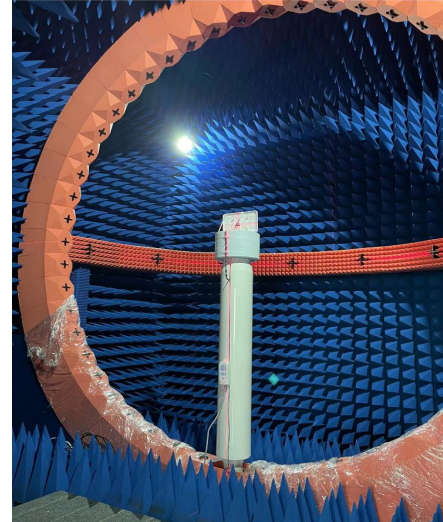
Rohde & Schwarz CWM500

#### 3. 3D Chamber Test System



## 微波测量暗室

### Test the darkroom



## 无源测试 Passive testing

整机 S11 测试:



## 效益&增益

### Efficiency&Gain

| Frequenc<br>y/Mhz | Efficiency<br>/ % | MaxGain/<br>dBi |
|-------------------|-------------------|-----------------|
| 2410              | 32.14             | 0.43            |
| 2420              | 32.14             | 0.69            |
| 2430              | 29.58             | 0.6             |
| 2440              | 31.41             | 0.88            |
| 2450              | 30.83             | 0.81            |
| 2460              | 32.28             | 1.14            |
| 2470              | 34.51             | 1.54            |
| 2480              | 33.73             | 1.48            |

| Frequenc<br>y/Mhz | Efficienc<br>y / % | MaxGain/<br>dBi |
|-------------------|--------------------|-----------------|
| 5180              | 27.29              | 1.75            |
| 5190              | 24.83              | 1.29            |
| 5200              | 25.41              | 1.4             |
| 5210              | 25                 | 1.56            |
| 5220              | 28.05              | 2.29            |
| 5230              | 24.72              | 1.84            |
| 5240              | 24.89              | 1.7             |
| 5250              | 22.59              | 1.07            |
| 5260              | 25.7               | 1.77            |
| 5270              | 26.06              | 1.84            |
| 5280              | 26.98              | 1.93            |
| 5290              | 24.89              | 1.39            |
| 5300              | 25.82              | 1.43            |
| 5310              | 27.67              | 2               |
| 5320              | 27.8               | 2.07            |
| 5330              | 29.44              | 2.37            |
| 5340              | 29.79              | 2.49            |
| 5350              | 27.23              | 2               |
| 5360              | 28.05              | 2.07            |
| 5370              | 25.88              | 1.74            |
| 5380              | 28.91              | 2.16            |
| 5390              | 27.8               | 1.86            |
| 5400              | 25.94              | 1.28            |
| 5410              | 23.93              | 0.93            |

| Frequenc<br>y/Mhz | Efficienc<br>y / % | MaxGain/<br>dBi |
|-------------------|--------------------|-----------------|
| 5420              | 22.96              | 0.95            |
| 5430              | 25.06              | 1.48            |
| 5440              | 27.86              | 2.03            |
| 5450              | 25.41              | 1.57            |
| 5460              | 26.18              | 1.58            |
| 5470              | 27.16              | 1.65            |
| 5480              | 27.42              | 1.65            |
| 5490              | 28.64              | 1.7             |
| 5500              | 27.29              | 1.42            |
| 5510              | 31.19              | 1.89            |
| 5520              | 30.06              | 1.74            |
| 5530              | 29.72              | 1.93            |
| 5540              | 26.92              | 1.49            |
| 5550              | 26.67              | 1.55            |
| 5560              | 27.29              | 1.7             |
| 5570              | 25.35              | 1.07            |
| 5580              | 24.15              | 0.67            |
| 5590              | 25.53              | 1.04            |
| 5600              | 27.29              | 1.29            |
| 5610              | 25.76              | 0.89            |
| 5620              | 25.94              | 0.67            |
| 5630              | 27.23              | 0.93            |
| 5640              | 29.24              | 1.35            |
| 5650              | 32.73              | 1.84            |

| Frequenc<br>y/Mhz | Efficienc<br>y / % | MaxGain/<br>dBi |
|-------------------|--------------------|-----------------|
| 5660              | 33.5               | 2.1             |
| 5670              | 29.44              | 1.39            |
| 5680              | 33.73              | 1.82            |
| 5690              | 33.11              | 1.64            |
| 5700              | 36.48              | 1.87            |
| 5710              | 31.92              | 1.14            |
| 5720              | 29.65              | 0.79            |
| 5730              | 31.41              | 0.8             |
| 5740              | 29.72              | 0.58            |
| 5750              | 31.26              | 0.91            |
| 5760              | 31.55              | 0.95            |
| 5770              | 31.7               | 0.92            |
| 5780              | 32.21              | 0.76            |
| 5790              | 30.34              | 0.41            |
| 5800              | 32.51              | 0.78            |
| 5810              | 32.96              | 0.63            |
| 5820              | 37.5               | 1.03            |
| 5830              | 36.73              | 0.81            |

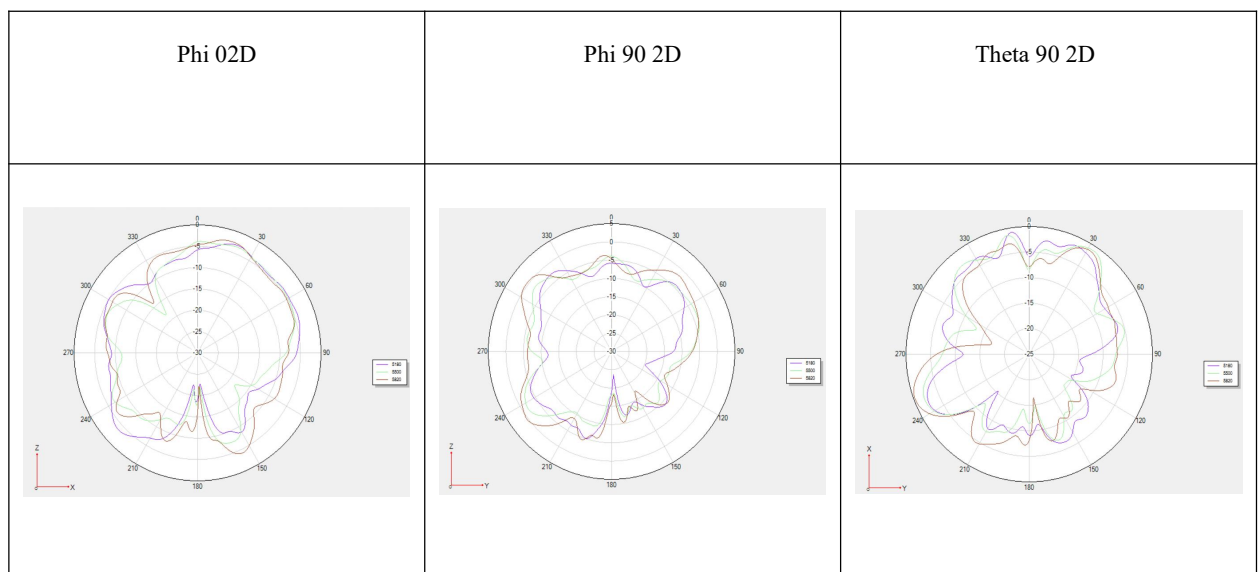
## 有源 OTA 测试数据 Active OTA test data

| Band             | Measurement | Channel | Frequency | Total  |
|------------------|-------------|---------|-----------|--------|
| WIFI_B (11M)     | TRP         | 1       | 2412      | 12.15  |
| WIFI_B (11M)     | TRP         | 7       | 2442      | 11.62  |
| WIFI_B (11M)     | TRP         | 13      | 2472      | 11.9   |
| WIFI_B (11M)     | TIS         | 1       | 2412      | -82.46 |
| WIFI_B (11M)     | TIS         | 7       | 2442      | -83.13 |
| WIFI_B (11M)     | TIS         | 13      | 2472      | -83.28 |
| WIFI_G (54M)     | TRP         | 1       | 2412      | 9.82   |
| WIFI_G (54M)     | TRP         | 7       | 2442      | 9.54   |
| WIFI_G (54M)     | TRP         | 13      | 2472      | 9.55   |
| WIFI_G (54M)     | TIS         | 1       | 2412      | -69.47 |
| WIFI_G (54M)     | TIS         | 7       | 2442      | -69.91 |
| WIFI_G (54M)     | TIS         | 13      | 2472      | -69.88 |
| WIFI_N_ISM (65M) | TRP         | 1       | 2412      | 9.97   |
| WIFI_N_ISM (65M) | TRP         | 7       | 2442      | 9.72   |
| WIFI_N_ISM (65M) | TRP         | 13      | 2472      | 9.84   |
| WIFI_N_ISM (65M) | TIS         | 1       | 2412      | -66.23 |

| Band             | Measurement | Channel | Frequency | Total  |
|------------------|-------------|---------|-----------|--------|
| WIFI_N_ISM (65M) | TIS         | 7       | 2442      | -66.68 |
| WIFI_A (54M)     | TRP         | 36      | 5180      | 8.69   |
| WIFI_A (54M)     | TRP         | 149     | 5745      | 9.42   |
| WIFI_A (54M)     | TRP         | 165     | 5825      | 9.31   |
| WIFI_A (54M)     | TIS         | 36      | 5180      | -69.28 |
| WIFI_A (54M)     | TIS         | 149     | 5745      | -69.98 |
| WIFI_A (54M)     | TIS         | 165     | 5825      | -69.12 |

## 方向图

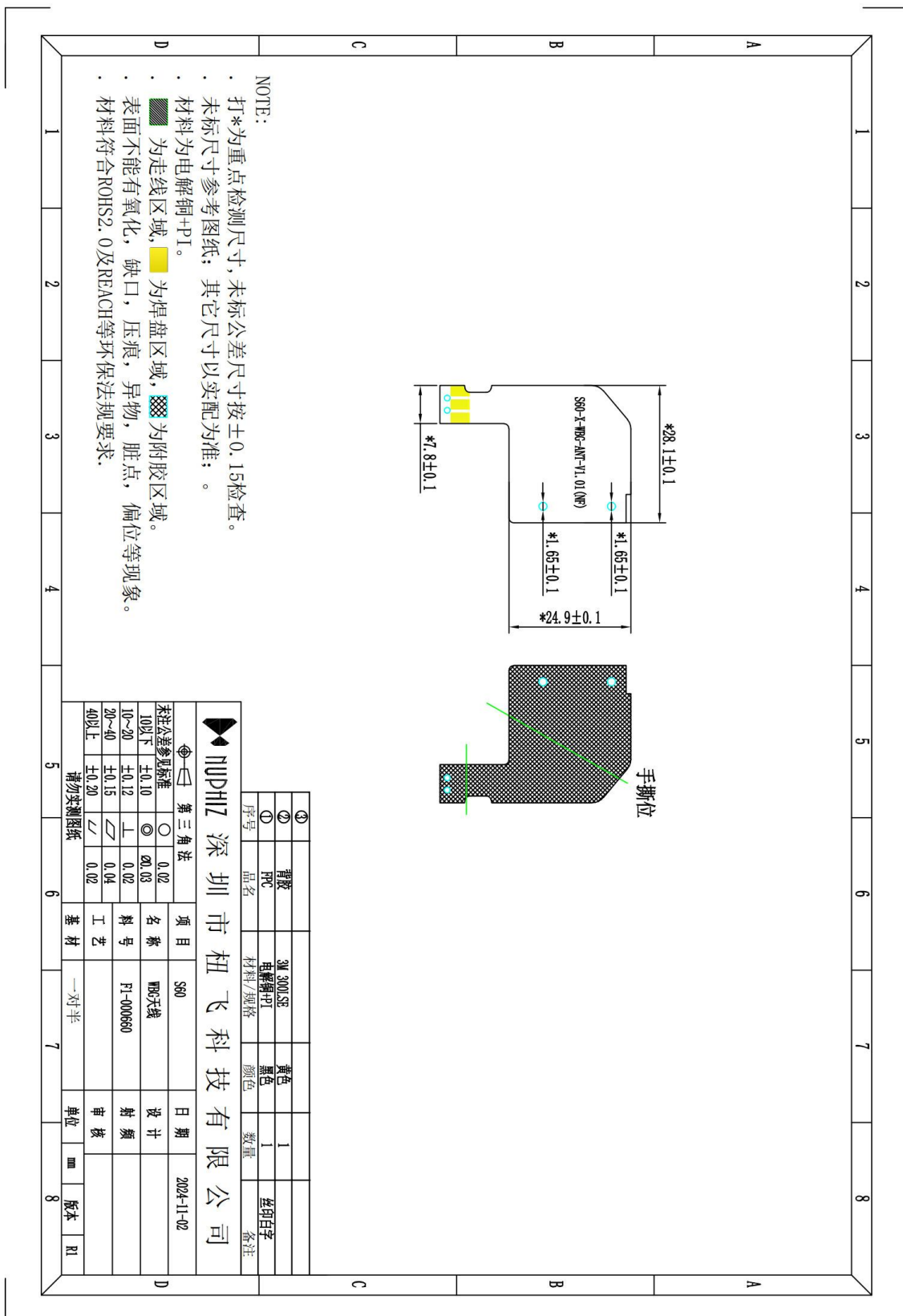
## Directional map



## 天线装配图

### Antenna assembly drawing

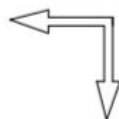




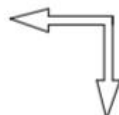


## 产品包装

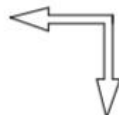
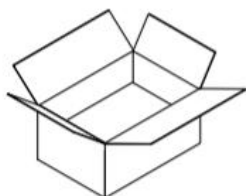
一：天线产品 (Antenna products)



二：用PE封口袋, 数量以 (50 100PCS) 整数装, 具体实际为准 (Put them in PE bags, quantity is packed in (50 100pcs) , Subject to the actual situation)



三：将装好的天线放入纸箱中 (以实际数量为准) (Put the antenna in the carton)



四：封箱, 外箱贴我司生产标签和ROHS标签 (最终以实际情况为准) (Seal the box and paste the production label and RoHS label on the outer box ( actual situation shall prevail))

