

深圳市嘉创信科技有限公司  
Shenzhen Jiachuangxin Technology Co., Ltd

# 承 认 书

## APPROVAL SHEET

客 户 名 称                      深圳市道通科技股份有限公司  
CUSTOMER NAME:              Autel Intelligent Technology Corp., Ltd.

---

产 品 名 称  
PRODUCT      NAME:              板载天线      Onbord Antenna

---

客 户 料 号  
CUSTOMER      P/N:                      SK2311

---

---

供方地址：深圳市宝安区金海路金海商务大厦2栋515  
**Supplier address:** Room 515, Building 2, Jinhai Business  
Building, Jinhai Road, Baoan District, Shenzhen  
联系电话/TEL: 0755-82547820

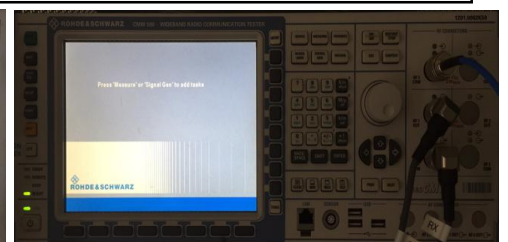
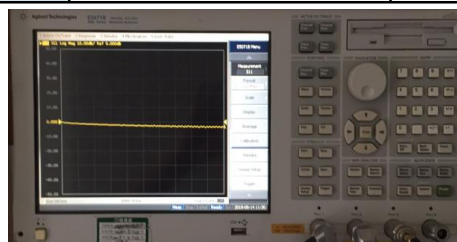
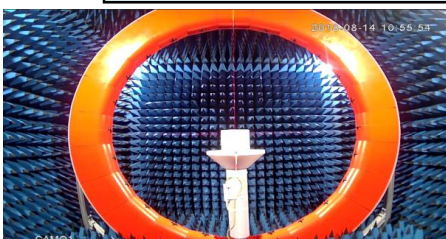
深圳市嘉创信科技有限公司  
Shenzhen Jiachuangxin Technology Co.,Ltd

## Content

| <i>Item</i> | <i>Description</i>       |
|-------------|--------------------------|
| 1.-----     | Test Items and Equipment |
| 2.-----     | S Parameter              |
| 3.-----     | Efficiency and Gain      |
| 4.-----     | Radiation Pattern        |
| 5.-----     | Antenna size chart       |

### 1.Test Items and Equipment

|                                            | Test items                                   | Test equipment                                                                       |
|--------------------------------------------|----------------------------------------------|--------------------------------------------------------------------------------------|
| S Parameter                                | 1.Return Loss<br>2.VSWR                      | Network analyzer<br>(Agilent E5071B)                                                 |
| The whole machine of<br>Passive parameters | 1.Frequency<br>2.Gain<br>3.Radiation Pattern | 1.3D microwave darkroom<br>(5m*5m*5m)<br>2.Network analyzer<br>(Agilent E5071B)      |
| The whole machine of<br>Active parameters  | 1.TRP<br>2.TIS                               | 1.3D microwave darkroom<br>(5m*5m*5m)<br>2.Comprehensive test instrument<br>(CMW500) |

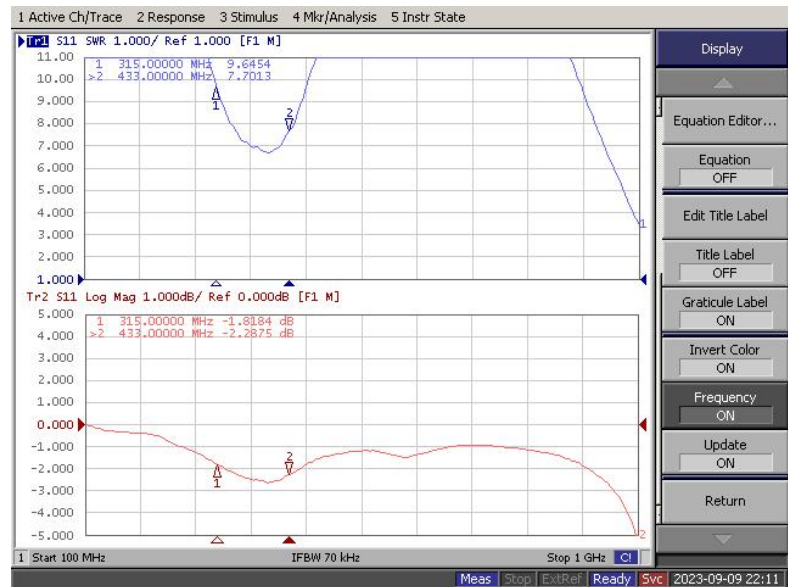


# 深圳市嘉创信科技有限公司

## Shenzhen Jiachuangxin Technology Co., Ltd

### 2. S Parameter

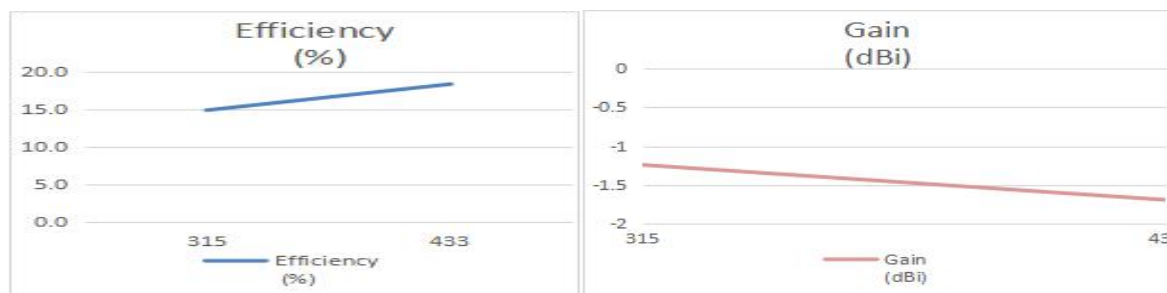
| Frequency (MHz) | Return Loss (dB) | VSWR |
|-----------------|------------------|------|
| 315             | -1.81            | 9.64 |
| 433             | -2.28            | 7.7  |



\* Voltage Standing Wave Ratio(VSWR)  
Return Loss(RL)  
 $RL=20*\log_{10}[(VSWR+1)/(VSWR-1)]$

### 3. Efficiency and Gain

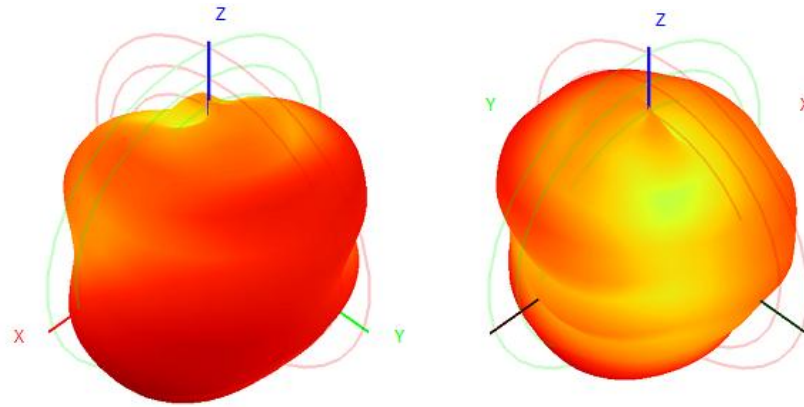
| Frequency (MHz) | 315   | 433   |
|-----------------|-------|-------|
| Efficiency (%)  | 14.86 | 18.31 |
| Gain (dBi)      | -1.24 | -1.69 |



深圳市嘉创信科技有限公司  
Shenzhen Jiachuangxin Technology Co., Ltd

#### 4. Radiation Pattern

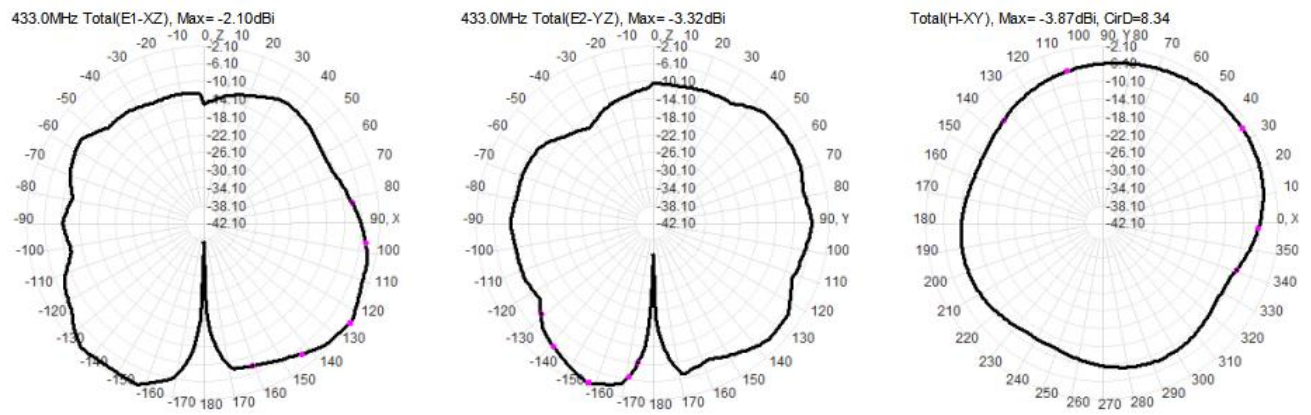
5-1 Antenna 3D Radiation Pattern



433MHz

433MHz

5-2 Antenna 2D Radiation Pattern

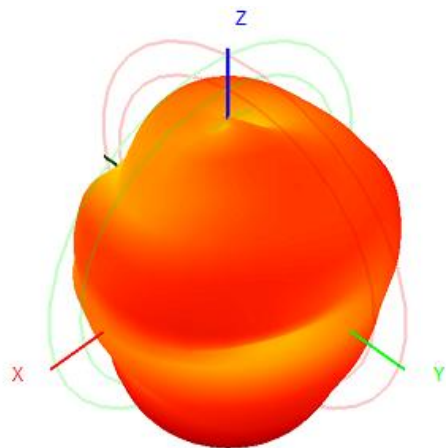


433MHz

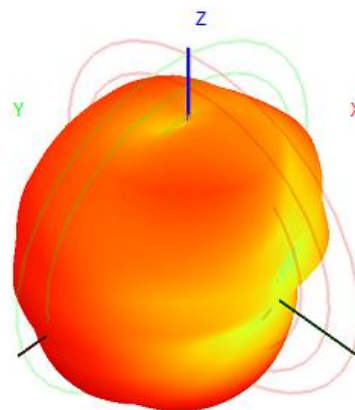
深圳市嘉创信科技有限公司

Shenzhen Jiachuangxin Technology Co., Ltd

## Antenna 3D Radiation Pattern

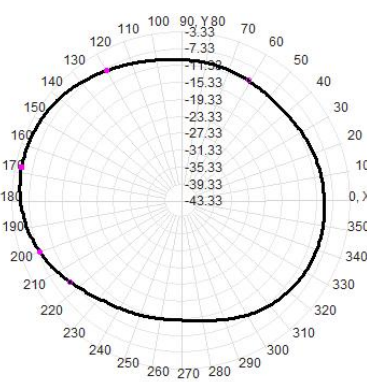
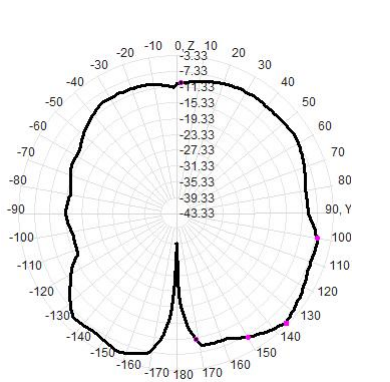
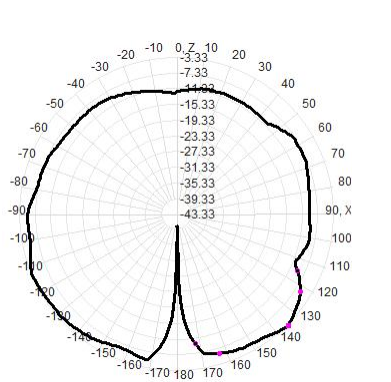


315MHz



315MHz

## Antenna 2D Radiation Pattern



315MHz

深圳市嘉创信科技有限公司  
Shenzhen Jiachuangxin Technology Co.,Ltd

5. Antenna size chart

