

# Antenna Specification Document

Project name: HXW211.R112

Material model:

Material code: 3010400134

Authorized strength:

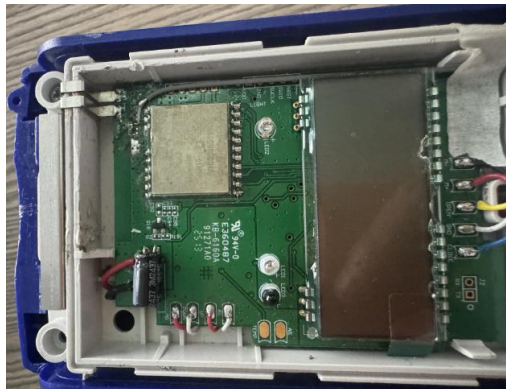
Audit:

Ratify:

Change Record Sheet

Change of version	Change time	Reasons for change	Main changes	Changer

- 1、 Main technical parameters of the antenna
  1. Antenna product pictures



2. Main components and specifications

Product name	Hardware
Type	A
Weld	N/A
Connector coating	N/A
Feeder line	N/A
Foam	N/A
Special marking of the base	N/A
Radiation array	Hardware
Cladding material	Nickeling

3. Characteristic parameter

Frequency range	902/928MHz
Input impedance	$50 \pm 10$
VSWR	$\leq 2.5$
Gain	5.76
Radiation direction	Omnidirectivity
Maximum power	N/A
Antennapowercapacity	N/A
Polarization mode	Linear polarization
Coatingcolor	Silver
Antennahousingcolor	N/A
Antennamaterial	Stainless steel 304
Antennaheight	$10.9 \pm 0.5\text{mm}$
Feed line length	N/A
Operating temperature	$-45^{\circ}\text{C} - +85^{\circ}\text{C}$
Storage period	N/A
Storage temperature	$-45^{\circ}\text{C} - +85^{\circ}\text{C}$
Environmental requirement	ROHS
Salt spray requirements	24H

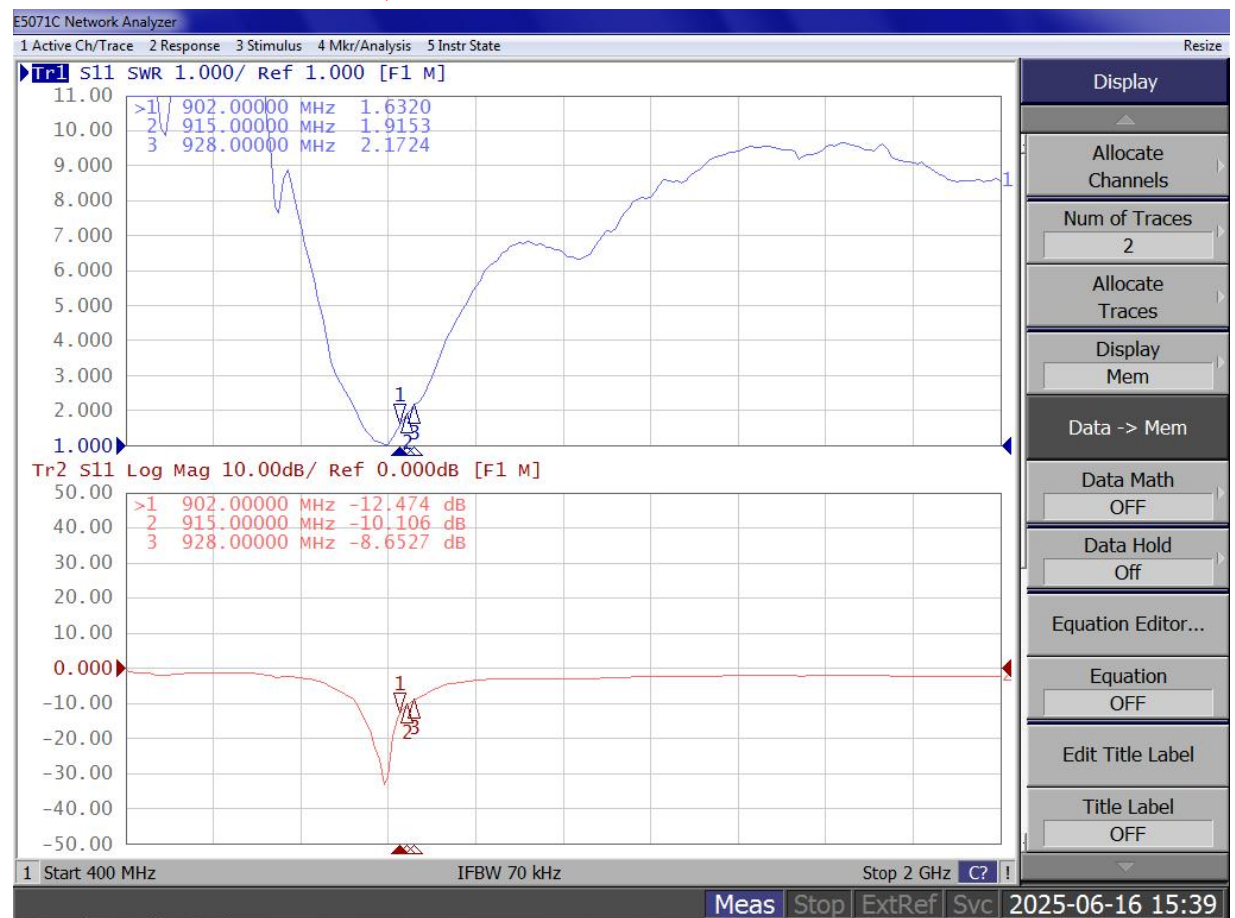
## 2、Item information

1. Debug the motherboard version
2. Debug the machine version
3. Physical assembly drawing of the antenna as a whole



4. Antenna version
5. Mass production antenna indicators

- 3、 Test fixture
  1. Test instrument  
E5071C
  2. Test status: Whole machine test
- 4、 Antenna loading coil
  1. Motherboard matching circuit:  
N/A
  2. Grounding treatment of the entire machine  
N/A
- 4、 Test data
  1. S11 Test (Return loss, SWR)



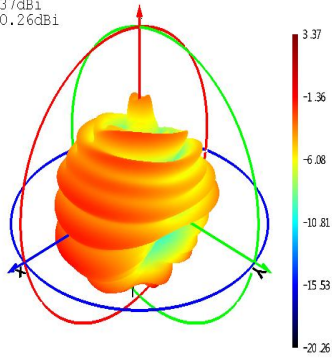
## 2. Passive efficiency and gain test report

Frequency (MHz)	Efficiency (%)	Gain (dBi)
902	39.11	3.37
903	38.71	3.49
904	38.85	3.66
905	39.11	3.84
906	39.98	4.02
907	40.20	4.21
908	39.72	4.32
909	38.66	4.36
910	37.69	4.42
911	36.49	4.47
912	36.06	4.60
913	36.46	4.82
914	37.54	5.10
915	38.75	5.36
916	40.11	5.44
917	40.22	5.55
918	39.66	5.58
919	38.79	5.57
920	37.81	5.55
921	37.33	5.52
922	37.32	5.53
923	37.98	5.62
924	38.96	5.72
925	39.65	5.76
926	40.53	5.55
927	40.43	5.47
928	39.81	5.32

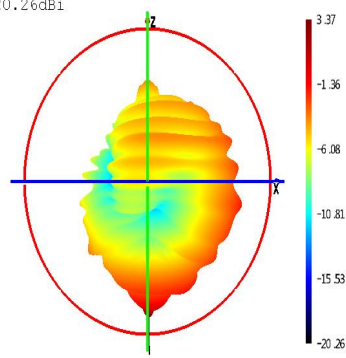
### 3. Darkroom 2D, 3D Radiation Pattern

902MHz

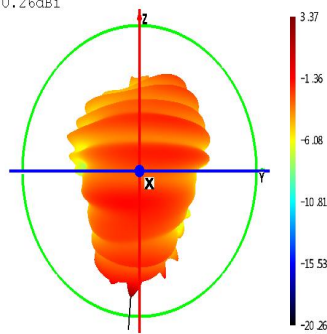
MAX: 3.37dBi  
MIN: -20.26dBi



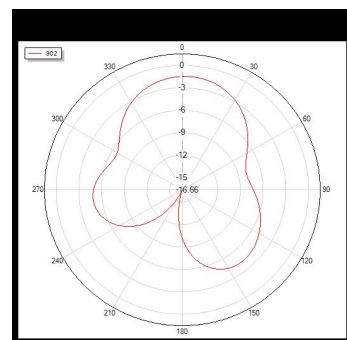
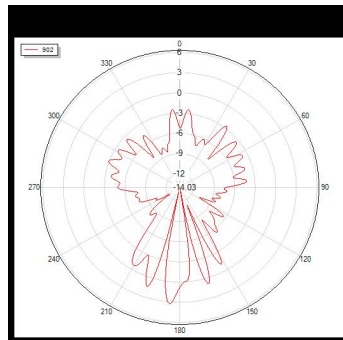
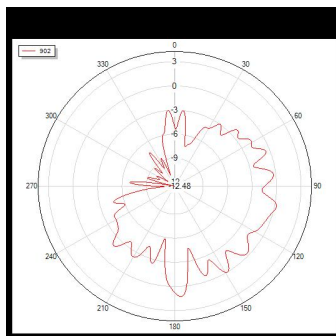
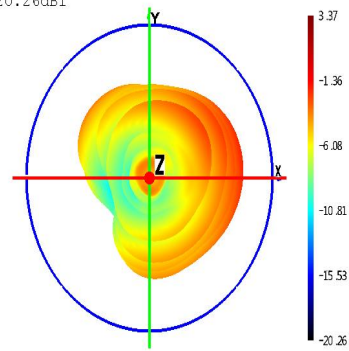
MAX: 3.37dBi  
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MIN: -20.26dBi

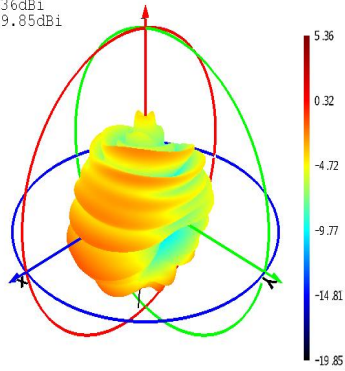


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MIN: -20.26dBi

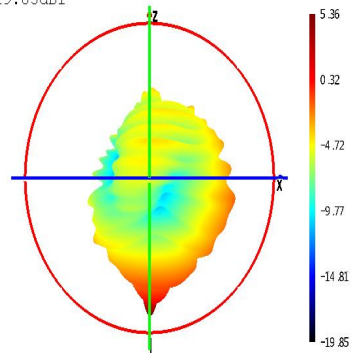


# 915MHz

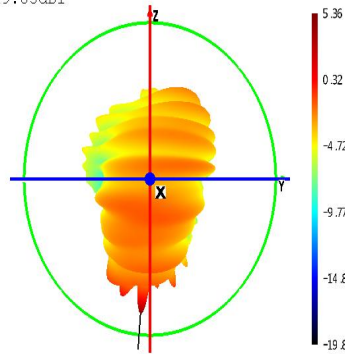
MAX:5.36dBi  
MIN:-19.85dBi



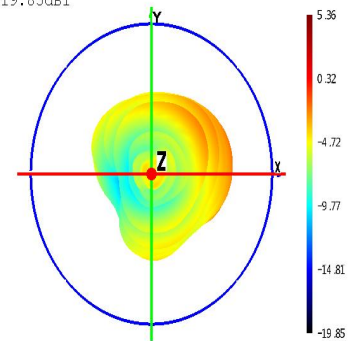
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MIN:-19.85dBi



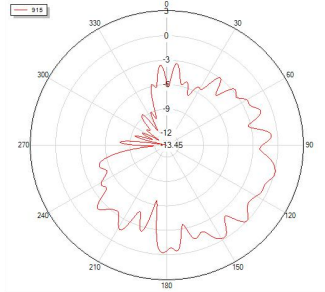
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MIN:-19.85dBi



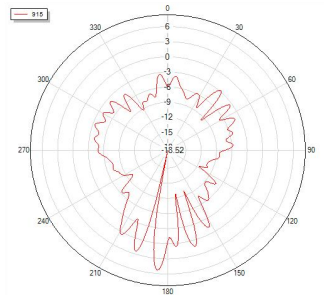
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MIN:-19.85dBi



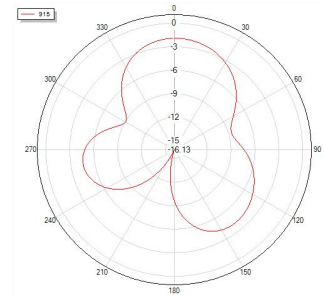
Phi=0 freq=915MHz



Phi=90 freq=915MHz



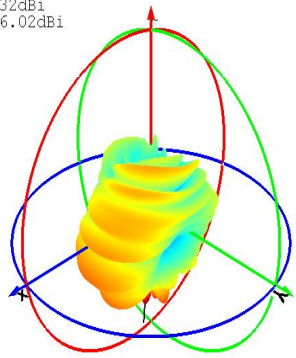
Theta=90 freq=915MHz



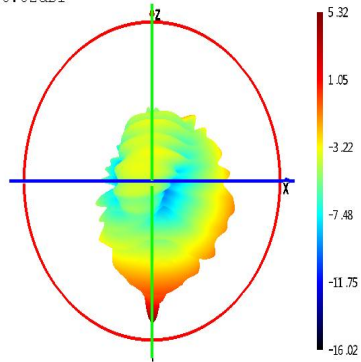


# 928MHz

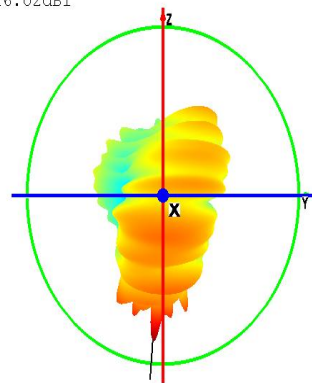
MAX: 5.32dBi  
MIN: -16.02dBi



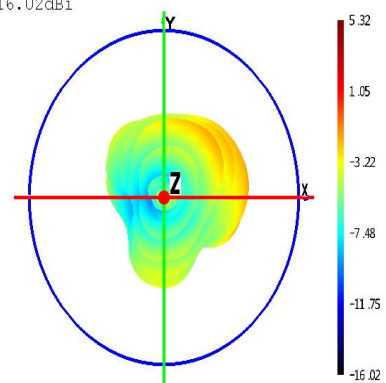
MAX: 5.32dBi  
MIN: -16.02dBi



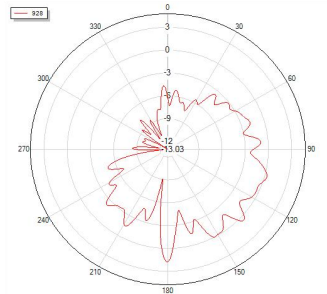
MAX: 5.32dBi  
MIN: -16.02dBi



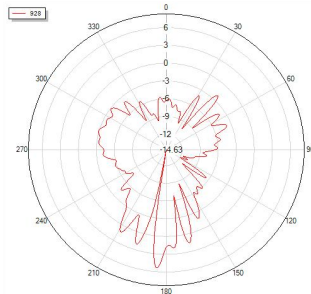
MAX: 5.32dBi  
MIN: -16.02dBi



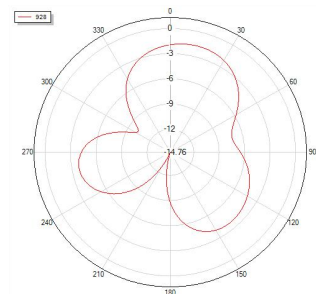
Phi=0 freq=928MHz



Phi=90 freq=928MHz

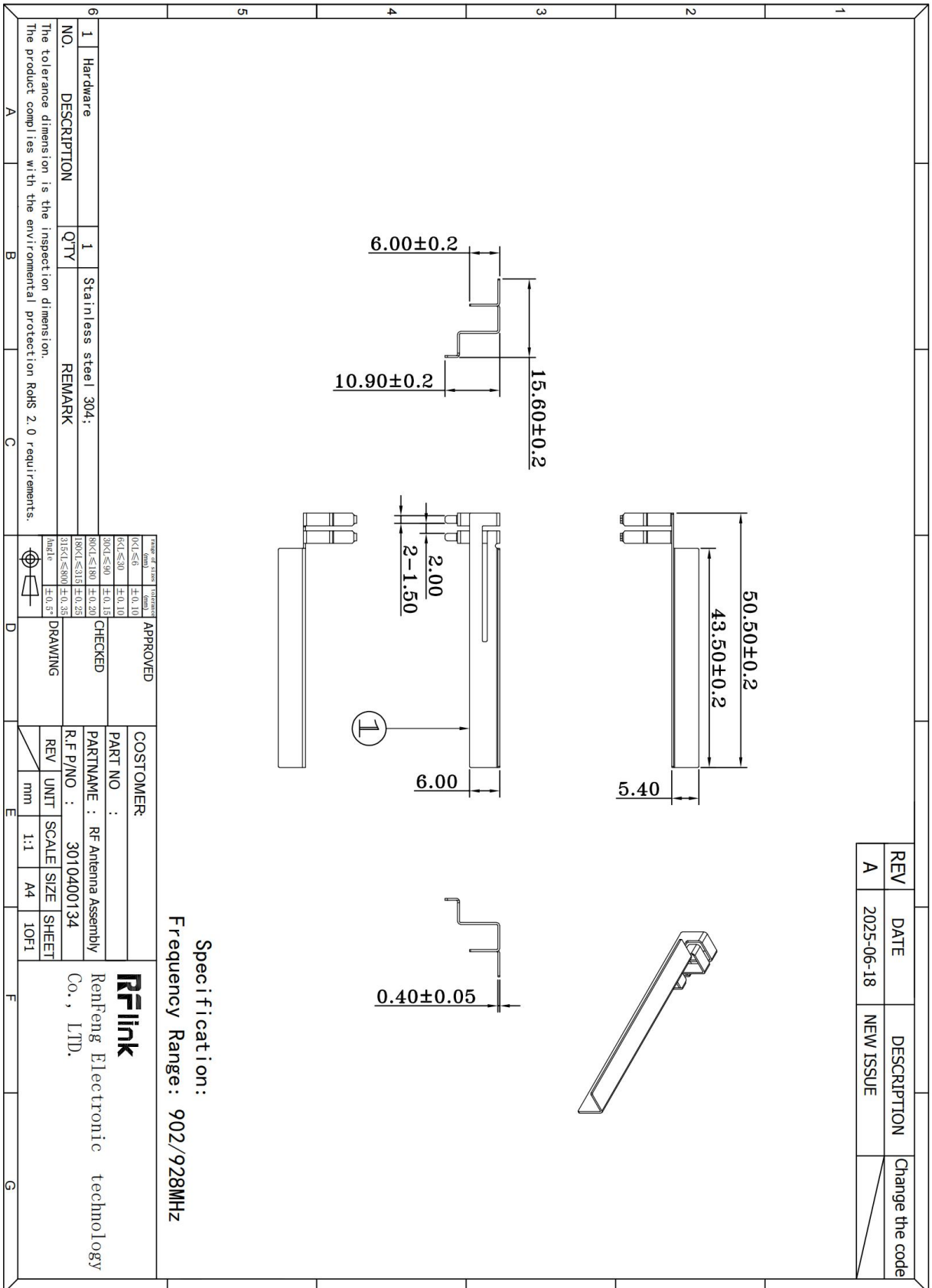


Theta=90 freq=928MHz



# 6、Antenna engineering drawing

Tolerance requirement: The dimension drawings of the antenna body and related accessories need to include tolerances.



7、 Way to install

1. Weld

8、 Antenna and accessories list

Antenna body	Category	Hardware antenna				
	Amount	1				
Install fittings	Category	/				
	Amount	/				

9、 Reliability test report

1. Salt spray test (24H)
2. Environmental reliability (N/A)
3. Vibration measurement (N/A)
4. Strain relief test (N/A)
5. Waterproof test (N/A)
6. Wind resistance grade (N/A)
7. High-temperature and high-humidity aging test: In the conventional market, it is conducted at 85℃, 85%RH, and 1000 ℃. Special markets are tested at 85℃, 95%, RH1000 hours. If the requirements are not met, the specific classification should be noted in the specification sheet.

10、 Pack

Packaging method: Loose tray/tray/bag packaging

Minimum packaging requirement: 10 pieces

When the installation method is infrastructure assembly and pole mounting, whether there are accessories indicates the packaging mode of the antenna and accessories (whether the accessories are packaged separately or need to be assembled together with the antenna body).

Mode of despatch: It is necessary to clearly define the packaging and shipping methods for the antenna body and its accessories

Else:

1. The packaging should meet environmental protection requirements and must not contain acidic, alkaline or other corrosive substances that affect product quality.
2. The product packaging should be placed in plastic bags or packaging boxes. The inner packaging plastic bags or packaging boxes must be made of anti-static materials. The inner packaging plastic bags or packaging boxes need to be labeled, and the label content should comply with the requirements of HAL XING incoming material labels.
3. The inner packaging plastic bags or packaging boxes should be placed in outer packaging boxes during transportation. The outer packaging boxes need to be labeled, and the label content should comply with the requirements of HAL XING incoming material labels.
4. For each batch of materials, the supplier must provide a "Factory Inspection Report", which should be detailed and true.

11、 Keep in storage

It should be stored in a warehouse with good ventilation, an indoor temperature ranging from -45℃ to +85℃, a relative humidity below 80%, no direct sunlight, and no acidic, alkaline or other corrosive gases around.

12、 Other requirements

For individual projects, any special requirements that need to be declared, such as waterproofing grades, UV resistance for 1000 hours, resistance to seawater corrosion, exposure time to light, etc., should be clearly stated in this section along with the corresponding test data or reports. For on-site installed equipment or special antennas of assembly parts, the specifications must be clearly specified in the specification book.