

NANEA66X46DJG1R575G1F

GNSS Active External Antenna, GPS L1



Description

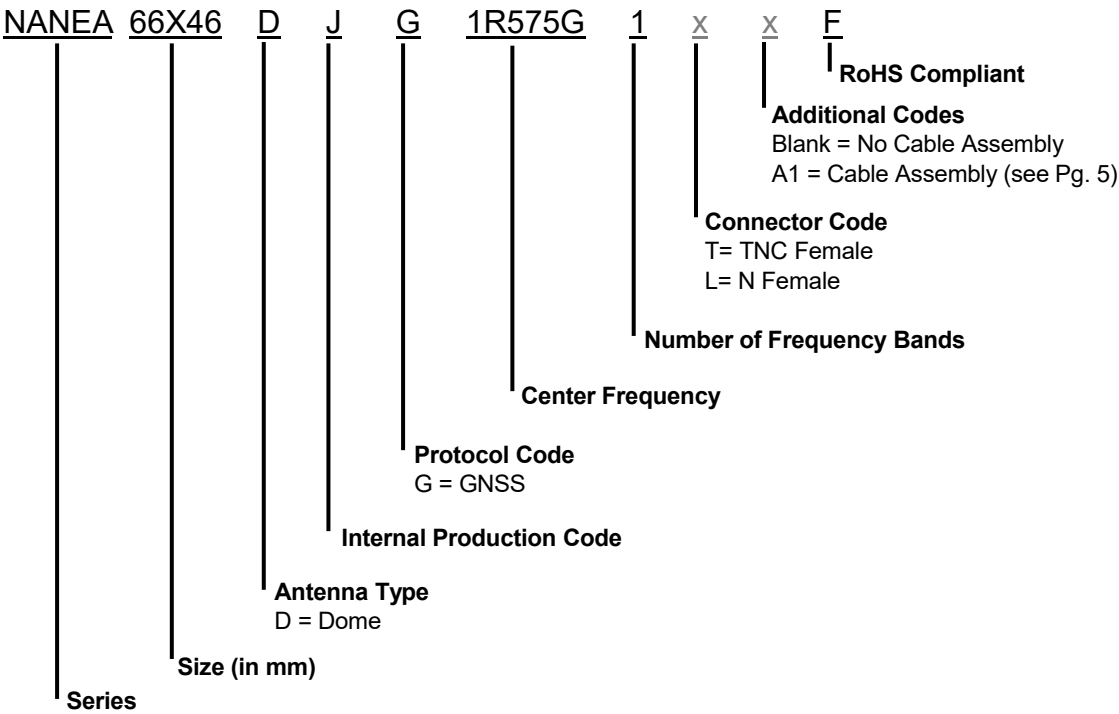
NANEA66X46DJG1R575G1F is the base part number for a GNSS active external antenna designed for GPS L1 band. It operates at a frequency of 1575 MHz making it perfect for Fleet Management & Tracking.

Features

- Supports: GPS L1 Band
- IP67 Waterproof Rating
- RoHs Complaint



Part Number Breakdown



Standard Part Numbers Listings

Part Number	Protocol / Band	Connector
NANEA66X46DJG1R575G1TF	GPS L1	TNC Female
NANEA66X46DJG1R575G1LF	GPS L1	N Female
NANEA66X46DJG1R575G1TA1F	GPS L1	Cable Assembly (see Pg. 5)

The table represents assembled part numbers available on www.niccomp.com. For options not listed above please contact NIC

Specifications

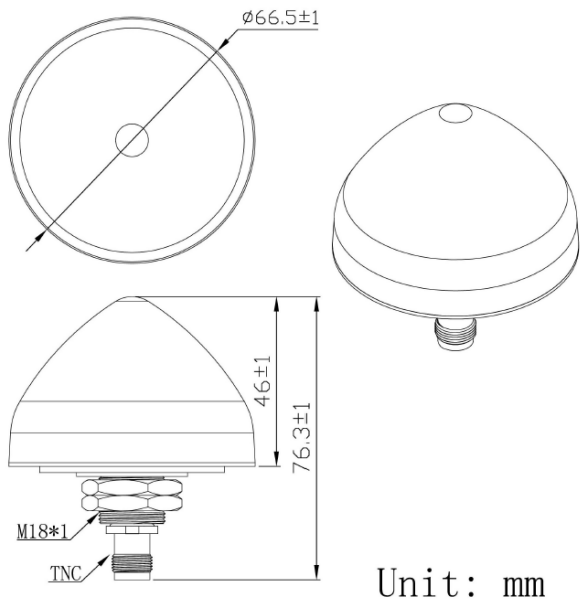
Electrical	
Frequency Range	1575.42 ± 3 MHz
Bandwidth	CF ± 5 MHz
Gain	5dBic@100mm Ground Plane (Zenith)
V.S.W.R	< 1.5
Axial Ratio	4dB@90° 6dB@20°
Polarization	RHCP
Impedance	50Ω
Internal Patch Antenna	25 x 25 x 6 mm
LNA	
Gain	40 dB typ.
V.S.W.R	< 1.5
Noise Figure	< 2.5 dB
Ex-band Attenuation	50 dB @ CF± 50 MHz
Supply Voltage	2.7 ~10 V
Current Consumption	< 25mA
Environmental	
Operating Temperature	-40°C ~ +85°C
Relative Humidity	Up to 95%
Ingress Protection	IP67
Vibration	3 axis, 10 to 200 Hz, sweep 15 min, 3G
Shock	Vertical axis: 50G, other axes: 30G
ESD Protection	15KV air discharge
Radome Material	ABS
Mounting Method	Screw
ROHS Compliant	Yes

NANEA66X46DJG1R575G1F

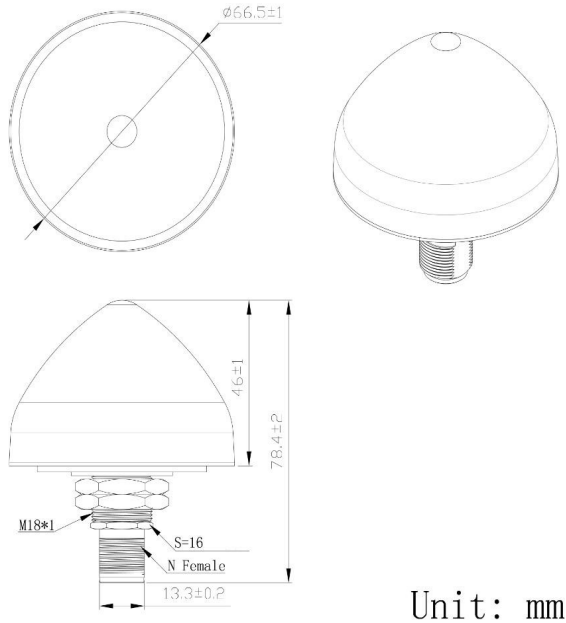
GNSS Active External Antenna, GPS L1



Dimensions



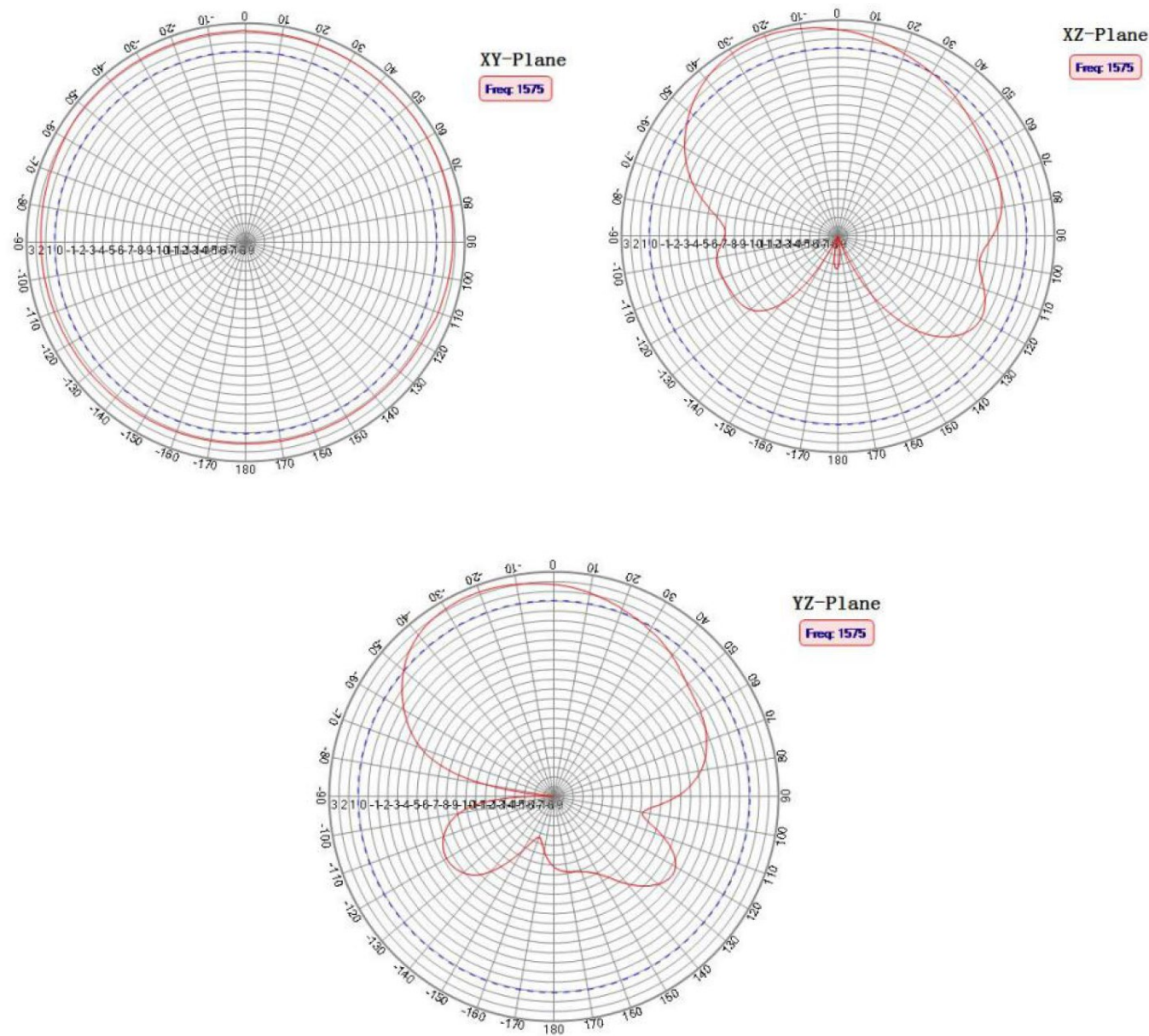
NANEA66X46DJG1R575G1TF Dimensions



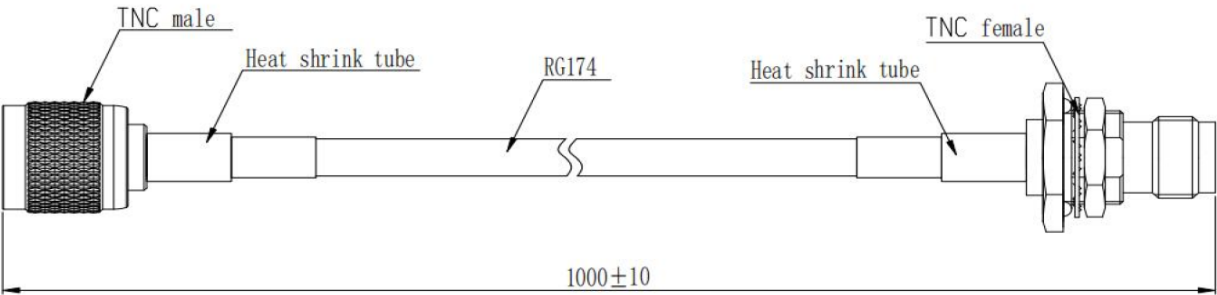
NANEA66X46DJG1R575G1LF Dimensions



Radiation Patterns



NANEA66X46DJG1R575G1TA1F Assembly Option



Assembly Ref	Connector Type	Cable Type	Cable Length
A1	TNC Male to TNC Female	RG174	1000 mm

Images of samples used for test data



The below test report is based on NANEA66X46DJG1R575G1TF:

Low Temperature Operation Test:

Test Equipment

Instrument Name	Instrument Model	Instrument Codes	Calibration Expiration Date
High and Low temperature alternating wet heat test chamber	TC-PRO-150	MA-19-1794	11-12-2021
DC Power Supply	1502D	MA-11-217	8-25-2022
DC Power Supply	1502D	MA-16-1401	2-23-2021
Network Analyzer	E5071C	MA-11-044	4-19-2022
Anechoic Chamber	SY-24	MA-19-19	\

Test condition:

Standard : GB/T28046.4-2011 Environmental conditions and tests for electrical and electronic equipment for road vehicles - Part 4: Climatic load.

Test Method:

At room temperature, the antenna is put into the test chamber and then gradually cooled to -40C. The antenna is powered by 3.3V voltage for 48hrs, and the current is monitored during the test. After test, the product was taken out and placed at room temperature for 2 hrs for appearance and performance testing.

Low Temperature Operation Test (Continued) :

Test Requirements:

After the test, the appearance of the antenna is good, and the performance of the antenna meets the following requirements:

- Frequency: $1575.42 \pm 3\text{MHz}$
- VSWR < 1.5
- Working Current < 25mA
- Nominal Gain: 40dB

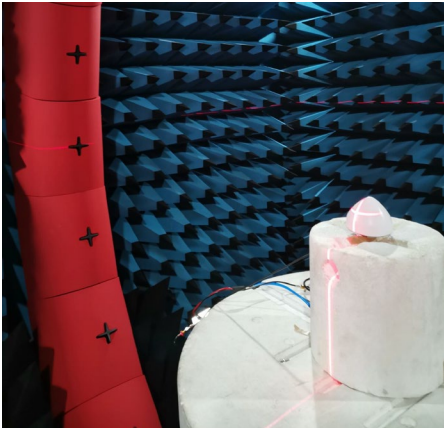
Test Conclusion

Sample	Appearance	Frequency	Gain	Working Current: On test	Working Current: On test	Results
#1	No obvious deformation, foaming, cracking or other phenomena	1.5742 GHz	43.48 dBi	13.8mA	13.5mA	Pass
#2	No obvious deformation, foaming, cracking or other phenomena	1.5742 GHz	42.81 dBi	13.7mA	13.4mA	Pass

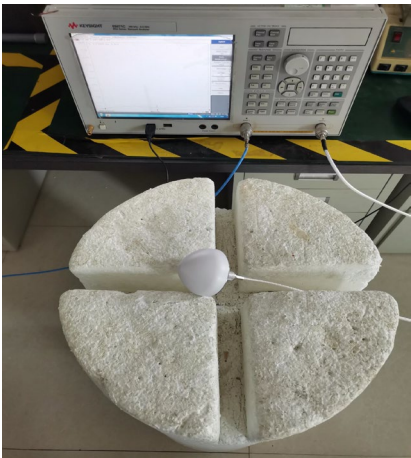
Test Photos



Low temperature operation
test diagram



Anechoic chamber test diagram

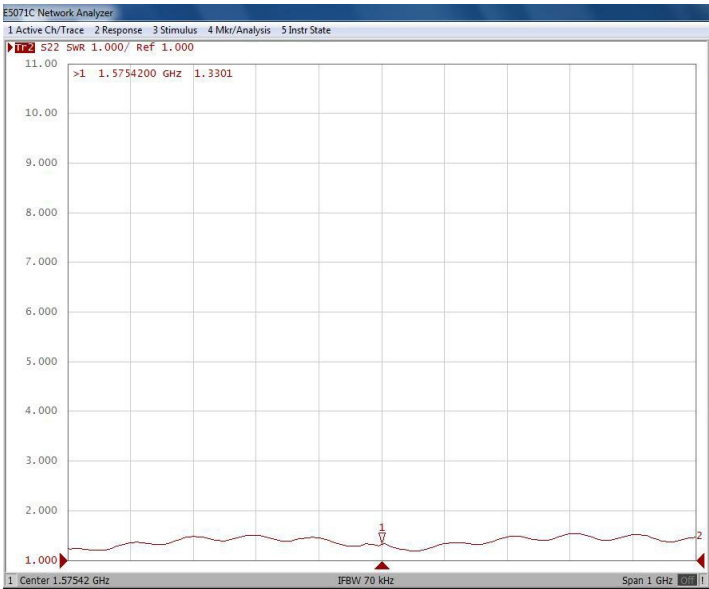


Performance test diagram



Low Temperature Operation Test (Continued) :

VSWR Test Results



Sample 1



Sample 2

High Temperature Operation Test:

Test Equipment:

Instrument Name	Instrument Model	Instrument Codes	Calibration Expiration Date
High and Low temperature alternating wet heat test chamber	GDS-100	MA-11-049	11-12-2021
DC Power Supply	1502D	MA-16-1401	2-23-2022
DC Power Supply	1502D	MA-11-217	8-25-2022
Network Analyzer	SY-24	MA-19-19	\
Anechoic Chamber	E5071C	MA-11-044	4-19-2022

Test Condition:

Standard : GB/T28046.4-2011 Environmental conditions and tests for electrical and electronic equipment for road vehicles - Part 4: Climatic load.

Test Method:

The antenna was placed into the test chamber at room temperature and gradually heats up to 85°C. The GPS antenna passes 3.3V voltage for 48 hours, and the current is monitored during the test. After the test, the product was taken out and placed at room temperature for 2 hours for appearance and performance testing.

Test Requirements:

After the test, the appearance of the antenna is good, and the performance of the antenna meets the following requirements:

- Frequency: $1575.42 \pm 3\text{MHz}$
- $\text{VSWR} < 1.5$
- Working Current $< 25\text{mA}$
- Nominal Gain: 40dB



High Temperature Operation Test (Continued):

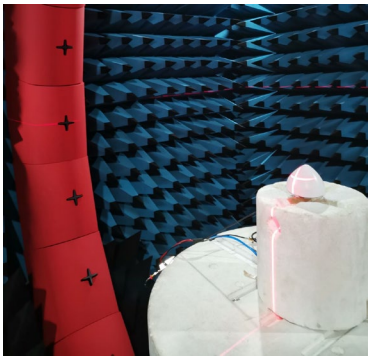
Test Conclusion

Sample	Appearance	Frequency	Gain	Working Current: On test	Working Current: On test	Results
#1	No obvious deformation, foaming, cracking or other phenomena	1.5742 GHz	43.35 dBi	13.2mA	13.5mA	Pass
#2	No obvious deformation, foaming, cracking or other phenomena	1.5742 GHz	42.87 dBi	13.1mA	13.4mA	Pass

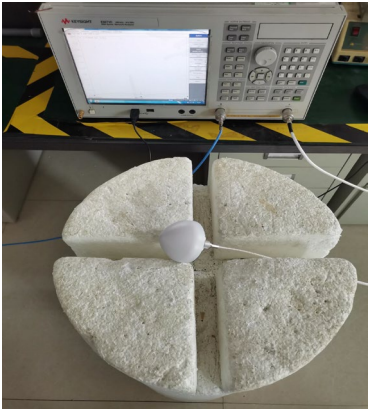
Test Photos



High temperature operation test diagram



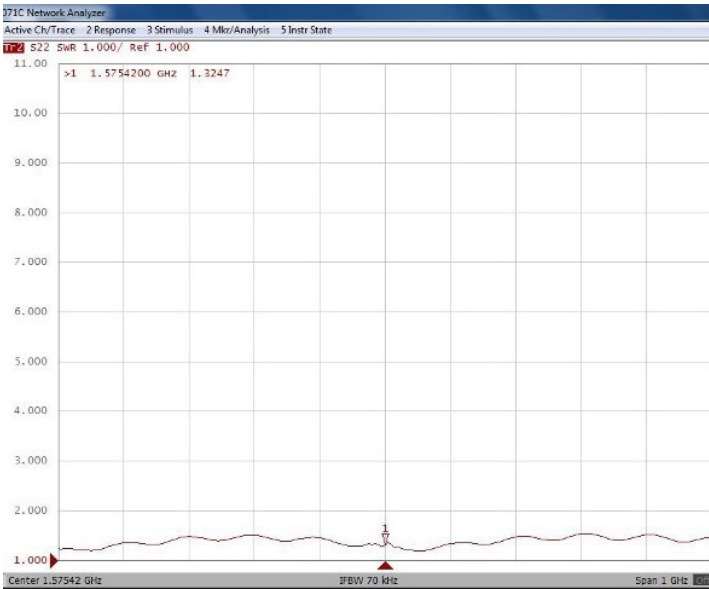
Anechoic chamber test diagram



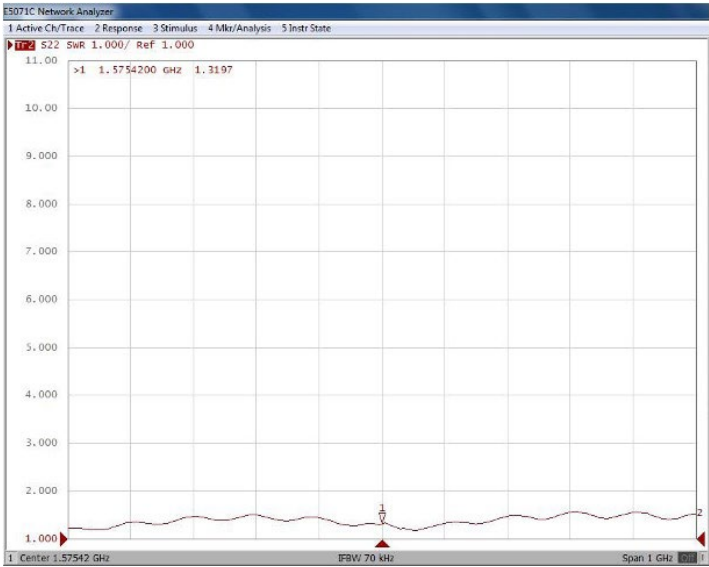
Performance test diagram



High Temperature Operation Test (Continued) :
VSWR Test Results



Sample 1



Sample 2

ESD Test:

Test Equipment:

Instrument Name	Instrument Model	Instrument Codes	Calibration Expiration Date
Electrostatic Discharge Tester	EMS61000-2A	MA-14-865	4-9-2022
DC Power Supply	1502D	MA-11-217	8-25-2022
Anechoic Chamber	E5071C	MA-19-19	\
Network Analyzer	SY-24	MA-11-044	4-19-2022

Test condition:

Standard: GB/T 17626.2-2018 Electromagnetic compatibility test and measurement technology
Electrostatic discharge immunity test.

Test Method:

Turn on the electrostatic gun and the tester, set the test voltage to $\pm 8\text{KV}$, discharge mode to contact discharge, and then start the test. The test point is the middle position of the base and the white shell, and discharge 5 times at each point; After the test is completed, the test voltage is set to $\pm 15\text{KV}$, the discharge mode is air discharge, the discharge gun is replaced with a round head, and then the test point is the position of the base and the shell, and each point is tested 5 times. After the test, the appearance and performance were tested.

Test Requirements:

After the test, the appearance of the antenna is good, and the performance of the antenna meets the following requirements:

- Frequency: $1575.42 \pm 3\text{MHz}$
- $\text{VSWR} < 1.5$
- Working Current $< 25\text{mA}$
- Nominal Gain: 40dB



ESD Test (Continued):

Test Conclusion

Samples	Appearance	Frequency	Gain	Working Current:	Results
#1	No obvious deformation, foaming, cracking or other phenomena	1.5742 GHz	43.55 dBi	13.5mA	Pass
#2	No obvious deformation, foaming, cracking or other phenomena	1.5742 GHz	42.79 dBi	13.6mA	Pass

Test Photos



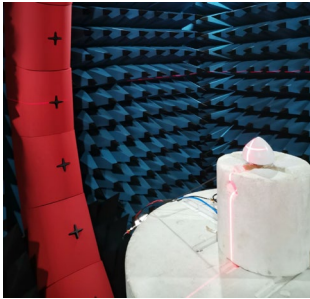
Air discharge test diagram



Contact discharge test diagram



Performance test diagram

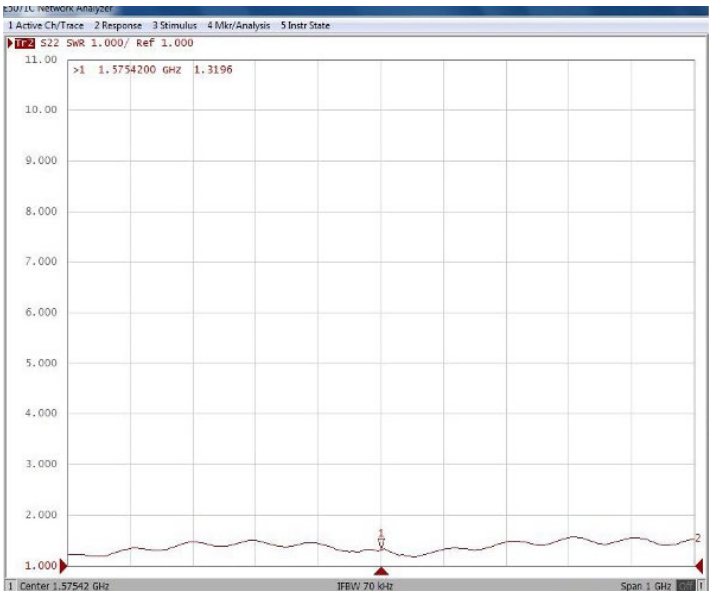


Anechoic chamber test diagram

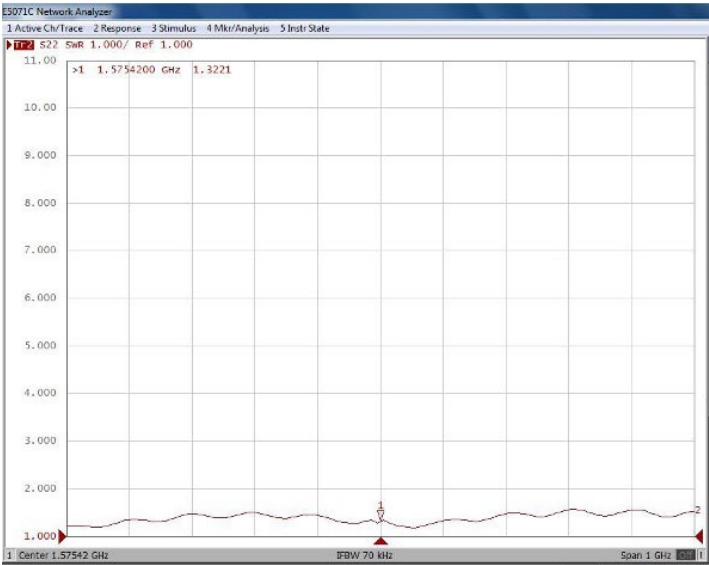


ESD Test (Continued) :

VSWR Test Results



Sample 1



Sample 2

IPX7 Waterproof Test:

Test Equipment:

Instrument Name	Instrument Model	Instrument Codes	Calibration Expiration Date
Bucket	\	\	\

Test condition:

Standard: GB/T 4208-2017 Enclosure Protection Grade

Test Method:

Sink the antenna to the bottom of a bucket 1 meter deep, hold it for 30 minutes, and then remove the antenna from the tank, wipe the surface of the water, open the sample, and check whether the inside of the water.

Test Conclusion

Samples	Appearance	Results
#1	No Water has entered the antenna	Pass
#2	No Water has entered the antenna	Pass

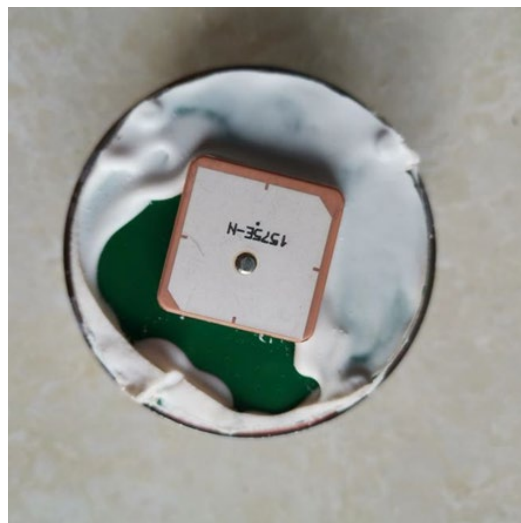


Images of Test Setup

IPX7 Waterproof Test:

Result Photos:

Sample 1:



Sample 2:





Random Vibration Test:

Test Equipment

Instrument Name	Equipment No.	Performance	Measurement Validity Date
Electric Vibration Test system	MA-17-1082	Random vibration, sinusoidal vibration	05-14-2025
Vibration fixture	\	\	\

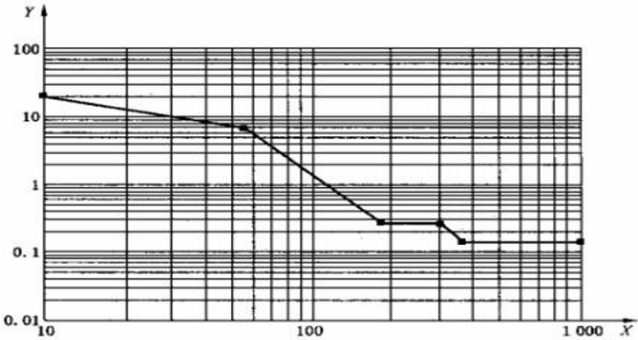
Test condition:

Standard : GB/T 2423.56-2023
Temperature: 16.2℃~16.5℃
Humility: 41% ~ 45% RH

Test Method:

Test method: Refer to GB/T 2423.56-2023 standard, broadband random vibration direction (X, Y, Z) axis, test time: 8 h, effective acceleration value: 27.8m/s², vibration spectrum and parameters are shown in the following chart:

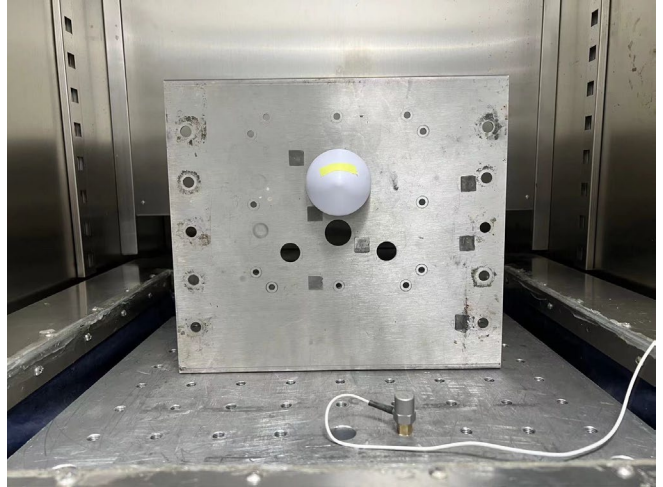
(Hz) Frequency	PSD (m/s ²) ² /Hz	Test time in each direction
10	20	8 hours
55	6.5	
180	0.25	
300	0.25	
360	0.14	
1000	0.14	



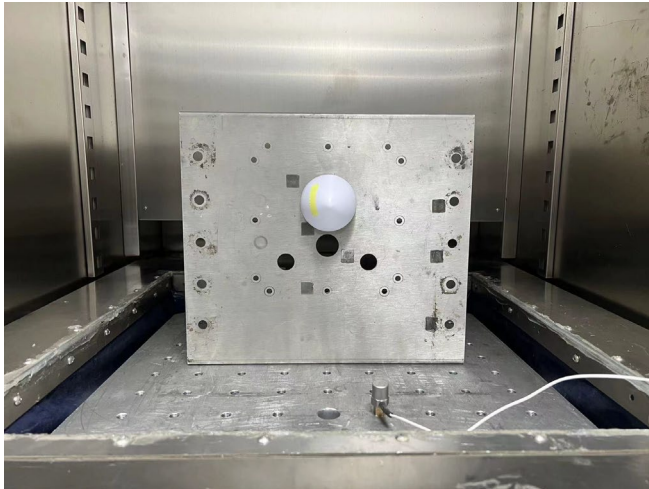
Random Vibration Test (cont.)



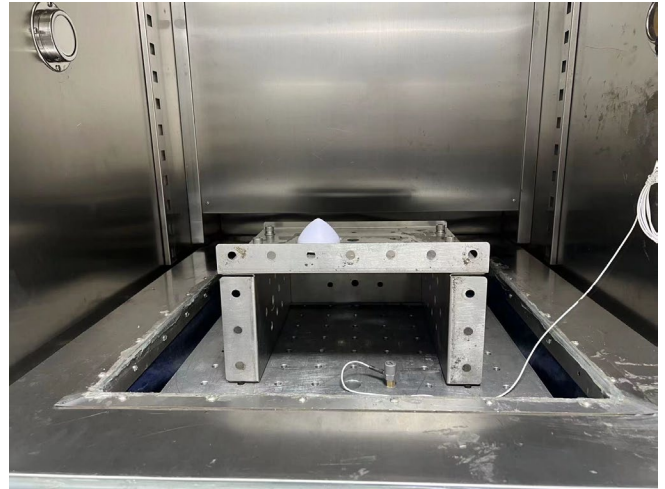
Test layout



X-axis



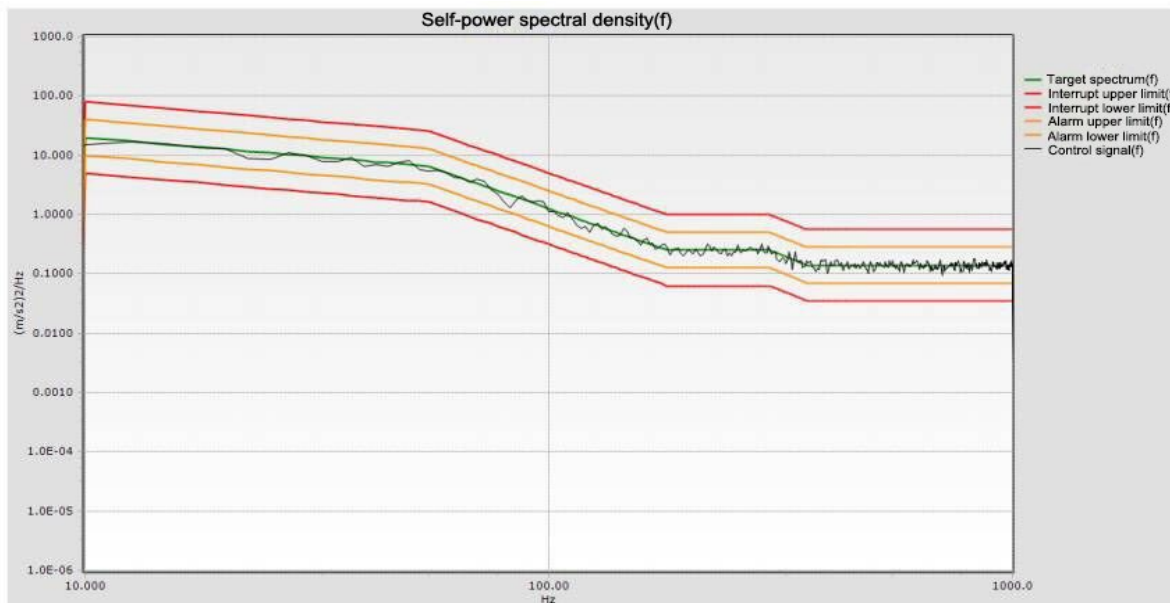
Y-axis



Z-axis

Random Vibration Test (cont.)

X-axis Vibration diagram

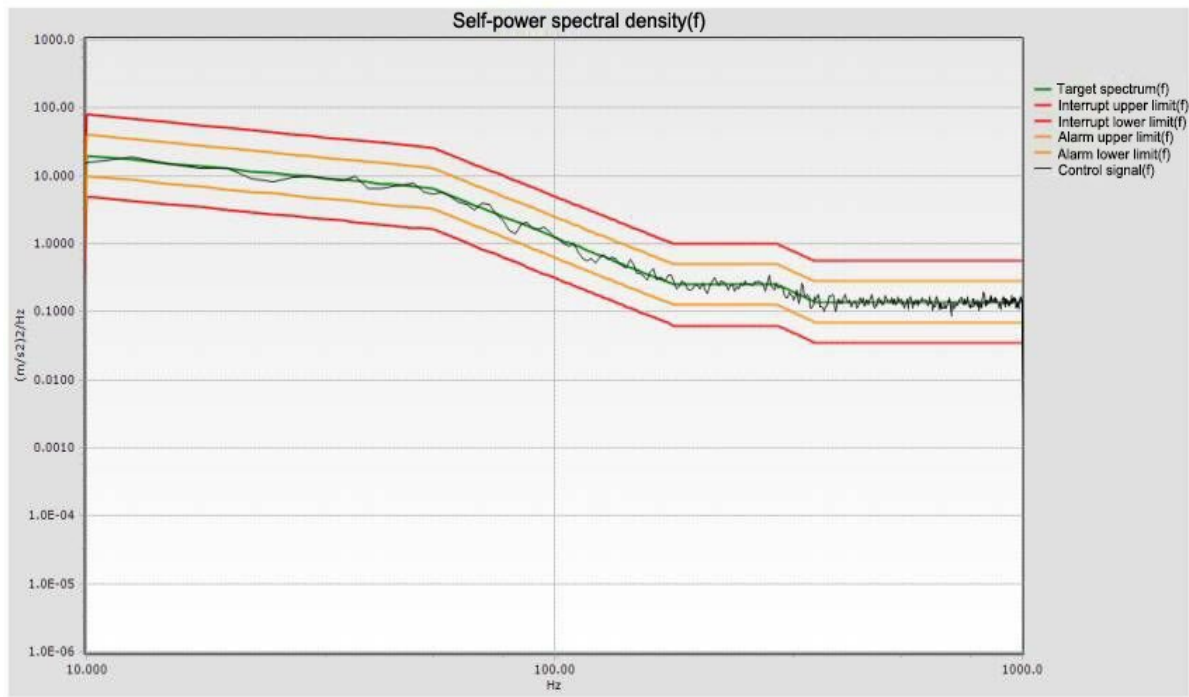


Y-axis Vibration diagram



Random Vibration Test (cont.)

X-axis Vibration diagram



Sample Photos before and after testing



Before Test



After Test