OEM GNSS Antenna HX-CSX188A

Harxon a BDStar company

Harxon HX-CSX188A is a high precision built-in GNSS antenna that provides reliable and consistent positioning services across the full bandwidth of the antenna and it's compatible with WiFi frequency bands. Its superior positioning accuracy and powerful system compatibility makes it ideal to be integrated into various surveying and RTK applications

GREAT COMPATIBILITY FOR SOLID RELIABILITY

This versatile antenna adopts a compact design that combines GNSS antenna and WiFi antenna, delivering great compatibility to be integrated into RTK applications. The layout of this multifunction antenna is specifically designed for realizing a perfect isolation effect among the different antennas embedded and ensuring outstanding reduction of interrelated influence.

STABLE PHASE CENTER FOR REMARKABLE PERFORMANCE

HX-CSX188A offers full support for reliable and consistent satellite signals tracking, including GPS, GLONASS, Galileo and BeiDou as well as L-Band correction services. It also exhibits a very stable phase center by adopting multipoint feeding technology and realizes the repeatability of phase center and geometric center and minimizes deviation, ensuring millimeter-level positioning accuracy.

TRACKING IN COMPLEX ENVIRONMENTS

This antenna exhibits superior high gain performance with ultralow signal loss, ensuring reliable satellite signal tracking. It also delivers wide beam width that covers wide frequencies with high marginal gain. These features in turn ensure the antenna a robust signal availability even in low elevation, making the antenna a perfect option in complex environments that have blockage, such as tree canopy and buildings.

STRONG ANTI-INTERFERENCE PERFORMANCE

The advanced LNA (Low Noise Amplifier) excels in improved signal filtering and out-of-band rejection and restraints unwanted electromagnetic interferences, plus strong multi-path reduction capacity over all GNSS frequency bands, providing strong anti-interference performance for consistent and reliable GNSS signals, even under complicated environments such as power grids, communication base stations and broadcast stations.

KEY FEATURES

- **Comprehensive GNSS support: GPS, GLONASS, Galileo, BeiDou and L-Band correction services**
- **Compatible with WiFi frequency bands**
- **Stable phase center guarantees centimeter phase center repeatability**
- **Strong anti-interference performance**

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PERFORMANCE

Signal Received

GPS	L1/L2/L5
GLONASS	L1/L2/L3
GALILEO	E1/E5a/E5b/E6
BDS	B1I/B2I/B3I/B1C/B2a/B2b
QZSS	L1/L2/L5/L6
IRNSS	L5
L-Band	
WiFi	

Nominal Impedance	50Ω
Polarization	RHCP
Axial Ratio	⩽3dB
Azimuth Coverage	360°
Output VSWR	⩽2.0
Peak Gain	GNSS⩾5.5dBi WiFi⩾2dBi
Phase Center Error	±2mm

LNA

LNA Gain

L1: 38±2dB

L2: 40±2dB

Noise Figure	⩽2dB
Output VSWR	⩽2.0
Passband Ripple	±2dB
Operation Voltage	+3.3 ～ +12VDC
Operation Current	⩽45mA
Differential Propagation Delay	⩽5ns

MECHANICAL

Dimensions	φ150.4*24.6mm
Weight	⩽280g

Connector

GNSS: MMCX-C-JW1.5

WiFi: IPEX1 Female

Installation	5×M3 Screws

ENVIRONMENTAL

Temperature

Operating	-40℃ to +85℃
Storage	-55℃ to +85℃
Humidity	95% No-condensing

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Version 1 Specifications subject to change without notice.

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GNSS Antenna Performance

Antenna Passive Index Test Method:

a. Place the antenna on the turntable of the anechoic chamber and aim the laser at the bottom of the antenna;

b. Set frequency range, control the turntable to rotate by computer and start the test;

c. Use software to process test data and export test results.

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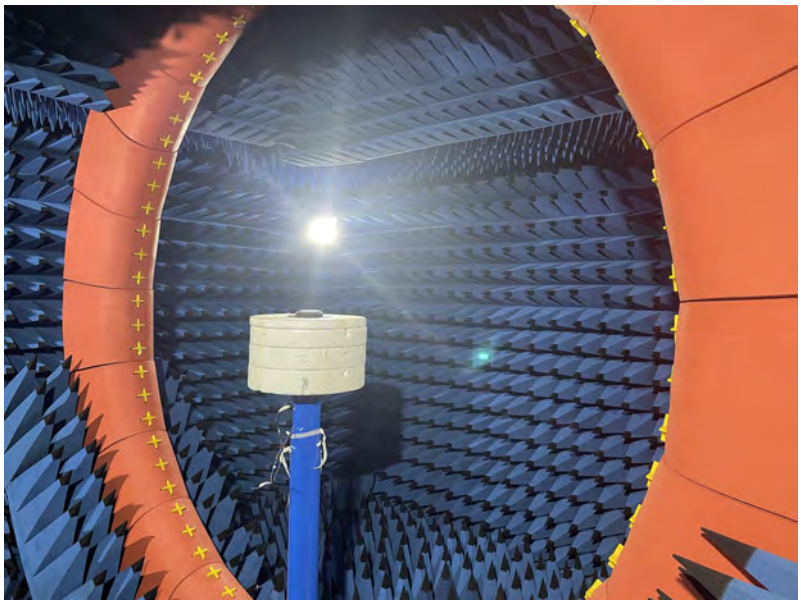
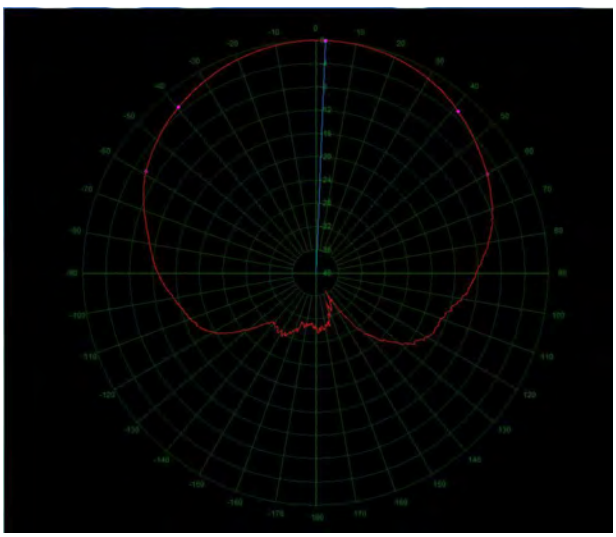
Table 1: Antenna Performance Test Data

Frequency（MHz）	Gain（dBi）	Axial Ratio（dB）	Polarization Gain Front-to-Rear Ratio（dB）	3dB Beam Width（deg）	20 Elevation Out-of-Roundness（±dB）
1164	4.25	1.6	27.3	80.4	0.6
1170	4.5	1.6	27.2	81.0	0.6
1179	5.05	1.6	27.7	81.2	0.6
1188	5.4	1.6	28.1	80.6	0.6
1197	5.8	1.6	27	80.2	0.5
1206	6.2	1.7	25.6	79.8	0.5
1215	6.4	1.9	24.1	79.9	0.5
1221	6.5	2.0	23.3	80.3	0.4
1230	6.6	2.1	23.2	80.0	0.4
1239	6.5	2.1	23.9	80.0	0.4
1248	6.3	2.1	25.3	79.4	0.4
1257	6.2	2.1	27.1	78.4	0.4
1266	5.9	2.1	30.1	77.5	0.5
1272	5.8	2	32.3	77.4	0.5
1278	5.6	2.1	30.9	76.7	0.6
1535	5.5	0.2	28.3	82	0.3
1541	5.9	0.1	28.7	81.3	0.3
1550	6.3	0.1	30.6	81.2	0.3
1559	6.7	0.3	32.7	81.4	0.3
1571	7.0	0.5	31.3	81.8	0.4
1580	6.9	0.7	28.5	82.0	0.4
1589	7.0	0.8	26.6	81.2	0.4
1601	6.8	0.8	26.1	80.0	0.4
1610	6.5	1.0	27.1	80.1	0.5

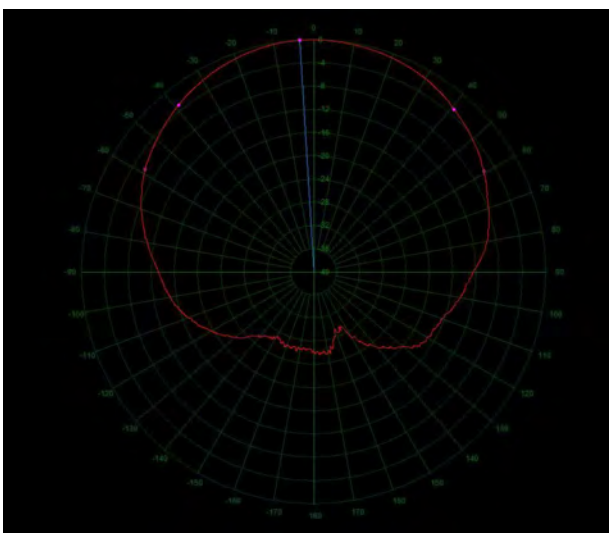
OEM GNSS Antenna HX-CSX188A



Test Scenario

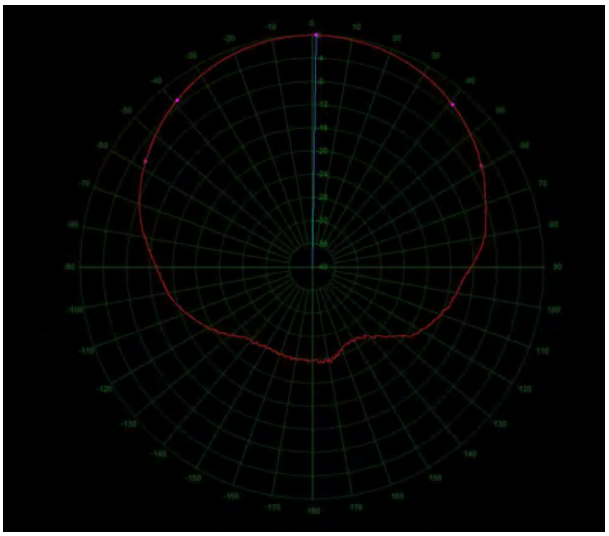


1176MHz Pattern

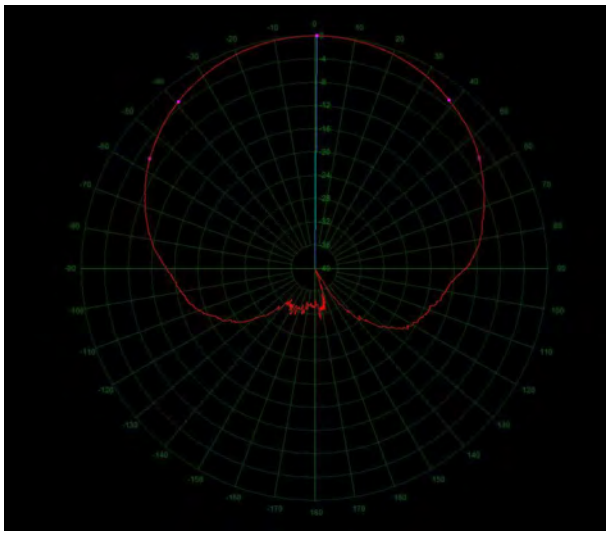


1206MHz Pattern

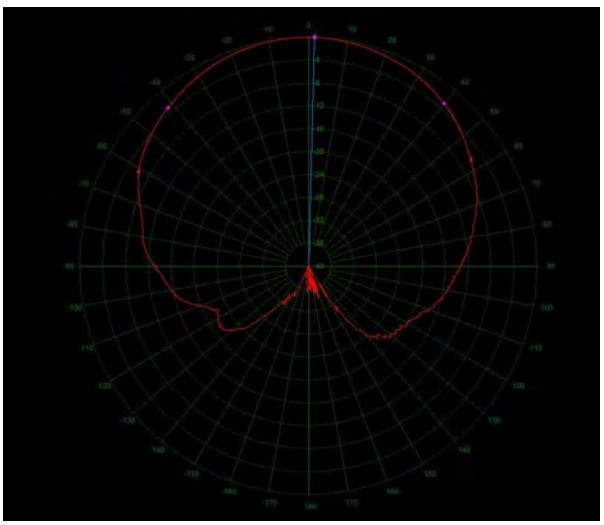
OEM GNSS Antenna HX-CSX188A



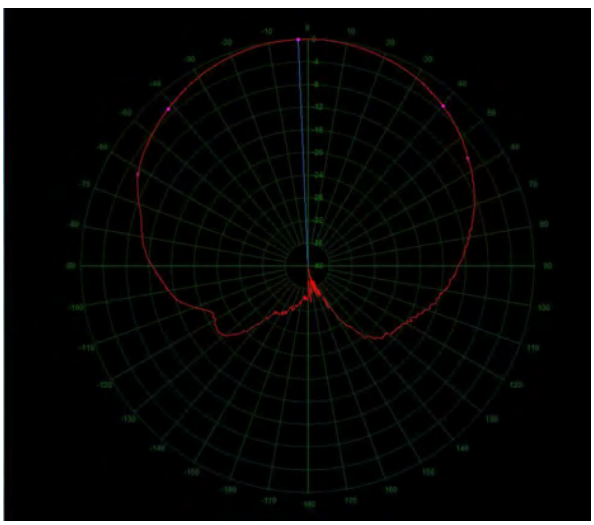
1227MHz Pattern



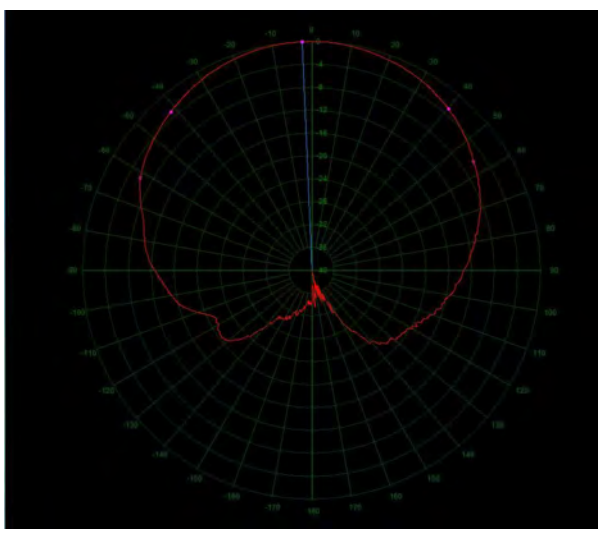
1269MHz Pattern



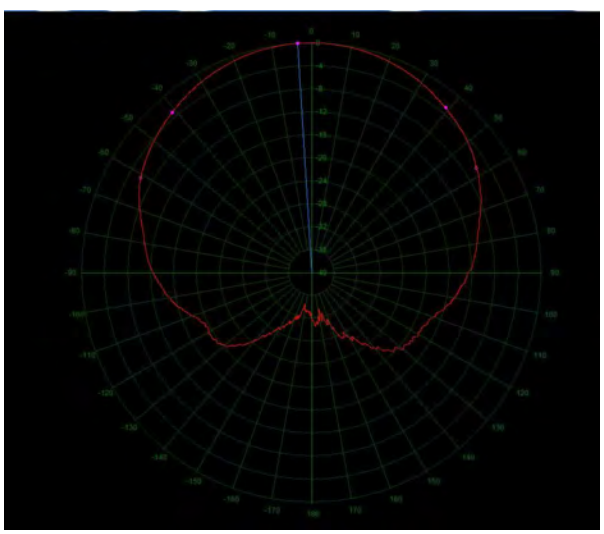
1278MHz Pattern



1562MHz Pattern



1575MHz Pattern

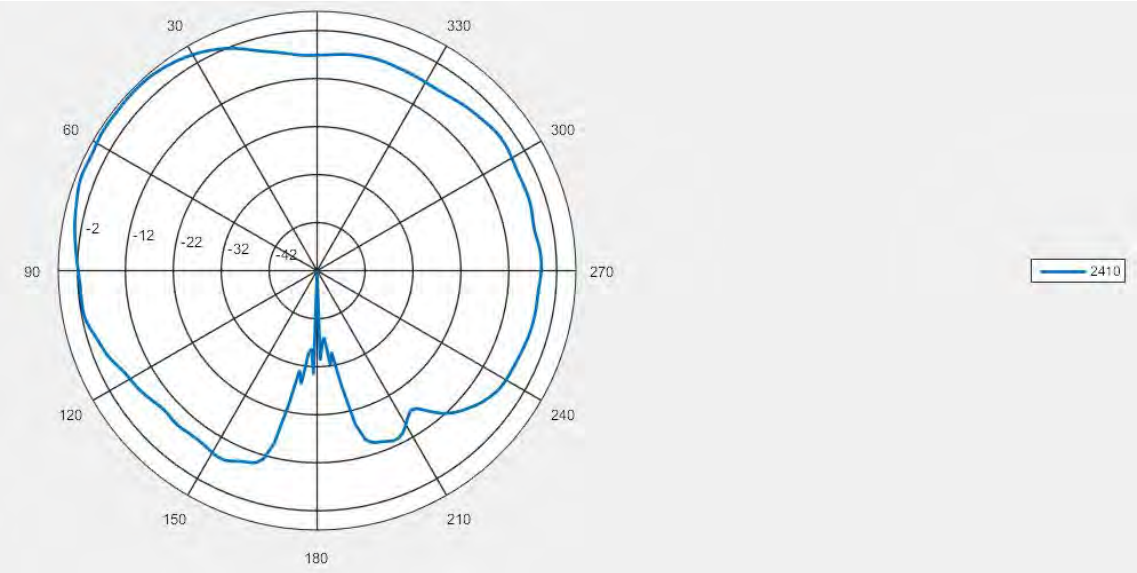


1610MHz Pattern

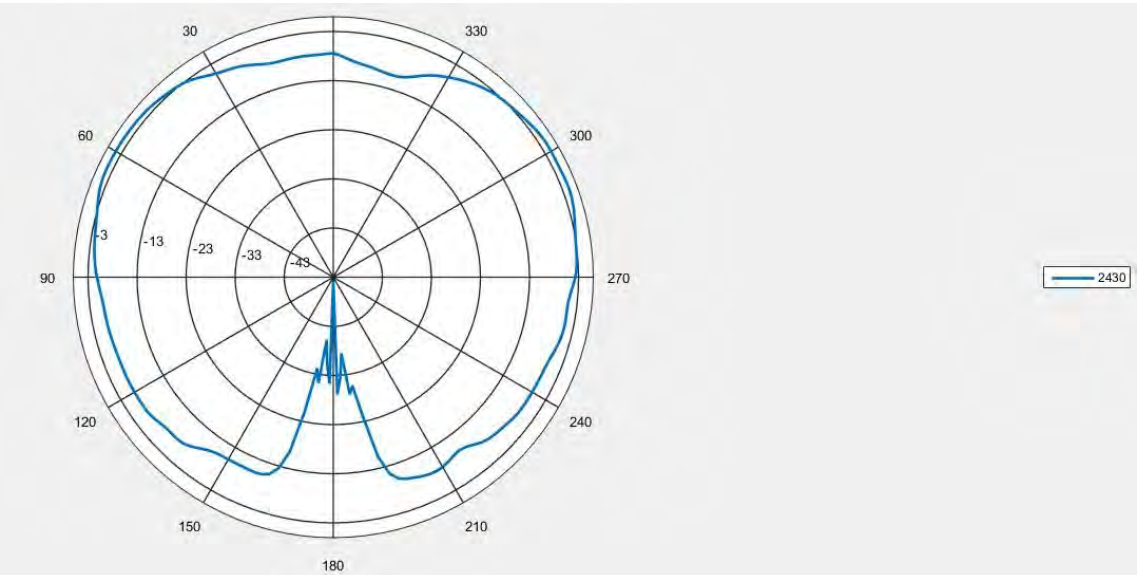
WiFi Antenna Performance

Table 2: WiFi Antenna Test Data

Frequency（MHz）	2410	2420	2430	2440	2450	2460	2470	2480
Gain（dBi）	1.5	2.3	2.7	3.1	3.1	3.0	2.8	2.3
Efficiency（%）	35.9	40.0	43.6	47.0	48.3	48.4	45.8	42.3

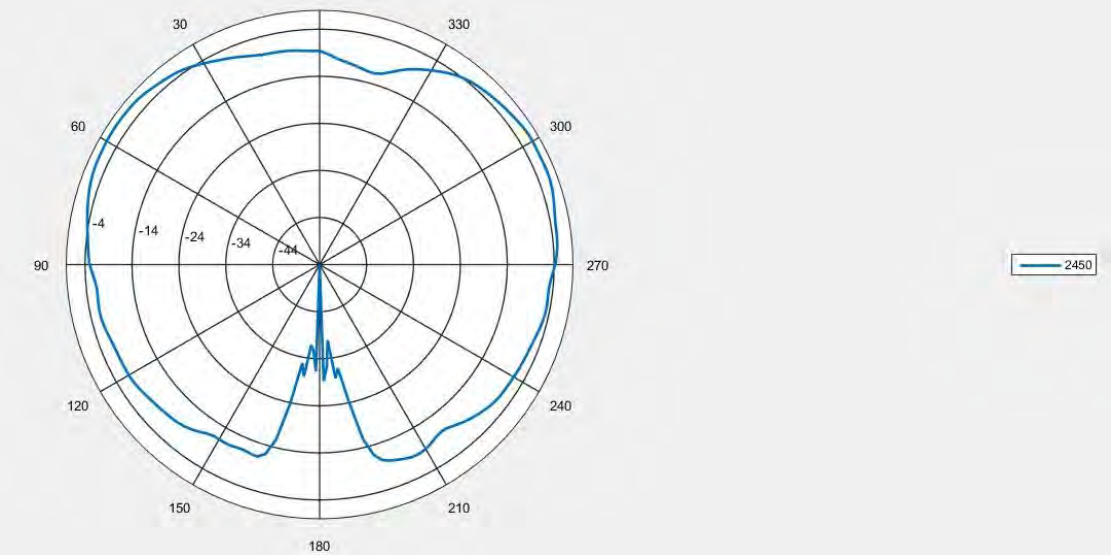


WiFi Antenna 2410MHz Pattern

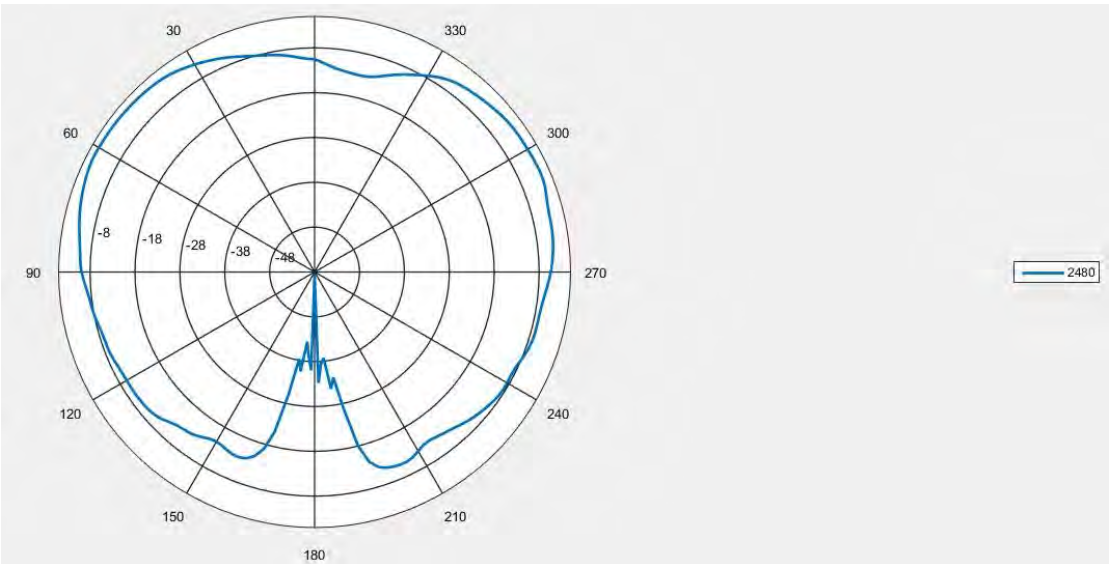


WiFi Antenna 2430MHz Pattern

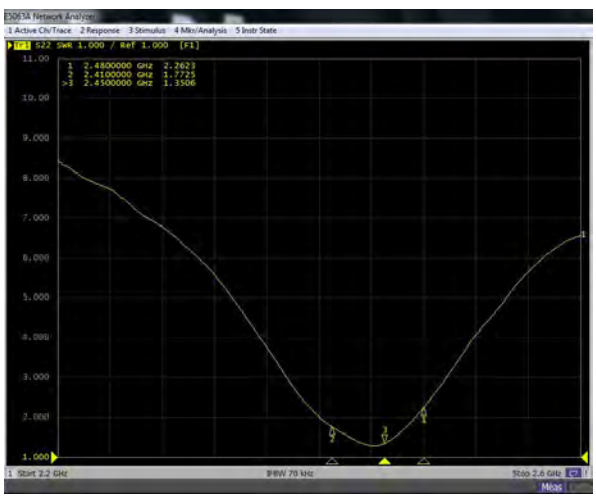
OEM GNSS Antenna HX-CSX188A



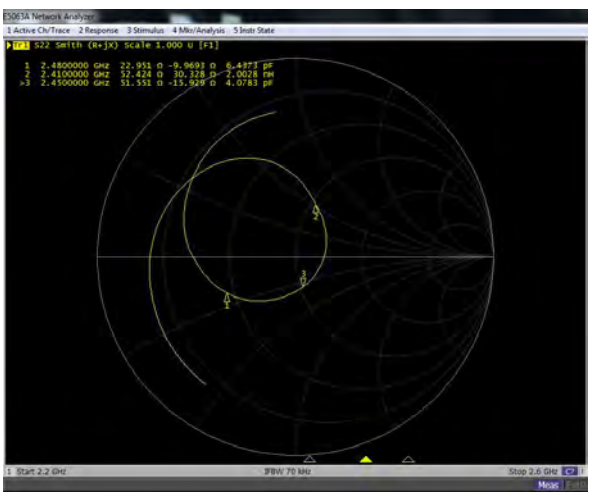
WiFi Antenna2450MHz Pattern



WiFi Antenna 2480MHz Pattern



WiFi Antenna VSWR



WiFi Antenna Smith Chart

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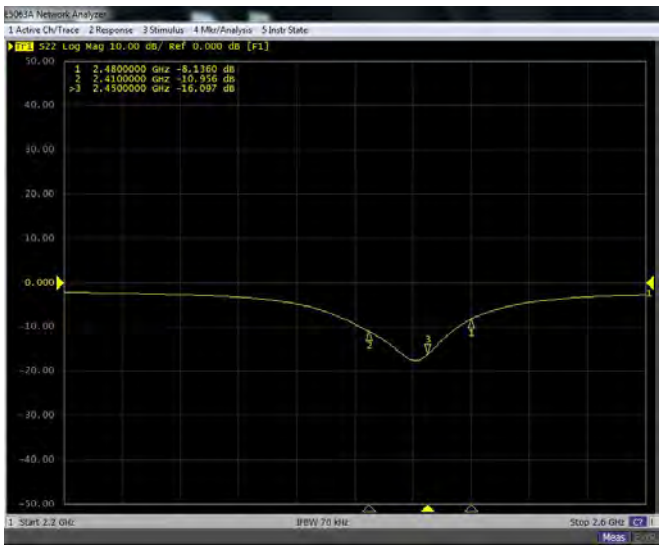
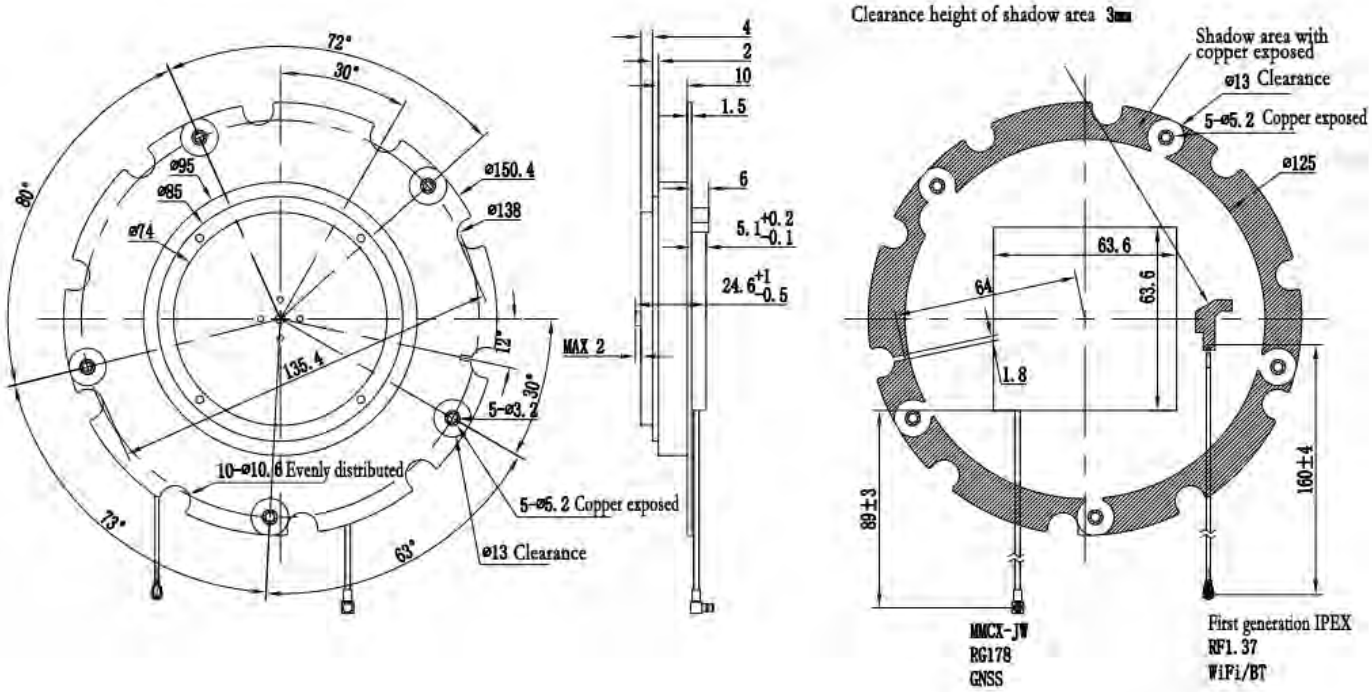


WiFi Antenna Return Loss

Structure & Phase Center Drawing (mm)



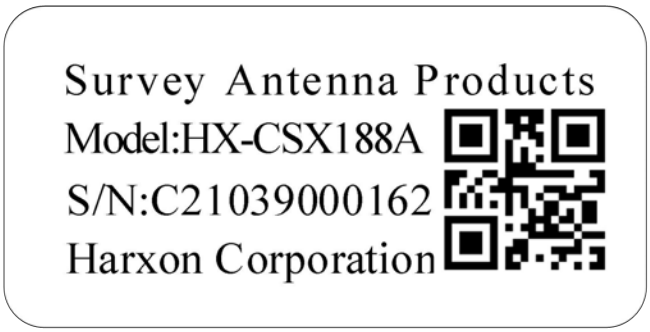
TOP VIEW SIDE VIEW BOTTOM VIEW

Undeclared Tolerance:±0.3mm

OEM GNSS Antenna HX-CSX188A

Product Label

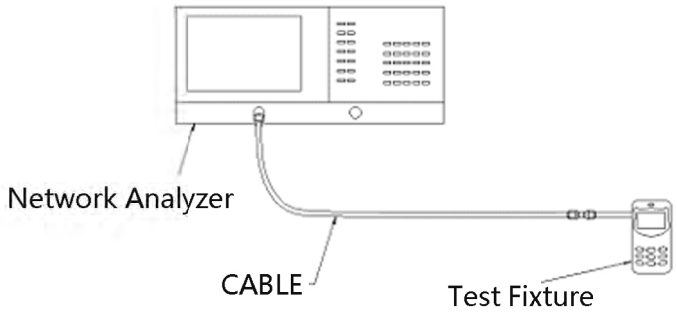
Label size: 15*30mm, the content of the label is shown as below, the S/N code shall be written according to the program file and the actual situation, the figure below is only for illustration.



TQX-915AE Terminal Antenna

Specially designed for the terminal of 902-928MHz system, TQX-915AE features compact size, good appearance and easy to mount.

Specifications	
Model	TQX-915AE-JHT
Freq.Range-MHz	902-928
Bandwidth-MHz	26
Gain-dBi	2.98
VSWR	≤2.0
Impedance-Ω	50
Polarization	Vertical
Max.Power-W	50
Connector	TNC male
Length-mm	396±5
Weight-g	65
Mounting way	Plastic bag 42mm×450mm×4C
Remark: Tilt and swivel connector	



Network Analyzer--E5071C 30k-8.5Ghz
Use a 50 ohm CABLE to export from the test port of the instrument, use the calibration piece to calibrate and connect to the SMA connector of the prototype tool, and record the return loss and standing wave ratio corresponding to the relevant frequency point.

KENBOTONG TECHNOLOGY CO., LTD.

Add: No.2Chanxiu Road, Chancheng Foshan City, Guangdong China Code: 528061
Tel: 86-757-82218028 82219788 82126633 Fax: 86-757-82212072
E-mail:kbt@kenbotong.com http://www.kenbotong.com

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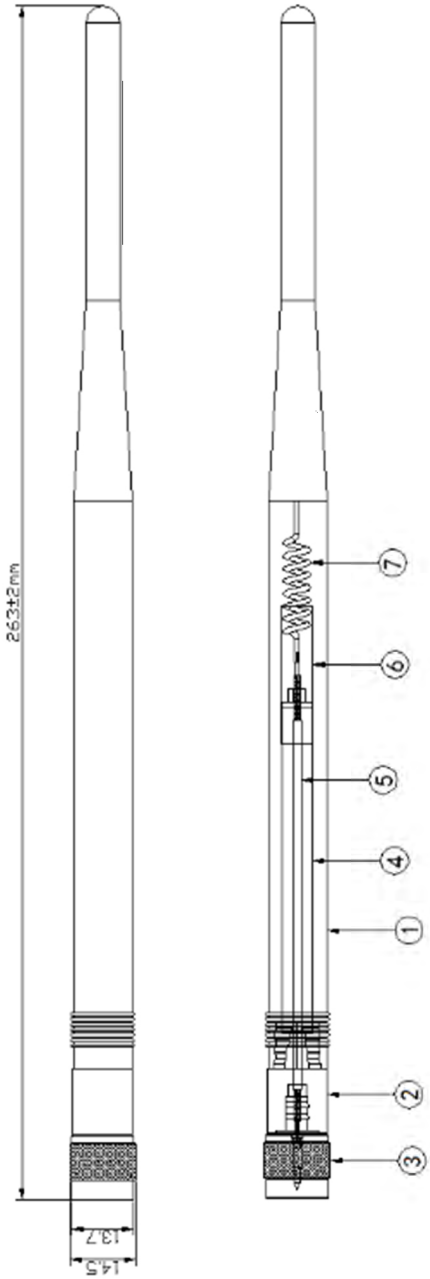
TQX-915AE Terminal Antenna



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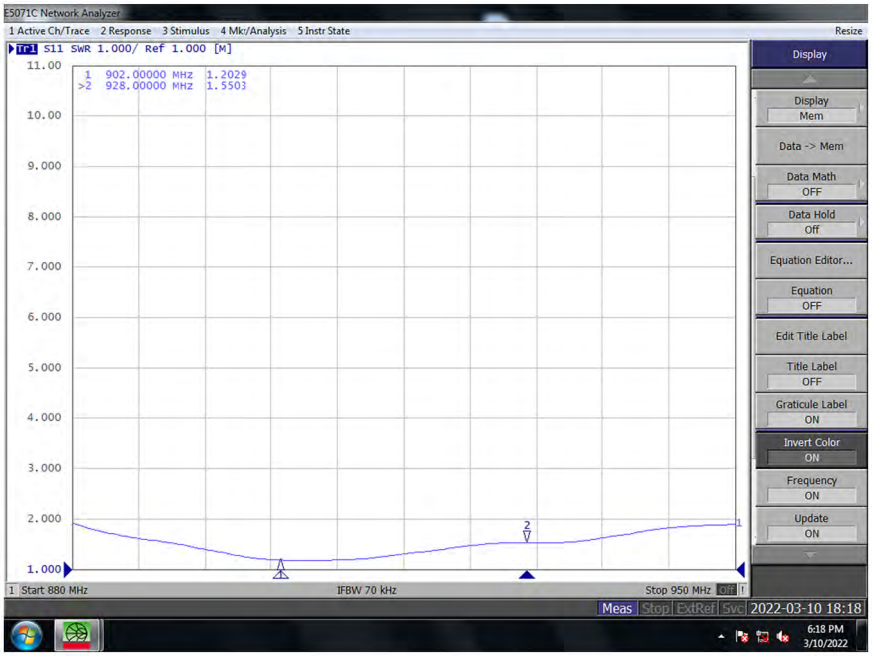

Frequency Band	902	928
VSWR	1.2	1.5

Frequency / MHz	Efficiency / %	Gain/dB
902	61.38	2.98
904	62.27	2.67
906	62.09	2.67
908	60.86	2.68
910	60.68	2.72
912	61.03	2.72
914	62.45	2.86
916	62.45	2.96
918	61.91	2.94
920	59.13	2.73
922	55.96	2.49
924	54.82	2.41
926	56.12	2.61
928	58.28	2.87

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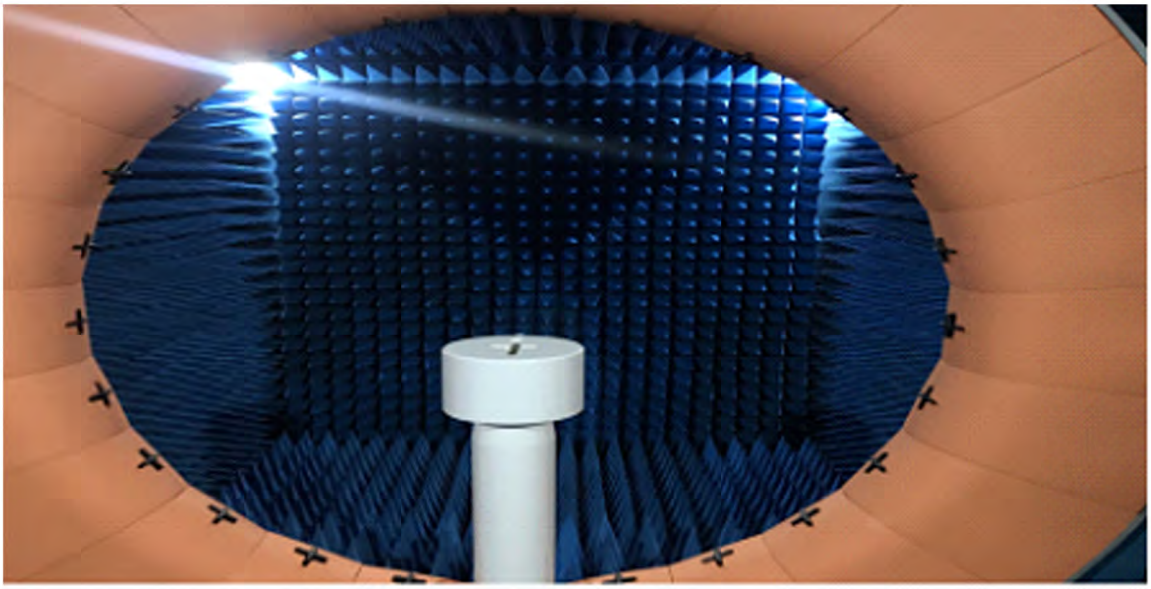

3D Test System: Shielded Darkroom
Test environment: temperature 22℃±3℃, humidity 50%±15%
Test equipment: When testing passive data, use network analyzer (Agilent E5071C).
When testing active data, use the comprehensive tester (8960/CMW500).

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