

OEM GNSS Antenna HX-CSX089A

Harxon's 4in1 multifunctional X-Survey™ OEM antenna HX-CSX089A is an embedded multi-constellation multi-frequency GNSS antenna that integrates GNSS antenna, dual 4G antennas, BT, and WIFI in one compact enclosure. It's a highly integrated antenna that delivers high performance positioning accuracy while ensuring great anti-electromagnetic interference effect. Its compact integration and robust performance make it ideal to be adopted into applications as geodetic surveying, oceanic surveying, geologic surveying and geological disasters monitoring, smart port operations and etc.

STABLE PHASE CENTER FOR ROBUST POSITIONING

HX-CSX089A supports multi-constellation full frequency satellite signal tracking, including GPS, GLONASS, Galileo, BeiDou, QZSS, IRNSS and L-band correction service. It features Harxon X-Survey™ technology that supports multi-point feeding capability, guaranteeing a reliable phase center for millimeter positioning accuracy.

INTEGRATED LAYOUT FOR EASY INTEGRATION

HX-CSX089A integrates GNSS antenna, 4G, WIFI, and BT into one compact enclosure. Adopting multiple antennas in one solution greatly simplifies the complexity of different types antennas integration for applications. Harxon employs self-developed microwave material for isolating interrelated effect among these antennas for reliable signal receptions.

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.

EASY INTEGRATION DESIGN FOR PRECISION APPLICATIONS

The unique structure design simplifies the RTK integration, and minimizes the overall machine dimension, aiming to bring system integrators high efficiency performance of navigation and communication in surveying and precision agriculture applications.

STRONG ANTI-INTERFERENCE PERFORMANCE

The advanced LNA (Low Noise Amplifier) excels in improved signal filtering and out-of-band rejection and restrains 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

- Support GPS, GLONASS, Galileo, BeiDou, QZSS, IRNSS and L-band correction service
- Support 4G, Wi-Fi, Bluetooth
- Stable phase center guarantees the accuracy of positioning within millimeter-level
- Strong anti-interference performance to endure harsh environments
- Powerful system compatibility, easy for integration

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PERFORMANCE

Signal Received

GPS L1/L2/L5
BDS B1I/B2I/B3I/B1C/B2a/B2b
GLONASS L1/L2/L3
GALILEO E1/E5a/E5b/E6
QZSS L1/L2/L5/L6
IRNSS L1/L5
L-Band
BT、WiFi、4G

Nominal Impedance

50Ω

Polarization

RHCP

Axial Ratio

≤3dB

Azimuth Coverage

360°

Output VSWR

≤2.0

Peak Gain

1.0dBi for BT/WIFI

Phase Center Error

±2mm

Phase Center Height

L1: 13.2mm
L2: 14.8mm

LNA

LNA Gain

40±2dB

Noise Figure

≤2dB

Output VSWR

≤2.0

Passband Ripple

±2dB

Operation Voltage

+3.3 ~ +12VDC

Operation Current

≤45mA

Group Delay Ripple

≤5ns

MECHANICAL

Dimensions

φ140.5*24.8mm

Weight

≤280g

Connector

GNSS: MCX-C-JW1.5
BT: IPEX Male
Wi-Fi: IPEX Male
4G: IPEX Male

Mounting

4*M3 Screws

ENVIRONMENTAL

Operating Temperature

-40℃ ~ +85℃

Storage Temperature

-55℃ ~ +85℃

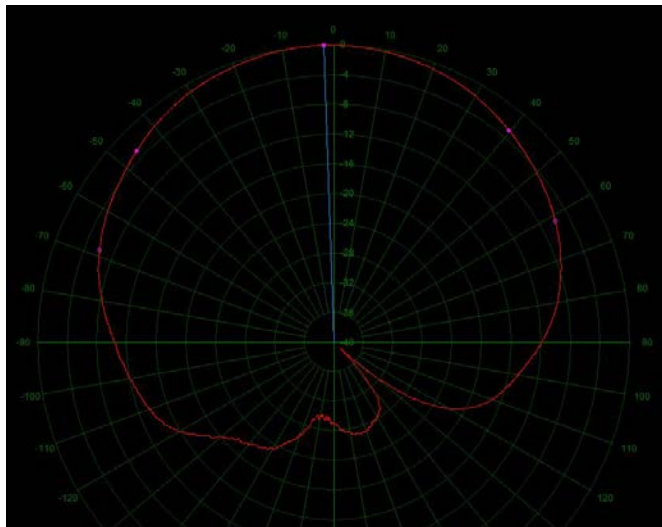
Humidity

95% Non-condensing

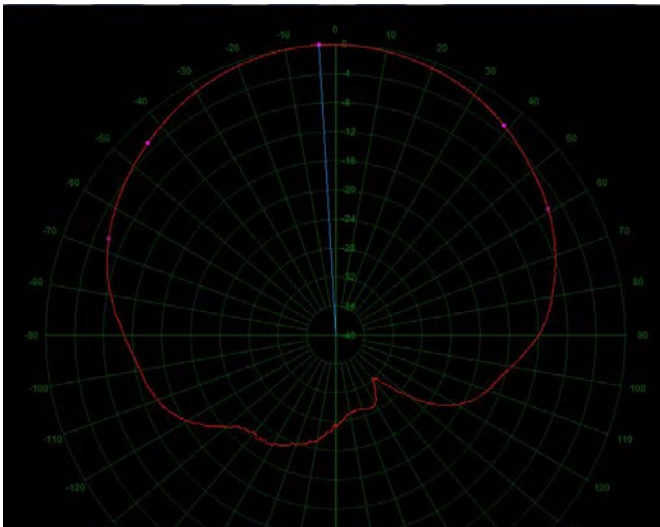
BT/WIFI Antenna Performance

Frequency (MHz)	2410	2420	2430	2440	2450	2460	2470	2480
Peak Gain (dBi)	0.80	0.83	0.93	0.78	1.00	0.94	0.84	0.52

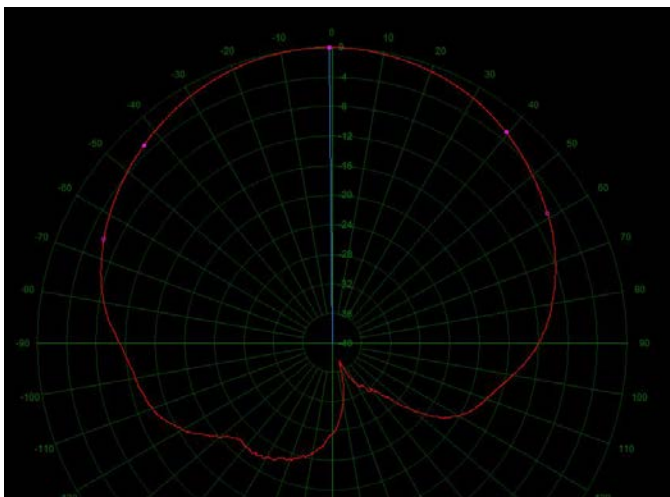
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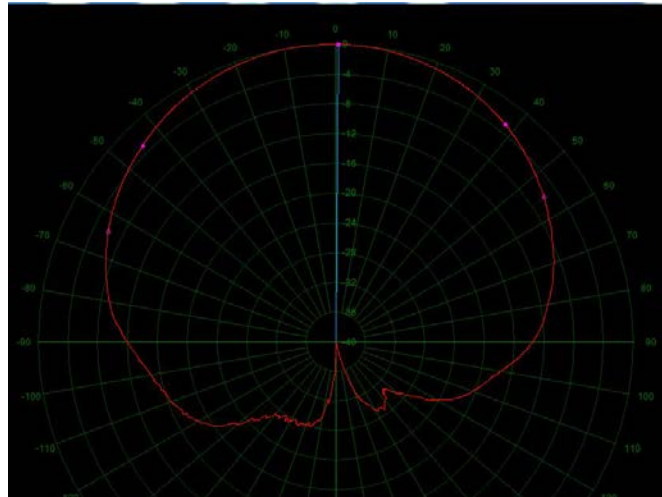
1176MHz Pattern



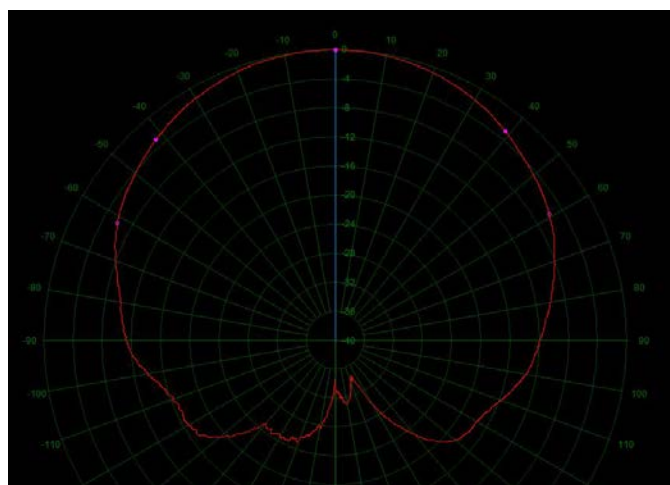
1206MHz Pattern



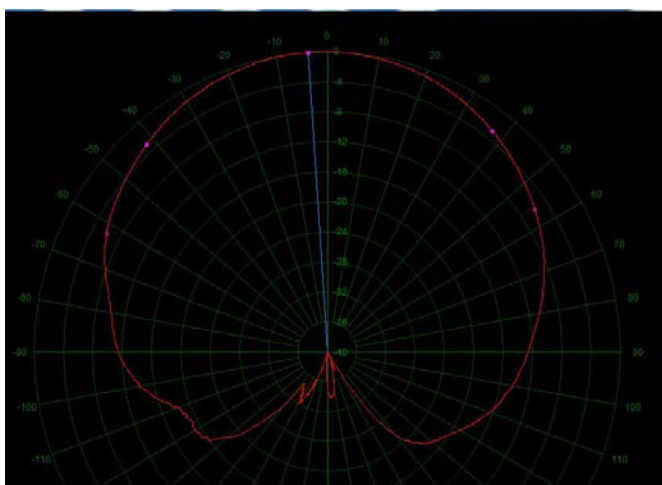
1227MHz Pattern



1268MHz Pattern

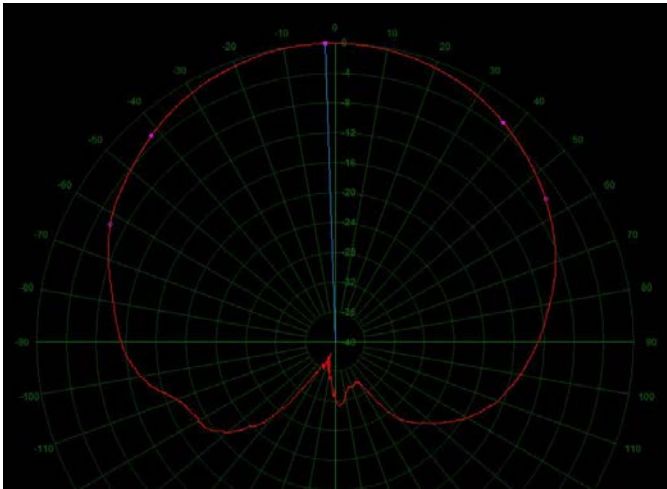


1542MHz Pattern

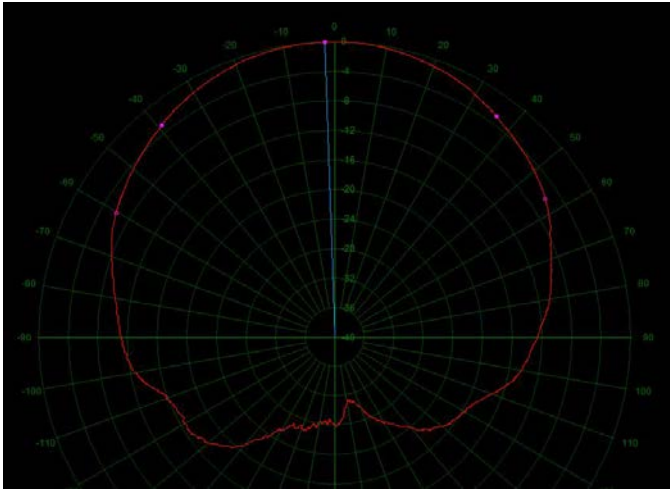


1565MHz Pattern

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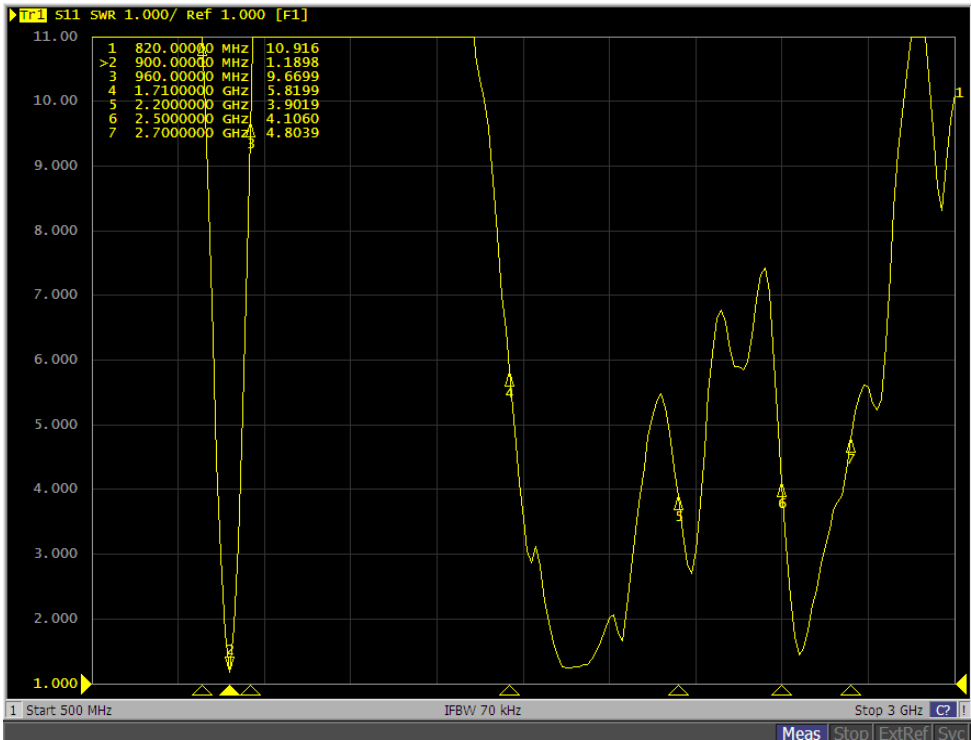


1575MHz Pattern



1607MHz Pattern

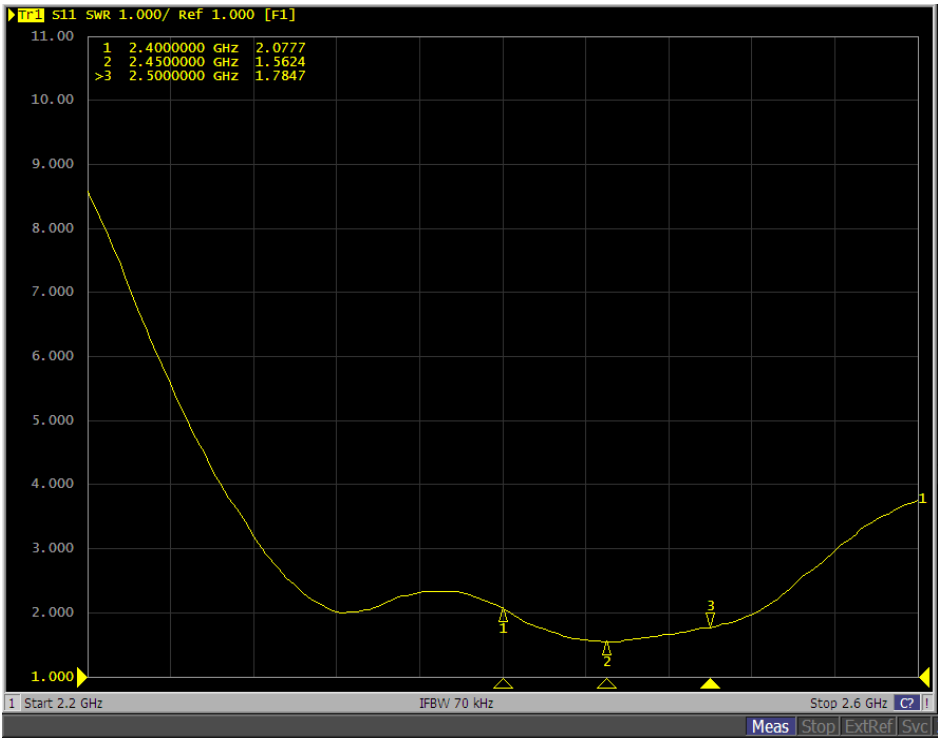
4G Antenna Performance



4G Antenna Voltage VSWR

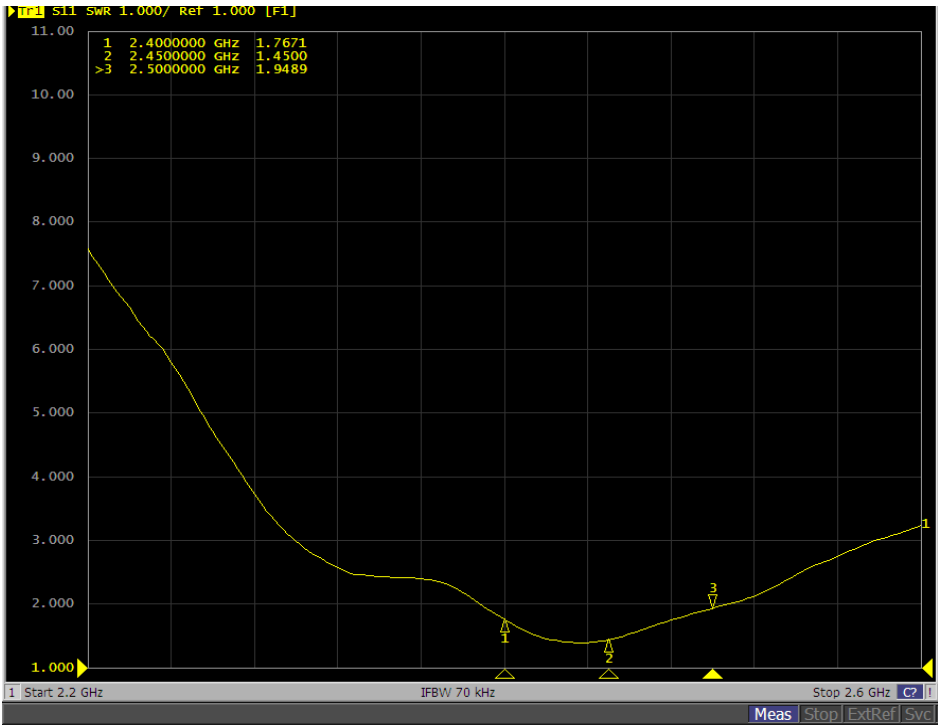
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Bluetooth Antenna Performance



Bluetooth Antenna Voltage VSWR

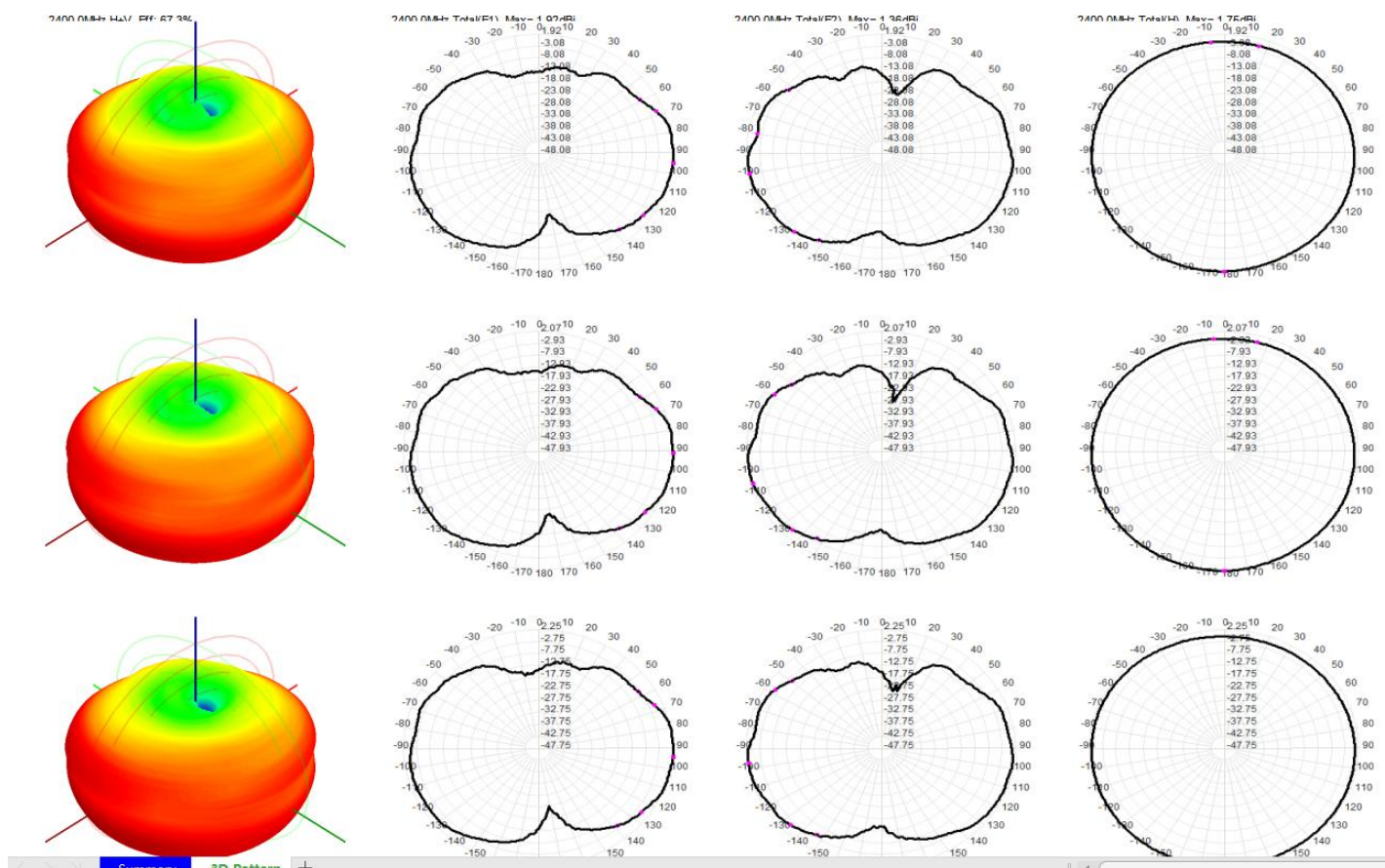
Wi-Fi Antenna Performance



WIFI Antenna Voltage VSWR

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Three-dimensional for BT/WIFI



BT/WIFI Picture



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