

OEM GNSS Antenna HX-CSX313A



HX-CSX313A is an embedded full frequency GNSS antenna covering GPS, GLONASS, BDS, GALILEO, and QZSS. It is also compatible with WiFi and Bluetooth, meeting the demand for multi-system compatibility in current survey devices. It can be widely used in various applications such as geodetic surveying, marine surveying, channel surveying, dredging surveying, seismic monitoring, bridge deformation monitoring, landslide monitoring, and port container operations.

HIGHLY INTEGRATED ANTENNA FOR EASY INTEGRATION

HX-CSX313A integrates GNSS antenna and WiFi/BT into one compact enclosure, greatly simplifying RTK integration. Deep optimization has been carried out for the isolation between antennas of various systems, systematically addressing the electromagnetic compatibility issues that have long troubled RTK receivers.

STABLE PHASE CENTER FOR ROBUST POSITIONING PERFORMANCE

It features multi-point feeding capability, guaranteeing a reliable phase center for millimeter 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 guarantee robust signal availability even in low elevation, making the antenna a perfect option for complex environments with blockage, such as forests and buildings.

RELIABLE STRUCTURE FOR STABLE PERFORMANCE

This antenna uses air dielectric and low-loss microwave board materials. The overall weight is reduced, the structure is more robust, and the electrical performance becomes more stable and reliable.

STRONG ANTI-INTERFERENCE PERFORMANCE

The advanced LNA (Low Noise Amplifier) excels in improved signal filtering and out-of-band rejection, perfectly restraining unwanted electromagnetic interferences. With strong multi-path reduction capacity for strong anti-interference performance, consistent and reliable GNSS signals can be achieved even under complicated environments such as power grids, communication base stations and broadcast stations.

Key Features

- Supports GPS, GLONASS, Beidou, Galileo, QZSS
- Supports WiFi (2.4G&5.8G) /BT
- Anti-electromagnetic interference, tracking in complex environments
- Powerful system compatibility, easy for machine integration

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Specifications

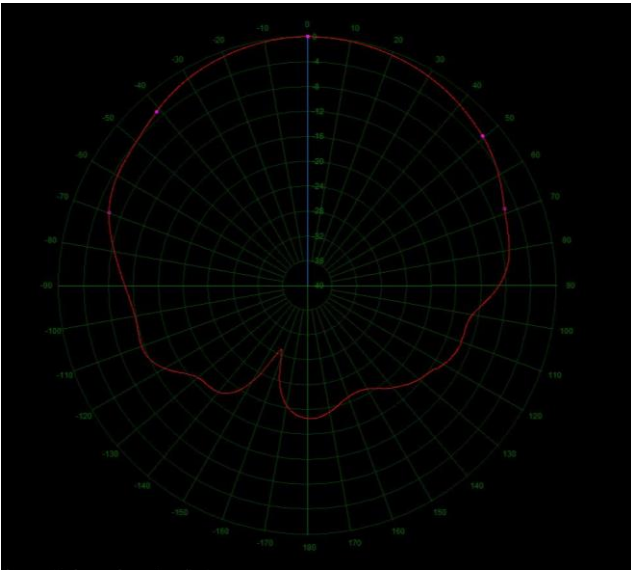
PERFORMANCE	
Signal Received	GPS L1/L2/L5 BDS B1I/B2I/B3I/B1C/B2a/B2b GLONASS L1/L2/L3 GALILEO E1/E5a/E5b/E6 QZSS L1、L2、L5、L6 IRNSS L5 L-Band BT/WiFi (2.4&5.8GHz)
Nominal Impedance	50 Ω
Polarization	RHCP
Axial Ratio	$\leq 3\text{dB}$
Azimuth Coverage	360°
Azimuth Coverage	≤ 2.0
Peak Gain	GNSS: 5dBi BT/WiFi: 0.5dBi
Phase Center Deviation	$\pm 2\text{mm}$
Phase Center Height(Take the upper surface of the PCB as a reference)	L2: 7.5mm L1: 9.6mm

LOW NOISE AMPLIFIER	
LNA Gain	L2: $34 \pm 2\text{ dB}$ L1: $32 \pm 2\text{ dB}$
Noise Figure	$\leq 2\text{dB}$
VSWR	≤ 2.0
Passband Ripple	$\pm 2\text{dB}$
Operation Voltage	+3.3 ~ +12VDC
Operation Current	$\leq 45\text{mA}$
Group Delay Ripple	$\leq 5\text{ns}$
MECHANICAL	
Dimensions	$\Phi 117 \times H12.3\text{mm}$
Connector	GNSS: MMCX-C-JW1.5 BT/WiFi: IPEX-J
ENVIRONMENTAL	
Operating Temperature	-40°C ~ +85°C
Storage Temperature	-55°C ~ +85°C
Humidity	95% non-condensing

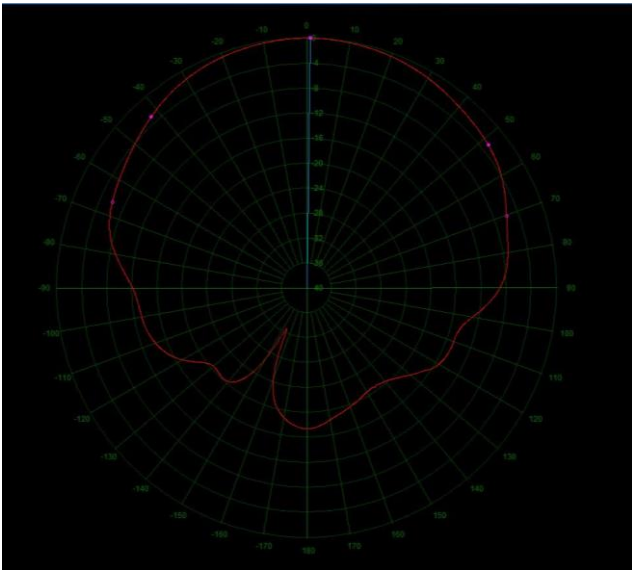
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GNSS Antenna Performance

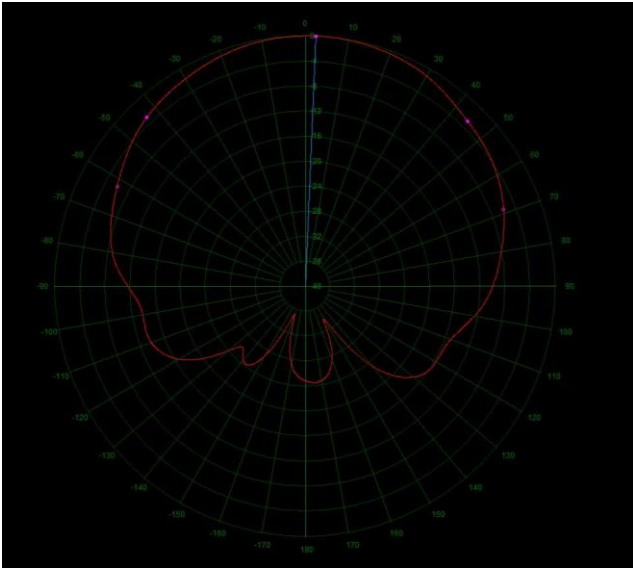
Frequency (MHz)	1176	1206	1227	1268	1542	1561	1575	1606
Gain (dBi)	1.7	3.4	4.6	4.9	4.6	5.5	5.8	5.9



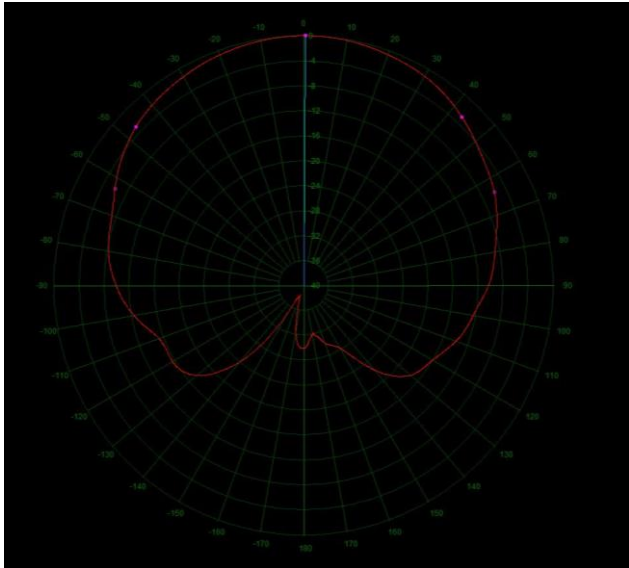
1176MHz



1227MHz

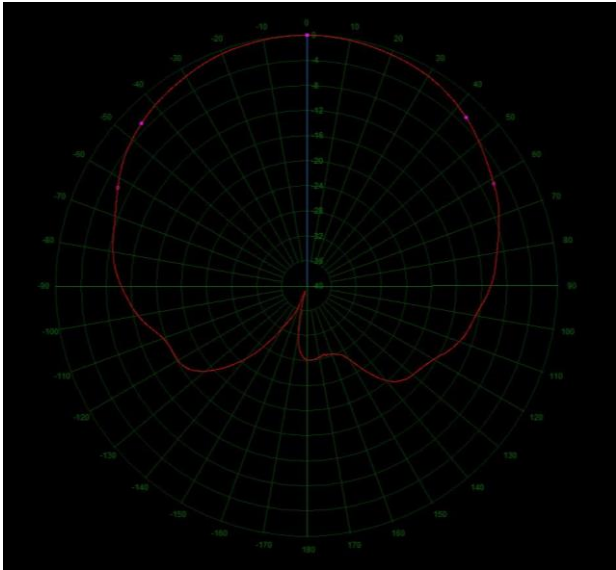


1268MHz

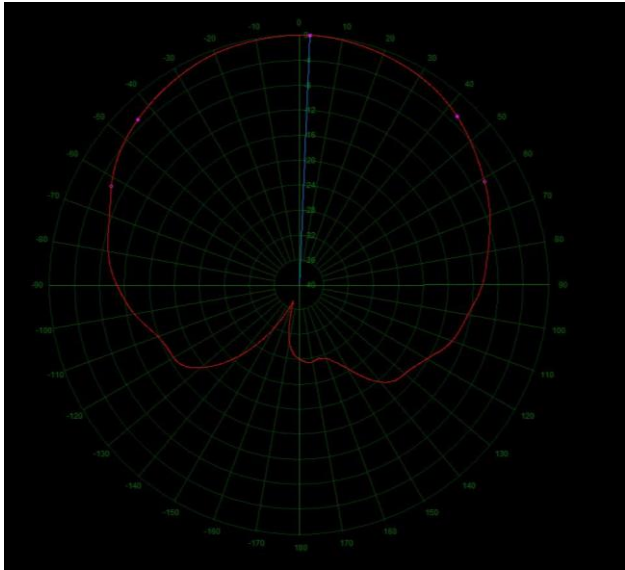


1542MHz

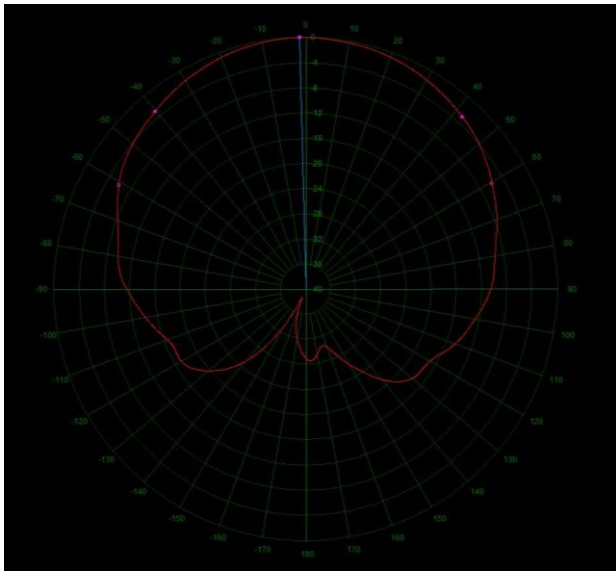
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1561MHz



1575MHz

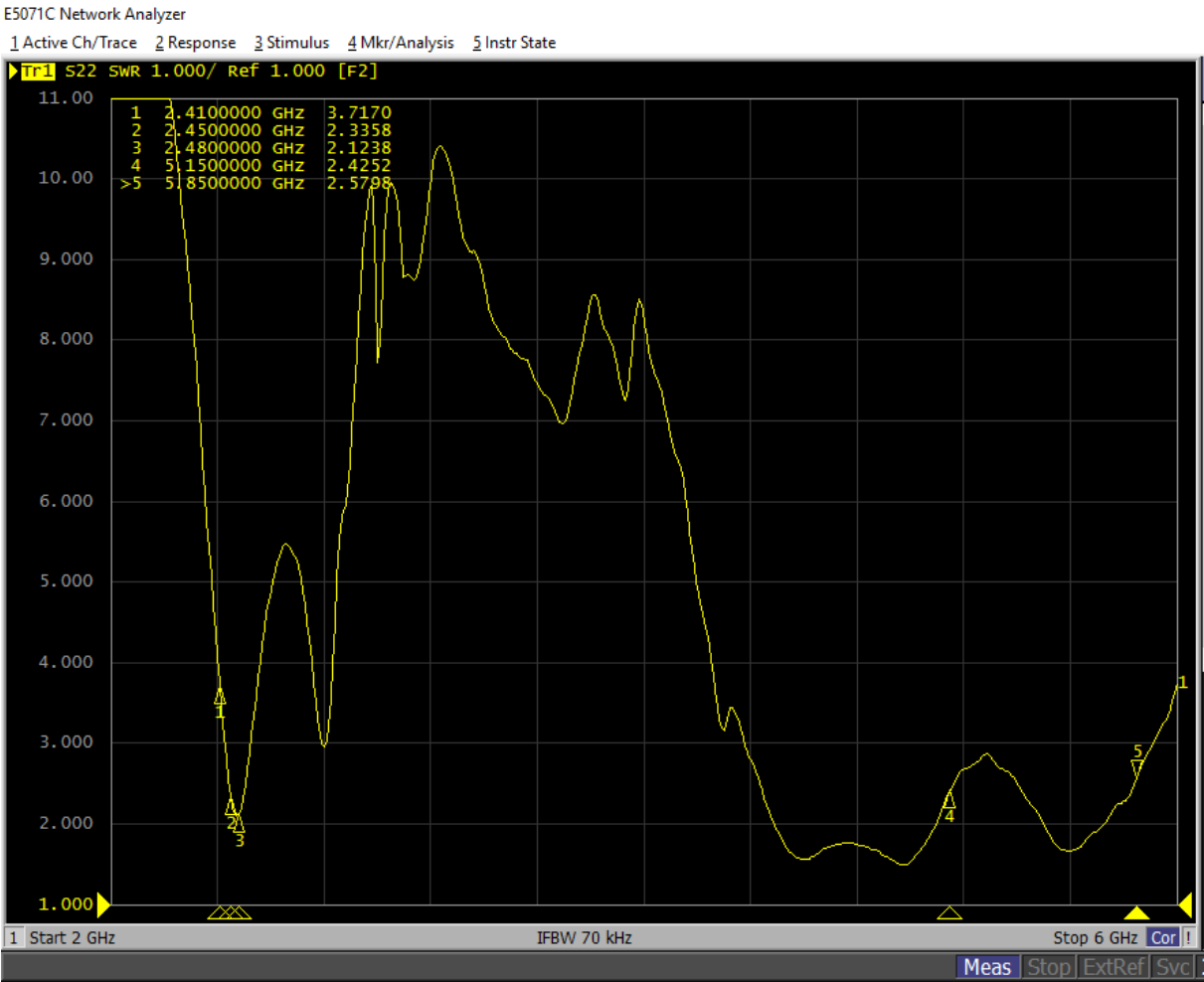


1606MHz

WIFI/BT Antenna Performance

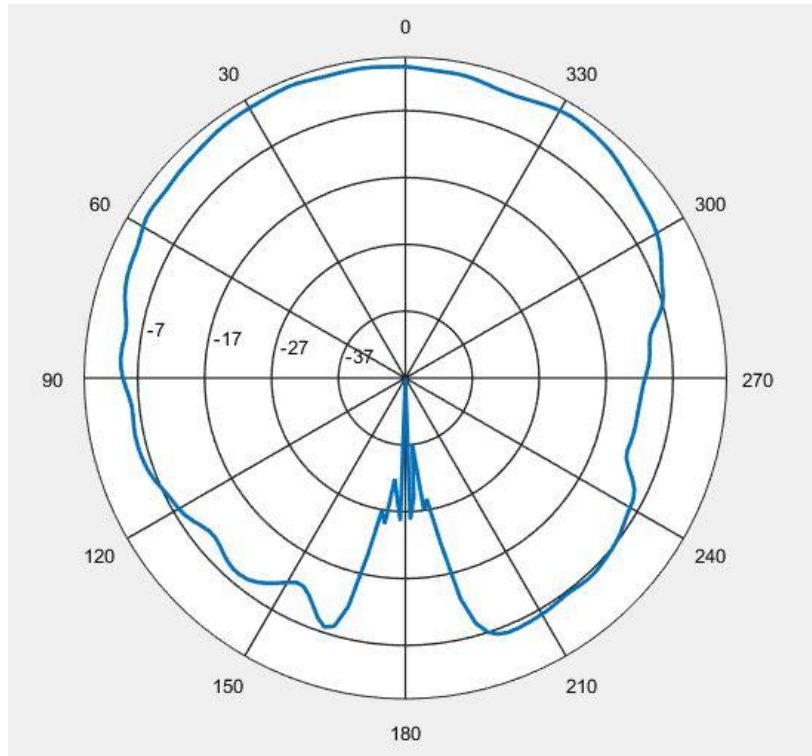
Frequency (MHz)	2400	2410	2420	2430	2440	2450	2460	2470	2480	2490	2500
Gain (dBi)	1.1	1.3	1.8	2.0	2.3	2.4	2.3	2.2	1.7	1.5	1.2
Frequency (MHz)	5000	5100	5200	5300	5400	5500	5600	5700	5800	5900	6000
Gain (dBi)	3.1	3.4	4.0	4.7	5.0	5.3	5.2	5.8	5.0	4.4	3.8

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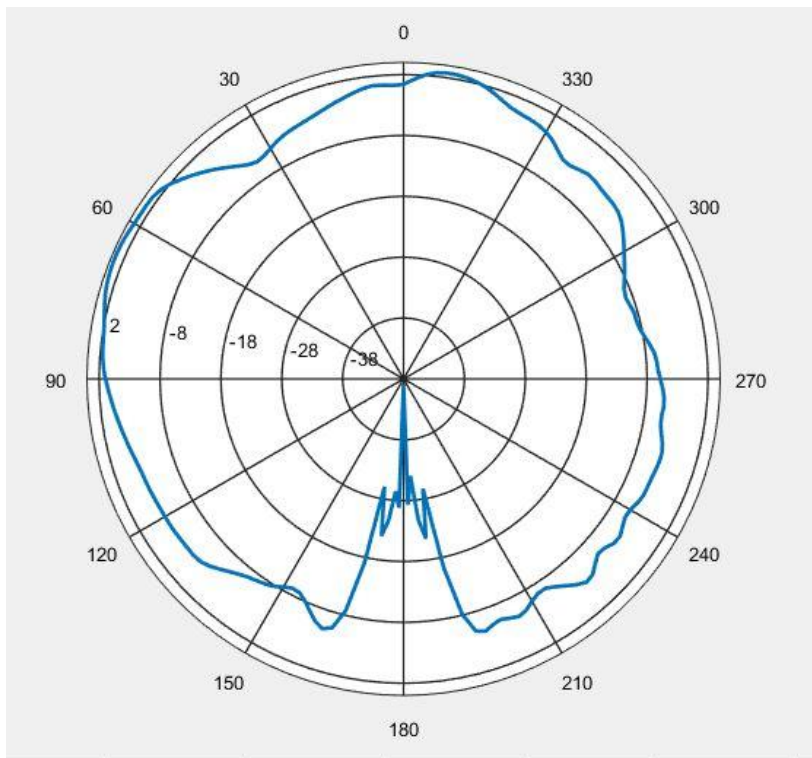


BT/WiFi Antenna VSWR

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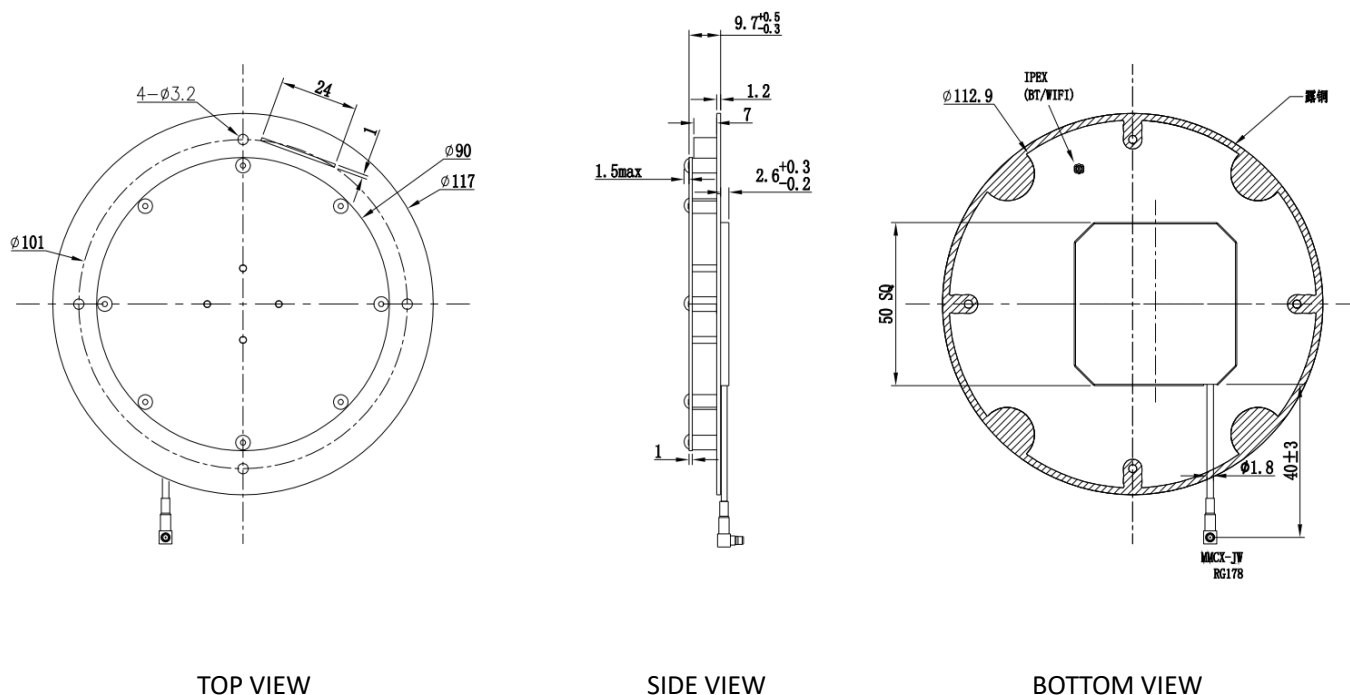
2450MHz



5500MHz

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Structure & Phase Center Drawing (mm) (Undeclared Tolerance: ± 0.3 mm)



Label

Label size: 15*30mm, the content of the label is shown as below.

Survey Antenna Products

Model: HX-CSX313A

S/N: C22019000168

Harxon Corporation



Harxon Corporation

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