

# OEM GNSS Antenna HX-CSX202A



HX-CSX202A is an embedded multi-constellation multi-frequency GNSS antenna that covers GPS, GLONASS, BDS, and GALILEO and is also compatible with 4G and Bluetooth. It can be widely used in geodetic surveying, marine surveying, channel surveying, dredging surveying, seismic monitoring, bridge deformation monitoring, landslide monitoring, port container operations, and other occasions.

## GREAT COMPATIBILITY FOR SOLID RELIABILITY

This versatile antenna adopts a compact design that combines GNSS antenna, 4G antennas and Bluetooth 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

It features multi-point feeding capability, guaranteeing a reliable phase center for millimeter positioning accuracy. The BT antenna is placed around the GNSS, ensuring good structural symmetry, and ensuring the consistency of the positioning antenna's phase center.

## 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.

## RELIABLE AND ROBUST STRUCTURE

Utilizing self-developed air-spaced technology and low consumption microwave materials, GNSS antenna substrate is molded integrally through a mold, resulting in lower loss, lighter weight, smaller antenna dimensions, higher precision, good consistency, and more stable and reliable electrical performance.

## 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

- Supports GPS, GLONASS, Galileo, BeiDou, QZSS, IRNSS and L-band correction service
- Supports Dual 4G, Bluetooth/WIFI
- Strong anti-Interference performance
- Powerful system compatibility, easy for machine integration

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## Specifications

PERFORMANCE	
Frequency	GPS L1/L2/L5 BDS B1/B2/B3 GLONASS L1/L2/L3 GALILEO E1/E5a/E5b/E6 QZSS L1/L2/L5 IRNSS L5 SBAS L1/L5 L-Band 4G WIFI/BT:2.4GHz/5.8GHz
Nominal Impedance	50 $\Omega$
Polarization	RHCP
Axial Ratio	$\leq 3\text{dB}$
Azimuth Coverage	360°
Azimuth Coverage	GNSS: $\leq 2.0$ WIFI/BT: $< 2$ (@2.42GHz-2.46GHz, @5.2GHz-5.85GHz)
Peak Gain	GNSS:5.8dBi 4G:3.27dBi WIFI: 2.24dBi
Phase Center Deviation	$\pm 2\text{mm}$

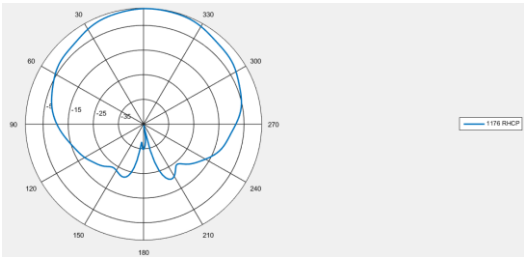
LOW NOISE AMPLIFIER	
LNA Gain	30 $\pm$ 2dB
Noise Figure	$\leq 2\text{dB}$
VSWR	$\leq 2.0$
Passband Ripple	$\pm 1\text{dB}$
Passband Ripple	+3.3 ~ +12VDC
Operation Current	$\leq 45\text{mA}$
Group Delay	$\leq 5\text{ns}$
Ripple	
MECHANICAL	
Dimensions	$\Phi 126 \times 18.5\text{mm}$
Connector	SMP(DFI625IAI-003-AT3G-50)4G
ENVIRONMENT	
Operating Temperature	-40°C ~ +85°C
Storage Temperature	-55°C ~ +85°C
Humidity	95% non-condensing

Manufacturer: Shanghai Huace Navigation Technology Ltd.  
Manufacturer address: 577 Songying Road, Qingpu District, 201706 Shanghai, China

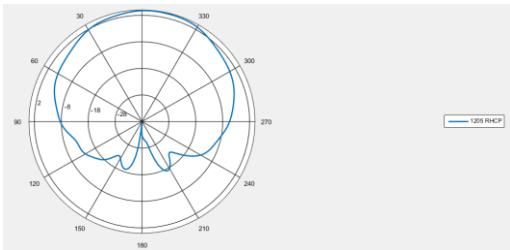
# OEM GNSS Antenna HX-CSX202A

## GNSS Antenna Performance

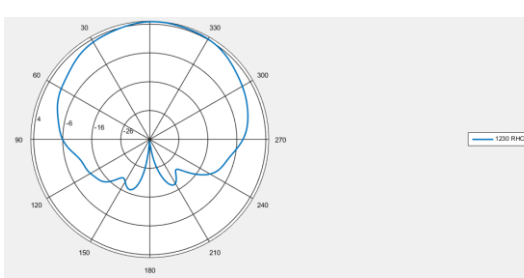
Frequency (MHz)	1176	1205	1227	1268	1542	1559	1575	1606
Gain (dBi)	3.1	4.1	4.8	3.4	4.4	5.6	5.8	4.8



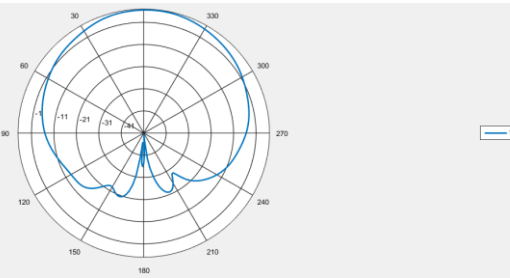
1176MHz



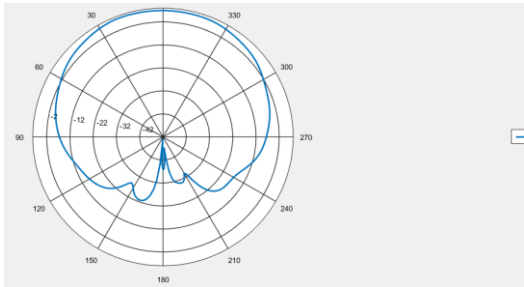
1205MHz



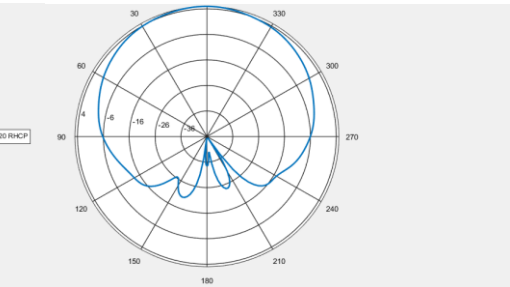
1230MHz



1280MHz

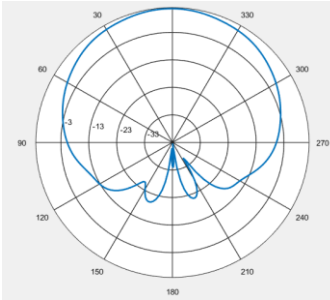


1520MHz

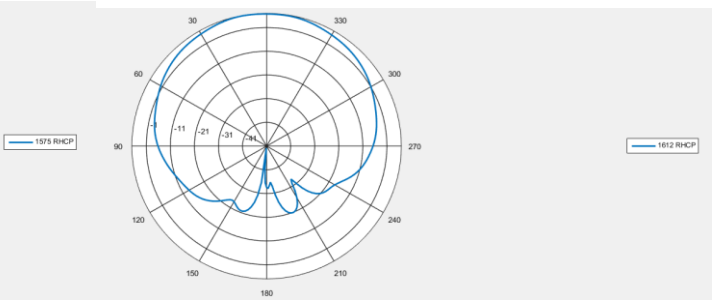


1560MHz

# OEM GNSS Antenna HX-CSX202A



1575MHz

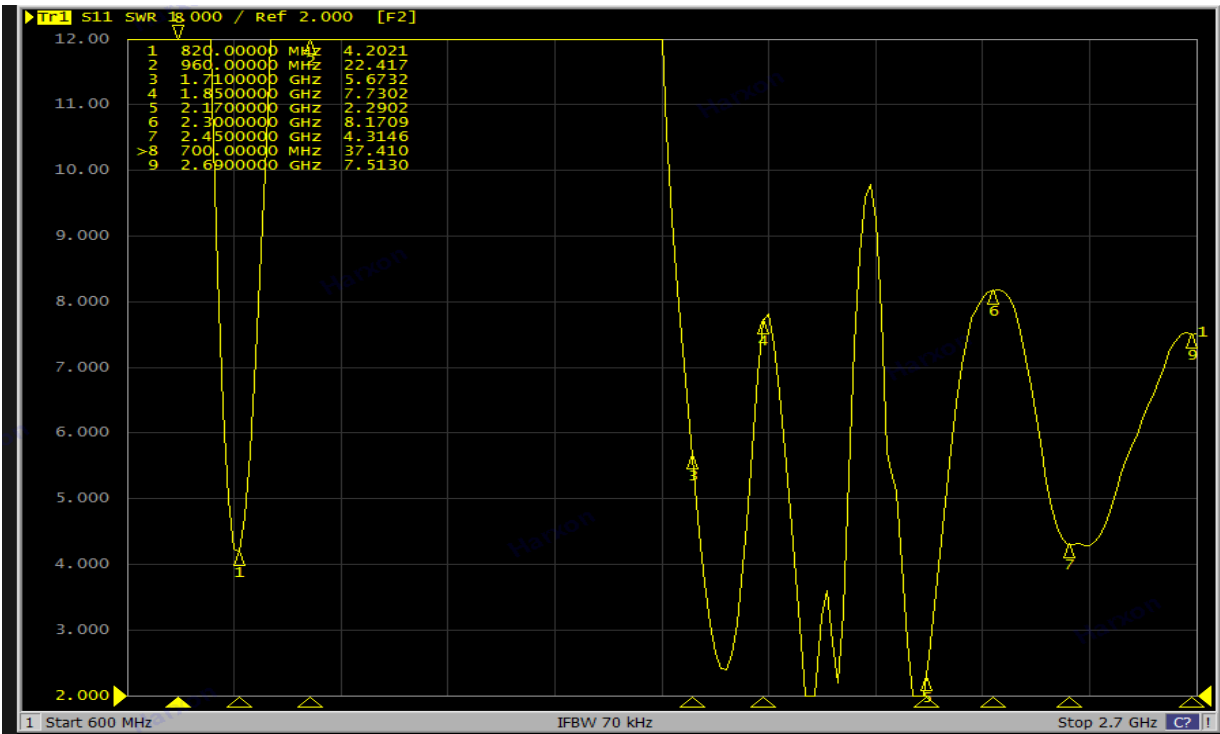


1606MHz

## 4G Antenna Performance

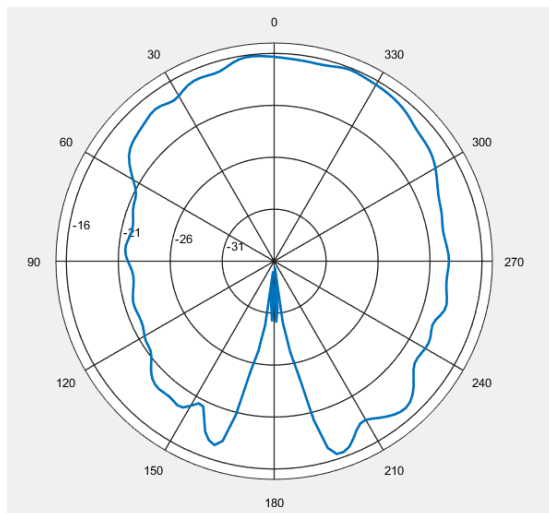
4G Antenna Performance

Frequency (MHz)	680	750	820	890	960	1710	1810	1910	2010	2110	2210	2310	2410	2510	2610	2690
Gain (dBi)	-16.27	-9.42	-1.34	3.27	-1.33	-2.57	2.12	2.52	2.41	2.49	0.14	-3.44	1.44	-0.16	-4.11	-3.84

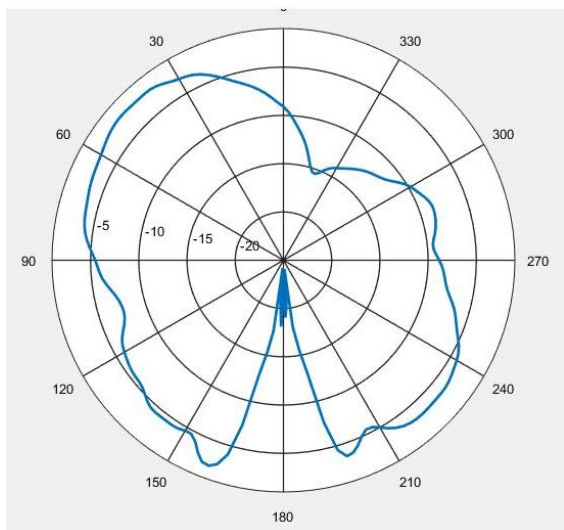


4G Antenna VSWR

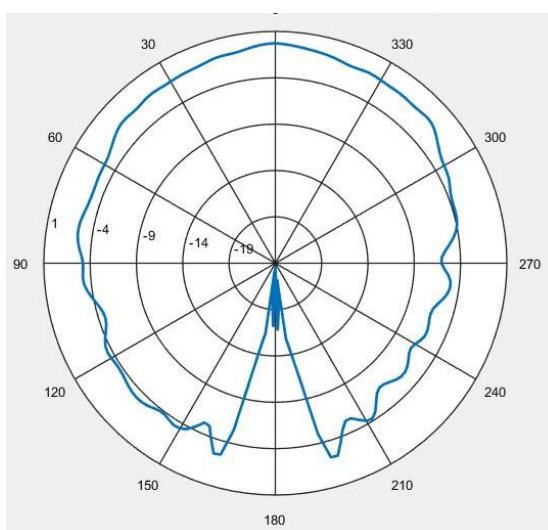
# OEM GNSS Antenna HX-CSX202A



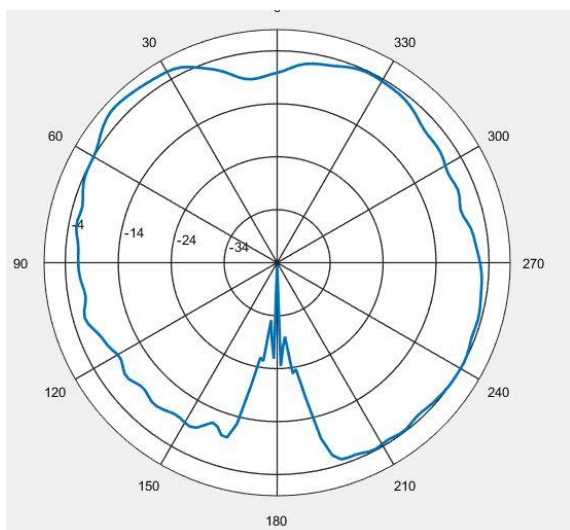
700MHz



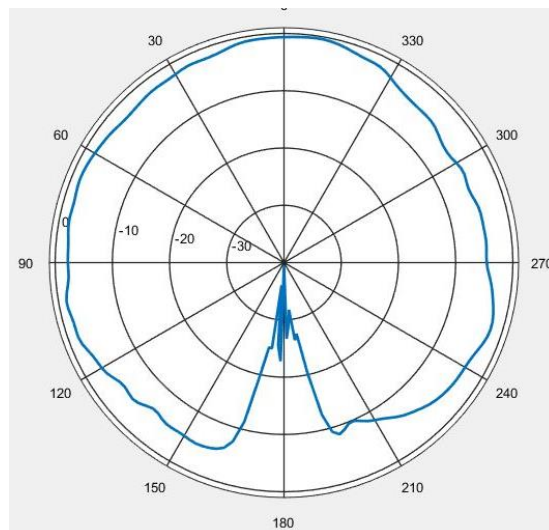
820MHz



960MHz

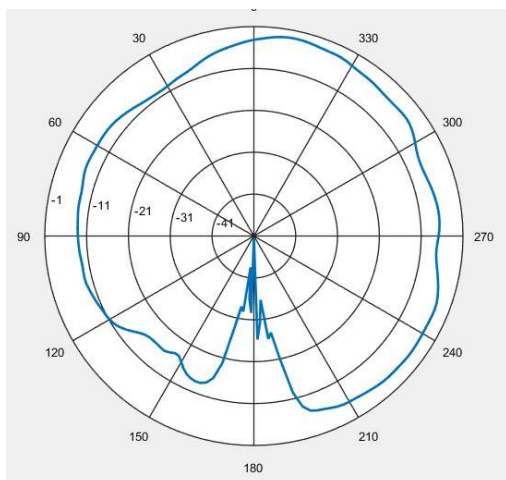


1710MHz

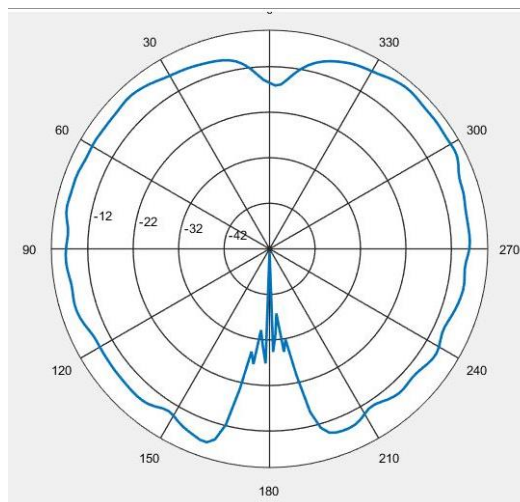


1910MHz

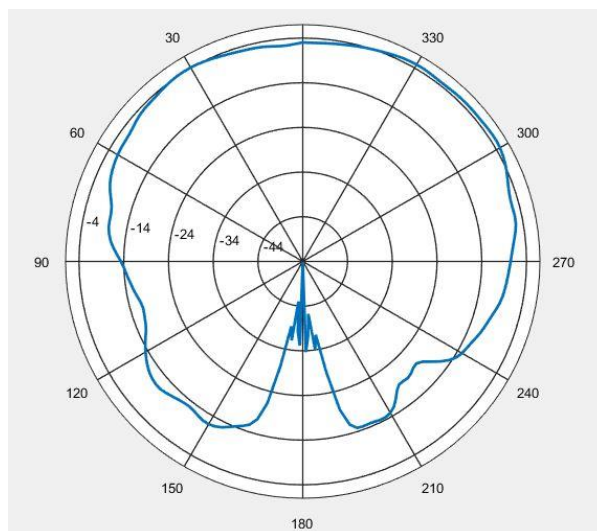
# OEM GNSS Antenna HX-CSX202A



2110MHz



2450MHz

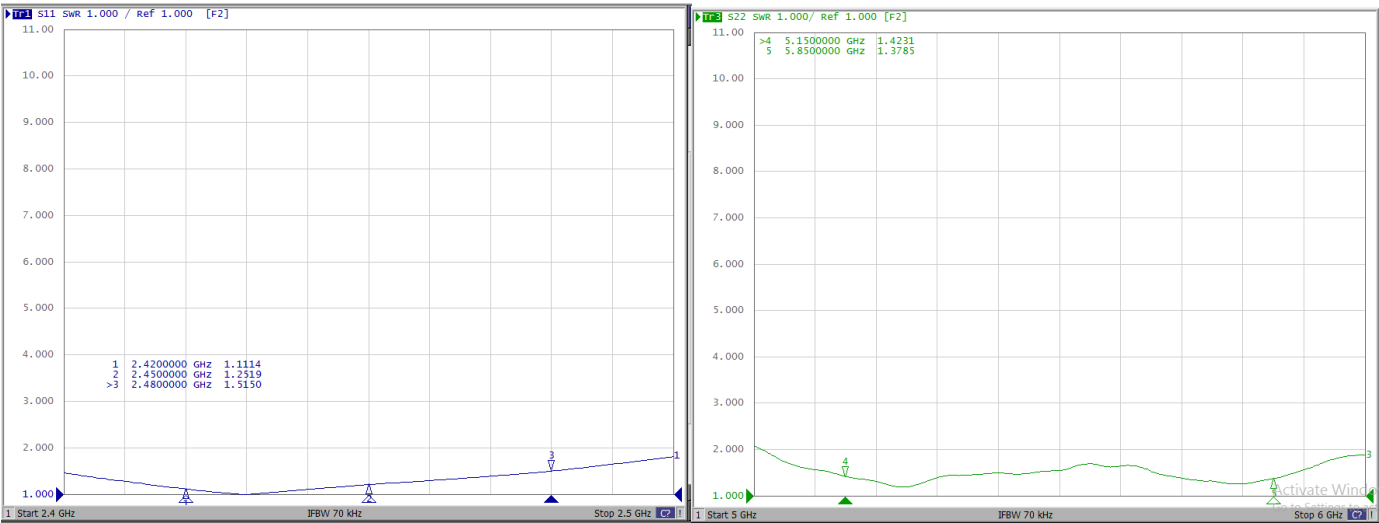


2690MHz

## BT Antenna Performance

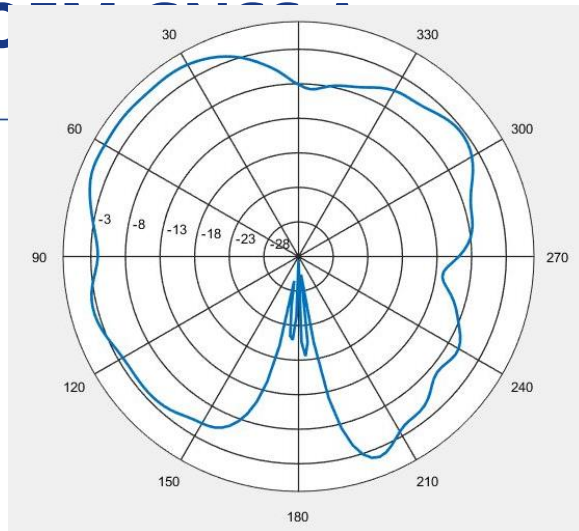
Frequency (MHz)	2420	2440	2460	5200	5400	5600	5800	5850
Gain (dBi)	1.27	2.24	1.46	2.48	4.37	0.21	-2.24	-0.9

# OEM GNSS Antenna HX-CSX202A

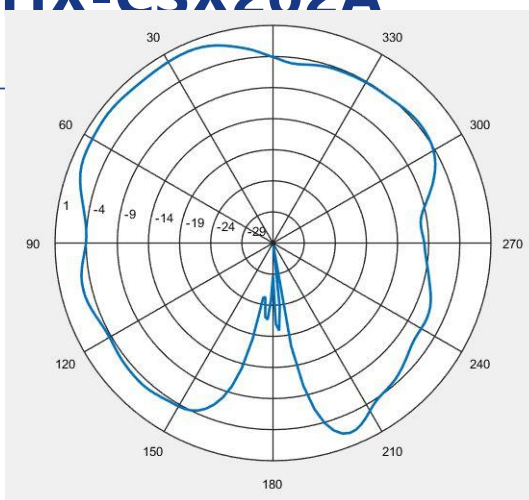


BT/WIFI Antenna VSWR

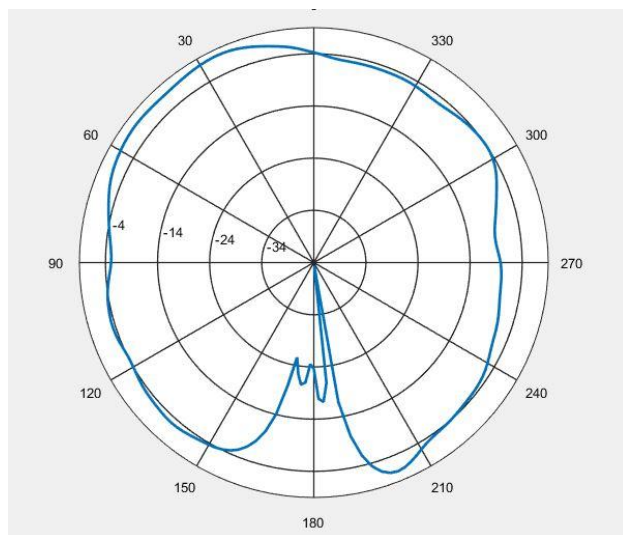




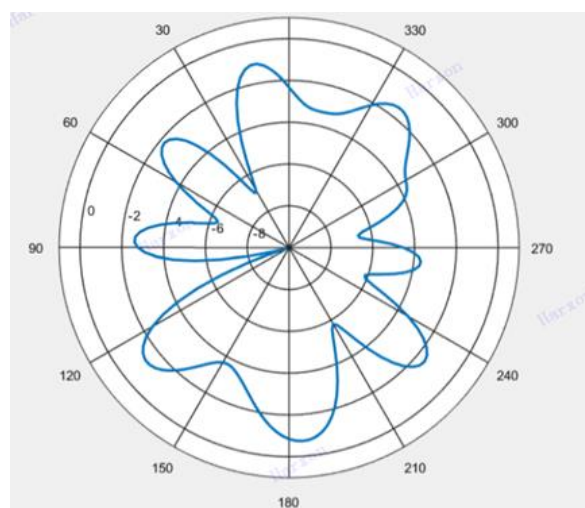
2410MHz



2450MH



2410MHz

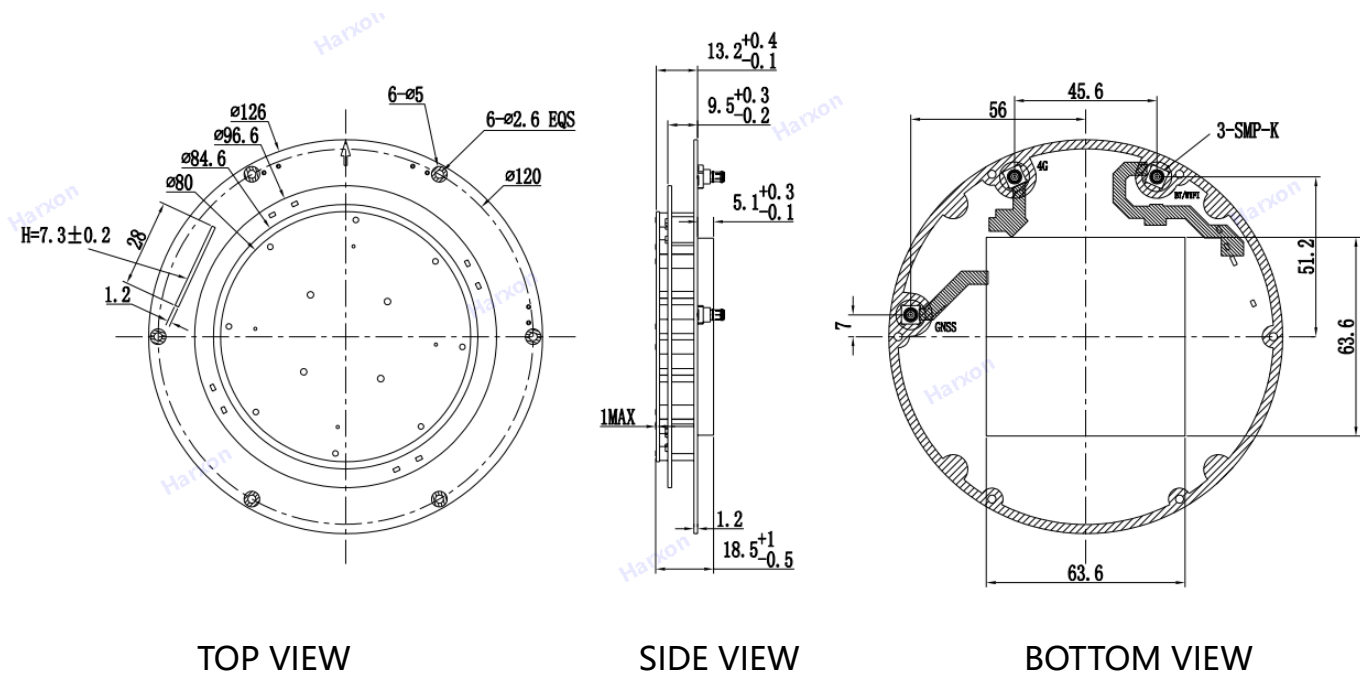


5600MH



# OEM GNSS Antenna HX-CSX202A

## Structure & Phase Center Drawing (mm)



Undeclared Tolerance:  $\pm 0.3$  mm

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