

HX-CSX240A OEM antenna

HX-CSX240A is a OEM survey antenna covering GPS, GLONASS, BDS, GALILEO, QZSS, and it is compatible with BT and WiFi working bands to meet the current demand for multi-system compatibility of measurement equipment. It can be widely used in geodetic surveying and mapping, marine surveying, channel surveying, dredging surveying, earthquake monitoring, bridge deformation monitoring, landslide monitoring, container operation at the dock, etc.

Perfect compatibility between systems

The GNSS antenna and BT, WiFi antenna do compatible integration, easy to RTK machine manufacturers to integrate the design. And for each system antenna isolation between the depth of optimization, systematic solution has been plagued by RTK receiver electromagnetic compatibility problems, so that the RTK machine design work is simplified, the product is stable and reliable.

Highly stable phase center

The antenna part adopts multi-feed point design scheme to realize the coincidence of phase center and geometric center, which reduces the influence of antenna on measurement error to the minimum. which well solves the influence of communication antennas on positioning antennas and ensures the consistency of phase center of positioning antennas.

Tracking in complex environments

The antenna unit has the characteristics of high gain and wide directional map beam to ensure that the antenna still has a strong signal reception effect at low elevation angles, ensuring that it can quickly lock on to the satellite and output GNSS navigation signal stably even in complex environments such as obscured trees and buildings.

High structural reliability

The communication antenna and GNSS positioning antenna substrate are molded in one piece by using self-researched microwave material, with lower loss, lighter weight, smaller antenna size, high precision, good consistency, and more stable and reliable electrical performance.

Strong anti-interference performance

Antenna LNA has excellent out-of-band rejection performance, which can suppress useless electromagnetic wave signals and avoid receiver interference by other wireless communication systems, effectively reducing the risk of system loss of lock, such as electromagnetic wave interference from power grids, communication base stations, radio stations, etc.

Key Features

- Support GNSS five system full band signal
- Support BT, WiFi(2.4/5.8G)
- Strong anti-interference ability, can withstand harsh working environment
- Good electromagnetic compatibility, small antenna size, easy product integration

HX-CSX240A OEM antenna

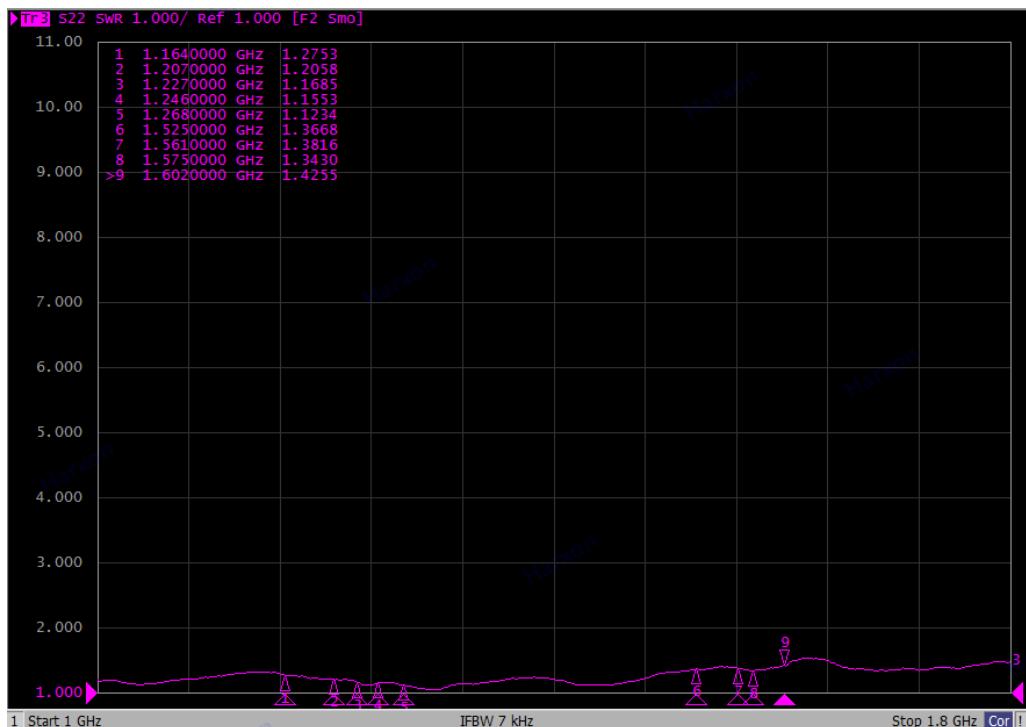
Performance Parameters

GNSS Antenna Characteristics		Structural characteristics		Working Environment	
Frequency range	GPS L1/L2/L5/L-Band BDS B1/B2/B3 GLONASS L1/L2 GALILEO E1/E2/E5a/E5b QZSS: L1/L2/L5/L6	Noise Figure	≤2dB	Operating temperature	-40°C ~ +85°C
Impedance	50 Ohm	Output VSWR	≤2.0	Storage temperature	-55°C ~ +85°C
Polarization method	Right rotation Circular polarization	In-band flatness	±2dB	Humidity	95% Non-condensing
Antenna axis ratio	≤3dB	Support Voltage	+3.3 ~ +12VDC		
Horizontal plane coverage angle	360°	Operating Current	≤45mA		
Output VSWR	≤2.0	Differential transmission delay	≤5ns		
Maximum Gain	GNSS: 5dBi	Structural characteristics			
Phase center height	±2mm	Antenna Size	Φ115*H16.7mm		
2.4G Antenna Performance		Joint form	GNSS/WIFI/BT: IPEX1 generation Terminal		
Frequency	2402-2480MHz	Working Environment			
Maximum Gain	0.56 dBi	Operating temperature	-40°C ~ +85°C		
Resonance Frequency	2480±5MHz	Storage temperature	-55°C ~ +85°C		
VSWR	Resonance Frequency: <2	Humidity	95% Non-condensing		
2.4/5.8G Antenna Performance					
Frequency	2402-2480MHz/5150-5800MHz				
Maximum Gain	-0.26dBi/3.89dBi				
Resonance Frequency	2480±5MHz/5450±5MHz				
VSWR	Resonance Frequency: <2				
LNA Specifications					
Gain	30±2dB				

GNSS antenna performance

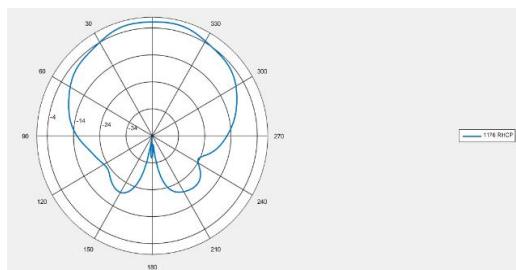
GNSS Antenna Gain Table

Frequency (MHz)	Gain @Zenith(dBi)	Axial Ratio @Zenith(dB)	Gain @20° Elevation (dBi)	Axial Ratio @20° Elevation (dBi)	Front to back Ratio (dB)
1164	0.5	1.9	-5.1	5.1	10.6
1176	2.4	1.7	-3.9	5.2	10.8
1207	4.1	0.8	-2.2	4.8	10.2
1227	4.8	0.2	-1.7	3.7	9.8
1246	5.2	0.5	-1.6	2.8	9.5
1258	5.4	0.8	-1.6	2.5	9.4
1268	5.3	1.1	-1.6	2.4	10.3
1278	5.1	1.3	-2.0	3.2	11.7
1525	0.1	0.8	-6.8	4.1	17.2
1561	4.0	0.9	-3.8	2.3	18.3
1575	5.1	1.1	-2.8	2.4	17.5
1602	5.8	0.7	-2.2	2.9	20.2

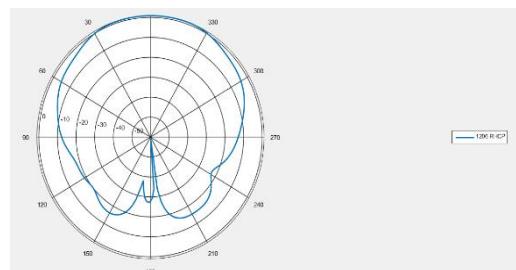


GNSS Antenna VSWR

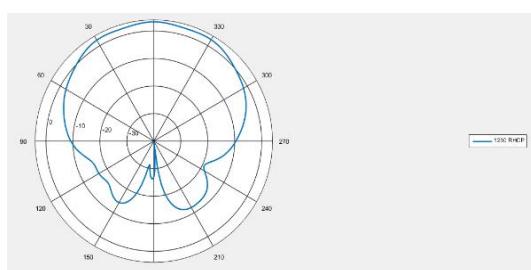
GNSS Radiation Pattern



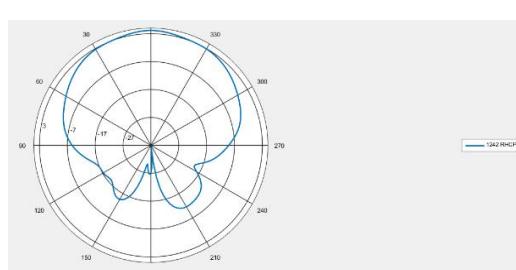
1176MHz



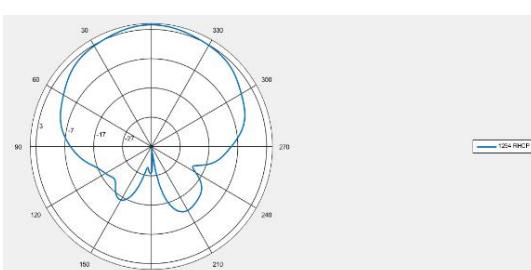
1206 MHz



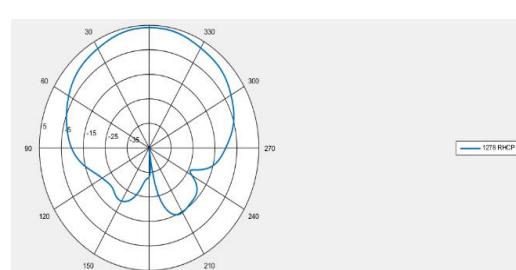
1230MHz



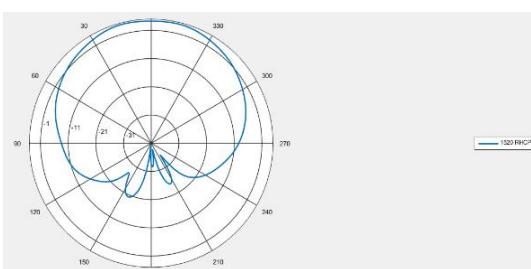
1242MHz



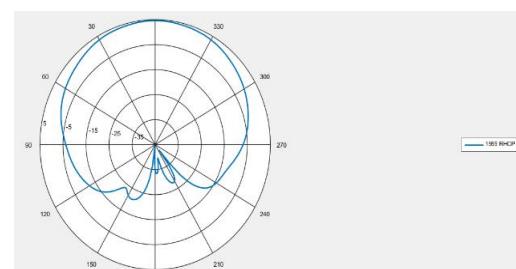
1254MHz



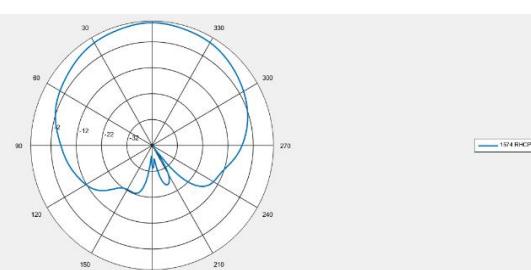
1278MHz



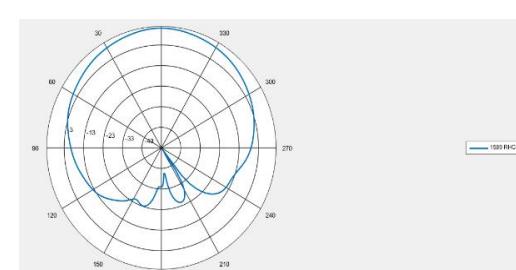
1520MHz



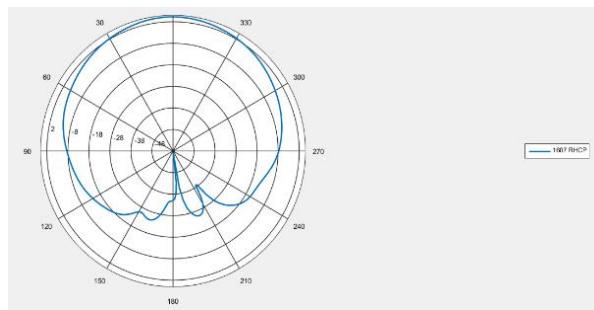
1559MHz



1575MHz



1590MHz

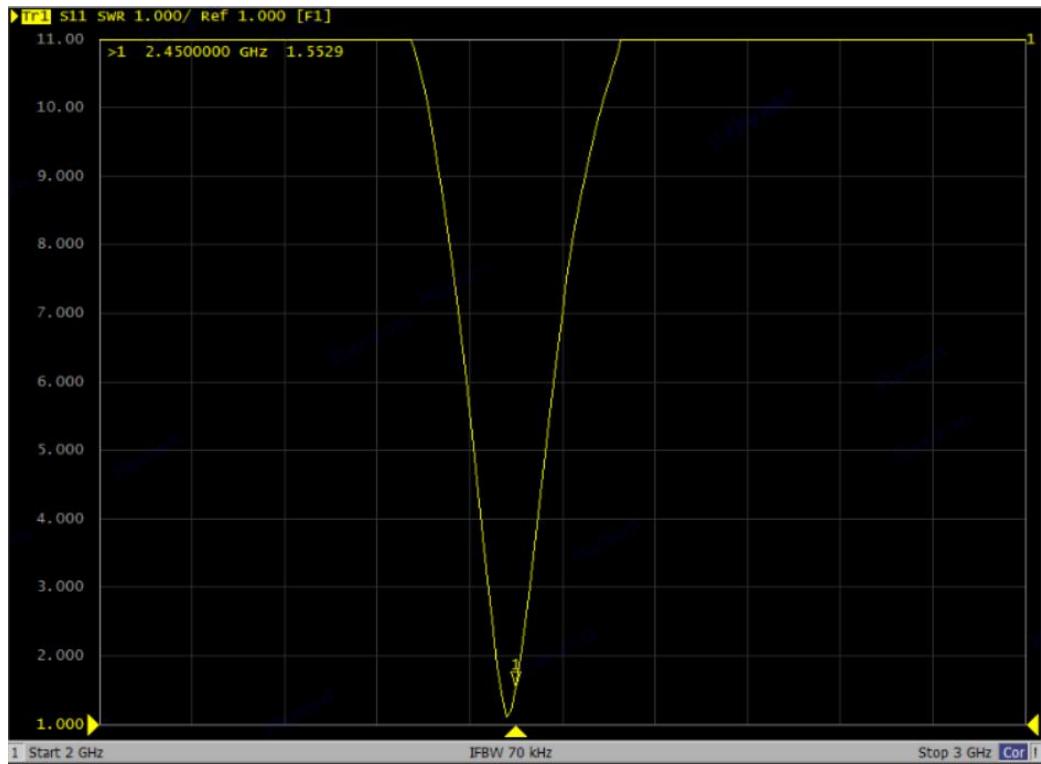


1607MHz

BT antenna performance

BT Antenna Gain

Frequency (MHz)	2400	2410	2420	2430	2440	2450	2460	2470	2480	2490	2500
Maximum Gain (dBi)	-5.11	-3.67	-1.10	-0.24	0.23	0.56	-0.17	-1.30	-2.82	-5.86	-6.18



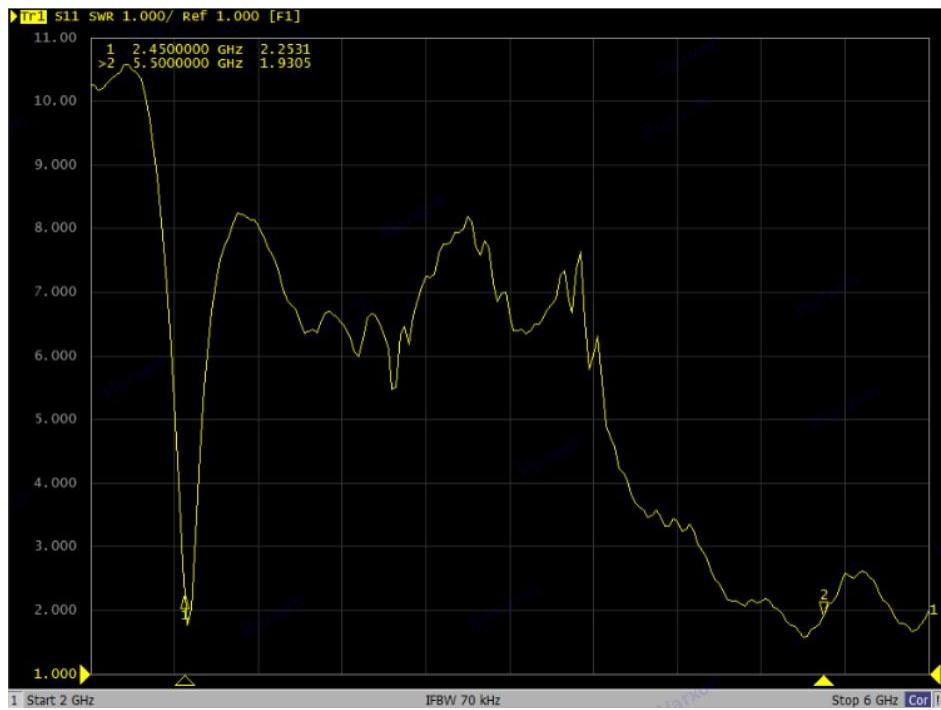
Bluetooth Antenna VSWR

WiFi (2.4/5.8G) antenna performance

WiFi Antenna Gain

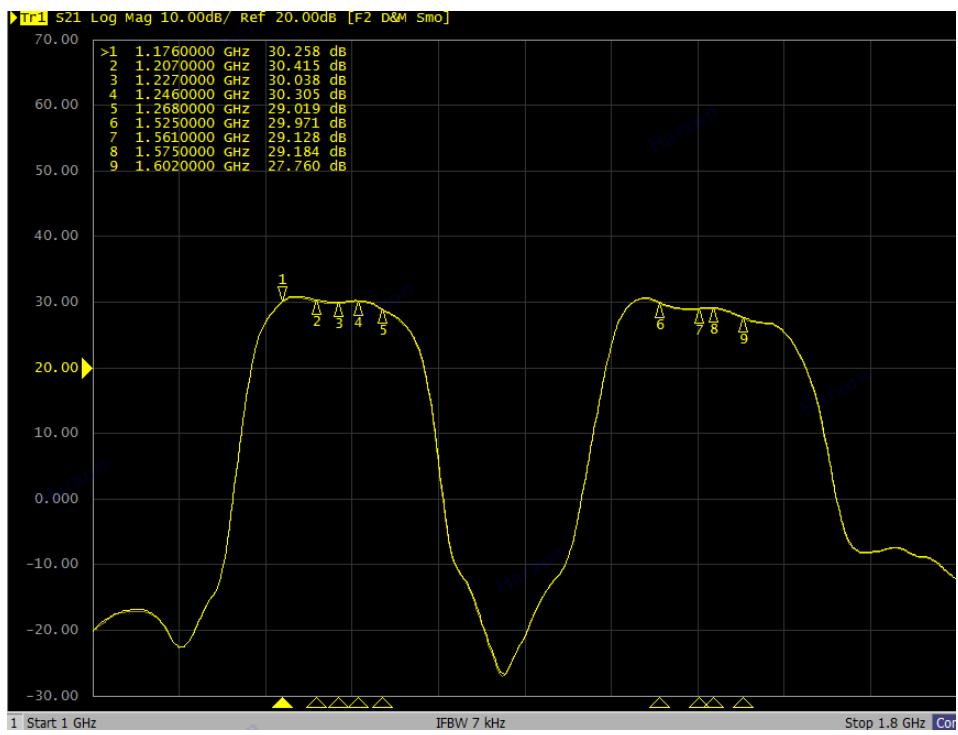
Frequency (MHz)	2410	2420	2430	2440	2450	2460	2470	2480	2490	2500
Maximum Gain (dBi)	-4.86	-4.20	-2.33	-1.77	-0.26	-1.07	-2.07	-4.97	-5.54	-6.40

Frequency (MHz)	5100	5200	5300	5400	5500	5600	5700	5800	5900	6000
Maximum Gain (dBi)	0.77	2.18	3.89	3.37	1.86	0.21	-1.37	-2.44	-2.24	-0.90



WiFi Antenna VSWR

LNA Specifications

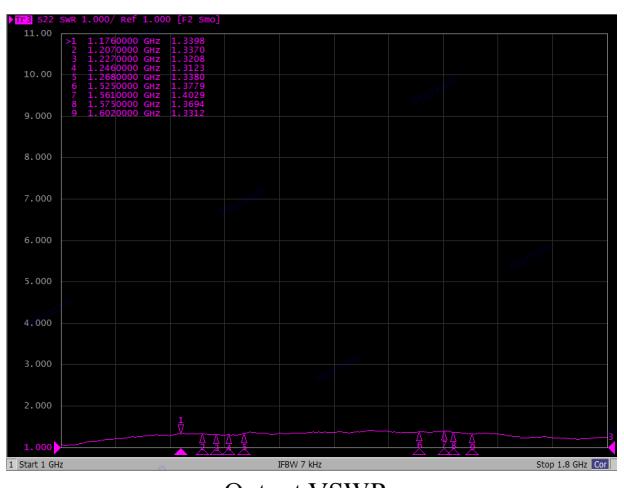
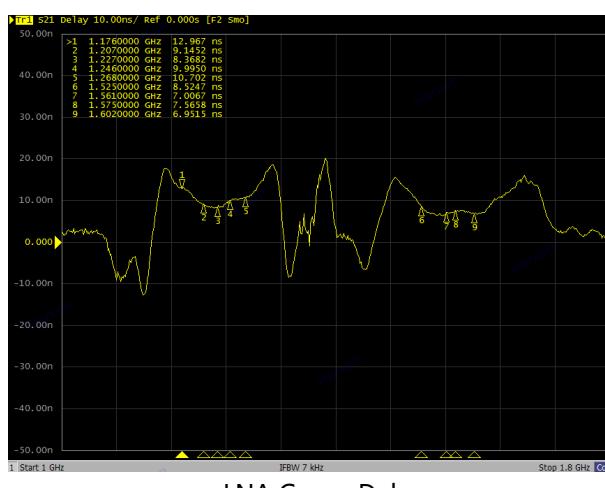


Frequency	Noise Figure (TRC1)
1.164000000 GHz	1.6922 dB
1.173714286 GHz	1.5733 dB
1.183428571 GHz	1.5049 dB
1.193142857 GHz	1.5048 dB
1.202857143 GHz	1.4988 dB
1.212571429 GHz	1.5140 dB
1.222285714 GHz	1.5106 dB
1.232000000 GHz	1.5951 dB
1.241714286 GHz	1.5624 dB
1.251428571 GHz	1.4829 dB
1.261142857 GHz	1.5600 dB
1.270857143 GHz	1.5168 dB
1.280571429 GHz	1.5732 dB
1.290285714 GHz	1.6577 dB
1.300000000 GHz	1.9689 dB

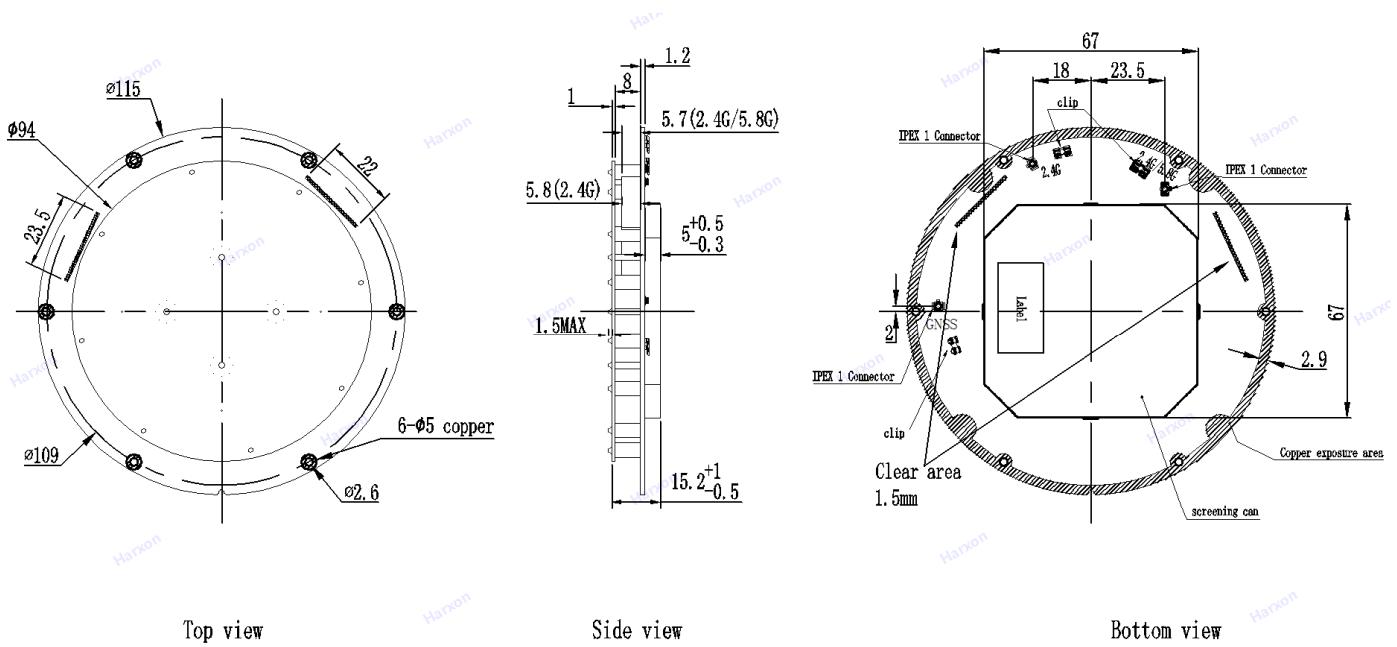
LNA NF @Low Frequency

Frequency	Noise Figure (TRC1)
1.540000000 GHz	1.3053 dB
1.544117647 GHz	1.3051 dB
1.548235294 GHz	1.2608 dB
1.552352941 GHz	1.3563 dB
1.556470588 GHz	1.5955 dB
1.560588235 GHz	1.6449 dB
1.564705882 GHz	1.6176 dB
1.568823529 GHz	1.7086 dB
1.572941176 GHz	1.6798 dB
1.577058824 GHz	1.6263 dB
1.581176471 GHz	1.6635 dB
1.585294118 GHz	1.7500 dB
1.589411765 GHz	1.6567 dB
1.593529412 GHz	1.6667 dB
1.597647059 GHz	1.6469 dB
1.601764706 GHz	1.6997 dB
1.605882353 GHz	1.6129 dB
1.610000000 GHz	1.5988 dB

LNA NF @High Frequency



Three view (Dimensional tolerance $\pm 0.3\text{mm}$)



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