SANYI Antenna Solution

Presented by

Li_Wang & Lqy & Meng_Liu, R&D

Checked by

Jack_Tang, R&D

INPAQ Technology Co., Ltd.

Last updated in 08.25, 2022

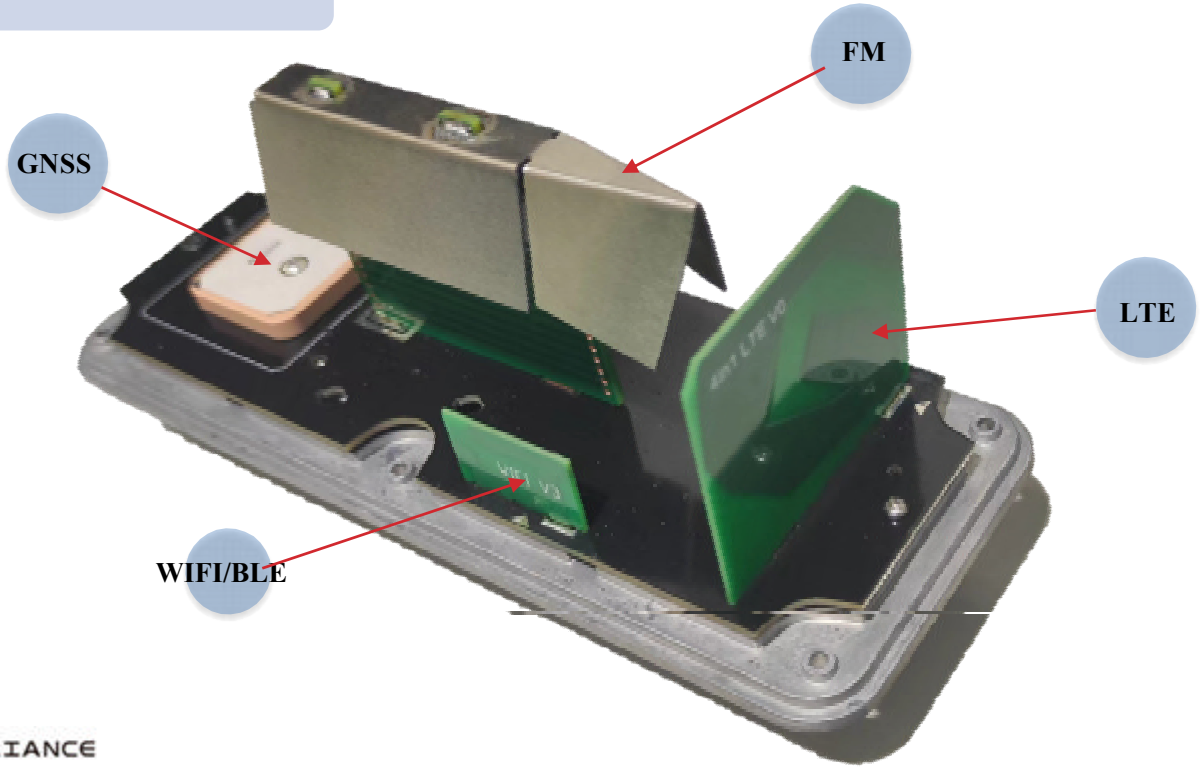
PSA

SANYI ANTENNA SOLUTION
HISTORY

Version	Date	STATUS
A0	2022.05.12	SANYI Antenna Solution
A1	2022.08.25	SANYI Antenna Solution (Update LNA Gain)

ANTENNA FEATURES & PLACEMENT

SANYI ANTENNA MODULE



DIMENSION & INSTALLATION

COMMUNICATION TECHNOLOGY

- **LTE| 824-960 MHz, 1710-2690 MHz**
- **RADIO-FM | 88-108 MHz**
- **WIFI-A/B | 2400-2500 MHz, 5150-5850 MHz**
- **GNSS | GPS BEIDOU**

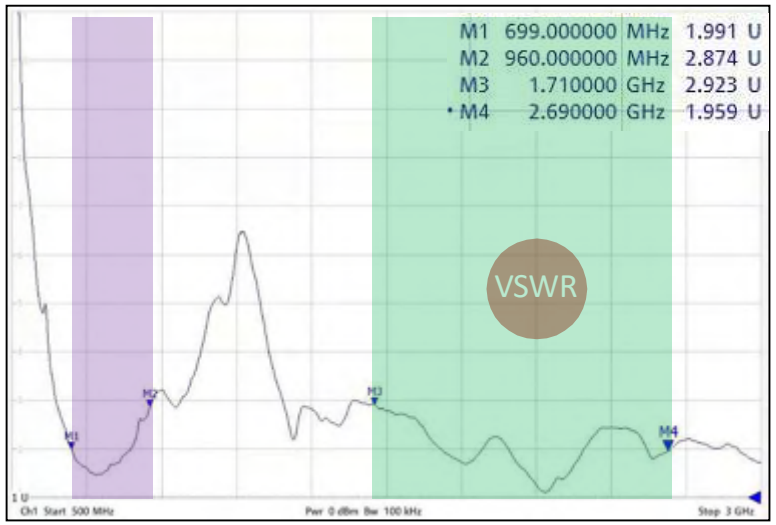
DIMENSION	L	W	H
INPAQ Solution	160	60	86

*UNIT : Millimeter

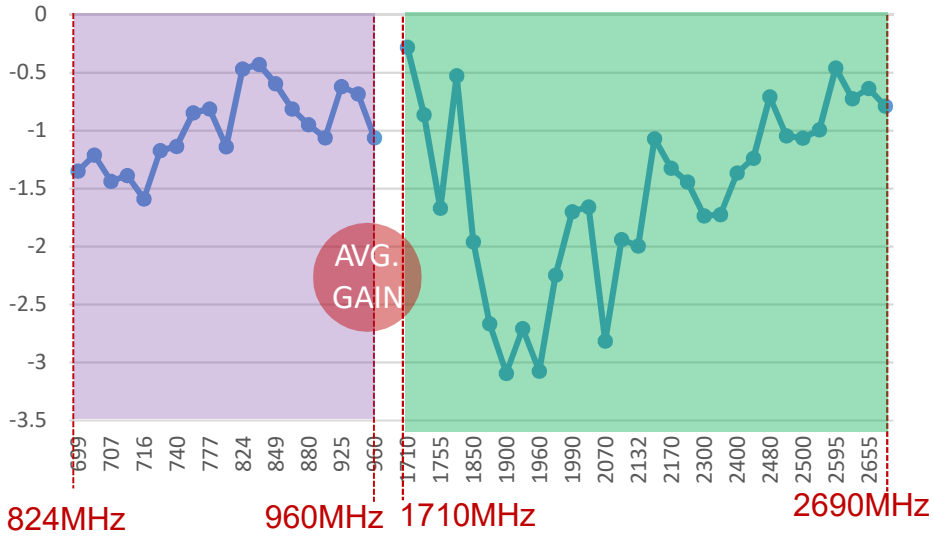
SANYI ANTENNA SOLUTION
LTE

*** TEST STANDARD:**
- Place Antenna on the ground
- With all antenna features installed

PS： The test result dose not include cable loss



LTE MAIN ANTENNA CHARACTERISTICS		
PROCESS	PCB	
SUMMARY OF AVG. GAIN (dBi)	824-960 MHz	-0.42 to -1.58 dBi
	1710-2690 MHz	-0.27 to -3.09 dBi



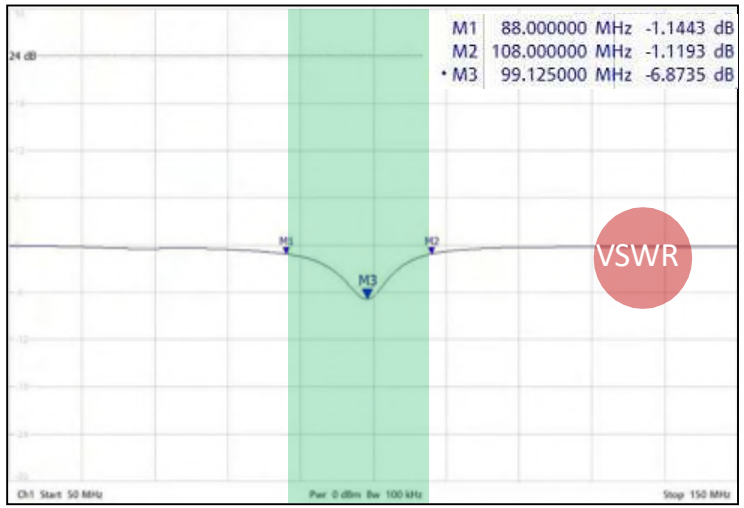
*** TEST STANDARD:**
- Place Antenna on the ground
- With all antenna features installed

PS：The test result dose not include cable loss

LNA GAIN

@Voltage 12V

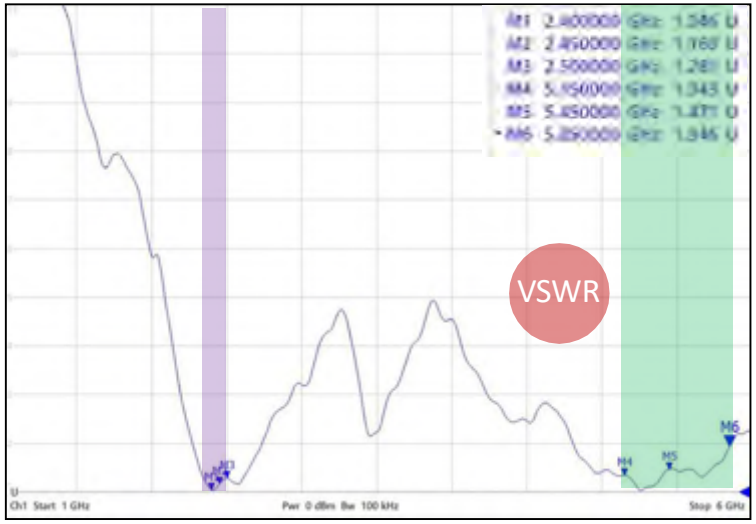
RADIO AM CHARACTERISTICS	
FREQUENCY	88 – 108 MHz
LNA GAIN	14±3dB
VOLTAGE	12 V
CURRENT	5±2 mA
NOISE FIGURE	< 2.5dB

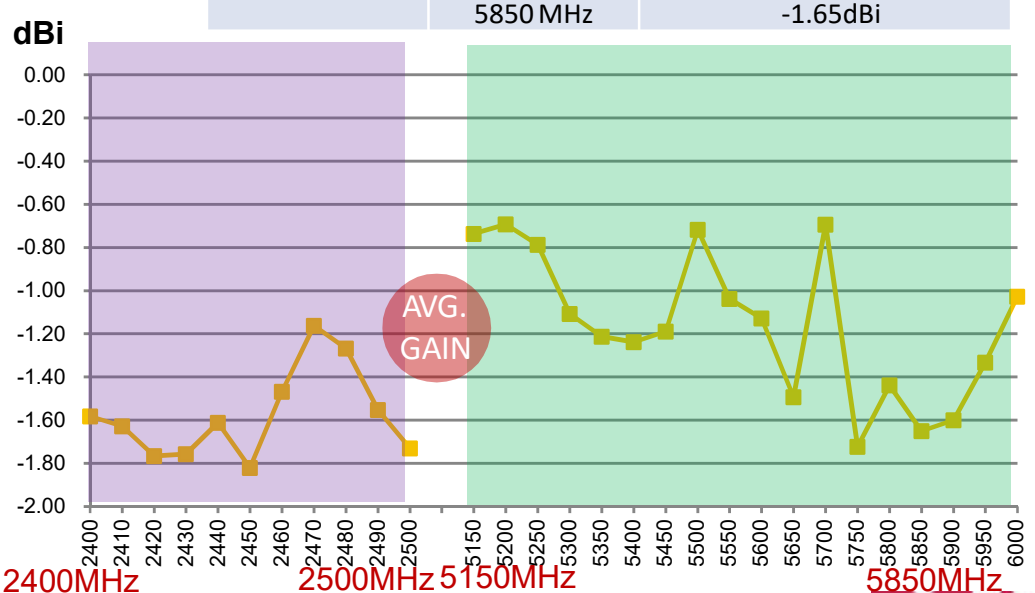


*** TEST STANDARD:**
- Place Antenna on the ground
- With all antenna features installed

PS：The test result dose not include cable loss

WIFI /BLE ANTENNA CHARACTERISTICS		
SUMMARY OF AVG. GAIN (dBi)	2400 MHz	-1.58dBi
	2450 MHz	-1.82 dBi
	2500 MHz	-1.73dBi
	5150 MHz	-0.73dBi
	5500 MHz	-0.72dBi
	5850 MHz	-1.65dBi



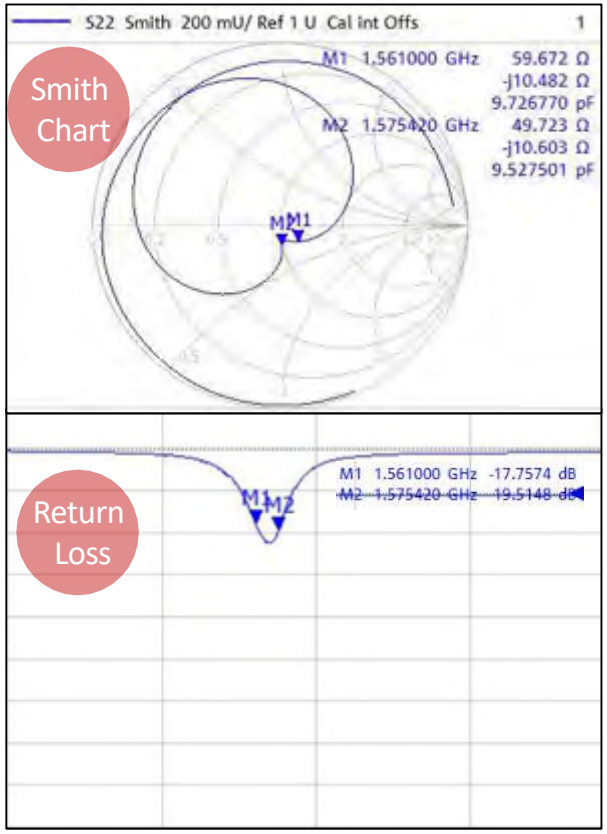


ELECTRICAL CHARACTERISTIC(S)
GNSS PATCH ANTENNA

*** TEST STANDARD:**
- Place Antenna on the ground
- With all antenna features installed

PS： The test result dose not include cable loss

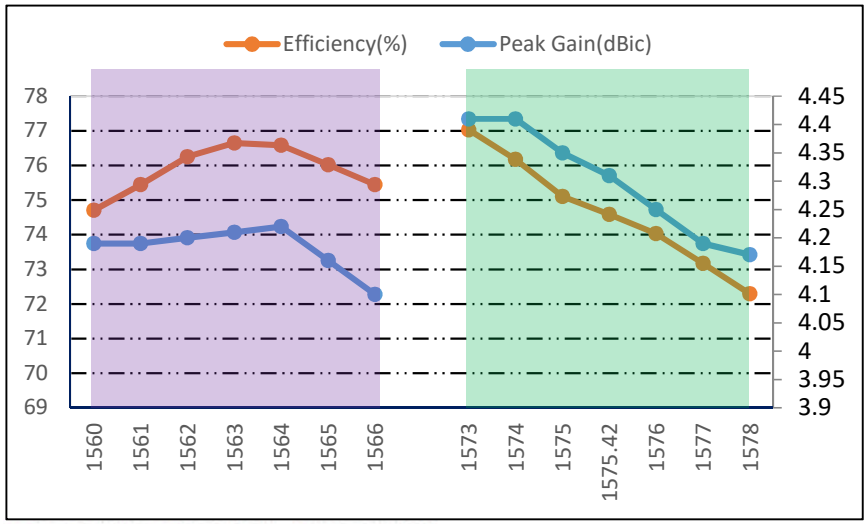
GNSS PATCH CHARACTERISTICS	
DIMENSION	**25*25*4mm³**
FREQUENCY	**1561 – 1575.42 MHz**
PEAK GAIN	**4.19 dBic @1561 MHz** **4.31 dBic @1575.42 MHz**
POLARIZATION	**RHCP**



ELECTRICAL CHARACTERISTIC(S)
GNSS PATCH ANTENNA

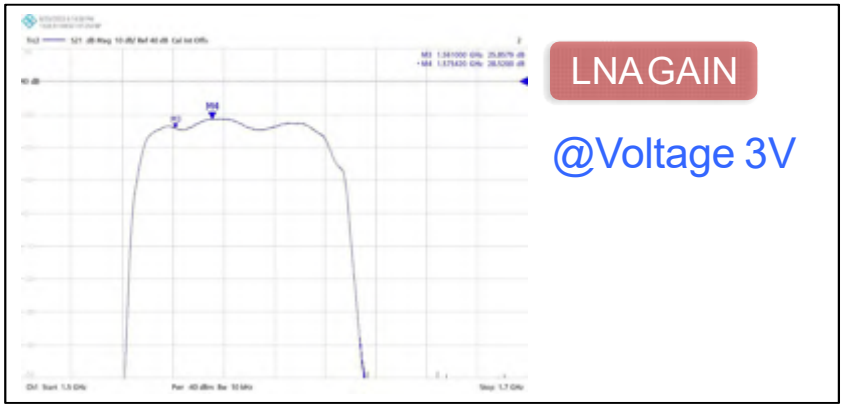
*** TEST STANDARD:**
- Place Antenna on the ground
- With all antenna features installed

PS： The test result dose not include cable loss



ELECTRICAL CHARACTERISTICS
GNSS LOW-NOISE AMPLIFIER

GNSS LNA CHARACTERISTICS	
FREQUENCY	1561 – 1580 MHz
POWER SUPPLY	3 V
LNA GAIN	1561MHZ: 27 ±3dB 1575.42MHZ： 28±3dB
NOISE FIGURE	2 dB MAX



CONCLUSION

ANTENNA TYPE	FREQUENCY	SUMMARY OF AVG. GAIN	VSWR
LTE	824-960 MHz	-0.42 to -1.58 dBi	< 3
	1710-2690 MHz	-0.27 to -3.09 dBi	
GNSS	1561MHz	4.19 dBic	1.30
	1575.42MHz	4.31 dBic	1.24
WIFI/ BLE	2400 MHz	-1.58dBi	1.05
	2450 MHz	-1.82dBi	1.17
	2500 MHz	-1.73dBi	1.28
	5150 MHz	-0.73dBi	1.34
	5500 MHz	-0.72dBi	1.47
	5850 MHz	-1.65dBi	1.95

RADIO AM CHARACTERISTICS	
FREQUENCY	88 – 108 MHz
LNA GAIN	14±3dB
VOLTAGE	12 V
CURRENT	5±2 mA
NOISE LEVEL	< 2.5dB
GNSS LNA CHARACTERISTICS	
FREQUENCY	1561 – 1580 MHz
POWER SUPPLY	3 V
LNA GAIN	1561MHZ: 27±3dB 1575.42MHZ：28±3dB
NOISE FIGURE	2 dB MAX

From the above data, antenna characteristics meet the requirements.

Cable Loss：

Frequency (GHz)	Typical value（dB/m）
0.1	0.28
0.4	0.62
1.0	1.12
1.8	1.62
2.4	1.74
3.0	1.89
4.0	2.31
5.0	2.77
6.0	3.23