

GNSS Active L1, L2, L5 Patch Antenna

GNSSL125DM26NML



Features:

- GNSS RHCP active antenna
- Beidou, GPS, Glonass
- LNA gain 30dB
- Stacked L1 / L2 + L5 patch antenna
- High rejection filters to suppress out of band interference
- ESD Protected

Applications:

- Base station timing antenna
- Tracking
- Asset tracking, Fleet management, IoT, M2M

Electrical specifications¹ @ 25° C

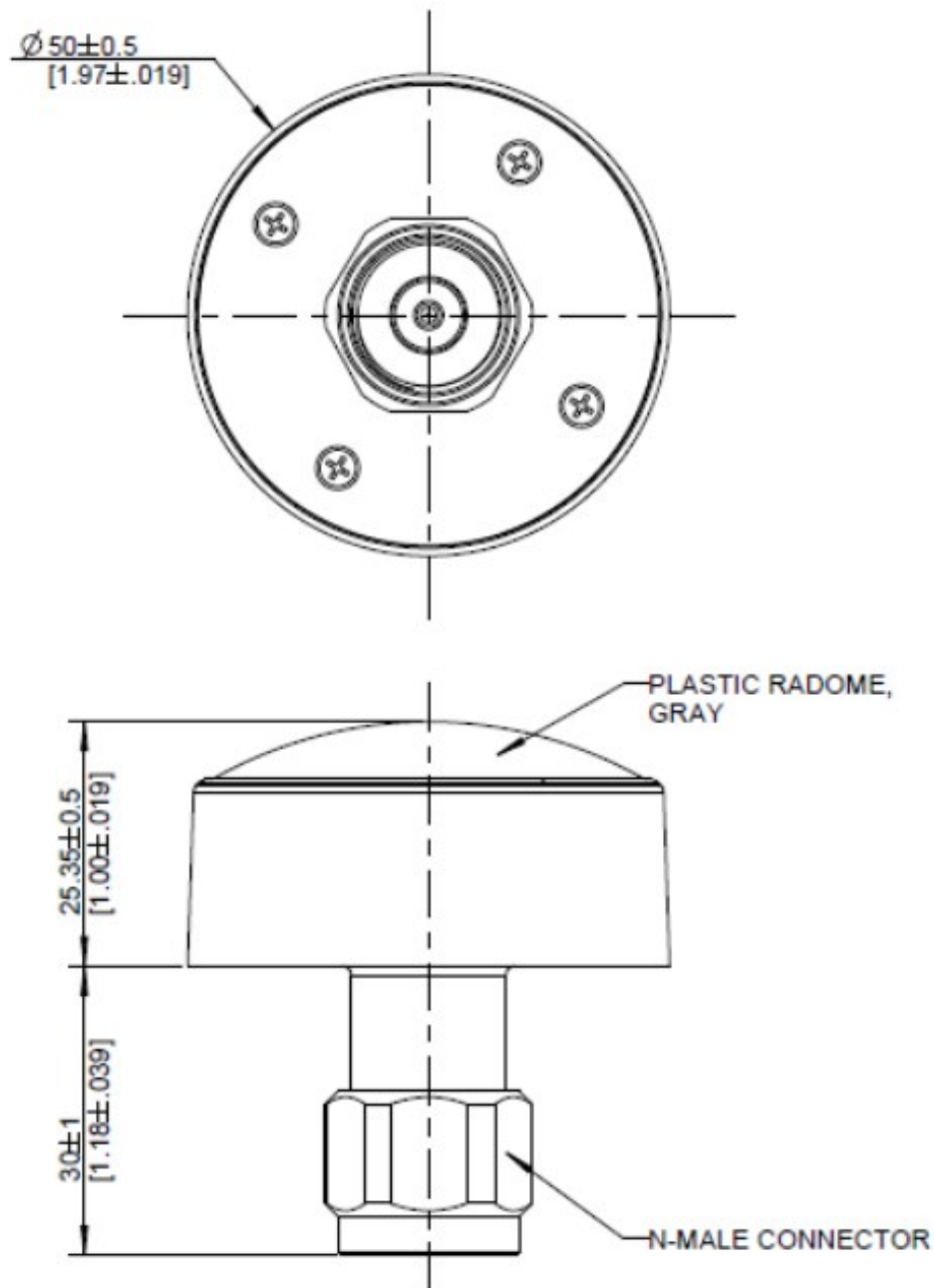
Antenna type	Nominal Impedance	Polarization	Radiation pattern
Patch	50Ω	RHCP	Directional

Frequency (MHz)	L1: 1573.42-1577.42	L2: 1225.6-1229.6	L5: 1174.45-1178.45
Return Loss (dB)	< -10	< -13	< -15
Radiating Element Peak Gain (dBi)	>2.4	>2.1	>2.1
Avg. Efficiency (%)	>38	>35	>40
LNA Gain (dB) Typical	28	33	30
Noise Figure (dB)	1.7 @ 1575MHz	2.2 @ 1227MHz	2.2 @ 1164MHz
Operating Voltage (Vdc)	2.5 - 18		
Power Consumption (mA)	Max. 16		

Mechanical Specifications

Dimension with stud (w/o cable)	Color	Antenna Material	Connector type
Ø50mm*55.35mm / Ø1.97"x2.18"	Gray	PC + Copper + Ceramic	N-MALE
Cable Length	Weight	Cable retention (Pull off)	Installation torque
N/A	125 grams	N/A	38-42 IN/LBS
Storage and operating Temperature		Ingress Protection	RoHS- Compliant
40°C to +85°C		IP67	Yes

Mechanical Drawing



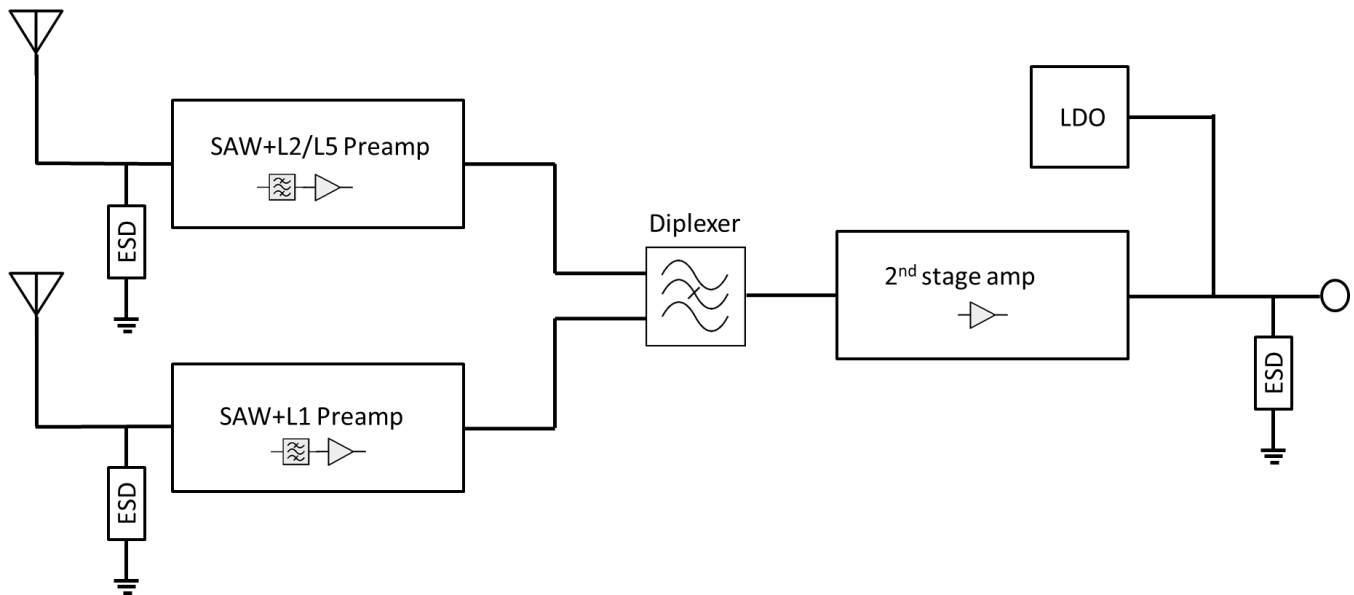
All dimensions are in mm / inches

Testing Setup

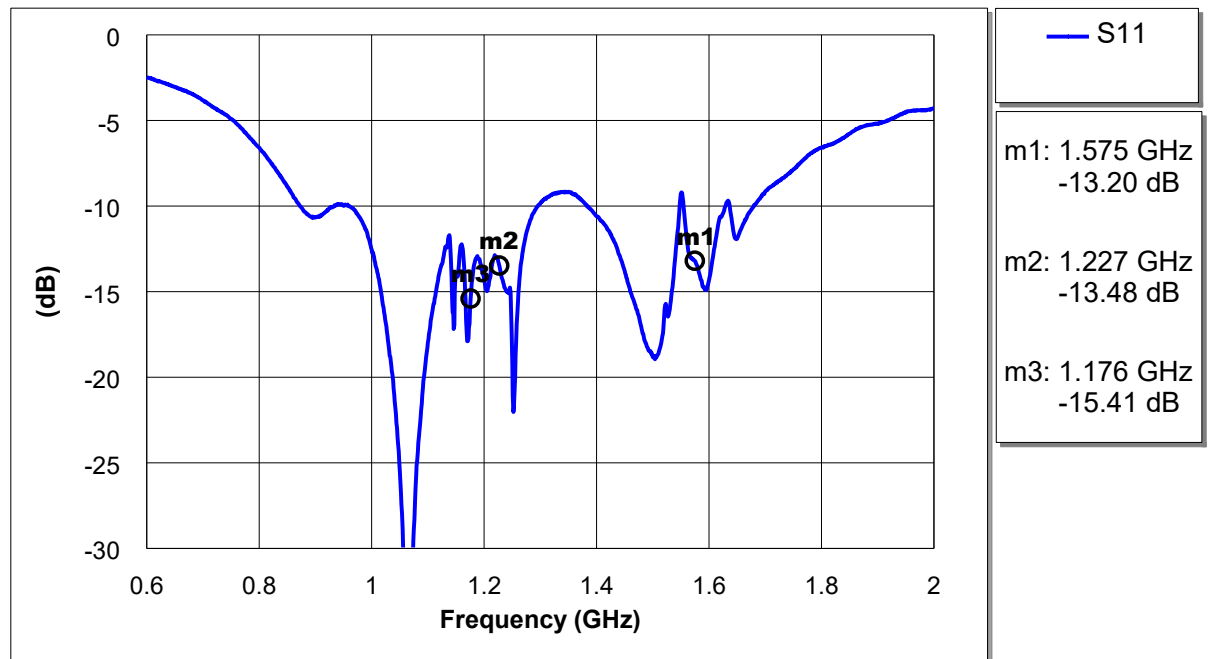
Module is tested on dia. 120mm ground plane.



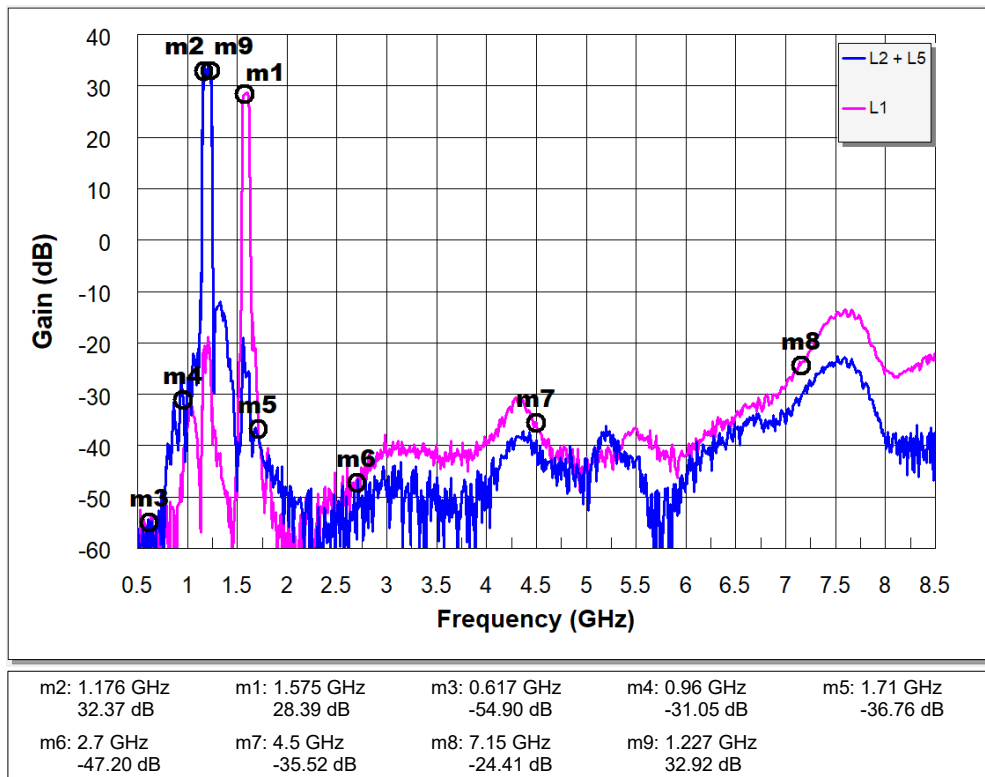
Active Antenna Block Diagram



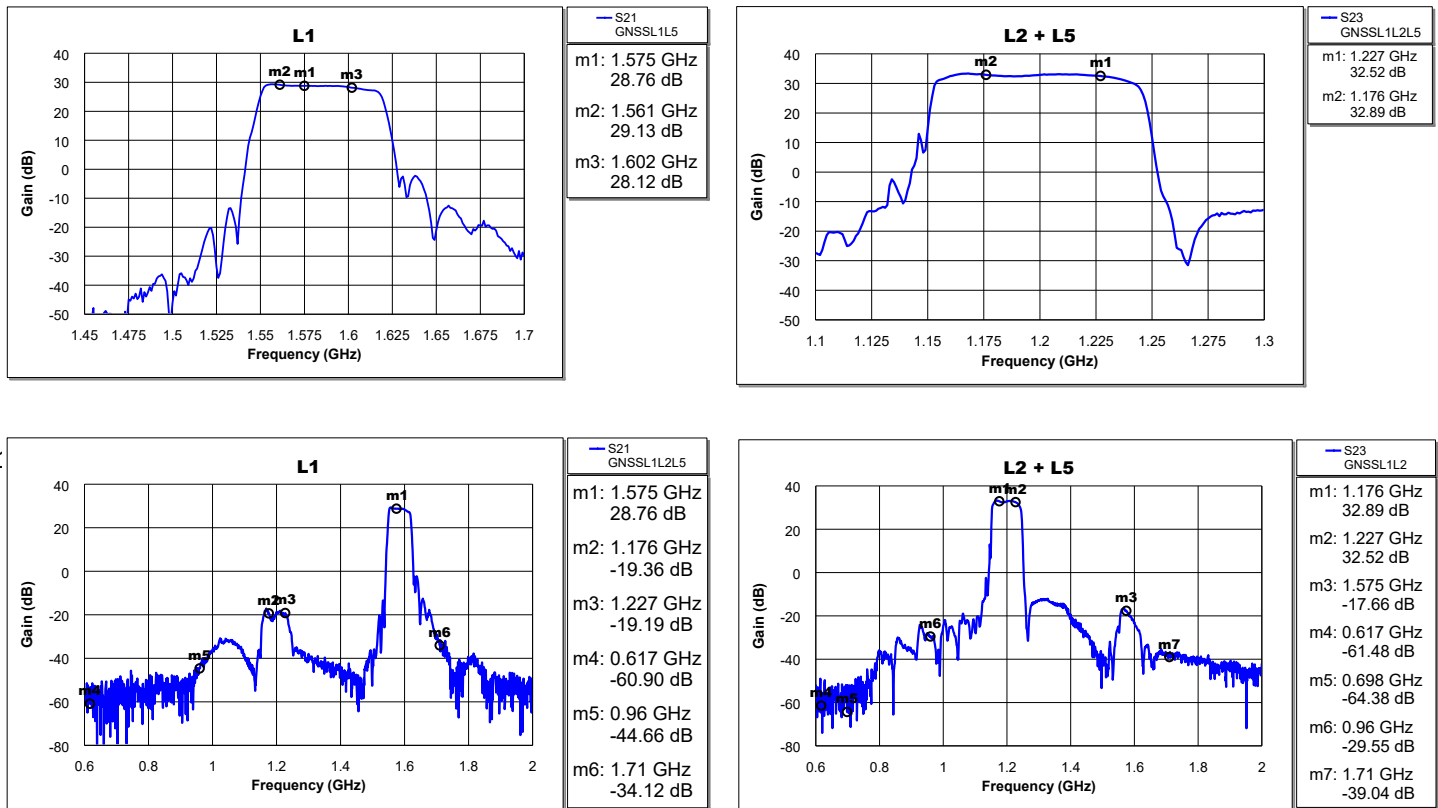
Return Loss



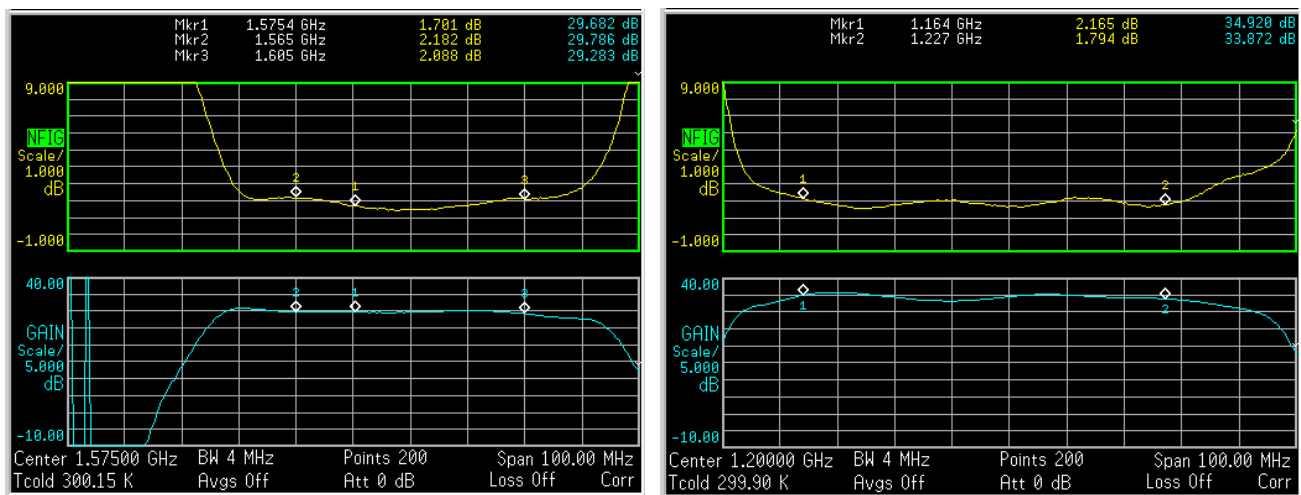
LNA Out of band rejection



LNA Gain



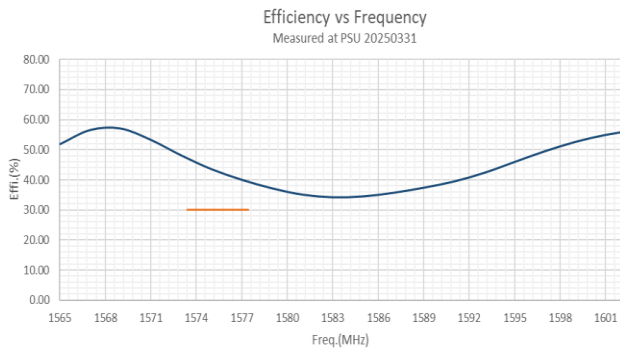
LNA Noise Figure



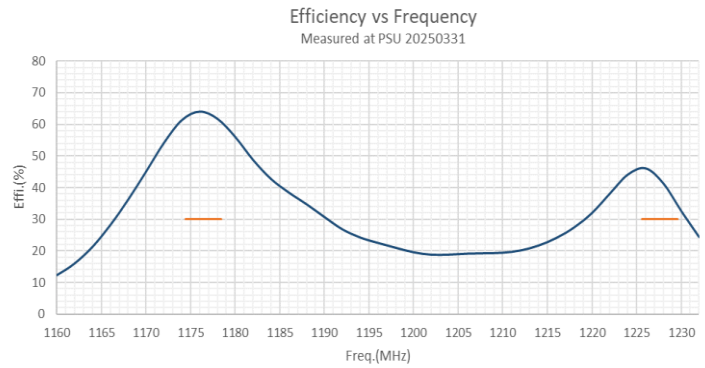
L1 Noise Figure

L2 + L5 Noise Figure

Radiating Element Efficiency

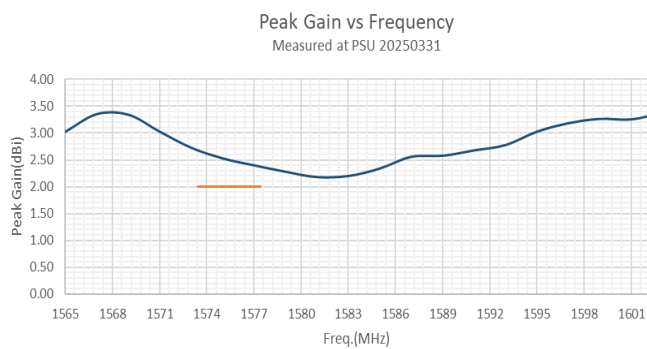


L1 Band

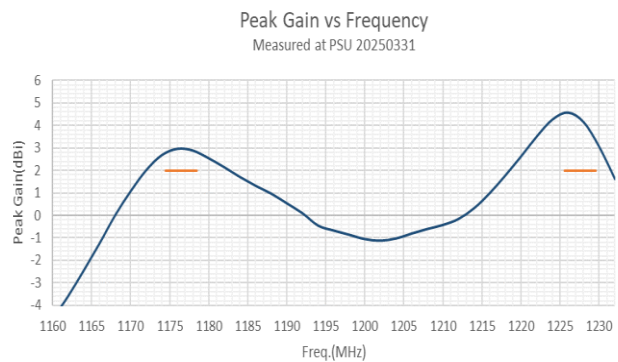


L2 + L5 Band

Radiating Element Peak Gain (Linear)



L1 Band

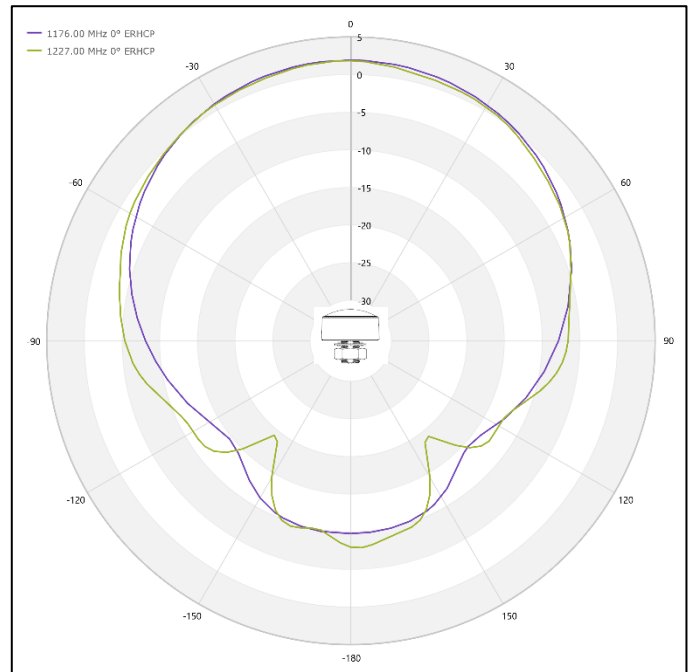


L2 + L5 Band

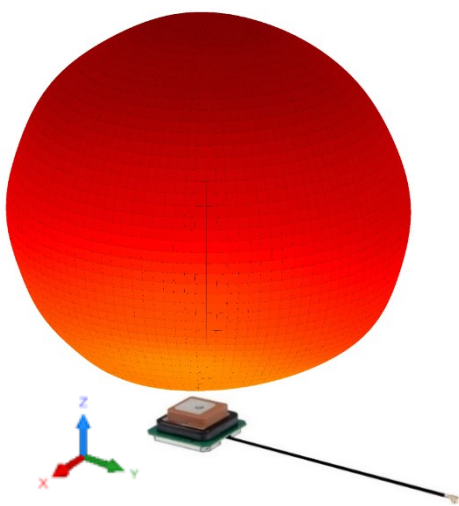
Radiation Patterns



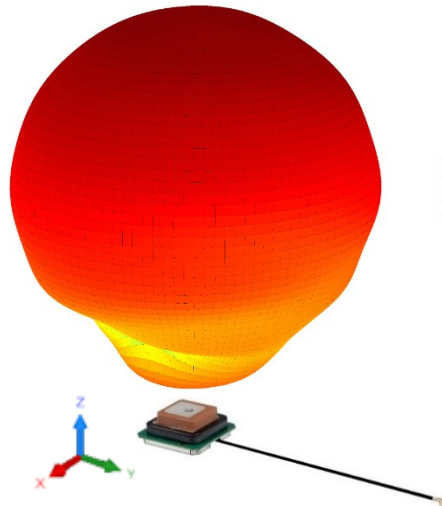
L1 Pattern



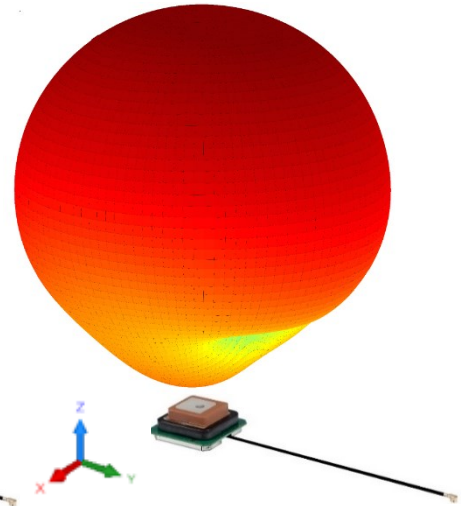
L2 + L5 Pattern



L1 3D RHCP Pattern
@1575 MHz



L2 3D RHCP Pattern
@1227 MHz



L5 3D RHCP Pattern
@1176 MHz

Reliability Tests

Temperature change	-40 °C to +85 °C, MIL-STD 810G Method 503.5. 1.Room Temperature to -40 °C (2hours) 2.Storage for 2 hours at -40 °C 3. -40 °C to 85 °C (2hours) 4. Storage for 2 hours at 85 °C 5. 85 °C to -40 °C (2hours) 6.Repeat from 2 to 5 for 5 times 7. -40 °C increase to room temperature within 2 hours (Total 44 Hrs) No loss of function after tests.
Storage test	-40°C to +85°C, MIL STD 810G Method 501.5 (high) Method 502.5 (low) 1.Room Temperature to -40°C within 2 hours 2.Storage for 24 hours at -40°C; 3. -40°C to room temperature within 2 hours 4.Room Temperature to +85°C within 2 hours 5.Storage for 24 hours at 85°C; 6. 85°C room temperature within 2 hours(Total 56 Hrs) No loss of function after tests.
Shock test	1.Three shocks in each direction shall be applied along the three mutually perpendicular axes of the test specimen (18 shocks) 2.Peak value: 1,500g's 3.Duration: 0.5ms 4.Waveform: Half si. No loss of function after tests.
Drop test	Drop test (single device) for mounted device, the antenna needs to be fixed to PCB and then assemble PCBA into the covers for the test, please do the test with Armadillo antenna, only need the PCB and top/bottom cover for the tests.
Vibration test	Random vibration input of 60 min/axis, all three perpendicular axis. Transportation frequency 5-500 Hz using Fig 514.6C-I and Table 514.6-II of MIL STD 810G section 514.6, performed only upon customer request., no loss of function after tests.
ESD Test	According to IEC/EN 61000-4-2 Electromagnetic compatibility Test voltage ±2KV, voltage polarity: + and - Discharge times: 3 times per polarity, discharge frequency: 1 time/second

Package

Antennas packed in PE bag and carton box

Each antenna wrapped in PE bag

40 PCS/ carton box

Carton box dimensions (MM): 460X235X140

For More Information:

Americas - antennas.us@pulseelectronics.com | Europe – antennas.eu@pulseelectronics.com | Asia – antennas.as@pulseelectronics.com | Questions? +1-800-ANTENNA
Performance warranty of products offered on this data sheet is limited to the parameters specified. Data is subject to change without notice. Other brand and product names mentioned herein may be trademarks or registered trademarks of their respective owners. © Copyright , 2020. Pulse Electronics, Inc. All rights reserved.
Company address: Pulse Electronics, a YAGEO Company, 15255 Innovation Drive, Suite #100, San Diego, CA 92128

'YAGEO Corporation and its affiliates do not recommend the use of commercial, automotive, and/or COTS grade products for high reliability applications or manned space flight.'

V2X Omni Antenna

(P/N: WE24 – 58G – 08)

Electrical Specifications

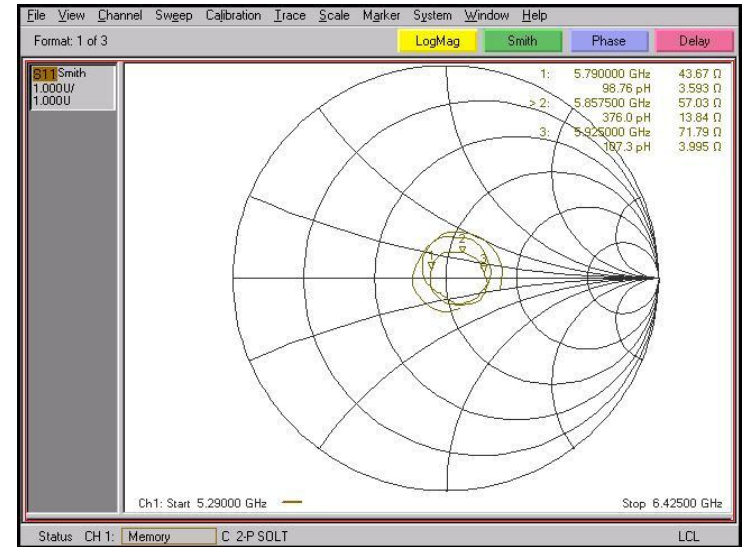
Frequency Range (MHz)	5790 ~ 5925
Band Width (MHz)	135
V.S.W.R (Min)	1.5 : 1
Gain (Max)	10 (dBi)
Radiation	Omni-directional
Input Impedance	50 (Ω)
Polarization	Linear, Vertical
Connector	N type Male
Dimensions	370 x 20 (mm)

August 26, 2024

Photo



Smith Chart



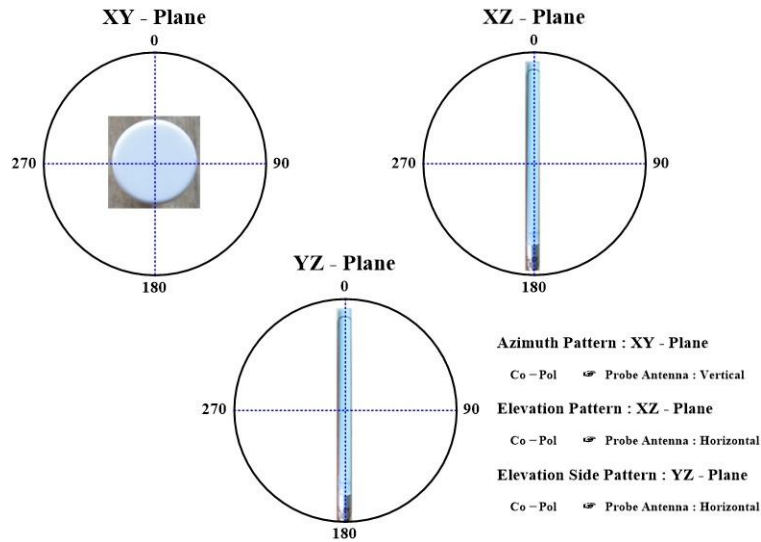
Return Loss



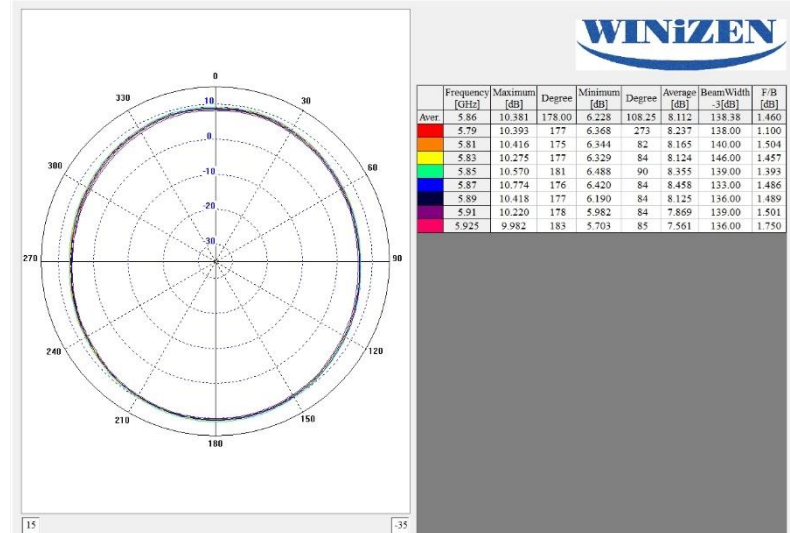
V. S. W. R



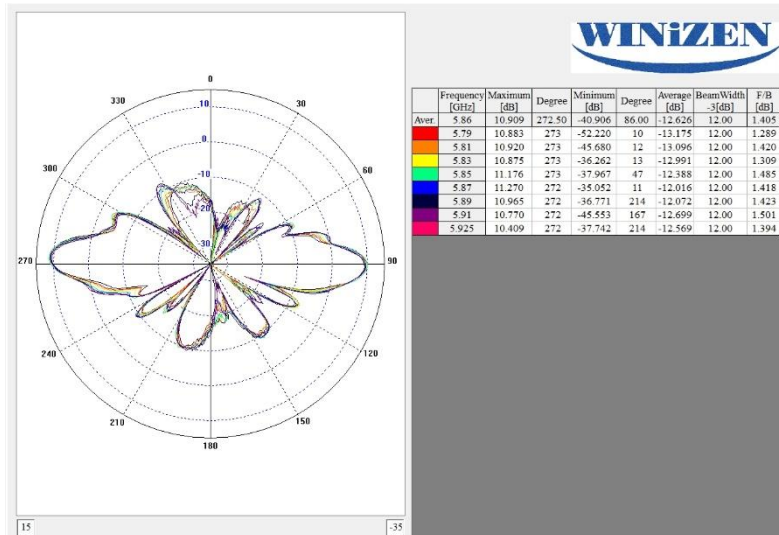
Axis Definitions



Azimuth Pattern ; Co - pol



Elevation Pattern ; Co - pol



Elevation Side Pattern ; Co - pol

