



Product Name: Mini GNSS Locator (RS232)

Part Number: GM-21B-A1RD-SEN01

Features:

- u-blox 8 engine, RS-232 interface.
- GPS / GLONASS / QZSS / SBAS Supporting
- Support SLAS (Sub-meter Level Augmentation Service)
- Support dead reckoning (ADR/UDR)
- 3-axis accelerometer and gyroscope sensors included
- Low profile, robust, IPX7 water proof enclosure, magnetic mount
- Excellent tracking sensitivity, -160dBm
- Quick time-to-first-fix cold start

Applications:

- Vehicle/bus tracking, fleet management
- Tracking and management of agriculture tracker and farm equipment
- Robotic, autonomous driving applications

Mini GNSS Locator (RS232)

MODEL: GM-21B-A1RD-SEN01

WI-RD-D-328 V1.0

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I. Specifications:

Category	Specifications	
Application Bands	L1(GPS)	GLONASS
Frequencies (MHz)	1575.42	1602.00
Efficiencies (%)	59.84	58.61
Average Gain (dBi)	-2.23	-2.32
Peak Gain (dBi)	3.82	3.39
VSWR	< 2	
Return loss	< -10	
Test Conditions	With housing and metal ground plane (305 * 225 mm)	
Impedance (Ω)	50	
Polarization	RHCP	
Housing		
Dimension (mm)	φ65(D) x 22(H)	
Weight	To be determine	
Housing Material	High-impact plastics with gasket, Waterproof: fulfill IEC 60529 IPX7 standards	
Environmental Conditions		
Temperature	Operating: -30 ~ +80 °C	
	Storage: -40 ~ +80 °C	
ESD protection (IEC 61000-4-2 level 4)	Contact : 8KV · Air : 15KV	
Communication		
Protocol	NMEA 0183 V4.0	
Interface	RS232	

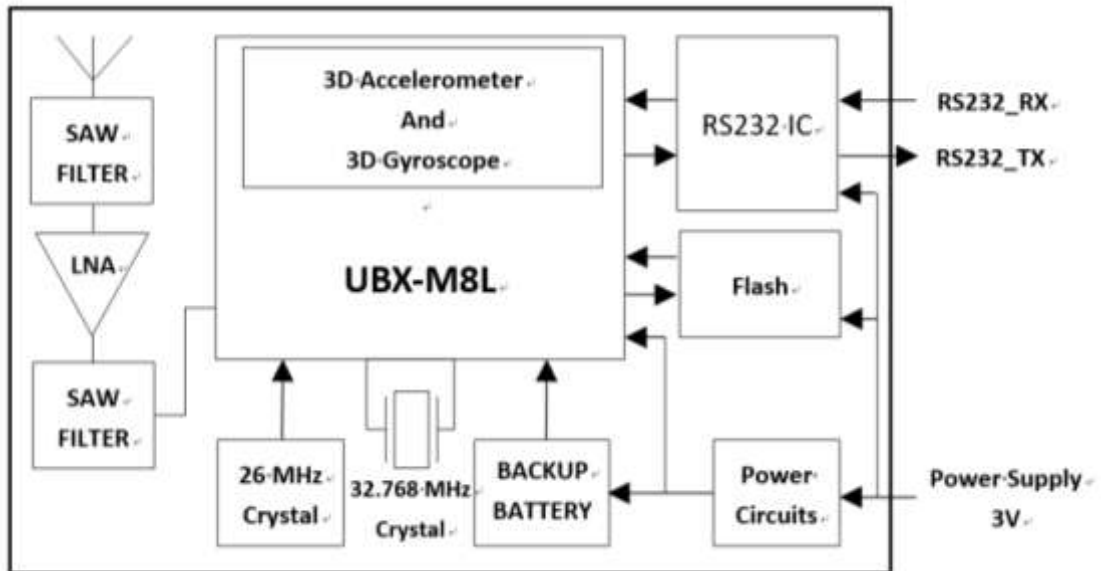
Interface Capability	
Output sentences (Optional)	GGA(1sec), GLL(1sec), GSA(1sec), GSV(1sec), RMC(1sec), VTG(1sec)
Baud rate	9600bps
Performance	
Built in antenna element	High-reliability ceramic patch
Receiver type	GPS L1C/A GLONASS L1OF SBAS L1C/A QZSS L1C/A L1S
Channels	72 parallel
Sensitivity	-160dBm
SBAS	Support : WAAS, EGNOS, MSAS
TTFF*	Hot start 1 sec. Typical Cold start 26 sec. Typical
Position accuracy*	GPS : 2.5 m SLAS : 1 m (95%)**
Velocity accuracy *	0.05 m/s
Update rate(Optional)	1Hz
Input voltage	8 V ~ 35 V
Power consumption***	Typical 35mA@12V DC

*CEP, 50%, 24 hours static, -130 dBm, > 6 SVs, 50% @ 30 m/s

** Cite the source(s): QZSS performance standard (PS-QZSS-001)

***Measurement of this parameter with 1Hz bandwidth.

II. Block diagrams



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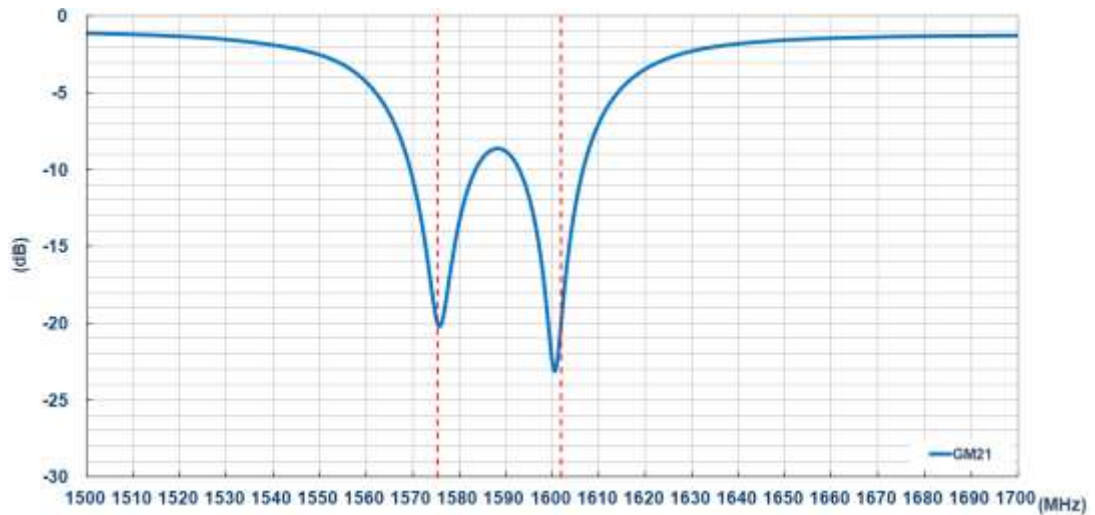
III. Dead Reckoning (ADR/UDR)



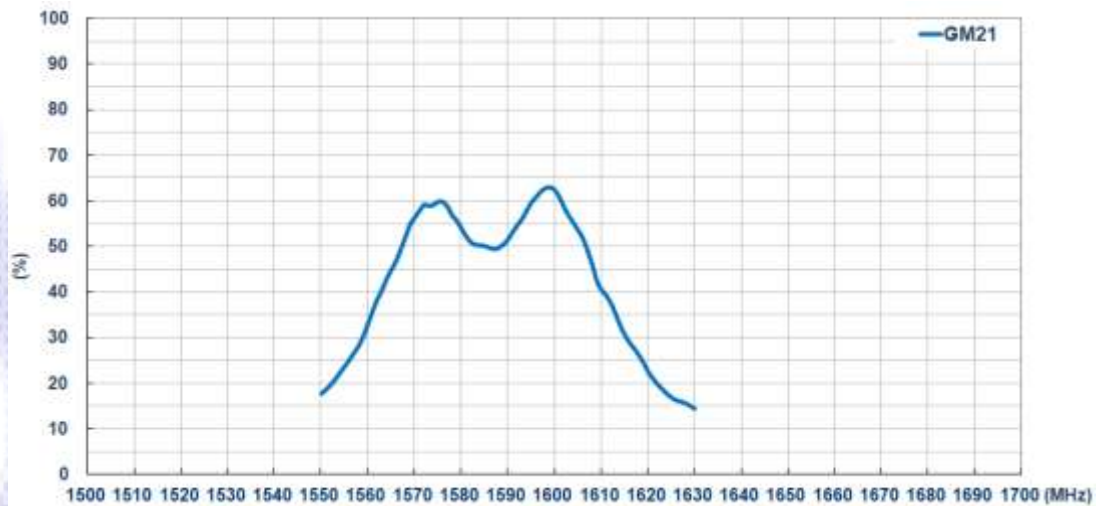
Purple line: underground parking lot

IV. Antenna Performance:

S-parameters (dB):

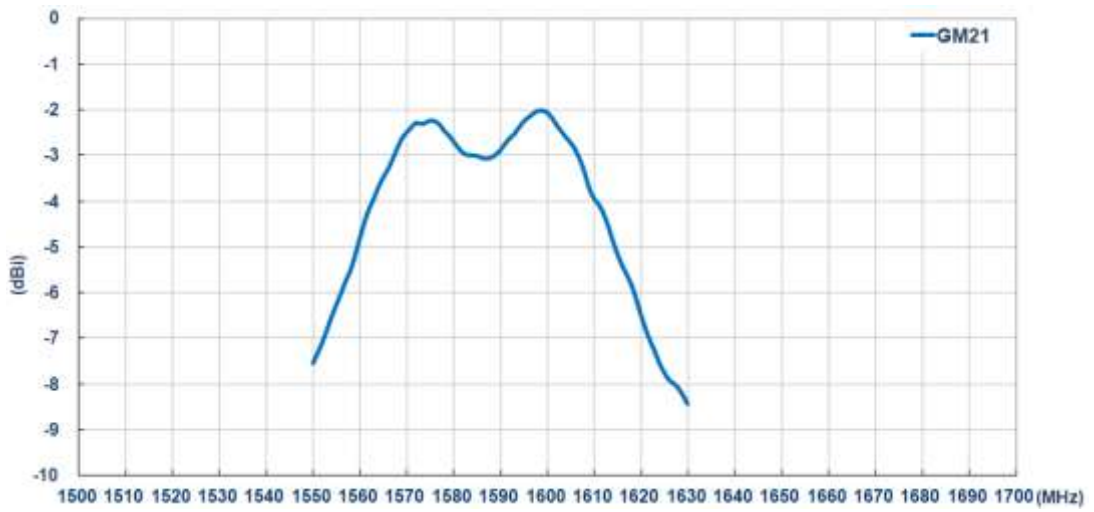


Efficiency (%):

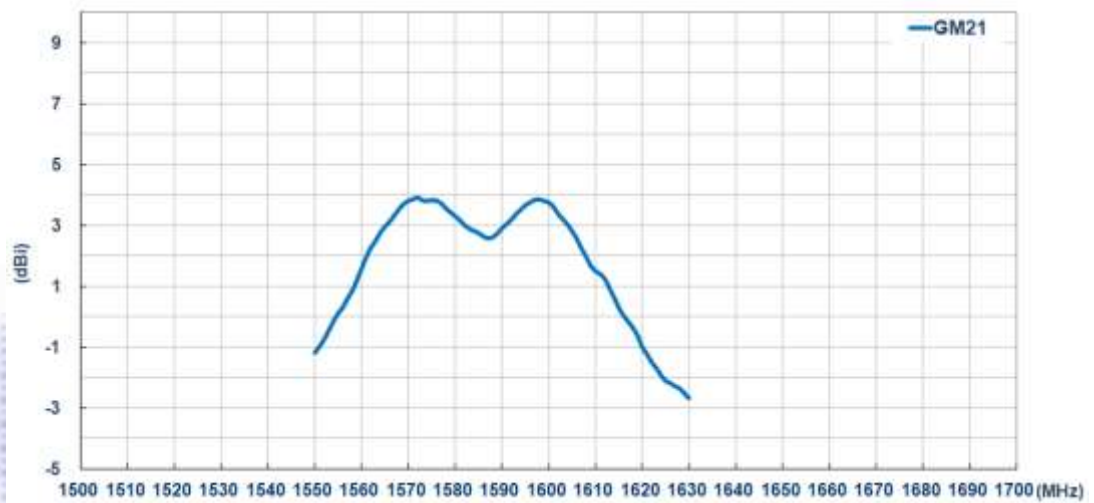


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Average gain (dBi):

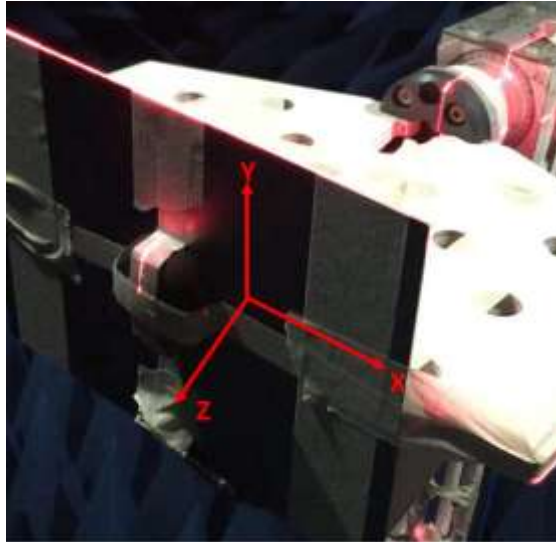


Peak gain (dBi):



V. Antenna Radiation Pattern Measurement:

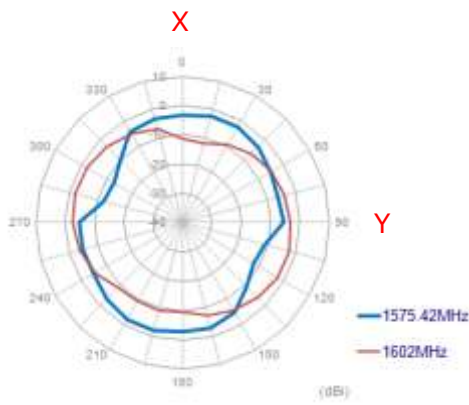
The antenna radiation patterns were measured in ETS Anechoic Chamber. Please refer to the measurement setup below:



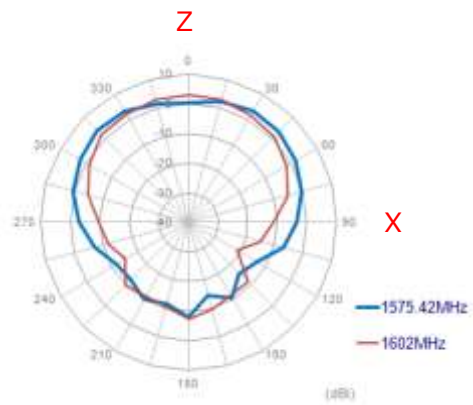
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VI. 2D Radiation Pattern

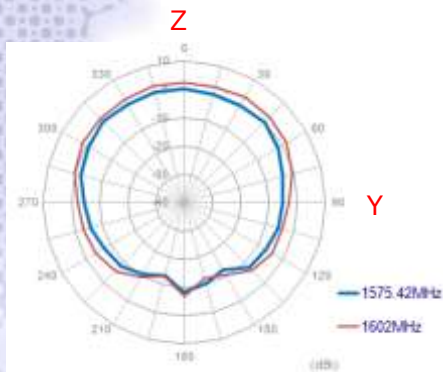
X-Y plane



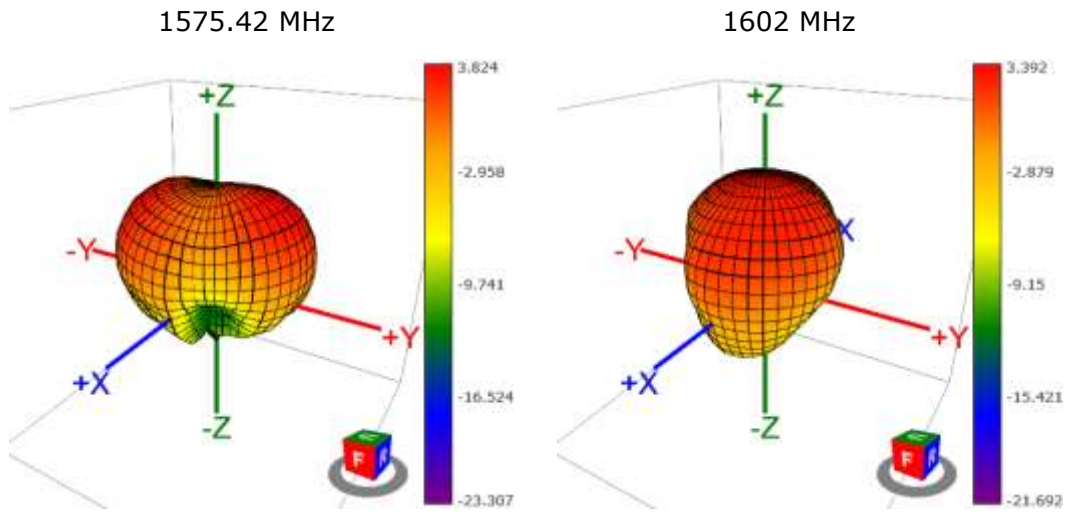
X-Z plane



Y-Z plane

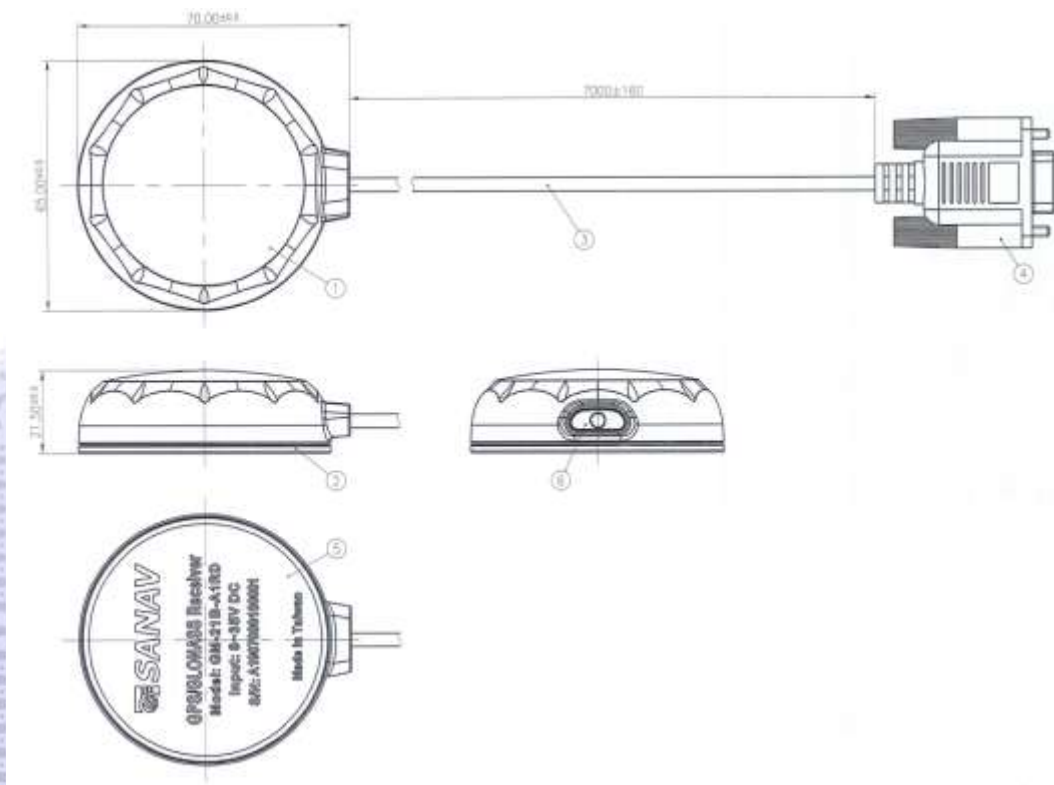


VII. 3D Radiation Pattern



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VIII. Mechanical Drawing:



6	Cable Rubber	Silicone	Black	1
5	Label	PET	Silver	1
4	DB-9(F) Connector	PBT	Black	1
3	UL 2725 Cable	PVC	Black	1
2	Bottom Housing	ABS	Black	1
1	Top Housing	ABS	Black	1
No	NAME	MATERIAL	FINISH	QTY