RoDAR

Receiver-based anti-jam for assured PNT

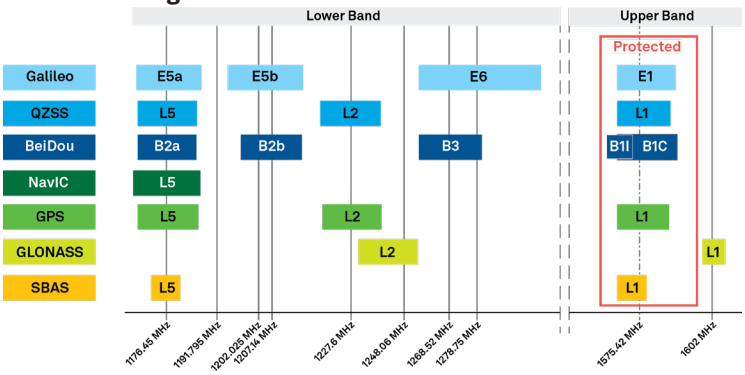
Robust Dual-Antenna Receiver (RoDAR)

RoDAR is an active anti-jamming tool that uses spatial processing to defend against different types of interference and spoofing scenarios. RoDAR uses spatial processing and a single dual polarised antenna system to form up to two nulls towards the RF interferer. The cleaned RF signals are then forwarded to the tracking and data processing modules for a resilient navigation solution.

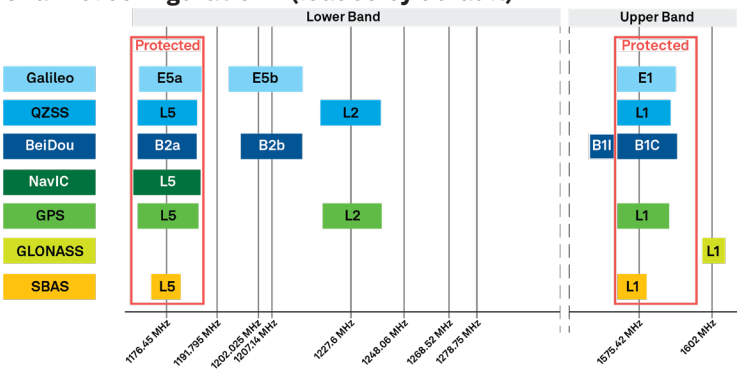
Anti-jam and spoofing resiliency for all platforms

The RoDAR solution enables assured positioning, navigation, and timing (PNT) for size, weight, and power (SWaP)-optimised platforms in defense, aerospace, and critical infrastructure applications. There are three configuration options enabling the user to choose which bands are protected and which bands are passed through. RoDAR offers a dual-polarised antenna within a single antenna enclosure to ensure ease of integration.

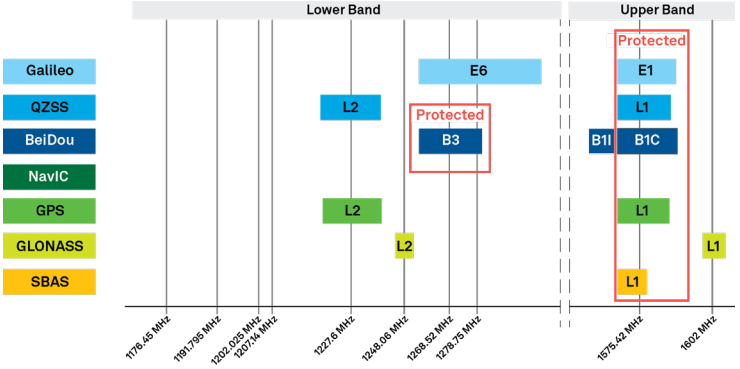
Channel configuration 1



Channel configuration 2 (loaded by default)



Channel configuration 3



Features

- Enables receiver-based anti-jam capability
- Activates one spatial null per protected band for anti-jam protection
- Commercial export controls
- Suitable for low SWaP applications
- 30 dB nominal interference suppression
- GNSS spoofing detection and mitigation capability
- Independent L5 positioning

Benefits

- Three options for channel configuration
- Commercial off-the-shelf (COTS)
- Assured PNT through anti-jam, multi-frequency and multi-constellation tracking, spoofing resiliency and signal independent positioning methods.

RoDAR components

GNSS receiver with RoDAR firmware

RF and electrical

Anti-jam mitigation

Maximum nulls	1 per band
Null depth	30 dB (typical)

Velocity limit 600 m/s

Power

Input voltage	3.3 VDC [±5%]
Power consumption, all bands	1.8 W (typical)

Physical

Dimensions 46 × 71 × 10 mm

Weight 30 grams

Channel configuration

Configuration 1	**Protected**	**Unprotected**
GPS	L1	L2, L5
GLONASS		L1, L2
Galileo	E1	E5a, E5b, E6[1]
BeiDou	B1C, B1I	B2a, B2b, B3
QZSS	L1	L2, L5
NavIC		L5
SBAS	L1	L5

Configuration 2	**Protected**	**Unprotected**
GPS	L1, L5	L2
GLONASS		L1
Galileo	E1, E5a	E5b
BeiDou	B1C, B2a	B1I, B2b
QZSS	L1, L5	L2
NavIC	L5	
SBAS	L1, L5	

Configuration 3	**Protected**	**Unprotected**
GPS	L1	L2
GLONASS		L1, L2
Galileo	E1	E6[1]
BeiDou	B1C, B3	B1I
QZSS	L1	L2
SBAS	L1	

2GNSSA17WH-RL-XSS-X[2]

RF and electrical

Supported GNSS bands

GPS	L1, L2, L5
Galileo	E1, E5a, E5b, E6
GLONASS	L1, L2
BeiDou	B1, B2, B2a, B2b, B3
NavIC	L5
L-Band corrections	

Power

Input voltage	+2.5 to +12.0 VDC
Current draw	65 mA (typical)

Physical (designed to)

Dimensions 67 mm diameter x 26 mm height

Weight (SMA connector) 204 grams

Temperature -55°C to +85°C

LNA gain 17 dB

Ground plane required Not required, but performs best in >127 mm ground plane

VSWR 2:1

LNA noise figure 3 dB (typical)

Polarisation RHCP and LHCP

Random vibration 20 g RMS

Connector options SMA

Colour options

2GNSSA17WH-RL-XSS-1	white
2GNSSA17WH-RL-XSS-4	black

1. To track E6 signals, a RoDAR system using a 2GNSSA17WH-RL-XSS-1 or 2GNSSA17WH-RL-XSS-4 must use channel configuration 1 or channel configuration 3.

2. NovAtel and Antcom have jointly designed the 2GNSSA17WH-RL-XSS-1 and 2GNSSA17WH-RL-XSS-4 antennas for optimal anti-jam performance. Use of other antennas is not recommended and could reduce anti-jam performance.

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For the most recent details of this product: novatel.com

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D28913 Version 5 | 27 May 2026 | Printed in Canada