SoftSpot CERBER

CRPA GNSS Receiver

SYNTONY GNSS

Locate & Be Located

For critical applications in defense and infrastructure, securing accurate and resilient GNSS data is essential. Operations in these domains require advanced systems capable of withstanding and mitigating aggressive interference to ensure uninterrupted Positioning, Navigation, and Timing (PNT) information.

CERBER, a CRPA-based receiver, is engineered to detect and counteract interference sources, including jamming and spoofing. Its sophisticated design maintains the integrity of PNT data, delivering reliable performance even in highly contested environments.

With CERBER, organizations gain a powerful solution for secure and interference-resistant GNSS operations, making it an ideal choice for safeguarding mission-critical activities.

Extensive options

- ✓ Embedded GNSS Receiver
- ✓ Exists in L1 frequency, L5 frequency, or both
- ✓ GPS and Galileo
- ✓ High Performance GNSS reception:
  - Extreme anti-jamming performance: >100 dB J/S
  - Efficient even with Jammer/ Spoofer low elevation and negative elevation
  - Unique anti-spoofing capability done by DOA comparison
- ✓ Robust to vibration
- ✓ Operating Temperature -40 to +85°C
- ✓ Full post delivery upgradability
- ✓ Functional & Performance improvement
- ✓ ADC 12 bits I/Q
- ✓ 50 MHz sampling rate

CERBER hardware platform is based on the following design choices:

- Custom designed RF stage using 12 bits ADC
- Xilinx ZU3EG or equivalent SoC
- Ruggerized design able to withstand most of the usual conditions (ground transportation, aircraft, launcher)
- Robust metal case
- Basic level of anti-jamming robustness

CERBER receiver embed the SDR GNSS receiver called SoftSpot which:

- Performs the cold and warm acquisition independently for each signal, constellation and frequency
- Computes the correlators
- Makes the tracking independently for all signals also
- Computes the pseudo ranges
- Computes the PVT (Position, Velocity, Time) taking into account the signals that are in visibility

The acquisition, tracking and PVT being done independently on all signals, there is no need for the receiver to acquire GPS L1C/A to be able to compute a PVT, whereas most of the existing chipsets on the market have this drawback.

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Specifications

Software

Signals

GPS	L1C/A
GALILEO	E1B & C
GLONASS, BEIDOU, IRNSS, SBAS, GBAS, QZSS	on demand
Hybridization (for receiver only)	
IMU	Use of Accelerometer in GNSS-denied environments, and minimize reacquisition time
INS	Tight

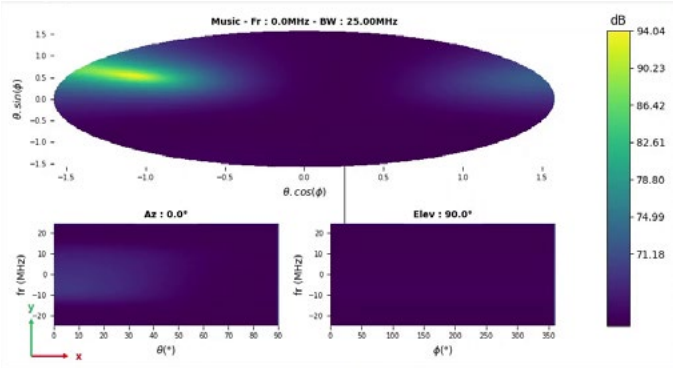
Data Interface

Telemetry

Receiver information	Position, Velocity, GPS time
Constellation	Satellites C/No, Doppler, Pseudorange
ROEM	Space Frequency distribution of incoming energy

Telecommand

Live configuration	Jamming detection activation/configuration Jamming mitigation activation/configuration Spoofing detection activation/configuration Autocalibration request Array attitude estimation request
Static configuration	Antenna array geometry definition



Hardware

RF Input

Frequency Bands	L1/E1
RF Bandwidth	40MHz
Input Power	97dBm ; 10dBm] operating +20dBm without damage

Connectors

Antenna array	4 x SMA (50 Ω)
Power Supply	20-32V DC
TM/TC	RS 232 Sub-D 44
10 MHz in/out	SMA
1 PPS	Sub-D 44

Physical dimensions and characteristics

Overall (box)	295 mm x 193 mm x 53 mm
Weight	~2,6 Kg
Storage Temperature	From -30 to +65°C
Operating Temperature	From -5 to +65°C
Consumption	30W
Option	Embedded into Rack 19" 2U

Sensors

IMU	3D accelerometer and 3D gyroscope: ISM330DHCXTR

Miscellaneous

Licenses

Exportation outside Europe	This product needs an exportation license from French Government
ITAR	Free/No constraint

Jammer & Spoofer characteristics transmitted

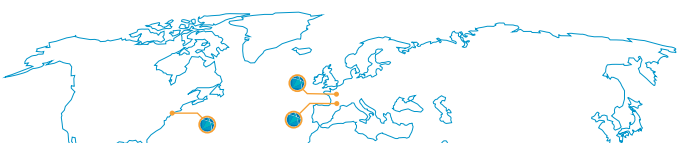
Anti-jamming

Simultaneous Independent Nulling	3
Supported types	CW, Wideband, Pulsed
Mitigation J/S	> 100 dB
Jammer telemetry	DOA, Bandwidth

Anti-spoofing

Spoofing detection	Yes
Spoofer telemetry	DOA, Spoofed position
Spoofing Mitigation	Yes

Find us



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