CALIAN®

Confidence. Engineered.

Resilient GNSS and Anti-Jamming Solutions

Tallysman heritage. Calian strength. Precision-built GNSS antennas engineered to perform in contested environments.

In today's increasingly contested electromagnetic environment, the need for GNSS resilience and anti-jamming capabilities has never been more critical. Military and civilian systems alike depend on reliable positioning, navigation, and timing (PNT) data, yet GNSS signals are inherently weak and vulnerable to intentional jamming, spoofing, and interference. These threats can degrade mission effectiveness, compromise safety, and disrupt critical infrastructure.

To ensure uninterrupted operations in denied or degraded environments, robust solutions such as controlled reception pattern antennas (CRPAs), signal authentication, and multi-layered mitigation strategies are essential. Enhancing GNSS resilience safeguards strategic advantage, operational readiness, and national security.

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CALIAN
Confidence. Engineered.

Engineered in North America for Mission Success

Engineered and built in Canada, Calian GNSS antennas carry forward the legacy of Tallysman, a trusted name in high-precision GNSS technology. With design and manufacturing rooted in our Ottawa facility, we continue to uphold a tradition of excellence in developing robust, high-performance antennas for mission-critical applications. Our RF and System Development Engineering teams—drawing on decades of expertise in GNSS, RF design, and signal integrity—craft solutions that meet the demands of , aerospace, and industrial clients. Every antenna is designed, tested, and built in Canada, ensuring quality control, supply chain security, and GNSS resilience. This commitment to in-house development and North American manufacturing reinforces Calian's role as a dependable partner in precision GNSS.

About XF+

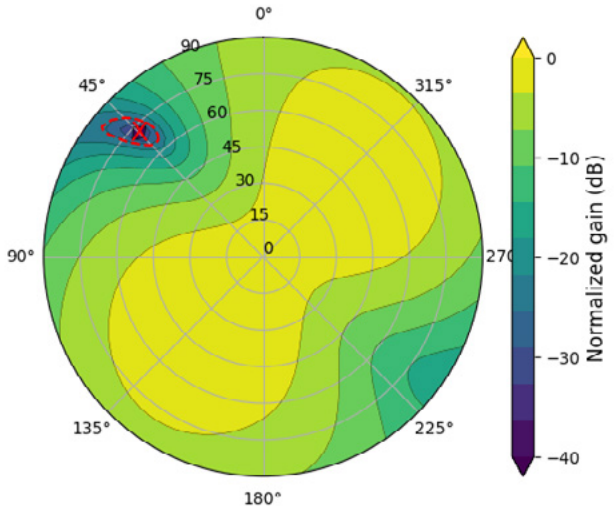
Calian's XF+ incorporates several filtering techniques to mitigate interference from out-of-band LTE signals and other sources, providing clean and pure GNSS signals. The XF+ incorporates deep filtering such that out-of-band signals, in the range of 400 MHz to 3000 MHz are attenuated by approximately 80 dB or more. In addition, the '+' feature supports cross-band isolation throughout the entire LNA chain. For instance, if the upper band is jammed then the lower bands will continue to provide usable signals.

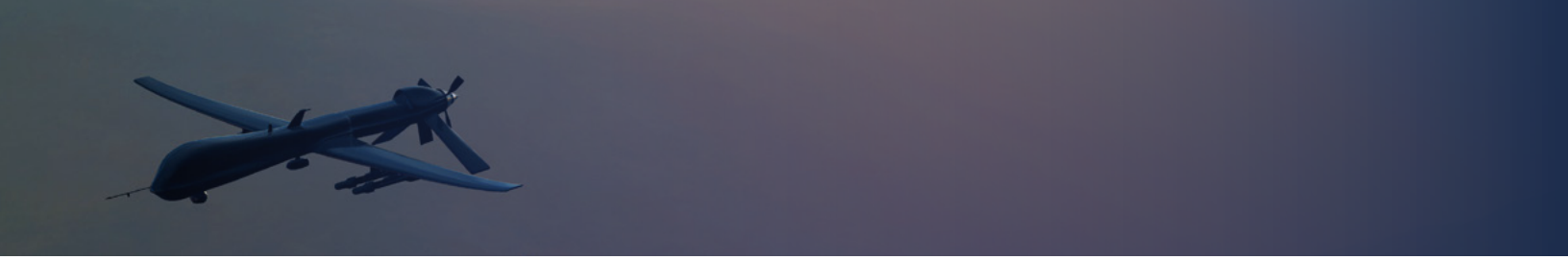
eXtended Filtering + LNA

- Isolated upper and lower bands
- LNA gain is 37 dB
- Noise figure is 3 dB
- Output P1dB is 10 dBm
- Deep filtering with 80 dB out-of-band rejection

About CRPA

CRPA technology uses multiple antenna elements and real-time null steering to enhance GNSS system resilience against jamming or interference. By dynamically steering nulls in the radiation pattern, it suppresses interference, enhancing reliable PNT in challenging RF environments—important for critical infrastructure and defence applications.





The Future of Anti-jamming Technology is mission-ready.

Calian's new CRPA product line sets a new benchmark in low SWaP GNSS resilience. Purpose-built for critical infrastructure and defence applications, this advanced system delivers real-time interference mitigation and resilient PNT in the most challenging RF environments. Engineered for mission readiness—anywhere, anytime.

SWaP

Optimized for low Size, Weight, and Power consumption (SWaP), Calian's CRPA delivers high-performance anti-jam capabilities in a compact, lightweight package. Its low physical profile and small footprint enable seamless integration into UAVs, autonomous ground vehicles, and light vehicles while achieving mission objectives.

Situational Awareness

Calian's CRPA improves GNSS availability in contested environments using adaptive null forming and interference suppression. It provides situational awareness by sending SITREP messages via proprietary NMEA over RS232/RS422. These messages report jamming state, jammer direction, and power level—helping operators maintain accurate PNT and respond to electronic threats effectively.

CRPA Product Line

The Calian CRPA family includes a variety of different form factors suited for every user. This includes the surface mount CR8894SXF+, pole mount CR8894PXF+, and embedded CR8894EXF+—offers solutions tailored to diverse operational needs. With precision filtering, rugged construction, and proven RF performance, each model supports seamless deployment across land, air, and maritime platforms. Mission-ready by design, built to deploy.

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Designed for Your Mission Environment

Calian's CRPA line is engineered for reliability and precision across diverse mission environments, where optimized SWaP is critical. The CR7712EXF 2-element single null adaptive beamforming antenna, is ideal for military navigation in contested GPS-denied zones, ensuring continuous, and accurate PNT.

Calian's CR8894SXF+ CRPA supports GPS L1/L2 (M-Code) and Galileo E1/E5b signals. The CR8894SXF+ houses 4 antenna elements enabling it to mitigate 3 jammers per band for a total of 6. A serial interface provides proprietary NMEA messages that indicate the antenna's state information as well as indicating the estimated direction to the jamming or interference source. The CR8894SXF+ is compatible with all GNSS receivers that output 150 mA or more at 5 volts to the antenna. The antenna can also be powered through the serial interface.

The CR8894SDXF+ detector only provides interference or jammer threat identification. Through a serial interface the CR8894SDXF+ provides messages indicating the CRPA state and the direction to the jammer, providing the user with situational awareness.

To support a federated system CRPA installation, Calian GNSS provides the CA8894SXF+ (active) and CA8894SP (Passive) CRPA antenna arrays.

Complementing CRPA, Calian's Low Elevation Angle Nulling Antenna (LEANA), such as the triple-band AJ977XF+, is optimized to mitigate low-angle interference. The TW3742AJ antenna supports single frequency (L1/E1, B1) GNSS reception, ideal for timing and all resilient applications.

Together, these products deliver tailored, mission-ready solutions tested for environmental, mechanical, and electromagnetic extremes—enhancing system resilience and situational awareness wherever your mission takes you.

Explore Resilient GNSS Precision with Calian

CR8894SXF+ CRPA
Dual-band
(L/E1, L2/E5b)

20–40 dB Nulls
Direction Finding
Low Power (140 mA/5 V)

AJ977XF+
Triple-band GNSS

Low-elevation Nulling
15–20 dB

TW3742AJ
L1/E1 GNSS
Coverage

Passive anti-jam defence
Reduces impact of jammers
Simple, cost-effective anti-jam solution

ARM990XF+
Full-band GNSS

Lightweight, XF+
ARINC mini footprint
Ideal for UAVs – lightweight, low-profile

HC990XF+
Full-band GNSS

Lightweight, XF+
Superior performance without ground plane

About Calian

Calian GNSS RF and System Development Engineering specializes in the design, development, and integration of advanced radio frequency (RF) and GNSS solutions tailored for high-performance and mission-critical applications. Leveraging deep expertise in RF systems, antenna design, and signal processing, Calian delivers innovative technologies such as anti-jam GNSS solutions, including Controlled Reception Pattern Antennas (CRPAs). Their engineering teams work closely with defense, aerospace, and commercial clients to create robust, reliable systems that perform in the most challenging environments. With a focus on precision, resilience, and compliance with stringent industry and military standards, Calian plays a key role in advancing secure and accurate GNSS-based positioning, navigation, and timing capabilities. Visit **calian.com** to learn more.

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