Advanced Technologies | Case Study

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# Curbing signal disruptions

## Calian's advanced GNSS antenna technology proves winning formula in filtering out interference

**LabSat distributor Sampson Technology Ltd. successfully utilized Calian's Tallysman line of lightweight, full-band antennas to test the accuracy of the Galileo High Accuracy Service (HAS). This case study details the challenges, solutions and results of their efforts to ensure precise point positioning corrections in real-time.**

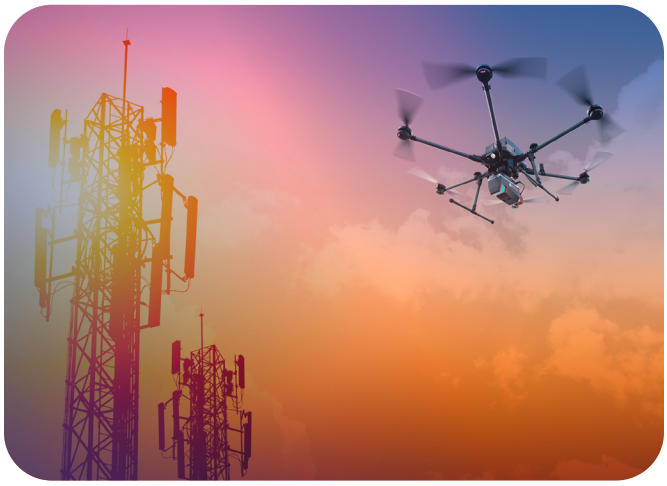
SAMPSON TECHNOLOGY

## The challenge

LabSat, through its distributor Sampson Technology Ltd., needed to test the effectiveness and accuracy of the Galileo High Accuracy Service (HAS) using the LabSat Wideband Record and Replay System. The objective was to determine if HAS could provide consistent, real-time positioning corrections across various GNSS and GPS devices. However, existing antennas lacked the specialized capabilities required for this task, prompting the need for a more advanced solution.

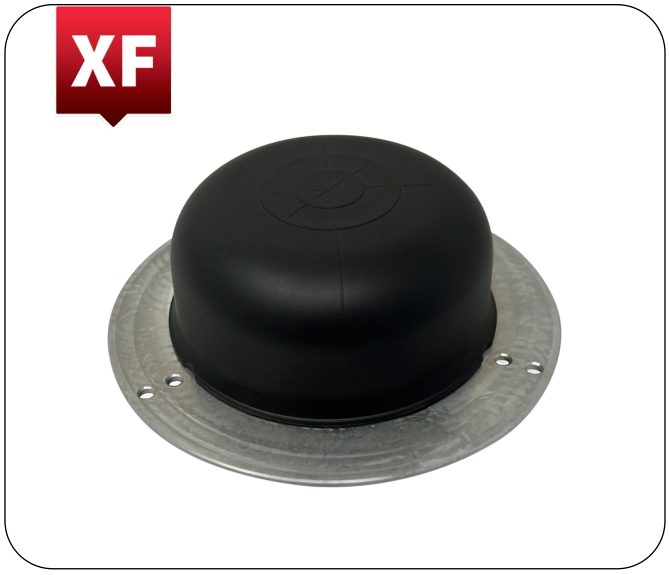
## The solution

Sampson Technology turned to Calian's Tallysman SSL990XF antenna, renowned for its advanced extended filtering (XF) technology. This antenna is designed to filter out-of-band signals and prevent GNSS antenna saturation. It leverages a derivative of Calian's patented VeroStar antenna element, offering comprehensive GNSS and L-band corrections frequency coverage.



### Key features of the SSL990XF antenna include:

- Dimensions: 63 mm in diameter and 28 mm in height
- Weight: Less than 50 grams
- Full-band precision GNSS capabilities




## The result

In testing HAS efficiency and accuracy, Sampson Technology recorded a test drive with the LabSat 3 Wideband on L1, L5 and E6. The recording was replayed into two different HAS capable receivers (EOS Arrow Gold Plus and Hemisphere OEM Atlas) to obtain a track from each that was about three cms apart.

In both instances the SSL990XF antenna performed optimally, even surpassing the signal convergence time of one of the antennas supplied by a receiver manufacturer. “The difference in the reduction in convergence with the Tallysman antenna as significant,” says Mark Sampson, owner of Sampson Technology. “I sat for three quarters of an hour with the other antenna, and it wouldn’t converge.”

In addition to being cost-effective, Sampson says the advantage of Calian antennas is especially apparent with mobile devices. “LabSat has been using Calian’s Tallysman line of GNSS antennas for more than 12 years and there has never been a problem with anything to do with the signal, the best performance of a receiver is entirely dependent on having a good antenna.” he says.

## Context and implications

In an increasingly congested radio frequency spectrum with new LTE bands affecting GNSS antennas and receivers, traditional antennas often struggle to filter out interference. This can degrade signal quality, impacting applications that depend on precision GNSS. The successful deployment of the SSL990XF antenna in the HAS test scenario underscores its capability to deliver clean and pure GNSS signals, reinforcing the importance of advanced antenna technology in maintaining signal integrity.

## Conclusion

Calian’s SSL990XF antenna proved to be an essential asset in ensuring the accuracy and reliability of Galileo High Accuracy Service (HAS) testing. Its advanced filtering capabilities and compact design make it an ideal choice for applications requiring precise GNSS performance, demonstrating that the best receiver performance is intrinsically linked to having a high-quality antenna.

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