

Customer Testimonials

ABRIS Design Group

Obtaining High Precision and Accuracy with Tallysman's Helical Antenna Solutions

ABRIS Design Group is a leading Ukrainian UAV manufacturer based in Kyiv. One key ABRIS-DG product is the FLIRT Cetus unmanned aircraft, designed for high-precision aerial surveys and used worldwide.

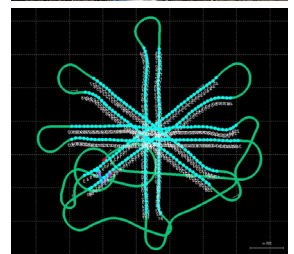
A Standard Design Solution for Our Aircraft

To obtain accurate and complete orthophoto maps of the terrain, it is crucial to navigate the aircraft along the designated flight routes and to accurately determine the positions of the center of photographs in flight or after a session. To do so, we use the EPSKit-7 dual-frequency GNSS system. The imaging sensor is a 61 MP full-frame CMOS, SONY A7RIV camera. Ultra-light and compact HC871 helical antennas, from Calian Wireless Inc., are collocated with the optical axis of the camera and operate as part of the GNSS system. This allows reliable and accurate centimeter level position accuracy of the image projection center, at a flight speeds of up to 30 m/sec.

The resulting series of images have good orientation and accurate geo-referencing, which allows generation of high-precision ortho-mosaics without additional costly ground survey work. In addition, the obtained photographic data are also suitable for processing by the stereoscopic methods, which, as a rule, is impossible for aerial photography from an aircraft-type UAV.



The high efficiency, accuracy and reliability of the above-mentioned GNSS systems underlie our next method - which is to use a two-antenna GNSS systems to determine the angular position of the aircraft, and operate with these values for aircraft navigation, as well as control the camera angle relative to the optical axis to compensate for the wind angle. It is expected that the values determined in this way will be much more accurate than with the flight controller magnetometers, since these sensors have low stability and are susceptible to interference.



We are very pleased with the long-term and fruitful cooperation with the leading UAV manufacturer in Ukraine – ABRIS Design Group. Thanks to our common efforts and innovative technological attitude from Calian Wireless, their antennas are finding ever wider practical applications not only in Ukraine, but also far beyond its borders.

Sergey Flerko, Director of EPS LLC & Calian Wireless Inc. Representative in Ukraine

To test the performance of the method, we installed two Calian HC871 antennas on the longitudinal axis of the aircraft at a distance of 40 cm from each other, connected to an EPSKit-7D dual-antenna receiver. The technical characteristics of the antennas (phase centre etc.) are then a key part of the successful operation of the system.



As a result of the experiment, during which the aircraft flew along a star-shaped trajectory with eight different flight directions with a moderate strength wind of up to 8 m/sec, encouraging results were obtained: even with a 40 cm distance from each antenna, the solutions obtained made it possible to stably determine the heading angles in flight with sufficient accuracy. After completing a series of experiments and developing the necessary components, we expect to use this technology as a standard design solution for our aircraft.

Vadim Kolesnichenko

Founder & CTO at ABRIS Design Group

Excellent Amplification and Minimized Disruptions

“ In the process of creating aerial photography systems based on the FLIRT Cetus UAV, our specialists tested a fairly large number of GNSS antennas from different manufacturers. Today, ABRIS-DG can safely say that the Calian Wireless - HC871 (dual-frequency) and HC771 (single-frequency) helical antennas both have outstanding performance in terms of GNSS signal reliability, stability and accuracy and also have sturdy build quality.



HC771 Single-Band Helical Antenna



HC871 Dual-Band Helical Antenna

The low noise amplifier provides excellent amplification, a minimum amount of noise which minimizes disruptions in tracking the carrier phase of signals even in UAV turns - this is exactly what we need when implementing our technical solutions.

Evgeny Kovalchuk

Chief Engineer at ABRIS Design Group

About Calian

We keep the world moving forward. Calian® helps people communicate, innovate, learn and lead safe and healthy lives. Every day, our employees live our values of customer commitment, integrity, innovation and teamwork to engineer reliable solutions that solve complex problems. That's Confidence. Engineered. A stable and growing 40-year company, we are headquartered in Ottawa with offices and projects spanning North American, European and international markets. Visit calian.com to learn about innovative healthcare, communications, learning and cybersecurity solutions.

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