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Certiflight articles and press releases

March 2025

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Granting Authority:

EUSPA European Union Agency for the Space Programme

Funded by the European Union

This project has been funded by the European Union. However, the views and opinions expressed are those of the Certiflight consortium only and do not necessarily reflect those of the European Union or EUSPA, the European Union Agency for the Space Programme (the "granting authority"). Neither the European Union nor the granting authority can be held responsible for them.

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Certified E-GNSS remote tracking of drone and aircraft flights

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There is no reliable system to ensure the position and flight path information of UAS and general aviation aircraft with legal validity.

The Certiflight project is a key initiative in the field of unmanned aviation, focused on the development of an innovative technology that facilitates the safe integration of unmanned aircraft into European airspace.

This document is a compilation of the articles and communications generated during the development of the project, reflecting the progress achieved, the working meetings with industry experts, the test flights conducted and the main validation campaigns carried out.

Throughout the content, key project milestones and future perspectives are highlighted, with the aim of providing a detailed overview of the achievements made and the challenges faced on the road to creating a solution that transforms unmanned aviation into a safe and efficient system.

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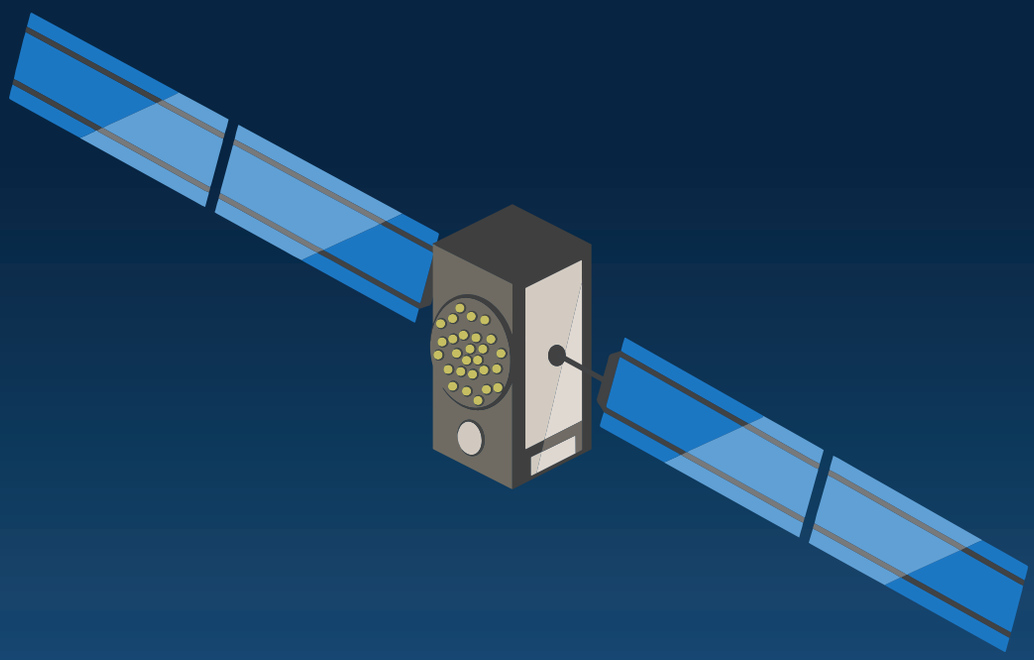


Articles posted on the website

Certiflight kick-off meeting

November 23, 2022

What is Certiflight

On Novemeber 23, 2022 took place the Kick-Off Meeting that marks the official start of the Certifilght "Certified E-GNSS remote tracking of drone and aircraft flights" project, a 30-month Innovation Action that aims to develop and test a digital service for the generation of certified reports of flight tracks and the flight logs of UAS and GA aircraft, especially for safety-critical and commercially valuable applications.

The service will also be included in the USSP/UTM service provider's software as commercial Recording Service. In addition, the recorded tracks may be useful for law enforcement, for instance sanctions for airspace infringement, as well as for possible accident or incident investigations.

The core of the system is a Digital EGNSS/IoT Device installed on UAS and General Aviation manned aircraft, equipped with an OSNMA Galileo/EGNOS enabled receiver, capable to guarantee the authenticity of their position information at the origin, without the possibility to be counterfeited or spoofed. Tracking information is encrypted and once transmitted to the Certiflight platform is permanently stored by automation software to an unalterable blockchain private node.

The CERTIFLIGHT project represents a very exciting challenge, as its aim is to ensure the "chain of trust" of information generated by drones and leisure aircrafts accessing the U-space airspace that it is expected to become very congested in the next years. With the advent of drones as mass-market and professional-market phenomenon, in the Open and Specific Categories, it is important to ensure that the related tracking data generated are trustful enough to be used both as payment mechanisms (for example, a trustful tracking system can be used as billing mechanism for Clients and UAS operators for charging drones' missions based on the effective hours of flight) and trustful logging system. For this reason, CERTIFLIGHT aims at filling this gap through the implementation of a Certification platform for payload data and remote tracking generated by drones that can be used by UAS Operators, their Clients and Authorities as Auditing System.

The Positioning and time information of drones is ensured at the very origin, through the Galileo OSNMA service which represents the "missing piece of the puzzle" for this application. On the other side, the Blockchain technology guarantees that each information stored in the platform cannot be altered or being modified in the future.

Finally, our CERTIFLIGHT platform lays the foundation for a new class of business services for UAS Operators but also to address the challenges of the new paradigm of autonomous drones' operations where the boundaries among drones Constructors, Operators and Pilots (if any) might be source of future legal disputes.

Alberto Mennella
Certiflight Project Coordinator

Project information

The project is coordinated by TopView s.r.l., a technology oriented SME and includes in its consortium companies and organisations with a proven track record in the U-space sector such as D-Flight, UpVision, Unifly, Distretto Tecnologico Aerospaziale, TA, The Sara Project, TuDelf, Way4WARD, Aria United, EuroUSC España and EuroUSC Italia.

Certiflight was presented to the call HORIZON-EUSPA-2021-SPACE-02-53: EGNSS applications for the Digital Age and became one of the projects selected by the European Agency for the Space Programme (EUSPA). The project starts in November 2022 and will have a duration of two and a half years (30 months) after signing the Grant Agreement no 101082484.

Certiflight reaches its first major milestone, the Preliminary Design Review, in the EUSPA headquarters

March 27, 2023

On 21st of March, the representatives of EUSPA, the project consortium and the two technical reviewers, met in Prague to discuss the preliminary design of the Certiflight solution. The objective of the meeting was to agree on design choices and better understand their implications, as those will be the basis for the coming technical work of the project.

The document D2.1 'User requirements and use case definition' triggered the discussion among partners and reviewers. The project fundamentals and the use cases presented in the document were debated in depth during the meeting focusing on the reviewers' comments.

The ten use cases identified in the document were considered representative of the added value of Certiflight in both business and safety needs of the users. Among them we can mention last mile delivery, organic agriculture, port surveillance, illegal fishing, airport runway inspection and traffic accident investigation. The existence of so many use cases is the best sign of Certiflight potential to further develop the concept of U-space as an exciting new frontier for aviation.

The meeting has been also the occasion to provide an overview of ongoing activities such as the development of communication materials, the selection of suitable algorithms for spoofing detection and for automated separation. In parallel, the partners have advanced the market analysis and preliminary business model for Certiflight.

Following this successful meeting, Certiflight proceeds towards the next project milestone: the Critical Design Review for whichsystem requirements, CONOPS and platform specification have to be defined.

Certiflight comes at the right time, according to EUSPA

The EUSPA Expert Monitor, Pere Molina, stressed that Certiflight project comes at the "right time" because it "takes advantage of the current maturity of the technology", but also adds innovation because it introduces "blockchain in the authentication process".

It is outstanding how drone technology has evolved: some fifteen years ago, it was all misbelieving; then total hype came afterwards, and we are now seeing how the technology finally reaches its plateau, fueled by U-Space consolidation and technology maturity. In this respect, Certiflight is timely as it proposes a service within U-Space, based on available authentication mechanisms through Galileo. It therefore leverages the current maturity of the technology, and adds some more into it by introducing blockchain into the authentication process.

The project currently faces important milestones. The consultation of its stakeholders is of paramount importance, and it will help shape the product and trigger development activities. As an expert monitor for the EUSPA, I'm happy to witness the progress of the project and help steer the activities to pursue its final goal: the unleashing of the whole Galileo potential for advanced applications.

Pere Molina
EUSPA Expert Monitor

Certiflight First Advisory Board meeting

May 24, 2023

We held the first Certiflight Advisory Board in Naples, Italy, on May 17.

The event brought together about 50 experts, including representatives of the European Commission, EUSPA (EU Agency for the Space Programme and funder of the Certiflight project), ENAC (Italian National Civil Aviation Authority), EUROCONTROL, drone associations, pilots and general aviation, as well as the project partners.

The purpose of the meeting was to illustrate the project broadly to the stakeholders first and then discuss its objectives and solution design.

Taking turns at the table, the experts discussed on panels about the project's challenges and the surrounding ecosystem, such as the planned development of the U-space, the use of Galileo OSNMA service and blockchain and the concept of Smart Contracts.

Another key part of the meeting was to analyse the impact of Certiflight on safety, society and economy.

The workshop had constant interactive discussion aimed at collecting stakeholders' feedback, even through specific real-time polls and the explorary survey, which we invite to fill up.

The consolidated data will be presented in a dedicated document and will be of great value for the further definition of the Certiflight services. In conclusion, the statement that best sums up the spirit of the meeting is "Certiflight is the project that is putting all the pieces together", expressed by Carmen Aguilera, from EUSPA. This strengthen the role that Certiflight has among other relevant research projects funded by the European Union.

The opinion and concerns of the attendees - who formed a broad group with a deep knowledge of the problems that Certiflight intends to solve- were gathered. The workshop had constant interactive discussion aimed at collecting their feedback.

Attendees took several surveys in real time to express their opinions on the Certiflight concept and goals. The consolidated data will be presented in a dedicated document and will be of great value for the further definition of the Certiflight services.

In conclusion, the statement that best sums up the spirit of the meeting is "Certiflight is the project that is putting all the pieces together", expressed by Carmen Aguilera, from EUSPA.

The Certiflight project certainly responds to legislative and compliance needs of U-space. In the area of integration with Galileo OSNMA, the project will solve the problem of detecting areas where someone intentionally spoofs the satellite signal. Thanks to Certiflight, it will be possible to mark areas potentially at risk of fraud in UTM/ATM systems. On the other hand, Certiflight provides credibility to the process of archiving and storing historical flight data. This will be particularly important in the case of large-scale operations, when one of the parties: a client, a third party, a person ordering a service, a prosecutor, an investigator will need reliable data on flights performed (historical data). Importantly, Certiflight via Smart Contracts, will enable electronic signing of U-space events, understood as complex flight plans, geographical zones, telemetry, etc.

In a nutshell, the Certiflight project performs the function of ensuring data consistency and reliability. In today's world full of cybercriminals, this project seems extremely necessary. I keep my fingers crossed for the implementation.

Pawel Korzec
CEO and founder - Droneradar

The Advisory Board took place from 10.30am to 16.30pm at the Reale Yacht Club Canottieri Savoia in Naples and attendees were present both in person and online via streaming.

Certiflight completes its preliminary design phase with a successful Critical Design Review meeting

September 4, 2023

On August 29, 2023, Certiflight partners presented preliminary design results to the project officer and reviewers. The Critical Design Review (CDR) is the third major milestone of the project. Its objective is to ensure that the system requirements and Concept of Operations (CONOPS) of the Certiflight solution are defined and the platform specification is ready to start the development.

Key outcomes

The main outcomes of the CDR are:

- A clear understanding of the users' needs, market opportunities and the regulatory environment applicable
- The first results of the technical studies undertaken
- The definition of the CONOPS of the Certiflight operations
- The definition of the System Architecture
- The establishment of the system requirements
- And finally, the analysis of the Business Model of the Certiflight service

These outcomes make up a valuable input that makes it possible to start the development and prototyping stage of the project.

Technical studies

The meeting started with the presentation of the results of the key technical studies carried out since the beginning of the project:

- GNSS and GSD algorithms, including the Authenticated Position Propagation (APP) and the GNSS Spoofing Detector (GSD) services
- e-Conspicuity and automated separation algorithms
- U-space regulation compliance and standards

Business Model

The next section of the meeting was devoted to the presentation of the preliminary Business Model for the Certiflight service, offering an overall perspective on the market needs and potential of the Certiflight concept, the added value of the proposed solution and the potential business models.

Feedback from the users' survey and the Advisory Board

The partners shared the results of their efforts to get feedback from users, service providers, authorities, regulators, and other stakeholders.

We will use this feedback to guide our communication and dissemination efforts, and to identify where we need to improve the understanding of our solution by the community.

The meeting took place from 9.30am to 16.00pm at the EUSPA headquarters in Prague. Attendees were present both in person and online via streaming.

Certiflight participates in the Airspace Integration Congress, which brings together the best air navigation professionals

September 28, 2023

Certiflight has attended the Airspace Integration Congress held from 25 to 27 September at IFEMA, Madrid. This is the international air navigation congress that brings together the best professionals in the sector.

Certiflight's objective is to improve air safety and for this purpose it uses Galileo OSNMA feature to certify the flight tracks of drones and ultralight aircraft inside VLL airspace. Therefore, to make this project visible and to know the latest developments in the air navigation sector, Certiflight has been present and exchanged views with different agents within the industry.

Certiflight accompanied EUSPA (European Union Agency for the Space), the granting agency of the project. Ernesto Llorente a representative of EUSPA described Certiflight as "an ambitious project that is creating a whole ecosystem to establish reliable communications and reliable positional navigation through the authentication of OSNMA and the technology of blockchain".

Representatives of Certiflight, such as Alberto Menella, project coordinator and Innovation Manager of partner Topview, Jakub Karas, CTO of UpVision and Manuel Oñate, CEO of EuroUSC España, attended the event.

Certiflight's presence at this congress is important because it highlights the latest trends related to the field of air navigation, bringing together more than 130 countries and encompassing all professionals in the air navigation industry.

The Airspace Integration Congress is the perfect opportunity to meet with aviation professionals to present them our proposed solution since they are our future clients and potential industry partners.

Manuel Oñate
Certiflight Communication and Dissemination Manager

Drones Beyond 2023 hosts the first demonstration of Certiflight

October 18, 2023

DTA

Drones Beyond. 2023

Certiflight project will be present in Drones Beyond 2023, which will take place on 25-26 October, at the Fiera del Levante in Bari.

DTA (Aerospace Technology District) and the Municipality of Bari host this event, supported by Eurocontrol and Urban Air Mobility Initiative Cities Community (UIC2) and the patronage of ANCI.

In its third edition the Drones Beyond proposes as its main topic "**Unfolding Innovative Aerial Services for the Smart City**".

The first edition of Drones Beyond in 2021 presented technologies and solutions in the field of Advanced Air Mobility and Innovative Aerial Services through demonstration of UAS in a real operational environment, the Grottaglie airport and the surrounding areas.

In November 2022, the second edition took place in the Fiera del Levante area, with the title "Urban Air Mobility: evolution and perspectives.

Drones Beyond 2023 will focus on understanding the applicability of drones in different operational sectors and as a tool for public administration. During the two days, panels and keynote speeches will discuss different topics and a series of live tests and demonstrations of drone services will be performed.

Certiflight will be present in two of the operations that will be carried out during Drones Beyond:

- Inspection of the Lamasinata urban canal to identify obstacles to the natural flow of water and detect pollution and environmental risks.
- Traffic accidents investigation

The event is free and open to the public, subject to registration, which can be done on the official page of the event.

Certiflight successfully completes the first flights of the software platform and UTM box prototypes

November 2, 2023

Certiflight has taken part in the Drones Beyond 2023 congress held at the Fiera del Levante in Bari. In its third edition, Drones Beyond has proposed as its main topic "Unfolding Innovative Aerial Services for the Smart City".

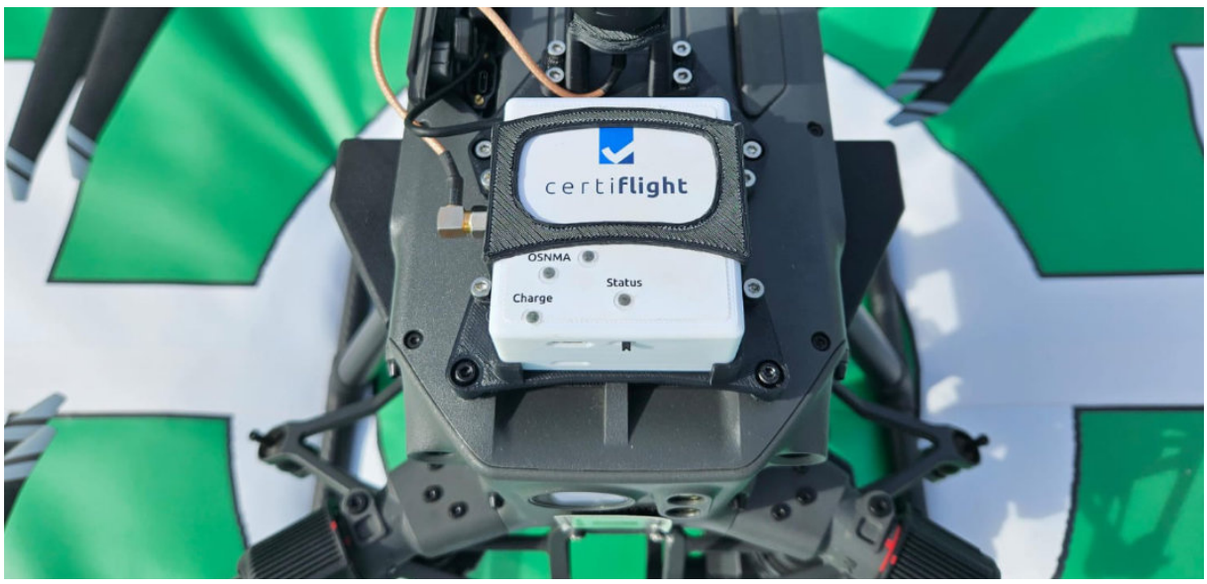
The Certiflight consortium has chosen this scenario to present to the public the first prototype of the UTM box and the Certiflight software platform. The Certiflight UTM box uses the Galileo OSNMA service to authenticate the flight tracks of drones and ultralight aircraft inside VLL airspace.

The UTM box was integrated with U-space services provided by the Italian U-Space service provider d-flight, a partner of Certiflight. Similar integrations will be implemented and tested with the other two USSP that are partners of the Certiflight consortium, Unifly and Upvision.

In addition, the data was also acquired in real time by the Certiflight platform prototype that processed the authenticated tracks and the data collected by the camera during the flights to generate a certified flight report, including the flight parameters and the data processed.

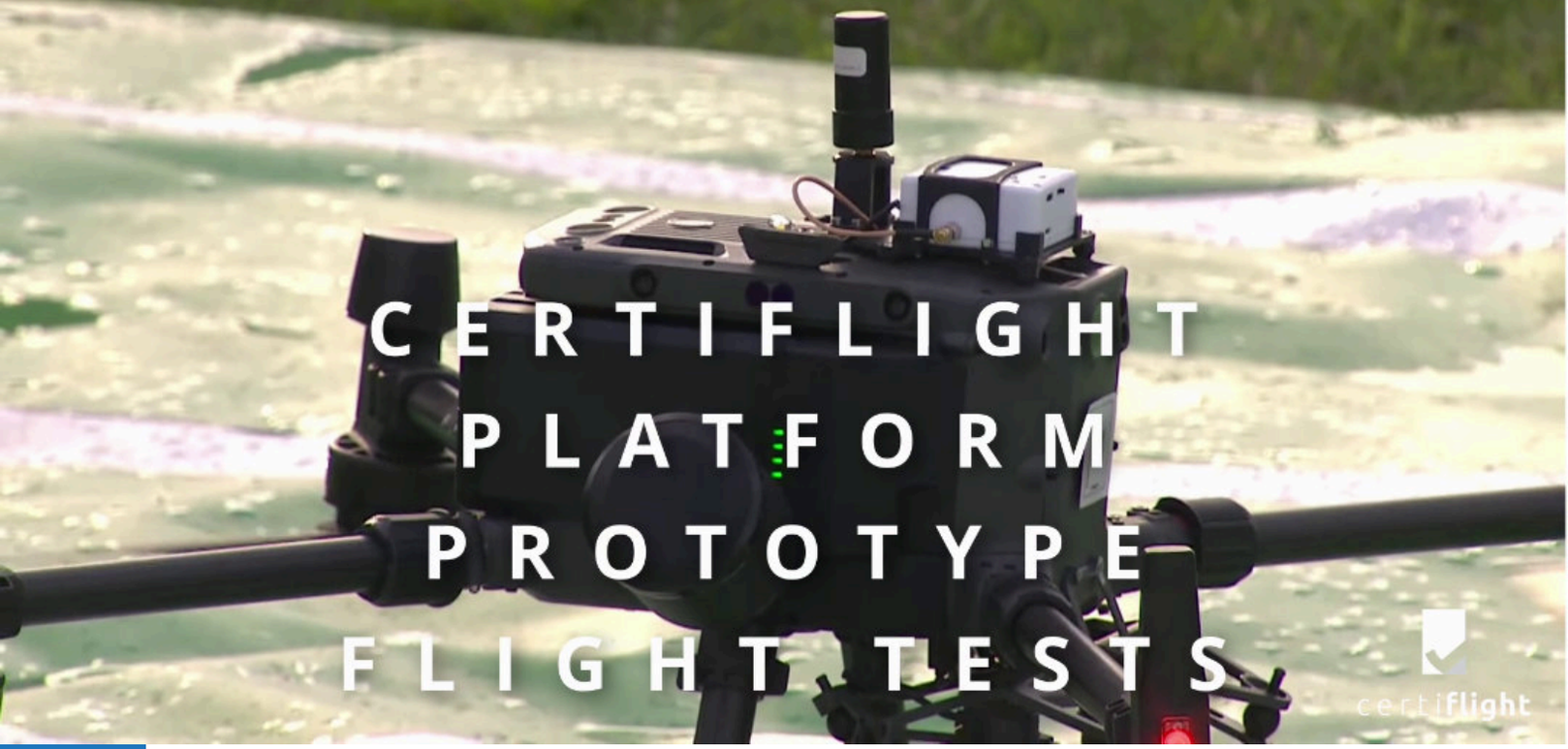
To test this setup, we performed two flights:

- A BVLOS flight to perform a simulated inspection of a channel in an urban environment near the limits of the Bari airport CTR. During this test we demonstrated the utility of Certiflight to ensure that no airspace infringement took place during the demonstration.
- A flight over a simulated traffic accident to gather legally binding evidence by producing images with a certified timestamp and location, thus ensuring that they correspond with the accident being investigated.



With these demonstrations, the Certiflight consortium have showed that their proposed solution is adequate to achieve the goals established in the project.

Drones Beyond 2023 has focused on understanding the applicability of drones in different operational sectors and as a tool for public administration. During these two days, panels and keynote speeches discussed different topics and a series of live tests have been performed.

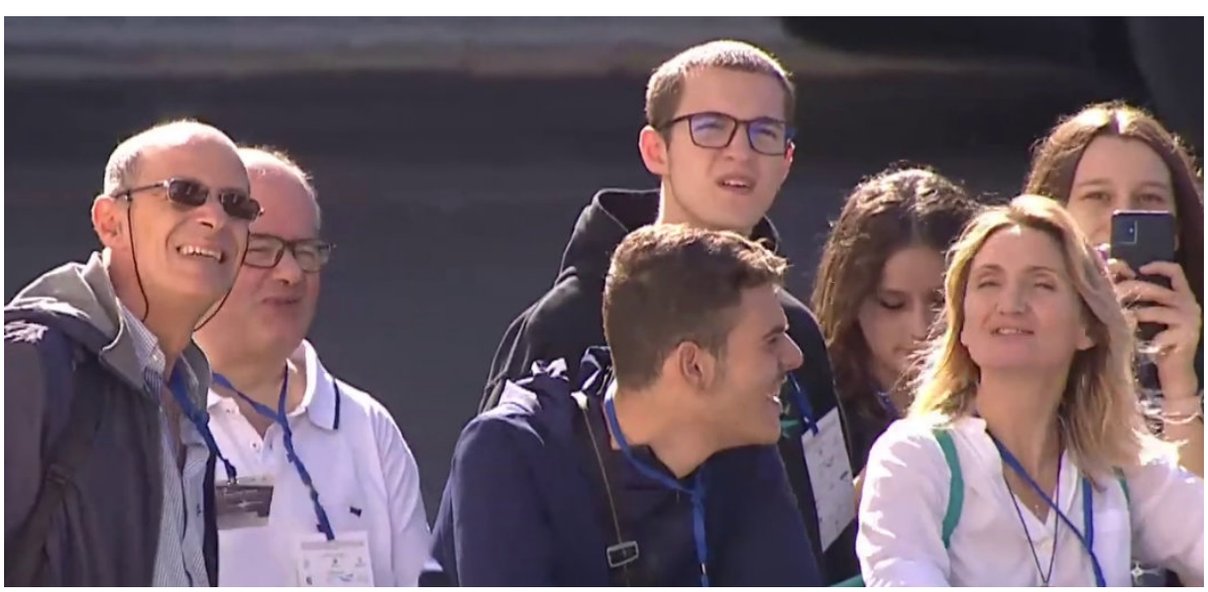


This video explains in less than two minutes what the Certiflight test flights were about

November 24, 2023

Certiflight has taken an important step in the development of the technology with which it intends not only to increase air safety, but also to certify flight data and possible incidents, by means of reliable and non-manipulable data and images.

To demonstrate the feasibility and functionality of the project, Certiflight has carried out its first public demonstration flights at the Drones Beyond trade show in Bari on October 25 and 26. The tests were followed live by the experts attending the congress as well as spectators on the street.



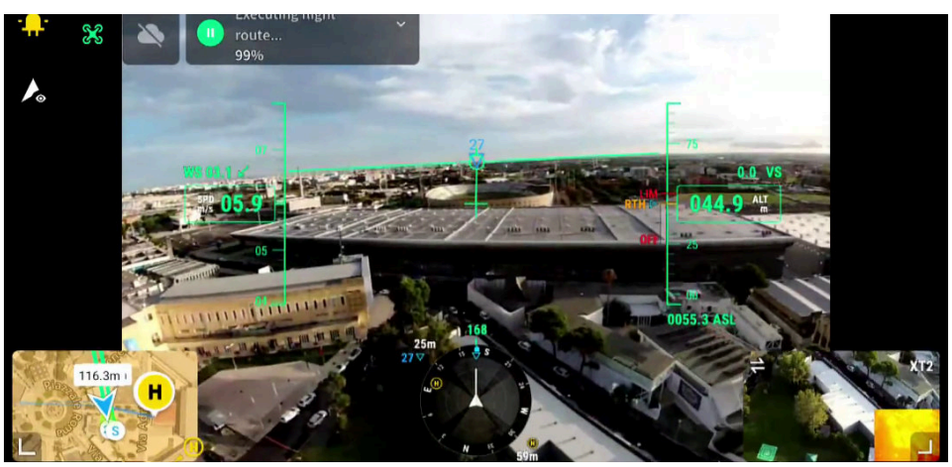
The tests comprised the inspection of a canal and the assessment of a simulated road accident. This video explains in less than two minutes the test flights performed.

See video

First flight test: Canal inspection

The first test carried out was an inspection mission of a canal. The aim was to simulate the identification of debris that could harm the environment.

During the test that involved 20 minutes of flight, the drone flew at a height of 45 meters, following a constrained flight path in a very narrow corridor. The mission was fully automatic, involving the transfer of command between two pilots in order to cope with contingencies. The operation was conducted in a very challenging environment, considering especially the electromagnetic spectrum of interference, explained the project coordinator Alberto Mennella.



Certiflight's technology works through the UTM box, a small device that is placed on board the drone and does not interfere in any way with the command and control.

The technology is based on a payload that goes on the drone and has been developed by Certiflight, a project co-funded by EUSPA, the EU Agency for the Space Programme. The first prototypes of the UTM box and the software platform were tested in these tests.

This payload exploits the new navigation authentication message of Galileo. Our idea in this project is to exploit this new authentication signal with the combination of other technologies as blockchain for providing a new service that has been also theorized and standardized by in the UTM and U-space.

Alberto Mennella
Certiflight Project Coordinator

Mennella expects this new service of Galileo, with the addition of the new technology provided by Certiflight, can play an important role in the near future. Certiflight brings interesting additional features because provides authenticated positions that can be trusted and adding a security layer against spoofing.

The data collected by the payload, such as photographs, video or any kind of information about the flight, can be used as the basis of potential legal evidence for a new category of services. **For example, in this test, we could prove that the drone was maintained well clear of the nearby CTR of the Bari airport**

Second test flight: Accident investigation

For the second test flight a car accident was simulated, a situation in which it is important to freeze the scene, obtaining photographs taken at a specific time, which will be used later for forensic analysis such as measurement of the distance and other data that can be used by the local authorities for the investigation.

In this scenario, the key aspect is to be able to demonstrate before a Court of Justice that the evidence was gathered in a particular place, date and time. For that purpose the drone needs to have the UTM box on board, with its embedded OSNMA receiver, and has to be connected to the Certiflight platform, to guarantee that data is genuine at the very origin.

The added value offered by Certiflight in this scenario is that the data collected by the drone at the crash site is processed in this certified service platform. The processed data is stored in a blockchain node. Therefore, the data is unalterable in the future. The key aspect is that the security chain of data is preserved and nothing is corrupted. This is Certiflight's key value proposition since the implementation for this kind of services provide legal evidence of facts that is not possible otherwise.

Once the drone takes the necessary images and data. The platform created a 3D model stored in a digitally signed PDF. The report generated includes all the points of interest and their relative measurements, enabling the authorities to use the report as a remarkable legal evidence for further analysis.

From the final user perspective, the authorities in charge of the accident investigation, the data acquired using a drone is of a much higher quality than what is possible with a ruler on the ground for measuring a scene of the accident, is non-tamperable and has much better probative value.

Conclusions

The tests were a success and the partners of Certiflight have got excellent feedback from the attendees to the Drones Beyond event. "We tested if the mechanism of the insertion of drones in a procedural way inside air traffic was feasible. There are still some gaps to overcome, but I think that this is a very good experience for everybody," concluded Menella.

One of the key challenges to be faced is the weakness of the signal transmission, especially in cities, because there is a lot of interference, but Certiflight expects this gap to be solved eventually in the remaining of the project.

From Tracking to Legal Recording or Accident and Incident Reporting: these are all the services offered by Certiflight

December 13, 2023

Certiflight is an European project, financed by EUSPA, which aims to offer a new U-space service for the legal certification of tracks generated by drones and aircraft flights.

To obtain reliable and unalterable information that has legal significance, Certiflight combines Open Service Navigation Message Authentication (OSNMA), E-Conspicuity and Blockchain technologies. As a result, they obtain these core services: Tracking (TRS), Authenticated Tracking (AuTRS), Remote identification (RID), Legal Recording (LRS), Digital Logbook (DLS), Accident and Incident Reporting (ARS) and Smart contract management (SmaCoM).

To understand in depth all the services offered, their characteristics and the possible uses for final users, you can consult them here.

You can also download the complete deliverable D2.2-TN1-Certiflight service CONOPS.

Get deliverable

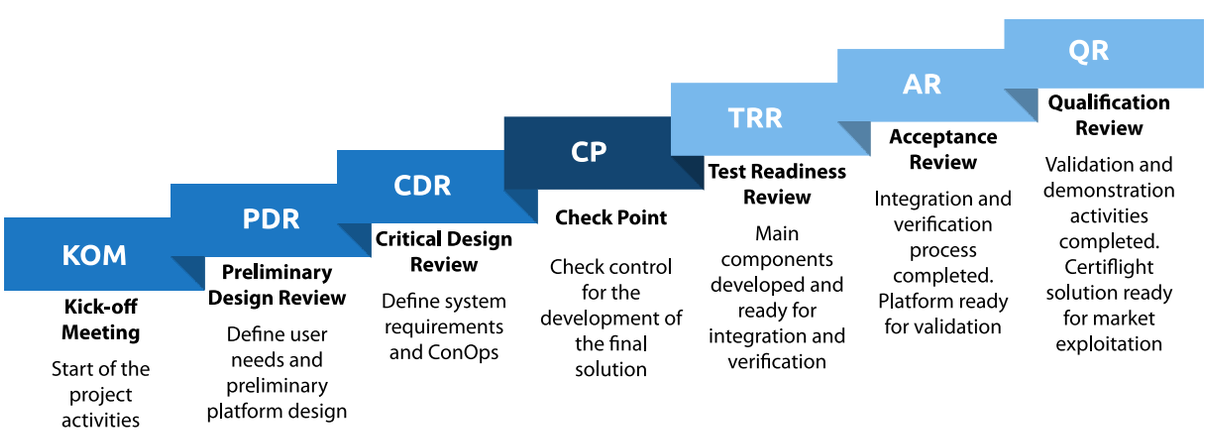
Certiflight holds its Check Point meeting to define the next steps of the project

December 22, 2023

Certiflight has held this week its Check Point meeting to assess where it stands, when approximately half of the estimated duration of the project has elapsed.

The meeting was attended remotely by the Certiflight partners, representatives of the European Union Space Programme Agency (EUSPA), which is funding the project, and the reviewers appointed by the Granting Agency.

This Check Point meeting is an important step because it marks the conclusion of the preliminary design tasks. The consortium is ready to start the final development of the different components of the Certiflight solution.

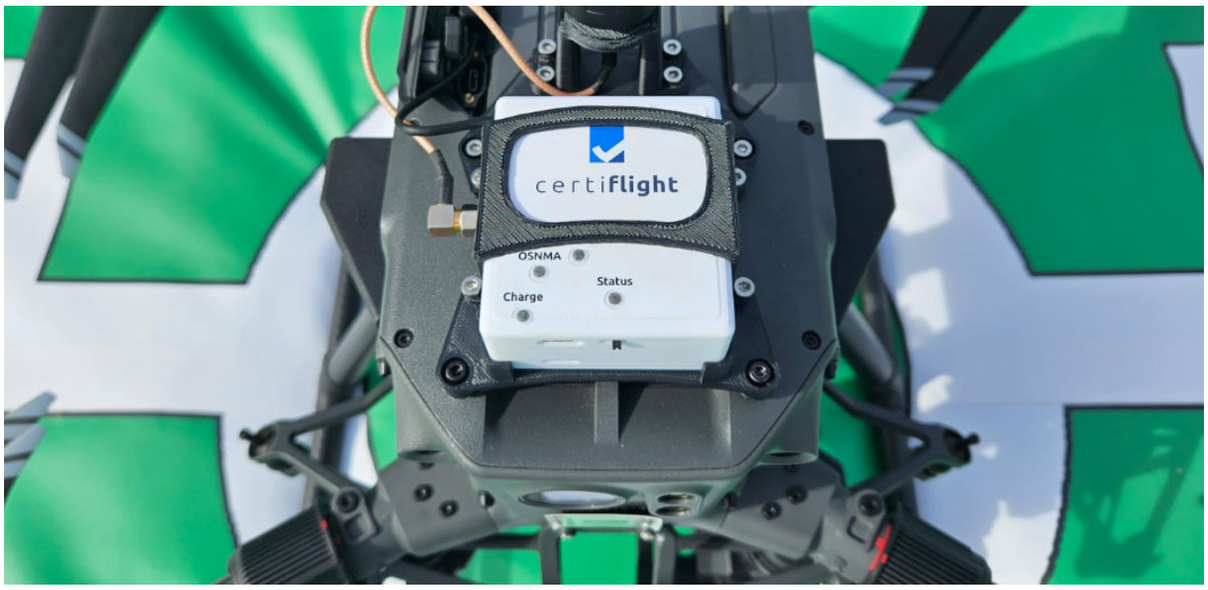


The current status of implementation activities was presented during the meeting:

- The first prototype of the UTM Box
- The first revision of Certiflight SW platform
- The status of GNSS algorithms implementation and training
- The status of the interfaces with USSPs

First prototype of the UTM Box

TopView was in charge of presenting this point, highlighting the success of the first prototype of the UTM box, a central element of the project. There is a plan to continue advancing in its development by implementing new sensors and alternative GNSS processing HW.



Implementation of E-conspicuity and obstacle detection algorithms

The partner TU Delft detailed the data used by the Certiflight algorithms, where it gets it from and the next steps for its implementation.

Platform prototype with initial features

TSP explained during the meeting how the Certiflight portal works, detailing the benefits of the blockchain based incomparable, auditing and time stamping system, the operator portal available to end-users, and last, the certification portal, allowing third parties to verify the information certified by the platform.

GNSS APP and GSD algorithms

Way4ward described the activities carried out so far. These include the analysis of datasets originated by the drone flights, and the prototyping of the APP major components using Matlab.

Other technologies developed

The technical review was closed by TopView, describing the key steps completed in the development so far and the next steps planned for the future.

Update on Communication, Dissemination and Standardization activities

EuroUSC España highlighted the important achievement of Certiflight by including its services in the recently published ISO 23629-9:2023 standard – UAS Traffic Management (UTM).

EuroUSC explained the dissemination strategy that is being developed to maximise the outreach of the project, showcasing the video produced to describe the first test flights and the articles created for the project website using clear language and easy-to-understand diagrams, such as those describing the Certiflight authenticity levels or the OSNMA authentication process.

The recognition by a relevant standard is of great importance for any research project, not only for its implicit validation of the work performed, but also because it ensures that the results of the project will be used widely by industry in the future.

In addition, Certiflight is also taking part actively in EUROCAE WG-105 SG-2 with the relevant standard expected to be published in 2024.

Manuel Oñate
General Manager - EuroUSC España

Market and business activities update

The last item on the agenda was an update on the market and business activities, with a focus on the upcoming Cost-Benefit analysis document that will be ready in June 2024 and discussed and validated in the next meeting of the Advisory Board.

Next actions

To conclude the check point meeting, the next steps for the following months until the next project meeting were identified and discussed:

- Launch of the implementation activities
- Planning of the internal verification activities
- Organization of the second Advisory Board
- Organization of the TRR Meeting

Certiflight analyses the U-space regulation compliance and standards

January 11, 2024

Certiflight is a European project which aims to offer a new U-space service for the legal certification of tracks generated by drones and aircraft flights.

For the project to run smoothly and be useful to all stakeholders, the partners involved have drafted several public deliverables that are available to the Community. Among them is D2.3, entitled U-space regulation compliance and standards, which summarises the U-space regulation and the key standards that affect the Certiflight concept. Moreover, it describes the preliminary aspects related to implementing the service and the development of the UTM box.

The aim of this document is to analyse the regulatory aspects related to Certiflight service, regarding the actual EU U-space regulations 2021/664, 2021/665, 2021/666, EU UAS regulations 2019/945, 2019/947 and UAS/U-space standards.

The document includes a general overview of the U-space concept and its related services, provides some guidelines and recommendations for the design of the EGNSS/IoT UTM BOX and the development of Certiflight service, lastly shows the UAS operations category for each of the use cases identified by the Project up to finish with an assessment in terms of legal validity of the added value offered by the Certiflight service.

The full text of the deliverable is available for download.

Get deliverable


U-SPACE
Network of UAS routes in U-space airspace
GEOZONE 1
GEOZONE 2
GEOZONE 3
GEOZONE 4
GEOZONE 5
GEOZONE 6
USSP 1
USSP 2

Certiflight, the solution to the existing E-conspicuity problem between drones and General Aviation

January 31, 2024

What are the benefits of Certiflight not only for the aviation sector but also for society as a whole?

The answer to this question requires the understanding of complex documents by both main stakeholders and general public. For that reason we have created the "Notes from technical documents" series of articles to explain in a concise way those technical documents created by the project, to make them more accessible.

The use of drones has been increasing continuously, which challenges the existing air traffic control system. They provide new approaches to different industrial sectors, for example in last-mile delivery, agricultural applications, infrastructures, fisheries, security… This new situation involves new challenges that need to be approached.

A key challenge for the safe integration of drones into shared airspace is the lack of clear separation rules between GA aircraft and UAS sharing the same airspace.

The proposed U-Space services allow UAS to fly in the existing airspace, thus increasing the likelihood of encountering General Aviation aircraft. EU Regulation considers this fact and requires both manned and unmanned aircraft to be electronically conspicuous when operating in U-Space. Thus, the concept of e-Conspicuity.

However, the lack of coordination and separation rules increases the possibility of

Get deliverable

mid-air collision. Unlike in controlled airspace for manned aircraft, services in U-space airspace are still in development phase. For instance, there are no certified U-space service providers yet. Moreover, a standardised separation distance between aircraft is also still missing at the moment.

In this context, the deliverable D2.5 "E-Conspicuity and Automated Separation Algorithms" analyses, through simulations, the use of bespoke algorithms to solve this problem.

The baseline are the Velocity Obstacle-based methods, which are well-established in the domain of robotics, self-separation for manned aviation, and complexity analysis.

Read the full deliverable to find the proposed solutions to the separation distance challenge.

Certiflight will perform an inspection flight over the runway of an Italian airport

March 19, 2024

Certiflight is going to carry out an inspection flight over a runway of the airport of Grottaglie, a city located in southern Italy and belonging to the province of Taranto, in the Puglia region. The test will take place this Thursday, March 21.

The flight will be a demonstration of the project's technical capabilities to inspect the pavement, runway strips, safety areas and visual aids. The objective is to demonstrate that Certiflight is a useful tool for airport runway inspections because the proper maintenance of airfield facilities is vital to maintain safety and avoid potentially fatal accidents. In addition, the test will allow the technicians to obtain valuable information on the status of Certiflight's technology to continue working on its further development.

Certiflight is a European project, funded by EUSPA, which uses the Galileo OSNMA feature to certify the flight tracks of drones and ultralight aircraft inside VLL airspace.

The test flight will be part of the Mediterranean Aerospace Matching, which will be held from March 20th to 22nd. It is a convention with an innovative format featuring exhibitions areas, conference session, round tables a matchmarking platform and flight demonstrations.

Certiflight celebrates the Test Readiness Review meeting (TRR) in Prague

April 29, 2024

Certiflight project held the Test Readiness Review meeting (TRR) in Prague, Czech Republic, on April 17, 2024.

The consortium has sat down at the table with the Project Officer and the reviewers to discuss the status of the project and the roadmap for the next steps.

Specifically, the focus of the meeting was to illustrate the status of the system components and the plans for their integration and verification.

Main outcomes

The main outcomes of the TRR meeting were:

- Presentation of the individual technologies developed, now ready for the integration and verification phase (Certiflight devices for UAS and General Aviation, Certiflight portal, EGNSS Algorithms for spoofing detection, and UTM/USSP platforms with updated interfaces)
- Closure actions for WP3
- First reporting period RP1
- Start of WP4 activities and comments on the D4.1 verification plan
- Update on Communication, Dissemination, and standardization activities
- Update on the Cost Benefit Analysis

Contents of the meeting

The meeting began with an introduction and the establishment of the TRR objectives and status of activities. At this point, the project coordinator, Alberto Menella from **Topview**, presented the first reporting period (RP1) and the technical report.

These reports summarise the results achieved in the first half of the project.

Members of **W4W** delivered a presentation titled 'Focus on EGNSS Algorithms: DKF and Spoofing detection SW library', explaining how the function provides position, velocity, and heading starting from the first authenticated solution.

Subsequently, **TopView** partners presented the devices used in Certiflight technology, detailing their operational modes, PCB components, the current version of the device for UAS, and the UTM prototype for data generation. They also explained the functionalities and configuration of the device for general aviation.

TU Delft discussed the E-conspicuity SW library documentation, explaining how conflict detection, velocity obstacle, and conflict resolution take place.

TSP provided an update on the Certiflight software platform design and implementation, explaining the functioning of the Certiflight portal and the DRS on D3.2 Certiflight platform user manual.

Partners from **Unifly**, **UpVision**, and **d-flight** shared the latest advancements in the UTM platform I/F adaptation and tailoring through tracking visualisation demos.

After the lunch break, project coordinator Alberto Mennella resumed to discuss the Certiflight solution verification plan through the presentation of documentation and the updated Risk Matrix and new opportunities.

EuroUSC España presented the status of the communication strategy to inform the general public about the project's progress, showing that advancements exceeding the pre-established objectives are being achieved. Additionally, they briefed partners on the details of the upcoming second advisory board meeting to be held in Madrid.

EuroUSC Italia described the status and achievements of the standardisation activities and the interactions planned for the coming months to ensure that Certiflight outcomes are present in the relevant standards.

ARIA United explained the market and business, focusing on the EGNSS Chipset price drop from competitors: a new opportunity.

About Certiflight

Certiflight is a technology that uses the Galileo OSNMA feature to certify the flight tracks of drones and ultralight aircraft within VLL airspace. Currently, there is no system capable of reliably ensuring the position and flight path information of UAS and ultralight aircraft with legal validity within the U-space airspace. The project's objective is to facilitate a workable solution for this issue.

Next steps

Following this meeting, the next ones to be held will be the AR Acceptance Review, once the integration and verification process is completed. At that moment, the platform will be ready for validation.

Lastly, the QR Qualification Review will occur, in which validation and demonstration activities will have concluded. At this point, the Certiflight solution will be ready for market exploitation.

VIDEO: Certiflight test flight to inspect the runways of Grottaglie airport

May 6, 2024

This video, just over two minutes long, shows how the test flight day of Certiflight at Grottaglie airport in Puglia, Italy, unfolded in March 2024. The goal was to continue checking the proper functioning of the technology, as well as one of its most prominent use cases: the inspection of airport runways to ensure the safety of passengers and the proper functioning of infrastructure.

See video

For the test, Certiflight flew a drone over the runways and placed a suitcase that could serve as an example of an unwanted object. During the test, the drone's technology detected the suitcase, triggering the security procedure for unidentified items on the airport runway. As part of the safety protocol, a team of bomb disposal experts moved to the area to carry out security tasks.

The test result was very satisfactory and demonstrated the viability of Certflight.

The flight was an activity that was part of the Mediterranean Aerospace Matching (MAM) fair, bringing together experts and stakeholders in the drone sector. Taking advantage of the opportunity, Certiflight explained what its project consists of, as well as its features and functionalities, to an expert audience.

Certiflight will have its second Advisory Board in Madrid on May 23, 2024

May 16, 2024

Certiflight, the European project that uses the Galileo OSNMA feature to certify the flight tracks of drones and general aviation aircraft inside Very Low Level airspace is holding its second Advisory Board meeting in Madrid on May 23rd. The summit will be attended by the project partners, as well as independent professionals from the sector. The objective of the meeting is to present to the members of the advisory board the progress being made in the project, as well as to identify the challenges facing the sector, while discussing possible solutions. The event will include three interactive sessions to obtain a high level of participation.

This is the second Advisory Board after the one held in Naples just a year ago.

The event will be open to all interested parties, so if you are a UAS or aviation professional and are interested in flight track authentication, you may attend the meeting to discuss the challenges and opportunities of the sector together with other top professionals, you can sign up in our contact form.

Certiflight successfully holds its second Advisory Board to set the roadmap for the project

June 7, 2024

The Certiflight project held its second Advisory Board meeting in Madrid. The event was attended by all the project partners, representatives of EUSPA (the European Union Agency for the Space Programme) as well as industry experts from drone operators, technological companies, UTM, GNSS and aviation organisations.

The objective of the meeting was to share the progress made by the project in its first half, as well as to discuss future steps and challenges.

The Advisory Board was organised in a hybrid format, comprising short presentations by the Certiflight partners to set the stage, and three interactive sessions:

- The Certiflight software platform and the reports generated by it
- The Certiflight UTM services
- The key benefits for users and business models

Both the partners present in the workshop and the external experts were satisfied with the outcome of the meeting. The participation was very constructive and some key points were raised that will be taken into consideration for the development of the commercial services that will be provided as a result of the project.

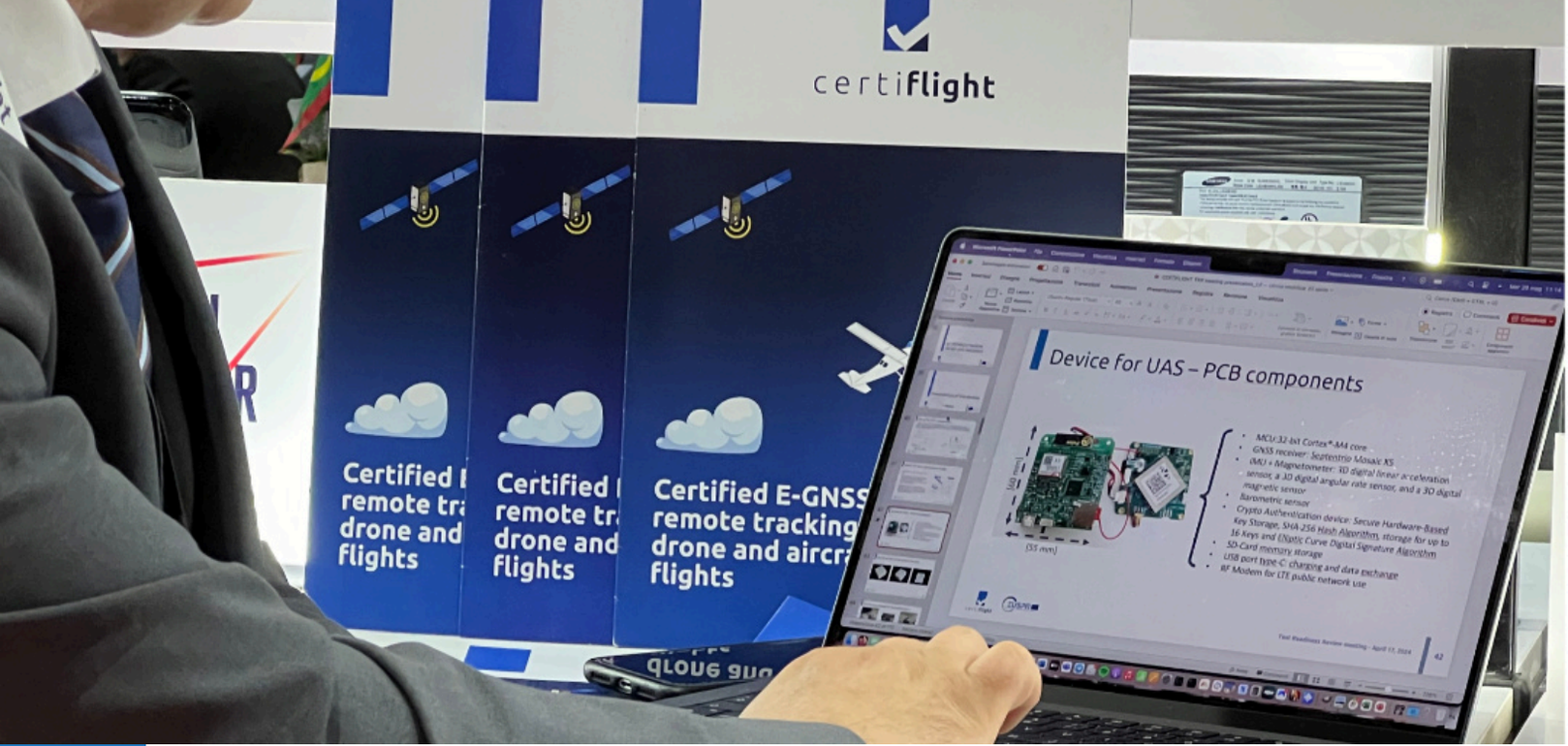
More about Certiflight

Certiflight proposes a new U-space service for the legal certification of tracks generated by UAS and aircraft flights, through introducing a new disruptive EGNSS-IoT digital system enabled by Galileo OSNMA technology and blockchain. The primary beneficiaries of the project are UAS operators, general aviation pilots, authorities, the U-space service providers, customers and the citizens of the European Union.

The intention of the project is to exploit technological progress in the sphere of legal services, helping institutions in providing tools capable of pursuing the two key principles of U-space: automation and digitalisation with the help of EGNSS services.

Certiflight aims to be recognised as a tool for:

- Reducing the liability of drone operations.
- Activate specific contractual conditions based on certified UAS flight positioning information.



Certiflight participates in the Gitex Africa 2024 show presenting its project to emerging markets

June 14, 2024

Certiflight, the European project that offers a digital service for generating certified reports of flight tracks and flight logs of UAS and general aviation aircraft, continues with its objective of presenting its technology to different expert audiences from different countries and continents. On this occasion, the team travelled to the Gitex Africa 2024 trade show, held in Marrakech, Morocco, from 29th to 31st May.

Gitex is the largest tech and startup show in Africa. For this reason, it has been of great interest for the project because it has allowed it to present its technology to start-ups and large companies from emerging markets. The partners who were present on behalf of Certiflight have highlighted that the fair has been a success and achieved the goal of making the project known to new potential customers.

In this sense, Certiflight presence at the fair has allowed it to develop new relationships with international organisations and entities from different parts of the world, such as North Africa, the Middle East, the United States, Canada and Europe.

Companies contacted by Certiflight have shown interest in the concept of drone position authentication and have recognised its value for high-risk and high-value commercial operational applications.

Focusing on Big Data, cybersecurity, smart manufacturing, Agritech, Fintech, telecommunications/network infrastructure, smart cities, digital health, start-ups and artificial intelligence, Gitex Africa has been conceived as an ideal venue for networking, with numerous dedicated spaces for conferences and themed business meetings.

The next edition of Gitex Africa is scheduled for 14-16 April 2025, in Marrakech.

Photo gallery of the Second Certiflight Advisory Board held in Madrid

June 26, 2024

Certiflight, the European project that proposes a new U-space service for the legal certification of tracks generated by UAS and aircraft flights, held its second Advisory Board meeting in Madrid last May.

The meeting was attended by project partners from several European countries, as well as other industry experts. The objective was to discuss the progress achieved, as well as future challenges and possible solutions.

The Advisory Board was described as a "success" by the attendees, who were able to listen to presentations on relevant information about the project, and subsequently discussed in small groups about solutions applicable to Certiflight.

This image gallery shows some of the best moments experienced during the Advisory Board.

You can check out images of the previous Advisory Board here.

We look forward to seeing you at the third Advisory Board next year!

You can read more about the development of the meeting here.

The project coordinator, Alberto Menella, opening the session of the second Advisory Board

See gallery

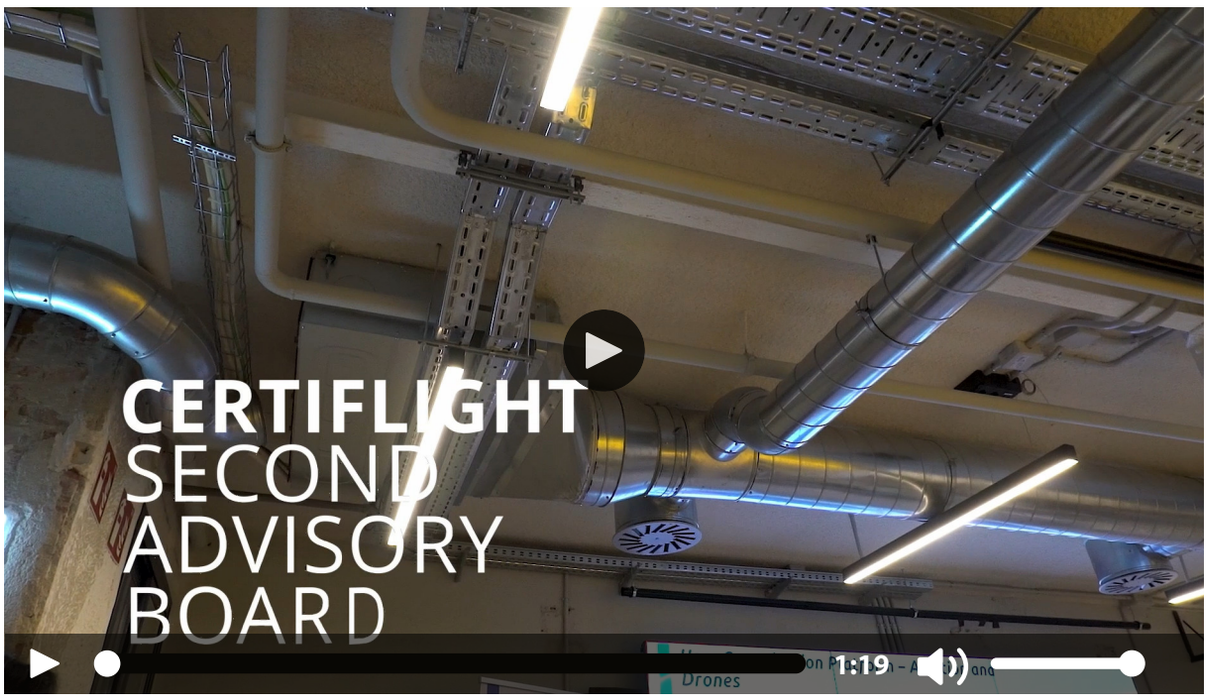
VIDEO: The Second Advisory board of Certiflight in less than two minutes

July 9, 2024

We recorded some video during the workshop held in Madrid in May 2024 to gather the partners of Certiflight with prominent experts in drone operations and UTM. The purpose of the meeting was to present the current status of the project and set the next steps based on the feedback provided by the participants in the event.

To get more information you can visit the summary post or see the event gallery.

We are looking forward to the third and final Advisory Board, which will be held in Budapest early next year.



See video

This video summarises the participation of Certiflight in Gitex fair, held in Africa

August 7, 2024

This video summarises in less than one minute some of the key moments of the participation of Certiflight, the European project that offers a digital service for generating certified reports of flight tracks and flight logs of UAS and general aviation aircraft, at the Gitex show in Africa.

Gitex is the largest tech and startup show in Africa and it was held from 29th to 31st May in Marrakech, Morocco. The participation of Certiflight has been very satisfactory because it has allowed to present the technology of the project in new markets and before relevant actors of the technological sector, belonging to start-ups and large companies from emerging markets. A total of 1,500 experts from more than 130 countries were present to discuss technological advances in different fields such as cybersecurity, e-health, artificial intelligence and technological agriculture. In addition, more than 700 global startups were present, according to African technology media.

This scenario was therefore conducive for Certiflight representatives to establish new relationships with international organisations and entities from different parts of the world, such as North Africa, the Middle East, the United States, Canada and Europe.

The video shows Certiflight's participation in Gitex and the essence of the fair..

To get more information about the event you can visit the summary post.


Under the High Patronage of His
GITEX
AFRICA
Morocco
29 - 31 MAY 2024
1-7
8-15
16-21
FIND YOUR WAY AROUND
1:33

See video

Certiflight participates in the Air Mobility Show and Roma Drone Conference

October 31, 2024

The European project Certiflight participated from 16 to 18 October in the Air Mobility Show - dedicated exclusively to electric aviation - and Rome Drone Conference, which is the main professional congress in Italy dedicated to the drone sector and advanced aerial mobility, which this year celebrated its tenth edition.

Participation in this forum has been a very positive experience for Certiflight because it has allowed the project to present its technology to international experts and operators. On this stage, Certiflight was able to meet, exchange information and obtain an updated picture of the market and its prospects.

Certiflight was represented by its Project Coordinator, Alberto Mennella, who presented the project, its objectives, and strengths to the attendees, highlighting that the market has already taken off and is on the way to stabilisation.

Mennella explained that Certiflight's technology is based on a small geolocation and remote identification device that allows the direct transmission of telemetry and position information of drones within a limited radius. In this regard, Certiflight has explained that its technology makes it possible to verify the legal validity of this data exchanged by the tracking service to other users. To do so, it exploits Galileo's Open Service Navigation Message Authentication (OSNMA) service, which allows a navigation signal to be sent from GNSS data, which is authenticated. This means that enabled receivers can decode the information securely and are unlikely to be affected by spoofing or intentional alterations.

The aim of Certiflight, as explained at the congress, is to ensure the origin and traceability of data using systems with authentication and security mechanisms, as well as its subsequent permanent recording in a blockchain structure without being altered.

Mennella also celebrated that the development of the technology is progressing well because this year it has been possible to integrate the device with different use cases and service providers.

Certiflight validation process kicks off

November 8, 2024

The Certiflight project continues to take steps in the development of its technology and in its aim to keep the public informed about its activities. To this end, it has created a new section on the website under the title 'Validation' with the purpose of informing about the process that is being carried out to demonstrate correct operation. The validation of Certiflight has already started and will take place until next January.

The validation strategy includes the approach and methodologies used to deliver validity of the Certiflight system and components. This approach aims to meet the identified use cases and user needs. The validation includes the key tests of the technology as well as the devices involved. This strategy also describes the different scenarios in which the validation processes will be carried out. It includes the specific features to be tested, as well as the actors, equipment and expected results for each scenario.

The validation strategy foresees seven representative scenarios aimed at the final concept and the delivery of the service to all identified stakeholders. The representative scenarios are: Volume calculation, powerline inspection, airspace Infringement / E-conspicuity, agriculture applications, airport inspection, monitoring activities, port surveillance.

Visit the Validation of the Certiflight Solution page if you want to learn more.

Certiflight begins its validation plan with the volume calculation scenario

November 18, 2024

The European Certiflight project has taken the first steps within its validation plan, which is aimed at satisfying the needs of users, through the validation of some of the use cases identified by the stakeholders.

In this sense, the validation of the use case volume calculation was carried out at the end of October. The aim was to test the features of Certiflight in industrial applications and its interoperability with MAIA UTM platform from UpVision.

The test was carried out at the Holcim cement factory, near the Lovosice city in the Czech Republic. The drone carried out several flights in which it performed a photogrammetric mission to map the cement factory, where periodic landfill measurements are performed as part of an end-of-month inventory.

During the test, aerial images of the area were taken, and data categorised as relevant was documented. During post-processing of the imagery, a Digital Surface Model (DSM) was created.

The UpVision UAS was equipped with a UTM box for remote identification and registration of the flight track in the Certiflight interface for report generation.

Results

This validation scenario has been considered as a success by UpVision, the partner in charge of the test scenario.

We received a very positive feedback from the customer (Holcim), who appreciated above all the possibility of visualisation of the authenticated tracking on MAIA UTM platform and flight logbook, which serves much better to verify all flight parameters, especially in terms of time and position regarding the accurate recording of measured volumes at a specific time.

Jakub Karas
Director of UAS and co-founder of UpVision

Certiflight at SESAR Innovation Days: Connections and collaboration for the future of U-space

date

Certiflight took part in the SESAR Innovation Days 2024 (SIDs), held recently in Rome. The European project attended to present its functionalities as a pioneer in the certification and traceability of unmanned flights using blockchain technology, to ensure transparency and safety in European airspace, facilitating the integration of drones in complex environments.

The participation of Certiflight in the SESAR Innovation Days was an enriching experience. This annual event brings together experts, researchers, and key aviation and U-space projects to exchange knowledge and explore innovative solutions.

During the event:

- We could interact with other ongoing U-space related projects and establish strategic connections with their teams. These exchanges will allow us to adjust our solution to the needs of the new business cases that are emerging in Europe.
- We received valuable feedback from experts in air traffic management and drones, which will enrich the development of our tool.
- We strengthened our collaborative network with key industry players, paving the way for future synergies and validations in the framework of the U-space deployment.

Looking into the future

The invitation to participate in the SESAR Innovation Days is a recognition of our potential as an essential building block for the future of U-space. We are committed to continue contributing to the technological and regulatory advancement of the drone sector in Europe, ensuring that our solutions are aligned with actual market needs and international best practices.

Although our project is not funded by the SESAR Joint Undertaking, we are grateful for the invitation to this prestigious event, which shows the value that Certiflight brings to the research and development of U-space, the European ecosystem for the safe and efficient management of drone traffic.

Certiflight validates its powerline inspection features in Czech Republic

November 25, 2024

The European Certiflight Project has carried out the second validation scenario testing the correct functioning of the technology in its powerline inspection use case. This scenario aims to validate the features of Certiflight in Industrial applications and its interoperability with MAIA UTM platform from UpVision.

Like the first validation scenario for volume calculation, this test has been carried out during the month of October, but in this case with ČEZ Distribution 110kV power lines near Čakov village in the Czech Republic. Numerous drone flights have been carried out for the purpose of aerial inspection of power lines and poles. These aerial images (mainly RGB) from UAS are necessary for automatic power line damage checks based on image analysis and the network manager must check the condition of the power lines in some period.

During the test, aerial images of the area were taken, and data categorised as relevant was documented. During post-processing of the imagery, a Digital Surface Model (DSM) was created.

The UpVision UAS was equipped with a UTM box for remote identification and registration of the flight track in the Certiflight interface for report generation.

Results

This validation scenario has been considered as a success by UpVision, the partner in charge of the test scenario.

The customer is the administrator of most of the power lines in the Czech Republic. They appreciated especially the flight logbook generated with all flights data and visualization of the authenticated tracking with reports based on the information generated by CertiflightS. For the administrator it is important to have verified evidence that the inspection was carried out in a given place and at a given time.

Jakub Karas
Director of UAS and co-founder of UpVision

Videos and photos of the first two Certiflight validation scenarios

November 25, 2024

The European Certiflight project carried out the testing of its first two validation scenarios last October in the Czechia.

- The first validation scenario successfully tested the Certiflight technology in the use case volume calculation. The aim was to test its features in industrial applications and its interoperability with MAIA UTM platform from UpVision.
- The second validation scenario aimed to validate the correct functioning of the technology in its powerline inspection use case. Many drone flights were carried out for the purpose of aerial inspection of power lines and poles.

These images show how the validation days took place and the scenarios in which they were carried out.

The Certiflight team completes the final preparation of the drone

This video briefly summarises how the flights were carried out.

Certiflight validates the viability of its technology in agricultural applications

December 9, 2024

The European Certiflight project has recently carried out test flights to validate another scenario of its use cases. This time it was for agriculture applications and the tests took place at the end of November around Nardó, in the Puglia region of Italy.

In agricultural applications, it is essential to keep accurate records of all activities to ensure traceability and transparency throughout the entire production process. In this way, it is possible to monitor and verify agricultural practices by ensuring that all procedures are carried out under the established guidelines and regulations.

Therefore, the test flights carried out by the Certiflight team aimed to verify the correct functioning of the technology to provide a certified report to assess compliance with regulations and make informed decisions regarding agricultural practices and policies.

During the tests, the pilot operated the drone equipped with a multispectral camera as a payload suitable for collecting data in the precision farming scenario. In addition, the drone was equipped with a Certiflight device to send on-board data to the Certiflight platform for live monitoring and creating a certified report of the flights.

Results

This validation scenario has been considered as a success by DTA, the partner in charge of the activity.

The use of drones for monitoring olive groves in conjunction with the Certifligth UTM Box providing an authenticated tracking has brought significant results, improving the identification of plants and crops in general. Knowing how to react promptly and precisely geolocating plants or entire areas can be a weapon against diseases such as Xylella, ensuring that all procedures are carried out in time and in compliance with the established guidelines and regulations, and this represents valuable assistance to the competent authorities.

Danilo Leanza
Research & Development Engineer


certiflight
DT4

This video summarises the Certiflight validation in agricultural applications in one minute

December 11, 2024

This one-minute video aims to show how the Certiflight flight day went in its agricultural application. These tests, conducted at the end of November in the Puglia region of Italy, validated a new use case for its technology, focused on improving precision and control in modern agriculture.

The Certiflight technology aims to guarantee the traceability and transparency of farming practices, key aspects to comply with regulations and ensure sustainable production. During the tests, drones equipped with multispectral cameras and Certiflight devices, capable of sending real-time data to its platform, were used. This approach allows monitoring agricultural activities and generating certified reports that facilitate informed and responsible decision-making.

The success of these trials represents a significant step towards the implementation of advanced technological solutions in agriculture. Certiflight has not only demonstrated that its technology can be adapted to agricultural environments, but also reinforces its commitment to innovation and sustainability in the agrifood sector

Certiflight conducts a validation scenario to prove its technology is useful for monitoring activities

December 20, 2024

Certiflight, the European project aimed at ensuring the authenticity and traceability of flight data, has demonstrated that its technology is viable in numerous use cases, such as monitoring activities, as recently proven.

The use of drones for monitoring activities, including environmental monitoring, infrastructure inspection, disaster response, construction and many more, offers numerous benefits, including cost savings, enhanced safety, and the ability to access hard-to-reach areas. Using Certiflight provides a certification about performed activities to involved authorities.

To demonstrate the feasibility of the technology, Certiflight conducted test flights at Punta Rondinella in Taranto Bay, Italy, at the end of November.

During the tests, the pilot operated the drone equipped with a multispectral camera as a payload suitable for collecting data in a monitoring scenario. In addition, the drone was equipped with a Certiflight device to send the on-board data to the Certiflight platform for live monitoring.

This video shows how test flights were carried out to validate Certiflight in the monitoring activities scenario

January 7, 2025

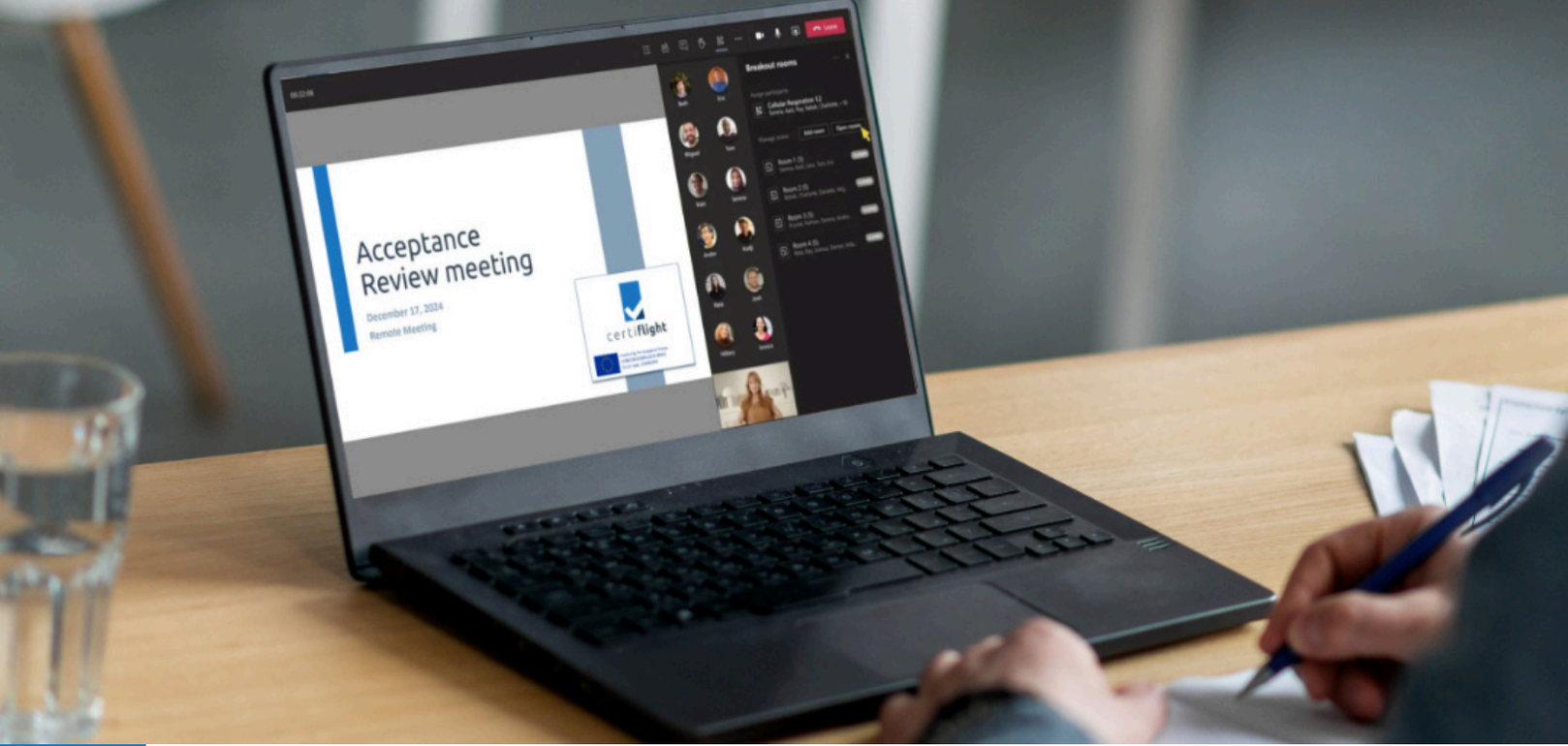
Certiflight is carrying out -during the last months of 2024 and the first months of 2025- an important step in the development of its technology. This involves the validation of use cases in which the technology is expected to play a disruptive role and improve the correct functioning of different activities.

In this context, it has recently validated the monitoring activities scenario through test flights carried out in Taranto Bay, Italy, as shown in this video.

See video

The test flights took place on the coast to prove that the use of drones and the technology of Certiflight for surveillance activities, including environmental monitoring, infrastructure inspection, disaster response, construction and many more, offers many benefits, including cost savings, enhanced safety, and the ability to access hard-to-reach areas.

The flights have showed that Certiflight has a key role to play in facilitating monitoring activities, while providing a certification about performed activities to the relevant authorities.

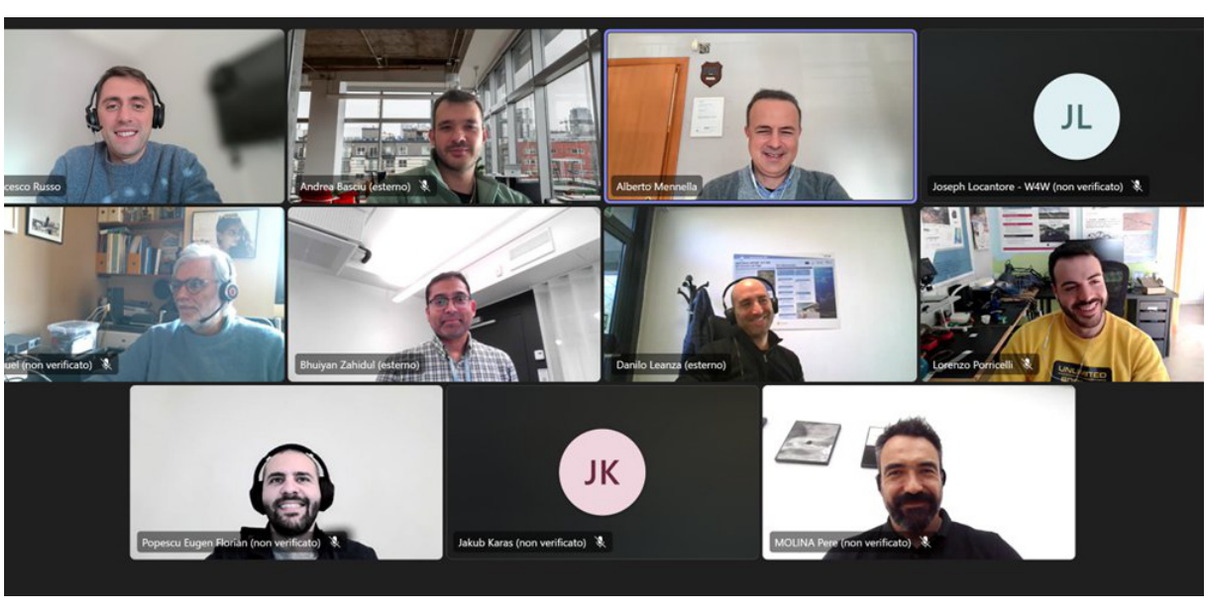


Certiflight ended 2024 by successfully passing its sixth milestone, the Acceptance Review

January 13, 2025

The European project Certiflight has held an Acceptance Review meeting to assess the progress made in 2024 and outline challenges for 2025.

The online meeting, which was attended by nearly twenty representatives of the partners and the project reviewers, was centred on verification activities and the validation plan, business strategies, and other key topics.



One of the most notable points was the validation plan and the status of the validation campaign. The teams responsible for test flights presented the validation scenarios conducted so far, such as powerline inspections, agricultural applications, and monitoring activities. During their presentations, they highlighted the challenges faced, and the objectives achieved, emphasising the lessons learned.

Another central topic was the functional report on the UTM Box, the device installed on drones and general aviation aircraft that uses the Galileo OSNMA service to authenticate and ensure the integrity of positional data during flights. The partners provided details on the verification plan and the results of security and operational performance tests, which included successful network handovers and compliance with ASTM standards for message transmission. The UTM Box demonstrated robust performance during the rigorous testing performed, cementing its role as a crucial component of the project.

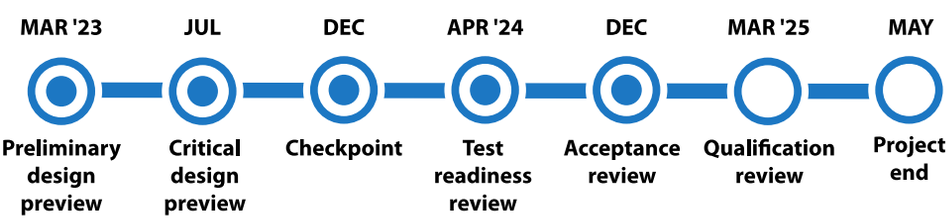
Additionally, updates were presented on the testing framework for the APP and GSD algorithms, addressing challenges related to data accuracy and timing synchronisation. The project members discussed potential hardware updates to enhance tracking capabilities.

Regarding the software of the project, the responsible team showcased the latest platform updates, including improvements in user configuration, report verification, and the implementation of contract-based features.

Finally, the partners discussed about the communication efforts, standardisation activities, and commercial prospects, aiming to position the technology of Certiflight in the market and maximise its impact. These efforts seek to promote the benefits of the project and encourage its adoption across various sectors.

The meeting marked a significant end to the year for Certiflight, being the penultimate milestone before the end of the project, established the roadmap for 2025.

According to participants, the meeting was “highly productive” and a vital step towards the future success of the project, providing a valuable opportunity to address critical technical aspects.



Certiflight demonstrates how its technology enhances airport inspection tasks in test flights in Grottaglie

January 27, 2025

Certiflight continues to take steps in its validation plan to demonstrate the viability of its technology in different use cases. The goal is to prove to stakeholders the importance of the project to ensure safety, transparency, and traceability in the use of aircraft for security purposes. Certiflight works to facilitate the integration of drones in environments such as airports, industrial or commercial.

On this occasion, the project has carried out tests for the validation plan airport inspection scenario, exploiting the payload data sync and smart contract features. The tests were carried out in Grottaglie, Italy, at the end of 2024. This is the fifth validation scenario to be tested, following the tests on volume calculation scenario, powerline inspection, agricultural applications, and monitoring activities.

Inspections of airport facilities and maintenance operations cover various physical and infrastructure elements such as pavement, runway striping, runway safety zones, visual aids for pilots, wind direction indicators and potential obstacles. Each component must be meticulously examined to ensure that the airport operates safely and efficiently. The primary goal of airport maintenance operations is to uphold the integrity of the infrastructure and ensure the safety of flight operations.

In this complex scenario, Certiflight was used during the test to support the ADI (Airfield Duty Inspector) Service. The operation was conducted in strict coordination with control tower ensuring the respect airport operations and safety. The inspection was carried out in two phases:

- Inspection of the runway to visually check for the presence of FOD (Foreign Object Debris).
- Inspection of equipment such as PAPI lights and the instrument landing system (ILS).

Conclusions

In the words of the Certiflight Project Coordinator:

The airport test case is one of the most challenging and exciting validation scenarios in the project. Ensuring the reliability of positioning is crucial to harness the potential of drones within the airport environment, aiming to fully autonomous facility inspections.

Francesco Russo
Certiflight Project Coordinator - TopView

Certiflight demonstrates its effectiveness for the Airspace Infringement and E-Conspicuity use cases in Italy

February 10, 2025

The European project Certiflight is finalising its validation plan to test different scenarios to demonstrate the viability of the technology in different use cases. To this end, the European project has been testing its technology in recent months in different parts of Europe in applications such as monitoring activities, airport inspection or agriculture applications, among others.

The latest test has been carried out in the airspace infringement and e- conspicuity features scenario. The objective was to demonstrate the effectiveness of Certiflight in providing proof of non-infringement for UAS operations, while also demonstrating its e-conspicuity features for general aviation aircraft. During the test it was shown that Certiflight integration during UAS flight validates speed obstacle conflict resolution algorithms, which is a geometric approach to detecting and resolving conflicts in airspace.

This method offers flexibility to incorporate various types of information and constraints, such as data uncertainty, positional and velocity limits, time constraints and intent. In addition, the system can prioritise different factors to ensure safe and compliant conflict resolution, while encouraging coordinated interactions.

The airspace violation and e-Conspicuity functions play an important role in airspace management, especially in airport operations where no-fly zones are strictly enforced. During the test, the Certiflight-equipped general aviation has been shown to fly through the airspace, allowing the system to show how it improves the situational awareness of the pilot. Through this process, the system provides conflict resolution warnings, including recommended course and speed adjustments.

The test was carried out in an area within Taranto/Grottaglie airport, close to the runway, where drones are not allowed to fly and therefore a case of airspace infringement detection and prevention was shown.

Conclusions

The validation exercise was attended by members of the Certiflight team, including one of the project reviewers appointed by EUSPA, the granting authority for the project, who had the opportunity to see the system prototype in operation in a real-world scenario.

In the words of the person responsible for the conflict resolution algorithm:

It's been incredibly exciting to see the conflict resolution algorithm in action in a real scenario. Knowing the immense effort that went into developing it, we couldn't contain our enthusiasm as we watched the device successfully operate on the GA aircraft. It was a moment of pure celebration for the entire team.

Fazlur Rahman
TU Delft

VIDEO: This is how the validation tests of Certiflight for Airspace Infringement and E-Conspicuity features took place

February 17, 2025

The European Certiflight project continues to advance in the validation of its technology with tests in different operational scenarios. On this occasion, a short video shows images of the recent test days carried out at an Italian airport in the Puglia region. The objective was to evaluate the detection of airspace infringements (Airspace Infringement) and the improvement of electronic visibility (E-Conspicuity) for general aviation.

The video footage shows both activity on the airport runway, where Certiflight has been integrated into UAS operations, and footage recorded from inside an aircraft equipped with this technology. During the tests, it was shown how Certiflight can provide evidence of non-infringement for drone flights, as well as improve the situational awareness of general aviation pilots through real-time alerts.

This trial is part of the project's validation plan, which aims to demonstrate the effectiveness of the project in selected [use cases](/ concepts/use-cases/). In recent months, the technology has been tested in various European environments, applied to sectors such as airport inspection, aerial monitoring, and agriculture. In this context, tests have validated aerial conflict resolution algorithms based on a geometric approach, integrating multiple variables such as velocity and position limits, temporal constraints, and data uncertainty.

This video provides a direct look at the real-world application of the technology, highlighting its ability to improve safety and efficiency in airspace management. With each new test, Certiflight continues to establish itself as a key tool for the safe integration of UAS and the optimisation of air navigation in Europe.

See video

Certiflight validates the usefulness of its technology for the Port Surveillance scenario and ends its validation campaign

February 24, 2025

Certiflight, the European research project has reached a key milestone and ends its validation campaign, which intended to test the feasibility of the technology in different use cases.

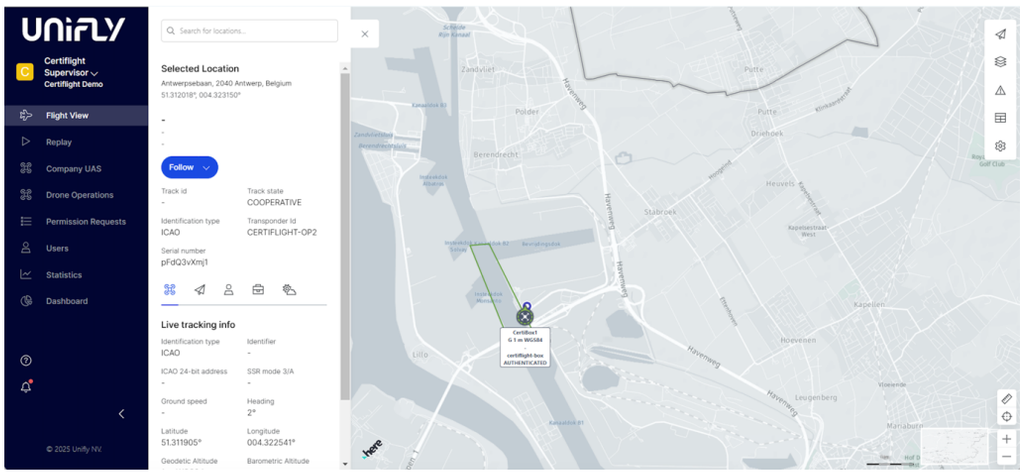
The last test to be carried out was in the Port Surveillance scenario, which aimed to perform a real-time demonstration of Certiflight capability to support ongoing operational activities within the port area. The test flights have been carried out during the month of January 2025 at the Port of Antwerp-Bruges, which is one the largest and most dynamic ports in Europe.

For this reason, this location has been the ideal scenario to test the capabilities of Certiflight. The port uses drones to carry out surveillance and protection tasks in many situations, including dangerous activities such as oil leaks. In such events, accurate and authentic drone position information from Certiflight and areal images from the payload camera are the necessary input for the Port Authority to effectively carry out the activities. After these tests Certiflight proved that its technology is useful when performing real-time tasks such as capturing photos and videos for infrastructure inspection and debris management.

The Port Surveillance scenario demonstrated how UTM can enhance security in complex, high-traffic environments by enabling port authorities to manage multiple workflows simultaneously, implement a multi-layered authorisation process including automated approvals, and deploy robust real-time surveillance and detection capabilities.

Certiflight technology leverages advanced EGNSS algorithms and blockchain to ensure the authenticity and integrity of flight data. This tamper-proof and legally enforceable system offers unprecedented transparency

and accountability, preventing data manipulation and providing reliable records for use by regulators, law enforcement and investigators.



Conclusions

Andres van Swalm, CEO of Unifly, the company in charge of conducting the tests deemed this validation a success.

The demonstration at the Port of Antwerp-Bruges is a turning point for the project. It exemplifies how blockchain-backed UTM solutions can improve security, transparency, and accountability in complex environments.

Andres van Swalm
Unifly CEO

Certiflight will hold its third Advisory Board Meeting in Bucharest on March 6

February 28, 2025

The Certiflight consortium will hold its third Advisory Board meeting on 6 March 2025 in Bucharest, Romania.

This gathering will bring together industry experts to discuss project developments, business strategy, and validation exercises, with the aim of continuing to drive innovation in flight certification through advanced technologies.

A day of collaborative work

The event will feature a welcome session and a general presentation of the project. Throughout the day, two interactive sessions will focus on validation exercises and business opportunities. Additionally, there will be dedicated spaces for open discussions and the formulation of key conclusions for the project's future.

A key meeting point for the future of Certiflight

The Advisory Board serves as an opportunity for consortium members and invited experts to share knowledge and experiences, contributing to the project's development. During the event, attendees will gain first-hand insights into the latest advancements in digital flight certification and explore new business opportunities within the sector.

The third meeting of the Certiflight Advisory Board brought together over 40 experts to discuss the project

March 18, 2025

The European Certiflight project successfully held its third Advisory Board, a key meeting that brought together project partners and industry experts to assess the project's progress as it nears the end of its first stage of development. The meeting took place at the National Institute for Aerospace Research Elie Carafoli (INCAS) in Bucharest, Romania.

The meeting was organised by the partner Aria United, responsible for the business activities of Certiflight.

The Third Advisory Board meeting was focused around presenting the technological status of Certiflight solution and exploring improvements that can be made on the Business Plan, in order to prepare the insertion of the product to the market. We also presented our gratitude to INCAS for hosting us and helping organise the event in ideal conditions.

Alina Anton
Aria United

Description of the project

The meeting started with a brief overview of the project, highlighting its purpose and objectives. The use cases considered and the UTM services implemented within the project were presented, setting up the stage for the interactive sessions that followed.

Moving the Advisory Board across three countries and engaging with local expert communities proved to be an excellent approach for gathering input and evaluating the project's outcomes. Beyond technical considerations, insightful discussions on business opportunities took place, further confirming market interest in the Certiflight solution.

Alberto Mennella
TopView

Regulation and standards

In the aviation sector, standards and rules to ensure safety are a fundamental component. Therefore, this topic was one of the most relevant points discussed during the meeting.

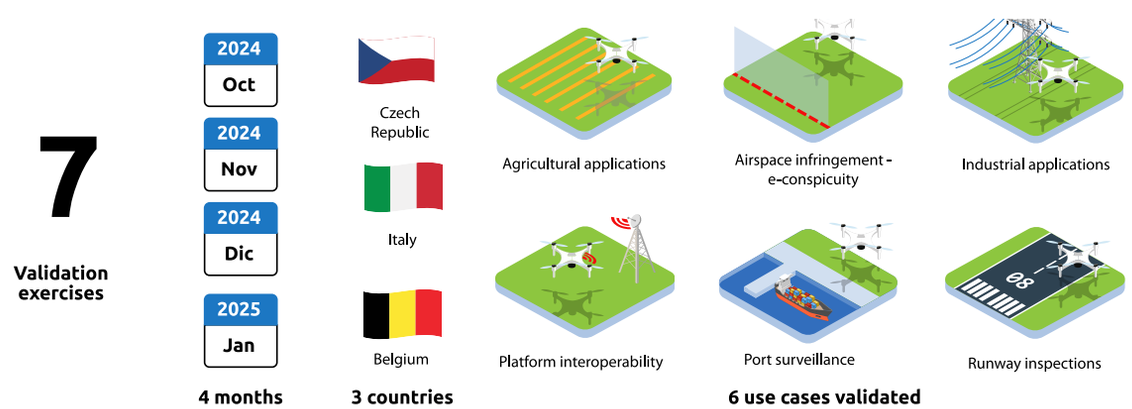
In this regard, the European project proposes the use of CORUS U-Space Flight Rules (UFR) as a set of simplified rules applicable exclusively in U-Space airspace. This system is designed for remotely piloted aircraft, where the pilot has no direct visibility of the environment. To ensure safety, the pilot must be informed of the relative positions of nearby traffic by other means, known as digital aviation.

The importance of industry standards not only to achieve the required levels of safety for the Certiflight services, but also to commercialise such services and related equipment after the termination of the project.

Filippo Tomasello
EuroUSC Italia

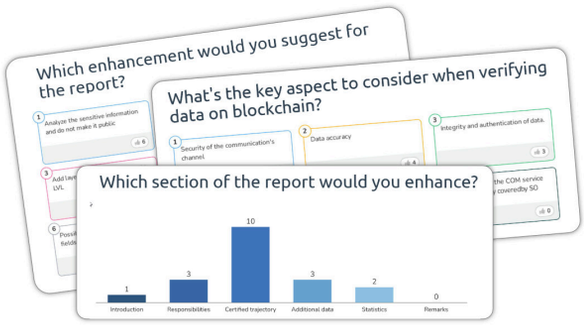
Validation campaign

The next topic was the validation campaign carried out in late 2024 and early 2025, as well as the conclusions and lessons learned. The purpose of this campaign was to test the viability of the developed technology in the use cases tested.



First interactive session: Certiflight report and GA device

The first interactive session comprised a demonstration of the Certiflight report, giving the participants the opportunity to suggest enhancements and feature requests. It followed a discussion on the General Aviation device and the conflict resolution algorithm implemented to ensure safety in U-Space airspace.

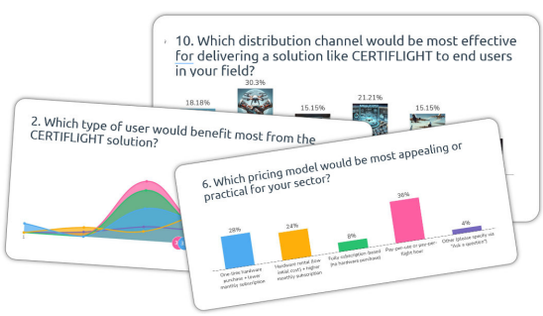


During an interactive session, the latest versions of the Certiflight report and the Device for General Aviation were presented. The experts highlighted the need for multiple trajectory pictures and customisable statistics fields in the report, stressing the importance of safeguarding sensitive and confidential information. For enhancements to the General Aviation device, they suggested incorporating an interactive display, warning icons, blinking LEDs to alert pilots, and estimates of nearby aircraft trajectories.

Francesco Russo
TopView

Second interactive session: Certiflight go-to-market strategy

The future of the project was also at the centre of the meeting, with partners taking part in an interactive discussion on the business opportunities offered by Certiflight. This exchange of ideas allowed an assessment of the potential of the technology and how it can be implemented on a large scale.



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Francesco Russo
TopView

Communication and dissemination

Besides the technical and innovation aspects, the partners stressed the importance of communication and dissemination strategies to ensure that the project reaches potential customers.

The three Advisory Board Workshops held during the project have been a key component of the communication and dissemination strategy. By bringing together relevant experts in the field and promoting interactive discussions we obtain valuable opinions and suggestions that have been instrumental in achieving the project goals. Holding them in different countries, has also contributed to the internationalisation of the project results. by considering different perspectives.

Manuel Oñate
EuroUSC España

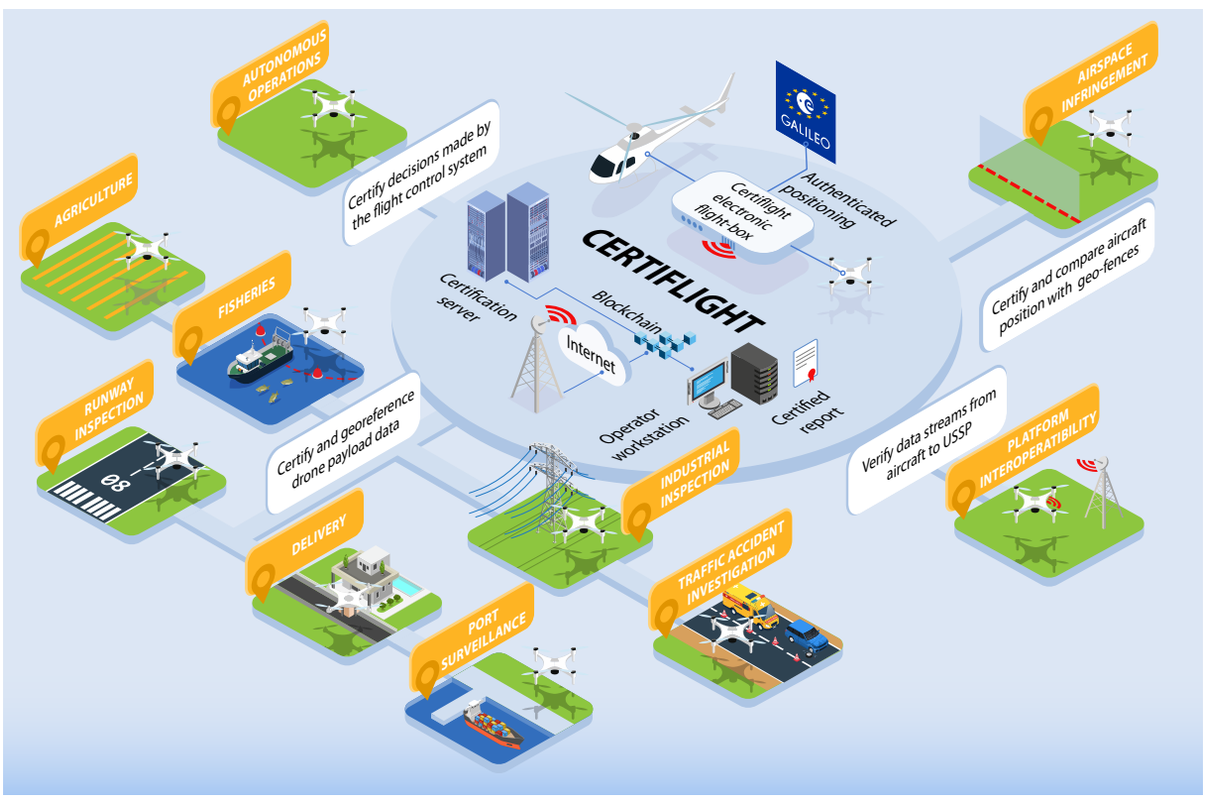
Visit to the INCAS installation

The meeting was capped with a visit to the INCAS installation, where the participants in the Advisory Board had the opportunity to experience in first-person the investigation carried out in an aerospace research centre.

Press releases

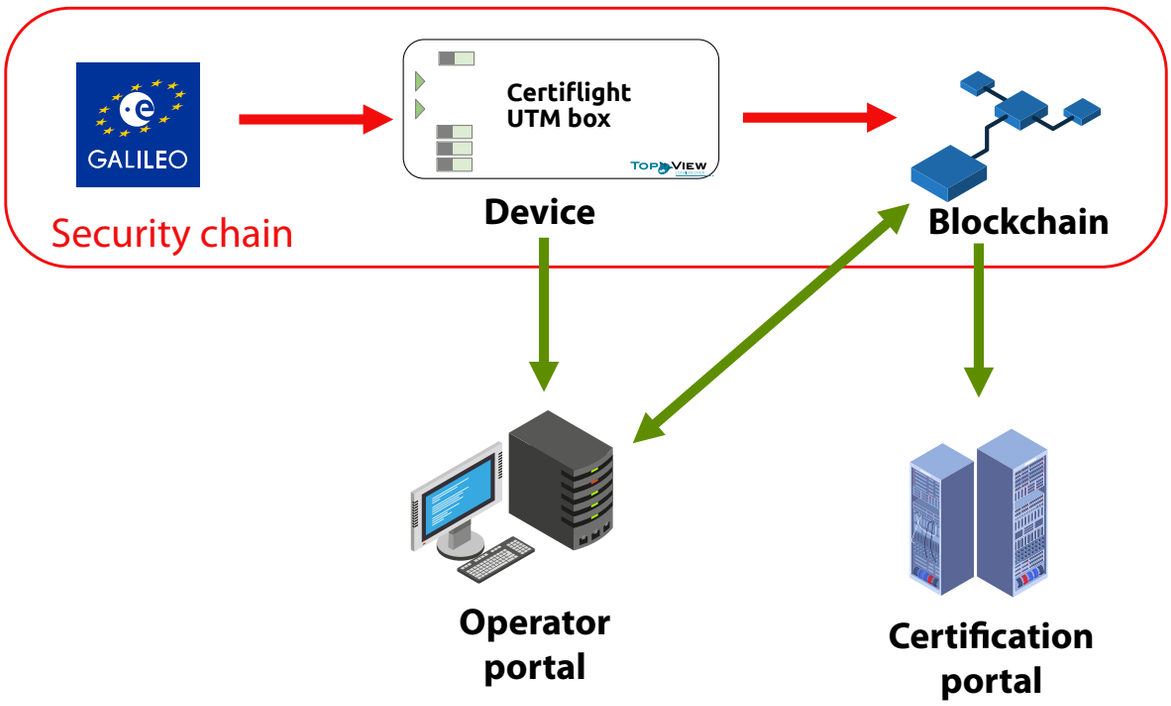
Certiflight: Two Years of Advancing Airspace Safety with Blockchain-Backed UTM Solutions, Now Entering Validation

Antwerp, November 27, 2024 — Unifly, a global leader in Unmanned Traffic Management (UTM), celebrates the second anniversary of its Certiflight project. Launched in November 2022, Certiflight leverages blockchain, European Global Navigation Satellite Systems (EGNSS), and Internet of Things (IoT) technologies to enhance the safety and accountability of Unmanned Aircraft Systems (UAS) and General Aviation (GA) flights. Certiflight is the first Galileo-based U-space service to certify flight tracks for UAS and ultralight aircraft, providing tamper-proof, legally valid flight data.



Certiflight includes a Digital EGNSS/IoT device that ensures the authenticity and integrity of flight data. Installed on UAS and GA aircraft, the device encrypts data and stores it on a blockchain for verifiable tracking. This technology strengthens airspace safety by preventing data manipulation, and offering trusted data for law enforcement, incident investigations, and regulatory compliance.

Certiflight integrates Open Service Navigation Message Authentication (OSNMA) technology, which links authenticated positioning data with a blockchain, providing secure, certified flight data. Pilots use the Certiflight UTM Box to transmit encrypted data, which can be verified via a certification portal.



In April 2024, Certiflight completed a Test Readiness Review (TRR) in Prague, confirming the readiness of the system for real-world testing. Key outcomes included:

- Validation of Certiflight devices for secure and reliable performance
- Enhanced spoofing detection with improved EGNSS algorithms
- Seamless integration with UTM/USSP platforms
- Transition to the integration and validation phases.

The Certiflight validation process officially kicked off in November 2024 and will continue through January 2025. This process will demonstrate the system's capabilities through seven representative scenarios, which include:

- Volume Calculation
- Powerline Inspection
- Airspace Infringement / E-conspicuity
- Agriculture Applications
- Airport Inspection
- Monitoring Activities
- Port Surveillance with Unifly involvement.

Each scenario is designed to test specific features of the Certiflight technology, including the devices and methodologies used, as well as the actors and equipment involved. The goal is to ensure that the system delivers the necessary functionality to meet the use cases and needs of all identified stakeholders.

Unifly will be part of the Port Surveillance scenario, where real-time demonstration of its capabilities will take place in a port area. Drones will be used for environmental monitoring, safety, and security. Expected results from this scenario include:

- Real-time visualisation of authenticated flight tracking
- Generation of light and full operation reports
- Automated flight log book
- Recorded Unifly UTM flight tracks
- Feedback from port stakeholders and authorities

This scenario will be part of a broader demonstration campaign in Belgium, Italy, and the Czech Republic, showcasing Certiflight's interoperability with multiple U-space service providers, including Unifly.

> *"Certiflight represents a leap forward in securing the skies for unmanned and general aviation. By combining blockchain, EGNSS, and IoT, we're setting new standards for data integrity and accountability, building trust in an evolving airspace."*
>
> **ANDRES VAN SWALM, CEO OF UNIFLY**

Unifly's involvement in Certiflight underscores its commitment to advancing UTM technology and ensuring the safe integration of next-generation aircraft into shared airspace.

About Unifly

Unifly is a leading aviation technology company focused on enhancing the safety and efficiency of autonomous aviation. As a critical player in the UAS ecosystem, Unifly's platform enables the safe integration of drones, Urban Air Mobility (UAM), and other next-generation aircraft into shared airspace. Through automated traffic management and seamless integration with UTM and U-Space service providers, Unifly is shaping the future of air traffic management. With over ten commercial UTM deployments worldwide, Unifly is at the forefront of UTM technology.

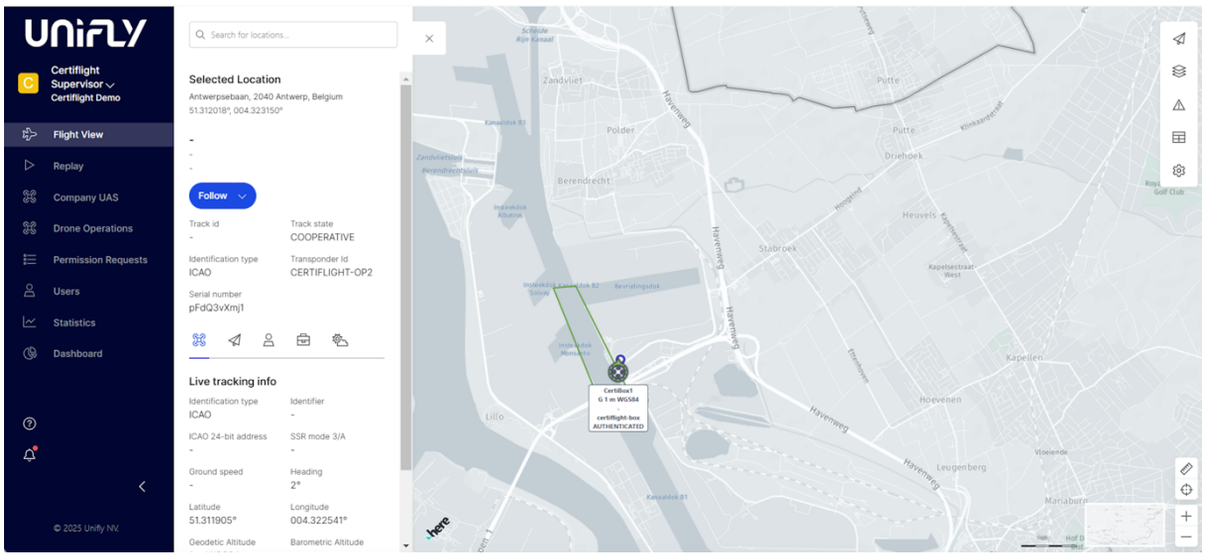
Unifly Completes Port Surveillance Demonstration with Blockchain-Backed UTM Solution as Part of Certiflight Project

Antwerp, February 14, 2025 — Unifly, a global leader in UAS Traffic Management (UTM), part of Terra Drone Corporation ("Terra Drone"), in collaboration with Sky Vision, a local drone operator, proudly announces a key milestone in the Certiflight project: the successful conclusion of the validation campaign, performing a real-time demonstration of its capabilities at the Port of Antwerp-Bruges (PoAB). This event underscores the transformative potential of cutting-edge technologies – blockchain, European Global Navigation Satellite Systems (EGNSS), and Internet of Things (IoT) in enhancing airspace safety and operational efficiency.

As one of Europe's largest and most dynamic ports, the Port of Antwerp-Bruges served as the ideal testing ground for Certiflight's capabilities. The Port Surveillance scenario demonstrated how UTM can benefit from the above-mentioned technologies to strengthen safety and security in complex high-traffic environments.

Sky Vision's state-of-the-art drones, exploited the Certiflight technology in performing real-time tasks such as capturing photos and videos for infrastructure inspection and debris management.

The Open Service Navigation Message Authentication (OSNMA) feature of the Certiflight device ensured position authentication during the whole flight. While OSNMA guarantees that the location data is reliable and protected from spoofing attempts during the flight, blockchain technology makes the flight data unalterable after the flight. This allows Sky Vision to use the images taken during the exercise as proof of the inspection. Unifly's UTM platform visualised the drone's track via the Tracking API, allowing users to distinguish between real-time tracking data supported by an authenticated signal and data that is unauthenticated.



Unifly's involvement in the Port Surveillance scenario underscores its dedication to advancing UTM innovation and integrating next-generation aircraft into shared complex airspace. Meanwhile, Sky Vision's expertise in drone operations brought this vision to life, highlighting the importance of collaborative efforts in tackling complex challenges.

Certiflight technology leverages advanced EGNSS algorithms and blockchain to guarantee the authenticity and integrity of flight data. This tamper-proof, legally valid system offers unprecedented transparency and accountability, preventing data manipulation and providing reliable records.

The Port Surveillance demonstration is part of Certiflight's broader validation campaign, which includes tests across Belgium, Italy, and the Czech Republic. These demonstrations showcase the system's interoperability with multiple U-space service providers, demonstrating its ability to meet diverse operational needs globally.

By seamlessly integrating cutting-edge technology with operational expertise, Certiflight sets a new benchmark for drone-enabled surveillance. Its capabilities pave the way for broader applications in ports, urban air mobility, and beyond.

> *"Certiflight represents a leap forward in securing the skies for unmanned and general aviation. By combining blockchain, EGNSS, and IoT, we're setting new standards for data integrity and accountability, building trust in an evolving airspace."*
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ABOUT UNIFLY

Unifly is at the forefront of aviation technology, driving innovation in Unmanned Traffic Management. Its platform facilitates the safe integration of drones, Urban Air Mobility (UAM), and other advanced aircraft into shared airspace. With a proven track record of successful UTM deployments, Unifly remains dedicated to enhancing airspace safety and shaping the future of aviation.