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## **Finmeccanica-Alenia Aermacchi: Italian Air Traffic Controllers debut RPAS flight in civil airspace**

Following the recent first test for the flight safety of the unmanned air vehicles into civil airspace within the MIDCAS programme, the first live flight trial of a drone, always using the Finmeccanica-Alenia Aermacchi's Sky-Y unmanned aerial vehicle and taking off from the Grazzanise Italian Air Force Base, has been carried out involving ENAV (Ente Nazionale Assistenza al Volo), the Italian Air Navigation Service Provider (ANSP).

The flight trial is part of the activities envisaged by the larger MedALE (Mediterranean ATM Live Exercise) project, which is one of nine Integrated Remotely Piloted Aircraft System demonstration activities funded by the SESAR Joint Undertaking.

Aiming to verify the feasibility of the integration of the unmanned aerial vehicles, defined RPVs (Remotely Piloted Vehicles) into civil airspace, ENAV personnel, located at the military ground radar station in Grazzanise, not far from Naples, and at the Naples-Capodichino civil airport, executed a live demonstration with air traffic controllers simulating a normal civil airspace procedure for the Sky-Y RPAS. The instructions for route and altitude changes aimed to simulate typical interaction with normal air traffic, preventing conflict situations. In addition, emergency procedures, such as command and control link loss and loss of engine power, were also tested.

For the MedALE flight trial, the Finmeccanica- Alenia Aermacchi Sky-Y RPAS was configured to support interaction between the pilot at the ground station and the Civil Air Traffic controllers, aiming to demonstrate the possibility of managing a RPAS in nominal and emergency conditions.

The main modification to the Sky-Y ground station was the addition of a display showing "surrounding real traffic" information, via the Automatic Dependent Surveillance – Broadcast IN (ADS-B IN) provided by Finmeccanica-Selex ES – a partner of the MedALE Consortium which has supported the hardware and software integration of the new capabilities.

All the modifications were certificated by the ENAC (Italian Civil Aviation Authority) who granted the necessary Permit to Fly in order to perform the flight exercise.

### **About MeDALE project:**

MeDALE consortium is constituted by Finmeccanica-Alenia Aermacchi, as project leader, Thales Alenia Space Italia, ENAV, Finmeccanica-Selex ES and Nimbus.

MedALE is one of nine "RPAS Demonstration Projects", which include integrated pre-operational flight trials activities, co-funded by SESAR Joint Undertaking (SJU).

MedALE project has included an initial phase of distributed simulation involving the NATO Modelling & Simulation Center of Excellence of Rome. Three RPAS simulators have been networked with the aim of evaluating a complex environment: the Sky-Y, integrating for the first time a Satellite Command & Control Datalink simulation provided by Thales Alenia Space Italia and ADS-B (Automatic Dependent Surveillance – Broadcast) in Turin; the Selex-ES Falco in Ronchi dei Legionari airport and the Nimbus C-Fly in Lombardore, North Italy. To complete the scenario, ENAV simulated ATC (Air Traffic Control) stations (civil and military) and the "surrounding air traffic" generation and control systems. This phase provided useful information for multi RPAS operation and to go forward with the final live trial described above.

**About SESAR:**

Europe's current air traffic control systems have reached their capacity limits. Additionally, flight movements in Europe are expected to grow and an increased environmental awareness calls for more efficient operations and better technology. The **SESAR Joint Undertaking (SJU)** was created under European Union law on 27 February 2007, with Eurocontrol and the European Union as founding members, in order to ensure the modernization of the European air traffic management systems by coordinating and concentrating all relevant research and development efforts in the Union. SESAR delivers concrete, innovative solutions taking the Air Traffic Management (ATM) from the age of VHF radio to the digital era.

A broad, safe and swift RPAS integration requires an enhanced coordination between the numerous actors and the different activities involved (regulatory, R&D and others). RPAS insertion in airspace will be gradual and subsequently alleviated as soon as technology, regulation and societal acceptance progresses. To start the RPAS integration investigation nine "RPAS Demonstration Projects", which include integrated pre-operational flight trials activities, were initiated by the SJU.