



PRESS RELEASE

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MINT flights demonstrate fuel savings of 165 kg - leading to more than 500 kg reduction in CO₂ emissions per landing

Novair Airbus A321 demonstration flights into Stockholm Arlanda Airport reveal positive results from MINT Project.

The MINT project sees the last in a series of 10 demonstration flights with a Novair Airbus A321 aircraft dedicated to investigate how modern aircraft are able to support performance based operations, leading to significant reductions in emissions and noise impact, also importantly improving the predictability in the air transport system.

Based on the experiences and results from flights flown during the summer into Stockholm Arlanda Airport, the MINT project (Minimum CO₂ in Terminal Manoeuvring Area) demonstrates today the procedure during a flight dedicated to stakeholders and media. Representatives from the EU Transport Council will be on board, as well as, among others: CANSO, airline operators, and Airbus Head of ATM, Senior Vice President Eric Stefanello.

MINT builds on greater navigation accuracy derived from GPS and on-board Flight Management Systems, known as Required Navigation Performance, up linked wind nowcasts tailored to the trajectory, as well as Continuous Descent Arrival. In addition, it is the first time in Europe that flight trials have fully integrated an element of time control enabling the aircraft to fly an optimal trajectory while meeting an air traffic control time gate, reducing the need for holding or 'path-stretching', therefore helping to reduce CO₂ emissions.

Through co-operation between the Swedish Air Navigation Service Provider (LFV), Stockholm Arlanda Airport, Novair and Airbus, the flights have demonstrated a lateral standard deviation of 0.01 nautical miles or 22 metres, which is less than the wing span of an Airbus A321. The different flights also showed savings of 145 kg of fuel linked to the optimized vertical descent profile, as well as 20 kg of fuel through track mile savings resulting in a total of 518 kg of CO₂ reduction compared to an average Instrument Landing System approach operated by Novair. Time wise, during the trials the aircraft met the time requirement with an average time accuracy of 8.6 seconds.

The MINT project demonstrates that there are capabilities in modern aircraft that can be used to reduce the environmental load in today's air traffic system. The SESAR project has as an objective to refine these capabilities, but even more importantly to develop the link between on board systems and ground-based systems.

"With the full support of the industry, this, as well as follow on projects in Sweden and other locations in Europe, will demonstrate that the ultimate goals of SESAR can be achieved," says MINT project Manager Christer Forsberg, AVTECH.

"The operators, Stockholm Arlanda Airport, LFV Air Navigation Services at Stockholm Arlanda and the Airline Novair are the global pioneers in environmental sustainable aviation, without their dedication this project would not be possible," concludes Christer Forsberg.

Notes to Editors;

The MINT Project is carried out in the context of the Atlantic Interoperability Initiative to Reduce Emissions (AIRE). AIRE, an agreement between the European Commission and the FAA, aims to reduce CO₂ emissions and accelerate the pace of change by taking advantage of air traffic management best practices and mature technologies. It is expected to enable the implementation of environmental friendly procedures for all phases of flight and to validate the benefits of these improvements. The SESAR Joint Undertaking is responsible for the management of AIRE from an European perspective.

The first MINT demonstration flight took place on the 16th of June 2009, using the newly developed RNP-AR procedure into Stockholm Arlanda Airport. The flight was made with a Novair Airbus A321 aircraft equipped with latest release of the Flight Management System (R1A) arriving from the Greek island of Zakynthos and the pilots reported a very positive aircraft performance and that the arrival and approach progressed in expected manner.

During the summer further flights were executed and data logged and analyzed in terms of flight efficiency, aircraft navigation performance and resulting noise. Five of the flights also received a time constraint to meet at a waypoint during the descent. Information from the onboard flight data recorders has been collected and analyzed through different vectors such as fuel efficiency, navigation accuracy and noise impact.

The efficiency analysis focused on fuel savings and CO₂ reductions. The analysis was made possible by normalizing the fuel consumption towards reference winds, cruise altitude, temperature and weight.

The normalization process had the objective to measure the fuel consumption from different flights comparable in different aircraft configurations and weather conditions and notably in order to compare traditional ILS approach with the RNP-AR procedure.

In the case of an approach from the north to Stockholm Arlanda Airport Runway 01R the track mile reduction will be almost 20 nautical miles, the flight time will be reduced by four minutes and approximately 350 kg in fuel can be saved per approach.

Novair flight NVR 2009 on November 25th, the MINT Demonstration Flight, will be the first flight using the RNP AR procedure from this direction; later, Scandinavian Airlines, Novair and other operators are expected to follow.

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