Safe Automatic Flight Back and Landing of Aircraft

From 2006-09-01 to 2009-12-31

Project details

Total cost:
EUR 4 997 985

EU contribution:
EUR 2 589 623

Coordinated in:
Spain

Objective

The solution proposed in EC FP6 SAFE (Security of Aircraft in the Future European Environment) and developed by SOFIA, the Flight Reconfiguration Function (FRF), is a technological response of the industry to the social demand of increasing the security in the air transport after the September 11th terrorist attacks. It is also a technological development coping with the aims of the "Ultra Secure Air Transport System" concept developed by ACARE in its Second Strategic Research Agenda.

As a continuation of the SAFE works on FRF, SOFIA will design architectures for integrating the FRF system into several typologies of avionics for civil transport aircraft; develop one of this architectures; validate the FRF concept and the means to integrate it in the current ATM; assess the safety of FRF at aircraft and operational (ATC) levels. Therefore FRF will take the control of the aircraft and will manage to safely return it to ground upon a security emergency (e.g. hijacking), disabling the control and command of the aircraft from the cockpit. It will also execute a new flight plan towards a secure airport and land the aircraft at it. The flight plan can be generated in ground or in a military airplane and transmitted to the aircraft, or created autonomously at the own FRF system.

The execution of the new flight plan is autonomously performed by FRF without any control from ground. FRF also allows performing station keeping with a military aircraft. Additionally, SOFIA will investigate the integration of such solution into different airspace environments: current ATM, ASAS/ADS-B, airspace with/without radar coverage, 4D trajectory negotiation... SOFIA will validate FRF by using a platform composed of an ATC facility and a flight cabin simulator (upgrade of the one used in SAFE (SP3) linked, and by performing flight trials with real aircraft. The SOFIA consortium is a well-balanced and skilled set of 9 organizations from 7 countries across Europe, with SME.

Related information

Result In Brief

- Flying out of danger on autopilot

Report Summaries

- Final Report Summary - SOFIA (Safe Automatic Flight Back and Landing of Aircraft)
Documents and Publications

- Final Report - SOFIA (Safe Automatic Flight Back and Landing of Aircraft)

Coordinator

ISDEFE, INGENIERIA DE SISTEMAS PARA LA DEFENSA DE ESPAÑA, S.A.
Edison, 4
MADRID
Spain
Administrative contact: Juan Alberto HERRERIA GARCIA
Tel.: +34-912711747
Fax: +34-914114703
E-mail

Participants

DFS DEUTSCHE FLUGSICHERUNG GMBH
Am DFS Campus 10
LANGEN
Germany
Administrative contact: Andreas UDOVIC
Tel.: +49-6103707-5758
Fax: +49-6103707-5741
E-mail

ALENIA SIA S.P.A.
Strada Antica di Collegno 253
CP 3176 TORINO
Italy
Administrative contact: Paolo BELLOMO
Tel.: +39-0106005058
Fax: +39-0106005026
E-mail

THALES AVIONICS SA
rue de Villers, 45
NEUILLY SUR SEINE
France
Administrative contact: Gilbert LETZELTER
Tel.: +33-561197675
Fax: +33-561197750
E-mail

RHEINMETALL DEFENCE ELECTRONICS GMBH
Brueggeweg 54
28309
Germany
Administrative contact: Reimund KUEKE
Tel.: +49-4214572071
Fax: +49-4214574425
E-mail
DIAMOND AIRCRAFT INDUSTRIES GMBH
N. A. Otto-Str. 5
WIENER NEUSTADT
Austria

Administrative contact: Michael FEINIG
Tel.: +43-262226700190
Fax: +43-262226700199
E-mail

GALILEO AVIONICA UNA SOCIETA' FINMECCANICA'
V. ALBERT EINSTEIN, 35
CAMPI BISENZIO (FIRENZE)
Italy

Administrative contact: Giuseppe FERRERO
Tel.: +39-0119967616
Fax: +39-0119913357
E-mail

INSTITUTE OF AVIATION (INSTYTUT LOTNICTWA)
Al.Krakowska 110/114
n/a WARSAW (WARSZAWA)
Poland

Administrative contact: Mariusz KRAWCZYK
Tel.: +48-228463521
Fax: +48-228463521
E-mail

SKYSOFT PORTUGAL, SOFTWARE E TECNOLOGIAS DE INFORMAÇÃO S.A.
Av. D. João II, Lote 1.17.02, Torre Fernão Magalhães, 7º
LISBOA
Portugal

Administrative contact: José NEVES
Tel.: +351-213829366
Fax: +351-213866493
E-mail

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