Optionally Piloted Aircraft (FLARE)

Type of Infrastructure

The flying system, developed inside the National aerospace research program PRORA, is an Optionally Piloted Aircraft (OPA) derived by a commercial, off-the-shelf, ultra-light aircraft, TECNAM P92-Echo S. The aircraft, which is named FLARE (which stands for Flying Laboratory for Aeronautical REsearch), has been modified to perform as a flying test bed capable to provide in flight validation of the breakthrough and innovative aeronautic technologies.

GCS AND VTS

The OPA FLARE has the Permit to Fly (PtF) released by ENAC in accordance with the NAV-32E regulation relevant in experimental flight testing activities.
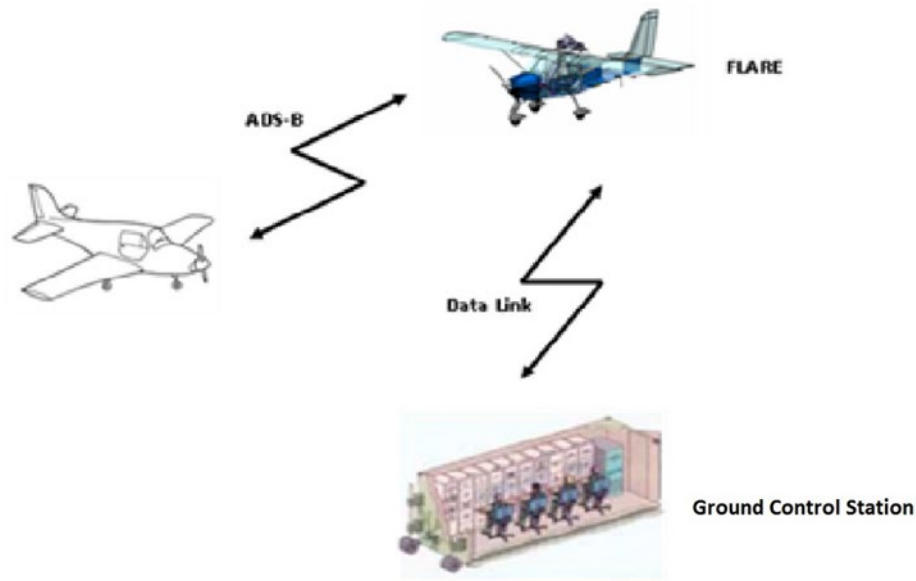
Main technical features

- Conventional and Remote piloting;
- Autonomous piloting;
- Short take-off and landing on unpaved airstrip;
- Low maintenance, modifications and Direct Operating costs;
- Easiness of airworthiness support and reconfiguration

Application Domains

Flight validation of:

- Avionics;
- Autonomous flight technologies;
- "Sense & Avoid" cooperative and uncooperative technologies;
- Traffic separation scenario based on ADS-B technology;
- GA innovative approach & landing procedures;
- Multi constellation satellite navigation based on GNSS/INS;
- Weather-forecast satellite based systems;
- Aero-structural innovative technologies such as morphing wing;
- Hybrid and electrical propulsion;
- Environmental and external data acquisition;
- Secure BVLOS datalinks based on mobile and satellite networks;
- GA low-cost products to support pilots in each flight phase with independence from the on-board avionics with no additional certification;
- Alternative PNT technologies.

Main measuring instruments/techniques

- Experimental air data system;
- Flight control computer;
- ADS-B IN and OUT;
- Traffic advisory system (TAS);
- LOS & BVLOS datalink;
- Anticollision and Sense & Avoid system based on the radar and infrared/video sensors;

- Satcom device;
- Outboard video camera;
- D-GPS;
- GNSS;
- INS;
- Laser Altimeter;
- Ground Station with vehicle tracking system (VTS) for mission monitoring and remote piloting;
- Voice communications.

Operational Status
Fully operational.