Dedicated to innovation in aerospace

APERO
NLR research flight simulator

PRODUCTS & SERVICES

APERO: low cost flexibility for high fidelity design and flight operations research

APERO (Avionics Prototyping Environment for Research and Operations) is a flexible, transportable research flight simulator that can be used for avionics display design & evaluation, demonstration of new cockpit concepts, part-task training and networked flight simulation.

APERO: demonstrator for new cockpit concepts

SERVICES

We can offer you the following services:

- Operational concept design & evaluation in the areas of safety, Air traffic Management (ATM), security and efficiency
- A platform for demonstrations and public relation purposes
- Execution of pre-integration activities before going to a full flight simulator or other test environments
- Facilitation of part task training
- Advanced pilot station for Air Traffic Control (ATC) simulator.

EXPERIENCE

Experience that we have thus far:

- Human Factors evaluations
- Testing newly developed avionics display designs
- Evaluations of new cockpit procedures or flight operations
- Evaluation, validation and/or demonstration of state of the art avionics hardware
- Demonstration of project results
- Networked flight simulation with customers
- Part task training such as FMS training, basic flying skills and cockpit familiarization.

HIGH FIDELITY SIMULATION

The services provided are accompanied by accurate flight simulation models and simulation of avionics systems such as Electronic Flight Instrument System (EFIS), Flight Management System (FMS), TCAS, Weather radar simulator and traffic generator. This enables the developer to evaluate the design to a very detailed level.

INTEROPERABILITY

The APERO has the capability to interface with customer facilities:

- ATC or flight simulator

and NLR facilities:

- GRACE and AIRSIM (Civil Full flight simulator and desktop simulator)
- NARSIM RADAR and TOWER (ATC simulator)
- HPS (Helicopter research simulator)

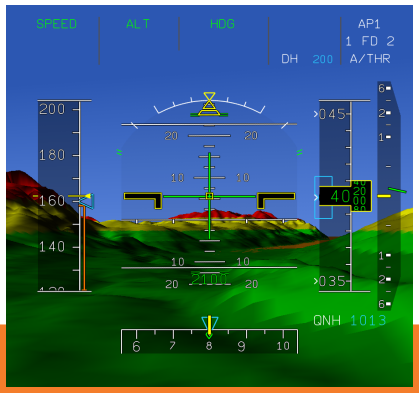
FLEXIBILITY

The APERO is a very flexible test environment. This is achieved by:

- Commercial hardware and software including monitors with touchscreen that offer the flexibility to enable aforementioned services and topics
- Cockpit hardware: Sidestick or control column, throttle quadrant, trackerballs
- Autopilot/Autothrottle and EFIS control panel. This basic flight hardware enables to simulate a realistic cockpit environment
- Modular cockpit. The cockpit can be transported to any location in the world
- Flexible software: several flight models available (e.g. Boeing, Airbus, Fokker)
- Use of NLR's display design tool Vincent. (http://vincent.nlr.nl/)
- Desktop version called AIRSIM is available to enable early evaluations.

PERSONNEL

Our experienced team of experts consists of qualified R&D engineers, Human Factors experts, software engineers and research pilots.



CONTEXT

The APERO research flight simulator is linked to other NLR capabilities. We can provide you a broader platform for aviation research in general and other facilities in particular, like e.g. research aircraft, air traffic control simulators and wind tunnels.

History: NLR has a research flight simulation facility since 1970 that started with a link trainer. Since the beginning of this century NLR has a full flight simulator GRACE, a part task simulator APERO and a desktop simulator AIRSIM.

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