

Airport and Control Center Simulator – ACCES

ACCES has been developed as a test and validation environment for ATM related control room applications. It is designed in a flexible way to provide the technical infrastructure as well as the working environment for several different application areas, e.g.:

- Airport Management Research,
- Remote and Virtual Tower Research,
- Mission management and experimental control room for UAV research (simulated or with real operational a/c)

The facility in general may be used for many suitable applications, as it primarily provides an adaptable infrastructure rather than a turnkey solution for a specific topic. Nonetheless ACCES is designed to act as a test bed for new ATM tools and decision support systems and provides a validation platform for development and test of procedures for tactical and strategic planning and decision making within the ATM and airport management.



The ACCES control room featuring 10 operator working positions and a high resolution display wall

Therefore the design of the facility supports the development and analysis of advanced procedures under CDM (collaborative decision making) working conditions. The ACCES control room provides at least ten ATM operator working positions with state of the art hard and software systems and with a high resolution display wall. For simulation of the airport air traffic environment, ACCES is equipped with several simulation modules, covering all airport processes necessary to support the Total Airport Management (TAM) toolset. Additionally, the Airport and Control Center Simulator ACCES is connected to the integrated air and ground simulation complex at the DLR Institute of Flight Guidance, enabling combined simulation runs e.g together with air traffic controllers involved in the same scenario and operating from the Apron and Tower Simulator ATS.

The ACCES facility is located in its own building, including the large control room, a support room for external agents or simulation preparation and additional technical installations. In detail the facility can be divided into the following elements

- Main control room
 - Size of 128 m² (12,6m x 10,2 m) with a height of 5,90m
 - Standard configuration allows 10 working positions for operators on a customizable platform.
 - High resolution display wall
 - 5,50m x 2,20m size resp. 5120 x 2048 pixel
 - 8-channel back projection, COTS DLP-projectors with a resolution of 1280x1024 pixel; commercial projection wall management system and applications
 - Wall construction allows operation as one display wall or as several segmented walls (wall structure can be separated into 2 or 4 segments)
- Voice-over-IP communication system
 - State-of-the-art VoIP system based on commercial software, connecting all working positions with each other; modular and extendable system; each working position equipped with a headset (headset optional) and a touchscreen based input device; touchscreen HMI can be configured according to specific application needs.
- Adjacent support room
 - Equipped with 4 additional working positions, completely integrated within the ACCES IT-infrastructure (e.g. for system development and -integration or within simulation runs to act as external control facilities)
- Central air-conditioned computer room
 - Equipment varies with applications under examination; typically including more than 30 rack mounted PCs
 - Access to each computer from control room working positions via KVM switches. Only limited number of computers in the control room itself to reduce noise and thermal emissions on the working positions.



Outside view of the ACCES simulation facility for ATM related control room applications, located at DLR Braunschweig.

AT-One combines the strength of NLR and DLR in ATM Research

DLR

Helmut Toebben
+49 531 295 - 2932
helmut.toebben@at-one.aero
www.at-one.aero

Business Managers
Telephone
E-mail
Internet

NLR

Luc De Nijs
+31 20 511 37 37
luc.deNijs@at-one.aero
www.at-one.aero