

ATC SIMULATORS

The LETVIS SIM system serves the purpose of flight simulation. It is made up by the software module that ensures the control of simulated flights from the user interface, mathematical processing of the simulated aircraft movement and generating the corresponding radio-location information.

LETVIS SIM-based systems provide:

- all kinds of training of the air traffic radar and procedural controllers
- air defence dispatchers' training
- air defence target interceptors' guidance training
- air traffic systems' development and testing with the use of the simulator acting as an independent source of radar and planning information

There are two modules of LETVIS SIM.

- PSP pseudo-pilot position to control the flights
- INS instructor position as a PSP module with extended capabilities for controlling and evaluating the course of lessons.

Number of SIM modules operating independently or in cooperation can be connected in the simulator with one or more students' positions/groups types according to the required workplace configuration. Allocation of pseudo-pilots' positions can be changed dynamically by configuring the exercise at the start.

Processing and presentation

- generation and simulation of a comprehensive air traffic situation up to the level of complex flight situations for route control, terminal and training areas
- high accuracy simulation of real aircraft manoeuvres in the airspace, based on aerodynamics and performance characteristics of programmable aircraft types
- simulation of both the secondary and primary, and also primary analogue radar information
- simulation of meteorological conditions (wind, cloudiness)
- setting up global, group and individual parameters of the lessons

Main functions

- the exercise (control of the simulated motion) can be carried out by means of :
 - generating the scenario by setting up airspace situation lessons prepared in advance by filling in flight and other plans
 - controlling the simulated aircraft automatically in accordance with the flight plan or manually by a pseudo-pilot through generating text commands, managing flight plans/strips, controlling the target label or by imitating "direct" aircraft control
 - replaying the previously recorded exercises
 - mixing the real and simulated radar data
- controlling a number of different targets at a time (number of the targets is limited only by a pseudo-pilot's abilities)
- target hand-over among pseudo-pilot stations
- targets' control can be conducted from an independent SIM module with flight plans data, or a SIM module fully integrated with the RDP module (seamless solution), which offers the following advantages:
 - the pseudo-pilot's display has, besides the control windows of simulated flights, one or more radar windows at disposal on the same display. The radar windows enable the pseudo-pilot to easily follow the simulated situation and to control the aircraft movements
 - the pseudo-pilot can set out instructions for the flight control directly, through the radar label in radar window
 - the workstation can operate as a self-contained unit. This enables the scenarios of individual exercises to be prepared and adjusted at one station
 - exploitation of the intuitive user's interface qualities.
- checking (parameters setting, display, control of the course of training)
- lessons evaluations on the basis of objective documentation
- freezing the simulated image to enable static view analysis of the given traffic/situation
- creation of a record of the entire training process including the pseudo-pilots' control instructions, and regressive analysis of the course of exercises by replaying them

Other functions

- simulation of voice direction finders lines
- jamming and drop-out of radar information, primary and secondary targets
- simulation of the on-board radar of military aircraft for target interception
- simulation of the activities of other kind required by the concrete application (e.g. imitations of targets destruction)
- other functions according to the customer's requirements

References:

ALES has built ATC simulators for training centres, ACCs and universities in the v Czech Republic, Slovakia, Hungary and on Ukraine.

