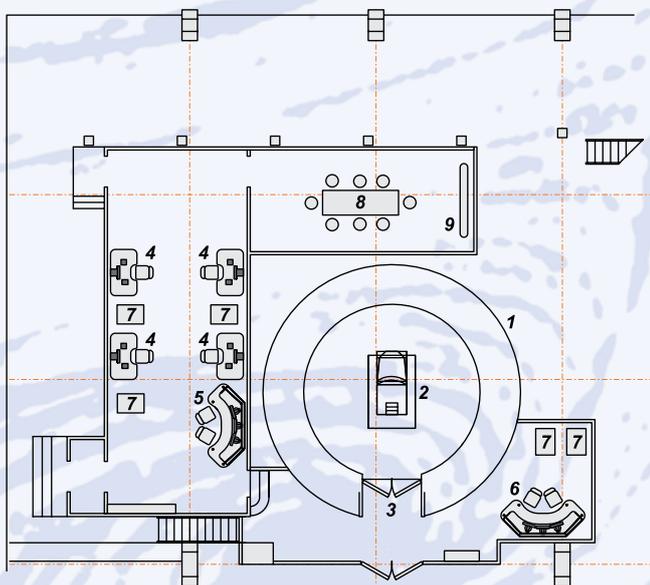




Complex Composition



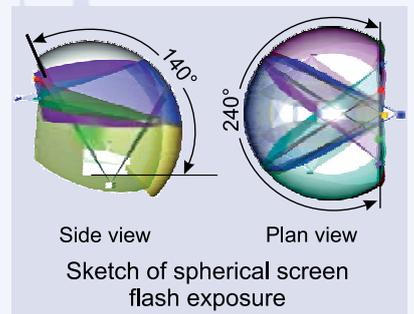
- The flight simulator that has a spherical imaging system, is composed of the dome screen (1), which of diameter is 8 m; flight deck (2) and 8 projectors (3);
- Four simplified flight simulators (4) where the image visualization is provided through screen monitors;
- The test instructor's operation station (the control panel) (5) is equipped with visual monitoring (5 monitors) system intended for 5 simulation participants;
- The integrated computer center of the simulator complex (6, 7) and imaging system picture generators;
- The complex intercom system;
- The room for debriefing (8) where there is a general imaging display (9).

General Description

The complex is composed of the flight simulator, the computer center, the instructor's operation station and the pilots' operation stations.

All the components are integrated into a local computing net that provides the synchronous functioning in real time. The imaging system is unique. It enables providing the air surveillance angles of 240° horizontally and 140° vertically that corresponds to observation angles out of the maneuver aircraft cockpit. The surroundings representation is generated through 8 projectors that provide the screen picture of ambient conditions under resolution of less than $3'/\text{pixel}$ on the spherical dome-screen of 8 m diameter.

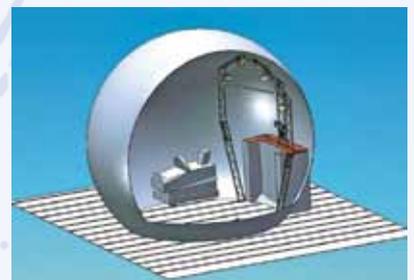
The operational stations have the fine and detailed aircraft mathematical models supplied with the full-fledged data bank of aerodynamic parameters within the attack angles range of $\alpha \pm 180^\circ$, the integrated control system, incl. the specified executive means and the mathematical model of variable thrust vector among them, as well as the mathematical model of airborne surveillance and sight complex and mathematical models of aerial warfare weapon.



Capabilities

The complex contributes into:

- fighter combat simulation (1vs1 or 2vs2) aimed at opting for the parameters and to assess comparatively the aircraft;
- tryout of the take-off and landing, the carrier deck start and landing, refueling;
- support of flight tests, qualifying and training the flight personnel for purposes of targeted pilotage tasks (solo or team piloting).



Technological Advantages

The imaging system constitutes the essential advantage of the flight simulator complex. It provides the surveillance angles that correspond to the observation angles out of the maneuver aircraft cockpit and the pilot experiences the visual sensations which are adequate to real ones. The imaging system enhances essentially the spatial orientation capabilities of the pilot when simulating the targeted pilotage tasks, incl. the super maneuverability regimes under aerial combat.



Application

The HIL-simulation is used to refine the characteristics of stability, controllability, maneuverability, armament, carrier landing system for the current and perspective maneuverable aircraft. The preparation of the test pilots is executed prior to advanced flight maneuvers.

