

TRACK 4: AVIONICS

"SENSE AND AVOID – THE GLOBAL CHALLENGE" BY MR OMER REGEV ISRAEL AEROSPACE INDUSTRIES

ABSTRACT

Effective Sense and Avoid systems are a key factor for opening national and international airspace to shared operation of Military aviation, Civil aviation and Unmanned vehicles. Much global attention is being paid by the FAA and Euro-Control and huge money is invested in research and development of Dynamic Airspace Management and Trajectory Based Operation concepts as well as supportive Technology Development.

Two major plans are leading these future concepts: the European "SES" (Single European Sky) program and the North American "Nextgen" program. These programs will have direct effect on Military aviation and Un-manned aviation. Military vehicles will need to employ new technologies and systems for effective and safe sharing of the over-crowded sky of the future with the civil aviation. Several Air Forces already initiated RFI's and RFP's for "Sense and Avoid" technologies and systems for all kind of aircraft including Fighters and Unmanned vehicles. The requirements are derived by safety triggers along side with the ability to exploit more airspace for military aviation neighbouring civil aircraft and civil airspace.

One of the fundamental technologies supporting the future programs is the Sense and Avoid ADS (Automatic Dependent Surveillance) technology, which is already mandatory for large commercial aircraft and mandatory for commercial airports.

The ADS technology, comprises mainly of ADS-B (Automatic Dependent Surveillance Broadcast) systems is based on transmit and receive of Mode-S protocol. ADS-B systems generate a data-link of Mode-S data from aircraft to aircraft and from aircraft to ground, creating an accurate air-situation picture.

BREAKOUT SESSION



Other "Sense and Avoid" systems such as TCAS (Traffic Collision Avoidance System) are used locally for safety measures between aircraft. Development efforts of various types of local and advanced "Sense and Avoid" systems, such as RADAR based systems and cameras based systems are yet immature and its success is doubtful. These developments are aimed towards total "Sense and Avoid" capabilities which shall provide sense and avoid even against non-cooperative aircraft (that are not equipped with any radiating system). Summary - This new domain of "Sense and Avoid" in military aviation requires concept & technology research, development and adaptation. Early birds of military systems and technologies are already in the market, most of it yet derived from the civil aviation systems.

BIOGRAPHY OF SPEAKER



Mr Omer Regev (IAF Ltc. Res.) is currently a business development expert for the Israel Aerospace Industries (IAI) in the field of operational airborne network systems. He had served 25 years in the Israeli Air Force in various operational, Research & Development and Engineering positions. He was responsible for the research and the development of airborne electronic systems, served as test flight aircrew and Deputy Commander of Fighters Airbase.