

TITLE : Primary and Secondary ATC for Air Traffic Control – Status and Trends

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Abstract

- 1) Introduction to the Air Traffic Control
  - a) Recall on the Phases of a Flight, the Air Navigation Services and Traffic Management : ATC, ATFM, ASM. ICAO, Eurocontrol, FAA, EASA , and Providers : Incidents, Accidents, the Target Level of Safety (TLS) and the landing, departure, ground movements contribution to TLS.
  - b) Recall on Air Traffic Management and its infrastructures : Communications, Navigation, Surveillance (CNS) .
  - c) The Surface Movements Guidance and Control System (SMGCS – A-SMGCS) and its implementation levels
- 2) Air Traffic Control Radars and Other Surveillance Systems
  - a) Primary Surveillance radar – Basic
  - b) Primary Surveillance radar for Air Route/Airway, Terminal Manoeuvre Area (TMA)/Approach, Airport Surface - Surface Movement Radar (SMR)
  - c) Problems of Primary Surveillance radar, need for Secondary Surveillance Radar (SSR), comparison
  - d) Evolution of SSR : Monopulse, Selective Address (DABS, ADSel) and Mode S
  - e) Evolutionary Trends and Passive surveillance with Mode S “squitter” : Multilateration and CNS means for A-SMGCS and for Approach/Area Control (MLAT, WAM) , Automatic Dependent Surveillance – Broadcast (ADS-B) , radio communications, Global Navigation Satellite system (GPS, Glonass, Galileo).