

# INTEGRATED TRANSPORTABLE AIR TRAFFIC CONTROL SYSTEM

Systems in ATC domain are moving towards a global two-way interoperability concept for Civil and Military traffic. The concept aims to improve system efficiency guaranteeing the appropriate level of security and safety. Within this context, the Leonardo ATC system represents an attractive solution due to its high flexibility in different scenarios.

Developed following the requirements of the Italian Air Force, Leonardo ATC system can be used as gap filler for joint operations in harsh environments when no fixed ATC infrastructures are available. The Transportable ATC system is based on a combination of a state-of-the-art Control Centre, Primary and Secondary Surveillance Radars. The system can face many critical situations, for instance:

- Crisis management in case of natural disasters to support Civil Protection first aid activities
- Service Continuity in case of fault, upgrade, or maintenance situation for fixed systems (entire or partial)
- Special events (e.g. Olympic games, high visibility events)
- Gap Filler for inter-forces Operations in critical and not outfitted environments
- Low and very low altitude Air Defence, coastal surveillance, and border protection applications integrated within Air and Coastal Defence networks

## TRANSPORTABLE ATC

The Transportable ATC system consists of a Control Centre integrated with a radar system. It combines the performance of a fixed system with the distinctive features (easy deployment and set-up) of a mobile system. Useful as gap filler, in case of maintenance, the system can manage Approach and Terminal Areas in emergency scenarios. The easy transportability on C130-J aircraft, on trucks ISO-std, and by ship makes the system flexible and deployable in very short time, with limited need of personnel and external support.

## THE SYSTEM

Composed by three independent shelters, the system is equipped with two diesel generator groups and UPS suitable to be connected to European and American power networks. The system can be employed worldwide as well as in dedicated NATO bases, with the following characteristics:

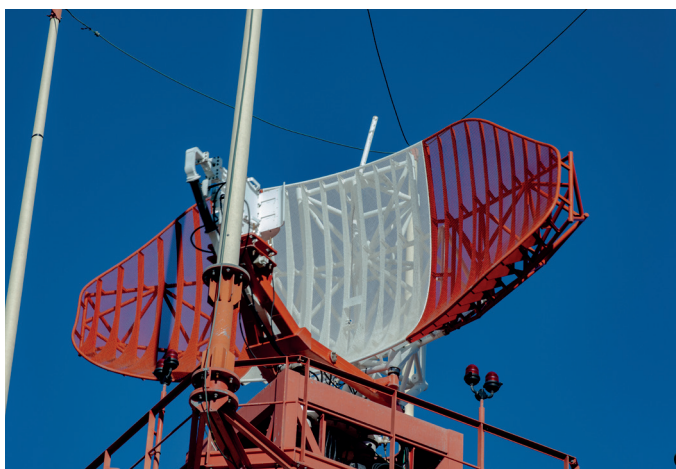
- Radar Shelter, with latest generation Leonardo radar

products: S-band Primary Radar (ATCR33S NG), Mode-S Secondary Radar (SIR-S/I), and fully redundant Radar Head Processor

- Data output capable to feed Approach Radar systems and different remote Control Centres
- Antenna Shelter, operating as base antenna, integrating a lifting system capable to raise the antenna up to 5 m height
- Operative Shelter (OPS) including:
  - up to three Controller Working Positions (CWPs)
  - one configurable position for Precision Approach Radar (PAR)
  - Automatic Dependent Surveillance Broadcast (ADS-B)
  - Dual-band radio (UHF/VHF)
  - Voice Communication Switching System (VCSS)
  - Radar Data and Voice Recording & Playback
  - AWOS Weather system
  - Multi Radar Tracking (MRT)

The Transportable ATC system can be optionally (subject to MoD clearance) configured for Military Missions. It can integrate Automatic Frequency Selection and Frequency Agility against jamming effects for Primary Radar, and Mode 4 and 5 interrogations for Secondary Radar. Nuclear, Bacteriological, and Chemical (NBC) Filters for operation in potentially hostile environments are also available.

The Transportable ATC system can be connected with a Precision Approach Radar (PAR) to implement a Ground Control Approach (GCA) system, or with an ATC Control Tower to realize a full operative Airport system.



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## TECHNICAL FEATURES

### Environment conditions

- External Temperature -35° up to + 55° C
- Salt atmosphere 0,75 µg/m<sup>3</sup>, as encountered in coastal zone
- Sand and dust concentration of 2 g/m<sup>3</sup>
- NBC filter compliant with STANAG 4447
- Transportation aircraft (C130), truck (ISO blocks), ship, train
- Self mobility up to 2 km/h with use of own mobility system (motorized wheels)
- Shock & Vibration Longitudinal + 4 g forward, +1,5 g back, Cross ±1,5 g Vertical ±2 g

### Mechanical resistance

- Emergency landing 9 g
- Deployment capability load and unload from C130 and truck completely autonomous
- Power Supply 2 diesel generator groups (100 kVA) with 24 hours of autonomy
- UPS system up to 40 m of autonomy
- Voltage EU (400V 3-phases + N)  
US (208V 3-phases +N)

## KEY POINTS

The ATC transportable system outstands on the following key points:

- High level of modularity and flexibility to comply with any operational needs and site-specific requirements
- High versatility based on fast set-up ensuring a sustainable solution minimising environmental impact
- Fast Installation without use of external tools
- NBC Protection inside shelters
- Improvement of situational awareness in case of emergency
- Low Cost Solution supporting civil-military coordination within specific operational scenarios
- Design and Test with powerful Cyber Security features:
  - Access control management for applications, systems, and network devices
  - User Privilege Management
  - Malware Protection
  - Secure configuration and Security hardening
  - Boundary Protection (Firewall & IDS/IPS)
  - Network Security Management
  - Secure Data Transfer

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