

LEONARDO ELECTRONICS

A-AMMAS™

ADVANCED AIRPORT MOVEMENT MANAGEMENT SYSTEM

A-AMMAS™ integrates data relevant to airport movement areas such to improve operational efficiency and situational awareness.

Airport stakeholders are nowadays requiring integrated systems capable of a higher degree of automation and interoperability; A-AMMAS™ is the proper answer to those needs.

OPERATIONAL CONTEXT

Within the Air Traffic Management network, Airports are turning to be the main bottlenecks. Capacity crunches at Airports poses to all stakeholders a threat to safety, efficiency and competitiveness in air transport.

The predicted increase in the global air traffic demand will be met only if radical changes are introduced in the airport management tasks, as their efficiency depends on the cooperation of several actors whose tasks are executed on different systems.

Within this context, the solution developed by Leonardo for Airport Movement Management exchanges airport operational information quickly and reliably. A-AMMAS™ further shares data among stakeholders by means of user tailored representations of airport processes.

A-AMMAS™ has been developed to be part of the A-SMGCS Leonardo concept which integrates actual and predicted traffic information from air-side and land-side sources. The system shall improve operational efficiency and situational awareness at Airports and also increase punctuality and throughput.

Based on a System-of-Systems approach, the A-AMMAS™ solution integrates the Leonardo A-SMGCS services and the Rheinmetall DEB-RA® SMR Runway Hazard Management System.

Rheinmetall's DEB-RA® is a multi-functional system for airport safety and security, designed for Foreign Object Debris (FOD) and wildlife detection, as well as Automatic Runway Incursion detection and classification at Airports.

PERFORMANCE OUTLINES

INTEGRATED A-SMGCS SERVICES

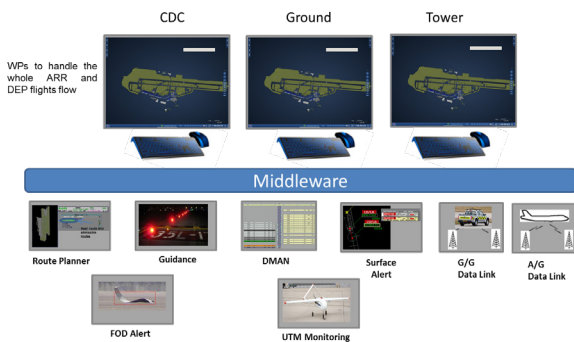
A suite of products and tools provides the following A-SMGCS services in full compliance with ICAO, Eurocontrol and EUROCAE recommendations:

- Integrated Ground/Air Surveillance
- Integrated Ground Safety Nets
- Ground Route, Pre and Departure Planning
- Aircraft and Vehicles Management/Guidance

INTEGRATED GROUND/AIR SURVEILLANCE

Ground Surveillance services are based on high-performance multi-sensor fusion algorithms which associate targets to reliable and unambiguous positions. The system provides as well typology of targets (i.e. aircrafts, RPASs and vehicles); track/call sign association based on multi-lateration (which allows target association right at airport gates); Mode-S data and traditional SSR code. The system integrates sensor data including:

- ADAM -Advanced Airport Multilateration
- WAM-Wide Area Multilateration
- SMR-Surface Movement Radars
- MXC-ADS-B Ground stations network
- APP-Approach Radars
- ENR -En Route Surveillance Sensors, including Mode-S Radars
- DEB-RA® –SMR Runway Hazard Management System



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KEY FEATURES

REAL TIME SITUATION AWARENESS

- Seamless Surveillance Picture
- Gate-to-Gate Surveillance (one HMI to be used for ground, approach and control surveillance)

INTEGRATION AND SENSOR FUSION

- Integrated tower approach system capable to exchange data with A-CDM, Met information, Surveillance, Airport Lights, Radios, Nav aids and En-Route Centre Stakeholders
- Integration of heterogeneous surveillance sources, including already existing surveillance systems
- Comprehensive and extended coverage using integration of different surveillance sensors such to cover all the area of interest and responsibility
- Multi-sensor processing
- Standard and Legacy protocols management
- Expandable architecture capable to integrate future needs, such as UAV management

CONTROL AND GUIDANCE

- Automatic Identification and Correlation
- Conflict prediction and detection
- Silent coordination and transfer of control
- Integration of any Airport Ground Lighting System
- Statistics and diagnostics/controls data logging

SECURITY, SAFETY AND RELIABILITY

- Secure System Architecture and Network Management through Cyber Protection System Design
- Secure identification and access to the system
- Fully virtualised hardware infrastructure capable to extend lifetime of ATM application, increase uptime and provide energy efficiency
- Enhanced Safety Management on the ground through improved runway incursion functionalities extended to detecting FOD, animals and persons

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