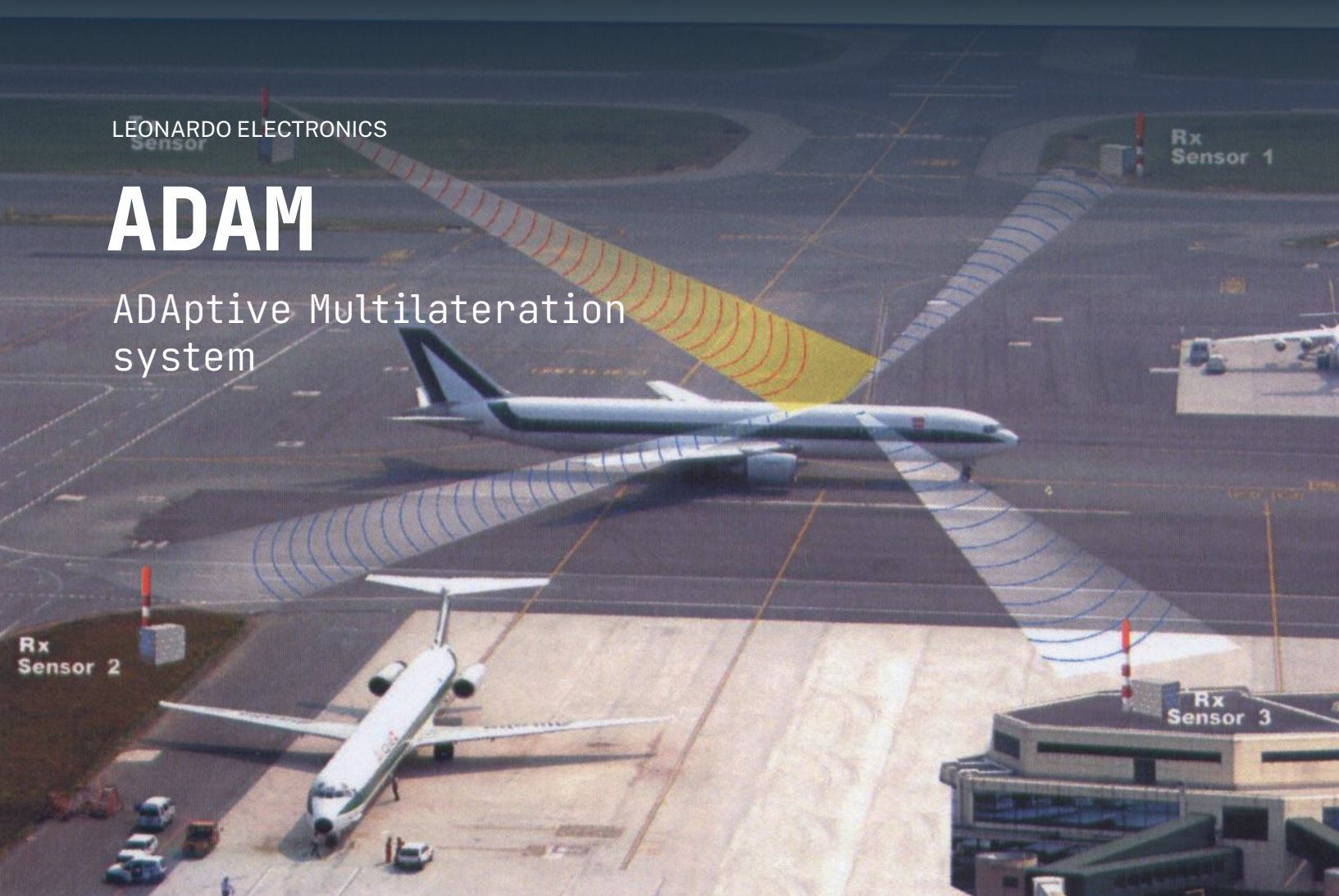LEONARDO ELECTRONICS

ADAM

ADAptive Multilateration system

ADAM (ADAptive Multilateration) is the Leonardo Multilateration system for accurate all-weather surveillance for Airport and Wide Area applications. ADAM exploits outstanding advanced sensors design and innovative target processing in a flexible and redundant architecture tailored for co-operative targets moving on the airport surface. ADAM can be employed as well for TMA/En-Route airspace surveillance.

ADAM complies with the latest international standards, such as EUROCAE ED-117/A, ED-129/A/B, and ED-142, RTCA DO-260/A/B, applicable ETSI HS.

ADAM is based on a network of receivers and/or receivers-interrogators positioned in strategic locations such to provide required coverage, accuracy, and continuity of service. ADAM employs spontaneous Mode-S "squitter" transmission and asynchronous transponder replies. ADAM manages DF17/DF18/DF19 ADS-B Extended Squitter messages, as well. The Sensor design is such to allow very accurate Time of Arrival computation. The hardware architecture is completely modular.

PERFORMANCE OUTLINES

At Airport surface:
- Improved accuracy and update rate
- Surface Movement Applications
- Runway Incursion Monitoring
- Situational Awareness through aircraft derived data
- Extended Arrival and Departure Procedures
- Closely Spaced Parallel Runway Operations

In Wide Area:
- Complementary or alternative to radar surveillance
- Fully adaptable to specific environment
- Low and easy maintenance
- Reduced infrastructure costs
- Support in advanced/complex approaches

LEONARDO
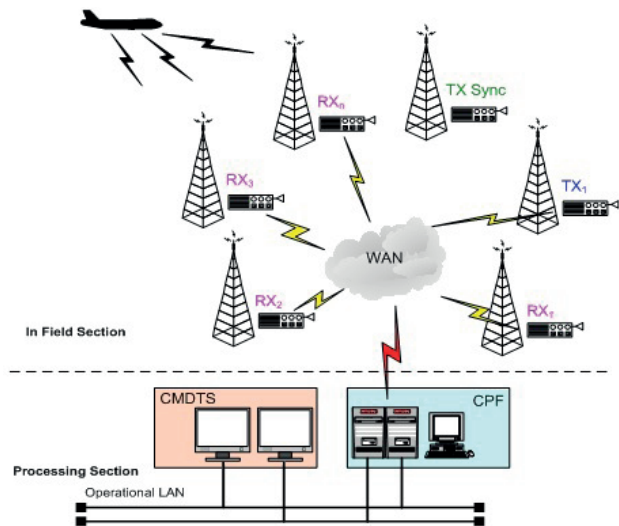
The ADAM CPF provides
- Target Location and Plot Extraction
- System Time Synchronization
- Interrogation scheduling and Target Identification
- Target Tracking
- ADS-B Data Extraction
- ADS-B Data Integrity Check

Handling of Output Data Formats: ASTERIX CAT10, 19, 20, 21, 23, 25, and 247

KEY FEATURES

Time Synchronization is the core algorithm in the TDOA (Time Difference of Arrival) multilateration system. Based on the coverage volume to be surveyed, ADAM exploits two different time synchronization methods:

- At Airport surface:
Squitter Transponder Based synchronization employing reference transmissions from a Squitter Generator Unit capable to sync-up clocks at each Receiver unit

- In Wide Area
Extended Area Time Based synchronization exploiting GNSS timing receivers and/or ad-hoc equipment embedded in each Receiver unit

ANTENNA TECHNICAL CHARACTERISTICS

- 1090/1030 MHz 3/6 dBi gain for short range
- DME dBs 620 (3 dBi) omnidirectional
- DME dBs 610 (6 dBi) omnidirectional
- DME dBs 510A (8 dBi) omnidirectional
- DME dBs 5100A (9.5 dBi) high gain omnidirectional
- Kathrein Vpol 1087-1093 MHz (11.5 dBi) high gain omnidirectional
- DME dBs 540 (12 dBi) high gain omnidirectional