ESEN

ECAS

TRAFFIC AND TERRAIN COLLISION AVIODANCE SYSTEM

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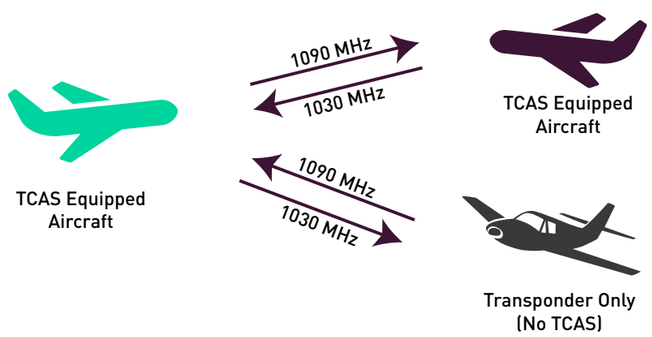
Traffic and Terrain Collison Avoidance System (ECAS)

ECAS-Traffic and Terrain Collision Avoidance System combines TCAS II version 71. with Terrain Awareness Warning System (TAWS) Class A functionality to form an integrated system in a single Line Replaceable Unit (LRU). ECAS is developed for both fixed and rotary wing aircraft platforms. ECAS Processor Unit is packed in a rugged sealed chassis with 5 MCU size compliant to ARINC 600 standard, hence it is suitable for the most demanding environmental conditions for both civil and military aircraft installations.

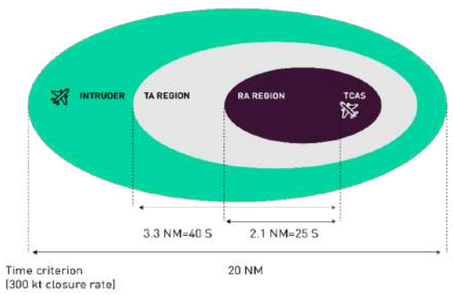
Traffic Alert and Collison Avoidance System (TCAS II)

- Preventing mid-air collisions or near collisions between aircraft
- Mandated by ICAO for all commercial turbine-powered transport aircraft worldwide having more than 19 passenger seats or having a maximum take-off weight above 5700 kg
- Interrogation of ICAO compliant transponders
- Generation of Traffic Advisory (TA) for potential threats
- Generation of Resolution Advisory (RA) for threats
- Generation of recommended escape maneuvers, in the vertical dimension or either increase or maintain the existing vertical separation between intruder aircraft and own aircraft
- Air-to-Air Coordination



TCAS II

A traffic advisory annunciation indicates a potential maneuver may be required. TCAS generates resolution advisories in order to prevent mid-air or near collisions. Collision Avoidance Logic latest standard Change 7.1, mandatory in Europe for all aircrafts.



Terrain Awareness Warning System (TAWS CLASS A)

DO-367 MOPS compliant TAWS Class A provides unique performance based algorithms that consider aircraft status, aircraft settings, aircraft dynamic vector and performance data for its Terrain Alerts. TAWS aeronautical database supports worldwide terrain elevation, obstacle, airport and runway data.

Class A TAWS system as defined in DO-367 and TSO-151D provides aural warnings and cautions, for Ground Proximity Warning- GPWS functionality including;

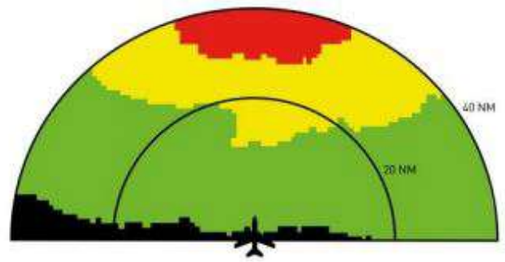
- Mode 1: Excessive rate of descent with respect to terrain
- Mode 2: Excessive closure rate to terrain
- Mode 3: Negative climb (sink) rate or accumulated altitude loss before acquiring, 700 feet terrain clearance after takeoff or missed approach
- Mode 4: Flight into terrain when not in landing configuration
- Mode 5: Excessive downward deviation from an ILS glideslope
- Mode 6: Altitude callouts

Provides aural warnings and cautions for TSO-151D enhanced TAWS functionality including;

- Forward Looking Terrain Avoidance (FLTA)
- Premature Descent Approach (PDA)
- Terrain/Obstacle Image (ARINC 708)

Standards

- Software Consideration in Airborne Systems and Equipment Certification (RTCA/DO-178C DAL-B&C)
- Design Assurance Guidance for Airborne Electronic Hardware (RTCA/DO-254)
- Certification Consideration for Highly-Integrated or Complex Aircraft Systems (SAE ARP-4754)
- Integrated Surveillance Systems (ARINC 768-2)



Standards For TAWS

- Minimum Performance Standards-Terrain Awareness and Warning System (TAWS) Airborne Equipment (RTCA/DO-367)
- Terrain Awareness and Warning System (TSO-C151d)
- Terrain Awareness and Warning System(ARINC 762)
- TAWS Database (DO-200B , DO-201A, ARINC-424, DTED, DOF standards) Containing worldwide elevation map, obstacles, airports, runways)

Standards For TCAS

- TCAS Airborne equipment, TCAS II with Hybrid Surveillance (TSO-C119e)
- Minimum Operational Performance Standards for TCAS II (RTCA/DO-185B Change-2)
- Traffic Computer TCAS and ADS-B functionality (ARINC-735B-1)

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Titanyum C Blok Kat:2 ODTÜ Teknokent
06800, Çankaya, Ankara/ Türkiye

T: (+90) 312 220 14 88
F: (+90) 312 220 14 89

www.esensi.com.tr