RA-TS
Radar Altimeter Test System

- Replacement of the RA terrain reflected signals
- Real-time simulation for approach and landing operations
- Simulation of Aircraft Insertion Delay (AID)
- Hardware-in-the-loop architecture
- Compatible with external dynamic flight model simulations (e.g. MATLAB/Simulink®, C/C++, Python)
- Flight simulations up to 50,000 feet altitude
RA Overview

The Radar Altimeter (RA) measures the terrain clearance or altitude above the ground level directly beneath the aircraft. Additionally, the altimeter calculates the vertical sink rate, or the rate of climb, and displays selectable low altitude warnings.

Architecture

The TechSAT RA Test System consists of a transmitter/receiver and integral timing device, a transmitter antenna interface, and a receiver antenna interface. The test system receives requested RF signals from the airborne UUT and creates time delays as a reflection of the terrain. This delay is dependent on the simulated altitude over ground. Next, the test system transmits the same signal back to the airborne UUT, which measures and analyzes the time elapsed between the transmission of the RF signal and its reception at the aircraft.

The TechSAT RA Test System is implemented as hardware-in-the-loop architecture and performs a real-time complex simulation of the terrain reflections. It also allows simulating the UUT environment and analyzing Radar Altimeter signals by using the ADS2 platform of the SIBs.

Technical Data

**RF Signal Generator**
- 19"-2U to 5U desktop case
- Frequency range: 4200 MHz to 4400 MHz
- Programmable Aircraft Insertion Delay (AID)
  - Range: 50 ft to 50 000 ft
  - Accuracy: 1 % standard, up to 0.1 % on request
- Remote control via Ethernet
- Switching speed: < 10 ms

**Integration Bench**
The Navigation System solution can be integrated in all TechSAT SIB products, which include:
- Real-time PC
- I/O interfaces:
  - Analog
  - Digital
  - ARINC 429
  - AFDX®/ARINC 664
  - CAN/ARINC 825
- Windows® 7 or CentOS RT
- Avionics Development System (ADS2)

**Part Number**
011283