**DME-TS**

**Distance Measuring Equipment Test System**

- Replacement of the Distance Measuring Equipment (DME)
- Ground station transponder signals to test airborne receivers
- Real-time simulation for approach and landing operations
- RF signals according to ICAO standards
- Hardware-in-the-loop architecture
- Compatible with external dynamic flight model simulations (e.g. MATLAB®/Simulink®, C/C++, or Python)
- Flight simulations up to 200 NM
**DME Overview**

The Distance Measuring Equipment (DME) is an airborne system to determine the slant distance of an aircraft (= DME interrogator) to a ground station (= DME transponder). For this purpose, shaped RF double pulses are transmitted by the aircraft to the ground station. After a defined delay (= reply delay), the ground station sends pulses back to the aircraft. The airborne receiver uses the round-trip time of the double pulses to determine the distance to the ground station.

**Architecture**

The TechSAT DME Test System receives the requested RF pulse-pair signals from the airborne UUT interrogator and creates time delays of the reply pulse-pairs dependent on the simulated slant distance to the ground station. The test system transmits a new pair of pulses at a frequency of 63 MHz above or below the interrogator’s frequency according to ICAO standards.

The TechSAT DME Test System is implemented as hardware-in-the-loop architecture and performs a real-time complex simulation of a DME ground station, including the associated squitter pulses and identification pulses. It also allows simulating the UUT environment and analyzing DME signals by using the ADS2 platform of the SIBs.

**Technical Data**

<table>
<thead>
<tr>
<th>RF Signal Generator</th>
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<tbody>
<tr>
<td>19”-2U desktop case</td>
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<tr>
<td>Frequency channels: X, Y</td>
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<tr>
<td>962 MHz - 1213 MHz</td>
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<tr>
<td>Squitter pulses</td>
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<tr>
<td>COM/ID signals</td>
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<tr>
<td>Power level: -85 dBm to +30 dBm</td>
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<tr>
<td>Remote control via Ethernet</td>
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</tbody>
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**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**

011279