Avionics

ALT-8000

FMCW/ Pulse Radio Altimeter Flightline Test Set

AEROFLEX
A passion for performance.

Versatile time saving portable test set for testing installed FMCW and Pulse Radio Altimeters

- Tests FMCW radio altimeters including CDF types
- Tests pulse radio altimeters (non-pulse compression types)
- Direct-connect to UUT T/R or to installed system via antenna couplers
- Ratio-metric RF loop test allows TX, RX, antenna or feeder faults to be identified
- Multi-channel operation (via additional test sets)
- Programmable multi-leg climb/descend profiles
- Large touch-screen display with simple user interface
- Remote control interface USB/LAN
- Lightweight and compact <10 lbs. (4.5 kg)
- Battery 4 hours plus duration

ALT-8000

The ALT-8000 Radio Altimeter Flightline Test Set may be quickly connected to the radio altimeter installation via two antenna couplers. RF simulation of radio altitude from -20 ft. to 50,000 ft. (±1.5 ft. accuracy) is provided, and altitude rate may be set to provide a smooth ramping altitude simulation to verify decision heights and altitude trips for auto-land systems and altitude data feed to EGPWS.

The ALT-8000 is designed to be software upgradable.

General

The user interface is a Windows-based application that provides various screens for control of the test set and display of parametric measurements including: TX power, TX frequency (center), sweep rate, TX pulse width (pulse systems).

Preliminary

Simulation

RF level may be set manually for specific receiver sensitivity measurement or auto RF level mode sets an RF level based on TX power – height path loss – scattering loss. This ensures that the test environment replicates the actual airborne conditions, verifying T/R loop gain and allowing antenna bonding issues (TX-RX cross leakage) to be identified. An additional level offset figure may be set to ensure an altitude sweep passes with a predetermined gain margin.

Simulated static altitude may be set by the user and manually incremented or decremented.

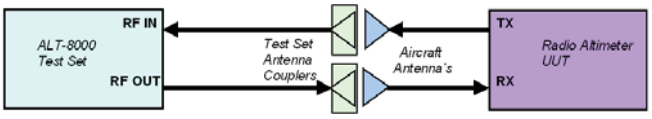
Profiles

Profiles are used to control dynamic altitude simulations.

The profile screen allows the user to create, save, recall or delete named profiles. Each profile is comprised of individual legs. Start, stop altitudes and rates are definable for each leg. A profile can then be executed to simulate a complete landing approach including flare out or a take-off and departure.

RF Coupling

The supplied antenna couplers allow the radio altitude system to be quickly verified without access being required to test ports on the UUT LRU. Direct-connection to the T/R unit is also possible.



Multi-Channel Operation

Up to three test sets may be linked via an altitude sync line for executing 2 or 3 channel coordinated altitude simulation for auto-land system testing.

Test Setup

The test setup screen allows system, user and RF connection parameters to be set by the user, including: type, UUT detect mode, level mode, connection type, AID, RF cable loss and altitude offset.

GENERAL SPECIFICATIONS

USER INTERFACE

Display

12” Color LCD, sunlight readable with back light

Controls

Touch screen

ANTENNA COUPLER

Antenna Couplers

TX and RX coupler

Loss Compensation

0 to 20 dB

TX/RX DIRECT CONNECTION PORTS

Impedance

50 Ω

SWR

1.3:1 maximum

Connector

TNC x 2 (single TX/RX channel)

RECEIVER

RF Input Frequency

Range

4.10 to 4.50 GHz

FMCW/CDF FMCW

Frequency Measurement

Range

4.10 to 4.50 GHz

Accuracy

±5 MHz

RF TX Power Input Tracking

Range

10 mW (+10 dBm) to 4 W (+36 dBm)

RF TX Power Measurement

Range

1 mW (0 dBm) to 4 W (+36 dBm)

Accuracy

±1 dB

FM Sweep Rate Measurement

Range

0 to 500 Hz

Accuracy

±1 Hz

FM Deviation

Range

0 to 200 MHz

PULSE

Frequency Measurement

Range

4.10 to 4.50 GHz

Accuracy

±20 MHz

HRRA TX Power Measurement

Range

1 W to 300 W peak

TX Pulse Width Measurement

Range

20 ns to 1 us

TX Pulse PRF Measurement

Range

0 to 20 KHz

GENERATOR

Linear Altitude Simulation

Range

-20 to at least 50,000 ft.

Resolution

1 ft. Increments

Accuracy

±1.5 ft. or 2% RMS (whichever is greater)

Linear Altitude Rate

Range

1 to 10,000 fpm

Resolution

1 ft. increments

Test Cable (Automatic Compensation)

Test Cable length

1 to 100 ft.

Test Cable Loss

up to 5 dB

AID (Direct Connect)

Fixed Selectable

20, 40, 57 or 80 ft.

User Entered

0 to 100 ft.

Offset (Coupler Connect)

0 to 100 ft.

RF Level

Manual Mode

Range

0 to –90 dBm

Accuracy

±1 dB

Auto Mode

TX Power – Height path loss- Scattering loss- Offset

RF Level Offset (auto mode)

0 to 10 dB

RF Path Loss Simulation

0 to 50,000 ft.

Frequency Stability

±1 ppm

EVIRONMENTAL

Test Set Certifications

Operational Temperature

-20° ≤ T ≤ 55°C

Storage Temperature

-30° ≤ T ≤ 71°C

Operational Humidity

MIL-PRF-28800F Class 2

Storage Humidity

MIL-PRF-28800F Class 2

Altitude

≤10,000 meters

Vibration Limits

MIL-PRF-28800F Class 2

Shock, Functional

MIL-PRF-28800F Class 2

Transit Drop

MIL-PRF-28800F Class 2

Drip Proof

MIL-PRF-28800F Class 2

Dust

MIL-PRF-28800F Class 2

Salt

MIL-PRF-28800F Class 2

Explosive Atmosphere

MIL-STD-810F Method 511.4, Procedure 1

Safety Compliance

UL-61010:2001

CSA 22.2 No 1010.1

WEEE

ROHS

EMC

Emissions

MIL-PRF28800F Class 2

EN 61326:1998 Class A

EN 61000-3-2

EN 61000-3-3

Immunity

MIL-PRF28800F Class 2

EN 61326:1998 Class A

External AC-DC Converter Certifications

Safety Compliance

UL 1950 DS

CSA 22.2 No. 234

VDE EN 60 950

EMI/RFI Compliance

FCC Docket 20780 Curve "B"

EMC EN 61326

Transit Case Certifications

Drop Test

FED-STD-101C Method 5007.1

Paragraph 6.3, Procedure A, Level A

Falling Dart Impact

ATA 300 Category I

Vibration, Loose Cargo

FED-STD-101C Method 5019

Vibration, Sweep

ATA 300 Category I

Simulated Rainfall

MIL-STD-810F Method 506.4

Procedure II of 4.1.2

FED-STD-101C Method 5009.1 Sec 6.7.1

Immersion

MIL-STD-810F Method 512.4

ENVIRONMENTAL (SUPPLIED EXTERNAL AC TO DC CONVERTER)

Use

Indoors

Altitude

≤10,000 meters

Operating Temperature

5° to 40°C

Storage Temperature

-20° to 71°C

PHYSICAL CHARACTERISTICS

DIMENSIONS

Height

10.63 inches (27.0 cm)

Width

13.97 inches (35.5 cm)

Depth

3.425 inches (8.7 cm)

Weight (Test set only)

<10 lbs. (4.5 kg)

VERSIONS AND ACCESSORIES

Ordering Number	Description
87340	ALT-8000 Radio Altimeter Test Set

Standard Accessories

Transit case (qty 2)

AC-DC converter

Antenna coupler (qty 2)

Antenna pole (qty 2)

Low loss RF coax cable 20 ft. (qty 2)

TNC-TNC adapter

1 ft. jumper coax

Optional Accessories

87717 Low loss RF coax cable 100 ft. (qty 2)

87040 External battery charger

86196 Spare battery pack

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AEROFLEX
A passion for performance.

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Our passion for performance is defined by three attributes represented by these three icons: solution-minded, performance-driven and customer-focused.

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