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 analog CDF types
- Tests pulse radio altimeters (non-pulse compression types). *For military applications, refer to the ALT-8015
- 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
- Programmable multi-leg climb/descend profiles
- Large color touch-screen display with simple user interface
- Remote control interface (Ethernet)
- Lightweight and compact <10 lbs. (4.5 kg)
- Battery 4 hours plus duration
- Software upgradeable

The ALT-8000 Radio Altimeter Flightline Test Set provides an easily configurable RF-based altitude simulation to quickly test an installation, or direct connect to the Line Replaceable Unit (LRU) for additional troubleshooting capability. A large color touchscreen displays parametric measurements and allows for detailed profiles to be set up to emulate actual airborne conditions.

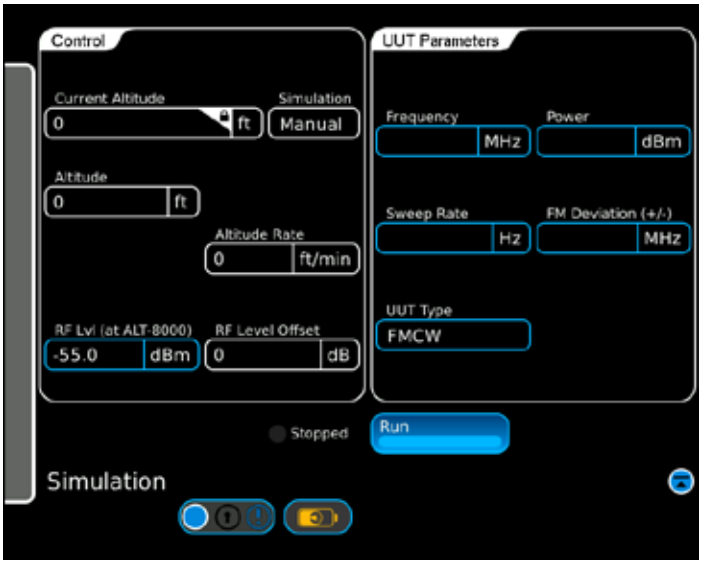
General

The graphical user interface provides various screens for control of the test set and display of parametric measurements including: TX power, TX frequency (center), sweep rate, FM deviation, TX pulse width, and PRF (pulse systems).

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.

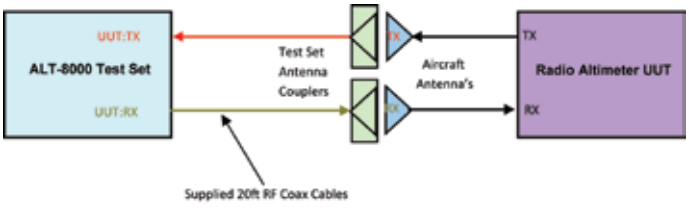


Profiles

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.

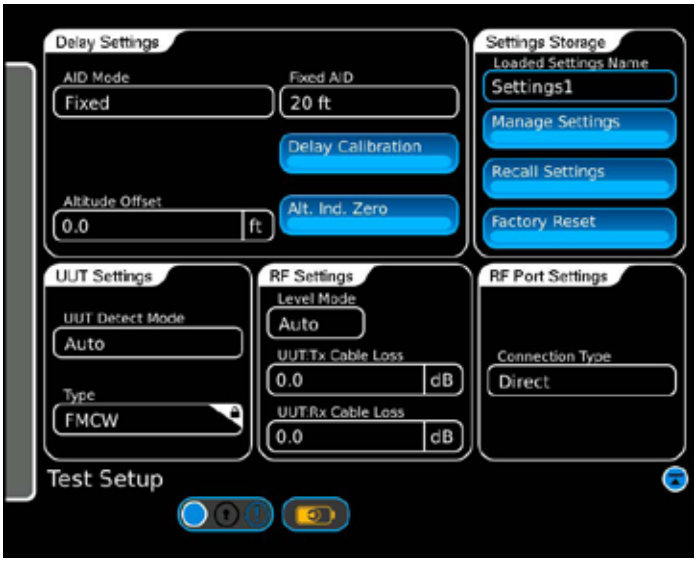
RF Coupling

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.



Test Setup

The test setup page 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, Antenna Coupler Loss and Altitude Offset.



GENERAL SPECIFICATIONS

USER INTERFACE

Display	12" color LCD, sunlight readable w/ back light.
Controls	Touch-screen
Antenna Couplers	TX and RX
Coupler Loss Compensation	0 to 19.9 dB

TX/RX DIRECT CONNECTION PORTS

Impedance	50 Ω
SWR	
TX	2.5:1
RX	3:1
Connector	TNC x 2 (single TX/RX channel)

RECEIVER

RF Input Frequency

Range	4.20 to 4.40 GHz (ITAR Limited)

FMCW/CDF FMCW

Frequency Measurement	
Range	4.20 to 4.40 GHz (ITAR Limited)
Accuracy	±5 MHz
RF TX Power Input Tracking	
Range	10 mW (+10 dBm) to 2 W (+33 dBm)
RF TX Power Measurement	
Range	4 mW (+6 dBm) to 2 W (+33 dBm)
Accuracy	±2 dB
FM Sweep Rate Measurement	
Range	50 to 400 Hz
Accuracy	±5 Hz
FM Deviation	
Range	20 to 100 MHz

Pulse

Frequency Measurement	
Range	4.20 to 4.40 GHz (ITAR Limited)
Accuracy	±10 MHz
Power Measurement	
Range	1 W (+30 dBm) to 300 W (+54 dBm) peak
Accuracy	±2 dB
TX Pulse Width Measurement	
Range	20 ns to 400 ns
Accuracy	±10ns
TX Pulse PRF Measurement	
Range	0 to 30 KHz
Accuracy	±5%

GENERATOR

Linear Altitude Simulation

Range FMCW/CDF	-20 to 5,500 ft.
Range Pulse	50 to 5,500 ft.*

* Note: lower altitude limit determined by connecting RF coax cable length

Resolution	1 ft Increments
Accuracy	±1.5ft 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	0 to 9.9 dB

AID (direct connect)

Fixed Selectable	0, 20, 40, 57 or 80 ft.
User Entered	0 to 99 ft.

Altitude Offset

-25 to 100 ft.

RF Level

Manual Mode (FM/CW)	
Range	-84 to +9 dBm (varies with cable loss)
Accuracy	±4 dB
Manual Mode (Pulse)	
Range	-76 to +17 dBm
Accuracy	±4 dB
Auto Mode	TX Power – Height Path Loss-Scattering Loss- Offset
RF Level Offset (auto)	-20 to +20 dB

RF Path Loss Simulation	0 to 5,500 ft.
Frequency Stability	±1 ppm

ENVIRONMENTAL

Operational Temperature	-20° ≤ T ≤ 55°C
Storage Temperature	-30° ≤ T ≤ 71°C
Altitude	≤10,000

Test Set Certifications

Operational Humidity	MIL-PRF-28800F	Class 2
Storage Humidity	MIL-PRF-28800F	Class 2
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*

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

Order Number	***Description***
87340	ALT-8000 Radio Altimeter Test Set NSN: 6625-01-610-3549

Standard Accessories

88494	Transit case
67374	Power supply
88590	Antenna coupler (qty 2)
	Antenna pole assembly (qty 2)
38353	TNC-TNC adapter
62401	Cable, TNC-TNC, 12" (Loop Back)
64020	Power cord, European
62302	Power cord, U.S
88511	Coax, RG400, TNC-TNC, yellow 20'
89527	Coax, RG400, TNC-TNC, red 20'
88036	Getting Started Manual
88035	Operation Manual (CD)

Optional Accessories

88500	Low loss RF coax cable 100 ft. (qty 2) w/ soft-side case
87040	External battery charger
86196	Spare battery pack
89022	Maintenance Manual CD
91253	Coax RG400 TNC-TNC yellow 4'
91255	Coax RG400 TNC-TNC red 4'

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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.

Part No. 46891/370, Issue 9, 07/13