

Avionics

ALT-8015

FMCW/Military Pulse Radio Altimeter Flightline Test Set

AEROFLEX
A passion for performance.



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

- Tests military pulse radio altimeters: AN/APN-171(V), AN/APN-194(V) and AN/APN-209(V), including LPI variants
- Tests FMCW radio altimeters including CDF types
- Fast detector for tracking LPI radio altimeters with TX power management
- Direct-connect to UUT transmit/receive port 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-8015 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.



For the very latest specifications visit www.aeroflex.com

General

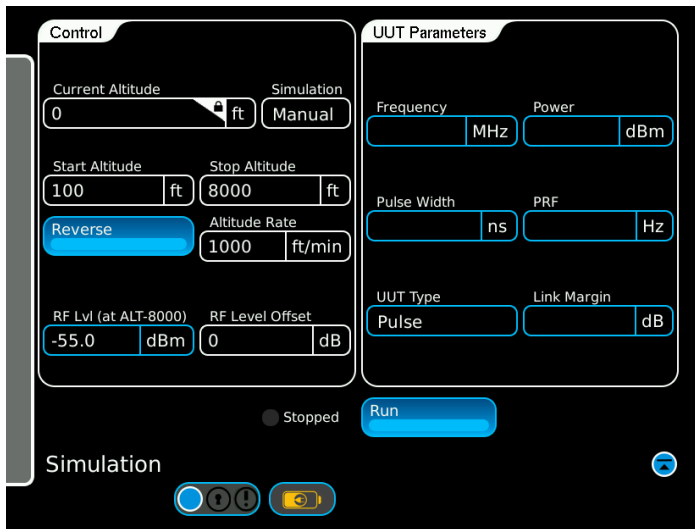
The graphical user interface provides various screens for control of the test set and display of parametric measurements including.. TX power, TX frequency (center), sweep rate, TX pulse width, PRF, and link margin (pulse systems).

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.

For the AN/APN-209(V) LPI variant radio altimeters, a different process is utilized. When running static altitude simulations, the link margin parameter provides a measure of receiver performance.

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



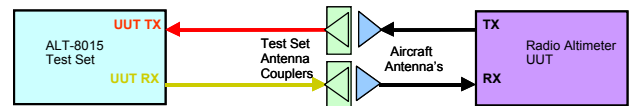
Profiles

Profiles are used to control dynamic altitude simulations. The Profile page 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.



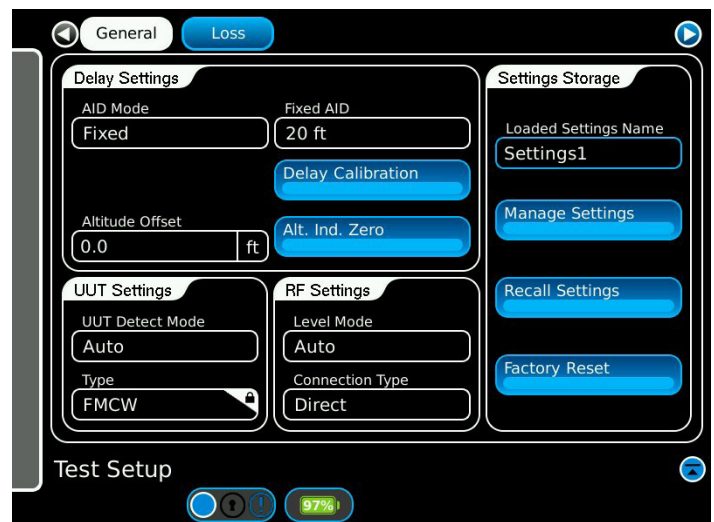
RF Coupling

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	1.5:1
Connector	TNC x 2 (single TX/RX channel)

RECEIVER

RF Input Frequency	
Range	4.20 to 4.40 GHz
FMCW/CDF FMCW	
Frequency Measurement	
Range	4.20 to 4.40 GHz
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
Accuracy	± 5 MHz

Pulse

Frequency Measurement	
Range	4.20 to 4.40 GHz
Accuracy	± 10 MHz
TX Power Measurement	
Range	1 mW (0 dBm) to 300 W (+54 dBm) peak
Accuracy >50 ns	± 2 dB
Accuracy ≤ 50 ns	± 3 dB
TX Pulse Width Measurement	
Range	20 ns to 400 ns
Accuracy	± 10 ns
TX Pulse PRF Measurement	
Range	0 to 30 KHz
Accuracy	$\pm 5\%$

GENERATOR

Linear Altitude Simulation

Range FMCW/CDF	-20 to 8,000 ft
Range Pulse	50 to 8,000 ft *
* Note: lower altitude limit determined by connecting RF coax cable length	
Resolution	1 ft Increments

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

Linear Altitude Rate:

Range	1 to 120,000 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

Offset

-25 to 100 ft

RF Level

Manual Mode (FM/CW)	
Range	+9 to -84 dBm (varies with cable loss)
Accuracy	± 4 dB
Manual Mode (Pulse)	
Range	+17 to -76 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 8,000 ft

Frequency Stability ± 1 ppm

ENVIRONMENTAL

Test Set Certifications

Operational Temperature	-20° \leq T \leq 55° C
Storage Temperature	-30° \leq T \leq 71° C
Operational Humidity	MIL-PRF-28800F Class 2
Storage Humidity	MIL-PRF-28800F Class 2
Altitude	$\leq 10,000$ 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

Order Number	Description
92923	ALT-8015 Radio Altimeter Test Set
Standard Accessories	
88494	Transit case
67374	Power supply
88590	Antenna coupler (qty 2)
	Antenna pole assembly (qty 2)
112036	Attenuator, 20dB (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'
91253	Coax, RG400, TNC-TNC, yellow 4'
91255	Coax, RG400, TNC-TNC, red 4'
92955	Getting Started Manual
92956	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
92980	Maintenance Manual (CD)

EXPORT CONTROL:

This product is controlled for export under the International Traffic in Arms Regulations (ITAR). A license from the U.S. Department of State is required prior to the export of this product from the United States.

EXPORT WARNING:

Aeroflex's military products are controlled for export under the International Traffic in Arms Regulations (ITAR) and may not be sold or proposed or offered for sale to certain countries including: Belarus, Burma, China, Cuba, Haiti, Iran, Liberia, Libya, North Korea, Somalia, Syria, Sudan, and Vietnam. See ITAR 126.1 for complete information.

FINLAND

Tel: [+358] (9) 2709 5541
Fax: [+358] (9) 804 2441

FRANCE

Tel: [+33] 1 60 79 96 00
Fax: [+33] 1 60 77 69 22

GERMANY

Tel: [+49] 8131 2926-0
Fax: [+49] 8131 2926-130

INDIA

Tel: [+91] 80 5115 4501
Fax: [+91] 80 5115 4502

KOREA

Tel: [+82] (2) 3424 2719
Fax: [+82] (2) 3424 8620

SCANDINAVIA

Tel: [+45] 9614 0045
Fax: [+45] 9614 0047

SPAIN

Tel: [+34] (91) 640 11 34
Fax: [+34] (91) 640 06 40

UK Cambridge

Tel: [+44] (0) 1763 262277
Fax: [+44] (0) 1763 285353

UK Stevenage

Tel: [+44] (0) 1438 742200
Fax: [+44] (0) 1438 727601
Freephone: 0800 282388

USA Wichita

Tel: [+1] (316) 522 4981
Fax: [+1] (316) 522 1360
Toll Free: 800 835 2352

USA Kansas City

Tel: [+1] (913) 693 1700
Fax: [+1] (913) 324 3103



As we are always seeking to improve our products, the information in this document gives only a general indication of the product capacity, performance and suitability, none of which shall form part of any contract. We reserve the right to make design changes without notice. All trademarks are acknowledged. Parent company Aeroflex, Inc. ©Aeroflex 2013.

www.aeroflex.com

info-test@eroflex.com



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