Avionics

Avionics Test Studio

Avionics Test Studio (ATS) is a collection of software defined PXI instruments designed to aid avionics facilities with testing and troubleshooting of avionics electronic units and modules.

- Available Functions: ADF Generator, ILS Generator, VOR Generator, VHF Comm Generator including SELCAL, VDB Generator and MKR Generator.
- Applications: This collection of software tools can be used in product development, prototype, certification, bench and factory ATE test systems, troubleshooting and service.
- Analyzer package currently in development.

Avionics Test Studio can be used both as a bench top troubleshooting tool and within an ATE environment. All signal parameters can be controlled from the graphical user interface (GUI) as software defined instruments or from your choice of programming language as DLL calls.

Each GUI and DLL comes with its own help file. The DLL help file includes example code on how to use the DLL in an ATE environment. The GUI help file shows how to use the GUI software defined instrument.

Features:

- Utilizes the Aeroflex 3000 Series PXI cards
- Tests and analyzes traditional NAV/COMM functions as well as the latest airborne datalink protocols:
  - VHF Datalink Mode 2 (ref. ARINC Specification 631-4)
  - VHF Datalink Mode 3 (ref. RTCA DO-271C)
- ANSI C DLL Drivers that can be called from any modern test environment including C#, Microsoft VisualStudio and National Instruments LabWindows/CVI
- Comprehensive help files
- Level accuracy ±0.3 dB typically CW
- Low phase noise typically -143 dBc/Hz at 20 kHz offset
- Software drivers fully compatible with Aeroflex NAV2000R, including Collins 479S-6A GPIB command set

COMMON RF PXI CHARACTERISTICS:

RF OUTPUT: (AS PER 3025C SIGNAL GENERATOR SPECIFICATIONS)

ADF SPECIFIC DATA

(Subject to change, depending on PXI Generator card selection)

MODULATION

Modulation Tones

Frequency	*Adjustable from 10 Hz to 18000 Hz, Default 1020 Hz*
Resolution	*1 Hz*

Accuracy	*±0.01%*
Distortion	*<0.40% THD*

Amplitude Modulation

Range (per tone)	*Total % MOD not to exceed 99%*
1020 Hz IDENT	*0-99%, Default 40%*
Overall accuracy	*±2% of setting for 5% to 90% AM*
Tone distortion	*0.5% max*

MKR SPECIFIC DATA:

MODULATION

Modulation Tones

Frequency	*400, 1300, 3000 Hz (adjustable)*
Tone Resolution	*1 Hz*

ILS SPECIFIC DATA

MODULATION

Modulation Tones

Frequencies	*90 Hz, adjustable from 72 Hz to 108 Hz*
	150 Hz, adjustable from 120 Hz to 180 Hz
	1020 Hz ident, adjustable from 10 Hz to 18000 Hz
Resolution	*1 Hz*
Accuracy	*±0.01%*
Distortion	*<0.40% THD*

90/150 Hz Phase

Range	*Adjustable from 0.0 to 359.9°*
Resolution	*0.1°*

Amplitude Modulation

Range (per tone)	*Total % mod not to exceed 99%*
1020 Hz IDENT	*0-99%, Default 20%*
90 Hz	*0-99%, Default 20%*
150 Hz	*0-99%, Default 20%*
Overall accuracy	*±2% of setting for 5% to 90% AM*
Tone distortion	*0.5% maximum*

DDM

Default	*0.000 DDM*
Variable range	*0.400 (Localizer mode)*
	0.800 (Glideslope mode)
Resolution	*0.0001 DDM*
Total system error	
Localizer	*±0.001 DDM from 0.000 to 0.045 DDM*
	±2% from 0.045 to 0.200 DDM
Glideslope	*±0.001 DDM from 0.000 to 0.045 DDM*
	±2% from 0.045 to 0.400 DDM

VOR SPECIFIC DATA

MODULATION

Modulation Tones

Frequencies	*30 Hz reference, adjustable from 20 Hz to 40 Hz*
	30 Hz variable, adjustable from 20 Hz to 40 Hz
	9960 Hz, adjustable from 9000 Hz to 11000 Hz
	1020 Hz ident, adjustable from 10 Hz to 18000 Hz
Resolution	*1 Hz*
Accuracy	*±0.01%*
Distortion	*<0.40% THD*
9960 Hz FM deviation:	*240 to 540 Hz*
Radial range	*000.00 to 359.99 degrees*
Radial accuracy	*±0.05°*

Amplitude Modulation

Range (per tone)	*Total % mod not to exceed 99%*
1020 Hz IDENT	*0-99%, Default 30%*
30 Hz variable	*0-99%, Default 30%*
9960 Hz	*0-99%, Default 30%*
Overall accuracy	*±2% of setting for 5% to 90% AM*
Tone distortion	*0.5% max*

IDENT SPECIFIC MODE (ADF, ILS, AND VOR)

Ident Code

Range	*A-Z, 0-9*
Length	*1 to 5 characters*
Rate	*1 to 65 sec.*
Rate resolution	*1 sec.*

Dot Time

Range	*Adjustable from 50 to 250 ms, Default 150 ms*
Resolution	*1 ms*

Dash Time

Range	*Adjustable from 150 to 750 ms, Default 450 ms*
Resolution	*1 ms*

Dot/Dash Spacing

Range	*Adjustable from 50 to 250 ms, Default 150 ms*
Resolution	*1 ms*

Character Spacing

Range	*Adjustable from 150 to 750 ms, Default 450 ms*
Resolution	*1 ms*

VHF GENERATOR SPECIFIC DATA

GENERATOR MODES

Single-File Mode

File play mode	*Continuous or from 1 - 4095 times*

Play-List Mode

List play mode	*Continuous or from 1 - 4095 times*
List entries	*1 to 127*

Plays per entry	*1 to 4095*

AM Modulation

Frequency	*Adjustable from 10 Hz to 50000 Hz, Default 1000 Hz*
Modulation %	*0-99%, Default 30%*
Resolution	*1 Hz*
Freq. accuracy	*±0.005%*
Overall accuracy	*±2% of setting for 5% to 90% AM*
Distortion	*<0.40% THD*

VDB GENERATOR SPECIFIC DATA

MODES

Single-File Mode

File play mode	*Continuous or from 1 - 4095 times*

Play-List Mode

List play mode	*Continuous or from 1 - 4095 times*
List entries	*1 to 127*
Plays per entry	*1 to 4095*

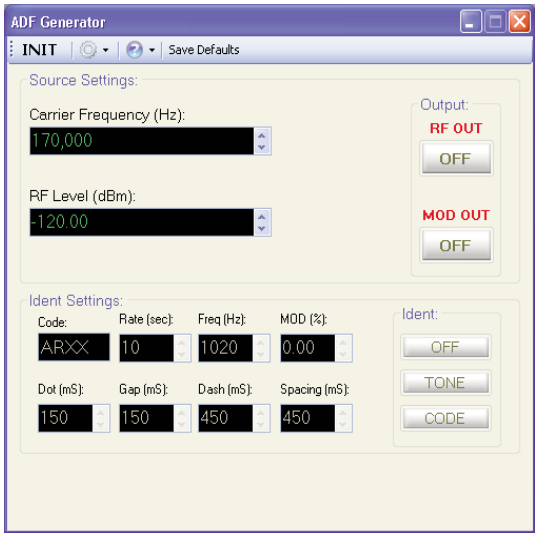
VDB Burst Generation

Input data	*From a file or array*
Filter ALPHA	*0.0 to 1.0*
Oversample factor	*2 to 16*
RF ramp filter	*Adjustable length Cosine response*

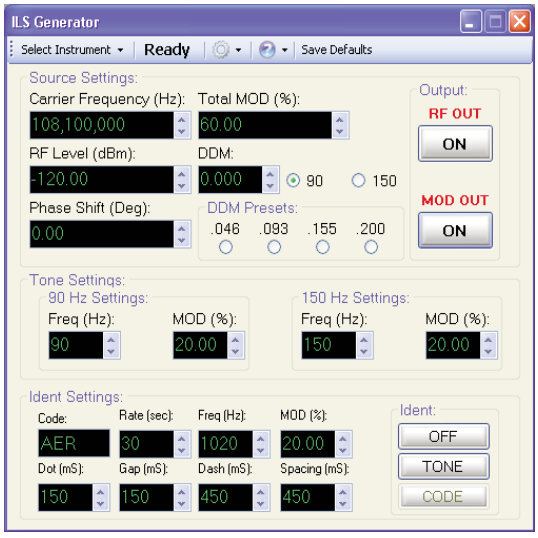
PXI CARD SELECTION

PXI P/N:	*3025*	*3025C*
H/W Order Number:	*ATEP-3025*	*ATEP-3025C*
ADF Generator		*X*
MKR Generator		*X*
ILS Generator	*X*	*X*
VOR Generator	*X*	*X*
VHF Comm Generator	*X*	*X*
VDB Generator	*X*	*X*

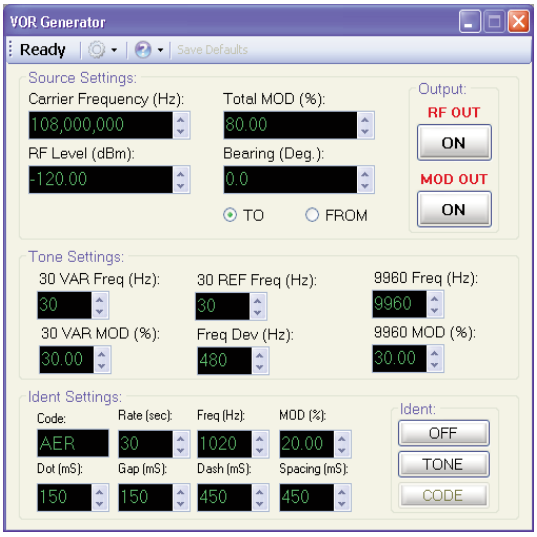
Avionics Test Studio
Software Defined Instruments



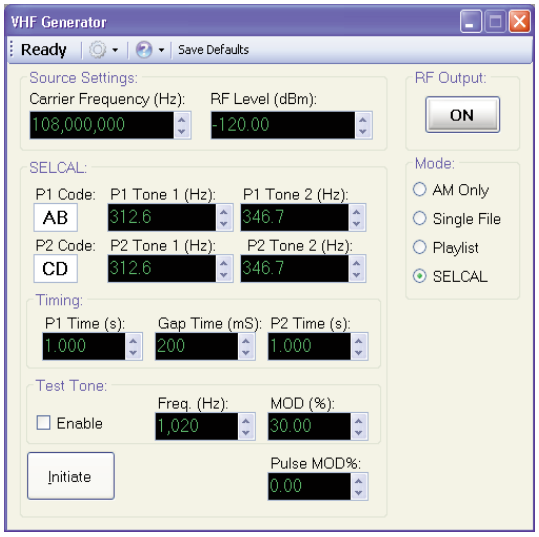
ADF Signal Generator



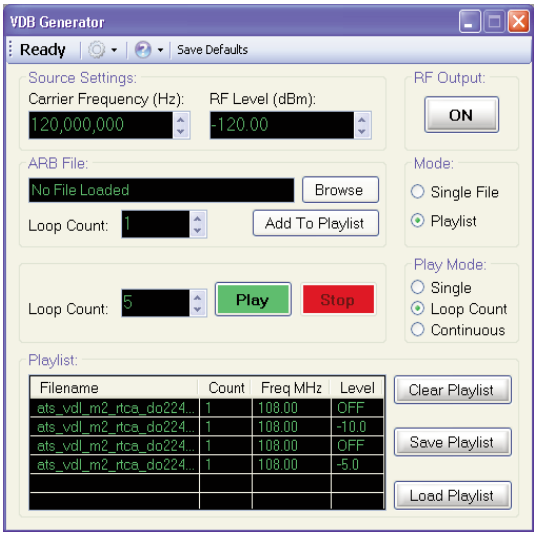
ILS Signal Generator



VOR Signal Generator



VHF Signal Generator



VHF Data Broadcast Signal Generator

VERSIONS AND OPTIONS

When ordering, please include the Order Number listed below:

Ordering Numbers	Versions
	Software
ATES-01	ADF Generator
ATES-02	ILS Generator
ATES-03	VOR Generator
ATES-05	VHF Comm Generator
ATES-08	VHF Data Broadcast Generator
ATES-10	MKR Generator
ATES-NAV	Avionics Test Studio NAV/COMM Signal Generator Package

Note: Additional software packages currently in development for DME Analyzer, VHF Comm Analyzer, LRA Analyzer, HF Datalink and DME Generator.

	Hardware
ATEP-3020A	Digital RF Signal Generator, 250 MHz to 2.7 GHz
ATEP-3025	PXI Digital RF Signal Generator, 100 MHz to 6 GHz
ATEP-3025C	PXI Digital RF Signal Generator, extended freq, 100 kHz to 6 GHz
ATEP-3030C	PXI Wideband RF Digitizer, 250 kHz to 3 GHz
ATEP-3035	PXI Wideband RF Digitizer, 330 MHz to 6 GHz
ATEP-3035C	PXI Wideband RF Digitizer, extended freq, 250 kHz to 6 GHz
ATEP-3011	PXI RF Synthesizer

Note: One ATEP-3011 PXI RF Synthesizer Card is required for each PXI signal generator or digitizer included in a system.

CHINA Beijing
Tel: [+86] (10) 6539 1166
Fax: [+86] (10) 6539 1778

CHINA Shanghai
Tel: [+86] (21) 5109 5128
Fax: [+86] (21) 5150 6112

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

HONG KONG
Tel: [+852] 2832 7988
Fax: [+852] 2834 5364

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

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A passion for performance.

www.aeroflex.com

info-test@aeroflex.com

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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