VIAVI Solutions

#### Brochure

# VIAVI ADS-B INTEGRITY Application

The VIAVI software application is a time-saving tool used for performance testing of ADS-B Out systems. The application is ideal to support Supplemental Type Certification (STC) and post approval testing for ADS-B Out equipment installations and R&D requirements. A complete detailed ADS-B Out performance report in FAA format can be generated showing Pass/Fail criteria, along with detailed analysis of system latency.

#### Accuracy and Integrity Performance Test (requires IFR6000 or IFR6015)

- Parameter checks per 20–165B (91.227) and FAA ADS-B Operation Performance Report
- Mode S address validation (from GICB to ADS-B and against known problem values)
- ADS-B Out performance requirements for SIL, SDA, NIC/ NUC, NACp, NACv
- Latitude/Longitude positional accuracy per bounds of NACp
- Emitter category reporting

# Positional Accuracy Test (requires GPSG-1000)

- Log of latitude and longitude positional data for evaluation of accuracy and integrity over a simulated flight path
- Exact simulated time and position information logged
- ADS-B squitter data received and logged
- Squitter positional data compared against coordinated simulation
- Logging and evaluation of SIL, SDA, NIC/NUC, NACp, NACv values in static or dynamic motion scenarios
- Logging of N/S, E/W velocity data with reasonableness testing per bounds of NACv

### **Benefits**

- ADS-B equipment installation verification
- Complete AC 20–165B fast and convenient reporting to identify installation issues
- STC support
- Eliminate post STC operational flights
- Coupled testing in the hangar or on the flight line eliminates:
  - Open sky requirements
  - GPS repeater
  - Weather issues
  - Interference with ATC operations
- Comprehensive solution for accurate system latency measurements
- Ability to measure latency and associated errors over a variety of simulated velocities and positions
- Save time and money

#### **Applications**

- Performance verification of:
  - ADS-B Transponders
  - UAT Transceivers
  - GPS Receivers

# **Test Setup and Results**

1000 🥚 No GPS Position Fix	Test Stopped     Start Data Acquisition					
Disconnected	Test Time Elapsed: 00:00:00 🔽 Auto Configure Ports at S					
Address NMEA Comm Setup	IFR-60XX V					
200.77 RS-232 Port	Instrument Status: Disconnected					
1	Communication Setup Port Setup					
	RS-232 Port Instrument Port					
on Setup	Baud Rate					
Longitude	115200					
94" 42' 50.0580" W						
Bearing (deg)	۵					
45.0						
tting						

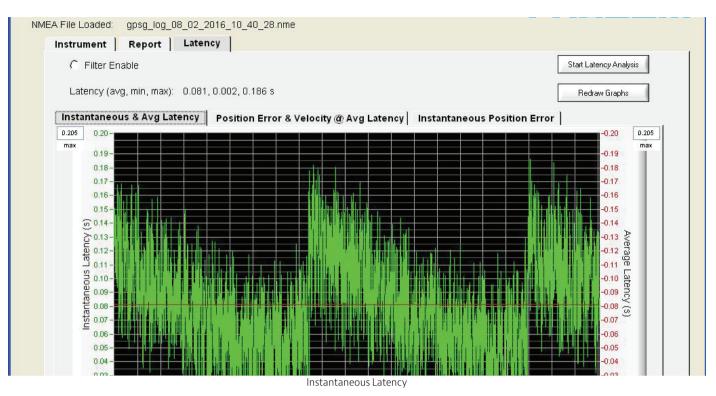
Instrument Setup

mmary   [											Start Compliance Analysis
Page 2 <mark>Aissing</mark>	Elem	ige 3 ents	Page	4							<b>.</b>
Category	NAC	ip   t	IACv	Vel	Flig	nt Id	Mode 3/A	Emit Cat	Baro Alt	Geo Alt	
% Fail	0.00	% 0	.00%	0.00%	0.0	0%	0.00%	0.00%	0.00%	0.00%	
Max dT	00:00	00 00	0:00:00	00:00:00	00:0	0:00	00:00:00	00:00:00	00:00:00	00:00:00	
MCF	0		0	0	(	0	0	0	0	0	
% Fail Max dT MCF	100.00% 00:17:17 2045	0.00% 00:00:00 0	0.00%	0.00%	0.009 00:00: 0	_					-
		C	ntegory	NIC	NACp	NAC	v SIL	SDA			
			Avg	0.0	11.0	2.0	3.0	2.0			
			Min	0	11	2	3	2			
			Max	0	11	2	3	2			
(inemat	tics										
-	Baro		aro Alt Delta	Geo Alt	Geo		Velocity	Position Delta	ſ		
					De	πa i	and the second sec	Derta			

Data analysis screen indentifies performance failures

## Latency

Plots of instantaneous and average system latency, velocity at average latency, and instantaneous positional error based on linear track are available.



## **PC Minimum Requirements**

- Windows<sup>®</sup> XP or Windows<sup>®</sup> 7 32-bit (or later)
- CPU: Intel<sup>®</sup> Core 2 Duo P8400 2.26 GHz or equivalent Free Disk Space: 1 GB
- Monitor: XGA (1024 x 768) or higher

• RAM: 2 GB

# **Required Equipment for ADS-B Installation/ Verification and Performance Report**

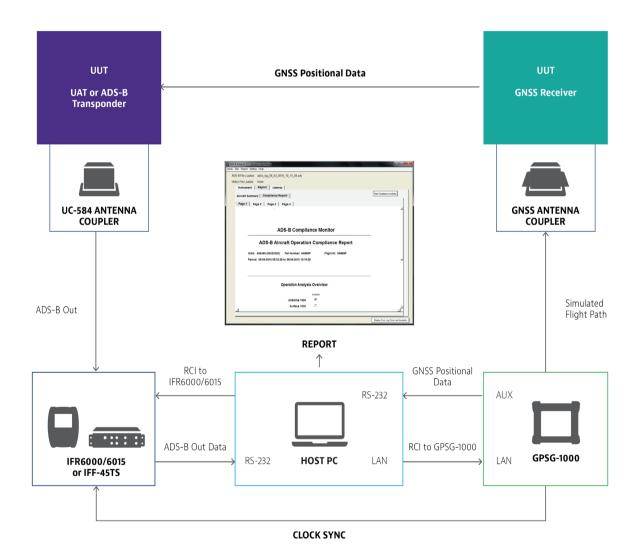
Part No.	Description					
72422 <b>or</b>	IFR6000 Mode A/C/S Transponder/DME Test Set					
72424	IFR6015 Military version including E-TCAS and TACAN					
83411	6000OPT3 ADS-B 1090 MHz option					
112795	6000OPT5 UAT 978 MHz option (if applicable)					
140609*	6000Opt6 ADS-B Integrity Test option*					
112350	UC-584 Coupler Kit, Single Antenna (recommended)					
91136	Coupler Kit, Dual Antenna GPS Systems (if required)					
91137	Coupler Kit, Triple Antenna GPS Systems (if required)					
87339	GPSG-1000 Twelve Satellite GPS Simulator					
140607	GPSGOPT3 ADS-B Integrity Test option					
Note: the fo	ollowing military kits are available					
141112	Includes P/N's 72424, 83411, 140609, 87339, 140607, 112350					
141111	Same as 141112 plus controller P/N 92137					
1-1-1						

\*This option includes the ADS-B Integrity app

## **Required Equipment for R&D and Factory Test**

Part No.	Description
72438 <b>or</b>	IFF-45TS Mode A/C/S Transponder/DME Test Set
72439	IFF-45TS-A Military version including E-TCAS and TACAN
91684	45TSOPT5 ADS-B Out option
140608*	45TSOPT10 ADS-B Integrity Test option*
87339	GPSG-1000 Twelve Satellite GPS Simulator
140607	GPSGOPT3 ADS-B Integrity Test option

\*This option includes the ADS-B Integrity app



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