Satellite Test

Keysight Technologies and AAI Corporation

Accurate, reliable and traceable testing of satellite payloads and panels

Testing is a major cost when manufacturing and introducing new satellite payload and panel products. Repeatable, accurate and traceable test data is critical through multiple assembly stages. Test results at the sub-assembly level must correlate with those at the next assembly level so problems can be identified quickly, and costly additional calibration and testing prevented.

AAI's WaveCore Satellite Panel and Payload Test System (WaveCore PTS) includes advanced instrumentation and measurement capabilities to minimize test time and ensure repeatability and test-to-test data correlation. The Satellite Panel and Payload Test System is part of AAI's WaveCore family of standard test solutions. Based on the latest commercial, off-the-shelf (COTS) instrumentation, the system is designed to provide reduced measurement uncertainty with very high levels of reliability, maintainability and support.

The WaveCore PTS features modular, scalable hardware and software allowing the system to be deployed affordably for both production and engineering applications. Users can populate a sub-system tester, satellite panel or satellite payload tester with just the instruments required for the specific test sequences. As test requirements change you can include additional instrumentation and resources.

Traceable data is ensured through AAI's software environment that utilizes industry-standard test sequencers for consistent, easy-to-access results and calibration data. By using the latest commercial test equipment, test time can be reduced by an order of magnitude or more over legacy testers. In addition the WaveCore PTS features a standard test conductor interface that is compatible with previous generation payload testers, allowing efficient and low-risk integration of AAI's next generation test systems.

- Satellite Panel and Payload Test System
- Modular and scalable
- Reduced test time with traceable data
- Standard and familiar interface
- Fast, real-time calibration cycles
- High MTBF and low MTTR





Satellite Test

The system incorporates a number of test instruments from Keysight Technologies in order to achieve its measurement capabilities and test speed. These include the Keysight N5244AS PNA-X network analyzer, E8267D PSG RF vector signal generator, N8241A 15-bit arbitrary waveform generator, N1914A power meter, E4413A-H33 power sensor and the N9030A PXA signal analyzer. The standard system supports vector-based testing up to 40 GHz with various equipment options available to support testing at different frequency ranges and for unique test requirements.

The AAI WaveCore PTS can perform a comprehensive array of panel and payload tests, including: frequency response; gain transfer; delay; out-of-band attenuation; repeater isolation; spectrum measurements; translation frequency; noise figure/noise power ratio; intermodulation; effective isotropic radiated power; amplitude modulation/phase modulation conversion; automatic level control characteristics; relative amplitude and phase; phase versus frequency; ranging and RF output power with or without modulation.

Automatic calibration and calibration verification software is included with the system, which ensures the achievement of uncertainty targets, reduces calibration cycles and enables easily correlated confidence checks in real time. The system's self-test software can verify test station setup and stability quickly and automatically.

Test source code, documentation and training are available, enabling customers to modify or add new tests for their own unique requirements. AAI also offers support plans to ensure 24 hour repair time and keep systems up and running within the available support budget.

By utilizing instrumentation from Keysight Technologies the AAI Wavecore Satellite Panel and Payload Test System ensures that you can accurately and reliably test your satellite products with fully traceable results.

System Components

Keysight Technologies

N5242AS	PNA-X network analyzer
E8267D	PSG RF vector signal generator
N8241A	Arbitrary waveform generator
N1914A	Power meter
E4413A-H33	Power sensor
N9030A	PXA signal analyzer

AAI Corporation

200050	High speed digital controller
200200	Radio frequency interface unit

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