



**AAI Corporation**  
P.O. Box 126, Hunt Valley, MD 21030

## **Specialized Electronic Warfare Instrumentation**

AAI's Advanced Architecture Phase Amplitude and Time Simulator (A<sup>2</sup>PATS) family of specialized electronic warfare (EW) instrumentation features a modular architecture, pulse-to-pulse phase coherency, and simultaneous amplitude, time and phase angle of arrival simulation capabilities, over the frequency range of 20 megahertz (MHz) to 22 gigahertz (GHz).

**The primary elements of this new family are:**

### **Synthetic Source Instrument (SSI) - PN: 40354-41110-10**

The SSI is a set of four VERSAmodule Eurocard (or VME) cards — Radio Frequency (RF) Controller, Base Band Expander, RF Up Converter and Harmonic Filter Amplifier Circuit Card Assemblies. The SSI is a fast-switching, low phase noise, truly phase-coherent RF source. Frequency, phase, amplitude and time-based modulation are digitally controlled, as are digitally derived complex modulations. Each SSI covers the RF frequency range of 20 MHz to 22 GHz in two output bands. The low band covers 20 MHz to 500 MHz and the high band covers 500 MHz to 22 GHz. Each SSI is totally independent and fully programmable for pulse width and repetition, scan and amplitude, frequency, phase and time of arrival.

### **Stimulus Cabinet - PN: 40354-41105-10**

The Stimulus Cabinet houses four identical stimulus enclosures and a distribution assembly for clock, sync and Ethernet distribution throughout the cabinet. Each stimulus enclosure is a 40-slot VME structure, capable of housing up to eight SSI phase-coherent RF synthesizers. The enclosure contains a stimulus controller, power supply, cooling fans, four-way RF output combiners for high band, four-way RF output combiners for low band, eight-way alignment combiner for high band, and eight-way alignment combiner for low band.

### **Maintenance/Alignment Cabinet - PN: 40354-41100-10**

The Maintenance/Alignment Cabinet contains two modular VME enclosures (run time simulator enclosure and maintenance enclosure), with provisions for an optional third VME enclosure (the RF measurement enclosure). Each VME enclosure is a self-contained removable assembly with its own power supply and cooling fans. The Maintenance/Alignment Cabinet also contains the master clock distribution subsystem. The master clock is a precision low phase noise reference with long-term accuracy. The clock reference is buffered and distributed to each RF source (SSI) located in the Stimulus Cabinet, to provide each SSI with an ultra-low phase noise reference. Included with the Maintenance/Alignment Cabinet are the workstation computers, which act as the human interface to the overall system.