Spectral Systems Inc. Completes Integration and Initial Testing of a Multi-Channel Wideband Digital Receiver

Dayton, Ohio – (June 25, 2003) – Spectral Systems Inc. announced today that it has completed the integration and initial testing of a wideband, multi-channel digital receiver. The Wideband Digital Receiver (WBDR) is being developed under a contract to the U.S. Government for Intelligence, Surveillance and Reconnaissance (ISR) applications. However, because of its multi-functionality, reconfigurability and small form factor, it also has a variety of other applications, such as Electronic Support Measures, Threat Warning, and RF Targeting.

The WBDR consists of a set of 6U VME modules that each digitize directly at microwave input frequencies and perform digital signal processing of a wide IF bandwidth. The WBDR module can output both pulse descriptor words (PDWs) and digital I/Q data for subsequent processing. Each WBDR module (shown below) can be configured easily into a number of different configurations to perform signal acquisition, direction finding or detailed analysis of a complex, RF and PRI agile signal environment.

The WBDR modules can be configured into either a two-channel, half-bandwidth mode or a single-channel, full-bandwidth mode. In single-channel mode, a full receiver system can be configured to operate with one channel or with up to fourteen parallel channels that can each have a different configuration.

The WBDR has been tested in single-channel, two-channel and three-channel configurations; in both half-bandwidth and full-bandwidth modes. A three-channel WBDR test setup from earlier this month, with accompanying pulse formatter and interface card, is shown below.
Test results show that both the acquisition and direction finding modes perform very well at the full ADC clock rate. The next step in the integration and test phase is to perform full, automated characterization of the acquisition and DF modes, as well as the IQ output mode, over standard operational environment conditions. A single-channel variant of the digital receiver will IOC onboard an operational platform in the spring of 2004 to perform initial operational evaluation. The multi-channel WBDR is a subsystem in a new wideband ISR system that will be integrated and ground tested in the 3Q03 – 2Q05 timeframe and will be ready for platform IOT&E in the 3rd quarter of 2005.

Dave Sharpin, Chief Engineer of SSI said, “The successful completion of the initial round of WBDR integration and testing is a landmark event that has been made possible by the long and hard work of a diverse group of individuals, from both the government and contractor communities. The WBDR truly is a quantum leap in wideband receiver technology that will provide a precision, wideband digital capability for both ISR and EW users in platforms that range from the very large to the very small. We are currently working both internally and via customer-sponsored efforts to develop further advances and additions to the DSP algorithms and to scale the processing devices to even smaller form factors.”

About SSI

Spectral Systems, Inc. (SSI), is a leading-edge aerospace engineering and product development company located in southwestern Ohio, the birthplace of manned flight. SSI was founded in 1995 and has grown very rapidly from an engineering service provider to a developer and integrator of advanced Intelligence, Surveillance and Reconnaissance (ISR) and Electronic Warfare (EW) systems, sensors and embedded processors. SSI is a wholly owned subsidiary of Sierra Nevada Corporation (SNC), headquartered in Sparks, Nevada.

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