SMART AVIONICS TESTING

A wide acceptance of the AFDX/ARINC664P7 networking has seen it used on aircraft like the Airbus A380/A350/A400M, Boeing 787, Sukhoi SSJ 100, COMAC C919 and some helicopters including the AgustaWestland AW101/AW189/AW149 and new AW249. The success of this network for integrated Avionics has seen its take up several new projects, further embracing the technology.

This brings new challenges for in service support and avionics developers, hence testing and data loading becomes a very important subject. In order to provide portable solutions with advanced test and loading functions for AFDX/ARINC664P7 networks, AIM released its second generation of USB based smart AFDX/ARINC664P7 test and analysis devices. The device, known as a Smart Cable has the focus to offer an extremely small form factor which is portable and flexible. Optimized for low power consumption, the device requires only a single USB 2.0 Type A slot of a host computer to operate. Two RJ-45 connectors provide the link to the AFDX/ARINC664P7 redundant network and the speed is programmable at 10 or 100Mbit/s for the physical link.

Users can capture traffic with detection of physical, frame format, VL settings and redundancy violations including high-resolution time stamping of incoming frames. Tapping into a connection for capturing purposes with extremely low impact on latency is possible, as is gathering detailed statistics about received traffic. Simulation of high precision, custom frame sequences with a wide range of error injection possibilities alongside simulation of multiple End-Systems via VLs and Com/SAP ports which support automatic sampling for sampling ports, traffic shaping, fairness scheduling on Sub-VLs and redundancy management. Detection of traffic shaping and redundancy violations induced by other End-Systems is possible.

The Smart Cable device has other useful features including IRIG-B based clocks synchronization to external clock masters, Trigger I/O and General Purpose I/O.

Users can easily program the device for their specific requirements with the Application Programmer's Interface for custom applications in C or C++ or even using the Python library for writing Python applications.

Users are offered a large set of features making the device an essential companion for all AFDX/ARINC664P7 test, simulation, monitoring and data- loading applications. \\