

## Patented technology for monitoring, detecting and locating electrical faults in live systems



LiveWire Innovation is a technology company that enables system operators and equipment manufacturers to 'see' into their electrical infrastructure while in use. The ability to monitor without interrupting operations enables the detection of hazardous electrical faults, such as open and short circuits and intermittent events, like arc faults. Constant monitoring means collection of valuable data to predict and prevent outage — a form of Big Data and Predictive Analytics.



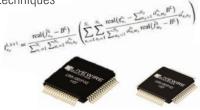
LiveWire's patented Spread Spectrum Time Domain Reflectometry or "SSTDR" is a unique technology that uses low amplitude signals, codes and innovative correlation techniques to look for impedance changes in energized cables at distances of up to 4 miles and with fault location accuracy of 98%.

- Patented firmware and software in the form of algorithms and correlation techniques
- Live means detection of hazardous and hard to see intermittent events in energized systems
- Location means quick and corrective response in complex systems
- 24/7 monitoring means collection of valuable data to predict and prevent outages
  - a practical form of Big Data and Predictive Analytics
- Broad applications in safety, security, reliability and data collection



Interest in SSTDR started with the aeronautics and rail industries, but has spread to a much wider set of markets given the growing need to monitor live systems for safety, security, reliability and the collection of data. The operational benefits of continuous monitoring with precise fault location includes increased revenue through less downtime, enhanced safety for employees and customers, reduced maintenance costs and theft prevention. For many customers, the ability to characterize their systems' base line performance and monitor for changes holds significant potential.

LiveWire's embeddable IP in the form of patented algorithms and correlation techniques



LiveWire's Board-level SSTDR Engines and Chip-Sets for OEM integration



LiveWire's SSTDR used in test and installable products



