SPECTRUM MONITORING AND MITIGATION

The digital universe is poised for a massive increase in transmitted data as swarms of smallsats join existing satellites in space, while wireless operators deploy the next generation of terrestrial and spaceborne infrastructure for 5G and the Internet of Things. L3Harris radio frequency (RF) interference monitoring and mitigation systems provide a high-performance, low-risk solution to protecting satellite and terrestrial data from harmful RF interference.

PROTECTING DATA, UNLEASHING ECONOMIC POTENTIAL

As the provider of satellite sensors and ground systems that collect, receive and process the most important data for government and commercial systems, L3Harris understands the need to ensure an uninterrupted flow of mission-critical data. Any disruption or delay can be the difference between mission success or failure, and sometimes between life and death.

However, the spectrum over which data is transmitted is a finite resource, and the demand for spectrum is skyrocketing with the rise of smallsats, 5G, and the Internet of Things. New and innovative tools are required to enable the spectrum sharing, monitoring and management needed to protect data from interference while unleashing the economic potential of both 5G and the proliferation of satellites in low Earth orbit.

ENABLING A NATIONAL PRIORITY

L3Harris’ RF interference monitoring and mitigation systems enable the efficient and effective use of spectrum vital to the success of emerging wireless technologies, the proliferation of smallsats and the protection of existing satellite data systems. The 2018 “Presidential Memorandum on Developing a Sustainable Spectrum Strategy for America’s Future” encourages additional spectrum sharing and states that “access to spectrum is a critical component of the technological capabilities that enable economic activity and protect national security.”

RF Interference Monitoring and Mitigation Systems Feature a Flexible, Software-Defined Architecture

**BENEFITS**

- Single antenna autonomously, automatically and instantly detects and classifies interference from multiple sources
- Identifies the interference source and alerts the satellite operator and wireless carrier
- Activates passive mitigation techniques
- Scalable to respond to expanded spectrum sharing and new interference sources

L3Harris prototype Radio Frequency Interference Monitoring System (RFIMS) built for the National Oceanic and Atmospheric Administration (NOAA)
L3Harris was selected by NOAA to develop an RF interference monitoring system. The single-antenna system is designed to monitor a range of signals interfering with critical NOAA weather satellite data at 17 sites, with the flexibility to scale to additional sites and adapt to evolving uses of shared spectrum.

**FEATURES**

- Electronically steerable phased-array antenna and digital beamformer for speed and accuracy
- Software-defined architecture flexible and scalable to any frequencies (L/S/C bands), number of objects, size and power requirements
- Portable, self-contained and easy to install and set up

L3Harris’ RF Solutions Build upon a Proven Heritage to Deliver a Flexible and Scalable Architecture. Our Single-Antenna Systems Feature:

- Advanced signal processing algorithms
- High availability
- Multiple layers of security

Detection and Classification of RF Interference

Detailed reports include a map showing the antenna site and direction of interference (left), and a spectrogram showing signal frequency over time (right).