

# RF Link Protection

## Solutions for RF Communication Challenges

**KRATOS** | RT LOGIC

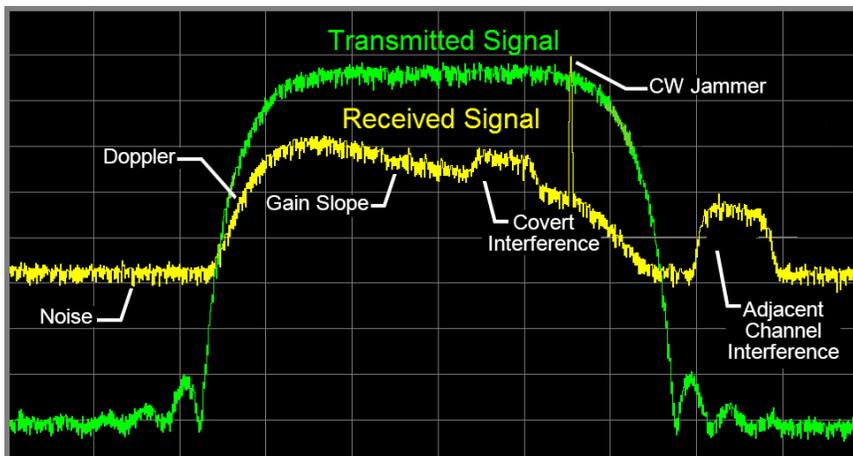


### Overview

Reliance on satellite communications (SATCOM) for critical communication links has never been higher, making the growing problem of link protection even more critical. Commercial satellite operators estimate that millions of dollars are lost in interference related events each year. Interference is a frequent problem in military operations, not just from unfriendly sources, but from inadvertent activities of friendly ones as well.

Kratos RT Logic understands the challenges of developing robust communication systems and has created a suite of products specifically designed to protect critical communication links. Radio Frequency (RF) signals rarely arrive in optimal condition; atmospheric propagation, equipment distortions, operator error, and intentional or accidental interference wreak havoc on critical links. Maintaining link performance and availability within this punishing environment requires attention at each stage of a program lifecycle, from development to deployment. Kratos RT Logic provides link protection products for use in all phases of the communications system life-cycle:

- System R&D and production test activities
- Operator field training and deployed system self-test, and
- Deployed operations



Effects of a harsh RF environment on a transmitted signal.

### Key Features

- Covers the full system life-cycle from development to deployment
- Generates realistic RF test environments in the lab or test facility
- Monitors SATCOM signal quality, with user-defined alerts
- Geolocate sources of interfering transmissions
- Create realistic RF environments for operator training

### Key Benefits

- Increased quality of service (QOS), link availability, and mission success
- Increased operator readiness and situational awareness
- Reliable communications in harshest operational environments
- SATCOM Network Services available for interference mitigation and consulting

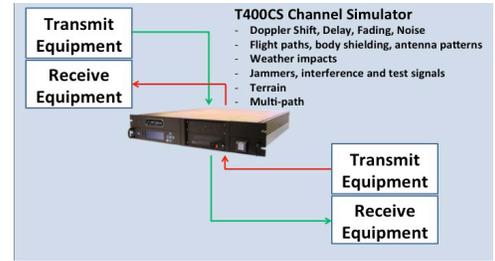
### Highlights

- Proven reactive and proactive link protection capabilities
- Deployed worldwide by satellite manufacturers and operators
- Trusted to protect civil, commercial, and military RF links

## Product Descriptions

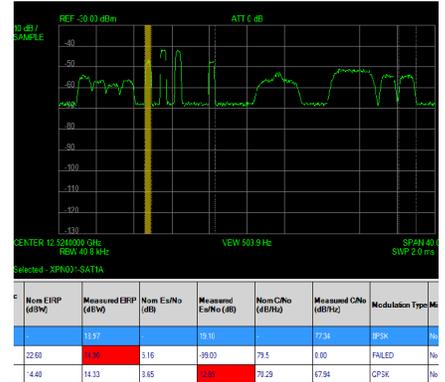
### Channel Simulator: Precision RF Signal Generation

The Kratos RT Logic Channel Simulator is used by RF communications hardware, firmware, and software designers for hardware-in-the-loop testing that precisely simulates the complex RF environments encountered on live missions. It creates physics-accurate signals with characteristics such as Doppler shift, dynamic time delay, multi-path, unintentional interference, purposeful jamming, and phase offset, allowing users to assure resilience of their modem and receiver designs against an array of natural and man made signal disruptions. The Channel Simulator is a highly capable signal and threat training instrument as well.



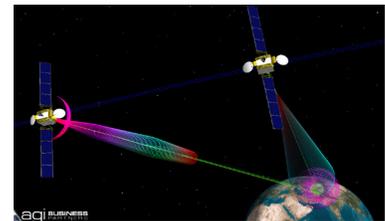
### T400SM Spectrum Monitor: Automated RF Carrier Monitoring and Interference Detection

Beyond link protection capabilities built into communications equipment, reliable monitoring is the cornerstone of link assurance during mission operations. Leveraging the industry leading Monics® Satellite Carrier Monitoring System of our sister company, SAT Corporation, the T400SM measures satellite uplink and downlink performance while performing advanced interference detection and signal analysis. The system constantly assesses SATCOM signal quality, alerting operators and logging data when detecting accidental interference, intentional jamming, or other Quality of Service degradations. Some T400SM configurations can contain built-in threat and signal training capabilities.



### satID: Signal Geolocation and GeoSim: Geolocation Testing and Training

The satID® Signal Geolocation System takes link protection to a higher level, with a fast and accurate means to geographically locate the source of accidental interference or intentional jamming on SATCOM links. When integrated with Monics, the two products provide a seamless, all-in-one solution for SATCOM interference detection and geolocation. Kratos RT Logic's new satID GeoSim Geolocation Signal Simulator blends advanced Channel Simulator technology with detailed earth station, satellite, and interference modeling. Closely integrated with Analytical Graphics, Inc.'s Systems Tool Kit® (STK) software, satID GeoSim creates the exact signals a satID system would receive during a live geolocation scenario. It connects to a satID system for in-depth training of link protection professionals and periodic satID system test to assure peak system geolocation performance.



### T400SG-SSE Satellite Signal Emulator: Satellite Data Generation

The Satellite Signal Emulator is used by developers and testers of SATCOM receivers and modems to accurately generate satellite-specific RF signals without using actual satellite assets. The system emulates complex satellite data and RF threat signals as an aid to system designers and developers as well as for acceptance testing, schoolhouse instruction, and on-site certification training. The T400SG-SSE is customizable for multiple satellite types and RF bands and includes an optional playback capability for recorded data.

