

GeoMon: Simplifying Spectrum Monitoring and Licensing Operations for Regulators



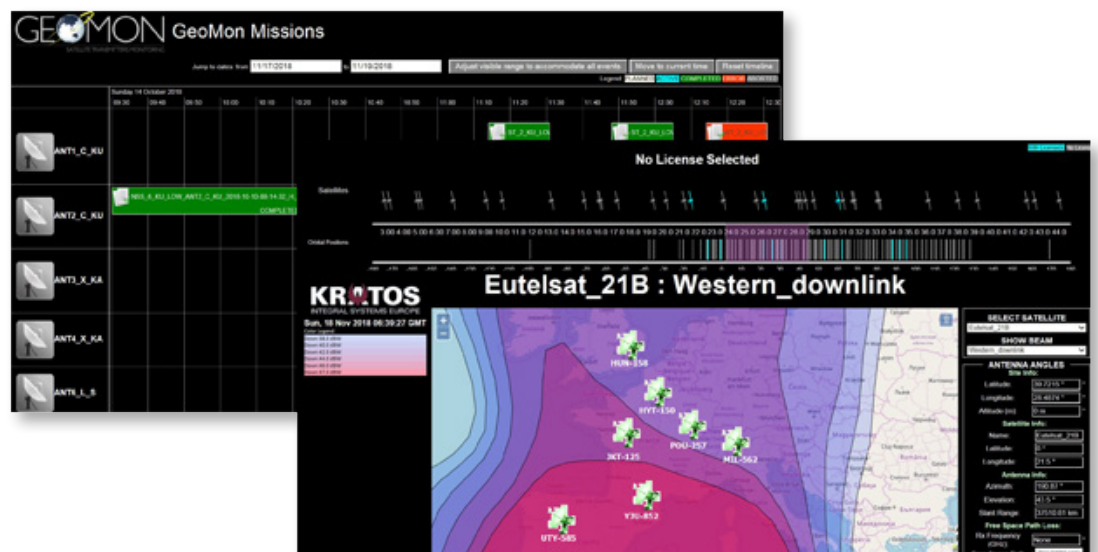
With more satellite capacity and the number of 'connected' devices growing exponentially, the RF spectrum continues to come under increasing pressure. With rapidly growing usage comes the potential for increasing signal congestion, RF interference and illegal usage.

Regulators are looking to address these threats and safeguard the RF spectrum as a natural resource by assuring reliable authorized satellite services and interference free-operations. Many regulators have been turning to GeoMon—a geographical monitoring solution specifically designed to simplify spectrum monitoring and licensing operations.

GeoMon – Easing Regulatory Operations

GeoMon enables regulators to identify authorized and unauthorized satellite communication signals, manage the satellite spectrum, and enhance cooperation with other telecommunications regulatory agencies. This enables regulators to mitigate interference, minimize illegal usage and assure a high level of QoS for its citizens.

GeoMon is an end-to-end solution with a graphical user interface and centralized database that displays satellite and ground views. With GeoMon regulators gain visibility into what is being broadcasted in their country, the source and content of transmissions and helps determine if satellite transmission licenses are valid.



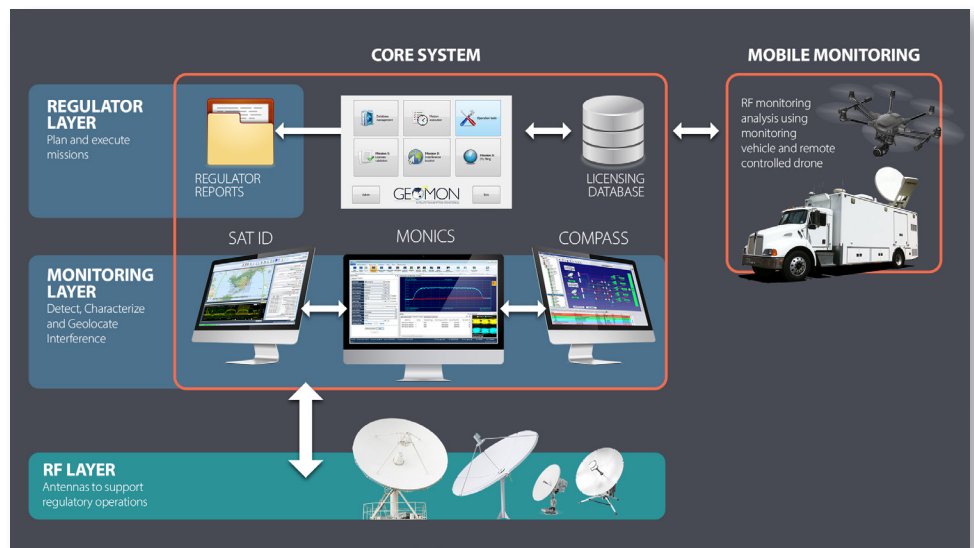
▲ *GeoMon provides regulators with situational awareness and helps to maximize satellite spectrum assets by planning antenna usage for optimal efficiency for missions.*

GeoMon – Solution and Architecture

GeoMon integrates with a regulator's frequency management system to access spectrum license information and Kratos' industry leading monitoring products to direct operations and collect measurement data. All the data from these systems is consolidated into GeoMon's centralized database for analysis and reporting.

Detect, Locate and Report

Using GeoMon as a centralized management system and with Kratos' industry leading monitoring products, a regulator's operations staff is able to:



▲ GeoMon's spectrum monitoring and licensing architecture

- Command Compass, a monitoring and control product to direct antennas to satellite orbital positions including paths, polarizations and the flow of signals. In addition, the operations team is also able to control and monitor all the radio equipment and view alarms indicating problems or the malfunction of equipment.
- Send measurement requests to Monics, the carrier monitoring software that detects and analyzes radio signals received from satellites and delivers the frequency and time domain measurements to provide the most advanced interference protection
- Geolocate the signals received in the downlink (Space-to-Earth) using the satID product to determine the location of unlawful usage and transmissions originating from their country and the location of the radio signals that cause interference

Delivering on Regulator Missions

GeoMon is used for a range of critical missions from finding illegal transmitters, assisting the international community when major interference cases arise or protecting international broadcast events. With GeoMon's graphical user interface and its integrations with all the sub systems, a regulator's operations staff plan, schedule, execute and automate missions as well as create reports for license validation, interference resolution and ITU filings. With a few clicks a regulator's operators can perform three main missions:

Mission 1: Monitor the spectrum and validate carriers or licenses by automatically checking expected EIRP, center frequency and bandwidth based on a RF downlink measurement.

Mission 2: Perform interference analysis and geolocation activities using optimized workflow management, logbooks and reporting.

Mission 3: Perform ITU filing or orbital slot scanning by automatically performing a blind scan and comparing the spectrum measurements with all known satellites in this specific space position to identify any issues.



▲ GeoMon performs three main missions to protect the RF spectrum effectively