

Spectrum Usage and Measurement System

Accurate, verified metrics and intelligence on spectrum usage

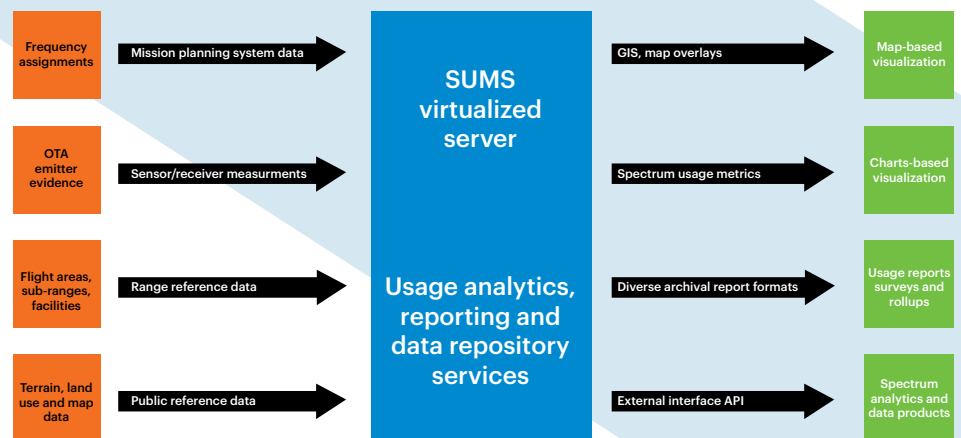
Perspecta Labs' Spectrum Usage and Measurement System (SUMS) solution provides rigorous, validated metrics and in-depth analytics to quantify and visualize radio frequency (RF) spectrum usage across a variety of environments, including Department of Defense (DoD) training centers and test and evaluation facilities. RF spectrum is a limited resource facing ever-growing demand. Establishing rigorous benchmarks and metrics on spectrum usage and requirements for DoD test and evaluation facilities and training centers is critical to ensure current and future availability of spectrum for DoD mission needs.

How it works

SUMS, a state-of-the-art big data analytics platform, collects and compiles data from a variety of disparate sources, including over-the-air (OTA) measurements. SUMS' innovative data integration and analysis

techniques create an authoritative view of RF spectrum usage and occupancy. Using OTA measurements and advanced algorithms, SUMS substantiates spectrum needs with ground truth data. While extending and validating industry-standard metrics and providing defensible usage information, SUMS is augmented by map-based data and other visualizations.

SUMS harnesses Perspecta Labs' ground-breaking RF spectrum sensing solution, SecureSense™ and sophisticated analytics in a novel, evidence-based system to deliver authenticated spectrum usage measurements. Featuring multiple data and system interfaces, a flexible and virtualized server design, and customizable analyses and reports, SUMS can be easily deployed and operated to accurately characterize spectrum usage in any environment.



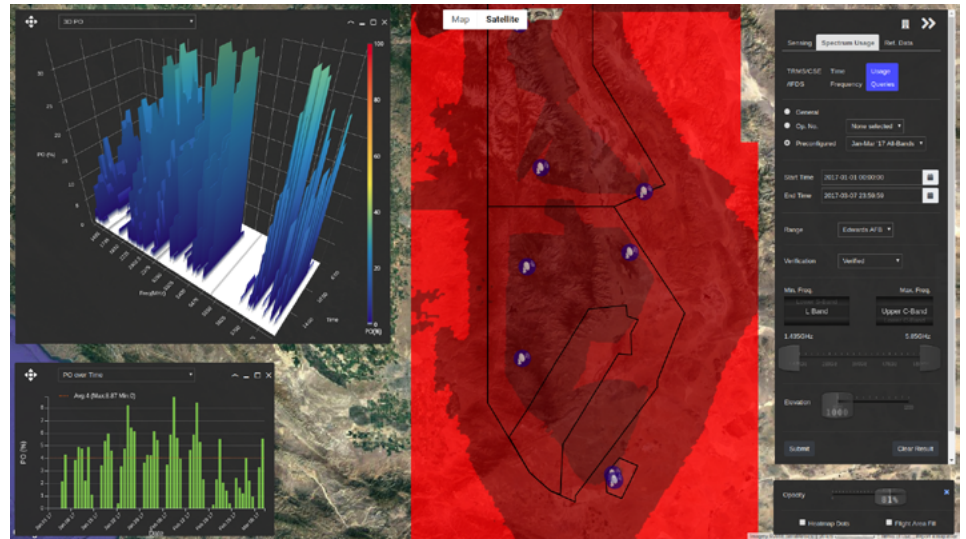
Flexible and modular architecture

The SUMS architecture is flexible, modular and highly scalable to support diverse OTA measurement sources across wide geographic areas and large numbers of users. As demand for spectrum continues to grow,

Perspecta Labs' SUMS solution can provide accurate, validated information on spectrum use and requirements to any user and use case, in any geographic area and for any frequency band.

Key features

- Ingests data on expected, planned, and actual spectrum usage from various sources, ranging from simple user-generated spreadsheets to data artifacts generated by complex multi-function mission planning systems and diverse spectrum sensors
- Innovative algorithmic approach to OTA verification gathers measurement validation data, including metadata from telemetry receivers and accurate spectrum observations from third party spectrum monitoring systems and from Perspecta Labs' SecureSense solution
- Modular back-end data storage and visualization system is flexible and easily expandable to adapt to diverse environments and handle large numbers of simultaneous users and spectrum measurement system interfaces
- Big data analytics techniques allow intelligent, efficient exploration of terabytes of current and historical sensor data to support trend analysis of spectrum usage and activity within large or small areas, and the development of accurate, well-founded forecasts and what-if scenarios



SUMS calculates, validates and maps accurate, verified spectrum usage and occupancy metrics to address spectrum-related operational questions such as where and when additional use of spectrum can be allowed or must be excluded.

SUMS produces evidence-based characterization of spectrum usage according to metrics standards, such as those published in Document 707-14 by the Frequency Management Group of the Range Commanders Council (RCC FMG). Comparison of planned and actual spectrum usage provides important validation for spectrum operations —close tracking demonstrates effective fulfillment of frequency usage requests, while gaps reveal inefficiencies in spectrum operations. Historical analysis and trending at specific locations and in specific frequency ranges, or across many locations and/or frequency ranges, shows evolution of spectrum use and accurately projects and justifies future spectrum needs.

Values and benefits

- Scalable, adaptive system that easily expands to support large numbers of users and includes OTA verification sources to deliver valid, defensible information
- Easy-to-use, customizable visualizations and graphical user interface provide operators and analysts with effective, easy-to-use tools for operation and analysis
- Meets high security and reliability requirements to ensure the integrity of the planned usage data, OTA measurement data, and analytics for spectrum usage and occupancy
- Ready integration with Perspecta Labs' SecureSense to provide a cost-effective system for combined spectrum usage accounting and situational awareness