Spectrum warfare is not new to the U.S. military. For four decades, America has dominated the airwaves during battle, much as the country dominates the ground and seas. The radio frequency (RF) spectrum is a critical resource that enables communications, navigation, logistics, precision, and more. Clear and reliable access to this realm is essential to making sure that many of America’s most effective weapons work at all.

**AMERICA’S FIGHT FOR SPECTRUM DOMINANCE**

As new adversaries emerge; as nation-state opponents gain size, wealth, and technological capability; and as commercial entities work to capitalize on the RF spectrum for their own needs, the fight for spectrum dominance is not simple— and is no longer a foregone conclusion in America’s favor.

With the dependence on wireless communications and the rising threat of cyber assaults, it is now more important than ever that the United States quickly develop the tools and techniques necessary to maintain its electromagnetic edge.

**THE INDUSTRY’S LEADING EXPERTS**

With more than 200 spectrum engineers and policy experts — and with over 65 years of experience in the field — Alion is a leader in spectrum management and electromagnetic engineering.

We work closely with the DoD, the intelligence community, the FAA, NOAA, other government agencies, and private companies to analyze, plan, and coordinate critical spectrum management. From certification and usage to spectrum-sharing resolution associated with the introduction of new systems into already heavily congested environments, we support the complete lifecycle of spectrum-dependent systems.

In addition, our work with acquisition program managers and commercial providers — to ensure that electromagnetic effects are considered in the development of platforms, subsystems, and devices — as well as Alion’s complementary intelligence, surveillance, and reconnaissance (ISR) capabilities make us a perfect partner to support America’s continued spectrum dominance.
ALION’S SPECTRUM SOLUTIONS

Alion’s engineers, technologists, program managers, and other first-class experts are all part of an 80-year R&D heritage that continues today. We are deeply analytical partners who never stop looking for a way to make things better. That’s why we apply our agile engineering methodology to every project and problem, saving time and money for our clients while delivering full-lifecycle spectrum support.

SPECTRUM POLICY SUPPORT SERVICES
Our regulatory and legislative expertise provides DoD and other federal agencies with the insight they need to make the right move, including support to senior government decision-makers dealing with intricate domestic and international policy issues.

SPECTRUM SYSTEM ENGINEERING
With expertise across a range of domains and technologies, our deep bench of engineers are a force multiplier for agents engaged in the complex activities necessary to ensure both access and effective and efficient use of the RF spectrum around the world.

INFORMATION & AUTOMATION
Our knowledge and suite of RF parametric data and physics-based propagation information enable geo-characterization and aggregation of interference mechanisms for performance predictions and valuable quantitative recommendations for spectrum sharing.

MEASUREMENT & MONITORING
Our world-class test, monitoring, and measurement capabilities — coupled with our state-of-the-art analytical tools — provide unrivaled RF design and investment decision support and electromagnetic interference prediction and mitigation.

SPOTLIGHT ON: CLUTTER MODEL APPROACH
Alion is developing Propagation and Clutter Modeling Analysis (PACMAN), a new integrated model approach to help coordinate between the telecommunications industry (LTE and 5G providers) and the U.S. government. As part of this work, we have expedited early expansion to the AWS-3 bands, while continuing to protect DoD systems from harmful interference with increased accuracy, by modeling site-specific effects of clutter. Our approach provides an innovative, band-agnostic solution to clutter modeling that will benefit future bi-directional spectrum sharing analyses and build the foundation upon which a dynamic spectrum allocation engine could be developed to optimize shared spectrum use.

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About Alion Science and Technology
Solving our nation’s complex national security challenges, Alion works with our defense and intelligence communities to deliver advanced engineering solutions. With global expertise in Live, Virtual, and Constructive Training; Big Data Analytics and Cyber Security; Artificial Intelligence; Electronic Warfare and C5ISR, Alion ensures mission success. To learn more, visit alionscience.com.

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