



COMSEARCH
A CommScope Company



Global Spectrum Management

- Engineering Solutions
- Software Solutions
- Data Solutions
- Interactive Solutions
- Government Solutions

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Comsearch

Expert Spectrum Management for Complex Wireless Networks

Unequaled Experience. Informed Analysis. Precise Solutions.

The radio frequency (RF) spectrum is a limited and crowded resource. Because of this, companies are challenged to make the most efficient use of what they have. To maintain their competitive edge in the wireless world, businesses must make informed decisions regarding the optimal use of existing and acquired spectrum. The pressure to glean the most out of spectral resources increases the importance of spectrum management, frequency engineering, and interference control.

Comsearch is uniquely positioned to help any spectrum user capitalize on new opportunities in the wireless world. With over three decades of experience, Comsearch is one of the largest and most trusted spectrum management specialists. Comsearch works with telecom, government, broadcasting, healthcare, and many other industries to ensure their spectrum resources are being put to the best and most efficient use.



Engineering Solutions

Over three decades of spectrum management leadership and regulatory expertise.

Comprehensive Frequency Planning and Administration

Comsearch is the premier provider of frequency planning services to the microwave and satellite communications industry. We have successfully engineered and coordinated over 200,000 telecommunications facilities. Our client base includes virtually every major operator, equipment vendor, integrator, and reseller. Comsearch's frequency planning services include path design, interference analysis, coordination and case resolution, FCC application preparation and filing, and prior coordination renewal.

The Comsearch interference monitoring service provides ongoing protection from potential interference. Our service analyzes and responds to other operators' coordination notices and filings for proposed, applied for, and licensed systems.

Comsearch constantly monitors and reviews FCC rules and regulations, and is active in the rulemaking processes. We also actively participate in industry forums and standards development committees.

Wireless Network Design

Deploying a new network demands attention to a number of variables including market objectives, business goals, the competitive climate, and finances. The process is further complicated when managing these variables along with spectrum allocations, equipment types, site availability, the current RF environment, and network architectures. **Comsearch has designed thousands of mobile, fixed wireless, and satellite systems throughout the world.**

Comsearch analyzes physical topography, morphology, propagation studies, equipment scenarios, and spectrum sharing concerns to determine the initial configuration of your network. We establish network topology by selecting candidate sites based on coverage, capacity requirements, and the availability of existing site locations.

Our wireless network design services include:

- Program management
- Network planning
- RF engineering
- Reliability, intermodulation, and RF propagation analysis
- Field survey, measurement, and tracking

Field Services

As an essential element of the network design, management, and operational process, Comsearch provides a broad range of field services, covering both spectrum and propagation engineering analyses. Comsearch on-site measurements and detailed analyses generate a comprehensive snapshot of an RF environment, pinpointing potential problems within stand-alone or shared spectrum.

The Comsearch Field Services team can provide site and system audits to help ensure that your FCC licenses are current and accurate. To avoid interference before it occurs or to characterize it if it occurs, Comsearch has the resources to perform a broad range of Radio Frequency Interference (RFI), Electromagnetic Interference (EMI), and Electromagnetic Compatibility (EMC) measurements covering the full radio spectrum. We also provide Radiation Hazard (RadHaz) Analysis services and terrestrial microwave path surveys.



Our field engineering services are designed for rapid mobilization to conduct both in-system and external measurements for terrestrial microwave, satellite earth station, mobile applications and broadcast facilities in both licensed and unlicensed spectrum. Whether the application requires proactive spectrum analysis prior to a system deployment or interference investigation and troubleshooting after system operation, the Comsearch Field Services team has the experienced personnel and test equipment available to meet each unique challenge. Our team of field engineers has unparalleled experience to quickly pinpoint sources of interference and provide swift and economical solutions.

Strategic Spectrum Consulting

Comsearch understands that purchasing spectrum utilization rights requires a significant financial investment. We offer high-level consulting services to help guide and inform your efforts, locate available spectrum, assess current spectrum usage, and meet regulatory requirements. Comsearch can evaluate each system's interference impact and identify facilities that may need relocation.

Comsearch is active in worldwide spectrum management policy and decision making. We help ensure clients meet business goals while maintaining regulatory compliance. Our strategic consulting experience focuses on spectrum allocation assessments, spectrum usage analysis, frequency management, spectrum policy support, and regulatory impact assessments.

Leading Spectrum Sharing and Relocation Services

With new technologies and applications being introduced into encumbered bands, there is a greater potential for interference. Comsearch provides expert guidance for spectrum sharing analyses and relocation. Our specialized services and proprietary software and databases identify specific interference problems between your network and incumbent operators. Comsearch offers cost-effective and timesaving solutions including impact assessments, interference mitigation, coordination services, cost-sharing analysis options, and negotiation and relocation services.

Comsearch's Spectrum Sharing division has been working with the Cellular Telecommunications and Internet Association (CTIA) since 1997 as the official spectrum manager for CTIA's WIRELESS® Conference and WIRELESS I.T. and Entertainment® Expositions. Using sophisticated RF measurements, proprietary Comsearch software tools and databases, and in-house expertise, we help ensure that the multitude of wireless demonstrations on the show floor and throughout the convention center work without interfering with each other or with existing wireless area networks.



Proven Software Solutions

Efficiency, stability, and unequalled performance for today's sophisticated networks.

Navigating the wireless world requires sophisticated, comprehensive, and efficient network planning. No individual solution can address all possible scenarios. Comsearch engineering, planning, and design software tools are market-leading products focused on integrating our unique interference analysis expertise into the solutions you need. In addition, our staff of engineers has the hands-on network design and software experience essential to create more comprehensive, usable products. Beyond network deployment, Comsearch software continues to assist with maintenance efforts, further helping to manage and optimize your system. Our world-class customer support includes personalized technical assistance with a commitment to total customer satisfaction.

iQ-link®—Microwave Design and Management Tool

Since 1990, wireless operators around the globe have selected iQ-link to efficiently manage their spectrum resources across the full microwave frequency range of 2–60 GHz. From the beginning, iQ-link was designed to handle the planning requirements of any size backhaul and fixed access network, a capability that continues to be a major differentiator from the competition.

iQ-link is currently supporting customers with networks exceeding 50,000 links. World-wide, iQ-link has been used to design and manage well over 200,000 links, with deployments in North and South America, Europe, Africa, and Asia.

The demand for analytical tools that enhance the value of wireless data continues to grow. Keeping pace with a dynamic industry, Comsearch has continually refined iQ-link. Blending our years of experience with the latest industry standards, iQ-link offers a comprehensive suite of tools including detailed terrain analysis, availability assessment, and state-of-the-art interference analysis, allowing engineers to easily identify and assign interference-free channels without the need to sort through lengthy calculation results.

iQ-link supports Point-to-Point (PTP) and Point-to-Multipoint (PMP) backhaul and fixed access for a broad range of wireless systems and technologies including Cellular, Fixed Broadband, GSM, UMTS, TETRA, 3G, WiMAX, LTE, and more.

iQ-clear®—Spectrum Sharing and Relocation Tool

iQ-clear determines the extent to which spectrum may be shared between emerging technologies and incumbent systems. iQ-clear was developed for PCS deployment in the 1.9 GHz band, which was occupied by thousands of 1.9 GHz fixed incumbents. Built upon the proven iQ-clear framework, iQ-clearXG™ was developed for Advanced Wireless Services (AWS) deployment in the 1.7 and 2.1 GHz bands, with thousands of incumbents that include fixed microwave, Broadband Radio Service (BRS), and mobile systems. iQ-clear manages the intensive incumbent relocation process by clearly identifying cell deployments that can share the spectrum and operate without relocation, while prioritizing the relocation of fixed and mobile incumbents that may be interfered with.



Custom Telecom Data

Charting new wireless territory? Plan your network with the power of our data.

Comsearch offers an extensive collection of data solutions to aid in the success of your wireless business. Detailed graphical and textual reports, based on our proprietary and comprehensive databases, provide the insight you need to make the right decisions.

Custom Telecom Data Solutions

Comsearch databases are synonymous with excellence, and are viewed as the definitive source for data on wireless networks by the telecommunications industry. For over 30 years, Comsearch has verified, updated, and maintained data on microwave, satellite, and other mobile networks. We update our databases daily, and have accumulated one of the largest non-government collections of engineering data in the telecommunications industry.

We offer data, statistical analyses and mapping for all wireless bands and services. Our Telecom Data Report sorts through the often complex disaggregation, partitioning, leasing, and other factors that identify a licensee in a market as well as the population and geographic areas they cover. Our Vendor Competitive Intelligence Report assesses equipment and antenna sales and installation statistics. GeoPlanner™ products provide graphical representations of telecom systems. AuctionPlanner™ products supply the tools and data to prepare you for critical FCC auctions.



Essential Interactive Solutions

Powered by Comsearch.



Get going with our online solutions. Interactive online databases and applications give you the power, efficiency, and real-time results that Comsearch offers.

Comsearch helps our clients to develop and maintain custom databases, applications, and interfaces around their own regulatory needs. We work to identify requirements, discern end-user needs, integrate business rules, and create data-centric tools to support specific and unique applications. Our first-rate technical and customer support helps to ensure that your custom application continues to support your needs well beyond delivery.

Our innovative interactive services provide tools to help perform interference analyses, coordinate

frequencies, perform regulatory tasks, and more. They provide easy access to crucial, up-to-date information through secure, user-friendly, and intuitive interfaces.

Cost Sharing Clearinghouse

As the technical partner for CTIA, we enable licensees to register relocated microwave and BRS systems and quickly assess cost sharing situations.

71-95 GHz Link Registration System

As an FCC appointed database manager for the 71-95 GHz spectrum, Comsearch's link registration system enables licensees to identify available spectrum and register their links, ensuring interference-free operation.

WMTS Frequency Coordination

As the technical partner for ASHE, Comsearch enables WMTS users to quickly search for

available Wireless Medical Telemetry Service (WMTS) frequencies, register them in the database, and download a coordination certificate.

ULS ExpressSM

Expedite the FCC filing process. ULS Express is a comprehensive interactive filing system for fixed microwave networks. It pre-populates up to 90% of your application and uses combined FCC and Comsearch error-checking routines to help dramatically increase the accuracy and approval time of your FCC applications.

MAS ExpressSM

Secure interference-free Multiple Address System (MAS) frequencies through this intuitive web-based interactive service. MAS Express provides spectrum utilization analyses and assists with the preparation of appropriate FCC documentation.

Wireless Solutions for Government

Mission critical wireless engineering services and software.

Comsearch Government Solutions provides innovative engineering products and services to the U.S. federal government and state and local agencies. Leveraging 30 years of expertise in the spectrum management of wireless technologies, we support critical government missions in the areas of national defense, public safety, and homeland security.

As the demand for spectrum dependent wireless applications continues to increase in both number and complexity, there is a critical need for intelligent management systems to meet the capacity for multimode functional requirements, effectively integrate new technologies, and help mitigate potential interference.

Comsearch offers the following professional products and services:

- Spectrum Management and Planning Guidance
- Spectrum Engineering Analysis
- Information Services and Analysis
- RFI Measurements and Field Engineering Services
- Wireless Software Products



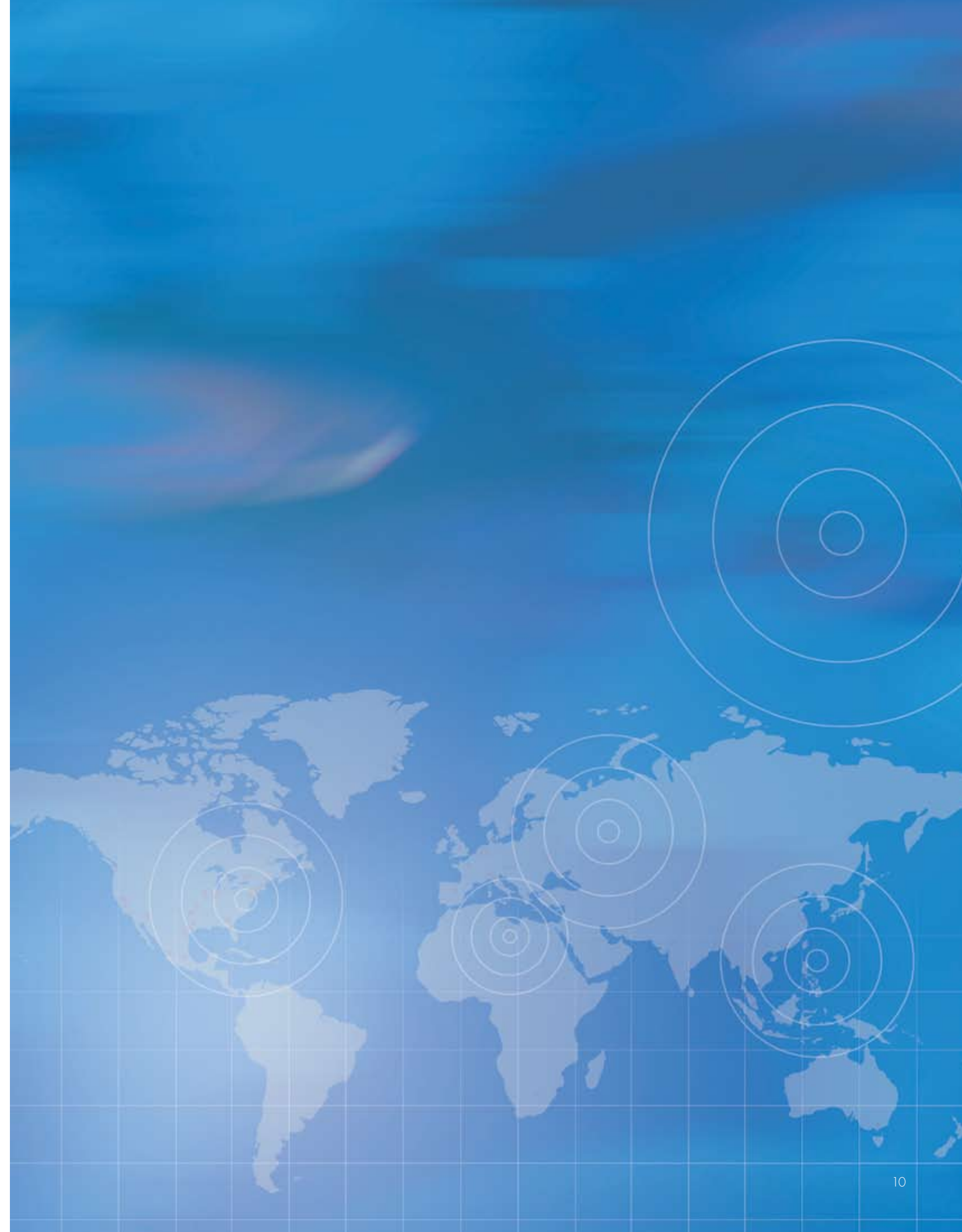
Comsearch

Global Spectrum Management

Comsearch has over three decades of experience providing spectrum management and software and data solutions to the wireless markets.

Comsearch works with the government, healthcare, telecom, broadcasting, homeland security, and many other industries to ensure their spectrum resources are being put to the best, most efficient use.

Comsearch's solutions focus on key areas of spectrum management including frequency planning and administration, wireless engineering, interference monitoring and analysis, RF measurements, and strategic consultation. Its experienced engineers, software products, and information databases have addressed the specific challenges of network design and spectrum management for the evolving wireless industry.





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BR-100313.1-EN (3/08)