

g l o b a l
SPECTRUM MANAGEMENT

iQ.clear^{XG}



iQ.clear^{XG} was developed by our team of experts in shared-spectrum interference analysis to support those who plan, analyze, and design wireless systems.

iQ.clear^{XG} Intelligent Sharing Analysis Software

iQ.clear^{XG} is Comsearch's market-leading spectrum sharing and interference analysis software tool. iQ.clear^{XG} will help plan the rollout of new Advanced Wireless Service (AWS) in spectrum shared by over 7,000 incumbent microwave systems. iQ.clear^{XG} offers fast and accurate analyses of incumbent interference both to and from AWS systems and recommends AWS operating frequencies that require the fewest incumbent relocations.

iQ.clear^{XG} was developed by our team of experts in shared-spectrum interference analysis to support those who plan, analyze, and design wireless systems. Our tool was used extensively by practically every PCS operator to plan and roll out systems in the 1.9 GHz band, and we have made extensive modifications and improvements to support the new AWS requirements.

iQ.clear^{XG} determines the extent to which spectrum may be shared between AWS and incumbent systems in accordance with government rulings on coexistence in the same spectrum. With the affected bands impacting thousands of incumbent systems and potentially hundreds of

thousands of AWS sites throughout the U.S., iQ.clear^{XG} will help manage the intensive relocation process.

iQ.clear^{XG} supports the following features, and can be customized to users' specific needs.

AWS Cell Layouts

To get started, iQ.clear^{XG} supports three ways to introduce an AWS cell layout for analysis:

- Automatic uniform cell layout (based on fixed radii)
- Automatic traffic-based cell layout (derived from demographics information, proposed transmit powers, Erlang coverage, etc.)
- AWS cell import (import an existing AWS cell plan)

User-Defined Interference Parameters

iQ.clear^{XG} allows users to select a specific AWS frequency block, technology and bandwidth to be used in the analysis.

- Select technologies and bandwidths such as: 200 kHz GSM; or 1.25 MHz, 3.75 MHz, or 5 MHz CDMA. The frequency blocks (Blocks A - F) are based on FCC guidelines.

iQ•clear^{XG}® - Intelligent Sharing Analysis Software

- Define the AWS parameters for the project including transmit power, antenna type, antenna height, maximum antenna gain, downtilt angle, EIRP, number of mobiles, and mobile distribution method.
- Specify interference criteria parameters for both AWS and microwave systems including propagation model and link reliability. Propagation models include Free Space Loss, OH-Loss and TR14.11.

Interference Analysis

iQ•clear^{XG} performs four types of interference analyses:

1. AWS to Microwave Analysis - calculates potential interference from proposed AWS sites into existing microwave receivers. The amount of interference may prohibit an AWS provider from constructing a site with the selected parameters at the proposed location. iQ•clear^{XG} presents the AWS sites with color-coded graphics indicating the percentage of available spectrum for that site. It also calculates the interference objective for both analog and digital microwave receivers.
2. Spectrum Recommendation Analysis - identifies the most likely channels to satisfy specific design requirements for an AWS system. The major criterion for determining the "best channels" is relocation of the fewest number of microwave links while yielding the desired number of AWS channels.
3. Collocation Analysis - predicts potential interference from microwave sites that are located near a planned AWS system. It identifies all microwave links within +/- 50 MHz of the allocated spectrum and located within the cell radius of the proposed system. It then calculates their associated interference levels compared to the interference objective.
4. Microwave to AWS Analysis - calculates potential interference from the microwave incumbents into the proposed AWS system. This permits the user to examine interference levels for individual sites.

Microwave Link Display

iQ•clear^{XG} provides a graphical display of microwave links within



a calculated (FCC mandated) coordination distance. You can manipulate the links in the analysis by filtering by link type, spectrum selected, link owner and others. You can also edit the radio and antenna configurations and view the PSD, C/I, T/I, and filter selectivity curves for a link site using the iQ•clear^{XG} radio and antenna databases.

Comprehensive 2.1 GHz Database

Comsearch maintains a dedicated staff of database technicians who constantly monitor FCC activity and update the 2.1 GHz database. Comsearch uses Prior Coordination Notices, FCC applications and licenses, and direct contact with microwave licensees to maintain the accuracy of our database. We typically discover many pending changes, additions, or deletions long before the FCC applications are filed.

Comprehensive Reporting

iQ•clear^{XG} delivers a variety of reports that help you to analyze almost every imaginable component of the microwave or AWS system under consideration. Certain standard reports are provided with the design tool. They include:

- Active Microwave Link Data Report
- Inactive Microwave Link Data Report
- Cell Traffic Usage Report
- System Summary Report
- Link Severity Summary Report
- Individual Link Severity Report
- Spectrum Availability Report
- Spectrum Recommendation Report
- Collocation Report
- MW to Mobile Interference Report

World-Class Technical Support

Exceptional technical support is a hallmark of Comsearch. Our support team members are more than expert iQ•clear^{XG} users—they are microwave engineers as well. Skilled Product Support Engineers offer personalized technical support for each customer. A highly trained staff of Engineers, Product Managers, and Developers are maintained to insure robust new development as well as timely solutions to any problems that may arise in the field. Our web-based technical support is designed to be a 24 hr. per day, 7 day per week, globally-accessible resource for software patches, documentation, shared product knowledge and customer support contact.

For more information, visit us online at www.comsearch.com, or call us at 800.318.1234.

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