



Advanced Technology Laboratories

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CJSMPT — OTM Spectrum Analysis

Introduction

The increasing demand for wireless communication has created a significant shortfall in useable spectrum for military operations. This results in near complete spectrum saturation in critical areas of potential DoD deployment.

To cope with this increased demand, the pace of future Net Centric Warfare requires rapid spectrum planning for mission specific demands.

Problem/Challenge

As more flexible, highly mobile on-the-move (OTM) systems are deployed in accelerated operating tempos, the integration of spectrum management with sophisticated OTM analysis, visualization, and optimization tools is needed to speed the spectrum planning processes to reduce communications interference. Currently, there are no joint or coalition means to mitigate the effects of electronic warfare (EW) operations on Blue Force communications systems.

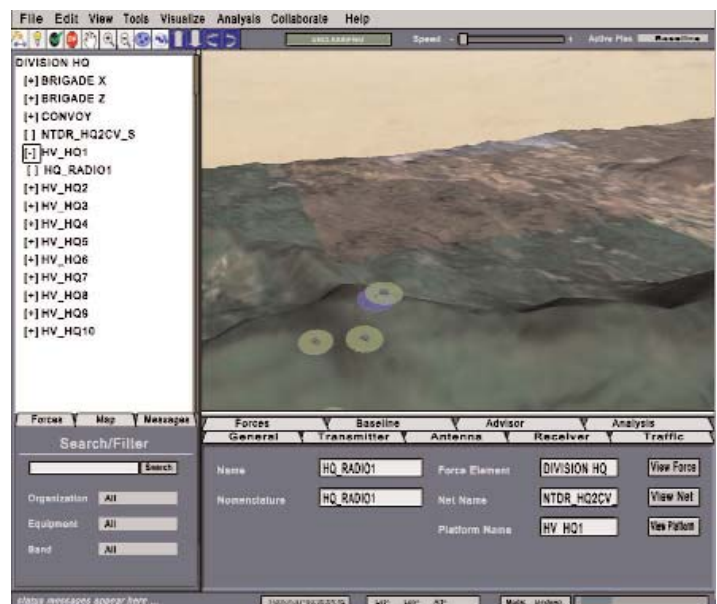
The Solution

The Coalition Joint Spectrum Management Planning Tool (CJSMPT) Program is developing a system for modeling, assessing, and planning stationary and OTM spectrum use that will give joint and

coalition warfighters the ability to rapidly predict conflicts and optimize spectrum utilization for mission success.

CJSMPT will improve the spectrum planning process, mitigate the problem of spectrum saturation through conflict prediction and resolution and maximize spectral reuse through the use of a Communications Effects Simulator (CES). A key feature of CJSMPT is its faster-than-real-time modeling and simulation capability that can predict and visualize potential interference from OTM forces. The CES models all emitters and their locations as well as radio and propagation effects like terrain.

CJSMPT, with the Spectrum Plan Analyzer (SPA), will provide significant improvements over current approaches and will fill an important void in DoD's spectrum transformation capability. The core Spectrum Planner Tool is comprised of the CES and a Spectrum Manager (SM) that performs simulation-based analysis of each communication scenario. The SM will suggest an optimized plan to minimize conflicts and maximize reuse.



The CJSMPT tool permits spectrum managers to visualize the spectrum common operating picture for their area of responsibility.

CJSMPT will aid planners by displaying a real-time, three-dimensional view of frequencies in use in the battlespace. Through automated, accelerated coordination of radio frequencies within the available spectrum, CJSMPT will allow full and complete communications between field commanders and their assets while not interfering with nor receiving interference from EW activities.

CJSMPT is a Joint Concept

Technology Development (JCTD) managed by the U.S. Army CERDEC. Lockheed Martin Advanced Technology Laboratories is the prime contractor, working in cooperation with Alion Science, SYColeman, Battle Command Battle Lab (BCBL), Fort Gordon, Joint Spectrum Center (JSC) and Penn State University.

For the first phase of this two-part program the LM ATL-led team will deliver semi-automated SPA de-confliction technology for use in theater in de-conflicting EW jamming and other critical communications.

For More Information:

Lockheed Martin Advanced Technology Laboratories
Hugh Pearce, PhD, Director Business Development
3 Executive Campus • 6th Floor • Cherry Hill, NJ 08002
856.792.9810 • hpearce@atl.lmco.com