

JUICE 2010 - Joint User Interoperability Communications Exercise

The iDirect Government Technologies (iGT) SATCOM network took place at 11 locations in eight states, as well as in Germany. JUICE set out to accomplish six key objectives, including examining network operations relationships; achieving combat power through knowledge management; conducting hybrid communications in complex environments; planning for command, control, communications and computer operations in challenging environments; optimizing tactical networks in limited bandwidth battle space; and enhancing joint interagency architecture/ integrated communications relationships.

JUICE 2010 was an overwhelming success.

Contributing to the success was iDirect Government Technologies (iGT), a leading provider of satellite communications to the military and government. iGT was on-site at several of the locations – including Fort Monmouth, NJ, Fort Bragg, NC, and Dahlgren Naval Surface Warfare Center – to demonstrate several critical satellite capabilities.

Establishing a TDMA Network over Ku-band SATCOM

A primary objective of the U.S. Air Force Space Command, 689th Combat Communications Wing, 5th Combat Communications Group, for JUICE 2010 was to establish a TDMA network over Ku-band Satcom and implement EoIP to support Theater Deployable Communications Initial Communications Element version 3.0 (TDC/ICEv3).

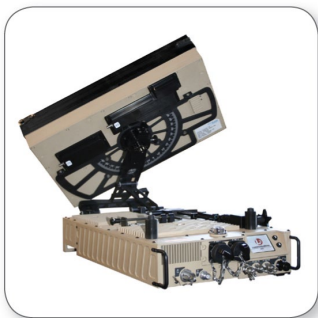
During JUICE, the Space Command deployed its Air Force Forward Element (AFFOR) to the respected locations of Bethany, DE; Savannah, GA; Tinker Air Force Base, OK; and Robbins Air Force Base, GA. Each site's AFFOR communications officer/engineer coordinated the setup, validation and establishment of the Ku-band satellite link. Once links were established, the AFFORS implemented EoIP to support its TDC/ICEv3.

This exercise is important because satcom is a critical technology for modern military operations. For units deployed around the world, it provides a high-speed communications backbone. It connects soldiers to each other and to central operations. And it enables them to stay united with friends and family back home.

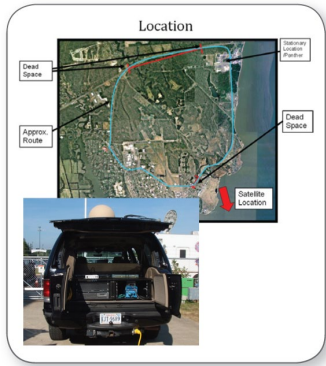
Demonstrating Secure Everything over Internet Protocol Micro-Satcom

U.S. Army Special Operations Command Paratroopers from the 112th Signal Battalion (Airborne) were equipped with an iDirect iConnex e850mp Satcom modem embedded in an L-3 Panther Ku-Band micro-terminal. Once on the ground, the paratroopers set up a live, Everything over IP (EoIP) video teleconference session with an Army vehicle traveling in Fort Monmouth, NJ, over the iDirect JUICE 2010 Time Division Multiple Access (TDMA) Satcom Secret IP Routed Network (SIPRNET.)

They reported on their mission, observations of the area and the environmental conditions encountered. During the VTC bridge sessions, the support elements were able to observe and comment.



L3 Ku-Band Panther used during JUICE



IGT COTM truck and map of driving route

Vehicle-to-Vehicle Everything over Internet Protocol Satellite Communications

Our military has a need to communicate with other units in the field. With the iGT Communications on the Move solution, a military vehicle is transformed into a high-speed broadband-enabled network, capable of supporting Internet, voice, data and video services. iDirect’s ruggedized satellite routers fit in the rear of the military vehicle, an L3 DATRON low-profile antenna is installed on top, and inside the cabin, users benefit from wireless connectivity on laptop computers and voice-over-IP phones.

A Coalition Warfighter Interoperability Demonstration (CWID) forward-operating site in Dahlgren, VA, successfully participated in several Satcom-on-the-move video teleconference (VTC) bridge sessions with JUICE command and control (C2) and the Fort Monmouth Satcom-on-the-move vehicle. The purpose of the VTC sessions was to advise JUICE C2 that the CWID unit was ready to deploy and begin its observation run of the local area. Once Fort Monmouth was notified and acknowledged the CWID mission, the VTC session was dropped and periodically reestablished in five minute and 10 minute increments.

Testing Multiservice/Coalition Secure C2 and Fire Support

The objective of this test scenario was to demonstrate that forward-deployed operating units could utilize multiservice and coalition networks to reach back to a U.S. deployed joint task force. CWID and JUICE 2010 collaborated to test several mission-critical applications.

A U.S. Marine Corps second lieutenant, representing a CWID coalition force at Dahlgren, used an iDirect iConnex e850mp Satcom modem embedded in a stationary L-3 Panther Ku-Band micro-terminal, and a PEP-accelerated KG-250 Type-1 HAIPE device, to call for indirect fire support from the U.S. Army Field Artillery and the U.S. Navy over the iDirect JUICE 2010 TDMA Satcom network. The Army application was Advanced Field Artillery Target Designation System (AFATDS), and the Navy application was Naval Fire Control System (NFCS). The Army unit was located at Fort Sill, OK. The Navy location was Naval Surface Warfare Center, Dahlgren, VA.

During June 14 through 25, the CWID forward-operating site successfully executed its AFATDS mission and its GCCS mission. After secure network connectivity was established on the iDirect Satellite network, the CWID AFATDS forward-operating site received and executed Call For Fire (CFF) at Fort Sill.

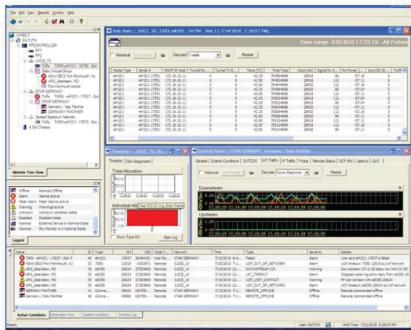
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Supporting iGT Modem-Based Terminals in the JUICE TDMA SATCOM NIPRNET

The ability to quickly deploy and manage an IP-based celestial network that is easily scalable without restricting an existing communications infrastructure is essential to military operations. The frequent movement and expansion of military networks demands an advanced Global Network Management System (NMS) to intuitively handle changes quickly, efficiently and securely. The iDirect iVantage Global NMS will configure and manage the teleport hub equipment and the very small aperture terminals (VSAT) for the Fort Monmouth JUICE 2010 Regional Network Control Center (RNCC). Once configured, the iVantage Global NMS will monitor the RNCC and VSAT terminals for user serviceability.

The U.S. Army Communications and Electronics Command, Life Cycle Management Command and Executive Agent for Theater Joint Tactical Networks Forward Operating Base (FOB), used an iDirect Model 12200 4-slot hub, configured with four iDirect Evolution eM1D1 line cards and the iDirect iVantage Network Management System, to support about 15 iDirect Ku and x-Band modem-based terminals in the JUICE 2010 TDMA Satcom NIPRNet with SIPRNet tunneled and transmission security (TRANSEC) enabled.

During the scheduled mission period, JUICE 2010 command, control and support elements participated in command and control VTC to observe any visible interactions and measure the effectiveness the Joint Tactical Networks over satellite. At the test completion, participants provided valuable comments and reported on their familiarization, usage, handling, security, quality, recommendation and more results that the mission scenario experienced.



Global NMS

"JUICE provided an excellent opportunity for both the government and industry to evaluate the latest advances in military communications technology. These advances offer greater efficiency, increased mobility, and lighter and more ruggedized technologies that will improve the safety and agility of our troops in the field."

John Ratigan
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