

Introduction

PEO EIS PM DCATS was awarded PM of the Year in 2004 due to the tremendous success of its programs. This success was due, in part, to the strong relationship and outstanding technical support we get from the CERDEC and the rest of the TEAM Ft Monmouth Community including the SEC, LRC and Acquisition Center. Specifically for our Satellite Communications Mission, we have been working together since the 1960s to provide the essential SATCOM infrastructure for the entire DOD Community including our deployed Warfighting forces.

The CERDEC Joint SATCOM Engineering Center has several integrated lab facilities consisting of the Control Systems Lab, Strategic Systems Lab, the Tactical Systems Lab and the DOD Teleport and Standardized Tactical Entry Point Testbed. For the vital Joint Satellite Communications (SATCOM) mission, PM DCATS and Team Ft Monmouth design the architecture, develop the equipment and systems, and perform the integration, detailed testing, fielding and lifecycle support for the entire DOD Satellite Communications Infrastructure for the DSCS and Gapfiller satellite systems. We implement a worldwide network of over 100 Satellite Communications Earth Terminals at 70 sites operated by Army, Navy and AF personnel supporting the entire DOD user community including, Services (Army/Navy/AF), Combatant Commanders, the Intelligence Community and Deployed Warfighters.

To execute this global mission, we field Control Centers which can position the satellites in space, allocate the communications resources to the users, plan the entire SATCOM network and detect jamming threats. We field the strategic terminals with 20, 40 and 60 ft dishes and all of the baseband equipment to process voice, video and data over the satellites as well as connecting the satellite communications path into the GIG - the Global Information Grid which is a global terrestrial distribution system accessing data centers for command, control, communications and intelligence. We also perform all functions from architecture definition, engineering, procurement, test and fielding for the ASD/DISA ACAT 1 Teleport program and the DISA Standardized Tactical Entry Point program. These critical facilities extend voice, data and video to the tactical Warfighting forces over any commercial or military satellite system available to them. They are the deployed forces information lifeline. In addition, we provide the SATCOM resources for the Ground Based Mid-Course Defense (the National Missile Defense Program), the presidential Hotline between Washington and Moscow, and the Jam Resistant Secure Communications Network servicing the Presidential and national forces community.

Control Systems Lab

This is a complete Defense Satellite Communications System Control Facility where we can control and monitor the satellites which are over 22K miles out into space.

Each of the 5 prime satellites providing global communications coverage is over \$300M. Very sophisticated equipment and highly trained and experienced personnel are required to insure those satellites are kept in prime working condition. PM DCATS in partnership with the JSEC does the research and development, testing and maintenance of ALL of the satellite control systems used in each of the 5 Control Centers worldwide. There are 10 major systems with over 100 million lines of code in each Control Center performing the functions such as:

**Positioning the satellites in space – orbital adjustments
Reorienting the antennas on the satellites to increase communications capacity
Perform all network planning to allocate satellite resources to users
Monitor and control the entire network and resolve interference problems and anomaly resolution
Detect and eliminate Jamming attacks on our satellite communications networks**

The JSEC is the only facility in the world where these critical systems are developed and maintained. The average hands-on experience level of the Control personnel who work in the Control Lab is over 15 years. The JSEC is fully equipped and can take over operational control in the event of a terrorist attack or a catastrophic weather event. There are only two other Control Centers on the East Coast – both in Maryland (one in Ft Meade just outside of Baltimore and the other in Ft Detrick in Fredericksburg). The geographical diversity of the JSEC here in NJ allows it to back up either of those centers in case of a national emergency.

While we are in the process of developing newer control systems for the next generation satellites we must consider that many of the existing control systems for our current satellite constellation are using equipment which is no longer in production. It is an important consideration in planning to relocate this facility that we cannot necessarily procure a second suite of equipment to install in the new facility.

Strategic Systems Lab/DOD Teleport Testbed

Welcome to the Strategic Systems Lab, the Standardized Tactical Entry Point Testbed and the DOD Teleport Testbed. This is where the DOD SATCOM Infrastructure is born and continuously refreshed. There are over 10 different Satellite terminals which can communicate with all 6 of the commercial and DOD military satellite types. Over 200 unique racks integrating over 175 different equipment types are prototyped, tested and certified here to form the backbone of our global SATCOM network. Some of the unique functions which are performed only in this facility are as follows:

Architected, designed and prototyped the surge in SATCOM infrastructure to support Desert Storm, Operations Enduring Freedom and Iraqi Freedom, and the Global War on Terrorism. JSEC continues to provide worldwide technical assistance for these operations.

Performed all the original work and technology insertion assessment to determine the DOD standard for introducing IP over SATCOM. Designed, prototyped, tested and currently fielding the initial IP architecture for Teleport.

Only facility worldwide performing all of the initial operational and certification testing for new satellite launches (DSCS, WGS).

Only facility worldwide performing the certification testing for new DOD satellite terminals (strategic and tactical).

Some additional missions conducted here are as follows:

In conjunction with the SEC, conduct Joint User Interoperability Communications Exercise (JUICE) which trains troops prior to deployment how to fight a war with new technology using the actual tactical operators and equipment terminating through the satellites into the Teleport testbed– Concept of Operations, work out interoperability problems, networking problems etc.

Real-time 24/7 expert technical support to all Joint SATCOM personnel anywhere in the world.

Joint testing with Navy, AF, NATO, FEMA and Homeland Security. Supported operations for the Republican National Convention.

A Teleport site has a wide range of satellite terminals and equipment and is designed to be the central hub to distribute Command, Control, Communications and intelligence data to the entire joint deployed Warfighting community. There are only 6 Operational Teleports worldwide and only 1 on the East Coast (Northwest VA). The JSEC DOD Teleport Testbed has all of the equipment and trained personnel to go operational in the event of a terrorist attack or a catastrophic weather event and is has enough geographic diversity to be able to operate if the Northwest Teleport is down due to weather.

As you may surmise, an expert skill level is required of the personnel who perform these extremely technical and diverse missions from architecture and design to incredibly complex analysis and testing on this wide variety of equipment and systems. The average expertise for those who work in the Strategic/STEP/Teleport Testbed is over 20 years of hands on experience. Some of the original founders of this lab are still here and have passed on their knowledge to the current generation. For new personnel to be effective in this environment, it requires 2 years of straight classroom training followed by at least 5 years of operational experience working side by side with the experts. These experts are universally well known, respected and sought after throughout the DOD and commercial satellite communications community.



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