

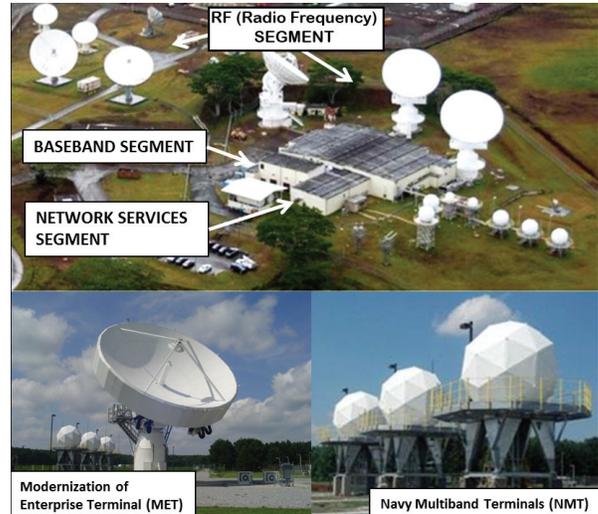
Department of Defense (DOD) Teleport

Executive Summary

- The Defense Information Systems Agency (DISA) is developing DOD Teleport Generation 3. Generation 3 is comprised of three satellite gateway improvements separated into phases:
 - Phase 1 is intended to upgrade the Extremely High Frequency (EHF) gateway capabilities used to communicate with Advanced Extremely High Frequency (AEHF) and Milstar satellites.
 - Phase 2 is designed to upgrade X- and Ka-band capabilities used to communicate with the Defense Satellite Communications System (DSCS) and Wideband Global Satellite Communications (SATCOM) (WGS) system.
 - Phase 3 is intended to provide Mobile User Objective System (MUOS) users interoperability with legacy Ultra-High Frequency (UHF) users.
- The Joint Interoperability Test Command (JITC) conducted the operational test of the Generation 3 Phase 1 (G3P1) capability at the Northwest Teleport in Chesapeake, Virginia, from July 21 through September 19, 2014. Deployed operational users from the Army, Marine Corps, Navy, and National Guard communicated over Milstar and AEHF satellites at data rates up to 8.192 Megabits per second (Mbps) using Defense Information Systems Network (DISN) services. G3P1 developmental test results and preliminary analysis of the operational test data suggest the DOD Teleport system is capable of interoperating with deployed EHF users to provide end-to-end information exchanges for data and voice communications.
- JITC conducted the operational test of the Generation 3 Phase 2 (G3P2) capability at the Northwest Teleport from July 21 through October 10, 2014. Deployed operational users from the Army, Air Force, and Navy communicated over WGS and DSCS satellites using DISN services, including secure and non-secure video teleconferencing. Preliminary analysis of the G3P2 operational test data suggests that the DOD Teleport is capable of interoperating with deployed X- and Ka-band users to provide end-to-end information exchanges for data, voice, and video communications.
- The Generation 3 Phase 3 (G3P3) capability has been delayed due to MUOS waveform reliability problems currently being addressed by the MUOS program. JITC projects the G3P3 operational test will take place 2QFY16 after DISA completes developmental testing.

System

DOD Teleport sites are globally-distributed SATCOM facilities. The system has six core Teleport facilities located in Virginia, Germany, Italy, Japan, Hawaii, and California, and three secondary facilities located in Bahrain, Australia (future), and Guam. Teleport sites consist of four segments:



- The radio frequency segment consists of SATCOM earth terminals that operate in UHF, X, C, Ku, Ka, and EHF frequency bands. The terminals provide radio frequency links between the Teleport site and the deployed user SATCOM terminal via military or commercial satellites.
- The base-band segment includes encryption, switching, multiplexing, and routing functions for connecting data streams or packetized data to the terrestrial DISN.
- The network services segment provides connectivity to the DISN long-haul networks and other internet-working functions necessary to meet the user's requirements.
- The management control segment provides centralized monitoring and control of Teleport base-band hardware, earth terminal hardware, transmission security, and test equipment.
- Teleport provides deployed forces access to standard fixed gateways from anywhere in the world for all six DISN services:
 - Secret Internet Protocol Router Network (SIPRNET)
 - Non-secure Internet Protocol Router Network (NIPRNET)
 - Defense Red Switch Network (DRSN)
 - Defense Switched Network (DSN)
 - Video Teleconference (VTC)
 - Joint Worldwide Intelligence Communications System (JWICS)

Mission

Combatant Commanders, Services, and deployed operational forces use DOD Teleport systems in all phases of conflict to gain access to worldwide military and commercial SATCOM services.

Major Contractor

Government Integrator: DISA

Activity

- Teleport Generation 3 is comprised of three satellite gateway improvements separated into phases:
 - G3P1 is intended to upgrade the existing EHF gateway capability with Navy Multiband Terminals that provide data rates up to 8.192 Mbps.
 - G3P2 is designed to upgrade the existing X- and Ka-band gateway capabilities with Modernization of Enterprise Terminals, which can simultaneously access both X- and Ka-band communications on the WGS satellites.
 - G3P3 is intended to provide interoperability between MUOS users and legacy UHF users.
- DISA installed and integrated three Navy Multiband Terminals at the Northwest Teleport site in Chesapeake, Virginia, and conducted G3P1 developmental testing in January 2014.
- DISA and JITC conducted the G3P1 integrated test from April 21 through May 16, 2014, at the Northwest Teleport with deployed Army and Navy users communicating over the AEHF satellite system accessing DISN services, including secure and non-secure data and voice communications.
- JITC conducted the operational test of the G3P1 capability at the Northwest Teleport from July 21 through September 19, 2014. Deployed operational users from the Army, Marine Corps, Navy, and National Guard communicated over Milstar and AEHF satellites at data rates up to 8.192 Mbps accessing DISN services.
- DISA installed and integrated a Modernization of Enterprise Terminal at the Northwest Teleport site and conducted G3P2 developmental testing from April 28 through May 16, 2014, communicating with deployed Marine Corps and Air Force users over WGS satellites accessing DISN services.
- JITC conducted the operational test of the G3P2 capability at the Northwest Teleport from July 21 through October 10, 2014. Deployed operational users from the Army, Air Force, and Navy communicated over WGS and DSCS satellites accessing DISN services, including secure and non-secure video teleconferencing.
- DISA has installed a test suite of the MUOS to Legacy UHF capability at the DOD Teleport Test Lab within the Army's Joint Satellite Engineering Center, at Aberdeen Proving Ground, Maryland. Site acceptance testing at the Northwest Teleport is planned for April 2015 with an operational test event projected for 2016.
- JITC conducted G3P1 and G3P2 testing in accordance with a DOT&E-approved Test and Evaluation Master Plan and test plan.
- DOT&E submitted an OT&E Report on the DOD Teleport in November 2014.

Assessment

- The DISA-conducted G3P1 integrated test was operationally representative and demonstrated the Teleport capability to perform as a satellite gateway for deployed EHF users to connect to and use DISN services.
- Although analysis of the G3P1 operational test data is ongoing, developmental test results and preliminary analysis of operational test data suggest that the DOD Teleport is capable of interoperating with deployed EHF users to provide end-to-end information exchanges for data and voice communications.
- The DISA-conducted G3P2 developmental test was operationally representative, but provided only a limited set of data. The DISA program manager concluded the developmental test reduced enough risk to forego the integrated test and proceed directly to the operational test.
- Preliminary analysis of the G3P2 operational test data suggests that the DOD Teleport is capable of interoperating with deployed X- and Ka-band users to provide end-to-end information exchanges for data, voice, and video communications.
- A DOT&E recommendation from the November 2009 G2P2 MOT&E for DISA to develop a network management system in coordination with the Theater Network Operations Center (TNC) to support Continuity of Operations remains unresolved. If communication is lost between the TNC and the Teleport system, the Teleport operators cannot manage and control internet protocol-based deployed users' networks; therefore, the deployed users' communications are at risk.
- The G3P3 capability has been delayed due to MUOS waveform reliability problems currently being addressed by the MUOS program. JITC projects the G3P3 operational test will take place 2QFY16 after DISA completes developmental testing. There is no DOT&E-approved Test and Evaluation Master Plan for G3P3.

Recommendations

- Status of Previous Recommendations. DISA has satisfactorily addressed all three previous recommendations.
- FY14 Recommendations. DISA should:
 1. Resolve the lien from the November 2009 G2P2 MOT&E to develop a network management system in coordination with the TNC to support Continuity of Operations.
 2. Update the Test and Evaluation Master Plan to support G3P3 testing.