

## Warfighter Information Network – Tactical (WIN-T)

### Executive Summary

- In July 2017, the Army conducted a Warfighter Information Network – Tactical (WIN-T) Increment 2 Tactical Communications Node – Lite (TCN-L) and Network Operations Security Center – Lite (NOSC-L) FOT&E to support a fielding decision to light forces. The FOT&E was conducted in accordance with a DOT&E-approved test plan and was adequate to assess operational effectiveness, operational suitability, and survivability.
- Results from the TCN-L and NOSC-L FOT&E are:
  - The TCN-L and NOSC-L are operationally effective. The TCN-L and NOSC-L supported light infantry brigade missions under operationally realistic conditions.
  - The TCN-L and NOSC-L are operationally suitable. Both systems met their reliability requirements, and exceeded their availability and maintainability requirements.
  - WIN-T Increment 2 is survivable. WIN-T Increment 2 demonstrated a robust cyber network defense to protect against an operationally realistic cyber threat opposing force. The virtual firewall and improved software tools were effective. The program provided one expert field service representative to implement improved cybersecurity by configuring the virtual firewall and assisting soldiers with operation and maintenance of the virtual firewall. To sustain this level of improved cybersecurity, the Army must either resource field service representatives or train Signal Soldiers to accomplish these complex tasks.
- The FY16 National Defense Authorization Act directed the DOD to conduct a comprehensive assessment of the current and future capabilities and requirements of the Army’s air-land, mobile tactical communications and data networks. As a result of this assessment, the Army requested to halt procurement of WIN-T Increment 2 at the end of FY18. The Army intends to field TCN-L and NOSC-L to Infantry Brigade Combat Teams and complete fielding of WIN-T Increment 2 to Stryker Brigade Combat teams. The Army no longer plans to field WIN-T Increment 2 to Armored Brigade Combat Teams.

### System

- The Army designed WIN-T as a three-tiered communications architecture (space, terrestrial, and airborne) to serve as its high-speed and high-capacity tactical communications network.
- The Army intends WIN-T to provide reliable, secure, and seamless communications for units operating at theater level and below.



CH-47 Transporting TCN-L



Network Operations Security Center - Lite (NOSC-L)



Tactical Communications Node - Lite (TCN-L)

- The WIN-T program consists of three funded increments. In May 2014, the Defense Acquisition Executive approved the Army’s request to stop development of the Increment 3 aerial tier of networked, airborne communications relays and limit Increment 3 to network management and satellite waveform improvements.
  - Increment 1: “Networking At-the-Halt” enables the exchange of voice, video, data, and imagery throughout the tactical battlefield using a Ku-band and Ka-band satellite-based network. The Army has fielded WIN-T Increment 1 to its operational forces.
  - Increment 2: “Initial Networking On-the-Move” provides command and control on-the-move down to the company level for maneuver brigades and implements an improved network security architecture.
    - WIN-T Increment 2 supports on-the-move communications for commanders with the addition of the Point of Presence and the Soldier Network Extension, and provides a mobile network infrastructure with the Tactical Communications Node. It employs a terrestrial Highband Networking Waveform and a satellite Network Centric Waveform to support its network mobility goals.
    - WIN-T Increment 2 provides a downsized, air-transportable variant of the High Mobility Multi-purpose Wheeled Vehicle (HMMWV)-mounted configuration to support the Army’s Global Response Force and other light brigades. The downsized WIN-T variants include the TCN-L and the NOSC-L.
  - Increment 3: “Full Networking On-the-Move” was to provide full mobility mission command for all Army field commanders, from theater to company level using networked airborne communication relays. With program

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reductions, WIN-T Increment 3 now provides enhanced network operations and an improved satellite waveform to WIN-T Increments 1 and 2.

## Mission

Commanders at theater level and below will use WIN-T to:

- Integrate satellite-based communications capabilities into an everything-over-Internet Protocol network to provide

connectivity, while stationary, across an extended, non-linear battlefield, and at remote locations (Increment 1).

- Provide division and below maneuver commanders with mobile communications capabilities to support initial command and control on-the-move (Increment 2).

## Major Contractor

General Dynamics, C4 Systems – Taunton, Massachusetts

## Activity

- In September 2016, the Army conducted the WIN-T Increment 2 Developmental Test Phase One at Fort Bliss, Texas. The developmental test validated TCN-L technical Key Performance Parameters and readiness for entrance into operational test.
- In December 2016, the Army conducted the WIN-T Increment 2 Developmental Test Phase Two at Fort Campbell, Kentucky. The developmental test validated the readiness of the NOSC-L for entrance into operational testing and served to validate instrumentation and data reduction for operational test.
- The Army conducted a WIN-T Increment 2 TCN-L and NOSC-L FOT&E during the July 2017 Network Integration Evaluation 17.2. The 2nd Infantry Brigade Combat Team, 101st Airborne Division conducted operationally realistic missions at Fort Bliss, Texas. The FOT&E focused on the integration of TCN-L and NOSC-L capabilities into HMMWV platforms and the ability of a unit equipped with the downsized configuration items to support its mission. The Army conducted the test in accordance with a DOT&E-approved test plan.
- DOT&E finalized the emerging results for the WIN-T Increment 2 TCN-L NOSC-L FOT&E in October 2017 and intends to complete an assessment of the FOT&E to support an Army TCN-L NOSC-L fielding decision in 1QFY18.
- The FY16 National Defense Authorization Act directed the DOD to conduct a comprehensive assessment of the current and future capabilities and requirements of the Army's air-land, mobile tactical communications and data networks. As a result of this assessment, the Army requested to halt procurement of WIN-T Increment 2 at the end of FY18. The Army intends to field TCN-L and NOSC-L to Infantry Brigade Combat Teams and complete fielding of WIN-T Increment 2 to Stryker Brigade Combat teams. The Army no longer plans to field WIN-T Increment 2 to Armored Brigade Combat Teams.
- The TCN-L and NOSC-L are operationally effective. The downsized TCN-L and NOSC-L demonstrated success in supporting the unit's mission. Brigade soldiers were able to plan, install, operate, and maintain a WIN-T network under operationally realistic conditions.
- NOSC-L tools were effective and useful with the exception of the network operations summary board, which portrayed delayed network information and did not support network monitoring.
- The brigade was able to transport the TCN-L and NOSC-L by CH-47F helicopters in a realistic tactical environment.
- The NOSC-L is operationally suitable and met its reliability requirement. NOSC-L training provided by the Army should be improved. Soldiers requested more in-depth training to include advanced theory of operations, system operations, troubleshooting, and software use.
- The TCN-L is operationally suitable and met its reliability requirement, but not with confidence (80 percent lower confidence bound). TCN-L training provided by the Army is not adequate for soldiers to be able to install, operate, and maintain the system.
- The TCN-L and NOSC-L exceeded their availability and maintainability requirements.
- WIN-T Increment 2 is survivable. WIN-T Increment 2 demonstrated a robust cyber network defense to protect against an operationally realistic cyber threat opposing force. The virtual firewall and improved software tools were effective. The program provided one expert field service representative to implement improved cybersecurity by configuring the virtual firewall and assisting soldiers with operation and maintenance of the virtual firewall. To sustain this level of improved cybersecurity, the Army must either resource field service representatives or train Signal Soldiers to accomplish these complex tasks.

## Assessment

- The Army's execution of the WIN-T Increment 2 TCN-L and NOSC-L FOT&E was adequate to support the assessment of operational effectiveness, operational suitability, and survivability.
- Results from the WIN-T Increment 2 TCN-L NOSC-L FOT&E are:

## Recommendations

- Status of Previous Recommendations. The program addressed four of five previous recommendations. The Army has not demonstrated an improved integration of WIN-T into Stryker combat vehicles.
- FY17 Recommendations. The Army should:

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1. Fix the implementation of WIN-T cybersecurity. The Army should either resource field service representatives or train Signal Soldiers to accomplish these complex tasks.
2. Improve training provided to TCN-L and NOSC-L soldiers.
3. Improve the NOSC-L network operations summary board to provide timely and accurate information to support WIN-T network monitoring.
4. Demonstrate WIN-T improvements in future operational test.

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