

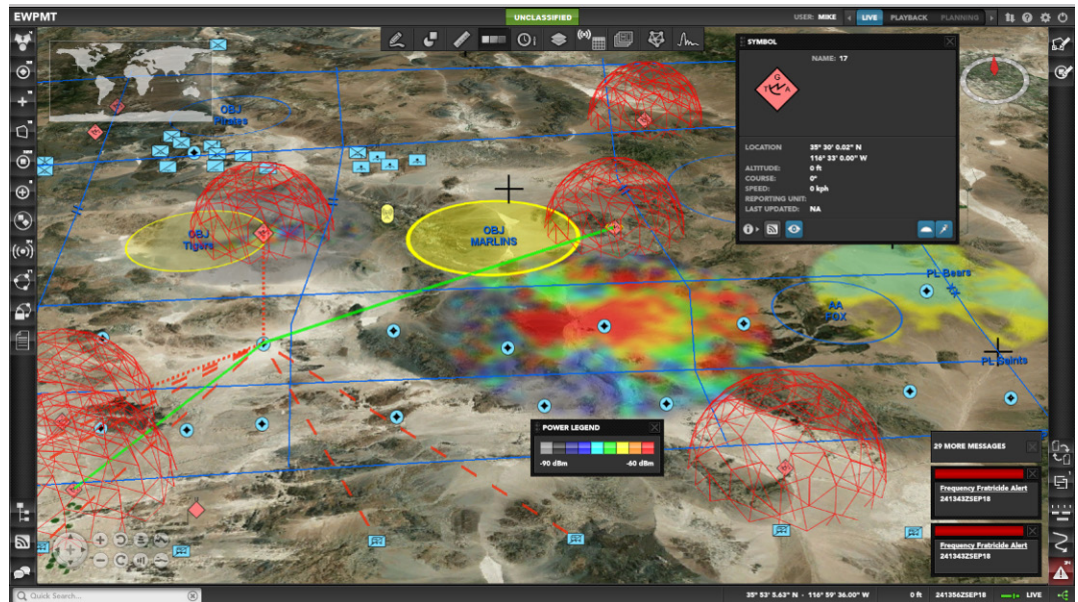
Electronic Warfare Planning and Management Tool (EWPMT)

Executive Summary

- In response to a U.S. Army Europe (USAREUR) and 8th Army Cyber Electromagnetic Activities (CEMA) Operational Needs Statements (ONS), the Program Executive Office Intelligence Electronic Warfare and Sensors (PEO IEW&S) continued to develop and deploy early versions of Electronic Warfare Planning and Management Tool (EWPMT) Increment 1 (INC 1). This early EWPMT INC 1 capability planned for FY20 deployment is referred to as “EWPMT.”
- In addition to EWPMT, PEO IEW&S is deploying Versatile Radio Observation and Direction Finding Modular Adaptive Transmitter (VMAX) and the Tactical Electronic Warfare System (TEWS). Collectively, this capability is referred to as USAREUR and CEMA ONS Integrated Electronic Warfare (EW) Phase II (IEW Phase II) and will deploy starting 2QFY20.
- The Program Office equipped 2nd Stryker Brigade Combat Team (SBCT), 2nd Infantry Division with IEW Phase II equipment. The SBCT participated in the Joint Warfighter Assessment (JWA) 19.1. EW and CEMA soldiers from the SBCT participated in the Joint Operational Integration Assessment (JOIA). Both events allowed the Army the opportunity to refine tactics and employment of EW systems. During JOIA, the CEMA EW technician coordinated with the Cryptologic Support Team (CST) for signals of interest identification and mission collaboration. This coordination was a distinct improvement over tactical EW employment from JWA 18.1 and 19.1.
- The Army conducted a developmental test (DT) and a Cooperative Vulnerability and Penetration Assessment (CVPA) at Yuma Proving Grounds, Arizona.

System

- The Army planned the EWPMT INC 1 program as a spiral development with four capability drops. The Army dispensed with the strategy to support the ONS. The complete EWPMT INC 1 will include the following capabilities: EW planning, spectrum management, EW targeting, and remote control and management of sensors in disconnected, intermittent, and latent network environments.



Screenshot of EWPMT

- EWPMT INC 1 will reside in the Command Post Computing Environment as a server-client web-based application and/or a server-client laptop configuration.
- The Army deployed tactical EW capabilities to three brigades in Europe in FY18 for USAREUR ONS Phase I. PEO IEW&S continued development this year. IEW Phase II will provide the following capabilities to the field starting in 2QFY20:
 - EWPMT – All EWPMT INC 1 required capabilities to improve the capability to determine the footprint of friendly units. These capabilities do not include enhanced simulation features and sense spectrum data.
 - TEWS – Vehicle-mounted electronic support and electronic attack sensor system with increased spectrum coverage over the USAREUR ONS Phase I platform, Sabre Fury.
 - VMAX – Dismounted electronic support and electronic attack sensor system.

Mission

- The Commander, EW officer, Spectrum Manager, and CEMA cell employ EWPMT INC 1 from battalion to theater level to conduct EW battle management. This is the capability to plan, coordinate, and synchronize EW in support of the commander’s tactical plan. A unit equipped with EWPMT is capable of conducting electronic attack and electronic support, and synchronizing EW, Spectrum Management

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Operations, and CEMA across intelligence, maneuver, and communications functions.

- The Army intends a brigade equipped with IEW Phase II systems to be capable of conducting spectrum situational awareness, EW planning, dismounted and vehicle based direction finding, and electronic attack.

Major Contractor

Raytheon Space and Airborne Systems – Fort Wayne, Indiana

Activity

- The SBCT employed IEW Phase II systems and Raven Claw (an earlier version of the EWPMT software) during the JWA 19.1 in April 2019 at Yakima Training Center, Washington.
 - The 2-2 SBCT EW operators deployed in TEWS-configured Stryker Double-V Hull (DVH) vehicles in support of the Cavalry squadron during JWA 19.1. Stryker DVH vehicles have an internal 570-amp alternator for power generation.
 - JWA 19.1 was a coalition-level force-on-force training exercise. JWA 19.1 provided an opportunity to observe the operational employment and collect operator feedback of the IEW Phase II systems.
 - Since JWA 19.1 was a training exercise, the Army did not develop an operational test plan for DOT&E approval.
- CEMA and EW soldiers from SBCT, Marine Corps Electromagnetic Spectrum Operations Cell personnel, and associated systems participated in JOIA. Marine Corps and Army Training and Doctrine Command conducted JOIA from June 4 – 13, 2019, at Camp Lejeune, North Carolina. The objective of the JOIA was to assess and experiment with inter-Service EW capabilities and inform the signals intelligence, EW and cyber operations concept, and capability development.
- The Army conducted a DT and CVPA to assess EWPMT interoperability at the Yuma Proving Grounds, Arizona, in July and August 2019. DOT&E approved the CVPA plan and observed both the DT and CVPA activities.
- The Army employed Raven Claw in the TEWS vehicle during JWA and JOIA. The EWPMT software will be in the IEW Phase II systems for integration of sensors.
- The Army is developing a Simplified Acquisition Management Plan (SAMP) for EWPMT INC 1. The SAMP defines the acquisition and test program and will be submitted to DOT&E for approval. The Army will use the SAMP in lieu of a Test and Evaluation Master Plan.
- The Army plans to conduct a DT with soldiers in October 2020. IOT&E is scheduled for April 2021.
- Stryker vehicle batteries are not sufficient to support TEWS and VMAX equipment. Increased fuel consumption and aural signature limited employment of the TEWS. The TEWS-configured Stryker could operate on battery power for 20 minutes before requiring the engine to run to recharge the vehicle batteries.
- The Blue Force Tracker (BFT) network is the only method of digital communication from TEWS to brigade. During JWA, the BFT network was not reliable and often failed, with no alternate communication pathway. The volume of data processed and transmitted by EWPMT presents a challenge to the BFT network capacity. Should the network load from EWPMT exceed BFT capacity, data will be lost. As JWA did not include instrumented data collection, it is not possible to determine the extent of the loss.
- During JOIA, SBCT employed the EWPMT, TEWS, and VMAX sensor systems. The CEMA EW Technician coordinated with the CST for signals of interest identification and mission collaboration, received EW sensor information, and provided battle damage assessment and EW effect to the EW teams. This collaboration and coordination represents a distinct improvement over tactical EW employment from JWA 18.1 and 19.1.
- During the DT of EWPMT systems at Yuma Proving Ground, the Army demonstrated spectrum management, spectrum lines of bearing collection, geolocation creation, and target intelligence data nomination to the Advanced Field Artillery Tactical Data System. In line with the agile software development strategy, the Army demonstrated fixes and enhancements made in response to identified system deficiencies and soldier comments.
- The CVPA conducted during the DT identified cyber vulnerabilities. The Army intends to fix vulnerabilities identified and conduct a CVPA every 6 months to continue improving the security posture, with the next event tentatively scheduled for February 2020.

Recommendations

The Army should:

1. Continue to refine doctrine to support tactical EW employment. As the Army refines doctrine, it should continue to improve coordination between EW and intelligence to provide EW crews with the essential

Assessment

- The Army is rebuilding EW capabilities lost after the end of the Cold War. The Army continues to refine its doctrine to support the employment of tactical EW. The Army revised the Electronic Warfare Techniques publication in July 2019.

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- information required to discern between friendly and enemy target signals of interest.
2. In conjunction with the Network Cross-Functional Team and Integrated Tactical Network Program Office, identify a primary, alternate, contingency, and emergency communication plan for TEWS.
 3. Conduct future developmental test events with operationally realistic threats, scenarios, sensors, and networks. Include appropriate instrumentation.
 4. Continue efforts to increase vehicle operating time when main power is off.

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