The 4th Battalion, 5th Air Defense Artillery Regiment persistently works to sharpen both its tactical and technical proficiency as it prepares for Force Readiness Unit (FRU) assumption. Since 4-5th ADA’s return from U.S. Central Command area of responsibility in 2017, the unit executed a full Patriot System reset and upgrade to Combined Cryptographic Modernization Phase I and Post Deployment Build 8, a complete change in leadership at both the battalion and battery levels, and the completion of Table VIII certifications on October 2018. The 4-5th ADA leaders were looking for a training solution to develop the skills necessary to compete on the modern battlefield. Standardized Patriot Engagement Assessment of Readiness (SPEAR) was that solution. SPEAR was formerly a validation of a unit’s gunnery program and incorporates a variety of dynamically scripted scenario injects including air breathing threats, tactical ballistic missiles and faults to provide the operators the most challenging scenarios possible. This paper discusses ADA challenges in large-scale combat operations (LSCO) based on the National Intelligence Council’s anticipated changes in warfare. Then the paper shows how skills necessary to compete in those operational environments are trainable using SPEAR exercises. Finally, the paper explains how 4-5th ADA executed the SPEAR exercise and discusses some of the key elements that made the training successful.

**The emerging threat and training gaps**

The National Intelligence Council predicted in their 2017 Global Trends report that a key change to warfare is “increasing capabilities for stand-off and remote attacks.” They expect precision-guided weapons, long-range strike assets and “unmanned-armed” aerial vehicles will “shift warfare from direct...
clashes of opposing armies to more standoff and remote operations, especially in the initial phases of conflict. These threats are not new to air defense. During the initial phases of Operation Desert Storm and Operation Iraqi Freedom (OIF), Patriot batteries performed critical protection roles for critical command and control and logistics nodes. Furthermore, in OIF, Patriot batteries supported offensive operations during the invasion of Iraq, protecting the 3rd Infantry Division and filling an essential role in combined arms maneuver on a non-contiguous battlefield. The key difference between these historical operations and the predicted “shift in war” is the number and quality of these systems available to adversaries. Adversaries can cheaply build massive arsenals of these types of weapons that challenge the limits of current air defense technology.

Furthermore, adversaries can adapt more rapidly than ever before, including mid-conflict. Examples of this flexibility and adversary agility are observable in both the Ukrainian and Syrian conflicts. Finally, the challenges of fighting aerial threats on a non-contiguous battlefield remain today, presenting the risk of attacks from multiple directions with little warning.

The only way to defeat these threats is with air defense capabilities. Fourth-5th ADA already updated each of its Patriot systems to the most advanced post deployment build available. Still, customary training programs lack the dynamic and highly fluid nature of the anticipated modern and future battlefield. Therefore, training gaps existed in the ability to develop agile and flexible Patriot system operators, capable of performing at high levels in that environment.

**Finding a solution: Reemergence of SPEAR**

The leaders of 4-5th ADA knew they needed to challenge training paradigms to find a solution. Key elements of the threat described above include flexibility, agility, creativity and innovation. These elements exist across multiple threat systems and weapon types. These types of threats are challenging to script in normal air battle sequences and training. However, the dynamic scripting capabilities available through the use of SPEAR equipment do offer opportunities to replicate those elements. Fourth-5th ADA determined that, if it was to prepare its Soldiers to encounter these types of threats, the optimal mechanism to deliver the training was with the equipment in a SPEAR environment.

Air defense training normally focuses on the gunnery tables, and the development of tactics techniques and procedures (TTPs) conducted mostly at the battery level with some battalion classes. The demanding CENTCOM air defense missions have left little time to train for the dynamic threat previously discussed, instead focusing on TTPs for the region. Tactical seminars (TACSEMs) are a chance to teach and discuss TTPs and capabilities against dynamic threats. One of the key elements desired of the SPEAR training was to include battalion-level TACSEMs discussing the threats and results of their TTPs in action to improve the knowledge across the entire battalion. The SPEAR training provides a forum to teach a new generation of tacticians the lessons learned from past LSCO (i.e., Operation Iraqi Freedom). The Renegades recognized the potential they could reach through the SPEAR training.

**SPEAR execution**

SPEAR gave 4-5th ADA the avenue to assess the battalion’s ability to conduct air battle management in a complex environment and validate gunnery certifications conducted the month prior. The battalion’s subject matter experts, consisting of the Battalion Standardization Team, Patriot Top Guns and Patriot Master Gunners, led the charge to build crew competency, adaptability and critical thinking in high stress environments. In combat, not all situations call for a set of pre-planned responses; operators must be aware of the capabilities and inherent limitations of the weapons system they are charged to employ. With this in mind, SPEAR scenarios were scripted to create potential over-engagements, failed engagements, impacts and fratricides to test the operators’ ability to make quick, complex decisions. After each scenario, evaluators and participants conducted after-action reviews (AAR). Then exercise participants discussed and developed tactics, techniques and procedures for use in subsequent scenarios. The collective AARs identified trends in operator actions and allowed open discussion of potential battlefield dilemmas. During the evaluations, crews not actively participating in an air battle management scenario attended Tactical Seminars. TACSEMs built on training conducted over the previous year and focused on topics such as anti-radiation missile procedures, communications loss procedures and equipment fault reporting procedures. These scenarios were encountered in the last LSCO ADA units participated in and were the initial reason for the creation of the SPEAR training program.

During the SPEAR, each crew fought at least three Air Battle Management Level 11s, the standard for mission assumption. Some crews were able to attempt the advanced Air Battle Management Level 16. Throughout the air battles, crews were able to experience numerous communication losses that forced operators to execute their primary, alternate, contingency, emergency (PACE) communications plans at all levels. Crews overcame communications problems by alternating between voice, free form text, and runners throughout air battle scenarios.

Through any method possible, crews communicated vital information between the information
coordination central and Air Defense Artillery fire control officers to ensure air defense coverage of all defended assets. The Renegade Battalion demonstrated that its operators understand critical decision timelines, they can execute PACE plans, and operate autonomously if necessary.

The aggressive training strategy supplemented by SPEAR allowed for officers, NCOs, and Soldiers to teach the complexities of the Patriot system and concluded with a defense design brief, tabular entry packet and unit TTPs based off a given scenario set in a non-permissive environment a radical change to what the Soldiers had previously trained on with the CENTCOM focus. The design represented a real-world scenario in which the battalion deployed to a new location and immediately provided air and missile defense against an imminent threat. As validation of the hard work and tenacity of the Renegade Battalion, they once again stepped up to the challenge and demonstrated their ability to fight in any Patriot system, anywhere, and be successful. The Renegade Battalion’s ability to move operators from various engagement control stations (control shelters for the Patriot weapon system) demonstrated the core competency of crews across the battalion as they adjusted to different assets, locations, shelter faults and flawlessly continued to execute mission despite conditions to which they were unaccustomed to and had never trained.

The training event was also an excellent opportunity to hone the skills of leaders to execute training. Training Patriot skills and competencies, especially focused on a dynamic threat, are highly technical and require intensive preparation and management. Chief Warrant Officer 3 William “Andy” Adamek, the battalion standardization officer, served as the execution officer and orchestrated the SPEAR by developing a training plan that allowed crews to conduct air battles at the ABML 5 (beginner), ABML 11 (intermediate) and ABML 16 levels.

“This is my first SPEAR as an OIC of the unit going through the event. In the past, I have evaluated four battalions and participated as an operator in over 10 SPEARS. My experience helped me in developing the SPEAR and balancing the Air Battles, TACSEMs and AARs throughout the exercise,” said Adamek. “I knew that the daily flow of unit operations could determine if a SPEAR is successful or not. Using this knowledge, we were able to plan the event well in advance and remove any distractors that could prevent the participants from maximizing this training opportunity. My standardization team enforced SPEAR and gunnery doctrine, which made my job relatively easy; I managed the schedule and flow of the training exercise. I allowed my standardization team to manage our master gunners, who served as evaluators, and gave operators participating in the exercise the most feedback for improvement possible.”

Assessment

The TACSEMs and training scenarios were efficient in achieving the results desired. SPEAR provided the ideal environment to test TTPs in the closest simulation to dynamic combat scenarios achievable at home station. Gaps in training were discovered in the AAR and became the focus of training moving forward to mission assumption.

The dynamic nature of SPEAR scenarios successfully replicated challenges anticipated in a modern and future LSFO, facing peer/near-peer adversaries. The ability to create adaptable scenarios and the forum to discuss and develop TTPs is highly recommended by 4-5th ADA to all air defense units to include in their training strategies.

The SPEAR also provides an invaluable opportunity for leader development in the sense that it allows junior officers and their subordinates the training environment with which to think and see themselves through a critical lens. This enhanced perspective was especially bolstered by the candid after-action review process that SPEAR equipment supports. Cultivating critical thinking through exercises such as this encourages leaders to look beyond the horizon and see just how important not only training readiness is, but also how their performance and preparedness narrows the gap in an already complex environment. The Renegade Battalion will continue pushing its training to the limits to ensure that the unit is not only willing but able to deploy at a moment’s notice; against any threat, in any location, at any time.

Lt. Col. Tom M. Noble is the battalion commander of the 4th Battalion, 5th Air Defense Artillery Regiment. Noble has over 20 years of SHORAD/Patriot operations including serving as a SHORAD battery commander during Operation Iraqi Freedom I, battalion executive officer and brigade deputy commander.

Capt. Samantha K. Griesinger is the battery commander of Alpha Battery, 4th Battalion, 5th Air Defense Artillery Regiment. Griesinger is a Patriot Top Gun graduate with two deployments serving as tactical control officer, tactical director and brigade assistant plans officer.

Capt. John M. Moriarity is the battery commander of Charlie Battery, 4th Battalion, 5th Air Defense Artillery Regiment. Moriarity is a Patriot Top Gun, ADAFCO, MAJIC and Ranger school graduate and has completed two deployments as tactical control officer, battalion and brigade tactical director.