Lockheed Martin Supports USMC Exercise With Advanced 5G Capabilities

CAMP PENDLETON, Calif., Feb. 5, 2025 – Lockheed Martin (NYSE: LMT), along with support from Intel Corporation and Radisys Corporation (NASDAQ: RSYS), conducted 5G military demonstrations during the U.S. Marine Corps (USMC) exercise, Steel Knight 2024. In partnership with USMC, the Office of the Under Secretary of Defense for Research and Engineering's (OUSD(R&E)) FutureG Office, and various industry partners, the Open Systems Interoperable and Reconfigurable Infrastructure Solution (OSIRIS) system was deployed as a standalone 5G network to support operations across all domains.

Led on the ground by the Marine Corps Tactical Systems Support Activity (MCTSSA) 5G team, the capstone event was an effort to test tactical wireless capabilities in support of Expeditionary Advanced Base Operations (EABO).

During the exercise, the OSIRIS testbed integrated with unmanned air vehicles (UAVs), both free-flying and tethered. The system allowed operators to establish and host a secure connection through the OSIRIS testbed to multiple UAVs simultaneously, and a wireless connection, over 5G, between a USMC Ground/Air Task-Oriented Radar (G/ATOR) and a USMC Air Command and Control System (AC2S). Operators were able to send and receive battlefield data to enable realtime decision making in a variety of operational scenarios.

The Big Picture

- Steel Knight is an annual real-world military exercise using at-scale test facilities to enable rapid experimentation to address multiple Department of Defense (DoD) mission areas.
- The OSIRIS testbed deployed with Marine Air Control Group (MACG) 38 to Marine Corps Base Camp Pendleton to showcase 5G capabilities tested throughout the experiment to include: persistent Intelligence, Surveillance, and Reconnaisance (ISR) using UAS platforms; 5G failover capability using tactical radios; aerial 5G base station and a domestically produced 5G solution.
- The exercise provided valuable insight as to how 5G capabilities can be used to support the USMC's goals for Littoral Operations in a Contested Environment (LOCE) and the complementary EABO efforts.
    - LOCE aims to to develop the capability to conduct expeditionary, distributed, and networked naval and ground operations in the littorals, or the coastal regions.
    - EABO refers to USMC's ability to rapidly deploy and operate expeditionary advanced bases in support of naval and joint operations. These bases can be established on land or at sea, and are designed to provide flexible and scalable logistical, command and control, and firepower capabilities to support a range of military operations.
- The OSIRIS testbed consists of three configurations used during the exercise:
    - Nomadic Tower
    - Mobile Relay
    - Stand-alone Integrated Access and Backhaul (IAB)
        - IAB, which was demonstrated at tactical relevant distances for the first time during the Steel Knight exercise, enabled expanded 5G mesh coverage between nodes.
- The OSIRIS system is an ORAN compliant private 5G system, consisting of Intel FlexRAN™ reference software, Intel Xeon processors, Radisys software, and other 5G subsystems integrated by Lockheed Martin, and further enhanced to address USMC expeditionary requirements.

"The OSIRIS demonstration during exercise Steel Knight was an important proof point in showing Lockheed Martin's 5G.MIL® capabilities," said **Erika Marsall, vice president, Lockheed Martin C4ISR.** "Conducting demonstrations with our partners is a critical final step to understanding how these applications can be applied to real-world missions. We will continue to invest in commercial technologies, to develop solutions that can be tailored in a variety of ways, and bring the best capabilities to our warfighters."

"Nomadic wireless backhaul enables real-time communications in environments where physical infrastructure is either lacking or disabled," said **Cristina Rodriguez, vice president and general manager, Communication Solutions Group at Intel.** "This Lockheed Martin-led demonstration utilizing Intel 5G technologies showed the advancements we've made together in creating a robust testbed capable of enabling 5G connectivity across multiple domains."

The Steel Knight exercise is a critical milestone for the Lockheed Martin led OSIRIS program to provide secure, reliable connectivity for 5G.MIL use cases," said **Munish Chhabra, Radisys Head of Software and Services Business.** "Radisys is proud to support Lockheed Martin 5G.MIL objectives with our suite of commercial technologies, starting with 5G FR1/FR2 Connect RAN IAB Donor-Relay Node, 5G Core software and in future via 5G NTN, enabling reliable connectivity in challenging environments."

What's Next?

The OSIRIS program will complete its delivery of the supporting equipment and remaining documentation to include test results, user guides, and final reports from the experiment. Further testing and experimentation with infrastructure will also allow for the connection of various 5G-ready user devices, sensors, vehicles and endpoints to explore the military utility of commercial 5G technologies and pave the way for onboarding of new technologies.

Background

- Lockheed Martin was awarded the OSIRIS contract in 2021 as a $19.3 million Prototype Project Agreement (PPA) to create a 5G communications network infrastructure testbed for expeditionary operations experimentation for OUSD (R&E) and the U.S. Marine Corps.
- The OSIRIS testbed is a key initiative of Lockheed Martin's 5G.MIL® programs which are positioned to help its customers field, scale and integrate 5G technology rapidly and affordably across all operations on land, water, in air, space and cyber.
- The delivery of the Phase 1 Initial Prototype 5G testbed marked the beginning of 20 months of mobile network experimentation.
- In Phase 2, the USMC and Lockheed Martin team leveraged the 5G testbed to conduct four distinct experiments, called mission sprints, using different 5G use-case applications within the context of EABO doctrine.
- Throughout Phase 2, lessons learned during the mission sprints were used to drive further 5G application enhancements to address opportunities for improved performance and utility in anticipation of Phase 3 and the Steel Knight capstone demonstration.
- Phase 3, the Steel Knight demonstration, added elements of field user assessments by Fleet Marine Forces to complement the data captured in previous phases.

About Lockheed Martin

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