Tethered Drone Extends Line-of-Sight Communications for Surface Platforms

C-TEM provides extended sensor, network, and communications capabilities to meet the operational needs of the hybrid fleet. The containerized system is self-contained, takes up minimal space, and requires little human intervention. *General Dynamics Mission Systems*

General Dynamics Mission Systems' Containerized Tethered Elevated Mast (C-TEM) shipboard tethered unmanned aerial system solution will extend line-of-sight communication for U.S. Navy ships and unmanned surface vessels.

General Dynamics Mission Systems is a mission integrator for the Navy's hybrid fleet of manned and unmanned platforms. The company is partnering with Dragonfly Pictures Inc. (DPI), a small business based in Essington, Pennsylvania, for the C-TEM

program.

According to Scott Beauchemin, vice president for Surface Systems at General Dynamics Mission Systems, there are many advantages of a tethered drone to elevate a sensor, especially in contested environments.

“C-TEM use cases are only limited by the warfighter’s imagination,” Beauchemin said.

“C-TEM extends sensor, network and communications capabilities on an as-needed basis. With all-weather, long-endurance mission support, automated flight control and a low visual signature in-flight, C-TEM is ideal for both manned surface platforms and unmanned surface vessels, which will become more and more prevalent in the U.S. Navy’s fleet,” Beauchemin said. “In addition to its encrypted high-bandwidth data exchange capability, C-TEM can also be outfitted with numerous capability packages, ranging from radar, electronic warfare, counter UAS, ISR [Intelligence, surveillance, and reconnaissance], and other missions.”

Beauchemin said C-TEM can be quickly deployed and retrieved for continuous sustained operations in all weather conditions. The containerized system is easy to install and requires minimal integration to existing systems.

“Terrestrial communications remain a critical tool for digital connectivity for manned and unmanned vehicles. Elevating antennas from moving platforms is no easy task as it requires a well-coordinated dance between air-sea platforms,” said Mike Piasecki, DPI’s president. “We believe C-TEM systems can have meaningful impact on future naval unmanned maritime missions around the globe.”

The aircraft weighs 55 pounds with a 15-pound payload installed and can fly as high as 500 feet above the launch platform. The system requires very little operator intervention. Station keeping and sensor direction is managed

autonomously, and safe recovery protocols are automatic.

The C-TEM contract was awarded to General Dynamic Mission Systems in June 2022 via the Unmanned Surface Vehicle Family of Systems multiple award contract by the Naval Sea Systems Command in Washington, D.C. The contract, including options if exercised, has a cumulative value of $39.4 million.