General Dynamics Mission Systems Introduces Badger Software-Defined Radio for Voice, Data Communications

General Dynamics Mission Systems' new Badger software-defined radio, unveiled at Sea-Air-Space 2021. *GENERAL DYNAMICS MISSION SYSTEMS*

General Dynamics Mission Systems recently introduced its new Badger software-defined radio at the Navy League's Sea-Air-Space Symposium in National Harbor, Maryland.

The Badger is based on the company's established AN/USC-61(C) Digital Modular Radio (DMR) providing secure communications aboard U.S. Navy surface combatants, aircraft carriers and submarines as well as fixed sites at shore installations. General Dynamics has delivered more than 900 DMR radios to the Navy.

According to Stan Kordana, vice president of Surface Systems at General Dynamics Mission Systems, Badger meets a customer need for a radio offering the same waveforms, security and flexibility of the four-channel DMR, but with a more compact footprint. The two-channel Badger is a quarter of the size of DMR, and provides the same level of Multiple Independent Levels of Security (MILS) for ship-to-ship and ship-to-shore voice and data communications.

"The reduced size, weight and power make it ideal for smaller platforms across multiple domains that only require two channels, and at the same time simplifies logistics and reduces costs," Kordana said.

According to Kordana, "Badger is the only radio available that

provides high frequency, very high frequency, ultra high frequency and SATCOM Mobile User Objective System [MUOS] waveform capability. The integration of MUOS significantly enhances beyond line-of-sight, or satellite voice and data communications."

Bill Rau, vice president, Surface Ship Warfare System, said Badger has programmable embedded NSA certified Type 1 encryption that secures communications and simplifies the system architecture.

"It has MILS capability which enables it to communicate simultaneously at multiple levels of security on each of the radio's two channels – and each one can be tuned to a broad range of frequencies. Furthermore, Badger's software-defined, flexible open architecture enables future next-generation communications including waveforms, encryption algorithms and advanced network connectivity to be easily incorporated as needs evolve."

The first DMR units were delivered to the Navy in the early 2000s, Rau said, adding, "we're expecting to hit the 1,000th delivery in the coming months."

According to Rau, DMR is the first software-defined radio to become a communications system standard for the U.S. military.

"It's on every class of surface ship, aircraft carrier, submarine and shore installation. DMR is a compact four-channel radio. With only a few DMRs, ships can essentially replace an entire 'radio central' room of legacy radios and equipment on older ships."

Because these are software defined radios, Rau said, "In many cases, waveforms and features can be updated by adding software, without needing to send the radio back to a depot."

Badger doesn't replace DMR. "It's a newer, smaller version based on the DMR but with two channels instead of four." Rau

said. “Badger takes the goodness of the DMR and puts it into a smaller package with a modern voice-over internet protocol interface to the ship systems so it can be used on even more platforms, including unmanned surface vessels.”

DMR and Badger are produced at the General Dynamics Mission Systems facility in Scottsdale, Arizona.