

WHO

SYSCOM: ONR

Sponsoring Program: ONR

Transition Target: W-band and 2–18 GHz wireless communication systems for military or commercial applications

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Other Transition Opportunities: Multiple opportunities exist within the Navy, Marine Corps, Army and Air Force in particular applications such W-band backhaul communications and 2–18 GHz electronic warfare. MaXentric Technologies has targeted several programs within the armed services and commercial 5G/6G industry primes to offer high performance switch products.

Notes:



<https://www.navy.mil/Resources/Photo-Gallery/igphoto/2003595690/>

WHAT

Operational Need and Improvement: Many wireless communications systems use RF switches either to protect the receiver or because they use time duplexing schemes. SWING technology satisfies the requirement with high power handling, low losses, and low cost. The technology will be suitable for millimeter-wave active electronically scanned arrays (AESAs). The rapid adoption of low-cost unmanned aerial vehicles (UAVs) and widespread use of electronic warfare have led to increased investments in technologies to defend against such threats, including electronic warfare countermeasures (ECM) such as jammers and spectrum denial systems, electronic warfare protection measures (EPM) such as jamming-resistant active electronically scanned arrays (AESAs), and electronic warfare support (ES) such as surveillance radars. Many of these systems operate in the 2–18 GHz band and would benefit from the higher power handling, higher efficiency, and lower SWaP provided by SWING technology.

Specifications Required: - >1-W W-band SPDT switch
- 10-W 2–18-GHz SPDT switch

Technology Developed: SWING uses N-polar-GaN-on-sapphire HEMT technology that can combine millimeter-wave low-noise amplifiers (LNA), power amplifiers (PA) and transmit/receive (T/R) switch on a single chip for lower fabrication costs.

Warfighter Value: SWING will deliver low-cost, broadband, low-loss and high-power switch components for high-data rate communications in challenging environments. A wide range of systems can benefit from this technology due to the wide frequency bandwidth covered by the switches. Currently phased arrays are one of the most expensive components in modern wireless infrastructure equipment. Lowering the cost of these components will enable wide-scale deployment of high performing systems providing real-time tactical date and information sharing between ships and aircraft.

WHEN

Contract Number: N68335-25-C-0024

Ending on: Oct 31, 2026

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Power characterisation of the switch device	Low	Device model fits measured device performance	3	4th QTR FY25
Generation 1-A switch MMIC	Medium	Prototype meets requirements	4	4th QTR FY25
Generation 1-B switches	Medium	Prototype meets requirements	4	2nd QTR FY26
Generation 2 switch design	Low	Simulated performance meets requirements	3	3rd QTR FY26

HOW

Projected Business Model: MaXentric will invite interested parties (military and commercial) to review SWING prototype performance at the end of Phase II. Based on customer/partner feedback, MaXentric will adapt the switch specifications to satisfy the target application. Main potential clients include, but are not limited to, the Department of Defense (DoD) and its prime contractors, and commercial telecommunication companies.

Company Objectives: MaXentric Technologies, LLC is a cutting-edge R&D firm that provides radio-frequency technologies and high-speed wireless communication systems and strives to provide advanced and efficient solutions for government and commercial usage.

Potential Commercial Applications: The potential commercial markets are wireless backhaul links, 5G/6G radios, and W-band SATCOM.