MatrixSpace Awarded $1.25M AFWERX Open Topic SBIR Contract to Develop Low SWAP-C Multi-function Payload

Small, low-cost, multi-band, high-performance UAS sensor package for sensing, communications, and electronic warfare to enable Replicator initiative.

AFWERX has selected MatrixSpace for a $1.25M Direct-to-Phase II SBIR to develop a prototype low SWaP-C multi-function, multi-band antenna payload based on the MatrixSpace Radar hardware platform.

Created to satisfy requirements for the Replicator initiative and address the most pressing challenges in the Department of the Air Force (DAF), the project is part of a new initiative to develop and test low SWAP payloads based on existing MatrixSpace technology for uncrewed aerial systems (UAS). The project initially runs for 21 months, starting immediately.

Designed and developed in the USA, MatrixSpace Radar offers robust situational awareness of airborne and ground-based objects, regardless of lighting and weather conditions. This facilitates highly accurate drone detection and counter-unmanned aircraft system (CUAS) capabilities, beyond visual line of sight (BVLOS) flight for uncrewed, autonomous, and tethered aircraft,

and overall general airspace awareness and security.

The Air Force Research Laboratory and AFWERX have partnered to streamline the Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) process by accelerating the small business experience through faster proposal to award timelines, changing the pool of potential applicants by expanding opportunities to small business and eliminating bureaucratic overhead by continually implementing process improvement changes in contract execution.

The DAF began offering the Open Topic SBIR/STTR program in 2018, which expanded the

range of innovations it funded.

Quote from Matthew Kling, VP of Intelligent Systems, MatrixSpace*

"We're honored to provide innovative military capabilities using our core MatrixSpace technology to strengthen the national defense of the United States. Through this award, we have been given a significant opportunity to progress large-scale, all-domain attritable autonomous (ADA2) systems envisioned under the Replicator initiative. MatrixSpace will help address critical requirements for future military systems by providing multi-function, multi-band, agnostic capabilities onboard autonomous vehicles, enabling our warfighters to adapt to any mission rapidly."

Crane Aerospace & Electronics Develops Beamforming Backplane Products for Space Applications

Crane Aerospace & Electronics, a segment of Crane Company (NYSE: C.R.), has developed a family of beamformer backplane products for space applications utilizing its proprietary Multi-Mix® multi-layer laminate technology.

"We are integrating arrays of radiating elements with associated feed networks and RFICs into a single module for space applications throughout the Microwave and mmWave frequency range," said Jim Logothetis, Director of Engineering, Microwave Solutions. "Fusion bonding is used to increase circuit density, minimize layer count, and reduce the required footprint, which results in the smallest footprint and highest R.F. performance for these challenging applications."

The backplane layers contain a series of N-way power dividers and combiners along with

matched impedance feed networks to implement the interconnection of any number of beams to any number of elements. Also contained within the layers are D.C. power planes and radiation shielding. Beamformer backplane/radiator assemblies typically comprise 15 to 30 laminate layers, antenna radiating elements on one surface, and RFICs, digital circuitry, and blind mate connectors on the opposing surface.