Ramping up Capacity at BAE Systems

In the spring of 2019, when the ribbon was cut signifying the official grand opening of BAE Systems’ Microwave South (MWS) factory in Nashua, N.H., another important milestone in the Ramp 2 Rate initiative was achieved—adding state-of-the-art capability and capacity to an already impressive suite of microelectronic assembly and test automation.

The Ramp 2 Rate initiative spanned over two years, and $100 million of investment in new capital and facilities, expanding BAE Systems’ Electronic Warfare Integrated Manufacturing Center (EW-IMC) and Class 100,000 cleanroom footprint, as well as increasing the number of microwave lines from three to 10 in anticipation of the unprecedented growth in demand for the radio frequency electronic warfare product lines.

The new MWS facility added 16,000 square feet of Class 100,000 cleanroom space, bringing the total to nearly 60,000 square feet. The facility is home to two microwave lines dedicated to high volume manufacturing of integrated microwave assemblies (IMA) and contributed significantly to the more than 700 percent growth of complex IMAs completed over the last two years in support of the warfighter.

The state-of-the-art microwave lines in all BAE Systems microwave facilities employ automation for epoxy dispense, bare die pick and place of GaAs and GaN MMICs and other passive components containing air bridges, gold wire and ribbon bonding, as well as inspection and electrical test. Everything is designed to minimize touch times, unit variation, potential for defects, tuning and test times, while improving overall process repeatability and quality.

To meet the demand growth and staff the facilities and capital expansion, as well as ensure that BAE Systems’ microelectronics workforce is continually trained to the latest quality standards and operations processes, the company established a Microwave Training Center that resides in MWS. This provides operators access to train on the exact same equipment that they will be using to manufacture BAE Systems’ advanced products.

To develop the necessary workforce skills, a few years ago company officials joined forces with Nashua Community College and created the Microelectronics Boot Camp. The 10-week, non-credit course is designed to help people learn the skills needed to work in the advanced manufacturing field. The intensive program teaches students basic military standards and assembly techniques for radio frequency and microwave electronic assemblies.

In addition to providing both compliance and hands-on training to the workforce that assembles, inspects and tests the products, BAE Systems employs teams of technical experts in the process and test engineering disciplines within the product lines to drive continuous improvement activities through a combined approach. While improved capability and scalability were targeted in the microwave expansion, forward-looking re-configurability was also planned to enable flexibility as demand profiles and product mix changes. The ability to shift equipment within product lines or shift entire product lines was built into the facility infrastructure via a grid array of ceiling locations for electrical power and gas connectivity.

The Microwave West renovation in process is planned for completion this year—and leverages the work done in MWS and other prior microwave facility and capital upgrades, resulting in a set of five scalable state-of-the-art, highly automated BAE Systems microwave facilities. BAE Systems is at the forefront of technology and innovation in manufacturing and design of RF/microwave products and able to ramp out quickly to meet new demand and re-configure for new projects.

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