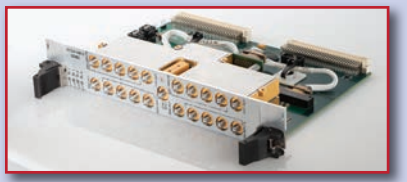
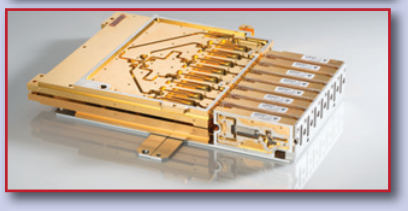
Supporting the Warfighter with Manufacturing and Transparency





On a quiet street in Eatontown, New Jersey, inside an attractive yet nondescript building, is a quintessential example of the microwave industry and a testament to the health of American manufacturing. A unit of Cobham Advanced Electronic Systems, the 90 people working here primarily manufacture diode-based microwave components and subassemblies for U.S. and international defense programs—historically radar, now increasingly electronic warfare. The manufacturing capability, design knowledge and underlying technology in this building reflect decades of expertise by well-known microwave companies—Engelmann Microwave, KDI/Triangle, Aeroflex, Advanced Control Components—now, through the evolution of the industry, part of Cobham's Microelectronic Solutions business.

To support the low volume and high mix nature of the defense market, the Eatontown operation is organized into four value streams: receive protection, passive components, control components and multi-function assemblies. Receive protection products are, at their core, limiters that protect sensitive receivers from damage by high-power signals. Passive products include traditional Wilkinson power combiners/dividers and couplers fabricated in stripline. Control components comprise various configurations of PIN diode switches, some products incorporating control circuitry. Multi-function assemblies integrate several circuit functions to create complex circuits or subsystems such as switch matrices, synthesizers and up- and down-converters.

Each of the value streams has one or more dedicated manufacturing cells, and each cell is optimized for lean manufacturing, including the use of Kanban to manage work-in-process. The local Kanban work flows are supplemented with quality, safety and operational metrics, including Pareto charts of defects, so team members are fully apprised of the cell's performance and opportunities for continuous improvement. The assembly operators use online drawings, ensuring each production lot is built to the latest revision, and each part in an assembly is bar coded and recorded in a custom shop floor tracking system to ensure complete traceability.

The products built in Eatontown reflect classic microwave manufacturing techniques: machined housings integrating stripline, microstrip and chip-and-wire assemblies using softboard, alumina, aluminum nitride and diamond materials. While the low volume of most products does not justify automation, the facility has an automated wire bonder and plans to add an automated die bonder for the products that warrant it. An automated wire bond/die sheer tester provides statistical data to monitor the variability of the wire bond and die attach processes across all manufacturing cells. Seam sealing and laser welding hermetically seal the packages to ensure reliability in military environments. The operation has extensive automated test capabilities to streamline product testing and internal capabilities for all but a few environmental tests.

For the Eatontown operation, manufacturing is the core competency, and the product development process emphasizes design for manufacturability. Combining this manufacturing strength with a commitment to transparency and open communication with customers distinguishes the business unit in a crowded field of microwave component and subsystem suppliers. Many examples reflect the success of this approach. Citing one, a lean project with Raytheon to increase manufacturing capacity for components used in a key surveillance radar tripled capacity with only a 33 percent increase in staff. The project won a corporate award, judged the most impactful of all the continuous improvement projects submitted by Cobham business units that year.

On a quiet street in Eatontown, New Jersey, inside an attractive yet nondescript building, 90 people are dedicated to the success of the warfighter, maintaining the capabilities of the microwave industry and the strength of American manufacturing.

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