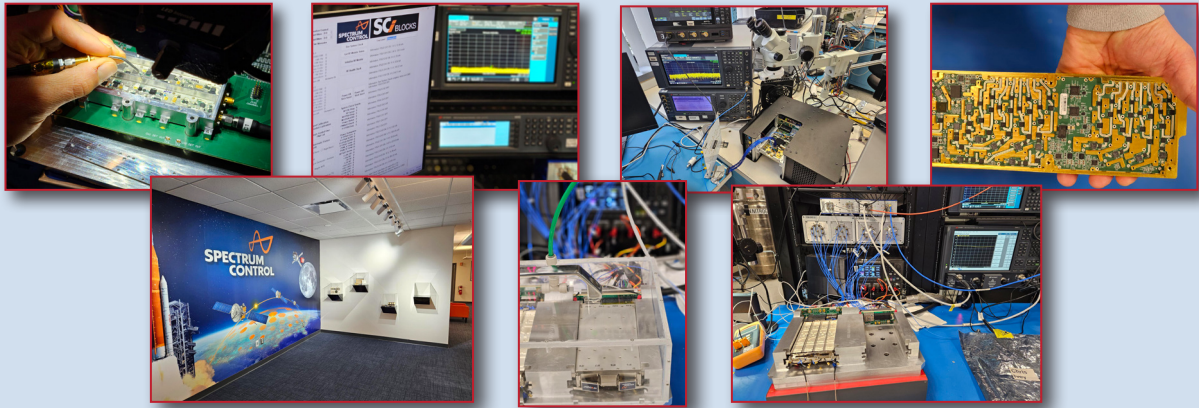


# FAB S and LAB S

## Spectrum Control: Converging Disciplines in Our Marlboro Facility



### Integrated by Design

Spectrum Control's Marlboro, Mass., facility is built around the multidisciplinary collaboration required to develop today's most advanced RF and microwave systems. The site brings together RF, digital and mechanical engineering with manufacturing, assembly, test and qualification in a single integrated environment. That structure is central to the facility's role in supporting low to medium volume production of high performance MCMs, hybrids, IMAs and the new generation of RF+Digital products.

What sets the Marlboro facility apart is not simply the range of functions under one roof, but how closely those functions are connected. Modern RF hardware cannot be developed in isolation. Performance is shaped by digital control, packaging, thermal management, mechanical design, manufacturability and calibration strategy.

### Miniaturization with Performance

That integrated engineering approach becomes even more important as products become smaller, denser and more functionally complex. Miniaturization is now a defining requirement for many advanced systems, but shrinking size while preserving performance creates significant design and manufacturing challenges. Signal integrity, isolation, heat dissipation, channel density and mechanical tolerances all become harder to manage as more capability is compressed into a smaller footprint. Marlboro is designed to address those tradeoffs directly, combining design expertise with hands-on lab access and manufacturing feedback early in the development cycle.

### Advanced Integration and Manufacturing

The site's capabilities also reflect the growing importance of integration, both at the product level and in the manufacturing process itself. Advanced MCMs, hybrids and IMAs require precise coordination among materials, substrates, interconnects, housings and assembly meth-

ods. Spectrum Control has expanded its engineering and production environment to incorporate new manufacturing technologies that support this higher level of integration. That enables the team to build sophisticated RF assemblies with the consistency and repeatability required for low to medium volume programs, while maintaining the flexibility needed for iterative development and specialized customer requirements.

### Digital Tuning, Test and Analytics

Digital tuning and digital testing are also important differentiators. As RF systems become more intelligent and more integrated with digital control and data handling, performance optimization increasingly depends on software-driven calibration, automated verification and system-level tuning. Marlboro's engineering and test infrastructure supports that evolution, enabling not only traditional RF characterization and troubleshooting, but also digital monitoring, health checks, calibration workflows and automated test processes that accelerate validation and improve repeatability across builds. These capabilities are further enhanced by advanced analytics and AI-assisted tools that Spectrum is developing to support test optimization, anomaly detection and process consistency within controlled engineering environments.

That combination of engineering depth and test capability is particularly valuable for RF+Digital products. These platforms require tight coordination between microwave performance, embedded digital functionality and mechanical design to meet demanding requirements for size, weight, power and reliability. At Marlboro, teams can evaluate these interactions in a practical development setting where design, modeling, simulation, build and validation occur in close proximity. That shortens feedback loops and helps ensure that what is designed can also be built, tested and qualified efficiently.

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