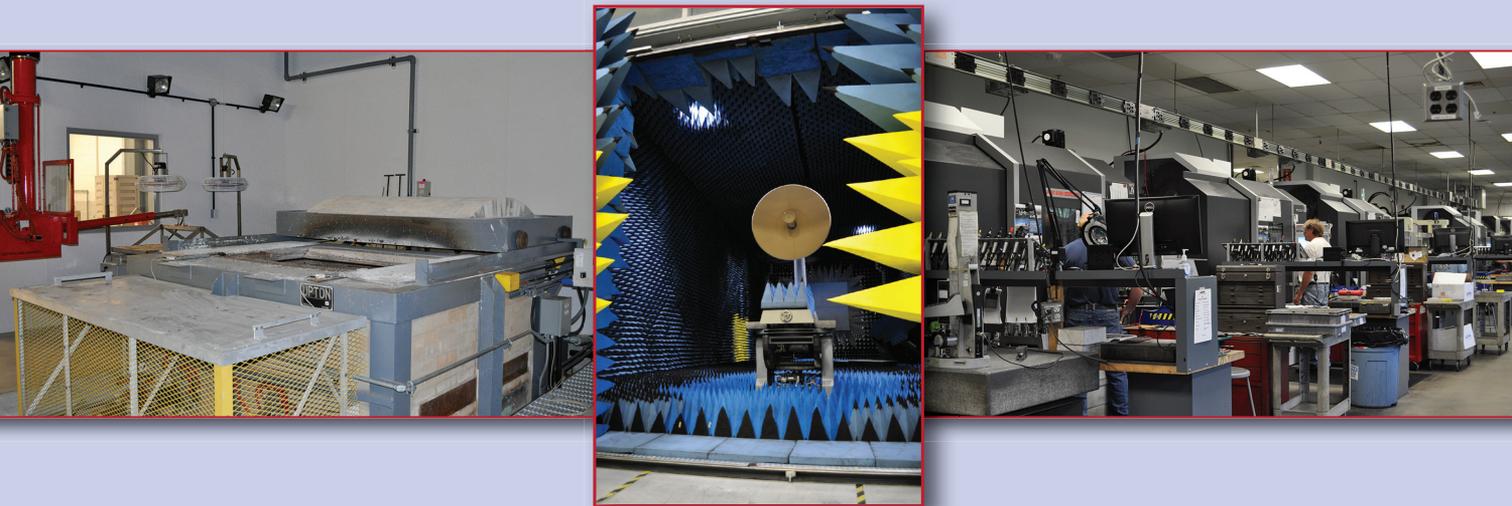


# FAB S and LAB S

## Cobham Performs From Deep Ocean to Deep Space



Cobham is a global technology and services innovator with leading market positions in wireless data communications, SATCOM, defense electronics, air-to-air refueling, aviation services and life support /mission systems. Their two facilities in Exeter, N.H., part of the Advanced Electronic Solutions Sector, offer critical radar and communication solutions for land, sea, air and space applications. Off-the-shelf and customized products include RF/microwave, antenna subsystems, high-reliability microelectronics, application specific integrated circuits (ASIC), MMICs and motion control. Cobham employs about 350 people in Exeter, where they manufacture a range of RF/microwave products such as waveguide, cables and cable assemblies, antennas, rotary joints and integrated waveguide assemblies.

The company uses various simulation tools for product design and development, RF circuit analysis, electromagnetic (EM) modeling, finite element analysis and computer-aided engineering. Vertically integrated, Cobham makes most products from raw materials, tightly controlling each step of the manufacturing process for optimal quality and performance. The Exeter facility has extensive machining capabilities, with numerous CNC machines, electronic discharge machining (EDM), casting, brazing, plating, irridite/chem film coating, hydro hone and impregnation processing. In addition, an internal manual model shop is used extensively for prototyping. These capabilities enable fabrication of antennas and other structures serving a broad range of product types and sizes.

With metal brazing tanks up to six feet in diameter, Cobham's waveguide assembly manufacturing line is probably the largest on the East Coast. It includes two dip braze tanks, rinse tanks, two preheat ovens, a cooling table, with various plating and painting stations and full environmental testing. Cobham can assemble most any waveguide size and shape and integrate other components, such as filters, couplers and transitions into the assembly. In addition to the traditional rectangular wave-

guide, flexible (WR940 to 22) and double ridge waveguide (WRD475 to 180) are also manufactured. Extensive quality assurance and inspection capabilities, with custom measurement tables and fixtures, ensure all products meet performance specifications.

The Exeter site also builds high-power cables and cable assemblies, producing raw cable, phased matched cable sets and connectors of various sizes. Many connectors are fabricated in-house and machines handle insulator wire wrapping, cable jacket weaving and outer casing extrusion.

Cobham's antenna manufacturing capability includes machining slot antennas up to several feet in diameter. The EDM process produces  $3\ \mu\text{m Rz}$  or  $16\ \mu\text{m Ra}$  surface finish with 0.0001 in flatness, using just three passes. For antenna testing, the Exeter site has three near field planar scanners up to 8 ft x 8 ft and a very large 21 ft x 24 ft x 60 ft anechoic chamber with a one ton hoist and positioning equipment with roll over azimuth over elevation capabilities. Testing can be performed from 2 to 50 GHz in compact range mode. Some products are designed to withstand extreme temperatures (from  $-254^{\circ}\text{C}$  to  $+649^{\circ}\text{C}$ ) and forces up to 15,000 g.

Manufacturing rotary joints is another area of excellence. The Exeter facility can design and manufacture from single to 33-channel rotary joints and has redesigned many systems using a modular approach that provides higher reliability and ease of service. Rotary joints are used on most FAA radar systems, and Cobham is the official FAA repair depot center. Cobham also supplies all rotary joints to the U.S. Navy for their periscope applications.

Cobham's broad portfolio of high performance products reflects the acquisition of many recognized industry brands: Aeroflex, Atlantic Microwave, BAE Lansdale, Kevlin, Litton Airtron, MACOM, MDC, Nurad and Remec. Cobham has combined these operations into efficient, state-of-the-art manufacturing facilities, like the two in Exeter, to better serve their customers.

[www.cobham.com](http://www.cobham.com)