



L-3 ESSCO manufactures a number of products in addition to ground-based radomes, including naval shipboard, airborne and submarine radomes, as well as high-precision composite reflectors. We also offer sheds, barns, steeples and other architectural shapes for radome applications where the concealment of antennas is critical.

KEY FEATURES

- Products are manufactured in environmentally controlled areas
- Finite element and structural analysis capabilities exist in-house
- Quality system is compliant to ISO9001: 2000 and MIL-Q-9858 requirements

CONSTRUCTION AND MATERIALS

L-3 ESSCO's advanced composites and specialty products are made from reinforcements, such as fiberglass, quartz, graphite and Kevlar® along with matrices such as polyester, epoxies and cyanate ester. We also use core materials, such as honeycomb (e.g., fiberglass, aluminum and graphite) and foams (e.g., polyisocyanurate and thermo-formable cores). Depending on

the application, these parts are oven-cured at temperatures up to 400°F or in autoclaves, which require high-pressure cures at high temperatures.

Other materials are also available for special applications. Regardless of the application, we can select the right combination of reinforcement and matrix to meet your requirements.

APPLICATIONS

All of these products include excellent electromagnetic (EM) performance for their intended applications, providing up to 98% transmission efficiency depending on frequency. Some typical examples include:

- Naval radomes are used in shipboard radar applications, high-data-rate communications systems, gunfire control and high-bandwidth data link terminals.
- Composite reflectors with surface tolerances of 0.5 mils (.005 in.) are used to optimize gain and reduce sidelobes in applications up to 44 GHz. Can be designed for ground-based, shipboard or airborne applications.
- Architectural radomes are used to protect antennas on building roofs from the weather.

Military vehicle image courtesy of Thales; shipboard radome image courtesy of Harris Corporation.





ELECTROMAGNETIC PERFORMANCE

Each of these specialty radome and reflector products requires the ability to accurately analyze its performance. We have developed sophisticated electromagnetic simulation capabilities that allow us to analyze the radome and the complex interaction of the enclosed antenna with the radome's electrically thick wall.

Our in-house codes can properly simulate the overall far-field radiation pattern of the antenna and radome as a coupled system, providing high-fidelity simulations of the far-field patterns, gain, boresight errors and other factors related to the use of the radome with the selected antenna system.

STANDARD SIZES

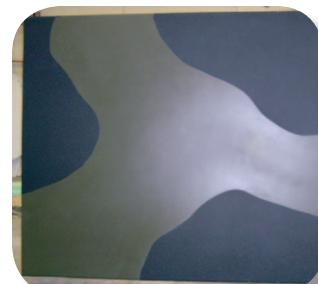
We can design advanced composite or special product structures to almost any configuration, as well as low radar cross-section (RCS) radomes and radomes utilizing frequency-selective surface (FSS) technology.

TYPICAL ADVANCED COMPOSITE/SPECIAL PRODUCTION SPECIFICATION

Each product that we provide in this area is different and requirements vary greatly. Please contact ESSCO to discuss your specific application.



Application photo courtesy of Thales.



Camouflaged 7-ft. (2.1m) radome for military radar.



Photo courtesy of Harris Corporation.



Low radar cross section radome.

Subreflector undergoing testing.

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