RESEARCH LABS

Next-Generation Testing and Prototyping

For two decades, Northrop Grumman's Research Labs have been at the forefront of innovation developing new aerospace technologies from initial concepts to final hardware. In addition to inventing and maturing new technologies that revolutionize the electronics, optics and advanced materials industries, the team of scientists provides customized testing and rapid prototyping services that are tailored to each customer's needs.

With expertise in physics, electrical engineering, materials science, optics, chemical engineering and other fields, the team offers a variety of optical, chemical and surface morphology measurement techniques to characterize samples and prototypes. Additionally, the labs provide custom printed electronics and parts, bench-top systems, and a variety of other test setups to realize designs and provide conditions for industry-relevant environmental tests.

Located in Manhattan Beach, California, the Research Lab team is ready to provide accurate, speedy and tailored testing and prototyping. Reach out today to see how we can re-define possible for your project.

SERVICES PROVIDED

Customized Testing

- Spectroscopy (RF, IR, Raman)
- Surface Morphology (Profilometry, AFM)

Rapid Prototyping

- Additive Manufacturing
- Custom Measurement Systems (Optics, Vacuum)

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CUSTOMIZED TESTING

Working with state-of-the-art equipment, the labs have access to thousands of square feet of research space for customized testing separated into chemistry wet labs, clean rooms, and optics/materials characterization facilities. The Research Labs team can perform tests including:

Free Space Radio Frequency (RF) and Microwave Test
Capable of measuring RF/microwave transmission, reflection and properties (S-parameters) of materials in the 2-18GHz range.

Fourier Transform Infrared Spectroscopy
Capable of measuring transmission, reflection, and absorption/emission spectra of materials in the 2.5um-25um range. Additional high-temperature (300K-500K) reflection spectra measurements are also available.

Raman Spectroscopy
Capable of extracting a molecular fingerprint of materials by identifying vibrational modes of chemical bonds.

Profilometry
Capable of characterizing microscale large-area microscale surface morphology, either in single-line profiles or 2D-area scans.

Atomic Force Microscopy
Capable of characterizing nanoscale surface morphology with angstrom-level precision.

RAPID PROTOTYPING

The labs specialize in rapid proof-of-concept prototyping and creating custom test setups geared towards characterizing new materials. The facilities support the following manufacturing, electronic and optical work:

Custom Printed Electronics
The labs can manufacture uniquely shaped electronics using aerosol-jet 3D-printing of metallic parts.

Custom Bench-top Optical Testing
Depending on the need, the labs utilize a customizable optical characterization suite tailored to visible and/or infrared prototype measurements.

Cryostat Cooling System
The labs possess a miniature cryogenic vacuum chamber used for optical or electrical characterization of small (<1x1cm^2) samples at extreme space-relevant temperatures (10K-500K).

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