

# Metrology Testing via Thermography

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## Project Objective

The objective of this project was to develop an Standard Operating Procedure and Data Interpretation Guide for the FLIR Echotherm Flash Thermography setup at Fathomwerx. In the process of doing this, we also tested the limitations of the equipment.

## Methods Used

- Literature Research
- Steel Q-Panel testing
  - Flash Thermography
  - Variable Extended Pulse w/ Heat gun
  - Application of protective paint coating

## Contributions

- Documented the process of running a scan using the flash thermography equipment.
- Designed an experiment which tested limitations of the equipment.
- Created an SOP which helps inexperienced users run their own scans and experiments.
- Created a Data Interpretation Guide which helps inexperienced users understand their data and scans.



## What are you most proud of this summer [with respect to your experience/project]?

- Helped Dr. Kvryan understand the limitations of the Echotherm equipment.
- The team did a great job at designing the experiment and adapting to challenges.

## Why was the internship valuable?

- Learned theory on heat transfer and how thermography works.
- Gained experience in conducting relevant literature research.
- Gained hands-on experience in conducting non-destructive thermography testing.

## Advice for future cohorts?

- Communicate frequently and effectively with teammates.
- Don't be afraid to ask questions! It's how you learn.

## Results / Accomplishments / Next Steps:

- We demonstrated that the FLIR Echotherm Flash Thermography setup at Fathomwerx can identify defects and corrosion under a thinly painted surface.
- This helps the Navy by furthering the understanding of flash thermography and what it can be used for.
- In the future, this work will help anyone at Fathomwerx conduct non-destructive, flash thermography testing without prior experience.

