

# Warfighter Testing with W-Band RADAR



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UCSB

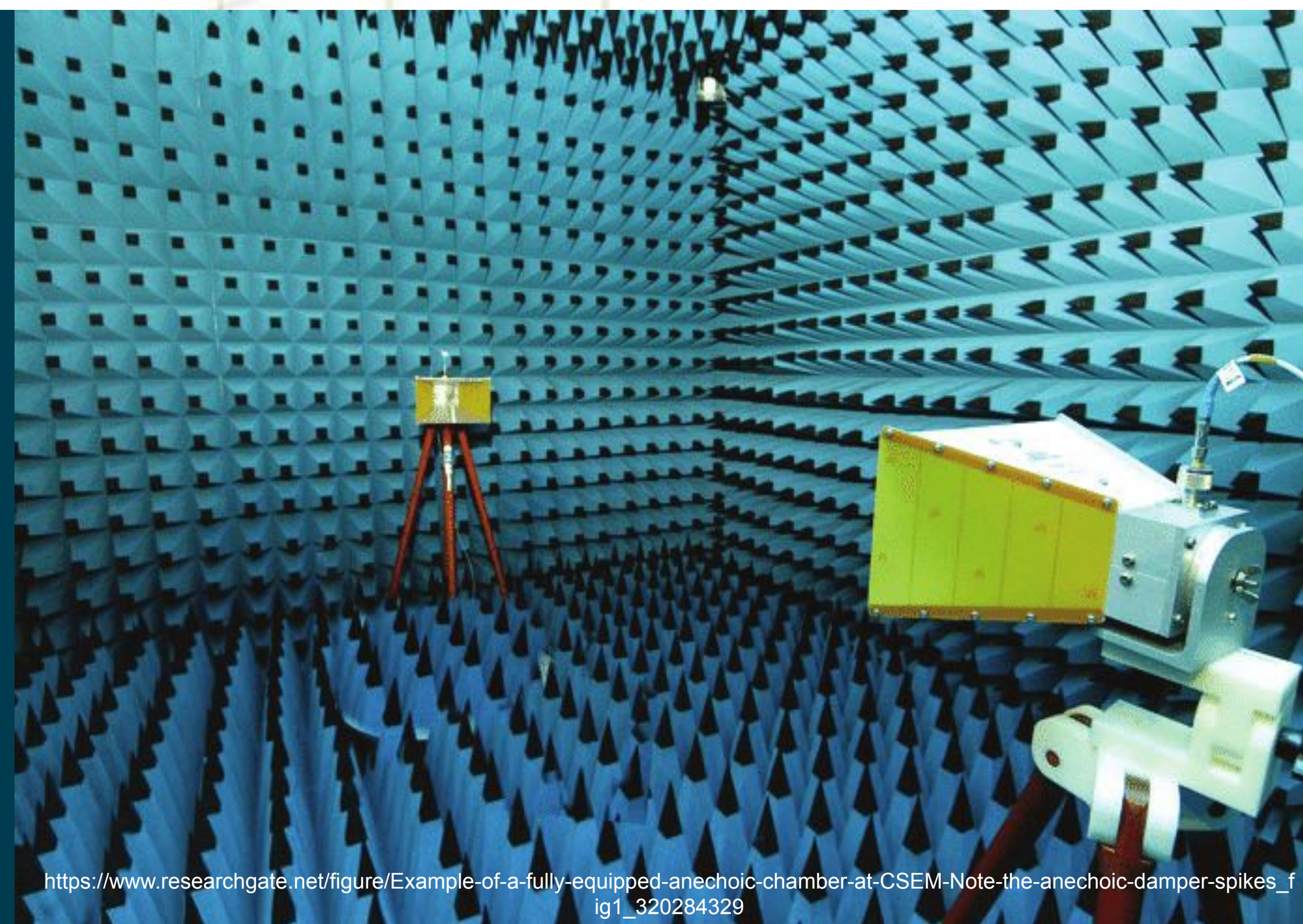


## Project Objective and Intern Contribution:

Our aim was to improve the Warfighter's ability to develop new technology by increasing the efficiency of testing within the W-Band frequency of RADAR.

The method we used to accomplish this aim was by reducing the time required for testing by replacing the conventional RADAR in use.

We were assigned to incorporate additional SystemVerilog code to the Field Programmable Gate Array (FPGA) to allow for preset filter functionality within the tunable bandpass filter. In addition to this was testing of the components to ensure they're operating within standards.



[https://www.researchgate.net/figure/Example-of-a-fully-equipped-anechoic-chamber-at-CSEM-Note-the-anechoic-damper-spikes\\_fig1\\_320284329](https://www.researchgate.net/figure/Example-of-a-fully-equipped-anechoic-chamber-at-CSEM-Note-the-anechoic-damper-spikes_fig1_320284329)

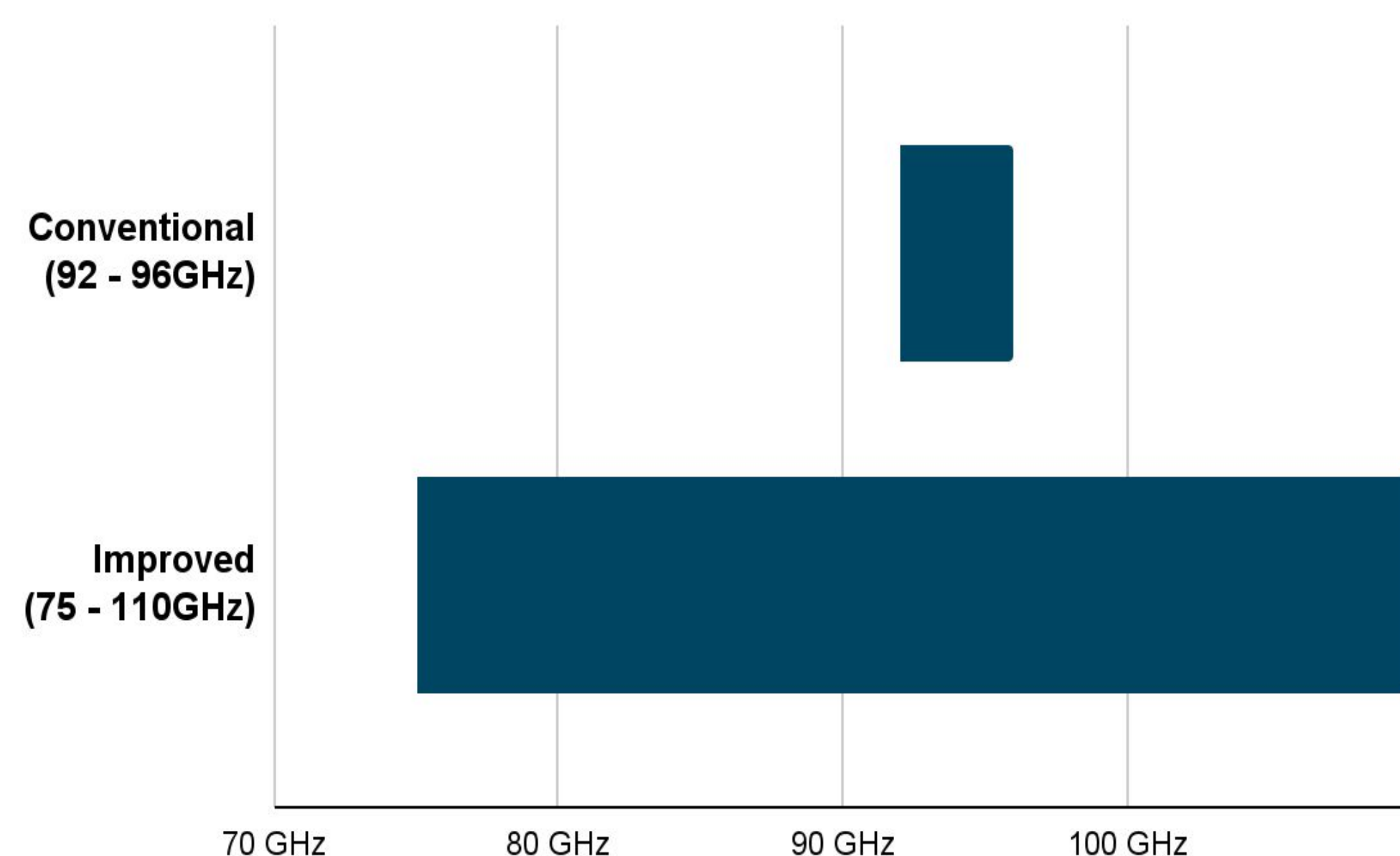
## Results / Accomplishments / Next Steps:

We are demonstrating that improvement of old technology does not require significant cost or long lead times. The RF team continues to demonstrate its ability to concurrently balance complex projects while meeting the standards.

The impact for the Navy will be improved capabilities when testing the radar cross section (RCS) of objects. This is accomplished by creating a RADAR capable of transceiving throughout the entire W-Band with a frequency agility three orders of magnitude quicker than conventional RADARS.

What's most important is that the team continues to maintain it's pace for having the RADAR fully functional by October. In the future this work will be able to provide clients with more accurate and effective testing as well as more testing options.

Conventional vs Improved RADAR Bandwidths



### 1. What are you most proud of this summer?

We are most proud of our ability to take initiative on situations and tasks in a matter we deemed correct. We are also proud of our progress within communication and collaboration, relaying information in a prompt but accurate fashion to those that need to know.

### 2. Why was the internship valuable?

This PIPELINES internship has enhanced our professional development in multiple ways. We have been able to hone our soft and technical skills while also expanding our networks. It has been invigorating to see our value added and be reminded of what it is that we are working towards.

### 3. Advice for future cohorts?

Take daily notes. The weeks fly by at light speed and convolute. Take initiative by seeing where you can add value or express what part of the project interests you the most. Last but not least, ask what is not known and have fun with it.



## Acknowledgements:

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