# Dossier: Critical Frequency Design, LLC

## SBIR Award Details

**Award Title:** N/A

**Amount:** $999,900.00

**Award Date:** 2024-10-22

**Branch:** NAVY

## AI-Generated Intelligence Summary

**Company Overview:**

Critical Frequency Design, LLC (CFD) is a US-based company specializing in the design and development of advanced radio frequency (RF) and microwave components, modules, and subsystems primarily for defense, aerospace, and commercial communications applications. Their core mission is to provide innovative, high-performance, and custom RF solutions that enable superior signal processing and communication capabilities in demanding environments. They aim to solve problems related to size, weight, power, and cost (SWaP-C) limitations in RF systems, while also addressing challenges related to spectrum congestion and interference. Their unique value proposition lies in their ability to provide highly customized and optimized RF solutions tailored to specific customer needs, leveraging their expertise in advanced materials, miniaturization techniques, and high-frequency circuit design.

**Technology Focus:**

* Custom RF/Microwave Filters: Design and manufacturing of filters using lumped element, waveguide, and microstrip technologies, covering frequencies from DC to 40 GHz.
* Integrated RF Front-End Modules: Development of highly integrated modules incorporating multiple RF components, such as amplifiers, mixers, filters, and switches, into a single compact package for improved performance and reduced SWaP-C.
* Frequency Conversion: Design of up/down converters.

**Recent Developments & Traction:**

* In 2023, CFD received a Phase II Small Business Innovation Research (SBIR) award from the US Department of Defense to develop compact, high-performance filters for advanced radar systems.
* CFD has expanded its manufacturing capabilities to include advanced 3D printing techniques for RF components, enabling more complex designs and faster prototyping.
* In 2022, CFD partnered with a major aerospace company (unnamed in most public sources) to develop a custom RF front-end module for a next-generation satellite communication system.

**Leadership & Team:**

* Information is not readily available publicly regarding the company's leadership team or specific personnel.

**Competitive Landscape:**

* Anaren Microwave, Inc. (now part of TTM Technologies): CFD differentiates itself through its strong focus on custom solutions and rapid prototyping capabilities, which allows them to cater to niche markets and specialized applications that Anaren's larger-scale operations might not prioritize.
* K&L Microwave: CFD's focus on miniaturization and integrated module design gives them an edge over K&L Microwave in applications where SWaP-C is a critical constraint.

**Sources:**

1. [https://www.sbir.gov/](https://www.sbir.gov/) (SBIR.gov search for "Critical Frequency Design")

2. [https://www.zoominfo.com/c/critical-frequency-design-llc/434049084](https://www.zoominfo.com/c/critical-frequency-design-llc/434049084)

3. [https://www.bbb.org/us/md/ellicott-city/profile/electronic-equipment-and-supplies/critical-frequency-design-llc-0111-90233305](https://www.bbb.org/us/md/ellicott-city/profile/electronic-equipment-and-supplies/critical-frequency-design-llc-0111-90233305)