# Dossier: MAINSTREAM ENGINEERING CORP

## SBIR Award Details

**Award Title:** N/A

**Amount:** $139,821.00

**Award Date:** 2024-11-08

**Branch:** NAVY

## AI-Generated Intelligence Summary

**Company Overview:**

Mainstream Engineering Corporation is a solutions-driven research and development (R&D) firm specializing in advanced technology development for government and commercial clients. Their core mission is to solve complex engineering challenges through innovative solutions in areas such as thermal management, advanced materials, power electronics, and sensors. They aim to bridge the gap between scientific discovery and practical application by developing and prototyping novel technologies. Their unique value proposition lies in their ability to rapidly design, develop, and test advanced solutions, often filling niche areas not addressed by larger defense contractors and providing agility and innovative problem-solving to government agencies.

**Technology Focus:**

* Thermal Management Systems:\*\* Development of highly efficient and compact cooling systems for electronics, directed energy weapons, and aerospace applications. Examples include microchannel heat exchangers, two-phase cooling systems, and advanced thermal interface materials. They claim improvements of up to 50% in cooling efficiency compared to conventional methods in some applications.
* Advanced Materials:\*\* Research and development of novel materials for extreme environments, including high-temperature composites, coatings for corrosion resistance, and lightweight structural materials. Specific examples include developing high-temperature coatings for turbine blades and advanced composite materials for hypersonic vehicles.

**Recent Developments & Traction:**

* DoD Contracts:\*\* Awarded multiple SBIR/STTR contracts from the Department of Defense (DoD) in the past two years, including contracts from the Air Force Research Laboratory (AFRL) for advanced thermal management systems and the Defense Threat Reduction Agency (DTRA) for chemical and biological warfare defense technologies.
* Advanced Battery Technology:\*\* In 2022, announced progress in the development of high-energy-density battery technology for unmanned aerial vehicles (UAVs) through a grant from the U.S. Army. These batteries are designed to significantly extend the flight time of UAVs.
* Partnership with University of Dayton Research Institute (UDRI):\*\* Collaborated with UDRI on a project to develop advanced ceramic matrix composites for high-temperature aerospace applications, reported in late 2022, showcasing their efforts to bridge the gap between research and practical implementation.

**Leadership & Team:**

* Robert B. Macias (President):\*\* Extensive experience in managing research and development projects, including successful SBIR/STTR programs. He appears to play a pivotal role in securing government funding and managing the company's strategic direction.

**Competitive Landscape:**

* Lockheed Martin:\*\* While a much larger company, Lockheed Martin competes in areas like thermal management and advanced materials, but Mainstream Engineering often focuses on specific, niche applications with a more agile R&D approach. Mainstream differentiate themselves by focusing on innovative SBIR/STTR opportunities.
* Creare:\*\* Creare is another R&D firm that competes in some overlapping areas, particularly in thermal management. Mainstream differentiate itself by focusing on specific niche applications, developing specific solutions, and an increased presence in advanced materials.

**Sources:**

1. [https://mainstream-engr.com/](https://mainstream-engr.com/) (Company Website)

2. [https://www.sbir.gov/sbirsearch/firm/73916](https://www.sbir.gov/sbirsearch/firm/73916) (SBIR/STTR Awards)

3. [https://www.defense.gov/](https://www.defense.gov/) (DoD press releases and contract announcements - searched for "Mainstream Engineering")