# Dossier: VIRGINIA DIODES, INC.

## SBIR Award Details

**Award Title:** N/A

**Amount:** $1,799,953.00

**Award Date:** 2022-12-06

**Branch:** DARPA

## AI-Generated Intelligence Summary

**Company Overview:**

Virginia Diodes, Inc. (VDI) is a leading manufacturer of millimeter-wave and terahertz (mm-wave/THz) test and measurement equipment and components. Its primary business is providing solutions for the development, testing, and calibration of high-frequency systems used in communications, radar, imaging, and scientific research. Their core mission appears to be enabling advancements in these high-frequency technologies by providing state-of-the-art components and instruments. VDI addresses the critical need for precise and reliable measurement solutions at mm-wave and THz frequencies, where traditional test equipment performance degrades significantly. Their unique value proposition lies in their vertically integrated approach, encompassing design, manufacturing, and calibration, allowing them to control quality and performance across the entire value chain, ensuring superior accuracy and reliability at extremely high frequencies, as well as offer custom solutions.

**Technology Focus:**

* Frequency Extension Modules:\*\* VDI manufactures frequency extension modules that extend the operating range of standard test equipment (like spectrum analyzers and signal generators) into the mm-wave and THz range, up to 3.0 THz. These modules provide calibrated power and frequency, crucial for accurate measurements.
* Detector Diodes:\*\* VDI produces high-performance detector diodes specifically designed for mm-wave and THz applications. These diodes offer high sensitivity and low noise, essential for signal detection and analysis at these frequencies.
* THz Imaging Systems:\*\* VDI develops and provides THz imaging systems which enable non-destructive testing and security screening applications.

**Recent Developments & Traction:**

* Partnership with Keysight Technologies (Ongoing):\*\* VDI's frequency extension modules are integrated with Keysight's test and measurement equipment, demonstrating a strong industry partnership and market validation of VDI's technology. This collaboration continues with new product offerings.
* New Product Launches (e.g., WR0.6 Modules):\*\* VDI consistently introduces new modules to extend the operating frequency and performance of existing equipment, suggesting ongoing R&D and product innovation.
* Government Contracts (Implied, but difficult to confirm publicly):\*\* Due to the sensitive nature of their technology's applications in defense and aerospace, specific contract details are often not publicly disclosed. However, the company's website highlights the importance of their products for radar, security, and communications, indicating significant engagement with government and military clients.

**Leadership & Team:**

* Dr. Thomas Crowe (CEO):\*\* Dr. Crowe has extensive experience in millimeter-wave and terahertz technology. His background includes research and development in high-frequency devices and circuits, indicating a deep technical understanding of the company's core business.

**Competitive Landscape:**

* Rohde & Schwarz:\*\* Rohde & Schwarz is a broad-spectrum test and measurement company with a presence in mm-wave and THz, but VDI's specialization and focus on high-frequency performance provide a key differentiator, allowing VDI to offer more tailored and potentially higher-performance solutions in certain niche applications.
* OML, Inc.:\*\* OML, Inc. offers similar frequency extension and millimeter wave testing solutions. VDI differentiates itself through its detector diode technology, providing both instruments and components, offering a broader array of capabilities.

**Sources:**

1. [https://www.virginiadiodes.com/](https://www.virginiadiodes.com/)

2. [https://www.virginiadiodes.com/solutions/](https://www.virginiadiodes.com/solutions/)

3. [https://www.keysight.com/us/en/partners/virginia-diodes-inc.html](https://www.keysight.com/us/en/partners/virginia-diodes-inc.html)

4. [https://www.microwavejournal.com/articles/31996-millimeter-wave-technology-enables-faster-5g-testing](https://www.microwavejournal.com/articles/31996-millimeter-wave-technology-enables-faster-5g-testing) (Mentions VDI's role in 5G testing)