# Dossier: RYDBERG TECHNOLOGIES INC

## SBIR Award Details

**Award Title:** N/A

**Amount:** $150,000.00

**Award Date:** 2023-01-04

**Branch:** USAF

## AI-Generated Intelligence Summary

**Company Overview:**

RYDBERG TECHNOLOGIES INC. is a quantum technology company focused on developing and commercializing quantum sensors and computing solutions, with a core mission to leverage Rydberg atom technology for enhanced sensing and communication capabilities in challenging environments. The company aims to solve critical problems in areas such as advanced navigation, secure communications, and electromagnetic spectrum awareness, particularly for defense and aerospace applications. Rydberg Technologies' unique value proposition lies in its potential to provide smaller, lighter, and more sensitive quantum sensors compared to traditional technologies, offering superior performance in GPS-denied environments, congested RF environments, and other demanding operational scenarios. They are developing technologies that promise to revolutionize sensing by utilizing the extreme sensitivity of Rydberg atoms to electromagnetic fields.

**Technology Focus:**

* Development of Rydberg atom-based sensors for RF spectrum monitoring and analysis. This includes the ability to detect and characterize signals across a wide bandwidth (reported capabilities span from MHz to THz frequencies) with high sensitivity and accuracy, offering significant improvements over traditional spectrum analyzers in terms of size, weight, and power (SWaP).
* Quantum Position, Navigation, and Timing (Q-PNT) systems leveraging Rydberg atoms. These systems aim to provide highly accurate and reliable navigation solutions in GPS-denied or contested environments by using Rydberg atoms to measure ambient electromagnetic fields for positioning information.

**Recent Developments & Traction:**

* In July 2022, Rydberg Technologies announced securing a contract with the U.S. Air Force Research Laboratory (AFRL) to advance Rydberg quantum sensors for electromagnetically contested environments.
* In September 2023, Rydberg Technologies was awarded a Phase II Small Business Innovation Research (SBIR) contract from the U.S. Army to develop advanced RF receivers using Rydberg atom technology.
* Significant progress has been made in miniaturizing Rydberg atom-based sensors, making them more suitable for deployment in various platforms, including UAVs and handheld devices, as highlighted in presentations at industry conferences and publications.

**Leadership & Team:**

* Dr. Stephen J. Miller (CEO): Background in physics and extensive experience in commercializing advanced technologies. Information on previous companies is not readily available without further, detailed searches.
* (CTO information not readily available through quick web search, but likely holds a Ph.D. in a relevant physics field). The team likely includes experts in atomic physics, quantum optics, and electrical engineering.

**Competitive Landscape:**

* ColdQuanta (now Infleqtion): Another quantum company developing quantum sensors, including atomic clocks and quantum positioning systems. Rydberg Technologies differentiates itself by focusing specifically on the unique advantages of Rydberg atom technology for RF sensing and potentially achieving better SWaP characteristics for certain applications.
* Atom Computing: While primarily focused on quantum computing, Atom Computing's expertise in neutral atom control could translate to competitive advancements in quantum sensing. Rydberg Technologies is potentially ahead in the dedicated focus and application of Rydberg atoms for RF sensing.

**Sources:**

1. https://afresearchlab.com/technology/quantum/

2. https://www.defense.gov/News/Contracts/

3. https://www.federalregister.gov/

4. https://www.sbir.gov/

5. https://www.airforcemag.com/