Rydberg Technologies Demonstrates World's First Long-Range Atomic RF Communication with Quantum Sensor

Rydberg Atomic Receiver Successfully Deployed Under Real-World Conditions at U.S. Army NetModX23 Event

ANN ARBOR, MICHIGAN, UNITED STATES, December 21, 2023 /EINPresswire.com/ -- Rydberg Technologies Inc., a global leader in Rydberg quantum technologies and a pioneer in radio frequency (RF) quantum sensing, today announced its low size weight and power (SWaP) atomic receiver and the successful demonstration of the world's first long-range radio communications with an atomic quantum sensor at the recent U.S. Army Combat Capabilities Development Command (DEVCOM) C5ISR Center Network Modernization Experiment 2023 (NetModX23) event, a proving ground for next-generation technologies for communications and intelligence.

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> *David A. Anderson, Ph.D., CEO of Rydberg Technologies*

The Rydberg atomic receiver device exhibited unparalleled sensitivity across the high-frequency (HF) to super high-frequency (SHF) bands and demonstrated over-the-air atomic RF communication at long range. This historic demonstration occurred in an operationally relevant environment, with the atomic receiver setting new industry standards in size, performance and environmental resilience for Rydberg atom quantum sensors. Other important aspects of the company's sensing technology showcased were signal selectivity, low detection probability and immunity to unwanted interference in contested electromagnetic environments.

"The introduction of our atomic receiver prototype and its successful deployment under real-world conditions represents an important step forward in the quantum technology landscape," said David A. Anderson, Ph.D., CEO of Rydberg Technologies. "We have demonstrated the smallest ever atomic receiver at frequencies and long-range communication distances that show a clear path for transitioning Rydberg atom quantum technologies from laboratory to real-world applications."

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milestone for the technology and the advent of Rydberg atomic radio," added Anderson. "Rydberg Technologies continues to advance performance and functionality of atomic receivers to address RF applications in defense and commercial markets."

When compared to traditional antennas, Rydberg atomic receivers offer a unique set of characteristics, including high sensitivity, selectivity and wideband coverage using a single atomic detector element. Rydberg atom devices have the potential to revolutionize RF surveillance, safety, communications and networking capabilities from long-wavelength RF to millimeter-wave and THz bands.

The Rydberg Atomic Receiver was developed with support from the National Security Innovation Capital (NSIC) funding initiative, a part of the Defense Innovation Unit.

About Rydberg Technologies
Founded in 2015, Rydberg Technologies Inc. is a research and development company and manufacturer of quantum technologies based in Ann Arbor, Michigan. Visit http://www.rydbergtechnologies.com for more information.

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