Wave Shine Tech Advances Wireless Infrastructure with Tile-Based Reconfigurable Intelligent Surfaces (RIS)

Power-independent modular RIS for eliminating wireless blind spots in 6G and beyond.

Wave Shine Tech Co., Ltd

SAN FRANCISCO, CA, UNITED STATES, January 14, 2026 /EINPresswire.com/ -- Wave Shine Tech Co., Ltd. is a deep-tech startup specializing in next-generation wireless infrastructure, developing Tile-Based Battery-Powered Intelligent Surface technology designed to overcome fundamental limitations of existing wireless communication systems. As networks evolve toward 6G Communication Infrastructure and increasingly converge with satellite, aerial, and smart infrastructure environments, conventional wireless relay solutions face growing challenges related to power consumption, installation complexity, and operational cost.

Traditional relay and repeater systems rely heavily on signal amplification, complex signal processing, continuous power supply, and fixed wired connections. These structural constraints limit scalability and make deployment difficult in dense urban spaces, large buildings, and power-constrained environments. Wave Shine Tech addresses these challenges by introducing a new physical-layer approach to wireless signal control.

 Ultra-Low-Power Wireless Relay Technology Without Signal Amplification

Wave Shine Tech’s intelligent surface functions as an Ultra-Low-Power Wireless Relay Technology that operates without amplifying or decoding signals. Instead, it actively controls electromagnetic wave reflection characteristics through an ultra-low-power reflection control mechanism. By excluding signal amplification and complex signal processing, the system significantly reduces energy consumption while maintaining effective signal redirection.

This architecture enables long-duration operation using minimal power and eliminates many of the cost and maintenance burdens associated with traditional relay equipment. As a result, the technology presents a cost-effective and energy-efficient infrastructure alternative suitable for future 6G Communication Infrastructure deployments.

 Tile-Based, Battery-Powered Modular Architecture

A core differentiator of Wave Shine Tech's solution is its tile-based, battery-powered modular design. Each Tile-Based Battery-Powered Intelligent Surface module operates independently without external power sources or wired infrastructure. This architecture minimizes installation constraints and enables flexible placement and scalable deployment based on environmental conditions.

The modular structure allows intelligent surfaces to be expanded, repositioned, or reconfigured according to site-specific requirements, making the technology adaptable to a wide range of deployment scenarios, including large indoor facilities, smart infrastructure, remote outdoor locations, and temporary installations.

 Structurally Addressing Wireless Blind Spots

Wireless blind spots are increasingly recognized as structural challenges rather than simple coverage gaps. Physical obstacles, building layouts, and infrastructure limitations often prevent signals from propagating effectively, even when transmission power is increased.

Wave Shine Tech's Ultra-Low-Power Wireless Relay Technology addresses these challenges at the physical layer by reshaping signal propagation paths instead of relying on higher transmission power. This structural approach enables more efficient and sustainable coverage improvement, particularly in complex environments expected to dominate next-generation 6G Communication Infrastructure.

 Expanding Global Validation and PoC Collaboration Ecosystem

Wave Shine Tech is actively expanding technical validation and proof-of-concept (PoC) collaborations with global research institutions and industry partners. These efforts establish a foundation for evaluating Tile-Based Battery-Powered Intelligent Surface technology across diverse real-world environments.

Target application areas include 6G mobile communication systems, satellite and aerial communication platforms, smart cities, large-scale in-building coverage, and defense and aerospace communication infrastructure. Through these collaborations, the company aims to verify performance, scalability, and deployment feasibility under practical operating conditions.

 Scalable Intelligent Surface Product Portfolio

Building on its core Tile-Based Battery-Powered Intelligent Surface platform, Wave Shine Tech plans to sequentially introduce a diversified portfolio of intelligent surface products optimized for different deployment requirements.

Planned offerings include battery-powered intelligent surfaces designed for ultra-low-power, long-term operation in power-constrained environments; amplified intelligent surfaces that combine reflection control with signal amplification to support wider coverage and enhanced signal quality; and fixed-reflection intelligent surfaces that enable cost-efficient large-scale coverage expansion through simplified reflection structures.

 Integrated Technical Verification and Deployment Support

In addition to product development, Wave Shine Tech provides integrated technical verification and collaboration services. These services include installation environment analysis, system design, deployment planning, on-site application, and real-environment PoC execution.

By offering an end-to-end validation framework, the company supports telecommunications operators, research institutions, and infrastructure operators in practically evaluating Ultra-Low-Power Wireless Relay Technology and preparing for future 6G Communication Infrastructure deployments.

 About Wave Shine Tech Co., Ltd.

Wave Shine Tech Co., Ltd. is a deep-tech startup developing Tile-Based Battery-Powered Intelligent Surface technology for next-generation wireless infrastructure. Its solution operates as an Ultra-Low-Power Wireless Relay Technology, enabling flexible, power-independent deployment without signal amplification or wired connections. The company is expanding real-world validation and PoC collaborations across 6G Communication Infrastructure, satellite, smart infrastructure, and aerospace environments. Further technical updates are available on the company's LinkedIn and YouTube channels.

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