Type :- Press Release

Sony Semiconductor Israel Outlines Long-Term Vision for 5G IoT with eRedCap

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Sony Semiconductor Israel (Sony) announced its long-term vision for **5G IoT** connectivity, positioning eRedCap (enhanced Reduced Capability) as the foundation for the next generation of global, long-life connected Altair devices. As industries accelerate the AI revolution and mobile operators plan the retirement of legacy networks, the transition from 4G to 5G is reshaping what is possible in large-scale IoT deployments.

LPWA technologies, from gas and water meters to asset trackers and safety infrastructure, have varying throughput demands that are set for operating in the field over the next 10 to 20 years. However, many applications that depend on higher throughput, voice capability, or richer data streams, such as industrial automation, next-generation safety systems, wearables, and a new category of AI-centric consumer devices, are shifting towards eRedCap. These applications will focus on real-time, low-power, and higher throughput communication, while traditional LPWA devices keep supporting ultra-low-power and deep indoor use cases where only small amounts of data are sent.

"The future of IoT is clearly converging around eRedCap," said **Nohik Semel**, CEO of Sony Semiconductor Israel. "It brings the performance needed for tomorrow's connected devices while preserving the efficiency and longevity that industries count on. For device makers designing for the next 10 to 20 years, eRedCap is the technology that will facilitate the move from 4G into a fully 5G world."

A fully 5G world means operators can finally sunset 4G and unify their networks. Today, they must keep 2G and 4G networks alive because many legacy devices remain in the field, and spectrum is a scarce, shared resource. eRedCap enables the gradual migration of IoT devices to 5G, allowing operators to free up spectrum, stop maintaining parallel networks, and eventually discontinue 4G.

Built on 3GPP Release 18, 5G eRedCap establishes a new middle ground between advanced 5G and narrowband IoT — delivering higher data throughput for more data-intensive applications while retaining lower complexity and cost compared with full 5G NR implementations. The technology is optimized for long-lasting, battery-powered IoT devices.

As IoT networks and devices transition toward eRedCap, HD-FDD (Half-Duplex Frequency Division Duplex) is emerging as the preferred deployment option, aligning with the design requirements for low-cost, low-power 5G IoT devices through simpler RF design, improved power efficiency, and reduced

implementation cost.

Mohit Agrawal, Research Director at Counterpoint Research, said, "The market is actively seeking competitive 5G NR solutions that can enable the transition of LTE Cat-1bis and higher category devices to native 5G networks. Once commercially viable eRedCap solutions become available, we anticipate cellular carriers and market demand will drive rapid adoption for existing use cases and device categories. We estimate the eRedCap market could cross 50 million unit shipments by 2030. HD-FDD's technical advantages in reduced RF complexity align perfectly with eRedCap's design goals, making it the logical duplexing choice for cost-sensitive, battery-powered devices at scale. As businesses globally accelerate their shift toward AI-based decision-making and analytics, real-time connectivity of edge devices has become more critical than ever, positioning eRedCap as essential infrastructure for the intelligent AI-based IoT ecosystem."

As part of this long-term vision, Sony outlined the roadmap for its upcoming **Altair ALT1550 5G eRedCap modem**, engineered to meet the industry's evolving requirements. Currently undergoing advanced real-silicon testing, the chip delivers 3GPP Release 18 compliance with eRedCap and HD-FDD optimization, plus 4G Cat-1bis/LTE-M support for dependable deployment on existing networks and seamless backward and forward compatibility.

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