DECT ULE and DECT NR+:
Continuity and Evolution in IoT
Connectivity

a Whitepaper Brief

Executive Summary

DECT ULE is a DECT-based wireless technology introduced in 2011 as part of the IMT-2000 framework to support low-power smart home and early IoT applications. It was designed to provide long battery life, reliable communication, and simple deployment through a central gateway, making it well-suited for small and stable residential environments. ULE established a strong foundation for early IoT solutions by prioritizing simplicity, reliability, and low energy consumption.

Building on this foundation, DECT NR+ represents the next evolution of the DECT technology family. While preserving the low-energy characteristics that made ULE successful, NR+ extends the technology to support greater scalability, flexibility, and long-term sustainability. As part of the IMT-2020 family and a 5G-class technology, NR+ reflects current market and technology trends toward more modern, efficient, and future-ready IoT platforms. It enables solution providers to start with small deployments and grow confidently, supporting a broader range of environments from residential to enterprise and industrial use cases.

As IoT deployments expand in size, data demand, and complexity, certain limitations of ULE, such as constrained scalability, network flexibility, provisioning, and cloud integration, become more apparent. In contrast, NR+ addresses these evolving requirements through improved network adaptability, enhanced security (from AES 128 in ULE to AES 256 in NR+), automated deployment capabilities, and smoother integration with modern cloud-based systems, while continuing to support low-power devices.

Despite these architectural enhancements, the core application domains of ULE and NR+ remain closely aligned. According to ETSI TS 102 939 ("ULE Application Profile") and ETSI TS 103 874-1/2/3 ("NR+ Access Profile"), many application scenarios are shared between ULE and NR+, particularly in smart home and low-power IoT use cases such as home automation, safety and security sensors, environmental monitoring, energy management, and personal alarm systems. Building on this established application framework, NR+ further extends support to larger-scale and more diverse deployments, including smart buildings and cities, industrial IoT and automation, and mixed traffic environments that combine sensor, control, and data communication.

From a user perspective, DECT ULE offers ease of installation and maintenance, while everyday operation remains equally reliable with DECT NR+. At the same time, NR+ provides clear advantages in scalability, security, and long-term flexibility, enabling easier network expansion and support for future use cases. From a broader ecosystem and promotional perspective, the DECT Forum's current focus on the DECT IoT and IIoT NR+ standard can be seen as a continuation of the original objectives pursued within the former ULE alliance, highlighting the ongoing modernization of DECT technology. Together, these technical advancements and ecosystem developments contribute to a shift in market focus toward NR+. As a result, industry interest is increasingly shifting

toward NR+, with growing investment from chipset vendors, companies, and universities, reinforcing its relevance as a sustainable platform for the future of IoT.

References:

Link to the full Article: DECT IoT Families-White Paper; ETSI TS 102 939 ("ULE Application Profile"); ETSI TS 103 874-1/2/3 ("NR+ Access Profile"); https://www.dect.org/technologies/nr/; https://www.dect.org/technologies/dect-ule/

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