ETSI Releases First Use Cases for Reconfigurable Intelligent Surface

SOPHIA ANTIPOLIS, FRANCE, May 16, 2023 /EINPresswire.com/ -- - RIS turns the wireless channel into a service
- Enables exciting new use cases for 5G-Advanced and 6G
- Energy-efficient deployment solution
- Environment friendly, can reduce electromagnetic pollution

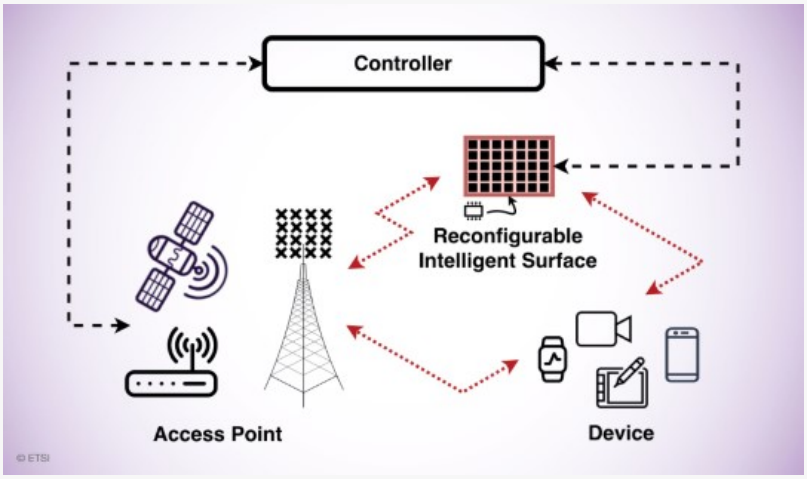

Diagram of RIS copie

ETSI is pleased to announce the release of the first Group Report developed by its Reconfigurable Intelligent Surface Industry Specification Group. The ETSI Report ETSI GR RIS-001 identifies and defines relevant RIS use cases, with corresponding general Key Performance Indicators (KPIs). It also describes deployment scenarios as well as potential requirements for each identified use case, to enable interoperability with existing and upcoming wireless technologies and networks.

RIS is a new wireless technology for the control of the radio signals between a transmitter and a receiver in a dynamic and goal-oriented way. This has motivated a host of potential new use cases targeting at the enhancement of various system Key Performance Indicators (KPIs) and the support of new wireless technology applications and capabilities.

These use cases include enhancements to the capacity, coverage, positioning, security, and sustainability, as well as the support of further sensing, wireless power transfer, and ambient backscattering capabilities. The ETSI Report, ETSI GR RIS-001, specifies 11 concrete key use cases where RIS deployment may provide enhancements or new functionalities.

“In the future 5G-Advanced and 6G wireless networks, many new applications, such as in eHealth, strongly impose requirements on both the communication and sensing performance,”

explains Arman Shojaeifard, Chair of the ETSI RIS group. “As an example, a RIS can reconfigure the radio environment to sense human posture and detect someone falling, a useful application for elderly care” he adds.

Providing coverage continues to be a challenge for operators commercializing 5G, and existing deployment solutions such as IAB (Integrated Access and Backhaul) and NCR (Network Controller Repeater) may not be economically viable in all cases, e.g., indoor scenarios. RIS can serve as a new low-cost energy-efficient deployment solution for enhancing coverage performance in 5G-Adv and future 6G systems, by intently reflecting signals to and from the end users.

RIS corresponds to a planar surface composed of a certain arrangement of unit-cells, whose properties can be dynamically controlled to change its response in the electromagnetic domain. RIS can be controlled dynamically and/or semi-statically through control signalling such to tune the incident wireless signals through reflection, refraction, focusing, collimation, modulation, absorption or any combination of these.

RIS can be implemented using mostly passive components without requiring high-cost active components such as power amplifiers, resulting in low implementation cost and energy consumption. This allows flexible deployment of RIS, with the possibility of RIS taking any shape and to be integrated onto objects (e.g. walls, buildings, lamp posts, etc.). RIS are supposed to run as nearly-passive devices and hence are unlikely to increase exposure to EMF, and they can even potentially be used to reduce EM pollution in legacy deployments. These associated characteristics suggest RIS may be considered as a sustainable environmentally friendly technology solution. RIS may have different structures with considerations of cost, form factor, design and integration.

Learn more with the Report: ETSI GR RIS-001

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